



Cisco Tidal Enterprise Orchestrator Reference Guide

September 2011

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

Text Part Number: OL-24928-01

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

CCDE, CCENT, CCSI, Cisco Eos, Cisco Explorer, Cisco HealthPresence, Cisco IronPort, the Cisco logo, Cisco Nurse Connect, Cisco Pulse, Cisco SensorBase, Cisco StackPower, Cisco StadiumVision, Cisco TelePresence, Cisco TrustSec, Cisco Unified Computing System, Cisco WebEx, DCE, Flip Channels, Flip for Good, Flip Mino, Flipshare (Design), Flip Ultra, Flip Video, Flip Video (Design), Instant Broadband, and Welcome to the Human Network are trademarks; Changing the Way We Work, Live, Play, and Learn, Cisco Capital, Cisco Capital (Design), Cisco:Financed (Stylized), Cisco Store, Flip Gift Card, and One Million Acts of Green are service marks; and Access Registrar, Aironet, AllTouch, AsyncOS, Bringing the Meeting To You, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, CCVP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Lumin, Cisco Nexus, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Collaboration Without Limitation, Continuum, EtherFast, EtherSwitch, Event Center, Explorer, Follow Me Browsing, GainMaker, iLYNX, IOS, iPhone, IronPort, the IronPort logo, Laser Link, LightStream, Linksys, MeetingPlace, MeetingPlace Chime Sound, MGX, Networkers, Networking Academy, PCNow, PIX, PowerKEY, PowerPanels, PowerTV, PowerTV (Design), PowerVu, Prisma, ProConnect, ROSA, SenderBase, SMARTnet, Spectrum Expert, StackWise, WebEx, and the WebEx logo are registered trademarks of Cisco and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1002R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

Cisco Tidal Enterprise Orchestrator Reference Guide
© 2011 Cisco Systems, Inc. All rights reserved.



CONTENTS

New and Changed Information xxiii

Reference Guide Changes xxiii

TEO Adapter Feature Changes xxiv

Preface xxvii

Organization xxvii

Conventions xxx

Product Documentation xxxi

Documentation Formats xxxi

Guides and Release Notes xxxi

Online Help xxxi

Open Source License Acknowledgements xxxi

Obtaining Documentation and Submitting a Service Request xxxi

CHAPTER 1

Understanding The Console 1-1

Launching TEO Consoles 1-2

Launching the Console 1-2

Launching Client-Only Consoles 1-3

 Launching Multiple Consoles with Same Server 1-3

 Launching Multiple Consoles with Different Server 1-3

Connecting to a Different Server 1-4

Exiting the Console 1-4

Updating Your Product License 1-5

Console Overview 1-7

Understanding the Menus 1-8

Using the File Menu 1-8

 File Menu Overview 1-8

Using the Edit Menu 1-9

Using the View Menu 1-9

Using the Go Menu 1-10

Using the Tools Menu 1-11

 Customize Dialog Box 1-11

 Options Dialog Box 1-12

Using the Actions Menu 1-17

Understanding the Help Menu 1-17

Understanding the Toolbars	1-18
Standard Toolbar	1-18
Advanced Toolbar	1-19
Actions Toolbar	1-19
Understanding the Workspaces	1-20
Operations Workspace	1-20
Definitions Workspace	1-21
Administration Workspace	1-22
Folder List Workspace	1-23
Favorites Workspace	1-24
Adding an Item to Your Favorites Workspace	1-24
Viewing the Results Pane	1-25
Viewing the Details Pane	1-26
Managing the Console	1-27
Connecting to a Server	1-27
Displaying Recent Servers	1-27
Viewing Server Properties	1-28
Suspending Server Automation	1-28
Reinstating Server Automation	1-29
Refreshing the View	1-29
Configuring Columns	1-29
Customizing the Fonts and Colors	1-31
Connecting to a Server upon Startup	1-32
Determining New Server Setup Connection Behavior	1-32
Modifying the list of Recent Servers	1-32
Modifying the Windows and Layout of the Console	1-33
Modifying Process Launch Settings	1-33
Restoring Console Default Settings	1-34
Configuring the Console Date and Time Settings	1-35
Configuring the Display Refresh Rate	1-35

CHAPTER 2

Using TEO Web Console 2-1

Web Console Requirements	2-2
Launching the Web Console from Web Browser	2-2
Launching the Web Console from TEO Console	2-3
Navigating Web Console	2-5
Understanding the Navigation Bar	2-5
Understanding My Tasks Page	2-6
Search Criteria	2-6

My Tasks Columns	2-7
Understanding Run Processes Page	2-7
Search Criteria	2-8
Run Processes Columns	2-8
Understanding My Process History	2-8
Search Criteria	2-9
My Process History Columns	2-9
Performing Web Console Tasks	2-10
Refreshing the Display	2-10
Filtering My Tasks Display	2-10
Viewing Task Details	2-11
Filtering Run Processes	2-12
Filtering My Process History	2-12
Resolving Tasks in Web Console	2-13
Taking Ownership of a Task	2-13
Starting Processes in Web Console	2-14
Overriding Process Target	2-15
Viewing My Process History	2-16
Viewing Process Activity Details	2-16
Viewing Automation Summary	2-17

CHAPTER 3

Operations Workspace 3-1

Accessing the Operations Workspace	3-2
Using Getting Started—Operations	3-3
Monitor Operations	3-3
Monitoring Auditing	3-3
Define New Objects	3-3
Launch Web Console	3-3
Searching Tasks	3-4
Accessing Operations—Search Tasks View	3-4
Search Tasks Details Pane	3-5
Customizing Search Tasks Header	3-6
Query Tasks by Assignee	3-7
Query Tasks by Date/Time	3-8
Query Tasks by Status	3-8
Filtering Search Results	3-9
Monitoring Tasks	3-10
Accessing Tasks View Folders	3-10
Displaying Tasks Views	3-11

Tasks Details Pane	3-12
Searching Work	3-13
Accessing Operations—Search Work View	3-13
Search Work Details Pane	3-15
Customizing Search Work Header	3-15
Query Work by Date/Time	3-16
Query Work by State	3-17
Query Work by Advanced Process Configuration	3-17
Monitoring Activities	3-18
Accessing Activity View Folders	3-18
Viewing Activity Information	3-19
Activity Views Header	3-20
Filter Activity Display by [Object]	3-21
Filter Display by Date/Time Options	3-21
Status Indicators	3-22
Color Indicators	3-23
Calendar	3-23
Activity View Details Pane	3-23
Process Viewer	3-24
Viewing the Workflow Only	3-24
General Operation Views Procedures	3-25
Modifying the Activity View Format	3-25
Filtering the Activity View	3-26
Querying Activities by Start Time Period	3-26
Querying Activities by the Date Range	3-27
Querying Activities by End Time Period	3-28
Specifying Time Period to Offset Query	3-29
Specifying Days to Offset Query	3-30
Selecting a Specific Date	3-30
Navigating the Current Time Period	3-31
Viewing Activity Instance Properties	3-31
Monitoring Processes	3-32
Accessing Process Views Folder	3-32
Viewing Process View Information	3-33
Process View Results Pane	3-33
Process View Header	3-33
Process Instance Results Pane	3-34
Activity Instance Results Pane	3-35
Process View Details Pane	3-35

Viewing Process Instances	3-35
Monitoring Auditing Information	3-37
Accessing Auditing Logs	3-37
Auditing Details Pane	3-38
Viewing System Log Instance Properties	3-39

CHAPTER 4

Managing Tasks 4-1

Accessing Operations—Task Views	4-2
Viewing Task Properties	4-3
Common Task Properties	4-4
Common Task Statuses	4-6
Creating Tasks	4-7
Tasks Overview	4-7
Creating a Task from Task View	4-7
Creating an Alert Task	4-11
Creating an Approval Request Task	4-15
Creating a Change Request Task	4-18
Creating a Guided Operation Task	4-21
Creating an Incident Task	4-23
Creating an Input Request Task	4-27
Creating a Text Question	4-30
Creating a Hidden Text Question	4-31
Creating a Check Box Question	4-32
Creating a Select Question	4-33
Adding an Option to the Input Request Select Question	4-34
Creating a Review Task	4-35
Managing Task Definitions	4-37
Resolving a Task	4-37
Viewing Automation Summary	4-38
Manually Changing the Status	4-39
Modifying the Assignment Properties for a Task	4-39
Specifying Parameters for a Task	4-40
Removing Parameters from a Task	4-40
Assigning a Category to a Task	4-41
Removing a Category from a Task	4-41
Assigning a Duplicate Alert	4-42
Removing an Assigned Duplicate Task	4-42
Adding a Related Task	4-43

Removing a Related Task	4-43
Deleting a Task	4-43
Viewing Task History	4-44

CHAPTER 5

Definitions Workspace 5-1

Getting Started—Definitions	5-2
Results Pane	5-2
Details Pane	5-3
Navigation Menu	5-4

CHAPTER 6

Using the Process Editor 6-1

Monitoring Processes in Operations View	6-2
Definitions—Processes	6-3
Accessing Definitions—Processes	6-3
Actions Menu and Toolbar Options	6-4
Processes Details Pane	6-5
Viewing Process Properties	6-6
Accessing the Process Editor	6-7
Navigating the Process Editor	6-8
Understanding the Process Editor Menu Bar	6-8
File Menu	6-8
Edit Menu	6-8
View Menu	6-8
Tools Menu	6-9
Actions Menu	6-9
Help Menu	6-9
Process Editor Toolbar	6-9
Toolbox Pane	6-11
Workflow Pane	6-11
Process Properties Pane	6-12
Using the Process Editor	6-13
Saving Processes	6-13
Renaming a Process	6-13
Saving a Copy of a Process	6-13
Reversing the Process Changes	6-14
Printing Process Workflows	6-14
Toggling the Process Editor View	6-15
Collapsing the Workflow View	6-15
Expanding the Workflow View	6-15

Resizing the Workflow View	6-16
Changing the Process Display Icon	6-16

CHAPTER 7

Authoring Processes 7-1

Defining Process Properties	7-2
Defining General Process Information	7-4
Specifying Process Targets	7-7
Specifying the Process Runtime User	7-9
Specifying Process Variables	7-10
Specifying Process Triggers	7-12
Assigning a Category to Process	7-13
Adding Activities to the Process	7-14
Adding Child Processes	7-17
Adding Process Logic Components	7-19
Managing Process Definitions	7-19
Common Wildcard Expressions	7-19
Modifying Process Properties	7-20
Modifying Activity Definition Properties	7-20
Enabling a Process	7-21
Disabling a Process	7-21
Inserting Variable References	7-21
Starting a Process	7-22
Deleting a Process	7-24
Viewing Used By Properties	7-25
Viewing the History tab	7-25

CHAPTER 8

Managing Triggers 8-1

Accessing Trigger Properties	8-2
Trigger Descriptions	8-3
Defining an Extended Property Value Updated Trigger	8-6
Defining a Schedule Trigger	8-10
Defining a Started by Parent Process Trigger	8-12
Defining a Started by User Trigger	8-13
Defining a Task Trigger	8-14
Defining a Task Changed Trigger	8-16
Defining a Variable Updated Trigger	8-19
Managing Trigger Definitions	8-21
Enabling a Trigger	8-21

Disabling a Trigger	8-21
Modifying Triggers	8-21
Selecting an Extended Target Property	8-22
Selecting a Global Variable	8-23
Adding Conditions to a Trigger	8-24
Defining Target Criteria for Trigger	8-25
Deleting Triggers	8-26

CHAPTER 9

Configuring Process Logic Components 9-1

Process Logic Components	9-2
Defining the Completed Logic Component	9-3
Defining the Condition Block Logic Component	9-4
Defining the Condition Branch Logic Component	9-7
Defining the For Each Component	9-9
Defining the Parallel Block Component	9-10
Defining the Sequential Block Component	9-12
Assigning an Activity Starting Point	9-14
Defining the While Component	9-15

CHAPTER 10

Managing Conditions 10-1

Accessing Condition Properties	10-2
From Task Rules View	10-2
From Triggers View	10-2
From Condition Branch	10-2
Condition Descriptions	10-3
Comparison Operators	10-3
Adding Basic Conditions to an Object	10-4
Adding Advanced Conditions to an Object	10-6
Creating a Compound Condition	10-8
Creating a Prior Process Instances Condition	10-10
Creating a Time Condition	10-12
Creating a Variable Condition	10-14
Managing Condition Definitions	10-16
Adding Conditions to a Condition Branch	10-16
Modifying Conditions	10-17
Deleting Conditions from Task Rules	10-18
Deleting Conditions from Triggers	10-18
Deleting Conditions from Condition Branch Component	10-18

CHAPTER 11**Managing Variables 11-1**

Common Uses of Variables 11-1

Process or Activity Property Variables 11-1

Status Tracking 11-1

Summary Variables 11-2

Name Variables 11-2

Variable Descriptions 11-2

Global Variables Overview 11-3

Accessing Definitions—Global Variables 11-3

Actions Menu 11-4

Details Pane 11-4

Defining Global Variables 11-5

Viewing Global Variable Properties 11-6

Creating a Boolean Variable 11-6

Creating a Hidden String Variable 11-8

Creating an Identity Variable 11-10

Creating a Numeric Variable 11-12

Creating a String Variable 11-14

Creating a Table Variable 11-16

Process Variables Overview 11-18

Process Variable Types 11-18

Accessing Process—Variables 11-19

Viewing Process Variable Properties 11-20

Defining Process Variables 11-21

Creating a Boolean Variable 11-22

Creating a Hidden String Variable 11-23

Creating an Identity Variable 11-25

Creating a Numeric Variable 11-26

Creating a String Variable 11-28

Creating a Table Variable 11-29

Managing Variable Definitions 11-32

Modifying Variable Properties 11-32

Modifying a String Global Variable 11-32

Modifying Table Variable Properties 11-33

Adding a Table Column 11-33

Adding a Table Row 11-34

Creating a Copy of a Global Variable Definition 11-34

Deleting Variables 11-35

Deleting a Global Variable 11-35

Deleting a Process Variable	11-35
Viewing Variable Used By Properties	11-35
Viewing Variable History	11-36

CHAPTER 12

Managing Calendars 12-1

Definitions—Calendars Overview	12-2
Accessing Definitions—Calendars	12-2
Actions Menu and Toolbar Options	12-3
Details Pane	12-3
Viewing Calendar Properties	12-3
Calendar Types	12-4
Creating a Date List Calendar	12-4
Creating a Group Calendar	12-6
Creating a Recurring Calendar	12-9
Managing Calendar Definitions	12-12
Modifying Calendar Definitions	12-12
Removing Dates from Calendar Date List	12-12
Adding Dates to Group Calendar	12-13
Excluding Dates from Group Calendar	12-14
Removing Calendars from Group Calendar	12-15
Completing the Daily Recurrence Pattern Settings	12-15
Repeat a recurrence for a specific number of days	12-15
Repeat a recurrence during a specific period of days	12-16
Completing the Weekly Recurrence Pattern Settings	12-16
Completing the Monthly Recurrence Pattern Settings	12-17
Completing the Yearly Recurrence Pattern Settings	12-18
Creating a Copy of a Calendar Definition	12-19
Deleting Calendars	12-19
Viewing Used By Properties	12-20
Viewing Calendar History	12-20

CHAPTER 13

Managing Targets 13-1

Definitions—Targets Overview	13-2
Accessing Definitions—Targets View	13-2
Actions Menu and Toolbar Options	13-3
Details Pane	13-4
Viewing Target Properties	13-4
Target Descriptions	13-5
Target Algorithms	13-6

Defining Targets	13-7
Defining a Service Target	13-8
Managing Target Definitions	13-9
Enabling a Target	13-9
Disabling a Target	13-9
Modifying Targets	13-10
Defining Target Criteria	13-11
Creating a Copy of a Target	13-13
Deleting a Target	13-13
Viewing Member Of Properties	13-13
Viewing Used By Properties	13-14
Viewing Targets History	13-14

CHAPTER 14

Managing Extended Target Properties	14-1
Accessing Definitions—Extended Target Properties	14-2
Extended Target Property Descriptions	14-3
Actions Menu	14-4
Details Pane	14-4
Viewing Extended Target Properties	14-4
Creating a Boolean Target Property	14-5
Creating a Hidden String Target Property	14-8
Creating an Identity Target Property	14-10
Creating a Numeric Target Property	14-12
Creating a String Target Property	14-14
Creating a Table Target Property	14-16
Creating a Target Reference Property	14-19
Managing Extended Target Property Definitions	14-23
Modifying Extended Target Properties	14-23
Modifying String Target Properties	14-24
Modifying Table Target Properties	14-25
Adding a Table Column	14-26
Adding a Table Row	14-27
Assigning Target Types to a Target Property	14-27
Applying a Value to a Target-Specific Target Property	14-29
Creating a Copy of a Target Property	14-30
Copying a Target-Specific Value	14-30
Removing an Assigned Target	14-30
Deleting Target Properties	14-31

Viewing Target Property Used By Properties	14-31
Viewing Target Property History	14-32

CHAPTER 15

Managing Target Groups 15-1

Definitions—Target Groups Overview	15-2
Accessing—Target Groups View	15-2
Target Groups Descriptions	15-3
Actions Menu and Toolbar Options	15-3
Details Pane	15-4
Viewing Target Group Properties	15-4
Creating a Target Type Group	15-5
Creating a Virtual Target Group	15-8
Managing Target Group Definitions	15-10
Enabling a Target Group	15-10
Disabling a Target Group	15-10
Modifying Target Groups	15-11
Adding a Target to a Virtual Target Group	15-11
Creating a Copy of a Target Group	15-12
Deleting a Target Group	15-12
Viewing Member Properties	15-13
Viewing Used By Properties	15-13
Viewing Target Group History	15-14

CHAPTER 16

Managing Runtime Users 16-1

Definitions—Runtime Users Overview	16-2
Accessing Definitions—Runtime users	16-2
Runtime User Accounts	16-3
Actions Menu and Toolbar	16-4
Runtime User Details Pane	16-4
Defining Runtime Users	16-5
Creating a Runtime User	16-6
Managing Runtime User Definitions	16-8
Modifying a Runtime User Record	16-8
Deleting a Runtime User	16-8
Viewing Used By Properties	16-9
Viewing Runtime User History	16-9

CHAPTER 17**Managing Knowledge Base Articles 17-1**

- Definitions—Knowledge Base Articles Overview 17-2
- Accessing Definitions—Knowledge Base Articles 17-2
- Knowledge Base Details Pane 17-3
- Viewing Knowledge Base Article Properties 17-4
- Creating a Knowledge Base Article 17-5
- Managing Knowledge Base Articles 17-7
 - Modifying a Knowledge Base Article 17-7
 - Creating a Copy of a Knowledge Base Article 17-7
 - Deleting a Knowledge Base Article 17-8
 - Viewing Used By Properties 17-8
 - Viewing Knowledge Base Article History 17-9

CHAPTER 18**Managing Categories 18-1**

- Definitions—Categories Overview 18-2
- Accessing Definitions—Categories 18-2
- Categories Actions Menu and Toolbar 18-3
- Categories Details Pane 18-3
- Creating Categories 18-4
 - Viewing Process Properties from Members Tab 18-5
- Managing Category Definitions 18-6
 - Modifying Category Properties 18-6
 - Adding Objects to a Category 18-6
 - Removing Members from the Category 18-7
 - Creating a Copy of a Category Definition 18-8
 - Deleting Categories 18-8
 - Viewing Used By Properties 18-9
 - Viewing Category History 18-9

CHAPTER 19**Managing Task Rules 19-1**

- Task Rules Overview 19-2
 - Rule Triggers 19-2
 - Notifications 19-2
 - Automation Pack Rule Management 19-2
 - Accessing Definitions—Task Rules 19-3
 - Viewing Task Rule Properties 19-4
- Creating an Assign Task Rule 19-5
- Creating a Notify Task Rule 19-10

Creating an Update Task Rule	19-13
Managing Task Rule Definitions	19-16
Enabling a Task Rule	19-16
Disabling a Task Rule	19-16
Creating a Copy of a Task Rule	19-17
Adding Conditions to a Task Rule	19-17
Removing Conditions from Task Rule	19-18
Adding Task Properties to an Update Task Rule	19-19
Removing Task Properties from a Task Rule	19-19
Modifying the Assignees in Assign Task Rule	19-20
Modifying the Recipients in Notify Task Rule	19-21
Modifying Task Types in Task Rule	19-21
Sorting the Task Rules	19-22
Deleting a Task Rule	19-22
Viewing Task Rules History	19-23

CHAPTER 20

Administration Workspace	20-1
Administration—Getting Started	20-2
Viewing TEO Ports	20-3
Navigation Menu	20-3
Administration—Time Zones	20-5
Accessing Administration—Time Zones	20-5
Time Zone Details Pane	20-6
Enabling a Time Zone	20-6
Disabling a Time Zone	20-7
Viewing Time Zone Properties	20-7
Administration—Adapters	20-8
Accessing Administration—Adapters View	20-8
TEO Adapters	20-9
Viewing Adapter Properties	20-11
Viewing Adapter-Supported Objects	20-11
Viewing Adapter History	20-12
Administration—Database Settings	20-13
Accessing the Administration—Database Settings	20-13
Configuring Process Database Properties	20-14
Viewing Report Database Properties	20-16
Collecting TEO Diagnostics	20-19

CHAPTER 21**Configuring TEO Security 21-1**

- Accessing the Administration—Security View 21-2
 - Pre-defined Security Roles 21-3
 - Pre-defined Security Permissions 21-3
 - Security Details Pane 21-4
 - Viewing Security Role Properties 21-5
- Creating a New Security Role 21-6
- Managing Security Role Definitions 21-9
 - Viewing Pre-Defined Security Rules Assigned to Local User Groups 21-9
 - Assigning Users to Local Computer Groups from Windows 21-10
 - Modifying Security Role Permission Properties 21-13
 - Changing Owner of Security Role 21-13
 - Defining Object List Security Permission 21-16
 - Defining Object Type Security Permission 21-18
 - Defining Owner Security Permission 21-19
 - Assigning a User or Group as Principal to a Security Role 21-20
 - Viewing Security Role User Assignments 21-20
 - Removing Security Permissions 21-21
 - Removing Security Objects 21-21
 - Deleting a Security Role 21-22
 - Viewing Used By Properties 21-22
 - Viewing Security Role History 21-23

CHAPTER 22**Managing Automation Packs 22-1**

- Accessing Administration—Automation Packs 22-2
 - Tidal Automation Packs 22-3
 - Automation Pack Details Pane 22-4
 - Viewing Automation Pack Properties 22-5
 - Customization Properties 22-5
- Importing Automation Packs 22-7
 - Overwriting Existing Objects 22-15
- Creating Automation Packs 22-16
- Exporting Automation Packs 22-20
- Extracting Data Files 22-27
- Managing Automation Pack Files 22-28
 - Reviewing Automation Pack Dependencies 22-28
 - Adding Objects to Automation Packs 22-30
 - Customizing the Settings for Automation Packs 22-31

Removing Objects from Automation Packs	22-33
Refreshing References in Automation Pack View	22-34
Deleting Automation Packs	22-34
Core Automation Pack Objects	22-35
Imported Calendars	22-35
Imported Categories	22-36
Imported Expect Templates	22-36
Imported Global Variables	22-36
Imported Processes	22-37

CHAPTER 23

Configuring Reports 23-1

Configuring Report Database	23-2
Core Reports	23-2
Configuring Reporting Database Settings	23-3
Creating TEO Reporting Database Connection	23-5
Removing a Report Database Connection	23-10
SQL Server Reporting Services	23-11
Importing Reports	23-11
Accessing SQL Server Reporting Services Reports	23-14
Business Objects Reporting Services	23-15
Importing Reports into Business Objects	23-15
Configuring the BO Connection for SQL Server Reporting Services	23-29
Accessing Reports in Business Objects InfoView	23-32

CHAPTER 24

Configuring Core Functions Adapter 24-1

Configuring Return on Investment Settings	24-2
Configuring Automation Summary Settings	24-4
Getting Task XSL Transforms	24-6
Configuring Task Expiration Settings	24-7
Viewing Adapter-Supported Objects	24-8
Viewing Adapter History	24-9

APPENDIX A

Managing Core Activities A-1

Defining Core Activities	A-2
Core Functions Adapter Activities	A-2
Common Regular Expressions	A-3
Custom Date and Format Strings	A-4
Defining a Core Activity	A-10

Defining the Calculate Date Activity	A-12
Defining the Calculate Date Time Difference Activity	A-14
Defining the Create Automation Summary Activity	A-16
Defining the Find Target Activity	A-20
Defining the Format Date Activity	A-23
Defining the Insert Event Activity	A-26
Defining the Insert Multiple Events Activity	A-30
Defining the Match Regular Expression Activity	A-33
Regular Expression Examples	A-35
Defining the Parse Date Activity	A-36
Defining the Publish Metric Activity	A-38
TEO_PerformanceMetric Class Properties	A-40
Defining the Publish Multiple Metrics Activity	A-41
Defining the Set Target Reference Activity	A-43
Defining the Set Variable Activity	A-45
Defining the Sleep Activity	A-48
Defining the Test FTP Destination Activity	A-49
Defining the XPath Query Activity	A-52
Defining the XSL Transform Activity	A-55
Managing Core Activity Definitions	A-58
Modifying a Core Activity	A-58
Specifying Event Parameters for an Activity	A-58
Removing Event Parameters from an Activity	A-59
Adding an XPath Namespace Definition	A-59
Namespace Examples	A-60
Adding an XPath Query Definition	A-61
XPath Example Syntax	A-62
XPath Query Example	A-62
Sorting the Namespace and XPath Queries	A-63
Removing Namespace and XPath Queries	A-63
Specifying XSL File Path	A-64
Inserting Core Activity Variable References	A-65
Viewing Core Activity Instance Results	A-67
Viewing Automation Summary Reports	A-68
Viewing Calculated Date Information	A-70
Viewing Calculated Date Difference Results	A-71
Viewing the Matching Targets	A-72
Viewing the Formatted Date Result	A-73

Viewing Match Regular Expression Activity Results	A-74
Viewing Parsed Date Results	A-75
Viewing Set Target Reference Results	A-76
Viewing Set Variable Results	A-77
Viewing Test FTP Destination Response Time	A-78
Viewing XPath Query Activity Results	A-79
Viewing XSL Transform Activity Results	A-80

APPENDIX B

Task Activities B-1

Task Activities Overview	B-2
Defining a Task Activity	B-3
Defining an Assigned Task Activity	B-7
Defining a Publish Task to Event Log Activity	B-10
Defining an Update Task Activity	B-12
Defining a Wait for Task to Enter State Activity	B-14
Defining IT Record Task Activities	B-17
Defining a Correlate Alerts Activity	B-17
Defining a Create Alert Activity	B-20
Defining a Create Change Request Activity	B-28
Defining a Create Incident Activity	B-32
Defining a Find Alerts Activity	B-38
Defining a Find Change Requests Activity	B-40
Defining a Find Incidents Activity	B-43
Defining User Interaction Task Activities	B-46
Defining a Create Approval Request Activity	B-46
Defining a Create Guided Operation Task	B-49
Defining a Create Input Request Activity	B-51
Defining a Create Input Request from Table Activity	B-54
Defining a Create Review Request Activity	B-57
Managing Task Activity Definitions	B-59
Modifying Automation Summary Properties	B-59
Adding an Assignee to a Task Activity	B-60
Removing an Assignee from Task Activity	B-61
Modifying the Assignment Priority Properties	B-61
Assigning Duplicate Criteria for Task	B-62
Removing an Assigned Duplicate Property	B-63
Adding a Related Alert	B-63
Removing a Related Alert	B-64
Inserting Task Activity Variable References	B-65

Viewing Task Activity Instance Information	B-67
Operations—Tasks View	B-67
Operations—Activity View	B-67
Viewing Correlated Alert Results	B-68
Viewing Find [Activity] Results	B-69
Viewing Wait for Task to Enter State Results	B-71

APPENDIX C

Using String Activities C-1

String Activities	C-2
Common String Escapes	C-2
Defining the Find String Activity	C-4
Defining the Replace String Activity	C-7
Defining the Split String Activity	C-10
Defining the String Escape Activity	C-12
Defining the String Lowercase Activity	C-14
Defining the String Uppercase Activity	C-16
Defining the Substring Activity	C-18
Defining the Trim String Activity	C-20
Managing String Activity Definitions	C-22
Adding Replacement String Properties	C-22
Removing Replacement Strings	C-23
Inserting String Activity Variable References	C-23
Viewing String Activity Instance Results	C-25
Viewing Find String Results	C-25
Viewing Replace String Results	C-26
Viewing Split String Results	C-27
Viewing String Escape Results	C-28
Viewing String Lowercase Results	C-29
Viewing String Uppercase Results	C-30
Viewing Substring Results	C-31
Viewing Trim String Results	C-32

APPENDIX D

Using Table Activities D-1

Table Activities	D-2
Common Table Activity Expressions	D-3
Defining the Add Row to Table Activity	D-4
Defining the Analyze Table Activity	D-7
Defining the Highlight Row Activity	D-10

Defining the Read Table from Text Activity	D-12
Defining the Read Table from XML Activity	D-14
Defining the Remove Row from Table Activity	D-18
Defining the Select from Table Activity	D-21
WHERE Clause Example	D-24
Defining the Set Table Variable Activity	D-25
Defining the Update Row in Table Activity	D-27
Managing Table Activity Definitions	D-29
Adding a Column	D-29
Removing a Column from Table	D-30
Inserting Table Activity Variable References	D-31
Viewing Activity Instance Information	D-32
Viewing Analyze Table Results	D-33
Viewing Read Table from XML Results	D-34
Viewing Select from Table Activity Results	D-35
Viewing Set Table Variable Activity Results	D-36

INDEX



New and Changed Information

Reference Guide Changes

The following table describes significant new and changed information for the release of Tidal Enterprise Orchestrator version 2.2. The highlighted features have been implemented to improve the product functionality.

Table 1 *TEO 2.2 Release Feature Changes*

Feature	Location
New Security tab in Options dialog box which specifies the default owner when creating objects in TEO	Chapter 1, Understanding the Console
New Change Request Task and Create Change Request activity requests a modification to the configuration of an object or system	Chapter 4, Managing Tasks Appendix B, Task Activities
The following new triggers were created to improve how processes can start - Extended Property Value Updated - Started by Parent Process - Started by User	Chapter 8, Managing Triggers
Access and development of Condition properties have been reconfigured to allow ease of use	Chapter 10, Managing Conditions
All global variables have been reconfigured to be created in a wizard style	Chapter 11, Managing Variables
New Service target which represents an IT or business service	Chapter 13, Managing Targets
New extended target properties allow users to assign a value to a specific target property.	Chapter 14, Managing Extended Target Properties
New task rules are used to manage task assignment and notifications for various customer-specific tasks.	Chapter 19, Managing Task Rules

Table 1 *TEO 2.2 Release Feature Changes*

Feature	Location
Automation packs modified to allow objects within the automation pack to be more customizable.	Chapter 22, Managing Automation Packs
The following activities have been added to the Core Functions Adapter - Calculate Time Difference—Calculates the time difference between two different dates - Find Targets—Queries all defined targets - XPath Query—Queries information based on XML path expressions - Wait for Task to Enter State—Waits for a task to match a specific state before the activity continues	Appendix A, Core Activities Appendix B, Task Activities

TEO Adapter Feature Changes

The following table describes significant new and changed information for the adapters of Tidal Enterprise Orchestrator version 2.2. The highlighted features have been implemented to improve the product functionality for TEO adapters.

Table 2 *TEO 2.2 Release Feature Changes*

Feature	Location
Improved Email activity functionality - Added new options on the email recipients - Added ability to save email as an HTML - Added Attachment tab to Email activity	Cisco TEO Adapter Guide for Email
The following new activities were added to the BMC Remedy Adapter - Create Remedy Entry activity creates an entry in any Remedy form - Create Remedy Relationship activity configures a relationship between incidents and configuration items - Create Remedy Work Info activity Adds a new work info entry to a Remedy incident - Delete Remedy Entry activity deletes an entry from a Remedy item - Find Remedy Objects activity provides the ability to find Remedy objects and configuration items - Get Remedy Entry Property Values activity retrieves the properties for a Remedy entry - Update Remedy Entry activity updates properties for a Remedy entry	Cisco TEO Adapter Guide for BMC Remedy

Table 2 **TEO 2.2 Release Feature Changes**

Feature	Location
Global adapter settings used for receiving SNMP Traps, sending SNMP traps and executing Get/Set SNMP Requests activities have been removed and a single general settings page displays which simply requires the trap listening port number.	Cisco TEO Adapter Guide for SNMP
The SNMP User runtime user was renamed SNMP Credential and contains additional privacy protocols	
New SNMP (Device) Agent and SNMP (Device) Manager targets which allow users to create targets on a per device basis as well as per server.	
The SNMP Trap Received trigger was modified to require a target	
The Destination field was removed in all SNMP activities which now require a SNMP target.	
The following activities have been renamed: • Correlate SNMP Trap activity was renamed Correlate SNMP Trap Received activity • Publish SNMP Trap activity was renamed Generate SNMP Trap activity • Publish Task as SNMP activity was renamed Generate SNMP Trap from Task activity	
New Expect templates allow reusable login expect sequences for device targets and activities.	Cisco TEO Adapter Guide for Terminal Adapter
Terminal adapter is now FIPS-compliant and allows users to enable FIPS-compliant algorithms.	
New host-based authentication on the adapter level allows users to set up default public key and private key authentication.	
New public-key authenticated admin user provides the user credentials required to allow public key authentication and an administrative password.	
New Network device module target configures the connection information for the network device module target.	
Get/Put files activities contain slight modifications to the layout of the activity property page.	
Improved the process for configuring SSL certificates for VMware	Cisco TEO Adapter Guide for VMware
New browse option provides the ability to query objects in hosts and virtual centers in activities based on defined targets in TEO.	

Table 2 **TEO 2.2 Release Feature Changes**

Feature	Location
The following new activities have been created to improve TEO's cloud functionality using the VMware adapter. • Add Host Port Group • Add VM Hard Disk • Add VM Network Adapter • Create Folder • Create New VM • Customize Linux VM • Customize Windows VM • Enumerate Datastores • Enumerate Networks • Enumerate Resource Pools • Query Host Network Adapters • Query VM Devices • Remove VM Device • Update Host Port Group • Update VM Hard Disk • Update VM Network Adapter	
New Web target allows execution against a web address hosted by several machines	Cisco TEO Adapter Guide for Web Service
Displays SOAP header methods for web service	
Provides cookies support in HTTP header requests	
Provides ability to format specific HTTP header request output	
New HTTPS Save Files activity saves HTTP files onto a local TEO-hosted machine or network share	



Preface

Revised: September 2011, OL-24928-01

Tidal™ Enterprise Orchestrator is designed to enhance the management and administration of SAP, SQL Server and other databases, Microsoft Windows Server and Active Directory. Tidal Enterprise Orchestrator's powerful process automation engine provides the logical constructs necessary to support even the most complex requirements to automate the administrative and operational tasks necessary to manage these systems.

The product's easy to use visual Process Editor allows processes to be rapidly designed and deployed—all with a minimum of training. It's powerful delegation model allows tasks that today consume the time of senior staff members to be redirected to other staff members or even other departments.

With TEO, your IT organization can attain higher levels of operational excellence by increasing the deployment of operational and administrative best practices, improving the consistency with which process and policy is followed, and improves service by reducing operational and administrative errors.

Organization

This guide includes the following sections:

Chapter 1	Understanding The Console	Provides overview of Console.
Chapter 2	Using TEO Web Console	Provides users with a web-based view of the scaled-back Operations workspace on the Console.
Chapter 3	Operations Workspace	Overview of the different workspaces available to view tasks, processes, activities, and auditing information to be monitored on TEO.
Chapter 4	Managing Tasks	Provides information on the management of the task functionality.
Chapter 5	Definitions Workspace	Provides overview of the type of components that can be defined and included in processes for execution.

Chapter 6	Using the Process Editor	Provides detailed information on using the Process Editor.
Chapter 7	Authoring Processes	Provides information viewing defined processes, defining new processes, modifying existing processes, and executing a process.
Chapter 8	Managing Triggers	Provides instructions on specifying the circumstances under which the process is executed upon occurrence of another action or event.
Chapter 9	Configuring Process Logic Components	Details process components that are inserted into a process to support or provide control over the process workflow logic execution.
Chapter 10	Managing Conditions	Conditions assigned to an activity or process trigger specify when an action is to be taken based on an evaluation of conditions that have been defined.
Chapter 11	Managing Variables	Provides details on viewing and managing defined variables to reference in process and activity definitions.
Chapter 12	Managing Calendars	Details how a calendar can be used to specify when a process should execute.
Chapter 13	Managing Targets	Provides information on viewing defined targets that are available for execution by a process.
Chapter 14	Managing Extended Target Properties	Assigns a specific target property value to a target and provides flexibility for others to access the values to be used to customize process behavior.
Chapter 15	Managing Target Groups	Provides information on viewing and modifying defined target groups that are available for execution by a process.
Chapter 16	Managing Runtime Users	Provides the ability to create runtime user records to store the information about the user security context and to pass this information to the adapters.
Chapter 17	Managing Knowledge Base Articles	Provide information on the results of an activity including a brief summary of what occurred, the cause, and suggestions for resolution.

Chapter 18	Managing Categories	Provides information on managing the categories that can be used to organize your processes based on your organizational requirements.
Chapter 19	Managing Task Rules	Manages task assignment and notifications for various customer-specific tasks.
Chapter 20	Administration Workspace	Provides overview of administrative tasks within TEO, including enabling time zones to be used when configuring processes and managing the adapters that are installed in the product.
Chapter 21	Configuring TEO Security	Provides information on configuring the delegation within TEO, including creating security rules, roles, and applying specific permissions.
Chapter 22	Managing Automation Packs	Provides users with the ability to view, create or modify the TEO objects that are contained in an automation pack.
Chapter 23	Configuring Reports	Provides details on the reports database connection and executing reports for viewing process execution history and to audit process changes.
Chapter 24	Configuring Core Functions Adapter	Contains the necessary information for configuring the Core Functions adapter settings.
Appendix A	Managing Core Activities	Provides instructions for defining the activities provided by the Core Functions adapter.
Appendix B	Task Activities	Provides information on defining task activities provided by the Core Functions adapter.
Appendix C	Using String Activities	Details string activities which allows users to globally search, replace, and modify string text and characters in TEO objects.
Appendix D	Using Table Activities	Details the table activities which allows users to modify the format for existing defined table variables.

Conventions

This guide uses the following conventions:

Convention	Indication
bold font	Commands and keywords and user-entered text appear in bold font .
<i>italic font</i>	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic font</i> .
[]	Elements in square brackets are optional.
{ x y z }	Required alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
courier font	Terminal sessions and information the system displays appear in <code>courier font</code> .
< >	Nonprinting characters such as passwords are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.



Note

Means *reader take note*.



Tip

Means *the following information will help you solve a problem*.



Caution

Means *reader be careful*. In this situation, you might perform an action that could result in equipment damage or loss of data.



Timesaver

Means *the described action saves time*. You can save time by performing the action described in the paragraph.



Warning

Means ***reader be warned***. In this situation, you might perform an action that could result in **bodily injury**.

Product Documentation

Documentation Formats

Documentation is provided in the following electronic formats:

- Adobe® Acrobat® PDF files
- Online help

You must have Adobe® Reader® installed to read the PDF files. Adobe Reader installation programs for common operating systems are available for free download from the Adobe Web site at www.adobe.com.

Guides and Release Notes

You can download the Adapter Guides, Getting Started Guides and Release Notes in PDF format from the product CD.

Online Help

Online help is available and can be accessed using the following methods:

- Click **Help** on any dialog box in the application to open the help topic in a pane to the right of the dialog box.
- In the Tidal Enterprise Orchestrator console:
 - Click the  **Help Pane** icon on the toolbar to open the help topic in a pane to the right of the Results pane.
 - Click **Help** on the menu bar.

Open Source License Acknowledgements

Licenses and notices for open source software used in Tidal Enterprise Orchestrator can be found in the *Open Source License Acknowledgements* found on the product CD. If you have any questions about the open source contained in this product, please email external-opensource-requests@cisco.com.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.



CHAPTER 1

Understanding The Console

The Tidal Enterprise Orchestrator Console is the user interface that is used to access and manage the product features. TEO ships with a trial license that is valid for a specified number of days. After the trial license expires, the license has to be updated to continue using the product.

There are four user groups assigned to TEO. An employee should be a member of one of the user groups before attempting to access the Console. If you do not have access or the appropriate rights, please contact your local IT administrator.

Refer to the [Viewing Pre-Defined Security Rules Assigned to Local User Groups, page 21-9](#) to see the list of user groups assigned to TEO.

This chapter provides the following sections which contain instructions for launching the Console, updating your license information, and navigating the Console.

- [Launching TEO Consoles, page 1-2](#)
- [Console Overview, page 1-7](#)
- [Understanding the Menus, page 1-8](#)
- [Understanding the Toolbars, page 1-18](#)
- [Understanding the Workspaces, page 1-20](#)
- [Viewing the Results Pane, page 1-25](#)
- [Viewing the Details Pane, page 1-26](#)
- [Managing the Console, page 1-27](#)

Launching TEO Consoles

The following sections provide instructions on launching the TEO Console.

Launching the Console

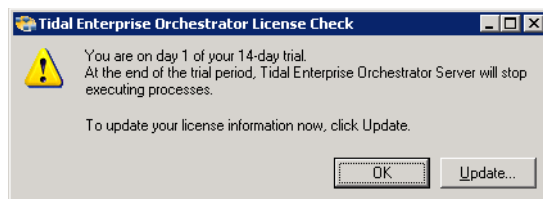
When you first launch the Console, information about how much time remains on your trial license displays. You can continue using the trial license until it expires or update the license information with your permanent license.

To launch the Console, use the following steps:

-
- Step 1** Choose **Start > All Programs > Cisco > Tidal Enterprise Orchestrator > Tidal Enterprise Orchestrator Console**.

If you are still using a trial license, the Tidal Enterprise Orchestrator License Check dialog box displays.

Figure 1-1 *Tidal Enterprise Orchestrator License Check Dialog Box*



The License Check dialog box displays the length of time remaining on your trial license.

- Step 2** Click **OK** to continue using the trial license or click **Update** to enter your permanent license (see [Updating Your Product License, page 1-5](#)).

If you click **OK**, the Console displays.

Until the trial license has been updated to a permanent license, the Tidal Enterprise Orchestrator License Check dialog box will launch and display how many days remain on the trial license. You must update your license before the trial period expires.

Launching Client-Only Consoles

The following instructions provide information on launching multiple Consoles on the same client computer. The individual Console instances can be connected to the same or different server.

Launching Multiple Consoles with Same Server

To launch multiple Consoles with same server:

- Step 1** Use *one* of the following methods:
- If the server name was entered during the installation, to open the first Console, choose **Start > Programs > Cisco > Tidal Enterprise Orchestrator > Tidal Enterprise Orchestrator Console**. The Console is launched and automatically connects to the default server.
 - If the server name was not entered during the installation, choose **Start > Programs > Cisco > Tidal Enterprise Orchestrator > Tidal Enterprise Orchestrator Console**. The Console is launched. Click **Connect to Server** to manually connect to a server.

**Note**

For additional information on connecting to a server, see [Connecting to a Different Server, page 1-4](#).

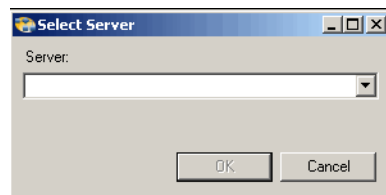
- Step 2** Repeat, as necessary, to open additional Consoles connected to the same server.

Launching Multiple Consoles with Different Server

To launch multiple Consoles with a different server:

- Step 1** After the first Console is launched, choose **Start > Programs > Cisco > Tidal Enterprise Orchestrator > Tidal Enterprise Orchestrator Console** to launch an additional Console.
- The additional Console opens connected to the same server.
- Step 2** From the File menu, choose **Connect to Server**.
- The Select Server dialog box displays.

Figure 1-2 *Select Server Dialog Box*



- Step 3** In the Server field, enter the appropriate server computer name or IP address.

**Note**

If the Console was recently connected to the server, click the arrow to select the server from the drop-down list.

The Console display changes and retrieves the Console configuration for the selected server.

Step 4 Repeat, as necessary, to open additional Consoles.

Connecting to a Different Server

Use this process when connecting to a different server while working in an open Console.

To connect to a server:

Step 1 Use *one* of the following options:

- From the File menu, choose **Connect to Server**.
 - or-
 - From the toolbar, click the **Connect to Server**  tool.
- The Select Server dialog box displays.

Step 2 In the Server field, enter the appropriate server computer name or IP address.



Note

If the Console was recently connected to the server, click the arrow to choose the server from the drop-down list.

Step 3 Click **OK**.

Exiting the Console

There are no specific log out requirements. It is recommended that users save any processes before exiting.

To exit the Console, use *one* of the following methods:

- On the upper, right corner of the Console, click **Exit**.
 - or-
 - From the File menu, choose **Exit**.
-

Updating Your Product License

Tidal Enterprise Orchestrator is packaged with a trial license that is valid for a specified number of days. The trial license can be used until the license expires or is updated with a permanent license.

After the trial license expires, the Update License dialog box displays requiring the user to enter the appropriate license information to continue using the product. The license must be updated to a permanent license to continue using the product.

To update your license:

Step 1 Use *one* of the following methods:

- From the File menu, choose **Update License**.
- or-
- On the License Check dialog box upon initial access, click **Update**.

The License Information panel displays.

Figure 1-3 License Information Panel

The screenshot shows a Windows-style dialog box titled "Update License Wizard". Inside, the "License Information" section has a subtitle: "Specify customer information and license code. Use the exact company name provided with the license code." There are three text input fields: "Customer name:" with "Trial" entered, "Company name:" with "Cisco" entered, and "License code:" which is empty. A red exclamation mark icon is next to the "License code:" field. At the bottom are three buttons: "Cancel", "< Back", and "Next >".

Step 2 In the following fields, enter the appropriate information and click **Next**.

Field	Description
Customer name	Name of the individual client or department. This field is customer-specified and is not case-sensitive.
Company name	Name of the organization as provided by Cisco. The company name must be entered exactly as provided by Cisco. This field is case-sensitive.
License code	Product license code as provided by Cisco. The license code must be entered exactly as provided by Cisco. This field is not case-sensitive.

The License Agreement panel displays.

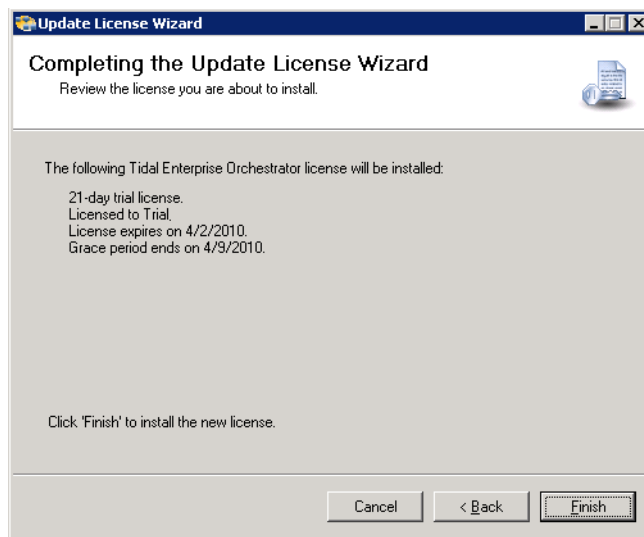
Figure 1-4 License Agreement Panel



Step 3 Select the **I agree** radio button and click **Next**.

The Completing the Update License Wizard panel displays.

Figure 1-5 Completing the Update License Wizard Panel



Step 4 Click **Finish**.

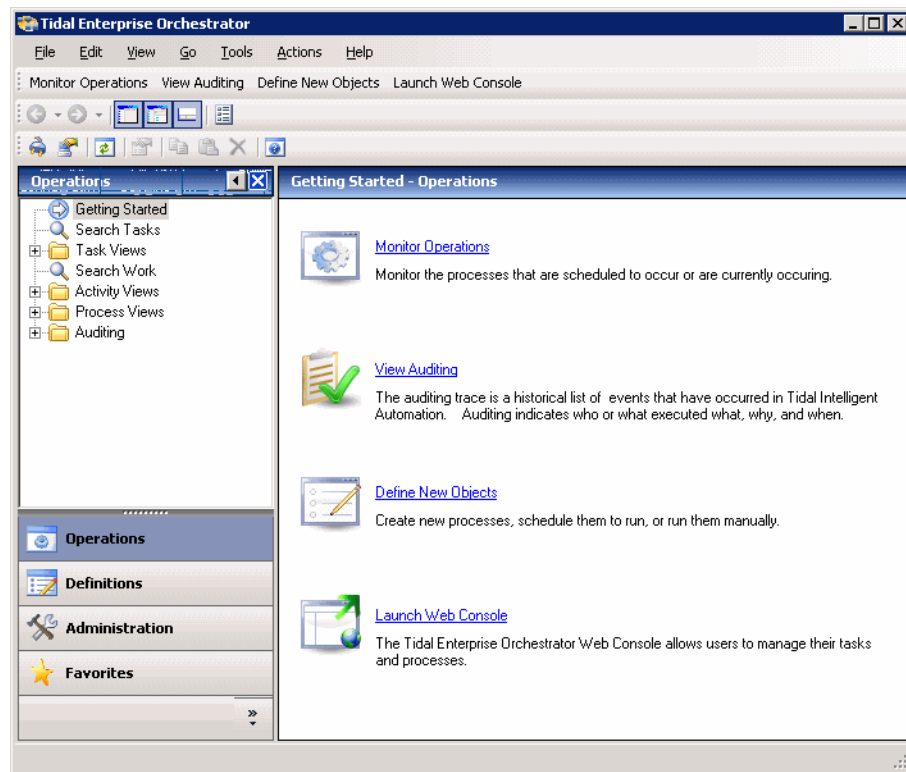
The *License was successfully updated* message dialog box displays.

Step 5 Click **OK** to complete the procedure.

Console Overview

The Console displays after completing the license check or updating your license (see [Updating Your Product License, page 1-5](#)). The default view is the Operations view (see [Operations Workspace, page 1-20](#)). After the initial access, the default view on the Console is determined by what is selected in the [Options Dialog Box—General Tab](#).

Figure 1-6 Tidal Enterprise Orchestrator Console



The Console consists of the following areas:

Area	Description
Menu bar	Contains options used to access the tasks associated with the current item selected in the Navigation pane.
Toolbars	Provides shortcuts to general tasks within TEO as well as specific tasks associated with the item currently selected in the Navigation pane.
Navigation pane	Provides the navigation options to different groups of features within TEO. The lower portion of the pane consists of a group of workspace. When a workspace is selected, the contents of the selected workspace display in the upper portion of the Navigation pane.

Area	Description
Results pane	Displays the contents of the item selected in the Navigation pane.
Details pane	Displays the details of the selected item in the Results pane.

Understanding the Menus

The Console menus provide general task items, such as feature customization options, which can be performed throughout TEO. The following menus are displayed on the Console menu bar.

Figure 1-7 Console Menu Bar



Using the File Menu

File Menu Overview

The File menu contains general tasks related to the configuration of TEO. The File menu contains the following items:

Menu Option	Description
Connect to Server	Launches the Select Server dialog box where you can specify the server to which to connect. The Server drop-down list displays the list of previously connected servers to the Console. You can also enter the specific server address to be connected.
Recent Servers	Displays the most recent server(s) that have been connected to the Console.
Server Properties	Displays the Server Properties dialog box for the connected server. • Name—Displays the name of the server • Version—Displays the version of the installed product on the server • Description—Brief description of the server • Suspend automation—Suspends the connection to the server. • Web Console location—Displays the URL to the web Console

Menu Option	Description
Update License	Launches the Update License Wizard to enter your product license information. See Updating Your Product License, page 1-5 .
Exit	Closes the Console

Using the Edit Menu

The Edit menu contains the following items for modifying the configuration. The items displayed depend on the objects selected.

Menu Option	Description
Undo	Reverses last action by user
Redo	Reinstates previously reversed action
Copy	Copies the selected text or object to the clipboard
Paste	Pastes the previously copied item from the clipboard
Delete	Deletes the selected item
Select All	Selects all items on the dialog box or text field
Find	Launches the Find dialog box to locate specific text on a dialog box. - Find what—Use text field to enter specific terms for the search query. - Match case—Selected when searching for term using the specific case in the Find what field - Use regular expressions—Choose this item to query items that may contain special characters - Find Previous—Locates previous match in the search query - Find Next—Locates next match in the search query

**Note**

Items enabled under the Edit menu depend on the objects selected in the navigation and detail panes of the Console.

Using the View Menu

The View menu contains items that determines how the information displays in the Results pane:

Menu Option	Description
Large Icons	Displays large icons with the associated item
Small Icons	Displays small icons with the associated name
List	Displays icons with the associated name in list format

Menu Option	Description
Details	Displays icons with the associated name and details in list format
Choose Columns	Opens the Choose Columns dialog box, which is used to customize the displayed columns and the order in which they display (see Configuring Columns, page 1-29).
Refresh	Updates the current view
Navigation Pane	Shows/hides the Navigation pane on the Console. When hidden, the Results pane and the detail pane, if selected, expand the width of the entire window
Detail Pane	Toggles the Details pane <i>On</i> or <i>Off</i>
Toolbars	Determines the toolbars (Standard Toolbar , Advanced Toolbar , Actions Toolbar) to display on the Console. The check mark to the left of the toolbar name indicates the toolbar is selected.
Status Bar	Shows/hides the status bar that appears at the bottom of the Console

Using the Go Menu

The Go menu contains the following shortcuts that allow you to navigate from one view to another on the Console:

Menu Option	Description
Back	Returns to the previously selected view
Forward	Option is active if you have clicked Back to access a previous view. Use this option to navigate to the next navigation item in the list.
Go To	Sub-menu displays all previously selected views to which you can return
Operations	Opens the Operations workspace
Definitions	Opens the Definitions workspace
Administration	Opens the Administration workspace
Folder List	Opens the Folder List workspace
Favorites	Opens the Favorites workspace

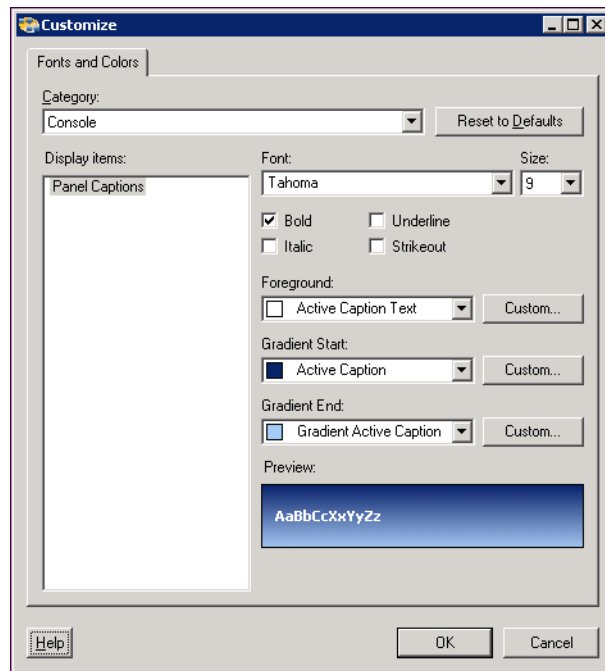
Using the Tools Menu

The **Tools** menu contains the following items that configure the appearance of the Console.

Customize Dialog Box

The Customize options launches the Customize dialog box where you can change the fonts and colors that display in the Console.

Figure 1-8 *Customize Dialog Box*



The Customize dialog box includes the following fields and options:

Field	Description
Category	Drop-down list displays items available for customizing
Reset to Defaults	Returns the values for the selected Category to the default values
Display items	The list of available items that can be modified for the selected category
Font	Displays the available fonts. Check the check boxes to modify the characteristics of the text viewed on various dialog boxes
Size	Displays the available font sizes. The font size is limited to the listed font sizes.
Foreground	Selects the foreground color to be used in window titles, captions, cells, or selections
Gradient Start and Gradient End	Displays color options to be used for the background color of window titles, captions, cells, or selections

Field	Description
Custom	Button displays color options to be used to create custom colors for text or backgrounds
Preview	Displays the effect of the dialog box changes

Options Dialog Box

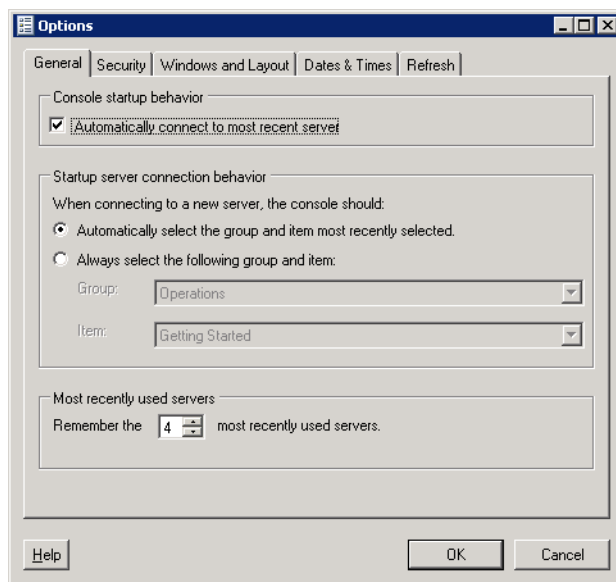
The Options menu item launches the Options dialog box that is used to modify basic server interface functions using the following tabs.

- [General Tab](#)
- [Windows and Layout Tab](#)
- [Dates & Times Tab](#)
- [Refresh Tab](#)

General Tab

Use the General tab to configure the server connection startup behavior.

Figure 1-9 Options Dialog Box—General Tab



The General tab specifies the following general server behavior:

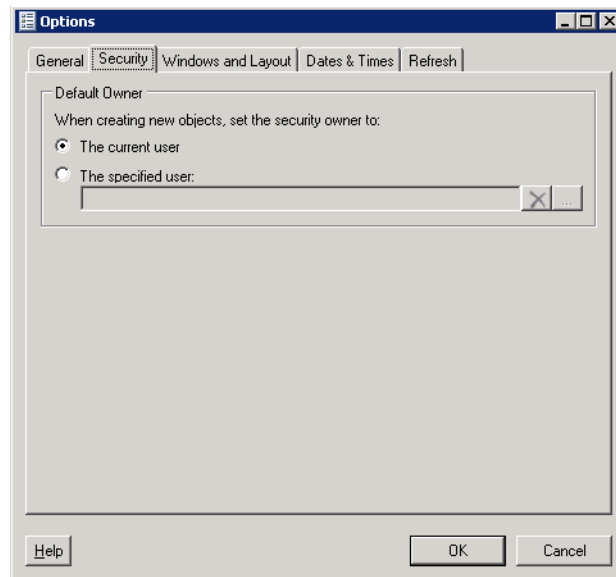
Field	Description
Console startup behavior	Check the check box to automatically connect to the last connected server upon startup. If the check box is not checked, the Console will connect to the default server specified during the installation, if there is one specified.

Field	Description
Startup server connection behavior	Choose <i>one</i> of the following options for the behavior that should occur when connecting to a new server: - Automatically select the group and item that you most recently selected—Determines whether to select the last displayed navigation view and selected item upon startup - Always select the following group and item—Selects a specific navigation view and item to be the default upon startup
Most recently used servers	Determines the number of servers recently accessed to be displayed on the File menu under Recent Servers

Security Tab

Use the Security tab to configure the specify the default owner when creating objects in TEO. User can indicate the currently logged in Windows user as the default user or specify the a different default owner.

Figure 1-10 Options Dialog Box—Security Tab



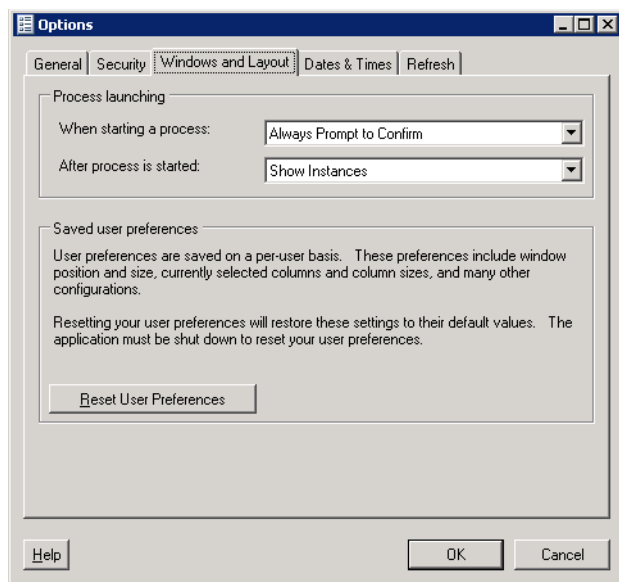
The Security tab specifies the following information:

Field	Description
The current user	Select this radio button to use the user account that is currently logged in to assign the owner on any new objects created.
The specified user	Select this radio button and then click Browse to launch the Select User or Group dialog box and specify the default user for objects.

Windows and Layout Tab

Use the Windows and Layout tab to specify how the user is to be prompted when a process is launched and what is to be displayed after the process is launched.

Figure 1-11 Options Dialog Box—Windows and Layout Tab



The Windows and Layout tab specifies the following information:

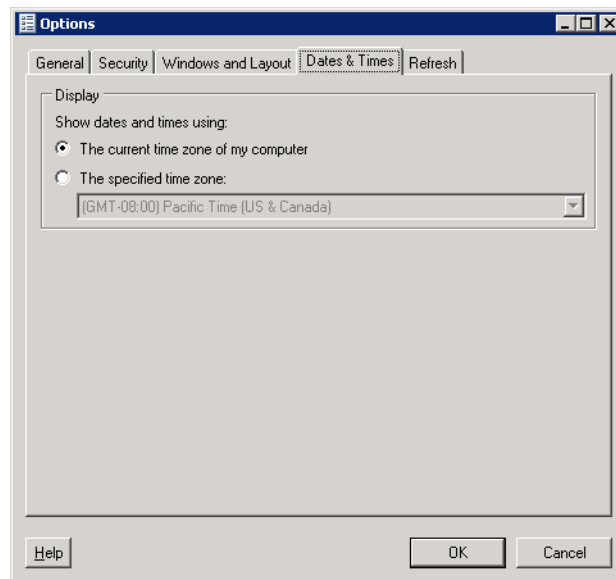
Field	Description
When starting a process	Displays the following options to determine what action occurs when a process is launched: • Always Launch Immediately with Default Input Value—Launches the process immediately when the process has specified or default values without confirmation • Always Prompt to Confirm—Default option launches Confirm Start Process dialog box to allow you to confirm whether the selected process should be launched or override the process start option • Only Prompt when Process has Inputs—Launches the Confirm Start Process dialog box if the process has input variables. If the process does not have input variables, starts the process immediately without confirmation.

Field	Description
After a process is started	Choose <i>one</i> of the following options to determine what is displayed after a process begins: - None—Option does not display any process instances after the process has started - Show Instances—Displays the processes initiated in the Activities view on the Console
Reset User Preferences	Resets the saved settings (size and location of dialog boxes, selected property pages, visibility of toolbars and menu items, etc.) to the system default. Clicking this button automatically closes the Console and requires the application to restart.

Dates & Times Tab

The Dates & Times tab specifies the time zone to be used when displaying the dates and times for various objects within the product. The settings on this page determine how the date and time will be displayed.

Figure 1-12 Options Dialog Box—Dates & Times Tab



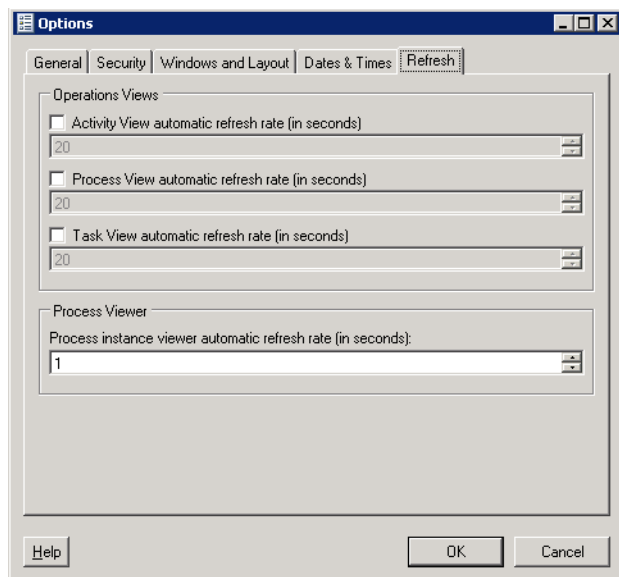
The following radio buttons determine how dates and times are displayed:

Field	Description
Current time zone of my computer	Displays the date and time zone settings of the computer on which the Console is running.
The specified time zone	Choose the specific time zone to determine the date and time settings to be displayed throughout the application.

Refresh Tab

Use the Refresh tab specifies the refresh rate for the Task, Activity, and Process Views.

Figure 1-13 Options Dialog Box—Refresh Tab



The following options determine how dates and times are displayed:

Field	Description
Activity View automatic refresh rate (in seconds)	Check this check box and enter the number of seconds to determine the automatic refresh rate for any selected view within the Activity Views. (Default: 20 seconds)
Process Views automatic refresh rate (in seconds)	Check this check box and enter the number of seconds to determine the automatic refresh rate for any selected view within the Process Views. (Default: 20 seconds)
Task View automatic refresh rate (in seconds)	Check this check box and enter the number of seconds to determine the automatic refresh rate for any selected view within the Task Views. (Default: 20 seconds)
Process instance viewer automatic refresh rate (in seconds)	This item determines the refresh rate (in seconds) for the items that display in the status pane of the Process Viewer. (Default: 1 second)



Note

Use the scroll buttons to the right of the text fields to change the numeric display one second at a time.

Using the Actions Menu

The Actions menu contains items that are used to perform specific tasks associated with the selected item in the Navigation pane. The available items on the Action menu are dependant upon the selected item on the Navigation pane.

For example, the options available when the Processes item is selected are different from those that are available when Global Variables is selected.

Understanding the Help Menu

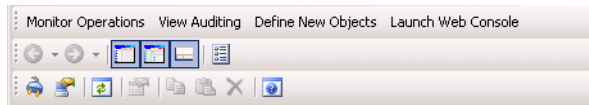
The Help menu contains the following items:

Menu Option	Description
Help	Displays dialog box-specific information in a separate pane to the right. From the toolbar, you can also choose the Help  tool to display and hide the Help pane.
Contents	Displays the Table of Contents tab in the Tidal Enterprise Orchestrator Help dialog box to navigate and view the comprehensive help information.
Index	Displays the Index tab in the Tidal Enterprise Orchestrator Help dialog box to navigate and view the indexed help information.
Search	Displays the Search tab in the Tidal Enterprise Orchestrator Help dialog box to enter search criteria and locate specific information within the comprehensive help.
About Tidal Enterprise Orchestrator	Displays the About Tidal Enterprise Orchestrator dialog box, which contains the product version and license information.

Understanding the Toolbars

The Console has three toolbars ([Standard Toolbar](#), [Advanced Toolbar](#), [Actions Toolbar](#)), which can be used to configure the selected navigation view, provide quick navigation between views, and perform item-specific tasks.

Figure 1-14 Console Toolbars



—— **Action Toolbar**
 —— **Standard Toolbar**
 —— **Advanced Toolbar**

To enable or disable a toolbar:

From the View menu, choose **Toolbars**, and click the appropriate toolbar.

The toolbar displays or is disabled as appropriate.

Standard Toolbar

The Standard toolbar displays shortcuts to general tasks and functions. The following icons appear on every view on the Console.

Icon	Name/Task
	Connect to Server—Connects to the server to which you were last connected
	Server Properties—Displays the properties for the connected server
	Refresh—Updates the current view with the latest information from the server
	Properties—Displays defined properties for the selected object. This icon is unavailable if the current selection does not support property pages.
	Cut—Cuts the selected text and/or objects to the clipboard
	Copy—Copies the selected text and/or objects to the clipboard
	Paste—Pastes the selected items to the location identified by the cursor
	Delete—Deletes the selected object
	Help—Displays or hides the Help pane for the selected view

Advanced Toolbar

The Advanced toolbar displays shortcuts to general navigation and Console configuration icons.

Icon	Name/Task
	Back—Returns to the previously accessed page. Choose the Left Arrow to access the most recent history pages from the drop-down list.
	Forward—Navigates forward to the next page in the recently accessed page. Choose the Right Arrow to access the most recent forward-history pages. The option does not become available until the Back icon has been accessed.
	Navigation Pane—Displays or hides the Navigation pane.
	Detail Pane—Displays or hides the Details pane.
	Status Bar—Displays additional information about the selected item on the bar across the lower portion of the Console.
	Options—Displays the Options dialog box.

Actions Toolbar

The Actions toolbar displays options that are associated with the selected item in the Navigation pane or Results pane. The available items on the Action toolbar are dependant upon the item selected.

For example, the options available when the Processes item is selected are different from those that are available when Global Variables is selected.

Understanding the Workspaces

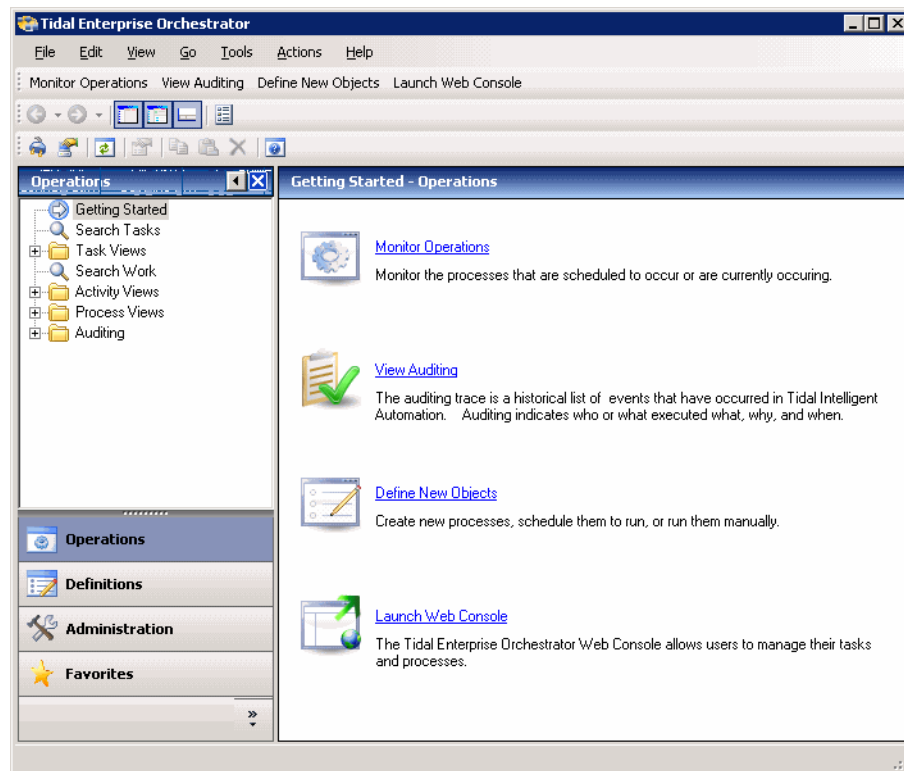
The Console has five workspaces with each containing a group of items that perform specific actions within the application. When a workspace is selected, the available contents are displayed.

This section provides a brief description of the navigation workspaces and the group of items contained in each workspace.

Operations Workspace

The Operations workspace displays the status of processes and activities executing, scheduled or recently executed by the application. This workspace also displays assigned tasks, such as alerts, incidents, and approvals in the product. Additionally, the Operations workspace also displays system messages about status and errors within the TEO server or adapters.

Figure 1-15 *Operations Workspace—Getting Started View*

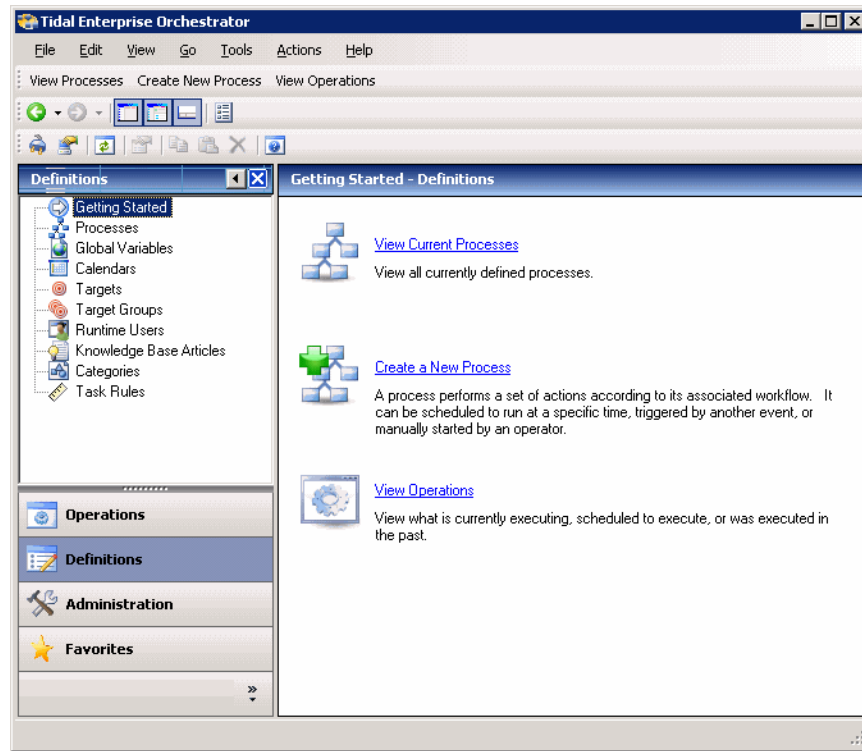


For additional information on the Operations workspace, see [Chapter 3, “Operations Workspace.”](#)

Definitions Workspace

The Definitions workspace displays the components that are used in processes.

Figure 1-16 Definitions Workspace—Getting Started View

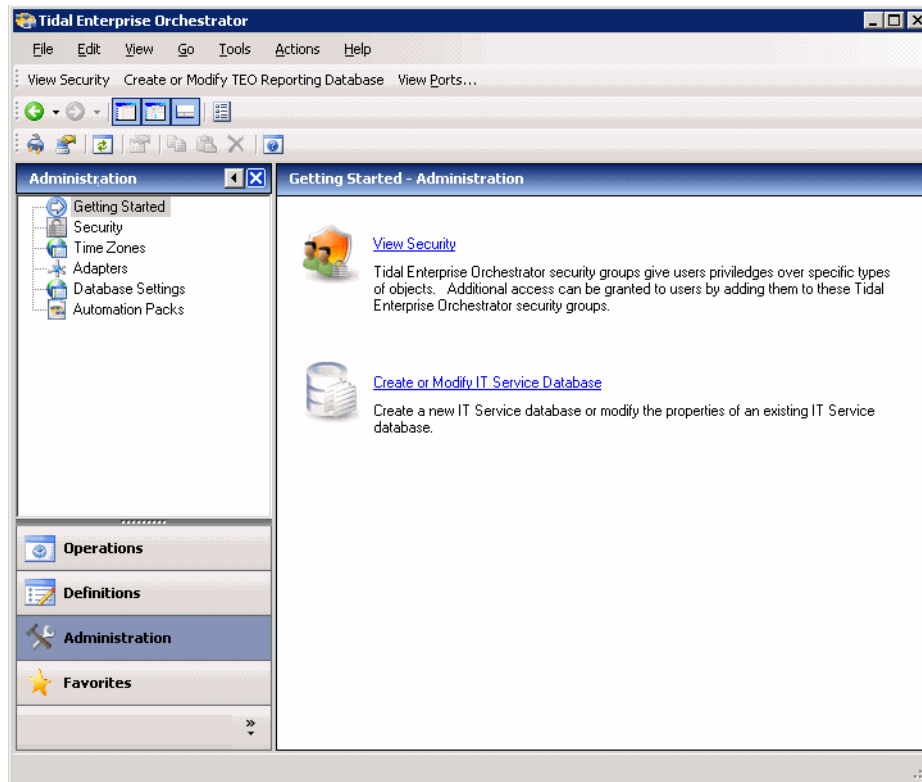


For additional information on the Definitions workspace, see [Chapter 5, “Definitions Workspace.”](#)

Administration Workspace

The **Administration** workspace displays configuration options for Tidal Enterprise Orchestrator.

Figure 1-17 Administration Workspace—Getting Started View

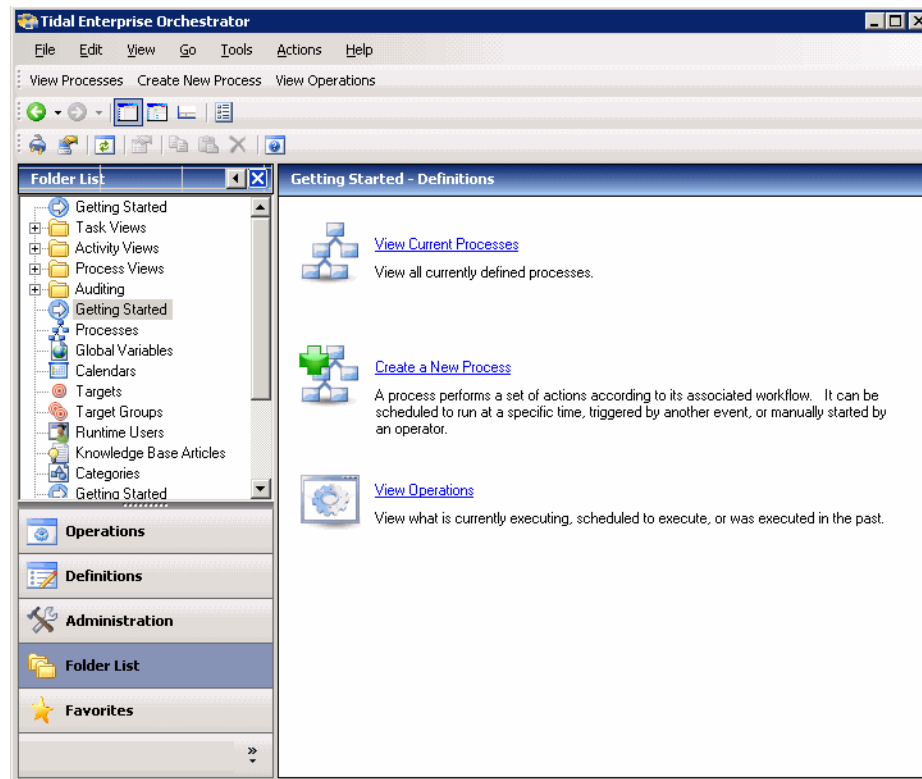


For additional information on the Administration workspace, see [Chapter 20, “Administration Workspace.”](#)

Folder List Workspace

The Folder List view displays a list of all the navigation items available from the Console. The items are sorted according to the view displayed on the Console. The Results pane displays the view associated with the selected item.

Figure 1-18 Folder List Workspace



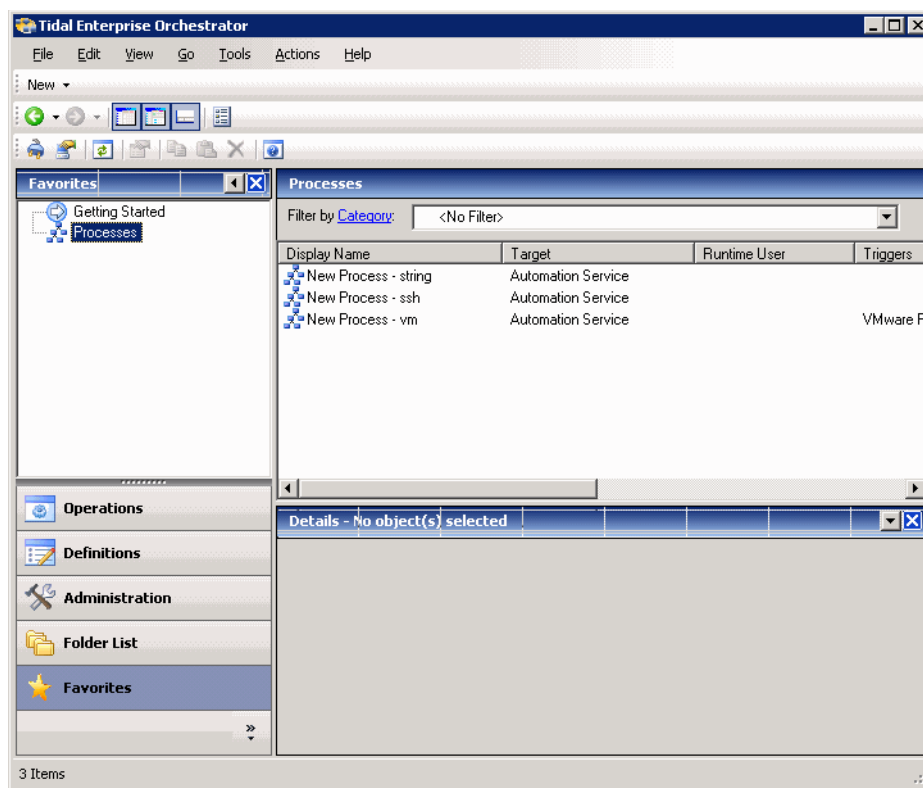
Favorites Workspace

The Favorites workspace displays shortcuts to user-selected navigation items. This view is used for quickly accessing navigation items that are frequently used. Any item in the Navigation pane can be added to the Favorites view.

Adding an Item to Your Favorites Workspace

To add an item as a favorite, highlight the item, right-click and choose **Add to Favorites**. A shortcut to the item is added to the Favorites view.

Figure 1-19 Favorites Workspace

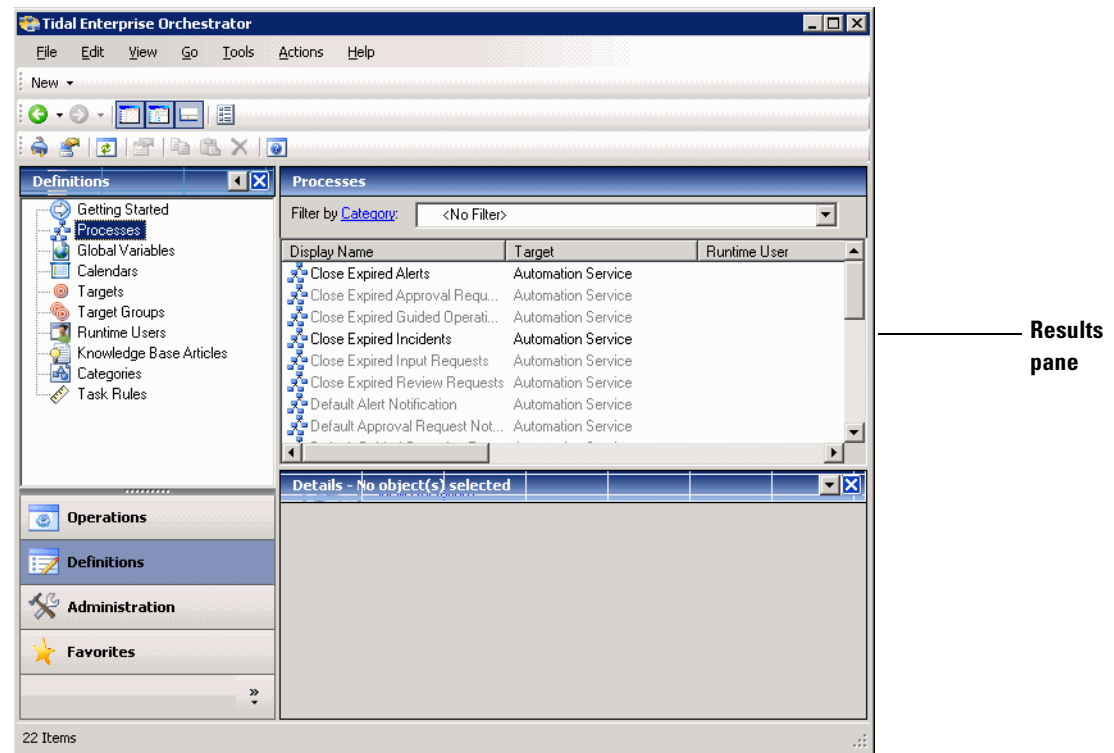


Viewing the Results Pane

When a navigation item is selected on the Navigation pane, the information associated with that item displays in the Results pane. By default, the information is presented in a details list view format. The columns that display depend on the selected navigation item. You can customize the columns that display using the Choose Columns menu item (see [Configuring Columns](#), page 1-29).

When you select Processes or Global Variables in the Navigation pane, you can also filter the information that displays using the Filter by Category drop-down list.

Figure 1-20 Definitions—Processes View—Results Pane



Viewing the Details Pane

The Details pane provides additional information for a selected item in the Results pane. The tabs that display depend on the item that is selected. Click the hyperlinks on the tabs to view the Properties dialog box for the selected item.

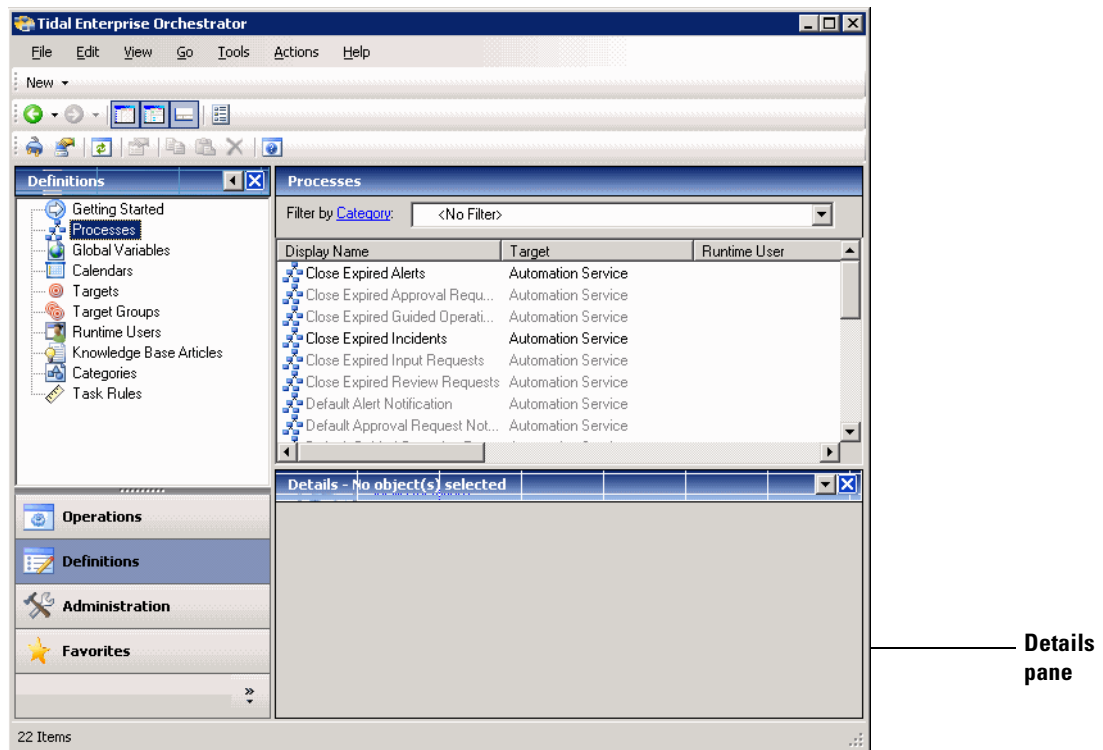
To view the Details pane:

Use *one* of the following methods:

- From the View menu, choose **Details**.
- or-
- On the Advanced toolbar, click the **Details Pane**  tool.

The Details pane displays.

Figure 1-21 Definitions—Processes View—Results Pane



Managing the Console

This section provides general procedures that can be used to configure the Console.

Connecting to a Server

This option may be useful when wanting to connect to a different server used for process monitoring.

To connect to a server:

Step 1 Use *one* of the following methods:

- From the File menu, choose **Connect to Server**.
- or-
- On the toolbar, click the **Connect to Server**  tool.

The Select Server dialog box displays.

Step 2 From the Server drop-down list, choose a previously connected server.



Note You can also enter the server name.

Step 3 Click **OK**.

If the server is properly connected, then the Tidal Enterprise Orchestrator License Check dialog box displays.

If the server does not properly connect, the Connect to Server error dialog box displays.

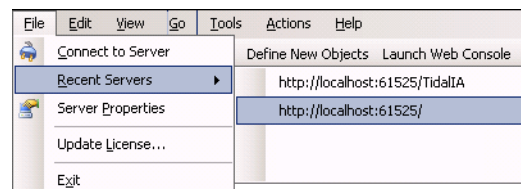
Displaying Recent Servers

This option displays all the servers recently accessed during the current session.

To display the recent servers:

From the File menu, choose **Recent Servers**. The list of recently accessed servers display.

Figure 1-22 Recent Server List



Viewing Server Properties

This option is used to see a view of the connected server properties.

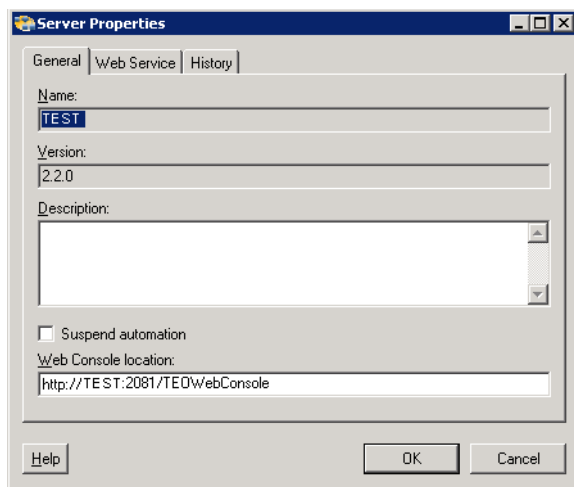
To view server properties:

Use *one* of the following:

- From the File menu, choose **Server Properties**
- or-
- Click the **Server Properties**  tool.

The Server Properties dialog box displays.

Figure 1-23 *Server Properties Dialog Box*



Suspending Server Automation

Use the Suspend Automation check box to suspend the execution of processes on the server. The enabled check box suspends any new process from being created and the server will no longer create instance of activities or processes.

To suspend server automation:

Step 1 From the File menu, choose **Server Properties**.

The Server Properties dialog box displays.

Step 2 Check the **Suspend automation** check box.

No new processes or activities will be generated. All new process and processes with additional activities to execute will fail.

Reinstating Server Automation

To reinstate server automation:

Step 1 From the File menu, choose **Server Properties**.

The Server Properties dialog box displays.

Step 2 Uncheck the **Suspend automation** check box.

All process execution will resume.



Note

All processes that were scheduled during the down time will have failed.

Refreshing the View

The refresh option updates the information on the current view. To refresh the current view, use *one* of the following methods:

- Press **F5**.
- Click the Refresh  tool.
- From the View menu, choose **Refresh**.

Configuring Columns

The Choose Columns dialog box determines which columns display for a selected navigation item and the order in which the columns display. The available column headings vary depending on the selected item.

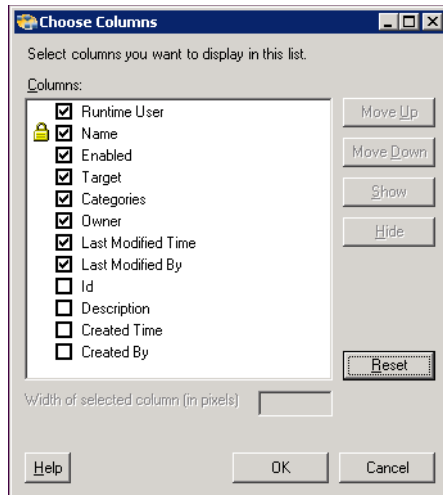
To configure columns:

Step 1 On the Navigation pane, select the appropriate item.

The Results pane displays the information associated with the selected navigation item.

Step 2 In the Results pane, right-click and choose **Choose Columns**.

The Choose Columns dialog box displays.

Figure 1-24 Choose Columns Dialog Box

- Step 3** Under Columns, use *one* of the following options to choose the appropriate column heading to display:
- Check the check box for the column heading.
 - Highlight the column heading and click **Show**.
- Step 4** To remove a column heading from the display, use *one* of the following options:
- Uncheck the check box.
 - Highlight the column heading and click **Hide**.
- Step 5** To change the order in which a column appears in the Results pane, choose the column heading and click **Move Up** or **Move Down**.
- Step 6** To determine the width of a column, choose the column heading and specify a value in the Width of selected column field.
- Step 7** To reset the column settings to the default, click **Reset**.
- Step 8** Click **OK** to save your settings and close the dialog box.
-

Customizing the Fonts and Colors

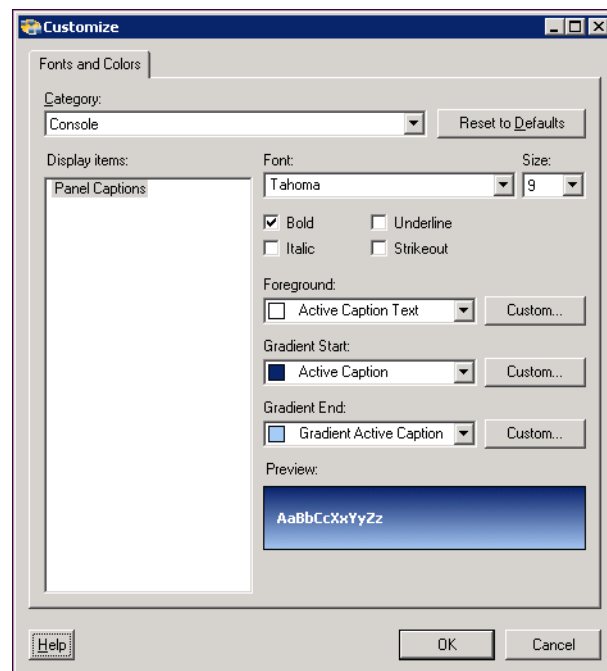
The default formatting for the Console display can be updated through the Customize dialog box. The available display items to update depend on the category selected.

To customize the product fonts and colors:

Step 1 From the Tools menu, choose **Customize**.

The Customize dialog box displays.

Figure 1-25 Customize Dialog Box



Step 2 From the Category drop-down list, choose *one* of the following items:

Field	Description
Console	Updates the display of the Console panel captions
Navigator	Updates the display of the Navigation pane
Activity	Updates the displayed activities on the Operations—Activity view
Calendar	Updates the display of the Calendar dialog box
Target	Updates the display of the color status on targets in the Operations workspace.
Definition	Updates the color status of the processes in the Definitions workspace
Task	Updates the color status of tasks in the Operations—Task view

Step 3 Under Display items, choose the item to be modified.

**Note**

The available items to update depend on the category selected.

Step 4 Modify the following items, as necessary, and then click **OK**.

Field	Description
Font	Provides font and font size display options
Foreground	Provides list of colors to appear on different items in the foreground. Click Custom to define a color not displayed in the list.
Background	Provides list of colors to appear on different items in the background. Click Custom to define a color not displayed in the list.
Gradient Start	Provides list of colors to appear graded from top the bottom. Click Custom to define a color not displayed in the list.
Gradient End	Provides list of colors to appear graded from bottom to top. Click Custom to define a color not displayed in the list.

Connecting to a Server upon Startup

To connect to the most recent server upon startup:

Under Console startup behavior, check the **Automatically connect to most recent server** check box and click **OK**.

To always connect to the default server upon startup:

Under Console startup behavior, uncheck the **Automatically connect to most recent server** check box and click **OK**.

Determining New Server Setup Connection Behavior

To determine new server connection behavior upon startup:

Under Startup server connection behavior, choose *one* of the following functions to occur when connecting to a new server and click **OK**:

- Automatically select the group and item most recently selected to open the last group and item selected before the Console was closed.
- or-
- Always select the following group and item from the drop-down list to specify the group and item to open upon startup.

Modifying the list of Recent Servers

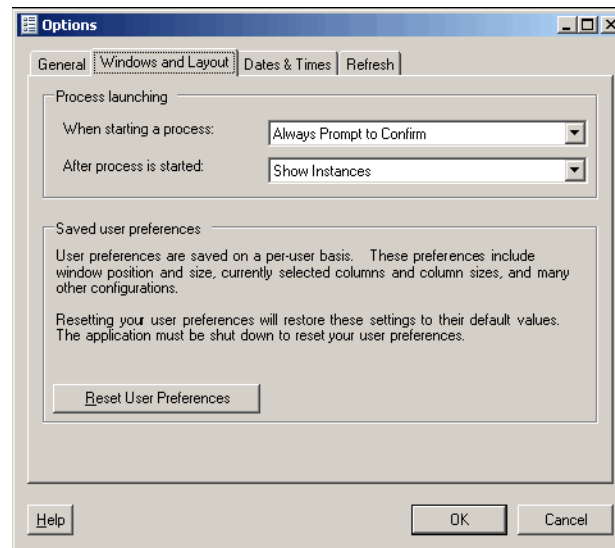
To adjust the number of recent servers displayed:

Under Most recently used servers, in the Remember the [] text box, enter the number of servers to display on the Recent Servers list on the File menu. For additional information, see [Displaying Recent Servers](#), page 1-27.

Modifying the Windows and Layout of the Console

Use the Windows and Layout tab to determine the action required when launching a process and reset any user preferences.

Figure 1-26 Options Dialog Box—Windows and Layout Tab



Modifying Process Launch Settings

To set the Console behavior when starting a process:

Step 1 From the When starting a process drop-down list, choose *one* of the following:

Field	Description
Always Launch Immediately with Default Input Value	Launches the process immediately when the process has specified or default values without confirmation
Always Prompt to Confirm	Default option launches Confirm Start Process dialog box to confirm whether the selected process should be launched
Only Prompt when Process has Inputs	Launches the process only when it contains input values. The Confirm Start Process dialog box displays a list of defined values

- Step 2** From the After a process is started drop-down list, choose *one* of the following options to determine what is displayed after a process begins:

Field	Description
None	Does not display any process instances after the process has started
Show Instances	Displays the processes initiated in the Operations—Activities view on the Console

- Step 3** Click **OK**.

Restoring Console Default Settings

The Reset User Preferences button on the Windows and Layout tab restores the Console configuration to the default value.

If the window position and size, columns and column sizes, and other configurations in the console have been modified, this option restores the settings to the Console default settings. The product will automatically close and restart when you reset user preferences.

To restore default configuration:

- Step 1** From the Tools menu, select **Options**.

The Options dialog box displays.

- Step 2** Click the Windows and Layout tab, under Saved user preferences, click **Reset User Preferences** and click **OK**.

The console will close and restart automatically.

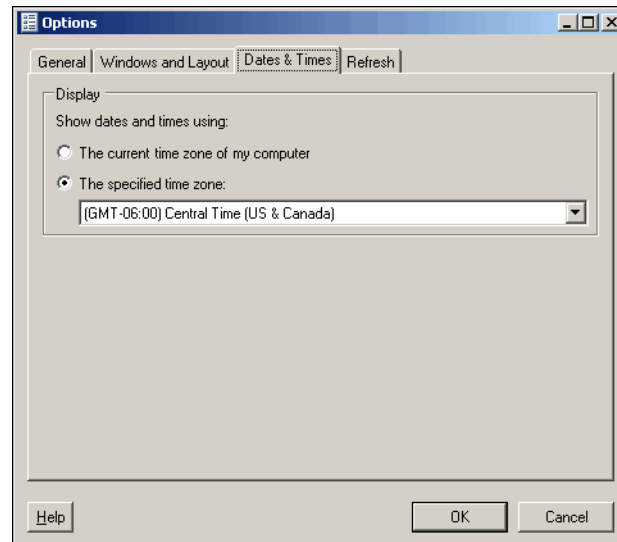
Configuring the Console Date and Time Settings

Use the Date & Times tab on the Options dialog box to specify the time zone that will be displayed throughout the application. These settings determine how the date and time will be displayed.

To adjust the Console date and time settings:

- Step 1** On the Options dialog box, click the Dates & Times tab.

Figure 1-27 Options Dialog Box—Dates & Times Tab

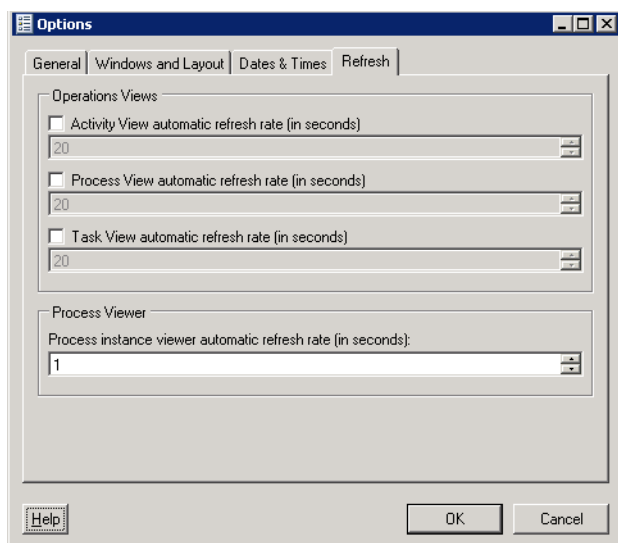


- Step 2** Under Show dates and times using, choose *one* of the following and click **OK**.

Field	Description
Current time zone of my computer	Select this radio button to display the date and time zone settings of the computer on which the application is installed.
The specified time zone	Select this radio button to select the time zone to be displayed throughout the application

Configuring the Display Refresh Rate

The Refresh tab specifies the refresh rate for the Operations views.

Figure 1-28 Options Dialog Box—Refresh Tab

To determine the automatic refresh rate:

- Step 1** On the Options dialog box, click the **Refresh** tab.
- Step 2** Under Refresh, select the appropriate instance refresh rate, and click **OK**:

Field	Description
Activity View automatic refresh rate (in seconds)	Check this check box and enter the number of seconds to determine the automatic refresh rate for any selected view within the Activity Views. (<i>Default: 20 seconds</i>)
Process Views automatic refresh rate (in seconds)	Check this check box and enter the number of seconds to determine the automatic refresh rate for any selected view within the Process Views. (<i>Default: 20 seconds</i>)
Task View automatic refresh rate (in seconds)	Check this check box and enter the number of seconds to determine the automatic refresh rate for any selected view within the Task Views. (<i>Default: 20 seconds</i>)
Process instance viewer automatic refresh rate (in seconds)	This item determines the refresh rate (in seconds) for the items that display in the status pane of the Process Viewer. (<i>Default: 1 second</i>)

**Note**

Use the scroll buttons to the right of the text fields to change the numeric display one second at a time.



CHAPTER 2

Using TEO Web Console

The Tidal Enterprise Orchestrator (TEO) Web Console provides users with a web-based view of the scaled-back Operations workspace on the TEO Console. On the Web Console, users are able to view tasks, processes they are able to run, and track the processes they have started from any web browser.

For the Web Console to work properly, Internet Information Services must be installed on the computer on which the Web Console is installed. For information on installing and configuring IIS, refer to the *TEO Installation and Administration Guide*.

Users cannot create or modify processes on the Web Console. To modify a process, users with the appropriate security rights, must access the TEO console. If you think you should have access to the expert TEO console, then contact your manager to authorize your access.

Use the following sections for instructions on navigating and performing tasks in the Web Console:

- [Web Console Requirements, page 2-2](#)
- [Launching the Web Console from Web Browser, page 2-2](#)
- [Navigating Web Console, page 2-5](#)
- [Performing Web Console Tasks, page 2-10](#)

Web Console Requirements

The Web Console requires the following minimum components to successfully run:

Software	Requirement
ASP.Net	ASP.NET 2.0
Internet Information Service (IIS) Manager	IIS 6.0 or later
Java SE Runtime Environment	JRE 6 Update 1.6 or later
Supported Browsers	Microsoft Internet Explorer 6.0 or later
	Mozilla Firefox

Launching the Web Console from Web Browser

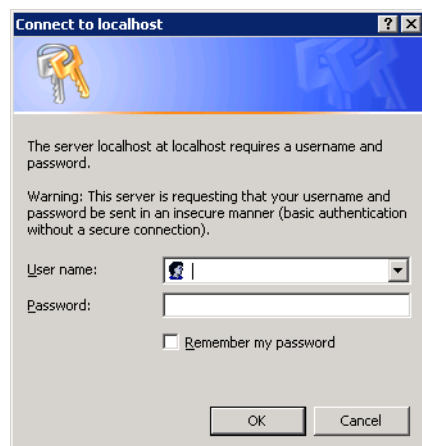
To use the TEO Web Console, users must log in using their Windows credentials. If the user has Windows integrated authentication configured, then logging in may not be required.

Use the following steps to log in to the Web Console, if you have Web Console-only access.

To access the Web Console:

-
- Step 1** On the Installation Wizard Setup Completed panel, write down the URL that is displayed.
- Step 2** Launch the appropriate web browser.
- Step 3** In the Address bar, enter the URL, and press **Enter**.
The Windows Authentication dialog box displays.

Figure 2-1 Windows Authentication Dialog Box



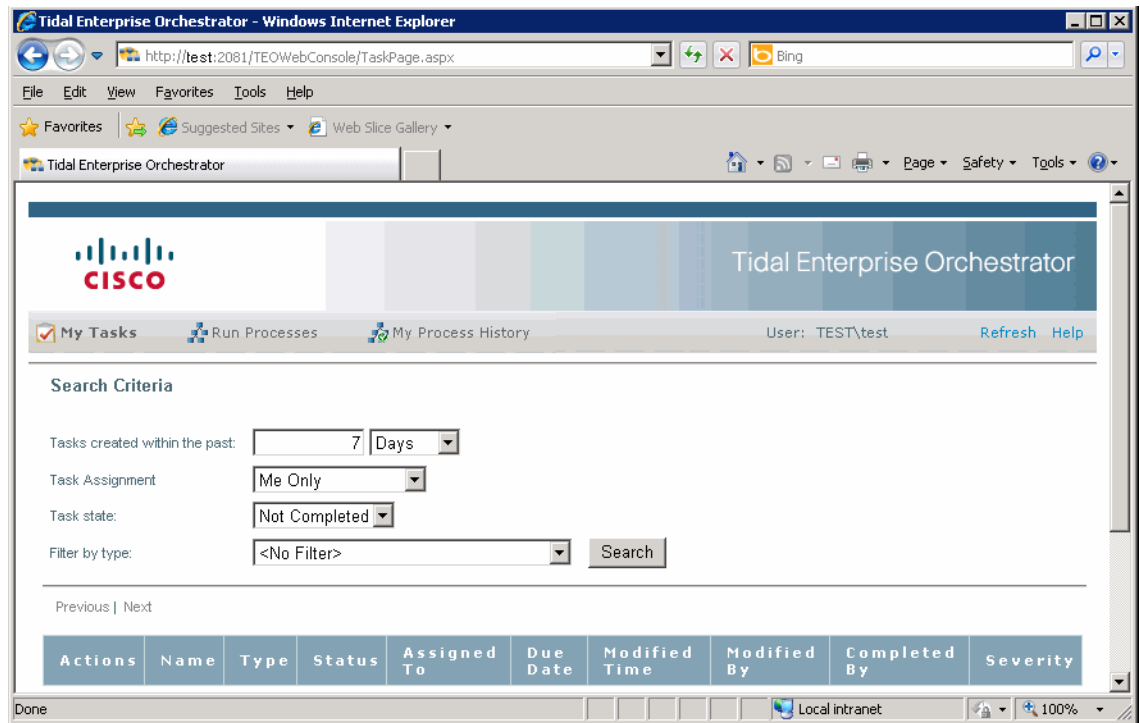
- Step 4** Enter the following information and then click **OK**.
- domain\username
 - password

**Note**

If the Web Console is configured to use integrated authentication, then [Step 4](#) may not be required.

The Web Console launches.

Figure 2-2 *Tidal Enterprise Orchestrator Web Console*



It is recommended that the user adds the URL to the Web Console as a favorite web site to their bookmarks.

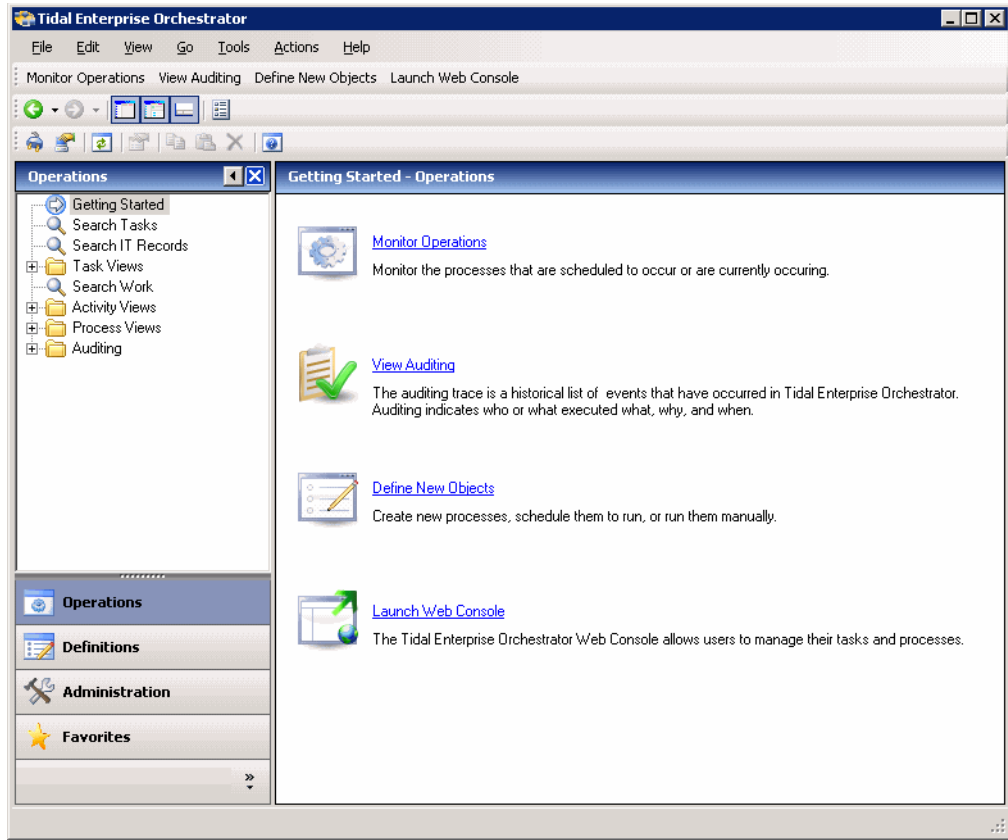
Launching the Web Console from TEO Console

For users with access to the TEO Console, launching the Web Console is a simple process.

To access the Web Console from the TEO Console:

On the Operations—Getting Started view, click **Launch Web Console**.

Figure 2-3 *Operations—Getting Started View*



The Web Console launches.

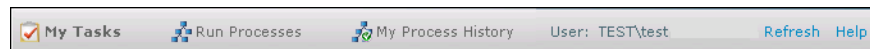
Navigating Web Console

To make sure the default search criteria is available after the initial search on the TEO Web Console, it is recommended that users enable the cookies in their browser.

Understanding the Navigation Bar

The Navigation bar displays the menu items for the Web Console as well as the logged in user.

Figure 2-4 Web Console Navigation Bar



Menu	Description
My Tasks	Displays the tasks that have been assigned to the user or the group of a user
Run Processes	Displays the processes the users are authorized to run in TEO
My Process History	Displays the processes the user has started and allows the user to observe the current state of the process
User	Displays the accessed domain and user name of the authenticated user
Refresh	Refreshes the current display
Help	Launches Web Console online help

Understanding My Tasks Page

The My Tasks page displays all available tasks. The tasks can be filtered to display only those that are assigned to the logged in user.

Figure 2-5 Web Console—My Tasks Page

The screenshot shows the 'My Tasks' page in the Cisco Tidal Enterprise Orchestrator. The page has a header with the Cisco logo and the title 'Tidal Enterprise Orchestrator'. Below the header is a navigation bar with 'My Tasks' (highlighted with a red box), 'Run Processes', and 'My Process History'. The user is logged in as 'TEST\test'. The main content area is titled 'Search Criteria' and contains several filters: 'Tasks created within the past' (7 Days), 'Task Assignment' (Me Only), 'Task state' (Not Completed), and 'Filter by type' (<No Filter>). A 'Search' button is located to the right of the filters. Below the filters is a table with the following columns: Actions, Name, Type, Status, Assigned To, Due Date, Modified Time, Modified By, Completed By, and Severity. The table is currently empty.

Search Criteria

The following table provides the search criteria information:

Field	Description
Tasks created within the past	Searches for tasks created within the selected time period
Task Assignment	Choose <i>one</i> of the options to filter the display according to the task assignee: - View All Tasks—All assigned tasks in TEO - Me Only—Task assigned to currently logged in user - Me and My Groups—Task assigned to the currently logged in user or the user group
Task state	Choose the appropriate option to filter the display according to the state of the task. - Not Completed—Displays only tasks that are not resolved - Completed—Displays only resolved tasks - All—Displays all tasks in the list regardless of task state
Filter by type	Filters the display according to the task type

My Tasks Columns

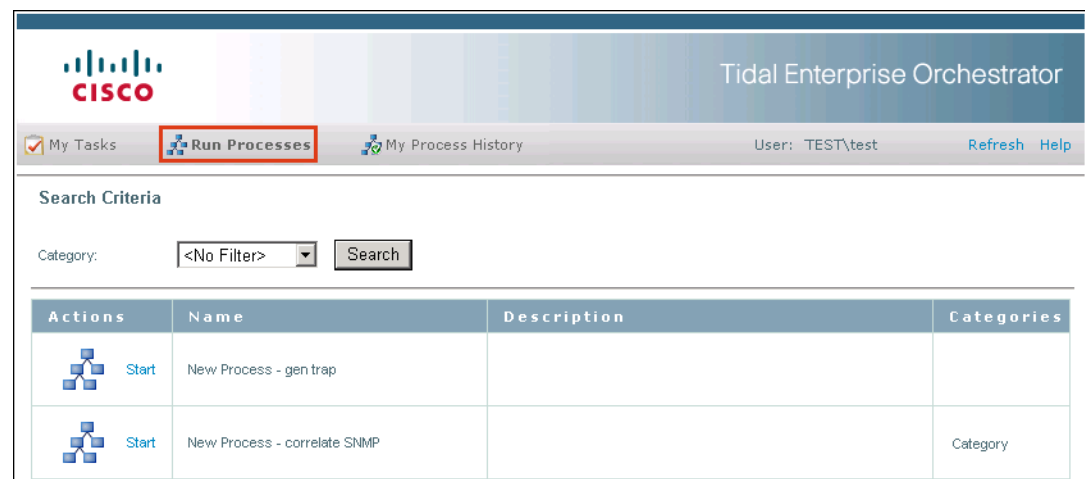
The following table describes the columns that display on the My Tasks page. Click the column headings to sort in an ascending or descending order.

Column	Description
Actions	Indicates what action the user can take with the task. Click View Task to display the task details.
Name	Display name of the task
Type	Type of task
Status	Status of the task
Assigned To	User name of the person or group assigned to the task
Due Date	Date the task should be completed
Modified Time	Date and time the contents were last modified
Modified By	Object or user name that last modified the contents
Completed By	User name of the person who completed the task
Severity	Displays the severity of the task - Low - Medium - High

Understanding Run Processes Page

The Run Processes page displays the processes that the authenticated user can run in TEO. The available processes are determined by the security role of the user. The user is able to filter the display of the available processes.

Figure 2-6 Web Console—Run Processes Page



Search Criteria

The following table provides the search criteria information:

Field	Description
Category	Filters the display according to the process category

Run Processes Columns

The following table describes the columns that display on the Run Processes page.

Column	Description
Actions	Indicates what action process can take. Click Start to start the process
Name	Display name of the task
Description	Brief description of the process
Categories	Category to which the process has been assigned

Understanding My Process History

The My Process History page displays the processes that the authenticated user has run in TEO. The user is able to filter the display of the processes the user has launched and the details of the processes.

Figure 2-7 Web Console—My Process History Page

The screenshot shows the Cisco Tidal Enterprise Orchestrator interface. The top navigation bar includes 'My Tasks', 'Run Processes', and 'My Process History' (highlighted with a red box). The user is logged in as 'TEST\test'. Below the navigation bar, there is a 'Search Criteria' section with filters for 'Processes started within the past: 7 Days', 'Process State: View All', and 'Category: <No Filter>'. A 'Search' button is present. At the bottom, a table header is visible with columns: Actions, Name, State, Start Time, End Time, Duration, Target, and Categories.

Search Criteria

The following table provides the search criteria information:

Field	Description
Processes started within the past	Filters the display by a specific time frame. In the text box, enter the appropriate number and then choose <i>one</i> of the following time units: • Minutes • Hours • Days
Process state	Choose <i>one</i> of the options to filter the display according to the state of the process: • View All • View Completed • View Incomplete
Category	Filters the display according to the process category

My Process History Columns

The following table describes the columns that display on the Processes I Have Started page.

Column	Description
Actions	Indicates what action the user can take with the process. Click View Details to display the process activity details.
Name	Display name of the process
State	Specifies the most recent state of the process activity (for example, Succeeded, Running, Cancelled, or Failed-Not Completed)
Start Time	Date and time the process started
End Time	Date and time the process completed
Duration	Time taken for the process to complete
Target	Target on which the process executes
Description	Brief description of the process
Categories	Category to which the process is assigned

Performing Web Console Tasks

This section provides steps that can be used to navigate and manage tasks in the Web Console.

Refreshing the Display

The Refresh option updates the information on the current web page.

To refresh the current view, use *one* of the following methods:

- Press **F5**.
- Click the **Refresh** tool.
- On the navigation bar, click **Refresh**.

The display refreshes with the latest information generated from the TEO server.

Filtering My Tasks Display

Use the Search Criteria pane to modify the display of the tasks in the My Tasks page. The display options consist of filtering the tasks according the assignee, group of the assignee, or by task type.

To filter the task list:

Step 1 From the View tasks assigned to drop-down list, choose *one* of the following options:

Field	Description
Me	Displays tasks assigned to user
Me and My Groups	Displays the tasks assigned to the user and his or group
View All Tasks	Displays all available tasks

Step 2 To the right of Task State, in the drop-down list, choose the appropriate status associated with the tasks in the list.



Note The <No Filter> option allows the page to display all tasks regardless of the assigned state.

Step 3 From the Filter by Type drop-down list, choose the appropriate task type to display.

Step 4 Click **Search** to filter the display.

Viewing Task Details

The My Tasks page displays the tasks that the authenticated user has run in TEO.

To view task information:

On the My Tasks page, on the appropriate task, click **View Details**.

The Task Details page displays the following summary information for the process:

Column	Description
Display Name	Name of the task
Description	Description of the task
Alert Class	Numeric value indicating the class of the alert
Severity	Displays the severity of the task • Low • Medium • High
Created Time	Time at which the task was created
Priority	Indicates the priority of the task • Low • Medium • High
Status	Specifies the most recent state of the task Note For additional information, see Common Task Statuses, page 4-6 .
Automation Summary	Click View to view the related automation summary.
Duplicate Of	Hyperlink to the name of the duplicate task
Related Tasks	Related tasks associated with the task
Affected Target	Name of ITIL configuration item (IT component) which the alert or incident describes
Affected Target CI	Name of the system on which the condition was detected
Configuration Item	Name of the configuration item (IT component) to which the alert pertains.
Configuration Item Type	Type of ITIL configuration item (IT component) which the alert describes.
Affected Organizations	Organizations that consume the IT service affected by the alert or incident
Affected Services	IT Service affected by the alert or incident
External System	Name or IP address for the incident management server
External ID	ID of the incident which corresponds to the TEO incident
Due Date	Date the task should be completed

Column	Description
Expiration Date	Date the task is set to expire - Local Time - Universal Time
Parameters	Hyperlink to any parameters associated with a specific task
Notes	Notes associated with the task
Assigned to	User name of the person assigned to the task
Completed by	User name of the person who completed the task
Owner	User name of the person or group who assigned the task

Filtering Run Processes

Use the Search Criteria pane to modify the display of the processes on the Run Processes page. The display options consist of filtering the processes according the category.

To filter the display by category:

From the Category drop-down list, choose the appropriate category, and click **Search**. All processes assigned to the selected category display.

Filtering My Process History

Use the Search Criteria pane to modify the display of the processes on the My Process History page. The display options consist of filtering the processes according to the following criteria.

To filter the process list:

- Step 1** To the right of Processes started within the past, in the text box, enter the appropriate number and then choose *one* of the following time units to filter the display by a specific time frame. (ex. dd:hh:mm)
- Step 2** To the right of Process State, in the text box, choose *one* of the options to filter the display according to the state of the process:

Field	Description
View All	Displays all processes regardless of other criteria
View Completed	Displays only the processes which have succeeded
View Incomplete	Displays only the process which have failed

- Step 3** To the right of Category, in the drop-down list, choose the appropriate category associated with the processes in the list.



Note The <No Filter> option allows the page to display all processes regardless of the assigned category.

- Step 4** Click **Search** to modify the process list display.

Resolving Tasks in Web Console

Use the following steps to resolve an assigned task from the Web Console.

To resolve a task:

Step 1 From the My Tasks view, use the search criteria to filter the tasks to the appropriate display.

Step 2 Under Actions, click **View Details**.

The [Selected Task] displays.

Step 3 Review the details of the task.



Note For additional information on the properties in the list, see [Common Task Properties, page 4-4](#).

Step 4 From the Status drop-down list, choose the appropriate status for the task resolution.

Step 5 In the Add Notes text box, if available, enter any notes related to the task resolution or status update.

Step 6 Click **Submit** to resolve the task.

The Task details page is updated and displays the user name of who resolved the task.

Taking Ownership of a Task

These steps are used when deciding to take ownership of a task that is unassigned or assigned to an entire group of which the current logged in user is also included.

To take ownership of a task:

Step 1 On the open task, review the task details.

Step 2 In the Add Note text box, add notes to the task, as necessary.

Step 3 Check the **Take sole ownership of this task** check box, and click **Submit**.

The Task details page is updated and displays the user name of who resolved the task.

Starting Processes in Web Console

All the processes that display on the Run Processes page are enabled and can be started by the authenticated user. Only one process can be started at a time. When the process is started manually, all conditions and triggers included in the process definition are ignored.

To start a process:

Step 1 On the appropriate process, click **Start**.

The name of the selected process displayed under Are you sure you want to launch the process?

Step 2 If *No*, then skip to [Step 6](#).

Step 3 If the process has input variables, continue to the next step. If the process does not have any input variables, then continue to [Step 4](#).

Step 4 Under Start the process with the following parameters, verify or modify the value, as necessary:

Column	Description
Name	Name of the input variable
Value	Value assigned to the variable
Description	Brief description of the variable
Data Type	Type of variable • Boolean—Indicates whether the set of elements is true or false • Hidden String—Holds data that must be protected from other TEO users • Identity—Represents the value of a user identity • Numeric—A single whole or decimal number assigned (positive and negative) • String—Sequence of characters, such as letters, numbers, and punctuation marks displayed in a string of text • Table—Used to store a set of records in a table format

Step 5 To start a process from a specific starting point, check the **Start from start point** check box and then select the appropriate starting point from the drop-down list. The first activity after the specified starting point will run first.

Step 6 Under This Process will execute against [Target Name]. Would you like to override?, choose *one* of the following options:

- Yes—To specify a target or target group different from the defined process target
- No—To continue with the process execution

Step 7 Click **Start** to begin.

The Process Results page displays and the process begins executing. The following information is displayed.

Column	Description
Name	Name of the process
Target	Name of the target executed against by the process
Start Time	Date and time the process was started

Step 8 Click **Observe** to review to the process execution details.

Overriding Process Target

With the appropriate rights, a user can override the target of any manually started process before process execution has begun. The Start Process page displays after the process is launched and is used to confirm the process to be started, associated input variables, and the target against which the process is launched.



Note

Targets cannot be modified from the Web Console.

To override a process target:

Step 1 After the process is started from the Run Processes page, the Start Process page displays.

Step 2 Under This Process will execute against [Target Name]. Would you like to override?, choose *one* of the following options:

- Yes—To specify a target or target group different from the defined process target
 - On the Targets drop-down list, choose the appropriate target.
 - or–
 - On the Target Group drop-down list, choose the appropriate target group.
- No—To continue with the process execution

Step 3 Click **Start** to begin.

The Start Process Results page displays.

Viewing My Process History

The My Process History page displays the processes that the authenticated user has run in TEO. The user is able to filter the display of the processes the user has launched and the details of the processes.

To view process information:

On the My Process History page, on the appropriate process, click **View Details**.

The Process Details page displays the following summary information for the process:

Column	Description
Actions	Indicates what action the user can take with the process.
Name	Display name of the process or activity
State	Specifies the most recent state of the process activity (for example, Succeeded, Running, Canceled, or Failed-Not Completed)
Start Time	Date and time the process started
End Time	Date and time the process completed
Duration	Time taken for the process to complete
Error Information	A description of the error that has occurred if the State field displays Failed-Not Completed
Target	Target on which the process executes
Description	Brief description of the process
Categories	Category to which the process is assigned

Viewing Process Activity Details

The My Process History page displays the processes that the authenticated user has run in TEO. Use the following steps to view additional information about the activities in the processes.

To view activity information:

Step 1 On the My Process History page, on the appropriate process, click **View Details**.

The Process Details page displays the following summary information for the process:

Column	Description
Actions	Indicates what action the user can take with the process.
Name	Display name of the process or activity
State	Specifies the most recent state of the process activity (for example, <i>Succeeded</i> , <i>Running</i> , <i>Canceled</i> , or <i>Failed-Not Completed</i>)
Start Time	Date and time the process started
End Time	Date and time the process completed
Duration	Time taken for the process to complete

Column	Description
Error Information	A description of the error that has occurred if the State field displays Failed-Not Completed
Target	Target on which the process executes

- Step 2** To view general process information, see [Viewing My Process History, page 2-16](#).
- Step 3** To access the automation summary for a task, see [Viewing Automation Summary, page 2-17](#).
-

Viewing Automation Summary

An automation summary is a collection of data summarizing the objects included in the process and the data retrieved by the processing of the of the objects. On the web console, an automation summary can be launched from the following locations:

- Task Detail page—Displays the task details of the task
- View Process Activities—Displays the details of the process activity

To view an automation summary:

-
- Step 1** Launch the Web Console.
- Step 2** Use *one* of the following methods:
- To access the summary through the task detail page, on the My Tasks page, on the appropriate task, click **View Details**.
 - To access the summary through the View Process Activities page, click **View Summary**.

The Summary page displays summary of a specific task.

Field	Description
Report Location	<i>Display only.</i> Shows the file path for the automation summary
Situation Analysis	After TEO requires action, it performs deep analysis based on the type of situation identified. During situation analysis, TEO captures volatile state and diagnostic information that may otherwise be difficult or impossible to capture manually. The <i>Situation Analysis</i> section displays below the overview information. Click the link in the upper portion of the summary to navigate directly to the <i>Situation Analysis</i> section or simply scroll to the section.
Context Analysis	TEO analyzes all data points in context with each other to identify a situation that may require action. This information can be viewed in the <i>Context Analysis</i> section of the summary. The <i>Context Analysis</i> displays the symptom and possible causes.



CHAPTER 3

Operations Workspace

The Operations workspace is used to monitor the processes that are scheduled to execute, view processes that are currently running, and verify that processes have successfully completed. The view also provides auditing information relating to system event history for actions that have occurred within Tidal Enterprise Orchestrator and process information generated when the defined processes are executed.

Use the following sections in this chapter for information on navigating the Operations Workspace:

- [Searching Tasks, page 3-4](#)
- [Monitoring Tasks, page 3-10](#)
- [Searching Work, page 3-13](#)
- [Monitoring Activities, page 3-18](#)
- [General Operation Views Procedures, page 3-25](#)
- [Monitoring Processes, page 3-32](#)
- [Monitoring Auditing Information, page 3-37](#)

Accessing the Operations Workspace

To access the Operations workspace, use *one* of the following methods:

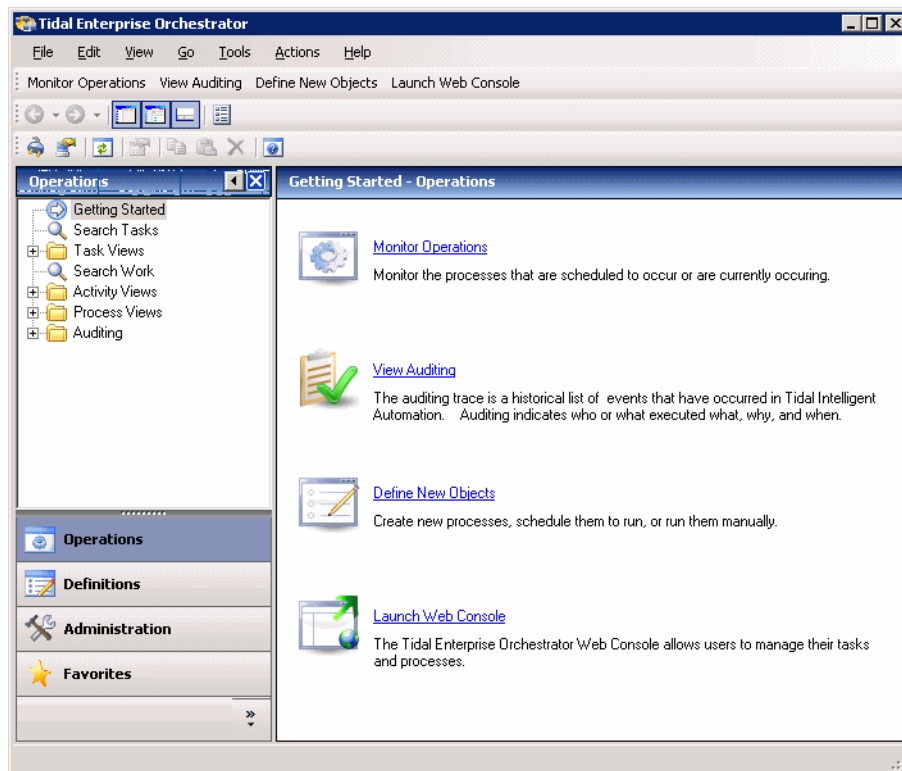
- In the Navigation pane, choose the Operations workspace.

-or-

- From the Go menu, choose **Operations**.

The Getting Started—Operations Results pane displays.

Figure 3-1 *Getting Started—Operations Dialog Box*



Using Getting Started—Operations

The Getting Started view displays task shortcuts to view process instances, process instance activities, and the system activity.

Monitor Operations

The Monitor Operations option launches the Activity Views folder which includes the options to display information about the activities that are in progress, scheduled or have been completed. For more information about the Activity Views pane, see [Monitoring Activities, page 3-18](#).

Monitoring Auditing

The Auditing View displays the system event history for actions that have occurred within TEO. For more information about the auditing information being monitored, see [Monitoring Auditing Information, page 3-37](#).

Define New Objects

The Define New Objects option launches the Getting Started—Definitions Results pane which displays the options for creating a new process and defining new objects to be associated with a process. For more information on defining processes, see [Chapter 6, “Using the Process Editor.”](#)

Launch Web Console

Use the Launch Web Console option to display the TEO web console which provides users with a web-based view of the scaled-back Operations workspace on the expert TEO console. For more information on viewing the web console, see [Chapter 2, “Using TEO Web Console.”](#)

Searching Tasks

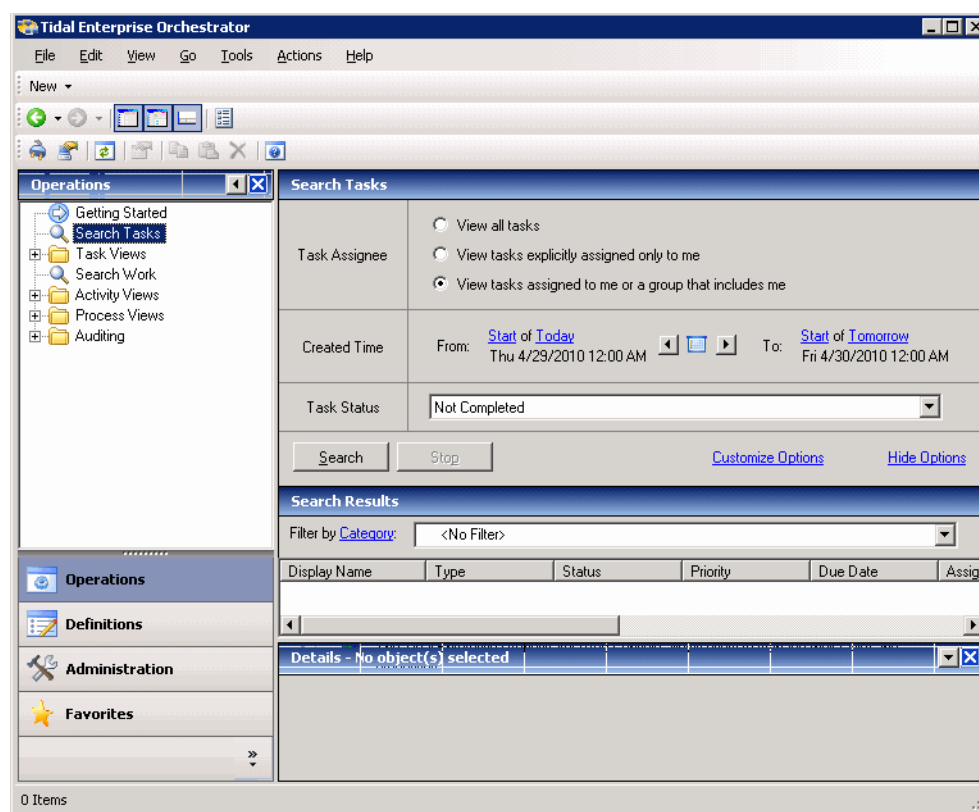
The Operations—Search Tasks view displays the results of the query based on the specified filter options. Users can search by the assignee, category, task type, and status.

This section provides instructions on viewing the information displayed in the Search Tasks View. For additional information on modifying tasks, see [Chapter 4, “Managing Tasks.”](#)

Accessing Operations—Search Tasks View

On the Operations workspace, click **Search Tasks**.

Figure 3-2 Operations Workspace—Search Tasks



The Operations—Search Tasks view displays the default information about the queried task in the following columns:

Column	Description
Display Name	Name of the task
Type	Type of task
Priority	Priority of the task
Status	Status of the task
Due Date	Date the task should be completed

Column	Description
Assigned to	User name of the person assigned to the task
Categories	Category assigned to task alert
Created Time	Time at which the task view was accessed
Last Modified Time	The date and time the contents were last modified
Last Modified By	The object or user name that last modified the contents
Id	Task identifier
Notes	Notes associated with the task
Owner	User name of the person who assigned the task
Type Description	Brief description of the type of task
Expiration Date	Date the task is set to expire
Completed Time	Time the task was completed
Completed By	User who completed the task
Produced by	User who generated the alert or task
Related Tasks	Related tasks associated with the task
Parameters	Parameters of the task
Created By	User or object that created the task view

**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Search Tasks Details Pane

The Search Tasks Details pane displays detailed information about the selected task. Information about the selected task display the following details:

Column	Description
Subject	Name of the task
Type	Type of task
Description	Brief description of the task
Status	Status of the task
Assigned to	User name of the person assigned to the task
Priority	Priority of the task
Due Date	Date the task should be completed

Customizing Search Tasks Header

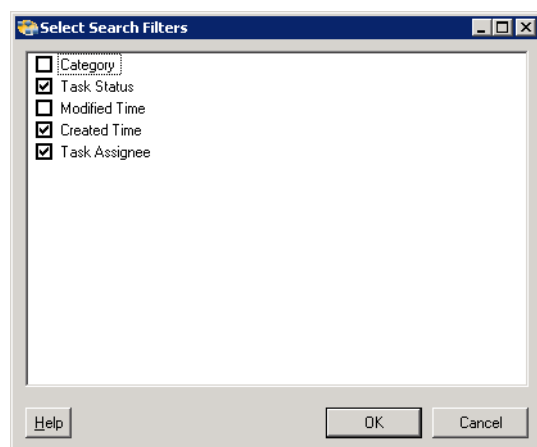
Use the Select Search Filters dialog box to customize the query header options. If the check box to the left of the option remains unchecked, then the filter option will not display on the designated Search header.

To customize the search filter options:

Step 1 In the Operations—Search Tasks header, click **Customize Options**.

The Select Search Filters dialog box displays.

Figure 3-3 Select Search Filters Dialog Box



Step 2 Check the check box to the right of the appropriate option, and then click **OK**.

Filter Option	Description
Task assignee	Check the check box to display the list of task assignee options on the header.
Created Time	Check the check box to display the time options to determine which task to display
Modified Time	Check the check box to display the time options to determine the time frame for which tasks to display.
Task Status	Check the check box to display the available statuses to filter.
Category	Check the check box to display the categories available for filtering.

The selected search filters display in the Search Tasks header.

Figure 3-4 Operations—Search Tasks Header

Search Tasks	
Task Assignee	☐ View all tasks ☐ View tasks explicitly assigned only to me ☒ View tasks assigned to me or a group that includes me
Created Time	From: Start of Today Thu 4/29/2010 12:00 Previous Next or: Start of Tomorrow Fri 4/30/2010 12:00 AM
Modified Time	From: Start of Today Thu 4/29/2010 12:00 Previous Next or: Start of Tomorrow Fri 4/30/2010 12:00 AM
Task Status	Not Completed
Category	<No Filter>
Search Stop Customize Options Hide Options	

Query Tasks by Assignee

When performing a search query, users can search tasks by using all the default filters or they can modify the query according to the individual filters. Use the following steps to query tasks according to the assignee.

To query tasks by assignee:

- Step 1** In the Search Tasks header, to the right of Task Assignee, choose *one* of the following options:

Task View	Description
View all tasks	Choose this option to query all tasks in progress.
View tasks explicitly assigned only to me	Choose this option to query all tasks assigned to the logged on user.
View tasks assigned to me or a group that includes me	Choose this option to query all tasks assigned to the logged in user and any groups containing the user.

- Step 2** Click **Search** to query the tasks by the selected assignee.
The results display in the Search Results pane.

Query Tasks by Date/Time

Use the following steps to query tasks according to when the task was created.

To query tasks by created time:

-
- Step 1** In the Search Tasks header, to the right of Created Time, choose the appropriate time filter options to query the tasks. See [Filter Display by Date/Time Options, page 3-21](#) for additional information.
- Step 2** Click **Search** to query the tasks by the selected time filter options.
- The results display in the Search Results pane.



Note

These steps can also be used for querying tasks according to their modified date or time.

Query Tasks by Status

Use the following steps to query tasks according to current state of the task.

To query tasks by status:

-
- Step 1** In the Search Tasks header, to the right of Task Status, from the drop-down list, choose *one* of the following options:
- Complete
 - Not Complete
- Step 2** Click **Search** to query the tasks by the selected state of completion.
- The results display in the Search Results pane.
-

Filtering Search Results

Use the Filter pane in the Tasks Views header to display selected tasks in the results pane. The hyperlinked Filter by drop-down list in the Tasks Views header contains several options which can be used for filtering tasks.

The default selection is *<No Filter>*. After the initial change to the selection, the last selected item displays.

To filter task search results:

- Step 1** In the Search Tasks header, to the right of Category, from the drop-down list, choose the appropriate category to query:

Option	Description
Category	Choose the appropriate category from the list
Name	Enter the name of the task
Description	Enter the description or class for the task
Type	Displays list of all task types
Status	Choose from the list of available statuses • Completed • Not completed

- Step 2** Click **Search** to query the tasks by the selected category.
The results display in the Search Results pane.

Monitoring Tasks

The Operations—Tasks view displays all task activities and tasks that have been assigned to a specific user or group. In addition, the task display can be filtered to display by category, task type, and status. The user can determine which task view to display.

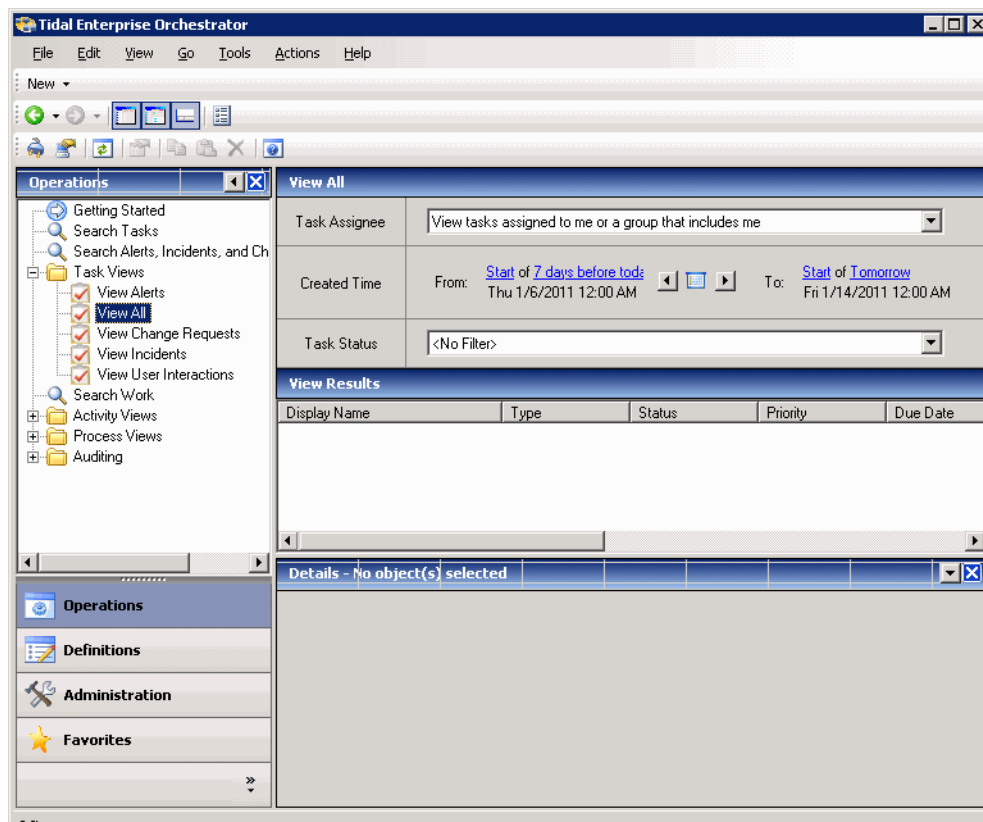
This section provides instructions on viewing the information displayed in the Tasks View. For additional information on modifying tasks, see [Chapter 4, “Managing Tasks.”](#)

Accessing Tasks View Folders

On the Operations workspace, choose **Task Views**. The Operations—Tasks Views folder Results pane displays information about each task folder in the following columns:

Field	Description
Name	Name of the task view
Last Modified Time	The date and time the contents were last modified
Last Modified By	The object or user name that last modified the task
Description	Brief description of the task
Created Time	Time at which the tasks was created
Created By	User or object that created the task

Figure 3-5 Operations Workspace—Tasks—View All



Displaying Tasks Views

From this view, detailed information is provided about all the alerts, incidents, and other tasks that are assigned, in progress, or have been completed. Users with the appropriate security rights can modify tasks from this view. For additional information on modifying tasks, see [Chapter 4, “Managing Tasks.”](#)

To access a task view:

- Step 1** To access detailed information about a task view, from the Tasks Views folder, choose *one* of the following items:

Task View	Description
View User Tasks	Displays all tasks that require user action
View Alerts	Displays all task alerts
View Incidents	Displays all task incidents
View All	Displays all tasks that are assigned, in progress, or have successfully completed

- Step 2** In the Tasks Views Header, choose the appropriate category and time period to display.
- The selected view displays in the Results pane. The Results pane displays the following default summary information for each of the four task views.

Column	Description
Display Name	Name of the task
Type	Type of task
Priority	Priority of the task
Status	Status of the task
Due Date	Date the task should be completed
Class	String or numeric value indicating the class of the alert or incident
Assigned to	User name of the person assigned to the task
Related Tasks	Related tasks associated with the task
Categories	Category assigned to task alert
Target	Name of ITIL configuration item (IT component) which the alert or incident describes
Target CI	Name of the system on which the condition was detected
Created Time	Time at which the task view was accessed
Last Modified Time	The date and time the contents were last modified
Last Modified By	The object or user name that last modified the contents
Id	Task identifier
Notes	Notes associated with the task
Owner	User name of the person who assigned the task
Type Description	Brief description of the type of task

Column	Description
Expiration Date	Date the task is set to expire
Completed Time	Time the task was completed
Completed Date	Date task was completed
Produced by	User who generated the alert or task
Parameters	Parameters of the task
Affected Organizations	Organizations that consume the IT service affected by the alert or incident
Affected Services	IT Service affected by the alert or incident
Configuration Item	Name of the configuration item (IT component) to which the alert pertains.
Automation Summary	File path for the related automation summary
Created By	User or object that created the task view

**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Tasks Details Pane

The Tasks Views Details pane displays detailed information about the selected task. Each hyperlink on the Details pane launches a display-only view of the Task Properties dialog box. Information about the selected task display the following details:

Column	Description
Display Name	Name of the task
Type	Type of task
Description	Brief description of the task
Status	Status of the task
Assigned to	User name of the person assigned to the task
Priority	Priority of the task
Due Date	Date the task should be completed

Searching Work

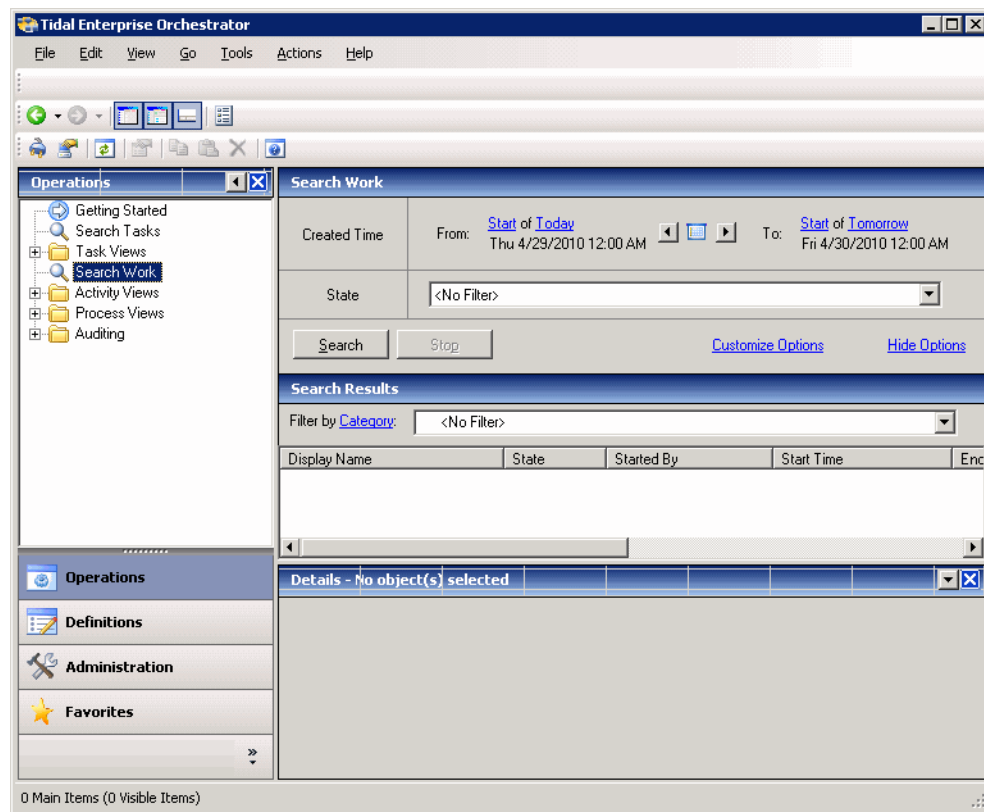
The Operations—Search Work view displays the results of the query for processes and activities based on the specified filter options. Users can search by the date/time, category, task type, and status.

This section provides instructions on viewing the information displayed in the Search Work view.

Accessing Operations—Search Work View

On the Operations workspace, choose **Search Work**.

Figure 3-6 Operations Workspace—Search Work



The Operations—Search Work view displays the processes and activities that are scheduled to be performed during the selected display time period. The default information about the queried process or activity displays in the following columns:

Column	Description
Display name	Name of the process instance or activity instance that is scheduled, in progress, or completed
State	Current status of the operations activity - Succeeded - Running - Canceled - Failed (Canceled) - Failed (Not Completed)
Started By	User ID of the person who initiated the activity instance
Start Time	Start time of the activity
End Time	End time of the activity as it completed or failed. If the instance is in progress, 1/1/0001 12:00:00 AM is displayed.
Duration	Amount of time taken for the activity to complete
Type	Type of activity
Executor	Target where the process or activity is executing
Runtime User	Runtime user of the activity
Categories	The category to which this process has been assigned if applicable
Error	Brief description of any error that occurred
ID	Unique ID assigned to the activity instance
Description	Brief description of the process activity
Owner	Owner of the activity. This is typically the user name of the person who created the activity.
Type Description	Brief description of the type associated with the activity
Time Saved	Time taken to execute the process manually
Money Saved	Cost of manual process execution

**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Search Work Details Pane

The Search Work Details pane displays detailed information about the selected process or activity. The following are the standard tabs that display when the process instance and activity instances are selected from the Search Results pane:

Tab	Description
General	Displays general information about the process or activity instance
Run Options	Displays the target, runtime user, and triggers for the process or activity instance
Workflow	<i>Display only.</i> Shows the process viewer when the process instance is selected.
Knowledge Base	Displays a summary of any knowledge base entries associated with the selected activity instance. The Knowledge Base tab only displays when an activity instance is selected.

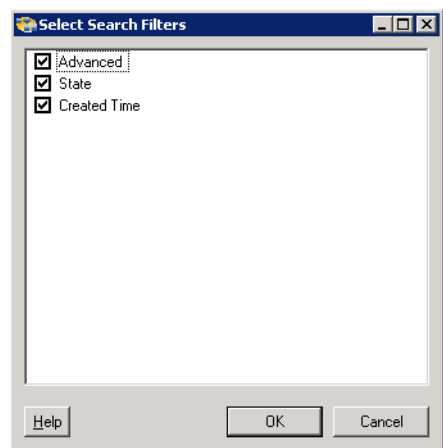
Customizing Search Work Header

Use the Select Search Filters dialog box to customize the query header options. If the check box to the left of the option remains unchecked, then the filter option will not display on the designated Search header.

To customize the search filter options:

-
- Step 1** On the Operations—Search Work header, click **Customize Options**.
The Select Search Filters dialog box displays.

Figure 3-7 Select Search Filters Dialog Box



- Step 2** Click the check box to the right of the appropriate option, and then click **OK**.

Filter Option	Description
Created Time	Check the check box to display the time options to determine the time period for which processes or activities to display
State	Check the check box to display the filtering option for the state of the process or activity.
Advanced	Check the check box to display the Show advanced processes check box for filtering.

The selected search filters display in the Search Work header.

Figure 3-8 Operations—Search Work Header

The screenshot shows the 'Search Work' header interface. It contains three main filter sections: 'Created Time' with a date range from 'Fri 4/30/2010 12:00' to 'Sat 5/1/2010 12:00 AM' and navigation buttons; 'State' with a dropdown menu set to '<No Filter>'; and 'Advanced' with a checkbox for 'Show advanced processes'. At the bottom are 'Search' and 'Stop' buttons, along with links for 'Customize Options' and 'Hide Options'.

Query Work by Date/Time

Use the following steps to query according to when the process or activity was scheduled to run.

To query work by created time:

- Step 1** On the Search Work header, to the right of Created Time, choose the appropriate time filter options to query the processes or activities. See [Filter Display by Date/Time Options, page 3-21](#) for additional information.
- Step 2** Click **Search** to begin the query.
- The results display in the Search Results pane.

Query Work by State

Use the following steps to create a query according to current state of the process or activity.

To query by state:

-
- Step 1** In the Search Work header, to the right of State, on the drop-down list, choose *one* of the following items:
- Succeeded
 - Running
 - Canceled
 - Failed (Canceled)
 - Failed (Not Completed)
- Step 2** Click **Search** to begin the query by the selected state of completion.
- The results display in the Search Results pane.
-

Query Work by Advanced Process Configuration

On the Search Work header, check the **Show Advanced Processes** check box to indicate whether to display configured advanced process instances.

If the Show Advanced Processes check box remains unchecked, then the processes defined to show only in an advanced view will not be displayed.

Monitoring Activities

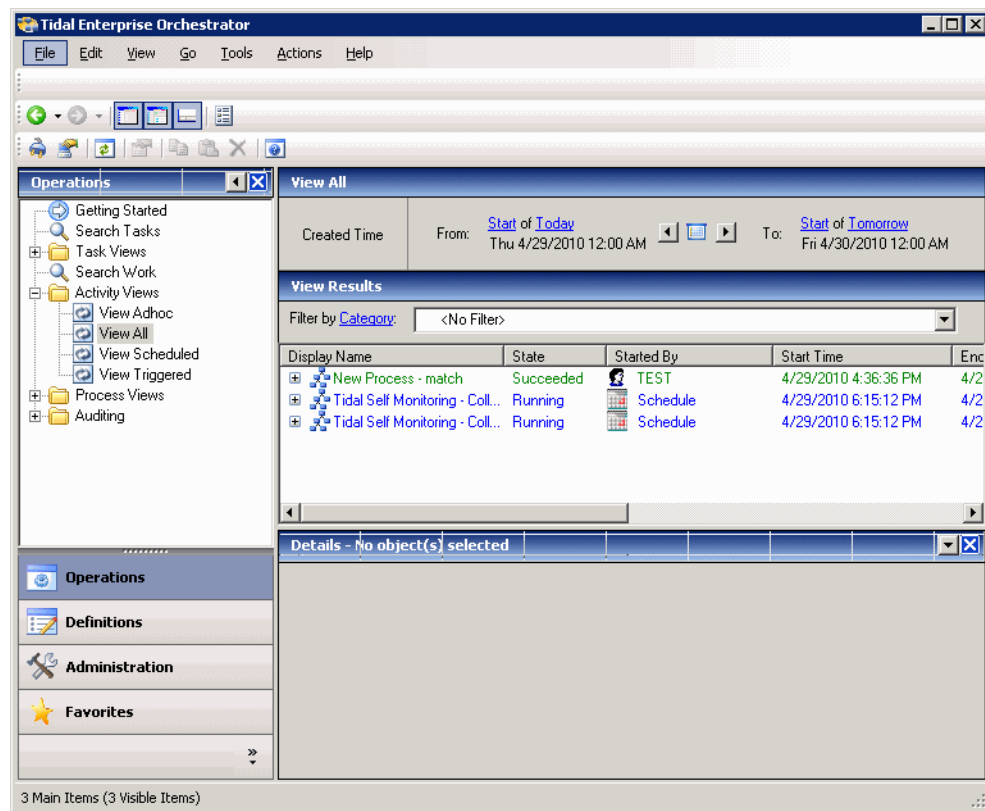
The Activity Views folder includes a set of predefined views that displays information about the status of activities within the processes. From the Activity Views area, you can access all defined activities, activities that have been triggered, executed adhoc, or scheduled. This section provides instructions on viewing the information displayed in the Activity Views folders.

Accessing Activity View Folders

To access the Activity View folders:

On the Operations workspace, choose **Activity Views**.

Figure 3-9 Operations Workspace—Activity Views Folder



The Operations—Activity Views Results pane displays information about each activity folder in the following columns:

Field	Description
Name	Name of the activity view
Last Modified Time	The date and time the contents were last modified
Last Modified By	The object or user name that last modified the activity
Description	Brief description of the activity

Field	Description
Created Time	Time at which the activity was created
Created By	User or object that created the activity

Viewing Activity Information

To view activity information:

- Step 1** On the Operations workspace, choose **Activity View**.
- Step 2** To access detailed information about an activity view, expand the Activity Views folder, and choose *one* of the following items:

Views	Descriptions
View Triggered	Displays all process or activity instances that were executed (manually or automatically) and are in progress, have successfully completed, or failed during the selected time period
View Adhoc	Displays all process or activity instances that were executed manually and are in progress, have successfully completed, or failed during the selected time period
View All	Displays all process, activity, and scheduled process and activity instances that are in progress, have successfully completed, or failed during the selected display time period
View Scheduled	Displays all process or activity instances that are in progress, have successfully completed, or failed and are also scheduled to execute during the selected time period



Note

For information on the modifying the time period, see [Filtering the Activity View, page 3-26](#).

The selected view displays in the Results pane. Certain columns display information about a process or activity instance by default.

Column	Description
Display name	Name of the process instance or activity instance that is scheduled, in progress, or completed

Column	Description
State	Current status of the operations activity • Succeeded • Scheduled • Running • Missed • Canceled • Failed (Canceled) • Failed (Not Completed)
Started By	User ID of the person who initiated the activity instance
Start Time	Start time of the activity
End Time	End time of the activity as it completed or failed. If the instance is in progress, 1/1/0001 12:00:00 AM is displayed.
Duration	Amount of time taken for the activity to complete
Type	Type of activity
Executor	Target where the process or activity is executing
Categories	The category to which this process has been assigned if applicable
Error	Brief description of any error that occurred
ID	Unique ID assigned to the activity instance
Description	Brief description of the process activity
Owner	Owner of the activity. This is typically the user name of the person who created the activity.
Type Description	Brief description of the type associated with the activity
Time Saved	Time taken to execute the process manually
Money Saved	Cost of manual process execution

**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Activity Views Header

The Activity Views header is located at the top of the Results pane for each activity view. The header provides options that formats the information displayed in the Results pane. The options on this header are available only in the activity views, including the Activity View sub-pane in the Process View folders.

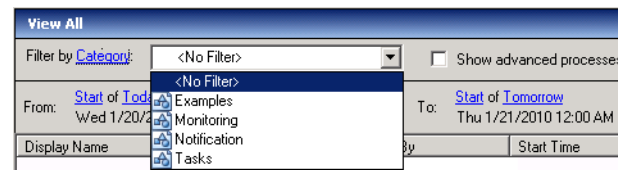
Filter Activity Display by [Object]

The hyperlinked Filter by drop-down lists displays the list of objects related to the item selected. The following are the available objects that can be listed:

Option	Description
Category	Displays list of categories
Name	Enter the names of activity
Description	Enter description of activity
State	Enter the current state of the activity

The default selection is *<No Filter>*. After the initial change to the selection, the last selected item displays. To filter the display by category, choose the appropriate category from the drop-down list.

Figure 3-10 Filter by Category Drop-down List



Filter Display by Date/Time Options

The Filter Display by Date/Time sub-pane displays the following options to modify the time frame in which activities are displayed.

Figure 3-11 Activity View—Filter by Display by Date/Time



From Filtering Options

The following options determine the beginning of the time period for activities to display:

Filter	Description
Start	Provides the time frame options to define which activities are to be displayed
Start	Uses the current date and time as the start time in which the activities are displayed
Back	Start time precedes the current time by a defined number of hours
Forward	Start time follows the current time by a defined number of hours
Today	Provides the date options to define which activities are to be displayed
Now	Current date and time

Filter	Description
Today	Default option used to display activities on the current date beginning at 12:00 AM
Before Today	Start date that precedes the current date by a defined number of days
After Today	Start date that follows the current date
Specific Date	Choose an exact start date from a calendar

To Filtering Options

The following options determine the end of the time period for activities to display.

Filter	Description
Start	Provides the end of the time period options used to define which activities are to be displayed
Start	Uses the current date and time at the end of time period in which the activities are displayed
Back	Start time precedes the current time by a defined number of hours
Forward	Start time follows the current time by a defined number of hours
Tomorrow	Provides the end of the date options to define which activities are to be displayed
Tomorrow	Default option used to display activities beyond 24 hours after the current date and time
Now	Sets the end of the period to the current date and time
Today	Current date beginning at 12:00 AM
Before Today	Start date that precedes the current date by a defined number of days
After Today	Start date that follows the current date
Specific Date	Choose an exact start date from a calendar

Status Indicators

The State column displays the status of the individual process and activity. The following indicators definitions display in the Results pane.

Status	Description
Succeeded	Process has completed successfully
Scheduled	Processed is scheduled to run
Running	Process is in progress
Missed	Scheduled time for process was missed
Canceled	Displays when the process is canceled
Failed (Not Completed)	Displays when the process has failed and did not complete the process execution
Failed (Canceled)	Displays when the process is canceled manually

Color Indicators

The default colors associated with the individual activities indicate the status of the process instances.

Color Indicator	Description
Blue	Process is in progress
Green	Process has completed successfully
Red	Process has failed and did not complete the process execution
Orange	Process has stopped



Note

To modify the fonts and colors on the Activity View status display, see [Customizing the Fonts and Colors, page 1-31](#).

Calendar

Use the Back and Forward arrows on either side of the Calendar  tool to navigate through the From and To options.

Activity View Details Pane

The Activity Views Details pane displays detailed information about the selected instance. Additional detail pages may display depending on the activity instance selected. If the process-level instance is selected, each hyperlink on the Details pane launches the Process Viewer.



Note

For more information on the Process Viewer, see [Viewing Activity Instance Properties, page 3-31](#).

If the activity instance is selected, each hyperlink on the Details pane launches a display-only view of the Activity Properties dialog box.

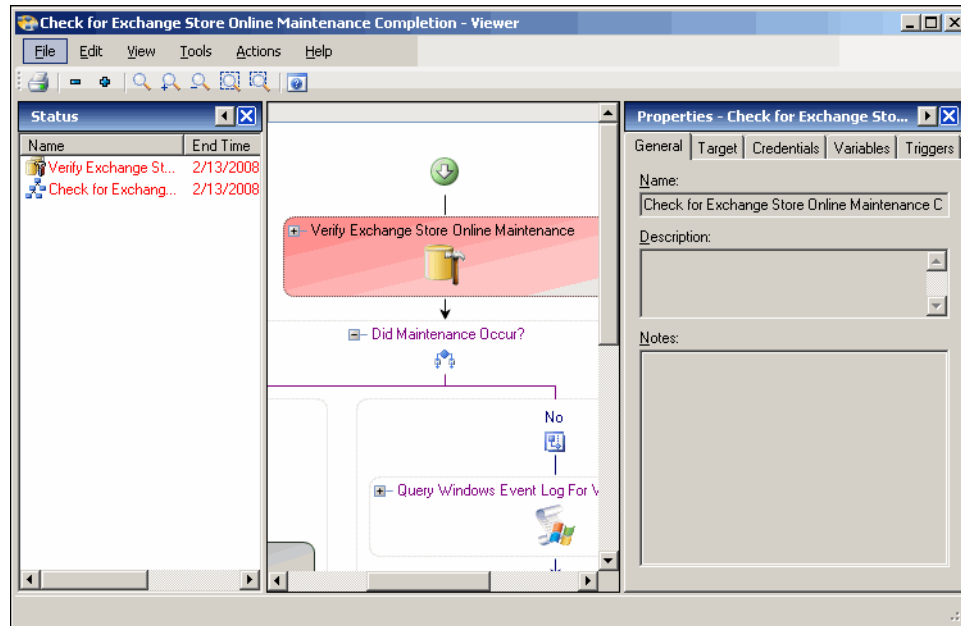
The following are the standard tabs that display when the process instance and activity instances are selected:

Tab	Description
General	Displays general information about the process or activity instance
Run Options	Displays the target, runtime user, and triggers for the process or activity instance
Workflow	<i>Display only.</i> Shows the process viewer when the process instance is selected.
Knowledge Base	Displays a summary of any knowledge base entries associated with the selected activity instance. The Knowledge Base tab only displays when an activity instance is selected.

Process Viewer

The Process Viewer is launched when a process instance is selected from the Activities view.

Figure 3-12 **Process Viewer**



The viewer contains a Status pane, Workflow pane, and Properties pane.

Display Pane	Description
Status Pane	Displays the current status and other detailed information about the selected process and its activities
Workflow Pane	Displays the graphical workflow of the selected process and its activities
Properties Pane	<i>Display only.</i> Shows the properties for the process and activity instances

Viewing the Workflow Only

A graphical view of a process workflow can be viewed from the Process Views area after a process has been launched.

To view the workflow:

-
- Step 1** Choose any of the Process Views to display in the Results pane.
 - Step 2** Highlight the appropriate process instance, on the Process Views Details pane, click the **Workflow** tab.
-

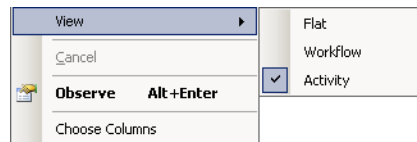
General Operation Views Procedures

This section contains procedures that can be used to modify the Operations display. Many of the procedures described in this section are also available from the Process Instance Results pane.

Modifying the Activity View Format

Each of the activity views can display in one of three formats (Flat, Workflow, Activity).

Figure 3-13 Activity Views Display Formats



To change an Activity View format:

Highlight an activity instance, right-click and choose **View > [Format]**.

Activity Format	Description
Flat	Displays all process instances and activity instances on the top-level with <i>no</i> expandable tree view
Workflow (Default view)	Displays the process instances and only one related activity instance (even if it has run multiple times) in an expandable tree-view format
Activity	Displays the process instances and <i>all</i> related activity instances (no matter how many times it has run) in an expandable tree-view format

The displayed activity view is modified.

Filtering the Activity View

The filter options in the header determine the time period for which activities display in the Results pane.

Querying Activities by Start Time Period

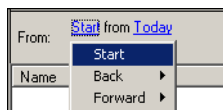
The Start of menu to the left of To provides the starting time period options used to define which activities are displayed. To use the current time as the start of the time period in which the activities are displayed, do not make any changes to Time menu options.

To query by the start time:

- Step 1** On the Activity Views header, to the right of From, click the **Start** hyperlink to display the start time options.

The Start Time drop-down list displays.

Figure 3-14 Start Time List



- Step 2** Choose *one* of the following options to modify the start time to display activities:

Option	Description
Start	Default option uses the current time on the console
Back	Adjusts the number of hours that precede the current console time
Forward	Adjusts the number of hours ahead of the current console time

Figure 3-15 Back Sub-Menu

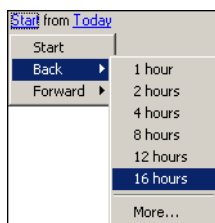
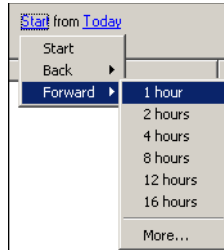


Figure 3-16 Forward Sub-Menu

The selected time displays on the Start Time hyperlink.

Querying Activities by the Date Range

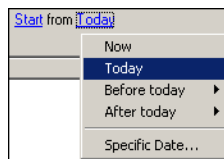
Use the following instructions to modify the start and end date on the Activity Views header. The options are located to the right of both the From and To sections. To the far right of From, click **Today** hyperlink to display the start and end date options.

To query by the display date:

Step 1 On the Activity Views header, use *one* of the following methods:

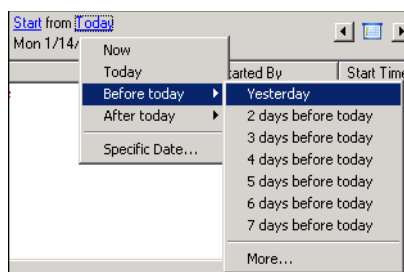
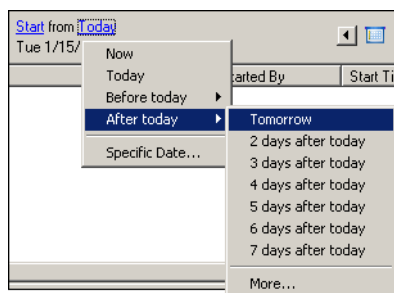
- To modify the start date, click the **Today** hyperlink to the far right of From, to display the start date options.
- or-
- To modify the end date, click the **Tomorrow** hyperlink to the far right of To, to display the end date options.

The Date drop-down list displays.

Figure 3-17 Date Drop-down List

Step 2 Choose *one* of the following options to modify the display date:

Option	Description
Now	Displays activities beginning with the current Console date and time
Today	Displays activities on the current date beginning at 12:00 AM
Tomorrow	Displays activities beyond 24 hours after the current date and time
Before today	Adjusts the start date for activities to display before the current console date by a defined number of days
After Today	Adjusts the start date to follow the current console date

Figure 3-18 Before Today Sub-Menu**Figure 3-19 After Today Sub-Menu**

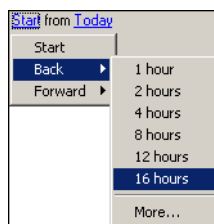
The selected date displays on the Date hyperlink.

Querying Activities by End Time Period

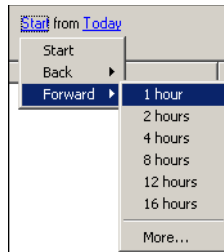
The Start menu to the right of To provides the end of the time period options used to define which activities are displayed. To use the current time as the end of the time period in which the activities are displayed, do not make any changes to Time menu options.

To query by the display ending time:

-
- Step 1** On the Activity Views header, to the right of To, click **Start**.
The Start Time drop-down list displays.
- Step 2** To adjust the results for activities to display that precedes the current ending time by a defined number of hours, click **Back** and choose the appropriate number of hours.

Figure 3-20 Back Submenu

- Step 3** To adjust the results for activities to display after the current ending time by a defined number of hours, click **Forward** and choose the appropriate number of hours.

Figure 3-21 Forward Submenu

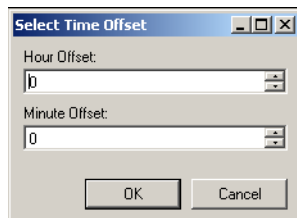
The selected time displays on the End Time hyperlink.

Specifying Time Period to Offset Query

The More option on the Back and Forward sub-menus should be used when the number of hours and minutes to offset is not on the predefined list. When selected, the More option launches the Select Time Offset dialog box to enter the specific hours and minutes for the start and end time.

To query by specific time frame:

- Step 1** On either the Back or Forward submenus, click **More**.
The Select Time Offset dialog box displays.

Figure 3-22 Select Time Offset Dialog Box

- Step 2** Enter the following information and click **OK**:

Field	Description
Hour Offset	Specific number of hours to precede or follow the current end time To specify hours before the displayed value, select or enter a negative number.
Minute Offset	Specific number of minutes to precede or follow the current end time To specify minutes before the displayed value, select or enter a negative number.

The selected time displays on the hyperlink.

Specifying Days to Offset Query

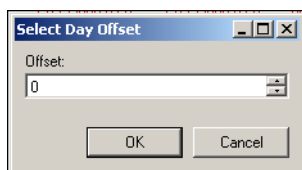
The More option on the Before today and After today sub-menus should be used when the appropriate number of days to offset is not on the predefined list. When selected, More option launches the Select Day Offset dialog box to enter a specific number of days for a start and end date.

To query by days to offset:

-
- Step 1** From either the Before today or After today submenu, click **More**.

The Select Day Offset dialog box displays.

Figure 3-23 *Select Day Offset Dialog Box*



- Step 2** In the Offset field, enter the number of days to precede or follow the current date and click **OK**.

The selected date displays on the hyperlink.

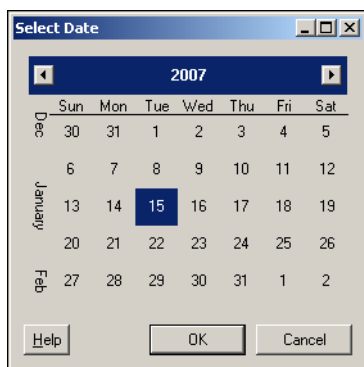
Selecting a Specific Date

To choose specific date from calendar:

-
- Step 1** From the Start Date menu, choose **Specific Date**.

The Select Date dialog box displays.

Figure 3-24 *Select Date Dialog Box*



- Step 2** On the Select Date dialog box, choose the appropriate date, and click **OK**.
-

Navigating the Current Time Period

The two navigation arrows located on each side of the Calendar  tool selects the next day on the Back and Forward options on the Start Date and End Date sub-menu.

To navigate between the currently selected time:

On the Filter by Date/Time toolbar, click the appropriate navigation arrow next to the Calendar icon.

Navigation Option	Description
Back  arrow	Chooses the previous day prior to the currently selected day on the Back submenu for the starting and ending dates Example: If <i>Yesterday</i> is currently selected, then clicking the Back arrow changes the display selection to <i>2 days before today</i>.
Forward  arrow	Chooses the day after the currently selected day Example: If <i>Tomorrow</i> is currently selected, then clicking the Forward arrow changes the display selection to <i>2 days after today</i>

The Activity View header automatically updates the displayed time frame.

Viewing Activity Instance Properties

The activity instance properties displayed from the Activity View are display-only.

To view activity instance properties:

- Step 1** Choose any of the four activity views to display the process and activity instances in the Results pane.
- Step 2** In the Results pane, expand the appropriate process instance to display the related activities.
- Step 3** Highlight the appropriate activity, and use *one* of the following methods:
 - Double-click the appropriate activity instance.
 - Right-click and choose **Observe**.
 - On the Details pane, click the hyperlink of any item on tabs.

The Properties dialog box displays.

Monitoring Processes

The Process Views folder includes all the defined processes and their associated activity instances that are in progress, scheduled or have been completed. From this view, detailed information is provided about all the processes that have been triggered, executed adhoc, or are scheduled for execution. This section provides information on the Process Views display in the Operations workspace.

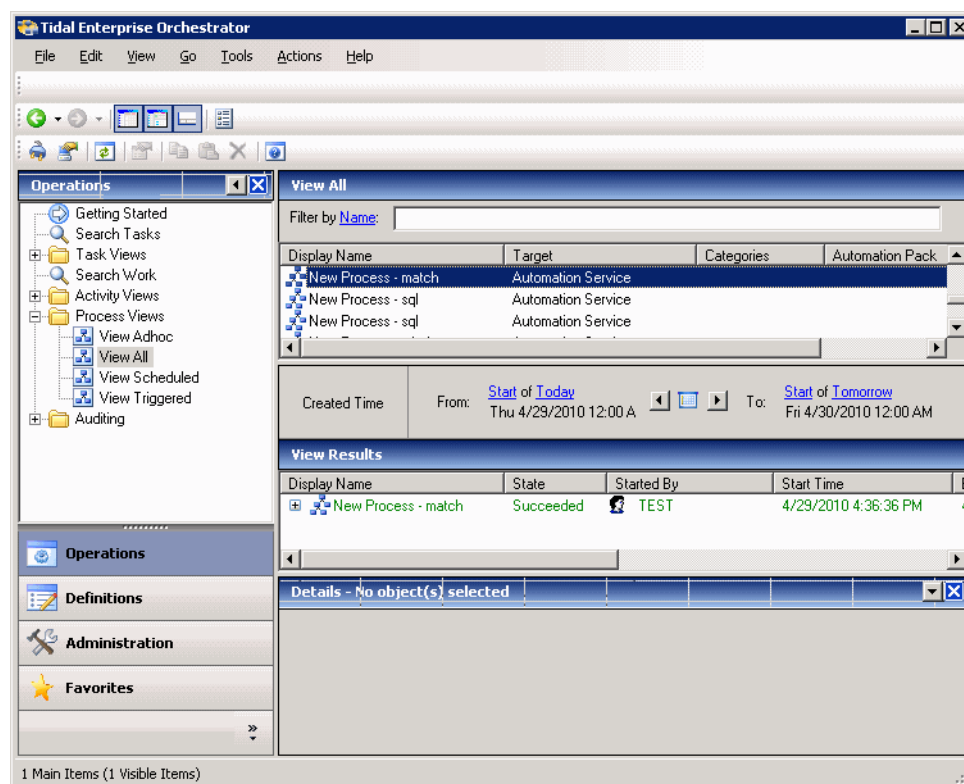
Accessing Process Views Folder

To access the Process View folders:

In the Operations workspace, choose **Process Views**. The Results pane displays the following default summary information for each of the four process views:

Field	Description
Name	Name of the process view
Last Modified Time	The date and time the contents were last modified
Last Modified By	The object or user name that last modified the activity
Description	Brief description of the activity
Created Time	Time at which the process was created
Created By	User or object that created the process

Figure 3-25 Operations Workspace—Process Views—View All



Viewing Process View Information

To view process information:

- Step 1** On the Operations workspace, choose **Process View**.
- Step 2** To access detailed information about an activity view, expand the Process Views folder, and choose *one* of the following items:

Process View	Description
View Triggered	Displays all process or activity instances that were executed (manually or automatically) and are in progress, have successfully completed, or failed during the selected time period
View Adhoc	Displays all process or activity instances that were executed manually and are in progress, have successfully completed, or failed during the selected time period
View All	Displays all process, activity, and scheduled process and activity instances that are in progress, have successfully completed, or failed during the selected display time period
View Scheduled	Displays all process or activity instances that are in progress, have successfully completed, or failed and are also scheduled to execute during the selected time period

- Step 3** On the Activity Views subheader, choose the appropriate category and time period to display.



Note

For information on the modifying the time period, see [Filtering the Activity View, page 3-26](#).

The selected view displays in the Results pane. Certain columns display information about a process or activity instance by default. To view the description for the activity instance columns, see [Viewing Activity Information, page 3-19](#).

Process View Results Pane

The Process View Results pane is divided into a split pane. In the upper Process View Results pane, all process instances for the selected view are displayed. For more information on process instances displayed in the process view Results pane, see [Process Instance Results Pane, page 3-34](#).

Process View Header

The Filter by [Object] drop-down list displays the list of objects related to the item selected and is available in both the Activity and Process Views. The default selection is *<No Filter>*. After the initial change to the selection, the last selected item displays.

The following are the available objects that can be listed:

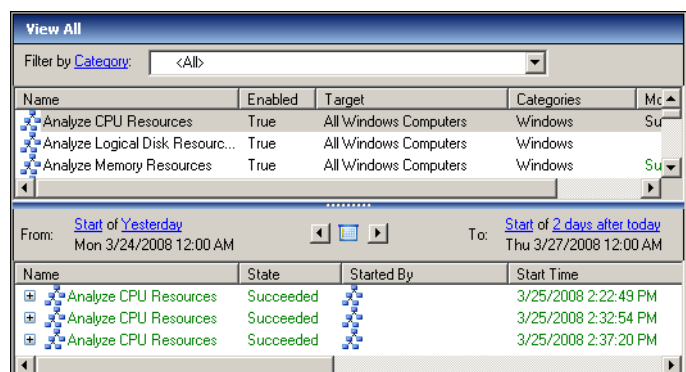
Option	Description
Category	Displays list of categories
Name	Enter the names of process
Description	Enter description of process
Automation Pack	Enter the name of the automation pack for the process

To filter the display:

From the Filter by drop-down list, choose the appropriate object. All processes assigned to the selected object display.

The lower Process View Results pane displays activity instance information for a selected process instance. For more information on the activity instances displayed on the sub-pane, see [Monitoring Activities, page 3-18](#).

Figure 3-26 *Process View Results Pane*



Process Instance Results Pane

The upper Results pane lists all the process instances. Information about each process instance can be displayed in the following columns. To configure the Process View column headings, see [Configuring Columns, page 1-29](#).

Column	Description
Name	Name of the process instance that is scheduled, in progress, or completed
Target	Name of the target the process runs against
Enabled	Specifies whether the process instance is enabled (True, False). Process instances that are not enabled are unavailable for execution.
Categories	The category to which this process has been assigned if applicable
Most recent state	Current status of the operations activity [Ex. Succeeded, Running, Failed (Canceled) or Failed (Not Completed)]
ID	Unique ID assigned to the process instance
Description	Brief description of the process instance

Activity Instance Results Pane

The lower Results pane displays information each activity within the process instance selected in the upper Results pane. For additional information on the results displayed, see [Monitoring Activities, page 3-18](#).

Process View Details Pane

The Process Views Details pane displays detailed information about the selected instance. Additional detail pages may display depending on whether the process instance is selected or the activity instance is selected.

If the process instance is selected, each hyperlink on the Details pane launches the Process Viewer. For more information on the Process Viewer, see [Managing Process Definitions, page 7-19](#).

If the activity instance is selected, each hyperlink on the Details pane launches a display-only view of the Activity Properties dialog box. For more information on viewing activity instance properties, see [Viewing Activity Instance Properties, page 3-31](#).

The following are the standard tabs that display when the process instance and activity instances are selected.

Tab	Description
General	Displays general information about the process or activity instance
Run Options	Displays the target, runtime user, and triggers for the process or activity instance
Workflow	<i>Display only.</i> Shows the process viewer when the process instance is selected
Knowledge Base	Displays a summary of any knowledge base articles associated with the selected activity instance. The Knowledge Base tab only displays when an activity instance is selected.

Viewing Process Instances

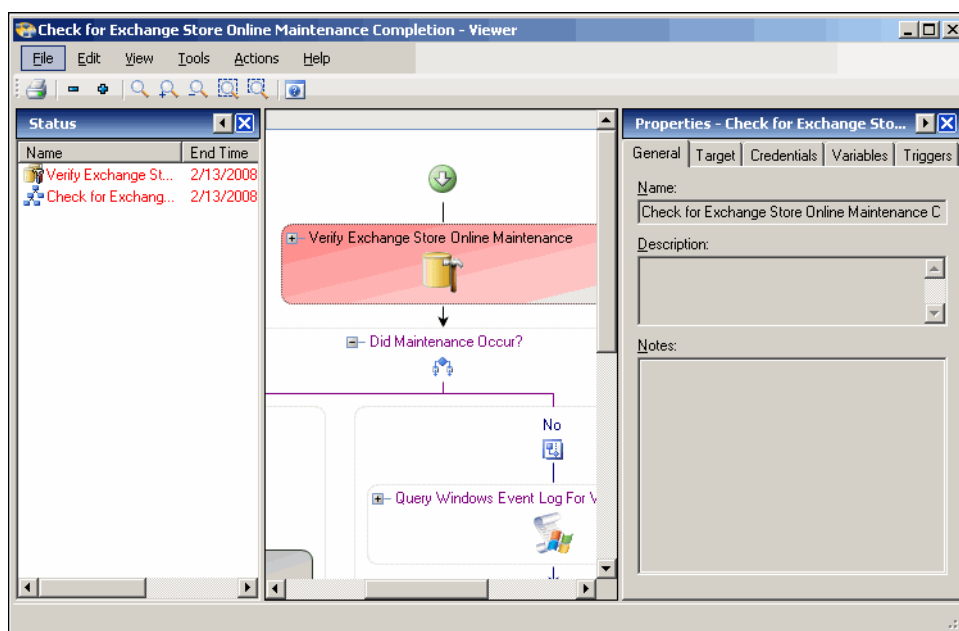
A graphical view of a process workflow can be viewed from the Process Views area after a process has been launched. The information displayed on the Process Viewer is display-only.

To view process instances:

-
- Step 1** Choose any of the four process views to display the process and activity instances in the Results pane.
 - Step 2** From the Process Instance Results pane, use *one* of the following methods to launch the Process Viewer:
 - Double-click the appropriate process instance.
 - Highlight the appropriate process instance, on the Process Views Details pane, click the hyperlink of any item on the General or Run Options tabs.
 - Step 3** From the Activity Instance Results pane, highlight the appropriate process instance, right-click and choose **Observe**.

The Process Viewer displays.

Figure 3-27 **Process Viewer**



Note

For more information about the Process Viewer, see [Process Viewer, page 3-24](#).

Monitoring Auditing Information

The Auditing View displays the system logs for system events that have occurred within Tidal Enterprise Orchestrator. This section provides information on each audit view displayed in the Results pane.

Accessing Auditing Logs

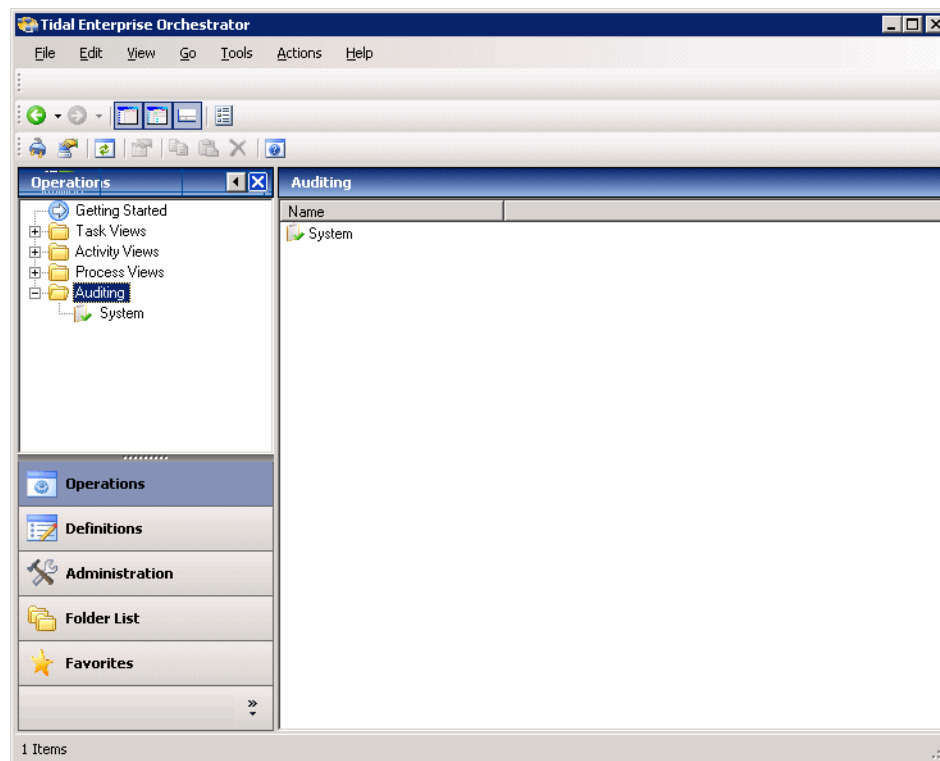
To access the auditing logs:

Step 1 In the Operations workspace, choose Auditing.

The Results pane displays the following default summary information for each of the auditing views:

Column	Description
Name	Name of the audit view
Description	Brief description of the audit view

Figure 3-28 Operations—Auditing View



Step 2 To access detailed information about the system event history, under the Auditing folder, choose **System** to display system event activity, such as start and shut down time and error occurrences.

The selected view displays in the Results pane.

The System Log Results pane contains the following column headings which show information about each system log entry.

Column	Description
Type	Type of event logged by the system
Created By	System-generated record, such as an error condition, or the user name of the person who initiated the process
Created Time	Date and time the event occurred
Event	Number associated with a specific condition on the server for the event
Description	Brief description of the state of a process or activity instance when the event was logged
Category	Numeric ID assigned to the category for a process instance

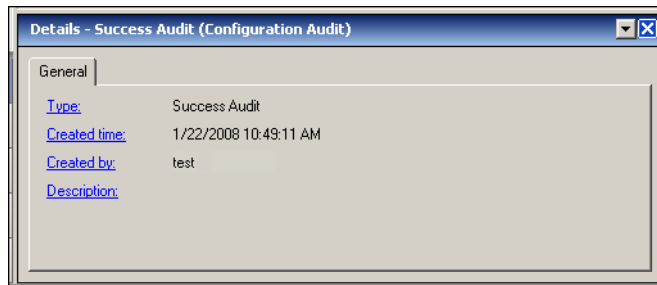
**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Auditing Details Pane

The Auditing Details pane displays additional information about a selected audit system event.

Figure 3-29 Auditing Details Pane



Field	Description
Type	Type of event logged by the system
Created Time	Date and time the event occurred
Created By	TEO service account or the user name of the person who initiated the action
Description	Brief description of the event

Viewing System Log Instance Properties

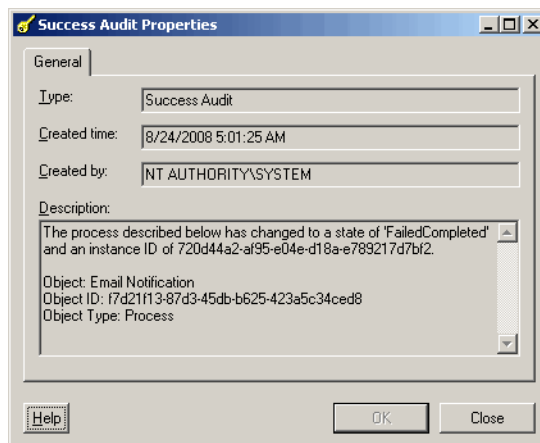
The activity instance properties displayed from the Auditing View are display-only.

To view auditing instance properties:

-
- Step 1** On the Auditing folder, choose the **System** view.
- Step 2** In the Auditing Log Results pane, use *one* of the following methods to launch the Audit Log Properties dialog box:
- Step 3** Highlight the appropriate activity, and use *one* of the following methods:
- Double-click the appropriate audit log entry.
 - Highlight the appropriate log entry, right-click and choose **Properties**.
 - Highlight the appropriate log entry, navigate to the Details pane, click the hyperlink of any item on the General tab.

The display-only Audit Log Properties dialog box displays detailed log entry information.

Figure 3-30 **Audit Properties Dialog Box**



The following information displays about the auditing properties.

Field	Description
Type	Type of event logged by the system. For example, a <i>Success Audit</i> , an <i>Error</i> , or an <i>Information</i> message
Created By	System-generated record, such as an error condition, or the user name of the person who initiated the process
Created Time	Date and time the event occurred
Category	Category name for a process instance
Message ID	Number associated with a specific condition on the server for the event
Message	Brief message of the event associated with the Message ID
Description	Brief description of the event

- Step 4** Click **OK** to close the properties dialog box.
-



CHAPTER 4

Managing Tasks

The Operations—Tasks view displays all task activities and tasks that have been assigned to a specific user or group. The display can be filtered to display tasks by properties such as, category, task type, and status. The user can determine which task view to display.

This chapter provides instructions on creating and managing tasks in the Operations—Task View. Tasks that have been defined in the Process Editor and are run as part of an executed process will display in the Operations—Activities View similar to other activities. The tasks will also display in the Operations—Task View to await user action.



Note

To define a task activity, see the [Appendix B, “Task Activities.”](#)

Refer to the following sections for information on managing tasks in the Operations workspace:

- [Accessing Operations—Task Views, page 4-2](#)
- [Creating Tasks, page 4-7](#)
- [Creating an Alert Task, page 4-11](#)
- [Creating an Approval Request Task, page 4-15](#)
- [Creating a Change Request Task, page 4-18](#)
- [Creating a Guided Operation Task, page 4-21](#)
- [Creating an Incident Task, page 4-23](#)
- [Creating an Input Request Task, page 4-27](#)
- [Creating a Review Task, page 4-35](#)
- [Managing Task Definitions, page 4-37](#)

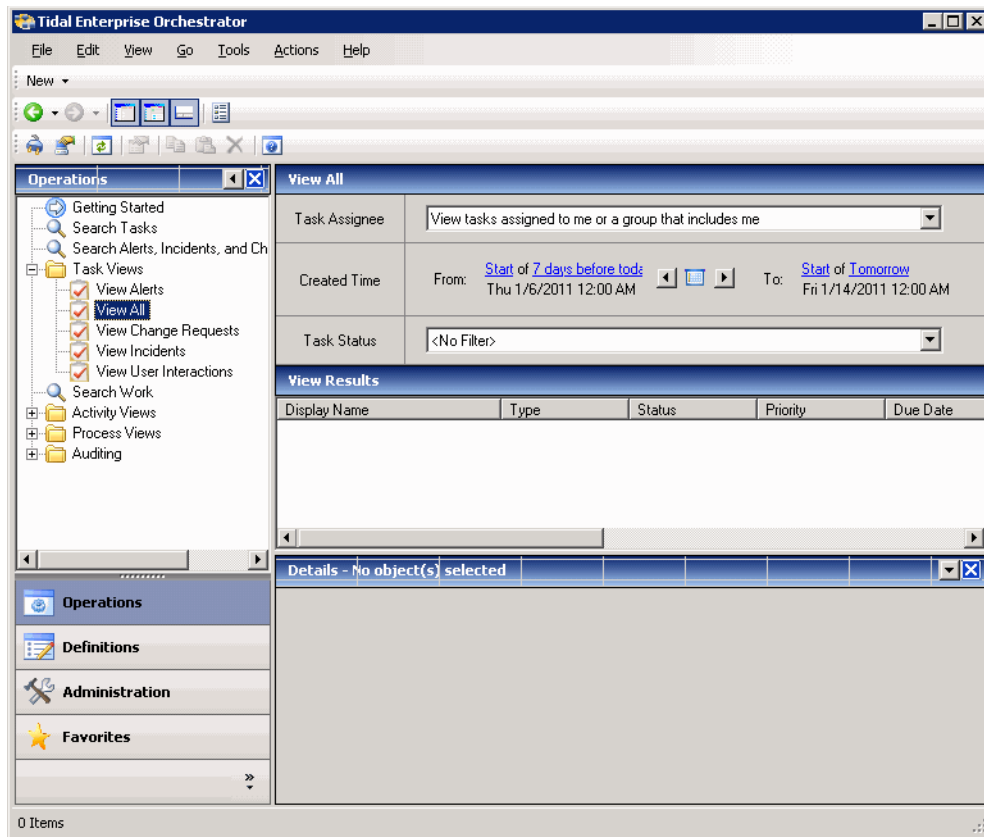
Accessing Operations—Task Views

To access the Tasks view:

In the Operations workspace, choose **Task Views > [Selected Task View]**.

The Results pane displays.

Figure 4-1 Operations Workspace—Tasks—View All



The selected view displays in the Results pane. The displayed columns depend on the selected task. Task alerts and incidents view will display additional information.

Column	Description
Display Name	Name of the task
Type	Type of task
Priority	Priority of the task
Status	Status of the task
Due Date	Date the task should be completed
Class	String or numeric value indicating the class of the alert or incident
Assigned to	User name of the person assigned to the task
Related Tasks	Related tasks associated with the task

Column	Description
Categories	Categories assigned to the task
Target	Name of ITIL configuration item (IT component) which the alert or incident describes
Target CI	Name of the system on which the condition was detected
Created Time	Time at which the task was created
Last Modified Time	The date and time the contents were last modified
Last Modified By	The object or user name that last modified the contents
Id	Task identifier
Notes	Notes associated with the task
Owner	User name of the person or group who assigned the task
Type Description	Brief description of the type of task
Expiration Date	Date the task is set to expire
Completed Time	Time the task was completed
Completed Date	Date task was completed
Produced by	Process which generated the task. This field will be empty if the task was manually created.
Parameters	Parameters of the task
Affected Organizations	Organizations that consume the IT service affected by the alert or incident
Affected Services	IT Service affected by the alert or incident
Configuration Item	Name of the configuration item (IT component) to which the alert pertains.
Automation Summary	File path for the related automation summary
Created By	User or object that created the task

**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Viewing Task Properties

To view task properties:

- Step 1** On the Operations—Task Views, highlight the appropriate task, and use *one* of the following methods:
- Right-click and choose **Properties**.
 - or-
 - On the Details pane, click the hyperlink name on any of the tabs.

The Properties dialog box displays.

**Note**

The property pages may display as display-only if the task definition is shipped as part of the product or the user does not have the appropriate rights.

Step 2 Review the properties and click **OK** to close the dialog box.

Common Task Properties

The following properties are associated with the tasks managed in TEO. The properties that display depend on the selected task. These properties can be updated using the [Update] activities as well as published in a SNMP trap.

Task Property	Description
Affected Configuration Item	Name of the configuration item (IT component) to which the alert pertains. For example, the name of a database server which failed or the name of a specific job which failed. A configuration item is defined in ITIL as any component that needs to be managed in order to deliver an IT Service. The true source of the CI is in the CMDB, so the Configuration Item properties reference a CMDB entry • Configuration Item Type—Type of ITIL configuration item (IT component) which the alert describes. For example, the type of the specific application element which failed such as a server, database, host, or user. • Description—Brief description of the ITIL configuration item (IT component) for the alert or incident • Object Key—ID for the specific record in the CMDB which contains the configuration item • Object Name—Name for the specific record in the CMDB which contains the target configuration item • Source—Name for the specific record in the CMDB which contains the configuration item.
Affected Organizations	Organizations that consume the IT service affected by the alert or incident
Affected Services	IT Service affected by the alert or incident

Task Property	Description
Affected Target Configuration Item	Name of ITIL configuration item (IT component) which the alert or incident describes - Configuration Item Type—Type of ITIL configuration item (IT component) which the alert describes - Description—Brief description of the ITIL configuration item (IT component) for the alert or incident - Object Key—ID for the specific record in the CMDB which contains the target configuration item - Object Name—Name for the specific record in the CMDB which contains the target configuration item - Source—Name of the specific CMDB containing the target configuration item
Affects Configuration Item	Name of the configuration item (IT component) to which the alert pertains.
Affects Target Configuration Item	Name of the system on which the condition was detected
Alert class	Numeric value indicating the class of the alert
Assignees	User name(s) or group assigned to the task
Automation Summary	File path for the related automation summary
Completed Time	Indicates the time period the task was completed - Local Time - Universal Time
Description	Brief description of the task
Due Date	Indicates the time period the task should be resolved - Local Time - Universal Time
Duplicate Task ID	Task ID of the duplicated alert
Expiration Date	Indicates the time period the task should expire - Local Time - Universal Time
Name	Display name of the task
Notes	Any notes related to the task
Parameter	Any parameters associated with a specific task
Priority	Indicates the priority of the task - Low - Medium - High
Process Properties	For the list of process columns, refer to Viewing Process View Information, page 3-33 .

Task Property	Description
Process Target Properties	For information on the target properties, see Viewing Activity Information, page 3-19 .
Severity	Indicates the severity of the task • Low • Normal • High
Related Task IDs	Task ID of the related task
Task Status	Indicates status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses, page 4-6 for additional information.
Task URL	URL of the task. This URL can be used to bring up the Web Console for viewing and editing the task properties. For example, this is the URL which could be placed in an email to notify the user of the task, enabling them to connect to the Web Console to view the task.
Web Form XSL File Name	Name of the source XML text file to transform the task XML into HTML for viewing in the Web Console

Common Task Statuses

The following statuses are associated with the tasks managed in TEO. The statuses that display depend on the currently open task.

Task Status	Description
Assigned	Task is assigned to a user
Bypassed	A step within the operation has been skipped
Canceled	Task has been canceled by the user
Closed	Task is closed
Completed	Task is completed and has been either approved or declined
Duplicate	Indicates whether the alert is a duplicate
Expired	Task due date is expired, but still needs to be completed
In Progress	User is working on the task
New	Indicates task is new
Not Resolved	Indicates task is not resolved
Past Due	Task is past due and still needs to be completed
Pending	Task is in a user's assigned task list
Resolved	Indicates task is resolved
Waiting	Waiting for more information

Creating Tasks

The ability to create tasks is not applicable to everyone as only users with administrative rights can create tasks from this view in TEO. The permission to create or modify a task in the Operations—Task view is not available to all users.

Tasks Overview

The following table displays the tasks that are provided by TEO.

Tasks	Description
Alert	Alerts reflect potential problems that a user may want to investigate and possibly diagnose the problem
Approval Request	Specifies the message and choices for the assignee who is approving the task
Change Request	Requests a modification to the configuration of an object or system
Guided Operation	Details the steps a user takes to complete an assigned task
Incident	Task requires an operator to take action in order to resolve an issue
Input Request	Task requires input from an individual or group
Review	Task assigns a document for review

Creating a Task from Task View

When creating a task in the Operations—Tasks Views, the task dialog box contains property pages that are specific to the selected task as well as property pages that are common to all the tasks.

Use the following steps to define a task in the Operations—Tasks Views. Refer to the appropriate section for instructions on completing the task property pages.

To create a task:

Step 1 On the Operations—Tasks Views, use *one* of the following methods:

- On the toolbar, choose **New > [Selected Task]**.
- or-
- From the Actions menu, choose **New > [Selected Task]**.

The [Task Name] Properties dialog box displays.

Step 2 On the General tab, enter the following information:

Field	Description
Display Name	Name of the task
Types	<i>Display only.</i> Shows the type of task

Field	Description
Status	Choose the appropriate status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses, page 4-6 for additional information.
Produced by	Name of the process which generated the task. Note Click the Properties  tool to show the display-only view of the process.
Description	Description of the task

Step 3 Click the task-specific tab to enter the appropriate information for the task. Refer to the appropriate section for instructions on creating the task.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Step 4 Click the **Assignment** tab to modify the general assignment properties for the task.

Field	Description
Assigned to	User name(s) assigned to the task • Add—Click Add to launch the Select User or Group dialog box to choose the name of the person to assign to the task • Remove—Choose the user name and click this button to remove the user from list.
Priority	Indicates the priority of the task • Low • Medium (Default) • High
Due date	Check the check box and choose appropriate date the task should be completed from the drop-down calendar.
Expiration date	Choose the appropriate date the alert should expire from the drop-down calendar.

Step 5 Click the **Notification** tab to specify the recipients to be notified about the task.

Button	Description
Add	Click this button to launch the Add Notification Recipient Dialog Box to enter the appropriate recipient and click Ok to add the recipient.
Modify	Highlight the appropriate recipient in the list to be modified.

Button	Description
Remove	Highlight the appropriate recipient and click this button to remove the recipient from the list.
Remove All	Click this button to remove all specified recipients from the list.

Step 6 Click the **Parameters** tab to define parameters for a specific task.

Field	Description
Parameter	Enter the appropriate parameter
Add	Adds new row for parameter to be added
Remove	Removes selected parameter from task

Step 7 Click the **Notes** tab to enter any notes related to the task in the text box.

Step 8 Click the **Categories** tab to assign a task to a category or modify an existing assigned category.
Tasks belong to the following categories:

Column	Description
Display Name	The name of the category
Description	A description of the category
Type	Type of category

Step 9 Use the following buttons to modify the list of categories:

Field	Description
Add	Click this button to launch the Select Categories dialog box and select the category to which the process is to be assigned. For more information, see Assigning a Category to a Task, page 4-41 .
Properties	Click this button to view or modify the properties of category.
Remove	Click this button to remove a category from the list. For more information, see Removing a Category from a Task, page 4-41 .

Step 10 Click the **Related** tab to assign or modify an existing related task.

Field	Description
This task is a duplicate of the following task	<i>Display Only.</i> Shows any duplicated tasks. Click the Delete tool to remove the selected task from the field. This action does not delete the task from the system. Click this button to launch the Select Tasks dialog box and select the task to add to the duplicate task field.

Information about the tasks related to the selected task display in the following:

Field	Description
Display Name	Name of the task
Description	Description of the task
Type	Type of task

Step 11 Use the following buttons to modify the list of tasks:

Field	Description
Add	Launches the Select Tasks dialog box and select the task to add to the Related task list. After the task has been added to the list, it will no longer be displayed in the Select Tasks dialog box. For more information, see Adding a Related Task, page 4-43 .
Properties	Click this button to view or modify the properties of task.
Remove	Click this button to remove a task from the list. For more information, see Removing a Related Task, page 4-43 .

Step 12 Click the **External** tab to specify the external incident information to support the synchronization between TEO and the system that the customer is using.

Field	Description
External System	Name or IP address for the incident management server
External ID	ID of the incident which corresponds to the TEO incident

Step 13 Click the **History** tab to display the history of actions taken against the task. This tab remains blank until after the initial task creation.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

Step 14 Click **OK** to close the dialog box.

Creating an Alert Task

Use the Alert task to create an alert regarding any potential problems. An alert reflects potential problems that a user may want to investigate and possibly diagnose the problem.

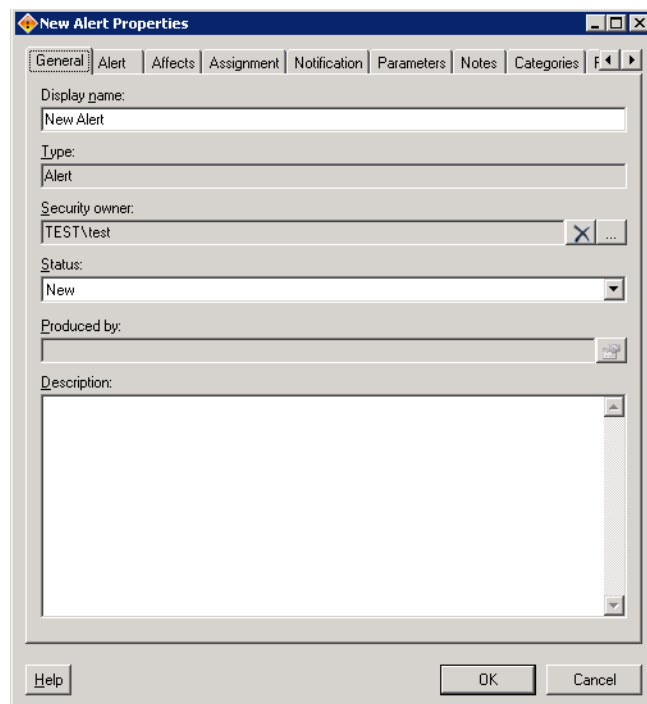
To create an alert:

Step 1 On the Operations—Task Views, use *one* of the following methods:

- On the toolbar, choose **New > IT Record > Alert**.
- or-
- From the Actions menu, choose **New > IT Record > Alert**.

The New Alert Properties dialog box displays.

Figure 4-2 New Alert Properties Dialog Box—General Tab



Step 2 On the General tab, enter the following information:

Field	Description
Display Name	Name of the task
Types	<i>Display Only</i> . Type of task
Status	Choose the appropriate status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses, page 4-6 for additional information.
Produced by	Name of the process which generated the task. Note Click the Properties  tool to show the display-only view of the process.
Description	Description of the task

Step 3 Click the **Alert** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 4-3 *New Alert Properties—Alert Tab*

The screenshot shows the 'New Alert Properties' dialog box with the 'Alert' tab selected. The 'Alert class' field contains the value '0'. The 'Severity' dropdown menu is set to 'Medium'. The 'Automation summary' field is a large, empty text area. At the bottom of the dialog are three buttons: 'Help', 'OK', and 'Cancel'.

Step 4 On the Alert tab, enter the criteria for the alert.

Field	Description
Alert class	String or numeric value indicating the class of the alert
Severity	Severity of the alert • High—Interruption to critical business processes • Normal—Interruption to the work of individual employees • Low—Hindrane to the work of individual employees, continuation of work possible by means of a circumvented solution
Automation Summary	Enter the file path for the related automation summary that was performed on the alert.

Step 5 Click the **Affects** tab to continue.

Figure 4-4 *New Alert Properties –Affects Tab*

The screenshot shows the 'New Alert Properties' dialog box with the 'Affects' tab selected. The dialog is divided into several sections for defining the alert's impact:

- Affected Target:** Includes a 'Target name' field and a 'Configuration item name' field, both with browse buttons.
- Affected Configuration Item:** Includes an 'Object name' field, 'Type', 'Source', and 'Key' fields, each with a browse button.
- Affected organizations:** A text input field.
- Affected services:** A text input field.

At the bottom of the dialog are 'Help', 'OK', and 'Cancel' buttons.

Step 6 On the Affects tab, specify the appropriate organizations and configuration item elements.

Field	Description
Target name	Name of the target affected by alert or incident
Configuration item name	Name of the configuration item (IT component) to which the alert pertains. For example, the name of a database server which failed or the name of a specific job which failed. A configuration item is defined in ITIL as any component that needs to be managed in order to deliver an IT Service. The true source of the CI is in the CMDB, so the Configuration Item properties reference a CMDB entry.
Object name	Name for the specific record in the CMDB which contains the target configuration item
Type	Type of ITIL configuration item (IT component) which the alert describes. For example, the type of the specific application element which failed such as a server, database, host, or user.
Source	Name for the specific record in the CMDB which contains the configuration item
Key	ID for the specific record in the CMDB which contains the configuration item
Affected services	IT Service affected by the alert or incident
Affected organizations	Organizations that consume the IT service affected by the alert or incident

Step 7 Complete the appropriate information in the following tabs, as necessary, and then click the **OK** tool to complete the task definition.

- Assignment—Click the tab to modify the general assignment properties.
- Notification—Click the tab to specify the recipients to be notified about the task.
- Parameters—Click the tab to define parameters for the task.
- Notes—Click the tab to enter any notes.
- Categories—Click the tab to assign a category or modify an existing assigned category.
- Related—Click the tab to assign or modify an existing related task.
- External—Click the tab to specify the external incident information to support the synchronization between TEO and the system that the customer is using.
- History—Click the tab to display the history of actions taken against the task.

Creating an Approval Request Task

Use the Approval Request task to specify the user or group required to approve a task including the message associated for the approver.

To create an approval request:

- Step 1** On the Operations—Tasks Views, use *one* of the following methods:
- On the toolbar, choose **New > User Interaction > Approval Request**.
 - or-
 - From the Actions menu, choose **New > User Interaction > Approval Request**.

The New Approval Request Properties dialog box displays.

Figure 4-5 *New Approval Request Properties Dialog Box—General Tab*

The screenshot shows a dialog box titled "New Approval Request Properties" with a green checkmark icon in the top-left corner. The dialog has a tabbed interface with the following tabs: General (selected), Approval, Assignment, Parameters, Notes, Categories, Related, and History. The General tab contains the following fields:

- Display name:** A text box containing "New Approval Request".
- Type:** A text box containing "Approval Request".
- Status:** A dropdown menu with "New" selected.
- Produced by:** A text box with a "help" button to its right.
- Description:** A large text area with a vertical scrollbar.

At the bottom of the dialog are three buttons: "Help", "OK", and "Cancel".

Step 2 On the General tab, enter the following information:

Field	Description
Display Name	Name of the task
Types	<i>Display Only</i> . Type of task
Status	Choose the appropriate status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses , page 4-6 for additional information.
Produced by	Name of the process which generated the task. Note Click the Properties  tool to show the display-only view of the process.
Description	Brief description of the task

Step 3 Click the **Approval** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 4-6 *New Approval Request Properties—Approval Tab*

The screenshot shows the 'New Approval Request Properties' dialog box with the 'Approval' tab selected. The 'Approval' tab contains a 'Message' text area with a red exclamation mark icon, 'Approval choices' list with 'Add...', 'Modify...', and 'Remove' buttons, and a 'Choice' dropdown menu. At the bottom are 'Help', 'OK', and 'Cancel' buttons.

Step 4 On the Approval tab, enter the criteria for the approval request.

Field	Description
Message	Enter the message that informs the approver what is being requested.
Approval choices	Displays the choices available to the approver • Add—Enter approval choices in the Select Approval Choice dialog box. • Remove—Choose an existing item in the Approve Choice text box and then click Remove to remove the approval item from the list.
Choice	Choose the appropriate approval choice for the task.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click **OK** to complete the task definition.

- Assignment—Click the tab to modify the general assignment properties.
- Parameters—Click the tab to define parameters for the task.
- Notes—Click the tab to enter any notes.
- Categories—Click the tab to assign a category or modify an existing assigned category.
- Related—Click the tab to assign or modify an existing related task.
- External—Click the tab to specify the external incident information to support the synchronization between TEO and the system that the customer is using.
- History—Click the tab to display the history of actions taken against the task.

Creating a Change Request Task

Use the Change Request task to request a modification to the configuration of an object or system. The change requests are used to request system enhancements, report problems with a system, or report changes from one system which affects another system.

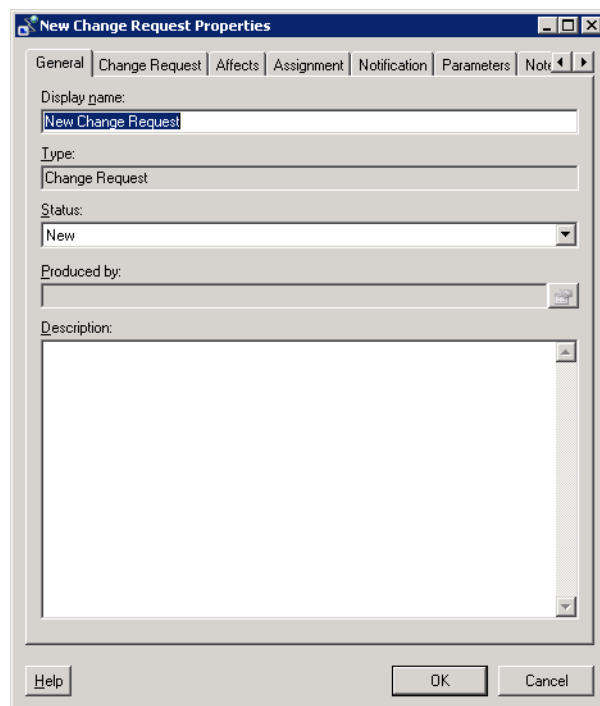
To create a change request:

Step 1 On the Operations—Tasks Views, use *one* of the following methods:

- On the toolbar, choose **New > IT Record > Change Request**.
- or-
- From the Actions menu, choose **New > IT Record > Change Request**.

The New Change Request Properties dialog box displays.

Figure 4-7 *New Change Request Properties Dialog Box—General Tab*



Step 2 On the General tab, enter the following information:

Field	Description
Display Name	Name of the task
Types	<i>Display Only.</i> Type of task
Status	Choose the appropriate status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses , page 4-6 for additional information.
Produced by	Name of the process which generated the task. Note Click the Properties  tool to show the display-only view of the process.
Description	Brief description of the task

Step 3 Click the **Change Request** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 4-8 *New Change Request Properties—Change Request Tab*

The screenshot shows the 'New Change Request Properties' dialog box with the 'Change Request' tab selected. The 'Change request identifier' field contains the text 'TED.CR.20110113.091612405'. The 'Change request class' field contains '0'. The 'Reason for change' field is an empty text area. The 'Change timing' field is an empty text area. The 'Severity' field is a dropdown menu set to 'Medium'. The 'Automation summary' field is an empty text area. At the bottom, there are 'Help', 'OK', and 'Cancel' buttons.

Step 4 On the Change Request tab, enter the criteria for the change request.

Field	Description
Change request identifier	TEO generated ID number for the change request task
Change request class	Numeric value indicating the class of the change request
Reason for change	Describes the business justification for the request
Change timing	Enter the deadline date or time for the change
Severity	Severity of the change request • High—Interruption to critical business processes • Normal—Interruption to the work of individual employees • Low—Hindrane to the work of individual employees, continuation of work possible by means of a circumvented solution
Automation Summary	Enter the file path for the related automation summary that was performed on the change request

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click **OK** to complete the task definition.

- Assignment—Click the tab to modify the general assignment properties.
- Notification—Click the tab to specify the recipients to be notified about the task.
- Parameters—Click the tab to define parameters for the task.
- Notes—Click the tab to enter any notes.
- Categories—Click the tab to assign a category or modify an existing assigned category.
- Related—Click the tab to assign or modify an existing related task.
- External—Click the tab to specify the external incident information to support the synchronization between TEO and the system that the customer is using.
- History—Click the tab to display the history of actions taken against the task.

Creating a Guided Operation Task

Use the Guided Operation task to provide detailed instructions for a user or group to perform a guided operation task.

To create a guided operation task:

- Step 1** On the Operations—Tasks Views, use *one* of the following methods:
- On the toolbar, choose **New > User Interaction > Guided Operation**.
 - or-
 - From the Actions menu, choose **New > User Interaction > Guided Operation**.

The New Guided Operation Properties dialog box displays.

Figure 4-9 New Guided Operation Properties Dialog Box—General Tab

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the task
Types	<i>Display Only</i> . Type of task
Status	Choose the appropriate status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses , page 4-6 for additional information.
Produced by	Name of the process which generated the task. Note Click the Properties  tool to show the display-only view of the process.
Description	Brief description of the task

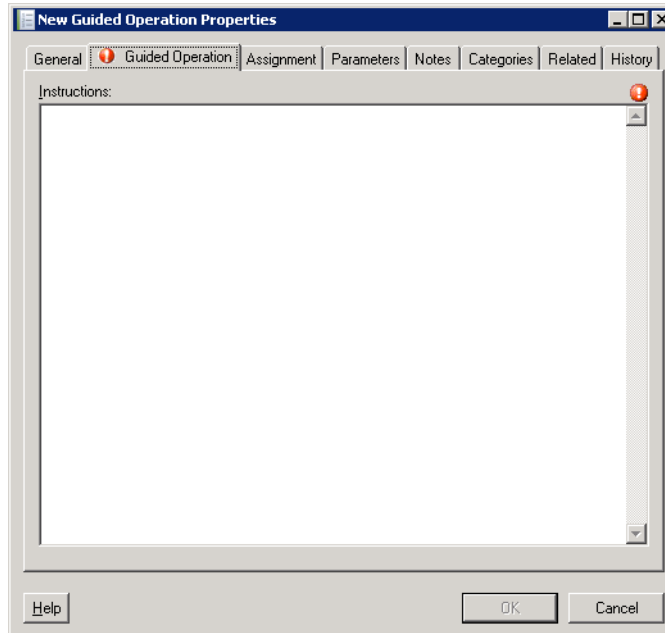
Step 3 Click the **Guided Operation** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 4-10 *New Guided Operation Properties—Guided Operation Tab*



Step 4 On the Guided Operation tab, enter the criteria for the guided operation.

Field	Description
Instructions	Enter the step-by-step process for handling a task.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click **OK** to complete the task definition.

- Assignment—Click the tab to modify the general assignment properties.
- Parameters—Click the tab to define parameters for the task.
- Notes—Click the tab to enter any notes.
- Categories—Click the tab to assign a category or modify an existing assigned category.
- Related—Click the tab to assign or modify an existing related task.
- External—Click the tab to specify the external incident information to support the synchronization between TEO and the system that the customer is using.
- History—Click the tab to display the history of actions taken against the task.

Creating an Incident Task

Use the Incident task to create a task which requires an operator to take action in order to resolve an issue.

To create an incident:

Step 1 On the Operations—Tasks Views, use *one* of the following methods:

- On the toolbar, choose **New > IT Record Incident**.
- or-
- From the Actions menu, choose **New > IT Record Incident**.

The New Incident Properties dialog box displays.

Figure 4-11 New Incident Properties Dialog Box—General Tab

The screenshot shows a Windows-style dialog box titled "New Incident Properties". It has a tabbed interface with the following tabs: General, Incident, Assignment, Affects, Parameters, Notes, Categories, Related, and History. The "General" tab is selected. Inside the dialog, there are several input fields: "Display name:" with the text "New Incident", "Type:" with the text "Incident", "Status:" with a dropdown menu showing "New", "Produced by:" with an empty text box and a browse button, and "Description:" with a large empty text area. At the bottom of the dialog, there are three buttons: "Help", "OK", and "Cancel".

Step 2 On the General tab, enter the following information:

Field	Description
Display Name	Name of the task
Types	<i>Display Only.</i> Type of task
Status	Choose the appropriate status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses , page 4-6 for additional information.

Field	Description
Produced by	Name of the process which generated the task. Note Click the Properties  tool to show the display-only view of the process.
Description	Brief description of the task

Step 3 Click the **Incident** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 4-12 *New Incident Properties—Incident Tab*

Step 4 On the Incident tab, enter the criteria for the alert.

Field	Description
Incident identifier	ID of the incident
Incident class	String or numeric value indicating the class of the incident
Reporting user	User name of the individual who reported the incident and contact information of the user who called IT to report the problem
Reporting user details	Contact information of the individual who reported the incident

Field	Description
Severity	Severity of the incident - High—Interruption to critical business processes - Normal—Interruption to the work of individual employees - Low—Hindrane to the work of individual employees, continuation of work possible by means of a circumvented solution
Automation Summary	Enter the file path for the related automation summary that was performed on the incident.

Step 5 Click the **Affects** tab to continue.

Figure 4-13 *New Incident Properties—Affects Tab*

New Incident Properties

General | Incident | Assignment | **Affects** | Parameters | Notes | Categories | Related | History

Affected Target

Target name:

Configuration item name:

Affected Configuration Item

Object name:

Type:

Source:

Key:

Affected organizations:

Affected services:

- Step 6** On the Affects tab, specify the organizations and configuration item elements that triggered the target for the task.

Field	Description
Target name	Name of the target affected by alert or incident
Configuration item name	Name of the configuration item (IT component) to which the alert pertains. For example, the name of a database server which failed or the name of a specific job which failed. A configuration item is defined in ITIL as any component that needs to be managed in order to deliver an IT Service. The true source of the CI is in the CMDB, so the Configuration Item properties reference a CMDB entry.
Object name	Name for the specific record in the CMDB which contains the target configuration item
Type	Type of ITIL configuration item (IT component) which the alert describes. For example, the type of the specific application element which failed such as a server, database, host, or user.
Source	Name for the specific record in the CMDB which contains the configuration item
Key	ID for the specific record in the CMDB which contains the configuration item
Affected services	IT Service affected by the alert or incident
Affected organizations	Organizations that consume the IT service affected by the alert or incident

- Step 7** Complete the appropriate information in the following tabs, as necessary, and then click the **OK** tool to complete the task definition.
- Assignment—Click the tab to modify the general assignment properties.
 - Parameters—Click the tab to define parameters for the task.
 - Notes—Click the tab to enter any notes.
 - Categories—Click the tab to assign a category or modify an existing assigned category.
 - Related—Click the tab to assign or modify an existing related task.
 - External—Click the tab to specify the external incident information to support the synchronization between TEO and the system that the customer is using.
 - History—Click the tab to display the history of actions taken against the task.

Creating an Input Request Task

Use the Input Request task to create a set of questions requiring a user or group response in order to gather a large set of information.

To create an input request:

- Step 1** On the Operations—Tasks Views, use *one* of the following methods:
- On the toolbar, choose **New > User Interaction > Input Request**.
 - or-
 - From the Actions menu, choose **New > User Interaction > Input Request**.

The New Input Request Properties dialog box displays.

Figure 4-14 New Input Request Properties Dialog Box—General Tab

The screenshot shows a dialog box titled "New Input Request Properties". It has several tabs: General (selected), Questions, Assignment, Parameters, Notes, Categories, Related, and History. The General tab contains the following fields: "Display name:" with the text "New Input Request"; "Type:" with a dropdown menu showing "Input Request"; "Status:" with a dropdown menu showing "New"; "Produced by:" with an empty text field and a browse button; and "Description:" with a large empty text area. At the bottom of the dialog are three buttons: "Help", "OK", and "Cancel".

- Step 2** On the General tab, enter the following information:

Field	Description
Display Name	Name of the task
Types	<i>Display Only.</i> Type of task
Status	Choose the appropriate status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses , page 4-6 for additional information.
Produced by	Name of the process which generated the task. Note Click the Properties  tool to show the display-only view of the process.
Description	Brief description of the task

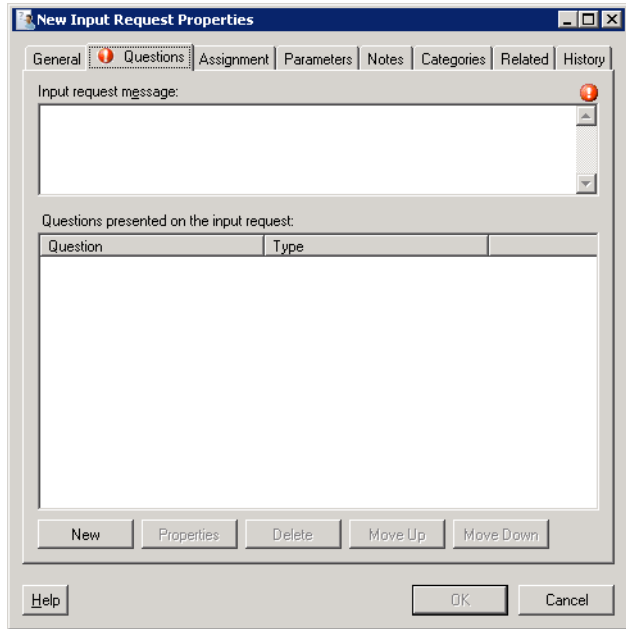
Step 3 Click the **Input Request** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 4-15 *New Input Request Properties—Questions Tab*



Step 4 On the Questions tab, define the appropriate questions for the input request.

Field	Description
Input request message	Enter the introductory message for the input request.
Questions presented on the input request	Displays the input request question properties - Label—Input request question - Type—Type of question (text, check box, select) - Default Value—Default answer for the question

Field	Description
New	Use this option to create a specific type of input request question. Click New each time to create additional questions for the input request. - Text—Launches the New Text Properties dialog box to allow the user to define a text question. See Creating a Text Question, page 4-30. - Hidden text—Launches the New Hidden Text Properties dialog box to allow the user to define a question requiring an encrypted value as a response. See Creating a Hidden Text Question, page 4-31. - Check box—Launches the New Check box Properties dialog box to allow the user to define a question utilizing a check box. See Creating a Check Box Question, page 4-32. - Select—Launches the New Select Properties dialog box to allow the user to define a text question. See Creating a Select Question, page 4-33.
Properties	Modifies the properties for the question
Delete	Removes the question from the list
Move Up	Highlight a question and click this button to move the question up the list of questions
Move Down	Highlight a question and click this button to move the question down the list of questions

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click **OK** to complete the task definition.

- Assignment—Click the tab to modify the general assignment properties.
- Parameters—Click the tab to define parameters for the task.
- Notes—Click the tab to enter any notes.
- Categories—Click the tab to assign a category or modify an existing assigned category.
- Related—Click the tab to assign or modify an existing related task.
- History—Click the tab to display the history of actions taken against the task.

Creating a Text Question

A Text question in an Input Request task allows the user to enter a text or numeric value to the question.

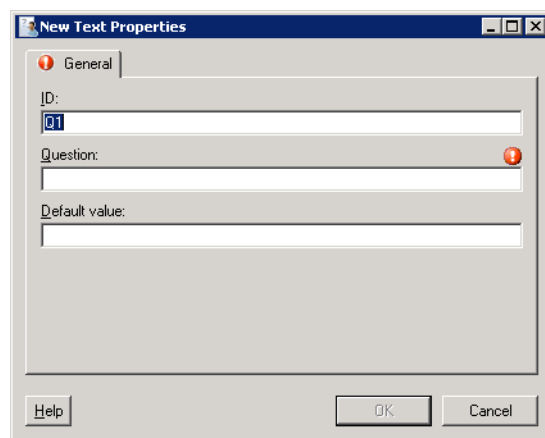
Use the following steps to define a single text question for the Input Request task. Repeat the steps to create additional questions for the task.

To create a text question:

-
- Step 1** On the Input Request—Questions tab, click **New > Text**.

The New Text Properties dialog box displays.

Figure 4-16 *New Text Properties Dialog Box*



- Step 2** Enter the following information for the text question:

Field	Description
ID	Unique ID for the input request question (Default: <i>Q1</i>)
Question	Enter the question for the input request
Default value	Default value to be used for the question

- Step 3** Click **Ok** to create the new question.

The new question displays on Input Request—Questions tab under the Questions presented on the input request area.

Creating a Hidden Text Question

Use the Hidden Text Properties dialog to create or modify hidden text questions for an input request. An example of an encrypted value includes values such as passwords.

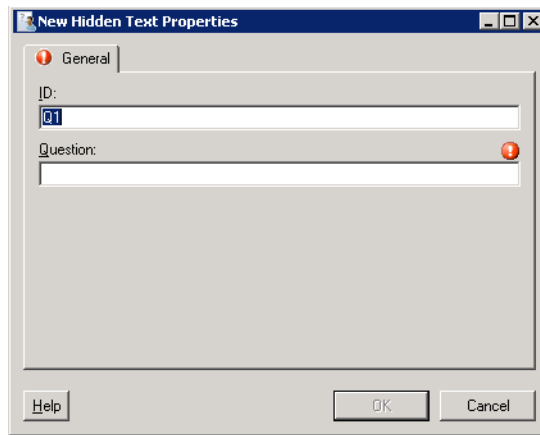
An encrypted value will be available from the Insert Variable Reference dialog and can be used in providing a response to the hidden text question. The encrypted value is only to be used when the question type is an hidden text question.

Use the following steps to define a single hidden text question for the Input Request task. Repeat the steps to create additional questions for the task.

To create a hidden text question:

-
- Step 1** On the Input Request—Questions tab, click **New > Hidden Text**.
The New Hidden Text Properties dialog box displays.

Figure 4-17 New Hidden Text Properties Dialog Box



- Step 2** Enter the following information for the text question:

Field	Description
ID	Unique ID for the input request question (Default: Q1)
Question	Enter the question for the input request

- Step 3** Click **Ok** to create the new question.

The new question displays on Input Request—Questions tab under the Questions presented on the input request area.

Creating a Check Box Question

A Check box question in an Input Request task allows the user to check a specific selection to a defined question. For example, a user would create this task type to allow assignees to respond with an answer such as *True/False* or *Yes/No* to the question.

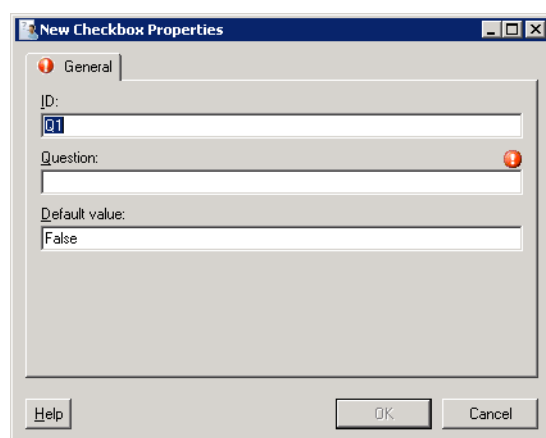
Use the following steps to define a single question for the Input Request task. Repeat the steps to create additional questions for the task.

To create a check box question:

-
- Step 1** On the Input Request—Questions tab, click **New > Check Box**.

The New Check Box Properties dialog box displays.

Figure 4-18 *New Check Box Properties Dialog Box*



- Step 2** Enter the following information to create or modify questions that contain a check box:

Field	Description
ID	Unique ID for the input request question (Default: <i>Q1</i>)
Question	Enter the question for the input request
Default value	Default value to be used for the question

- Step 3** Click **Ok** to create the new question.

The new question displays on Input Request—Questions tab under the Questions presented on the input request area.

Creating a Select Question

A Select question in an Input Request task allows the user to choose a single option from a list of answers to a defined question.

Use the following steps to define a single question for the Input Request task. Repeat the steps to create additional questions for the task.

To create a select question:

- Step 1** On the Input Request—Questions tab, choose **New > Select**.
The New Select Properties dialog box displays.

Figure 4-19 New Select Properties Dialog Box

- Step 2** Enter the following information to create or modify questions that contain a check box:

Field	Description
ID	Unique ID for the input request question (Default: Q1)
Question	Enter the question for the input request
Selections	Displays the input request question properties - Label—Input request question - Value—Default answer for the question
New	Use this option to launch the Select Choice dialog box to create a selection for the input request question. For additional information, see Adding an Option to the Input Request Select Question , page 4-34.
Properties	Modifies the properties for the selected option
Delete	Removes the selected option from the list

Step 3 Click **Ok** to create the new question.

The new question displays on Input Request—Questions tab under the Questions presented on the input request section.

Adding an Option to the Input Request Select Question

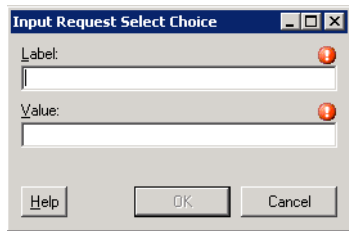
Use the following steps to create options for the Select question. Repeat the steps for each additional option.

To add an option:

Step 1 On the New Select Properties dialog box, click **New**.

The Input Request Select Choice dialog box displays.

Figure 4-20 *Input Request Select Choice Dialog Box*



Step 2 Enter the following information:

Field	Description
Label	Enter the name of the selection
Value	Enter the value for the selection

Step 3 Click **Ok** to create the new selection.

The new selection displays on the New Select Properties dialog box under the Selections area.

Creating a Review Task

Use the Review task to submit a document for review as well as provide a message for the reviewer.

To create a review request:

Step 1 On the Operations—Tasks Views, use *one* of the following methods:

- On the toolbar, choose **New > User Interaction > Review**.
- or-
- From the Actions menu, choose **New > User Interaction > Review**.

The New Review Properties dialog box displays.

Figure 4-21 New Review Properties Dialog Box—General Tab

Step 2 On the General tab, enter the following information:

Field	Description
Display Name	Name of the task
Types	<i>Display Only.</i> Type of task
Status	Choose the appropriate status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses, page 4-6 for additional information.
Produced by	Name of the process which generated the task. Note Click the Properties  tool to show the display-only view of the process.
Description	Brief description of the task

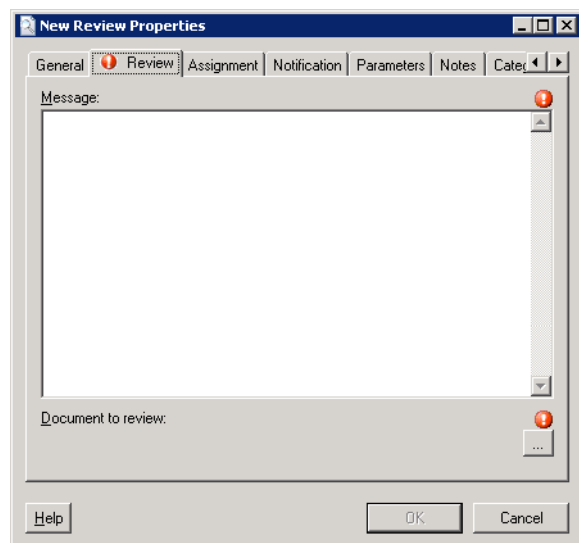
Step 3 Click the **Review** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 4-22 *New Review Properties—Review Tab*



Step 4 On the Review tab, enter the information required to submit a document for review.

Field	Description
Message	Enter the message that informs the reviewer of why document needs to be reviewed.
Document to review	Click Browse to locate document or automation summary to be reviewed. The following example is the display for the file path for the document. Example: C:/Documents and Settings/user name/My Documents/

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click **OK** to complete the task definition.

- Assignment—Click the tab to modify the general assignment properties.
- Parameters—Click the tab to define parameters for the task.
- Notes—Click the tab to enter any notes.
- Categories—Click the tab to assign a category or modify an existing assigned category.
- Related—Click the tab to assign or modify an existing related task.
- History—Click the tab to display the history of actions taken against the task.

Managing Task Definitions

The ability to modify tasks is not applicable to everyone as only users with administrative rights can update tasks from the Operations—Task view in Tidal Enterprise Orchestrator.

This section provides instructions on modifying tasks in the Operations—Task view.

Resolving a Task

Most users cannot resolve a task from the TEO console because they don't have the rights to modify the task. In general, the user will launch the web console when attempting to resolve the task.

Use the following steps to resolve an assigned task from the web console.

To resolve a task:

Step 1 On the Operations—Tasks Views, highlight the appropriate task, right-click and choose *one* of the following:

- Resolve
- Select a choice

The Web Console launches and the selected task details displays.

Step 2 Review the details of the task.



Note

For additional information on the properties in the list, see [Common Task Properties, page 4-4](#).

Step 3 From the Status drop-down list, choose the appropriate status for the task resolution.

Step 4 In the Add Notes text box, if available, enter any notes related to the task resolution or status update.

Step 5 Click **Submit** to resolve the task.

The Task details page is updated and displays the user name of who resolved or updated the task.

Viewing Automation Summary

The automation summary details the analysis that TEO performed to identify the situation that may require action. The summary also shows relevant diagnostic and state information captured while performing the situation analysis.

To view an automation summary:

On the Operations—Tasks Views, highlight the appropriate task, right-click and choose **View Automation Summary**.

The automation summary launches in a web browser.

Field	Description
Report Location	<i>Display Only.</i> Shows the file path for the automation summary
Situation Analysis	After Tidal Enterprise Orchestrator puts all data points in context to identify a situation that requires action, it performs deep analysis based on the type of situation identified. During situation analysis, Tidal Enterprise Orchestrator captures volatile state and diagnostic information that may otherwise be difficult or impossible to capture manually. The <i>Situation Analysis</i> section displays below the overview information. Click the link in the upper portion of the summary to navigate directly to the <i>Situation Analysis</i> section or simply scroll to the section.
Context Analysis	Tidal Enterprise Orchestrator analyzes all data points in context with each other to identify a situation that may require action. This information can be viewed in the <i>Context Analysis</i> section of the summary. The <i>Context Analysis</i> displays the symptom and possible causes.

Manually Changing the Status

Use the following steps to modify the state of the task.

- Step 1** On the Operations—Tasks Views, highlight the appropriate task, right-click and choose **Properties**. The [Task] Properties dialog box displays.
- Step 2** On the General tab, modify the task status, as necessary.

Field	Description
Display name	Name of the task
Status	Choose the appropriate status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses , page 4-6 for additional information.
Description	Brief description of the task

- Step 3** Click OK to close the dialog box.

Modifying the Assignment Properties for a Task

Use the following steps to change the assignee or other assignment properties for the task. This includes taking ownership of the task, if necessary.

To modify the assignment properties:

- Step 1** On the Operations—Tasks Views, highlight the appropriate task, right-click and choose **Properties**. The [Task] Properties dialog box displays.
- Step 2** Click the **Assignment** tab to modify the assignment properties for the task.
- Step 3** Under Assigned to, click *one* of the following to change the list owners for the task.

Field	Description
Add	Click Add to launch the Select User or Group dialog box to search for the name of the person.
Remove	Choose the user name and click this button to remove the user from list.

Step 4 To modify the task priority and the date the task should be completed, modify the following information:

Field	Description
Priority	Indicates the priority of the task • Low • Medium (Default) • High
Due date	Check the check box and choose the appropriate date the task should be completed from the drop-down calendar.
Expiration date	Choose the appropriate date the task should expire from the drop-down calendar.

Step 5 Click **OK** to close the dialog box.

Specifying Parameters for a Task

A single task can include up to 10 parameters. Use the following steps to modify the parameters for a task.

To modify the list of parameters:

-
- Step 1** On the Operations—Tasks Views, highlight the appropriate task, right-click and choose **Properties**. The [Task] Properties dialog box displays.
- Step 2** Click the **Parameters** tab to modify the parameters properties for the task.
- Step 3** Click **Add** to add a new field for a parameter.
- Step 4** Enter the appropriate information for the task.
- Step 5** Click **OK** to close the dialog box.
-

Removing Parameters from a Task

The Remove button removes the last parameter added to the list. For example, the user cannot remove *Parameter 4* without removing *Parameter 5* from the list.

If the user wants to keep *Parameter 5*, then update *Parameter 4* with the information from *Parameter 5*, and then click **Remove** to remove *Parameter 5* from the list.

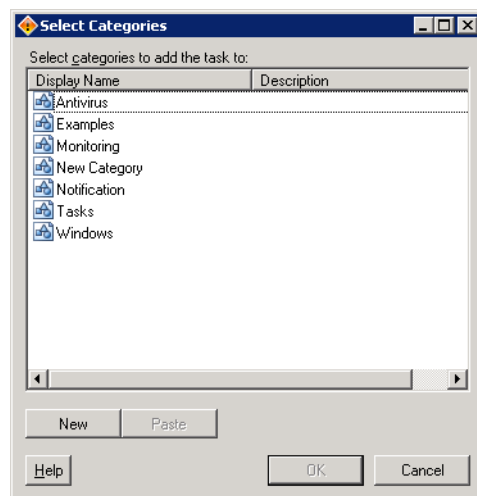
Assigning a Category to a Task

Use the following steps to assign a category to a task.

To assign a category to a task:

-
- Step 1** On the Operations—Tasks Views, highlight the appropriate task, right-click and choose **Properties**. The [Task] Properties dialog box displays.
- Step 2** Click the **Categories** tab to modify the list of categories assigned to the task.
- Step 3** Click **Add** to launch the Select Categories dialog box.

Figure 4-23 *Select Categories Dialog Box*



- Step 4** Use *one* of the methods to choose a category:
- To select a single category, highlight the appropriate category.
 - To select multiple categories, press **CTRL** and hold the key while making the appropriate selections.
- Step 5** When completed selecting the categories, click **OK** to close the dialog box.



Note For information on managing the categories, click [Chapter 18, “Managing Categories.”](#)

Removing a Category from a Task

Use the following steps to remove an assigned category from a task.

To remove an assigned category

On the Categories tab, highlight the appropriate category, and then click **Remove**.

The Remove button removes the category from the list, but it does not delete the category from the system. For more information on deleting categories, see [Chapter 18, “Managing Categories.”](#)

Assigning a Duplicate Alert

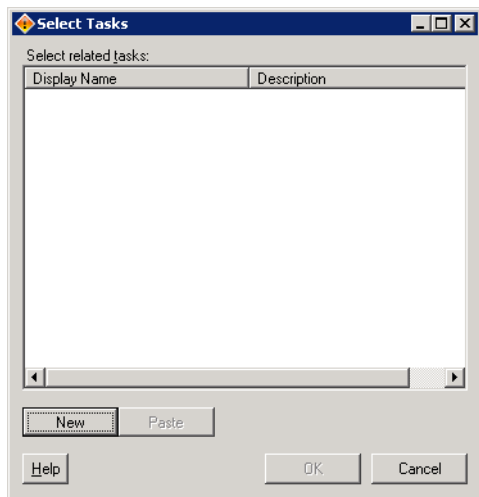
On the Related tab, the This task is a duplicate of the following task display-only field may be auto-populated if the duplicate task criteria defined in either the Create Alert activity has been met.

Use the following steps to indicate the task is a duplicate of an existing task:

To assign a duplicate task:

-
- Step 1** On the Operations—Tasks Views, highlight the appropriate task, right-click and choose **Properties**. The [Alert] Properties dialog box displays.
- Step 2** Click the **Related** tab to indicate the task is a duplicate of another task.
- Step 3** Click **Browse** to launch the Select Tasks dialog box.

Figure 4-24 Select Tasks Dialog Box



- Step 4** Use *one* of the following to choose a duplicate task:
- To choose a single task, highlight the appropriate task.
 - To choose multiple tasks, press **CTRL** and hold the key while making the appropriate selections.
 - Click **New** to create a new task.
- Step 5** Click **OK** to accept the selections and then close the dialog box.
-

Removing an Assigned Duplicate Task

On the Related tab, click the **Delete** tool to remove the selected task from the field. This action does not delete the task from the system.

Adding a Related Task

Related tasks could be duplicates of one another or the resolution of the task is dependant on the solution of the existing task.

Use the following steps to add a related task:

-
- Step 1** On the Operations—Tasks Views, highlight the appropriate task, right-click and choose **Properties**. The [Task] Properties dialog box displays.
- Step 2** Click the **Related** tab to modify the list of tasks related to the opened task.
- Step 3** Click **Add** to launch the Select Task dialog box.
- Step 4** Use *one* of the methods to choose a category:
- To choose a single category, highlight the appropriate category.
 - To choose multiple categories, press **CTRL** and hold the key while making the appropriate selections.
 - Click **New** to create a new related task.
- Step 5** Click **OK** to close the dialog box.
-

Removing a Related Task

To remove a related task:

On the Related tab, highlight the appropriate task, and then click **Remove**.

The Remove button removes the task from the list, but it does not delete the task from the system. For more information on deleting a task, see [Deleting a Task](#).

Deleting a Task

To delete a task:

-
- Step 1** In the Operations—Task view, highlight the appropriate task, right-click and choose **Delete**. The Confirm Delete dialog box displays.
- Step 2** Click **Yes** to confirm.
- The task is deleted from the system.
-

Viewing Task History

Use the History tab to view a history of changes that have been made to the task.

To view task history:

Step 1 In the Operations—Task view, highlight the appropriate task, right-click and choose **Properties**. The [Task] Properties dialog box displays.

Step 2 Click the **History** tab to view the changes made to the task.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

Step 3 To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.

Step 4 Click **OK** to close the dialog box.



CHAPTER 5

Definitions Workspace

The Definitions workspace displays all the components that are used in defining and executing processes. The Definitions workspace contains navigation items that define the various components that are used in a process.

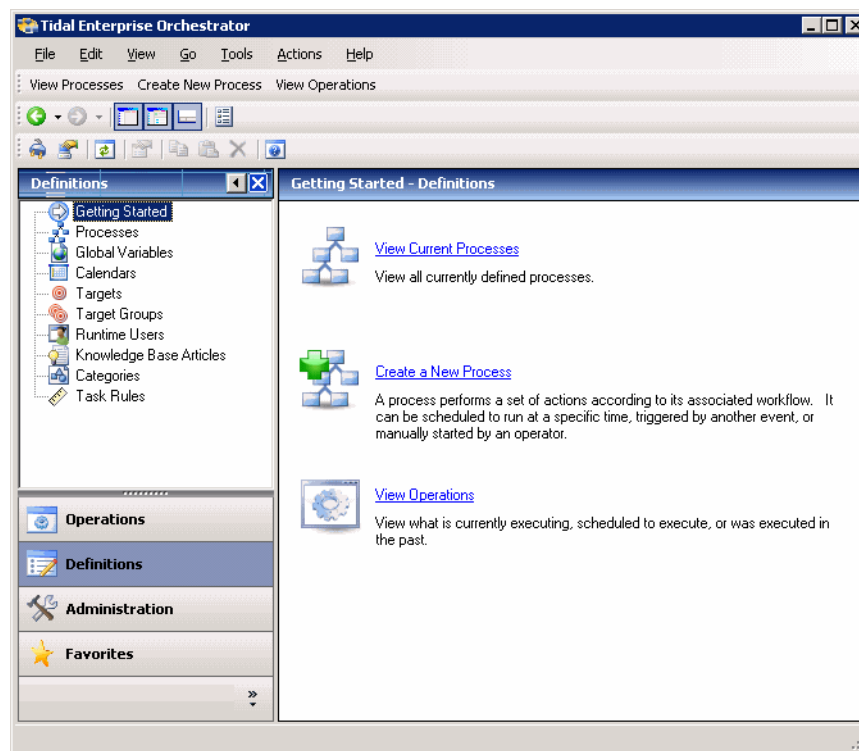
The following sections provides information on navigating the Definitions workspace:

- [Getting Started—Definitions, page 5-2](#)
- [Navigation Menu, page 5-4](#)

Getting Started—Definitions

The Getting Started—Definitions work area displays task shortcuts used to view the status of processes, view currently defined processes, and create new processes. All of the items in the Getting Started—Definitions Results pane are available from the actions toolbar and menu.

Figure 5-1 *Getting Started—Definitions*



Results Pane

The Results pane displays task shortcuts information in the Results pane that guides you through using the features in the Definitions view. The following tasks can be performed from this view:

Option	Description
View Current Processes	Displays the Definitions—Processes view where users can view and manage defined processes.

Option	Description
Create a New Process	Launches the Process Editor, which is used to view and define the properties for a new process as well as construct the process workflow. For additional information on the Process Editor, see Chapter 6, “Using the Process Editor.”
View Operations	Displays the Operations workspace that shows what processes are in progress, scheduled or have been completed. For additional information on the work areas displayed, see Chapter 3, “Operations Workspace.”

Details Pane

The Details pane displays additional information about the selected object. The hyperlinks on each of the detail pages launch the properties dialog box for the selected object.

Tab	Description
General	Displays general information about the object including the name of the object, a brief description, input and output information, and the category to which the object is assigned
Run Options	Displays the target, runtime user, and triggers for an object
Workflow	<i>Display only.</i> Shows the process viewer for a process
Attributes	Displays the dates, times and process owner associated with the creation and modification of an object

Navigation Menu

The Definitions workspace contains navigation items that define the various components that are used in a process. Process definition items are displayed in the Definitions workspace. Each component can be used in a process.

The Processes Results pane contains the following column headings.

Navigation Item	Function
Processes	View the defined processes or create new processes for automating key business activities See Chapter 6, “Using the Process Editor.”
Global Variables	View, create, and manage global variables. Global variables are used to reference information that is used on a regular basis to avoid having to specify the same information in several instances. See Chapter 11, “Managing Variables.”
Target Properties	[Need Information] See
Calendars	Displays the calendars that can be associated with a specific process. When defining a process, the calendars feature can specify when the process will execute according to a schedule, time, or condition. See Chapter 12, “Managing Calendars.”
Targets	View, create, and manage targets. A target is where a process will be executed. See Chapter 13, “Managing Targets.”
Target Groups	View, create, and manage target groups. A target group consists of one or more targets where a process will be executed. See Chapter 15, “Managing Target Groups.”
Runtime Users	View and define runtime user records for storing information about the user security context passed to the adapters. See Chapter 16, “Managing Runtime Users.”
Knowledge Base Articles	The knowledge base articles provide information to help understand the results of an activity. This includes a summary of what has occurred, the possible cause of the result, and suggested actions to take to resolve issues with an activity. See Chapter 17, “Managing Knowledge Base Articles.”

Navigation Item	Function
Categories	View, create, or manage categories. You can organize processes into categories to simplify process management. See Chapter 18, “Managing Categories.”
Task Rules	Allows users to create rules which perform routine activities on tasks, such as notification and assignments, on newly-created tasks. See Chapter 19, “Managing Task Rules.”



CHAPTER 6

Using the Process Editor

On the Definitions workspace, the Processes view displays the defined processes, provides options to edit existing processes, and define new processes. From the Processes View, you can also execute processes and view the status of the process as it in progress.

Processes can be viewed from the Operations and Definitions workspaces. The Operations workspace displays scheduled and running processes. The two views displayed include the Activity Views and Process Views. Both views display the execution progress of the process instances.

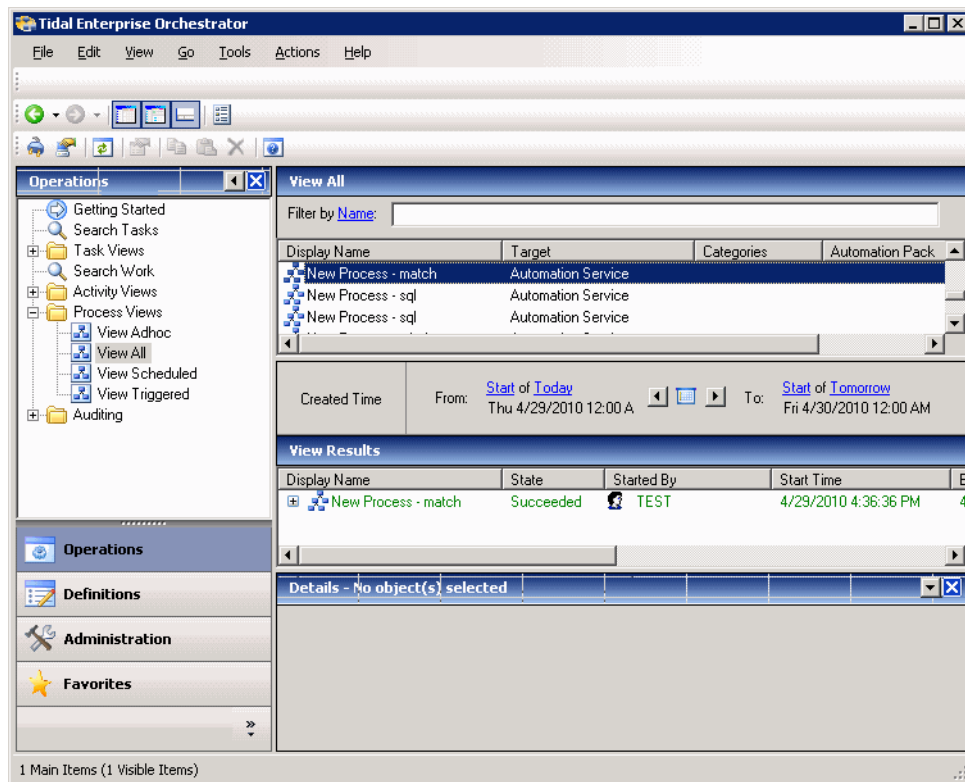
The following sections provide information on using the process editor:

- [Monitoring Processes in Operations View, page 6-2](#)
- [Definitions—Processes, page 6-3](#)
- [Accessing the Process Editor, page 6-7](#)
- [Navigating the Process Editor, page 6-8](#)
- [Using the Process Editor, page 6-13](#)

Monitoring Processes in Operations View

The Process Views folder in the Operations workspace include process instances and their associated activity instances that are in progress, scheduled or have been completed. From this view, detailed information about all the processes that have been triggered, executed ad hoc, or are scheduled for execution is displayed. For additional information on viewing processes from the Operations view, see [Monitoring Processes, page 3-32](#).

Figure 6-1 *Operations—Processes View Folder*



Definitions—Processes

The Definitions—Processes view displays all the defined processes that are in the application. Additional features available from this work area include executing a process ad hoc and viewing process properties. The New option launches the Process Editor to begin defining a new process.

Accessing Definitions—Processes

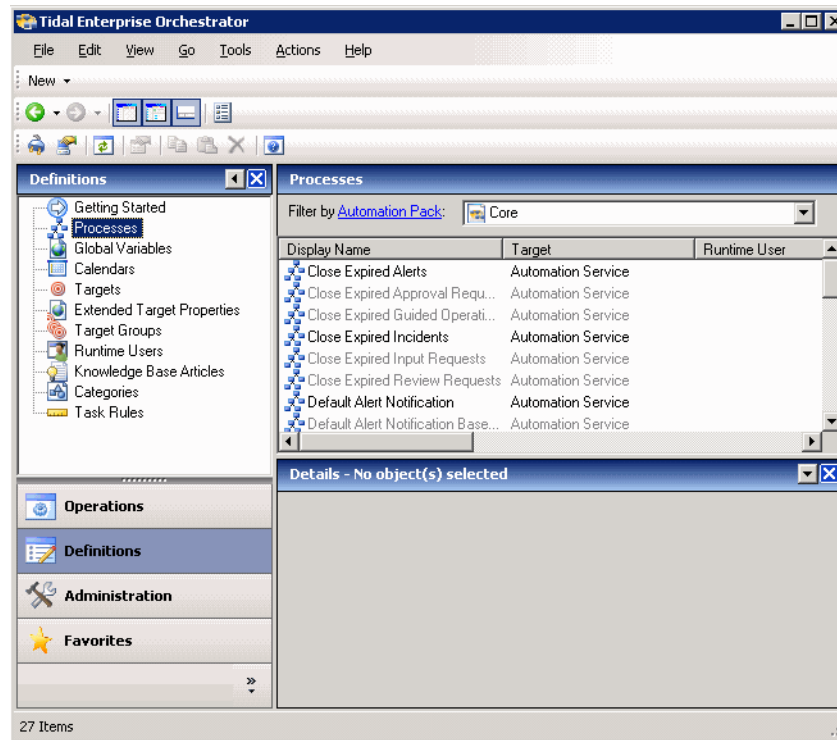
Use the Definitions—Processes view to display the defined processes. This section is used to provide instructions on how to access process definitions.

To access the processes views:

On the Definitions pane, choose **Processes**.

The Results pane displays.

Figure 6-2 Definitions—Processes View



Note

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Information about each process can be displayed in the following columns:

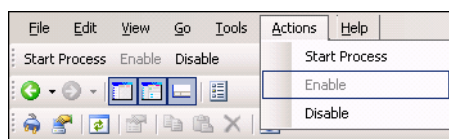
Column	Description
Display Name	Name assigned to the process
Triggers	Name of the trigger associated with the process

Column	Description
Enabled	Specifies whether the process is enabled (<i>True</i>) or disabled (<i>False</i>). A disabled process is unavailable for execution.
Target	The specific environment where the process runs
Runtime User	The name of the runtime user record assigned to the process. The runtime user record stores information about the user security context and passes this information to the adapters when running certain activities.
Categories	Category to which the process is assigned
Owner	The owner of the process. This is typically the creator of the process.
Last Modified Time	Time the process was last modified
Last Modified By	User name of the person who last modified the process
Id	Unique identification number of the process
Description	Brief overview of process
Time Saved	Amount of time saved by running the process and workflow
Created Time	Time the process was created
Created By	User or object that created the process
Automation Pack	Name of the automation pack
Customizable	Indicates the customization setting for the object in the automation pack

Actions Menu and Toolbar Options

The Processes Actions menu and toolbar provide options to manage existing processes. If there are no processes selected, the only option available on both is New. The New option is used to define a new process. The New option is available by right-clicking Process on the Definitions workspace.

Figure 6-3 Definitions—Processes Actions Menu and Toolbar



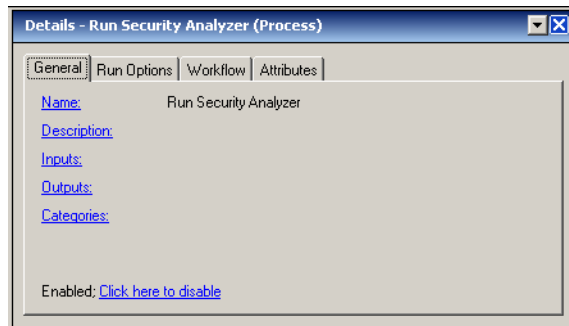
When a process is selected, the options on the Processes Actions toolbar and menu change to the following options:

Option	Description
Start Process	Start any enabled process displayed in the Process Results pane. For more information on starting a process, see Starting a Process, page 7-22 .
Enable	A process cannot start or execute until is enabled. For more information on enabling a process, see Enabling a Process, page 7-21 .
Disable	Prevents a process from executing. For more information on disabling a process, see Disabling a Process, page 7-21 .

Processes Details Pane

The Details pane displays additional information about the selected object. The hyperlinks on each of the detail pages launch the properties dialog box for the selected object.

Figure 6-4 *Processes Details Pane—General Tab*



Tab	Description
General	Displays general information about the process including the name of the process, a brief description, input and output information, and the category to which the process is assigned
Run Options	Displays the target, runtime user, and triggers for the process
Workflow	<i>Display-only.</i> Shows the process viewer for a process
Attributes	Displays the dates, times and process owner associated with the creation and modification of the process

Viewing Process Properties

Tidal Enterprise Orchestrator ships with automation pack(s) that contains built-in process definitions that cannot be modified. When one of the shipped processes is selected, a limited version of the Process Editor displays with only the workflow pane and properties pane available. The Toolbox pane in the Process Editor is not displayed.

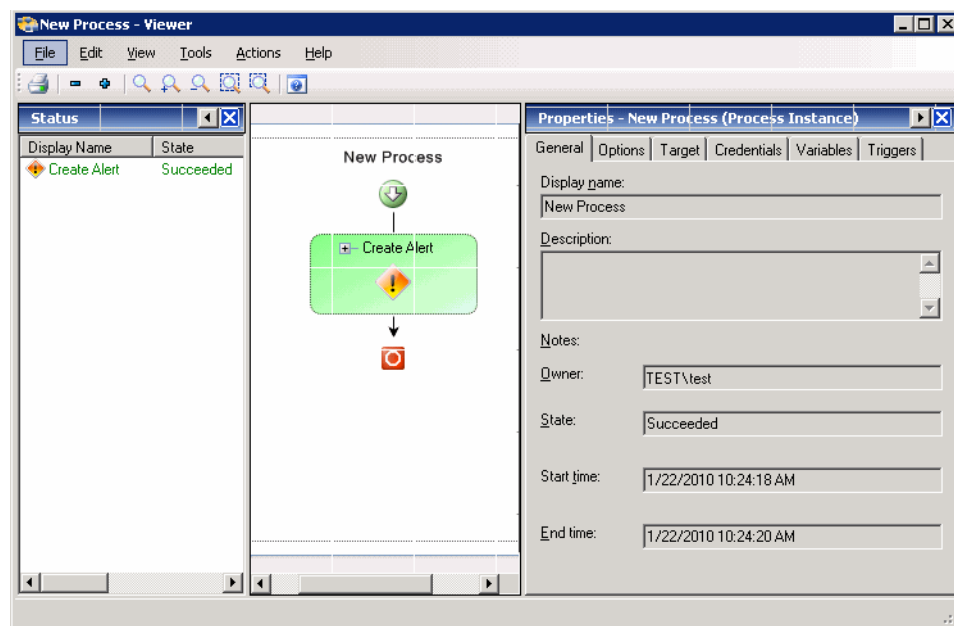
To view process properties:

In the Definitions—Processes view, highlight the appropriate process, and use *one* of the following methods:

- Right-click and choose **Edit**.
- or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Process Viewer displays.

Figure 6-5 **Process Viewer**



The following information displays:

Pane	Description
Status Pane	Displays the current status and other detailed information about the selected process and activity
Workflow Pane	Displays the graphical workflow of the selected process and its activities
Properties Pane	<i>Display-only.</i> Shows the properties for the process and activity instances

Accessing the Process Editor

The Process Editor is used to view and modify the properties of an existing process. The editor is also used to define properties and construct a workflow for a new process. The procedure the user follows to access the editor depends on the task to be performed.

To access the Process Editor:

- Step 1** If you are creating a new process, use *one* of the following options:
- On Definitions—Processes, right-click and choose **New > Process**.
 - From the Actions menu, choose **New > Process**.
 - On the Actions toolbar, choose **New > Process**.



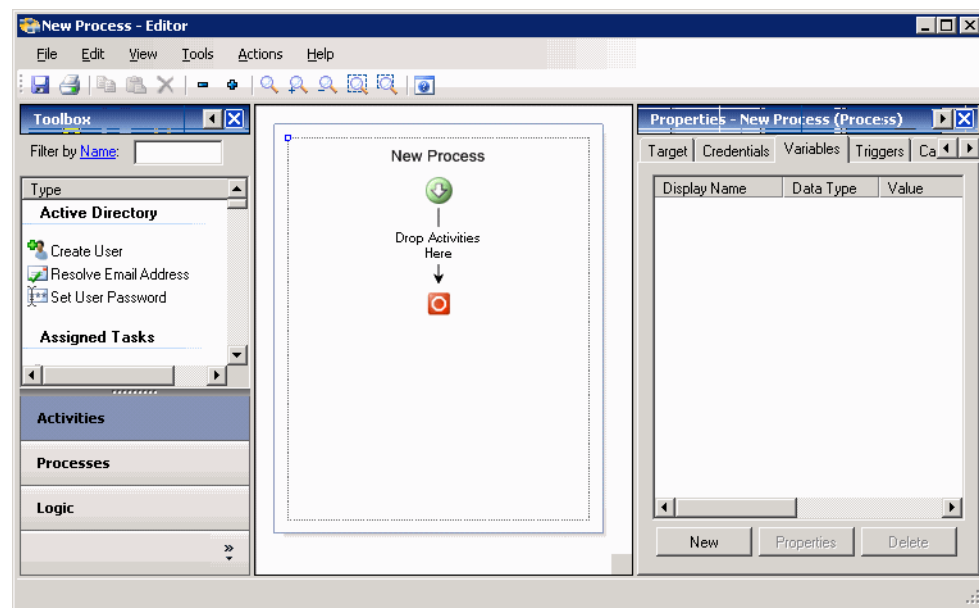
Note

The New button on the Actions toolbar is not available if a process is highlighted in the Processes Results pane.

- Step 2** If you are modifying an existing process, on the Processes Results pane, right-click the appropriate process and then choose **Edit**.

The Process Editor opens.

Figure 6-6 [Process Name]—Editor



Navigating the Process Editor

Understanding the Process Editor Menu Bar

The following menus contains tasks that can be performed in the editor.

File Menu

The File menu contains the following items:

Menu Option	Description
Save	Saves the process workflow
Save Copy As	Saves a copy of the process workflow under a different name
Validate	Verifies whether the process has variables that are actually used in the process
Revert	Returns the workflow to the previous saved version
Print	Prints the contents of the workflow pane
Process Properties	If an activity properties pane is displayed, the option toggles to the process properties pane
Exit	Closes the editor

Edit Menu

The Edit menu contains items to be used for modifying the process in the workflow pane. For information on using this menu, refer to [Using the Edit Menu, page 1-9](#).

View Menu

The View menu contains the following items:

Menu Option	Description
Collapse All	Collapses all the activities in the workflow pane
Expand All	Expands all the activities in the workflow pane
Zoom In	Increases the size of the contents of the workflow pane
Zoom Out	Decreases the size of the contents of the workflow pane
Zoom Default	Resizes the contents of the workflow pane according to the default zoom value
Zoom Fit	Resizes the workflow to fit the size of the pane
Zoom Fit Selection	Resizes the selected item in the workflow pane to the size of the pane
Toolbar	Displays the Editor toolbar
Status Bar	Displays the status bar at the bottom of the Editor

Menu Option	Description
Toolbox	Displays the toolbox pane
Properties	Displays the process properties pane

Tools Menu

The Tools menu contains the following items that allow you to configure the appearance and behavior of the editor.

Menu Option	Description
Customize	Launches the Customize dialog box where users can change the fonts and colors that display in the editor. For information on using this dialog box, refer to Customizing the Fonts and Colors, page 1-31 .
Options	Launches the Options dialog box which is used to configure basic user interface behavior. For information on using this dialog box, refer to Connecting to a Server upon Startup, page 1-32 .

Actions Menu

The Actions menu contains the following items that apply to a selected item in the workflow pane:

Menu Option	Description
Move Back	Moves the position of an activity in the workflow back one position at a time.
Move Forward	Moves the position of an activity in the workflow forward one position at a time.
Add Result Handler	Inserts a condition branch into the workflow. A condition branch is executed only if the specified condition is met.
Expand	Expands the selected activity
Collapse	Collapses the selected activity

Help Menu

The Help menu contains information that provides documentation assistance to work in TEO. For information on using this menu, refer to [Understanding the Help Menu, page 1-17](#).

Process Editor Toolbar

The toolbar displays icons to be used as shortcuts for performing tasks in the workflow pane. To display the toolbar, choose **Toolbar** from the View menu.

Icon	Description
	Saves the process
	Prints the contents of the Workflow pane
	Copies the selected information to the clipboard
	Pastes the selected information to the location identified by the cursor
	Deletes the selected item
	Collapses the contents of the workflow pane
	Expands the contents of the workflow pane
	Resizes the contents of the workflow pane according to the default zoom value
	Increases the size of the contents of the workflow pane
	Decreases the size of the contents of the workflow pane
	Resizes the workflow to fit the size of the pane
	Resizes the selected item in the workflow pane to the size of the pane
	Displays or hides the Help pane

Toolbox Pane

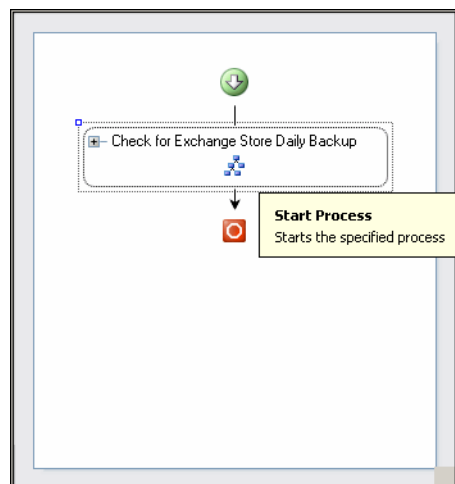
The toolbox pane is on the left side of the editor and includes three views (Activities View, Processes View, Logic View). The navigation items displayed in the toolbox depend on the view that is selected.

View	Description
Activities	The Activities view displays the list of activities that are used to construct the process workflow. The activities that display depend on the adapters that are installed.
Processes	The Processes view displays the list of defined processes that can be included in other processes. To add an existing process to a new process, drag and drop the appropriate process onto the workflow pane and define the criteria for execution of the process.
Logic	The Logic view displays the list of workflow construction components that support or define the workflow logic and provide control over the execution of the workflow logic. For information on configuring the logic components, see Chapter 9, “Configuring Process Logic Components.”

Workflow Pane

The Workflow pane is a canvas located in the center portion of the Process Editor. This area is used to create processes by dragging and dropping activities, other processes, and components from the toolbox onto the canvas.

Figure 6-7 *Process Editor—Workflow Pane*



Process Properties Pane

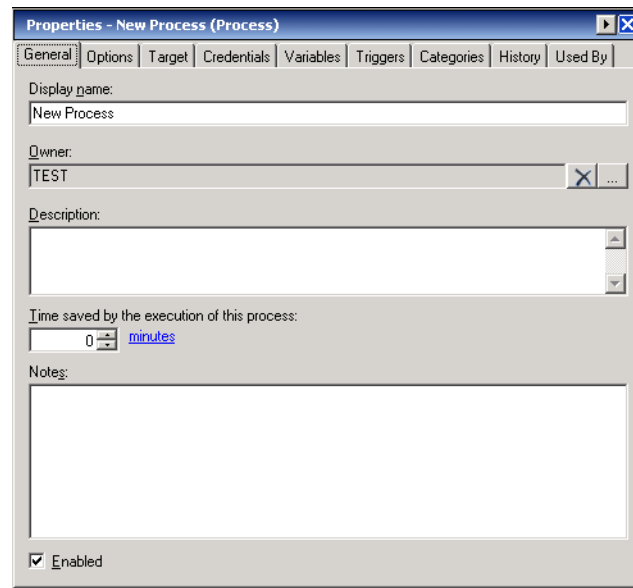
The Process Properties pane is located on the right side of the editor and displays the properties for the selected process.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 6-8 *Process Editor—Process Properties Pane*




Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box.

Use the properties pane to define the process properties.

Property Page	Description
General	Specifies general information about the process
Options	Specifies execution and storage options about the process
Target	Specify which target or target group the process can execute.
Credentials	Specifies the runtime user for the process
Variables	Used to store or pass a value between executions of a process or between steps within a single process
Triggers	Used to determine how or when the process will be executed
Categories	Used to organize processes and categories
Used By	Displays the objects that directly reference the selected process
History	Displays the history of changes made to the process

Using the Process Editor

The following sections contain procedures on performing basic tasks on the Process Editor menu items.

Saving Processes

To save a process, use *one* of the following steps:

- On the Editor toolbar, click the **Save**  tool.
- or-
- From the File menu, choose **Save**.

Renaming a Process

To rename a process:

-
Step 1	Open the process in the Process Editor.
Step 2	On the General tab, in the Name field, enter the new name for the process and then click the Save  tool.
-

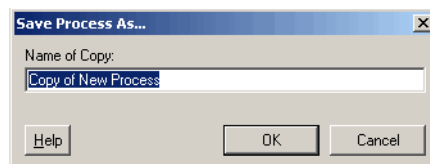
Saving a Copy of a Process

Use the following steps when leveraging an existing process as a template to create a new process.

To save a copy of a process:

-
Step 1	Open the process in the Process Editor.
Step 2	From the File menu, choose Save Copy As .
- The Save Process As dialog box displays.

Figure 6-9 **Save Process As Dialog Box**



- Step 3** In the Name of Copy field, enter the name of the new process, and click **OK**.
The new process name displays in the Display name field.
-

Reversing the Process Changes

This item is used when changes have been made to the process definition, but are no longer necessary. This option deletes all changes made since you last saved the process. If you have saved the process and have not made any additional changes, then no action will be taken.

To reverse process changes:

From the File menu, choose **Revert**.

The process reverts back to the last saved version of the process. All activities, components, and other changes are removed from the process definition.

Printing Process Workflows

Process workflows can be printed from the Process Editor. The following steps print the graphical workflow of a process from the Process Editor.

To print a process workflow:

- Step 1** On an existing process displayed in the Console, right-click and choose **Edit**.

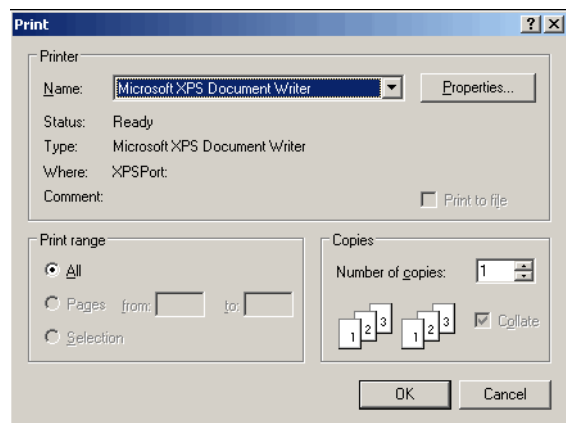
The Process Editor opens.

- Step 2** Use *one* of the following methods:

- On the toolbar, click the **Print**  tool.
- or-
- From the File menu, choose **Print**.

The Print dialog box displays.

Figure 6-10 *Print Dialog Box*



- Step 3** Modify the print settings as necessary and click **OK**.

The process workflow prints exactly as it displays in the workflow pane.

Toggling the Process Editor View

In the Process Editor view, you can toggle the view between the process property pages and the activity view pages.

To switch to the process properties, use *one* of the following methods:

- From the File menu, choose **Process Properties**.
- or-
- In the Workflow pane, click anywhere outside of the activities in the workflow.

The process properties display in the Properties pane.

Collapsing the Workflow View

The following steps collapse all the activities displayed in the Workflow pane.

To collapse the activities in the Workflow pane, use *one* of the following methods:

- From the View menu, choose **Collapse**.
- or-
- On the toolbar, click the **Collapse**  tool.

The activities in the workflow collapse.

Expanding the Workflow View

The following steps expand all the activities displayed in the workflow.

To expand the workflow, use *one* of the following methods:

- From the View menu, choose **Expand**.
- or-
- On the toolbar, click the **Expand**  tool.

The activities in the workflow expand.

Resizing the Workflow View

The Process Editor contains the following options that are used to assist in viewing the process workflow.

To resize the display in the Workflow pane, from the View menu, choose the appropriate view:

View	Description
Zoom In	Increases the size of the contents of the workflow pane
Zoom Out	Decreases the size of the contents of the workflow pane
Zoom Default	Resizes the contents of the workflow pane according to the default zoom value
Zoom Fit	Fits the contents of the workflow pane to the size of the pane
Zoom Fit Selection	Fits the selected contents of the workflow pane to the size of the pane

The Workflow pane resizes according to the selection.

Changing the Process Display Icon

The following steps provide instructions on how to change the icon for the process that displays in the Process Views.

To change the process view icon:

-
- Step 1** On the Process Properties pane, click the **Options** tab.
- Step 2** Under Display, check the **Use custom icon** check box and then click **Select Icon**.

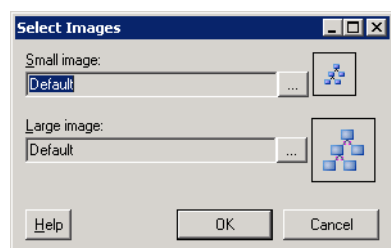
The Select Images dialog box displays



Note

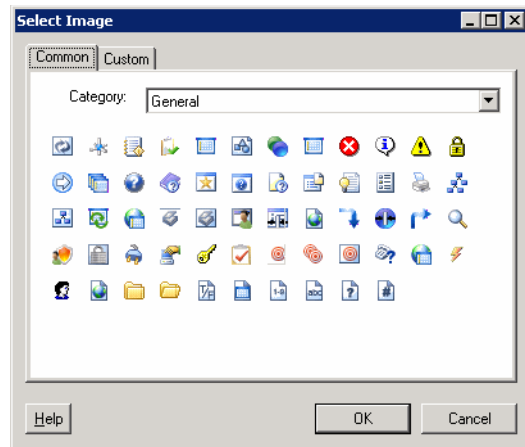
The currently selected icons display to the right of the of the fields.

Figure 6-11 *Select Images Dialog Box*



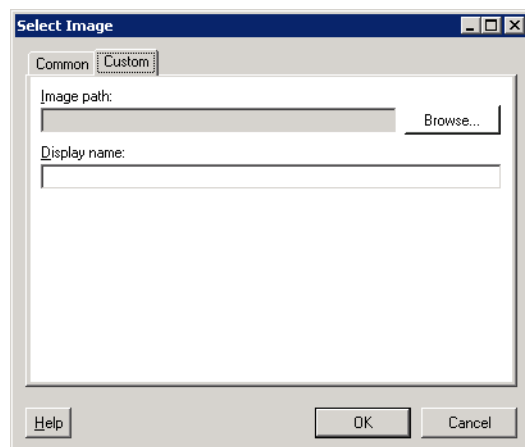
- Step 3** To the right of both Image fields (*Small* or *Large*), click **Browse** to change the icon for the image that displays next to the process.

The Select Image dialog box displays.

Figure 6-12 *Select Image Dialog Box—Common Tab*

Step 4 Use *one* of the following methods:

- To choose from the display of default icons, on the Common tab, click the appropriate icon and then click **OK**.
- or-
- To choose an icon from a different location, click the **Custom** tab.

Figure 6-13 *Select Image Dialog Box—Custom Tab*

- To the right of the Image path field, click **Browse** to insert the file path to the appropriate icon.
- In the Display Name field, enter the name of the icon and click **OK**.

Step 5 On the Select Images dialog box, the corrected icon is inserted into the appropriate image field.

Step 6 Click **OK**.



CHAPTER 7

Authoring Processes

Tidal Enterprise Orchestrator allows the automation of IT processes based on organizational requirements using a workflow format. The TEO shipment also includes pre-defined processes for the most commonly used processes.

The following sections provide information on creating a process:

- [Defining Process Properties, page 7-2](#)
- [Adding Activities to the Process, page 7-14](#)
- [Adding Child Processes, page 7-17](#)
- [Adding Process Logic Components, page 7-19](#)
- [Managing Process Definitions, page 7-19](#)

Defining Process Properties

A process includes activities and components that are defined and configured to perform specific actions. Before constructing a process workflow, it is recommended that components, such as global variables, calendars, targets, and target groups are predefined. The option to create a new component is available within the property page.

This section defines the process used to construct a process definition.

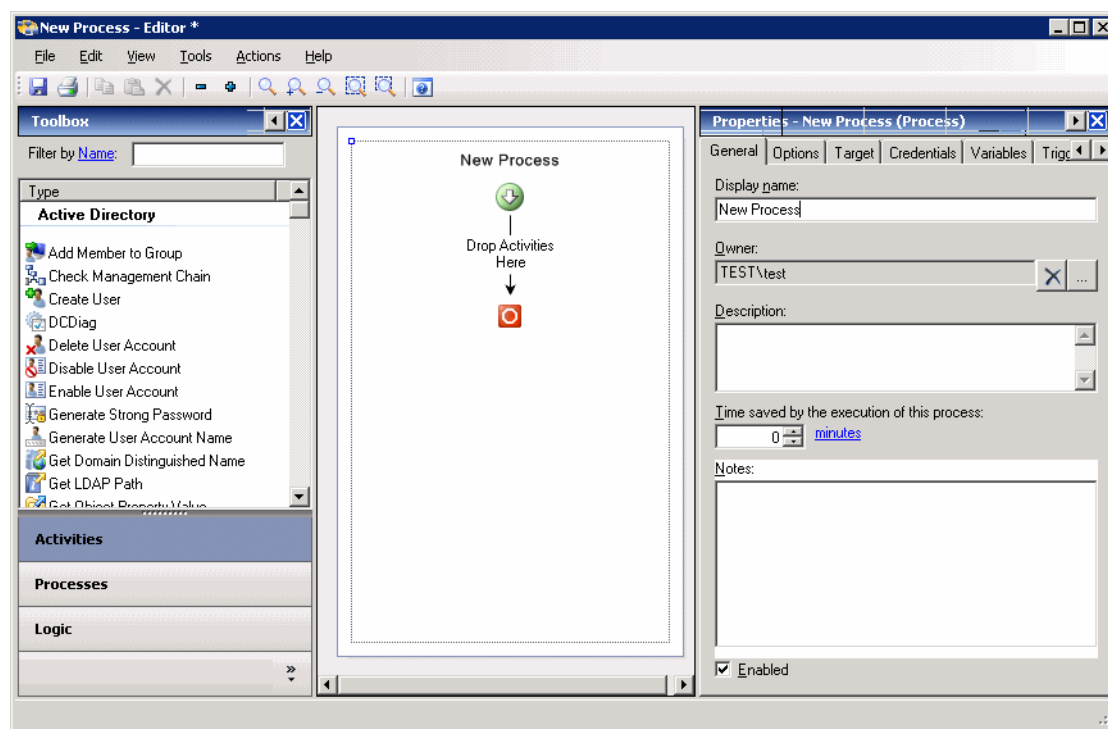
To view a process workflow:

Step 1 On the Definitions—Processes view, use *one* of the following methods:

- Right-click and choose **New > Process**.
- On the Actions toolbar, choose **New > Process**.
- From the Actions menu, choose **Actions > New > Process**.

The Process Editor displays.

Figure 7-1 Process Editor—New Process



Step 2 On the Properties pane, click the following tabs and define the properties as necessary:

Property Page	Description
General	Default tab used to provide general description of the process. See Defining General Process Information, page 7-4 .

Property Page	Description
Options	Specify execution and storage options about the process. See Defining General Process Information, page 7-4 .
Target	Specify which target, target group, or triggering event, the process can execute See Specifying Process Targets, page 7-7 .
Credentials	Specify the runtime user for the process See Specifying the Process Runtime User, page 7-9 .
Variables	Use this tab to add variables to the process. With the appropriate rights, defined variables can be viewed and modified from this page. See Specifying Process Variables, page 7-10 .
Triggers	Use this tab to add or modify process triggers to determine how or when the process will be executed. See Specifying Process Triggers, page 7-12 .
Categories	Assigns the process to a category See Assigning a Category to Process, page 7-13 .

- Step 3** To add activities to the process, on the Toolbox—Activities view, drag and drop the appropriate activities to the Workflow pane. For information on adding an activity, see [Adding Activities to the Process, page 7-14](#).
- Step 4** To add an existing process as a child of the primary process, on the Toolbox—Processes view, highlight and drag the appropriate process to the Workflow pane. For information on adding a child process, see [Adding Child Processes, page 7-17](#).
- Step 5** To add logic components to the process, on the Toolbox—Logic view, highlight and drag the appropriate logic component to the Workflow pane. For information on adding a logic component, see [Adding Process Logic Components, page 7-19](#).
- Step 6** Click the **Save**  tool.

Defining General Process Information

Use the following steps to define the general process options. These property pages allow the user to process name, process owner, as well as the archival process instance options.

To define the general process options:

- Step 1** Launch the Process Editor.
- On the Properties pane, the General tab displays by default.

Figure 7-2 *New Process Properties—General Tab*

The screenshot shows a window titled "Properties - New Process (Process)". It has a tabbed interface with the following tabs: General, Options, Target, Credentials, Variables, Triggers, Categories, History, and Used By. The "General" tab is selected. The fields in the "General" tab are: "Display name:" with a text box containing "New Process"; "Owner:" with a text box containing "TEST" and a browse button (...); "Description:" with a large text area; "Time saved by the execution of this process:" with a numeric input box set to "0" and a unit link "minutes"; "Notes:" with a large text area; and an "Enabled" checkbox which is checked.

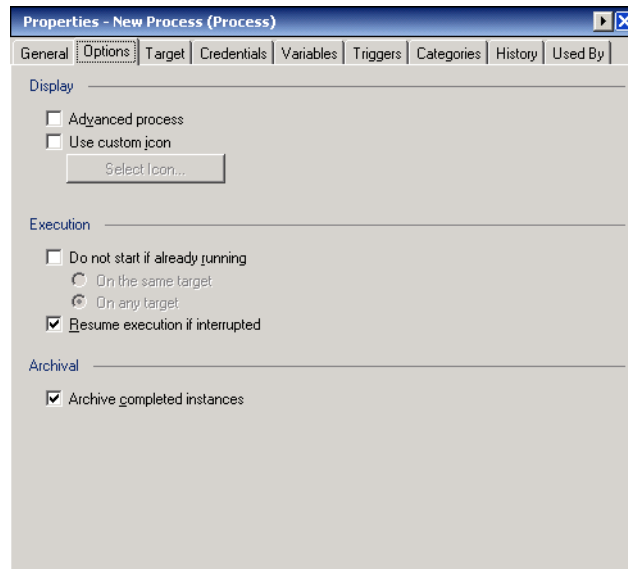
- Step 2** On the General tab, complete the following information, as necessary:

Field	Description
Display Name	Name of the process
Owner	User name of the owner of the object. This is typically the person who created the object. Click Browse to launch the Select User or Group dialog box to change the owner.
Group	Name of the user group in which the process is grouped
Description	Brief description of the process
Time saved by the execution of this process	The amount of time it would take to run this process manually. This value helps determine the your return on investment by automating the process. Specify a value and click the time unit link (seconds, minutes, hours) to indicate the cost of running this process manually.

Field	Description
Notes	Enter notes about the process.
Enabled	Check the Enabled check box to enable the process. The check box is selected by default. If the check box is unchecked, the process is disabled and will be unavailable for execution.

Step 3 Click the **Options** tab to continue.

Figure 7-3 *New Process Properties—Options Tab*



Step 4 On the Options tab, specify the execution and storage options about the process, as necessary:

Field	Description
Use custom icon	Check the check box and click Select Icon to launch the Select Images dialog box to be used to change the icon and icon size that displays next to the process in Processes view. Note For information on changing the process icon, see Changing the Process Display Icon, page 6-16.

Field	Description
Do not start if already running	Check this check box to indicate that a process should not run if an existing process is already running using one of the following: • On the same target—Indicates that the process may run only if no other processes are being run against the same target. If other processes are running against a different target, then the process can continue. • On any target—Indicates that the process cannot run if other processes are already running, regardless of the target If this check box is unchecked, then the process may run regardless of whether other processes are running no matter the target.
Resume execution if interrupted	Check this check box to indicate that the process execution should resume if the TEO service is interrupted while the process is running. If the check box remains unchecked, the process will stop upon the service interruption and the process will require the user to restart the process.
Archive completed instances	Check this check box to indicate that the process should be stored upon completion. If the check box remains unchecked, the process will not be stored.

Step 5 Click the **Save**  tool to save the process properties.

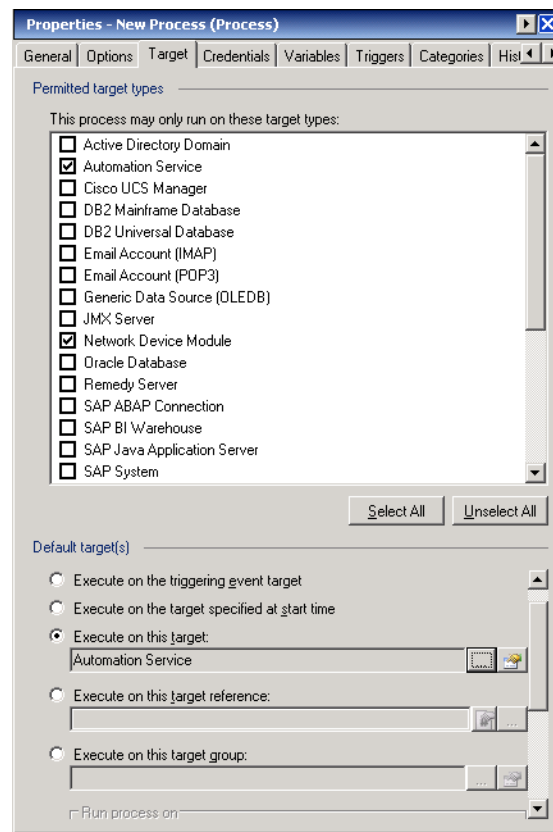
Specifying Process Targets

Use the Target tab to specify which target or target group, the process can execute. The target or target group specified on this page can also be used to execute any activity added to the process.

To specify process target;

- Step 1** On the Properties pane, click the **Target** tab.
The default target checked is Automation Service.

Figure 7-4 *New Process Properties—Target Tab*



- Step 2** Under Permitted Target types, check the check box of the appropriate target types to be available target types for process execution.
If the check box is unchecked, then the target type will not be available in the list of targets for execution. The Automation Service target is checked by default.
- Step 3** Click **Select All** to check all the available target type check boxes. Click **Unselect All** to uncheck the selected target types availability for the process.
- Step 4** Under Default Targets, choose the appropriate target, target group, or triggering event that the process will execute against by default.

Field	Description
Execute on the triggering event target	Select this radio button to execute the process on the target of a defined trigger.

Field	Description
Execute on the target specified at start time	Select this radio button to execute the target at runtime. The target is not required to be specified during the initial process definition. However, at the start time, the user will be required to specify the target for execution.
Execute on this target	Select this radio button to choose a specific target on which to execute the process. The targets that display in the drop-down list are those targets that have been defined in the Targets view. Note To view the properties for the selected target, click the Properties  tool. To create a new target, click New > [Target] . Refer to Chapter 13, “Managing Targets.”
Execute on this target reference	Select this radio button and then click the Reference tool launch the Insert Variable Reference dialog box. On the Insert Variable Reference dialog box, expand Process > Target > Properties, select the appropriate target reference property, and click OK . Note The selected target reference property displays in the text field. Refer to Chapter 14, “Managing Extended Target Properties.”
Execute on this target group	Select this radio button to choose a specific target group on which to execute the process. The target groups that display in the drop-down list are those that have been defined in the Target Groups view. Note To view the properties for the selected target group, click the Properties  tool. To create a new target group, click New > [Target Group] . Refer to Chapter 15, “Managing Target Groups.”

Step 5 If the process is to execute on a target group, under Run process on, choose *one* of the following radio buttons to further specify the target group.

Field	Description
All targets in this group	Runs the process on all members of the selected target group
Choose a target using this algorithm	Runs the process on a specific member of the target group or a random target in the target group. Choose one of the options from the drop-down list. Note For descriptions of the algorithms, see Target Algorithms, page 13-6 .

Step 6 Click the **Save**  tool to save the target specification properties.

Specifying the Process Runtime User

Use the Credentials tab to specify the runtime user for the process. Many operating systems and application activities require a user security context for proper execution.

A runtime user record is used to store the information about the user security context and to pass this information to the adapters.

The process run time user can also be used as the default runtime user for any activities within the process. If required, the runtime user can be specified on a per activity basis.



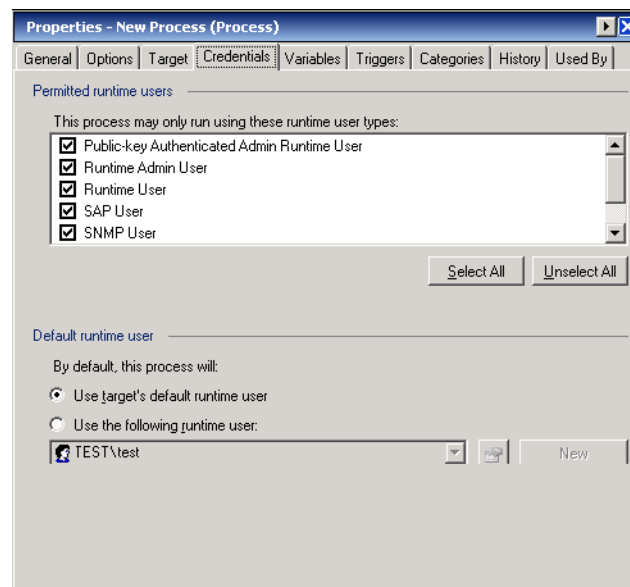
Note

For additional information, see [Chapter 16, “Managing Runtime Users.”](#)

To specify runtime user credentials:

- Step 1** On the Properties pane, click the **Credentials** tab to specify the runtime user for the process.

Figure 7-5 *New Process Properties—Credentials Tab*



- Step 2** Under Permitted runtime user, check the check box for the appropriate runtime user types to be included with the process.

If the check box is unchecked, then the runtime user will not be available in the list of runtime users to be used for execution.

- Step 3** Click **Select All** to check all the available runtime user check boxes. Click **Unselect All** to uncheck the selected runtime users availability for the process.

- Step 4** Under Default runtime users, choose the appropriate runtime user that the process will run on by default.

Option	Description
Use target's default runtime user	Select this radio button to execute the process using the target runtime user

Option	Description
Use the following runtime user	Select this radio button and then choose the runtime user record from the drop-down list. Note To view the properties for the selected user, click the Properties  tool. To create a new runtime user, click New > [Runtime user]. Refer to Chapter 16, “Managing Runtime Users.”

Step 5 Click the **Save**  tool to save the target specification properties.

Specifying Process Variables

Use the Variable tab to add variables to the process definition. Process variables can also be used to store or pass a value between executions of a process or between steps within a single process.

With the appropriate rights, defined variables can be viewed and modified from this page.

Variables created within a process are only applicable to the process. To create a variable for use with multiple TEO objects, it is recommended that you use a global variable.



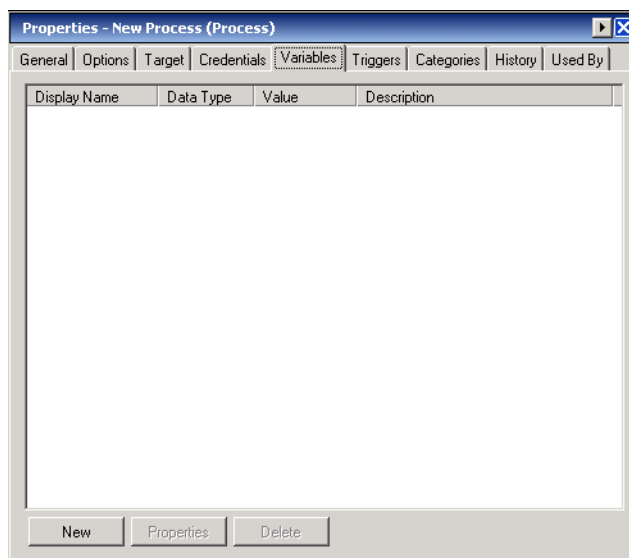
Note

For additional information on creating global variables which can be used in multiple processes, see [Chapter 11, “Managing Variables.”](#)

To specify a process variable:

Step 1 On the Properties pane, click the **Variables** tab.

Figure 7-6 *New Process Properties—Variables Tab*



Step 2 On the Variables tab, click **New > [Variable Name]** to add a variable to the process. For additional information on defining process variables, see [Chapter 11, “Managing Variables.”](#)

Step 3 After the selected variable is defined, the following information is displayed on the Variables tab.

Field	Description
Display name	Name assigned to the variable. The name must be unique within the scope of the variable.
Data type	Type of data used to specify the variable • Boolean—Determines whether a set of elements should be interpreted as <i>true</i> or <i>false</i> • Hidden String—Holds data that must be protected from other TEO users and from auditing operations performed by TEO • Identity—Determines the value to insert into a table without an identity column • Numeric—Single whole or decimal number (positive and negative) that does not change • String—Defines a variable containing a standard small string of text • Table—Stores a set of records in a table format
Value	Value assigned to the variable. The specified value must be valid for the data type that is selected
Description	Brief description of the variable

Step 4 Click the **Save**  tool to save the target specification properties.

Specifying Process Triggers

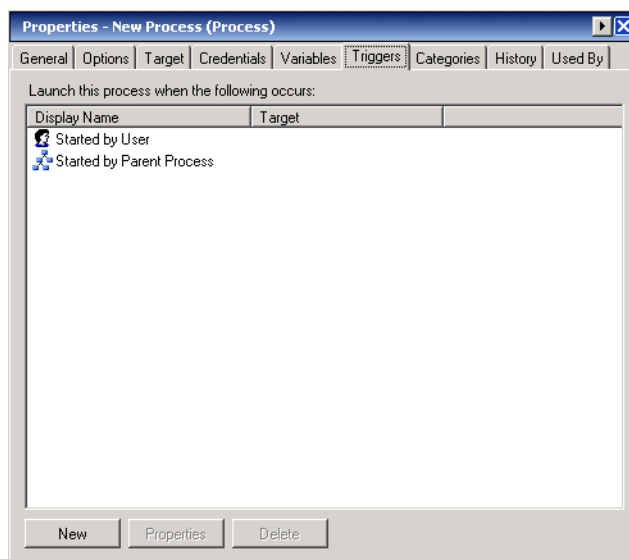
Use the Trigger tab to add or modify process triggers which are used to determine how or when the process will be executed. Multiple triggers can be added that can be initiated when certain conditions are met.

Defining a trigger is an optional task and is not required if the process is intended for manual execution only. For additional information on creating triggers, see [Chapter 8, “Managing Triggers.”](#)

To specify a trigger:

- Step 1** On the Properties pane, click the **Triggers** tab.

Figure 7-7 *New Process Properties—Triggers Tab*



- Step 2** On the Trigger tab, click **New** > **[Trigger Name]** to specify that the process is executed upon occurrence of another action or event.

- Step 3** After the selected trigger is defined, the following information is displayed on the Triggers tab.

Field	Description
Display Name	Name assigned to the trigger
Target	Target which is initiated by the trigger

- Step 4** Click the **Save**  tool to save the target specification properties.

Assigning a Category to Process

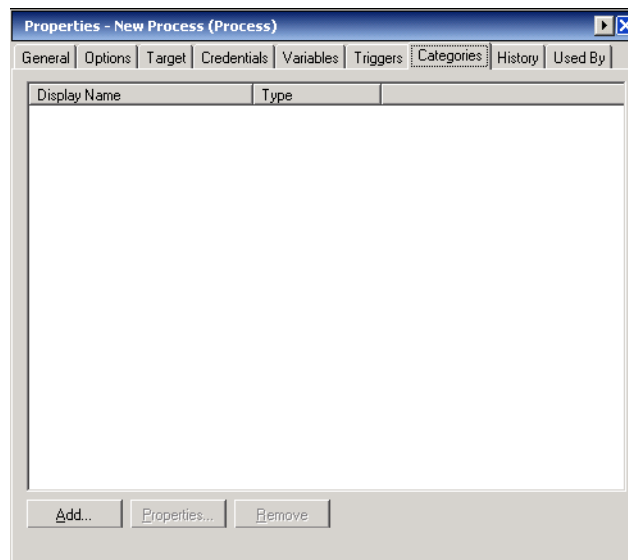
Use the Categories tab to assign the process to a category. Categories are used to organize the processes.

For information on creating or modifying a new category, see [Chapter 18, “Managing Categories.”](#)

To assign a category:

- Step 1** On the Properties pane, click the **Categories** tab.

Figure 7-8 *New Process Properties—Categories Tab*



- Step 2** On the Categories tab, click **Add** to specify the categories to which the process belongs. The Select Categories dialog box displays.
- Step 3** Select the appropriate category from the list, and click **OK**.
- Step 4** After the category or categories are selected, the following information is displayed in the Category tab.

Field	Description
Display Name	The name of the category
Type	A description of the category
Description	Type of category

- Step 5** Click the **Save**  tool to save the changes.

Adding Activities to the Process

The activity properties consist of common tabs and an activity-specific tab associated with the selected activity.

To add activities to the process:

Step 1 In the Toolbox pane, under the Activities view, drag and drop the appropriate activity onto the workflow pane.

The selected activity displays in the workflow pane.

Step 2 On the activity property pages, define the following property pages, as necessary.

Step 3 On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 4 Click the activity-specific tab to define the properties for the activity.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

Step 5 Click the **Target** tab to specify whether the process target should be used or overridden with a different target:

Field	Description
Execute on process target	Select this radio button to use the same target that was specified in the process definition.
Execute on activity target	Select this radio button to specify a target different from the process definition target. The selected target overrides the target specified in the process definition.
Execute on this target	Select this radio button to choose a specific target on which to execute the process. The targets that display in the drop-down list are those targets that have been defined in the Targets view. Note To view the properties for the selected target, click the Properties  tool. To create a new target, click New > [Target] . Refer to Chapter 13, “Managing Targets.”

Field	Description
Execute on this target reference	Select this radio button and then click the Reference tool launch the Insert Variable Reference dialog box. On the Insert Variable Reference dialog box, expand Process > Target > Properties, select the appropriate target reference property, and click OK. Note The selected target reference property displays in the text field. Refer to Chapter 14, “Managing Extended Target Properties.”
Execute on the target selected this algorithm	Select this radio button to execute the target selected by one of the target algorithm displayed in the drop-down list. Note The available algorithms that display depend on the selected activity. See Target Algorithms, page 3-4 for target algorithm descriptions.
Execute on this target group	Select this radio button to choose a specific target group on which to execute the process. The target groups that display in the drop-down list are those that have been defined in the Target Groups view. Note To view the properties for the selected target group, click the Properties  tool. To create a new target group, click New > [Target Group]. Refer to Chapter 15, “Managing Target Groups.”
Choose a target using this algorithm	Select this radio button to execute the process using <i>one</i> of the options from the drop-down list. Note For algorithm descriptions, see Target Algorithms, page 3-4.

Step 6 Click the **Credentials** tab to specify the runtime user whose credentials should be used for process execution:

Field	Description
No runtime user	Select this radio button when no runtime user is required to run this activity
Use target's default runtime user	Select this radio button to use the default runtime user for the target that is specified in the activity
Use Process runtime user	Select this radio button to use the credentials for the runtime user that was specified in the process properties
Override process runtime user	Select this radio button to specify a runtime user whose credentials are different than what was specified in the process properties. The selected runtime user overrides the runtime user that was specified for the process. Note To view the properties for the selected runtime user, click the Properties  tool. To create a runtime user record for the process, click New > [Runtime User]. For additional information on creating a runtime user, see Chapter 16, “Managing Runtime Users.”

Step 7 Click the Knowledge Base tab to assign a knowledge base article to the object.

Knowledge Base Field Options	Description
Text field	<i>Display-only.</i> Display name for the selected knowledge base article(s)
Delete	Highlight the appropriate knowledge base article and click the Delete  tool to remove the knowledge base article from the display.
Browse	Click Browse to launch the Select Knowledge Base dialog box for a list of existing knowledge base articles. For additional information on knowledge base articles, see Chapter 17, “Managing Knowledge Base Articles.”
Properties	Highlight the appropriate knowledge base article and click the Properties  tool to view and/or modify the properties of the defined knowledge base article.

The following information is displayed on the Knowledge Base tab.

Field	Description
Summary	Brief description of the issue
Possible Cause	Explanation of the condition that may be causing the issue
Possible resolution	List of actions that can be performed to attempt to resolve the issue
Related information	Additional information related to the issue

Step 8 On the Result Handlers tab, click *one* of the following buttons to manage the condition branches on the workflow, as necessary:

Button	Description
Add	Adds a condition branch
Remove	Removes the condition branch from the activity
Move Up	Moves the condition up one position in the list of conditions
Move Down	Moves the condition down one position in the list of conditions

Step 9 Click the **Save**  tool to save the activity definition.

Adding Child Processes

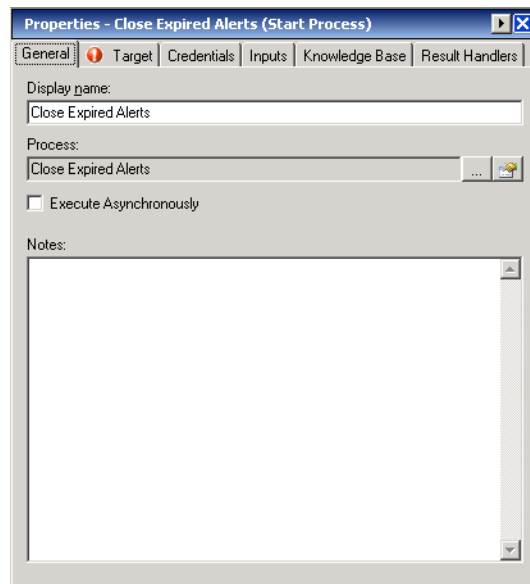
The Processes workspace on the Toolbox contains the processes that have been previously created. The processes added to another process from this workspace are considered child processes. Use the following instructions to add and modify the child process properties that is included within another process.

To add a child process:

- Step 1** In the Toolbox, under the Processes view, choose the appropriate process, then drag and drop the appropriate process to the Workflow pane.

The [Child Process Name] Properties dialog box displays.

Figure 7-9 [Child Process] Properties—General Tab



- Step 2** On the General tab, modify the following information, as necessary:

Field	Description
Display name	Name of the child process
Types	<i>Display-only.</i> Shows the name of the child process. Click Browse to launch the Select Process dialog box to choose a different process or add more processes. Changing the process also changes the display in the process.

Field	Description
Execute Asynchronously	Check this check box to instruct the parent process to launch the child process, and continue executing the process without waiting for the results of the child process. When running asynchronously, the activities in the process that follow the child process will execute immediately. If you uncheck the check box, the activities that follow the child process will wait for the child process to complete before executing.
Notes	Enter any notes relevant to the process

**Note**

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

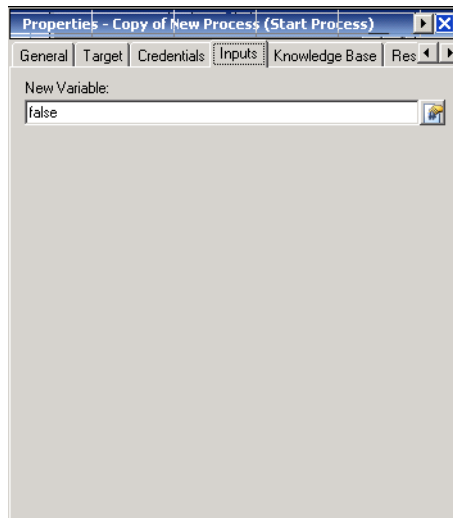
Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

Step 3 Click the **Inputs** tab to continue.

**Note**

If the process does not have any input variables, the page will be blank.

Figure 7-10 [Child Process] Properties—Inputs Tab



Step 4 On the Inputs tab, in the [Variable Name] field, modify the parameters for executing the child process.

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- **Target**—Specify the target on which to monitor for events that will trigger the process. See [Step 5 in Adding Activities to the Process](#).
 - **Credentials**—Specify the runtime user whose credentials should be used for the activity. See [Step 6 in Adding Activities to the Process](#).
 - **Knowledge Base**—Choose the appropriate knowledge base article to associate with the activity. See [Step 7 in Adding Activities to the Process](#).
 - **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8 in Adding Activities to the Process](#).
-

Adding Process Logic Components

Process logic components are used in the Logic view to define the process logic workflow.

- Step 1** From the Toolbox—Logic view, drag and drop the appropriate component onto the Workflow pane. The selected component displays in the Workflow pane and the component property pages display in the Properties pane.
- Step 2** On the component property pages, define the properties, as necessary, and then click the **Save**  tool.



Note

For information on defining logic component properties, see [Chapter 9, “Configuring Process Logic Components.”](#)

Managing Process Definitions

The following instructions are used to modify the process and activity properties used to define a process.

Common Wildcard Expressions

These expressions are not applicable for every activity. The following table displays the most commonly used wildcard characters.

Character	Description
*	Match Any Character
#	Match Any Single Digit
?	Match Any Single Character

Modifying Process Properties

Process definitions are modified in the Process Editor. With the appropriate rights from the Operations view, the Process Editor is launched when accessing the process properties. When user rights are restricted, the Process Viewer is launched with the properties displaying a display-only view.

To modify process properties:

-
- Step 1** On the Definitions—Processes view, highlight the appropriate process, right-click and choose **Edit**.



Note TEO core processes cannot be modified. When a core process is selected, only the Process Viewer is displayed.

The Process Editor displays. The process properties display by default.

- Step 2** Select the appropriate process property page and modify the items, as necessary.

- Step 3** Click the **Save**  tool to save the changes.
-

Modifying Activity Definition Properties

Modifying a process does not automatically modify an activity. Activity definitions are included in a process definition and the activity properties must be modified separately from the process properties.

Activities can only be modified in the Process Editor. With the appropriate rights from the Operations view, the Process Editor is launched when accessing the process properties.

When user rights are restricted, the Process Viewer is launched with the properties displaying a display-only view determining that the user cannot edit the activity.

To modify an activity:

-
- Step 1** Use *one* of the following methods:
- On the Definitions—Process view, highlight the appropriate process, right-click and choose **Edit**.
 - or-
 - On the Operations workspace, choose a process from any of the four process views, right-click and choose **Edit**.

The Process Editor displays.

- Step 2** On the Workflow pane, choose the appropriate activity, modify activity properties, as necessary, and click **Save**.

- Step 3** Make any additional changes, as necessary, and click **Exit** to close the Process Editor.
-

Enabling a Process

A process is enabled by default. If a process is manually disabled, the process must be enabled before it can begin executing.

To enable a process:

On the appropriate process view, highlight the process, right-click and choose **Enable**. The Enabled status on the Results pane changes to *True*. If necessary, click the **Refresh**  tool to update the view.

Disabling a Process

Disabling a process instance on the process view prevents the item from executing. It is not removed from the list of process instances on the Results pane.

To disable a process:

On a process view, highlight the process, right-click and choose **Disable**. The Enabled status on the Results pane changes to *False*. If necessary, click the **Refresh**  tool to update the view.

Inserting Variable References

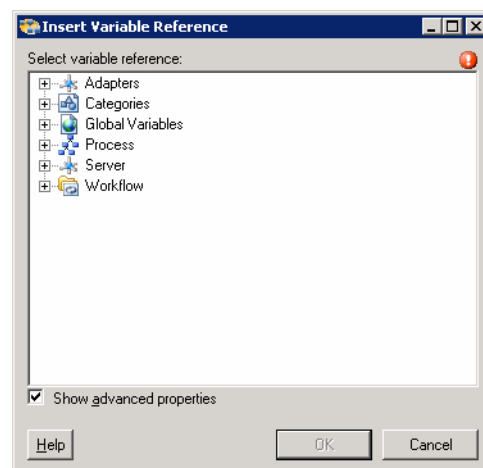
The Reference  tool to the right of a text field indicates that the field can be populated by referencing a defined variable or the property of another activity or process. Use the Insert Variable Reference dialog box to choose a defined variable or object to populate a field.

Only variables valid for the selected field can be selected in this dialog box. The OK button does not activate until a valid property or variable is selected.

To insert a variable reference:

-
- Step 1** To the right of a field on a property page, click the Reference tool.
The Insert Variable Reference dialog box displays.

Figure 7-11 Insert Variable Reference Dialog Box



**Note**

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

- Step 2** Check the **Show Advanced** check box to display all items that are available for referencing.
If the check box is not selected, then only the most commonly-used items are displayed for activities, processes or events.
- Step 3** Expand the appropriate top level items to locate the appropriate variable:

Reference Option	Description
Adapters	Displays the list of variable objects that are associated with the installed adapters. Click the Expand (+) next to each adapter to display the list of objects and properties that can be selected within the adapter displayed.
Categories	Displays the list of categories that are associated with the installed adapters. Click the Expand (+) to display the list of categories and associated properties that can be selected.
Global Variables	Click the Expand (+) to display the list of defined global variables and their associated objects and properties in the product.
Process	When the Process option is expanded, the list of available objects, properties, and variables associated with the process are displayed. Click the Expand (+) to display the specific object types.
Server	Displays the list of properties that are associated with the TEO server. Click the Expand (+) to display the list of TEO automation server properties that can be selected.
Workflow	Click the Expand (+) to display the list of activities and processes currently in the Workflow pane from which users can choose a variable, object, or property.

- Step 4** From the list of available of items, select the appropriate property or variable and click **OK**.
The related text field populates with the selected value.

Starting a Process

With the appropriate rights, a user can start any enabled process displayed on a Process View. Only one process can be manually started at a time. A process can display in the Process View, but it must be enabled before it can be executed. To enable a process, see [Enabling a Process, page 7-21](#).

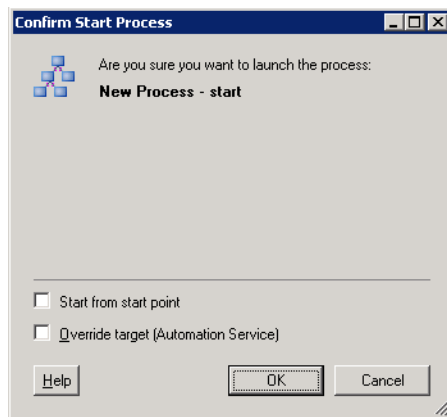
**Note**

When a process is started manually, all conditions and triggers included in the process definition will be overridden.

To start a process:

- Step 1** On a process view, highlight the appropriate process, right-click and choose **Start Process**. The Confirm Start Process dialog box displays.

Figure 7-12 Confirm Start Process Dialog Box

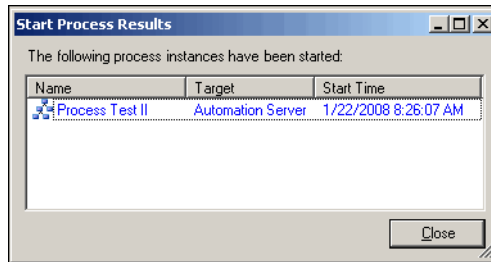


- Step 2** If the process has any input variables, verify the variables associated with the process in the Parameters table. To update the variable, highlight the variable, and click **Edit** to modify the value.
- Step 3** To start a process from a specific starting point, check the **Start from start point** check box and then select the appropriate starting point from the drop-down list. The first activity after the specified starting point will run first.
- Step 4** To specify a target different from the defined process target, check the **Override target (Target name)** check box and select a target from the drop-down list.

**Note**

To create a new target for this process, click **New**. For additional information, see [Managing Targets, page 13-1](#).

- Step 5** Click **OK** to confirm. The Start Process Results dialog box displays and the process begins executing.

Figure 7-13 Start Process Results Dialog Box**Note**

To view the process workflow on the Process Viewer, double-click the process instance.

Step 6 Click **Close** to return to the Console.

Deleting a Process

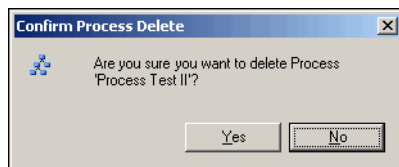
Deleting a process removes it and all related activity instances from the list of processes on the Results pane. Before deleting a process, access the properties, and click the **Used By** tab to view where objects are being used by the variable. This ensures that deleting the process does not affect any other processes or activities. With the appropriate rights, processes can be deleted from the system.

To delete a process:

Step 1 On the Definitions—Processes view, highlight the appropriate process, and use *one* of the following methods:

- On the toolbar, click the **Delete**  tool.
- or-
- Right-click and choose **Delete**.

The Confirm Process Delete dialog box displays.

Figure 7-14 Confirm Process Delete Dialog Box

Step 2 Click **Yes** to delete the process.

The process instance is deleted from the process view. If necessary, click the **Refresh**  tool to update the view.

**Note**

Click **No** to cancel the process instance deletion and return to the previous view.

Viewing Used By Properties

Use the Used By tab to display the objects that directly reference the selected process in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view used by objects:

-
- Step 1** Click the **Used By** tab to view the objects used by the process.
 - Step 2** To view the properties for a specific object, highlight the object, right-click and choose **Properties**.
 - Step 3** Click **OK** to close the dialog box.
-

Viewing the History tab

Use the History tab to view a history of changes that have been made to the process. This is a display-only tab and does not require any user interaction.

To view process history:

-
- Step 1** Click the **History** tab to view the changes made to the process.
- The following information about the history of the process is displayed:

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
User	The user name of the person that performed the action
Type	The action that occurred
Description	Information about the action that was performed

- Step 2** To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.
 - Step 3** Click **OK** to close the dialog box.
-



CHAPTER 8

Managing Triggers

Triggers determine how or when the process will be executed. Multiple triggers can be added that can be initiated when certain conditions are met. Process triggers are available for viewing within the Process Editor. The process trigger tab displays all triggers associated with the process. On this tab, users are able to create new triggers, modify the properties of a trigger, and delete triggers.

The following sections provide instructions on defining triggers in TEO:

- [Accessing Trigger Properties, page 8-2](#)
- [Defining an Extended Property Value Updated Trigger, page 8-6](#)
- [Defining a Schedule Trigger, page 8-10](#)
- [Defining a Started by Parent Process Trigger, page 8-12](#)
- [Defining a Started by User Trigger, page 8-13](#)
- [Defining a Task Trigger, page 8-14](#)
- [Defining a Task Changed Trigger, page 8-16](#)
- [Defining a Variable Updated Trigger, page 8-19](#)
- [Managing Trigger Definitions, page 8-21](#)

Accessing Trigger Properties

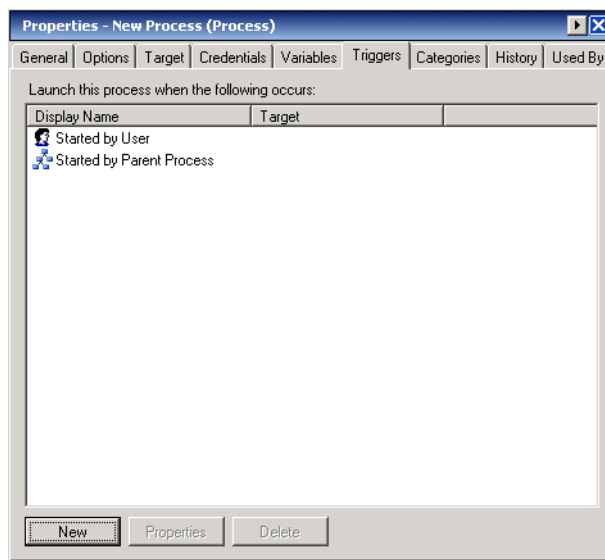
Process triggers are available for viewing within the Process Editor. The trigger tab displays all triggers associated with the process. The Triggers displays all the existing defined targets. You also use this view to create new targets, modify the properties of a target, and delete targets.

If a process contains a trigger, a user will be able to view display-only trigger properties in the process instance views as well as in the Process Editor.

Use the following steps to view trigger properties in the Process Editor:

- Step 1** On the Definitions—Processes view, use *one* of the following methods:
- Highlight the appropriate process, right-click and choose **Edit**.
 - or-
 - On the Navigation pane, choose **Processes**, right-click and choose **New**.
- Step 2** After the Process Editor displays, click the **Triggers** tab.

Figure 8-1 Process Editor—Triggers Tab



Information about the trigger is displayed in the following columns:

Column	Description
Display Name	Name assigned to the trigger
Target	Target which the trigger monitors to determine if it needs to execute

- Step 3** On the Triggers tab, highlight the appropriate trigger, and click **Properties**. The Trigger Properties dialog box displays.

Step 4 Click the appropriate tab to review the properties. The tabs displayed depend on the selected trigger.

Tab	Description
General	Displays general information about the trigger
Trigger-Specific	Displays the properties of the selected trigger
Target	Target on which to monitor for events that will trigger the process.
Credentials	Runtime user whose credentials should be used to monitored for events that will trigger the process.
Knowledge Base	Knowledge base article to be associated with the trigger
Conditions	Specifies when an action is to be taken based on an evaluation of conditions that have been defined

Step 5 Click **OK** to close the dialog box.

Trigger Descriptions

Tidal Enterprise Orchestrator provides several triggers which determine how or when the process will be executed. The following table provides a list of the triggers that are associated with the product. The available triggers are dependent upon the installed adapters.

Trigger	Description
CCMS Alert	Specifies the properties of the monitoring tree element (MTE) that must be monitored before an alert is generated. For additional information, see <i>Cisco TEO Adapter Guide for SAP ABAP</i> .
Cisco UCS Fault	Specifies the fault criteria to monitor in the Cisco UCS Manager target. For additional information, see <i>Cisco TEO Software Adapter Guide for Cisco UCS</i> .
Email Event (Simple)	Specifies basic criteria to match for the trigger to execute For additional information, see the <i>Cisco TEO Adapter Guide for Email</i> .
Email Event (Advanced)	Specifies more advanced criteria to match for what to do with the message after the trigger executes For additional information, see the <i>Cisco TEO Adapter Guide for Email</i> .
Extended Property Value Updated	Specifies the target properties which will cause an event to trigger See Defining an Extended Property Value Updated Trigger, page 8-6.

Trigger	Description
Remedy Incident Updated	Specifies the criteria for the Remedy server to be monitored for incidents when the status is updated. For additional information, see the <i>Cisco TEO Adapter Guide for BMC Remedy</i> .
SAP Server Down	Specifies the server that must be down to trigger a process. For additional information, see the <i>Cisco TEO Adapter Guide for SAP ABAP</i> .
Schedule	Specifies the date and time for when a process is triggered. See Defining a Schedule Trigger, page 8-10 .
SCOM 2007 Alert	Specifies the SCOM alert source and severity to trigger a process. For additional information, see the <i>Cisco TEO Adapter Guide for Microsoft System Center Operations Manager 2007</i> .
SNMP Trap Received	Specifies the criteria for the incoming traps from all SNMP agents through the port specified in the SNMP adapter. For additional information, see the <i>Cisco TEO Adapter Guide for SNMP</i> .
Started by Parent Process	Allows any process to use the newly created process. See Defining a Started by Parent Process Trigger, page 8-12 .
Started by User	Allows process to be started manually by user. See Defining a Started by User Trigger, page 8-13 .
Task	Specifies the criteria to match within the specific task trigger • Task Changed—Trigger criteria launches the specified process when the matching task has been modified • Task Created—Trigger criteria launches the specified process when a matching task has been created • Task Expired—Trigger criteria launches the specified process when a matching task expires • Task Past Due—Trigger criteria launches the specified process when a matching task becomes past due See Defining a Task Trigger, page 8-14 and Defining a Task Changed Trigger, page 8-16 .
Variable Updated	Specifies the variable conditions which trigger a process See Defining a Variable Updated Trigger, page 8-19 .

Trigger	Description
VMware	Specifies the criteria to match to the VMware trigger • VMware Host Performance Event—Specify the performance criteria for the ESXi server to be monitored • VMware VM Performance Event—Specify the performance counter criteria for the virtual machine of the ESXi server to be monitored • VMware VM Power Event—Specify the criteria for the Virtual Center to monitor the power state of a virtual machine changes For additional information, see the <i>Cisco TEO Adapter Guide for VMware</i>
Windows Event	Specifies the criteria for an event that must be matched to trigger the process. For additional information, see the <i>Cisco TEO Adapter Guide for Microsoft Windows</i>.

Defining an Extended Property Value Updated Trigger

Use the Extended Property Value Updated trigger to specify the target properties to be used as a trigger when the value of the target property changes. This trigger will be especially important when managing cloud content using TEO. For example, a process may change the status in the target property value on a service target to *Provisioned*. This change could then trigger a process which may start notifying other applications about the new service being online.

An extended property value trigger will execute when the following actions occur by either a process or activity.

- New target property value is defined for a target (the old value listed in the event will be the default target property value)
- Target property value is changed to one value to a different value
- Target property value is deleted for a target (the new value listed in the event will be the default target property value).

An extended property value trigger will NOT execute when the following action(s) occur, even if the target does not have a target property value defined and uses the default from target property definition.

- Default target property value is changed from one to another
- Target property definition is changed to exclude a specific target type, which deletes all existing target property values

To define an extended property value updated trigger:

- Step 1** On the Process—Triggers tab, click **New > Extended Property Value Updated**.
The Extended Property Value Updated Properties dialog box displays.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 8-2 *Extended Property Value Updated Properties –General Tab*

Step 2 On the General tab, specify the following information:

Field	Description
Display Name	Name of the trigger
Type	<i>Display-only</i> . Type of trigger
Property	This is a non-editable text field and cannot be manually updated. Click Browse to launch the Select Extended Target Property dialog box. The selected target property displays in the field. To view or modify the properties for the selected target property, click the Properties  tool. For additional information on creating extended target properties, see Chapter 14, “Managing Extended Target Properties.”
Description	Brief description of the trigger
Enabled	The Enabled check box is checked by default. The checked box indicates the trigger is available to launch process execution. Clear the check box to disable the trigger. If the check box is unchecked, the trigger is disabled and cannot trigger execution of a process

- Step 3** Click the **Target** tab to specify the target or target group on which to monitor for events that will trigger the process:

Field	Description
Monitor on this target	Select this radio button and then click Browse to launch the Select Targets dialog box to select a specific target to monitor other than the target specified in the process properties. The targets that display in the Select Targets dialog box are targets already defined in TEO. Note To view the properties for the selected target, click the Properties  tool.
Choose a target reference	Select this radio button and then click the Reference tool launch the Insert Variable Reference dialog box. On the Insert Variable Reference dialog box, expand Process > Target > Properties, select the appropriate target reference property, and click OK. The selected target reference property displays in the text field.
Monitor using this target group	Select this radio button and then click Browse to launch the Select Target Group dialog box to select a specific target group on which to monitor. The target groups that display in the Select Target Group dialog box are target groups already defined in TEO. Select the appropriate target group from the drop-down list. Note To view the properties for the target group, click the Properties  tool.
Monitor for events on	
Select <i>one</i> of the following radio buttons to determine which members of the target group the trigger will monitor for events.	
All targets in this group	Select this radio button to indicate the trigger will monitor events on all targets in the target group.
Choose a target using this algorithm	Select this radio button to monitor for events on a specific member of the target group or a random target in the target group. Select the appropriate option from the drop-down list to determine the target member parameters. For algorithm descriptions, see Target Algorithms, page 3-4.

- Step 4** Click the **Conditions** tab, and then the appropriate panel, to specify the conditions on which the trigger will execute a process. The trigger will only launch when the specified conditions are met.

Panel	Description
Basic	Creates simple conditions using variables to match to operator criteria. See Adding Basic Conditions to an Object, page 10-4 .
Advanced	Creates a TEO-based condition. • Compound Condition—Compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition. The Compound Condition is created by the addition of another True/False option in the Advanced Panel. • Prior Process Instance Condition—Determines that when a process has occurred within a specific time interval, the condition will evaluate to false. If no process instance is selected, then the trigger will search for all process instances. • Time Condition—Specify a condition based on a defined calendar. • Variable Condition—Specify a variable to be used as the condition under which the variable should evaluate as true. See Adding Advanced Conditions to an Object, page 10-6 .

- Step 5** Click the Knowledge Base tab to assign a knowledge base article to the object.

Knowledge Base Field Options	Description
Text field	<i>Display-only.</i> Display name for the selected knowledge base article(s)
Delete	Highlight the appropriate knowledge base article and click the Delete  tool to remove the knowledge base article from the display.
Browse	Click Browse to launch the Select Knowledge Base dialog box for a list of existing knowledge base articles. For additional information on knowledge base articles, see Chapter 17, “Managing Knowledge Base Articles.”
Properties	Highlight the appropriate knowledge base article and click the Properties  tool to view and/or modify the properties of the defined knowledge base article.

The following information is displayed on the Knowledge Base tab.

Field	Description
Summary	Brief description of the issue
Possible Cause	Explanation of the condition that may be causing the issue
Possible resolution	List of actions that can be performed to attempt to resolve the issue
Related information	Additional information related to the issue

Step 6 Click **OK** to complete the trigger definition.

Defining a Schedule Trigger

The Schedule trigger is used to specify the dates and times to be used when the process executes.

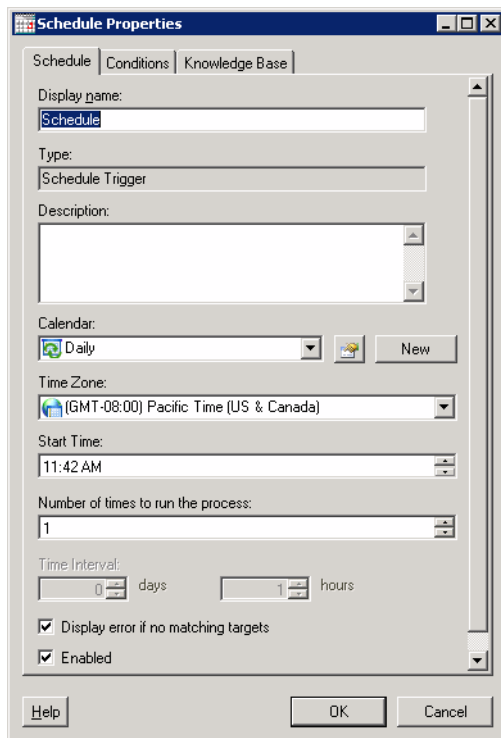
To define a schedule trigger:

Step 1 On the Process Properties pane, click the **Triggers** tab.

Step 2 Click **New > Schedule** from the drop-down list.

The Schedule Properties dialog box displays.

Figure 8-3 Schedule Properties Dialog Box—Schedule Tab



Step 3 On the Schedule tab, specify the following information, as necessary:

Field	Description
Display Name	Name for the schedule
Type	<i>Display-only.</i> Type of trigger
Description	Brief description of the schedule
Calendar	Choose a calendar from the drop-down list. Note To view the properties for the selected calendar, click the Properties  tool. To create a new calendar, click New and see Chapter 12, “Managing Calendars” for additional information on creating specific schedules.
Time Zone	The local time zone is selected by default. To use another time zone for this schedule, choose the time zone from the drop-down list.
Start Time	Enter or choose the time when this schedule should begin.
Number of times to run the process	Enter the value for how often the process is to run.
Time Interval	Choose the time to wait between the subsequent process executions. This value is used only if the number of times to run the process is greater than one.
Display error if no matching targets	Check this check box to indicate an error should display if there are no matching targets after the trigger has executed. To disable the option, uncheck the check box.
Enabled	Check this check box to enable the trigger. To disable the trigger, uncheck the check box.

Step 4 Complete the following tabs, as necessary, and then click **OK** to complete the procedure.

- **Condition**—Specify when an action is to be taken based on an evaluation of the defined conditions. See [Adding Conditions to a Trigger, page 8-24](#).
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the trigger. See [Step 5 in Defining an Extended Property Value Updated Trigger, page 8-6](#).

The new Schedule trigger displays in the Trigger property page.

Defining a Started by Parent Process Trigger

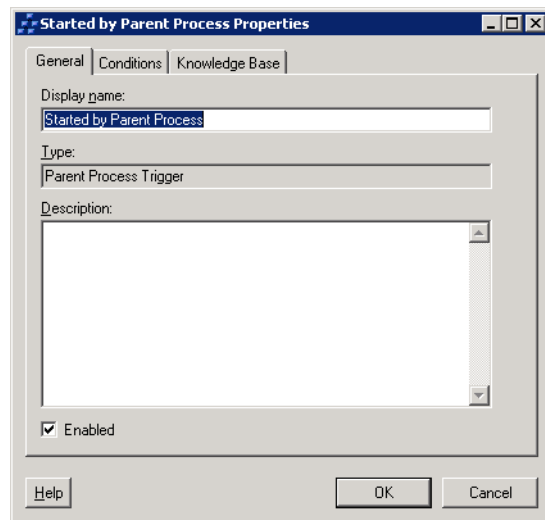
Use the Started by Parent Process to indicate that a child process included in the Workflow pane can start by the parent process. When a process tries to start a child process, if the child process does not have the Started by Parent Process, then an error will occur and the parent process will fail.

The information used to start the child process will also be included in the automation summary.

To define a started by parent process trigger:

- Step 1** On the Process Properties pane, click the **Triggers** tab.
- Step 2** Click **New > Started by Parent Process** from the drop-down list.
- The Started by Parent Process Properties dialog box displays.

Figure 8-4 Started by Parent Process Properties Dialog Box—General Tab



- Step 3** On the General tab, specify the following information, as necessary:

Field	Description
Display Name	Name for the trigger
Type	<i>Display-only.</i> Type of trigger
Description	Brief description of the trigger
Enabled	Check this check box to enable the trigger. To disable the trigger, uncheck the check box.

- Step 4** Complete the following tabs, as necessary, and then click **OK** to complete the procedure.
- Condition—Specify when an action is to be taken based on an evaluation of the defined conditions. See [Adding Conditions to a Trigger, page 8-24](#).
 - Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 5 in Defining an Extended Property Value Updated Trigger, page 8-6](#).

The new trigger displays in the Trigger property page.

Defining a Started by User Trigger

Use the Started by User trigger to indicate the process can start manually by a user. This trigger is added by default to a process, but can be removed.

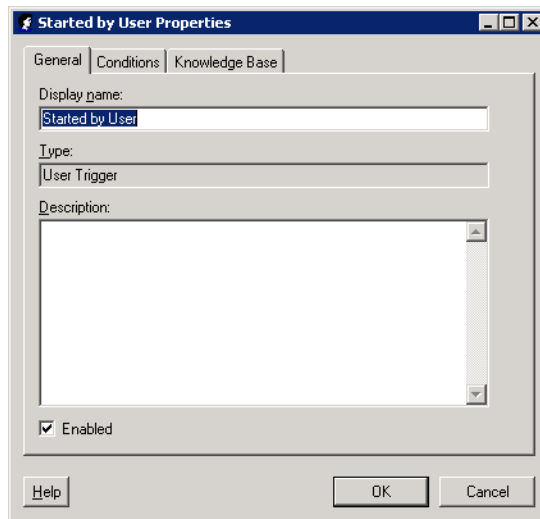
If a user attempts to manually start a process which does not have the ad-hoc trigger (or the user is restricted from starting the process in the ad-hoc trigger), an error message will be displayed and the process will be prevented from launching.

The Started by User trigger will expose all the typical trigger properties, as well as some additional properties which allows the user to determine exactly how the process was manually started:

To define a started by user trigger:

- Step 1** On the Process Properties pane, click the **Triggers** tab.
- Step 2** Click **New > Started By User** from the drop-down list.
- The Started by User Properties dialog box displays.

Figure 8-5 Started by User Properties Dialog Box—General Tab



- Step 3** On the General tab, specify the following information, as necessary:

Field	Description
Display Name	Name for the trigger
Type	<i>Display-only.</i> Type of trigger
Description	Brief description of the trigger
Enabled	Check this check box to enable the trigger. To disable the trigger, uncheck the check box.

- Step 4** Complete the following tabs, as necessary, and then click **OK** to complete the procedure.
- Condition—Specify when an action is to be taken based on an evaluation of the defined conditions. See [Adding Conditions to a Trigger, page 8-24](#).
 - Knowledge Base—Choose the appropriate knowledge base article to associate with the trigger. See [Step 5 in Defining an Extended Property Value Updated Trigger, page 8-6](#).

The new trigger displays in the Trigger property page.

Defining a Task Trigger

The Task trigger is used to specify the criteria to match within the task to trigger the process. When the value of the task matches the criteria, the process will be triggered. The following provides the steps used to execute a task trigger based on whether the specified task properties were created, expired, or past due.

To define a task trigger:

- Step 1** On the Process—Triggers tab, click **New > Task** and then choose *one* of the following task triggers.

Task Trigger	Description
Task Created	Specifies criteria to trigger when a matching task has been created
Task Expired	Specifies criteria to trigger when a matching task expires
Task Past Due	Specifies criteria to trigger when a matching task becomes past due

The [Trigger] Properties dialog box displays.

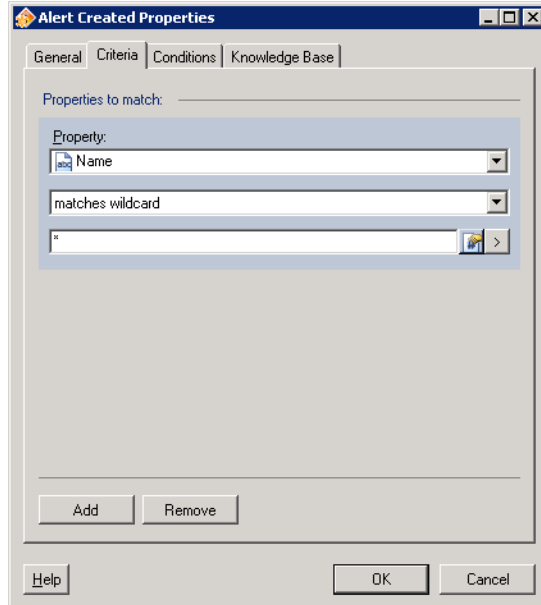


Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

- Step 2** On the General tab, specify the following information:

Field	Description
Display Name	Name of the trigger
Type	<i>Display-only.</i> Type of trigger
Description	Brief description of the trigger
Enabled	The Enabled check box is checked by default. The checked box indicates the target group is available for execution. Uncheck the check box to disable the object. If the check box is unchecked, the object is disabled and will be unavailable for execution.

- Step 3** Click the **Criteria** tab to continue.

Figure 8-6 Task Created Properties Dialog Box—Criteria Tab

Step 4 On the Criteria tab, click one of the following buttons to modify the list of properties for the task criteria.

Button	Description
Add	Click this button to add new property fields to be used as criteria for the trigger.
Remove	Removes the selected property from the trigger

Step 5 After the Properties pane displays, define the following information, as appropriate:

Field	Description
Property	Choose the appropriate property in the to match within the task. Note For additional information on the properties in the list, see Common Task Properties, page 4-4 .
Operators	The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 10-3 .
Value	Enter the appropriate value for the property

Step 6 Complete the following tabs, as necessary, and then click **OK** to complete the procedure.

- **Condition**—Specify when an action is to be taken based on an evaluation of the defined conditions. See [Adding Conditions to a Trigger, page 8-24](#).
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the trigger. See [Step 5 in Defining an Extended Property Value Updated Trigger, page 8-6](#).

The new trigger displays in the Trigger property page.

Defining a Task Changed Trigger

The Task trigger is used to specify the criteria to match within the task to trigger the process. When the value of the task matches the criteria, the process will be triggered. Use the following steps to specify the criteria necessary to trigger when a matching task has been modified.

To define a task trigger:

- Step 1** On the Process—Triggers tab, click **New > Task > [Task Changed]** and then choose *one* of the following task triggers.

The Task Changed Properties dialog box displays.

- Step 2** On the General tab, specify the following information:

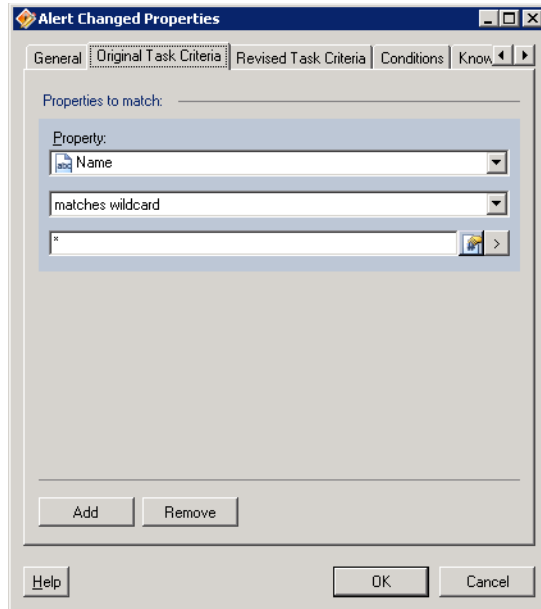
Field	Description
Display Name	Name of the trigger
Type	<i>Display-only.</i> Type of trigger
Description	Brief description of the trigger
Enabled	The Enabled check box is checked by default. The checked box indicates the target group is available for execution. Uncheck the check box to disable the object. If the check box is unchecked, the object is disabled and will be unavailable for execution.

- Step 3** Click the **Original Task Criteria** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 8-7 Task Changed Properties Dialog Box—Original Task Criteria Tab**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

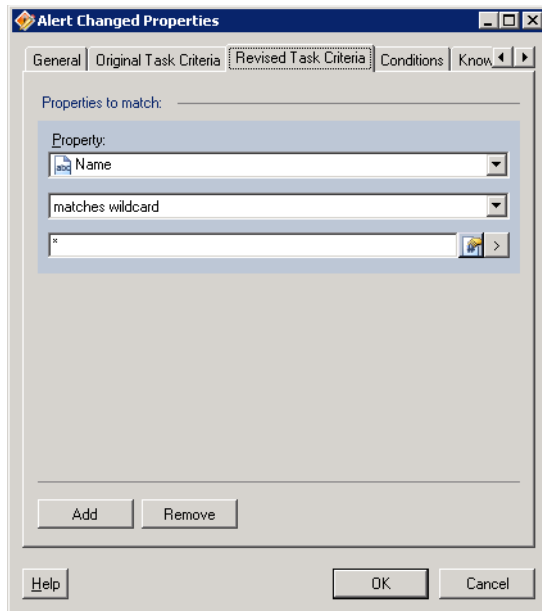
- Step 4** On the Original Task Criteria tab, click one of the following buttons to modify the list of properties for the task criteria.

Button	Description
Add	Click this button to add new property fields to be used as criteria for the trigger.
Remove	Removes the selected property from the trigger

- Step 5** After the Properties pane displays, define the appropriate original task properties to query:

Field	Description
Property	Choose the appropriate property in the to match within the task. Note For additional information on the properties in the list, see Common Task Properties, page 4-4 .
Operators	The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 10-3 .
Value	Enter the appropriate value for the property

- Step 6** Click the **Revised Task Criteria** tab to continue.

Figure 8-8 Task Changed Properties Dialog Box—Revised Task Criteria Tab

- Step 7** To define the revised properties to match to the original task properties before executing the trigger, repeat [Step 4](#) and [Step 5](#).
- Step 8** Complete the following tabs, as necessary, and then click **OK** to complete the procedure.
- Condition—Specify when an action is to be taken based on an evaluation of the defined conditions. See [Adding Conditions to a Trigger, page 8-24](#).
 - Knowledge Base—Choose the appropriate knowledge base article to associate with the trigger. See [Step 5 in Defining an Extended Property Value Updated Trigger, page 8-6](#).

The new trigger displays in the Trigger property page.

Defining a Variable Updated Trigger

The Variable Updated trigger is used to specify the variable to be used as the process trigger. When the value of a defined variable changes, the process will be triggered.

To define a Variable Updated trigger:

Step 1 On the Process—Triggers tab, click **New > Variable Updated**.

The Variable Updated Properties dialog box displays.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 8-9 Variable Updated Properties –General Tab

Step 2 On the General tab, specify the following information:

Field	Description
Display Name	Name of the trigger
Type	<i>Display-only.</i> Type of trigger
Variable	This is a non-editable text field and cannot be manually updated. Click Browse to launch the Select Global Variables dialog box. The selected global variable displays in the field. To view or modify the properties for the selected global variable, click the Properties tool. When the value assigned to this variable changes, it causes the conditions that have been set on the associated Conditions tab to be examined. The process will only execute if the settings on the Conditions tab are met.

Field	Description
Description	Brief description of the trigger
Enabled	The Enabled check box is checked by default. The checked box indicates the target group is available for execution. Clear the check box to disable the object. If the check box is unchecked, the object is disabled and will be unavailable for execution.

Step 3 Complete the following tabs, as necessary, and then click **OK** to complete the procedure.

- Condition—Specify when an action is to be taken based on an evaluation of the defined conditions. See [Adding Conditions to a Trigger, page 8-24](#).
- Knowledge Base—Choose the appropriate knowledge base article to associate with the trigger. See [Step 5 in Defining an Extended Property Value Updated Trigger, page 8-6](#).

The new trigger displays in the Trigger property page.

Managing Trigger Definitions

The information in this section provide instructions on modifying trigger properties. Use the Process—Triggers property page to perform the following functions:

- Enable/Disable triggers
- Modify triggers properties
- Delete the trigger

Enabling a Trigger

A trigger is enabled by default. If a trigger is manually disabled, the trigger must be enabled before it is available for execution.

To enable a trigger:

On the Process—Trigger view, highlight the trigger, and then right-click and choose **Enable**.

The trigger becomes enabled in the trigger list.

Disabling a Trigger

Disabling a target prevents the item from being available for execution. The disabled trigger is not removed from the list of triggers in the Triggers tab.

To disable a trigger:

On the Process—Trigger view, highlight the trigger, and then right-click and choose **Disable**.

The trigger becomes disabled in the trigger list.

Modifying Triggers

Use the Triggers tab to modify the configured triggers. After the initial creation, not all fields are available for updating.

To modify a trigger:

-
Step 1	On the Triggers tab, highlight the appropriate the trigger, and click Properties . The selected trigger dialog box displays.
Step 2	Modify the information on the trigger tabs, as necessary, and click OK . The modified trigger displays in the Trigger tab.
-

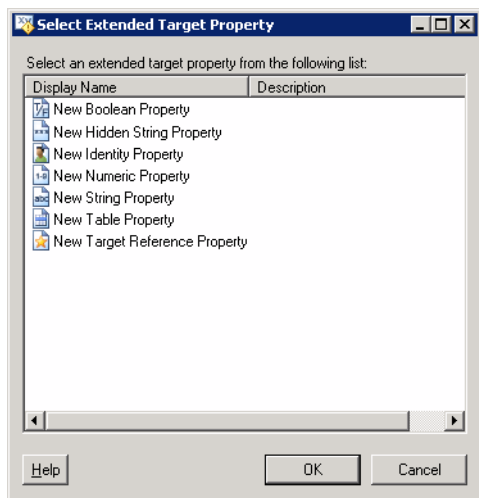
Selecting an Extended Target Property

Use the following steps to add a target property to a trigger. Extended target properties cannot be created from a trigger dialog box, however the properties of the target property are configurable.

To select a target property:

-
- Step 1** On the Triggers tab, use one of the following methods:
- Click **New > Extended Property Value Updated**.
 - or-
 - Highlight the appropriate the trigger, and click **Properties**.
- The Extended Property Value Updated properties dialog box displays.
- Step 2** On the General tab, to the right of the Property field, click **Browse**.
- The Select Extended Target Property dialog box displays.

Figure 8-10 Select Extended Target Property Dialog Box



- Step 3** Select the appropriate target property from the dialog box, and click **OK**.



Note To select multiple objects, press **CTRL** and holding the key while making the appropriate selections.

The modified trigger displays in the Trigger tab.

Selecting a Global Variable

Use the following steps to add a global variable to a trigger. Global variables cannot be created from a trigger dialog box, however the properties of the variable are configurable and can be modified by right-clicking on the variable and selecting **Properties**.

To select a variable:

Step 1 On the Triggers tab, use one of the following methods:

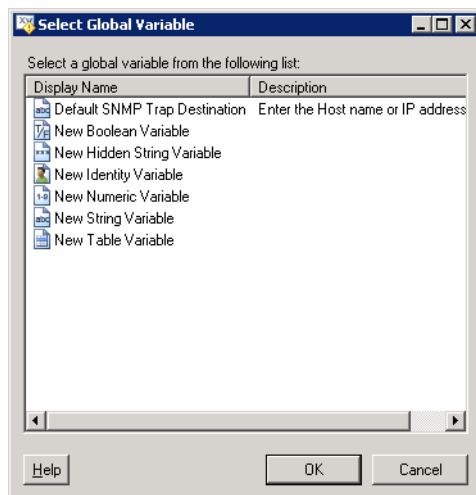
- Click **New > Variable Updated**.
- or-
- Highlight the appropriate the trigger, and click **Properties**.

The Variable Updated properties dialog box displays.

Step 2 On the General tab, to the right of the Property field, click **Browse**.

The Select Global Variable dialog box displays.

Figure 8-11 Select Global Variable Dialog Box



Step 3 Select the appropriate global variable from the dialog box, and click **OK**.



Note

To select multiple objects, press **CTRL** and holding the key while making the appropriate selections.

The modified trigger displays in the Trigger tab.

Adding Conditions to a Trigger

To add a condition to a process trigger:

Step 1 On the Process Properties pane, click the **Triggers** tab.

Step 2 Use one of the following methods, as necessary:

- Click **New > [Trigger Name]**.
- or-
- Highlight an existing trigger and click **Properties**.

The appropriate trigger dialog box displays.

Step 3 Click the **Conditions** tab.

Step 4 To add a specific condition, click the appropriate panel.

Panel	Description
Basic	Creates simple conditions using variables to match to operator criteria. See Adding Basic Conditions to an Object, page 10-4 .
Advanced	Creates a TEO-based condition. • Compound Condition—Compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition. The Compound Condition is created by the addition of another True/False option in the Advanced Panel. • Prior Process Instance Condition—Determines that when a process has occurred within a specific time interval, the condition will evaluate to false. If no process instance is selected, then the trigger will search for all process instances. • Time Condition—Specify a condition based on a defined calendar. • Variable Condition—Specify a variable to be used as the condition under which the variable should evaluate as true. See Adding Advanced Conditions to an Object, page 10-6 .

Step 5 Click **OK** to close the trigger dialog box.

Defining Target Criteria for Trigger

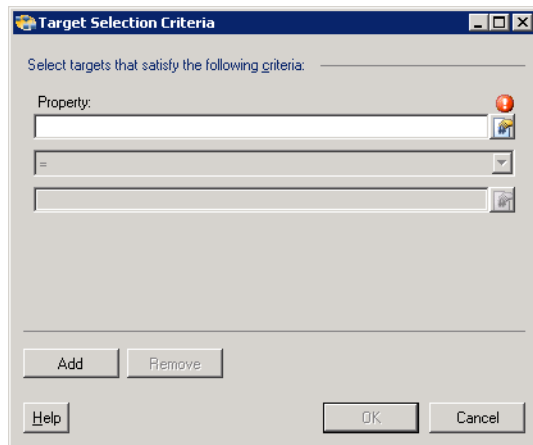
When defining a trigger on a target type, users can specify whether the target group should be triggered when specific criteria is matched.

The Target Selection Criteria dialog box is launched from the Browse button on the Target property page on the selected trigger. Use the Target Selection Criteria dialog box to specify the matching criteria for the selected target group.

To define the target selection criteria:

- Step 1** On the Trigger Target property page, select the **Monitor on this target group** radio button and the appropriate target group.
- Step 2** Under Monitor for Events on, select the **Choose a target using this algorithm** radio button and then choose **Choose the target that satisfies the specified criteria**.
- Step 3** Click **Browse** to launch the Target Selection Criteria dialog box.

Figure 8-12 Target Selection Criteria Dialog Box



- Step 4** On the Properties pane, specify the following information, as necessary:

Field	Description
Text field	Choose the appropriate property to match within the target. Click the Reference tool to select the variable from the Insert Variable Reference dialog box.
Operators	The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 10-3 .
Value	Enter the appropriate value for the target

Step 5 To modify the list of Properties pane containing target criteria, click one of the following buttons:

Button	Description
Add	Click this button to a new Properties pane to complete with criteria for the target.
Remove	Click this button to remove the selected last Properties pane in the display

Step 6 Click **OK** to return to the Trigger—Target property page.
The defined criteria displays in the display-only box.

Deleting Triggers

To delete a trigger:

On the Triggers tab, highlight the appropriate the trigger, and click **Delete**.

The selected trigger is removed from the Trigger tab.



CHAPTER 9

Configuring Process Logic Components

Process logic components are components that are inserted into a process to support or configure the process logic and provide control over the process execution. Use the Logic pane to add components that support or define process logic.

This chapter provides the following sections to define and manage the process logic components in the Process Editor.

- [Process Logic Components, page 9-2](#)
- [Defining the Completed Logic Component, page 9-3](#)
- [Defining the Condition Block Logic Component, page 9-4](#)
- [Defining the Condition Branch Logic Component, page 9-7](#)
- [Defining the For Each Component, page 9-9](#)
- [Defining the Parallel Block Component, page 9-10](#)
- [Defining the Sequential Block Component, page 9-12](#)
- [Assigning an Activity Starting Point, page 9-14](#)
- [Defining the While Component, page 9-15](#)

Process Logic Components

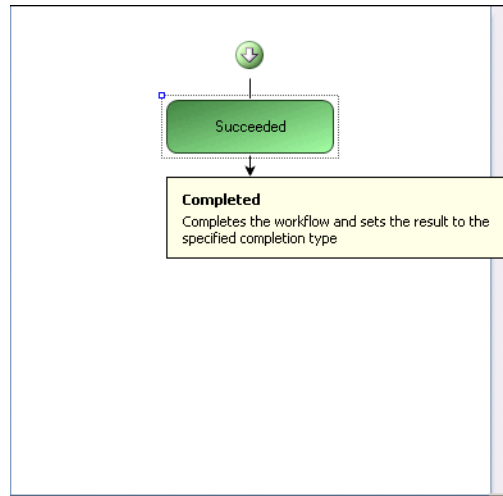
The following table describes the available logic components.

Field	Description
Completed	Specifies the status that signals the completion of an activity and terminates the process. See Defining the Completed Logic Component, page 9-3 .
Condition Block	Executes two or more condition branches in a process. See Defining the Condition Block Logic Component, page 9-4 .
Condition Branch	Creates a branch in the process and executes the branch only if the specified condition is met. See Defining the Condition Branch Logic Component, page 9-7 .
For Each	Used to add the activities to the process that should be executed one time for each item in the target source. See Defining the For Each Component, page 9-9 .
Parallel	Used to run two or more branches of a process simultaneously. See Defining the Parallel Block Component, page 9-10 .
Sequence	Used to run one or more activities sequentially. See Defining the Sequential Block Component, page 9-12 .
Start Point	Indicates the points within a process in which a user can start the process See Assigning an Activity Starting Point, page 9-14 .
While	Allows the process to execute a sequence of child activities (contained in the while loop activity) that continues as long as a specified condition is <i>true</i> . See Defining the While Component, page 9-15 .

Defining the Completed Logic Component

Use the Completed logic component to specify the stop process execution and specify the process completion status. The component ends the workflow and sets the state of the workflow to *Succeeded*, *Failed (Completed)*, or *Failed (Not Completed)*.

Figure 9-1 Completed Component in Workflow Pane

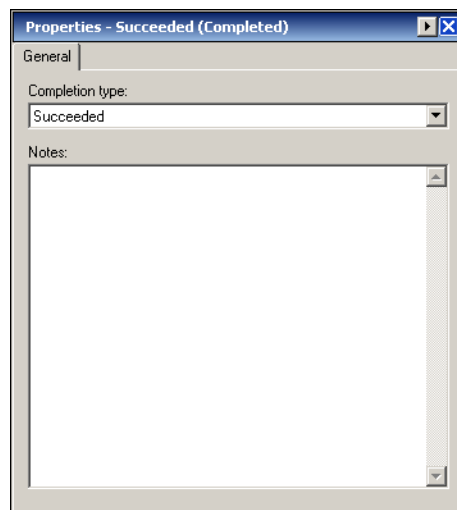


To define a Completed component:

- Step 1** On the Toolbox—Logic pane, choose **Completed** and drag and drop the component onto the Workflow pane.

The Completed [Status] property page displays.

Figure 9-2 Completed [Status] Property Page—General Tab



Step 2 On the General tab, specify the following information:

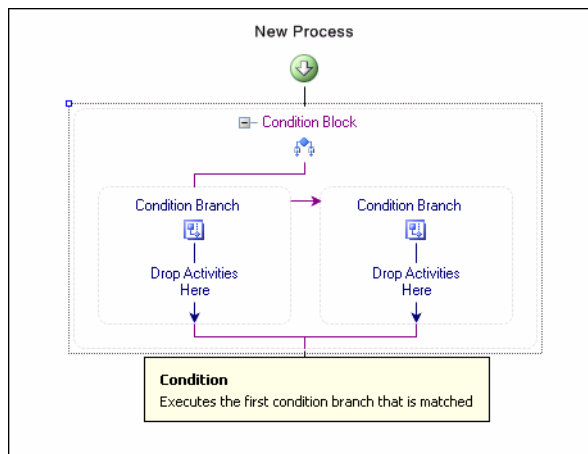
Field	Description
Completion type	In the drop-down list, choose the status with which the activity should complete the process - Succeeded - Failed (Completed) - Failed (Not Completed)
Result message	Check the check box and in the enabled text box, enter the information to display in the Workflow pane upon completion.
Notes	Information about the activity, process, or logic component

Step 3 Click the **Save**  tool to save the changes to the process.

Defining the Condition Block Logic Component

Use the Condition Block component to execute two or more condition branches. It checks conditions for each of the branches in order from left to right and executes the first condition branch whose condition is *true*.

Figure 9-3 Condition Block Component in Workflow Pane

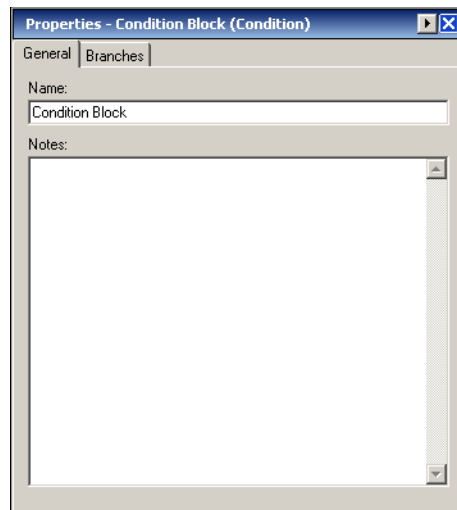


To define a Condition Block:

- Step 1** On the Toolbox—Logic pane, choose **Condition** and drag and drop the component onto the Workflow pane.

The Condition Block property page displays.

Figure 9-4 Condition Block Property Page—General Tab



- Step 2** On the General tab, specify the following information:

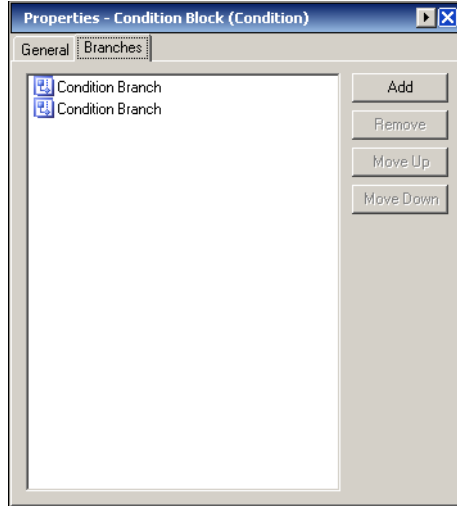
Field	Description
Display name	Name of the condition block
Notes	Information about the component, activity or process

- Step 3** Click the **Branches** tab to continue.

Any branch that is added will contain an additional condition. When selected in the Workflow pane, the property page for the selected condition displays and can be modified accordingly. The first condition that matches from left to right will be the path the process follows.



Note For additional information on modifying conditions, see [Chapter 10, “Managing Conditions.”](#)

Figure 9-5 Conditions Block Property Page—Branches Tab

Step 4 On the Branches tab, click *one* of the following buttons as necessary.

Button	Description
Add	Adds a condition branch to the Workflow pane
Remove	Removes a selected condition branch from the condition block
Move Up	Moves a selected condition branch up to a new position in the list of branches
Move Down	Moves a selected condition branch down to a new position in the list of branches

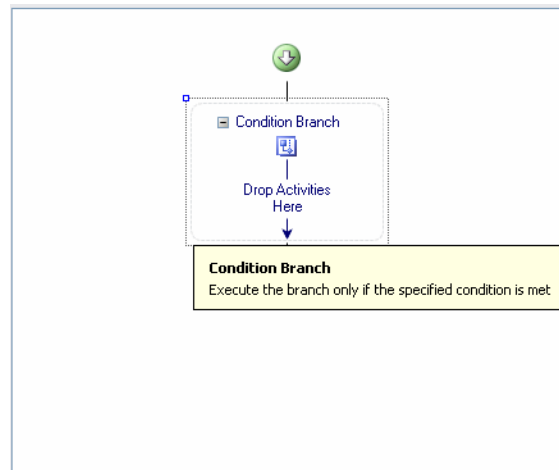
Step 5 Choose the **Condition Branch** on the Workflow pane and specify the appropriate information.

Step 6 Click the **Save**  tool to save the changes to the process.

Defining the Condition Branch Logic Component

Use the Condition Branch component creates a branch in the process and executes the branch only if the specified condition is met.

Figure 9-6 Condition Branch Component in Workflow Pane

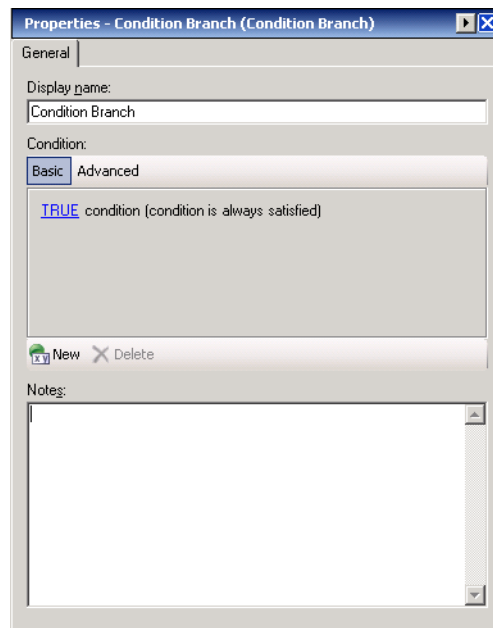


To add a condition to the process:

- Step 1** On the Toolbox—Logic pane, choose **Condition Branch** and drag and drop the item onto the workflow pane.

The Condition Branch properties pane displays.

Figure 9-7 Condition Branch Properties Pane—General Tab



- Step 2** In the Display Name field, enter the name of the new condition branch.

Step 3 To add a specific condition, click the appropriate panel.

Panel	Description
Basic	Creates simple conditions using variables to match to operator criteria. See Adding Basic Conditions to an Object, page 10-4 .
Advanced	Creates a TEO-based condition. - Compound Condition—Compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition. The Compound Condition is created by the addition of another True/False option in the Advanced Panel. - Prior Process Instance Condition—Determines that when a process has occurred within a specific time interval, the condition will evaluate to false. If no process instance is selected, then the trigger will search for all process instances. - Time Condition—Specify a condition based on a defined calendar. - Variable Condition—Specify a variable to be used as the condition under which the variable should evaluate as true. See Adding Advanced Conditions to an Object, page 10-6 .



Note For additional information on creating conditions, see [Chapter 10, “Managing Conditions.”](#)

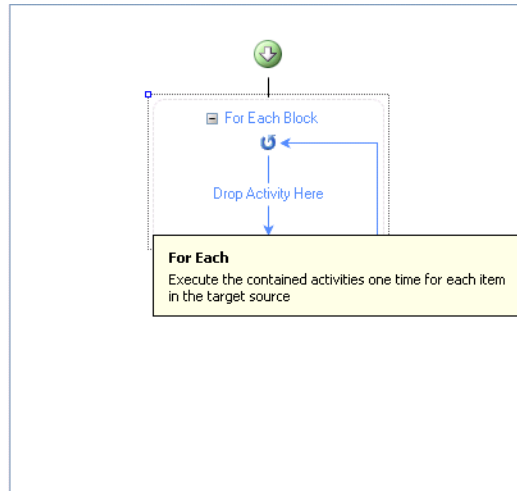
Step 4 In the Notes box, enter the appropriate notes for the condition.

Step 5 Click the **Save**  tool to save the changes to the process.

Defining the For Each Component

Use the For Each logic component to add the activities to the process that should be executed one time for each item in the source variable collection.

Figure 9-8 For Each Component in Workflow Pane

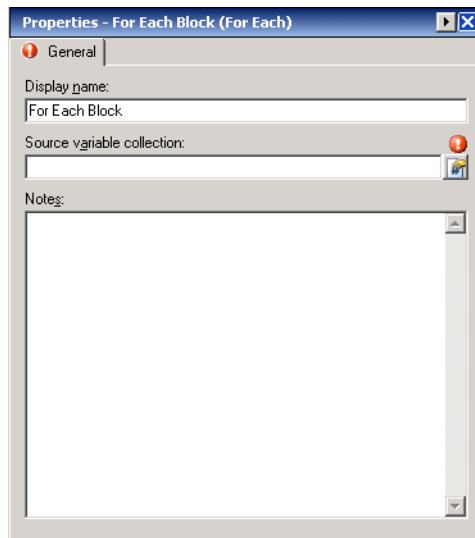


To define a For Each component:

- Step 1** On the Toolbox—Logic pane, choose **For Each** and drag and drop the component onto the Workflow pane.

The For Each property page displays.

Figure 9-9 For Each Property Page—General Tab



Step 2 On the General tab, specify the following information:

Field	Description
Display Name	Name of the logic component
Source variable collection	Collection of objects that will be iterated through for this For Each component. The sub-activities of this node will be executed for each object that is in this collection
Notes	Information about the activity, process, or logic component



Note

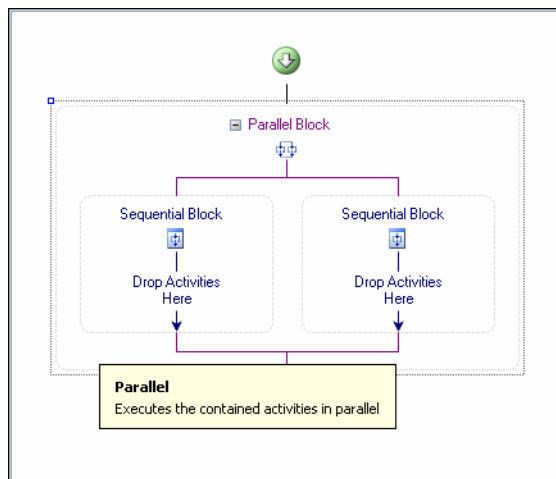
Click the **Reference**  tool to launch the Insert Variable Reference dialog box and choose a variable from the list. For additional information, see [Inserting Variable References, page 7-21](#).

Step 3 Click the **Save**  tool to save the changes to the process.

Defining the Parallel Block Component

Use the Parallel Block component to run two or more branches of a workflow simultaneously. The component consists of two or more sequential block components that execute their activities in parallel.

Figure 9-10 *Parallel Block Component in Workflow Pane*



To define a Parallel Block:

Step 1 On the Toolbox—Logic pane, choose **Parallel** and drag and drop the component onto the Workflow pane.

The Parallel Block property page displays.

Figure 9-11 Parallel Block Property Page—General Tab

The screenshot shows a dialog box titled 'Properties - Parallel Block (Parallel)'. It has two tabs: 'General' and 'Branches'. The 'General' tab is selected. It contains a 'Name' field with the text 'Parallel Block' and a 'Notes' field which is empty. There are also standard window controls (minimize, maximize, close) in the top right corner.

Step 2 On the General tab, specify the following information:

Field	Description
Name	Name of the parallel block
Notes	Information about the component, activity or process

Step 3 Click the **Branches** tab to continue.

Figure 9-12 Parallel Block Property Page—Branches Tab

The screenshot shows the same dialog box, but now the 'Branches' tab is selected. On the left, there is a list box containing two entries, both labeled 'Sequential Block'. On the right side of the list box, there are four buttons: 'Add', 'Remove', 'Move Up', and 'Move Down'. The 'General' tab is still visible but not selected.

Step 4 On the Branches tab, click *one* of the following buttons as necessary.

Button	Description
Add	Adds an empty sequential block to the workflow diagram
Remove	Removes a selected sequential block and all of its activities from the workflow

Button	Description
Move Up	Moves a selected sequential block up to a new position in the list of branches
Move Down	Moves a selected sequential block down to a new position in the list of branches

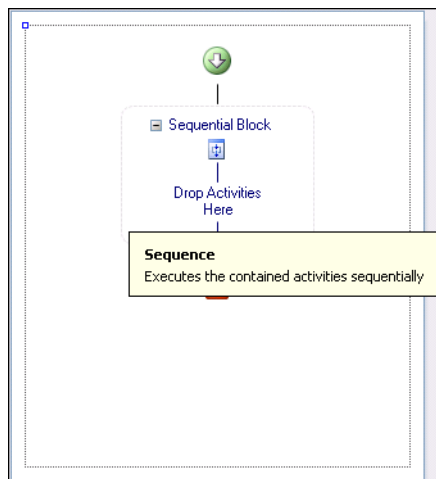
Step 5 Choose the **Sequential Block** on the Workflow pane and specify the appropriate information.

Step 6 Click the **Save**  tool to save the changes to the process.

Defining the Sequential Block Component

Use the Sequence component to execute activities within a block in a sequential order.

Figure 9-13 Sequential Block Component in Workflow Pane



To define a Sequential Block:

Step 1 On the Toolbox—Logic pane, choose **Sequence** and drag and drop the component onto the Workflow pane.

The Sequential Block property page displays.

Figure 9-14 Sequential Block Property Page—General Tab

The screenshot shows a dialog box titled "Properties - Sequential Block (Sequence)". It has a "General" tab selected. Inside the tab, there is a "Name:" label followed by a text input field containing the text "Sequential Block". Below that is a "Notes:" label followed by a large, empty text area with a vertical scrollbar on the right side.

Step 2 On the General tab, specify the following information:

Field	Description
Name	Name of the sequence workflow component
Notes	Information about the activity, process, or logic component

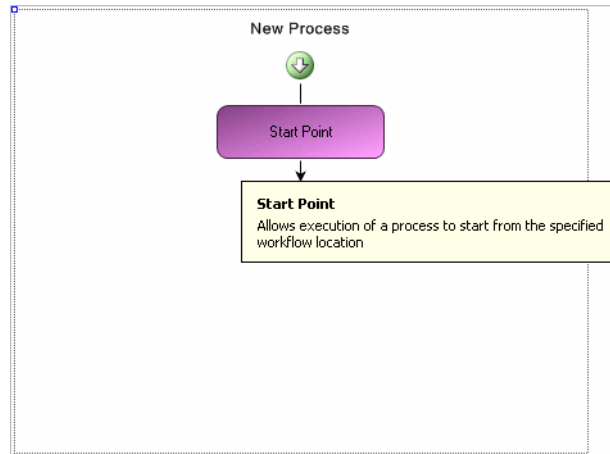
Step 3 Click the **Save**  tool to save the changes to the process.

Assigning an Activity Starting Point

Use the Start Point logic component to indicate the points within a process in which a user can start the process.

The user will always be able to start the process from the beginning. However, if a process contains a Start Point component, then the user can start the process from the location of the Start Point within the process.

Figure 9-15 Start Point Component in Workflow Pane

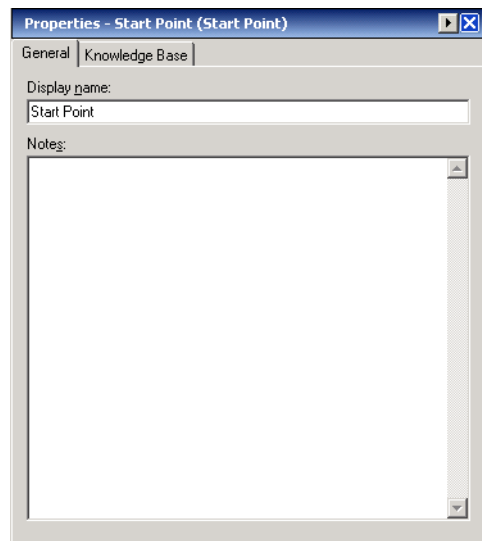


To assign a Start Point component:

- Step 1** On the Toolbox—Logic pane, choose **Start Point** and drag and drop the component onto the Workflow pane.

The Start Point property page displays.

Figure 9-16 Start Point Property Page—General Tab



Step 2 On the General tab, specify the following information:

Field	Description
Name	Name of the Start Point component
Notes	Information about the activity, process, or logic component

Step 3 Click the **Save**  tool to save the changes to the process.



Note

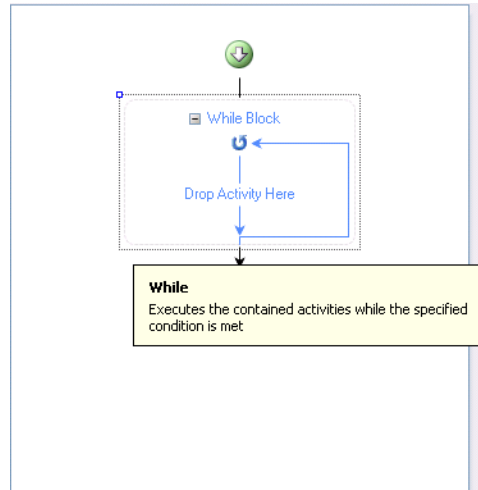
For information on starting a process with a Start Point logic component, see [Starting a Process, page 7-22](#).

Defining the While Component

Use the While logic component to execute a sequence of child activities (contained in the while loop activity) that continues for as long as the specified condition is *true*.

The While logic component is allowed to loop continuously 5000 times before it is considered stuck and the process is stopped.

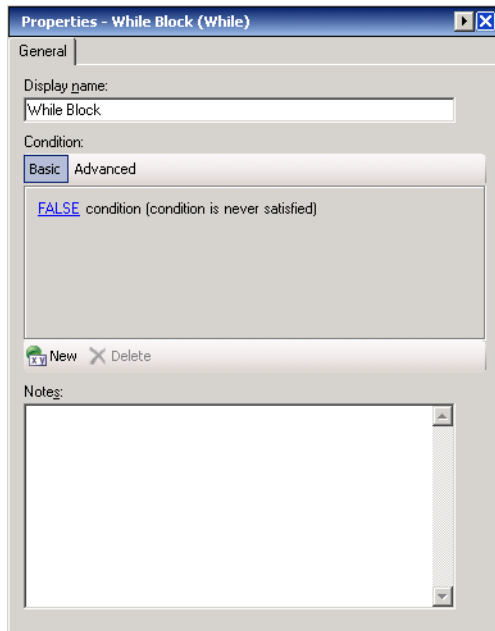
Figure 9-17 *While Block Component in Workflow Pane*



To define a While Block:

- Step 1** On the Toolbox—Logic pane, choose **While** and drag and drop the component onto the Workflow pane. The While Block property page displays.

Figure 9-18 While Block Property Page—General Tab



- Step 2** In the Display Name field, enter the name of the new While Block.
- Step 3** To add a specific condition, click the appropriate panel.

Panel	Description
Basic	Creates simple conditions using variables to match to operator criteria. See Adding Basic Conditions to an Object , page 10-4.

Panel	Description
Advanced	Creates a TEO-based condition. • Compound Condition—Compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition. The Compound Condition is created by the addition of another True/False option in the Advanced Panel. • Prior Process Instance Condition—Determines that when a process has occurred within a specific time interval, the condition will evaluate to false. If no process instance is selected, then the trigger will search for all process instances. • Time Condition—Specify a condition based on a defined calendar. • Variable Condition—Specify a variable to be used as the condition under which the variable should evaluate as true. See Adding Advanced Conditions to an Object, page 10-6.

**Note**

For additional information on creating conditions, see [Chapter 10, “Managing Conditions.”](#)

Step 4 In the Notes box, enter the appropriate notes for the condition.

Step 5 Click the **Save**  tool to save the changes to the process.



CHAPTER 10

Managing Conditions

The conditions assigned to an object within a process specify when an action is to be taken based on an evaluation of conditions that have been defined. This chapter provides instructions on creating and modifying condition properties from within a trigger as well as modify conditions added from the Logic workspace in the Process Editor.

- [Accessing Condition Properties, page 10-2](#)
- [Adding Basic Conditions to an Object, page 10-4](#)
- [Adding Advanced Conditions to an Object, page 10-6](#)
- [Managing Condition Definitions, page 10-16](#)

Accessing Condition Properties

Condition property pages can be accessed from the task rule dialog box as well as two different locations within the Process Editor. A Conditions tab is available on the Task Rules dialog box. On the Process Editor, they can be found and used are within the individual trigger property pages as well as through using the Condition Branch logic component.

From Task Rules View

Use the following steps to access the condition property pages from within a trigger.

On the Definitions—Task Rules view, use *one* of the following methods, as necessary:

- Click **New > [Task Rules Name]**.
- or-
- Highlight an existing task rule and click **Properties**.

The appropriate task rules dialog box displays.

From Triggers View

Use the following steps to access the condition property pages from within a trigger.

Step 1 On the Process Properties pane, click the **Triggers** tab.

Step 2 Use *one* of the following methods, as necessary:

- Click **New > [Trigger Name]**.
- or-
- Highlight an existing trigger and click **Properties**.

The appropriate trigger dialog box displays.

Step 3 Click the **Conditions** tab.

From Condition Branch

Use the following steps to access the condition property pages from the Logic workspace.

On the Toolbox—Logic view, choose **Conditions Branch**, then drag and drop the component onto the Workflow pane.

The Condition Branch property pages display.

Condition Descriptions

The following table provides a list of conditions that are associated with the product. For additional information on creating a condition, refer to the appropriate section.

Condition Type	Description
Compound Condition	Specifies when an action is to be taken based on an evaluation of conditions that have been defined. See Creating a Compound Condition, page 10-8 .
Prior Process Instance	Indicates that when a process has occurred within a specific time interval, the condition will evaluate to <i>false</i> . See Creating a Prior Process Instances Condition, page 10-10 .
Time Condition	Specifies a condition based on a defined calendar. See Creating a Time Condition, page 10-12 .
Variable Condition	Specifies a variable to be used as the condition under which the variable should evaluate as <i>true</i> . See Creating a Variable Condition, page 10-14 .

Comparison Operators

The following table contains operators that may display throughout TEO.

Operator	Description
Contains	Iterates through the contents of the collection and determines if the specified item exists (if this is a string collection, this is case-insensitive)
Contains (case-sensitive)	Iterates through the contents of the collection and determines if the specified item exists (same as above, but a case-insensitive version)
Contains only	Iterates through the contents of the collection and determines if the only item in the collection is the specified item (if this is a string collection, this is case-insensitive)
Contains only (case-sensitive)	Iterates through the contents of the collection and determines if the only item in the collection is the specified item (same as above, but a case-insensitive version)
is empty	Determines if there are items in the collection or not
Equals	Determines if the left side equals the right side (if this is a string comparison, this is case-insensitive)
Not Equals	Determines if the left side does not equal the right side
Matches Regular Expression	Determines if the left side matches the regular expression specified on the right side
Matches wildcard	Determines if the left side matches the wildcard specified on the right side

Operator	Description
Equals (case-sensitive)	Determines if the left side equals the right (this is the case-sensitive version of Equals for string)
Less Than [<]	Determines if a value is less than another value
More Than [>]	Determines if a value is greater than another value
Equal [=]	Determines if a value is equal to another value
Not Equal [>]	Determines if a value is not equal to another value
Greater than or Equal [>=]	Determines if a value is greater than or equal to another value
Less than or Equal [<=]	Determines if a value is less than or equal to another value

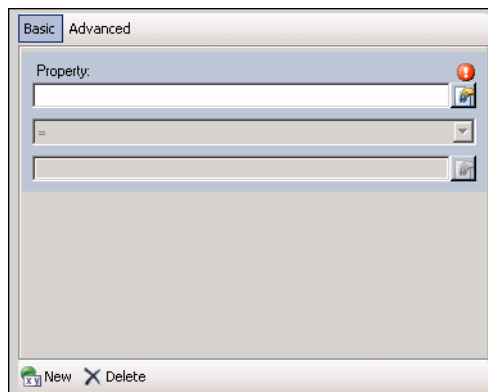
Adding Basic Conditions to an Object

Use the Basic panel to create simple conditions using variables to match to operator criteria.

To add a new condition to an object:

- Step 1** On the [Object] property page or dialog box, click the **Conditions** tab.
The Conditions tab displays.

Figure 10-1 Conditions Tab—Basic Panel



- Step 2** Under Conditions, click the **True/False** link to determine when the object should execute against the specified conditions.

Option	Description
TRUE	Click this link to indicate the conditions should always be satisfied before the object executes. A single condition is listed by default and is set to <i>True</i> . If no other conditions are specified, this condition will remain and cannot be deleted by the user.
FALSE	Click this link to indicate the object can execute if the conditions are never satisfied.

Step 3 Click the appropriate button to modify the condition properties used to execute the object.

Button	Description
New	Click New to add a Properties pane to the condition.
Delete	Click Delete to remove the last Properties section in the list of properties.

Step 4 Each time the New button is clicked, a Properties section is displayed for the condition. The following table displays the fields for the Properties section.

Button	Description
Text field	Data for this field cannot be manually entered. Click the Reference tool to select a property variable to use as a condition.
Operators	Select the operator to be used to evaluate the variable expression. The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 10-3 .
Value	Enter value for the property

Step 5 Click **OK** to save the object.

Adding Advanced Conditions to an Object

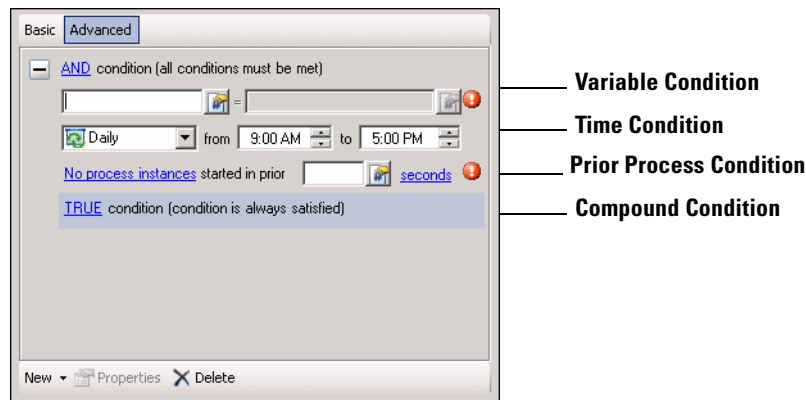
Use the Advanced panel to create a TEO-based condition. Users have the ability to define the properties of the conditions within the Advanced panel, as well as within the Properties dialog box.

The conditions specified on the Basic panel can also be configured on the Advanced pane, because they transition to simple TEO-level variable conditions. All other TEO conditions on the Advanced panel cannot transition to the Basic panel and will not display.

To add an advanced condition to an object:

- Step 1** On the [Object] property page or dialog box, click the **Conditions** tab.
The Conditions tab displays.
- Step 2** Click the **Advanced** panel to continue.

Figure 10-2 Conditions Tab—Advanced Panel



- Step 3** Under Conditions, click the **True/False** link to determine when the object should execute against the specified conditions.

Option	Description
TRUE	Click this link to indicate the conditions should always be satisfied before the object executes. A single condition is listed by default and is set to <i>True</i> . If no other conditions are specified, this condition will remain and cannot be deleted by the user.
FALSE	Click this link to indicate the object can execute if the conditions are never satisfied.

Step 4 Click the appropriate button to modify the condition properties used to execute the object.

Button	Description
New	Click New > [Condition] to add a single condition to Advanced panel. Repeat this step to add additional condition properties to the Conditions tab. - Compound Condition—Compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition. The Compound Condition is created by the addition of another True/False option in the Advanced Panel. See Creating a Compound Condition, page 10-8. - Prior Process Instance Condition—Determines that when a process has occurred within a specific time interval, the condition will evaluate to false. If no process instance is selected, then the trigger will search for all process instances. See Creating a Prior Process Instances Condition, page 10-10. - Time Condition—Specify a condition based on a defined calendar. See Creating a Time Condition, page 10-12. - Variable Condition—Specify a variable to be used as the condition under which the variable should evaluate as true. See Creating a Variable Condition, page 10-14.
Properties	Click anywhere around the appropriate condition. After the area around the condition is shaded blue, click Properties to launch the condition properties dialog box. Note Condition properties can be modified on the tab or within the conditions properties dialog box.
Delete	Highlight the appropriate condition and then click Delete to remove the condition from the object.

After the first condition is added, the following operators are displayed. The operator is set to *AND* by default.

Operator	Description
AND condition (All conditions must be met)	Click this option if an action is to be taken only when all conditions in the list are <i>true</i> .
OR condition (One condition must be met)	Click this option if an action is to be taken when one condition in the list is <i>true</i> .

Step 5 Click **OK** to save the object.

Creating a Compound Condition

A compound condition is a condition that compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition.

Compound conditions can be continually nested within other conditions. Once created, the compound condition can be nested within another compound condition.

Example:

AND

OR

Age < 10

Age > 20

OR

AND

FirstName = 'John'

LastInitial = 'S'

AND

FirstName = 'Jane'

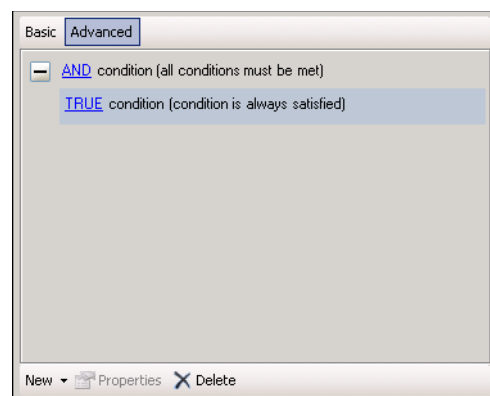
LastInitial = 'S'

Compound conditions can be assigned to a task rule, condition branch, or process trigger.

To create a compound condition:

-
- Step 1** On the Conditions tab, click **New > Compound Condition**.
The True/False link displays on the Conditions tab.

Figure 10-3 Conditions—Advanced Panel—Compound Properties



- Step 2** Click the appropriate option to determine when the object should execute against the specified conditions.

Option	Description
TRUE	Click this link to indicate the conditions should always be satisfied before the object executes.
FALSE	Click this link to indicate the object can execute if the conditions are never satisfied.

- Step 3** Click **New [Condition]** to include another condition in the compound condition.
The appropriate condition properties section displays.



Note Refer to the appropriate section to define the condition properties.

Creating a Prior Process Instances Condition

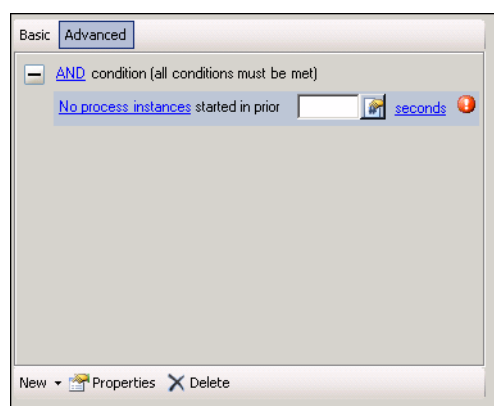
Use the Prior Process Instance condition to indicate that when a process has occurred within a specific time interval, the condition will evaluate to *false*.

If no process instance is selected, then the trigger will search for all process instances.

Step 1 On the Conditions tab, click **New > Prior Process Instance Condition**.

The Prior Process Instances Condition properties display.

Figure 10-4 Conditions—Advanced Panel—Prior Process Instance Condition Properties



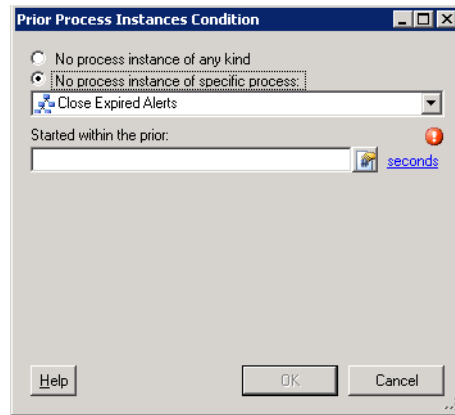
Step 2 On the properties section, modify the following properties.

Option	Description
No Process instance of any kind (Hyperlink)	Click this link to launch the Prior Process Instance dialog box and select <i>one</i> of the following: - No Process instance of any kind—Select this radio button to indicate that no process instances should be used to evaluate the condition. - No process instance of specific process—Select this radio button to indicate that no process instances of a specific process should be used to evaluate the condition. Only one process can be selected per prior process instance condition.
Time period	Enter the appropriate time frame for the condition to match. Note Click the time unit link to change the time interval (seconds, minutes, hours, days).

Step 3 To modify the properties in the Prior Process Instances Condition dialog box, click anywhere on the line of properties.

The Prior Process Instances Condition dialog box displays.

Figure 10-5 Prior Process Instances Condition Dialog Box



Step 4 Complete the following information to define the criteria to match, as necessary.

Column	Description
No Process instance of any kind	Select this radio button to indicate that no process instances should be used to evaluate the condition.
No process instance of specific process	Select this radio button to indicate that no process instances of a specific process should be used to evaluate the condition. Only one process can be selected per prior process instance condition.
Started within the prior	Enter the appropriate time frame for the condition to match. Note Click the time unit link to change the time interval (seconds, minutes, hours, days).



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

The new prior process instance condition is displayed on the Condition dialog box.

Creating a Time Condition

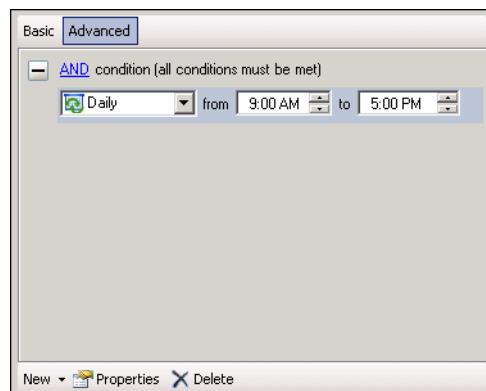
The Time Condition is used to define conditions that evaluates to *true* on the days in the specified calendar and between the specified start and end time. Time conditions can be assigned to a calendar, process, activity, and a process trigger.

Use the following steps to create a time condition based on a defined calendar.

Step 1 On the Conditions tab, click **New > Time Condition**.

The Time Condition properties display.

Figure 10-6 Conditions—Advanced Panel—Time Condition Properties

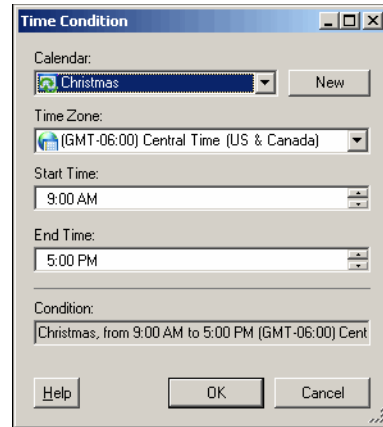


Step 2 On the properties section, modify the following properties.

Option	Description
Calendar	From the drop-down list, choose a calendar on which to base the condition. Note To view the properties for the selected calendar, click the Properties  tool. To create a new calendar for the condition, click New . For additional information, see Chapter 12, “Managing Calendars.”
Start Time	Time the condition should begin. Enter or click the scroll button to modify the time.
End Time	Time the condition should end. Enter or click the scroll button to modify the time.

- Step 3** To modify the properties in the Time Condition dialog box, click anywhere on the line of properties. The Time Condition dialog box displays.

Figure 10-7 Time Condition Dialog Box



- Step 4** Complete the following time condition properties, as necessary, and then click **OK**.

Field	Description
Calendar	From the drop-down list, choose a calendar on which to base the condition. Note To view the properties for the selected calendar, click the Properties  tool. To create a new calendar for the condition, click New . For additional information, see Chapter 12, “Managing Calendars.”
Time Zone	Time zone that should be used for the time condition
Start Time	Time the condition should begin
End Time	Time the condition ends
Condition	<i>Display-only.</i> Shows properties used to define the time condition

The time condition is displayed on the Conditions tab.

Creating a Variable Condition

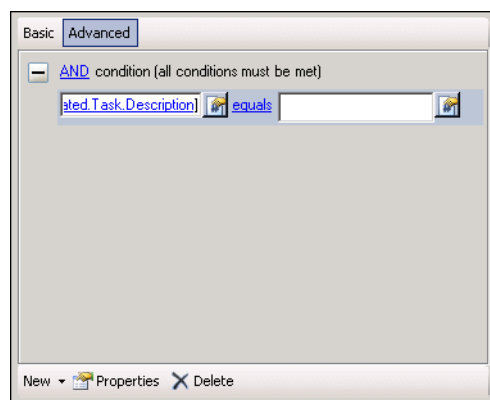
The Variable Condition is used to specify a variable to be used as the condition under which the variable should evaluate as *true*.

To create a variable condition:

Step 1 On the Conditions tab, click **New > Variable Condition**.

The Variable Condition properties display.

Figure 10-8 Conditions—Advanced Panel—Variable Condition Properties

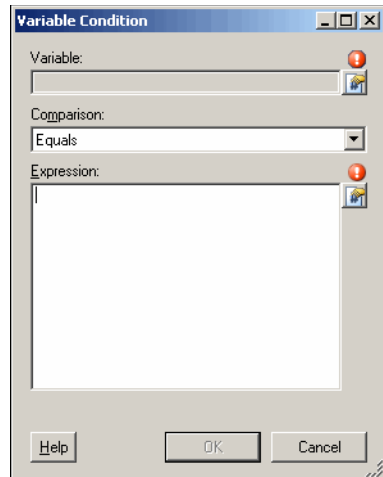


Step 2 On the properties section, modify the following properties.

Button	Description
Text field	Data for this field cannot be manually entered. Click the Reference tool to select a property variable to use as a condition.
Operators	Select the operator to be used to evaluate the variable expression. The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 10-3 .
Value	Enter value for the property.

- Step 3** To modify the properties in the Variable Condition dialog box, click anywhere on the line of properties. The Variable Condition dialog box displays.

Figure 10-9 Variable Condition Dialog Box



- Step 4** Complete the following variable condition properties, as necessary, and then click **OK**.

Field	Description
Variable	Click the Reference  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see Inserting Variable References, page 7-21. Note The variables that display in this list are those that were defined in the Global Variables view. For additional information, see Chapter 11, “Managing Variables.”
Comparison Operator	From the drop-down list, choose the comparison operator to use for comparing the value of the selected variable and the expression.
Expression	Enter the expression to be evaluated against the boolean type variable to determine whether the condition is <i>true</i>. The information in this field is case-sensitive.

The condition is displayed on the Conditions tab.

Managing Condition Definitions

This section provides general instructions on viewing and condition properties.

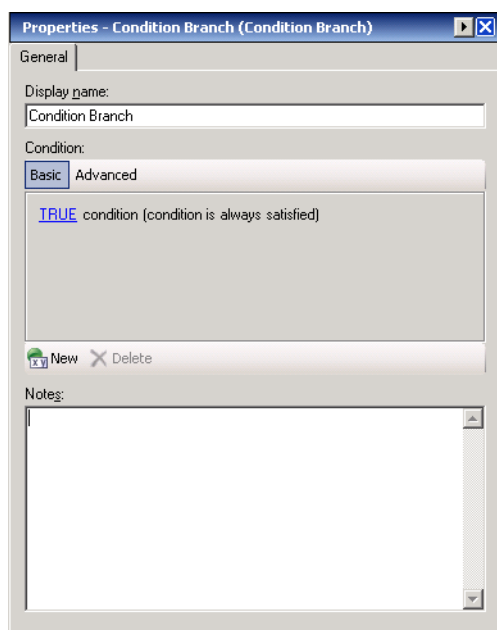
Adding Conditions to a Condition Branch

To add a new condition to the process:

- Step 1** On the Toolbox—Logic view, choose **Condition Branch** and drag and drop the item onto the Workflow pane.

The Condition Branch Properties pane displays.

Figure 10-10 Condition Branch—General Tab



- Step 2** In the Display Name field, enter the name of the new condition branch.

Step 3 To add a specific condition, click the appropriate panel.

Panel	Description
Basic	Creates simple conditions using variables to match to operator criteria. See Adding Basic Conditions to an Object, page 10-4 .
Advanced	Creates a TEO-based condition. • Compound Condition—Compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition. The Compound Condition is created by the addition of another True/False option in the Advanced Panel. • Prior Process Instance Condition—Determines that when a process has occurred within a specific time interval, the condition will evaluate to false. If no process instance is selected, then the trigger will search for all process instances. • Time Condition—Specify a condition based on a defined calendar. • Variable Condition—Specify a variable to be used as the condition under which the variable should evaluate as true. See Adding Advanced Conditions to an Object, page 10-6 .

Step 4 In the Notes box, enter the appropriate notes for the condition and click the **Save**  tool on the Process Editor.

Modifying Conditions

To modify condition properties:

Step 1 On the object, click **Conditions** tab.

Step 2 Highlight the appropriate condition, and use *one* of the following methods:

- Modify the condition properties within the Conditions tab.
- or-
- Click **Properties** to launch the Conditions dialog box and modify the properties within the dialog box.

The modified condition displays in the object tab.

Deleting Conditions from Task Rules

Use the following steps when deleting a condition from a task rule. If the user deletes the task rule, that automatically deletes the condition.

-
- Step 1** On the Definitions—Task Rule view, highlight an existing task rule, right-click and click **Properties**.
The appropriate task rule dialog box displays.
- Step 2** Click the **Conditions** tab, highlight the appropriate condition, and click **Delete**.
The selected condition is deleted from the task rule.
-

Deleting Conditions from Triggers

Use the following steps when deleting a condition from a trigger. If the user deletes the trigger from the process properties, that automatically deletes the condition.

-
- Step 1** On the Triggers tab, highlight the appropriate the trigger, and click **Properties**.
The selected trigger dialog box displays.
- Step 2** Click the **Conditions** tab, highlight the appropriate condition, and click **Delete**.
The selected condition is deleted from the trigger.
- Step 3** On the trigger property page, click **OK**.
The modified trigger displays in the Trigger tab.
-

Deleting Conditions from Condition Branch Component

Use the following steps to delete a condition from a condition branch component. If the user deletes the condition branch from the Workflow pane, that automatically deletes the condition.

On the Workflow pane, choose **Condition Branch**, and then use *one* of the following methods:

- Right-click and then choose **Delete** to remove the condition branch and all associated conditions.
- -or-
- On the Condition Branch General tab, highlight the appropriate condition, and click **Delete**.

The selected condition is removed from the condition branch.



CHAPTER 11

Managing Variables

The variables feature provides a storage area for information that is used on a regular basis to avoid having to specify the same information in several instances. Data stored in a variable can be altered to affect process execution behavior.

This chapter provides information on managing process and global variables. Process variables are created from within a process and can only be used or executed against by the process. Global variables are accessible from every function within Tidal Enterprise Orchestrator and can be modified by every function.

Refer to the following sections for more information:

- [Global Variables Overview, page 11-3](#)
- [Defining Global Variables, page 11-5](#)
- [Process Variables Overview, page 11-18](#)
- [Defining Process Variables, page 11-21](#)
- [Managing Variable Definitions, page 11-32](#)

Common Uses of Variables

The most common types of variables in TEO are identity variables and process or activity property variables.

Process or Activity Property Variables

In a process or activity definition, you can refer to the process properties or the properties of a prior activity in the process. In this scenario, the properties of the process or activity may also refer to associated objects.

One of the most common uses of variables is to define activity configuration. Any field in an activity with a Reference tool can refer to a variable value rather than an explicit value.

Status Tracking

Another common use of variables is to track state. For instance, a user can use variables as a loop counters to store the number of times a loop has executed and know the current loop iteration running.

Summary Variables

Users can also use a variable to build up a 'summary' message. For each thing event happens, users can append 'what just happened' to the variable. At the end of a process, the result will be the contents of this variable as an entire summary of the process.

Name Variables

The most common use of variables is a name that has a changeable value. For example, a global variable can be used to store information used in processes such as:

- Locations of files and directories
- Email addresses
- Order numbers
- User names

Variable Descriptions

The following table provides a listing variable types supported by the product. Variables are available for defining from within the Definitions—Global Variables view and in the Process Editor—Variables tab.

For information on defining process variables or global variables, see the appropriate section included later in this chapter.

Variable	Description
Boolean	Indicates whether a set of elements should be <i>true</i> or <i>false</i>
Hidden String	Holds data that must be protected from other TEO users and from auditing operations performed by TEO
Identity	Represents the value of a user identity
Numeric	Single whole or decimal number (positive and negative)
String	Defines a variable containing a string of text
Table	Stores a set of records in a table format

Global Variables Overview

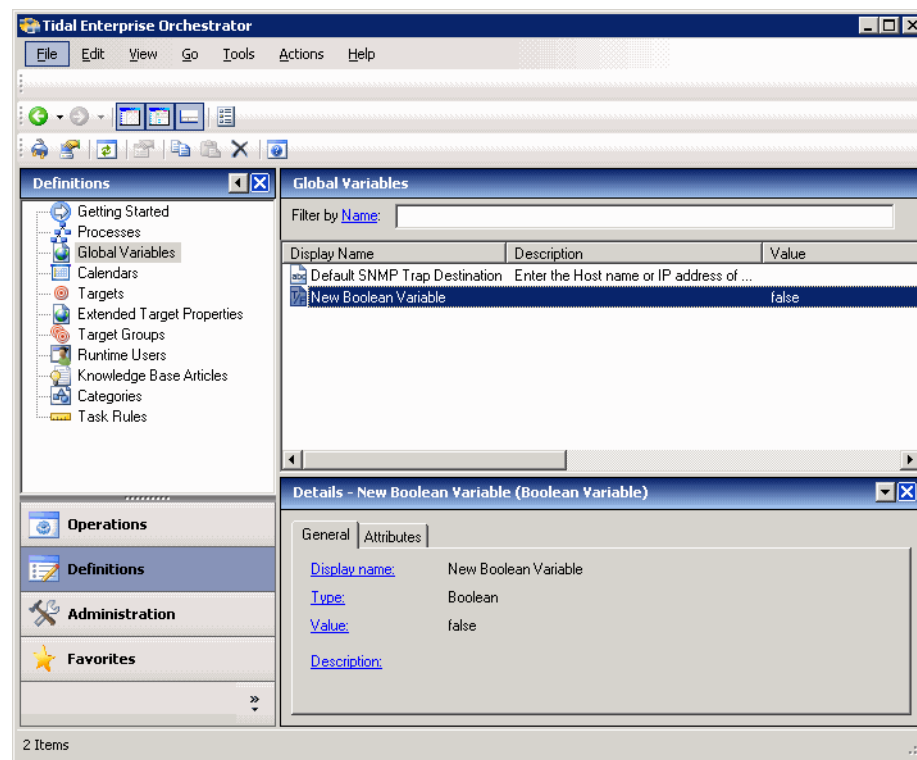
The Definitions—Global Variables view displays all the defined global variables in the console. Additional features from this view include creating a new global variable, modifying and deleting a global variable.

Accessing Definitions—Global Variables

To access the Global Variable view:

On the Definitions pane, choose **Global Variables**. The Results pane displays.

Figure 11-1 Definitions—Global Variables



Information about the defined variables is displayed in the following columns:

Column	Description
Display name	Name assigned to the variable
Description	Description of the variable
Value	Value assigned to the variable
Data type	Type of variable being used for the parameter value (Boolean, Hidden String, Identity, Numeric, String, or Table)
Last Modified Time	Time the global variable was last modified
Last Modified By	User name of the person who last modified the variable

Column	Description
Id	The unique identification number of the variable definition
Owner	User name of the owner of the variable
Created Time	The time at which the variable was created
Created By	The user name of the person who created the variable
Automation Pack	Name of the automation pack associated with the variable. This field may be empty if the variable does not belong to an automation pack.

**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Actions Menu

The Global Variables Actions menu and toolbar provide the option to create new global variables. The New item is also available by right-clicking **Global Variables** on the Definitions workspace.

Details Pane

The Global Variables Details pane displays additional information about the selected item. The hyperlinks on each of the detail pages launch the property pages for the selected global variables.

Tab	Description
General	Displays general information about the item including the name, type, value, and a description of the global variable
Attributes	Displays the dates, times and process owner associated with the creation and modification of the global variable

Defining Global Variables

Variables can be used as a reference value used for multiple objects. They can also be used to store or pass a value between executions of a process or between steps within a single process.

Use the following steps to define a global variable. The property pages displayed depend on the type of global variable selected.

To define a global variable:

Step 1 On the Definitions—Global Variables view, right-click and choose *one* of the following global variables.

Variable	Description
Boolean	Indicates whether a set of elements should be <i>true</i> or <i>false</i>
Hidden String	Holds data that must be protected from other TEO users and from auditing operations performed by TEO
Identity	Represents the value of a user identity
Numeric	Single whole or decimal number (positive and negative)
String	Defines a variable containing a string of text
Table	Stores a set of records in a table format

**Note**

Each variable has specific panels on the wizard, see the appropriate sections for information on defining the individual properties.

The New [Name] Variable Wizard launches.

**Note**

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Step 2 On the General Information panel, specify the appropriate information, and click **Next**.

The [Name] Variable Value panel displays.

Step 3 On the Variable Value panel, specify the appropriate value for the variable, and click **Next**.

The Completing the New [Name] Variable Wizard panel displays.

Step 4 Click **Finish** to complete the procedure.

Viewing Global Variable Properties

To view global variable properties:

Step 1 On the Definitions—Global Variables view, highlight the appropriate variable, and use *one* of the following methods:

- Right-click and choose **Properties**.
- or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Properties dialog box displays.



Note

The property pages may display as display-only if the global variable definition is shipped as part of the automation pack or the user does not have the appropriate rights.

Step 2 Review the properties and click **OK** to close the dialog box.

Creating a Boolean Variable

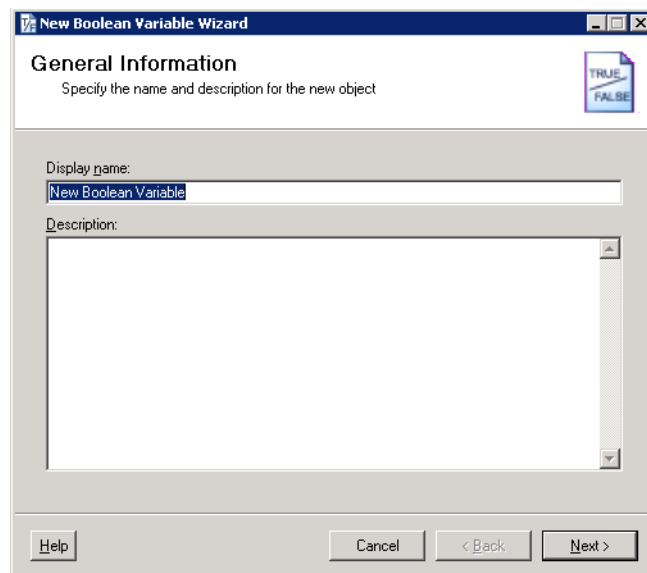
Use the Boolean variable to define a value that should be interpreted as *true* or *false*. The variable information is stored as a reference value that is used for multiple objects.

To create a boolean variable:

Step 1 On the Definitions—Global Variables view, right-click and choose **New > Boolean Variable**.

The New Boolean Variable Wizard launches.

Figure 11-2 New Boolean Variable Wizard—General Information Panel

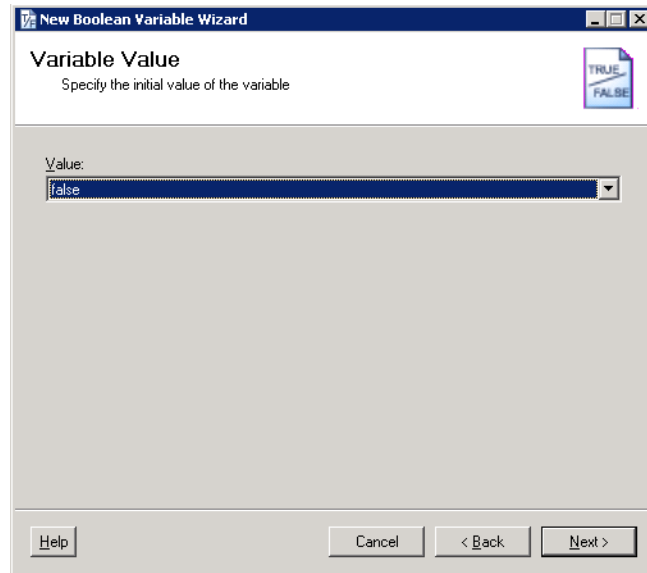


Step 2 On the General Information panel, specify the following information, and click **Next**.

Field	Description
Display name	Name assigned to the variable
Description	Brief description of the variable

The Variable Value panel displays.

Figure 11-3 *New Boolean Variable Wizard—Variable Value Panel*



Step 3 On the Variable Value panel, specify whether the value should be interpreted as true or false and click **Next**.

Field	Description
Value	Value assigned to the variable (e.g. <i>true</i> , <i>false</i>)

The Completing the New Boolean Variable Wizard panel displays.

Step 4 Click **Finish** to complete the procedure.

Creating a Hidden String Variable

Use the Hidden String variable to define a variable which holds data that must be protected from other TEO users and from auditing operations performed by TEO.

The encryption protection provided by TEO extends only to the adapter level. The values are not visible anywhere in TEO during the definition or execution stages. In the audit logs, the user cannot see the values of the hidden string variables or encrypted activity properties. After the values reach the adapter levels, the level are then required to handle the hidden strings with care.

To create an hidden string variable:

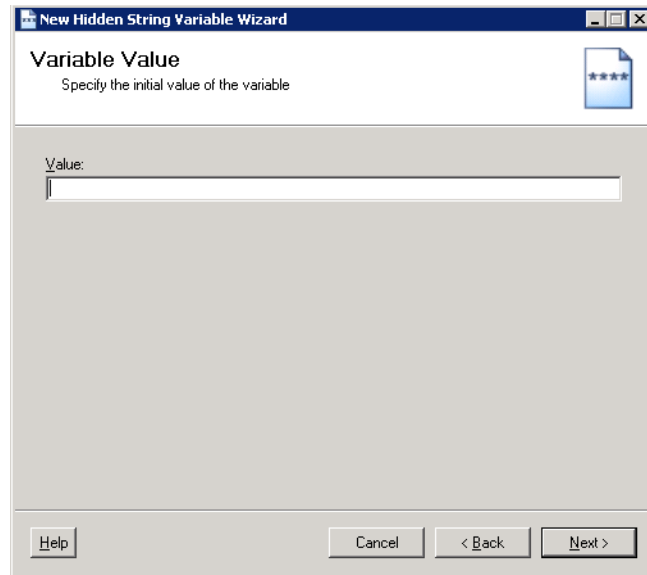
- Step 1** On the Definitions—Global Variables view, right-click and choose **New > Hidden String Variable**. The New Hidden String Variable Wizard launches.

Figure 11-4 *New Hidden String Variable Wizard—General Information Panel*

- Step 2** On the General Information panel, specify the following information, and click **Next**.

Field	Description
Display name	Name assigned to the variable
Description	Brief description of the variable

The Variable Value panel displays.

Figure 11-5 *New Hidden String Variable Wizard—Variable Value Panel*

Step 3 On the Variable Value panel, specify the security-sensitive text for the value, and click **Next**.

Field	Description
Value	Enter the security-sensitive string value(s) for the global variable.

The Completing the New Hidden String Variable Wizard panel displays.

Step 4 Click **Finish** to complete the procedure.

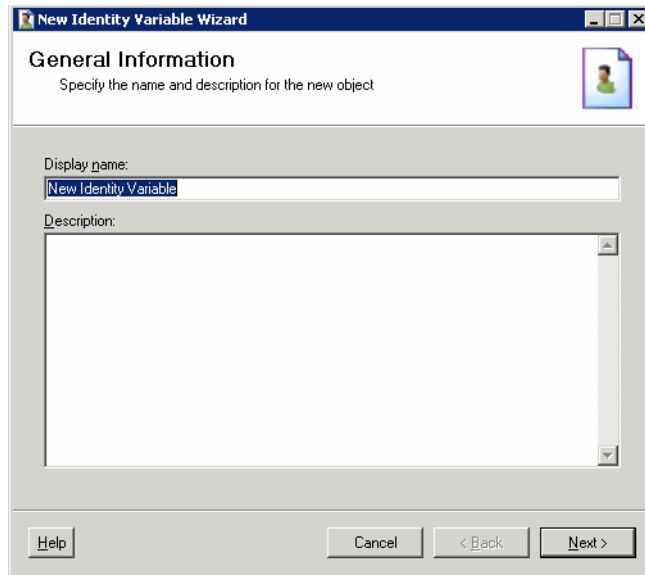
Creating an Identity Variable

Use the Identity variable to store the value of a user or group identity.

To create an identity variable:

- Step 1** On the Definitions—Global Variables view, right-click and choose **New > Identity Variable**. The New Identity Variable Wizard launches.

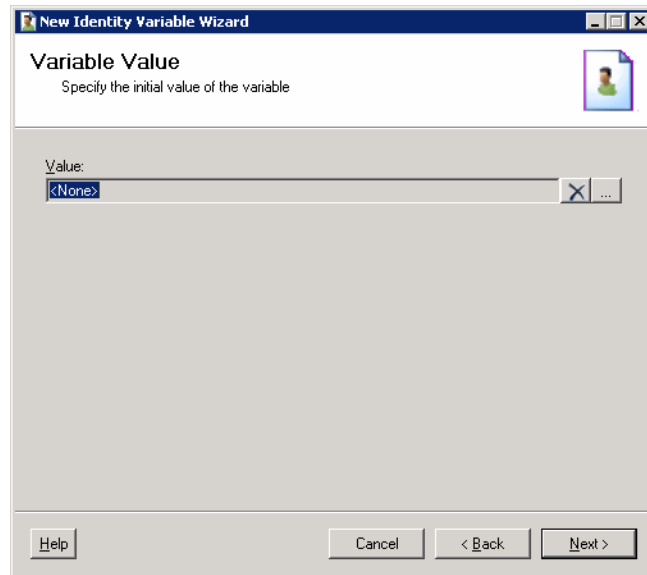
Figure 11-6 New Identity Variable Wizard—General Information Panel



- Step 2** On the General Information Panel, specify the following information:

Field	Description
Display name	Name assigned to the variable
Description	Brief description of the variable

The Variable Value panel displays.

Figure 11-7 *New Identity Variable Wizard—Variable Value Panel*

Step 3 On the Variable Value panel, specify the user or group identity for the value, and click **Next**.

Field	Description
Value	Value assigned to the value. Click Browse to launch the Select User or Group dialog box to select the identity to assign to the value.

The Completing the New Identity Variable Wizard panel displays.

Step 4 Click **Finish** to complete the procedure.

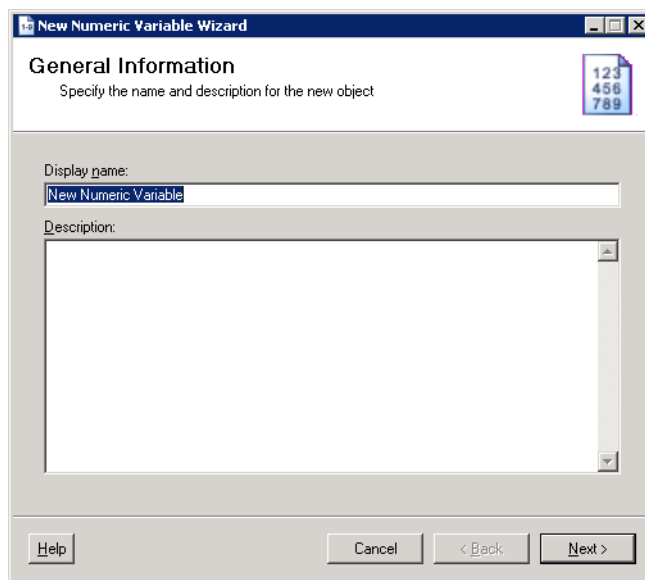
Creating a Numeric Variable

Use the Numeric variable to define a variable containing a single whole or decimal number (positive and negative).

To create a numeric variable:

- Step 1** On the Definitions—Global Variables view, right-click and choose **New > Numeric Variable**. The New Numeric Variable Wizard launches.

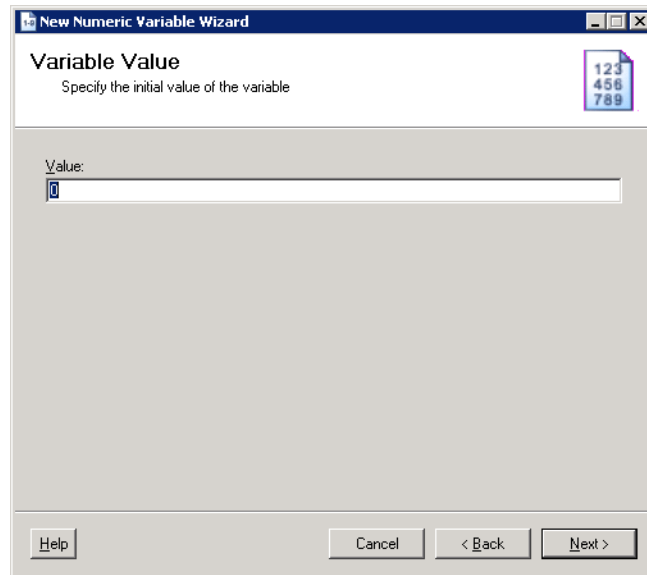
Figure 11-8 New Numeric Variable Wizard—General Information Panel



- Step 2** On the General Information panel, specify the following information:

Field	Description
Display name	Name assigned to the variable
Description	Brief description of the variable

The Variable Value panel displays.

Figure 11-9 *New Numeric Variable Wizard—Variable Value Panel*

Step 3 On the Variable Value panel, specify the user or group identity for the value, and click **Next**.

Field	Description
Value	Numeric value assigned to the value

The Completing the New Numeric Variable Wizard panel displays.

Step 4 Click **Finish** to complete the procedure.

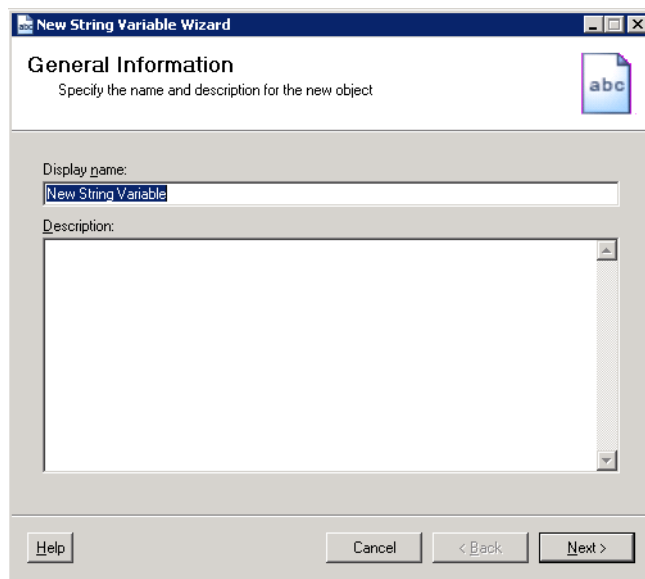
Creating a String Variable

Use the String variable to define a variable containing a string of text.

To create a string variable:

- Step 1** On the Definitions—Global Variables view, right-click and choose **New > String Variable**. The New String Variable Wizard launches.

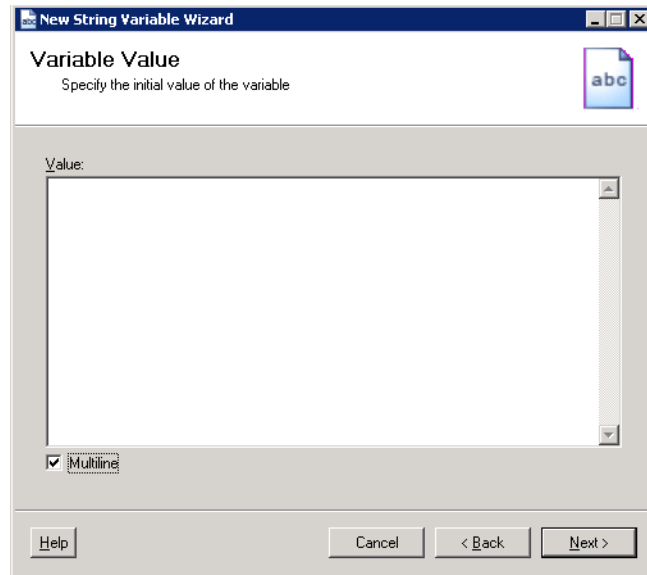
Figure 11-10 New String Variable Wizard—General Information Panel



- Step 2** On the General Information panel, specify the following information, and click **OK**.

Field	Description
Display name	Name assigned to the variable
Description	Brief description of the variable

The Variable Value panel displays.

Figure 11-11 *New String Variable Wizard—Variable Value Panel*

Step 3 On the Variable Value panel, specify the user or group identity for the value, and click **Next**.

Field	Description
Value	Enter the default string of text value(s) for the global variable. Note Check the Multiline check box to expand the text box and add more lines to the string.

The Completing the New String Variable Wizard panel displays.

Step 4 Click **Finish** to complete the procedure.

Creating a Table Variable

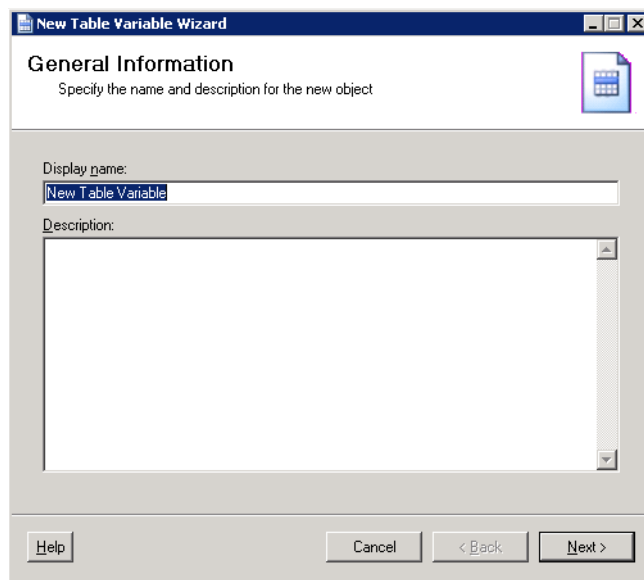
Use the Table variable to define a table that is used to store a set of records. Use the Table tab to define the table columns and rows for the table variable.

For information on modifying the format of the tables, see [Appendix D, “Using Table Activities.”](#)

To create a table variable:

- Step 1** On the Definitions—Global Variables view, right-click and choose **New > Table Variable**.
The New Table Variable Wizard launches.

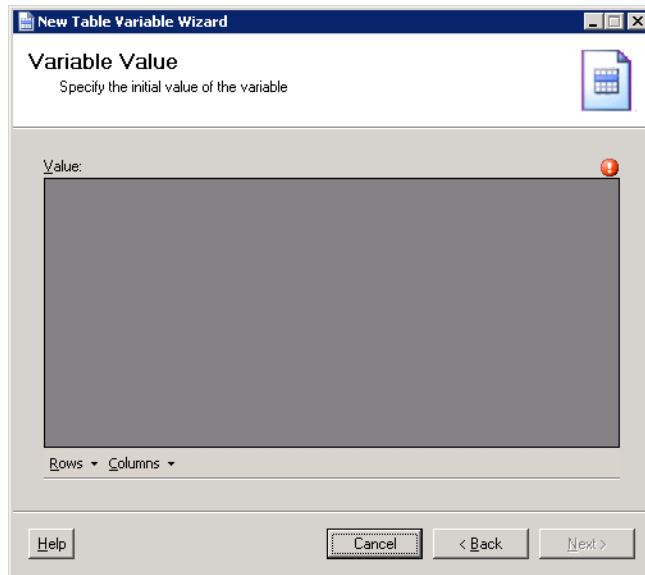
Figure 11-12 New Table Variable Properties Dialog Box—General Tab



- Step 2** On the General Information panel, specify the following information, and click **Next**.

Field	Description
Display name	Name assigned to the variable
Description	Description of the variable

The Variable Values panel displays.

Figure 11-13 New Table Variable Wizard—Variable Values Panel

Step 3 On the Variable Value panel, define the values to be included in the cells of a table as well as add new rows and columns for the table.

**Note**

The table must contain at least one column before a row can be added.

Field	Description
Rows	Click Rows to modify the number of rows to be included in the table. • Add—Adds a new row to the table. See Adding a Table Row, page 11-34. • Remove—Removes selected rows from table. The Remove option is enabled when the user chooses one or more rows within the data table.
Columns	Click Columns to modify the columns to be included in the table. • Add—Launches the Table Columns Properties dialog box to allow the user to define the name and data type for the new column. See Adding a Table Column, page 11-33. • Edit—Allows the user to modify the name for the selected column. The Edit option is enabled when the user has one column or one cell in the table selected. • Remove—Removes the selected columns from the table. The Remove option is enabled when the user chooses one or more columns within the table. Note Menu items under the Columns option are not available if the variable belongs to a third-party automation pack.

Step 4 Click **Finish** to complete the procedure.

Process Variables Overview

Variables can be defined for individual processes in the Process Editor. These variables are only available from within the defined process and cannot be accessed or referenced by objects outside of the process.

The Process—Variables tab displays all the defined variables for the open process. This section provides information on creating a new variable, modifying and deleting a process variable.

Process Variable Types

The following table describes the type of variable available that may be available to a process.

Variable Type	Description
Definition	Definition scoped variables are available to all instances of a process. There is only one value shared by all instances of the same process definition and that value persists from one execution of a process to the next. If the value of a definition scoped variable is altered by a process instance, then all other process instances will see the new value.
Input	Input variables can and must be specified by the parent process. An input variable is available only to a process instance. The process instance gets its own copy of the input variable. This type of variable must be specified before a process instance can be started. An input variable must be unique within all process instance variables and process definition variables for a process.
Output	An output variable is available only to a given process instance. Its value is preserved after successful termination of a process. An output variable must be modified by the activities within a process. Unlike other process instance variables, the values of output variables are stored after the process instance terminates successfully and are available to be read by the parent process.
Local	Local scoped variables are available only to a given process instance. They will not persist across process instances. They cannot be written or read by a parent process.

Accessing Process—Variables

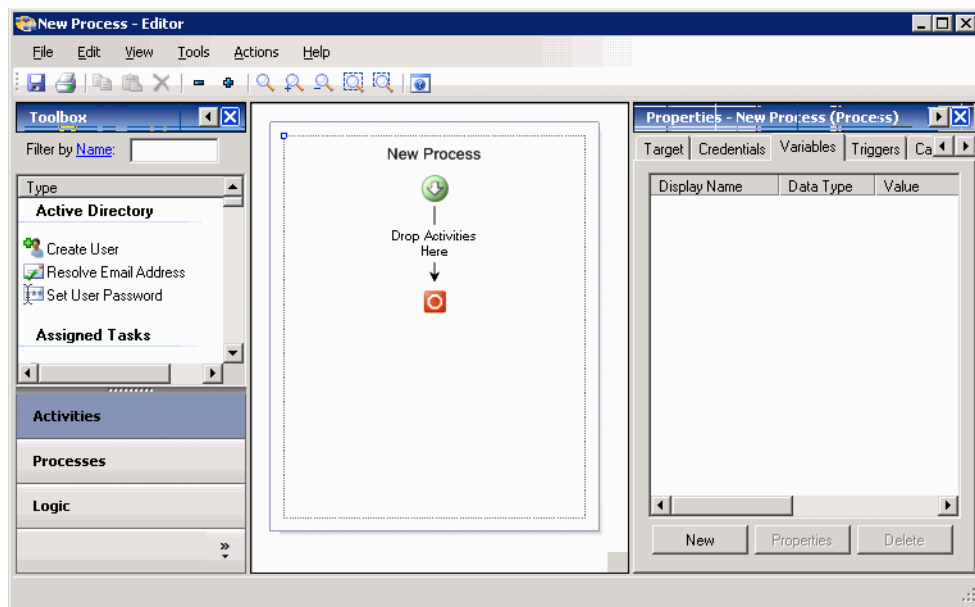
Step 1 To access the Process Variable view, use *one* of the following methods:

- On the Definitions workspace, choose **Process > New**.
- or-
- On the Definitions—Process view, double-click the appropriate process.

The Process Editor displays.

Step 2 Click the **Variables** tab.

Figure 11-14 Process Editor Dialog—Variables Tab



Information about the defined variables is displayed in the following columns:

Column	Description
Display name	Name assigned to the variable. The name must be unique within the scope of the variable.
Data type	Type of variable being used for the parameter value (Boolean, Hidden String, Identity, Numeric, String, or Table)
Value	Value assigned to the variable
Description	Brief overview the variable



Note

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Viewing Process Variable Properties

To view process variable properties:

- Step 1** On the Process—Variables tab, highlight the appropriate variable, and use *one* of the following methods:
- Right-click and choose **Properties**.
 - or-
 - Click **Properties**.

The [Variable] Properties dialog box displays.



Note

The property pages may display as display-only if the process variable definition is shipped as part of the automation pack or the user does not have the appropriate rights.

- Step 2** Review the properties and click **OK** to close the dialog box.

Defining Process Variables

Process variables can be used as a reference value to store or pass a value between executions of a process or between steps within a single process. Process variables can also be used to collect input parameters from the user or parent process.

Use the following steps to define a process variable. The property pages displayed depend on the type of variable selected.

To define a process variable:

Step 1 On the Variables tab, click **New > [Variable]**.



Note

Each variable has an associated property page, see the appropriate sections for information on defining the individual properties.

The [Variable] Properties dialog box displays.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Step 2 On the General tab, enter the appropriate variable-specific information.

Step 3 Click **OK** to close the dialog box.

Creating a Boolean Variable

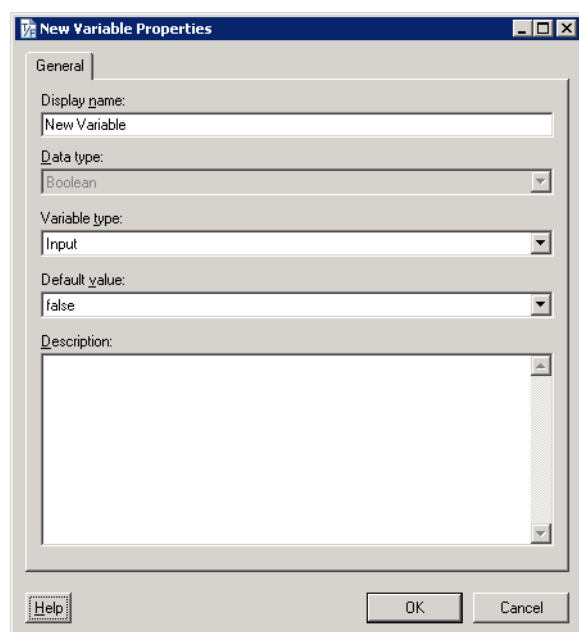
Use the Boolean variable to define a value that should be interpreted as *true* or *false*.

To create a boolean variable:

- Step 1** On the Process—Variables tab, click **New > Boolean Variable**.

The New Variable Properties dialog box displays.

Figure 11-15 New Variable Properties Dialog Box—General Tab



- Step 2** On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the variable
Data type	<i>Display-only.</i> Data type used to specify the variable value
Variable type	Type of variable: • Definition—Definition scoped variables are available to all instances of a process. • Input—Input variables can and must be specified by the parent process. • Output—An output variable is available only to a given process instance. • Local—Local scoped variables are available only to a given process instance. Note For additional information on the process variable types, see Process Variable Types, page 11-18.

Field	Description
Default value	Value assigned to the variable (e.g. <i>true</i> , <i>false</i>)
Description	Brief description of the variable

Step 3 Click **OK** to close the dialog box.

Creating a Hidden String Variable

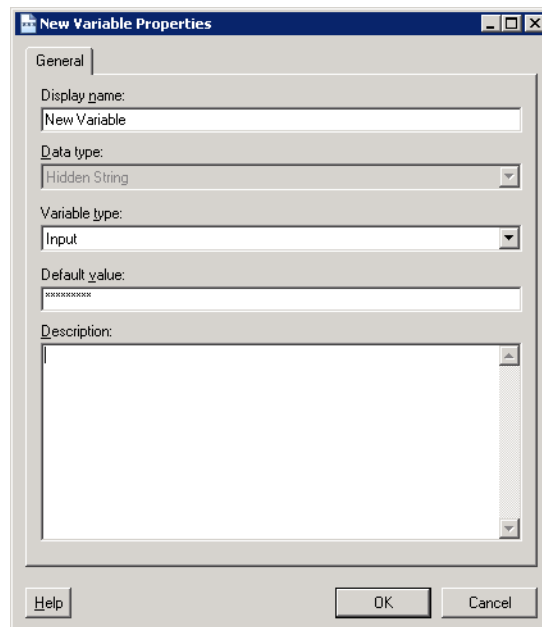
Use the Hidden String variable to define a variable which holds data that must be protected from other TEO users and from auditing operations performed by TEO.

The encryption protection provided by TEO extends only to the adapter level. The values are not visible anywhere in TEO during the definition or execution stages. In the audit logs, the user cannot see the values of the hidden string variables or encrypted activity properties. After the values reach the adapter levels, the level are then required to handle the hidden strings with care.

To create an hidden string variable:

Step 1 On the Process—Variables tab, click **New > Hidden String Variable**.
The New Variable Properties dialog box displays.

Figure 11-16 New Variable Properties Dialog Box—General Tab



Step 2 On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the variable
Data type	<i>Display-only</i> . Data type used to specify the variable value

Field	Description
Variable type	Type of variable: • Definition—Definition scoped variables are available to all instances of a process. • Input—Input variables can and must be specified by the parent process. • Output—An output variable is available only to a given process instance. • Local—Local scoped variables are available only to a given process instance. Note For additional information on the process variable types, see Process Variable Types, page 11-18 .
Default value	Value assigned to the variable
Description	Brief description of the variable

Step 3 Click **OK** to close the dialog box.

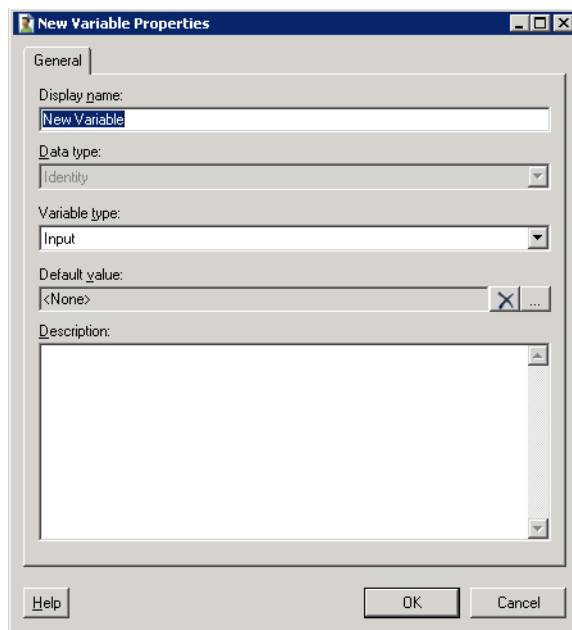
Creating an Identity Variable

Use the Identity variable to store the value of a user or group identity.

To create an identity variable:

- Step 1** On the Process—Variables tab, click **New > Identity Variable**.
The New Variable Properties dialog box displays.

Figure 11-17 New Variable Properties Dialog Box—General Tab



- Step 2** On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the variable
Data type	<i>Display-only.</i> Data type used to specify the variable value
Variable type	Type of variable: • Definition—Definition scoped variables are available to all instances of a process. • Input—Input variables can and must be specified by the parent process. • Output—An output variable is available only to a given process instance. • Local—Local scoped variables are available only to a given process instance. Note For additional information on the process variable types, see Process Variable Types, page 11-18.

Field	Description
Default value	Value assigned to the variable. Click Browse to launch the Select User or Group dialog box to define the identity associated with the variable.
Description	Brief description of the variable

Step 3 Click **OK** to close the dialog box.

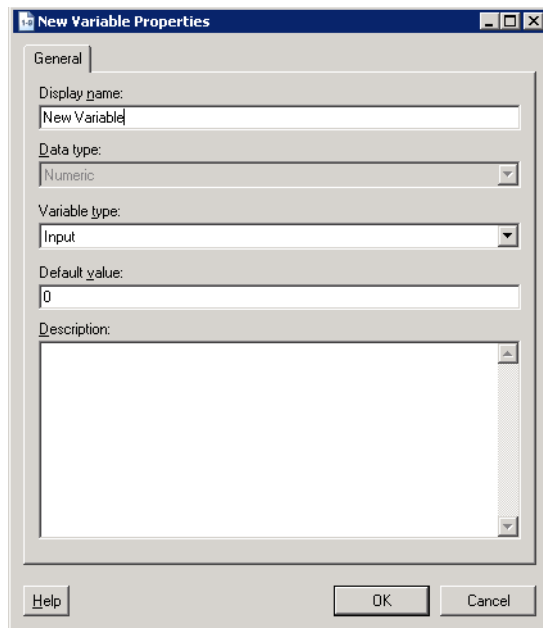
Creating a Numeric Variable

Use the Numeric variable to define a variable containing a single whole or decimal number (positive and negative).

To create a numeric variable:

Step 1 On the Process—Variables tab, click **New > Numeric Variable**.
The New Variable Properties dialog box displays.

Figure 11-18 New Variable Properties Dialog Box—General Tab



Step 2 On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the variable
Data type	<i>Display-only.</i> Data type used to specify the variable value

Field	Description
Variable type	Type of variable: • Definition—Definition scoped variables are available to all instances of a process. • Input—Input variables can and must be specified by the parent process. • Output—An output variable is available only to a given process instance. • Local—Local scoped variables are available only to a given process instance. • For additional information on the process variable types, see Process Variable Types, page 11-18
Default value	Value assigned to the variable
Description	Brief description of the variable

Step 3 Click **OK** to close the dialog box.

Creating a String Variable

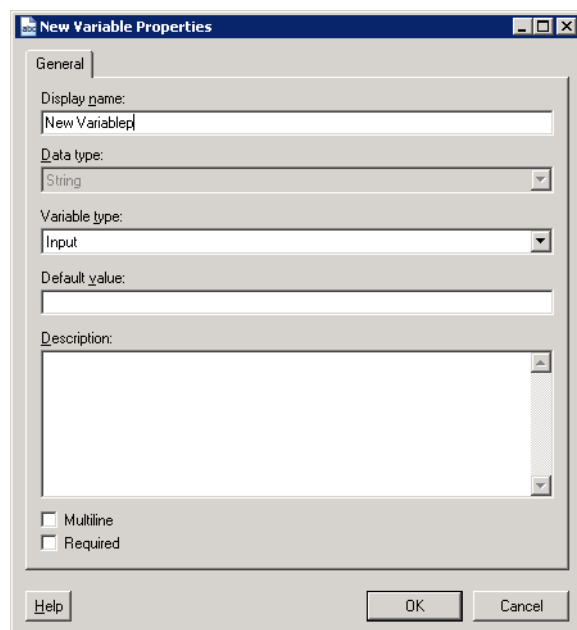
Use the String variable to define a variable containing a string of text.

To create a string variable:

- Step 1** On the Process—Variables tab, click **New > String Variable**.

The New Variable Properties dialog box displays.

Figure 11-19 New Variable Properties Dialog Box—General Tab



- Step 2** On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the variable
Data type	<i>Display-only.</i> Data type used to specify the variable value
Variable type	Type of variable: • Definition—Definition scoped variables are available to all instances of a process. • Input—Input variables can and must be specified by the parent process. • Output—An output variable is available only to a given process instance. • Local—Local scoped variables are available only to a given process instance. Note For additional information on the process variable types, see Process Variable Types, page 11-18.

Field	Description
Default value	Value assigned to the variable Note If the Multiline check box is checked, press Enter to add a new line to the string.
Description	Brief description of the variable
Multiline	Check this check box to indicate the string value can contain multiple lines of text.
Required	Check this check box to indicate that the variable requires the value to be specified when the process is started.

Step 3 Click **OK** to close the dialog box.

Creating a Table Variable

Use the Table variable to define a table that is used to store a set of records. Use the Table tab to define the table columns and rows.

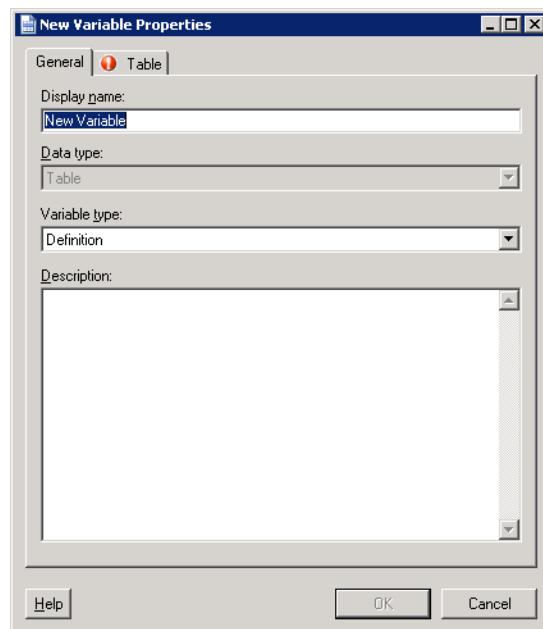
For information on modifying the format of the tables, see [Appendix D, “Using Table Activities.”](#)

To create a table variable:

Step 1 On the Process—Variables tab, click **New > Table Variable**.

The New Variable Properties dialog box displays.

Figure 11-20 New Variable Properties Dialog Box—General Tab

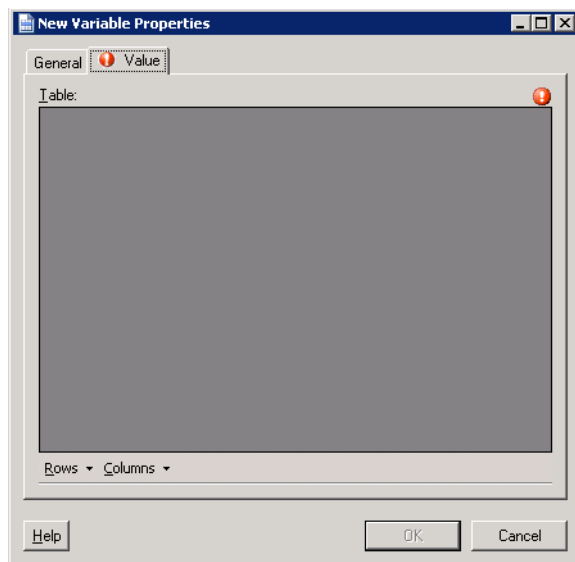


Step 2 On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the variable
Data type	<i>Display-only</i> . Data type used to specify the variable value
Variable type	Type of variable: • Definition—Definition scoped variables are available to all instances of a process. • Output—An output variable is available only to a given process instance. • Local—Local scoped variables are available only to a given process instance. Note For additional information on the process variable types, see Process Variable Types, page 11-18.
Description	Brief description of the variable

Step 3 Click the **Value** tab to continue.

Figure 11-21 New Table Variable Properties Dialog Box—Value Tab



Step 4 On the Value tab, define the values to be included in the cells of a table as well as add new rows and columns for the table.

The table must contain at least one column before a row can be added.

Field	Description
Rows	Click Rows to modify the number of rows to be included in the table. • Add—Adds a new row to the table. See Adding a Table Row, page 11-34. • Remove—Removes selected rows from table. The Remove option is enabled when the user chooses one or more rows within the data table.
Columns	Click Columns to modify the columns to be included in the table. • Add—Launches the Table Columns Properties dialog box to allow the user to define the name and data type for the new column. See Adding a Table Column, page 11-33. • Edit—Allows the user to modify the name for the selected column. The Edit option is enabled when the user has one column or one cell in the table selected. • Remove—Removes the selected columns from the table. The Remove option is enabled when the user chooses one or more columns within the table.

Step 5 Click **OK** to close the dialog box.

Managing Variable Definitions

The following sections provide instructions on modifying variable definitions from the Definitions—Global Variables view and modifying variables defined in the Process Editor.

Modifying Variable Properties

Use the following steps to modify existing variable properties.

-
- Step 1** Use *one* of the following methods, as necessary:
- On the Definitions—Global Variables view, highlight the appropriate variable, right-click and choose **Properties**.
 - or-
 - On the Process—Variables tab, highlight the appropriate variable, click **Properties**.
- The [Variable] Properties dialog box displays.
- Step 2** Modify the variable properties, as necessary.
- Step 3** Click **OK** to close the dialog box.
-

Modifying a String Global Variable

Use the Definitions Global Variables view to view or modify a string global variable.

-
- Step 1** On the Definitions—Global Variables view, highlight the appropriate string variable, right-click and choose **Properties**.
- The [Variable] Properties dialog box displays.
- Step 2** On the General tab, modify the variable properties, as necessary.

Field	Description
Display name	Name assigned to the variable
Owner	User name of the owner of the object. This is typically the person who created the object. Click Browse to launch the Select User or Group dialog box to change the owner.
Data type	<i>Display-only</i> . Data type used to specify the variable value
Value	Value assigned to the variable Note If the Multiline check box is checked, press Enter to add a new line to the string.
Description	Brief description of the variable
Multiline	Check this check box to indicate the string value can contain multiple lines of text.

Step 3 Click **OK** to close the dialog box.

Modifying Table Variable Properties

Use the following steps to modify a table variable.

Step 1 Use *one* of the following methods, as necessary:

- On the Definitions—Global Variables view, highlight the appropriate table variable, right-click and choose **Properties**.

-or-

- On the Process—Variables tab, highlight the appropriate variable, click **Properties**.

The [Variable] Properties dialog box displays.

Step 2 On the General tab, modify the general variable information, as necessary.

Step 3 Click the **Value** tab to perform the following tasks, as necessary, and click **OK**.

Button	Description
Columns > Add	Adds a new column to the variable
Columns > Edit	Modify existing column information
Columns > Remove	Remove a column from the variable
Rows > Add	Add additional rows to the variable
Rows > Remove	Removes rows from the variable

Adding a Table Column

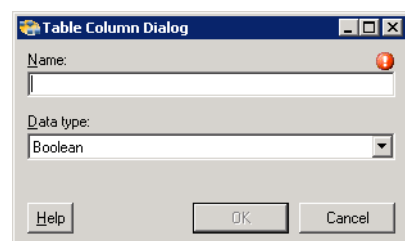
Use the Table Column dialog to define the properties for a new column or modify the name of an existing column. The column data type cannot be modified after the initial selection.

To add a table column:

Step 1 On the Table tab, click **Column**.

The Table Column dialog box displays.

Figure 11-22 Table Column Dialog Box



**Note**

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Step 2 Specify the following information:

Field	Description
Display name	Name of the column
Data type	The data type specified for the column • Boolean—Indicates elements should be as <i>true</i> or <i>false</i> • String (Default)—Sequence of characters such as letters, numbers, and punctuation marks • Integer—Must be whole numbers and contain only digits from 0 to 9. Can be positive or negative (Examples: 0, 10, 345, -689) • Decimal—Numeric value expressed as a decimal • Identity—Value of a user or group identity

Step 3 Click **OK** to return to the Table tab.

Adding a Table Row

The Row options on the Table tab are not available until after a column has been added.

To add a row:

Step 1 On the Table tab, click **Row > Add**.

A single row is added to the table.

Step 2 Repeat the step for additional rows to be added to the table.

Creating a Copy of a Global Variable Definition

Use the copy option to make a copy an existing global variable.

Step 1 On the Definitions—Global Variables view, highlight the appropriate variable, right-click and choose **Copy**.

Step 2 Return to the Definitions—Global Variables view, right-click and choose **Paste**.

A copy of the defined global variable is pasted into the Results pane.

Step 3 To rename the copied variable, right-click and choose **Properties**.

Step 4 Modify the variable name, as appropriate, and click **OK** to close the dialog box.

Deleting Variables

Before deleting a variable, access the properties, and click the **Used By** tab to view objects that are referenced by the variable. This ensures that deleting the variable does not affect any processes or activities.

Deleting a Global Variable

Use the Definitions—Global Variables view to delete variables that are no longer used by other objects in TEO.

To delete a global variable:

Step 1 On the Definitions—Global Variables view, highlight the appropriate variable, and use *one* of the following methods:

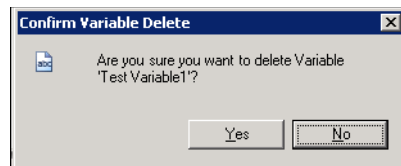
- On the toolbar, click the **Delete**  tool.

-or-

- Right-click and choose **Delete**.

The Confirm Variable Delete dialog box displays.

Figure 11-23 Confirm Variable Delete Dialog Box



Step 2 Click **Yes** to delete the global variable.

Deleting a Process Variable

Use the Variables tab to delete variables that are no longer used by the process.

On the Variables tab, highlight the appropriate variable, and click **Delete**.

The process variable is removed from the list of variables. The process variable is not completely deleted from the process until after the process has been saved.

Viewing Variable Used By Properties

Use the Used By tab to display the objects that directly reference the selected variable in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view used by objects:

-
- Step 1** On the Definitions—Global Variables view, highlight the appropriate variable, right-click and choose **Properties**.
The [Variable] Properties dialog box displays.
- Step 2** Click the **Used By** tab to view the objects that are referenced by the variable.
- Step 3** To view the properties for a specific object, highlight the object, right-click and choose **Properties**.
- Step 4** Click **OK** to close the dialog box.
-

Viewing Variable History

Use the History tab to view a history of changes that have been made to the variable.

-
- Step 1** On the Definitions—Global Variables view, highlight the appropriate variable, right-click and choose **Properties**.
The [Variable] Properties dialog box displays.
- Step 2** Click the **History** tab to view the changes made to the global variable.
The following information about the history of the variable is displayed:

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
User	The user name of the person that performed the action
Change type	The action that occurred
Description	Information about the action that was performed

- Step 3** To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.
- Step 4** Click **OK** to close the dialog box.
-



CHAPTER 12

Managing Calendars

When defining a process, you can specify when the process will execute. One option is to execute the process based on a schedule. For example, you can define a calendar for Saturdays. When defining a process that you want to run on Saturdays, you reference the *Saturday* calendar. The calendars feature defines the calendar to be associated with a schedule, time, or condition. This feature simplifies:

- Re-using calendar definitions across processes
- Building complex calendars from other calendars
- Viewing the processes that run based on a specific calendar

Tidal Enterprise Orchestrator ships with some pre-defined calendars for the most commonly use scenarios. However, you can create your own calendar or copy and modify the pre-defined calendars based on your organizational requirements.

This chapter describes the steps used view, create new calendars, and modify the properties of a calendar, and delete calendars.

- [Definitions—Calendars Overview, page 12-2](#)
- [Creating a Date List Calendar, page 12-4](#)
- [Creating a Group Calendar, page 12-6](#)
- [Creating a Recurring Calendar, page 12-9](#)
- [Managing Calendar Definitions, page 12-12](#)

Definitions—Calendars Overview

Use the Definitions—Calendars view to display the defined calendars. This section is used to provide instructions on how to access calendar information.

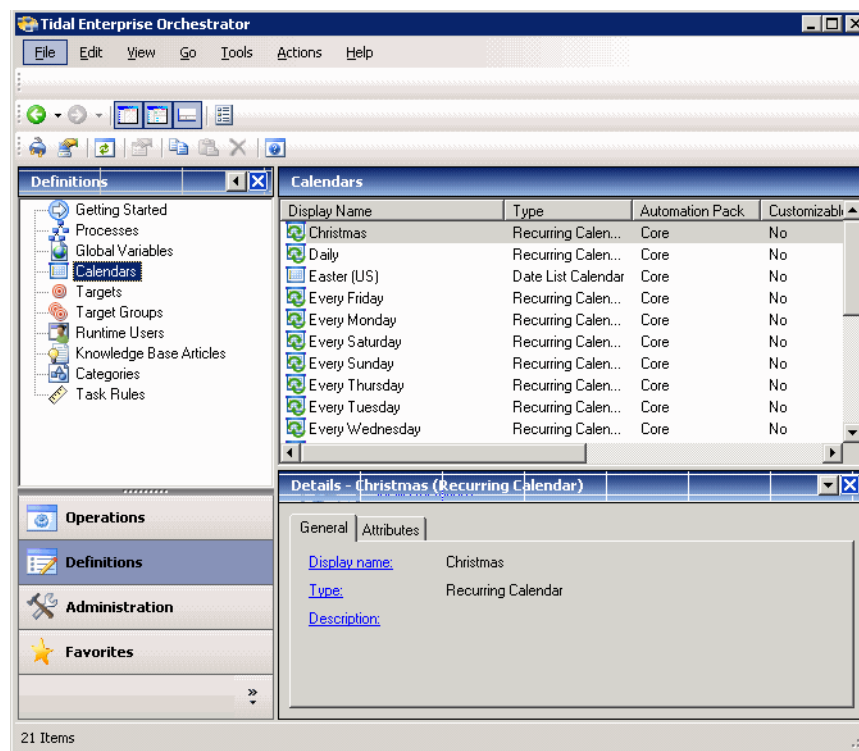
Accessing Definitions—Calendars

To access the calendar views:

On the Definitions pane, choose **Calendars**.

The Results pane displays.

Figure 12-1 Definitions—Calendars



Information about each calendar can be displayed in the following columns:

Column	Description
Display Name	Name of the calendar
Type	Calendar type (Date List, Group, Recurring, Group)
Owner	Owner of the calendar definition. This is typically the user name of the person who created the calendar.
Last Modified Time	Time at which the calendar was last modified
Last Modified By	User name of the person who last modified the calendar
Id	Unique ID of the calendar
Description	Brief description of the calendar

Column	Description
Type Description	Brief overview of the type associated with the calendar
Created Time	Time the calendar was created
Created By	User name of the person who created the calendar
Automation Pack	Name of the automation pack

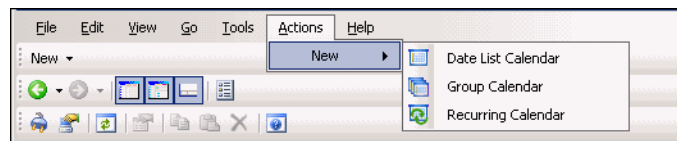
**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Actions Menu and Toolbar Options

The Calendars Actions menu and toolbar provide the option to create new calendars to associate with a process. The New option is also available by right-clicking **Calendars** on the Definitions workspace.

Figure 12-2 Definitions—Calendars View Actions Menu



Details Pane

The Calendars Details pane displays additional information about the selected item. The hyperlinks on each of the detail pages launch the property pages for the selected calendar.

Tab	Description
General	Displays general information about the item including the name, type, value, and a brief description of the calendar.
Attributes	Displays the dates, times and process owner associated with the creation and modification of the calendar.

Viewing Calendar Properties

To view calendar properties

On the Definitions—Calendars view, highlight the appropriate calendar, and use *one* of the following methods:

- Right-click and choose **Properties**.
- or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Properties dialog box displays.

Calendar Types

The following table describes the calendars available for defining.

Calendar	Description
Date List	Contains an explicit list of dates which can be assigned to a process. The processes to which this calendar is assigned will execute on the specified dates in the calendar. See Creating a Date List Calendar, page 12-4 .
Group	Specify a collection of other defined calendars that are to be included or excluded in a group calendar. See Creating a Group Calendar, page 12-6 .
Recurring	Specify the start and end date for a recurring calendar and the number of days in the recurrence cycle. The time period and duration indicates when the process repeats execution See Creating a Recurring Calendar, page 12-9 .

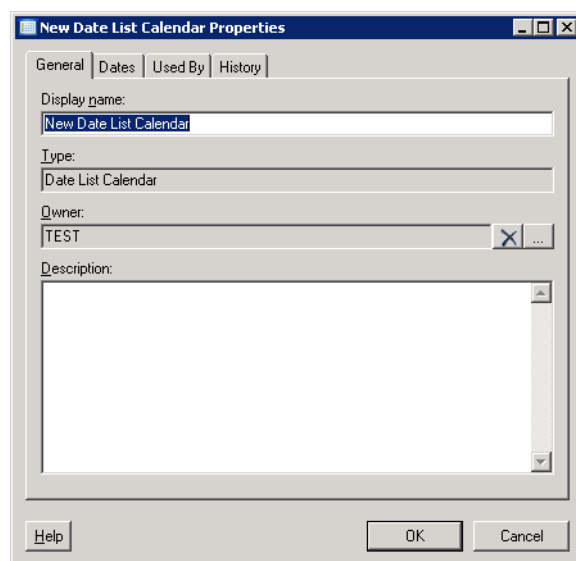
Creating a Date List Calendar

The Date List calendar contains an explicit list of dates. The processes to which this calendar definition is assigned will execute on the specified dates in the calendar. You may want to use this type of calendar for processes that run on specific days of a specific month.

To create a date list calendar:

- Step 1** On the Definitions—Calendars view, right-click and choose **New > Date List Calendar**.
The New Date List Calendar Properties dialog box displays.

Figure 12-3 *New Date List Calendar Properties Dialog Box—General Tab*

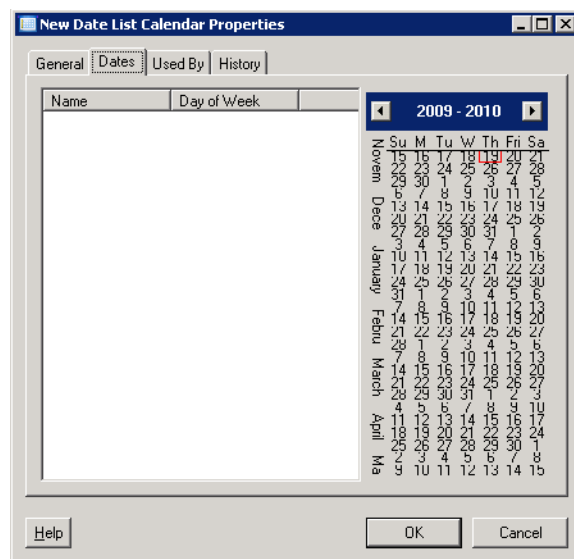


Step 2 On the General tab, enter the following information, as necessary:

Field	Description
Display name	Name of the calendar
Type	<i>Display-only</i> . Type of object
Owner	The owner of the object. This is typically the creator of the object. Click Browse to launch the Select User or Group dialog box and change the owner.
Description	Brief description of the calendar

Step 3 Click the **Dates** tab to continue.

Figure 12-4 New Date List Calendar Properties—Dates Tab



Step 4 On the calendar to the right, choose the appropriate date(s) on the calendar for when the activity will execute.

The selected dates display in a list on the left side of the page.

Column	Description
Name	Date in mm/dd/yyyy format
Day of Week	Day of the week the selected date occurs
Details	Detailed display of the selected day and date

Step 5 Review the list of dates displayed and click **OK** to close the dialog box.

**Note**

For information on removing dates from the list, see [Removing Dates from Calendar Date List](#), page 12-12.

Creating a Group Calendar

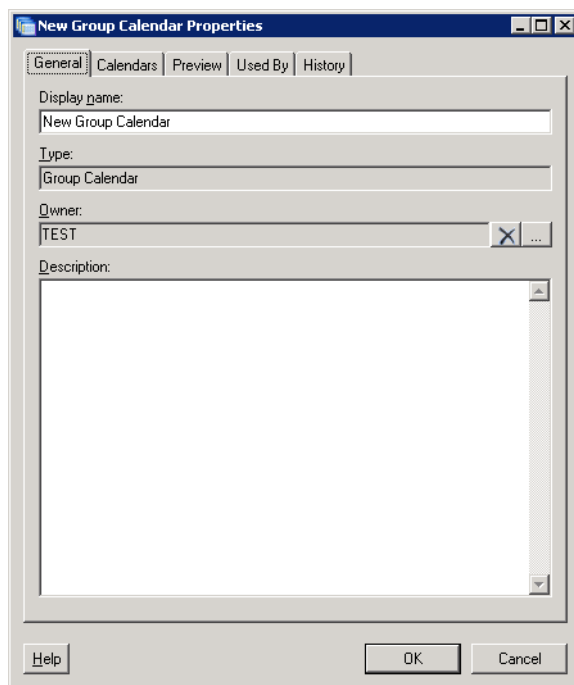
The Group calendar is a collection of other defined calendar types, such as inclusion of date list or a recurring calendar within the group calendar definition. The group calendar can contain defined recurring calendars, other group calendars, and date list calendars. You choose the calendars to include or exclude in the group calendar definition.

To define a group calendar:

- Step 1** On the Definitions—Calendars, right-click and choose **New > Group Calendar**.

The New Group Calendar Properties dialog box displays.

Figure 12-5 *New Group Calendar Properties—General Tab*



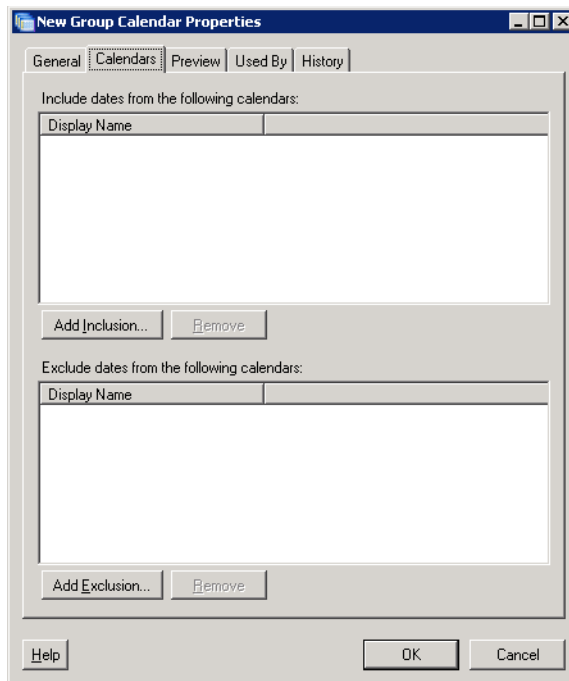
- Step 2** On the General tab, enter the following information, as necessary:

Field	Description
Display name	Name of the calendar
Type	<i>Display-only.</i> Type of object

Field	Description
Owner	The owner of the object. This is typically the creator of the object. Click Browse to launch the Select User or Group dialog box and change the owner.
Description	Brief description of the calendar

Step 3 Click the **Calendars** tab to continue.

Figure 12-6 *New Group Calendar Properties—Calendars Tab*

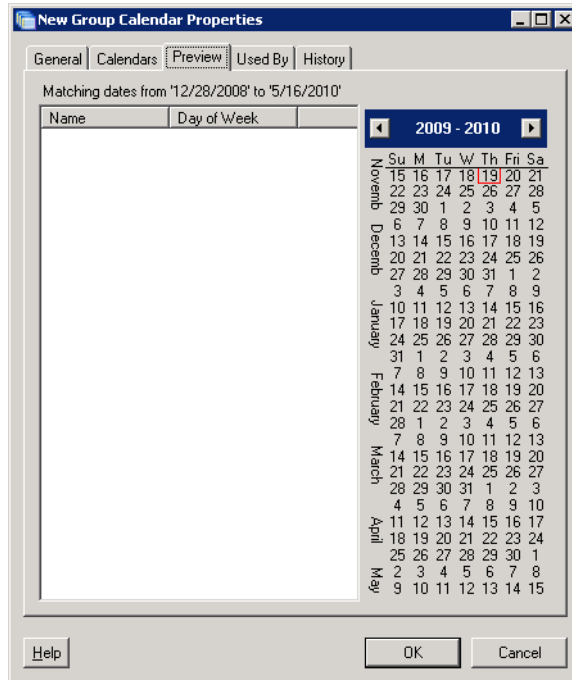


Step 4 On the Calendars tab, specify the list of dates to be included or excluded in the group calendar.

Buttons	Description
Add Inclusion	Click this button to launch the Add Inclusion dialog box to specify from the list of calendars which dates will be included in the group calendar. See Adding Dates to Group Calendar, page 12-13 .
Add Exclusion	Click this button to launch the Add Exclusion dialog box to specify from the list of calendars which dates will be excluded from the group calendar. See Excluding Dates from Group Calendar, page 12-14 .
Remove	Select a calendar and click this button to remove it from the list. See Removing Calendars from Group Calendar, page 12-15 .

- Step 5** Click the **Preview** tab to display the list of dates that are included in the calendar. The calendar highlighting the dates displays on the right side of the page.

Figure 12-7 *New Group Calendar Properties—Preview Tab*



- Step 6** Review the list of dates displayed and click **OK** to close the dialog box.

Column	Description
Name	Date in mm/dd/yyyy format
Day of Week	Day of the week the selected date occurs
Details	Detailed display of the selected day and date

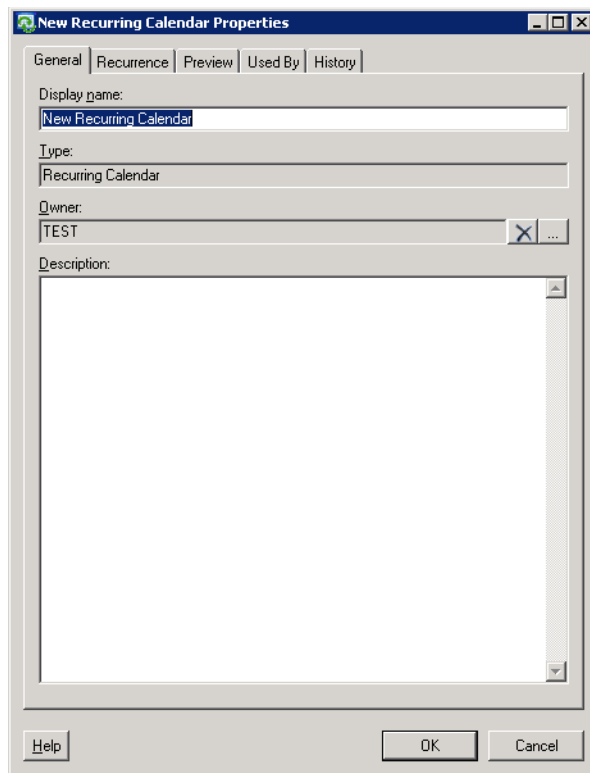
Creating a Recurring Calendar

The Recurring calendar allows you to specify a starting date for the subsequent dates and duration that the process repeats execution. You can specify the calendar to repeat on a daily, weekly, monthly, or yearly basis.

To create a recurring calendar:

- Step 1** On the Definitions—Calendars, right-click, and choose **New > Recurring Calendar**.
The New Recurring Calendar Properties dialog box displays.

Figure 12-8 New Recurring Calendar Properties—General Tab



- Step 2** On the General tab, enter the following information, as necessary:

Field	Description
Display name	Name of the calendar
Type	<i>Display-only.</i> Type of object
Owner	The owner of the object. This is typically the creator of the object. Click Browse to launch the Select User or Group dialog box and change the owner.
Description	Brief description of the calendar

Step 3 Click the **Recurrence** tab to continue.

Figure 12-9 *New Recurring Calendar Properties—Recurrence Tab*

The screenshot shows the 'New Recurring Calendar Properties' dialog box with the 'Recurrence' tab selected. The 'Recurrence Pattern' section has radio buttons for 'Daily', 'Weekly', 'Monthly', and 'Yearly', with 'Daily' being selected. The 'Time Period' section has a 'Start date' dropdown set to 'Wednesday, November 18, 2009' and an 'End date' dropdown also set to 'Wednesday, November 18, 2009'. The 'Daily Recurrence' section has two options: 'Every 1 day(s)' (selected) and 'For every 1 day period, on the day(s)'. At the bottom of the dialog are 'Help', 'OK', and 'Cancel' buttons.

Step 4 Under Recurrence Pattern, choose the type of recurrence.

The selected recurrence pattern settings display at the bottom of the page.

Step 5 Under Time Period, specify the effective dates for when a recurring calendar begins and when it expires, as necessary:

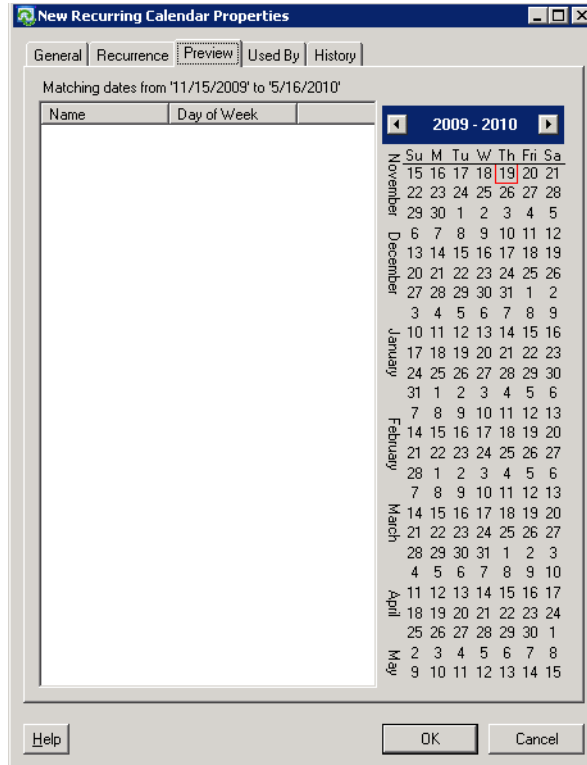
- Start date—On the drop-down calendar, choose the date on which this calendar begins. This field is automatically populated with the current date.
- End date—Check the check box, and then on the drop-down calendar, choose the date on which this calendar is to end.

Step 6 Complete the appropriate recurrence pattern setting. The displayed settings are dynamic and change upon the selection of the recurrence pattern. See the following sections to complete the settings:

- [Completing the Daily Recurrence Pattern Settings, page 12-15](#)
- [Completing the Weekly Recurrence Pattern Settings, page 12-16](#)
- [Completing the Monthly Recurrence Pattern Settings, page 12-17](#)
- [Completing the Yearly Recurrence Pattern Settings, page 12-18](#)

- Step 7** Click the **Preview** tab to display the list of dates that are included in the calendar. The calendar highlighting the dates displays on the right side of the page.

Figure 12-10 *New Recurring Calendar Properties—Preview Tab*



- Step 8** Review the list of dates displayed and click **OK** to close the dialog box.

Column	Description
Name	Date in mm/dd/yyyy format
Day of Week	Day of the week the selected date occurs
Details	Detailed display of the selected day and date

Managing Calendar Definitions

The following sections provide instructions on modifying calendar definitions from the Definitions—Calendars view.

Modifying Calendar Definitions

Calendar definitions can be modified when accessing the Calendar Properties dialog box. Before modifying a calendar, access the properties, and click the **Used By** tab to view where objects are being used by the calendar. This ensures that the modification will not conflict with other processes that are using the calendar.

To modify calendar properties:

-
- Step 1** On the Definitions—Calendars view, highlight the appropriate calendar, right-click and choose **Properties**.

The Calendar Properties dialog box displays.



Note

Certain features of the property pages may display as display-only if the calendar definition is shipped as part of an automation pack or the user does not have the appropriate rights.

- Step 2** On the General tab, modify the name and description, as necessary.
- Step 3** Click the appropriate tab to modify the calendar definition. The tab that displays (Recurrence, Dates, Calendars) depends on the calendar type.
- Step 4** Click the **Preview** tab to review the schedule.
- Step 5** Click **OK** to close the dialog box.
-

Removing Dates from Calendar Date List

To remove dates:

-
- Step 1** On the Definitions—Calendars view, highlight the appropriate date list calendar, right-click and choose **Properties**.
- The Calendar Properties dialog box displays.
- Step 2** On the General tab, modify the name and description, as necessary.
- Step 3** Click the **Dates** tab, highlight the appropriate date, and drag it onto the calendar displayed to the right.
- Step 4** Click the **Preview** tab to review the schedule.
- Step 5** Click **OK** to close the dialog box.
-

Adding Dates to Group Calendar

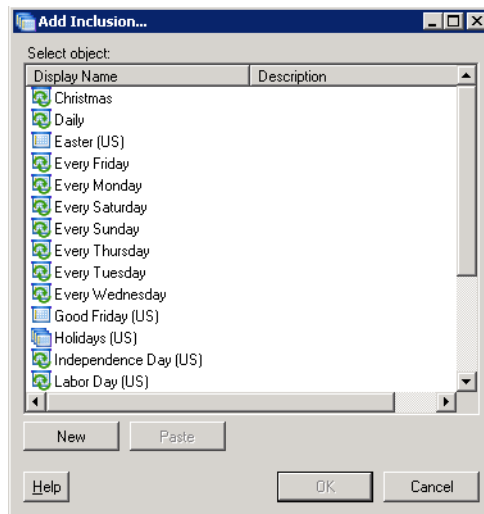
Use the following steps to add calendars to a group calendar.

To add calendars:

- Step 1** Under the Include dates from the following calendars box, click **Add Inclusion** to add the appropriate calendars to the group.

The Add Inclusion dialog box displays.

Figure 12-11 Add Inclusion Dialog Box



- Step 2** Choose the appropriate calendar from the list and click **OK**.

The calendar is added to the Include dates from the following calendars box.



Note

To select multiple objects, press **CTRL** and holding the key while making the appropriate selections. When completed selecting objects, click **OK**.

- Step 3** Repeat Steps 1-2 to include additional calendars to the group calendar.

- Step 4** Click the **Preview** tab to review the schedule.

- Step 5** Click **OK** to close the dialog box.

Excluding Dates from Group Calendar

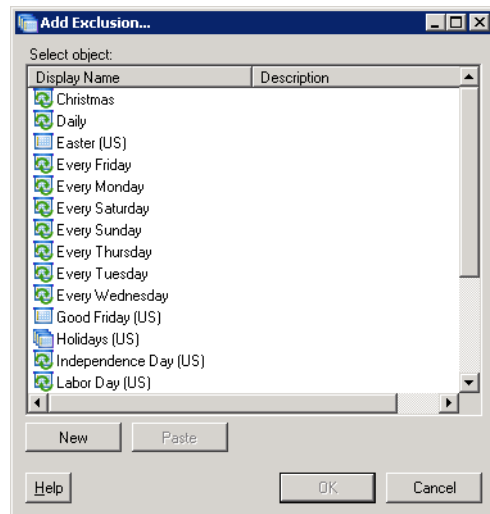
Use the following steps to exclude specific calendars from a group calendar.

To exclude calendars:

- Step 1** Under the Include dates from the following calendars box, click **Add Exclusion** to exclude the appropriate calendars from the group.

The Add Exclusion dialog box displays.

Figure 12-12 Add Exclusion Dialog Box



- Step 2** Choose the appropriate calendar(s) from the list and click **OK**.

The calendar is added to the Exclude dates section from the calendars box.



Note

To select multiple objects, press **CTRL** and holding the key while making the appropriate selections. When completed selecting objects, click **OK**.

- Step 3** Repeat Steps 1-2 to exclude additional calendars to the group calendar.

- Step 4** Click the **Preview** tab to review the schedule.

- Step 5** Click **OK** to close the dialog box.

Removing Calendars from Group Calendar

Use the following steps to remove calendars from the Include/Exclude dates section from the calendars box.

To remove calendars:

-
- Step 1** On the Calendars tab, under the Include/Exclude dates section from the calendars box, highlight the appropriate calendar, click **Remove**.
- The calendar is removed from the list.
- Step 2** Click the **Preview** tab to review the schedule.
- Step 3** Click **OK** to close the dialog box.
-

Completing the Daily Recurrence Pattern Settings

Use the following steps to define the daily recurring calendar settings.

Repeat a recurrence for a specific number of days

-
- Step 1** On the Recurrence tab, choose **Daily**, complete the Recurrence Pattern and Time Period settings, as necessary, and then continue to the Daily Recurrence settings.

Figure 12-13 *New Recurring Calendar Properties—Daily Recurrence Settings*

- Step 2** Under Daily Recurrence, select the **Every [] day(s)** radio button to specify the number of days in the recurrence cycle.
- Step 3** In the text field, enter the number of days the recurrence is to repeat.
- For example, to have the recurrence repeat every other day, enter **2** in the text field.



Note

Use commas to separate when entering multiple dates.

Repeat a recurrence during a specific period of days

- Step 1** Under Daily Recurrence, choose the **For every [_] day** period, on the days radio button to specify the number of days in the recurrence cycle.
- Step 2** In the text field, enter the number of days the recurrence is to repeat or click **Select** to choose the specific days within the day period from the Select Days dialog box.

Example:

To have the recurrence to repeat every seven days on the first and last day of this time period, enter **[7]** in the text field and then click **Select** to select *Day 1* and *Day 7* on the Select Days dialog box.



Note

Use commas to separate when entering multiple dates.

Completing the Weekly Recurrence Pattern Settings

Use the following steps to define the weekly recurring calendar settings.

- Step 1** On the Recurrence tab, choose **Weekly**, complete the Recurrence Pattern and Time Period settings, as necessary, and then continue to the Weekly Recurrence settings.

Figure 12-14 *New Recurring Calendar Properties—Weekly Recurrence Settings*

- Step 2** Under Weekly Recurrence, in the Every [_] week(s) on the following day(s) text field, enter the number of weeks of the recurrence cycle.
- Step 3** Check the check boxes for the day(s) of the week the recurrence should occur.

Example:

To have the recurrence repeat every week on Monday and Friday, enter **[1]** in the text field and check the **Monday** and **Friday** check boxes.

Completing the Monthly Recurrence Pattern Settings

Use the following steps to define the monthly recurring calendar settings.

- Step 1** On the Recurrence tab, choose **Monthly**, complete the Recurrence Pattern and Time Period settings, as necessary, and then continue to the Monthly Recurrence settings.

Figure 12-15 *New Recurring Calendar Properties—Monthly Recurrence Settings*

- Step 2** Under Monthly Recurrence, in the Every [_] month (s) text field, enter the number of months in the recurrence cycle and then use *one* of the following methods:
- To specify which day(s) the recurrence is to repeat, select the **On the following day(s)** radio button and in the text field, enter the appropriate numeric date(s) of the month. Click **Select** to choose the days from the Select Days dialog box.

Example:

To have the recurrence to repeat every day within the month, enter **[1-31]** or in the Select Days dialog box, select **Day 1** through **Day 31**.

-or-

- To specify which week(s) and day(s) of the week the recurrence is to repeat, select the **For the specified week(s)** radio button.
 - In the text field, enter which weeks the recurrence is to repeat. Click **Select** to choose the days from the Select Days dialog box.

Example:

To have the recurrence to repeat every week within the month, enter **[1-4]** or on the Select Weeks dialog box, select **Week 1** through **Week 4**.

- Check the check boxes for the day(s) of the week the recurrence should occur.



Note

Use commas to separate when entering multiple dates.

Completing the Yearly Recurrence Pattern Settings

Use the following steps to define the yearly recurring calendar settings.

- Step 1** On the Recurrence tab, choose **Yearly**, complete the Recurrence Pattern and Time Period settings, as necessary, and then continue to the Yearly Recurrence settings.

Figure 12-16 *New Recurring Calendar Properties—Yearly Recurrence Settings*

- Step 2** Under Yearly Recurrence, in the For the month(s) of text field, enter which months the recurrence is to repeat within a one year period. Click **Select** to choose the months from the Select Months dialog box.

Example:

To have the recurrence repeat every month within the year, enter **[1-12]** or in the Select Months dialog box, select **Month 1** through **Month 12**.

- Step 3** Use *one* of the following methods:

- To specify which day(s) of the month the recurrence is to repeat, select the **On the following day(s)** radio button and in the text field, enter the appropriate numeric date(s) of the month. Click **Select** to choose the days from the Select Days dialog box.

Example:

To have the recurrence to repeat every day within the month, enter **[1-31]** or in the Select Days dialog box, select **Day 1** through **Day 31**.

- To specify which week(s) and day(s) of the month the recurrence is to repeat, select the **On the** radio button and then specify the following:
 - In the first drop-down list, choose the appropriate week of the month (First, Second, Third, Fourth, Fifth, Last).
 - In the second drop-down list, choose the appropriate day of the week.

Example:

To have the recurrence repeat the first Monday of every month that is specified, select **First** and **Monday**.



Note

Use commas to separate when entering multiple dates.

Creating a Copy of a Calendar Definition

The copy option is used when there is an existing calendar that contains properties that can be used for defining a new calendar without creating a completely new calendar.

To create a copy a calendar definition:

-
Step 1	On the Definitions—Calendars view, highlight the appropriate calendar, right-click and choose Copy .
Step 2	Return to the Definitions—Calendars view, right-click and choose Paste . A copy of the calendar is pasted at the bottom of the list of calendars on the Results pane.
Step 3	To rename the copied calendar, right-click and choose Properties .
Step 4	Modify the calendar properties, as appropriate, and click OK to close the dialog box.
-

Deleting Calendars

Use the Definitions—Calendars view to delete calendars that are no longer used. Before deleting a calendar, access the properties, and click the **Used By** tab to view the objects that use the calendar. The calendar deletion process will fail if the calendar is used by another object.

**Note**

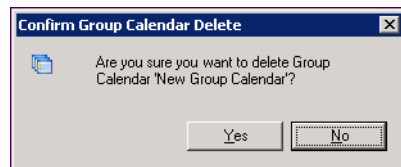
If the calendar definition is shipped as part of the product or the user does not have the appropriate rights, the Delete option will be disabled.

To delete a calendar:

-
Step 1	On the Definitions—Calendar view, highlight the appropriate calendar, and use <i>one</i> of the following methods: • On the toolbar, click the Delete  tool. -or- • Right-click and choose Delete.

The Confirm [Calendar] Delete dialog box displays.

Figure 12-17 Confirm Calendar Delete Dialog Box



Step 2	Click Yes to delete the calendar.
-

Viewing Used By Properties

Use the Used By tab to display the objects that use the selected calendar in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view objects that the use calendar:

-
- Step 1** On the Definitions—Calendar view, highlight the appropriate calendar, right-click and choose **Properties**.
The [Calendar] Properties dialog box displays.
- Step 2** Click the **Used By** tab to view the objects used by the calendar.
- Step 3** To view the properties for a specific object, highlight the object, right-click and choose **Properties**.
- Step 4** Click **OK** to close the dialog box.
-

Viewing Calendar History

Use the History tab to view a history of changes that have been made to the calendar.

To view calendar history:

-
- Step 1** On the Definitions—Calendars view, highlight the appropriate calendar, right-click and choose **Properties**.
The [Calendar] Properties dialog box displays.
- Step 2** Click the **History** tab to view the changes made to the calendar.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
User	The user name of the person that performed the action
Change Type	The action that occurred
Description	Information about the action that was performed

- Step 3** To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.
- Step 4** Click **OK** to close the dialog box.
-



CHAPTER 13

Managing Targets

The Targets feature defines specific environments where activities, triggers and processes can be executed. You can define a target to run a process or activity on a specific computer, database connection, or application server.

Using targets simplifies specifying where certain processes, activities, or triggers will run. The target can be defined once and reused in several processes. The targets created depend on the adapters that are installed. You can create a target for a specific Windows computer or Active Directory domain.

The sections in this chapter guides you through managing targets.

- [Definitions—Targets Overview, page 13-2](#)
- [Defining Targets, page 13-7](#)
- [Managing Target Definitions, page 13-9](#)

Definitions—Targets Overview

The Definitions—Targets displays all the existing defined targets. You also use this view to create new targets, modify the properties of a target, and delete targets.

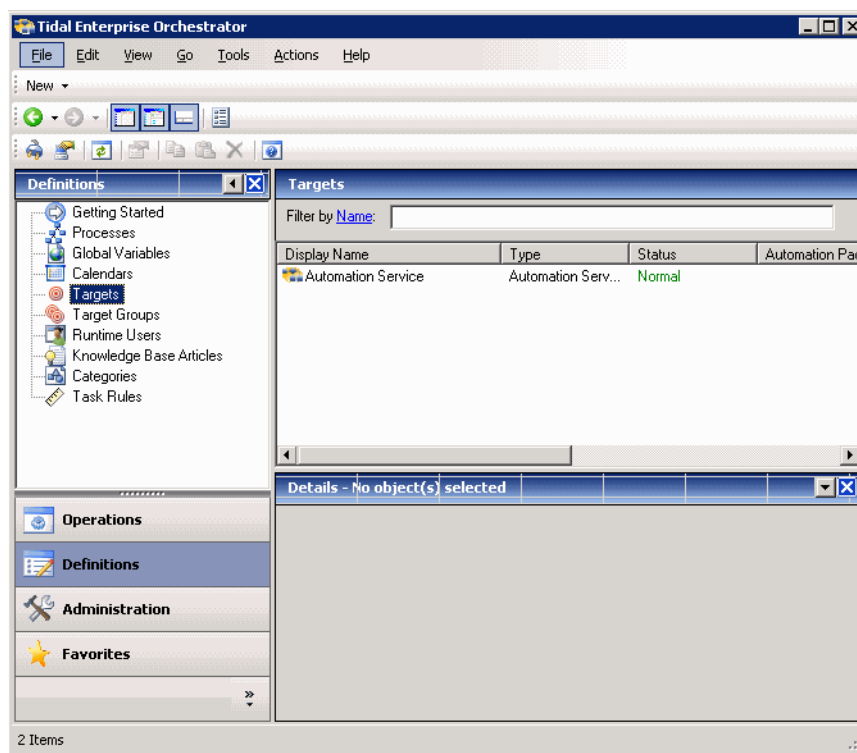
Accessing Definitions—Targets View

To access the Targets view:

In the Definitions workspace, choose **Targets**.

The Results pane displays.

Figure 13-1 Definitions—Targets



Information about the target can be displayed in the following columns:

Column	Description
Name	The name assigned to the target
Enabled	Indicates whether the target is enabled (<i>True</i>) or disabled (<i>False</i>). A disabled target is unavailable for execution.
Type	The type of target based on the associated adapter

Column	Description
Status	Indicates the status of the target. The status is used to determine whether the target is available or is not available for process or activity execution. - Unknown—Status of the target unknown - Normal—No known problems with this target - Unreachable—No known problems with this target - Disabled—Target is disabled and is not available for activity execution
Status Information	Detailed information regarding the target status and the reasons for target being unreachable
Automation Pack	Name of the automation pack associated with the target
Customizable	Indicates the customization setting for the object in the automation pack
Owner	The user name of the person who created the target
Last Modified Time	The time the target was last modified
Last Modified By	The user name of the person who last modified the target
Id	The unique identification number of the target definition
Description	A brief description of the target
Type Description	A brief overview of the target type
Created Time	The time at which the target was created
Created By	The user name of the person who created the target

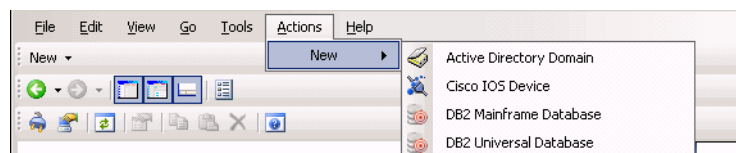
**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

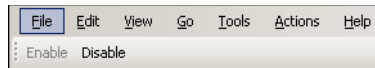
Actions Menu and Toolbar Options

The Targets Actions menu and toolbar provide the option to create new targets to associate with a process. The New option is also available by right-clicking **Targets** on the Definitions workspace.

Figure 13-2 Definitions—Targets Area Actions Menu



If a target is selected from the Definitions—Target view, the following options are available on the Actions menu and toolbar provide the ability to enable and disable a target.

Figure 13-3 Definitions—Targets Toolbar

Menu Option	Description
Enable	Click this item to enable a target. A target must be enabled before a process can be executed against the target
Disable	Click this item to disable a target. This item will continue to display in the Targets area, but it will not be available for execution.

Details Pane

The Targets Details pane displays additional information about the selected item. The hyperlinks on each of the detail pages launch the property pages for the selected target.

Tab	Description
General	Displays general information about the item including the name, type, value, a brief description of the target, and the ability to enable or disable a target.
Attributes	Displays the dates, times and process owner associated with the creation and modification of the target.

Viewing Target Properties

To view target properties:

Step 1 On the Definitions—Targets view, highlight the appropriate target, and use *one* of the following methods:

- Right-click and choose **Properties**.
- or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Properties dialog box displays.



Note

The property pages may display as display-only if the target definition is shipped as part of the product or the user does not have the appropriate rights.

Step 2 Review the properties and click **OK** to close the dialog box.

Target Descriptions

The following table provides a listing of the targets that are associated with the product. It is important to note that not all targets can be created manually because they will be discovered automatically based on the information specified by other targets.

For additional information on defining a target not included in this chapter, please refer to the associated adapter guide.

Target	Description
Active Directory Domain	Connection information for an Active Directory domain target <i>See Active Directory Adapter Guide.</i>
Cisco UCS Manager	Specify the connection information used to connect to the Cisco UCS Manager instance <i>See Cisco UCS Software Adapter Guide.</i>
DB2 Database	Connection target information for a DB2 database <i>See DB2 Database Adapter Guide.</i>
Email Account (IMAP)	Specify the connection information to the IMAP email server <i>See Email Adapter Guide.</i>
Email Account (POP3)	Specify the connection information to the POP3 email server <i>See Email Adapter Guide.</i>
Generic Data Source (OLEDB)	Specify the connection information for a data source such as an Excel spreadsheet or a database not supported by other target types <i>See Generic Data Source (OLEDB) Database Adapter Guide.</i>
Oracle Database	Specify the connection information for an Oracle database <i>See Oracle Database Adapter Guide.</i>
Remedy Server	Specify the connection information to a Remedy server which is used for processes to run against <i>See Remedy Adapter Guide.</i>
SAP BI Warehouse	Represent the connection to an SAP BI Warehouse server <i>See SAP ABAP Adapter Guide.</i>
SAP System	SAP System wizard to specify the connection and logon information for the SAP system <i>See Incident Analysis for SAP Getting Started Guide.</i>
SCOM Management Server	Specify the information about the SCOM management server <i>See SCOM Adapter Guide.</i>

Target	Description
SQL Server Database	Specify the connection information for a SQL server database <i>See SQL Server Database Adapter Guide.</i>
Terminal	Specify the connection information used to access the device used for processes to run against <i>See Terminal Adapter Guide.</i>
Unix/Linux System	Specify the connection information used to access the device used for processes to run against <i>See Terminal Adapter Guide.</i>
VMware ESX Server	Specify the connection information to an ESX/ESXi server <i>See VMware Adapter Guide.</i>
VMware Virtual Center Server	Specify the connection information to the virtual center server <i>See VMware Adapter Guide</i>
Windows Computer	Specify the connection information for the Windows computer <i>See Windows Adapter Guide.</i>

Target Algorithms

The following table displays the list of target algorithms that may display for an activity.

Algorithm	Description
Choose target associated with SCOM 2007 Alert trigger	Runs target specified in SCOM 2007 Alert trigger
Choose the target with the specified name	Runs the process on the member of the group specified in the Name to match text field.
Choose all target that specifies the specified criteria	Executes the process on all targets defined by the criteria specified in the Target Selection dialog box. <i>See Defining Target Criteria, page 13-11.</i>
Choose any targets with the specified criteria	Executes the process on any targets defined by the criteria specified in the Target Selection dialog box.
Select database connection of the process SAP System	Runs target against the SAP System database connection

Defining Targets

Tidal Enterprise Orchestrator provides several types of targets on which processes and activities can execute against.

Use the following steps to define a target. The property pages displayed depend on the type of target selected.

Step 1 On the Definitions workspace, right-click **Targets**, and choose **New > [Target]**.

The [Target] Properties dialog box displays.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Step 2 On the General tab, enter the appropriate general information:

Field	Description
Display Name	Name of the target
Type	<i>Display-only.</i> Type of target
Service Type	Type of target representing an IT or a business service
Owner	User name of the owner of the category. This is typically the person who created the category. Click Browse to launch the Select User or Group dialog box to change the owner.
Status	Status of the target - Unknown—Status of the target unknown - Normal—No known problems with this target - Unreachable—No known problems with this target - Disabled—Target is disabled and is not available for activity execution
Status Information	Detailed information regarding the target status and the reasons for target being unreachable
Organization	Name of the company which supports the target
Description	Brief description of the target

Step 3 On the target-specific Connection tab, enter the appropriate target information.



Note

Each target will have one or more target-specific property pages, see the appropriate adapter guide for information on defining the individual properties.

Step 4 Click **OK** to close the dialog box.

Defining a Service Target

Use the Service target to create a target that represents an IT or business service. The service target can be used by process authors when creating content within TEO. Extended target property values can be assigned to the service target.

The Service target is a specialized target that cannot be used against any activities or triggers in TEO.

To create a service target:

- Step 1** On the Definitions—Targets view, right-click and choose **New > Service Target**.
The New Service Wizard launches.

Figure 13-4 Service Target Wizard—General Information Panel



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

- Step 2** On the General Information panel, enter the appropriate general information:

Field	Description
Display Name	Name of the service target
Service Type	Enter the type of target representing an IT or a business service
Description	Brief description of the service target

- Step 3** Click Next to continue.

The Completing the New Service Target Wizard panel displays.

Step 4 Click **Finish** to complete the procedure.

Managing Target Definitions

Use the Definitions—Targets view to modify and review target information. This view can be used to perform the following functions:

- Enable/Disable targets
- Modify target properties
- Review the objects in the product that use the target
- Review a history of changes made to the target
- Delete the target

Enabling a Target

A target is enabled by default. If a target is manually disabled, the target must be enabled before it is available for execution.

To enable a target:

On the Definitions—Target view, highlight the target, and then use *one* of the following methods:

- On the Results pane, right-click and choose **Enable**.
- or-
- On the Details pane, choose the **Click here to enable** option.

The Enabled column on the Results pane changes to *True*. If necessary, click the **Refresh**  tool to update the view.

Disabling a Target

Disabling a target prevents the item from being available for execution. The disabled target is not removed from the list of targets in the in the Definitions—Target Results pane.

To disable a target:

On the Definitions—Target view, highlight the target, and then use *one* of the following methods:

- On the Results pane, right-click and choose **Disable**.
- or-
- On the Details pane, choose the **Click here to disable** option.

The Enabled column on the Results pane changes to *False*. If necessary, click the **Refresh** tool to update the view.

Modifying Targets

Use the Definitions—Targets view to modify the configured targets. After the initial creation, not all fields are available for updating.

To modify a target:

Step 1 On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Properties**. The [Target] Properties dialog displays.

Step 2 On the General tab, modify the information, as necessary.

Field	Description
Display Name	Name of the target
Type	<i>Display-only.</i> Type of target
Service Type	Type of target representing an IT or a business service
Owner	User name of the owner of the category. This is typically the person who created the category. Click Browse to launch the Select User or Group dialog box to change the owner.
Status	<i>Display-only.</i> Status of the target - Unknown—Status of the target unknown - Normal—No known problems with this target - Unreachable—No known problems with this target - Disabled—Target is disabled and is not available for activity execution
Status Information	<i>Display-only.</i> Detailed information regarding the target status and the reasons for target being unreachable
Organization	Name of the company which supports the target
Description	Brief description of the target
Enabled	Check or uncheck the check box to enable or disable the target. The check box is selected by default which makes it available immediately upon creation. If you uncheck the check box, the target is disabled and will be unavailable for execution.

Step 3 Modify the appropriate information on the tabs, as necessary.

Tab	Description
General	Modify the general information about the target
Connection	Modify the connection properties for the defined target

Step 4 Review the information on the following tabs.

Tab	Description
Member Of	Displays the target groups to which the target belongs. This tab will remain blank until added to a target group.
Extended Properties	Displays the list of all extended target properties defined for a specific target type. This tab will remain blank until an extended target property is defined for the target type.
Used By	Display the objects which reference the target. This tab will remain blank until the target is used by an object.
History	Display the history of actions taken against the target. This tab remains blank until after the initial target creation.

Step 5 Click **OK** to save the changes and close the dialog box.

Defining Target Criteria

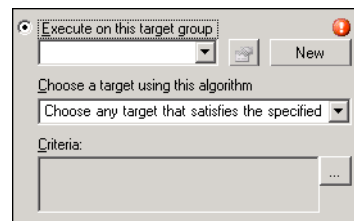
When configuring target properties for a process or activity, users can specify whether the target group should be executed based on when specific criteria is matched.

Use the Target Selection Criteria dialog box to specify the matching criteria for the selected target group.

To define the target selection criteria:

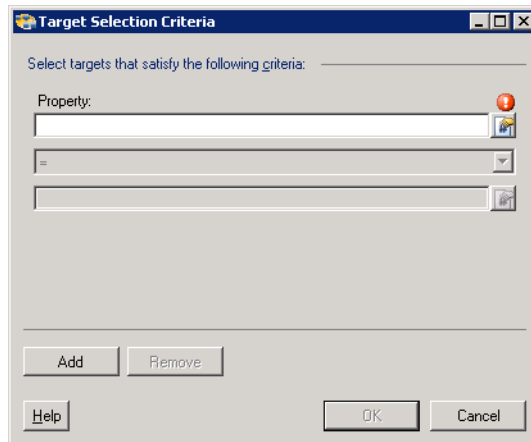
Step 1 On the Target tab, select the **Execute on this target group** radio button, and then choose the appropriate target group from the drop-down list.

Figure 13-5 Target Tab—Execute on this target group Section



Step 2 From the Choose a target using this algorithm drop-down list, choose **Choose the target that satisfies the specified criteria**.

Step 3 On the Criteria box, click **Browse**.
The Target Selection Criteria dialog box.

Figure 13-6 Target Selection Criteria Dialog Box

Step 4 On the Properties pane, specify the following information, as necessary:

Field	Description
Text field	Choose the appropriate property to match within the target. Click the Reference tool to select the variable from the Insert Variable Reference dialog box.
Operators	The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 10-3 .
Value	Enter the appropriate value for the target

Step 5 To modify the list of criteria, click one of the following buttons:

Button	Description
Add	Click this button to add a new Properties pane to complete with criteria for the target.
Remove	Click this button to remove the selected Properties pane in the display.

Step 6 Click **OK** to return to the Target tab.
The defined criteria displays in the display-only box.

Creating a Copy of a Target

The copy option is used when there is an existing target that contains properties that can be used for defining a new target without creating a completely new target. The following steps may not be available for all targets.

To create a copy a target:

-
- Step 1** On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Copy**.
 - Step 2** On the Results pane, right-click and choose **Paste**.
A copy of the defined target is pasted into the Results pane.
 - Step 3** To rename the copied target or other properties, right-click and choose **Properties**.
Modify the target name, as appropriate, and click **OK** to close the dialog box.
-

Deleting a Target

Use the Definitions—Target view to delete targets that are no longer referenced. Before deleting a target, access the properties, and click the **Used By** tab to view where objects are being used by the target. This ensures that deleting the target does not affect any processes or activities. The following steps may not be available for all targets, such as those that are discovered and automatically created.

To delete a target:

-
- Step 1** On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Delete**.
The Confirm Delete dialog box displays.
 - Step 2** Click **Yes** to delete the target.
-

Viewing Member Of Properties

Use the Member of tab to view the target groups to which a target belongs. The name and type of target group displays in the list box.

To view the member of targets:

-
- Step 1** On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Properties**.
The [Target] Properties dialog box displays.
 - Step 2** Click the **Member Of** tab to view the target groups.

Field	Description
Display Name	Name of the target group
Type	<i>Display-only.</i> Type of target group
Description	Brief description of the target

- Step 3** To view the properties for a specific object, highlight the object, right-click and choose **Properties**.
- Step 4** Click **OK** to close the dialog box.
-

Viewing Used By Properties

Use the Used By tab to display the objects that directly reference the selected target in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view used by objects:

- Step 1** On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Properties**. The [Target] Properties dialog box displays.
- Step 2** Click the **Used By** tab to view the objects used by the target.

Object	Description
Display Name	Name of the object
Type	Type of object

- Step 3** To view the properties for a specific object, highlight the object, right-click and choose **Properties**.
- Step 4** Click **OK** to close the dialog box.
-

Viewing Targets History

Use the History tab to view a history of changes that have been made to the target.

- Step 1** On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Properties**. The [Target] Properties dialog box displays.
- Step 2** Click the **History** tab to view the changes made to the target.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred

Column	Description
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

Step 3 To view the details for a specific action, highlight the appropriate time, right-click and choose **Properties**.

Step 4 Click **OK** to close the dialog box.



CHAPTER 14

Managing Extended Target Properties

Extended target properties allow users to define a specific target property value and provides flexibility for others to set or access the values to be used to customize process behavior.

Target properties also provides the ability to store data that is collected during the process execution against a target. For example, a networking process might gather configuration data about each device on a daily basis, then other workflows which run ad-hoc might consume that information. A target property can be used to store this collected data which is associated with some targets.

Refer to the following sections for more information on managing extended target properties:

- [Accessing Definitions—Extended Target Properties, page 14-2](#)
- [Creating a Boolean Target Property, page 14-5](#)
- [Creating a Hidden String Target Property, page 14-8](#)
- [Creating an Identity Target Property, page 14-10](#)
- [Creating a Numeric Target Property, page 14-12](#)
- [Creating a String Target Property, page 14-14](#)
- [Creating a Table Target Property, page 14-16](#)
- [Creating a Target Reference Property, page 14-19](#)
- [Managing Extended Target Property Definitions, page 14-23](#)

Accessing Definitions—Extended Target Properties

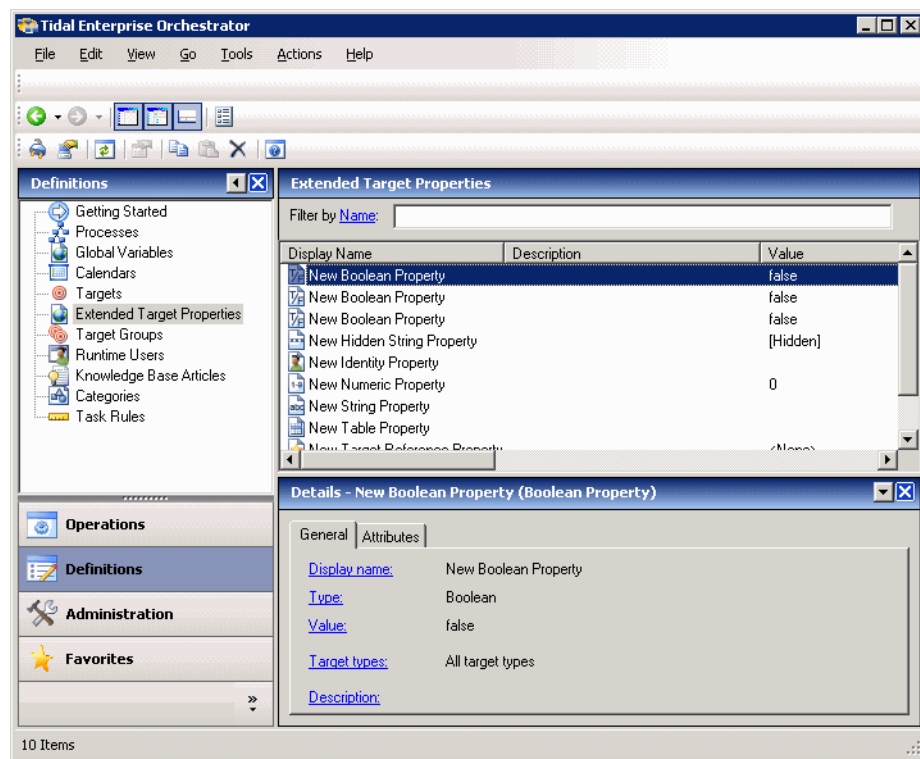
The Definitions—Extended Target Properties view displays all the defined extended target properties in the console. Additional features from this view include creating a new extended target property, modifying and deleting a extended target.

TEO no longer enforces uniqueness of object names. That means that two content authors could create and ship automation packs with identically named variables. As a result, customer importing both automation packs will have 2 seemingly identical variables. To avoid confusion to the customer, the documentation of best practices should recommend the use of a namespace (unique prefix) when naming variables, processes, knowledge base articles as well. Note that this is not required, as there are no technical issues with having duplicate variable names.

To access the Extended Target view:

On the Definitions pane, choose **Extended Target Properties**. The Results pane displays.

Figure 14-1 Definitions—Extended Target Properties



Information about the defined target properties is displayed in the following columns:

Column	Description
Display name	Name assigned to the target property
Description	Description of the target property
Value	Displays the value of the target property
Data type	Type of value being used for the target property (Boolean, Hidden String, Identity, Numeric, String, Target Reference, or Table)

Column	Description
Target Types	Indicates the target types associated with the target property
Last Modified Time	Time the target property was last modified
Last Modified By	User name of the person who last modified the target property
Id	The unique identification number of the target property
Owner	The user name of the owner of the target property. This is typically the person who created the target property.
Created Time	The time at which the target property was created
Created By	The user name of the person who created the target property
Automation Pack	Name of the automation pack associated with the target property. This field may be empty if the target property does not belong to an automation pack.
Customizable	Indicates the customization setting for the object in the automation pack

**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Extended Target Property Descriptions

The following table provides a listing target property types supported by the product. Target properties are available for defining from within the Definitions—Extended Target Properties view.

For information on defining extended target properties, see the appropriate section included later in this chapter.

Target Property	Description
Boolean	Indicates whether a set of elements should be <i>true</i> or <i>false</i> See Creating a Boolean Target Property, page 14-5 .
Hidden String	Holds data that must be protected from other TEO users and from auditing operations performed by TEO See Creating a Hidden String Target Property, page 14-8 .
Identity	Represents the value of a user identity See Creating an Identity Target Property, page 14-10 .
Numeric	Single whole or decimal number (positive and negative) See Creating a Numeric Target Property, page 14-12 .
String	Defines a target property containing a string of text See Creating a String Target Property, page 14-14 .

Target Property	Description
Table	Stores a set of records in a table format See Creating a Table Target Property, page 14-16 .
Target Reference	Assigns a reference from one target to another target See Creating a Target Reference Property, page 14-19 .

Actions Menu

The Extended Target Properties Actions menu and toolbar provide the option to create new target properties. The New item is also available by right-clicking **Extended Target Properties** on the Definitions workspace.

Details Pane

The Extended Target Properties Details pane displays additional information about the selected item. The hyperlinks on each of the detail pages launch the property pages for the selected target properties.

Tab	Description
General	Displays general information about the item including the name, type, value, and a description of the target property
Attributes	Displays the dates, times and process owner associated with the creation and modification of the target property

Viewing Extended Target Properties

To view extended target properties:

- Step 1** On the Definitions—Extended Target Properties view, highlight the appropriate target property, and use *one* of the following methods:

- Right-click and choose **Properties**.
- or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Properties dialog box displays.



Note

The property pages may display as display-only if the extended target properties definition is shipped as part of the automation pack or the user does not have the appropriate rights.

- Step 2** Click the appropriate tab to review.

Tab	Description
General	Displays general information about the item including the name, type, value, and a description of the extended target

Tab	Description
Values	Displays the specific values assigned to cells and rows of a table target property
Target Types	Displays the target types which apply to the target property
Target Values	Displays the specific targets and related values assigned to the target property
Used By	Displays the objects referenced by the target property
History	Displays when the target property was created or modified. The column also displays audit log entries that are relevant to the target property

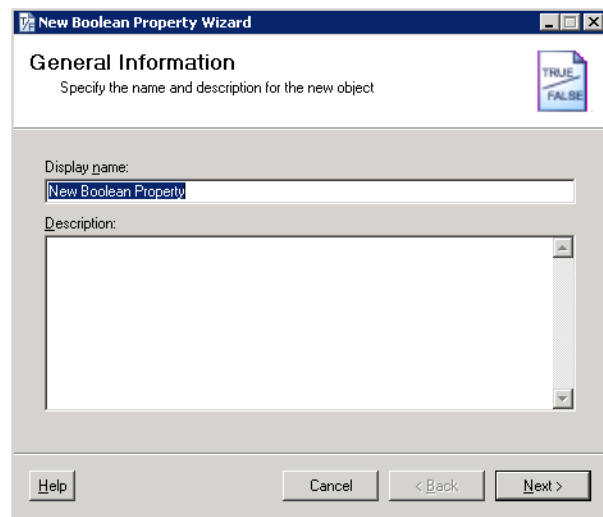
Step 3 Review the properties and click **OK** to close the dialog box.

Creating a Boolean Target Property

Use the Boolean extended target property to define a value that should be interpreted as *true* or *false*.
To create a boolean target property:

Step 1 On the Definitions—Extended Target Properties view, right-click and choose **New > Boolean Property**. The New Boolean Property Wizard launches.

Figure 14-2 New Boolean Property Wizard—General Information Panel

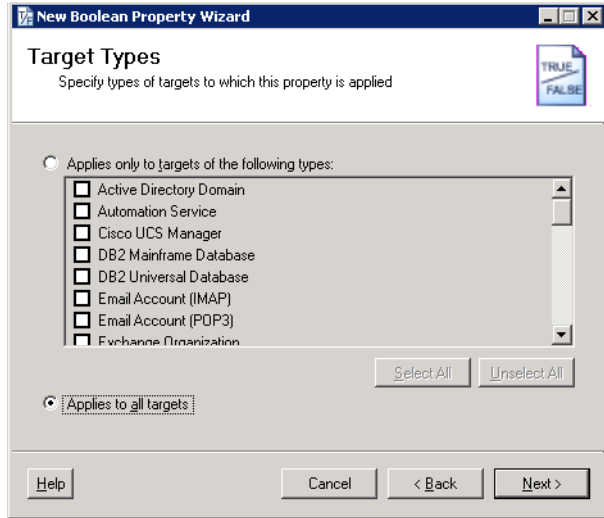


Step 2 On the General Information panel, specify the following information:

Field	Description
Display name	Name assigned to the target property
Description	Brief description of the property

- Step 3** Click **Next** to continue.
The Target Types panel displays.

Figure 14-3 *New Boolean Property Wizard—Target Types Panel*



- Step 4** On Target Types panel, determine which target types will apply to the extended target property.



Note

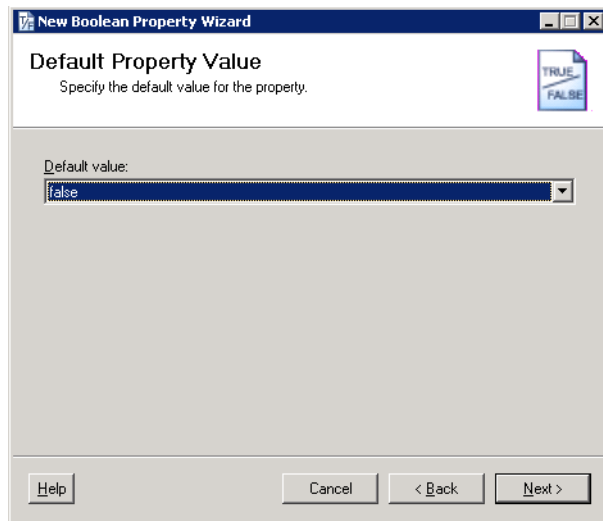
For information on the available target types, see [Chapter 13, “Managing Targets.”](#)

Option	Description
Applies only to targets of the following types	Select this radio button to indicate the target property should apply to specific target types in the product. Check the check box to the left of the target types to indicate that the selected target type should be applied to the extended target property. Note Click Select All to select all the available target types. Click Unselect All to uncheck the target types check boxes and remove them from the extended target property.
Applies to all targets	Select this radio button to indicate that the all target types in TEO will be applied to the extended target property. This includes target types that may be added in future.

- Step 5** Click **Next** to continue.

The Default Property Value panel displays.

Figure 14-4 *New Boolean Property Wizard—Default Property Value Panel*



- Step 6** On the Default Property Value panel, specify the default value for the Boolean target property to be assigned to the selected target types.

Field	Description
Default Value	Value assigned to the target property (e.g., true, false)

- Step 7** Click **Next** to continue.

The Completing the New Boolean Property Wizard displays.

Figure 14-5 *New Boolean Property Wizard—Completing the New Boolean Property Panel*



- Step 8** Click **Finish** to complete the procedure.

Creating a Hidden String Target Property

Use the Hidden String target property to define a value that must be protected from other TEO users and from auditing operations performed by TEO.

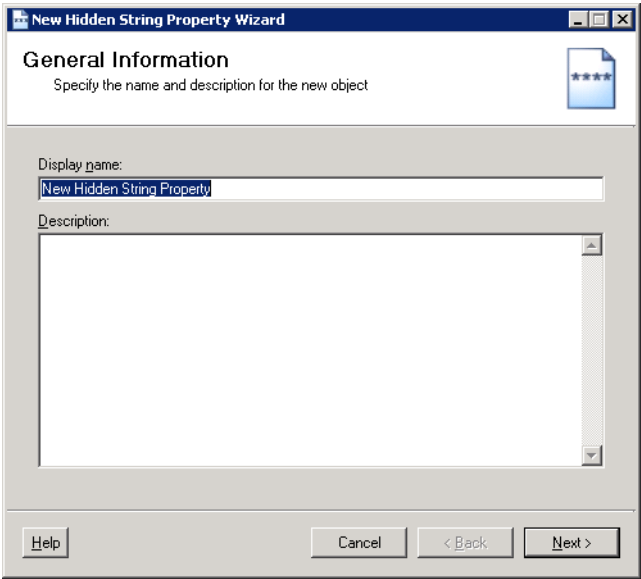
The encryption protection provided by TEO extends only to the adapter level. The values are not visible anywhere in TEO during the definition or execution stages. In the audit logs, the user cannot see the values of the hidden string target properties or encrypted activity properties.

To create an hidden string target property:

- Step 1** On the Definitions—Extended Target Properties view, right-click and choose **New > Hidden String Property**.

The New Hidden String Property Wizard launches.

Figure 14-6 *New Hidden String Property Wizard—General Information Panel*



- Step 2** On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the target property
Description	Brief description of the target property

- Step 3** Click **Next** to continue.

Step 4 On the Target Types panel, determine which target types will apply to the extended target property.



Note

For information on the available target types, see [Chapter 13, “Managing Targets.”](#)

Option	Description
Applies only to targets of the following types	Select this radio button to indicate the target property should apply to specific target types in the product. Check the check box to the left of the target types to indicate that the selected target type should be applied to the extended target property. Note Click Select All to select all the available target types. Click Unselect All to uncheck the target types check boxes and remove them from the extended target property.
Applies to all targets	Select this radio button to indicate that the all target types in TEO will be applied to the extended target property. This includes target types that may be added in future.

Step 5 Click **Next** to continue.
The Default Property Value panel displays.

Figure 14-7 *New Hidden String Property Wizard—Default Property Value Panel*

Step 6 On the Default Property Value panel, specify the default value for the Hidden String target property to be assigned to the selected target types.

Field	Description
Default Value	Hidden string value(s) assigned to the target property

- Step 7** Click **Next** to continue.
- The Completing the New Hidden String Property Wizard panel displays.
- Step 8** Click **Finish** to complete the procedure.

Creating an Identity Target Property

Use the Identity target property to store the value of a user or group identity.

To create an identity target property:

- Step 1** On the Definitions—Extended Target Properties view, right-click and choose **New > Identity Property**. The New Identity Property Wizard launches.

Figure 14-8 *New Identity Property Wizard—General Information Panel*

- Step 2** On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the target property
Description	Brief description of the target property

- Step 3** Click **Next** to continue.

Step 4 On the Target Types panel, determine which target types will apply to the extended target property.



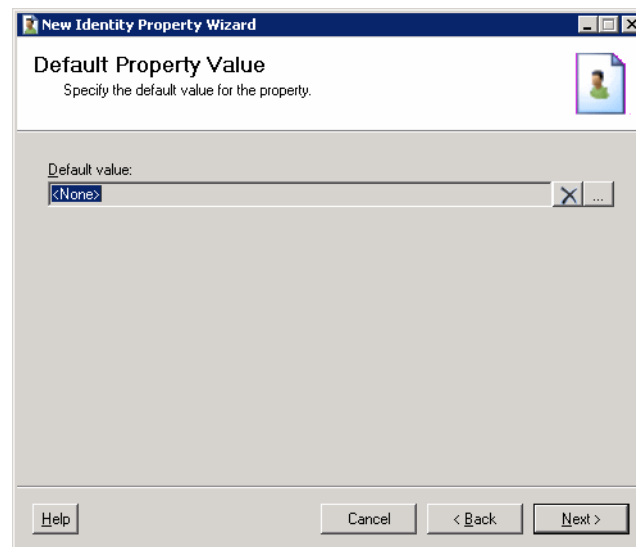
Note

For information on the available target types, see [Chapter 13, “Managing Targets.”](#)

Option	Description
Applies only to targets of the following types	Select this radio button to indicate the target property should apply to specific target types in the product. Check the check box to the left of the target types to indicate that the selected target type should be applied to the extended target property. Note Click Select All to select all the available target types. Click Unselect All to uncheck the target types check boxes and remove them from the extended target property.
Applies to all targets	Select this radio button to indicate that the all target types in TEO will be applied to the extended target property. This includes target types that may be added in future.

Step 5 Click **Next** to continue.
The Default Property Value panel displays.

Figure 14-9 New Identity Property Wizard—Default Property Value Panel



Step 6 On the Default Property Value panel, specify the default user target property to be assigned to the selected target types.

Field	Description
Default value	Value assigned to the target property. Click Browse to launch the Select User or Group dialog box to select the identity to assign to the target property.

- Step 7** Click **Next** to continue.
- The Completing the New Identity Property Wizard displays.
- Step 8** Click **Finish** to complete the procedure.

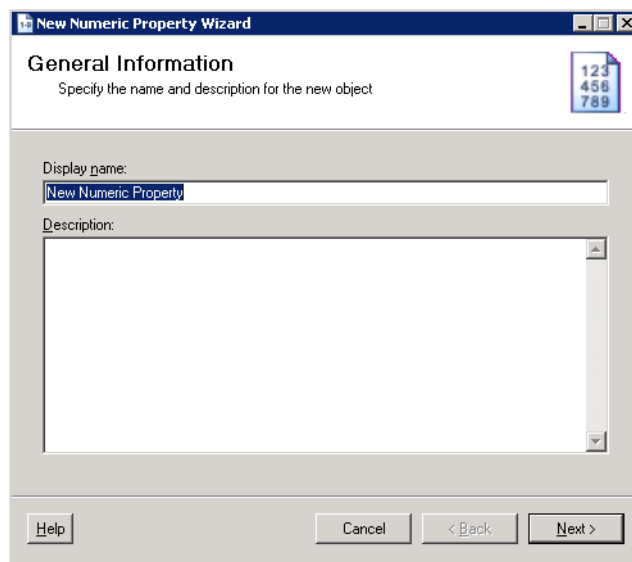
Creating a Numeric Target Property

Use the Numeric target property to define a value to contain a single whole or decimal number (positive and negative).

To create a numeric target property:

- Step 1** On the Definitions—Extended Target Properties view, right-click and choose **New > Numeric Property**. The New Numeric Property Wizard launches.

Figure 14-10 New Numeric Property Wizard—General Information Panel



- Step 2** On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the target property
Description	Brief description of the target property

- Step 3** Click **Next** to continue.

Step 4 On the Target Types panel, determine which target types will apply to the extended target property.

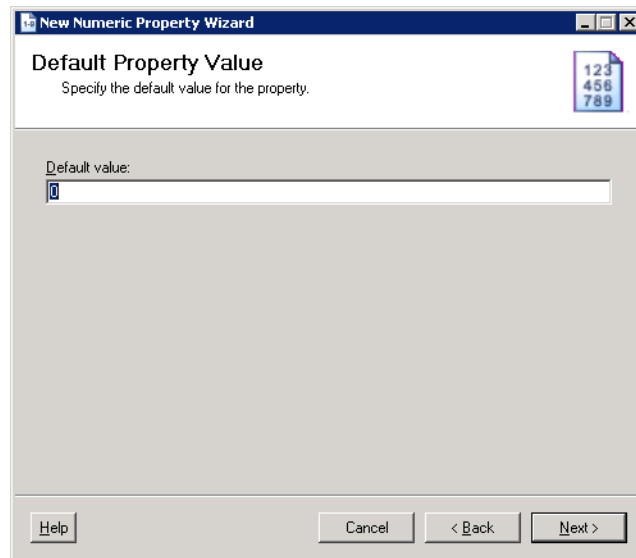


Note For information on the available target types, see [Chapter 13, “Managing Targets.”](#)

Option	Description
Applies only to targets of the following types	Select this radio button to indicate the target property should apply to specific target types in the product. Check the check box to the left of the target types to indicate that the selected target type should be applied to the extended target property. Note Click Select All to select all the available target types. Click Unselect All to uncheck the target types check boxes and remove them from the extended target property.
Applies to all targets	Select this radio button to indicate that the all target types in TEO will be applied to the extended target property. This includes target types that may be added in future.

Step 5 Click **Next** to continue.
The Default Property Value panel displays.

Figure 14-11 New Numeric Property Wizard—Default Property Value Panel



Step 6 On the Default Property Value panel, specify the default numeric value to be assigned to the selected target types.

Field	Description
Default value	Numeric value assigned to the target property

Step 7 Click **Next** to continue.

The Completing the New Numeric Property Wizard panel displays.

Step 8 Click **Finish** to complete the procedure.

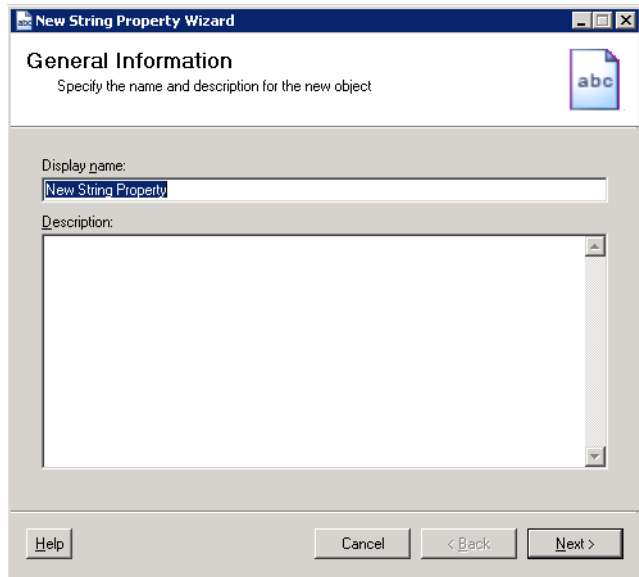
Creating a String Target Property

Use the String target property to define a value containing a string of text.

To create a string target property:

Step 1 On the Definitions—Extended Target Properties view, right-click and choose **New > String Property**. The New String Property Wizard launches.

Figure 14-12 *New String Property Wizard—General Information Panel*



Step 2 On the General tab, specify the following information, and click **OK**.

Field	Description
Display name	Name assigned to the target property
Description	Brief description of the target property

Step 3 Click **Next** to continue.

Step 4 On the Target Types panel, determine which target types will apply to the extended target property.



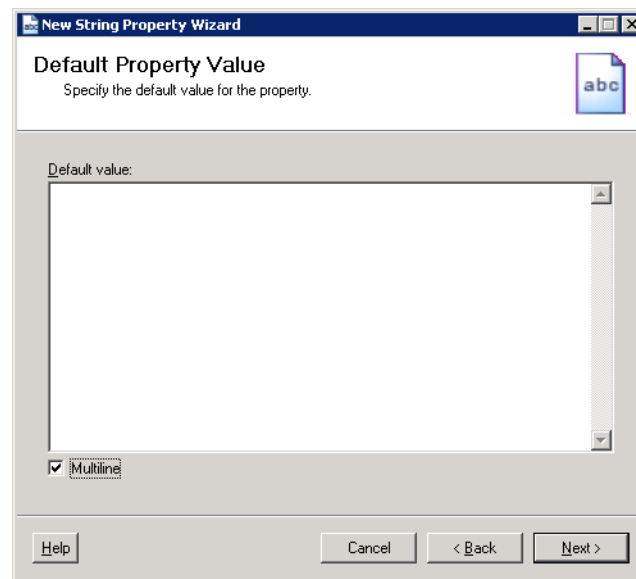
Note

For information on the available target types, see [Chapter 13, “Managing Targets.”](#)

Option	Description
Applies only to targets of the following types	Select this radio button to indicate the target property should apply to specific target types in the product. Check the check box to the left of the target types to indicate that the selected target type should be applied to the extended target property. Note Click Select All to select all the available target types. Click Unselect All to uncheck the target types check boxes and remove them from the extended target property.
Applies to all targets	Select this radio button to indicate that the all target types in TEO will be applied to the extended target property. This includes target types that may be added in future.

Step 5 Click **Next** to continue.
The Default Property Value panel displays.

Figure 14-13 New String Property Wizard—Default Property Value Panel



Step 6 On the Default Property Value panel, specify the default string to be assigned to the selected target types.

Field	Description
Default value	String of text value(s) assigned to the target property.
Multiline	Check this check box to expand the text box to allow multiple lines of values to the string.

- Step 7** Click **Next** to continue.
The Completing the New String Property Wizard panel displays.
- Step 8** Click **Finish** to complete the procedure.

Creating a Table Target Property

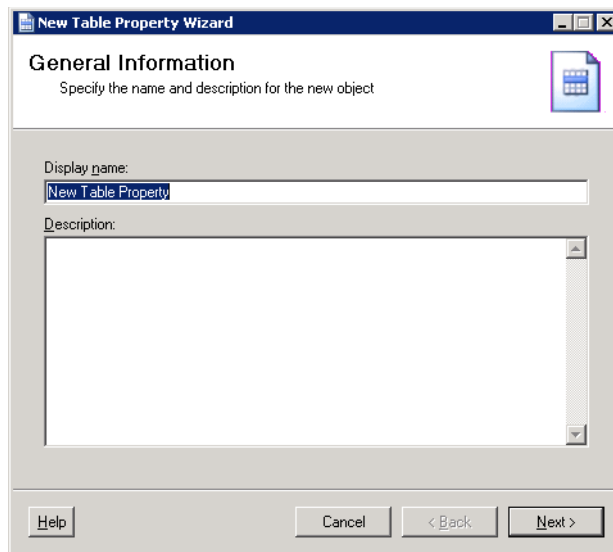
Use the Table target property to define a table to be used to store a set of records. This panel can be used to define the values to be included in the cells of a table as well as add new rows and columns for the table.

For information on modifying the format of the tables, see [Appendix D, “Using Table Activities.”](#)

To create a table target property:

- Step 1** On the Definitions—Extended Target Properties view, right-click and choose **New > Table Property**.
The New Table Property Wizard launches.

Figure 14-14 New Table Property Wizard—General Information Panel



- Step 2** On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the target property
Description	Description of the target property

- Step 3** Click **Next** to continue.

Step 4 On the Target Types panel, determine which target types will apply to the extended target property.

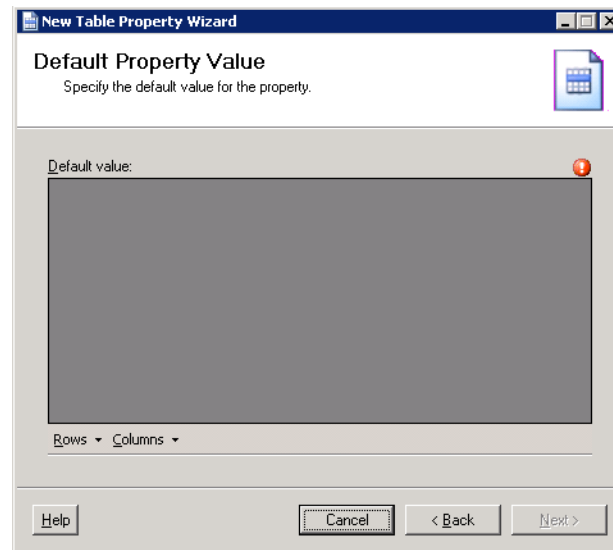
**Note**

For information on the available target types, see [Chapter 13, “Managing Targets.”](#)

Option	Description
Applies only to targets of the following types	Select this radio button to indicate the target property should apply to specific target types in the product. Check the check box to the left of the target types to indicate that the selected target type should be applied to the extended target property. Note Click Select All to select all the available target types. Click Unselect All to uncheck the target types check boxes and remove them from the extended target property.
Applies to all targets	Select this radio button to indicate that the all target types in TEO will be applied to the extended target property. This includes target types that may be added in future.

Step 5 Click **Next** to continue.
The Default Property Value panel displays.

Figure 14-15 New Table Property Wizard—Default Property Value Panel

**Note**

The table must contain at least one column.

- Step 6** On the Default Property Value panel, specify the row and cell values to be included in the table property assigned to the selected target types.

Field	Description
Rows	Click Rows to modify the number of rows to be included in the table. • Add—Adds a new row to the table. See Adding a Table Row, page 14-27. • Remove—Removes selected rows from table. The Remove option is enabled when the user chooses one or more rows within the data table.
Columns	Click Columns to modify the columns to be included in the table. • Add—Launches the Table Columns Properties dialog box to allow the user to define the name and data type for the new column. See Adding a Table Column, page 14-26. • Edit—Allows the user to modify the name for the selected column. The Edit option is enabled when the user has one column or one cell in the table selected. • Remove—Removes the selected columns from the table. The Remove option is enabled when the user chooses one or more columns within the table. Note Menu items under the Columns option are not available if the target property belongs to a third-party automation pack.

- Step 7** Click **Next** to continue.
- The Completing the New Table Property Wizard panel displays.
- Step 8** Click **Finish** to complete the procedure.

Creating a Target Reference Property

Use the Target Reference target property to specify one target as a reference to another target. This target property is then available in the Insert Variable reference dialog box as a reference and allow users to execute against a specific target.

Example:

A Service Target type has a new extended property called Database that references a SQL Server target. If a process is set up to execute against the Service target, the user can select the Database target property as a reference within that process.

To create a target reference property:

- Step 1** On the Definitions—Extended Target Properties view, right-click and choose **New > Target Reference Property**.

The New Target Reference Property Wizard launches.

Figure 14-16 New Target Reference Property Wizard—General Information Panel

- Step 2** On the General tab, specify the following information:

Field	Description
Display name	Name assigned to the target property
Description	Description of the target property

- Step 3** Click **Next** to continue.

Step 4 On the Target Types panel, determine which target types will apply to the extended target property.

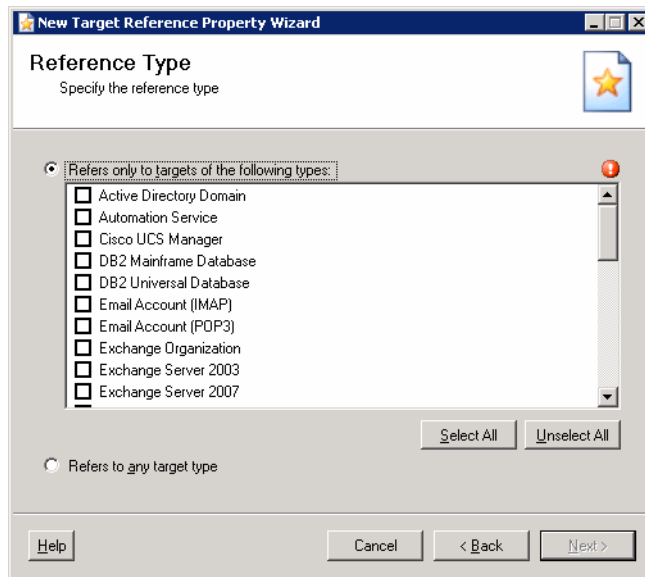


Note For information on the available target types, see [Chapter 13, “Managing Targets.”](#)

Option	Description
Applies only to targets of the following types	Select this radio button to indicate the target property should apply to specific target types in the product. Check the check box to the left of the target types to indicate that the selected target type should be applied to the extended target property. Note Click Select All to select all the available target types. Click Unselect All to uncheck the target types check boxes and remove them from the extended target property.
Applies to all targets	Select this radio button to indicate that the all target types in TEO will be applied to the extended target property. This includes target types that may be added in future.

Step 5 Click **Next** to continue.
The Target Reference Type panel displays.

Figure 14-17 New Target Reference Property Wizard—Reference Type Panel



Step 6 On the Reference Type panel, select the appropriate target type to use as a reference.

Option	Description
Refers to the following type	Select this radio button to indicate the target reference property should refer to the selected target types in the product. Check the check box to the left of the target types to indicate that the selected target type should be applied to the extended target property. Note Click Select All to select all the available target types. Click Unselect All to uncheck the target types check boxes and remove them from the extended target property.
Refers to any target type	Select this radio button to indicate the target reference property can refer to any target type. This includes target types that may be added in future.

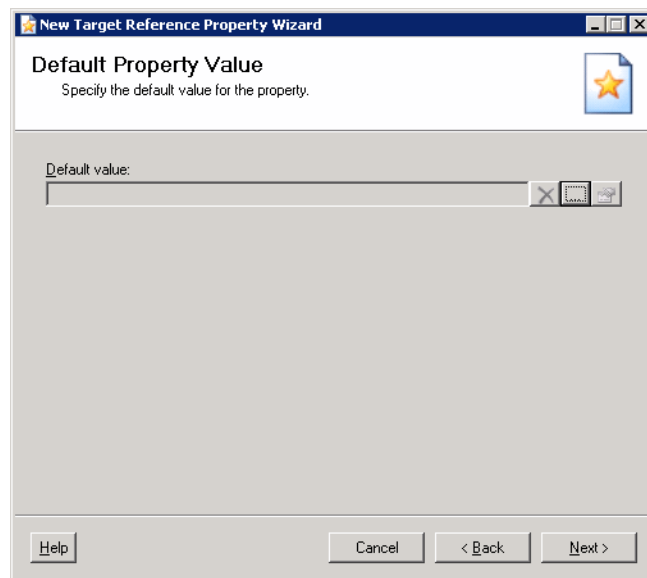


Note

For information on the available target types, see [Chapter 13, “Managing Targets.”](#)

Step 7 Click **Next** to continue.
The Default Property Value panel displays.

Figure 14-18 New Table Property Wizard—Default Property Value Panel



- Step 8** On the Default Property Value panel, specify the defined target for the target reference property to be assigned to targets.

Default Value Options	Description
Text field	<i>Display-only.</i> Display name for the selected target(s)
Delete	Highlight the appropriate target and click the Delete  tool to remove the target from the list.
Browse	Click Browse to launch the Select Targets dialog box to select defined targets to assign to the reference property.
Properties	Highlight the appropriate target and click the Properties  tool to view and/or modify the properties of the defined target assigned to the reference property.

- Step 9** Click **Next** to continue.

The Completing the New Target Reference Property Wizard panel displays.

- Step 10** Click **Finish** to complete the procedure.

Managing Extended Target Property Definitions

The following sections provide instructions on modifying table property definitions from the Definitions—Extended Target Properties view.

Modifying Extended Target Properties

Use the Definitions Extended Target Properties view to review or modify the target property values and applicable targets of a target property.

To modify a target property:

- Step 1** On the Definitions—Extended Target Properties view, highlight the appropriate target property, right-click and choose **Properties**.

The [Extended Target Property] Properties dialog box displays.

- Step 2** On the General tab, modify the target property, as necessary.

Field	Description
Display Name	Name assigned to the target property
Owner	User name of the owner of the object. This is typically the person who created the object. Click Browse to launch the Select User or Group dialog box to change the owner.
Data Type	<i>Display-only.</i> Type of data used to specify the target property
Value	Value assigned to the target property. The value displayed depends on the specific target property.
Description	Brief description of the target property

- Step 3** Modify the following tabs, as necessary, and click **OK** to close the dialog box.
- Target Types—Specify which target types will apply to the extended target property. See [Assigning Target Types to a Target Property, page 14-27](#).
 - Target Values—Specify a target property value for a specific target. This values overrides the default target property value. See [Applying a Value to a Target-Specific Target Property, page 14-29](#).
- Step 4** Click **OK** to close the dialog box.

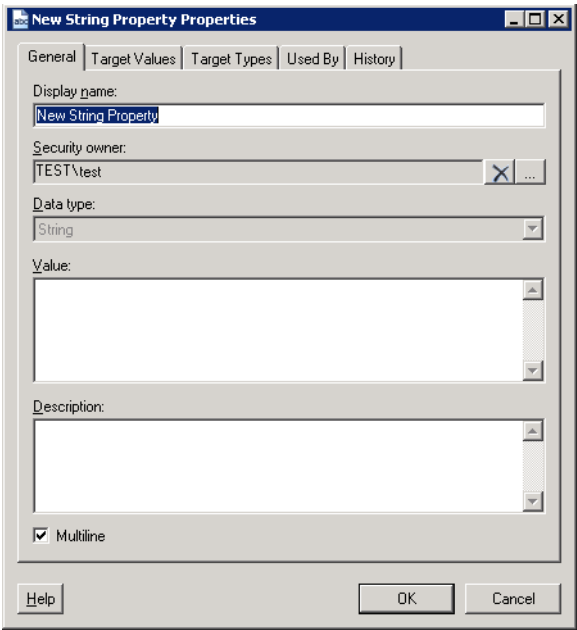
Modifying String Target Properties

Use the Definitions Extended Target Properties view to review or modify string target property values.
To modify a string target property:

- Step 1

On the Definitions—Extended Target Properties view, highlight the appropriate string target property, right-click and choose **Properties**.
The [String Target Property] Properties dialog box displays.

Figure 14-19 String Properties Dialog Box—General Tab



- Step 2

On the General tab, modify the target property, as necessary.

Field	Description
Display Name	Name assigned to the target property
Owner	User name of the owner of the object. This is typically the person who created the object. Click Browse to launch the Select User or Group dialog box to change the owner.
Data Type	<i>Display-only.</i> Type of data used to specify the target property
Description	Brief description of the target property
Value	String of text value(s) assigned to the target property.
Multiline	Check the checkbox to expand the text box modify the string value to contain multiple lines of text.

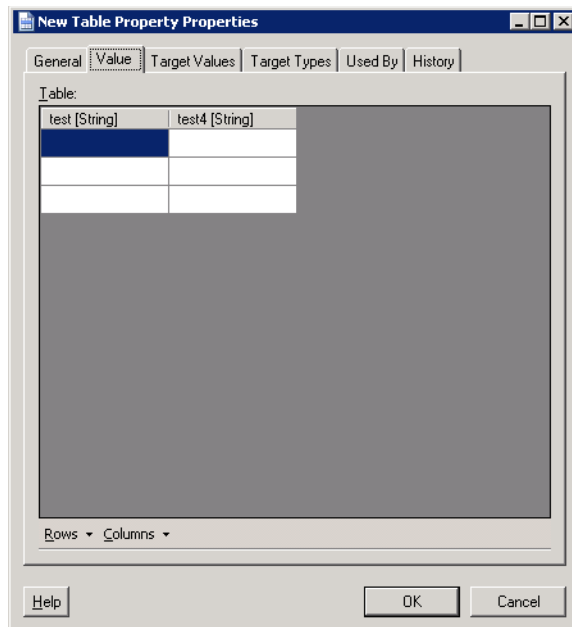
- Step 3** Modify the following tabs, as necessary, and click **OK** to close the dialog box.
- Target Types—Specify which target types will apply to the extended target property. See [Assigning Target Types to a Target Property, page 14-27](#).
 - Target Values—Specify a target property value for a specific target. This values overrides the default target property value. See [Applying a Value to a Target-Specific Target Property, page 14-29](#).
- Step 4** Click **OK** to close the dialog box.

Modifying Table Target Properties

Use the following steps to modify a table target property.

- Step 1** On the Definitions—Extended Target Properties view, highlight the appropriate target property, right-click and choose **Properties**.
- The [Table Target Property] Properties dialog box displays.
- Step 2** On the General tab, modify the general target property information, as necessary.
- Step 3** Click the **Value** tab to continue.

Figure 14-20 Table Properties Dialog Box—Value Tab



- Step 4** On the Table tab, perform the following tasks, as necessary, and click **OK**.

Button	Description
Columns > Add	Adds a new column to the target property
Columns > Edit	Modify existing column information
Columns > Remove	Remove a column from the target property

Button	Description
Rows > Add	Add additional rows to the target property
Rows > Remove	Removes rows from the target property

Step 5 Modify the following tabs, as necessary, and click **OK** to close the dialog box.

- **Target Types**—Specify which target types will apply to the extended target property. See [Assigning Target Types to a Target Property, page 14-27](#).
- **Target Values**—Specify a target property value for a specific target. This values overrides the default target property value. See [Applying a Value to a Target-Specific Target Property, page 14-29](#).

Adding a Table Column

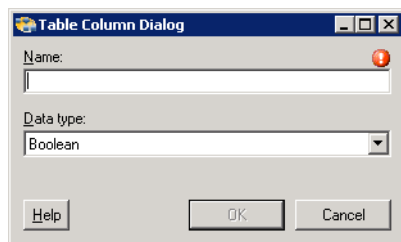
Use the Table Column dialog to define the properties for a new column or modify the name of an existing column. The column data type cannot be modified after the initial selection.

To add a table column:

Step 1 On the Table tab, click **Column**.

The Table Column dialog box displays.

Figure 14-21 Table Column Dialog Box



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Step 2 Specify the following information:

Field	Description
Display name	Name of the column
Data type	The data type specified for the column • Boolean—Indicates elements should be as <i>true</i> or <i>false</i> • String (Default)—Sequence of characters such as letters, numbers, and punctuation marks • Integer—Must be whole numbers and contain only digits from 0 to 9. Can be positive or negative (Examples: 0, 10, 345, -689) • Decimal—Numeric value expressed as a decimal • Identity—Value of a user or group identity

Step 3 Click **OK** to return to the Table tab.

Adding a Table Row

The Row options on the Table tab are not available until after a column has been added.

To add a row:

Step 1 On the Table tab, click **Row > Add**.

A single row is added to the table.

Step 2 Repeat the step for additional rows to be added to the table.

Assigning Target Types to a Target Property

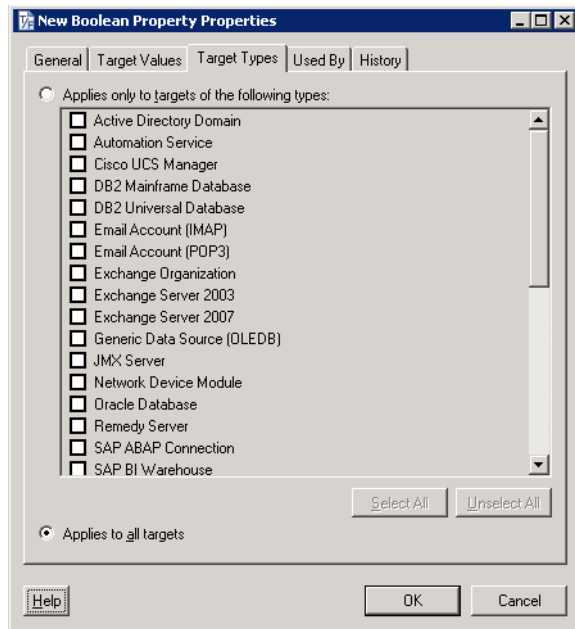
Use the Definitions Extended Target Properties view to assign specific target types to a target property.

To assign a target type to a target property:

Step 1 On the Definitions—Extended Target Properties view, highlight the appropriate target property, right-click and choose **Properties**.

The [Target Property] Properties dialog box displays.

Step 2 Click the Target Types tab to continue.

Figure 14-22 New Boolean Property Dialog Box—Target Types Tab

Step 3 On the Target Types tab, specify which target types will apply to the extended target property.

**Note**

For information on the available target types, see [Chapter 13, “Managing Targets.”](#)

Option	Description
Applies only to targets of the following types	Select this radio button to indicate the target property should apply to all target types in the product. This includes target types that may be added in future. Check the check box to the left of the target types to indicate that the selected target type should be applied to the extended target property. Note Click Select All to select all the available target types. Click Unselect All to uncheck the target types check boxes and remove them from the extended target property.
Applies to all targets	Select this radio button to indicate that the all target types in TEO will be applied to the extended target property.

Step 4 Click **OK** to close the dialog box.

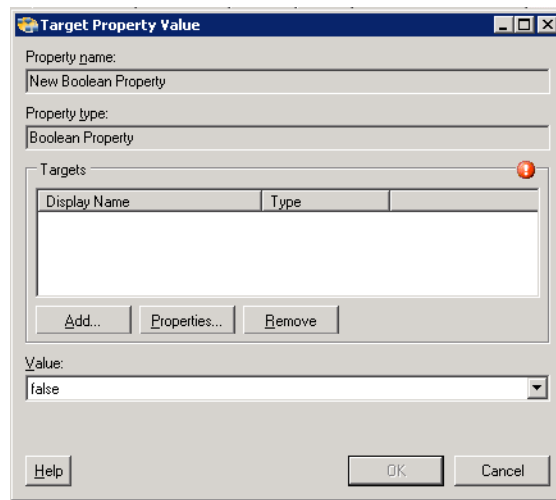
Applying a Value to a Target-Specific Target Property

Use the Target Values tab to specify a target property value for a specific target. This values overrides the default target property value.

To modify a target value:

- Step 1** On the Definitions—Extended Target Properties view, highlight the appropriate target property, right-click and choose **Properties**.
The [Target Property] Properties dialog box displays.
- Step 2** Click the **Target Values** tab to specify a target property value for a specific target.
- Step 3** Click **New** to launch the Target Properties dialog box.

Figure 14-23 Target Property Values Dialog Box



- Step 4** To add a specific target to the extended target, click **Add** to launch the Select Targets dialog box.
- Step 5** On the Select Targets dialog box, select the targets to be added to the target property.



Note

To select multiple targets, press **CTRL** and hold the key while making the appropriate selections. When completed selecting targets, click **OK**.

The selected target(s) display in the list of targets on the Target Property Value dialog box.

Column	Description
Display Name	Name of the target
Type	Type of target
Description	Description of the target

- Step 6** Use the Value field to modify the value assigned to the targets assigned to the target property. The fields displayed depend on the type of extended target property.
- Step 7** Click **OK** to close the dialog box.
The target-specific value is displayed on the Target Values tab.

Creating a Copy of a Target Property

Use the copy option to make a copy of an existing extended target property.

-
- Step 1** On the Definitions—Extended Target Properties view, highlight the appropriate target property, right-click and choose **Copy**.
 - Step 2** Return to the Definitions—Extended Target Properties view, right-click and choose **Paste**.
A copy of the defined extended target is pasted into the Results pane.
 - Step 3** To rename the copied target property, right-click and choose **Properties**.
 - Step 4** On the General tab, modify the target property name, as appropriate, and click **OK** to close the dialog box.
-

Copying a Target-Specific Value

Use the copy option to leverage the value assigned to a specific target on the target property and use the existing settings to apply to a different defined target.

To copy a target value:

-
- Step 1** On the Definitions—Extended Target Properties view, highlight the appropriate target property, right-click and choose **Properties**.
 - Step 2** Click the **Target Values** tab to continue.
 - Step 3** On the Target Values tab, highlight the appropriate target-specific value(s), and click **Copy**.
The Target Property Value dialog box launches to allow user to define the properties for the new target-specific value.
 - Step 4** Complete the appropriate fields on the dialog box and click **OK**.
The target-specific value is displayed on the Target Values tab.
-

Removing an Assigned Target

Use the following steps to remove an assigned target and its related values from the list of target property values. Using these steps does not delete the target or extended target property from the product.

The Remove button is enabled when one or more items are selected in the Target-specific values list box.

To remove an assigned target:

-
- Step 1** On the Definitions—Extended Target Properties view, highlight the appropriate target property, right-click and choose **Properties**.
 - Step 2** Click the **Target Values** tab to continue.
 - Step 3** On the Target Values tab, highlight the appropriate target-specific value(s), and click **Remove**.

The selected target-specific values are removed from the target property.

Deleting Target Properties

Use the Definitions—Extended Target Properties view to delete target properties that are no longer referenced by other objects in TEO.

Before deleting a target property, access the properties, and click the **Used By** tab to view objects that are referenced by the target property. This ensures that deleting the target property does not affect any processes or activities.

To delete a extended target property:

Step 1 On the Definitions—Extended Target Properties view, highlight the appropriate target property, and use *one* of the following methods:

- On the toolbar, click the **Delete**  tool.
- or-
- Right-click and choose **Delete**.

The Confirm Target Property Delete dialog box displays.

Step 2 Click **Yes** to delete the target property.

Viewing Target Property Used By Properties

Use the Used By tab to display the objects that directly reference the selected target property in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view used by objects:

Step 1 On the Definitions—Extended Target Properties view, highlight the appropriate target property, right-click and choose **Properties**.

The [Target Property] Properties dialog box displays.

Step 2 Click the **Used By** tab to view the objects that are referenced by the target property.

Step 3 To view the properties for a specific object, highlight the object, right-click and choose **Properties**.

Step 4 Click **OK** to close the dialog box.

Viewing Target Property History

Use the History tab to view a history of changes that have been made to the target property.

Step 1 On the Definitions—Extended Target Properties view, highlight the appropriate target property, right-click and choose **Properties**.

The [Target Property] Properties dialog box displays.

Step 2 Click the **History** tab to view the changes made to the target property.

The following information about the history of the target property is displayed:

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
User	The user name of the person that performed the action
Change type	The action that occurred
Description	Information about the action that was performed

Step 3 To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.

Step 4 Click **OK** to close the dialog box.



CHAPTER 15

Managing Target Groups

The Target Groups feature enable users to define specific environments or groups of environments that are appropriate for the processes that execute on them. You can define a target group that includes a collection of targets on which to execute processes at the same time.

When you create a process, you must specify where you want the process to run. You can specify that the process runs on a specific target group. If you specify to execute the process on a target group, you can further specify to run the process on all the objects that are included in the target group or run the process on a specific object within the target group.

Using target groups simplifies specifying where certain processes will run. The target group can be defined once and reused in several processes. For example, you may have a database maintenance process that is scheduled to run every month on all database servers. Instead of scheduling the process multiple times to run on each database server, you can create a target group that includes all the database servers and schedule the process to run on all the servers at the same time.

The target groups that can be created depend on the adapters that are installed. You can create a target group for an Active Directory Organizational Unit, Active Directory Group, Target Type Group, or a Virtual Group that can contain any target that has been created in Enterprise Orchestrator.

The sections in this chapter provides instructions on managing target groups.

- [Definitions—Target Groups Overview, page 15-2](#)
- [Creating a Target Type Group, page 15-5](#)
- [Creating a Virtual Target Group, page 15-8](#)
- [Managing Target Group Definitions, page 15-10](#)

Definitions—Target Groups Overview

Use Definitions—Target Groups to view the defined target groups. From this view, the user can create new target groups, modify the properties of a target group, and delete target groups.

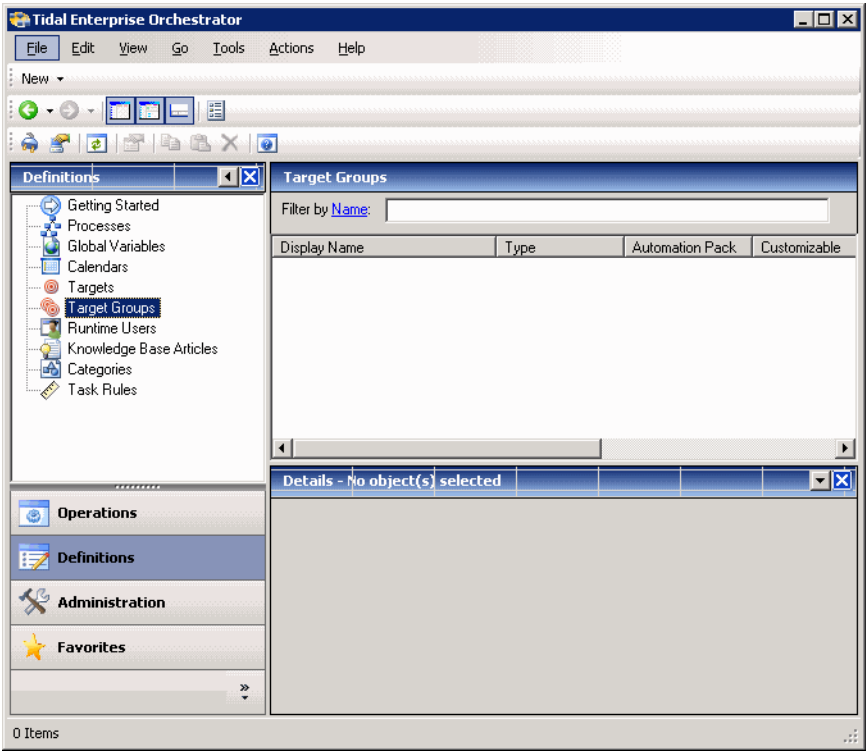
Accessing—Target Groups View

To access the Target Groups views:

On the Definitions workspace, select Target Groups.

The results pane displays.

Figure 15-1 Definitions—Target Groups



Information about the target group can be displayed in the following columns:

Field	Description
Display name	The name assigned to the target group
Enabled	Indicates whether the target is enabled (<i>True</i>) or disabled (<i>False</i>)
Type	The type of target group (Active Directory Group, Active Directory Organizational Unit, Target Type Group or Virtual group)
Owner	The user name of the person who created the target group
Last Modified Time	The time the target group was last modified

Field	Description
Last Modified By	The user name of the person who last modified the target group
Id	The unique identification number of the target group definition
Description	A brief description of the target group
Type Description	A brief overview of the target group type
Created Time	The time at which the target group was created
Created By	The user name of the person who created the target group
Version	Version number of the automation pack
Publish Date	Date the automation pack was exported
Automation Pack	Name of the automation pack associated with the target group

Target Groups Descriptions

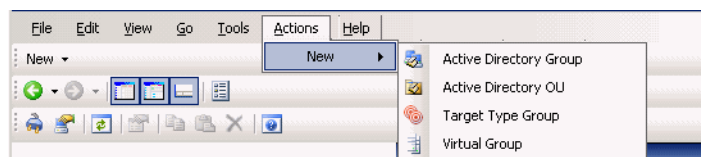
The following table provides a listing of the target groups that are associated with the product. For additional information on defining an Active Directory target group, refer to the *Active Directory Adapter Guide*.

Target Group	Description
Active Directory Group	Specifies the targets in a group within an Active Directory domain
Active Directory OU	Specifies targets that belong to an organizational unit or container within an Active Directory domain
Target Type Group	Contains TEO targets of a specified type that satisfy an optional criteria type of target to be included
Virtual Groups	Target group includes a collection of any defined target

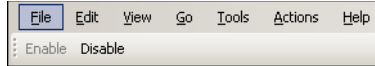
Actions Menu and Toolbar Options

The Target Group Actions menu and toolbar provide the option to create new target groups to associate with a process. The New option is also available by right-clicking **Target Group** on the Definitions workspace.

Figure 15-2 Definitions—Target Group View Actions Menu



If a target is selected from the Definitions—Target Group view, the following items are available on the Actions menu and toolbar provide the ability to enable and disable a target.

Figure 15-3 Definitions—Target Group Toolbar

Menu Option	Description
Enable	Click this item to enable a target group. A target must be enabled before a process can be executed against the target group.
Disable	Click this item to disable a target group. This target group will continue to display in the Target Group view, but it will not be available for execution.

Details Pane

The Target Group Details pane displays additional information about the selected item. The hyperlinks on each of the detail pages launch the property pages for the selected target group.

Tab	Description
General	Displays general information about the item including the name, type, value, a brief description of the target group, and the ability to enable or disable a target group.
Attributes	Displays the dates, times and owner associated with the creation and modification of the target group.

Viewing Target Group Properties

To view target group properties:

Step 1 On the Definitions workspace, highlight the appropriate target group definition, and use *one* of the following methods:

- Right-click and choose **Properties**.
- or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Properties dialog displays.



Note

The property pages may display as display-only if the target group definition is shipped with the product or the user does not have the appropriate rights.

Step 2 Click the appropriate tab to review the properties.

Tab	Description
General	Displays general information about the target group
Criteria	For Target Type Group only, the tab displays specific type of target and define the criteria based on the target properties
Members	Displays the target members included with the target group
Used by	Displays the objects that reference the target group
History	Displays when the target group was created or modified. The column also displays audit log entries that are relevant to the target group.

Step 3 Click **OK** to close the dialog.

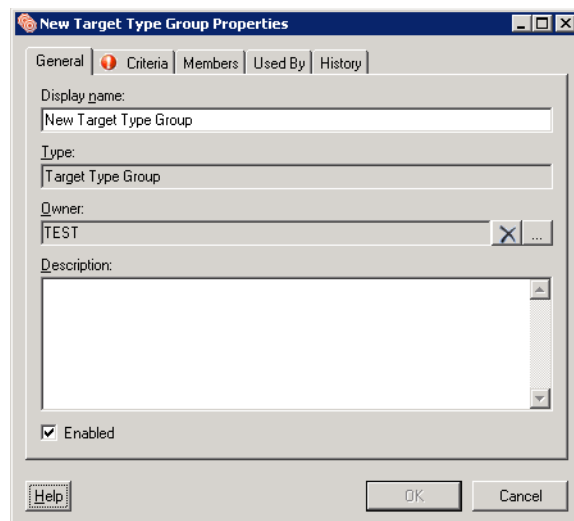
Creating a Target Type Group

A Target Type Group is configured to contain targets of a specified type that satisfy optional criteria. Use the following steps to run processes on multiple targets from a target type group.

To create a target group:

Step 1 In the Definitions—Target Groups view, right-click and choose **New > Target Type Group**. The New Target Type Group Properties dialog displays.

Figure 15-4 New Target Type Group Properties—General Tab



Step 2 On the General tab, enter the following information, as necessary:

Field	Description
Display name	Name of the target group that displays in the product
Owner	User name of the owner of the category. This is typically the person who created the category. Click Browse to launch the Select User or Group dialog to change the owner
Description	Brief description of the target
Enabled	The check box is checked by default, which indicates the target group is available for execution. Check the check box to disable the object. If the check box is empty, the object is disabled and will be unavailable for execution.

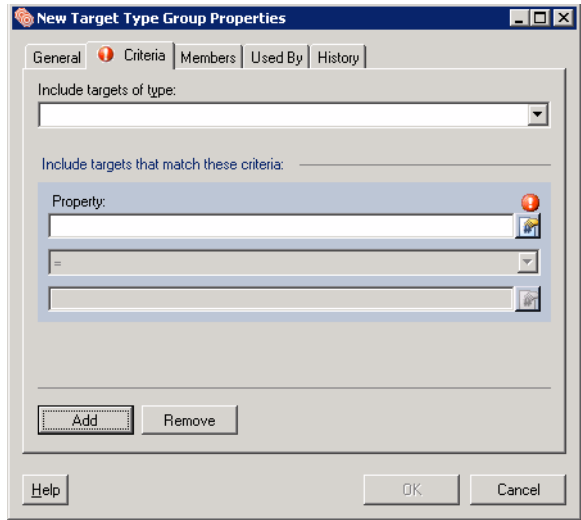
Step 3 Click the **Criteria** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 15-5 New Target Type Group Properties—Criteria Tab



Step 4 On the Criteria tab, from the Include targets of type drop-down list, select the appropriate target type to include in the group.

Step 5 To add criteria for the targets that match the criteria, click **Add**.
A new Property pane displays each time Add is clicked.

Step 6 On the Property pane, specify the following information, as necessary:

Field	Description
Text field	Choose the appropriate property to match within the target group. Click the Reference tool to select the variable from the Insert Variable Reference dialog box.
Operators	The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 10-3 .
Value	Enter the appropriate value for the target group.

Step 7 Click the **Members** tab to review the members included in the target type group. Information on the Members tab will not populate until the target type is matched on the Criteria tab.

Step 8 Click the **Used By** tab to display the objects that directly reference the target group. This tab will remain blank until the target group is referenced by an object.

Step 9 Click the **History** tab to view the history of actions taken against the target group.

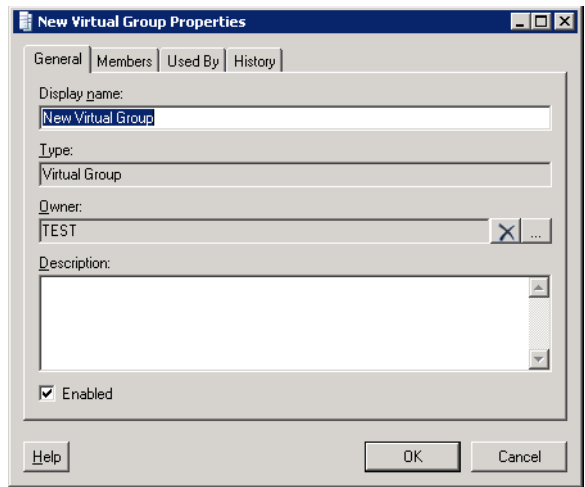
Step 10 Click **OK** to close the dialog box.

Creating a Virtual Target Group

A virtual target group contains a collection of any type of target or target group that has been defined. To create a Virtual target group:

- Step 1** In the Definitions —Target Groups view, right-click and choose **New > Virtual Group**. The New Virtual Group Properties dialog displays.

Figure 15-6 New Virtual Group Properties—General Tab

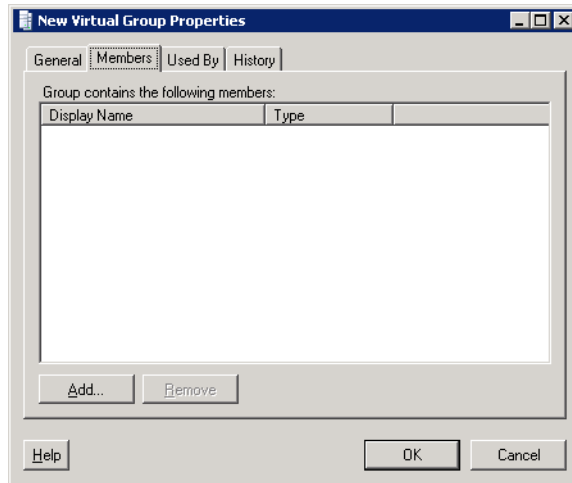


- Step 2** On the General tab, enter the following information, as necessary:

Field	Description
Display name	Name of the target group that displays in the product
Type	<i>Display only.</i> Type of target group
Owner	User name of the owner of the category. This is typically the person who created the category. Click Browse to launch the Select User or Group dialog to change the owner
Description	Brief description of the target
Enabled	The check box is selected by default, which indicates the target group is available for execution. Clear the check box to disable the object. If the check box is empty, the object is disabled and will be unavailable for execution.

Step 3 Click the **Members** tab to add, view, or remove the members from the target group.

Figure 15-7 *New Virtual Group Properties—Members Tab*



Step 4 Click **Add** to add members to the group.

Step 5 To remove target group members, highlight the appropriate member, and click **Remove**.
Review the list of items displayed on the Members tab.

Step 6 Click the **Used By** tab to display the objects which use the target group. This tab will remain blank until the target group is used by an object.

Step 7 Click the **History** tab to view the history of actions taken against the target group.

Step 8 Click **OK** to close the dialog.

Managing Target Group Definitions

Use the Definitions—Target Group view in the console to modify and review target group information. This view can be used to perform the following functions:

- Enable/Disable target groups
- Modify target group properties
- Delete a target group
- Review the objects in the product that use the target group
- Review a history of changes made to the target group

Enabling a Target Group

A target group is enabled by default. If a target group is manually disabled, the target must be enabled before it is available for execution.

To enable a target group:

On the Definitions—Target Groups view, highlight the target group, and then use *one* of the following methods:

- In the Results pane, right-click and click **Enable**.
- or-
- In the Details pane, click the **Click here to enable** option.

The Enabled column on the results pane changes to *True*. If necessary, click the **Refresh**  tool to update the view.

Disabling a Target Group

Disabling a target group prevents the item from being available for execution. The disabled target group is not removed from the list of target groups in the in the Definitions—Target Groups Results pane.

To disable a target group:

On the Definitions—Target Groups view, highlight the target group, and then use *one* of the following methods:

- On the Results pane, right-click and click **Disable**.
- or-
- On the Details pane, click the **Click here to disable** option.

The Enabled column on the results pane changes to *False*. If necessary, click the **Refresh**  tool to update the view.

Modifying Target Groups

Use the Definitions—Target Groups view to modify the configured target groups. After the initial creation, not all fields are available for updating.

To modify a target group:

-
- Step 1** On the Definitions—Target Groups view, highlight the appropriate target group, right-click and choose **Properties**.
- The [Target Group] Properties dialog displays.
- Step 2** Modify the information on the appropriate tabs, as necessary.
- Step 3** Click **OK** to save the changes and close the dialog.
-

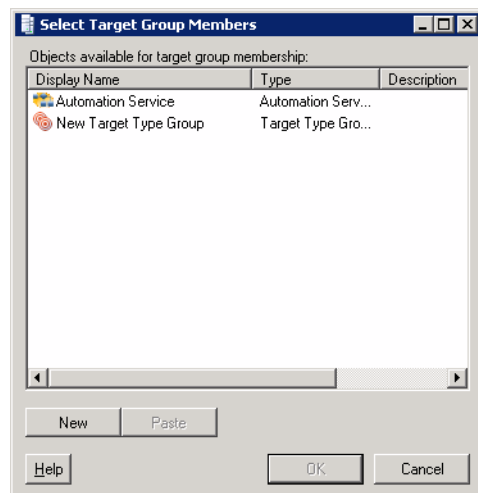
Adding a Target to a Virtual Target Group

The following steps are used when adding a target to a virtual target group.

To select a target group member:

-
- Step 1** On the Member tab, click **Add**.
- The Select Target Group Members dialog displays.

Figure 15-8 *Select Target Group Members Dialog*



- Step 2** Use *one* of the following methods when selecting objects:
- If the appropriate object is displayed in the list, select the objects, as necessary, and click **OK**.
-or-
 - If the appropriate object is not displayed, click **New**, and then choose *one* of the following, as necessary:
 - **Target > [Target Name]**
 - **Target Group > [Target Group Name]**
- Define the properties of the new object and click **OK**.

- Step 3** Select the targets or target groups to be included in the group, and click **OK**.

**Note**

To select multiple items, press and hold **CTRL** while selecting the items in the list.

The selected items display on the Members tab.

Creating a Copy of a Target Group

The copy option is used when there is an existing target group that contains properties that can be used for defining a new target group without creating a target group from scratch.

To create a copy a target group:

-
- Step 1** On the Definitions—Target Groups view, highlight the appropriate target group, right-click and choose **Copy**.
- Step 2** On the Results pane, right-click and choose **Paste**.
A copy of the defined target group is pasted into the Results pane.
- Step 3** To rename the copied target group or other properties, right-click and choose **Properties**.
- Step 4** Modify the target group name, as appropriate, and click **OK** to close the dialog.
-

Deleting a Target Group

Use the Definitions—Target Groups view to delete target groups that are no longer used. Before deleting a target group, it is recommended that you verify that it is no longer associated with any processes.

To delete a target group:

-
- Step 1** On the Definitions—Target Groups view, highlight the appropriate target group, right-click and choose **Delete**.
The Confirm Delete dialog displays.
- Step 2** Click **Yes** to delete the target group and complete the procedure.
-

Viewing Member Properties

Use the Members tab to view the targets included in the target group.

- Step 1** On the Definitions—Target Groups view, highlight the appropriate target group, right-click and choose **Properties**.

The [Target Group] Properties dialog displays.

- Step 2** Click the **Members** tab to view the objects included in the target group:

Column	Description
Display name	Displays the names of the members included in the target group
Type	<i>Display only.</i> Object type
Description	Brief description of the target group



Note To view the properties of a displayed object, right-click the object and choose **Properties**.

- Step 3** Click **OK** to close the dialog.

Viewing Used By Properties

Use the Used By tab to display the objects that directly reference the selected target group in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view used by objects:

- Step 1** On the Definitions—Target Groups view, highlight the appropriate target group, right-click and choose **Properties**.

The [Target Group] Properties dialog displays.

- Step 2** Click the **Used By** tab to view the objects which use the target group.

Object	Description
Display name	Name of the object
Type	<i>Display only.</i> Type of object

- Step 3** To view information about an object, highlight the object, right-click and choose **Properties**.
The display-only dialog displays the properties of the object.
- Step 4** Click **OK** to close the dialog.
-

Viewing Target Group History

Use the History tab to view a history of changes that have been made to the target.

- Step 1** On the Definitions—Target Groups view, highlight the appropriate target group, right-click and choose **Properties**.
The [Target Group] Properties dialog displays.
- Step 2** Click the **History** tab to view the changes made to the target.
The following information about the history of the target group is displayed:

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

- Step 3** To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.
- Step 4** Click **OK** to close the dialog.
-



CHAPTER 16

Managing Runtime Users

Many operating system and application activities require credentials for proper execution. The Runtime Users feature is used to create a runtime user record to store the information about the user security context and to pass this information to the adapters for activity execution, event monitoring and some target operations (such as availability monitoring and discovery). When defining a process or certain activities, you can use the runtime user records that are defined in the product to assign credentials for the process or activity.

The following sections in this chapter describe instructions on managing the runtime users:

- [Definitions—Runtime Users Overview, page 16-2](#)
- [Defining Runtime Users, page 16-5](#)
- [Managing Runtime User Definitions, page 16-8](#)

Definitions—Runtime Users Overview

Use the Definitions—Runtime Users view to display the credentials of the runtime users and to specify new runtime user credentials, update the credentials of users, or delete users.

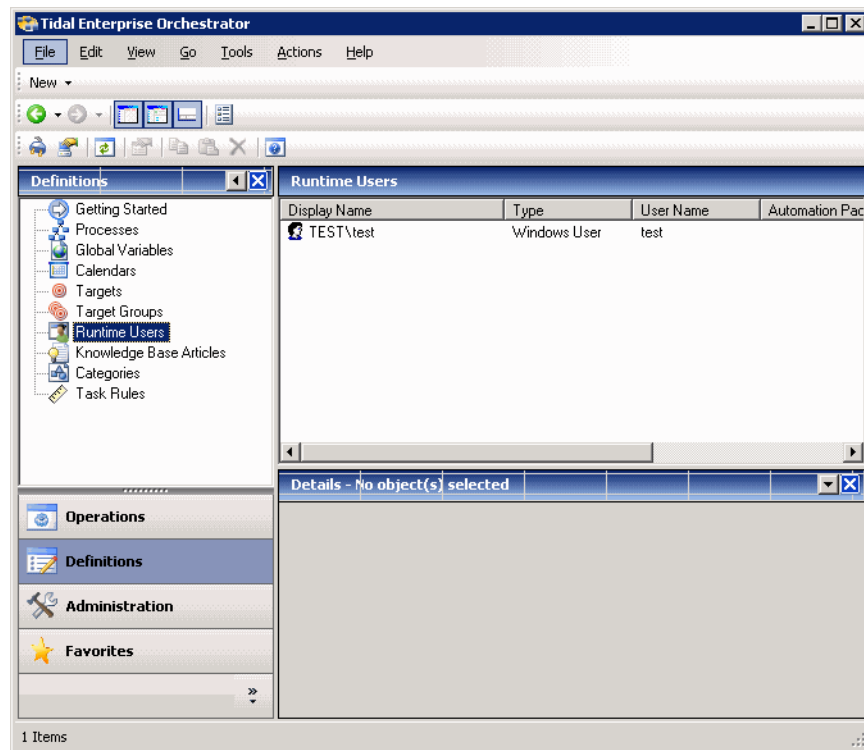
Accessing Definitions—Runtime users

To access the Runtime Users properties:

In the Definitions workspace, choose **Runtime Users**.

The Results pane displays.

Figure 16-1 Definitions—Runtime Users



Information about the runtime user accounts can be displayed in the following columns:

Column	Description
Display Name	The display name assigned to the runtime user account
Type	The type of user account
User Name	The user name assigned to the account
Owner	The user name of the person who created the account
Last Modified Time	The time the credentials were last modified
Last Modified By	The user name of the person who last modified the credentials

Column	Description
Id	The unique identification number of the runtime user definition
Description	A brief overview of the runtime user definition
Type Description	A brief description of the information in the Type column
Created Time	time the runtime user account was created
Created By	The user name of the person who created the runtime user definition
Automation Pack	Name of the automation pack from which the runtime user record was imported

Runtime User Accounts

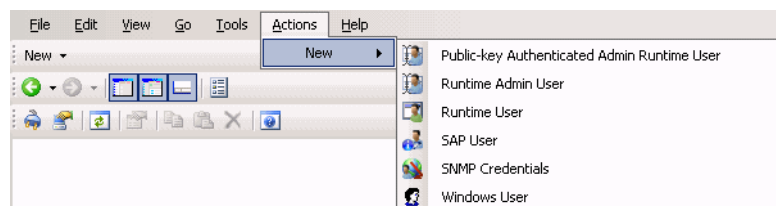
The following table provides a listing of the runtime users that are available in the product. For additional information on defining a runtime user not included in this chapter, please refer to the associated adapter guide.

Runtime User	Description
Public-key Authenticated Admin Runtime User	Specify the credentials required to allow public key authentication and an administrative password to perform privileged operations. <i>See Cisco TEO Adapter Guide for Terminal Adapter Guide.</i>
Runtime Admin User	Specify the user administrative credentials required to access a Cisco IOS Device. <i>See Cisco TEO Adapter Guide for Terminal Adapter Guide.</i>
Runtime User	Specify the credentials for a generic runtime user record consisting of a user name and password pair. See Creating a Runtime User, page 16-6.
SAP User	Specify the credentials for a SAP user. <i>See Cisco TEO Getting Started Guide for Incident Analysis for SAP.</i>
SNMP User	Specify the credentials for a SNMP runtime user. <i>See Cisco TEO Adapter Guide for SNMP.</i>
Tidal Server Provisioner User	Specifies the user credentials for the user account that connects to the Tidal Server Provisioner target <i>See Cisco TEO Adapter Guide for Tidal Server Provisioner.</i>
Windows User	Specify the credentials for a Windows user. <i>See Cisco TEO Adapter Guide for Microsoft Windows.</i>

Actions Menu and Toolbar

The Runtime Actions menu and toolbar provide the option to create new runtime users to hold the security credentials that are assigned to processes and activities. The New item is also available by right-clicking **Runtime Users** on the definitions pane.

Figure 16-2 Runtime Actions Menu



Runtime User Details Pane

The Details pane in the lower portion of the page displays detailed information about the selected runtime user. Clicking a link on a tab page opens the Properties dialog box for the runtime user.

Tab	Description
General	Displays general information about the item including the name, type, value, a brief description of the runtime user
Attributes	Displays the dates, times and owner associated with the creation and modification of the runtime user

Defining Runtime Users

Runtime user records hold the security credentials that are assigned to processes and activities. This section provides instructions on creating a record for runtime users for different adapters.

Use the following steps to define a runtime user. The property pages displayed depend on the type of runtime user selected.

-
- Step 1** On the Definitions—Runtime User view, right-click and choose **New > [Runtime User]** for the appropriate runtime user account.



Note Each runtime user has an associated property page. See the appropriate sections for information on defining the individual properties.

The [Runtime User] Properties dialog box displays.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

- Step 2** On the General tab, enter the appropriate runtime user-specific information.
- Step 3** The Used By tab displays objects which reference the runtime user. This tab will remain blank until the runtime user is used by an object.
- Step 4** The History tab displays the history of actions taken against the runtime user. This tab remains blank until after the initial creation.
- Step 5** Click **OK** to close the dialog box.
-

Creating a Runtime User

The credentials specified for the runtime user are used to store the information about the simple user security context consisting of a user name and password pair and to pass this information to the adapters. This runtime user can be used for database targets when needing database authentication.

To create a Runtime User:

- Step 1** On the Definitions—Runtime Users view, right-click and choose **New > Runtime User**.
The New Runtime User Properties dialog box displays.

Figure 16-3 New Runtime User Properties Dialog Box—General Tab



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

- Step 2** On the General tab, specify the following information:

Field	Description
Display Name	This field is populated with the information specified in the Domain and User name text fields.
Type	<i>Display-only.</i> Object type
User name	The user name assigned to the user account

Field	Description
Password	The password assigned to the user account Note For existing runtime user records, check the check box to enter the new password assigned to the user account. If the password entered is incorrect, then a confirmation dialog box displays stating: "Logon failure: unknown user name or bad password." Note There is no password verification that is done for the simple (generic) runtime user. Therefore, the above message will NEVER be displayed for the runtime user object.
Description	A description of the runtime user account

Step 3 Click the **Used By** tab to display the objects which reference the runtime user. This tab will remain blank until the runtime user is used by an object.

Object	Description
Display name	Name of the object
Type	Type of object

Step 4 To view information about an object, highlight the object, right-click and choose **Properties**. The dialog box displays the properties of the object.

Step 5 Click the **History** tab to display the history of actions taken against the target. This tab remains blank until after the initial target creation.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

Step 6 Click **OK** to exit the dialog box.

Managing Runtime User Definitions

Use the following procedures to view and modify runtime user definitions.

Modifying a Runtime User Record

Use the Definitions—Runtime Users view to display the runtime user properties and modify the runtime user records.

To modify a runtime user credentials:

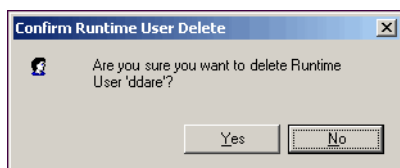
-
- Step 1** On the Definitions—Runtime Users view, highlight the appropriate runtime user record, right-click and choose **Properties**.
- The [Runtime User] Properties dialog box displays.
- Step 2** On the General tab, modify the appropriate information, as necessary.
- Step 3** Confirm the changes, and then click **OK** to close the dialog box.
-

Deleting a Runtime User

Use the Definitions—Runtime Users view to delete a runtime user record.

-
- Step 1** On the Definitions—Runtime Users view, highlight the appropriate runtime user, right-click and choose **Delete**.
- The Confirm Delete dialog box displays.

Figure 16-4 *Confirm Delete Dialog Box*



- Step 2** Click **Yes** to confirm the deletion.
-

Viewing Used By Properties

Use the Used By tab to display the objects that directly reference the selected runtime user in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view used by objects:

- Step 1** On the Definitions—Runtime Users view, highlight the appropriate runtime user, right-click and choose **Properties**.

The [Runtime User] Properties dialog box displays.

- Step 2** Click the **Used By** tab to view the objects which reference the runtime user.

Object	Description
Display Name	Name of the object
Type	Type of object

- Step 3** To view information about an object, highlight the object, right-click and choose **Properties**.

The display-only dialog box displays the properties of the object.

- Step 4** Click **OK** to close the dialog box.

Viewing Runtime User History

Use the History tab to view a history of changes that have been made to the runtime user.

- Step 1** On the Definitions—Runtime Users view, highlight the appropriate runtime user, right-click and choose **Properties**.

The [Runtime User] Properties dialog box displays.

- Step 2** Click the **History** tab to view the changes made to the runtime user.

The following information about the history of the runtime is displayed:

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
User	The user name of the person that performed the action

Column	Description
Type	The action that occurred
Description	Information about the action that was performed

Step 3 To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.

Step 4 Click **OK** to close the dialog box.



CHAPTER 17

Managing Knowledge Base Articles

The knowledge base articles provide information to help understand the results of an activity, including a summary of what has occurred, the possible cause of the result, and suggested actions to take to resolve issues with an activity.

Knowledge base articles are referenced by specific activities and can be viewed in the following locations in TEO:

- **Operations Workspace**—When viewing activity instance properties, users can view the display-only properties of the associated knowledge base articles by selecting the Knowledge Base tab.
- **Process Editor**—Users can reference a knowledge base article to an activity when defining the activity properties in the Process Editor.
- **Automation Summary**—All referenced knowledge base articles will display on the automation summary.

The following sections provide instructions on managing knowledge base articles in TEO:

- [Definitions—Knowledge Base Articles Overview, page 17-2](#)
- [Creating a Knowledge Base Article, page 17-5](#)
- [Managing Knowledge Base Articles, page 17-7](#)

Definitions—Knowledge Base Articles Overview

This Definitions—Knowledge Base view displays the available knowledge base articles that can be assigned to a process activity. When Knowledge Base Articles is selected in the Navigation pane, the defined knowledge base articles display in the Results pane.

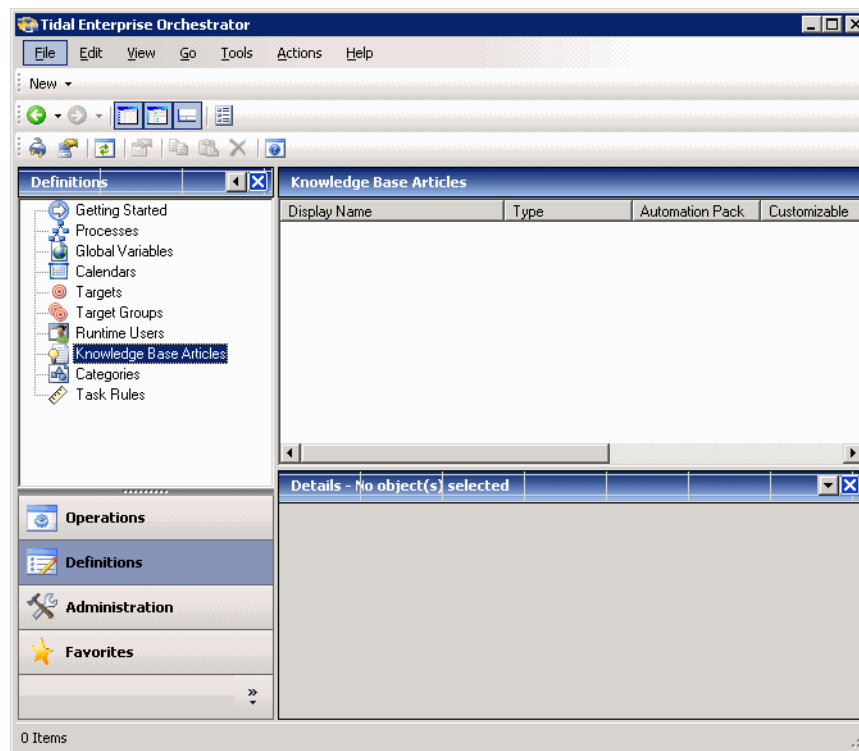
Accessing Definitions—Knowledge Base Articles

To access the Knowledge Base Articles view:

On the Definitions workspace, choose **Knowledge Base Articles**.

The Results pane displays.

Figure 17-1 Definitions—Knowledge Base Articles



Information about the defined knowledge base articles can be displayed in the following columns:

Column	Description
Display Name	The name of the knowledge base article
Type	The object type (Knowledge Base Article)
Owner	The user name of the owner of the knowledge base article. This is typically the person who created the knowledge base article.
Last Modified Time	The time at which the knowledge base article was last modified

Column	Description
Last Modified By	The user name of the person who last modified the knowledge base article
Id	Unique ID of the knowledge base article
Description	A brief description of the knowledge base article
Type Description	A brief overview of the object type
Created Time	The time at which the knowledge base article was created
Created By	The user name of the person who created the knowledge base article
Automation Pack	Name of the automation pack that contains the knowledge base article

Knowledge Base Details Pane

The Knowledge Base Articles Details pane displays additional information about the selected knowledge base article. The hyperlinks on each of the detail pages launch the property pages for the selected knowledge base article.

Tab	Description
General	Displays general information about the item including the name, type, value, a brief description of the knowledge base article
Knowledge Base	Displays summary information about the selected knowledge base article, including the possible cause and resolution of the issue type, value, a brief description of the knowledge base article
Attributes	Displays the dates, times and owner associated with the creation and modification of the knowledge base article

Viewing Knowledge Base Article Properties

Use the Definitions—Knowledge Base Articles view to access the properties of the knowledge base article.

Step 1 On the Definitions—Knowledge Base Article view, highlight the appropriate knowledge base article, and use *one* of the following methods:

- Right-click and choose **Properties**.
- or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Properties dialog box displays.



Note

The property pages may display as display-only if the knowledge base article is shipped as part of the project or the user does not have the appropriate rights.

Step 2 Review the properties and click **OK** to close the dialog box.

Creating a Knowledge Base Article

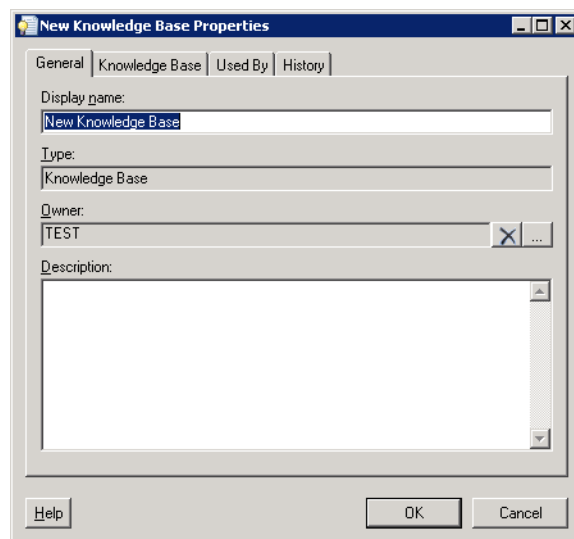
Knowledge base articles provide information to help understand the results of an activity, including a summary of what has occurred, the possible cause of the result, and suggested actions to take to resolve issues with an activity.

TEO ships with pre-defined knowledge base articles or you can create your own knowledge base articles to associate with activities in the process.

To create a knowledge base article

- Step 1** On the Definitions—Knowledge Base view, right-click and choose **New > Knowledge Base**. The New Knowledge Base Properties dialog box displays.

Figure 17-2 New Knowledge Base Properties—General Tab



- Step 2** On the General tab, enter the following information, as necessary:

Field	Description
Display name	Name of the knowledge base article
Type	<i>Display-only.</i> Type of object
Owner	The owner of the knowledge base article. This is typically the creator of the knowledge base article. Click Browse to launch the Select User or Group dialog box and change the owner.
Description	Brief description of the knowledge base article

Step 3 Click the **Knowledge Base** tab to continue.

Figure 17-3 *New Knowledge Base Properties—Knowledge Base Tab*

The screenshot shows a Windows-style dialog box titled "New Knowledge Base Properties". It has four tabs: "General", "Knowledge Base", "Used By", and "History". The "Knowledge Base" tab is selected. Inside the dialog, there are four text input fields, each with a label and a vertical scrollbar on the right: "Summary:", "Possible cause:", "Possible resolution:", and "Related information:". At the bottom of the dialog, there are three buttons: "Help", "OK", and "Cancel".

Step 4 On the Knowledge Base tab, enter the following knowledge base content. Enter as much information as possible to expedite the resolution.

Field	Description
Summary	A concise description of the issue
Possible cause	An explanation of the condition that may be causing the issue. You may enter multiple possible causes so that all possibilities are investigated
Possible resolution	List of actions that can be performed to attempt to resolve the issue manually
Related information	Additional information that may be relevant to the issue

Step 5 Click the **Used By** tab to display the objects which reference the knowledge base article. This tab will remain blank until the knowledge base article is used by an object.

Step 6 Click the **History** tab to display the history of actions taken against the knowledge base article. This tab remains blank until after the initial target creation.

Step 7 Click **OK** to close the dialog box.

Managing Knowledge Base Articles

This section provides steps on how to modify the knowledge base article.

Modifying a Knowledge Base Article

Users can modify the properties of a knowledge base article from the Definitions—Knowledge Base Articles view as well as in the Process Editor. When you modify a knowledge base article, the changes made will be updated in all activities that use the knowledge base article.

To modify a knowledge base article

-
- Step 1** On the Definitions—Knowledge Base view, highlight the appropriate knowledge base article, right-click and choose **Properties**.

The Knowledge Base Properties dialog box displays.



Note

Certain features of the property pages may display as display-only if the knowledge base article is shipped as part of the product or the user does not have the appropriate rights.

-
- Step 2** Modify the information on the knowledge base property tabs, as necessary.
- Step 3** Click **OK** to close the dialog box and complete the procedure.
-

Creating a Copy of a Knowledge Base Article

The copy option is used when there is an existing knowledge base article that contains properties that can be used for defining a new knowledge base article without creating a completely new entry.

To create a copy of a knowledge base article:

-
- Step 1** On the Definitions—Knowledge Base Articles view, highlight the appropriate knowledge base article, right-click and choose **Copy**.
- Step 2** On the Definitions—Knowledge Base Articles view, right-click and choose **Paste**.
A copy of the defined knowledge base article is pasted into the Results pane.
- Step 3** Modify the knowledge base article properties, as appropriate, and click **OK** to close the dialog box.
-

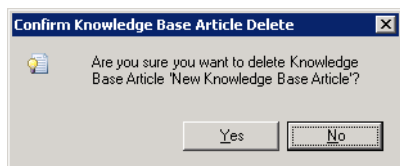
Deleting a Knowledge Base Article

Use the Definitions—Knowledge Base Articles view to delete knowledge base articles that are no longer used.

- Step 1** On the Definitions—Knowledge Base Articles, highlight the appropriate knowledge base article, right-click and choose **Delete**.

The Confirm Knowledge Base Article Delete dialog box displays.

Figure 17-4 Confirm Delete Dialog Box



- Step 2** Click **Yes** to delete the knowledge base article.

Viewing Used By Properties

Use the Used By tab to display the objects that directly reference the selected knowledge base article in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view used by objects:

- Step 1** On the Definitions—Knowledge Base Articles view, highlight the appropriate knowledge base article, right-click and choose **Properties**.

The [Knowledge Base Article] Properties dialog box displays.

- Step 2** Click the **Used By** tab to view the objects referenced by the knowledge base article.

Object	Description
Display name	Name of the object
Type	Type of object

- Step 3** To view information about an object, highlight the object, right-click and choose **Properties**.
The dialog box displays the properties of the object.
- Step 4** Click **OK** to close the dialog box.
-

Viewing Knowledge Base Article History

Use the History tab to view a history of changes that have been made to the knowledge base article.
To view knowledge base article history:

- Step 1** On the Definitions—Knowledge Base Articles view, highlight the appropriate knowledge base article, right-click and choose **Properties**.
The [Knowledge Base Articles] Properties dialog box displays.
- Step 2** Click the **History** tab to view the changes made to the knowledge base articles.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
User	The user name of the person that performed the action
Type	The action that occurred
Description	Information about the action that was performed

- Step 3** To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.
- Step 4** Click **OK** to close the dialog box.
-



CHAPTER 18

Managing Categories

The Categories feature provides a way to organize your processes based on your organizational or functional requirements. Tidal Enterprise Orchestrator ships with pre-defined categories but provides the functionality for you to create your own business specific categories. When creating a process, you can assign the process to a category. You can also add other categories to a category to create a hierarchy.

The following sections provide instructions on managing categories in TEO:

- [Definitions—Categories Overview, page 18-2](#)
- [Creating Categories, page 18-4](#)
- [Managing Category Definitions, page 18-6](#)

Definitions—Categories Overview

Use the Definitions—Categories view to display the defined categories. This section is used to provide instructions on how to access category information.

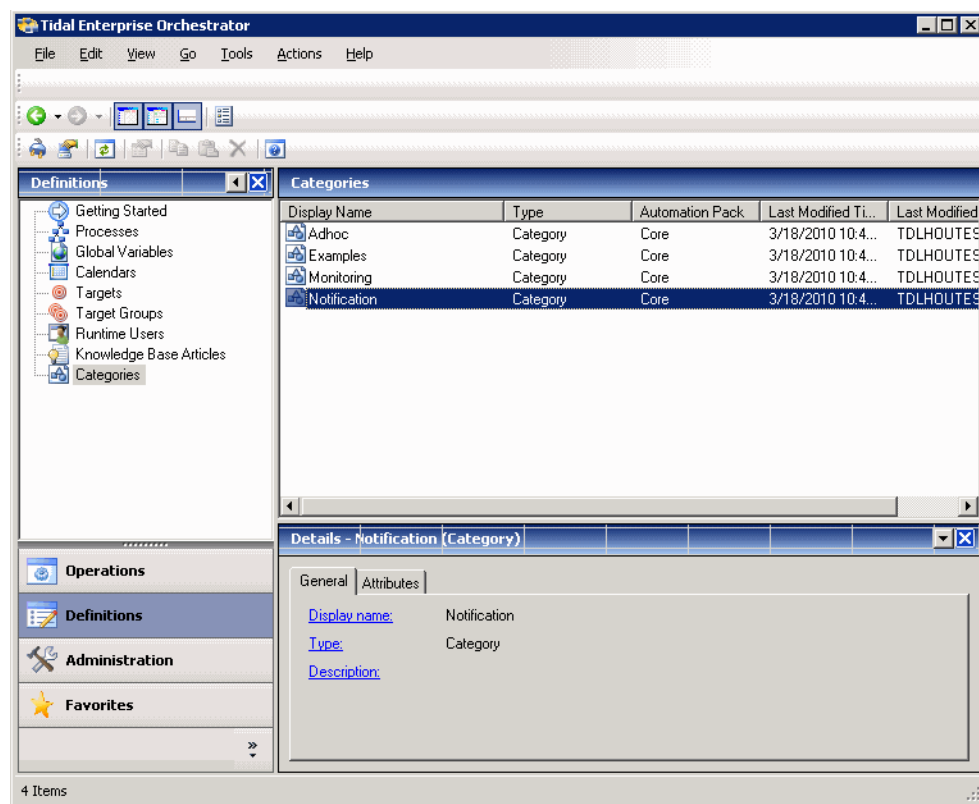
Accessing Definitions—Categories

To access the categories views:

On the Definitions pane, choose **Categories**.

The Results pane displays.

Figure 18-1 Definitions—Categories View



Information about each category can be displayed in the following columns:

Column	Description
Display Name	The name assigned to the category
Type	The type of category
Owner	The user name of the person who created the category
Last Modified Time	The time the category was last modified
Last Modified By	The user name of the person who last modified the category
Id	The unique identification number of the category definition

Column	Description
Description	A brief overview of what the category contains
Type Description	A brief description of the type associated with the category
Created Time	The time the category was created
Created By	The user name of the person who created the category
Automation Pack	Name of the automation pack

Categories Actions Menu and Toolbar

The Categories Actions menu and toolbar provide the option to create new categories to which processes are assigned. The New option is also available by right-clicking Categories on the Definitions workspace.

Categories Details Pane

The Categories Details pane displays additional information about the selected category. The hyperlinks on each of the detail pages launch the property page for the selected category.

Tab	Description
General	Displays general information about the item including the name, type, value, a brief description of the selected category
Attributes	Displays the dates, times and process owner associated with the creation and modification of the category

Creating Categories

Categories can be used to organize your processes based on your business-specific requirements. Use the Definitions—Categories view to create a new category and add members to the category. Users can also add members to a category when defining a process.

For additional information on defining a process, see [Authoring Processes, page 7-1](#).

To create a category:

- Step 1** In the Definitions—Categories view, right-click and choose **New > Category**.
The New Category Properties dialog box displays.

Figure 18-2 *New Category Properties—General Tab*

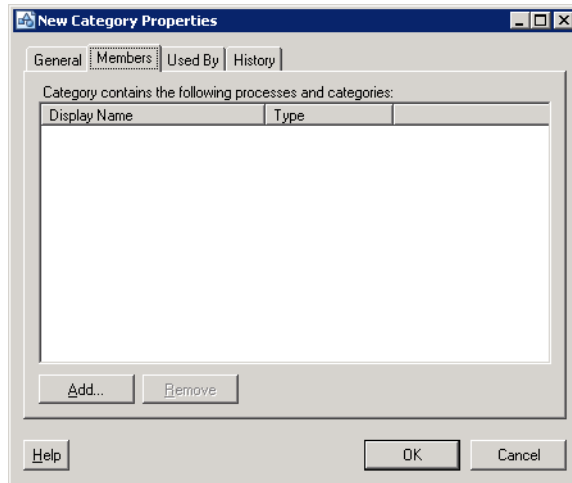
The screenshot shows a Windows-style dialog box titled "New Category Properties". It has four tabs: "General", "Members", "Used By", and "History". The "General" tab is selected. Inside the dialog, there are four labeled fields: "Display name:" with the text "New Category", "Type:" with the text "Category", "Owner:" with the text "TEST" and a browse button (X...), and "Description:" with a large empty text area. At the bottom of the dialog are three buttons: "Help", "OK", and "Cancel".

- Step 2** On the General tab, enter the following information, as necessary:

Field	Description
Display name	Name of the category
Type	<i>Display-only.</i> Type of object
Owner	The owner of the object. This is typically the creator of the object. Click Browse to launch the Select User or Group dialog box and change the owner.
Description	Brief description of the category

Step 3 Click the **Members** tab to continue.

Figure 18-3 *New Category Properties Dialog—Members Tab*



Step 4 On the Members tab, review the existing category members.

Field	Description
Display Name	The name of the object that is the member of the category
Type	<i>Display-only.</i> Type of object (Process or Category)
Description	Brief description of the object

Step 5 To add members or processes to the category, click **Add**. See [Adding Objects to a Category, page 18-6](#).

Step 6 To remove a member from the category, click **Remove**. See [Removing Members from the Category, page 18-7](#).

Step 7 Click the **Used By** tab to display the objects which reference the category. This tab will remain blank until the category is used by an object.

Step 8 Click the **History** tab to view the history of actions taken against the category.

Step 9 Click **OK** to close the dialog box.

Viewing Process Properties from Members Tab

The properties for the process added to the Members tab can be viewed in a separate dialog box depending on the process type. If the user does not have the proper rights, then a display-only viewer is displayed. If viewing a user-defined process, and the user has the appropriate permissions, then the properties display in the Process Editor.

To view process properties:

Click the **Members** tab, highlight the appropriate process, right-click and choose **Properties**.

- If the user does not have the proper rights, the process viewer displays.
- If the user has proper rights, the Process Editor displays.

Managing Category Definitions

Users can view the category properties and modify a category using the Category Properties dialog box. Use the Definitions—Categories view in the console to manage the categories, including:

- Modifying categories
- Viewing history of when the category has been modified
- Deleting categories

Modifying Category Properties

To modify category:

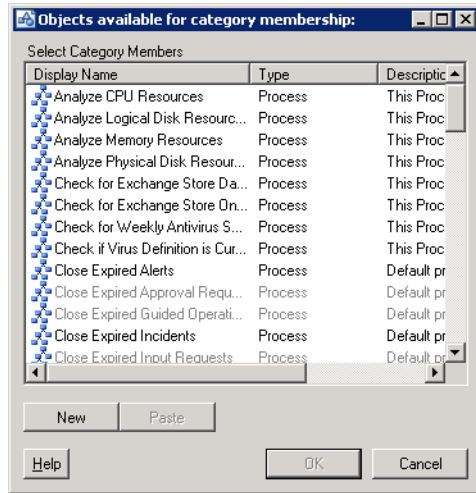
-
Step 1	On the Definitions—Categories view, highlight the appropriate category, right-click and choose Properties . The Category Properties dialog box displays.
Step 2	On the General tab, modify the name of the category and description, as necessary.
Step 3	On the Members tab, modify the list of categories and processes, as necessary.
Step 4	Click OK to complete.
-

Adding Objects to a Category

Use the Objects Available for Category Membership dialog box to choose the objects to be included as members of a category. Both processes and categories can be included as members of a category.

To add a member to the category:

-
Step 1	On the Members tab, click Add . The Objects available for category membership dialog box displays the objects available for the category.

Figure 18-4 Objects Available for Category Membership Dialog Box

Step 2 Use *one* of the following methods when selecting objects:

- If the appropriate objects are listed under Select Category Members, choose the appropriate categories or processes to be included in the category, and click **OK**.



Note To choose multiple items, press and hold **CTRL** while selecting the items in the list.

- If the appropriate objects are not listed, click *one* of the following to create a new object, and click **OK**:
 - **New > Categories**—Define the properties of a new category
 - **New > Processes**—Define the properties of a new process.

The new object displays in the Select Category Members list. Highlight the new object and any other objects, as necessary.

The selected items display on the Members tab.

Step 3 Click **OK** to close the dialog box and complete the procedure.

Removing Members from the Category

Use the following steps to remove an object from a category. Removing the object does not delete the object from the system.

Step 1 Click the **Members** tab, choose the object to be removed from the category and click **Remove**.

The object is removed from the Members tab.

Step 2 Click **OK** to close the dialog box.

Creating a Copy of a Category Definition

The copy option is used when there is an existing category that contains properties that can be used for defining a new category without creating a completely new category.

To create a copy a category definition:

-
Step 1	On the Definitions—Categories view, highlight the appropriate category, right-click and choose Copy .
Step 2	On the Definitions—Categories view, right-click and choose Paste . A copy of the defined category is pasted into the Results pane.
Step 3	To modify the copied category, right-click and choose Properties .
Step 4	Modify the properties, as appropriate, and click OK to close the dialog box.
-

Deleting Categories

Use the Definitions—Categories view to delete categories that are no longer used. Before deleting a category, access the properties, and click the Used By tab to view where objects are being referenced by the category. The category deletion process fails if the category is referenced by other objects.

**Note**

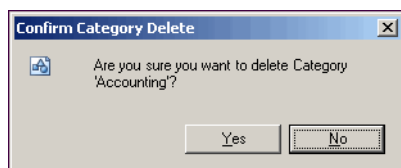
If the category definition is shipped as a part of product or the user does not have the appropriate rights, the Delete option will be disabled.

To delete a category:

-
Step 1	On the Definitions—Categories view, highlight the appropriate category, and use <i>one</i> of the following methods: • On the toolbar, click the Delete  tool. -or- • Right-click and choose Delete.

The Confirm Category Delete dialog box displays.

Figure 18-5 *Confirm Category Delete Dialog Box*



Step 2	Click Yes to delete the category.
-

Viewing Used By Properties

Use the Used By tab to display the objects that use the selected category in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view the objects that use a category:

-
- Step 1** On the Definitions—Categories view, highlight the appropriate category, right-click and choose **Properties**.

The [Categories] Properties dialog box displays.

- Step 2** Click the **Used By** tab to view the objects used by the category.

Object	Description
Display Name	Name of the object
Type	Type of object

- Step 3** To view information about an object, highlight the object, right-click and choose **Properties**.

The display-only dialog displays the properties of the object.

- Step 4** To view the properties for a specific object, highlight the object, right-click and choose **Properties**.

- Step 5** Click **OK** to close the dialog.
-

Viewing Category History

Use the History tab to view a history of changes that have been made to the category. This tab displays information about when the category was created or modified, and the audit log entries that are relevant to the category.

-
- Step 1** On the Definitions—Categories view, highlight the appropriate category, right-click and choose **Properties**.

The [Category] Properties dialog displays.

- Step 2** Click the **History** tab to view the changes made to the category.

The following information about the history of the category is displayed:

Field	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

- Step 3** To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.
- Step 4** Click **OK** to close the dialog.
-



CHAPTER 19

Managing Task Rules

Task rules are used to manage task assignment and notifications for various customer-specific tasks. By enforcing a task rule, one change can affect tasks created by multiple processes. By default, the ability to create task rules is not applicable to everyone as only users with administrative rights can create task rules from this view in TEO. The permission to create or modify a task rule on the Definitions—Task Rules view is not available to all users. However, the security settings can change, if necessary, by the TEO administrator.

The Definitions—Task Rules view displays all task rules have been configured to assign, notify, or update tasks based on specific settings. The display can be filtered to display task rules by properties such as, name, description, and automation pack. The user can determine which task rule view to display.

Refer to the following sections for information on managing task rules in the Definitions workspace:

- [Task Rules Overview, page 19-2](#)
- [Creating an Assign Task Rule, page 19-5](#)
- [Creating a Notify Task Rule, page 19-10](#)
- [Creating an Update Task Rule, page 19-13](#)
- [Managing Task Rule Definitions, page 19-16](#)

Task Rules Overview

The broad responsibilities of task rules are to streamline process creation and ease task administration by providing a mechanism to perform routine activities on tasks, such as notification and assignments, on newly-created tasks. Task rules are created and displayed in an ordered list on the Definitions—Task Rules view. On this list, users can view default assignments, notifications, and properties to be updated according to the following defined rule types:

Task Rules	Description
Assign Task Rule	Assigns users to the task See Creating an Assign Task Rule, page 19-5 .
Notify Task Rule	Adds an entry to the notification list of a task See Creating a Notify Task Rule, page 19-10 .
Update Task Rule	Specifies the properties to update in a task See Creating an Update Task Rule, page 19-13 .

Whenever a task is created, TEO goes through the settings and conditions of each task rule listed and enabled. If the conditions and settings in the rule are satisfied, then the task rule is executed. Task rules are executed according to the order in which they are displayed in the list.

Rule Triggers

Task rules can not be manually run by the user. Task rules can only execute after the Task Created trigger logic is triggered and any conditions and settings in the rule are met. If the task created trigger, for any task type, and rule conditions are met, then the action of the task rule is executed in the order in which it is listed in the Definitions—Task Rules view.

Any processes that are triggered based on the Task Created trigger will only execute after the appropriate task rules have executed.

Notifications

The notification concept of the task rule is that beyond notifications of when a user is assigned, often the same or separate people need to be notified in response to a task. The task rule notification would identify which person or group to notify and a process would email the notice.

Each task contains a list of notification recipients in addition to task assignees. The notification task rule adds to this list of notification recipients. A process can react to a task create event or task change event and then appropriately notify the notification recipients by email or any other mechanism.

Automation Pack Rule Management

Task rules can be included in automation packs in order to easily transfer default task rules from one system to another, such as transferring task rules from a development system into a production system.

Task rules also allow users to manage tasks within the default TEO automation packs without modifying the properties within the automation packs. Users can setup task rules to assign tasks, notify users or groups, or update properties within a task, without changing the process in which the task resides.

Some Cisco automation packs include default tasks and task activities within processes to manage alerts and notifications. Users can create task rules to manage these objects without editing the process or task.

Accessing Definitions—Task Rules

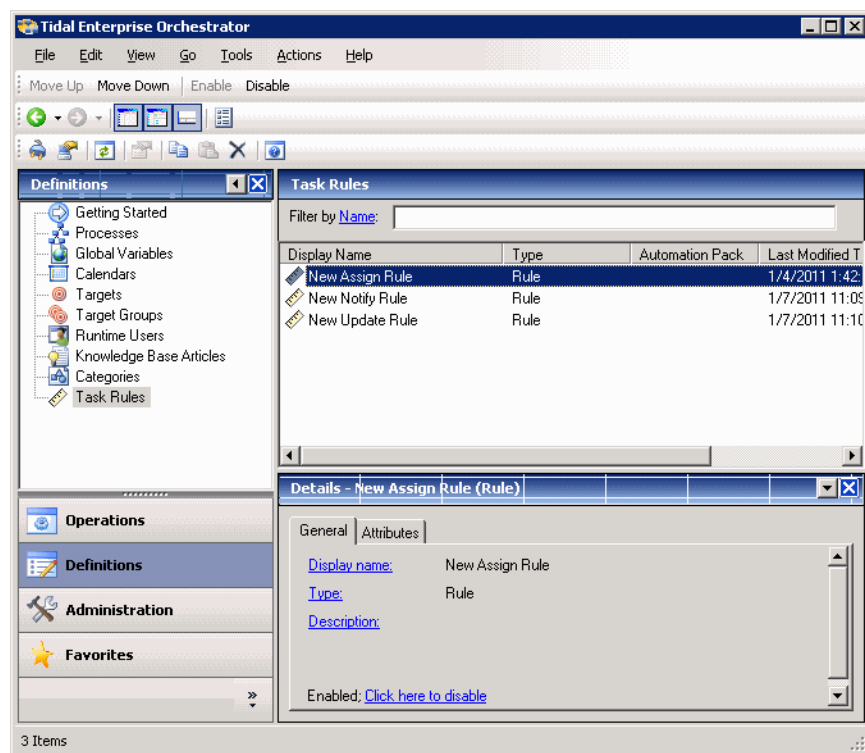
The Definitions Task Rules view displays the defined task rules used for task assignments and notifications.

To access the Task Rules view:

In the Definitions workspace, choose **Task Rules > [Selected Task Rules View]**.

The Results pane displays.

Figure 19-1 Definitions Workspace—Task Rules



The selected view displays in the Results pane. The displayed columns depend on the selected task rule. Information about the task rules display in the following columns:

Column	Description
Display Name	The name assigned to the task rule
Enabled	Indicates whether the task rule is enabled (<i>True</i>) or disabled (<i>False</i>). A disabled task rule is unavailable for execution.
Type	Type of task rule based on the associated adapter
Owner	User name of the person or group who assigned the task rule

Column	Description
Last Modified Time	The date and time the contents were last modified
Last Modified By	The object or user name that last modified the contents
Id	Unique ID of the task rule
Description	Brief description of the task rule
Type Description	Brief overview of the task rule type
Created Time	Time at which the task rule was created
Created Date	User name of the person who created the task rule
Automation Pack	Name of the automation pack associated with the task rule

**Note**

To add, remove, or sort column headings on the display, see [Configuring Columns, page 1-29](#).

Viewing Task Rule Properties

To view task rule properties:

Step 1 On the Definitions—Task Rule Views, highlight the appropriate task rule, and use *one* of the following methods:

- Right-click and choose **Properties**.
- or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Properties dialog box displays.

**Note**

The property pages may display as display-only if the task rule definition is shipped as part of the product or the user does not have the appropriate rights.

Step 2 Review the properties and click **OK** to close the dialog box.

Creating an Assign Task Rule

Use the Assign Task Rule to specify the users to be assigned to the task after the task rule has executed.

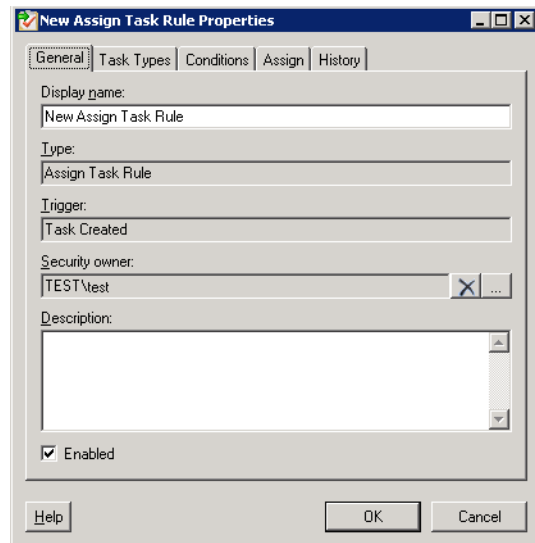
To create an assign task rule:

Step 1 On the Definitions—Task Rules view, use *one* of the following methods:

- On the toolbar, choose **New > [Assign Task Rule]**.
- or-
- From the Actions menu, choose **New > [Assign Task Rule]**.

The New Assign Task Rule Properties dialog box displays.

Figure 19-2 New Assign Task Rule Properties Dialog Box—General Tab



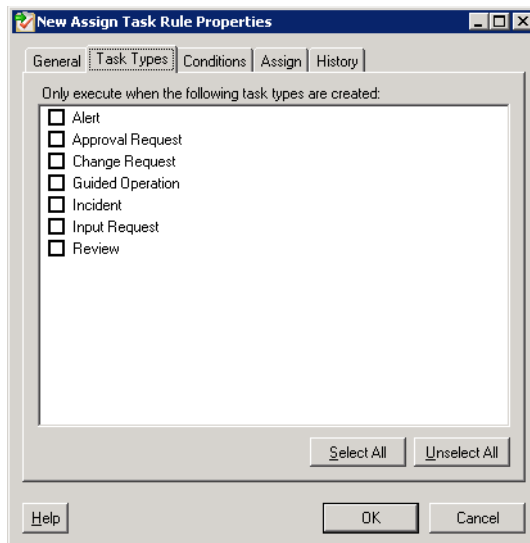
Step 2 On the General tab, enter the following information:

Field	Description
Display Name	Name of the task
Type	<i>Display only.</i> Shows the type of object
Trigger	<i>Display only.</i> Type of trigger associated with the task rule
Owner	User name of the owner of the task rule. This is typically the person who created the task rule. Click Browse to launch the Select User or Group dialog box to change the owner.

Field	Description
Description	A brief description of the task rule
Enabled	The check box is checked by default. The checked box indicates the task rule is available for execution. Uncheck the check box to disable the task rule. If the check box is unchecked, the object is disabled and will be unavailable for execution.

Step 3 Click the Task Types to continue.

Figure 19-3 New Assign Task Rule Properties Dialog Box—Task Types Tab



Step 4 Click the **Task Types** tab to select the task types to be executed by the rule.

Task Type	Description
Alert	Alerts reflect potential problems that a user may want to investigate and possibly diagnose the problem
Approval Request	Specifies the message and choices for the assignee who is approving the task
Guided Operation	Details the steps a user takes to complete an assigned task
Incident	Task requires an operator to take action in order to resolve an issue
Input Request	Task requires input from an individual or group
Review	Task assigns a document for review

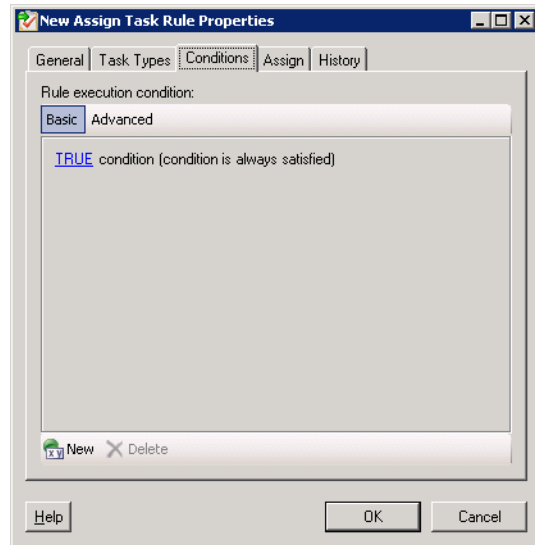
Step 5 To add or remove a task type from the rule, check the check box to the left of the task type.

Step 6 Click the **Conditions** tab to continue.

**Note**

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 19-4 *New Rule Properties Dialog Box—Conditions Tab*

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 7 On the Conditions tab, click the appropriate panel to indicate the type of condition equation to be used to trigger the task rule.

Panel	Description
Basic	Creates simple conditions using variables to match to operator criteria. See Adding Basic Conditions to an Object , page 10-4.

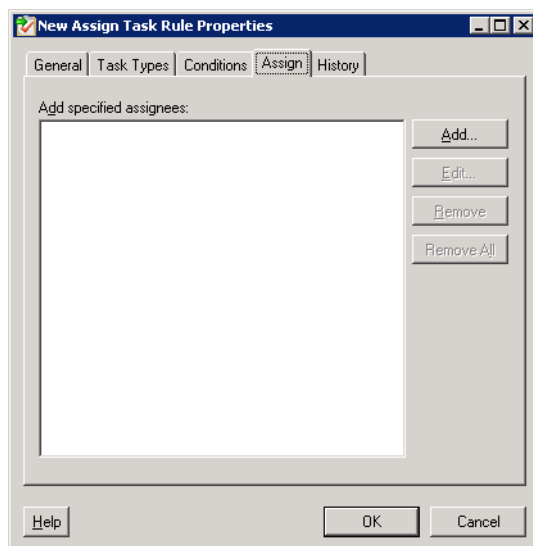
Panel	Description
Advanced	Creates a TEO-based condition. - Compound Condition—Compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition. The Compound Condition is created by the addition of another True/False option in the Advanced Panel. - Prior Process Instance Condition—Determines that when a process has occurred within a specific time interval, the condition will evaluate to false. If no process instance is selected, then the trigger will search for all process instances. - Time Condition—Specify a condition based on a defined calendar. - Variable Condition—Specify a variable to be used as the condition under which the variable should evaluate as true. See Adding Advanced Conditions to an Object, page 10-6.

**Note**

For additional information on creating a condition, see [Chapter 10, “Managing Conditions.”](#)

Step 8 Click the **Assign** tab to continue.

Figure 19-5 *New Rule Properties Dialog Box—Assign Tab*



Step 9 On the Assign tab, specify the assignees for task rule.

Field	Description
Add	Click this button to launch the Select Assignee to Add dialog box to specify the assignees. On the Select Assignee to Add dialog box, to right of the Assignee field, use <i>one</i> of the following methods: - Click the Reference tool to select the appropriate variable reference containing the assignee or list of assignees from the Insert Variable Reference dialog box. -or- - Click Browse to launch the Select User or Group dialog box to add user to the list of assignees.
Edit	Highlight the appropriate assignee in the list and click this button to view or modify the assignee of the task rule.
Remove	Highlight the appropriate assignee and click this button to remove the assignee from the list.
Remove All	Click this button to remove all specified assignees from the list.

Step 10 Click the **History** tab to display the history of actions taken against the task rule. This tab remains blank until after the initial task rule creation.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

Step 11 Click **OK** to close the dialog box.

Creating a Notify Task Rule

Use the Notify Task Rule to specify the recipients to be notified after the task rule is executed.

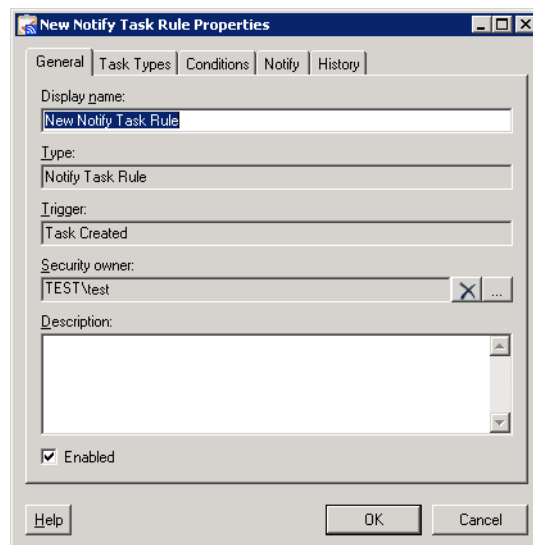
To create a notify task rule:

Step 1 On the Definitions—Task Rules, use *one* of the following methods:

- On the toolbar, choose **New > Notify Task Rule**.
- or-
- From the Actions menu, choose **New > Notify Task Rule**.

The New Task Rule Properties dialog box displays.

Figure 19-6 New Task Rule Properties Dialog Box—General Tab



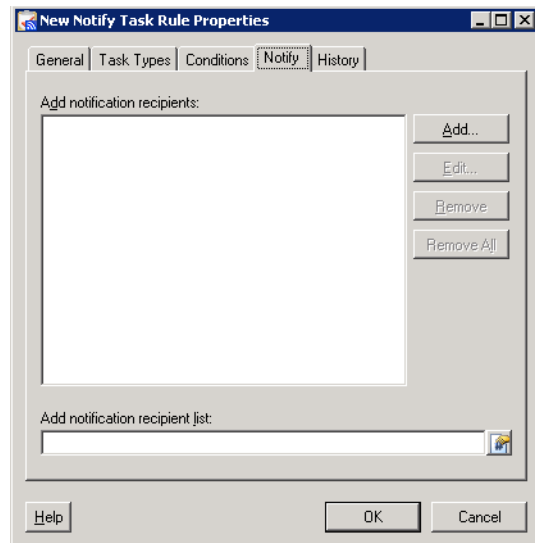
Step 2 On the General tab, enter the following information:

Field	Description
Display Name	Name of the task
Type	<i>Display only.</i> Shows the type of object
Trigger	<i>Display only.</i> Type of trigger associated with the task rule
Owner	User name of the owner of the task rule. This is typically the person who created the task rule. Click Browse to launch the Select User or Group dialog box to change the owner.

Field	Description
Description	A brief description of the task rule
Enabled	The check box is checked by default. The checked box indicates the task rule is available for execution. Uncheck the check box to disable the task rule. If the check box is unchecked, the object is disabled and will be unavailable for execution.

Step 3 Click the **Notify** tab to continue.

Figure 19-7 New Task Rule Properties—Notify Tab



Step 4 On the Notify tab, modify the recipients to be notified after the task rule has executed.

Field	Description
Add specified recipients	Displays list of users to be notified by the task rule • Add—Click this button to launch the Select Notification to Add dialog box to specify the assignees. On the dialog box, click the Reference tool to select the appropriate variable reference containing the assignee or list of assignees from the Insert Variable Reference dialog box. • Edit—Highlight the appropriate recipient in the list and click this button to view or modify the recipient of the task rule. • Remove—Highlight the appropriate recipient in the list and click this button to remove the recipient from the list. • Remove All—Click this button to remove all specified recipients from the list.

Field	Description
Add notification recipient list	Click the Reference tool to select the appropriate variable reference containing list of recipients from the Insert Variable Reference dialog box.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **OK** tool to complete the task rule definition.

- **Task Type**—Click the tab to select the task types to be executed by the rule. See [Step 4 in Creating an Assign Task Rule, page 19-5](#).
- **Conditions**—Click the tab to specify the conditions on when the task rule action should be taken. See [Step 7 in Creating an Assign Task Rule, page 19-5](#).
- **History**—Click the tab to display the history of actions taken against the task rule.

Creating an Update Task Rule

Use the Update Task Rule to specify properties to be updated on the task after the task rule has executed.

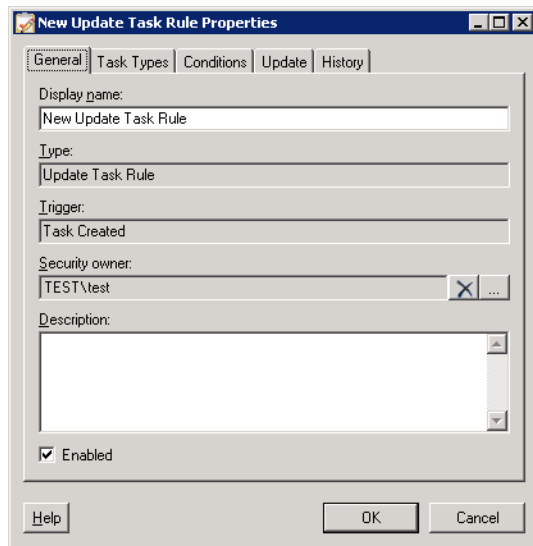
To create an Update Task Rule:

Step 1 On the Definitions—Task Rules, use *one* of the following methods:

- On the toolbar, choose **New > Update Task Rule**.
- or-
- From the Actions menu, choose **New > Update Task Rule**.

The New Update Task Rule Properties dialog box displays.

Figure 19-8 New Update Task Rule Properties Dialog Box—General Tab



Step 2 On the General tab, enter the following information:

Field	Description
Display Name	Name of the task
Type	<i>Display only.</i> Shows the type of object
Trigger	<i>Display only.</i> Type of trigger associated with the task rule
Owner	User name of the owner of the task rule. This is typically the person who created the task rule. Click Browse to launch the Select User or Group dialog box to change the owner.

Field	Description
Description	A brief description of the task rule
Enabled	The check box is checked by default. The checked box indicates the task rule is available for execution. Uncheck the check box to disable the task rule. If the check box is unchecked, the object is disabled and will be unavailable for execution.

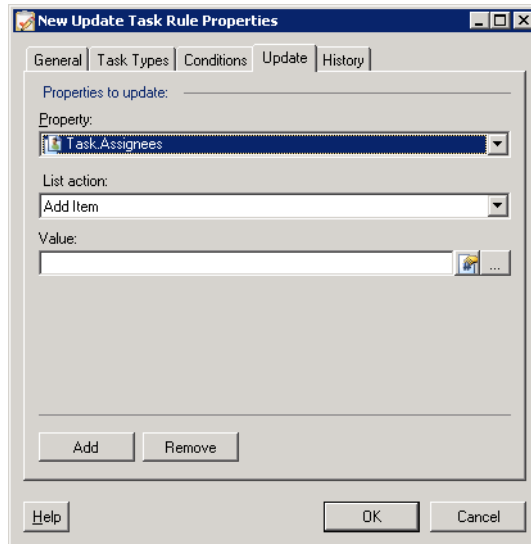
Step 3 Click the **Update** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 19-9 *New Update Task Rule Properties—Update Tab*



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

Step 4 On the Update tab, specify the properties to be updated after the task rule has executed.

Field	Description
Add	Click this button to add a new Property drop-down list to the Properties to Update section.
Remove	Click this button to remove the last property added to the Properties to Update section.

Field	Description
Properties to update	From the Property drop-down list, choose the item to update within the task. The properties displayed depend on the selected item. Note For additional information on the properties in the list, see Common Task Properties, page 4-4.
List action	Select the appropriate item from the drop-down list to determine which action to take with the selected property. • Add Item—Adds item to task • Remove item—Removes item from task. • Clear—Removes property value from task
Value	Enter new value for the property

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **OK** tool to complete the task rule definition.

- Task Type—Click the tab to select the task types to be executed by the rule. See [Step 4 in Creating an Assign Task Rule, page 19-5](#).
- Conditions—Click the tab to specify the conditions on when the task rule action should be taken. See [Step 7 in Creating an Assign Task Rule, page 19-5](#).
- History—Click the tab to display the history of actions taken against the task rule.

Managing Task Rule Definitions

The ability to modify task rules is not applicable to everyone as only users with administrative rights can update task rules from the Definitions—Task Rules view in Tidal Enterprise Orchestrator. However, the security settings can change, if necessary, by the TEO administrator.

This section provides instructions on modifying task rules in the Definitions—Task Rule view.

Enabling a Task Rule

A task rule is enabled by default. If a task rule is manually disabled, the task rule must be enabled before it is available for execution.

To enable a task rule:

On the Definitions—Task Rules view, highlight the task rule, and then use one of the following methods:

- On the Results pane, right-click and choose **Enable**.
- or-
- On the Details pane, select **Click here to enable**.

The Enabled column on the Results pane changes to True. If necessary, click the **Refresh** tool to update the view.

Disabling a Task Rule

Disabling a task rule prevents the item from being available for execution. The disabled task rule is not removed from the list of task rules on the Definitions—Task Rules Results pane.

To disable a task rule:

On the Definitions—Task Rule view, highlight the task rule, and then use one of the following methods:

- On the Results pane, right-click and choose **Disable**.
- or-
- On the Details pane, select **Click here to disable**.

The Enabled column on the results pane changes to False. If necessary, click the **Refresh** tool to update the view.

Creating a Copy of a Task Rule

The copy option is used when the user wants to leverage an existing task rule to define a new task rule using existing properties. This option may not be available for task rules imported in the default product automation packs.

To create a copy a task rule:

-
Step 1	On the Definitions—Task Rules view, highlight the appropriate task rule, right-click and choose Copy .
Step 2	On the Results pane, right-click and choose Paste . A copy of the defined task rule is pasted onto the Results pane.
Step 3	To rename the copied task rule or other properties, right-click and choose Properties .
Step 4	Modify the task rule name, as appropriate, and click OK to close the dialog box.
-

Adding Conditions to a Task Rule

To add a condition to a task rule:

-
Step 1	On the Definitions—Task Rule view, use <i>one</i> of the following methods: • On the toolbar, choose New > [Task Rule]. -or- • Highlight an existing task rule, right-click and select Properties. The appropriate task rule dialog box displays.
Step 2	Click the Conditions tab.

Step 3 To add a specific condition, click the appropriate panel.

Panel	Description
Basic	Creates simple conditions using variables to match to operator criteria. See Adding Basic Conditions to an Object, page 10-4 .
Advanced	Creates a TEO-based condition. • Compound Condition—Compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition. The Compound Condition is created by the addition of another True/False option in the Advanced Panel. • Prior Process Instance Condition—Determines that when a process has occurred within a specific time interval, the condition will evaluate to false. If no process instance is selected, then the trigger will search for all process instances. • Time Condition—Specify a condition based on a defined calendar. • Variable Condition—Specify a variable to be used as the condition under which the variable should evaluate as true. See Adding Advanced Conditions to an Object, page 10-6 .

Step 4 Click **OK** to close the dialog box.

Removing Conditions from Task Rule

Use the following steps to remove a condition from a task rule.

To remove a condition:

-
- Step 1** On the Definitions—Task Rules views, highlight the appropriate task, right-click and choose **Properties**. The [Task Rule] Properties dialog box displays.
- Step 2** On the Conditions tab, click the appropriate category, and then click **Delete**. The Delete button removes the condition from the task rule.
-

Adding Task Properties to an Update Task Rule

Use the following steps to add task properties to update after the task rule is executed.

To add a task property:

-
- Step 1** On the Definitions—Task Rules views, highlight the appropriate task, right-click and choose **Properties**. The [Task Rule] Properties dialog box displays.
- Step 2** On the Update tab, click **Add** to add a new Property drop-down list to the Properties to Update section.
- Step 3** From the Property drop-down list, select the item to update within the task. The properties displayed depend on the selected item.



Note For additional information on the properties in the list, see [Common Task Properties, page 4-4](#).

- Step 4** Complete the following fields, as necessary.

Field	Description
List action	Select the appropriate item from the drop-down list to determine which action to take with the selected property. • Add Item—Adds item to task • Remove item—Removes item from task. • Clear—Removes value from task
Value	Enter new value for the property

- Step 5** When completed selecting the categories, click **OK** to close the dialog box.
-

Removing Task Properties from a Task Rule

The Remove button removes the last property added to the list. For example, the user cannot remove *Property 4* without removing *Property 5* from the list.

If the user wants to keep *Property 5*, then update *Property 4* with the information from *Property 5*, and then click **Remove** to remove *Property 5* from the list.

Modifying the Assignees in Assign Task Rule

Use the following steps to modify the list of assignees in a configured task rule.

To modify an Assign task rule:

Step 1 On the Definitions—Task Rules views, highlight the appropriate task, right-click and choose **Properties**. The [Task Rule] Properties dialog box displays.

Step 2 Click the **Assign** tab to modify the assignees for the task rule.

Field	Description
Add	Click this button to launch the Select Assignee to Add dialog box to specify the assignees. On the Select Assignee to Add dialog box, to right of the Assignee field, use <i>one</i> of the following methods: - Click the Reference tool to select the appropriate variable reference containing the assignee or list of assignees from the Insert Variable Reference dialog box. -or- - Click Browse to launch the Select User or Group dialog box to add user to the list of assignees.
Edit	Highlight the appropriate assignee in the list and click this button to view or modify the assignee of the task rule.
Remove	Highlight the appropriate assignee and click this button to remove the assignee from the list.
Remove All	Click this button to remove all specified assignees from the list.

Step 3 Click **OK** to close the dialog box.

The modified task rule displays in the list of task rules on the Definitions—Task Rules view.

Modifying the Recipients in Notify Task Rule

Use the following steps to modify the recipients to be notified during the after the task rule execution.

To modify a Notify task rule:

- Step 1** On the Definitions—Task Rules view, highlight the appropriate task, right-click and choose **Properties**. The [Task Rule] Properties dialog box displays.
- Step 2** Click the **Notify** tab to modify the recipients for the task rule.

Field	Description
Add specified recipients	Displays list of users to be notified by the task rule • Add—Click this button to launch the Select Notification to Add dialog box to specify the assignees. On the dialog box, click the Reference tool to select the appropriate variable reference containing the assignee or list of assignees from the Insert Variable Reference dialog box. • Edit—Highlight the appropriate recipient in the list and click this button to view or modify the recipient of the task rule. • Remove—Highlight the appropriate recipient in the list and click this button to remove the recipient from the list. • Remove All—Click this button to remove all specified recipients from the list.
Add notification recipient list	Click the Reference tool to select the appropriate variable reference containing list of recipients from the Insert Variable Reference dialog box.

- Step 3** Click **OK** to close the dialog box.
- The modified task rule displays in the list of task rules on the Definitions—Task Rules view.

Modifying Task Types in Task Rule

Use the following steps to modify the list of task types affected by the task rule.

To modify the list of task types:

- Step 1** On the Definitions—Task Rules view, highlight the appropriate task rule, right-click, and choose **Properties**. The [Task Rule] Properties dialog box displays.
- Step 2** Click the **Task Type** tab and then use one of the following methods:

- To add a task type to the list, check the check box to the left of the appropriate task type.
- To remove a task type from the list, uncheck the check box to the left of the appropriate task type.
- To include all the task types into the task rule, click **Select All**.
- To exclude all the task types, click **Unselect All**.

Step 3 Click **OK** to close the dialog box.

Sorting the Task Rules

The task rules are executed according to the order they are listed on the Definitions—Task Rules view. To sort the task rules

On the Definitions—Task Rules view, highlight the appropriate task rule, and use one of the following methods:

- Drag and drop the task rule into the appropriate position in the list.
- On the Actions toolbar, choose **Move Up** or **Move Down**.
- From the Actions menu, select **Move Up** or **Move Down**.
- Right-click and choose **Move Up** or **Move Down**.

The list of task rules are sorted according to the selected action.

Deleting a Task Rule

Use the Definitions—Task Rules view to delete task rules that are no longer used.

Before deleting a task rule, access the properties, and click the **Used By** tab to view where objects are being referenced by the task rule. This ensures that deleting the task rule does not affect any processes or activities.

To delete a task rule:

Step 1 On the Definitions—Task Rules view, highlight the appropriate task, right-click and choose **Delete**.

The Confirm Delete dialog box displays.

Step 2 Click **Yes** to confirm.

The task is deleted from the system.

Viewing Task Rules History

Use the History tab to view a history of changes that have been made to the task rule.

To view task rule history:

- Step 1** On the Definitions—Task Rules view, highlight the appropriate task rule, right-click and choose **Properties**.

The [Task Rule] Properties dialog box displays.

- Step 2** Click the **History** tab to view the changes made to the task rule.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

- Step 3** To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.

- Step 4** Click **OK** to close the dialog box.



CHAPTER 20

Administration Workspace

The Administration workspace is used to perform administrative tasks within the product, including:

- Configuring security groups to have access to certain objects within the product
- Enabling time zones to be used when configuring processes
- Managing the adapters that are installed in the product
- Creating and managing the report database, and running reports

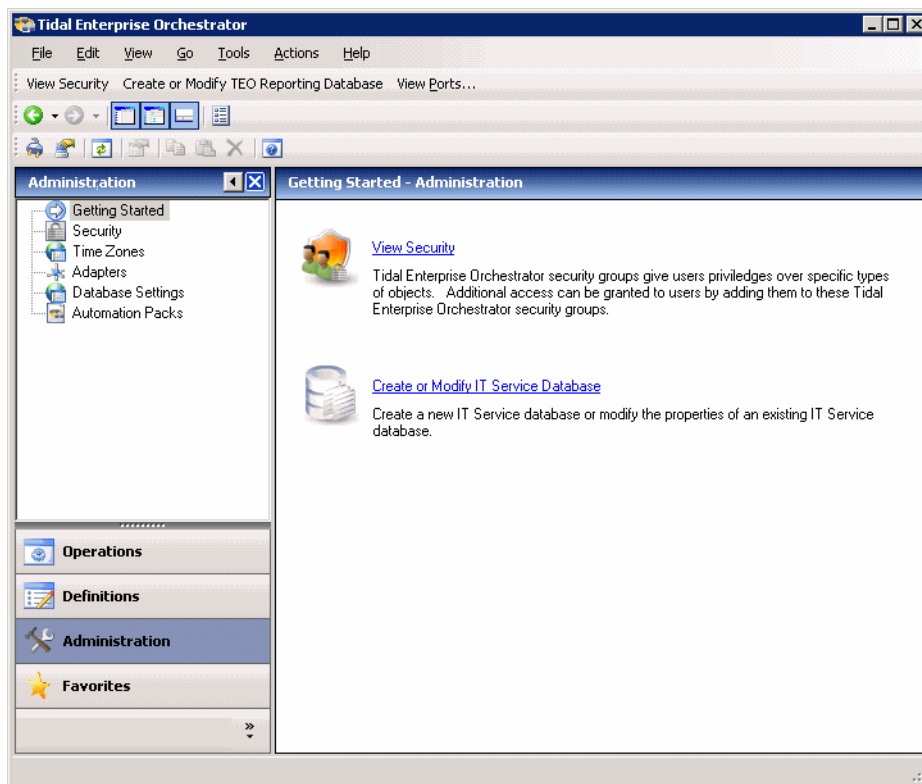
The following sections guide you through accessing the Administration workspace and using the features in this view.

- [Administration—Getting Started, page 20-2](#)
- [Navigation Menu, page 20-3](#)
- [Administration—Time Zones, page 20-5](#)
- [Administration—Adapters, page 20-8](#)
- [Administration—Database Settings, page 20-13](#)
- [Collecting TEO Diagnostics, page 20-19](#)

Administration—Getting Started

The Administration—Getting Started view is the default view upon the initial access to the Administration pane.

Figure 20-1 Administration—Getting Started



The following administrative tasks are available:

Options	Description
View Security	Launches the Administration—Security view to display the rules that ship with the product
Create or Modify the IT Service Database	Launches the Administration—Database Settings view where you can view reports, create or modify the report database

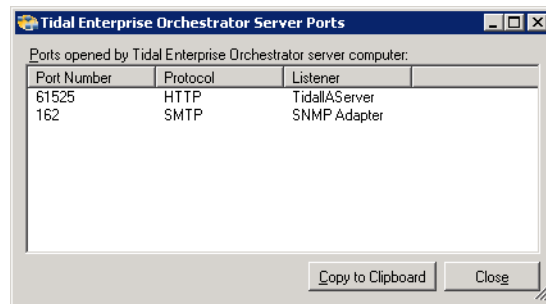
Viewing TEO Ports

Use the following steps to display all ports that are open on the TEO server.

On the Administration—Getting Started toolbar, click **View Ports**.

The Tidal Enterprise Orchestrator Server Ports dialog box displays.

Figure 20-2 Tidal Enterprise Orchestrator Server Ports Dialog Box



The following information is displayed on the dialog box:

Column	Description
Port Number	Port number of the internet protocol
Protocol	Internet protocol for transferring data (HTTP, SMTP)
Listener	Port listener

Navigation Menu

The Administration workspace contains navigation items that perform the various tasks that are available for the user.

The Administration Results pane contains the following column headings.

Navigation Item	Function
Security	The Administration—Security view displays the security rules that are shipped with the product and/or defined by the user. For additional information on managing security rules, see Chapter 21, “Configuring TEO Security.”
Time Zones	The Administration—Time Zones view to displays the time zones that ship with the product. For additional information on viewing the time, see Administration—Time Zones, page 20-5.
Adapters	The Administration—Adapters view displays the adapters that are installed with the product and their associated objects. For additional information on viewing adapter properties, see Administration—Adapters, page 20-8.

Navigation Item	Function
Database Settings	The Administration—Database Settings view displays the reporting and processes databases associated with TEO. For additional information on managing the TEO databases, see Administration—Database Settings, page 20-13.
Automation Packs	The Administration—Automation Pack view displays the list of automation packs that are currently in TEO. For additional information on managing automation packs, see Chapter 22, “Managing Automation Packs.”

Administration—Time Zones

Use the Administration—Time Zones view to displays the time zones that ship with the product. The time zones are used when specifying a schedule trigger for a process. The time zones cannot be modified. However, you can add a description to the time zone properties and enable or disable the time zones. If a time zone is disabled, it will not be available for selection when defining schedule properties.

Accessing Administration—Time Zones

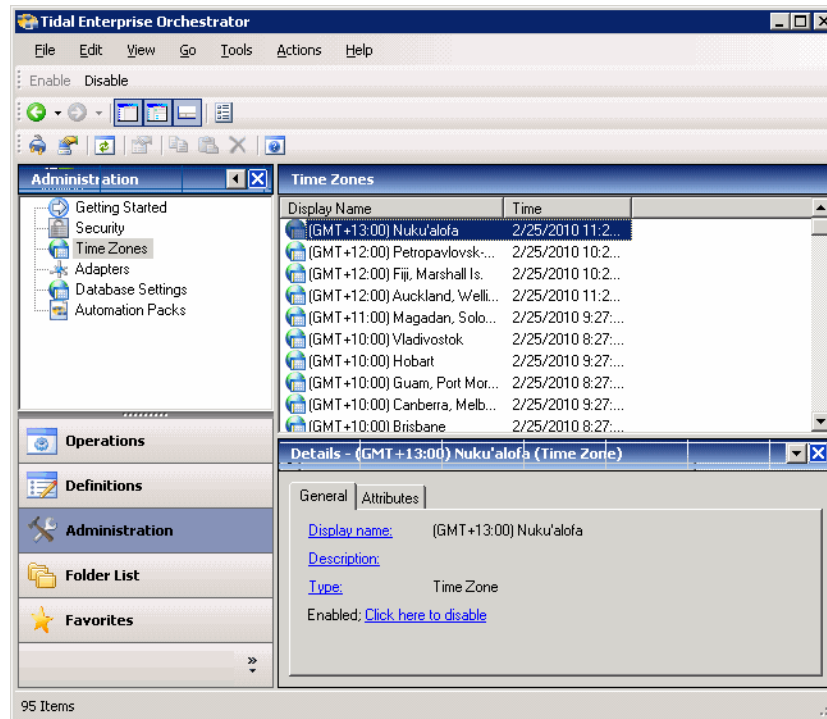
When the Administration—Time Zones view is selected, the time zones display in the Results pane.

To access the Time Zone view:

On the Administration workspace, choose **Time Zones**.

The Results pane displays.

Figure 20-3 Administration—Time Zones View



The following information can be displayed for each time zone:

Column	Description
Display Name	Greenwich Mean Time (GMT) name for the time zone and the location where the time zone is in effect
Type	Object type
Time	Current date and time in the local time zone
Id	Unique ID of the time zone

Column	Description
Enabled	Indicates whether the time zone is enabled (True) or disabled (False). If the time zone is disabled, it is not available for selection when creating a schedule trigger for a process.
Description	Brief description of the time zone
Owner	Owner of the time zone definition. This is typically the creator of the definition.
Type Description	Brief overview of the type associated with the time zone definition
Created Time	Time the time zone was created
Created By	User name of the person or who created the time zone definition
Last Modified Time	The time the time zone definition was last modified
Last Modified By	The user name of the person who last modified the time zone definition

Time Zone Details Pane

The Time Zone Details pane displays additional information about the selected item. The hyperlinks on each of the detail pages launch the property pages for the selected time zone.

Tab	Description
General	Displays general information about the item including the name, type, value, a brief description of the time zone, and the ability to enable or disable a time zone.
Attributes	Displays the dates, times and process owner associated with the creation and modification of the time zone.

Enabling a Time Zone

A time zone is enabled by default. If a time zone is manually disabled, the time zone must be enabled before it is available for execution.

To enable a time zone:

On the Administration—Time Zone view, highlight the time zone, and then use *one* of the following methods:

- On the Results pane, right-click and choose **Enable**.
- or-
- On the Details pane, choose the **Click here to enable** option.

The Enabled column on the Results pane changes to *True*. If necessary, click the **Refresh**  tool to update the view.

Disabling a Time Zone

Disabling a time zone prevents the item from being available for execution. The disabled time zone is not removed from the list of time zones in the Administration—Time Zones Results pane.

To disable a time zone:

On the Administration—Time Zones view, highlight the time zone, and then use *one* of the following methods:

- On the Results pane, right-click and choose **Disable**.
-or-
- On the Details pane, choose the **Click here to disable** option.

The Enabled column on the Results pane changes to *False*. If necessary, click the **Refresh** tool to update the view.

Viewing Time Zone Properties

You can view the properties of a specific time zone using the Time Zone Properties dialog box. From this dialog box, you can enter a description for the time zone and enable or disable the time zone. Click the **Used By** tab to display the processes or schedule definitions that reference the time zone.

Use the following steps to view the properties of each security rule.

Step 1 On the Administration—Time Zones view, highlight the appropriate time zone, and use *one* of the following methods:

- Right-click and choose **Properties**.
-or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Time Zone Properties dialog box displays.

Step 2 Review or modify the properties and click **OK** to close the dialog box.

Administration—Adapters

The Administration—Adapters view contains the adapters that are installed with the product and their associated objects. For example, the Windows adapter displays the objects that are provided with the adapter, such as the Windows computer target, Windows runtime user, and Windows-related activities.

The primary adapter for Tidal Enterprise Orchestrator is the Core Function Adapter. This adapter provides the core features and objects to be used to manage IT processes. For information on configuring the Core Functions adapter, see the [Appendix A, “Managing Core Activities.”](#)

Accessing Administration—Adapters View

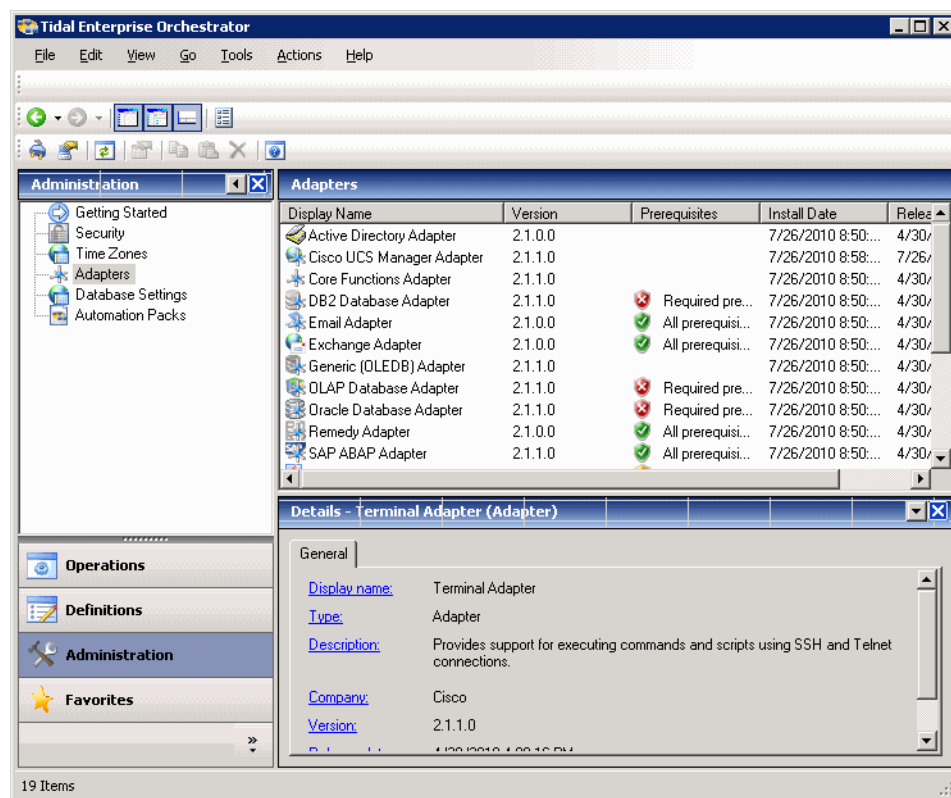
When the Administration—Adapters in the Navigation pane is selected, the adapters that are installed display in the Results pane. From this view, general information about the functionality provided by the adapter, version number, release date and install date is displayed.

To access the Administration—Adapters view

On the Administration workspace, choose **Adapters**.

The Results pane displays.

Figure 20-4 Administration—Adapters View



The following information displays for each adapter:

Column	Description
Display Name	Name of the adapter
Enabled	Indicates whether an adapter is enabled (<i>True</i>) or disabled (<i>False</i>). If an adapter is disabled, its functionality is not available in the product.
Prerequisites	Displays whether the prerequisites for the adapter for the adapter are installed
Version	Version number of the adapter
Install Date	Date and time the adapter was installed
Release Date	Date the adapter is available in the product
Description	Brief overview of the functionality provided by the adapter

TEO Adapters

The following are a list of available adapters.

Adapter	Description
Active Directory Adapter	Provides access to Active Directory groups, containers and organizational units. See the <i>Active Directory Adapter Guide</i>
Cisco UCS Manager Adapter	Provides activities to automate Cisco Unified Computing System Manager tasks. See the <i>Cisco UCS Manager Adapter Guide</i> .
Core Functions Adapter	Provides core functionality that is required by the Automation Server. See the Appendix A, “Managing Core Activities.”
DB2 Database Adapter	Provides activities to access DB2 database objects and execute SQL queries. See the <i>DB2 Database Adapter Guide</i> .
Email Adapter	Provides support for sending email via SMTP and receiving email via POP3 and IMAP email accounts. See the <i>Email Adapter Guide</i> .
Generic (OLEDB) Adapter	Provides activities to access database objects and execute SQL queries. See the <i>Generic Database Adapter Guide</i> .
OLAP Database Adapter	Provides activities to access OLAP database cubes and execute MDX queries. See the <i>OLAP Database Adapter Guide</i> .
Oracle Database Adapter	Provides activities to access Oracle database objects and execute SQL queries. See the <i>Oracle Database Adapter Guide</i> .

Adapter	Description
Remedy Adapter	Provides activities for creating, querying, and updating Remedy incidents. See the <i>Remedy Adapter Guide</i> .
SAP ABAP Adapter	Provides activities to access SAP monitoring objects and execute SAP ABAP functions. For more information, refer to the <i>SAP ABAP Adapter Guide</i> .
SAP Java Adapter	Provides activities to access SAP monitoring objects and execute SAP Java functions. See the <i>SAP Java Adapter Guide</i> .
SCOM 2007 Adapter	Provides access to alerts and performance counters in SCOM 2007. See the <i>SCOM 2007 Adapter Guide</i> .
SNMP Adapter	Provides access to SNMP alerts and performance metrics. See the <i>SNMP Adapter Guide</i> .
SQL Server Database Adapter	Provides activities to access SQL Server database objects and execute SQL queries. See the <i>SQL Server Database Adapter Guide</i> .
Terminal Adapter	Provides support for executing commands and scripts using SSH and Telnet connections. See the <i>Terminal Adapter Guide</i> .
VMware Adapter	Provides users with activities to connect a virtual infrastructure and automate the process of managing their virtual machines and hosts. See the <i>VMware Adapter Guide</i> .
Web Service Adapter	Provides activities to execute Web Services. See the <i>Web Service Adapter Guide</i> .
Windows Adapter	Provides access to Windows activities and objects. See the <i>Windows Server Adapter Guide</i> .

Viewing Adapter Properties

Use the adapter-specific properties dialog box to view the properties of the selected adapter, including the specific functions the adapter provides and the history of changes made to the adapter. The property dialog box for each adapter varies. This section provides brief information about the properties for each adapter. The displayed adapters are determined by the product license.

To view adapter properties:

Step 1 On the Administration—Adapters view, highlight the appropriate adapter, and use *one* of the following methods:

- Right-click and choose **Properties**.
- or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Properties dialog box displays.

The General tab displays the following information about the adapter:

Field	Description
Display Name	Name of the adapter
Type	Object type
Description	Brief overview of the adapter
Company	Name of company that created or supplied the adapter
Version	Version number of the adapter
Release date	Date and time the adapter was available in the product
Install date	Date and time the adapter was installed

Step 2 Review the properties and click **OK** to close the dialog box.

Viewing Adapter-Supported Objects

Use the Provides tab to view the name and type of component for each item the adapter supports.

To view adapter-provided objects:

Step 1 On the Administration—Adapters view, highlight the appropriate adapter, right-click and choose **Properties**.

The Properties dialog box displays.

Step 2 Click the **Provides** tab to view the functionality that is provided by the adapter.

Column	Description
Name	Name of activities, processes, and objects for which the adapter provides support
Type	Type of object provided by the adapter

- Step 3** Review the list of objects and click **OK** to close the dialog box.
-

Viewing Adapter History

Use the History tab to view a history of changes that have been made to the adapter.

- Step 1** On the Administration—Adapters view, highlight the appropriate adapter, right-click and choose **Properties**.

The Properties dialog box displays.

- Step 2** Click the **History** tab to view the changes made to the adapter.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

- Step 3** To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.

- Step 4** Click **OK** to close the dialog box.
-

Administration—Database Settings

The Administration—Database Settings view is used for creating and managing the database connections included in the product. The automation database and reporting database is displayed by default.

- Database Settings—Contains the database grooming settings properties for the processes database. Refer to the following sections on configuring the automation master database properties.
- Report Database—Allows users to view and manage the report database connection, and viewing audit process changes.

When selected, the user can import reports, view database properties, and delete the database from the product.

To view the database properties, highlight the appropriate database, right-click and choose **Properties** to view the database properties.

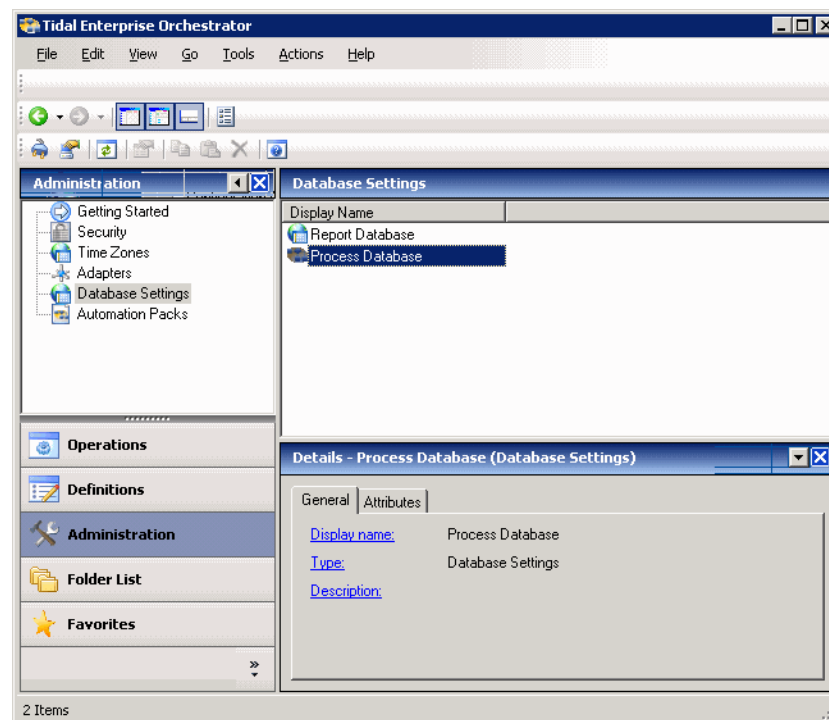
Accessing the Administration—Database Settings

Use the following settings to options that reside in the Administration—Database Settings view.

On the Administration workspace, choose **Database Settings**.

The Results pane displays.

Figure 20-5 Administration—Database Settings View



The following are the default databases:

Database	Description
Process Database	<i>TEO Processes Database</i> displays the properties for the TEO performance database. For information on configuring the grooming settings of the process database, see Configuring Process Database Properties, page 20-14.
Report Database	<i>TEO Reporting</i> database generates reports for viewing process execution history and to audit process changes. Note You must be logged in with an account that has administrator privileges on the machine where the report database is being created, whether it is the local machine or a remote machine. The user account must also have Reporting Services privileges to create or modify the reports. For more information on managing reports, see Chapter 23, “Configuring Reports.”

The following information displays for each database:

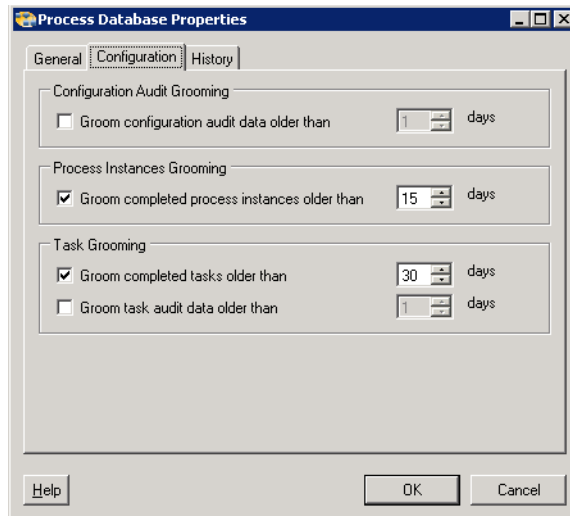
Column	Description
Display name	Name of the database
Description	Brief description of the database

Configuring Process Database Properties

The Process Database is created during the installation process, but only the default size of the data files are determined. Use the Process Database Properties dialog box to determine the amount of data that is archived in the database files before being deleted from the system.

To configure the database settings:

-
- Step 1** On the Administration—Database Settings view, highlight **Process Database**, right-click and choose **Properties**.
- The Process Database Properties dialog box displays.
- Step 2** Click the **Configuration** tab to modify the database grooming settings for the automation database server.

Figure 20-6 **Process Database Properties—Configuration Tab**

Step 3 On the Configuration tab, specify a value for the following fields:

Field	Description
Configuration Audit Grooming	Check the Groom configuration audit data older than check box and in the numeric field, enter the number of days before configuration audit data is deleted from the database.
Process Instances Grooming	Check the Groom completed process instances older than check box and in the numeric field, enter the number of days before completed process instance data is deleted from the database.
Task Grooming	Check the Groom completed tasks older than check box and in the numeric field, enter the number of days before completed task data is deleted from the database. Check the Groom task audit data older than check box and in the numeric field, enter the number of days before the task audit data is deleted from the database.

Step 4 Click **OK** to close the dialog box.

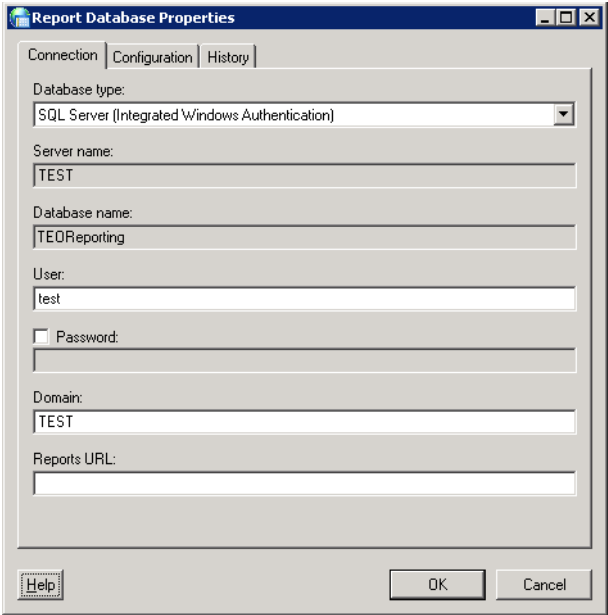
Viewing Report Database Properties

The Administration—Report Database contains the properties for the report database connection. For additional information on managing the report database connection, see [Chapter 23, “Configuring Reports.”](#)

To view report database properties:

- Step 1** On the Administration—Report Database view, highlight **Report Database**, right-click and choose **Properties**.
The Report Database Properties dialog displays.
- Step 2** Click the **Connection** tab to review the credentials to the reporting database.

Figure 20-7 Report Database Properties—Connection Tab



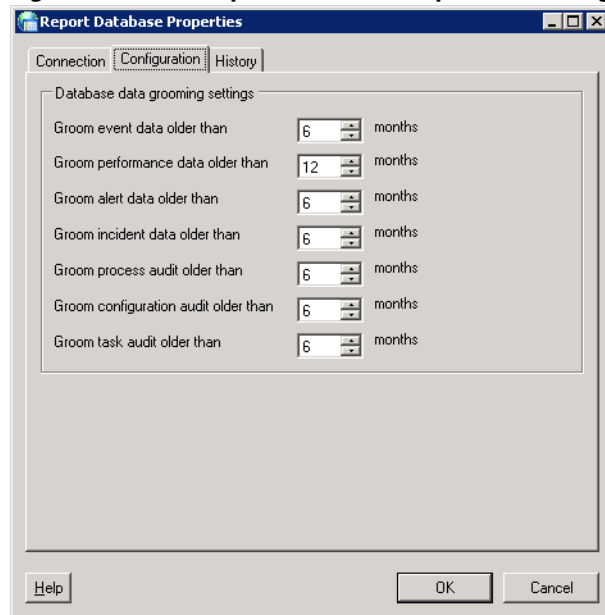
The following information displays on the Connection tab:

Field	Description
Database Type	From the drop-down list, choose the database type for the credentials: - SQL Server (Integrated Windows Authentication Credentials)—Uses the credentials of the user logged into Microsoft Windows. - SQL Server (SQL Authentication)—Enter the SQL server credentials to use for creating the database (Login ID and Password)
Server name	<i>Display-only.</i> Name of the database server
Database name	<i>Display-only.</i> Name of the report database (default TEORreporting)

Field	Description
User	User name assigned to the user account
Password	Password assigned to the user account Note For Integrated Windows Authentication Credential passwords, check the check box to enter the new password assigned to the user account. If the password entered is incorrect, then a confirmation dialog box displays stating: "Logon failure: unknown user name or bad password."
Domain	Windows domain in which the user account resides Note When SQL Server authentication is selected, this field is display-only.
Reports URL	File path to the report server to where the reports reside

Step 3 Click the **Configuration** tab to review the database grooming settings.

Figure 20-8 Report Database Properties—Configuration Tab



Step 4 Review the following database grooming settings:

Groom Setting	Description
Groom event data older than	Number of days before event data is deleted from the database
Groom performance data older than	Number of days before performance data is deleted from the database
Groom alert data older than	Number of days before alert data is deleted from the database

Groom Setting	Description
Groom incident data older than	Number of days before incident data is deleted from the database
Groom process audit data older than	Number of days before the audit data is deleted from the database
Groom configuration audit data older than	Number of days before configuration audit data is deleted from the database
Groom task audit older than	Number of days before the task audit data is deleted from the database

Step 5 Click **OK** to close the dialog box.

Collecting TEO Diagnostics

The Tidal Enterprise Orchestrator Diagnostic Utility is used to collect various information about the server environment, installation, as well as any errors or exceptions. The information is compiled into a zip file and saved according to the user preference. The user can then send the information to Tidal Software Technical Support to help diagnose the problem with the TEO installation.

The following data is collected by the Utility:

- Diagnostic logs written by the Tidal Enterprise Orchestrator Service, console and other components (*.log files)
- Information about the computer: including memory, processors, OS versions, installed hotfixes and applications (ComputerInfo.txt)
- Information about files installed in the TEO installation folder (FileInfo.txt)
- Snapshots of the Windows Event logs (Application, System, as well as TEO-specific logs) (.evt files)
- Snapshots of the TEO registry key (.reg files)
- TEO component configuration files (.config files)

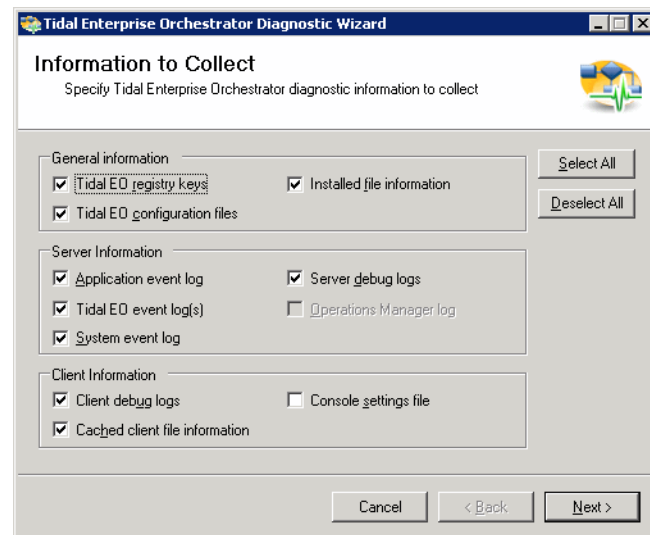
The log folders also contain files with information about the computer, including memory, processors, OS versions, installed OS hotfixes and applications.

To generate diagnostic logs:

Step 1 Choose **Start > All Programs > Cisco > Tidal Enterprise Orchestrator > Diagnostic Utility**.

The Tidal Enterprise Orchestrator Diagnostic Utility Wizard displays.

Figure 20-9 Tidal Enterprise Orchestrator Diagnostic Utility Wizard—Information to Collect Panel



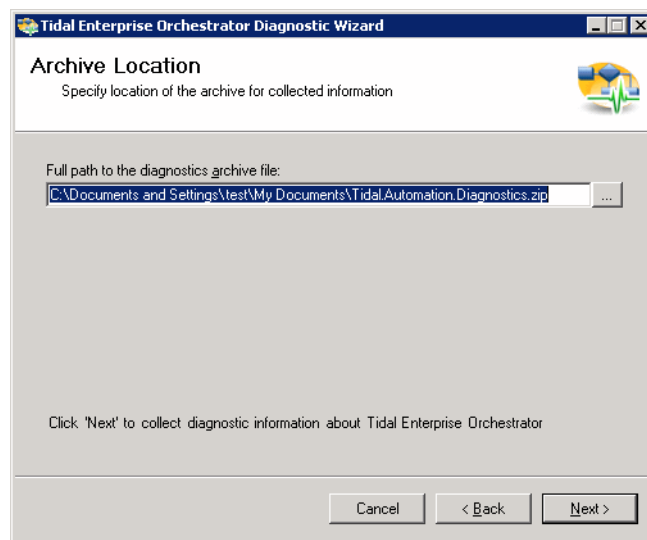
On the Information to Collect panel, check the check box of the appropriate logs.

Field	Description
General information	Generates log information from the TEO server • Tidal IA registry key • Tidal IA configuration files • Installed file information
Server Information	• Application event log—Log information of application events • Tidal IA event log(s)—Log information of the TEO server • Server debug logs—Server log information containing debug logs produced by the TEO server • System event log—Event information of system logs
Client Information	• Client debug logs—Contains debug logs produced by the Automation Pack Import Wizard. • Cached client file information—These log files are collected on client-only computers. These files contain information about files that were downloaded by the Console Loader from the server. The information also includes time stamps and version numbers for all files in the loader cache. • Console settings file—Contains debug logs produced by the TEO console

Step 2 Click **Next** to continue.

The Archive Location panel displays.

Figure 20-10 *Tidal Enterprise Orchestrator Diagnostic Utility—Archive Location Panel*



- Step 3** In the Full path to the diagnostics archive file, use *one* of the following methods:
- Verify the default file path.
 - or-
 - Click **Browse** to modify the file path.
- Step 4** Click **Next** to continue.
- Step 5** After the information is collected and saved to the appropriate directory, click **Close** to close the dialog box.

Figure 20-11 Finishing Collect Tidal Enterprise Orchestrator Panel





CHAPTER 21

Configuring TEO Security

This section provides basic information on managing the security administration for the users, objects accessed and controlled by the processes of TEO.

Security roles determine what permissions are granted to users. Users can be assigned to the appropriate groups in Windows Computer Management using the TEO Security function. On the Security view, customers can determine what TEO objects, users are allowed to view, create, or modify. A TEO administrator can limit users access to only a subset of TEO processes or limit a whole group to read-only access for specific objects.

For example, the TEO admin can configure members of the Accounting Process Authors group with the ability to only create, delete, modify or schedule processes in the Accounting category. However, those members of that group will not be allowed to view or modify any other processes in TEO.

If the user has permissions to view (or edit) only a subset of TEO objects, when the TEO user interfaces (Console, CLI or Web Service) display TEO objects to the user, the display will only show those objects that the user has permissions to view or modify.

When the user does not have sufficient permissions in TEO to perform an operation and then attempts to perform that operation, TEO will generate an error, as well as log an audit failure event to the event log.

The following sections provide details on the Security feature in TEO:

- [Accessing the Administration—Security View, page 21-2](#)
- [Creating a New Security Role, page 21-6](#)
- [Managing Security Role Definitions, page 21-9](#)

Accessing the Administration—Security View

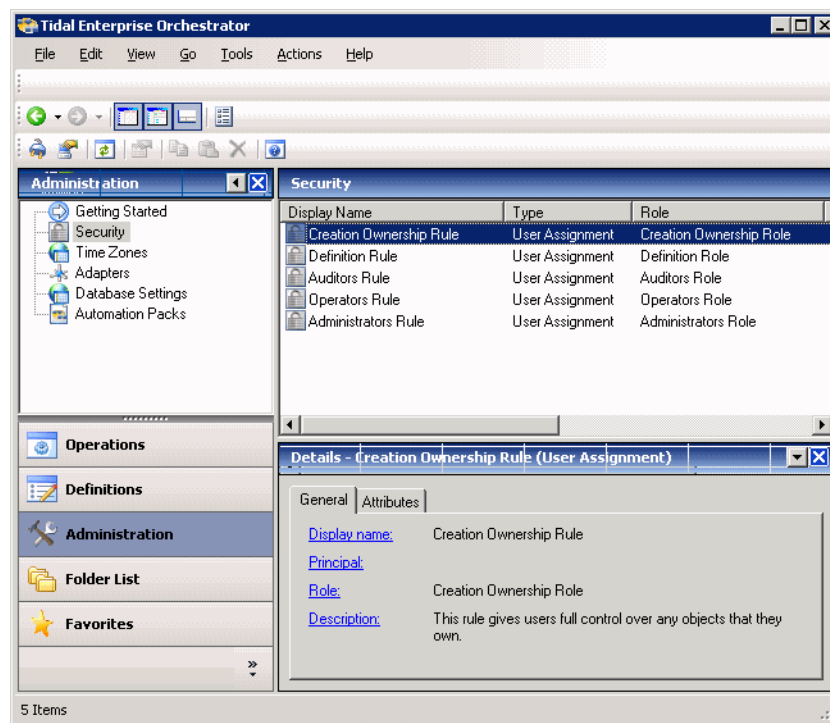
When the Administration—Security view is selected, the pre-defined security rules display in the Results pane.

To access the Security view:

On the Administration workspace, choose **Security**.

The Results pane displays.

Figure 21-1 Administration—Security View



Information about each security rule can be displayed in the following columns:

Column	Description
Display Name	The name of the security role
Type	The security type
Role	The security role to which the principal is assigned
Principal	Name of the user account or group whose members have been assigned the role within the product
Last Modified Time	The time the security rule was last modified
Last Modified By	The user name of the person who last modified the security rule
Id	The unique ID of the security rule
Description	A brief overview of the security rule properties
Owner	The owner of the security rule

Column	Description
Type Description	A brief overview of the type associated with the security rule
Created Time	The time the security rule was created
Created By	The user name of the person or object who created the security rule

Pre-defined Security Roles

The Administration—Security view displays pre-defined security roles that ship with the product and cannot be modified. When TEO is installed, the installation creates several local computer groups on the TEO server, which are then used in the pre-defined security roles.

Role	Description
Administrators Role	When assigned to this group, you have access to everything in the product. Users can view or modify any definition, process, or setting.
Operators Role	When assigned to this group, users have full access to all processes. All processes can be viewed, started, and canceled, but cannot be modified.
Create Ownership Role	All users are assigned to this group. This role provides users with full control over any objects that they own.
Auditors Role	When assigned to this group, the user can view any definition, such as running processes.
Definition Role	When assigned to this group, the user can view or modify any definition or workflow.

Pre-defined Security Permissions

When accessing the Security Role Properties dialog box, the Operations tab displays the list of permissions included and/or available for inclusion into the security role. Check the check boxes for the appropriate powers for the security role.

Permission	Function
Cancel	Allows the user to cancel process or activity instances
Change Owner	Allows the user to change the owner of the object. Change ownership permission includes the <i>Read</i> permission and requires the <i>Update</i> permission to change ownership on an object.
Create	Allows the user to create new objects and specify all properties of the object. <i>Create</i> permission includes <i>Change Owner</i> and <i>Read</i> permissions. This permission is required to perform Copy or Import functions.
Delete	Allows the user to delete objects

Permission	Function
Update	Allows the user to modify all properties of the object, except the owner. <i>Change Owner</i> is the permission required to change the owner of an object.
Read	Allows the user to view all properties of an object. The <i>Read</i> permission along with the <i>Create</i> permission is the minimum level of permissions required to copy an object. However, the two permissions do not have to be over the same object. For example, to copy object X, permission must be granted over object X and <i>create</i> permission assigned over objects of the same type as object X.
Start	Allows the user to start processes ad-hoc
Use	Allows the user to reference objects. This permission is not available to all objects, but only for those that can be referenced. For example, this permission on a target or target group would allow the user to run activities and processes against the target group.

Security Details Pane

The Security Details pane displays additional information about the selected item. The hyperlinks on each of the detail pages launch the property pages for the selected rule.

The following information is displayed on the Details pane:

Field	Description
General	Displays general information about the item including the display name, principal, role, and a brief description of the security rule.
Attributes	Displays the dates, times and owner associated with the creation and modification of the security rule.

Viewing Security Role Properties

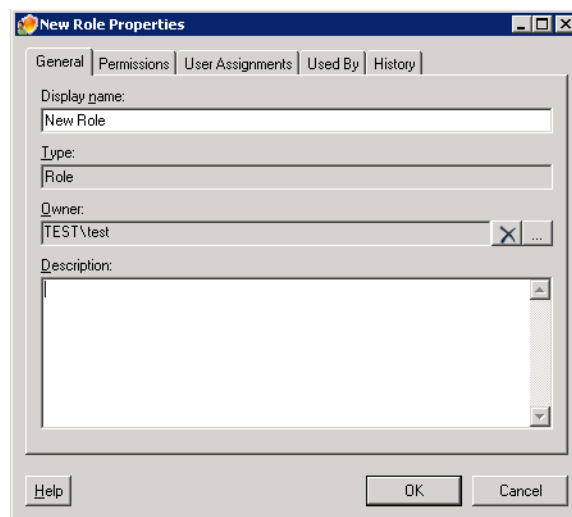
The properties of each security rule can be accessed from the Security view in the Console.

To view security role properties:

- Step 1** On the Administrations—Security view, highlight the appropriate security role, right-click and choose **Properties**.

The Security Role Properties dialog box displays.

Figure 21-2 Administrator Role Properties—General Tab



- Step 2** Click the following tabs to display the security role information:

Tab	Description
General	Displays the general information about the security role
Permissions	Security permissions and objects to be included in the security role
User Assignment	Binds the security principal (either a user or group) and the defined security permissions for the security role
Used By	Displays objects that directly reference the selected object in their configuration
History	Displays the history of changes made to an object

Creating a New Security Role

A security role is a list of permissions that enhances product use through logical groupings of powers and objects for reuse in multiple places. A security permission is a pairing of a scope that defines the objects and powers over those objects. After a security role is defined, it is available in a list of available security roles on the Administration—Security view.

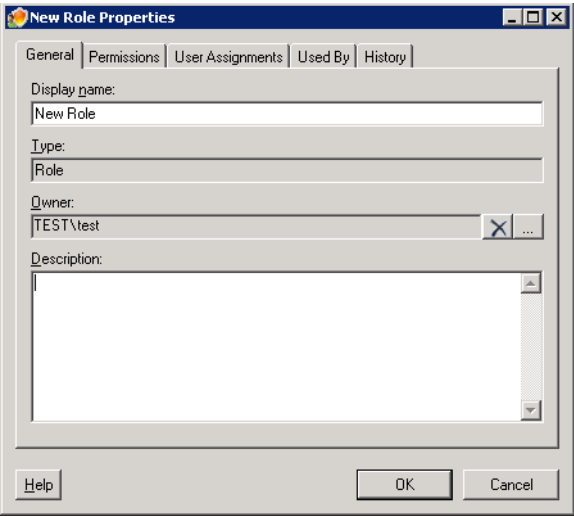
To create a new security role:

- Step 1

On the Administration—Security view, right-click and choose **New > Role**.

The New Role Properties dialog box displays.

Figure 21-3 New Role Properties Dialog Box—General Tab



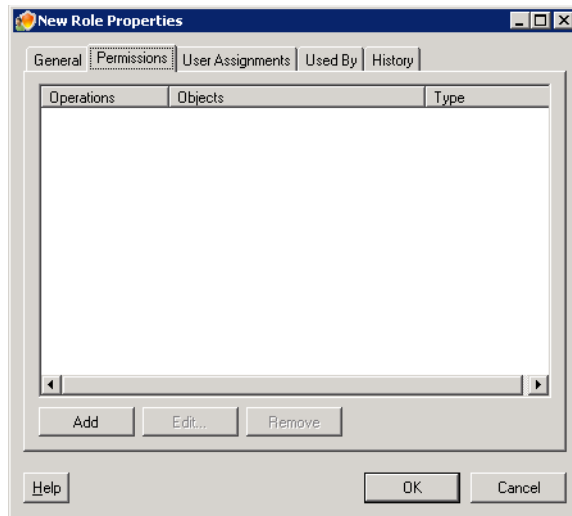
- Step 2

On the General tab, complete the following information, and click **OK**.

Field	Description
Display Name	Name of the new security role
Owner	Click Browse to launch the Select User or Group dialog box and modify the owner for the security role.
Description	Brief description of the security role

- Step 3

Click the **Permissions** tab to modify the list of security permissions and associated powers to be included in the security role. A security permission is a security object that defines the type of access granted to the TEO user or group over an object.

Figure 21-4 Security Role Properties Dialog Box—Permissions Tab

The Permissions tab displays the following information:

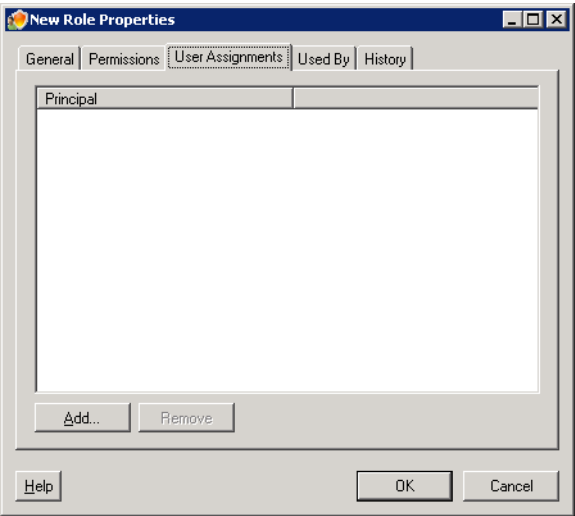
Column	Description
Operations	Displays the access associated with the security permission
Objects	List of objects associated with the security permission
Type	The type of security permission

Step 4 Click one of the following buttons to modify the list of permissions:

Button	Description
Add	Launches the security permissions dialog box containing the appropriate security permissions and objects to be included in the security role - Object List Security Permission—Pairs security permissions with specific objects. See Defining Object List Security Permission, page 21-16. - Object Type Security Permission—Pairs security permissions with the top-level object types, such as adapters, processes, targets, and global variables. See Defining Object Type Security Permission, page 21-18. - Owner Security Permission—Pairs security permissions for an owner with specific objects. See Defining Owner Security Permission, page 21-19.
Edit	Launches the Permission properties dialog box to display the selected security permission
Remove	Removes the selected permission from the list of security permissions included in the security role

- Step 5** Click the User Assignments tab to define the security role information between the security principal and the permissions.

Figure 21-5 Security Role Properties Dialog Box—User Assignments Tab



- Step 6** Click one of the following buttons to modify the list of permissions:

Button	Description
Add	Click this button to launch the Select User or Group dialog box and change the owner.
Remove	Removes the selected principal from the list of owners assigned to the security role

The Principal column displays the name of the group to which users can be assigned so that they have access to the functionality provided by the authority.

- Step 7** Click the following tabs to view security role references and history.
- Used By—Displays the objects that directly reference the selected object in their configuration. See [Viewing Used By Properties, page 21-22](#).
 - History—Displays the history of changes made to the security role. See [Viewing Security Role History, page 21-23](#).
- Step 8** Click **OK** to complete the security role definition process.

Managing Security Role Definitions

Use the following procedures to modify the security role definitions for TEO.

Viewing Pre-Defined Security Rules Assigned to Local User Groups

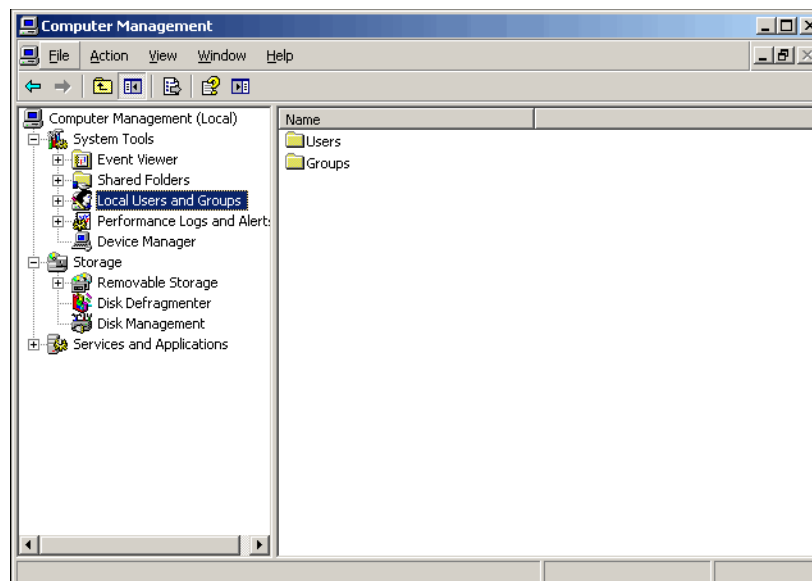
The installation creates several local computer groups on the TEO server, which are then used in the pre-defined security rules.

To view TEO Users and Groups:

Step 1 On My Computer, right-click and choose **Manage**.

The Computer Management dialog box displays.

Figure 21-6 Computer Management Dialog Box



Step 2 Under Local Users and Groups, choose **Groups** to view the following Tidal Enterprise Orchestrator user groups:

User Group	Description
TEO Operators	View all Operations information (Activity Views, Process Views and Auditing) - Start processes in adhoc manner - Cancel running processes - Cannot view or update Definition and Administration information

User Group	Description
TEO Auditors	View all Operations information (Activity Views, Process Views and Auditing) • Cannot start processes in an adhoc manner • Permission to view all Operation and audit logs • View, but cannot modify or create product objects such as process definitions, target definition or administration information
TEO Definition Authors	View all Operations information (Activity Views, Process Views and Auditing) • Start processes in adhoc manner • Cancel running processes • Permission to view, create, edit, or control product definitions such as process definitions and target definitions. • Permission to view but not update administration information.
TEO Administrators	Full rights to every view on the console and the ability to create and update all process definitions. Note Local administrators of the machine where TEO is installed will automatically have TEO administrator rights, even if they do not have specifically granted TEO administrator rights.

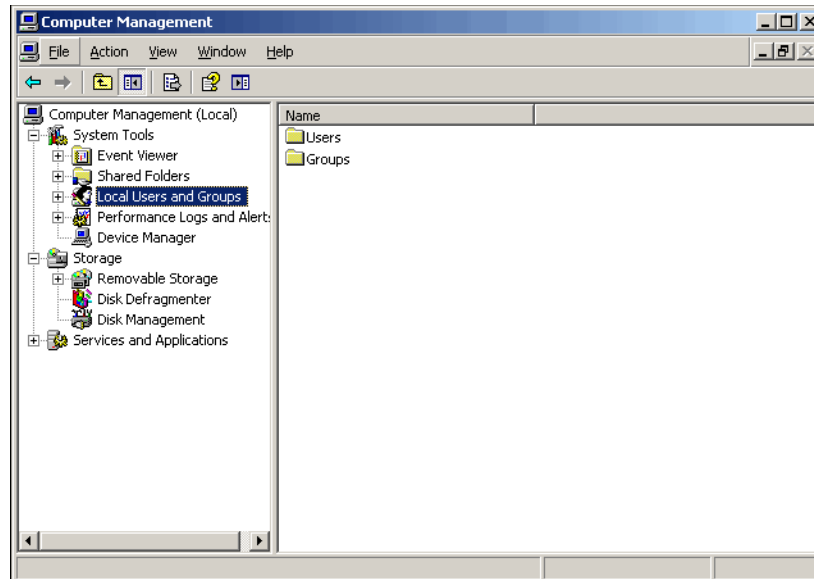
Assigning Users to Local Computer Groups from Windows

Users can be assigned to security role groups using the Windows Computer Management dialog box. Only administrators on the local computer can assign users to the groups.

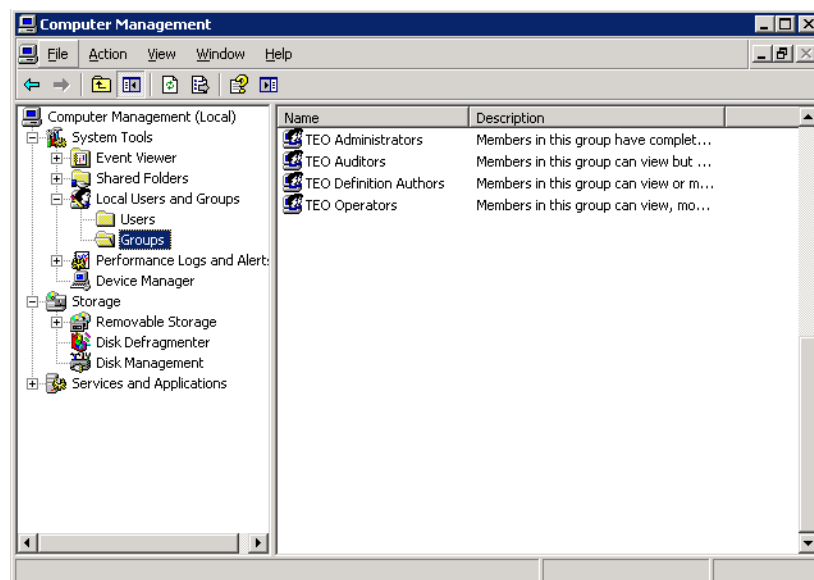
To assign users to security rules:

- Step 1** On the computer where TEO is installed, choose **Start > Programs > Administrative Tools > Computer Management**.

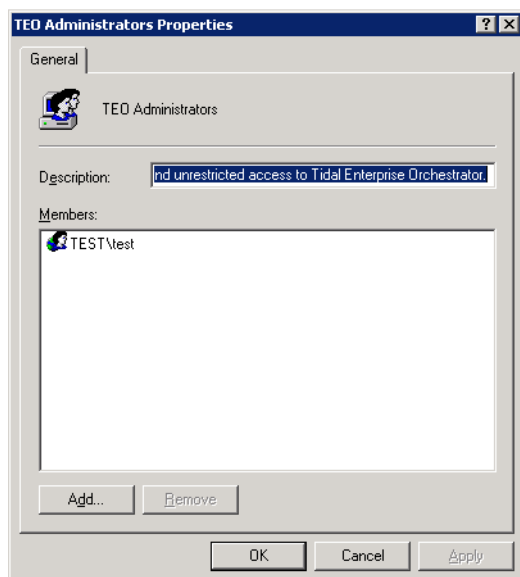
The Computer Management dialog box displays.

Figure 21-7 Computer Management Dialog Box

Step 2 Expand the **Local Users and Groups** node and double-click **Groups**.
The Groups display in the Details pane.

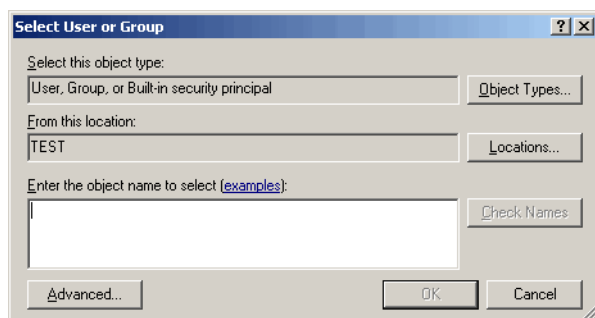
Figure 21-8 Groups Displayed In Details Pane

Step 3 On the Details pane, double-click the appropriate TEO group.
The Group Properties dialog box displays.

Figure 21-9 Administrators Group Properties Dialog Box

Step 4 Click **Add**.

The Select Users, Computers, or Groups dialog box displays.

Figure 21-10 Select Users, Computers, or Groups Dialog Box

Step 5 Enter the user name (domain\user name) in the text field and click **OK**.

The newly added user name displays on the Group Properties dialog box.

Step 6 Click **Apply** and then click **OK** to close the dialog box.

Modifying Security Role Permission Properties

To modify security role properties:

-
- Step 1** On the Administration—Security view, highlight an existing security role, right-click and choose **Properties**.
The Security Role Properties dialog box displays.
- Step 2** On the General tab, modify the appropriate information, as necessary.
- Step 3** On the Permissions tab, choose the appropriate security permission, and then click **Edit** to continue.
The Permission 'All' over 'All' Properties dialog box displays.
- Step 4** On the Powers tab, uncheck the check box to the left of the appropriate powers.
- Step 5** Modify the appropriate objects and object types for the permission and click **OK**.
The modified security role is displayed on the Select Role dialog box.
-

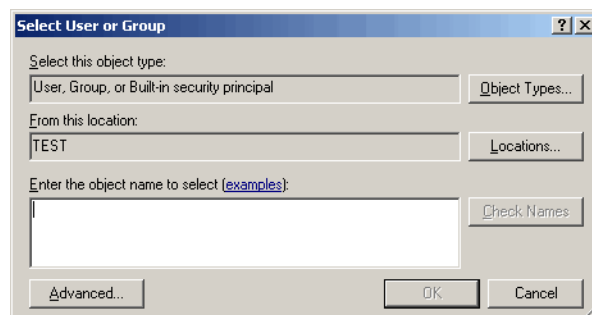
Changing Owner of Security Role

With the appropriate rights, ownership of a security role can be changed using the TEO security feature.

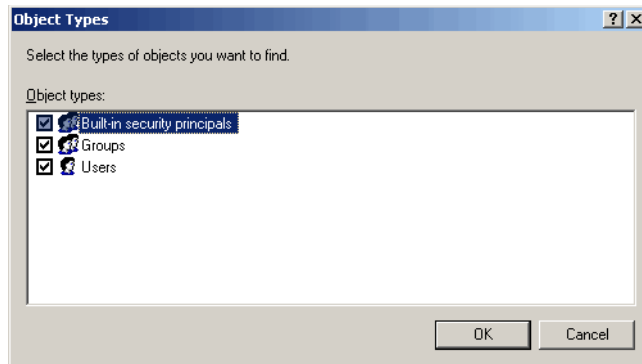
To modify the owner or principal of a security role:

-
- Step 1** On the Administrations—Security view, highlight the appropriate security role, right-click and choose **Properties**.
The Security Role Properties dialog box displays.
- Step 2** On the General tab, scroll to the Owner field, and to the right of each field, click **Browse**.
The Select User or Group dialog box displays.

Figure 21-11 Select User or Group Dialog Box



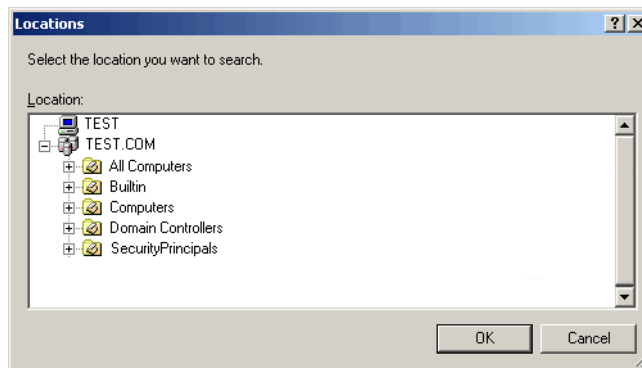
- Step 3** To change the default object type in the Select this object type field, click **Object Types**.
The Object Types dialog box displays.

Figure 21-12 Object Types Dialog Box

Step 4 Check the check box to the left of the appropriate object types, and click **OK**.

Step 5 To change the server location for querying a user or group, click **Locations** on the Select User or Group dialog box.

The Locations dialog box displays.

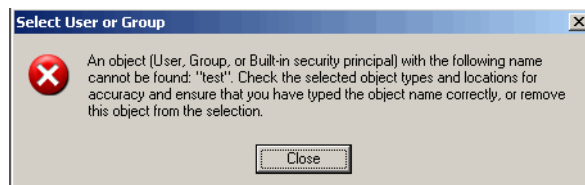
Figure 21-13 Locations Dialog Box

Step 6 Expand the appropriate server name, choose the user or group, and click **OK**.

Step 7 In the Enter the object name to select text field, enter the user name (domain\user name) or group and click **Check Names**.

**Note**

If there is a matching user name or group, it is displayed in the field. If there is not a match, the following message displays.

Figure 21-14 Select User or Group Error Message

Step 8 Click **Advanced** to enter additional query information.

The Advanced pane displays.

Figure 21-15 *Select User or Group—Advanced Pane*

Select this object type:
 User, Group, or Built-in security principal Object Types...

From this location:
 User Accounts Locations...

Common Queries

Name: Starts with [] Columns...

Description: Starts with [] Find Now

☐ Disabled accounts Stop

☐ Non expiring password

Days since last login: []

Search results:

Name (RDN)	E-Mail Address	Description	In Folder

Step 9 In the Name field, enter the appropriate terms, and click **Find Now**.



Note To generate more search results, leave the Name field blank and then click **Find Now**.

Step 10 In the Search Results pane, choose the appropriate user or group, and click **OK**.
 The selected added user name or displays in the Enter the object name to select text field.

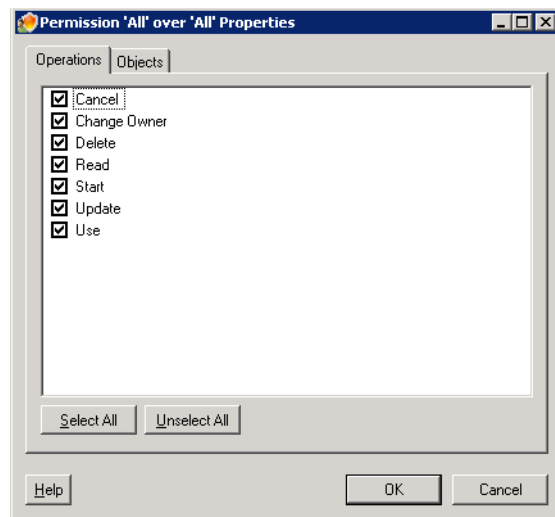
Step 11 Click **OK** to return to the Security Role Properties dialog box.
 The selected user name or group is displayed in the appropriate Owner field.

Defining Object List Security Permission

Use the Object List Security Permission to pair security permissions with specific objects within TEO. To define object list security permissions;

-
- Step 1** On the Security Role dialog box, click the **Permissions** tab.
- Step 2** Click **Add > Object List Security Permission**.
The Permission 'All' over 'All' Properties dialog box displays.

Figure 21-16 *Permission "All" Over "All" Properties Dialog Box—Operations Tab*

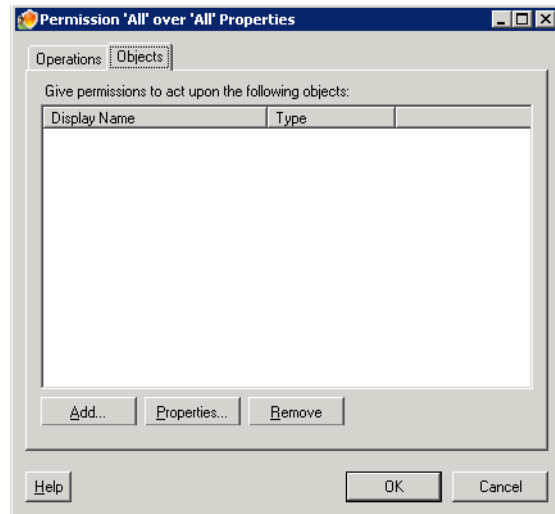


- Step 3** On the Operations tab, check the check boxes for the appropriate powers for the security role. Refer to the [Pre-defined Security Permissions, page 21-3](#) for list of available permissions.

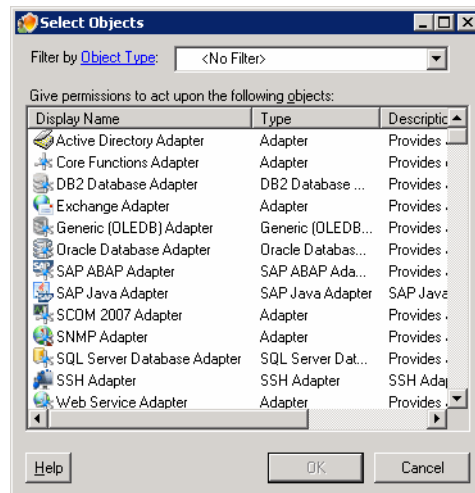


Note Click **Select All** to choose all the permissions on the list. Click **Unselect All** to remove all the selected permissions from the security role.

- Step 4** Click the **Objects** tab to continue.

Figure 21-17 Permission 'All' over 'All' Properties Dialog Box—Objects Tab

- Step 5** Click **Add** to add the appropriate objects to the permissions.
The Select Objects dialog box displays.

Figure 21-18 Select Objects Dialog Box

- Step 6** Choose the appropriate objects for the permission and click **OK**.

**Note**

Use the Filter by Object Type drop-down list to filter the list of displayed objects.

The defined object list permissions display on the Permissions tab of the New Role Properties dialog box.

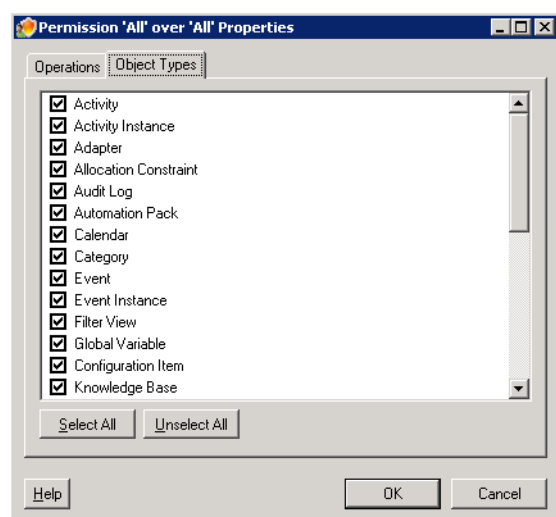
Defining Object Type Security Permission

Use the Object Type Security permission to pair security permissions with the top-level object types within TEO, such as adapters, processes, targets, and global variables.

To define object list security permissions:

-
- Step 1** On the Select Role dialog box, click the **Permissions** tab.
 - Step 2** Click **Add > Object Type Security Permission**.
The Permission 'All' over 'All' Properties dialog box displays.
 - Step 3** On the Operations tab, check the check boxes to the left of the appropriate permissions for the object types within the security role.
 - Step 4** Click the **Object Types** tab to continue.

Figure 21-19 Permission 'All' over 'All' Properties Dialog Box—Object Types Tab



- Step 5** On the Object Types tab, check the check boxes to the left of the appropriate object types to be included in the permissions of the security role, and click **OK**.

The defined object type permissions display on the Permissions tab of the Security Role Properties dialog box.

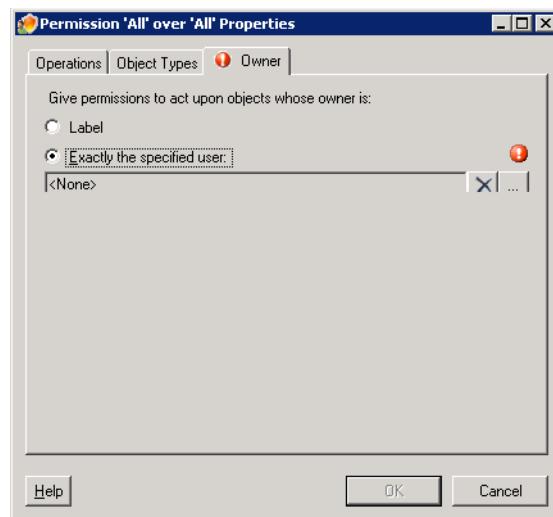
Defining Owner Security Permission

Use the Owner Security Permission to pair security permissions for an owner with specific objects within TEO.

To define owner security permissions:

-
- Step 1** On the Select Role dialog box, click the **Permissions** tab.
 - Step 2** Click **Add > Object Type Security Permission**.
The Permission 'All' over 'All' Properties dialog box displays.
 - Step 3** On the Operations tab, check the check boxes for the appropriate permissions for the objects within the security role.
 - Step 4** Click the **Object Types** tab, and then check the check boxes for the appropriate objects to included in the permissions of the security role.
 - Step 5** Click the **Owner** tab to continue.

Figure 21-20 Permission 'All' over 'All' Properties Dialog Box—Owner Tab



- Step 6** On the Owner tab, choose *one* of the following radio buttons to assign the Windows security principal (either a user or a group) the associated with the permission.

Field	Description
The Connected user	Click this button to assign the permission to the currently connected Windows user.
Exactly the specified user	Click Browse to launch the Select User Or Group dialog box and change the security principal for the permission.

- Step 7** Click **OK** to close the dialog box.
The defined object type permissions display on the Permissions tab of the Security Role Properties dialog box.
-

Assigning a User or Group as Principal to a Security Role

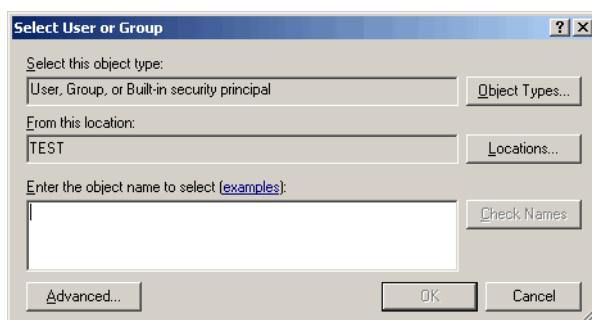
Use the following steps to quickly assign a user or group to a security role.

To assign a principal to a security role:

-
- Step 1** On the Administrations—Security view, highlight the appropriate security role, right-click and choose **Assign**.

The Select User or Group dialog box displays.

Figure 21-21 Select User or Group Dialog Box



- Step 2** In the Enter the object name to select text field, enter the user name (domain\user name) or group and click **Check Names**.



Note

If there is a matching user name or group, it is displayed in the field. If there is not a match, an error message displays.

- Step 3** On the Search Results pane, choose the appropriate user or group, and click **OK**.
The selected added user name is added as a security principal to the security role.
-

Viewing Security Role User Assignments

Use the following steps to review the list of users and groups assigned as principals to the security role.

To view user assignments;

-
- Step 1** On the Administrations—Security view, highlight the appropriate security role, right-click and choose **Properties**.
- Step 2** Click the **User Assignments** tab to review the list of users and groups.
-

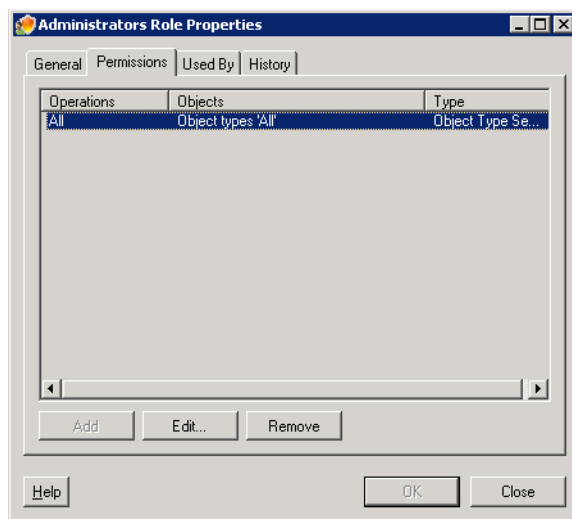
Removing Security Permissions

With the appropriate rights, security permissions can be removed when modifying the list of security authorities.

To remove security permissions:

-
- Step 1** On the Administrations—Security view, highlight the appropriate security role, right-click and choose **Properties**.
- The Security Role Properties dialog box displays.
- Step 2** Click the **Permissions** tab to continue.

Figure 21-22 Security Role Properties—Permissions Tab



- Step 3** Highlight the appropriate security permission, and click **Remove**.
- The selected permission is removed from the list of security permissions.



Note The removal of the security permission from the list is permanent. Click **Add** to create a new security permission.

Removing Security Objects

With the appropriate rights, security objects can be removed when modifying the object list security permission.

To remove a security object:

-
- Step 1** On the Administrations—Security view, highlight the appropriate security role, right-click and choose **Properties**.
- The Security Role Properties dialog box displays.
- Step 2** Click the **Permissions** tab, highlight the appropriate object list security permission, and click **Edit**.

The Permission 'All' over 'All' Properties dialog box displays.

- Step 3** Click the **Objects** tab, highlight the appropriate object in the list, and click **Remove**.

The selected object is removed from the list of objects.

- Step 4** Click **OK** to return to the Permissions tab of the Security Role Properties dialog box.

**Note**

The removal of the object from the list is permanent. Click **Add** to add a new object to the security permission.

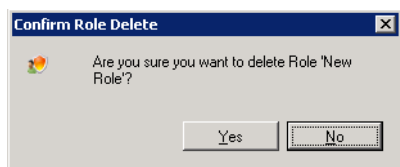
Deleting a Security Role

Use the following steps to delete a security role. Deleting the role deletes all associated permissions.

- Step 1** On the Administrations—Security view, highlight the appropriate security role, right-click and choose **Delete**.

The Confirm Security Role Delete dialog box displays.

Figure 21-23 Confirm Role Delete Dialog Box



- Step 2** Click **Yes** to delete the security role.

The security role is deleted from the list of security roles.

**Note**

The removal of the security role from the list is permanent. On the Administration—Security view, right-click and choose **New > Role** to add a new security role.

Viewing Used By Properties

Use the Used By tab to display the objects that directly reference the selected security role in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view used by objects:

- Step 1** On the Administration—Security view, highlight an existing security role, right-click and choose **Properties**.

The [Security Role] Properties dialog box displays.

- Step 2** Click the **Used By** tab to view the objects used by the security role.

Object	Description
Display Name	Name of the object
Type	Type of object

- Step 3** To view the properties for a specific object, highlight the object, right-click and choose **Properties**.

- Step 4** Click **OK** to close the dialog box.

Viewing Security Role History

Use the History tab to view a history of changes that have been made to the security role.

- Step 1** On the Administration—Security view, highlight an existing security role, right-click and choose **Properties**.

The [Security Role] Properties dialog box displays.

- Step 2** Click the **History** tab to view the changes made to the security role.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
User	The user name of the person that performed the action
Type	The action that occurred
Description	Information about the action that was performed

- Step 3** To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.

- Step 4** Click **OK** to close the dialog box.



CHAPTER 22

Managing Automation Packs

Automation packs can encompass everything related to representation, storage, import, packaging and management of content within TEO. Tidal automation pack files are a collection of TEO configuration objects, such as processes, variables, categories, targets, target groups, and more, all stored in one file.

Tidal Enterprise Orchestrator ships automation packs that provide default objects associated with adapters installed in the product. The automation packs shipped with the company are dependent upon the licensing for the company.

The Administration workspace includes an Automation Pack view, which displays the list of automation packs that have been imported.

In order for users to be able to create or import an automation pack, users will need to be a TEO Administrator.

To be able to edit, delete, re-import, or upgrade automation pack, the user will need to be a TEO Administrator on the automation pack object.

The following sections provide instructions on how to import, export, and create new automation packs.

- [Accessing Administration—Automation Packs, page 22-2](#)
- [Importing Automation Packs, page 22-7](#)
- [Creating Automation Packs, page 22-16](#)
- [Exporting Automation Packs, page 22-20](#)
- [Managing Automation Pack Files, page 22-28](#)
- [Core Automation Pack Objects, page 22-35](#)

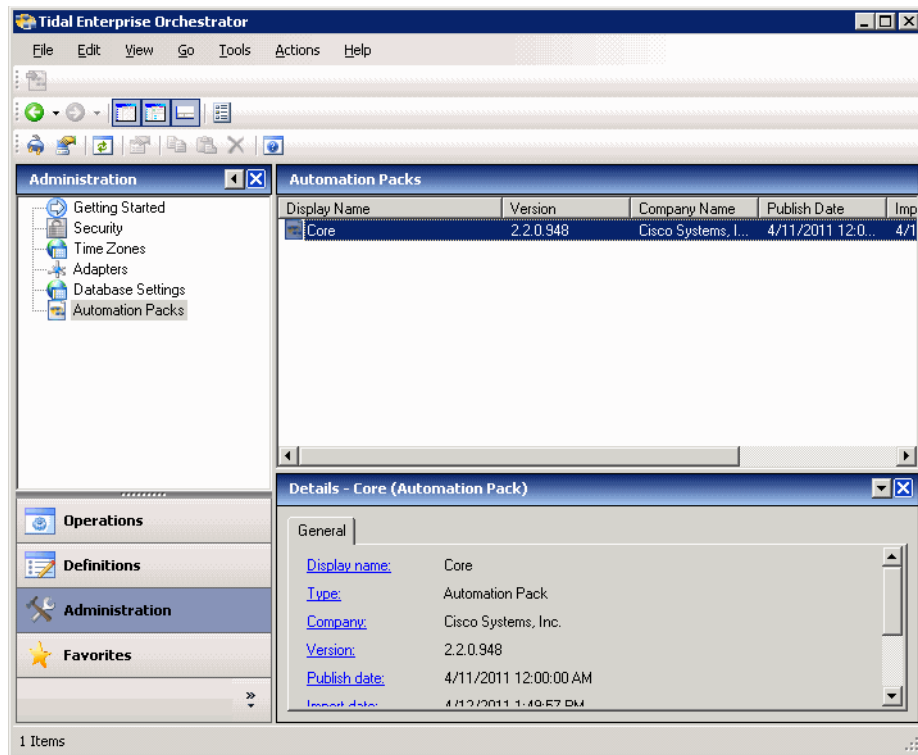
Accessing Administration—Automation Packs

To access the Automation Pack views:

On the Administration workspace, choose **Automation Packs**.

The Results pane displays.

Figure 22-1 Administration—Automation Packs View



Information about the following columns are displayed:

Column	Description
Company Name	Name of the company that releases the automation pack
Publish Date	Date the automation pack was exported to a file
Version	Version number of the automation pack
Display Name	The name of the automation pack
ID	Identification number of the automation pack
Import Date	Date the automation pack was imported into the product
Licensed	Indicates whether the automation pack is a licensed product of TEO
Description	Brief description of the automation pack

Tidal Automation Packs

Tidal Enterprise Orchestrator provides automation packs that provide default objects associated with adapters installed in the product. The following table provides the available automation packs and their descriptions:

Automation Pack	Description	Product Guide
Core	Contains default TEO objects to support other automation packs	Core Automation Pack Objects, page 22-35
Core Automation for SAP	Contains core objects for the SAP adapter	Cisco TEO Process Automation Guide for Core Automation for SAP
Microsoft Active Directory	Contains objects used to support Active Directory environments	Cisco TEO Process Automation Guide for Microsoft Active Directory
Microsoft Windows Server	Objects support Windows environments as well as content used in other automation packs, such as Active Directory.	Cisco TEO Process Automation Guide for Microsoft Windows Server
BMC Remedy	Contains the content to support synchronization of TEO incidents with the corresponding Remedy incidents	Cisco TEO Process Automation Guide for BMC Remedy
Automation for SAP BW and BWA	Contains the content used to automate best practices for monitoring BW availability, operations and performance. In addition, the BWA content provides assessment and remediation tools to assess, implement and maintain a BWA system.	Cisco TEO Process Automation Guide for SAP BW and BWA
Automation for SAP BOBJ Accelerator	Contains the content used to automate monitor BWA TREX (non BW environment) and Business Objects XI Data Services Content	Cisco TEO Process Automation Guide for SAP BOBJ Accelerator
Cisco UCS	Contains the content information used to support task automation on Cisco UCS Software instances	Cisco TEO Process Automation Guide for Cisco UCS
Assessment for SAP BWA	Provides information on importing and using the Assessment for SAP BWA automation pack in TEO	Cisco TEO Process Automation Guide for Assessment for SAP BWA
Incident Analysis for SAP	Contains the content used to automate best practices for identifying and analyzing availability and performance problems within your SAP environment.	Cisco TEO Process Automation Guide for Incident Analysis for SAP
Task Automation for SAP	Contains the content used to support task automation for SAP	Cisco TEO Process Automation Guide for Task Automation for SAP

Automation Pack	Description	Product Guide
System Copy for SAP Systems	Contains the content used to automate your system copy procedures for SAP systems	Cisco TEO Process Automation Guide for System Copy for SAP
Cloud Physical Server Automation	Contains the infrastructure related processes for creating and managing physical machines	Cisco TEO Process Automation Guide for Cloud
Cloud Service Orchestration	Contains processes for orchestrating fulfillment of cloud service requests	Cisco TEO Process Automation Guide for Cloud
Cloud Virtual Server Automation	Contains the infrastructure related processes for creating and managing virtual machines	Cisco TEO Process Automation Guide for Cloud
Cloud newScale Service Catalog	Contains all processes and objects required to integrate newScale service catalog with cloud content	Cisco TEO Process Automation Guide for Cloud

Automation Pack Details Pane

The Details pane displays detailed information about the selected automation pack. Clicking a link on a tab page opens the Properties dialog box for the automation pack. All the fields on the property pages of a third-party automation pack will be display-only except for the author.

Tab	Description
General	Displays general information about the item including the name, type, value, a brief description of the automation pack, and the ability to enable or disable an automation pack.

Viewing Automation Pack Properties

Use the Automation Packs Properties dialog box to view or modify the processes and objects in an automation pack.

To view automation pack properties:

- Step 1** On the Administration—Automation Packs view, highlight the appropriate automation pack, and right-click and choose **Properties**.

The Automation Pack Properties dialog box displays.

- Step 2** Click the appropriate tab to review the properties

Tab	Description
General	Displays general information about the automation pack
Objects	Displays the list of objects contained in the automation pack
Dependencies	Displays the list of automation packs and adapters referenced by the objects in the automation pack
History	Displays when the automation pack was created or modified. The column also displays audit log entries that are relevant to the automation pack.

Customization Properties

The fields on the following objects are available for editing when customizing an object from a TAP.

Object	Editable Property
Adapter	
Calendar	The following fields are editable: • All fields on the Dates tab for the Date List Calendar • All fields on the Calendars tab for the Group Calendar • All fields on the Recurrence tab for the Recurring Calendar
Category	All fields on the Members tab are editable. Users can add any process that they can customize. This includes processes created by the user or third-party processes with any customization other than No. Users can remove the processes that they add. They cannot remove the processes that came with the category regardless of its customization setting.
Extended Target Property	If the customization setting is <i>Limited</i> , only the Target Value field is editable.
Global Variable	Variable value is customizable

Object	Editable Property
Knowledge Base Article	The following fields are editable: • Summary • Possible cause • Possible resolution • Related information
Process	If the customization setting is <i>Limited</i>, then the following fields are editable. • Users can change the Enabled setting • Users can change the Execution & Archival option • Users can change the default target and runtime user • Users can change input variable value • Users can create new trigger or enable/disable third party trigger • Users can delete any trigger they created • Users can add any category that has customization level not set to <i>No</i> • Users can remove any category they personally added. Users can not remove the category that came with the process. If the customization setting is <i>Workflow</i>, then users will be able to edit everything that is set to <i>Limited</i> as well as the following: • Full control over the process workflow • Create local or definition scope variable • Delete variable that they create
Runtime User	All fields on the Members tab are editable. Users can add any process that they can customize. This includes any processes created by them or third party processes with any customization other than <i>No</i>. Users can remove the processes that they add, but cannot remove the processes that came with the category regardless of its customization setting.
Security Role	The following properties are editable: • Permissions tab is customizable. • User Assignments tab is customizable
Target	Everything is customizable except the target display name and description

Object	Editable Property
Target Group	Target group membership or criteria is customizable
Task Rule	The following properties are editable: - On the General tab, the Enabled check box and Owner field are customizable - Conditions tab is editable - Assign tab (for Assigned Task Rule) is editable - Notify tab (for Notify Task Rule) is editable - Update tab (for Update Task Rule) is editable

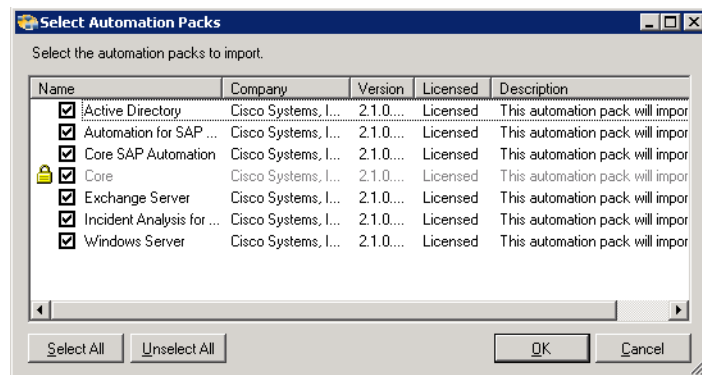
Importing Automation Packs

Use the Automation Pack Import Wizard to import product objects that are required to create and manage processes. The wizard automatically launches after the installation is complete and the automation pack initialization is completed. The wizard does not fully launch until after the automation server has started.

Use the following steps to import Tidal Automation Packs immediately after the complete product installation. The following steps feature the Core automation pack initial import.

Step 1 After the automation pack initialization is complete, the Select Automation Packs dialog box displays.

Figure 22-2 *Select Automation Packs Dialog Box*



Step 2 Check the check box to the left of each appropriate automation pack to be imported and click **OK**.

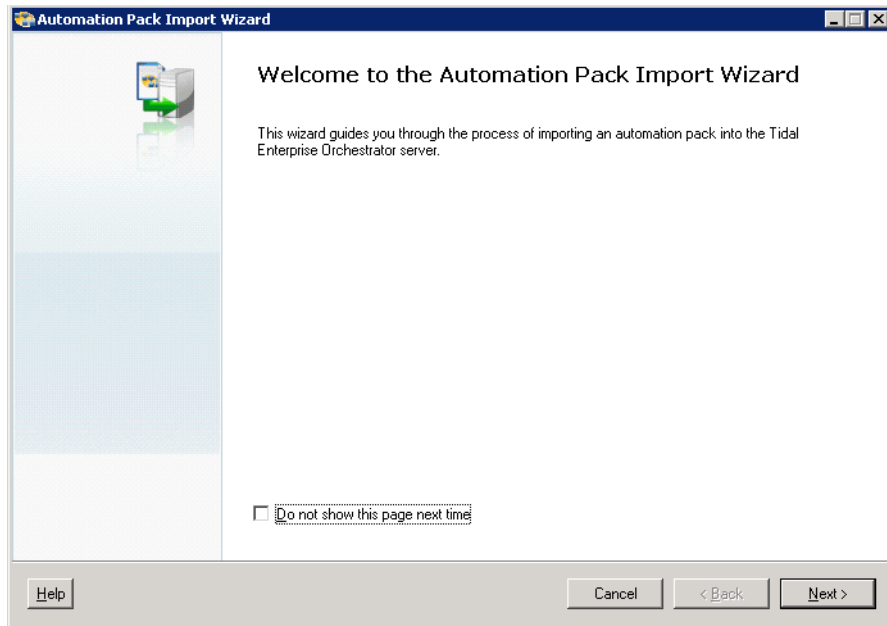
The available automation packs for import are dependant upon the product license. The Core automation pack will be imported first.



Note

See [Tidal Automation Packs, page 22-3](#) for details on the available automation packs.

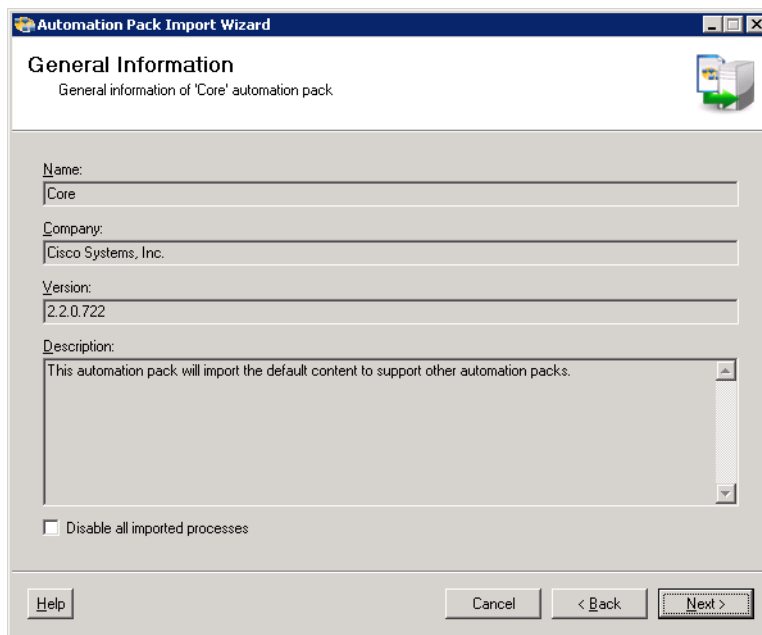
The Welcome to the Automation Pack Import Wizard panel displays.

Figure 22-3 Welcome to the Automation Pack Import Wizard Panel**Note**

If you do not want to display the Welcome panel the next time the wizard is launched, check the **Do not show this page next time** check box.

Step 3 Click **Next** to continue.

The General Information panel displays.

Figure 22-4 Automation Pack Import Wizard—General Information Panel

- Step 4** Check the **Disable all imported processes** check box to indicate that all processes from this tab should be disabled by default after being imported.
- Step 5** Review the display-only information about the automation pack and click **Next** to continue. The Email Configuration panel displays.

Figure 22-5 Automation Pack Import Wizard—Email Configuration Panel



Note

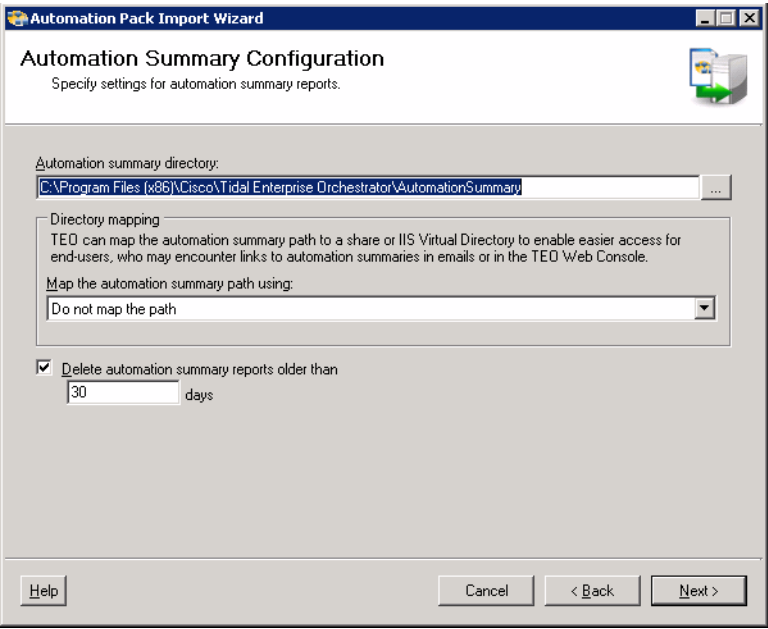
The settings in this panel can be manually changed when configuring a specific email activity that requires a different SMTP server or sender email address.

- Step 6** On the Email Configuration panel, specify the default SMTP server and sender's email address to be used for email activities.

Field	Description
Default SMTP server	Name of the SMTP server that is used as the default server for sending email messages.
Default SMTP port	Port number for the SMTP server. This field is automatically populated with port number 25.
Default sender	Email address of the sender that is designated as the default sender for email activities.

- Step 7** Click **Next** to continue. The Automation Summary Configuration panel displays.

Figure 22-6 Automation Pack Import Wizard—Automation Summary Configuration Panel



Step 8 On the Automation Summary Configuration panel, specify where the automation summary reports that are generated by activities are to be saved and how long the reports are to be retained.

The file paths specified indicate the path that will be used when viewing the automation summary reports.

Step 9 Verify or enter the appropriate default file path for the automation summary directory.

Field	Description
Automation summary directory	Verify the default file path that the TEO server will use when creating automation summary reports. Click Browse to determine the file path for the automation summary.

- Step 10** Select the appropriate directory mapping option from the drop-down list to map the automation summary to a shared directory or IIS Virtual Directory to allow end-users easier access to automation summaries using email or the TEO Web Console.

Option	Description
Share	Select this option to indicate the automation summary should be saved on the specified file path. In the Share Path field, enter the UNC path to a share directory. This path will be used when viewing the automation summary reports. Example: (\\servername\sharename\path\filename) • Verify share—Click this button to verify that the current file path in the text field is a valid UNC share directory. If a valid file path exists, a confirmation dialog box displays. • Create share—Click this button to create the directory on the TEO server where the automation summary reports should be created. Note Verify that the UNC share file path is on a network where the TEO service account has write permissions.
Use IIS Virtual Directory	Select this option to indicate the file path is on an IIS Virtual Directory. In the Virtual directory path field, enter the http:// path that corresponds to a virtual directory in IIS.
Do not map the path	Select this option to indicate that the automation summary should not be saved to a shared or IIS virtual directory. If this option is selected, then the automation summary will not be available for view from the Web Console.
Delete automation summary reports older than	Check this check box and in the text field, and enter the number of days that the automation summary files should be retained in the text field. Automation summary files that have been retained for a period past the specified number of days will be deleted.

- Step 11** Configure the archiving settings for the automation summary reports.

Option	Description
Delete automation summary reports older than	Check this check box and in the text field, and enter the number of days that the automation summary files should be retained in the text field. Automation summary files that have been retained for a period past the specified number of days will be deleted.

- Step 12** Click **Next** to continue.

The Default Windows Credentials panel displays.

Figure 22-7 Automation Pack Import Wizard—Default Windows Credentials Panel

Automation Pack Import Wizard

Default Windows Credentials

Specify the runtime user information for your default Windows server.

Specify the default credentials for the Windows automation server target:

Domain:
TEST

User name:
test

Password:

Help Cancel < Back Next >

Step 13 On the Default Windows Credentials panel, specify the default credentials for the Windows automation server target.

Field	Description
Domain	Name of the domain in which the user account that is used to connect to the Windows server
User name	Name of the user account
Password	Password assigned to the user account

Step 14 Click **Next** to continue.

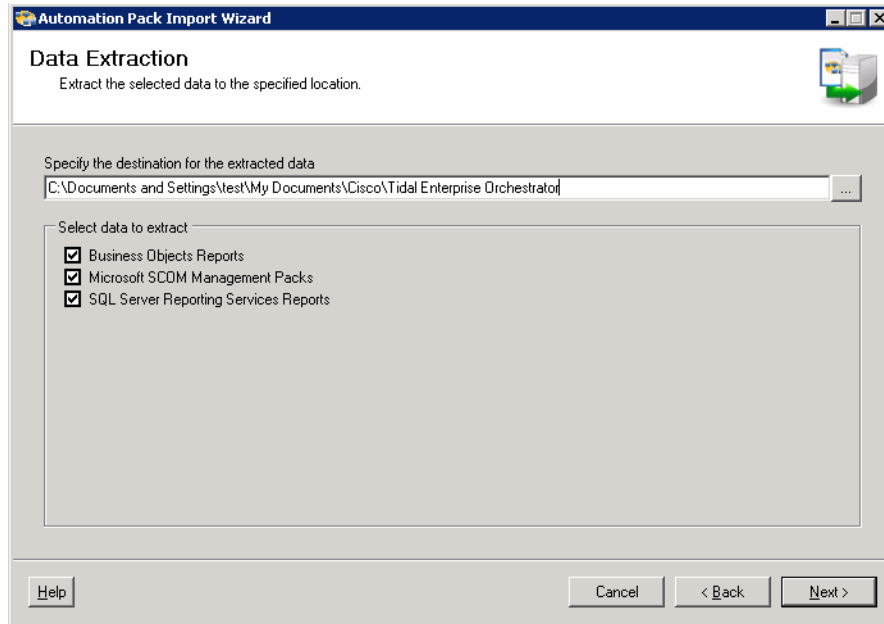
The Data Extraction panel displays.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure 22-8 Automation Pack Import Wizard—Data Extraction Panel



Step 15 Under Specify location to extract data files, verify the default location for where the TEO-provided data files should be copied. Click **Browse** to specify a different location.

Step 16 Under Select data to extract, check the appropriate check boxes:

Option	Description
Business Objects Reports	Check this check box to indicate that BIAR report files should be copied. The files are available for importing later into Business Objects.
Microsoft SCOM Management Packs	TEO provides management packs for integration with the Microsoft System Center Operations Manager 2007 framework. Check this check box to indicate that the SCOM management pack files should be copied.
SQL Server Reporting Services Reports	Check this check box to indicate that the report files should be copied. The files are available for importing later into SQL Server Reporting Services.

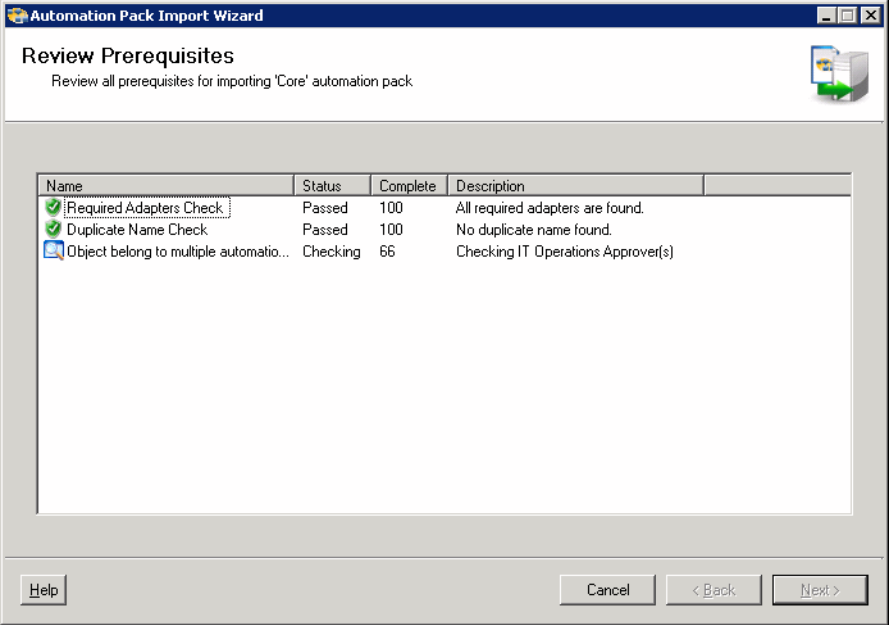


Note

Reports should be imported after the Automation Pack Import Wizard is completed.

Step 17 Click **Next** to continue.
The Review Prerequisites panel displays.

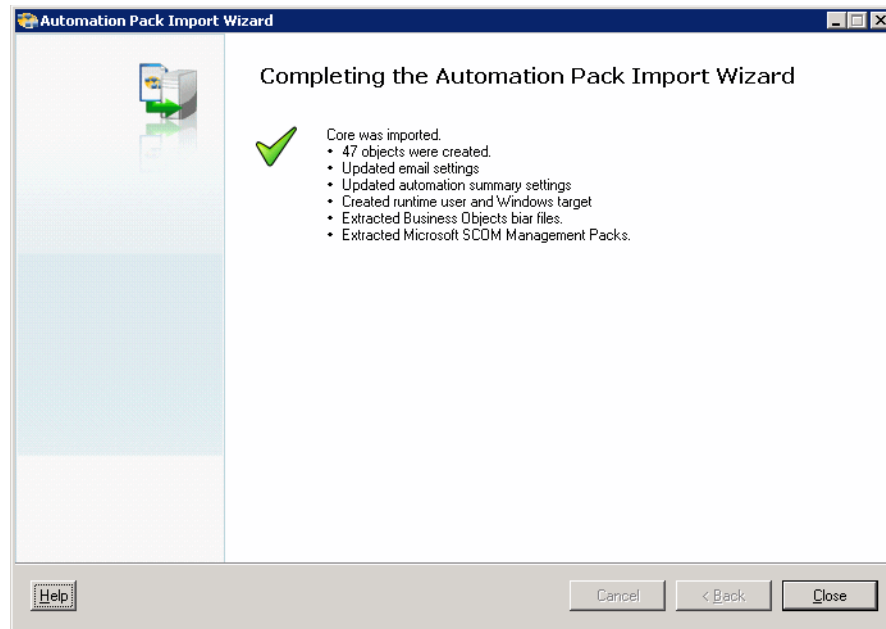
Figure 22-9 Automation Pack Import Wizard—Review Prerequisites Panel



The green check mark verifies that the prerequisite was located on the computer.
The red X determines that the prerequisite is not available on the computer. When this occurs, the import progress is stopped and cannot continue until all prerequisites have been met.
If you click **Cancel** during the import, the wizard will close and the automation pack will not be imported.

Column	Description
Name	Name of the prerequisite
Status	Status shows whether the prerequisite was located on the computer - Passed—Correct item or version of item was on the computer - Failed—Correct item or version of item was not on the computer
Complete	Percentage of computer checked when verifying prerequisite
Description	Displays description of the prerequisite information or instructions to further requirements for the prerequisites to be installed.

If all prerequisites are passed, the wizard automatically continues to the next panel which displays the status of the automation pack objects being imported.
After the objects have been imported, the importing of the Core automation pack is complete.

Figure 22-10 *Completing the Import Objects Wizard Panel*

If other automation packs were selected to be imported, the wizard will relaunch for the next automation pack. Refer to the appropriate guide for additional information.

Overwriting Existing Objects

The Overwrite Objects dialog box displays if the Tidal Enterprise Orchestrator server contains existing objects with the same unique ID. The Overwriting Existing Objects dialog box will display if the current user is the author of the object. If the object belongs to a third-party automation pack, the object will be updated automatically. Any changed value of the object will be preserved.

Use the Overwrite Objects dialog box to confirm whether to overwrite existing objects that currently reside in TEO. To keep the existing version of the object, remove the check mark, and click **OK**.

Information about the following objects are displayed:

Column	Description
Name	Display name for the existing object in TEO
Type	Type of object
Version	New version number of the object that is being imported
Description	Brief description of the existing object, including the current version number of the object in TEO

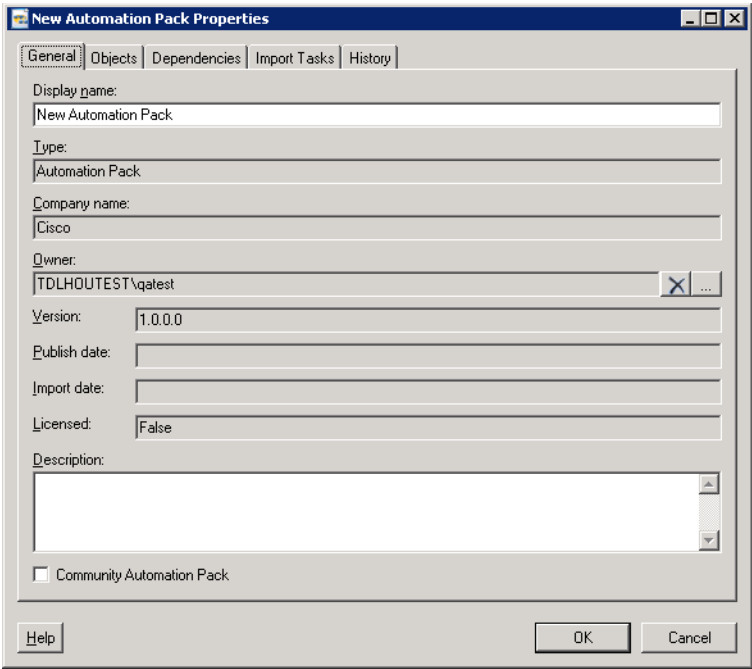
Creating Automation Packs

Tidal Automation Package (*.tap) files include processes and other defined objects for TEO. The defined automation packs included with the product are located in the install directory on the machine where the product was installed. Individual-created automation packs may be exported and re-imported on an as-needed basis.

Use the following steps to create an automation pack:

- Step 1
- In the Administration—Automation Pack view, right-click and choose **New > Automation Pack**. The New Automation Pack Properties dialog box displays.

Figure 22-11 New Automation Pack Properties Dialog Box—General Tab



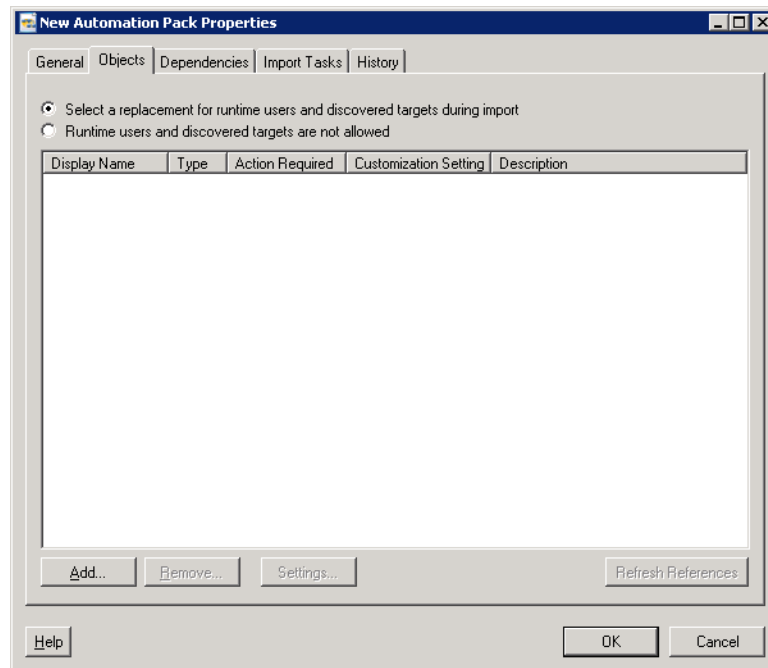
- Step 2
- On the General tab, enter the following information:

Column	Description
Display name	Name of the automation pack
Type	Type of object
Company name	Name of the company that releases the automation pack
Version	Version number of the automation pack
Publish date	Date the automation pack was exported to a file
Import Date	Date the automation pack was imported into the product
Owner	Owner of the automation pack. This is typically the creator of the automation pack.

Column	Description
Description	Brief description of the automation pack
Community Automation Pack	This check box is available only when creating new automation packs. Check this check box to indicate the TAP file is a community automation pack. This allows anyone the ability to modify and export the TAP. After the automation pack is created, the check box will no longer be available and the TAP file cannot be made private. If the check box remains unchecked, then the TAP file becomes private and can be modified and exported only by the author.

Step 3 Click the **Objects** to continue.

Figure 22-12 *New Automation Pack Properties—Objects Tab*



Step 4 On the Objects tab, use the following radio buttons to add objects to the automation pack.

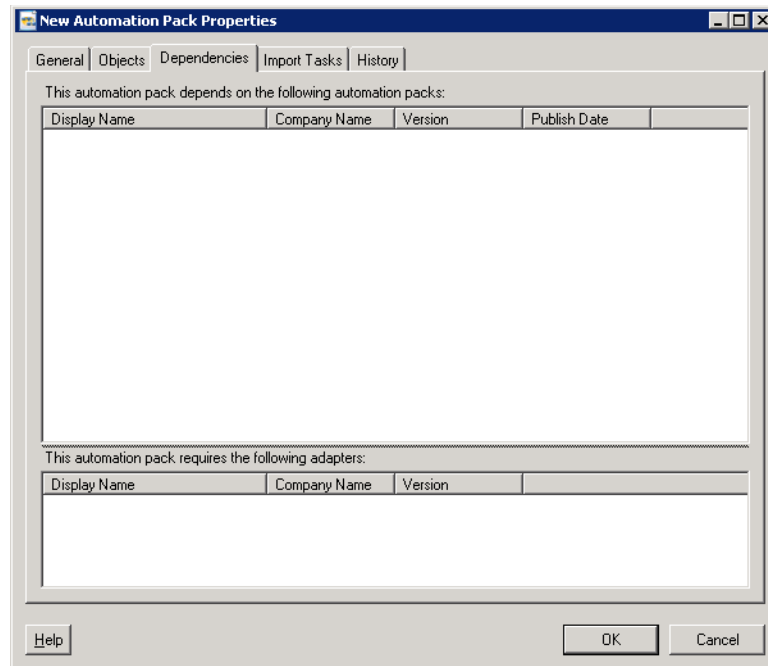
Option	Description
Select a replacement for runtime users and discovered targets during import	Select this radio button to indicate that the runtime users and discovered targets will be replaced during the import process.
Runtime users and discovered targets are not allowed	Select this radio button to indicate users will not be able to save the automation pack until the object is removed from the automation pack. All the runtime users and discovered targets will be flagged with an action stating that the objects should be removed. Note To remove a runtime user or a discovered target, remove the object that references the items first before removing the object from the automation pack.
Add	Click this button to launch the Select Object dialog box and select an object from the list of exportable objects. Objects that already belong to an automation pack will be filtered from this dialog. Note For information on adding an object, see Adding Objects to Automation Packs, page 22-30.
Remove	Highlight the object and then click this button to remove an object from the list.
Refresh References	Click this button to update the list of references associated with the object. Note The objects (except Runtime Users or Discovered Targets) in the automation pack will be stamped with the automation pack ID after the automation pack has been updated.

Step 5 Information about the objects are displayed in the following columns.

Columns	Description
Display Name	Name of the automation pack
Type	Object type
Action Required	Action required to successfully import or export the objects
Description	Brief description of the automation pack. Marketing information for the automation pack can be displayed as well as a hyperlink to marketing information.
Version	Version number of the product

Step 6 Click the **Dependencies** tab to continue.

The dependent automation pack and required adapter lists will be updated when the automation pack properties is first opened or when there is a change to the **Objects** page, such as adding or removing an object.

Figure 22-13 New Automation Pack Properties—Dependencies Tab

- Step 7** Review the list of automation packs and adapter information referenced and required by the objects in the automation pack.

Automation Pack Dependencies

Columns	Description
Display Name	Name of the automation pack
Company Name	Name of the company that released the automation pack
Version	Version number of the product
Publish Date	Date the automation pack was exported to a file
ID	Identification number of the automation pack
Description	Brief description of the automation pack. Marketing information for the automation pack can be displayed as well as a hyperlink to marketing information.

Required Adapters

Display Name	Name of the adapter
Company name	Name of the company that licensed the product
Version	Version number of the product
Release date	The date and time the adapter is available in the product
Install date	The date and time the adapter was installed
Description	A brief overview of the adapter

- Step 8** Click **OK** to close the dialog box.

Exporting Automation Packs

The processes and objects included in Tidal Automation Packs (TAP) that have been imported into TEO or created by a user can also be exported onto your computer. Exporting processes and objects moves the processes from one environment to another, creates backups of the processes, and shares the processes with another organization.

**Note**

Third-party automation packs cannot be exported. Users can only export self-authored or community automation packs.

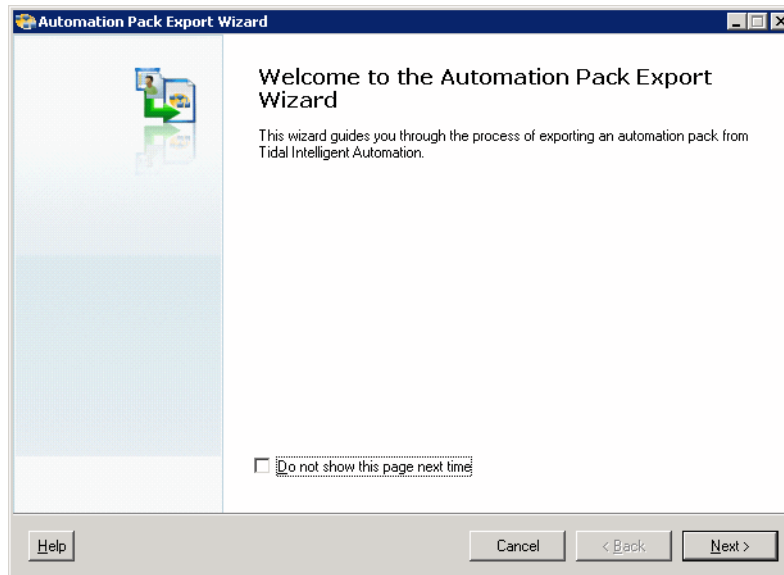
Use the Automation Pack Export Wizard to export a TAP file to a designated file path on your computer.

To export an automation pack:

- Step 1** On the Administration—Automation Packs view, highlight the appropriate automation pack, right-click and choose **Export**.

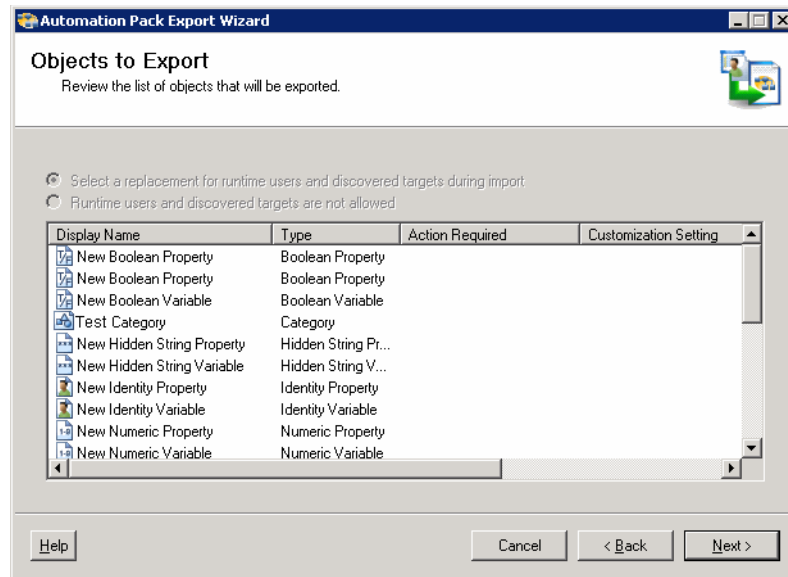
The Welcome to the Automation Pack Export Wizard panel displays.

Figure 22-14 Welcome to Automation Pack Export Wizard Panel



- Step 2** Click **Next** to continue.

The Objects to Export panel displays.

Figure 22-15 Automation Pack Export Wizard—Objects to Export Panel

Step 3 On the Objects to Export panel, review the list of objects associated with the process being exported and click **Next**.

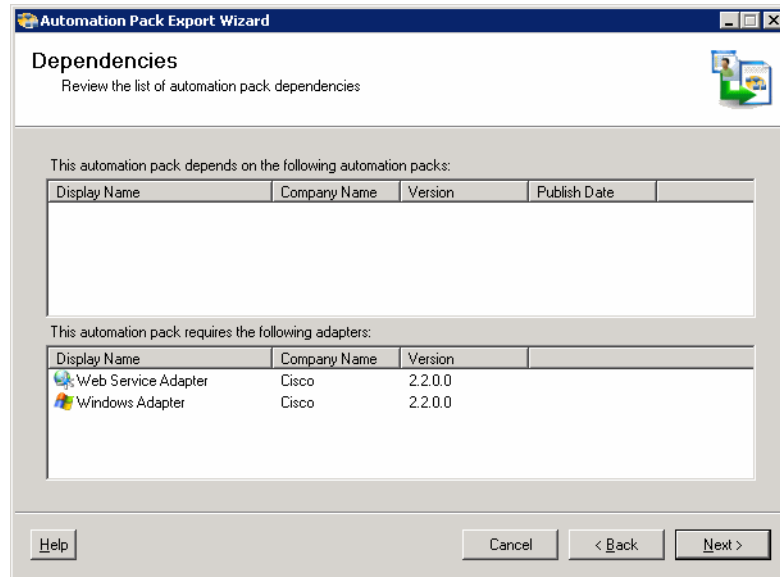
Columns	Description
Select a replacement for runtime users and discovered targets during import	<i>Display-only.</i> Selected radio button indicates the runtime users and discovered targets will be replaced during the import process.
Runtime users and discovered targets are not allowed	<i>Display-only.</i> Selected radio button indicates users will not be able to save the automation pack until certain objects are removed from the automation pack.
Display Name	The name of the objects that are associated with the exported automation pack. The objects are grouped by type (Processes, Target, Runtime User, Knowledge Base)
Type	Type of object
Action Required	Action required to successfully import or export the objects Note For additional information, see Adding Objects to Automation Packs , page 22-30 or Removing Objects from Automation Packs , page 22-33.

Columns	Description
Customization Setting	Displays the customization setting for the automation pack • No—Indicates the author of the object prefers the object to remain unchanged whenever a new automation pack is imported. • Limited—Indicates the author has granted editing permission to some properties of the object and any changes made will be preserved whenever a new automation pack is imported. • Workflow—Indicates the author has granted editing permission to the process properties and the objects within the process workflow.
Description	Brief description of the automation pack. Marketing information for the automation pack can be displayed as well as a hyperlink to marketing information.

Step 4 Click **Next** to continue.

The Dependencies panel displays.

Figure 22-16 Automation Pack Export Wizard—Dependencies Panel



- Step 5** Review the list of automation packs and adapter information referenced and required by the objects in the automation pack.

Automation Pack Dependencies

Columns	Description
Display Name	Name of the automation pack
Company Name	Name of the company that released the automation pack
Version	Version number of the product
Publish Date	Date the automation pack was exported to a file
Description	Brief description of the automation pack Marketing information for the automation pack can be displayed as well as a hyperlink to marketing information.

Required Adapters

Display Name	Name of the adapter
Company name	Name of the company that licensed the product
Version	Version number of the product
Release date	The date and time the adapter is available in the product
Install date	The date and time the adapter was installed
Description	A brief overview of the adapter

- Step 6** Click **Next** to continue.

Step 7 The General Information panel displays.

Figure 22-17 Automation Pack Export Wizard—General Information Panel

Automation Pack Export Wizard

General Information

Please enter general information about the automation pack.

Name: New Automation Pack

Company:

Version: 1.0.1.0

Description:

Help Cancel < Back Next >

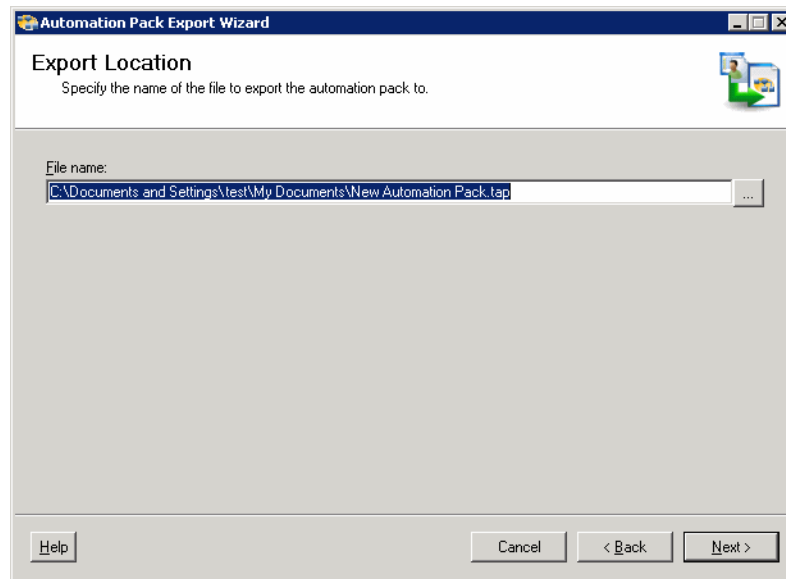
Step 8 On the General Information panel, modify the version number for the automation pack, as necessary.

Field	Description
Name	<i>Display-only.</i> Name of the automation pack
Company	<i>Display-only.</i> Name of the company that releases the automation pack
Version	Version number of the automation pack
Description	<i>Display-only.</i> Brief description of the automation pack

Step 9 Click **Next** to continue.

The Export Location panel displays.

Figure 22-18 *Export Location Panel*



- Step 10** On the Export Location panel, in the File name text box, specify the name of the file and where the automation pack will be exported onto the computer.

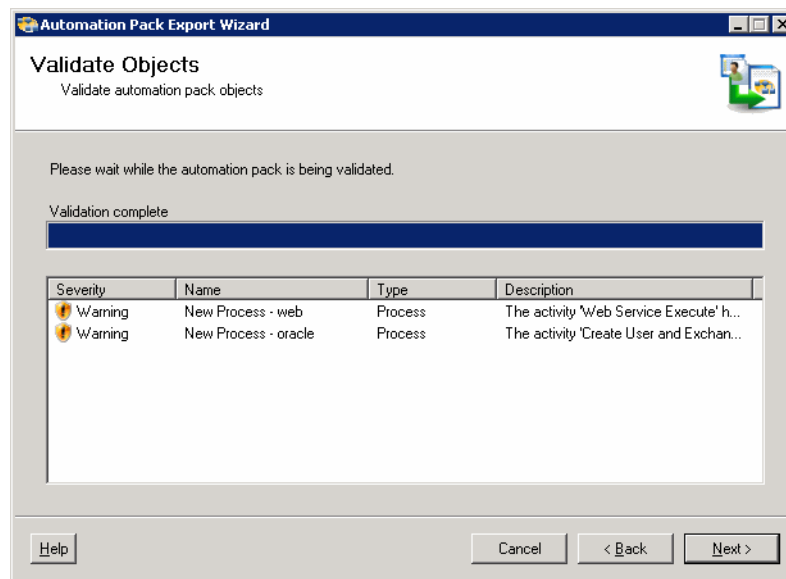


Note Click **Browse** to specify the appropriate file location.

- Step 11** Click **Next** to continue.

The Validate Objects panel displays the progress of the object validation.

Figure 22-19 *Automation Pack Export Wizard—Validate Objects Panel*



Step 12 On the Validate Object panel, the following information is displayed about the objects being validated:

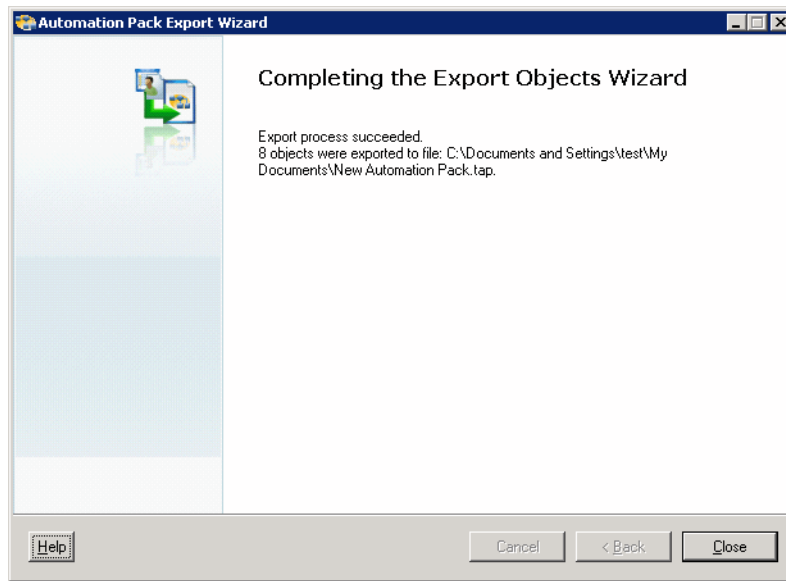
Column	Description
Severity	Indicates the severity of the error
Name	Name of the questionable object
Type	Type of object in question
Description	Brief description of the error

Step 13 Click **Next** to continue.

The Export Objects panel displays while exporting the automation pack.

The Completing the Export Objects Wizard panel displays.

Figure 22-20 Completing the Export Objects Wizard Panel



Step 14 Click **Close** to complete the automation pack export process.

Extracting Data Files

Data files are embedded in some TEO-provided automation packs. By the default, users can extract these data files during the automation pack import process. However, if the user decides not to extract the files at that time, they can use the following steps to extract the files in the automation pack to a location on the computer.

To extract the data files:

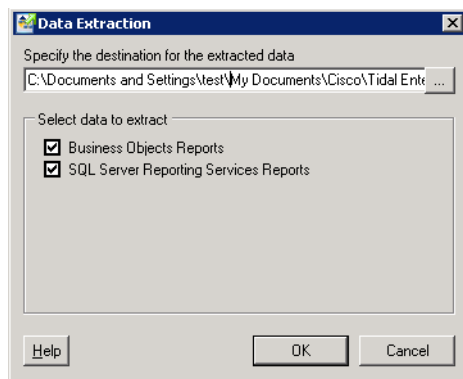
Step 1 On the Administration—Automation Packs view, right-click and choose **Extract**.

The Open dialog box displays the list of available automation packs.

Step 2 Highlight the appropriate automation pack, and then click **Open**.

The Data Extraction dialog box displays.

Figure 22-21 Data Extraction Dialog Box



Step 3 In the Specify the destination for the extracted to extract data files field, verify the default location for where the selected files are to be copied.



Note Click **Browse** to specify a different location.

Step 4 Check the check box to the left of the appropriate data file to indicate that the data file should be extracted.

Step 5 Click **OK**.

The files are copied to the selected location.

Managing Automation Pack Files

The content of the user-created automation packs can only be modified within the console. Automation packs provided by TEO cannot be exported by the user. Most objects provided as content by TEO cannot be modified. Some properties of objects, such as global variables and targets can be modified.

Use the following instructions to modify automation pack files.

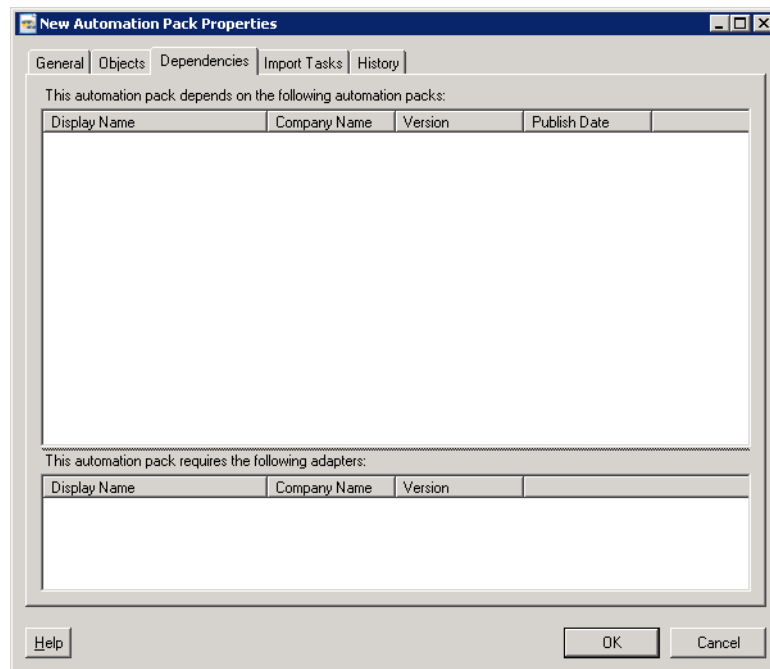
Reviewing Automation Pack Dependencies

To review automation pack dependencies:

- Step 1** On the Administration—Automation Pack view, highlight the appropriate automation pack, right-click and choose **Properties**.
- Step 2** Click the **Dependencies** tab to view the dependent automation pack and required adapter lists for the automation pack.

The dependencies will be updated when the automation pack properties is first opened or when there is a change to the Objects tab, such as adding or removing an object.

Figure 22-22 New Automation Pack Properties—Dependencies Tab



- Step 3** Review the list of automation packs and adapter information referenced and required by the objects in the automation pack.

Automation Pack Dependencies

Columns	Description
Display Name	Name of the automation pack
Company Name	Name of the company that released the automation pack
Version	Version number of the product
Publish Date	Date the automation pack was exported to a file
Description	Brief description of the automation pack. Marketing information for the automation pack can be displayed as well as a hyperlink to marketing information.

Required Adapters

Display Name	Name of the adapter
Company name	Name of the company that licensed the product
Version	Version number of the product
Release date	The date and time the adapter is available in the product
Install date	The date and time the adapter was installed
Description	A brief overview of the adapter

- Step 4** Click **OK** to close the dialog box.

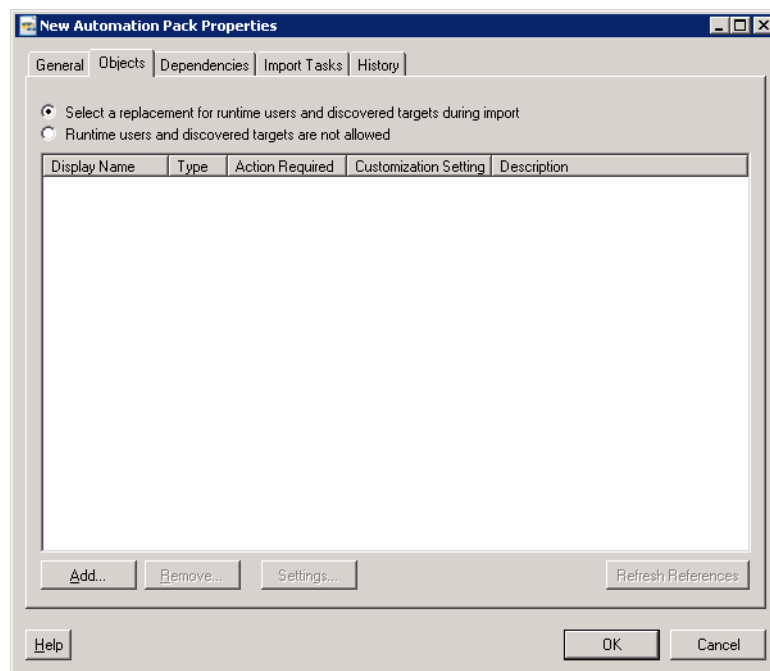
Adding Objects to Automation Packs

Use this option to add more objects to an automation pack file.

To add objects to an automation pack:

- Step 1** In the Administration—Automation Packs view, highlight the appropriate automation pack, right-click and choose **Properties**.
- Step 2** Click the **Objects** tab to continue.

Figure 22-23 New Automation Pack Properties—Objects Tab

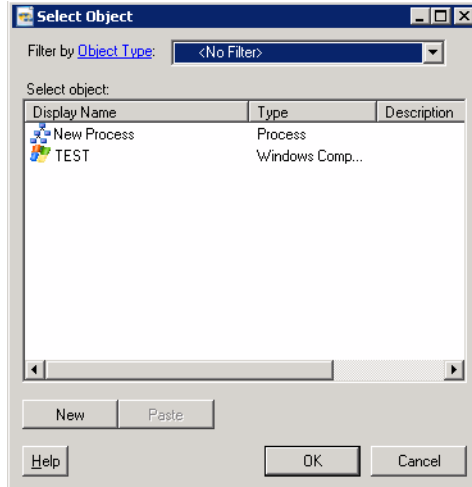


- Step 3** Click **Add** to add objects to the automation pack.
The Select Object dialog box displays.



Note

Objects that already belong to an automation pack will be filtered from this dialog box.

Figure 22-24 Select Object Dialog Box

Step 4 From the Filter by Object Type drop-down list, choose the appropriate object type to filter the list of objects.

Step 5 Under Select Object, highlight the appropriate object(s) and click **OK**.



Note To choose multiple objects, press **Shift-Click** to choose objects in sequence or **Ctrl-Click** to choose objects in non-sequential order.

Step 6 If the object is not displayed in the list, click **New** to create an object to add to the automation pack. The objects display on the Objects tab.

Step 7 Click **OK** to close the dialog box.

Customizing the Settings for Automation Packs

Use the Settings dialog box to define the customization settings for the objects included in an automation pack. These settings can only be modified by the automation pack author.

When the automation pack author imports a newer version of the TAP, the objects in the automation pack will replace the objects in the database.

When a third-party user imports a newer version of the TAP, the customization setting of an object will determine whether users customized values will be preserved.

The following are instances where an object customization will be lost.

- The author of the object no longer allows users to customize the object. Any customization of the object will be lost on upgrade.

For example, the global variable customization level is set to *Limited*. Users change the variable value. However, in the updated TAP, the author no longer allows users to change the variable value, because the TAP must have a particular value. Therefore, the customization level is now set to *No*.

- The object customization level is unchanged, but the schema of the object is changed. The old object is now obsolete and needs to be replaced.

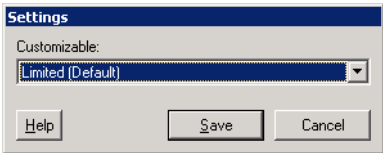


Note For information on the properties of the objects that can be customized, see [Customization Properties, page 22-5](#).

To change the customization of an object:

- Step 1** On the Administration Automation Pack view, highlight the appropriate automation pack, right-click and choose **Properties**.
- Step 2** Click the **Objects** tab to continue.
- Step 3** Highlight the appropriate object, and then click **Settings**.
The Settings dialog box displays.

Figure 22-25 Settings Dialog Box



- Step 4** From the **Customizable** drop-down list, choose the appropriate option.

Option	Function
No	Choose this option to indicate the author of the object prefers the object to remain unchanged whenever a new automation pack is imported. Therefore, any changes made to the existing object on the database will be lost when replaced by the object in the TAP.

Option	Function
Limited (Default)	Choose this option to indicate that the author has granted editing permission to some properties of the object and any changes made will be preserved whenever a new automation pack is imported. If the customization level of an object being imported is set to <i>Limited</i>, the author of the object grants the users editing permission to some properties of the object. Those properties, if modified on the existing object in the database, will be preserved. Note If the previous version of a process has the customization level set to <i>Workflow</i>, but the updated process is set to <i>Limited</i>, all properties that users can customize with the <i>Limited</i> customization level will be preserved. The rest of the modified properties will be replaced because the setting by the author has dictated that the properties cannot be modified when setting is <i>Limited</i>. See the Customization Properties, page 22-5.
Workflow	This setting is only available for a process, which contains the process properties and the workflow. Choose this option to indicate that any changes made to the process properties and workflow will be preserved whenever a new automation pack is imported. If the workflow is not modified, then the workflow will be replaced when an updated automation pack is imported.

- Step 5** Click **OK** to close the dialog box.
- The selected option displays in the Objects tab.

Removing Objects from Automation Packs

Use this option to remove objects from an automation pack file. Removing objects from the list of objects in the automation pack does not delete the object from the system.

To remove objects from automation pack:

-
- Step 1** On the Administration—Automation Pack view, highlight the appropriate automation pack, right-click and choose **Properties**.
- Step 2** Click the **Objects** tab to continue.
- Step 3** Highlight the appropriate object and then click **Remove** to remove the object from the list.
- The object is removed from the list of objects displayed on the Objects tab.
- Step 4** Click **OK** to close the dialog box.
-

Refreshing References in Automation Pack View

Use the following instructions to update list of objects in the Objects tab.

To refresh the objects list:

-
- Step 1** On the Administration—Automation Packs view, highlight the appropriate automation pack, right-click and choose **Properties**.
 - Step 2** Click the **Objects** tab to continue.
 - Step 3** Click **Refresh References** to update the list of references associated with the object.
 - Step 4** Click **OK** to close the dialog box.
-

Deleting Automation Packs

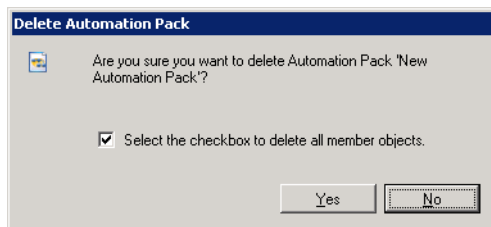
Use the following steps to delete an automation pack from TEO. Automation packs that have objects with dependencies cannot be deleted.

To delete an automation pack:

-
- Step 1** On the Administration—Automation Packs view, highlight the appropriate automation pack, right-click and choose **Delete**.

The Delete Confirmation dialog box displays.

Figure 22-26 Delete Automation Pack Dialog Box



- Step 2** Uncheck the **Select the checkbox to delete all member objects** check box to keep all member objects in the product. If the check box remains checked, then all objects in the automation pack will also be deleted.
 - Step 3** Click **OK** to delete the automation pack.
-

Core Automation Pack Objects

This section describes the objects that are added to the product after the Core automation pack is imported. The Core automation pack is provided by TEO and is a required prerequisite for all other automation packs included in the TEO installation.

The Core automation pack cannot be exported. However, the users are able to customize the majority of the objects within the automation pack. Refer to the [Customization Properties, page 22-5](#) for information on which properties of the objects are available for modification.

Imported Calendars

The calendar objects included in the automation pack are default calendar definitions provided by the Core automation pack and cannot be modified by the user. Many of the calendar definitions are based on U.S. holidays, as well as other standard calendar recurrences.

These calendar objects may be used when creating a schedule trigger or a time condition. Refer to the [Chapter 8, “Managing Triggers”](#) and [Chapter 10, “Managing Conditions”](#) for additional information.

For information on creating a calendar, see [Chapter 12, “Managing Calendars.”](#)

The following table contains the calendars that were imported by the Core automation pack.

Calendar Name	Type	Customization Setting
Christmas	Recurring Calendar	No
Daily	Recurring Calendar	No
Easter (US)	Date List Calendar	No
Every Friday	Recurring Calendar	No
Every Monday	Recurring Calendar	No
Every Saturday	Recurring Calendar	No
Every Sunday	Recurring Calendar	No
Every Thursday	Recurring Calendar	No
Every Tuesday	Recurring Calendar	No
Every Wednesday	Recurring Calendar	No
Good Friday (US)	Date List Calendar	No
Holidays (US)	Group Calendar	No
Independence Day (US)	Recurring Calendar	No
Labor Day (US)	Recurring Calendar	No
Memorial Day (US)	Recurring Calendar	No
New Years Day	Recurring Calendar	No
Presidents Day (US)	Recurring Calendar	No
Thanksgiving (US)	Recurring Calendar	No
Weekdays	Recurring Calendar	No
Weekend	Recurring Calendar	No
Workdays	Group Calendar	No

Imported Categories

The category objects included in the automation pack are default category definitions provided by the Core automation pack. Categories can be assigned to objects and are used to organize different objects throughout TEO. The categories included in the Core automation pack have the *Limited* customization setting and some properties can be modified.

For information on modifying category definitions, see [Chapter 18, “Managing Categories.”](#)

The following table contains the categories that are imported by the Core automation pack.

Category Name	Description	Customization Setting
Ad Hoc	Assigned to objects which can be started on ad hoc basis	Limited
Examples	Assigned to objects which are example objects	Limited
Monitoring	Assigned to objects used to monitor the TEO service	Limited
Notification	Assigned to objects used to notify users via email as part of the process	Limited

Imported Expect Templates

Expect properties are used to configure the parameters which manage the Terminal target command output. Generic expect templates included in the Core automation pack are available for use in the targets provided by the Terminal adapter. The properties of the expect template cannot be modified from the Terminal adapter properties dialog box. However, the expect properties can be modified when used with a target.

For information on modifying the expect properties, refer to the *Cisco TEO Adapter Guide for Terminal Adapter*.

The following table contains the expect templates that are imported by the Core automation pack.

Expect Template Name	Description	Customization Setting
Cisco IOS Device	Generic Expect Template for Cisco IOS Device	Limited
Unix/Linux System	Generic Expect Template for Unix/Linux Systems	Limited

Imported Global Variables

Variables can be used as a reference value used for multiple objects. They can also be used to store or pass a value between executions of a process or between steps within a single process. The global variables included in the Core automation pack have the *Limited* customization setting, but only the variable value property can be modified.

For information on modifying global variable definitions, see [Chapter 11, “Managing Variables.”](#)

The following table contains the global variables that are imported by the Core automation pack.

Global Variable Name	Description
IT Operations Approver(s)	This is the AD account for the default IT Approver. This is used in "Example—Approval Process"
IT Operations Manager(s)	This is the AD account for the IT Manager. This is used in the "Example—Approval Escalation" Process
Task Time Period Due	The length of time (hours) a task has before it becomes overdue. This is only used in the Example—Approval Process and is not the default value when creating new approval tasks within a custom authored process.

Imported Processes

The processes included in the Core automation pack have the Limited customization setting, but only the specified properties listed in the [Customization Properties, page 22-5](#), can be modified.

For information on modifying process definitions, see [Chapter 7, “Authoring Processes.”](#)

The following table contains the processes that are imported by the Core automation pack.

Process Name	Description	Customization Setting
Close Expired Alerts	Default process to close alerts that have expired	Limited
Close Expired Approval Requests	Default process to close approval requests that have expired	Limited
Close Expired Guided Operations Tasks	Default process to close guided operations tasks that have expired	Limited
Close Expired Incidents	Default process to close incidents that have expired	Limited
Close Expired Input Requests	Default process to close input requests that have expired	Limited
Close Expired Review Requests	Default process to close review requests that have expired	Limited
Default Alert Notification	Default process to send email when an alert gets assigned	Limited
Default Alert Notification Based on Assignment	Default process to send email when an alert gets assigned	Limited
Default Approval Request Notification	Default process to send email when a guided operation has a new notification recipient	Limited
Default Approval Request Notification based on Assignment	Default process to send email when an alert gets assigned	Limited

Process Name	Description	Customization Setting
Default Guided Operation Request Notification	Default process to send email when a guided operation task gets assigned	Limited
Default Guided Operation Request Notification based on Assignment	Default process to send email when a guided operation task gets assigned.	Limited
Default Incident Notification	Default process to send email when an incident gets assigned	Limited
Default Input Request Notification	Default process to send email when an input request gets assigned	Limited
Default Review Request Notification	Default process to send email when a review request gets assigned	Limited
Default SNMP Trap Notification	Default process to send SNMP traps when an alert is created	Limited
Publish Core Alerts on Windows Event Log	Alerts created by processes in the Core automation package will create events in the Windows event log in the Automation Server machine. It is necessary for integration with management frameworks like Microsoft SCOM 2007.	Limited



CHAPTER 23

Configuring Reports

The Report Database feature offers the ability to run reports for viewing process execution history and to audit process changes. The database can be created on the machine where Tidal Enterprise Orchestrator is installed or a different machine.

Administrative rights are only required when creating a report database. Administrative rights are not required to manage either BO reports nor SQL Server Reporting Services (SSRS) reports. To create reports in the report database, the user must be logged in with an account that has Administrator rights on the machine where the report database is being created, whether it is the local machine or a remote machine.

If using SSRS, the user account must also have Reporting Services permission to create or modify the reports as create or modify permission over the Report Database object within TEO.

The following sections provide instruction on managing reports in TEO:

- [Configuring Report Database, page 23-2](#)
- [SQL Server Reporting Services, page 23-11](#)
- [Business Objects Reporting Services, page 23-15](#)

Configuring Report Database

Use the following sections to configure report database settings.

Core Reports

Tidal Enterprise Orchestrator provides several tracking reports. The following table lists the Core reports that can be accessed from SQL Server Reporting Services and Business Objects Reports.

Reports	Description
Auditing Reports	
Configuration Audit	Use this report to identify changes to the process definitions during a specific date range and the user who made the changes.
Process Audit	Use this report to view the status of all process instances that were run during a specific date range
Task Audit	Use this report to view the status of all tasks that were run during a specific date range
Operations	
All TEO Incidents	Displays a history of all TEO Monitoring incidents that meet the specified incident level. Click the link in the Time column to view detailed information about the incident.
Process Weekly Summary	Use this report to view the overall status of process instances that were run during a specific date range.
ROI Report	Use this report to view the return on investment (ROI) during a specific date range.
TEO Incident Detail	Displays details about the TEO incidents generated in the TEO Incidents report

Configuring Reporting Database Settings

The Report Database is created during the installation process, but only the default size of the data files are determined. Use the Report Database Properties dialog box to modify the connection properties and determine the amount of data that is archived in the database files before being deleted from the system.

To configure the report database settings:

- Step 1** In the Administration—Database Settings view, highlight **Report Database**, right-click and choose **Properties**.

The Report Database Properties dialog box displays. The Connection tab displays by default.

Figure 23-1 Report Database Properties—Connection Tab

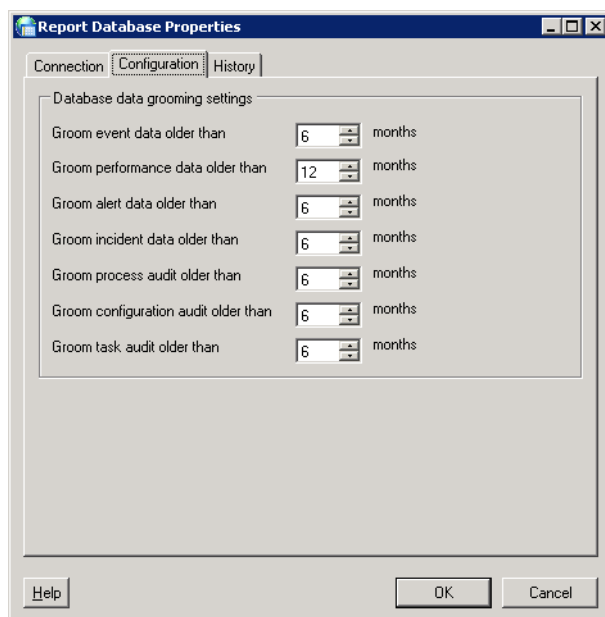
- Step 2** On the Connection tab, modify the credentials to the reporting database:

Field	Description
Database type	From the drop-down list, choose the database type for the credentials: - SQL Server (Integrated Windows Authentication Credentials)—Uses the credentials of the user logged into Microsoft Windows. However, users can also specify the credentials of another user. - SQL Server (SQL Authentication)—Enter the SQL server credentials to use for creating the database (Login ID and Password)
Server name	<i>Display-only.</i> Name of the database server
Database name	<i>Display-only.</i> Name of the report database (default TEORreporting)
User	User name assigned to the user account

Field	Description
Password	Password assigned to the user account Note For Integrated Windows Authentication Credential passwords, check the check box to enter the new password assigned to the user account. If the password entered is incorrect, then a confirmation dialog box displays stating: "Logon failure: unknown user name or bad password."
Domain	Windows domain in which the user account resides Note When SQL Server authentication is selected, this field is display-only.
Reports URL	File path to the report server to where the reports reside

- Step 3** Click **Next** to continue.
The Configuration tab displays.

Figure 23-2 Report Database Properties—Configuration Tab



- Step 4** On the Configuration tab, review the following database grooming settings:

Groom Setting	Description
Groom event data older than	Number of days before event data is deleted from the database
Groom performance data older than	Number of days before performance data is deleted from the database
Groom alert data older than	Number of days before alert data is deleted from the database

Groom Setting	Description
Groom incident data older than	Number of days before incident data is deleted from the database
Groom process audit data older than	Number of days before the audit data is deleted from the database
Groom configuration audit data older than	Number of days before configuration audit data is deleted from the database
Groom task audit older than	Number of days before the task audit data is deleted from the database

Step 5 Click **OK** to close the dialog box.

Creating TEO Reporting Database Connection

The TEO Reporting database is initially created during the installation process. There are occasions when the report database connection may need to be removed and then re-connected.

To create the report database connection, the user must be logged in with an account that has Administrator rights on the machine where the report database is being created, whether it is the local machine or a remote machine.

The user account must also have Reporting Services permission to create or modify the reports as create or modify permission over the Report Database object within Tidal Enterprise Orchestrator.



Note

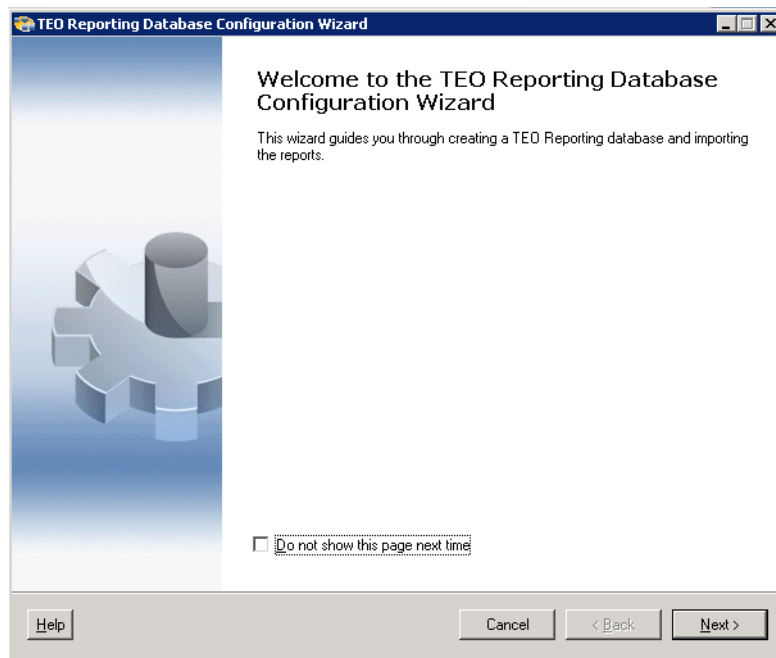
In SQL Server Express 2008 Advanced Services, report models are not supported. Therefore customers using SQL Server Express 2008 cannot create their own reports.

Use the following steps to create the report database connection:

- Step 1** On the Administration—Database Settings view, right-click **Report Database** and choose **Create TEO Reporting Database**.

The Welcome to the Report Database Configuration Wizard panel displays.

Figure 23-3 Welcome to the TEO Report Database Configuration Wizard Panel



Note

To skip the Welcome panel the next time the wizard is launched, check the **Do not show this page next time** check box.

- Step 2** Click **Next** to continue.

The New TEO Reporting Database panel displays.



Note

The fields on this panel (excluding the Password field) are automatically populated with the name of the local server and the credentials of the currently logged in user.

Figure 23-4 TEO Reporting Database Configuration Wizard—New TEO Reporting Database Panel

Step 3 On the New TEO Reporting Database panel, use *one* of the following methods:

- To use the credentials that are auto-populated for the default user, enter the password in the Password field.
- or-
- To specify credentials for a different user, specify the following information:

Field	Description
Database type	From the drop-down list, choose the database type for the credentials: • SQL Server (Integrated Windows Authentication Credentials)—Uses the credentials of the user logged into Microsoft Windows. However, users can also specify the credentials of another user. • SQL Server (SQL Authentication)—Enter the SQL server credentials to use for creating the database (Login ID and Password)
Server name	Name of the SQL server where the database resides
User	User name assigned to the user account

Field	Description
Password	Password assigned to the user account Note For Integrated Windows Authentication Credential passwords, check the check box to enter the new password assigned to the user account. If the password entered is incorrect, then a confirmation dialog box displays stating: “Logon failure: unknown user name or bad password.”
Domain	Windows domain in which the user account resides Note When SQL Server authentication is selected, this field is not displayed.

Step 4 Click **Next** to continue.

The Database Settings panel displays.



Note

The fields on this panel are automatically populated with the default locations and data grooming settings for the database.

Figure 23-5 TEO Reporting Database Configuration Wizard—Database Settings Panel

Step 5 On the Database Settings panel, use *one* of the following methods:

- To use the information that is auto-populated, click **Next** to continue.
- or-
- To modify the data and transaction log file settings for the new database, specify the following information:

Field	Description
Data file location	File path to the database data file
Log file location	File path to the database transaction log file
Groom event data older than	Check the check box and in the numeric field, enter the number of days before event data is deleted from the database.
Groom performance data older than	Check the check box and in the numeric field, enter the number of days before performance data is deleted from the database.

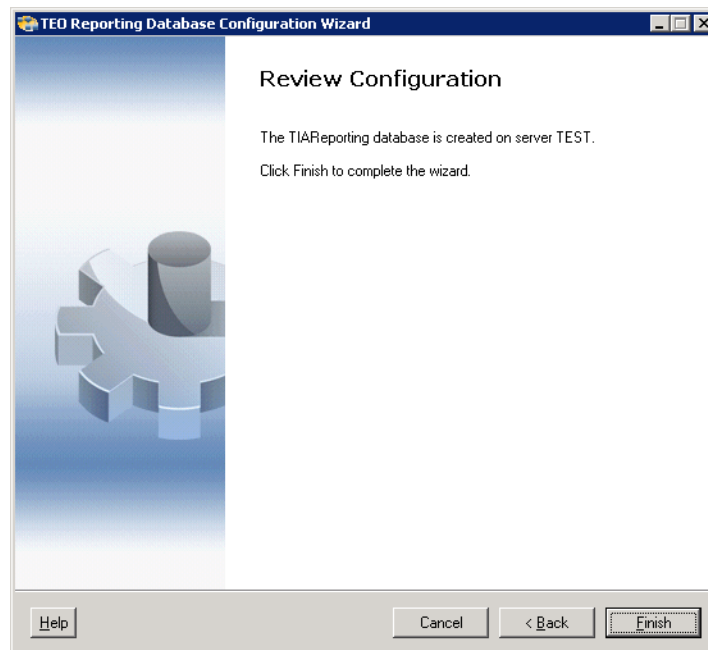
Step 6 Click **Next** to continue.

The Creating Database panel displays.

Step 7 When the dialog box indicates that the database has been successfully created, click **Next**.

The Review Configuration panel displays.

Figure 23-6 TEO Reporting Database Configuration Wizard—Review Configuration Panel



- Step 8** Verify the information and click **Finish** to complete the procedure and close the wizard. The Report Database is enabled in the Results pane on the Console.



Note To import reports, see [Importing Reports, page 23-11](#).

Removing a Report Database Connection

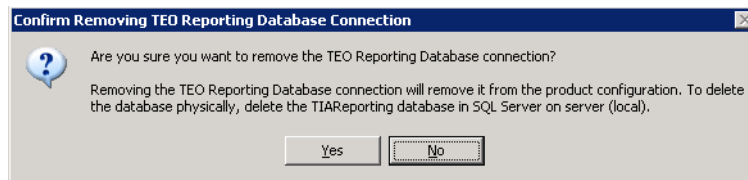
Use the following steps to remove the report database connection from TEO. These steps are useful when changing report database connections.

To remove the report database connection:

- Step 1** On the Administration—Database Settings view, right-click Report Database and choose **Remove TEO Reporting Database Connection**.

The Confirm Removing TEO Reporting Database Connection dialog box displays.

Figure 23-7 *Confirm Removing TEO Reporting Database Connection Dialog Box*



- Step 2** Click **Yes** to remove the database connection.

The database connection is removed from the TEO configuration, but still remains on the SQL Server database server. The Report Database option will appear as disabled in the Administration—Database Settings view while there is no report database connection.

SQL Server Reporting Services

This section describes reports and the process for importing reports into Tidal Enterprise Orchestrator using SQL Server Reporting Services.

Importing Reports

Use the import reports process to import new reports into the report database.

To import reports, the user must be logged in with an account that has Administrator rights on the machine where the report database is being created, whether it is the local machine or a remote machine.

The user account must also have Reporting Services permission to create or modify the reports as create or modify permission over the Report Database object within TEO.

To import reports:

- Step 1** On the Administration—Database Settings view, right-click **Report Database** and choose **Import Reports**.

The Report Settings panel displays.

Figure 23-8 *Import Reports Wizard—Report Settings Panel*

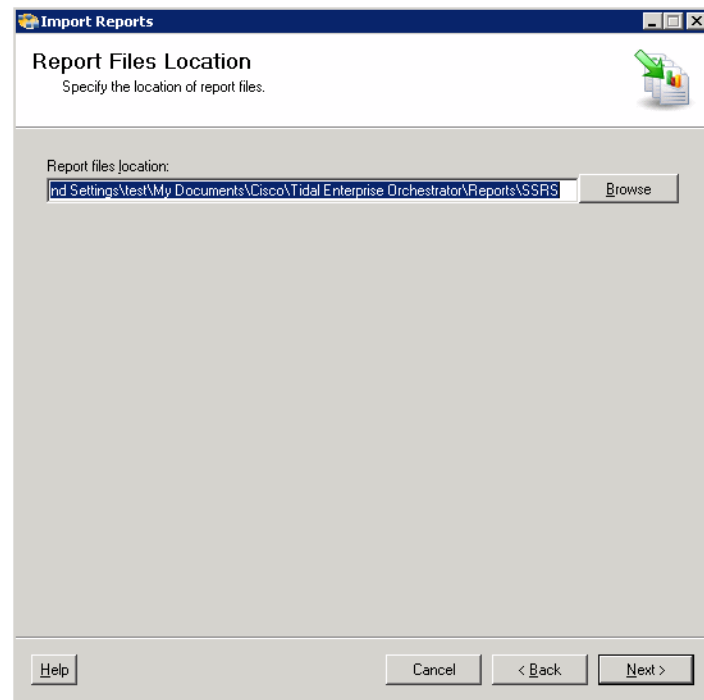
Step 2 On the Report Settings panel, specify the following information, as necessary.

Field	Description
Reports Server URL	Address or file path for the SQL Server Reporting Services reports server
Access Reports Server via Secure Socket Layer (SSL)	Check the check box if the SSL protocol is used to connect to the Reports Server
Database type	From the drop-down list, choose the database type for the credentials: - SQL Server (Integrated Windows Authentication Credentials)—Uses the credentials of the user logged into Microsoft Windows. However, users can also specify the credentials of another user. - SQL Server (SQL Authentication)—Enter the SQL server credentials to use for creating the database (Login ID and Password)
User	User name assigned to the user account
Password	Password assigned to the user account Note For Integrated Windows Authentication Credential passwords, click the check box to enter the new password assigned to the user account. If the password entered is incorrect, then a confirmation dialog box displays stating: "Logon failure: unknown user name or bad password."
Domain or local computer	Windows domain in which the user account resides Note When SQL Server authentication is selected, this field is not displayed.

Step 3 Click **Next** to continue.

The Reports Files Location panel displays.

Figure 23-9 *Import Report Wizard—Report Files Location Panel*



Step 4 Click **Browse** to modify the default report file location.

C:\Documents and Settings\<user>\My Documents\Cisco\Tidal Enterprise Orchestrator\Extracted Data\SQL Server Reporting Services Reports

If the wrong path is selected, the report folders will affect future upgrades.

If the report folder already exists, the Report Folder dialog box displays asking to confirm whether the existing folder should be overwritten. Click **Yes** to continue.

The Creating Reports dialog box displays while the reports are being imported.

After the reports have been imported, the Review Configuration panel displays.

Step 5 Click **Finish** to close the dialog box.



Note

For more information on accessing SQL Service Reports, see [Accessing SQL Server Reporting Services Reports](#), page 23-14.

Accessing SQL Server Reporting Services Reports

TEO provides database reports required by managers and auditors as well as reports required by developers of process automation. In general, the data that is provided for these diverse audiences is the same. What differs is the granularity and level of aggregation of this data and the specific data that is the focus of a given report.

Access to any automation summary is controlled and available only to authorized users. Automation summary reports are accessed through a web browser using Microsoft SQL Server Reporting Services.

Users are able to access reports from a web browser using SQL Server Reporting Services.

To access reports from your web browser:

-
- Step 1** Open your web browser and in the Address bar, enter the following address:

`http://<ReportServer>/Reports`

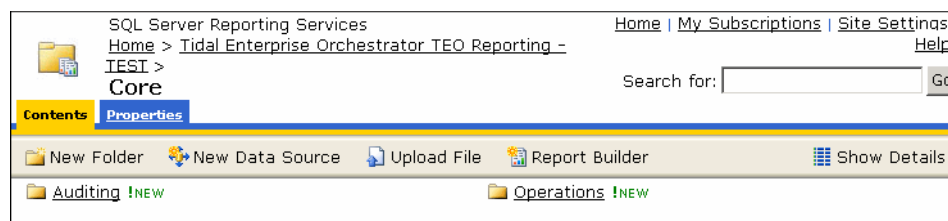
where <ReportServer> is the name of the server hosting the reports.

The SQL Reporting Services Report Manager web page displays.

- Step 2** Click the **Tidal Enterprise Orchestrator TEO Reporting—<Report Server>** hyperlink.

The TEO Reporting Database Report Manager home page displays.

Figure 23-10 Tidal Enterprise Orchestrator TEO Reporting <Report Server> Home



- Step 3** Click **Core** to view the Core TEO report folders.

The available reports and a brief description of the information that is generated by each report is displayed.

- Step 4** Click the report name to enter the search criteria and generate the report.
-

Business Objects Reporting Services

Although TEO supports SQL Server Reporting Services, Business Objects Reports is the recommended reporting tool for TEO reports.

During the Core Automation Pack import process, BIAR files are copied to the file path determined on the Core Report panel. The BIAR file must be imported onto the Business Objects server using the Business Objects Import Wizard in order to view the reports in Business Objects InfoView.

To import BIAR files, the user must be logged in with an account that has the appropriate permissions on the Business Object server, whether it is the local machine or a remote machine.

This section provides the steps to use when importing the reports onto a Business Objects server and configuring the connection for viewing the reports onto the SQL Server Reporting Services.

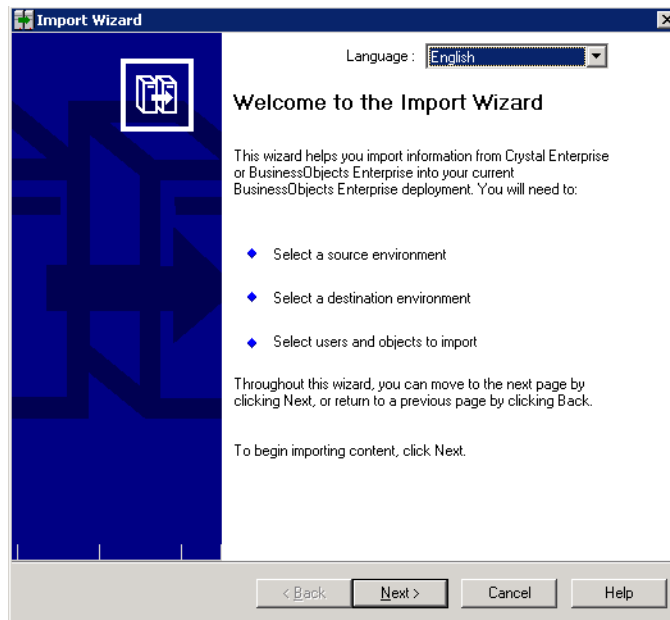
Importing Reports into Business Objects

Use the following steps to import reports into Business Objects.

- Step 1** Choose **Start > All Programs > Business Objects X1.3.1 > Business Objects Enterprise > Import Wizard**.

The Welcome to the Import Wizard panel displays.

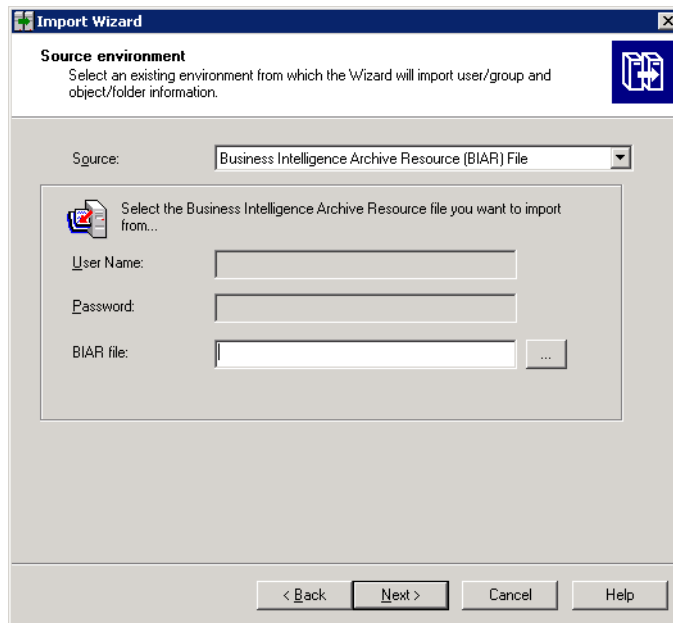
Figure 23-11 *Business Objects Import Wizard—Welcome to the Import Wizard Panel*



- Step 2** From the Language drop-down list, choose the appropriate language to use to import the reports. English is the default.
- Step 3** Click **Next** to continue.

The Source environment panel displays

Figure 23-12 *Business Objects Import Wizard—Source Environment Panel*



- Step 4** On the Source environment panel, specify the environment for where the wizard will import the appropriate user and object information.

The fields in the lower pane changes upon the selection.

Field	Description
Source	From the drop-down list, choose Business Intelligence Archive Resource (BIAR) File .
BIAR file	Enter the appropriate file path or click Browse to locate the BIAR file on the computer.

- Step 5** Click **Next** to continue.

The Destination environment panel displays.

Figure 23-13 Business Objects Import Wizard—Destination Environment Panel

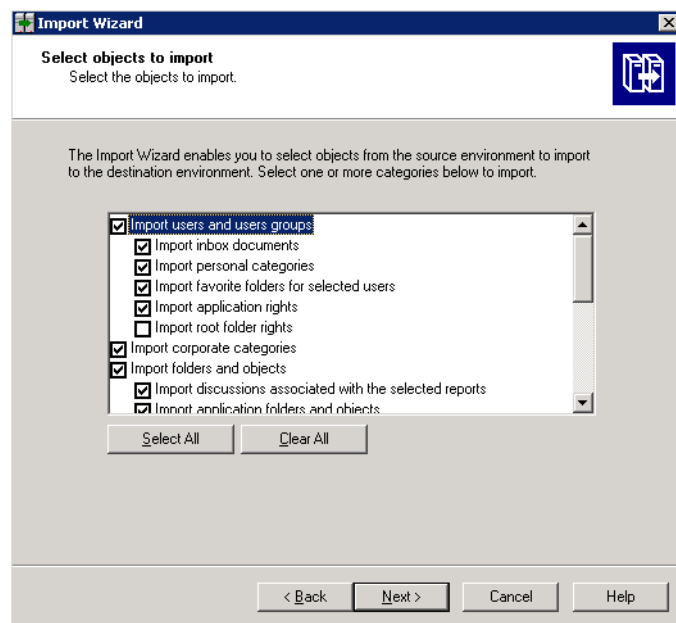
Step 6 On the Destination environment panel, specify the appropriate information for Business Object Enterprise XI 3.1.

Field	Description
CMS Name	Enter the name of the Business Object Enterprise XI 3.1 destination CMS Note If the CMS is running a particular port, add a colon and the port number to the end of the CMS name.
User Name	Enter the name of a user with import permissions The default is typically an administrator.
Password	Enter the password of the associated user name
Authentication	Choose the type of authentication appropriate for the CMS and the user who will be used to import the reports. The default is <i>Enterprise</i> .

Step 7 Click **Next** to continue.

The Loading BIAR files progress dialog box displays and then transitions to the Select objects to import panel.

Figure 23-14 *Business Objects Import Wizard—Select Objects to Import Panel*

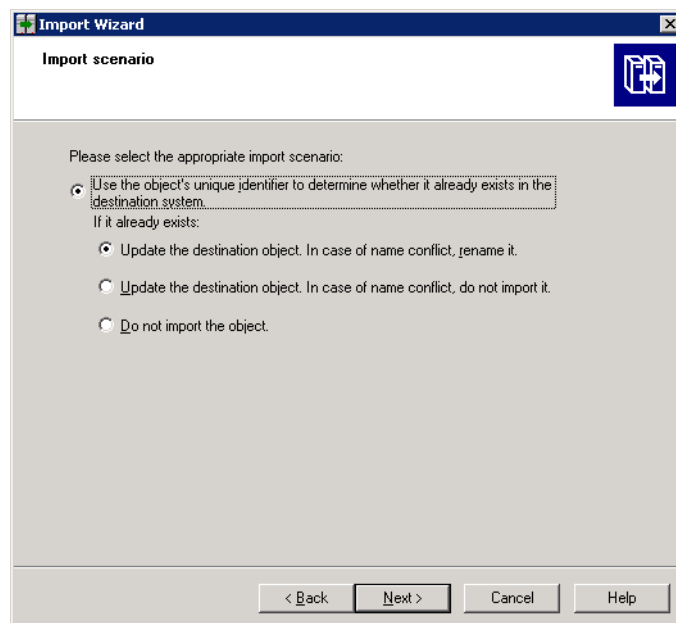


Step 8 On the Select objects to import panel, choose the appropriate items to import into your Business Object Enterprise XI 3.1 server.

Step 9 Click **Next** to continue.

The Import scenario panel displays.

Figure 23-15 *Business Objects Import Wizard—Import Scenario Panel*

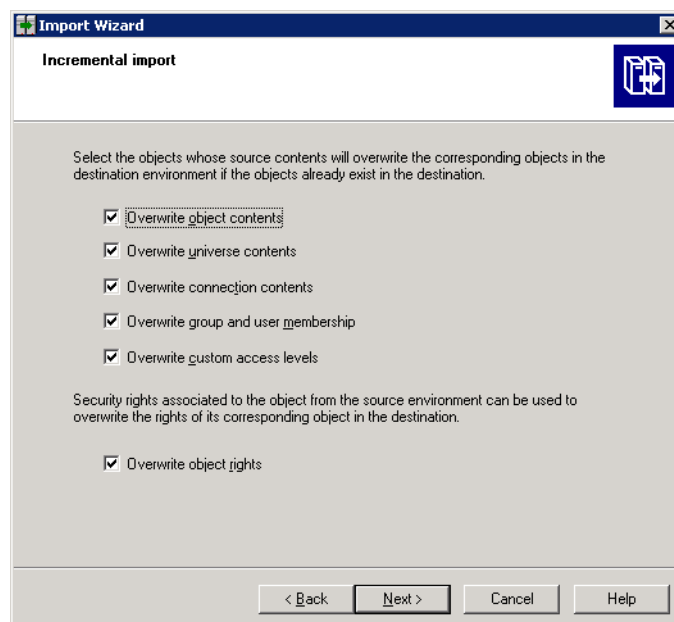


- Step 10** On the Import Scenarios panel, select the appropriate radio button for handling scenarios where the objects already exist in the destination environment.

Import Scenarios	Description
Update the destination object. In case of name conflict, rename it.	If the Import Wizard finds an object in the destination environment with the same source objects unique identifier (CUID), it updates the destination object. If the Import Wizard does not find an object in the destination environment with the same CUID but it finds an object with the same name, the Import Wizard imports the object from the source environment and then renames the object.
Update the destination object. In case of name conflict, do not import it.	If the Import Wizard finds an object in the destination environment with the same CUID, it updates the destination object. If the Import Wizard finds an object in the destination environment with the same name but different CUID, the Import Wizard does not import the object from the source environment.
Do not import the object.	If the Import Wizard finds an object in the destination environment with the same CUID, the Import Wizard does not import the object.

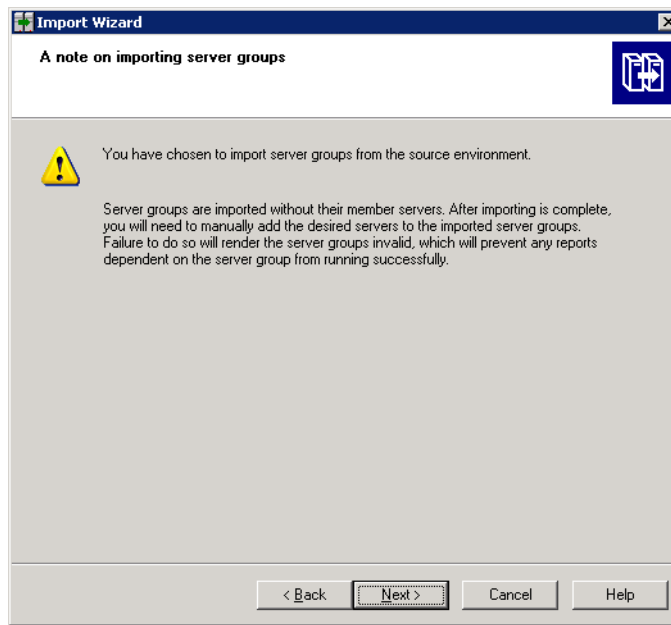
- Step 11** Click **Next** to continue.
The Incremental import panel displays.

Figure 23-16 *Business Objects Import Wizard—Incremental Import Panel*



- Step 12** On the Incremental import panel, uncheck the check boxes next to options which perform the following as appropriate:
- To import report objects without overwriting dependent objects that already exist in the destination environment.
 - To import report objects without importing a universe or connection that would overwrite a universe or connection in the destination environment.
- Step 13** Click **Next** to continue.
- The A note on importing server groups panel displays.

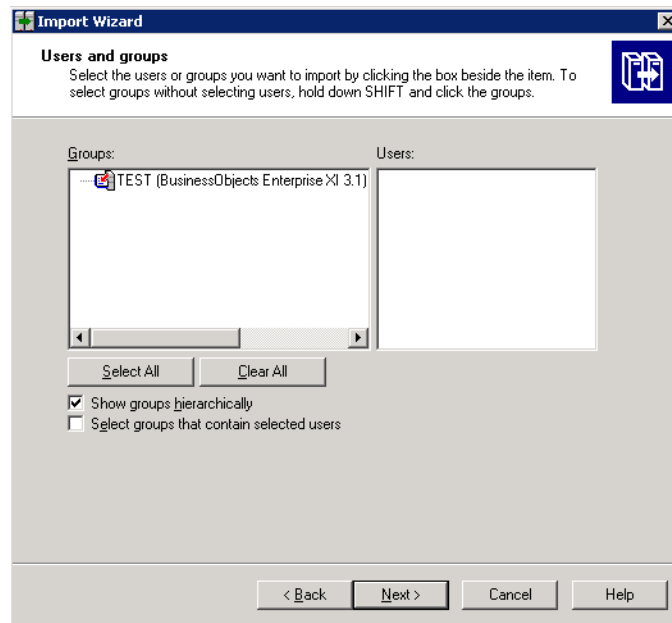
Figure 23-17 *Business Objects Import Wizard—A Note on Importing Server Groups Panel*



- Step 14** Review the information on the panel and then click **Next**.

The Users and groups panel displays.

Figure 23-18 *Business Objects Import Wizard—Users and Groups Panel*

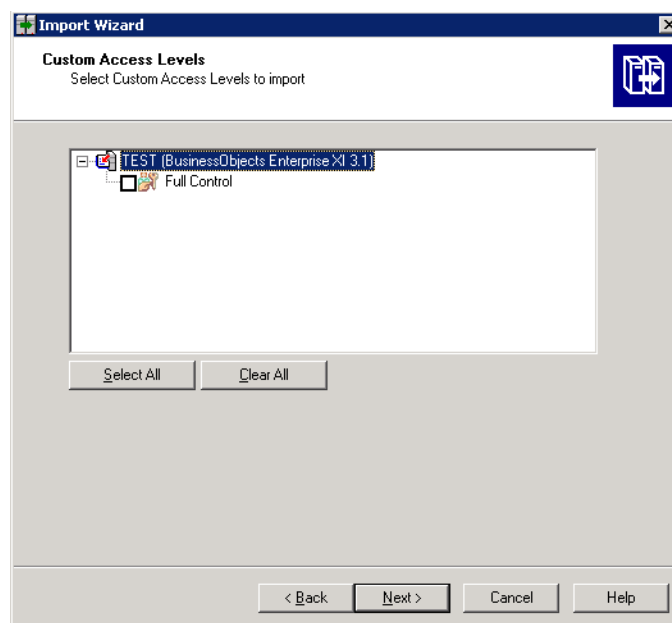


Step 15 On the Users and groups panel, check the check boxes to import the appropriate specific users and groups.

Step 16 Click **Next** to continue.

The Custom Access Levels panel displays.

Figure 23-19 *Business Objects Import Wizard—Custom Access Levels Panel*



Step 17 On the Custom Access Levels panel, check the appropriate check boxes to import custom access level.

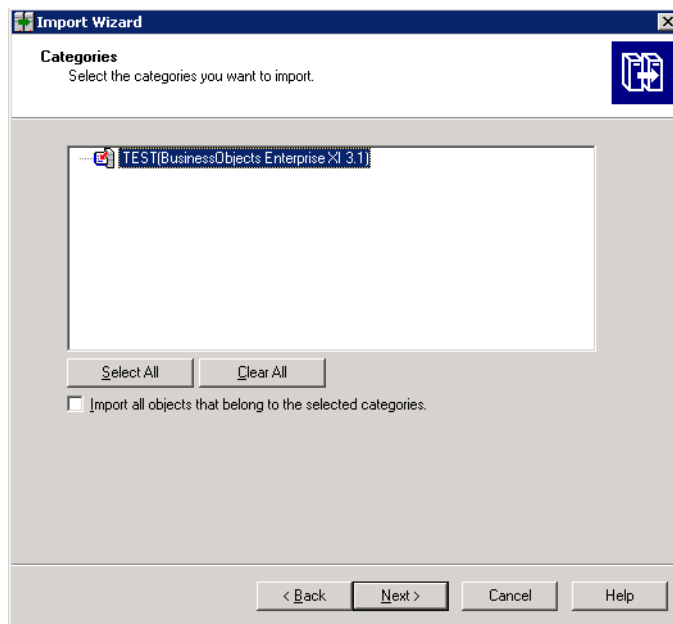


Note

If you import a user and an object, the Import Wizard imports the rights of that imported and does not exist in the destination environment, the Import Wizard gives the individual rights specified in the level on the object for the user.

Step 18 Click **Next** to continue.
The Categories panel displays.

Figure 23-20 *Business Objects Import Wizard—Categories Panel*



Step 19 Choose the appropriate categories to be imported.

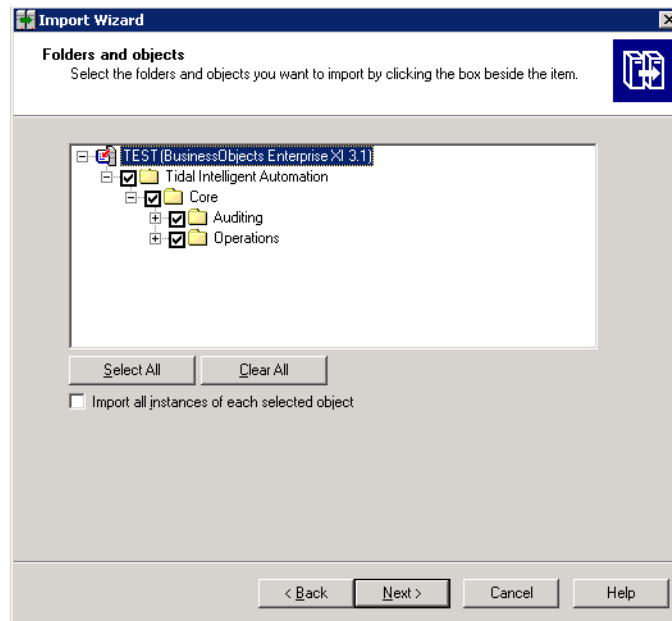
For large document domains, you can import incrementally and import documents one category at a time.

Step 20 To import all the objects associated with the category, check the **Import all objects that belong to the selected categories** check box.

Step 21 Click **Next** to continue.

The Folders and objects panel displays.

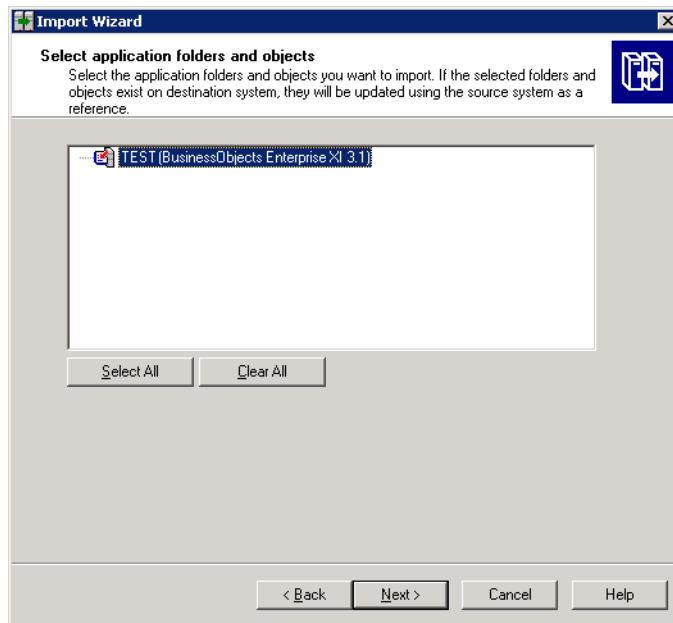
Figure 23-21 *Business Objects Import Wizard—Folders and Objects Panel*



- Step 22** To import folders and objects for Tidal Enterprise Orchestrator, click **Select All** to check all check boxes of the folders and objects displayed.
- Step 23** To import all instances of each selected object, check the **Import all instances of each selected object** check box.
- Step 24** Click **Next** to continue.

The Select application folders and objects panel displays.

Figure 23-22 *Business Objects Import Wizard—Select Application Folders and Objects Panel*



Step 25 To import application folders and objects, check the appropriate check boxes.



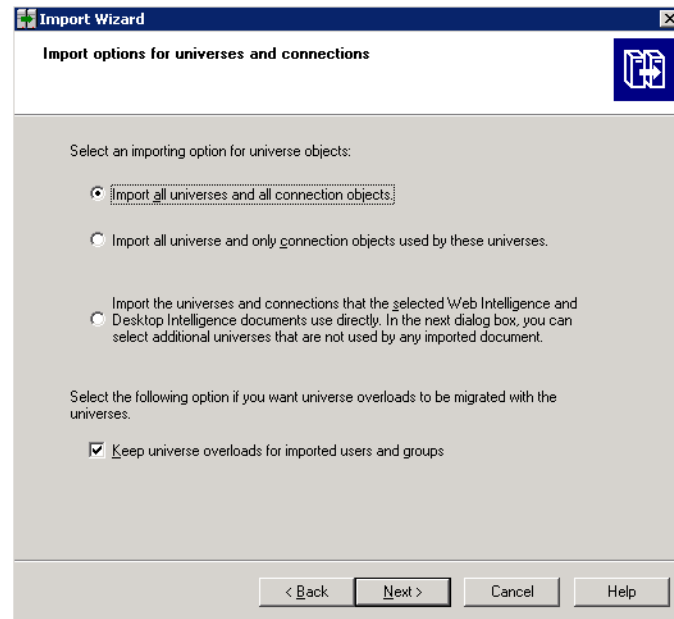
Note

If the selected folders and objects exist on the destination system, they will be updated using the source system as a reference.

Step 26 Click **Next** to continue.

The Import options for universes and connections panel displays.

Figure 23-23 *Business Objects Import Wizard—Import Options for Universes and Connections Panel*



Step 27 Select *one* of the following import radio buttons for universe objects.

- Import all universes and connection objects (Default)
- Import all universes and only connection objects used by these universes
- Import the universes and connections that the selected Web Intelligence and Desktop Intelligence documents use directly. In the next dialog box, you can select additional universes that are not used by any imported document.

Step 28 To import universe overloads, check the **Keep universe overloads for imported users and groups** check box.

If you are importing universe overloads, you must also choose the users, groups, and universes during previous steps in the Import Wizard. You must also choose **Overwrite existing objects** in the Incremental import panel. If you did not choose these options, click **Back** until you get to the appropriate panel.

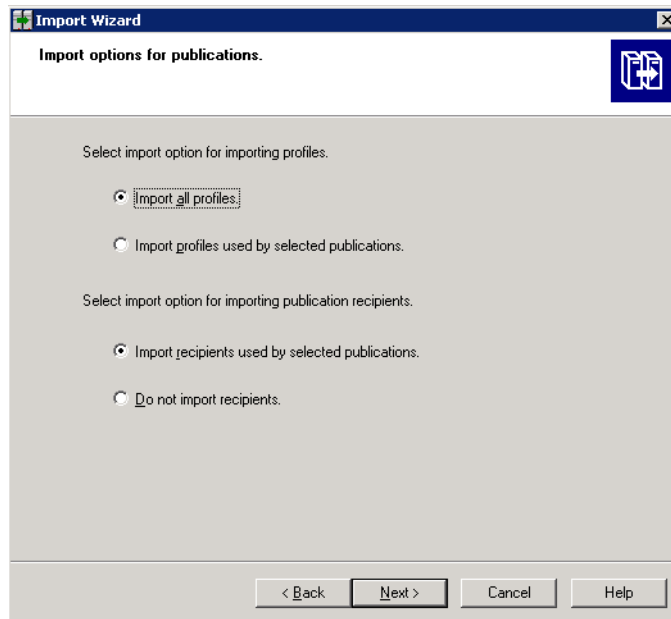
If you choose to import users and groups, universe overloads, and other objects and do not want to overwrite all of the object rights for the users and groups and objects that you've selected, use *one* of the following methods:

- Ensure that you choose only the universes that you want to import and then import the other objects in another import process.
- Delete the universe overload in the destination environment and then uncheck the **Overwrite existing objects** and **Overwrite object rights** check boxes in the Incremental import panel. In this case, the Import Wizard imports only the universe overloads that do not already exist in the destination environment.

Step 29 Click **Next** to continue.

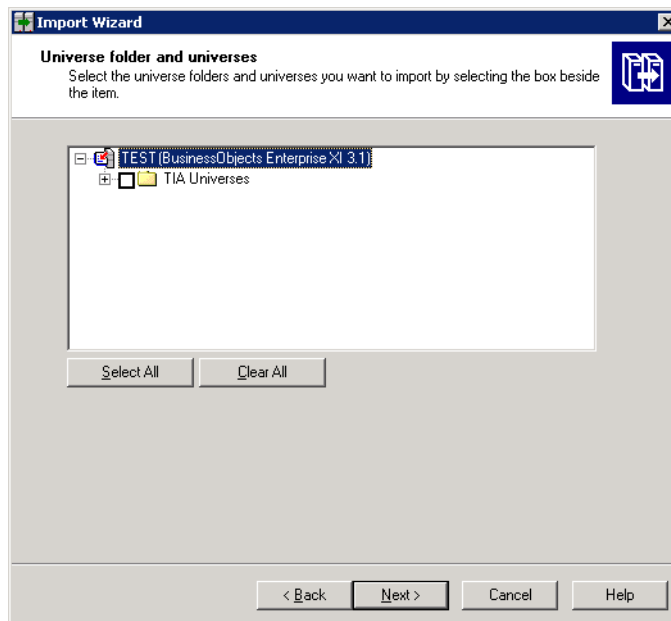
If either of the first two radio buttons are selected, the Import options for publications panel displays. Skip to [Step 32](#) to continue.

Figure 23-24 Business Import Wizard—Import Options for Publications Panel



If the third radio button is selected, the Universe folder and universes panel displays.

Figure 23-25 Business Objects Import Wizard—Universe Folder and Universes Panel

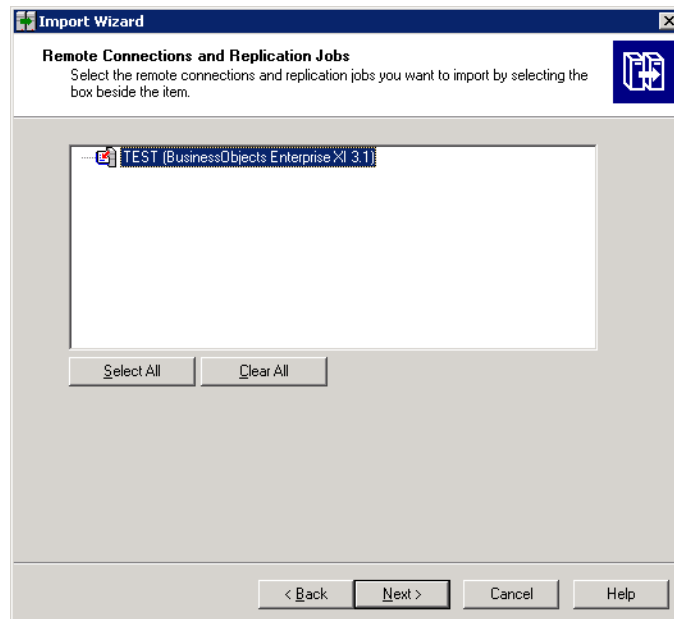


- Step 30** On the Universe folder and universes panel, choose the appropriate universes and universe folders.
- If the selected source environment is other than BusinessObjects 5.x or 6.x, the universes that are linked to specific documents cannot be cleared from the list. Users can choose additional universes that are not used by any imported document.
- If no universe is found, the associated documents will not be imported and a warning message appears. If this occurs, link the documents to a universe, republish the documents to the repository, and retry the import.
- Step 31** Click **Next** to continue.
- The Import options for publications panel displays.
- Step 32** On the Import Options for Universes panel, choose the appropriate profile and publication recipient radio buttons.

Option	Description
Select import option for importing profiles	• Import all profiles • Import profiles used by selected publications
Select import option for importing publication recipients	• Import recipients used by selected publications • Do not import recipients

- Step 33** Click **Next** to continue.
- The Remote Connections and Replication Jobs panel displays.

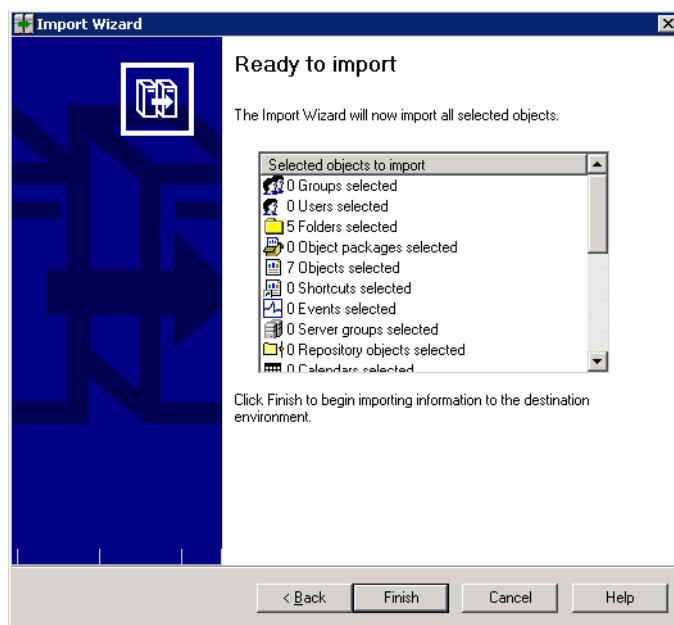
Figure 23-26 *Business Objects Import Wizard—Remote Connections and Replication Jobs Panel*



- Step 34** On the Remote Connections and Replication Jobs panel, choose the appropriate remote connections and replication jobs to import.
- Step 35** Click **Next** to continue.

The Ready to import panel displays.

Figure 23-27 *Business Objects Import Wizard—Ready to Import Panel*



Step 36 Click **Finish**.

Configuring the BO Connection for SQL Server Reporting Services

Use the following steps to configure the BusinessObjects reporting connection to SQL Server Reporting Services. Verify the following before configuring the BO reports connection:

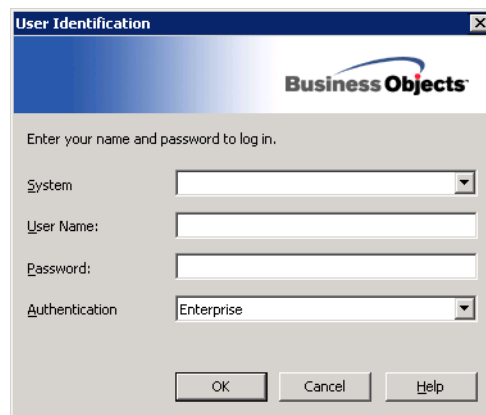
- Microsoft SQL native client is installed
- On the reporting database, the named pipes are enabled. To enable the named pipes, use MS SQL Configuration Manager.

For additional information on the prerequisites, refer to [Microsoft SQL Server 2005 Feature Pack](#).

To configure the BO reports connection:

- Step 1** Choose Start > All Programs > Business Objects X1.3.1 > Business Objects Enterprise > Designer. The User ID dialog box displays.

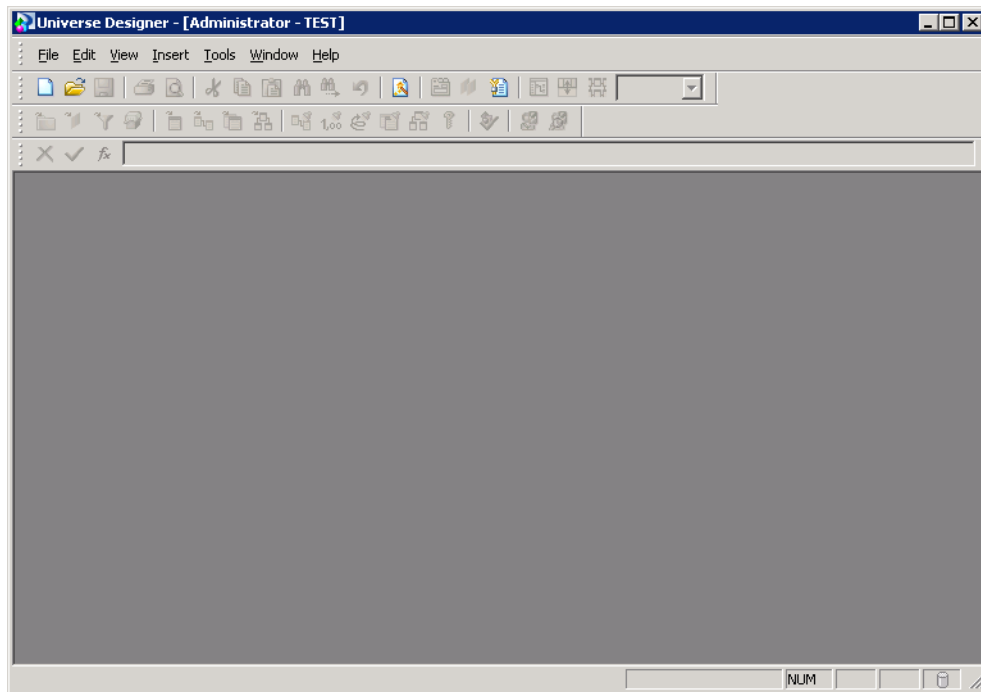
Figure 23-28 User Identification Dialog Box



- Step 2** Enter the appropriate credentials, and click **OK**.

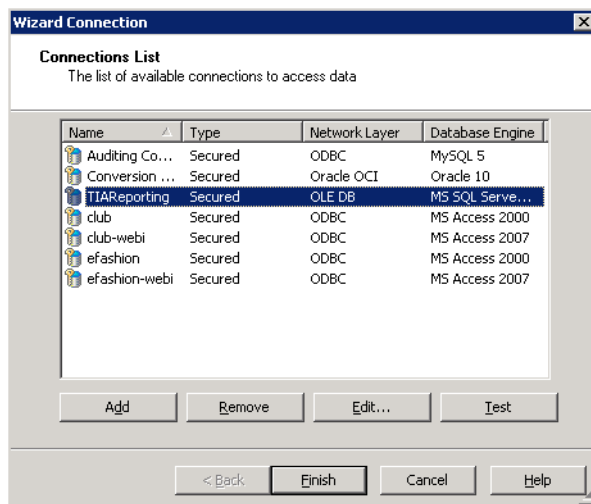
The Universe Designer dialog box display.

Figure 23-29 *Universe Designer Dialog Box*



Step 3 From the Tools menu, choose **Connections**.

Figure 23-30 *Wizard Connection Dialog Box—Connections List*



Step 4 From the Connections List, highlight **TEORreporting**, and click **Edit**.

The Edit TEOReporting Connection dialog box displays.

Figure 23-31 Edit TEOReporting Connection Dialog Box—Login Parameters

Step 5 In the Authentication Mode list, verify that Use specified username and password is selected.

Step 6 Specify the following information for the reporting database.

Field	Description
User name	User name to access report database
Password	Password of the associated user name
Server	Host or IP address of the report server
Database	Name of the reporting database. <i>TEOReporting</i> is the default db created

Step 7 Click **Next** to continue.

Step 8 Verify the information on the Configuration Parameters and the Custom Parameters panels and then click **Finish**.

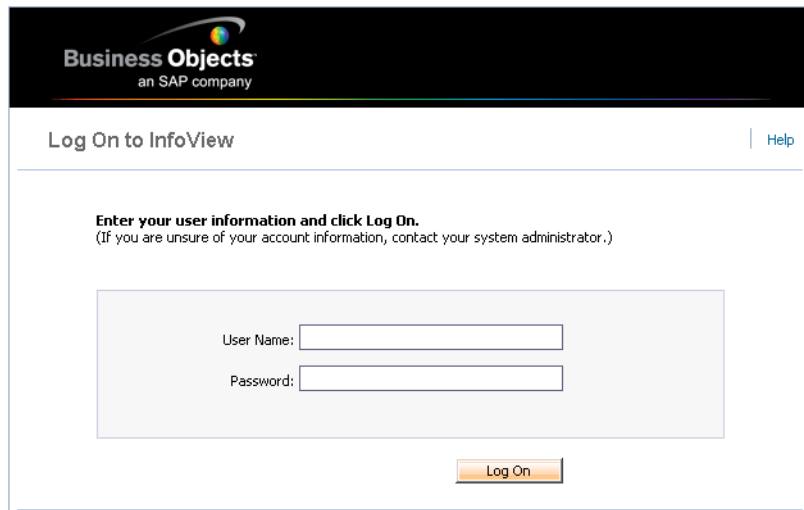
Accessing Reports in Business Objects InfoView

Using the recommended policy for Microsoft Windows may cause the Business Objects InfoView web interface to be blocked due to the enhanced security configuration. The security error dialog box will advise the user to add the site to the list of trusted web sites.

Use the following steps to access reports in Business Objects InfoView.

- Step 1** In a web browser, in the Address bar, type the URL to the Business Objects InfoView website.
The Business Objects InfoView Login page opens.

Figure 23-32 Business Objects InfoView—Login Page

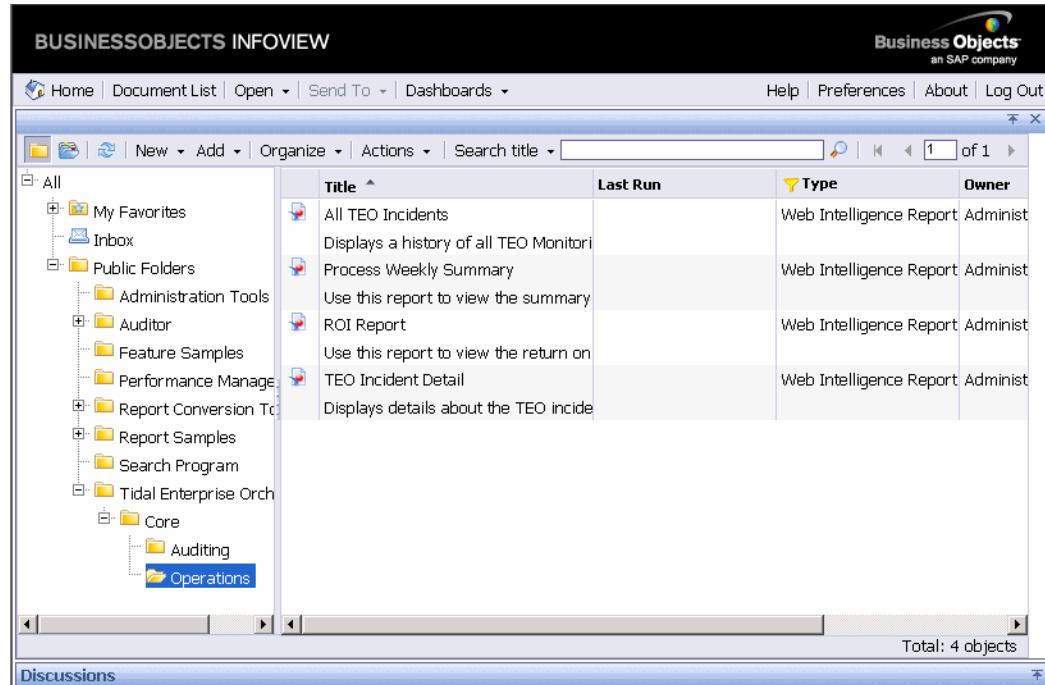


- Step 2** Enter the appropriate credentials to access the BO reports.
- Step 3** Click **Log On** to continue.
The Business Objects InfoView Dashboard page displays.
- Step 4** On the Dashboard page, click **Document List**.

The Document List Navigation page display.

Step 5 Expand **Public Folders > Tidal Enterprise Orchestrator > Core** to access the Core reports.

Figure 23-33 Business Objects InfoView—Core Reports View



Step 6 Double-click the appropriate report to view report details.



CHAPTER 24

Configuring Core Functions Adapter

The Core Functions Adapter provides the basic functionality in TEO. Use the Core Functions Adapter Properties dialog box to configure default task settings, automation summary report location, and Return on Investment (ROI) calculations.

This chapter provides instructions viewing and modifying the Core Functions Adapter properties.

- [Configuring Return on Investment Settings, page 24-2](#)
- [Configuring Automation Summary Settings, page 24-4](#)
- [Getting Task XSL Transforms, page 24-6](#)
- [Configuring Task Expiration Settings, page 24-7](#)
- [Viewing Adapter-Supported Objects, page 24-8](#)
- [Viewing Adapter History, page 24-9](#)

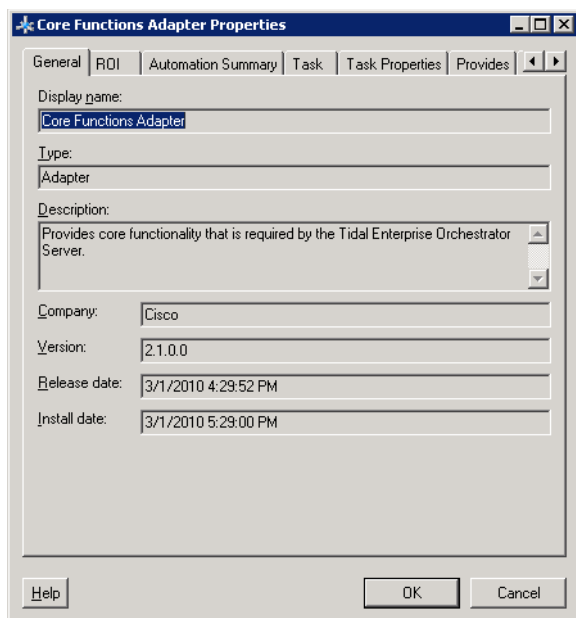
Configuring Return on Investment Settings

When you create a process, you have the option to enter the equivalent time it would take to run the process manually. This value is calculated against the hourly rate specified on this page to determine the return on investment for the process.

To configure the ROI:

- Step 1** On the Administration—Adapters view, right-click **Core Functions Adapter** and choose **Properties**. The Core Functions Adapter Properties dialog box displays.

Figure 24-1 Core Functions Adapter Properties—General Tab

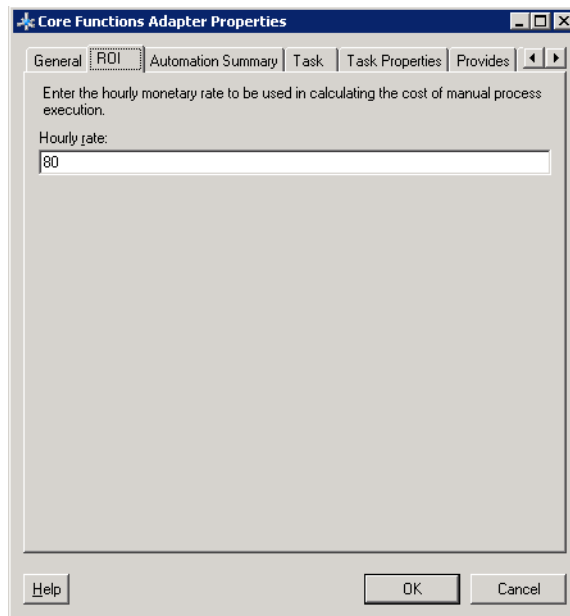


The General display-only tab displays information about the installed adapter.

Field	Description
Display name	The name of the adapter
Type	The object type
Description	A brief overview of the adapter
Company	The name of the company that created or supplied the adapter
Version	The version number of the adapter
Release date	The date and time the adapter is available in the product
Install date	The date and time the adapter was installed

Step 2 Click the **ROI** tab to continue.

Figure 24-2 Core Functions Adapter Properties—ROI Tab



Step 3 On the ROI tab, specify the hourly rate (in dollars) that it would cost to execute a process manually.

Step 4 Click **OK** to close the dialog box.

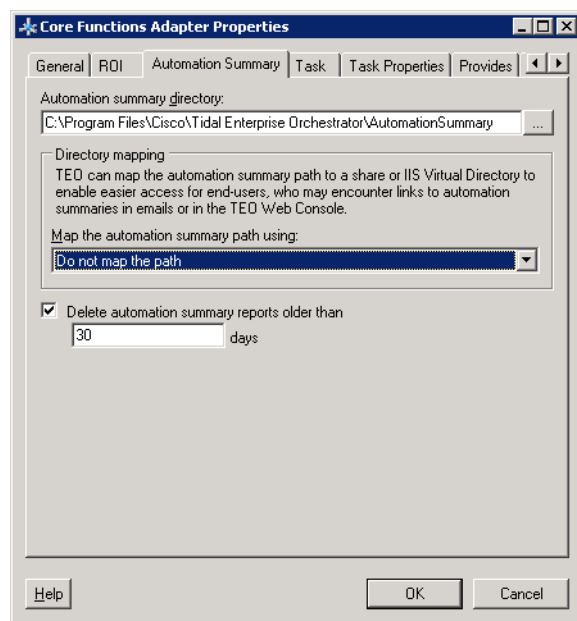
Configuring Automation Summary Settings

Certain activities can generate an automation summary that provides information that can help resolve any issues that may need attention. The Automation Summary settings of the Core Functions adapter specify the location for automation summary files, automation summary sharing and grooming options.

To configure the automation summary settings

- Step 1** In the Administration—Adapters view, right-click **Core Functions Adapter** and choose **Properties**. The Core Functions Adapter Properties dialog box displays.
- Step 2** Click the **Automation Summary** tab to continue.

Figure 24-3 Core Functions Adapter Properties—Automation Summary Tab



Step 3 On the Automation Summary tab, specify where the automation summary reports that are generated by activities are to be saved and how long the reports are to be retained.

The file paths specified indicate the path that will be used when viewing the automation summary reports.

Step 4 Verify or enter the appropriate default file path for the automation summary directory.

Field	Description
Automation summary directory	Verify the default file path that the TEO server will use when creating automation summary reports. Click Browse to determine the file path for the automation summary.

Step 5 Select the appropriate directory mapping option from the drop-down list to map the automation summary to a shared directory or IIS Virtual Directory to allow end-users easier access to automation summaries using email or the TEO Web Console.

Option	Description
Share	Select this option to indicate the automation summary should be saved on the specified file path. In the Share Path field, enter the UNC path to a share directory. This path will be used when viewing the automation summary reports. Example: (\\servername\sharename\path\filename) • Verify share—Click this button to verify that the current file path in the text field is a valid UNC share directory. If a valid file path exists, a confirmation dialog box displays. • Create share—Click this button to create the directory on the TEO server where the automation summary reports should be created. Note Verify that the UNC share file path is on a network where the TEO service account has write permissions.
Use IIS Virtual Directory	Select this option to indicate the file path is on an IIS Virtual Directory. In the Virtual directory path field, enter the http:// path that corresponds to a virtual directory in IIS.

Option	Description
Do not map the path	Select this option to indicate that the automation summary should not be saved to a shared or IIS virtual directory. If this option is selected, then the automation summary will not be available for view from the Web Console.
Delete automation summary reports older than	Check this check box and in the text field, and enter the number of days that the automation summary files should be retained in the text field. Automation summary files that have been retained for a period past the specified number of days will be deleted.

Step 6 Configure the archiving settings for the automation summary reports.

Option	Description
Delete automation summary reports older than	Check this check box and in the text field, and enter the number of days that the automation summary files should be retained in the text field. Automation summary files that have been retained for a period past the specified number of days will be deleted.

Step 7 Click **OK** to close the dialog box.

Getting Task XSL Transforms

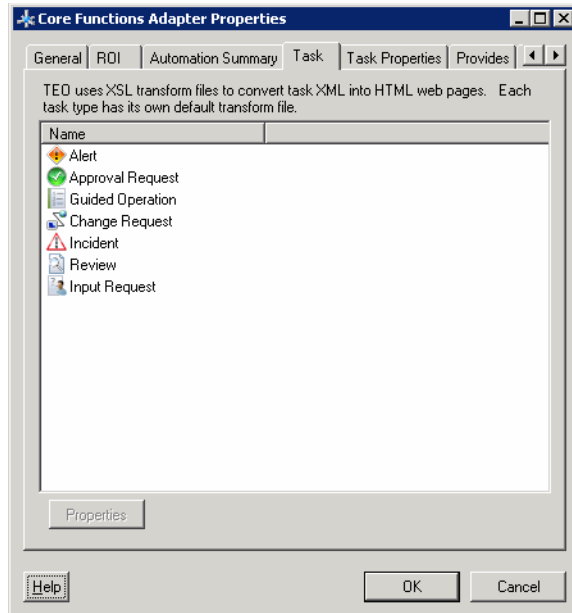
Each task type has a specific XSL transform that converts the XML into HTML web pages for display in the Web Console. Use the Task tab to display the default xslt transform file names. The files are located in the TEO program Web Console folder under the following file path:

`C://Install Directory/Web Console/Task XSL Transforms`

Users can change the XSL file name for a specific task when modifying the task properties in the Process Editor.

To get the task XSL transform:

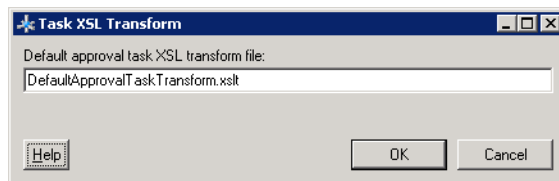
- Step 1** In the Administration—Adapters view, right-click **Core Functions Adapter** and choose **Properties**. The Core Functions Adapter Properties dialog box displays.
- Step 2** Click the **Task** tab to continue.

Figure 24-4 Core Functions Adapter Properties—Task Tab

Step 3 On the Task tab, highlight the appropriate task, and use *one* of the following methods:

- Right-click and choose **Properties**.
- Click **Properties**.

The Task XSL Transform dialog box displays the default XSL transform file name for the specific task.

Figure 24-5 Task XSL Transform Dialog Box

To view the converted code, launch the appropriate XSLT file resides in the TEO install directory/WebConsole folder using a web browser.

Step 4 Click **OK** to close the dialog box.

Configuring Task Expiration Settings

Use the Task Properties page to specify the default number of days used for the task expiration date. If a task is opened on its expiration date, an internal event is raised which can be used to trigger a process. Users will be able to modify the date manually on the appropriate task property page.

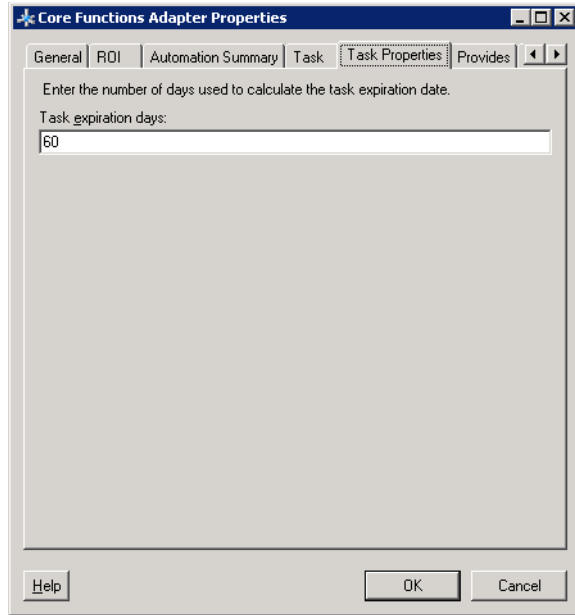
To define default task expiration:

Step 1 In the Administration—Adapters view, right-click **Core Functions Adapter** and choose **Properties**.

The Core Functions Adapter Properties dialog box displays.

- Step 2** Click the **Task Properties** tab to continue.

Figure 24-6 Core Functions Adapter Properties Dialog—Task Properties Tab



- Step 3** On the Task Properties tab, under Task expiration days, modify the default task expiration date.

- Step 4** Click **OK** to close the dialog box.

Viewing Adapter-Supported Objects

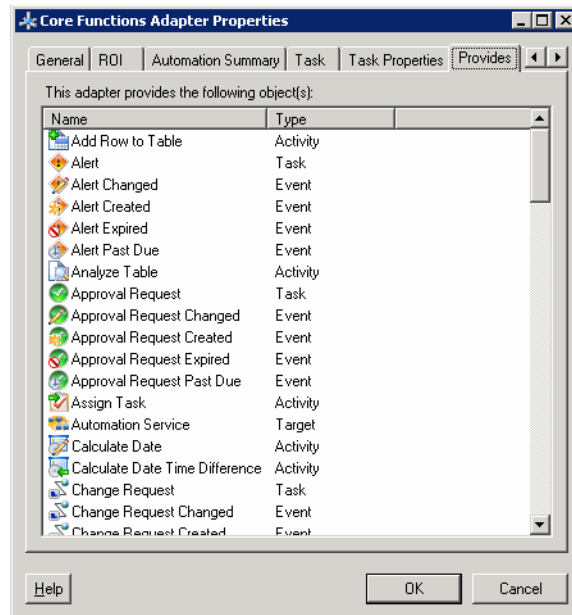
Use the Provides tab to view the name and type of component for each object the SNMP adapter supports.

To view adapter-provided objects:

- Step 1** On the Administration—Adapters view, highlight the **Core Functions Adapter**, right-click and choose **Properties**.

The Properties dialog box displays.

- Step 2** Click the **Provides** tab to view the functionality that is provided by the adapter.

Figure 24-7 Core Functions Adapter Properties Dialog Box—Provides Tab

- Step 3** Review the following information about the list of objects provided by the adapter and click **OK** to close the dialog box.

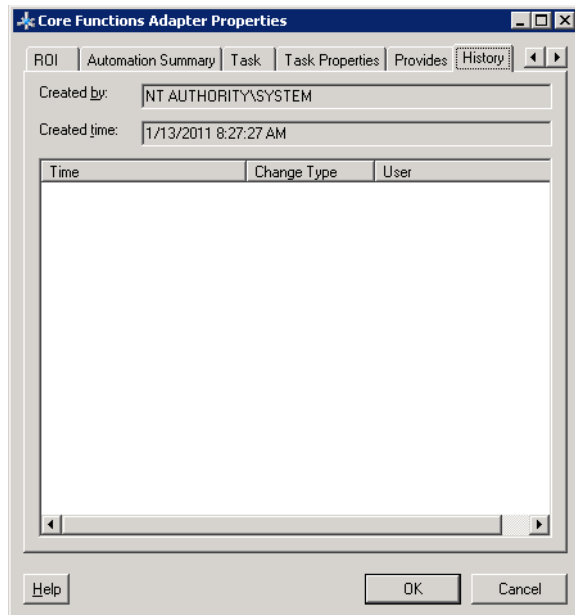
Column	Description
Name	Name of the activities, processes, and objects for which the adapter provides support
Type	Object type (Target, Runtime User, Activity, Event)

Viewing Adapter History

Use the History tab to view a history of changes that have been made to the adapter.

To view adapter history:

- Step 1** In the Administration—Adapters view, highlight the Core Functions Adapter, right-click and choose **Properties**.
The Properties dialog box displays.
- Step 2** Click the **History** tab to view the changes made to the adapter.

Figure 24-8 Core Function Adapter Properties Dialog Box—History Tab

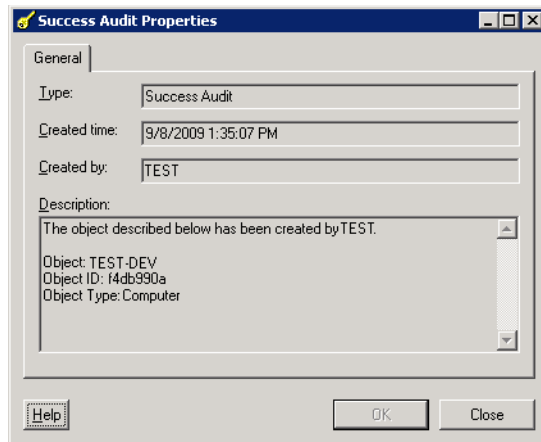
The following information is displayed:

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

- Step 3** To view the audit history for a specific action, highlight the appropriate object, right-click and choose **Properties**.

The Audit Properties dialog box displays.

Figure 24-9 [Name] Audit Properties Dialog Box



- Step 4** Review the **Audit Log** display-only properties dialog box for information about system-related events that occurred and their status.

Field	Description
Type	Type of event logged by the system • Success Audit • Error • Information
Created By	System-generated record, such as an error condition, or the user name of the person who initiated the process
Created Time	Date and time the event occurred
Description	Brief description of the event

- Step 5** Click **OK** to close the dialog box.



APPENDIX **A**

Managing Core Activities

This appendix provides instructions for configuring Core Functions adapter properties, defining Core activities, instructions for completing the property pages for each specific activity, and instructions on viewing the activity results.

- [Defining Core Activities, page A-2](#)
- [Defining the Calculate Date Activity, page A-12](#)
- [Defining the Calculate Date Time Difference Activity, page A-14](#)
- [Defining the Create Automation Summary Activity, page A-16](#)
- [Defining the Find Target Activity, page A-20](#)
- [Defining the Format Date Activity, page A-23](#)
- [Defining the Insert Event Activity, page A-26](#)
- [Defining the Insert Multiple Events Activity, page A-30](#)
- [Defining the Match Regular Expression Activity, page A-33](#)
- [Defining the Parse Date Activity, page A-36](#)
- [Defining the Publish Metric Activity, page A-38](#)
- [Defining the Publish Multiple Metrics Activity, page A-41](#)
- [Defining the Set Target Reference Activity, page A-43](#)
- [Defining the Set Variable Activity, page A-45](#)
- [Defining the Sleep Activity, page A-48](#)
- [Defining the Test FTP Destination Activity, page A-49](#)
- [Defining the XPath Query Activity, page A-52](#)
- [Defining the XSL Transform Activity, page A-55](#)
- [Managing Core Activity Definitions, page A-58](#)
- [Viewing Core Activity Instance Results, page A-67](#)

Defining Core Activities

When defining an activity in the process workflow, the properties pane contains property pages that are specific to the selected activity. This section provides information on how to define each activity-specific property page.

Core Functions Adapter Activities

When defining an activity in the process workflow, the properties pane contains property pages that are specific to the selected activity.

The following table displays the activities that are provided by the Core Functions adapter.

Activity	Description
Calculate Date	Manipulates the values of a date/time variable See Defining the Calculate Date Activity, page A-12 .
Calculate Date Time Difference	Calculates the time difference between two different dates See Defining the Calculate Date Time Difference Activity, page A-14 .
Create Automation Summary	Generates an automation summary for selected activities See Defining the Create Automation Summary Activity, page A-16 .
Find Target	Queries all defined targets See Defining the Find Target Activity, page A-20 .
Format Date	Converts date time into a string text format See Defining the Format Date Activity, page A-23 .
Insert Event	Inserts one event into TEO Reporting Database See Defining the Insert Event Activity, page A-26 .
Insert Multiple Events	Inserts multiple events into TEO Reporting Database See Defining the Insert Multiple Events Activity, page A-30 .
Match Regular Expression	Matches specified string against a specified regular expression See Defining the Match Regular Expression Activity, page A-33 .
Parse Date	Converts string text into a date/time format See Defining the Parse Date Activity, page A-36 .
Publish Metric	Publishes a single performance metric into the TEO Reporting Database See Defining the Publish Metric Activity, page A-38 .

Activity	Description
Publish Multiple Metrics	Publishes multiple performance metrics into the TEO Reporting Database See Defining the Match Regular Expression Activity, page A-33 .
Set Target Reference	Modifies the target ID assigned to a target reference See Defining the Set Target Reference Activity, page A-43 .
Set Variable	Modifies the values of a variable See Defining the Set Variable Activity, page A-45 .
Sleep	Specifies the time period to pause between activities in the workflow See Defining the Sleep Activity, page A-48 .
Test FTP Destination	Tests the validity of a FTP file path See Defining the Test FTP Destination Activity, page A-49 .
XPath Query	Queries information based on XML path expressions, nodes, as well as namespace definitions See Defining the XPath Query Activity, page A-52 .
XSL Transform	Applies XSLT transformation to specific XML text. XSLT transformation can transform XML into plain text, HTML, or other XML See Defining the XSL Transform Activity, page A-55 .

Common Regular Expressions

The following table describes special regular characters that can be used in the Match Regular Expression activity.

Character	Description
*	Zero or more
.	Any single character
+	One or more
^	Beginning of line
\$	End of line
<	Beginning of word
>	End of word
\n	Line break
[]	Any one character in the set
[^]	Any one character not in the set
	Or
\	Escape Special Character
{ }	Tag expression

Character	Description
:l	C/C++ identifier
:q	Quoted string
:z	Integer
:b	Space or tab

Custom Date and Format Strings

The following are custom date and time format strings that are used to define the text representation of a date or time.

Format	Description
d	Represents the day of the month as a number from <i>1</i> through <i>31</i> . A single-digit day is formatted without a leading zero.
dd	Represents the day of the month as a number from <i>01</i> through <i>31</i> . A single-digit day is formatted with a leading zero.
ddd	Represents the abbreviated name of the day of the week
dddd (plus any number of additional d specifiers)	Represents the full name of the day of the week
f	Represents the most significant digit of the seconds fraction; that is, it represents the tenths of a second in a date and time value. If the <i>f</i> format specifier is used without other format specifiers, it is interpreted as the <i>f</i> standard date and time format specifier.
ff	Represents the two most significant digits of the seconds fraction; that is, it represents the hundredths of a second in a date and time value.
fff	Represents the three most significant digits of the seconds fraction; that is, it represents the milliseconds in a date and time value.
ffff	Represents the four most significant digits of the seconds fraction; that is, it represents the ten thousandths of a second in a date and time value.
fffff	Represents the five most significant digits of the seconds fraction; that is, it represents the hundred thousandths of a second in a date and time value.
ffffff	Represents the six most significant digits of the seconds fraction; that is, it represents the millionths of a second in a date and time value.
fffffff	Represents the seven most significant digits of the seconds fraction; that is, it represents the ten millionths of a second in a date and time value.

Format	Description
F	Represents the most significant digit of the seconds fraction; that is, it represents the tenths of a second in a date and time value. Nothing is displayed if the digit is zero. If the <i>F</i> format specifier is used without other format specifiers, it is interpreted as the <i>F</i> standard date and time format specifier.
FF	Represents the two most significant digits of the seconds fraction; that is, it represents the hundredths of a second in a date and time value. However, trailing zeros or two zero digits are not displayed.
FFF	Represents the three most significant digits of the seconds fraction; that is, it represents the milliseconds in a date and time value. However, trailing zeros or three zero digits are not displayed.
FFFF	Represents the four most significant digits of the seconds fraction; that is, it represents the ten thousandths of a second in a date and time value. However, trailing zeros or four zero digits are not displayed.
FFFFF	Represents the five most significant digits of the seconds fraction; that is, it represents the hundred thousandths of a second in a date and time value. However, trailing zeros or five zero digits are not displayed.
FFFFFF	Represents the six most significant digits of the seconds fraction; that is, it represents the millionths of a second in a date and time value. However, trailing zeros or six zero digits are not displayed.
FFFFFFF	Represents the seven most significant digits of the seconds fraction; that is, it represents the ten millionths of a second in a date and time value. However, trailing zeros or seven zero digits are not displayed.
g, gg (plus any number of additional g specifiers)	Represents the period or era, for example, A.D. Formatting ignores this specifier if the date to be formatted does not have an associated period or era string.
h	Represents the hour as a number from 1 through 12, that is, the hour as represented by a 12-hour clock that counts the whole hours since midnight or noon. A particular hour after midnight is indistinguishable from the same hour after noon. The hour is not rounded, and a single-digit hour is formatted without a leading zero.

Format	Description
hh, hh (plus any number of additional h specifiers)	Represents the hour as a number from <i>01</i> through <i>12</i>, that is, the hour as represented by a 12-hour clock that counts the whole hours since midnight or noon. A particular hour after midnight is indistinguishable from the same hour after noon. The hour is not rounded, and a single-digit hour is formatted with a leading zero. For example, given a time of 5:43, this format specifier displays "05".
H	Represents the hour as a number from <i>0</i> through <i>23</i> , that is, the hour as represented by a zero-based 24-hour clock that counts the hours since midnight. A single-digit hour is formatted without a leading zero.
HH, HH (plus any number of additional H specifiers)	Represents the hour as a number from <i>00</i> through <i>23</i> , that is, the hour as represented by a zero-based 24-hour clock that counts the hours since midnight. A single-digit hour is formatted with a leading zero.
K	Represents the time zone information of a date and time value. When used with <code>DateTime</code> values, the result string is defined by the value of the <code>DateTime...:Kind</code> property. For the local time zone (a <code>DateTime...:Kind</code> property value of <code>DateTimeKind...:Local</code>), this specifier is equivalent to the <code>zzz</code> specifier and produces a result string containing the local offset from Coordinated Universal Time (UTC); for example, "-07:00". For a UTC time (a <code>DateTime...:Kind</code> property value of <code>DateTimeKind...:Utc</code>), the result string includes a "Z" character to represent a UTC date. For a time from an unspecified time zone (a time whose <code>DateTime...:Kind</code> property equals <code>DateTimeKind...:Unspecified</code>), the result is equivalent to <code>String...:Empty</code>. For <code>DateTimeOffset</code> values, the <code>K</code> format specifier is equivalent to the <code>zz</code> format specifier, and produces a result string containing the <code>DateTimeOffset</code> value's offset from UTC.
m	Represents the minute as a number from <i>0</i> through <i>59</i> . The minute represents whole minutes that have passed since the last hour. A single-digit minute is formatted without a leading zero.
mm, mm (plus any number of additional m specifiers)	Represents the minute as a number from <i>00</i> through <i>59</i> . The minute represents whole minutes that have passed since the last hour. A single-digit minute is formatted with a leading zero.
M	Represents the month as a number from <i>1</i> through <i>12</i> . A single-digit month is formatted without a leading zero.

Format	Description
MM	Represents the month as a number from <i>01</i> through <i>12</i> . A single-digit month is formatted with a leading zero.
MMM	Represents the abbreviated name of the month as defined in the current <code>DateTimeFormatInfo...:AbbreviatedMonthNames</code> property.
MMMM	Represents the full name of the month as defined in the current <code>DateTimeFormatInfo...:MonthNames</code> property.
s	Represents the seconds as a number from <i>0</i> through <i>59</i> . The result represents whole seconds that have passed since the last minute. A single-digit second is formatted without a leading zero.
ss, ss (plus any number of additional s specifiers)	Represents the seconds as a number from <i>00</i> through <i>59</i> . The result represents whole seconds that have passed since the last minute. A single-digit second is formatted with a leading zero.
t	Represents the first character of the AM/PM designator defined in the current <code>DateTimeFormatInfo...:AMDesignator</code> or <code>DateTimeFormatInfo...:PMDesignator</code> property. The AM designator is used for all times from <i>0:00:00 (midnight)</i> to <i>11:59:59.999</i> . The PM designator is used for all times from <i>12:00:00 (noon)</i> to <i>23:59:59.99</i> .
tt, tt (plus any number of additional t specifiers)	Represents the AM/PM designator as defined in the current <code>DateTimeFormatInfo...:AMDesignator</code> or <code>DateTimeFormatInfo...:PMDesignator</code> property. The AM designator is used for all times from <i>0:00:00 (midnight)</i> to <i>11:59:59.999</i> . The PM designator is used for all times from <i>12:00:00 (noon)</i> to <i>23:59:59.99</i> .
y	Represents the year as a one or two-digit number. If the year has more than two digits, only the two low-order digits appear in the result. If the first digit of a two-digit year begins with a zero (for example, 2008), the number is formatted without a leading zero.
yy	Represents the year as a two-digit number. If the year has more than two digits, only the two low-order digits appear in the result. If the two-digit year has fewer than two significant digits, the number is padded with leading zeros to achieve two digits.
yyy	Represents the year with a minimum of three digits. If the year has more than three significant digits, they are included in the result string. If the year has fewer than three digits, the number is padded with leading zeros to achieve three digits.

Format	Description
yyyy	Represents the year as a four-digit number. If the year has more than four digits, only the four low-order digits appear in the result. If the year has fewer than four digits, the number is padded with leading zeros to achieve four digits.
yyyyy (plus any number of additional y specifiers)	Represents the year as a five-digit number. If the year has more than five digits, only the five low-order digits appear in the result. If the year has fewer than five digits, the number is padded with leading zeroes to achieve five digits. If there are additional y specifiers, the number is padded with as many leading zeroes as necessary to achieve the number of y specifiers.
z	With DateTime values, represents the signed offset of the local operating system's time zone from Coordinated Universal Time (UTC), measured in hours. It does not reflect the value of an instance's Kind property. For this reason, the z format specifier is not recommended for use with DateTime values. With DateTimeOffset values, represents the DateTimeOffset value's offset from UTC in hours. The offset is always displayed with a leading sign. A plus sign (+) indicates hours ahead of and a minus sign (-) indicates hours behind UTC. The offset ranges from -12 through +13. A single-digit offset is formatted without a leading zero.
zz	With DateTime values, represents the signed offset of the local operating system's time zone from UTC, measured in hours. It does not reflect the value of an instance's Kind property. For this reason, the zz format specifier is not recommended for use with DateTime values. With DateTimeOffset values, represents the DateTimeOffset value's offset from UTC in hours. The offset is always displayed with a leading sign. A plus sign (+) indicates hours ahead of and a minus sign (-) indicates hours behind UTC. The offset ranges from -12 through +13. A single-digit offset is formatted with a leading zero.

Format	Description
zzz, zzz (plus any number of additional z specifiers)	With <code>DateTime</code> values, represents the signed offset of the local operating system's time zone from UTC, measured in hours and minutes. It does not reflect the value of an instance's <code>Kind</code> property. For this reason, the <code>zzz</code> format specifier is not recommended for use with <code>DateTime</code> values. With <code>DateTimeOffset</code> values, represents the <code>DateTimeOffset</code> value's offset from UTC in hours and minutes. The offset is always displayed with a leading sign. A plus sign (+) indicates hours ahead of and a minus sign (-) indicates hours behind UTC. The offset ranges from <code>-12</code> through <code>+13</code>. A single-digit offset is formatted with a leading zero.
:	Represents the time separator defined in the current <code>DateTimeFormatInfo...:TimeSeparator</code> property. This separator is used to differentiate hours, minutes, and seconds.
/	Represents the date separator defined in the current <code>DateTimeFormatInfo...:DateSeparator</code> property. This separator is used to differentiate years, months, and days.
"	Represents a quoted string (quotation mark). Displays the literal value of any string between two quotation marks ("). Your application should precede each quotation mark with an escape character (\).
'	Represents a quoted string (apostrophe). Displays the literal value of any string between two apostrophe (') characters.
%c	Represents the result associated with a <code>c</code> custom format specifier, when the custom date and time format string consists solely of that custom format specifier. That is, to use the <code>d</code>, <code>f</code>, <code>F</code>, <code>h</code>, <code>m</code>, <code>s</code>, <code>t</code>, <code>y</code>, <code>z</code>, <code>H</code>, or <code>M</code> custom format specifier by itself, the application should specify <code>%d</code>, <code>%f</code>, <code>%F</code>, <code>%h</code>, <code>%m</code>, <code>%s</code>, <code>%t</code>, <code>%y</code>, <code>%z</code>, <code>%H</code>, or <code>%M</code>.
\c	Represents the escape character, and displays the character "c" as a literal when that character is preceded by the escape character (\). To insert the backslash character itself in the result string, the application should use two escape characters ("\\").
Any other character	Copies any other character to the result string, without affecting formatting.

Defining a Core Activity

Use the following steps to define an activity in the Process Editor. The property pages displayed depend on the selected activity.

To define a core activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the appropriate activity, then drag and drop the activity onto the Workflow pane.

The [Activity Name] Properties dialog box displays.

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the activity definition property page to define the properties specific to the activity. Refer to the appropriate section for instructions on defining the activity property.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

- Step 4** Click the Knowledge Base tab to assign a knowledge base article to the object.

Knowledge Base Field Options	Description
Text field	<i>Display-only.</i> Display name for the selected knowledge base article(s)
Delete	Highlight the appropriate knowledge base article and click the Delete  tool to remove the knowledge base article from the display.
Browse	Click Browse to launch the Select Knowledge Base dialog box for a list of existing knowledge base articles. For additional information on knowledge base articles, see Chapter 17, “Managing Knowledge Base Articles.”
Properties	Highlight the appropriate knowledge base article and click the Properties  tool to view and/or modify the properties of the defined knowledge base article.

The following information is displayed on the Knowledge Base tab.

Field	Description
Summary	Brief description of the issue
Possible Cause	Explanation of the condition that may be causing the issue
Possible resolution	List of actions that can be performed to attempt to resolve the issue
Related information	Additional information related to the issue

Step 5 On the Result Handlers tab, click *one* of the following buttons to manage the condition branches on the workflow, as necessary:

Button	Description
Add	Adds a condition branch
Remove	Removes the condition branch from the activity
Move Up	Moves the condition up one position in the list of conditions
Move Down	Moves the condition down one position in the list of conditions

Step 6 Click the **Save**  tool to save the activity definition.

Defining the Calculate Date Activity

Use the Calculate Date activity to manipulate the values of a date/time variable.

To define the Calculate Date activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Calculate Date** activity, then drag and drop the activity onto the Workflow pane.

The Calculate Date property pages display.

Figure A-1 Calculate Date Properties Page—General Tab

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Calculate Date** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-2 Calculate Date Properties Page—Calculate Date Tab

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Calculate Date tab, specify the properties to be used to adjust the date and time frame:

Field	Description
Original date	Click the Reference tool to select the appropriate date/time variable reference, such as the Process > Start Time reference variable, to be used to be used as the original date. Note To customize the specific date/time of the variable reference, it is recommended that the customer add the Parse activity to the process and use that activity to modify the selected date/time. See Defining the Parse Date Activity, page A-36.
Adjustment	Enter the number of units to increase or decrease the time frame. Enter minus (-) prior to the value in order to decrease or enter plus (+) prior to the value to increase. (ex. -5) Note Click the time unit link to change the modified date/time (from seconds up to days).

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity, page A-10](#).
 - Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

**Note**

To view the calculated date adjustments, see [Viewing Calculated Date Information, page A-70](#).

Defining the Calculate Date Time Difference Activity

Use the Calculate Date Time Difference activity to calculate the time difference between two different dates.

To define the Calculate Date Time Difference activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Calculate Date Time Difference** activity, then drag and drop the activity onto the Workflow pane.

The Calculate Date Time Difference property pages display.

Figure A-3 Calculate Date Time Difference Properties Page—General Tab

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Date Difference** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-4 Calculate Date Time Difference Properties Page—Date Difference Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Date Difference tab, specify the properties to be used to calculate date/time difference:

Field	Description
Date	Click the Reference tool to select the appropriate date/time variable reference, such as the Process > Start Time reference variable, to be used to be used as the original date. Note To customize the specific date/time of the variable reference, it is recommended that the customer add the Parse activity to the process and use that activity to modify the selected date/time. See Defining the Parse Date Activity, page A-36.
Subtract Date	Click the Reference tool to select the appropriate date/time variable reference to be calculated for the difference in time frame. Note To customize the specific date/time of the variable reference, it is recommended that the customer add the Parse activity to the process and use that activity to modify the selected date/time. See Defining the Parse Date Activity, page A-36.

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity, page A-10](#).
 - Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

**Note**

To view the date difference results, see [Viewing Calculated Date Difference Results, page A-71](#).

Defining the Create Automation Summary Activity

An automation summary is a collection of data summarizing the objects included in the process and the data retrieved by the processing of the objects.

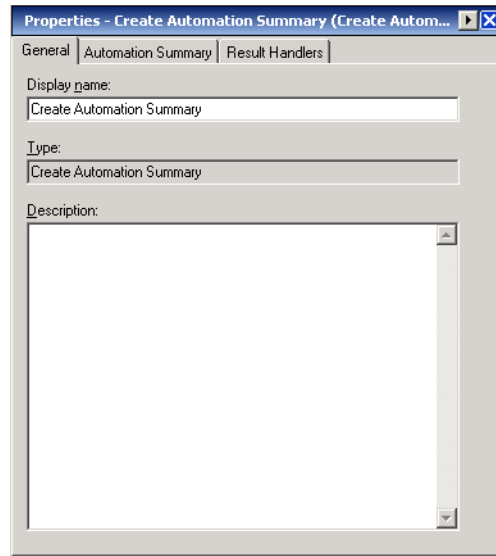
Use the Create Automation Summary activity to generate an automation summary for a selected activity in a process. To generate the data output, choose the activity and then specify the section in the automation summary in which to output the data.

The share path specified in the Core Functions Adapter properties will be used when viewing the automation summary reports.

If the automation summary is set to not be shared, then only local users on the TEO server computer will have access to the automation summary report. The automation summary will not display for users with remote access, such as those accessing TEO from the Web Console or the remote client, unless a UNC share or IIS Virtual directory sharing options have been selected.

To define the Create Automation Summary activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Create Automation Summary** activity, then drag and drop the activity onto the Workflow pane.
- The Create Automation Summary property pages display.

Figure A-5 Create Automation Summary Properties Page—General Tab

Step 2 On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Automation Summary** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-6 Create Automation Summary Properties Page—Automation Summary Tab

Properties - Create Automation Summary (Create Autom...)

General Automation Summary Result Handlers

Automation summary style sheet:
Situation Analysis Report

Include the following items:

Name	Section	Root Cause
Started by User	SituationAnalysis	
Started by Par...		

Settings for 'Started by User' trigger event

Section:
SituationAnalysis

☐ Is the "root cause"

☒ Last instance information only

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Automation Summary tab, specify the following items for the generated automation summary:

Field	Description
Automation summary style sheet	Choose the type of template to be used for the automation summary. By default, the <i>Situation Analysis Report</i> style sheet is selected. - Table of Configuration Properties - Situation Analysis Report
Include the following items	Choose the activity or trigger/event, since events and triggers can be included into the automation summary as well, and specify the section of the automation summary to include the reporting details and whether the activity is the root cause of any issues that are detected. - Name—Name of the activities that are included in the process - Section—Name of the section of the automation summary where the data will be stored - Root cause—<i>Yes</i> indicates the Is root cause check box is checked
Settings for [name] activity	

Field	Description
Section	Choose <i>one</i> of the following options to specify the section of the automation summary template in which to export the data: • SituationAnalysis—After a situation that requires action is identified, the state and diagnostic information is displayed in the <i>Situation Analysis</i> section of the automation summary. • ContextAnalysis—After a situation is analyzed in context with other situations, the symptom and cause is displayed in the <i>Context Analysis</i> section of the automation summary.
Is the root cause	Check this check box to list the activity or event at the top of the automation summary, or identified as the root cause of the problem.
Last instance information only	Check this check box to indicate that the automation summary must include only information for the latest execution of the activity instance. Note This setting is only for activities that are inside the loop of a workflow component (<i>While</i> or <i>For Each</i>). If this setting is not selected, the automation summary will include information about all instances of activity, for all iterations of the loop.

Step 5 On the Result Handlers tab, click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

Step 6 Click the **Save**  tool to complete the activity definition.

**Note**

For instructions on accessing automation summary reports, see [Viewing Automation Summary Reports, page A-68](#).

Defining the Find Target Activity

Use the Find Target activity to query defined targets within TEO.

To define the Find Target activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Find Target** activity, then drag and drop the activity onto the Workflow pane.
- The Find Target property pages display.

Figure A-7 Find Targets Properties Page—General Tab

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Find Targets** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-8 Find Targets Properties Page—Find Targets Tab

The screenshot shows a dialog box titled "Properties - Find Targets (Find Targets)". It has four tabs: "General", "Find Targets" (which is active), "Knowledge Base", and "Result Handlers".
 Under the "Find Targets" tab:
 - There is a "Target type:" label followed by a dropdown menu.
 - Below that is a "Choose a target group" label followed by a dropdown menu and a "New" button.
 - Further down is a "Properties to match:" label followed by a "Property:" dropdown menu and a list area with a "+" button.
 - At the bottom are "Add" and "Remove" buttons.

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Find Targets tab, specify the following information:

Field	Description
Target Type	Select the appropriate target type to be queried.
Choose a target group	Select the appropriate target group to be queried. Only target groups defined in TEO, in which the user has Use permission will be available.

Step 5 Under Properties to Match, click the appropriate button to modify the list of properties:

Field	Description
Add	Click this button to add a new Property drop-down list in which the user can select additional criteria to match within the query.
Remove	Click this button to remove the last set of Property criteria from the list of properties to match within the query.

- Step 6** When the Properties pane displays, define the appropriate exposed target criteria to use to query a list of defined targets in TEO.

Field	Description
Property	From the drop-down list, select the appropriate exposed target property to query.
Operators	Select the appropriate to include to match to the criteria. The displayed operators depend on the selected property. For additional information, see Comparison Operators, page 10-3 .
Expression	Select the appropriate Wildcard expression to associate with the selected operator. For additional information, see Common Wildcard Expressions, page 7-19 .

- Step 7** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity, page A-10](#).
 - Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

- Step 8** Click the **Save**  tool to complete the activity definition.



Note For instructions on viewing the matching targets, see [Viewing the Matching Targets, page A-72](#).

Defining the Format Date Activity

Use the Format Date activity to convert date and time into a string text format.

Example:

Format string

```
yyyyMMdd hh:mm:ss tt
```

Original Date/Time

```
10/23/2009 10:23:00 PM
```

Result

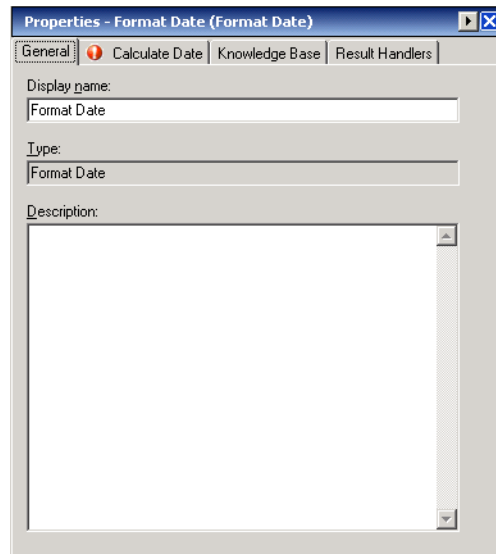
```
20091023 10:23:00 PM
```

To define the Format Date activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Format Date** activity, then drag and drop the activity onto the Workflow pane.

The Format Date property pages display.

Figure A-9 *Format Date Properties Page—General Tab*



- Step 2** On the General tab, enter the following information:

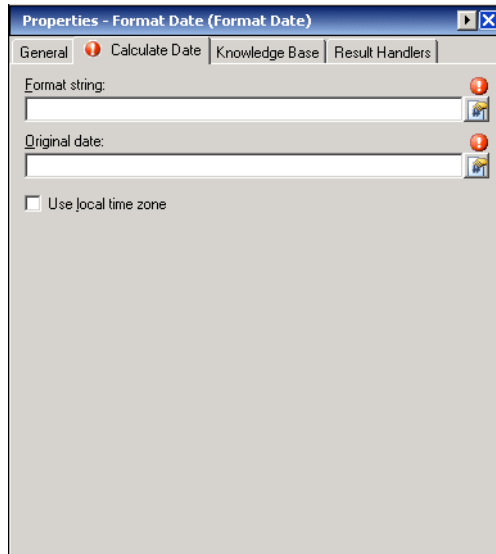
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Calculate Date** tab to continue.

**Note**

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-10 *Format Date Properties Page—Calculate Date Tab*

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Calculate Date tab, specify the date format to be used to convert to string text:

Field	Description
Format string	Enter the appropriate format string. The following are descriptions of what a format string can include: • Date and a time component • Date, but no time component • Time, but no date component • Includes time zone information and conforms to ISO 8601. Note For additional information on date string formats, see Custom Date and Format Strings, page A-4.
Original date	Click the Reference tool to select the appropriate date/time variable reference, such as the Process > Start Time reference variable, to be used to format the string. Note To customize the specific date/time of the variable reference, it is recommended that the customer add the Parse activity to the process and use that activity to modify the selected date/time. See Defining the Parse Date Activity, page A-36.
Use local time zone	Check this check box to indicate that the date should be formatted using the local time zone of the TEO server instead of using Coordinated Universal Time (UTC).

Step 5 On the Result Handlers tab, click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

Step 6 Click the **Save**  tool to complete the activity definition.



Note For instructions on viewing the formatted date, see [Viewing the Formatted Date Result, page A-73](#).

Defining the Insert Event Activity

The Insert Event activity is considered an advanced activity and may not be available to all users due to the licensing rights. Use the Insert Event activity to define the configuration properties to be used to insert one event into TEO Reporting Database.

To define the Insert Event activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Insert Event** activity, then drag and drop the activity onto the Workflow pane.

The Insert Event property pages display.

Figure A-11 Insert Event Properties Page—General Tab

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Event** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-12 Insert Event Date Properties Page—Event Tab

**Note**

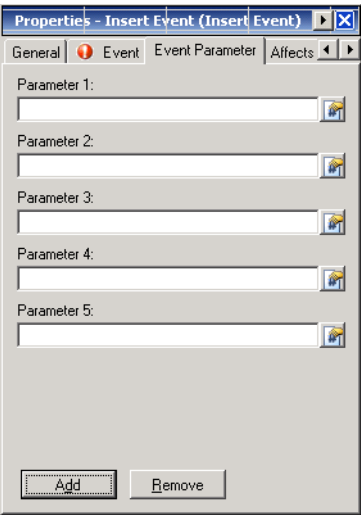
Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Event tab, specify the event properties to be used:

Field	Description
ID	Identifier to be used for the event
Subject	Name of the event
Event category	Choose the category for the event
Severity	Severity of the event • Error • Warning • Information (Default selection) • Success Audit • Failure Audit
Automation summary URL	Optional file path for the automation summary report associated with this event
Description	Brief description of the event

Step 5 Click the **Event Parameters** tab to continue.

Figure A-13 Insert Event Property Page—Event Parameter Tab



Step 6 On the Event Parameters tab, define the event parameters to be used in the event. The maximum number of listed event parameters is 10.

Field	Description
Add	Click this button to create a blank field to be used to add new event parameter to list. Note For information on adding a parameter, see Specifying Event Parameters for an Activity, page A-58 .
Remove	Click this button to remove selected event parameter from the list. Note For information on removing a parameter, see Removing Event Parameters from an Activity, page A-59 .

Step 7 Click the **Affects** tab to continue.

Figure A-14 Insert Event Properties Page—Affects Tab

Step 8 On the Affects tab, specify the organizations and configuration item elements that trigger the selected target.

Field	Description
This event applies to the following target	Check this check box to enable the options used to specify the affected target.
Process target	Select this radio button to use the process target as the affected target in the activity.
Activity target	Select this radio button to specify the affected target for a specific task activity. Choose the activity containing the target that will be used.
Specific target	Select this radio button to specify the affected target that will be used. To view the properties for the selected target, click the Properties tool. To create a new target, click New > [Target] .
Specific target group	Select this radio button to specify the affected target group that will be used. To view the properties for the selected target group, click the Properties tool. To create a new target group, click New > [Target Group] . - From the Choose a target using this algorithm drop-down list, specify which target will be chosen from the eligible target group members: - Choose the target with the specified name—Runs the process on the member of the group whose name is specified in the Name to match text field.

Field	Description
This applies to the following configuration item	Check this check box to specify the configuration item to be used in the activity.
Name	Name of the configuration item (IT component) to which the event pertains
Type	Type of ITIL configuration item (IT component) • Application Server • Database • Host • User
This is a CMDB reference	Check the check box to indicate that the true source of the CI is in the CMDB, so the configuration item properties reference a CMDB entry.
Object Key	ID for the specific record in the CMDB which contains the configuration item
Object Source	Name of the CMDB which contains the configuration item

Step 9 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity, page A-10](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

Defining the Insert Multiple Events Activity

The Insert Multiple Events activity is considered an advanced activity and may not be available to all users due to the licensing rights. Use the Insert Multiple Events activity to insert a batch of events into the TEO Processes database using one activity.

To define the Insert Multiple Events activity:

Step 1 On the Toolbox pane, under Core Activities, choose the **Insert Multiple Events** activity, then drag and drop the activity onto the Workflow pane.

The Insert Multiple Events property pages display.

Figure A-15 Insert Multiple Events Properties Page—General Tab

Step 2 On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Event** tab to continue.

**Note**

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-16 Insert Multiple Events Date Properties Page –Event Tab

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Events tab, specify the appropriate data source and event properties:

Field	Description
Data source	Enter the data which contains data for several events to be inserted
ID	Identifier to be used for the event
Subject	Name of the event
Event category	Choose the category for the event
Severity	Severity of the event • Error • Warning • Information (Default selection) • Success Audit • Failure Audit
Automation summary URL	File path for the automation summary report
Description	Brief description of the event

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- **Event Parameters**—Click the tab to define the event parameters for the event. See [Step 5 in Defining the Insert Event Activity, page A-26](#).
 - **Affects**—Specify the organizations and configuration item elements that trigger the selected target. See [Step 7 in Defining the Insert Event Activity, page A-26](#).
 - **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity, page A-10](#).
 - **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

Defining the Match Regular Expression Activity

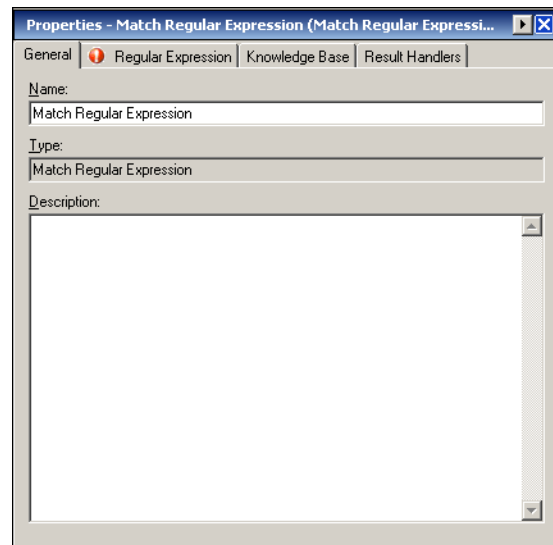
Use the Match Regular Expression activity to match to find matches for a regular expression within a specified string.

To define the Match Regular Expression activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Match Regular Expression** activity, then drag and drop the activity onto the Workflow pane.

The Match Regular Expression property pages display.

Figure A-17 Match Regular Expression Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity

Field	Description
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

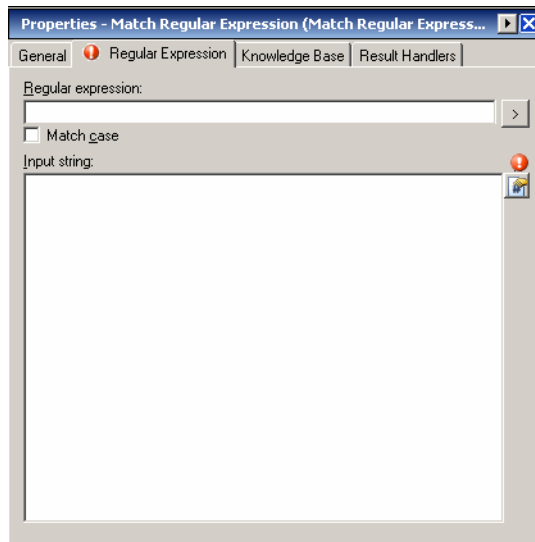
Step 3 Click the **Regular Expression** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-18 Match Regular Expression Properties Page—Regular Expression Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Regular Expression tab, specify the following properties:

Field	Description
Regular Expression	Specify a string to represent the regular expression to be used in matching Note Click the Expression arrow to view frequently used regular expression symbols. For descriptions of the special characters, see Common Regular Expressions , page A-3.

Field	Description
Match case	Check the check box to specify whether regular expression matching should be case-sensitive.
Input string	Specifies the input string for text to be parsed and matched against the specified regular expression Note For examples of regular expression strings, see Regular Expression Examples, page A-35 .

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity, page A-10](#).
 - Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

**Note**

For instructions on viewing the matching expressions, see [Viewing Match Regular Expression Activity Results, page A-74](#).

Regular Expression Examples

The following are match regular expression examples which can be used in the Match Regular Expression activity.

Description	Expression	String	Result
Split on simple space	<code>\S+</code> Note If you want the location of the whitespace (space) use <code>\s+</code>	aaa bbb ccc	"aaa", "bbb", "ccc"
CSS definition split on space or comma but keep "" enclosed items	<code>\s*("[^"]+" "[^,]+)</code>	10pt "Times Roman", Helvetica,Arial, sans-serif	"10pt", "\"Times Roman\"", "Helvetica", "Arial", "sans-serif"
Extract HTML <> enclosed tags	<code><[>]*></code>	A link	'', ''
Find all double characters	<code>(.)\1</code>	aabcdde	"aa" "dd"
Separate comma delimited values into groups (submatches or backreferences)	<code>ou=[^,]+,cn=([^,]+),dc=example,dc=com</code>	ou=people,cn=web,dc=example,dc=com	\$1 variable will contain "web" - first expression has no grouping ()

Defining the Parse Date Activity

Use the Parse Date activity to convert string text into a date or time format.

Example:

Format string

```
yyyyMMdd hh:mm:ss tt
```

Original Date/Time

```
20091023 10:23:00 PM
```

Result

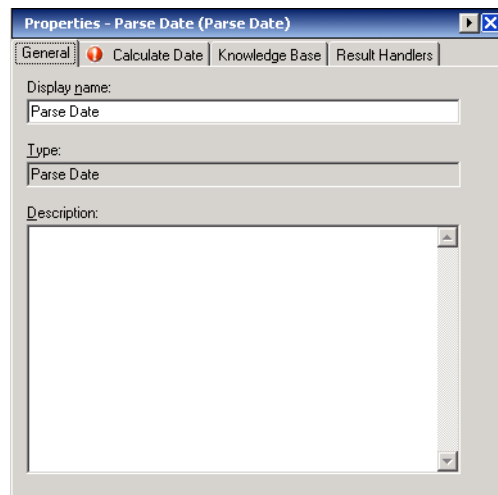
```
10/23/2009 10:23:00 PM
```

To define the Parse Date activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Parse Date** activity, then drag and drop the activity onto the Workflow pane.

The Parse Date property pages display.

Figure A-19 Parse Date Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Parse Date** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-20 Parse Date Properties Page—Parse Date Tab

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Calculate Date tab, specify the date format to be used to convert to string text:

Field	Description
Format string	Enter the appropriate format of the string. The following are descriptions of what format strings could contain: • Date and a time component • Date, but no time component • Time, but no date component • Includes time zone information and conforms to ISO 8601. Note For additional information on date string formats, see Custom Date and Format Strings, page A-4.
Input string	Enter the date or time string to be parsed.
Use local time zone	Check this check box to indicate that the activity should be formatted on the local time zone instead of using Coordinated Universal Time (UTC).

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity](#), page A-10.
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity](#), page A-10.

**Note**

For instructions on viewing the parsed date, see [Viewing Parsed Date Results, page A-75](#).

Defining the Publish Metric Activity

The Publish Metric activity is considered an advanced activity and may not be available to all users due to the licensing rights. Use the Publish Metric activity to define the performance metric properties to be published into the TEO Reporting Database and the Windows Management Instrumentation (WMI) provider.

The metrics are published under the *root\TEO* name space through the WMI class, *TEO_PerformanceMetric*. See [TEO_PerformanceMetric Class Properties, page A-40](#) for a description of the class properties.

To define the Publish Metric activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Publish Metric** activity, then drag and drop the activity onto the Workflow pane.
- The Publish Metric property pages display.

Figure A-21 Publish Metric Properties Page—General Tab

- Step 2** On the General tab, enter the following information:

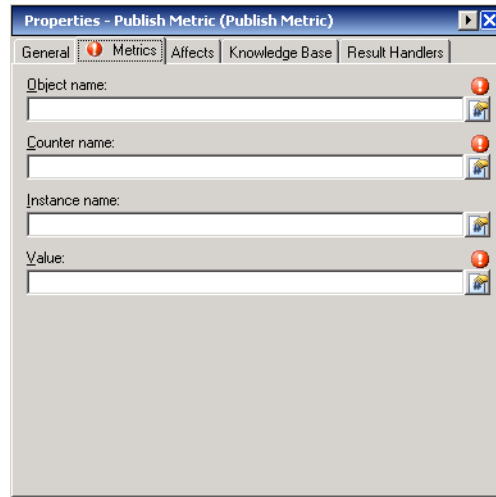
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Metrics** tab to continue.

**Note**

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-22 Publish Metric Properties Page—Metrics Tab


**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

- Step 4** On the Metrics tab, specify the properties of the performance metric to be inserted into the Reporting database:

Field	Description
Object name	Object name of the metric
Counter name	Name of the metric
Instance name	Name of the instance
Value	Performance metric value

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- **Affects**—Specify the organizations and configuration item elements that trigger the selected target. See [Step 7 in Defining the Insert Event Activity](#), page A-26.
 - **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity](#), page A-10.
 - **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity](#), page A-10.

TEO_PerformanceMetric Class Properties

The TEO_PerformanceMetric class defines the following properties.

All the different published metrics will be cached in memory. If the same metric is published multiple times, the cache will only keep the metric with the latest value.

Class Properties	Description
ObjectName	Object name of the metric
CounterName	Counter name of the metric
InstanceName	Instance name of the metric
Value	Value of the metric
TimeRaised	Time the metric is raised
ConfigurationItemName	Display name for the configuration item
ConfigurationItemKey	Key of the configuration item in the CMDB
ConfigurationItemType	Type of the configuration item in the CMDB
ConfigurationItemSource	CMDB Source location for the configuration item
AffectedTargetConfigurationItemName	Display name for the affected target configuration item
AffectedTargetConfigurationItemKey	Key of the affected target configuration item in the CMDB
AffectedTargetConfigurationItemType	Type of the affected target configuration item in the CMDB
AffectedTargetConfigurationItemSource	CMDB Source location for the affected target configuration item

Defining the Publish Multiple Metrics Activity

The Publish Multiple Metrics activity is considered an advanced activity and may not be available to all users due to the licensing rights. Use the Publish Metric activity to define the properties to be used to publish multiple performance metrics into the TEO Reporting Database and the Windows Management Instrumentation (WMI) provider.

The metrics are published under the *root\TEO* name space through the WMI class, *TEO_PerformanceMetric*. See [TEO_PerformanceMetric Class Properties, page A-40](#) for a description of the class properties.

To define the Publish Multiple Metrics activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Publish Multiple Metrics** activity, then drag and drop the activity onto the Workflow pane.
- The Publish Multiple Metrics property pages display.

Figure A-23 Publish Multiple Metrics Properties Page—General Tab

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Metrics** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-24 Publish Multiple Metrics Properties Page—Metrics Tab

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Metrics tab, specify the appropriate data source and metric properties:

Field	Description
Data source	References the data collection table containing data for multiple metrics to be inserted
Object name	Object name of the metric
Counter name	Name of the metric
Instance name	Name of the instance
Value	Performance metric value

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Affects**—Click the tab to define configuration properties associated with the metric(s). See [Step 7](#) in [Defining the Insert Event Activity](#), page A-26.
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 4](#) in [Defining a Core Activity](#), page A-10.
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5](#) in [Defining a Core Activity](#), page A-10.

Defining the Set Target Reference Activity

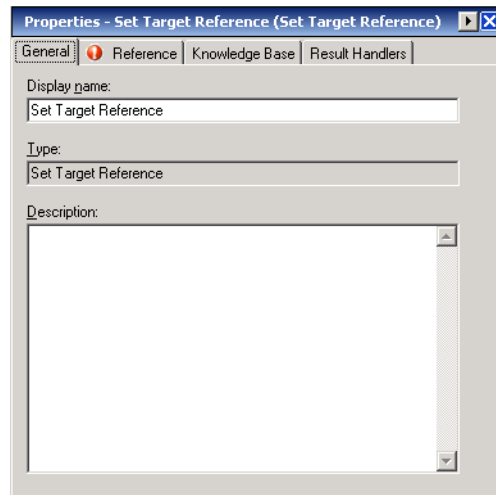
Use the Set Target Reference activity to modify the value of a defined target reference.

To define the Set Target Reference activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Set Target Reference** activity, then drag and drop the activity onto the Workflow pane.

The Set Target Reference property pages display.

Figure A-25 Set Target Reference Properties Page—General Tab



- Step 2** On the General tab, specify the general information about the activity:

Field	Description
Display Name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Reference** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-26 Set Target Reference Properties Page—Reference Tab

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Reference tab, specify the following:

Field	Description
Variable to update	Select the appropriate variable to be modified.
New target ID	Enter or select a variable containing the target ID for the new target reference property.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity](#), page A-10.
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity](#), page A-10.

Step 6 Click the **Save**  tool to complete the activity definition.

Defining the Set Variable Activity

Use the Set Variable activity to modify the value of a defined variable. You must specify a name for the activity, choose the defined variable that you want to modify and enter a new value for the variable. Formulas can also be included to modify variable values. See below for examples of what can be entered:

Example:

5+10

-or-

[Activity.Reference1] / [Activity.Reference2] * 100) + [Activity.Reference3]

-or-

[Activity.PropertyName1] [Activity.PropertyName2]



Note

The Set Variable activity cannot modify table variables. To manipulate the values of table variables, see the [Defining the Add Row to Table Activity, page D-4](#), the [Defining the Remove Row from Table Activity, page D-18](#), the [Defining the Set Table Variable Activity, page D-25](#), or the [Defining the Update Row in Table Activity, page D-27](#).

To define the Set Variable activity:

Step 1

On the Toolbox pane, under Core Activities, choose the **Set Variable** activity, then drag and drop the activity onto the Workflow pane.

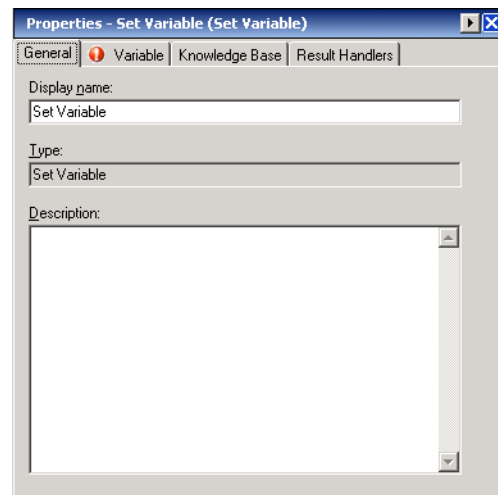
The Set Variable property pages display.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-27 Set Variable Properties Page—General Tab



Step 2 On the General tab, specify the general information about the activity:

Field	Description
Name	Name of the activity that will use this variable
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Variable** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-28 Set Variable Properties Page—Variable Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the Variable tab, specify the following:

Field	Description
Variable to update	Choose the appropriate variable to be modified
Note Click the Reference  tool to choose a defined variable or reference an object within the process on Insert Variable Reference dialog box.	

Field	Description
Variable data type	<i>Display-only.</i> Data type assigned to the selected variable • Boolean—Indicates whether a set of elements should be <i>true</i> or <i>false</i> • Hidden String—Holds data that must be protected from other TEO users and from auditing operations performed by TEO. • Identity—Represents the value of a user identity • Numeric—A single whole or decimal number assigned (positive and negative) • String—Defines a variable containing a string of text
Current value	<i>Display-only.</i> Indicates the current value of the selected variable
New value	Enter or choose a new value for the selected variable. This field remains display-only until the variable to be updated is selected. Note For a Boolean variable, the text entered in this field (<i>true</i> or <i>false</i>) is case-sensitive and must be entered all lowercase.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity, page A-10](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

Step 6 Click the **Save**  tool to complete the activity definition.



Note For instructions on viewing the results, see [Viewing Set Variable Results, page A-77](#).

Defining the Sleep Activity

Use the Sleep activity to specify the time period to pause between activities in the process.

To define the Sleep activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Sleep** activity, then drag and drop the activity onto the Workflow pane.

The Sleep property pages displays.

Figure A-29 Sleep Properties Page—General Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

- Step 2** On the General tab, specify the general information about the activity.

Field	Description
Name	Name for the activity
Sleep interval (in seconds)	Number of seconds in the sleep interval
Type	Displays the type of activity
Description	Brief description of the activity

- Step 3** On the Result Handlers tab, click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity](#), page A-10.

- Step 4** Click the **Save**  tool to complete the activity definition.

Defining the Test FTP Destination Activity

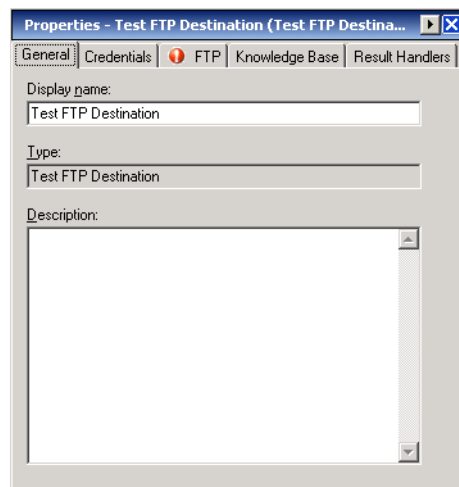
Use the Test FTP Destination activity to test the validity and availability of a FTP location.

To define the Test FTP Destination activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **Test FTP Destination** activity, then drag and drop the activity onto the Workflow pane.

The Test FTP Destination property pages display.

Figure A-30 Test FTP Destination Properties Page—General Tab

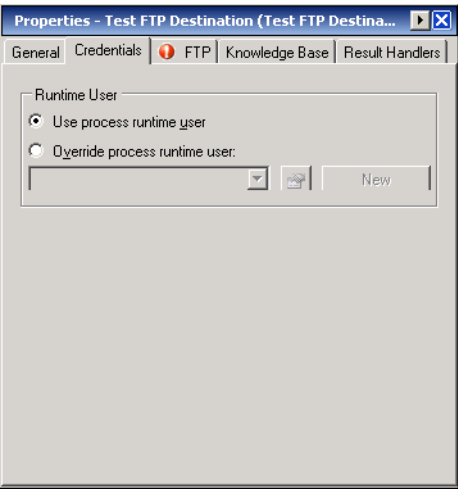


- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Credentials** tab to continue.

Figure A-31 Test FTP Destination Properties Page—Credentials Tab



Step 4 On the Credentials tab, specify the runtime user whose credentials should be used for activity execution:

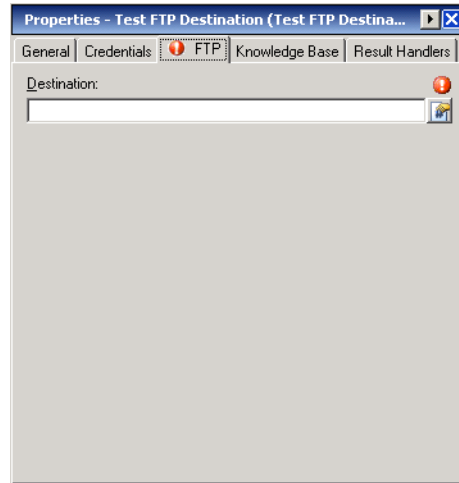
Field	Description
Use process runtime user	Select this radio button to use the credentials for the runtime user that was specified in the process properties
Override process runtime user	Select this radio button to specify different credentials than what are used for the process. The selected runtime user overrides the runtime user that was specified for the process. Note To view the properties for the selected runtime user, click the Properties  tool. To create a runtime user record for the process, click New > [Runtime User] . For additional information on creating a runtime user, see Chapter 16, “Managing Runtime Users.”

Step 5 Click the **FTP** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-32 Test FTP Destination Properties Page—FTP Tab

Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 6 On the FTP tab, specify the file path used to test the response of a FTP site:

Field	Description
Destination	Path for the FTP site

Step 7 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity](#), page A-10.
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity](#), page A-10.



Note For instructions on viewing the results of the FTP destination test, see [Viewing Test FTP Destination Response Time](#), page A-78.

Defining the XPath Query Activity

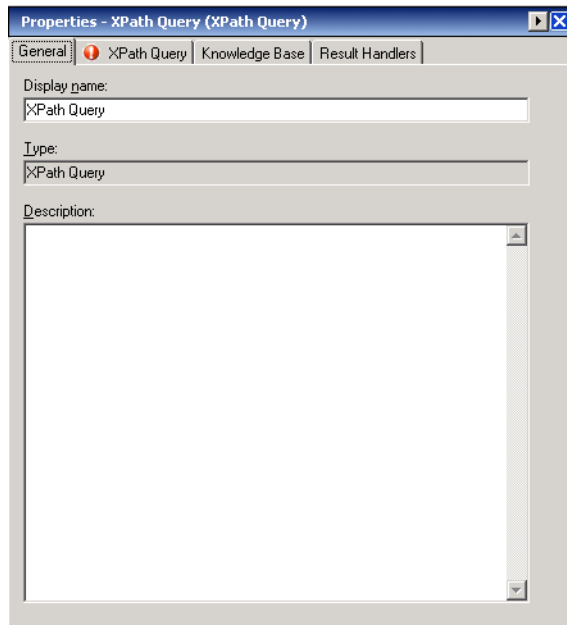
Use the XPath Query activity to query information based on XML path expressions, nodes, as well as namespace definitions.

To define the XPath Query activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **XPath Query** activity, then drag and drop the activity onto the Workflow pane.

The XPath Query property pages display.

Figure A-33 XPath Query Activity—General Tab



- Step 2** On the General tab, enter the following information:

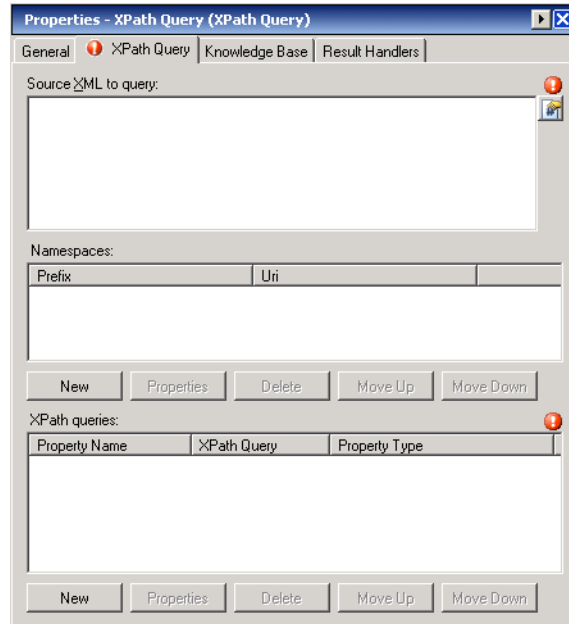
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **XPath Query** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-34 XPath Query Properties Page—XPath Query Tab



Properties - XPath Query (XPath Query)

General  XPath Query Knowledge Base Result Handlers

Source XML to query: 

Namespaces:

Prefix	Uri

New Properties Delete Move Up Move Down

XPath queries: 

Property Name	XPath Query	Property Type

New Properties Delete Move Up Move Down



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the XPath Query tab, specify the following properties:

Field	Description
Source XML	Source XML text to query
Namespaces	Click the following buttons to modify the list of namespace definitions. • New—Click this button to launch the Namespace Dialog Box to enter the appropriate namespace information to query. See Adding an XPath Namespace Definition, page A-59. • Properties—Highlight the appropriate namespace definition and click this button to view or modify the properties of the namespace query definition. • Delete—Highlight the appropriate XPath query and click this button to delete the XPath query definition from the list. See Removing Namespace and XPath Queries, page A-63. • Move Up— Highlight the appropriate XPath query and click this button to move the XPath query definition up the list. • Move Down— Highlight the appropriate XPath query and click this button to move the XPath query definition down the list.
XPath queries	Click the following buttons to modify the list of XPath query definitions. • New— Click this button to launch the XPath Query Dialog Box to enter the appropriate XPath information to query. See Adding an XPath Query Definition, page A-61. • Properties—Highlight the appropriate XPath query and click this button to view or modify the properties of the XPath query definition. • Delete—Highlight the appropriate XPath query and click this button to delete the XPath query definition from the list. See Removing Namespace and XPath Queries, page A-63. • Move Up—Highlight the appropriate XPath query and click this button to move the XPath query definition up the list. • Move Down—Highlight the appropriate XPath query and click this button to move the XPath query definition down the list.

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity, page A-10](#).
 - **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

**Note**

For instructions on viewing the output results generated by the activity, see [Viewing XPath Query Activity Results, page A-79](#).

Defining the XSL Transform Activity

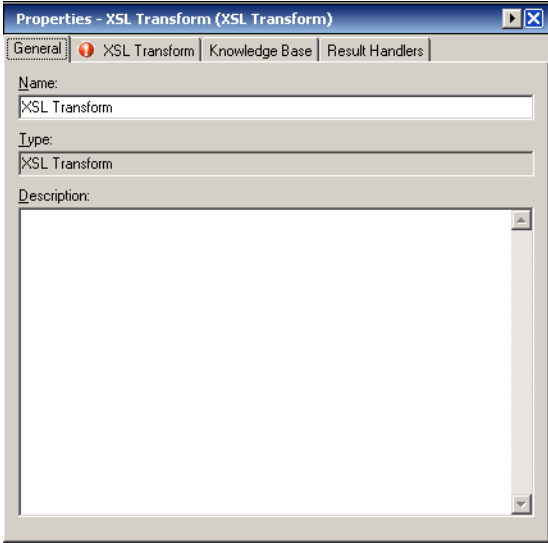
Use the XSL Transform activity to apply XSLT transformation to specific XML text. XSLT transformation can transform XML into plain text, HTML, or other XML.

To define the XSL Transform activity:

- Step 1** On the Toolbox pane, under Core Activities, choose the **XSL Transform** activity, then drag and drop the activity onto the Workflow pane.

The XSL Transform property pages display.

Figure A-35 XSL Transform Activity—General Tab



The screenshot shows a window titled "Properties - XSL Transform (XSL Transform)". It has four tabs: "General", "XSL Transform", "Knowledge Base", and "Result Handlers". The "General" tab is selected. It contains the following fields:

- Name:** A text box containing "XSL Transform".
- Type:** A text box containing "XSL Transform".
- Description:** A large, empty text area.

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity

Field	Description
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

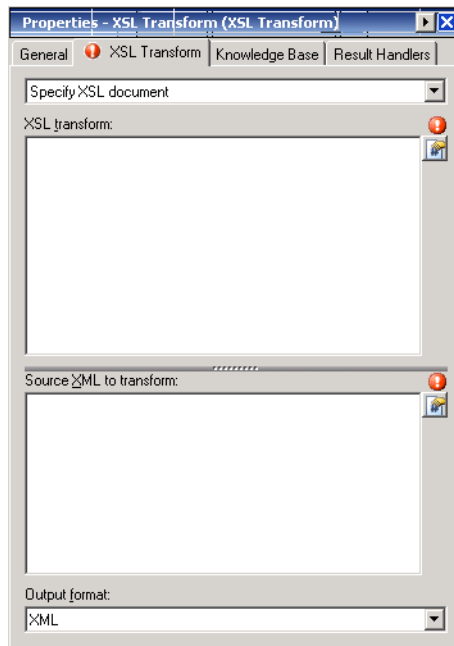
Step 3 Click the **XSL Transform** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure A-36 XSL Transform Properties Page—XSL Transform Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Core Activity Variable References](#), page A-65.

Step 4 On the XSL Transform tab, specify the following properties:

Field	Description
Specify XSL document	From the drop-down list, choose this option to specify the text of the XSLT transform directly in the activity. XSL transform XSLT style sheet for the XSL document. This option displays only when <i>Specify XSL by document</i> is selected.

Field	Description
Specify XSL path	From the drop-down list, choose this option to read the XSLT text from a specific file path. XSL Location Type the appropriate file path of the XSLT file that can be accessed by the TEO server, as well as the client. This option displays only when <i>Specify XSL path</i> is selected. Click Browse to search for the file location. See Specifying XSL File Path, page A-64.
Source XML to transform	Source XML text to be transformed
Output format	From the drop-down list, select the option to determine the appropriate output in the automation summary and activity instance. • HTML • XML • TEXT

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 4 in Defining a Core Activity, page A-10](#).
 - Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 5 in Defining a Core Activity, page A-10](#).

**Note**

For instructions on viewing the output results generated by the activity, see [Viewing XSL Transform Activity Results, page A-80](#).

Managing Core Activity Definitions

Use the following section to modify information in the Core activities. Use the activity-specific property page to perform the following functions.

Modifying a Core Activity

Modifying process properties does not automatically modify an activity. Activity definitions are included in a process definition and the activity properties must be modified separately from the process properties.

Activities can only be modified in the Process Editor. With the appropriate rights from the Operations view, the Process Editor is launched when accessing the process properties.

When user rights are restricted, the Process Viewer is launched with the properties displaying a display-only view after determining that the user cannot edit the activity.

-
- Step 1** To modify an activity, use *one* of the following methods:
- On the Definitions—Process view, highlight the appropriate process, right-click and choose **Edit**.
 - or-
 - On the Operations workspace, select a process from any of the four process views, right-click and choose **Edit**.
- The Process Editor displays.
- Step 2** On the Workflow pane, select the appropriate activity, and modify activity properties, as necessary, and click **Save**.
- Step 3** Make any additional changes, as necessary, and click **Exit** to close the Process Editor.
-

Specifying Event Parameters for an Activity

The event generated by the Insert Event activity can include up to 10 parameters. Use the following steps to modify the parameters for the event.

To modify the list of parameters:

-
- Step 1** On the Insert Event property page, click the **Event Parameters** tab to modify the parameters assigned the event.
- Step 2** Click the **Parameters** tab to modify the event parameters.
- Step 3** Click **Add** to add a new field for a parameter.
- Step 4** Enter the appropriate information for the parameter.
- Step 5** Click the **Save**  tool to save the changes.
-

Removing Event Parameters from an Activity

The Remove button removes the last parameter added to the list. For example, the user cannot remove *Parameter 4* without removing *Parameter 5* from the list.

If the user wants to keep *Parameter 5*, then update *Parameter 4* with the information from *Parameter 5*, and then click **Remove** to remove *Parameter 5* in the list.

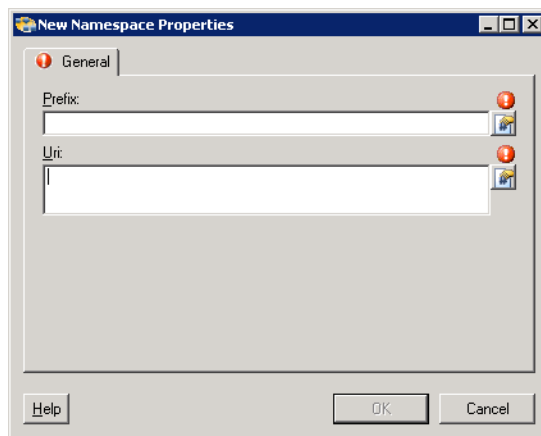
Adding an XPath Namespace Definition

An XML namespace is a collection of names, identified by a Uniform Resource Identifier (URI) reference, which are used in XML documents as element and attribute names. See [Namespace Examples, page A-60](#) for additional information on entering the appropriate namespace properties.

To add an XPath namespace:

- Step 1** On the XPath Query property page, click **New**.
The XPath Namespace Definition dialog box displays.

Figure A-37 XPath Namespace Definition Dialog Box



- Step 2** Complete the following fields, and click **OK**.

Field	Description
Prefix	Enter the appropriate prefix element to associate with the namespace URI reference in the attribute value
URI	Enter the uniform resource identifier (URI) used to identify the attribute value of the namespace name or resource on the internet.

The information displays in the Namespace box on the XPath Query property page.

- Step 3** Click the **Save**  tool to save the changes.

Namespace Examples

In this example, the elements prefixed with xdc are associated with a namespace whose name is <http://www.xml.com/books>, while those prefixed with h are associated with a namespace whose name is <http://www.w3.org/HTML/1998/html4>.

The prefixes are linked to the full names using the attributes on the top element whose names begin. xmlns:. The prefixes don't mean anything at all - they are just shorthand placeholders for the full names. Those full names, you will have noticed, are URLs, i.e. Web addresses.

Example XML

```
<h:html xmlns:xdc="http://www.xml.com/books"
        xmlns:h="http://www.w3.org/HTML/1998/html4">
  <h:head><h:title>Book Review</h:title></h:head>
  <h:body>
    <xdc:bookreview>
      <xdc:title>XML: A Primer</xdc:title>
      <h:table>
        <h:tr align="center">
          <h:td>Author</h:td><h:td>Price</h:td>
          <h:td>Pages</h:td><h:td>Date</h:td></h:tr>
          <h:tr align="left">
            <h:td><xdc:author>Simon St. Laurent</xdc:author></h:td>
            <h:td><xdc:price>31.98</xdc:price></h:td>
            <h:td><xdc:pages>352</xdc:pages></h:td>
            <h:td><xdc:date>1998/01</xdc:date></h:td>
          </h:tr>
        </h:table>
      </xdc:bookreview>
    </h:body>
  </h:html>
```

**Note**

For additional examples, see <http://www.xml.com/pub/a/1999/01/namespaces.html>.

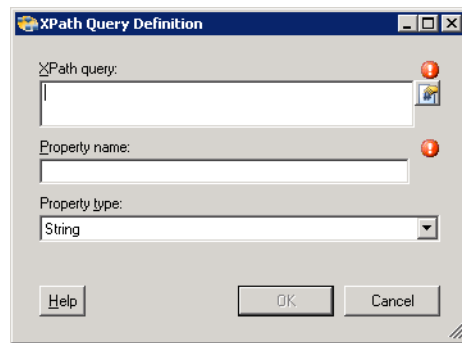
Adding an XPath Query Definition

XPath queries navigate through XML documents and search through the document nodes. Use the XPath Query dialog box to enter the XPath properties to query from the source XML code. See [XPath Query Example, page A-62](#) for additional information on entering the appropriate XPath Query properties.

To define XPath query properties:

- Step 1** On the XPath Query property page, click **New**.
The XPath Query Definitions dialog box displays.

Figure A-38 XPath Query Definitions Dialog Box



- Step 2** Complete the following fields, and then click **OK**:

Field	Description
XPath query	Enter the path expression to query.
Property name	Enter the property name to display on the Results tab after the activity has run.
Property Type	From the drop-down list, select the data type associated with the path expression to query. • String • Numeric • Boolean • DateTime

The information displays in the XPath Query box on the XPath Query property page.

- Step 3** Click the **Save**  tool to save the changes.

XPath Example Syntax

The following path expressions can be used when selecting nodes in a path expression of a XPath query.

Path Expression	Description
nodename	Selects all child nodes of the named node
/	Selects from the root node
//	Selects nodes in the document from the current node that match the selection no matter where they are located
.	Selects the current node
..	Selects the parent of the current node
@	Selects attributes

XPath Query Example

The following is an example of XML query code.

Example XML

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<bookstore>
  <book>
    <title lang="eng">Harry Potter</title>
    <price>29.99</price>
  </book>
  <book>
    <title lang="eng">Learning XML</title>
    <price>39.95</price>
  </book>
</bookstore>
```



Note

For additional examples, see http://www.w3schools.com/xpath/xpath_syntax.asp.

The following are example path expressions and related results based on the [XPath Query Example](#).

Path Expression	Description
bookstore	Selects all child nodes of the bookstore element
/bookstore	Selects the root element bookstore
bookstore/book	Selects all book elements that are children of bookstore
//book	Selects all book elements no matter where they are in the document

Note If the path starts with a slash (/) it always represents an absolute path to an element.

Path Expression	Description
bookstore//book	Selects all book elements that are descendant of the bookstore element, no matter where they are under the bookstore element
//@lang	Selects all attributes that are named lang

Sorting the Namespace and XPath Queries

The XPath Query activity requires the listed namespaces and XPath query definitions to be queried according to the order in which their listed.

To sort the list of namespaces and XPath query definitions:

-
- Step 1** On the XPath Query property page, under the following sections:
- Namespaces
 - XPath queries
- Step 2** To move the definition up the list, click **Move Up**.
- Step 3** To move the definition down the list, click **Move Down**.
- Step 4** Click the **Save**  tool to save the changes.
-

Removing Namespace and XPath Queries

Use the following steps to remove the namespace and/or XPath query definition from the XPath Query activity.

To remove the definitions:

-
- Step 1** On the XPath Query property page, under the following sections, highlight the appropriate definition, and click Delete:
- Namespaces
 - XPath queries
- The selected definition is removed from the XPath Query property page.
- Step 2** Click the **Save**  tool to save the changes.
-

Specifying XSL File Path

Use the following steps to specify the file path for the XSL transform.

To specify the file path:

-
- Step 1** On the XSL Transform property page, from the drop-down list, select **Specify XSL path** to read the XSLT text from a specific file path.
- Step 2** To the right of the XSL Location field, use *one* of the following methods:
- Type the appropriate file path of the XSLT file that can be accessed by the TEO server, as well as the client.
 - or-
 - Click **Browse** to locate the appropriate file location.
- The file path displays in the XSL Transform property page.
- Step 3** Click the **Save**  tool to save the changes.
-

Inserting Core Activity Variable References

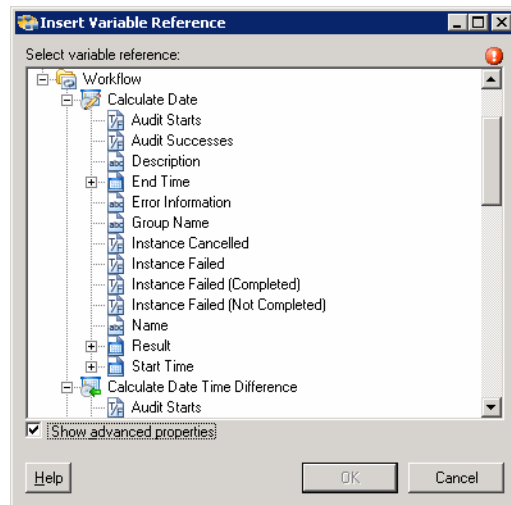
The Reference  icon to the right of a text field indicates that the field can be populated by referencing a defined variable or the property of another activity or process. Use the Insert Variable Reference dialog box to select a defined variable or object to populate a field.

Only variables valid for the selected field can be selected in this dialog box. The OK button does not activate until a valid property or variable is selected.

To insert a variable reference:

- Step 1** To the right of a field on a property page, click the **Reference** tool.
The Insert Variable Reference dialog box displays.

Figure A-39 Insert Variable Reference Dialog Box



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

- Step 2** Check the **Show Advanced** check box to display all items that are available for referencing.
If the check box is not checked, then only the most commonly-used items are displayed for activities, processes or events.
- Step 3** Click the **Workflow Activity Expand (+)** to display the reference objects for the activities in the Workflow pane. The properties in the Insert Reference Variable dialog box depend on the activities.
- Step 4** From the list of displayed objects, select the appropriate property:

Reference Variable	Description
Name	Display name of the activity
Notes	Description for the activity
Created by	User name or the owner of the activity
Created Time	The date and time the activity was created
Modified by	User name of the individual who modified the activity

Reference Variable	Description
Type	Type of activity
Description	Description of the activity
Audit Starts	Date and time the process audit starts
Audit Successes	Indicates the number of successful audits
End Time	Date and time the activity stopped
Error Information	Description of the error that has occurred
Group Name	Name of toolbox activity group
Instance Cancelled	Indicates the process was cancelled manually
Instance Failed	Indicates the process has failed
Instance Failed (Completed)	Indicates the process has failed but the process execution was completed
Instance Failed (Not Completed)	Indicates the process has failed and did not complete the process execution
Start Time	Date and time the activity was started
Process Id	ID number of the TEO process
Process Instance Id	ID number of the TEO process instance
Result	Resolved date and time after adjustment
Days	Gets the value of the current TimeSpan structure expressed in whole and fractional days
Hours	Gets the hours component of the time interval represented by the current TimeSpan structure
Minutes	Gets the minutes component of the time interval represented by the current TimeSpan structure
Seconds	Gets the seconds component of the time interval represented by the current TimeSpan structure
Milliseconds	Gets the milliseconds component of the time interval represented by the current TimeSpan structure
Automation Summary Path	File path for the automation summary
Formatted Date	Resolved string text for newly formatted date and/or time
Automation Summary	File path for the automation summary report associated with this event
Event ID	Identifier to be used for the event
Subject	Name of the event
Description	Brief description of the event
Parameter	Event parameters to be used in the event
All Matches	All matches to the regular expression
First Match	First match of the regular expression
Match Count	Number of matches to the regular expression
Object	Object name of the metric

Reference Variable	Description
Counter	Name of the metric
Instance	Name of the metric instance
Value	Performance metric value
Seconds	Number of seconds in the sleep interval
Response Time	Time taken for site to respond to ping
Runtime User	User who tests the validity and availability of a FTP location
Source XML	Source XML text used in XPath Query
Output	Output of the XSL Transform in the automation summary and activity instance
Source Text	Source XML text to be transformed
Transform Path	File path to the specific file to be transformed
XSL Document	XSL document to be transformed

Step 5 Click **OK** to add the selected reference variable to the related text field.

Viewing Core Activity Instance Results

This section describes what the user should expect to see after a process with a Core activity is launched. Certain activities display additional activity instance information for review by users.

For example, there will be certain activities that generate information based on the defined properties of the activities. In those situations, the activity instance properties displayed from the Operations—Activity View will show the display-only configuration properties as well as the generated results of the configuration properties.

To view activity instance properties:

-
- Step 1** On the Operations workspace, choose any of the four activity views to display the activity instances in the Results pane.
- Step 2** On the Results pane, expand the appropriate process instance to display the related activities.
- Step 3** Highlight the appropriate activity, and use *one* of the following methods:
- Double-click the appropriate activity instance.
 - Right-click and choose **Properties**.
 - On the Details pane, click the hyperlink of any item on tabs.

The [Activity Name] Properties dialog box displays.

Viewing Automation Summary Reports

When the Create Automation Summary activity is launched, the file path for the summary details of the relevant diagnostic and state information captured while performing the analysis is displayed from the Operations Workspace activity instance view.

To view the automation summary report:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Highlight the **Create Automation Summary** activity instance, right-click and choose **View Automation Summary**.

The Automation Summary report launches in the default web browser.

Figure A-40 Automation Summary

To view **situation analysis** [click here](#). To learn more about situation analysis [click here](#).

To view **context analysis** [click here](#). To learn more about context analysis [click here](#).

Did you find this report useful? Email your comments and suggestions to [Cisco Systems, Inc.](#)

Situation Analysis [Back to the top](#)

Find Targets Tuesday, May 10, 2011 2:24:58 PM

Test Result Find Targets

Found 1 target(s):

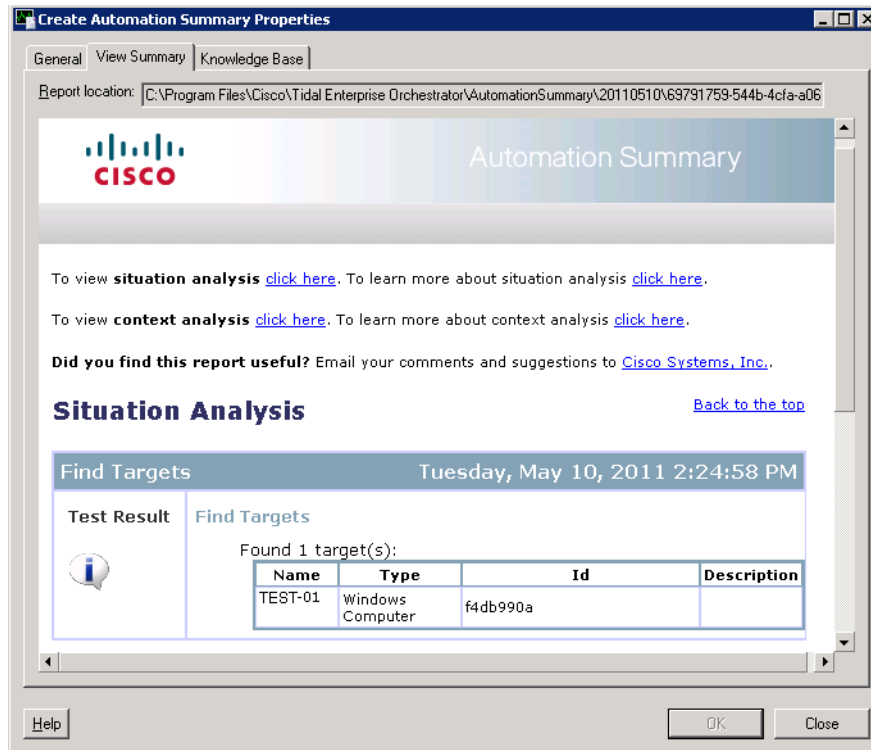
Name	Type	Id	Description
TEST-01	Windows Computer	f4db990a	

The displayed information depends on the data generated by the executed activity.

- Step 3** To view the properties of an automation summary, highlight the **Create Automation Summary** activity instance, right-click and choose **Properties**.

The Create Automation Summary Properties dialog box displays.

- Step 4** Click the **View Summary** tab to display the file path for the generated automation summary.

Figure A-41 Create Automation Summary Properties Dialog Box—View Summary Tab

The following information is displayed:

Field	Description
Report location	<i>Display-only.</i> File path for the automation summary
Situation Analysis	After TEO puts all data points in context to identify a situation that requires action, it performs deep analysis based on the type of situation identified. During situation analysis, TEO captures volatile state and diagnostic information that may otherwise be difficult or impossible to capture manually. The <i>Situation Analysis</i> section displays below the overview information. Click the link in the upper portion of the summary to navigate directly to the <i>Situation Analysis</i> section or simply scroll to the section.
Context Analysis	TEO analyzes all data points in context with each other to identify a situation that may require action. This information can be viewed in the <i>Context Analysis</i> section of the summary. The <i>Context Analysis</i> displays the symptom and possible causes.

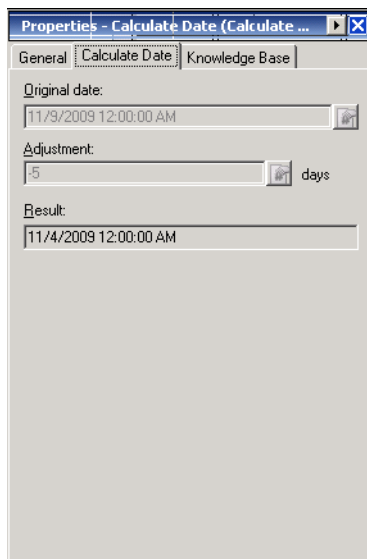
Viewing Calculated Date Information

When the Calculate Date activity is launched, the results of the adjusted values of a date or time variable are displayed from the Operations Workspace activity instance view.

To view the Calculate Date results:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the Calculate Date activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The Calculate Date Properties dialog box displays.
- Step 3** Click the **Calculate Date** tab to display the adjusted date results.

Figure A-42 Calculate Date Instance Properties Page—Calculate Date Tab



The following information is displayed:

Field	Description
Original date	Original date or time of the variable
Adjustment	Number of units to increase or decrease the time frame The plus (+) or minus (-) signs prior to the value indicate the adjustment of the value.
Result	Resolved date and time after adjustment

Viewing Calculated Date Difference Results

When the Calculate Date Time Difference activity is launched, the results of the adjusted values of a date or time variable are displayed from the Operations Workspace activity instance view.

To view the Calculate Date Time Difference results:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the Calculate Date Time Difference activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The Calculate Date Properties dialog box displays.
- Step 3** Click the **Date Difference** display-only tab to view the results of the calculated time difference.

Figure A-43 Calculate Date Instance Properties Page—Date Difference Tab

The screenshot shows the 'Calculate Date Time Difference Properties' dialog box with the 'Date Difference' tab selected. The dialog box contains several input fields and calculated values:

Field	Value
Date:	1/8/0001 3:11:08 PM
Subtract Date:	1/20/2011 6:08:16 PM
Ticks:	-634304842286985846
Total Days:	-734149.123017345
Total Hours:	-17619578.9524163
Total Minutes:	-1057174737.14498
Total Seconds:	-63430484228.6986
Total Milliseconds:	-63430484228698.6
Days:	-734149
Hours:	-2
Minutes:	-57
Seconds:	-8
Milliseconds:	-698

At the bottom of the dialog box, there are buttons for 'Help', 'OK', and 'Close'.

The following information is displayed:

Field	Description
Date	Formatted date time to be offset by the subtract date
Subtract Date	Date used to subtract the difference in the time frame
Ticks	Gets the number of ticks that represent the value of the current TimeSpan structure
Total Days	Gets the days component of the time interval represented by the current TimeSpan structure
Total Hours	Gets the value of the current TimeSpan structure expressed in whole and fractional hours
Total Minutes	Gets the value of the current TimeSpan structure expressed in whole and fractional minutes
Total Seconds	Gets the value of the current TimeSpan structure expressed in whole and fractional seconds
Total Milliseconds	Gets the value of the current TimeSpan structure expressed in whole and fractional milliseconds
Days	Gets the value of the current TimeSpan structure expressed in whole and fractional days
Hours	Gets the hours component of the time interval represented by the current TimeSpan structure
Minutes	Gets the minutes component of the time interval represented by the current TimeSpan structure
Seconds	Gets the seconds component of the time interval represented by the current TimeSpan structure
Milliseconds	Gets the milliseconds component of the time interval represented by the current TimeSpan structure

Viewing the Matching Targets

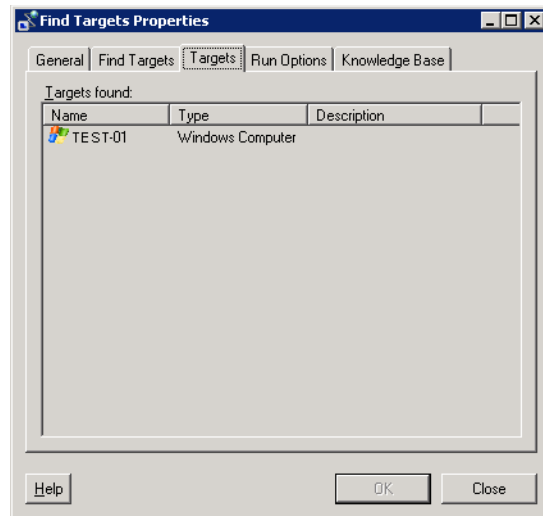
When the Find Targets activity is launched, the results of the matching targets is displayed from the Operations Workspace activity instance view.

To view the Find Targets results:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the **Find Targets** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.

The Find Targets Properties dialog box displays.

- Step 3** Click the **Targets** display-only tab to view the matching targets.

Figure A-44 Find Targets Instance Properties Page—Targets Tab

The following information is displayed:

Field	Description
Name	Display name of the target found
Type	Type of target
Description	Description of the target found

- Step 4** To view the properties of a displayed target, right-click and choose **Properties** to launch the [Target] Properties dialog box.

Viewing the Formatted Date Result

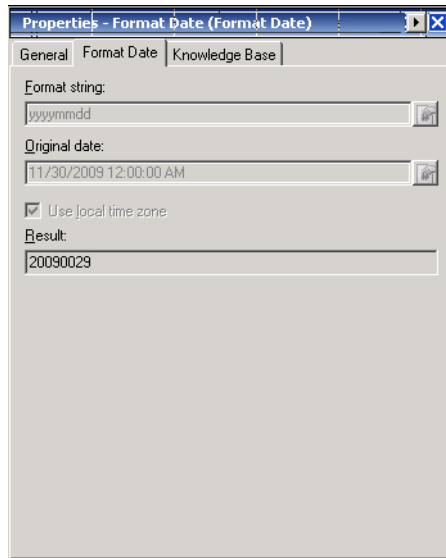
When the Format Date activity is launched, the results of the formatted date or time is displayed from the Operations Workspace activity instance view.

To view the Format Date results:

- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the **Format Date** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.

The Format Date Properties dialog box displays.

- Step 3** Click the **Format Date** display-only tab to view the formatted date result.

Figure A-45 *Format Date Instance Properties Page—Format Date Tab*

The following information is displayed:

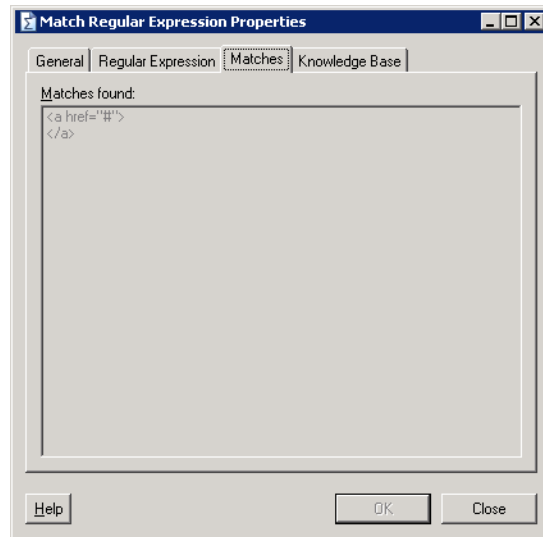
Field	Description
Format date	Submitted format of the date or time string
Original date	Original date and/or time to be formatted
Use local time zone	Checked check box indicates the activity used local time zone instead of Coordinated Universal Time (UTC)
Result	Resolved string text for newly formatted date and/or time

Viewing Match Regular Expression Activity Results

When the Match Regular Expression activity is launched, results are displayed from the Operations Workspace activity instance view.

To view regular expression results:

-
- Step 1** In the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The Match Regular Expression Properties dialog box displays.
- Step 3** Click the **Matches** tab to view the matches for the expression.

Figure A-46 Match Regular Expression Properties Page—Matches Tab

The following information is displayed:

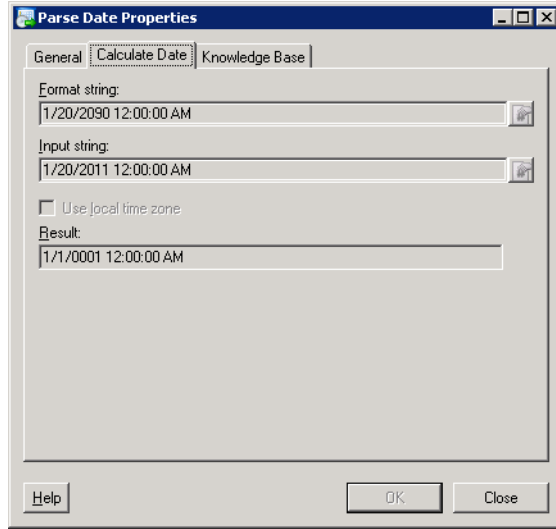
Field	Description
Matches Found	Displays the number of total matches found by the activity

Viewing Parsed Date Results

When the Parse Date activity is launched, the results of the parsed date is displayed from the Operations Workspace activity instance view.

To view the Parse date results:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the **Parse Date** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The Parse Date Properties dialog box displays.
- Step 3** Click the **Parse Date** display-only tab to view the parse date results.

Figure A-47 Parse Date Instance Properties Page—Parse Date Tab

The following information is displayed:

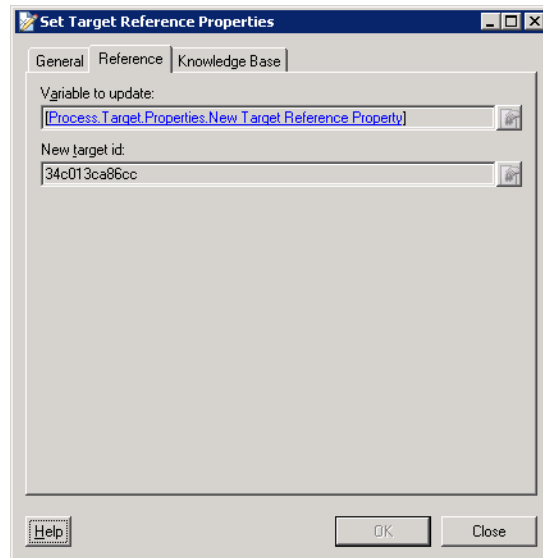
Field	Description
Format string	Submitted format of the string to be parsed
Input string	Original date or time string to be parsed
Use local time zone	Checked box indicates the activity used local time zone instead of Coordinated Universal Time (UTC)
Result	Resolved string text for newly parsed date and/or time

Viewing Set Target Reference Results

When the Set Target Reference activity is launched, results are displayed from the Operations Workspace activity instance view.

To view Set Target Reference results:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the Set Target Reference activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The Set Target Reference Properties dialog box displays.
- Step 3** Click the **Reference** display-only tab to view the updated values for the target reference specified in the process.

Figure A-48 Set Target Reference Instance Properties Page—Reference Tab

Step 4 The following information is displayed:

Field	Description
Variable Updated	Target reference property to update
New target ID	New target ID for the target reference property

Viewing Set Variable Results

When the Set Variable activity is launched, results are displayed from the Operations Workspace activity instance view.

To view Set Variable results:

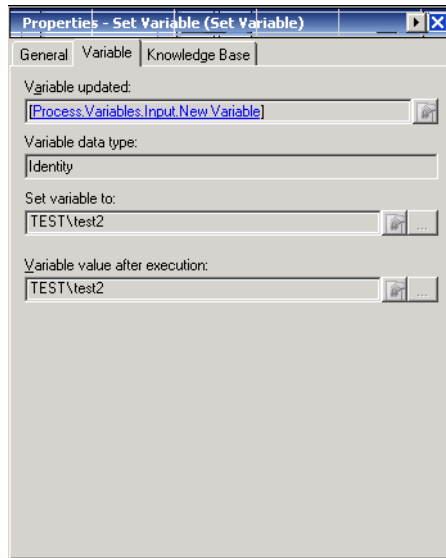
Step 1 On the Operations workspace, click the **Activity Views** folder.

Step 2 Use *one* of the following methods:

- Highlight the Set Variable activity instance, right-click and choose **Properties**.
- or-
- Double-click the appropriate activity instance.

The Set Variable Properties dialog box displays.

Step 3 Click the **Variable** display-only tab to view the updated values for the variable specified in the process.

Figure A-49 Set Variable Instance Properties Page—Variable Tab

Step 4 The following information is displayed:

Field	Description
Variable Updated	Displays the selected variable specified in the process definition
Variable data type	Data type assigned to the selected variable
Set variable to	Updated value of the selected variable
Variable value after execution	The new value of the variable after the process has been executed.

Viewing Test FTP Destination Response Time

When the Test FTP Destination activity is launched, results are displayed from the Operations Workspace activity instance view.

To view Test FTP Destination results:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.

The Test FTP Destination Properties dialog box displays.

- Step 3** Click the **FTP** tab to view the results of FTP site verification specified in the activity properties.

Figure A-50 Test FTP Destination Instance Properties Page—FTP Tab

The following information is displayed:

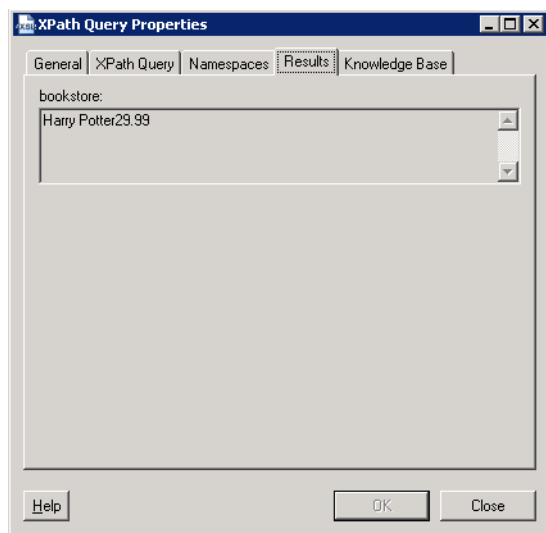
Field	Description
Destination	File path for the FTP site
Response time (in milliseconds)	Time taken for site to respond to ping

Viewing XPath Query Activity Results

When the XPath Query activity is launched, results are displayed from the Operations Workspace activity instance view.

To view XPath Query results:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The XPath Query Properties dialog box displays.
- Step 3** Click the **Results** tab to view the display-only tab with the results of the XPath query. Each query result will be displayed under the property name assigned in the XPath Query definition.

Figure A-51 XPath Query Properties Page—Results Tab

The following information is displayed:

Property Name

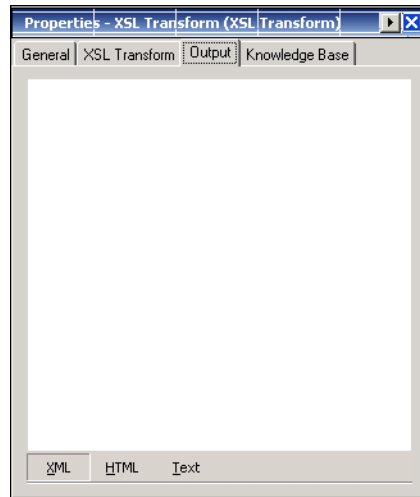
Result of the XPath query definition

Viewing XSL Transform Activity Results

When the XSL Transform activity is launched, results are displayed from the Operations Workspace activity instance view.

To view XSL transform output results:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The XSL Transform Properties dialog box displays.
- Step 3** Click the **Output** tab to view the XSL transform results.

Figure A-52 XSL Transform Properties Page—Output Tab

The following information is displayed:

Field	Description
XML	Click this option to display the output results in an XML format.
HTML	Click this option to display the output results in an HTML format.
Text	Click this option to display the output results in a text format.



APPENDIX **B**

Task Activities

The Task Activities appendix provides information on defining task activities in the Process Editor, instructions for completing the property pages for each specific activity, and instructions on viewing the activity results.

The following sections provide the instructions for defining task activities:

- [Task Activities Overview, page B-2](#)
- [Defining an Assigned Task Activity, page B-7](#)
- [Defining a Publish Task to Event Log Activity, page B-10](#)
- [Defining an Update Task Activity, page B-12](#)
- [Defining a Wait for Task to Enter State Activity, page B-14](#)
- [Defining IT Record Task Activities, page B-17](#)
- [Defining User Interaction Task Activities, page B-46](#)
- [Managing Task Activity Definitions, page B-59](#)
- [Viewing Task Activity Instance Information, page B-67](#)

Task Activities Overview

When defining an activity in the process, the properties pane contains property pages that are specific to the selected activity. This section provides information on how to define each activity-specific property page.

The following table displays the tasks that are provided by TEO.

Tasks	Description
Assign Tasks	Assigns a task to a user or group of users See Defining an Assigned Task Activity, page B-7 .
Correlate Alerts	Checks whether an alert occurred within a certain amount of time of another problem See Defining a Correlate Alerts Activity, page B-17 .
Create Alert	Alerts reflect potential problems that a user may want to investigate and possibly diagnose the problem See Defining a Create Alert Activity, page B-20 .
Create Approval Request	Specifies the message and choices for the assignee who is approving the activity See Defining a Create Approval Request Activity, page B-46 .
Create Change Request	Requests a modification to the configuration of an object or system See Defining a Create Change Request Activity, page B-28 .
Create Guided Operation	Details the steps a user takes to complete an assigned task See Defining a Create Incident Activity, page B-32 .
Create Incident	Task requires an operator to take action in order to resolve an issue See Defining a Create Incident Activity, page B-32 .
Create Input Request	Task requires input from an individual or group See Defining a Create Input Request Activity, page B-51 .
Create Input Request from Table	Queries information from a data table for an input request See Defining a Create Input Request from Table Activity, page B-54 .
Create Review Request	Task assigns a document for review See Defining a Create Review Request Activity, page B-57 .
Find Alerts	Queries alerts based on a for a specific task See Defining a Find Alerts Activity, page B-38 .
Find Change Requests	Queries change requests based on search criteria See Defining a Find Change Requests Activity, page B-40 .
Find Incidents	Queries incidents based on specific search criteria See Defining a Find Incidents Activity, page B-43 .

Tasks	Description
Publish Task to Event Log	Specifies the task that should be used to publish the information to the task event log See Defining a Publish Task to Event Log Activity, page B-10 .
Update [Task] Activities	Updates the properties for a specific task activity • Alert • Approval Request • Change Request • Guided Operation • Incident • Input Request • Review Request See Defining an Update Task Activity, page B-12 .
Wait for Task to Enter State	Waits for a task to match a specific state before the activity continues See Defining a Wait for Task to Enter State Activity, page B-14 .

Defining a Task Activity

When defining a task activity in the Process Editor, the activity will contain property pages that are specific to the selected task as well as property pages that are common to all the tasks.

Use the following steps to define a task activity in the Process Editor. Refer to the appropriate section for instructions on completing the task-specific property pages.

To define a task activity:

Step 1 On the Toolbox pane, under Tasks, choose the appropriate activity, then drag and drop the activity onto the Workflow pane.

The [Activity Name] Properties dialog box displays.

Step 2 On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the task-specific tabs to enter the appropriate information for the task. Refer to the appropriate section for instructions on creating the task.

**Note**

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

Step 4 Click the **Assignment** tab to modify the general assignment properties for the task.

Field	Description
Assigned to	User name(s) assigned to the task • Add—Click Add to choose the name of the person to assign to the activity. See Adding an Assignee to a Task Activity, page B-60. • Remove—Choose the user name and click this button to remove the user from list. See Removing an Assignee from Task Activity, page B-61.
Priority	Indicates the priority of the task • Low • Medium (Default) • High
Set [task] due time period	Check this check box and choose appropriate date the task should be completed from the drop-down calendar.
Set [task] expiration time period	Choose the appropriate date the task should expire from the drop-down calendar.

Step 5 Click the **Parameters** tab to define parameters for a specific task.

Field	Description
Parameter	Enter the appropriate parameter
Add	Adds new row for parameter to be added
Remove	Removes selected parameter from task

Step 6 Click the **Categories** tab to assign a task to a category or modify an existing assigned category.

Step 7 On the Categories tab, check the **Task should inherit process categories** check box to inherit the categories assigned to the process.

The following table displays the tasks that belong to the following categories:

Column	Description
Display name	The name of the category
Description	A description of the category
Type	Type of category

Step 8 Use the following buttons to modify the list of categories:

Field	Description
Add	Click this button to launch the Select Categories dialog box and choose the category to which the process is to be assigned. For more information, see Assigning a Category to a Task, page 4-41 .
Properties	Click this button to view or modify the properties of category.
Remove	Click this button to remove a category from the list. For more information, see Removing a Category from a Task, page 4-41 .

Step 9 Click the **External** tab to specify the external incident management system information to support the synchronization between TEO and the system that the customer is using.

Field	Description
External System	Name or IP address for the incident management server
External ID	ID of the incident which corresponds to the TEO incident

Step 10 Click the **Web Form** tab to apply a specific XSL transformation to the task XML. XSLT transformation will be used to convert XML text to HTML web pages.

Field	Description
Web Form XSL Transform File	XSL file used to transform the task XML into HTML content

Step 11 Click the Knowledge Base tab to assign a knowledge base article to the object.

Knowledge Base Field Options	Description
Text field	<i>Display-only.</i> Display name for the selected knowledge base article(s)
Delete	Highlight the appropriate knowledge base article and click the Delete  tool to remove the knowledge base article from the display.
Browse	Click Browse to launch the Select Knowledge Base dialog box for a list of existing knowledge base articles. For additional information on knowledge base articles, see Chapter 17, “Managing Knowledge Base Articles.”
Properties	Highlight the appropriate knowledge base article and click the Properties  tool to view and/or modify the properties of the defined knowledge base article.

The following information is displayed on the Knowledge Base tab.

Field	Description
Summary	Brief description of the issue
Possible Cause	Explanation of the condition that may be causing the issue
Possible resolution	List of actions that can be performed to attempt to resolve the issue
Related information	Additional information related to the issue

- Step 12** On the Result Handlers tab, click *one* of the following buttons to manage the condition branches on the workflow, as necessary:

Button	Description
Add	Adds a condition branch
Remove	Removes the condition branch from the activity
Move Up	Moves the condition up one position in the list of conditions
Move Down	Moves the condition down one position in the list of conditions

- Step 13** Click the **Save**  tool to save the activity definition.
-

Defining an Assigned Task Activity

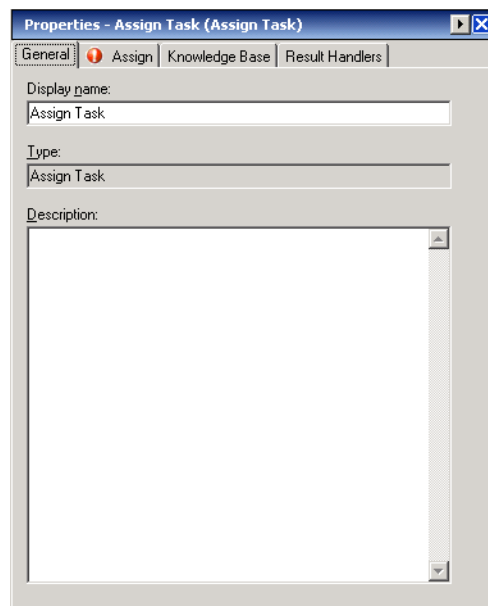
Use the Assign Task activity to modify the list of assignees for a task. On this activity, tasks can be assigned to a user or group of users. Users can also remove current assignees from tasks.

To define an assigned task:

- Step 1** On the Toolbox pane, under Tasks, choose **Assign Task** and drag and drop the activity onto the Workflow pane.

The Assign Task property page displays.

Figure B-1 Assign Task Properties Page—General Tab



- Step 2** On the General tab, specify the following general information about the activity.

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Assign** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-2 Assign Task Properties Page—Assign Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

Step 4 On the Assign tab, enter the following information:

Field	Description
Task ID	ID of the task

Field	Description
Remove Assignees	Check this check box and then click one of the following buttons to manage the removal of the user names assigned to the task: - Remove all assignees—Click this button to remove all assignees from the task - Remove specified assignees—Click this button to remove a specific user name that is assigned to the task - Add—Click Add to launch the Select Assignee dialog box to add a user name to the list of removed assignees. - Type the name of the assignee or click Browse to launch the Select User or Group dialog box to choose the name of the person designated as the assignee. - Edit—Click to edit the name of the assignee - Remove—Choose the user name and click this button to remove the user from list - Remove All—Click this button to remove all user names from the list
Add specified assignee	User name(s) assigned to the task - Add—Click Add to launch the Select Assignee dialog box to add a user name to the list. Type the name of the assignee or click Browse to launch the Select User or Group dialog box to search for the name of the assignee. - Edit—Click to edit the name of the assignee - Remove—Choose the user name and click this button to remove the user from list - Remove All—Click this button to remove all user names from the list
Add assignee list	Adds list of assignees from a different task or user identities from a table variable and assigns to the current task

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining a Publish Task to Event Log Activity

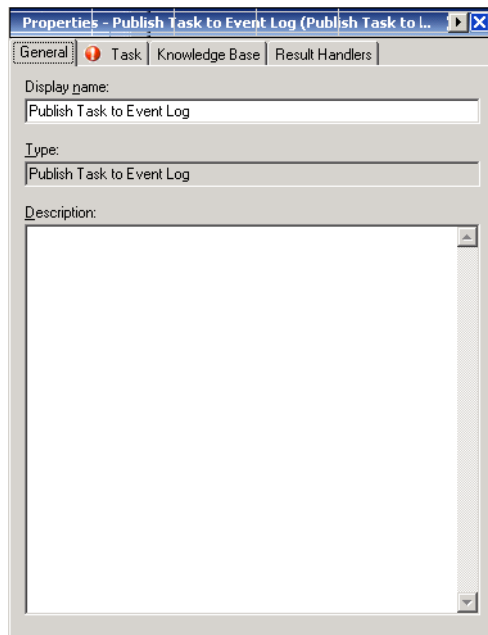
Use the Publish Task to Event Log activity to retrieve task information and publish the information to the task event log.

To define a Publish Task to Event Log activity:

- Step 1** On the Toolbox pane, under Tasks, choose **Publish Task to Event Log** and drag and drop the activity onto the Workflow pane.

The Publish Task to Event Log property page displays.

Figure B-3 Publish Task to Event Log Properties Page—General Tab



- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Task** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-4 Publish Task to Event Log Properties Page—Task Tab

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 4 On the Task tab, enter the task ID to publish to the event log.

Field	Description
Task ID	Enter the task ID or click the Reference tool to insert the ID number for the task.
Event source name	Check this check box and enter the name of the event source to use when logging the task. The default event source in which the task will be published is the TEO tasks event source.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining an Update Task Activity

Use the Update [Task] activity to update the properties for a specific task. The properties for the following tasks may be updated using their respective activities in the Toolbox pane.

- Alert
- Approval Request
- Change Request
- Guided Operation
- Incident
- Input Request
- Review Request



Note

For additional information on the properties that can be updated in the list, see [Common Task Properties, page 4-4](#).

To define an update task activity:

- Step 1** On the Toolbox pane, under Tasks, choose **Update [Task]** and drag and drop the activity onto the Workflow pane.

The Update [Task] property page displays.

Figure B-5 Update [Task] Properties Page—General Tab

- Step 2** On the General tab, specify the following information about the activity:

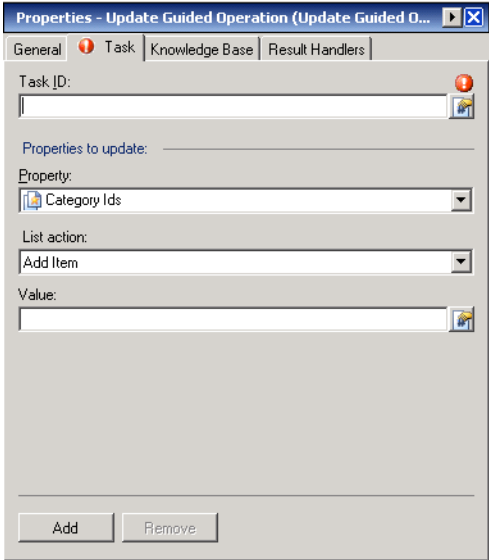
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Task** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-6 Update [Task] Properties Page—Task Tab




Note Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 4 On the Task tab, enter the following information to use to update the activity.

Field	Description
Task ID	ID number for the task
Properties to update	From the Property drop-down list, choose the item to update within the task. The properties displayed depend on the selected item. Note For additional information on the properties in the list, see Common Task Properties , page 4-4.
List action	Choose the appropriate option to determine which action to take with the selected property. - Add Item—Click this button to add a new property field to the original property for the task. - Remove item—Click this button to remove a property field from task.
Value	Enter new value for the property

Step 5 To modify the list of properties to update on the Task tab, click one of the following buttons:

Button	Description
Add	Click this button to add a new Property field to be updated on the task.
Remove	Click this button to remove the last Property field to be updated from the task.

Step 6 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining a Wait for Task to Enter State Activity

Use the Wait for Task to Enter State activity to wait for a task to match a specific state before the activity continues.

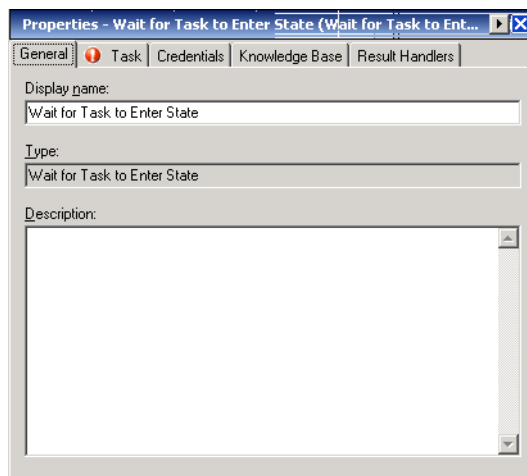
If the task reaches a completed state without matching, or if the duration expires without matching a specified status, then the activity succeeds without matching.

To define a Wait for Task to Enter State activity:

Step 1 On the Toolbox pane, under Tasks, choose **Wait for Task to Enter State** and drag and drop the activity onto the Workflow pane.

The Wait for Task to Enter State property page displays.

Figure B-7 Wait for Task to Enter State Properties Page—General Tab



Step 2 On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Task** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-8 Wait for Task to Enter State Properties Page—Task Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

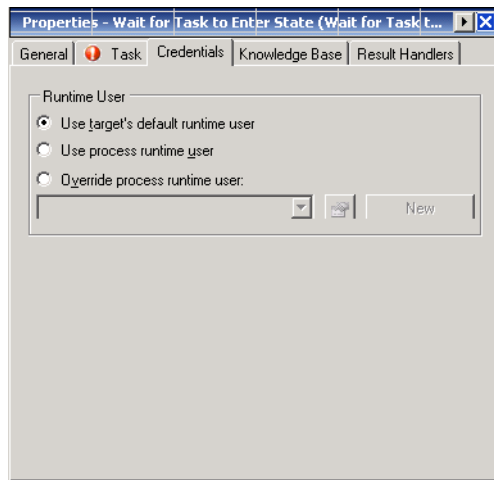
Step 4 On the Task tab, enter the appropriate task information to use to monitor the task state changes.

Field	Description
Task ID	Enter the task ID or click the Reference tool to insert the ID number for the task.
Task Types	Select the appropriate task type which state should be monitored.

Field	Description
Time to wait for matching status value	Check this check box and enter the time period the the activity should wait to match before timing out. Note Click the time unit link to change the time interval.
Task statuses to match	The statuses displayed depend on the selected task. Highlight the appropriate statuses to match. Note See Common Task Statuses , page 4-6 for additional information.

Step 5 Click the **Credentials** tab to continue.

Figure B-9 Wait for Task to Enter State Properties Page—Credentials Tab



Step 6 On the Credentials tab, specify the runtime user whose credentials should be used for activity execution:

Field	Description
Use target's credential runtime user	Select this radio button to use the default runtime user for the target that is specified in the activity
Use process runtime user	Select this radio button to use the credentials for the runtime user that was specified in the process properties
Override process runtime user	Select this radio button to specify different credentials than what are used for the process. The selected runtime user overrides the runtime user that was specified for the process. Note To view the properties for the selected runtime user, click the Properties  tool. To create a runtime user record for the process, click New > [Runtime User] . For additional information on creating a runtime user, see Chapter 16, "Managing Runtime Users."

- Step 7** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
 - **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining IT Record Task Activities

Use the following activities to create tasks that handle basic IT task functions.

Defining a Correlate Alerts Activity

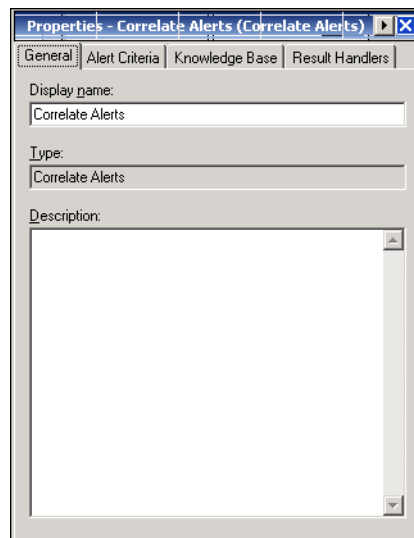
Use the Correlate Alerts activity to check whether an alert occurred within a certain amount of time of another problem.

To define a correlated alert activity:

- Step 1** On the Toolbox pane, under Tasks - IT Records, choose Correlate Alerts and drag and drop the activity onto the Workflow pane.

The Correlate Alerts property page displays.

Figure B-10 Correlate Alerts Properties Page—General Tab



- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity

Field	Description
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Alert Criteria** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-11 *Correlate Alerts Properties Page—Alert Criteria Tab*



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 4 On the **Alert Criteria** tab, specify the following event properties for the activity:

Field	Description
Correlate alerts that occur within	Enter a value and choose the time unit to indicate the length of time to wait before or after the process start time. The process start time is the default object used to correlate alerts. - Time unit—Determines whether the value entered is in minutes or seconds - Event occurrence—Determines whether the process start time of the alert can occur within the following: - Before - After - Before or after
Number of alerts to correlate	Select <i>one</i> of the following radio buttons to determine the number of events to correlate before publishing the event - All alerts in the above time frame—Select this radio button to wait for all events that match the specified criteria before the process continues. - Number of alerts—Select this radio button to wait for the specified number of alerts to occur before the process continues. Enter the number of alerts to wait for in the text field.
Alert Criteria	
Properties	From the drop-down list, choose the appropriate property to correlate. Note For additional information on the properties in the list, see Common Task Properties, page 4-4.
Value	Enter the appropriate value to be used to correlate the selected property. Note The Expression arrow displayed to the right of the Reference tool indicates that a Wildcard expression is available. See Common Wildcard Expressions, page 7-19.
Add	Click this button to add a new property.
Remove	Click this button to remove a property from the activity.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining a Create Alert Activity

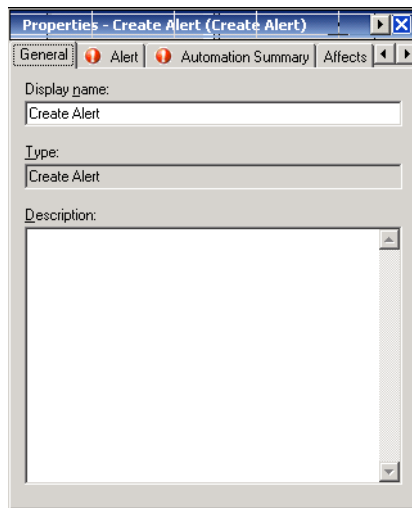
Use the Create Alert activity to create an alert to reflect potential problems that a user may want to investigate and possibly diagnose the problem.

To define a create alert activity:

- Step 1** On the Toolbox pane, under Tasks - IT Records, choose **Create Alert** and drag and drop the activity onto the Workflow pane.

The Create Alert property page displays.

Figure B-12 Create Alert Properties Page—General Tab



- Step 2** On the General tab, specify the following general information about the activity.

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Alert** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-13 Create Alert Properties Page—Alert Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 4 On the Alert tab, enter the criteria for the alert.

Field	Description
Alert display name	Name of the alert
Alert class	String or numeric value indicating the class of the alert
Severity	Severity of the alert • High—Interruption to critical business processes • Normal—Interruption to the work of individual employees • Low—Hindrane to the work of individual employees, continuation of work possible by means of a circumvented solution

Step 5 Click the **Automation Summary** tab to continue.

Figure B-14 Create Alert Properties Page—Automation Summary Tab

The screenshot shows the 'Automation Summary' tab of the 'Create Alert' properties dialog. It includes radio buttons for 'No automation summary', 'Automation summary URL', and 'Create automation summary'. The 'Create automation summary' option is selected, leading to a 'Automation summary style sheet' dropdown menu currently showing 'Situation Analysis Report'. Below this is a list box titled 'Include the following items:' containing various tasks like 'Create Alert', 'Assign Task', etc. At the bottom, there are settings for the 'Create Alert' activity, including a 'Section' dropdown and checkboxes for 'Is the "root cause"' and 'Last instance information only'.

Step 6 On the Automation Summary tab, specify the criteria to use to generate an automation summary when an alert or incident is created.

To generate the data output, choose the object and then specify the section in the automation summary in which to output the data.

Field	Description
No automation summary	Select this radio button to indicate that an automation will not be generated for the task
Automation Summary URL	Enter the URL of the automation summary. Enter the file path for the related automation summary that was generated.
Create automation summary	From the Automation summary style sheet drop-down list, choose the type of template to be used for the automation summary. By default, the <i>Situation Analysis Report</i> style sheet is selected. - Table of Configuration Properties - Situation Analysis Report

Field	Description
Select the details for each activity	From the drop-down list, choose the activity and specify the section of the automation summary to include the reporting details and whether the activity is the root cause of any issues that are detected. • Name—Name of the objects that are included in the process • Section—Name of the section of the automation summary where the data will be stored
Settings for [name] activity	From the Section drop-down list, choose <i>one</i> of the following options to specify the section of the automation summary template in which to export the data: • SituationAnalysis—After a situation that requires action is identified, the state and diagnostic information is displayed in the <i>Situation Analysis</i> section of the automation summary. • ContextAnalysis—After a situation is analyzed in context with other situations, the symptom and cause is displayed in the <i>Context Analysis</i> section of the automation summary.
Is the root cause	Check this check box to generate the automation summary name with the same name as the knowledge base article that is associated with the selected activity.
Last instance information only	Check this check box to indicate that the automation summary must include only information for the latest execution of the activity instance. Note This setting is only for activities that are inside the loop of a workflow component, such as <i>While</i> or <i>For Each</i>.

Step 7 Click the **Affects** tab to continue.

Figure B-15 Create Alert Properties Page—Affects Tab

Step 8 On the Affects tab, organizations and configuration item elements that trigger the selected target.

Field	Description
This alert applies to the following target	Check this check box to enable the options used to specify the affected target to be used in the activity.
Process target	Select this radio button to use the process target as the affected target in the activity.

Field	Description
Activity target	Select this radio button to specify the affected target for a specific task activity. - Activity target—Choose the activity containing the target that will be used. Only task activities will display in the list. - Specified target—Specify the affected target that will be used. To view the properties for the selected target, click the Properties tool. To create a new target, click New > [Target]. - Specific target group—Specify the affected target group that will be used. To view the properties for the selected target group, click the Properties tool. To create a new target group, click New > [Target Group]. - From the Choose a target using this algorithm drop-down list, specify which target will be chosen from the eligible target group members:
This applies to the following configuration item	Check this check box to enable the options used to specify the configuration item to be used in the activity.
Name	Name of the configuration item (IT component) to which the alert pertains. For example, the name of a database server which failed or the name of a specific job which failed.
Type	Enter or choose the type of ITIL configuration item (IT component) which the alert describes. For example, the type of the specific application element which failed: - Application Server - Database - Host - User
This is a CMDB reference	Check the check box to indicate the true source of the CI is in the CMDB, so the configuration item properties reference a CMDB entry.
Object Key	ID for the specific record in the CMDB which contains the configuration item
Object Source	Name for the specific record in the CMDB which contains the configuration item
Affected services	IT Service affected by the alert or incident
Affected organizations	Organizations that consume the IT service affected by the alert or incident

Step 9 Click the **Duplicate** tab to continue.

Figure B-16 Create Alert Properties Page—Duplicate Tab

Step 10 On the Duplicate tab to define the criteria used to search for previously submitted alerts.

If the alert is a duplicate, then the new alert is automatically resolved and linked to the original alert as a related task.

Field	Description
Mark this alert as a duplicate if matches another alert	Check the check box and enter the time period the alert should be resolved. Note Click the time unit link to change the time interval.
Properties to match	Choose the item to match for a duplicate within the alert. The options displayed depend on the selected property.
List action	Choose the appropriate option to determine which action to match with the selected property. The available options to match depend on the property type. - Exactly matches this alert property - Matches the specified wildcard text Note The Expression arrow displayed to the right of the Reference tool indicates that a Wildcard expression is available. See Common Wildcard Expressions, page 7-19 .
Add	Click this button to add a new field to be completed to match within the alert
Remove	Click this button to remove the property from the criteria to match. One field will always remain.



Note

For information on the matching properties, see [Common Task Properties, page 4-4](#).

- Step 11** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- **Assignment**—Click the tab to modify the general assignment properties. See [Step 4 in Defining a Task Activity, page B-3](#).
 - **Parameters**—Click the tab to define parameters for the task. See [Step 5 in Defining a Task Activity, page B-3](#).
 - **Categories**—Click the tab to assign a category or modify an existing assigned category. See [Step 6 in Defining a Task Activity, page B-3](#).
 - **External**—Click the tab to specify the external incident management system information to support the synchronization between TEO and the system the customer is using. See [Step 9 in Defining a Task Activity, page B-3](#).
 - **Web Form**—Click the tab to apply a specific XSL transformation to the task XML. See [Step 10 in Defining a Task Activity, page B-3](#).
 - **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
 - **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).
-

Defining a Create Change Request Activity

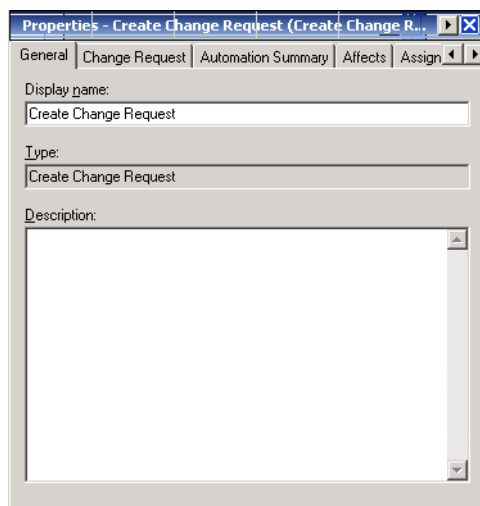
Use the Create Change Request activity to request a modification to the configuration of an object or system. Change requests are used to request system enhancements, report problems with a system, or report changes from one system which affects another system.

To create a change request:

- Step 1** On the Toolbox pane, under Tasks - IT Records, choose **Create Change Request** and drag and drop the activity onto the Workflow pane.

The Create Change Request property page displays.

Figure B-17 Create Change Request Properties Page—General Tab



- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Change Request** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-18 Create Change Request Properties Page—Change Request Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 4 On the Change Request tab, enter the criteria for the approval request.

Field	Description
Change request display name	Name of the change request
Change request identifier	TEO generated ID number for the change request task
Change request class	Numeric value indicating the class of the change request
Reason for change	Describes the business justification for the request
Change timing	Enter the deadline date or time for the change

Field	Description
Severity	Severity of the change request • High—Interruption to critical business processes • Normal—Interruption to the work of individual employees • Low—Hindrane to the work of individual employees, continuation of work possible by means of a circumvented solution
Change Request description	Brief description of the change request

Step 5 Click the **Automation Summary** tab to continue.

Figure B-19 Create Change Request Properties Page—Automation Summary Tab

Properties - Create Change Request (Create Change Request)

Change Request Automation Summary Affects Assignment Pg 1

☐ No automation summary

☐ Automation summary URL:

☒ I create automation summary

Automation summary style sheet:

Situation Analysis Report

Include the following items:

Name	Section	Root Cause
Started by User		
Started by Parent Process		
Create Alert		
Create Change Request		

Settings for 'Create Change Request' activity

Section:

<None>

☐ Is the "root cause"

☒ Last instance information only

Step 6 On the Automation Summary tab, specify the criteria to use to generate an automation summary when a change request is created.

To generate the data output, choose the object and then specify the section in the automation summary in which to output the data.



Note

For additional information on the field descriptions on [Step 6](#) in [Defining a Create Alert Activity](#), page B-20.

Step 7 Click the **Affects** tab to continue.

Figure B-20 Create Change Request Properties Page—Affects Tab

Step 8 On the Affects tab, specify the organizations and configuration item elements that triggered the target for the task.



Note For additional information on the field descriptions on [Step 8 in Defining a Create Alert Activity, page B-20](#).

Step 9 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Assignment**—Click the tab to modify the general assignment properties. See [Step 4 in Defining a Task Activity, page B-3](#).
- **Parameters**—Click the tab to define parameters for the task. See [Step 5 in Defining a Task Activity, page B-3](#).
- **Categories**—Click the tab to assign a category or modify an existing assigned category. See [Step 6 in Defining a Task Activity, page B-3](#).
- **External**—Click the tab to specify the external incident management system information to support the synchronization between TEO and the system the customer is using. See [Step 9 in Defining a Task Activity, page B-3](#).
- **Web Form**—Click the tab to apply a specific XSL transformation to the task XML. See [Step 10 in Defining a Task Activity, page B-3](#).

- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining a Create Incident Activity

Use the Create Incident task to create a create a task which requires an operator to take action in order to resolve an issue.

To define a create incident activity:

- Step 1** On the Toolbox pane, under Tasks - IT Records, choose **Create Incident** and drag and drop the activity onto the Workflow pane.

The Create Incident property page displays.

Figure B-21 Create Incident Properties Page—General Tab

The screenshot shows a window titled "Properties - Create Incident (Create Incident)". It has four tabs: "General", "Incident", "Automation Summary", and "Affect". The "General" tab is selected. Inside the "General" tab, there are three main sections: "Display name:" with a text box containing "Create Incident", "Type:" with a dropdown menu showing "Create Incident", and "Description:" with a large, empty text area.

- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Incident** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-22 Create Incident Properties Page—Incident Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

Step 4 On the Incident tab, enter the criteria for the incident.

Field	Description
Incident display name	Name of the incident
Incident identifier	ID of the incident
Incident class	String or numeric value indicating the class of the alert
Reporting user	User name of the individual who reported the incident and contact information of the user who called IT to report the problem
Reporting user details	Contact information of the individual who reported the incident

Field	Description
Severity	Severity of the alert • High—Interruption to critical business processes • Normal—Interruption to the work of individual employees • Low—Hindrane to the work of individual employees, continuation of work possible by means of a circumvented solution
Incident description	Brief description of the incident

Step 5 Click the **Automation Summary** tab to continue.

Figure B-23 Create Incident Properties Page—Automation Summary Tab

Step 6 On the Automation Summary tab, specify the criteria to use to generate an automation summary when an alert or incident is created.

To generate the data output, choose the object and then specify the section in the automation summary in which to output the data.



Note

For additional information on the field descriptions on [Step 6](#) in [Defining a Create Alert Activity](#), page B-20.

Step 7 Click the **Affects** tab to continue.

Figure B-24 *Create Incident Properties Page—Affects Tab*

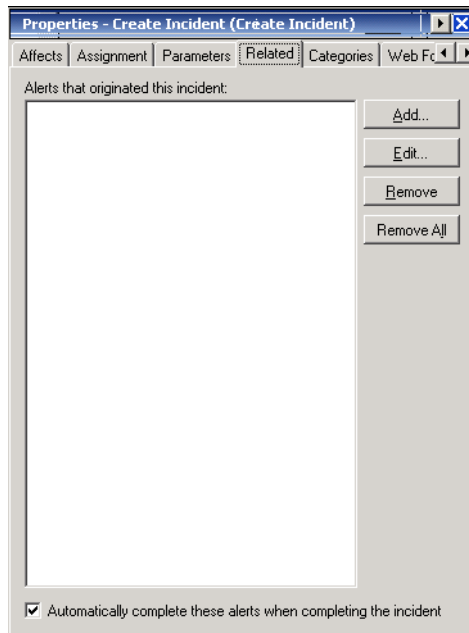
Step 8 On the Affects tab, specify the organizations and configuration item elements that triggered the target for the task.



Note For additional information on the field descriptions on [Step 8](#) in [Defining a Create Alert Activity](#), [page B-20](#).

Step 9 Click the **Related** tab to continue.

Figure B-25 Create Incident Properties Page—Related Tab



Step 10 On the Related tab, specify or modify the list of alerts that originated the incident.

Field	Description
Add	Click this button to launch the Select Alerts to Add dialog box and choose the alert ID to add to the list.
Edit	Highlight an alert, and then click this button to modify the ID of the alert to add into the related alerts.
Remove	Highlight the appropriate alert and then click this button to remove an alert from the list. This does not delete the alerts permanently from the system.
Remove all	Click this button to remove all alerts from the list. This does not delete the alerts permanently from the system.
Automatically resolve these alerts when resolving the incident	Check this check box to indicate that the alerts in the list should resolve automatically when the incident is resolved.

- Step 11** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- **Assignment**—Click the tab to modify the general assignment properties. See [Step 4 in Defining a Task Activity, page B-3](#).
 - **Parameters**—Click the tab to define parameters for the task. See [Step 5 in Defining a Task Activity, page B-3](#).
 - **Categories**—Click the tab to assign a category or modify an existing assigned category. See [Step 6 in Defining a Task Activity, page B-3](#).
 - **External**—Click the tab to specify the external incident management system information to support the synchronization between TEO and the system the customer is using. See [Step 9 in Defining a Task Activity, page B-3](#).
 - **Web Form**—Click the tab to apply a specific XSL transformation to the task XML. See [Step 10 in Defining a Task Activity, page B-3](#).
 - **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
 - **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).
-

Defining a Find Alerts Activity

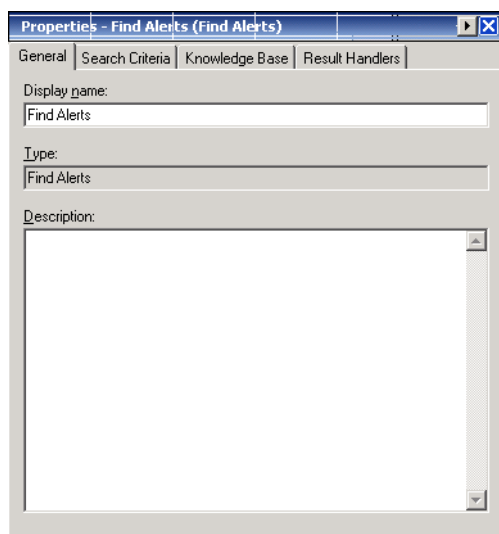
Use the Find Alerts activity to query alerts based on specific search criteria.

To define a find alerts activity:

- Step 1** On the Toolbox pane, under Tasks - IT Records, choose **Find Alerts** and drag and drop the activity onto the Workflow pane.

The Find Alerts property page displays.

Figure B-26 Find Alerts Properties Page—General Tab



- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Search Criteria** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-27 Find Alerts Properties Page—Search Criteria Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

Step 4 On the Search Criteria tab, enter the appropriate query information:

Field	Description
Search tasks within the past:	Enter the time period to search for tasks. Note Click the time unit link to change the time interval.
Search tasks that are in the following state:	From the drop-down list, select the appropriate status to query in the tasks. - Not Completed—Searches tasks that have not been completed - Completed—Searches tasks that have been completed - Not Started—Searches tasks that have not been started - All—Searches all tasks regardless of the current state
Properties to Match	From the Property drop-down list, select the item to match within the alert for the query. Note For additional information on the properties in the list, see Common Task Properties, page 4-4 . For information on wildcard expressions, see Common Wildcard Expressions, page 7-19 .

Field	Description
Add	Click this button to add a new Property drop-down list in which the user can select another item to match within the query.
Remove	Click this button to remove the last Property drop-down list from the list of properties to match within the query

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining a Find Change Requests Activity

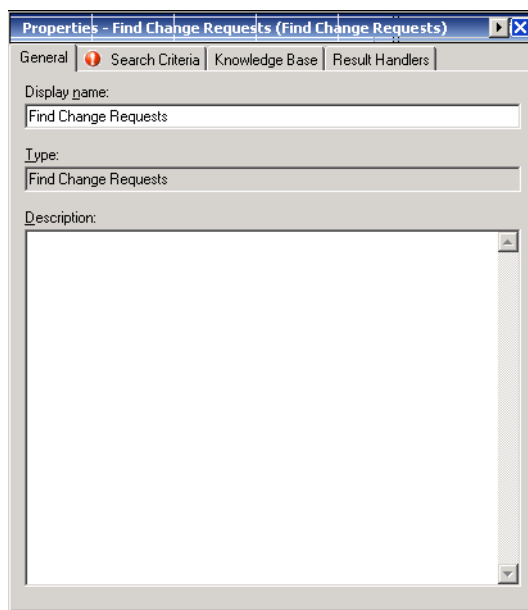
Use the Find Change Requests activity to query change requests based on specific search criteria.

To define a find change requests activity:

Step 1 On the Toolbox pane, under Tasks - IT Records, choose **Find Change Requests** and drag and drop the activity onto the Workflow pane.

The Find Change Requests property page displays.

Figure B-28 Find Change Requests Properties Page—General Tab



Step 2 On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Search Criteria** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-29 Find Change Requests Properties Page—Search Criteria Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

Step 4 On the Search Criteria tab, enter the appropriate query information:

Field	Description
Search tasks within the past:	Enter the time period to search for tasks. Note Click the time unit link to change the time interval.
Search tasks that are in the following state:	From the drop-down list, select the appropriate status to query in the tasks. • Not Completed—Searches tasks that have not been completed • Completed—Searches tasks that have been completed • Not Started—Searches tasks that have not been started • All—Searches all tasks regardless of the current state
Properties to Match	From the Property drop-down list, select the item to match within the change request for the query. Note For additional information on the properties in the list, see Common Task Properties, page 4-4 . For information on wildcard expressions, see Common Wildcard Expressions, page 7-19 .
Add	Click this button to add a new Property drop-down list in which the user can select another item to match within the query.
Remove	Click this button to remove the last Property drop-down list from the list of properties to match within the query

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining a Find Incidents Activity

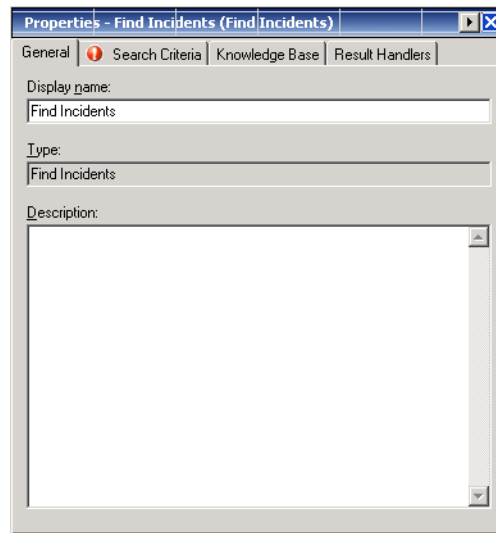
Use the Find Incidents activity to query incidents based on specific search criteria.

To define a find incidents activity:

- Step 1** On the Toolbox pane, under Tasks - IT Records, choose **Find Incidents** and drag and drop the activity onto the Workflow pane.

The Find Incidents property page displays.

Figure B-30 Find Incidents Properties Page—General Tab



- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Search Criteria** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-31 Find Incidents Properties Page—Search Criteria Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References, page 7-21](#).

Step 4 On the Search Criteria tab, enter the appropriate query information:

Field	Description
Search tasks within the past:	Enter the time period to search for tasks. Note Click the time unit link to change the time interval.
Search tasks that are in the following state:	From the drop-down list, select the appropriate status to query in the tasks. - Not Completed—Searches tasks that have not been completed - Completed—Searches tasks that have been completed - Not Started—Searches tasks that have not been started - All—Searches all tasks regardless of the current state
Properties to Match	From the Property drop-down list, select the item to match within the incident for the query. Note For additional information on the properties in the list, see Common Task Properties, page 4-4 . For information on wildcard expressions, see Common Wildcard Expressions, page 7-19 .

Field	Description
Add	Click this button to add a new Property drop-down list in which the user can select another item to match within the query.
Remove	Click this button to remove the last Property drop-down list from the list of properties to match within the query

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining User Interaction Task Activities

Use the following activities to require user interaction in order to complete the task activity.

Defining a Create Approval Request Activity

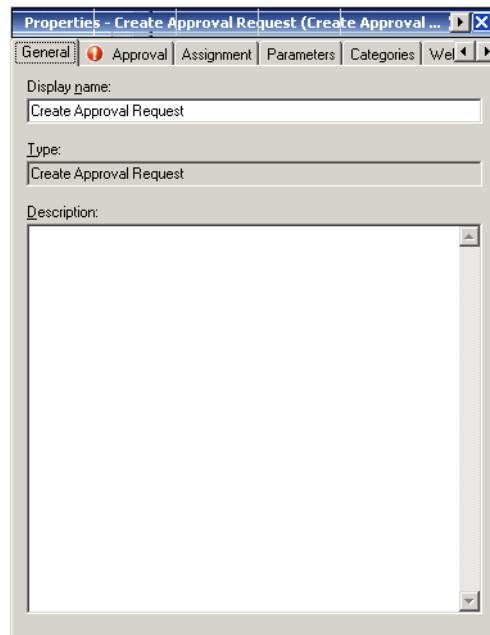
Use the Create Approval Request activity to specify to the approving assignee the choices and related message associated with the task.

To create an approval request:

- Step 1** On the Toolbox pane, under Tasks - User Interactions, choose **Create Approval Request** and drag and drop the activity onto the Workflow pane.

The Create Approval Request property page displays.

Figure B-32 Create Approval Request Properties Page—General Tab



- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Approval** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-33 Create Approval Request Properties Page—Approval Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 4 On the Approval tab, enter the criteria for the approval request.

Field	Description
Approval message	Enter the message that informs the approver what is being requested.
Approval choices	Displays the choices available to the approver • Add—Enter approval choices in the Select Approval Choice dialog box. • Modify—Highlight an existing item in the Approve Choice text box and then click Modify to update the approval item. • Remove—Choose an existing item in the Approve Choice text box and then click Remove to remove the approval item from the list.
Use the following automation summary URL	Check this check box and enter the appropriate file path to the automation summary.

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- **Assignment**—Click the tab to modify the general assignment properties. See [Step 4 in Defining a Task Activity, page B-3](#).
 - **Parameters**—Click the tab to define parameters for the task. See [Step 5 in Defining a Task Activity, page B-3](#).
 - **Categories**—Click the tab to assign a category or modify an existing assigned category. See [Step 6 in Defining a Task Activity, page B-3](#).
 - **External**—Click the tab to specify the external incident management system information to support the synchronization between TEO and the system the customer is using. See [Step 9 in Defining a Task Activity, page B-3](#).
 - **Web Form**—Click the tab to apply a specific XSL transformation to the task XML. See [Step 10 in Defining a Task Activity, page B-3](#).
 - **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
 - **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).
-

Defining a Create Guided Operation Task

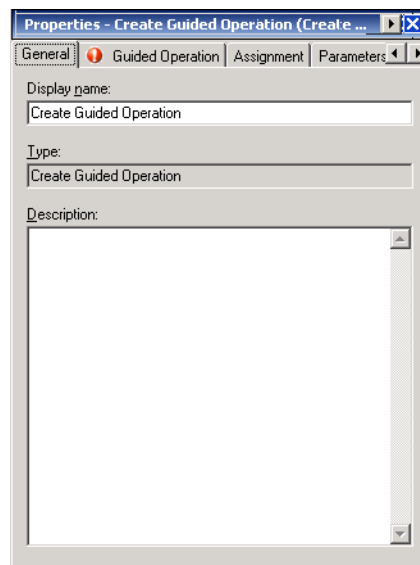
Use the Guided Operation activity to provide detail instructions for a user or group to perform a guided operation task.

To define a guided operation activity:

- Step 1** On the Toolbox pane, under Tasks - User Interactions, choose **Create Guided Operation** and drag and drop the activity onto the Workflow pane.

The Create Guided Operation Properties dialog box displays.

Figure B-34 Create Guided Operation Properties Page—General Tab



- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

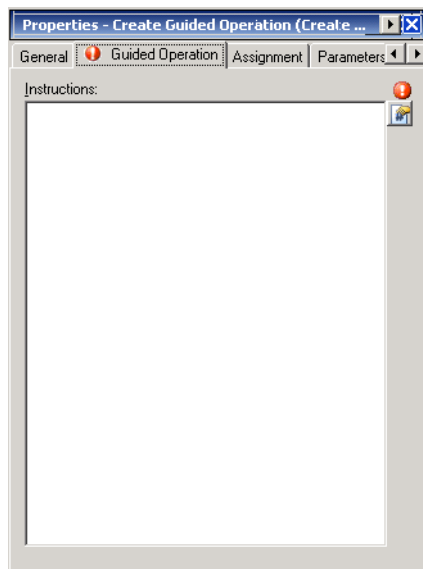
Step 3 Click the **Guided Operation** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-35 Create Guided Operation Properties Page—Guided Operation Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 4 On the Guided Operation tab, enter the criteria for the guided operation.

Field	Description
Instructions	Enter the step-by-step process for handling a task.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Assignment**—Click the tab to modify the general assignment properties. See [Step 4 in Defining a Task Activity](#), page B-3.
- **Parameters**—Click the tab to define parameters for the task. See [Step 5 in Defining a Task Activity](#), page B-3.
- **Categories**—Click the tab to assign a category or modify an existing assigned category. See [Step 6 in Defining a Task Activity](#), page B-3.
- **External**—Click the tab to specify the external incident management system information to support the synchronization between TEO and the system the customer is using. See [Step 9 in Defining a Task Activity](#), page B-3.
- **Web Form**—Click the tab to apply a specific XSL transformation to the task XML. See [Step 10 in Defining a Task Activity](#), page B-3.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining a Create Input Request Activity

Use the Create Input Request activity to gather information by providing a question or set of questions requiring a user or group response.

To define a create input request activity:

- Step 1** On the Toolbox pane, under Tasks - User Interactions, choose **Create Input Request** and drag and drop the activity onto the Workflow pane.

The Create Input Request property page displays.

Figure B-36 Create Input Request Properties Page—General Tab

The screenshot shows a software interface window titled "Properties - Create Input Request (Create Inpu...". It has a tabbed interface with "General", "Questions", "Assignment", "Parameters", and "Categories" tabs. The "General" tab is selected. It contains three main input areas: "Display name:" with a text box containing "Create Input Request", "Type:" with a dropdown menu showing "Create Input Request", and "Description:" with a large, empty text area.

- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

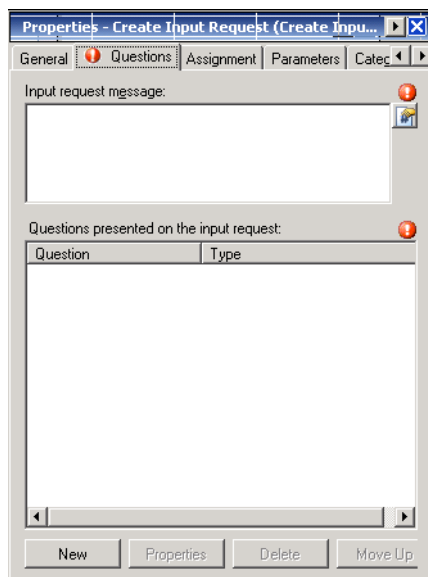
Step 3 Click the **Input Request** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-37 *Create Input Request Properties—Questions Tab*



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 4 On the Questions tab, define the appropriate questions for the input request.

Field	Description
Input request message	Enter the introductory message for the input request.
Questions presented on the input request	Displays the input request question properties - Label—Input request question - Type—Type of question (text, hidden text, check box, select) - Default Value—Default answer for the question

Field	Description
New	Use this option to create a specific type of input request question. Click New each time to create additional questions for the input request. - Text—Launches the Text Question Properties dialog box to allow the user to define a text question. See Creating a Text Question, page 4-30. - Hidden text—Launches the New Hidden Text Properties dialog box to allow the user to define a question requiring an encrypted value as a response. See Creating a Hidden Text Question, page 4-31. - Check box—Launches the Check box Question Properties dialog box to allow the user to define a question utilizing a check box. See Creating a Check Box Question, page 4-32. - Select—Launches the Select Question Properties dialog box to allow the user to define a text question. See Creating a Select Question, page 4-33.
Properties	Highlight a question and click this button to modify the properties for the question
Delete	Highlight a question and click this button to remove the question from the list
Move Up	Highlight a question and click this button to move the question up the list of questions
Move Down	Highlight a question and click this button to move the question down the list of questions

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Assignment—Click the tab to modify the general assignment properties. See [Step 4 in Defining a Task Activity, page B-3](#).
- Parameters—Click the tab to define parameters for the task. See [Step 5 in Defining a Task Activity, page B-3](#).
- Categories—Click the tab to assign a category or modify an existing assigned category. See [Step 6 in Defining a Task Activity, page B-3](#).
- External—Click the tab to specify the external incident management system information to support the synchronization between TEO and the system the customer is using. See [Step 9 in Defining a Task Activity, page B-3](#).
- Web Form—Click the tab to apply a specific XSL transformation to the task XML. See [Step 10 in Defining a Task Activity, page B-3](#).
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining a Create Input Request from Table Activity

Use the Create Input Request from Table activity to query information from a data table for an input request which requires a user or group response.

To define a create input request from table activity:

- Step 1** On the Toolbox pane, under Tasks - User Interactions, choose **Create Input Request from Table** and drag and drop the activity onto the Workflow pane.

The Create Input Request from Table property page displays.

Figure B-38 Create Input Request from Table Properties Page—General Tab

The screenshot shows a Windows-style dialog box titled "Properties - Create Input Request from Table (Create In...)". It has a tabbed interface with the following tabs: "General", "Questions from Table", "Assignment", "Parameters", and "Categories". The "General" tab is selected. Inside the dialog, there are four main sections: "Display name:" with a text box containing "Create Input Request from Table"; "Type:" with a text box containing "Create Input Request from Table"; "Security owner:" with a text box containing "[Process.Target.Owner]" and a small icon button to the right; and "Description:" with a large, empty text area.

- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Questions from Table** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure B-39 Create Input Request from Table Properties—Questions from Table Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 4 On the Questions tab, define the appropriate questions for the input request.

Field	Description
Input request message	Enter the introductory message for the input request.
Type of Questions	From the drop-down list, select the specific type of input request question to query from the source table. - Text—Input request question containing a text question - Hidden text—Input request question requires an encrypted value as a response - Check box—Input request question utilizing a check box
Source Table	Click the Reference tool to select the appropriate variable table containing the data to query.
Column containing question text	From the drop-down list, select the column containing the input request question.

Field	Description
Use the following column to set the question ids	Check this check box and in the enabled text field, select the column to use when defining the ID number for the question.
Use the following column to set default answer values	Check this check box and in the enabled text field, select the column to use when defining the default answer values.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Assignment**—Click the tab to modify the general assignment properties. See [Step 4 in Defining a Task Activity, page B-3](#).
- **Parameters**—Click the tab to define parameters for the task. See [Step 5 in Defining a Task Activity, page B-3](#).
- **Categories**—Click the tab to assign a category or modify an existing assigned category. See [Step 6 in Defining a Task Activity, page B-3](#).
- **External**—Click the tab to specify the external incident management system information to support the synchronization between TEO and the system the customer is using. See [Step 9 in Defining a Task Activity, page B-3](#).
- **Web Form**—Click the tab to apply a specific XSL transformation to the task XML. See [Step 10 in Defining a Task Activity, page B-3](#).
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 11 in Defining a Task Activity, page B-3](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12 in Defining a Task Activity, page B-3](#).

Defining a Create Review Request Activity

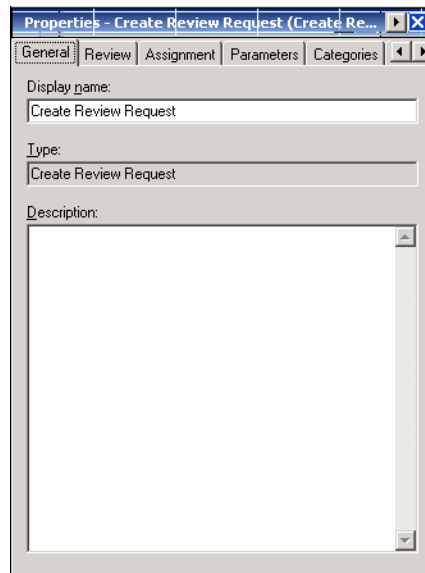
Use the Review task to submit a document for review as well as provide a message for the reviewer.

To define a create review request activity:

- Step 1** On the Toolbox pane, under Tasks - User Interactions, choose **Create Review Request** and drag and drop the activity onto the Workflow pane.

The Create Review Request property page displays.

Figure B-40 Create Review Request Properties Page—General Tab



- Step 2** On the General tab, specify the following information about the activity:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Review** tab to continue.

Figure B-41 Create Review Request Properties Page—Review Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting Variable References](#), page 7-21.

Step 4 On the Review tab, enter the information required to submit a document for review.

Field	Description
Document to review	Click Browse to locate document or automation summary to be reviewed. The following example is the display for the file path for the document. Example: C:/Documents and Settings/user name/My Documents/
Message	Enter the message that informs the reviewer of why document needs to be reviewed.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Assignment**—Click the tab to modify the general assignment properties. See [Step 4](#) in [Defining a Task Activity](#), page B-3.
- **Parameters**—Click the tab to define parameters for the task. See [Step 5](#) in [Defining a Task Activity](#), page B-3.
- **Categories**—Click the tab to assign a category or modify an existing assigned category. See [Step 6](#) in [Defining a Task Activity](#), page B-3.
- **External**—Click the tab to specify the external incident management system information to support the synchronization between TEO and the system the customer is using. See [Step 9](#) in [Defining a Task Activity](#), page B-3.

- Web Form—Click the tab to apply a specific XSL transformation to the task XML. See [Step 10](#) in [Defining a Task Activity, page B-3](#).
 - Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 11](#) in [Defining a Task Activity, page B-3](#).
 - Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 12](#) in [Defining a Task Activity, page B-3](#).
-

Managing Task Activity Definitions

The ability to modify tasks is not applicable to everyone as only users with administrative rights can update task activities in TEO.

This section provides instructions on modifying assign task activity properties in the Process Editor.

Modifying Automation Summary Properties

An automation summary can be included in either the Create Alert activity or the Create Incident activity.

The selections in the activity define the properties used to analyze relevant diagnostic and state information captured while performing the situation analysis.

To modify automation summary properties:

-
- Step 1** On the activity property page, click the **Automation Summary** tab to modify the automation summary properties for the activity.

Field	Description
No automation summary	Select this radio button to indicate that an automation will not be generated for the task
Automation Summary URL	Enter the URL of the automation summary. Enter the file path for the related automation summary that was performed.
Create automation summary	From the Automation summary style sheet drop-down list, choose the type of template to be used for the automation summary. By default, the <i>Situation Analysis Report</i> style sheet is selected. • Table of Configuration Properties • Situation Analysis Report

Field	Description
Select the details for each activity	From the drop-down list, choose the activity and specify the section of the automation summary to include the reporting details and whether the activity is the root cause of any issues that are detected. - Name—Name of the objects that are included in the process - Section—Name of the section of the automation summary where the data will be stored
Settings for [name] activity	From the Section drop-down list, choose <i>one</i> of the following options to specify the section of the automation summary template in which to export the data: - SituationAnalysis—After a situation that requires action is identified, the state and diagnostic information is displayed in the <i>Situation Analysis</i> section of the automation summary. - ContextAnalysis—After a situation is analyzed in context with other situations, the symptom and cause is displayed in the <i>Context Analysis</i> section of the automation summary.
Is the root cause	Check this check box to generate the automation summary name with the same name as the knowledge base article that is associated with the selected activity.
Last instance information only	Check this check box to indicate that the automation summary must include only information for the latest execution of the activity instance. Note This setting is only for activities that are inside the loop of a workflow component, such as <i>While</i> or <i>For Each</i>.

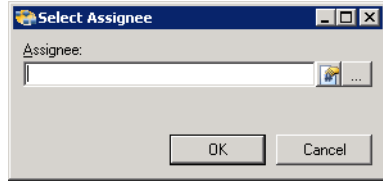
Step 2 Click the **Save**  tool to save.

Adding an Assignee to a Task Activity

Use the following steps to change the assignee or other assignment properties for the activity. This includes taking ownership of the task, if necessary.

To add an assignee:

-
- Step 1** On the activity property page, click the **Assignment** tab to modify the assignee properties for the activity.
- Step 2** Under [Activity Name] Assigned to, click **Add** to launch the Select Assignee dialog box.

Figure B-42 **Select Assignee Dialog Box**

- Step 3** Use *one* of the following methods:
- Click the **Reference** tool to search for a variable reference to assign to the task activity.
 - Click **Browse** to the right of the Reference tool to launch the Select User or Group dialog box to search for the name of the user or group to be assigned.
- Step 4** After locating the appropriate assignee, click **OK**.
The assignee is displayed on the Assignment property page.
- Step 5** Click the **Save**  tool to save.
-

Removing an Assignee from Task Activity

Removing an assignee does not delete the object, user, or group from the TEO system.

To remove an assignee:

-
- Step 1** On the activity property page, click the **Assignment** tab to remove the assignee from the activity.
- Step 2** Under [Activity Name] Assigned to, use *one* of the following methods:
- Highlight the appropriate assignee and click **Remove**.
 - Click **Remove All** to remove all assignees from the task activity.
- Step 3** Click the **Save**  tool to save.
-

Modifying the Assignment Priority Properties

Use the following steps to modify the task priority and time completion constraints.

To modify the task assignment properties:

-
- Step 1** On the activity property page, click the **Assignment** tab to modify the assignment priority for the activity.

Step 2 Modify the following assignment properties, as necessary:

Field	Description
Priority	Indicates the priority of the task • Low • Medium (Default) • High
Due date	Check this check box and choose the appropriate date the task should be completed from the drop-down calendar.
Expiration date	Choose the appropriate date the alert should expire from the drop-down calendar.

Step 3 Click the **Save**  tool to save.

Assigning Duplicate Criteria for Task

Use the Duplicate tab to define the criteria to mark the task as a duplicate. This tab is available only in the Create Alert activity.

To define duplicate criteria:

Step 1 On the activity property page, click the **Duplicate** tab to define the criteria used to indicate an alert is a duplicate.



Note

If the alert is a duplicate, then the new alert is automatically resolved as a duplicate and linked to the original alert as a related task.

Step 2 Check the **Mark this alert as a duplicate if matches another alert** check box and enter the time period the alert should be resolved.



Note

Click the time unit link to change the time interval.

Step 3 Click **Add** to add a new field to be completed to match within the alert.

Property	Description
Properties to match	Select the property to match for a duplicate within the alert. The options displayed depend on the selected property. Note For information on the matching properties, see Common Task Properties, page 4-4 .
List action	Choose the appropriate option to determine which action to match with the selected property. - Exactly matches this alert property - Matches the specified wildcard text Note The Expression arrow displayed to the right of the Reference tool indicates that a Wildcard expression is available. See Common Wildcard Expressions, page 7-19 .

Step 4 Click the **Save**  tool to save.

Removing an Assigned Duplicate Property

Use the following steps to remove a task property from the duplicate criteria.

Step 1 On the activity property page, click the **Duplicate** tab to remove the criteria used to indicate a task is a duplicate of another task.

Step 2 On the Duplicate tab, click **Remove** to remove the property from the criteria to match. One field will always remain.

The Remove button removes the last property added to the list. For example, the user cannot remove *Parameter 4* without removing *Parameter 5* from the list.

If the user wants to keep *Parameter 5*, then update *Parameter 4* with the information from *Parameter 5*, and then click **Remove** to remove *Parameter 5* from the list.

Step 3 Click the **Save**  tool to save.

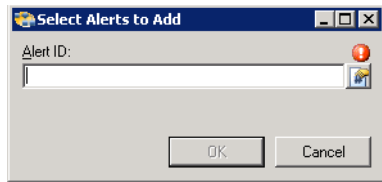
Adding a Related Alert

Use the Related tab to assign alerts that originated from the incident. Use the following steps to add a related item to the Create Incident activity.

To add a related task:

Step 1 On the activity property page, click the **Related** tab to modify the list of alerts related to the Create Incident activity.

Step 2 Click **Add** to launch the Select Alert to Add dialog box.

Figure B-43 *Select Alerts to Add Dialog Box*

- Step 3** On the Alert ID field, enter the Alert ID or click the **Reference** tool to search for the alert property to add to the list.
- Step 4** Click **OK** to close the dialog box.
The item is displayed on the Related tab.
-

Removing a Related Alert

The Remove option removes the item from the list, but it is not deleted from the system.

To remove a related alert:

-
- Step 1** On the Related tab, click *one* of the following buttons:
- Highlight the appropriate alert or incident and click **Remove**.
 - Click **Remove All** to remove all alerts or incidents from the Create Incident activity.
- Step 2** Click the **Save**  tool to save.
-

Inserting Task Activity Variable References

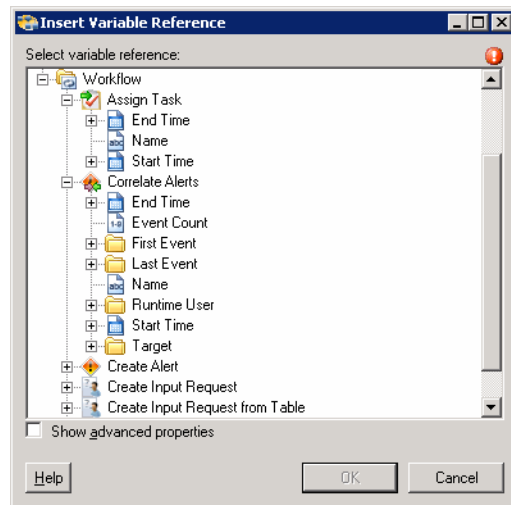
The Reference  icon to the right of a text field indicates that the field can be populated by referencing a defined variable or the property of another activity or process. Use the Insert Variable Reference dialog box to select a defined variable or object to populate a field.

Only variables valid for the selected field can be selected in this dialog box. The OK button does not activate until a valid property or variable is selected.

To insert a variable reference:

- Step 1** To the right of a field on a property page, click the **Reference** tool.
The Insert Variable Reference dialog box displays.

Figure B-44 Insert Variable Reference Dialog Box



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

- Step 2** Check the **Show Advanced** check box to display all items that are available for referencing.
If the check box is not checked, then only the most commonly-used items are displayed for activities, processes or events.
- Step 3** Click the **Workflow Activity Expand (+)** to display the reference objects for the activities in the Workflow pane. The properties in the Insert Reference Variable dialog box depend on the activities.
- Step 4** From the list of displayed objects, select the appropriate property:

Reference Variable	Description
Name	Display name of the activity
Notes	Description for the activity
Created by	User name or the owner of the activity
Created Time	The date and time the activity was created
Modified by	User name of the individual who modified the activity

Reference Variable	Description
Type	Type of activity
Description	Description of the activity
Audit Starts	Date and time the process audit starts
Audit Successes	Indicates the number of successful audits
End Time	Date and time the activity stopped
Error Information	Description of the error that has occurred
Group Name	Name of toolbox activity group
Instance Cancelled	Indicates the process was cancelled manually
Instance Failed	Indicates the process has failed
Instance Failed (Completed)	Indicates the process has failed but the process execution was completed
Instance Failed (Not Completed)	Indicates the process has failed and did not complete the process execution
Start Time	Date and time the activity was started
Process Id	ID number of the TEO process
Process Instance Id	ID number of the TEO process instance
Event Count	Number of events correlated
First Event	First event correlated by the activity
Last Event	Last event correlated by the activity
Task	Available task properties to reference For additional information, see Common Task Properties, page 4-4 .
Time Stamp	Date and time of the correlated activity
Runtime User	Specified runtime user for the activity
Target	Available properties for the target
Match Status	Matching status for the task activity
Timed Out	Indicates whether the task activity timed out (e.g. True/False)

Step 5 Click **OK** to add the selected reference variable to the related text field.

Viewing Task Activity Instance Information

This section describes what the user should expect to see after a process with an assign task activity is launched. Certain activities generate and display additional activity instance information for review by users.

For example, there will be certain activities that generate information based on the defined properties of the activities. In those situations, the activity instance properties will display the display-only configuration properties as well as the generated results of the configuration properties.

Task activity instances can be viewed from two different locations in the Operations workspace

Operations—Tasks View

Task activities are available for view in the Operations—Task view after the activity in the process has been run. This view displays only the properties relevant to the task.

To view task view instance properties:

-
- Step 1** On the Operations workspace, choose any of the four task views to display the tasks in the Results pane.
- Step 2** Highlight the appropriate task, and use *one* of the following methods:
- Double-click the appropriate task instance.
 - Right-click and choose **Properties**.
 - On the Details pane, click the hyperlink of any item on tabs.

The [Task Name] Properties dialog box displays.

Operations—Activity View

The activity instance properties displayed from the Activity View are display-only.

To view activity instance properties:

-
- Step 1** On the Operations workspace, choose any of the four activity views to display the activity instances in the Results pane.
- Step 2** On the Results pane, expand the appropriate activity instance to display the related activities.
- Step 3** Highlight the appropriate activity, and use *one* of the following methods:
- Double-click the appropriate activity instance.
 - Right-click and choose **Observe**.
 - On the Details pane, click the hyperlink of any item on tabs.

The [Activity Name] Properties dialog box displays.

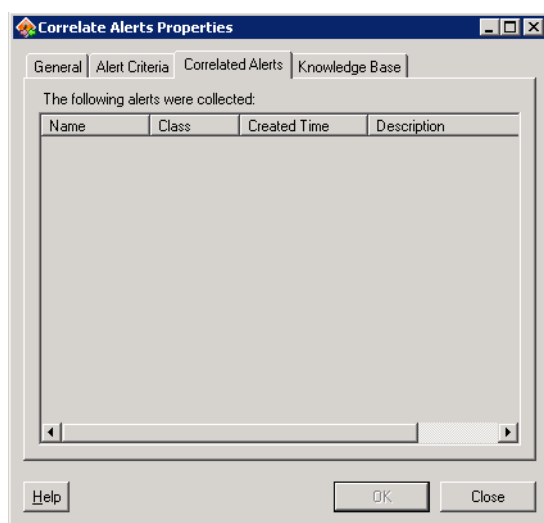
Viewing Correlated Alert Results

When the Correlate Alerts activity is launched, the alerts that were found by the activity are displayed from the Operations Workspace activity instance view.

To view the correlated alerts results:

-
- Step 1** On the Operations workspace, click the Activity Views folder.
- Step 2** Use *one* of the following methods:
- Highlight the **Correlate Alerts** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The Correlate Alerts dialog box displays.
- Step 3** Click the **Correlated Alerts** display-only tab to view the alerts collected by the Correlate Alerts activity.

Figure B-45 Correlate Alerts Instance Properties Page—Correlated Alerts Tab



The following information is displayed for each alert:

Field	Description
Name	The name of the alert
Class	Value indicating the class of the alert
Created Time	Date and time the alert was created
Description	Description of the alert

Viewing Find [Activity] Results

Use the following steps to review the results of the query generated by the Find Alerts, Find Change Requests, and Find Incidents activities.

To view the Find [Activity] results:

Step 1 On the Operations workspace, click the Activity Views folder.

Step 2 Use *one* of the following methods:

- Highlight the **Find [Activity]** activity instance, right-click and choose **Properties**.

-or-

- Double-click the appropriate activity instance.

The [Find Activity] Properties dialog box displays.

Step 3 Click the **Results** display-only tab to view the list of alerts, change requests, and incidents queried by the Find activity.

The following columns provide information about the queried alerts, change requests, and incidents.

Task Property	Description
Affected Configuration Item	Name of the configuration item (IT component) to which the alert pertains. For example, the name of a database server which failed or the name of a specific job which failed. A configuration item is defined in ITIL as any component that needs to be managed in order to deliver an IT Service. The true source of the CI is in the CMDB, so the Configuration Item properties reference a CMDB entry • Configuration Item Type—Type of ITIL configuration item (IT component) which the alert describes. For example, the type of the specific application element which failed such as a server, database, host, or user. • Description—Brief description of the ITIL configuration item (IT component) for the alert or incident • Object Key—ID for the specific record in the CMDB which contains the configuration item • Object Name—Name for the specific record in the CMDB which contains the target configuration item • Source—Name for the specific record in the CMDB which contains the configuration item.
Affected Organizations	Organizations that consume the IT service affected by the alert or incident
Affected Services	IT Service affected by the alert or incident

Task Property	Description
Affected Target Configuration Item	Name of ITIL configuration item (IT component) which the alert or incident describes - Configuration Item Type—Type of ITIL configuration item (IT component) which the alert describes - Description—Brief description of the ITIL configuration item (IT component) for the alert or incident - Object Key—ID for the specific record in the CMDB which contains the target configuration item - Object Name—Name for the specific record in the CMDB which contains the target configuration item - Source—Name of the specific CMDB containing the target configuration item
Affects Configuration Item	Name of the configuration item (IT component) to which the alert pertains.
Affects Target Configuration Item	Name of the system on which the condition was detected
Alert class	Numeric value indicating the class of the alert
Assignees	User name(s) or group assigned to the task
Automation Summary	File path for the related automation summary
Completed Time	Indicates the time period the task was completed - Local Time - Universal Time
Description	Brief description of the task
Due Date	Indicates the time period the task should be resolved - Local Time - Universal Time
Duplicate Task ID	Task ID of the duplicated alert
Expiration Date	Indicates the time period the task should expire - Local Time - Universal Time
Name	Display name of the task
Notes	Any notes related to the task
Parameter	Any parameters associated with a specific task
Priority	Indicates the priority of the task - Low - Medium - High
Process Properties	For the list of process columns, refer to Viewing Process View Information, page 3-33 .

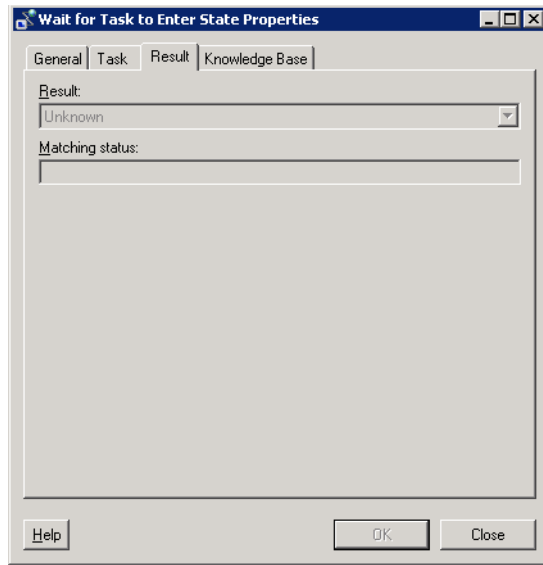
Task Property	Description
Process Target Properties	For information on the target properties, see Viewing Activity Information, page 3-19 .
Severity	Indicates the severity of the task • Low • Normal • High
Related Task IDs	Task ID of the related task
Task Status	Indicates status of the task. The statuses displayed depend on the currently open task. Note See Common Task Statuses, page 4-6 for additional information.
Task URL	URL of the task. This URL can be used to bring up the Web Console for viewing and editing the task properties. For example, this is the URL which could be placed in an email to notify the user of the task, enabling them to connect to the Web Console to view the task.
Web Form XSL File Name	Name of the source XML text file to transform the task XML into HTML for viewing in the Web Console

Viewing Wait for Task to Enter State Results

When the Wait for Task to Enter State activity is launched, the matching states that were found by the activity are displayed from the Operations Workspace activity instance view.

To view the correlated alerts results:

-
- Step 1** On the Operations workspace, click the Activity Views folder.
- Step 2** Use *one* of the following methods:
- Highlight the **Wait for Task to Enter State** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The Wait for Task to Enter State Properties dialog box displays.
- Step 3** Click the **Result** display-only tab to view the statuses matched by the Wait for Task to Enter State activity.

Figure B-46 Wait for Task to Enter State Instance Properties Page—Result Tab

The following information is displayed:

Field	Description
Result	Values for the task state • Unknown—Indicates activity is running or has failed to complete • Timed Out—Activity timed out without matching • Task Completed Without Matching—Task has reached a completing state that was not a state that was not included we were attempting to match on. • Matched—Status was matched by the task
Matching Status	Indicates the status that was matched



APPENDIX **C**

Using String Activities

Tidal Enterprise Orchestrator provides the ability to manipulate string text and characters using String activities. These activities allow users to globally search, replace, and modify string content in the objects within TEO.

The following sections provide instructions for defining string activities, instructions for completing the property pages for each specific activity, and instructions on viewing the activity results.

- [String Activities, page C-2](#)
- [Defining the Find String Activity, page C-4](#)
- [Defining the Replace String Activity, page C-7](#)
- [Defining the Split String Activity, page C-10](#)
- [Defining the String Escape Activity, page C-12](#)
- [Defining the String Lowercase Activity, page C-14](#)
- [Defining the String Uppercase Activity, page C-16](#)
- [Defining the Substring Activity, page C-18](#)
- [Defining the Trim String Activity, page C-20](#)
- [Managing String Activity Definitions, page C-22](#)
- [Viewing String Activity Instance Results, page C-25](#)

String Activities

The following table displays the string activities provided by TEO.

Activity	Description
Find String	Searches for specific content in a string See Defining the Find String Activity, page C-4 .
Replace String	Replaces specified string content See Defining the Replace String Activity, page C-7 .
Split String	Splits string characters See Defining the Split String Activity, page C-10 .
String Escape	Specifies escape characters in string content. See Defining the String Escape Activity, page C-12 .
String Lowercase	Lowers the text case in a string See Defining the String Lowercase Activity, page C-14 .
String Uppercase	Capitalize the text case in a string See Defining the String Uppercase Activity, page C-16 .
Substring	Retrieves the first and last occurrence of the specified substring See Defining the Substring Activity, page C-18 .
Trim String	Trims characters from the content in a string See Defining the Trim String Activity, page C-20 .

Common String Escapes

The following table is a list of common string escapes.

The 'c' and 'C' escape may be qualified with a '0' to make screen use zero instead of space as fill character. The '0' qualifier also makes the '=' escape use absolute positions. The 'n' and '=' escapes understand a length qualifier (e.g. '%3n'), 'D' and 'M' can be prefixed with 'L' to generate long names, 'w' and 'W' also show the window flags if 'L' is given.

Escape Character	Description
%	the escape character itself
a	either 'am' or 'pm'
A	either 'AM' or 'PM'
c	current time HH:MM in 24h format
C	current time HH:MM in 12h format
d	day number
D	weekday name
f	flags of the window
F	sets %? to true if the window has the focus

Escape Character	Description
h	hardstatus of the window
H	hostname of the system
I	current load of the system
m	month number
M	month name
n	window number
s	seconds
t	window title
u	all other users on this window
w	all window numbers and names. With '-' qualifier: up to the current window; with '+' qualifier: starting with the window after the current one.
W	all window numbers and names except the current one
y	last two digits of the year number
Y	full year number
?	the part to the next '%?' is displayed only if a '%' escape inside the part expands to a non empty string
:	else part of '%?'
=	pad the string to the display's width (like TeX's hfill). If a number is specified, pad to the percentage of the window's width. A '0' qualifier tells screen to treat the number as absolute position. You can specify to pad relative to the last absolute pad position by adding a '+' qualifier or to pad relative to the right margin by using '-'. The padding truncates the string if the specified position lies before the current position. Add the 'L' qualifier to change this.
<	same as '%=' but just do truncation, do not fill with spaces
>	mark the current text position for the next truncation. When screen needs to do truncation, it tries to do it in a way that the marked position gets moved to the specified percentage of the output area. (The area starts from the last absolute pad position and ends with the position specified by the truncation operator.) The 'L' qualifier tells screen to mark the truncated parts with '...'
{	attribute/color modifier string terminated by the next '}'
`	Substitute with the output of a 'backtick' command. The length qualifier is misused to identify one of the commands.

Defining the Find String Activity

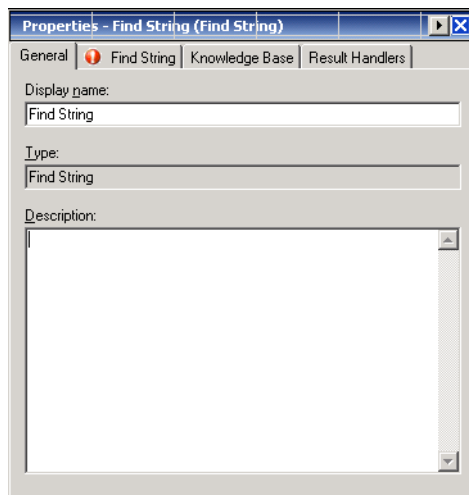
Use the Find String activity to search for specific content in a string.

To define the Find String activity:

- Step 1** On the Toolbox pane, choose the **Find String** activity, then drag and drop the activity onto the Workflow pane.

The Find String property pages display.

Figure C-1 Find String Activity—General Tab

The image shows a screenshot of the 'Properties - Find String (Find String)' dialog box. It has four tabs: 'General', 'Find String', 'Knowledge Base', and 'Result Handlers'. The 'General' tab is selected. It contains three input fields: 'Display name:' with the value 'Find String', 'Type:' with the value 'Find String', and a large 'Description:' text area which is currently empty.

- Step 2** On the General tab, enter the following information:

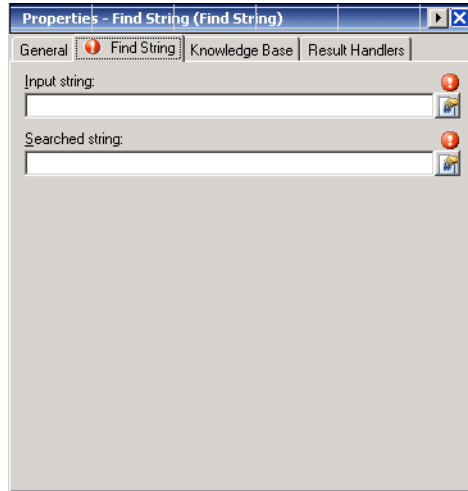
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Find String** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure C-2 Find String Activity—Find String Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting String Activity Variable References](#), page C-23.

Step 4 On the Find String tab, specify the content in a string to be queried:

Field	Description
Input string	Enter the string to be searched
Searched string	Enter the content of the string to be queried

Step 5 Click the Knowledge Base tab to assign a knowledge base article to the object.

Knowledge Base Field Options	Description
Text field	<i>Display-only.</i> Display name for the selected knowledge base article(s)
Delete	Highlight the appropriate knowledge base article and click the Delete  tool to remove the knowledge base article from the display.

Knowledge Base Field Options	Description
Browse	Click Browse to launch the Select Knowledge Base dialog box for a list of existing knowledge base articles. For additional information on knowledge base articles, see Chapter 17, “Managing Knowledge Base Articles.”
Properties	Highlight the appropriate knowledge base article and click the Properties  tool to view and/or modify the properties of the defined knowledge base article.

The following information is displayed on the Knowledge Base tab.

Field	Description
Summary	Brief description of the issue
Possible Cause	Explanation of the condition that may be causing the issue
Possible resolution	List of actions that can be performed to attempt to resolve the issue
Related information	Additional information related to the issue

Step 6 On the Result Handlers tab, click *one* of the following buttons to manage the condition branches on the workflow, as necessary:

Button	Description
Add	Adds a condition branch
Remove	Removes the condition branch from the activity
Move Up	Moves the condition up one position in the list of conditions
Move Down	Moves the condition down one position in the list of conditions

Step 7 Click the **Save**  tool to save the activity definition.



Note

To view the string query results, see [Viewing Find String Results, page C-25](#).

Defining the Replace String Activity

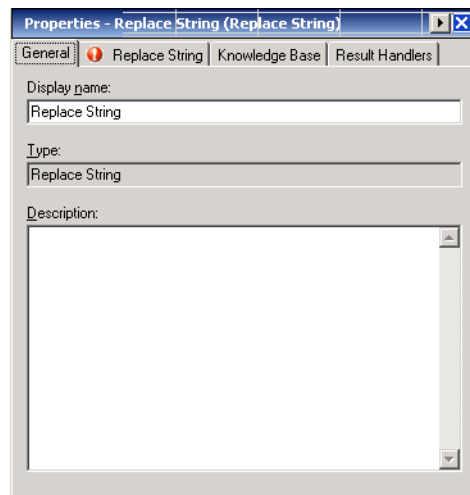
Use the Replace String activity to replace substrings of an input string with replacement strings.

To define the Replace String activity:

- Step 1** On the Toolbox pane, choose the **Replace String** activity, then drag and drop the activity onto the Workflow pane.

The Replace String property pages display.

Figure C-3 Replace String Activity—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

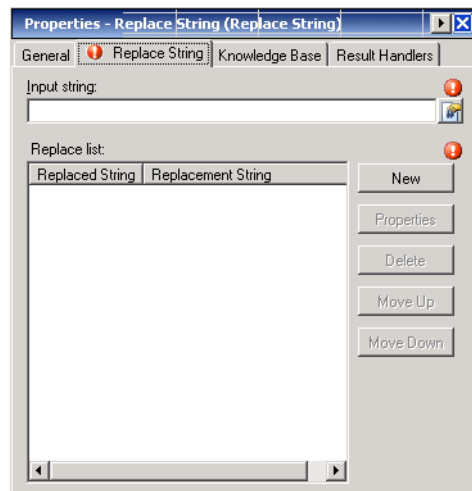
Step 3 Click the **Replace String** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure C-4 *Replace String Activity—Replace String Tab*



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting String Activity Variable References](#), page C-23.

Step 4 On the Replace String tab, specify the source table to analyze:

Field	Description
Input string	Enter the string to be searched

The summary table box contains the list of strings to be replaced.

Column	Description
Replaced String	String content to be replaced
Replacement String	New string content to use in replacement string

To modify the list of strings on the table, click the appropriate buttons:

Button	Description
New	Click this button to add replacement string properties. Note For additional information on the replacement strings, see Adding Replacement String Properties , page C-22.
Properties	Click this button to modify the replacement string properties.

Button	Description
Delete	Removes selected replacement string text to remove from the list. See Removing Replacement Strings, page C-23 .
Move Up	Highlight the appropriate replacement string text and click this button to move the properties up the list.
Move Down	Highlight the appropriate replacement string text and click this button to move the properties down the list.

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- Knowledge Base—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Find String Activity](#).
 - Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Find String Activity](#).

**Note**

To view the replacement string results, see [Viewing Replace String Results, page C-26](#).

Defining the Split String Activity

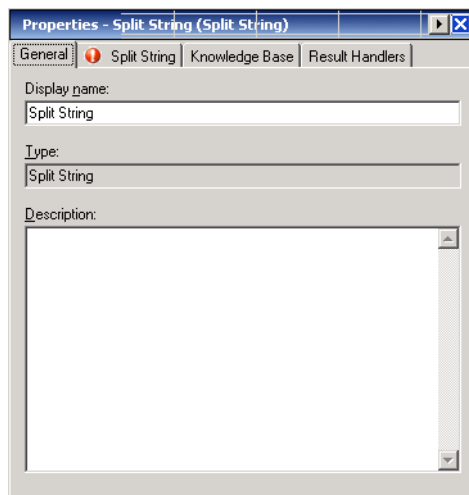
Use the Split String activity to split the string characters around matches of the given delimiter.

To define the Split String activity:

- Step 1** On the Toolbox pane, choose the **Split String** activity, then drag and drop the activity onto the Workflow pane.

The Split String property pages display.

Figure C-5 Split String Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Split String** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure C-6 Split String Properties Page—Split String Tab

The screenshot shows a dialog box titled 'Properties - Split String (Split String)'. It has four tabs: 'General', 'Split String' (which is active), 'Knowledge Base', and 'Result Handlers'. In the 'Split String' tab, there is an 'Input string' text field with a 'Reference' icon (a hand with a star) to its right. Below this, under 'Split options', there are two radio buttons: 'Character delimiters' and 'String delimiters'. The 'String delimiters' option is selected, and it has a corresponding text field and a 'Reference' icon. At the bottom, there is a checkbox labeled 'Return empty'.

**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting String Activity Variable References](#), page C-23.

Step 4 On the Split String tab, specify the string characters to be split.

Field	Description
Input string	Enter the string to be split
Character delimiters	Click this button and in the text field, enter the character delimiters to split the string array.
String delimiters	Click this button and in the text field, enter the string delimiters to split strings.
Return empty	Check this check box to return empty substrings in the output. If the check box remains unchecked, then any empty string in the result array will be removed.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Find String Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Find String Activity](#).

**Note**

To view the split string results, see [Viewing Split String Results](#), page C-27.

Defining the String Escape Activity

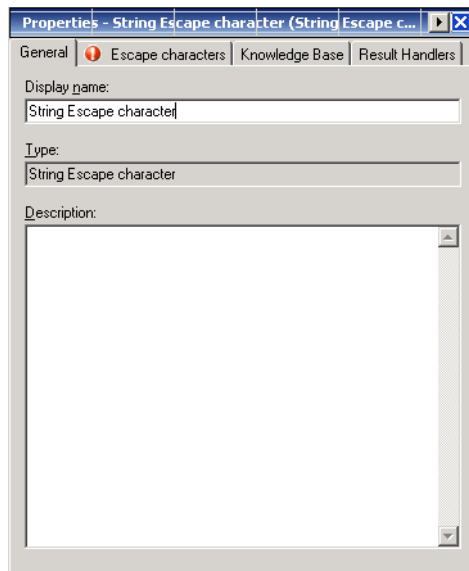
Use the String Escape activity to specify escape characters to insert information into messages or file names.

To define the String Escape activity:

- Step 1** On the Toolbox pane, choose the **String Escape** activity, then drag and drop the activity onto the Workflow pane.

The String Escape property pages display.

Figure C-7 String Escape Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

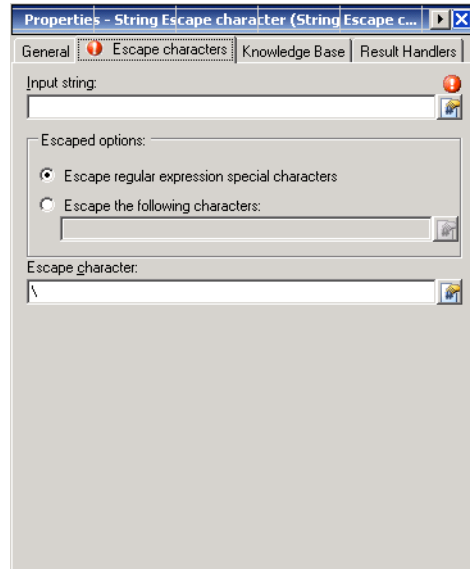
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Escape character** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure C-8 *String Escape Properties Page—Escape character Tab*




Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting String Activity Variable References](#), page C-23.

Step 4 On the Escape characters tab, specify the following information:

Field	Description
Input string	Enter the appropriate string to be queried.
Escape regular expression special characters	Click the option to indicate the activity will escape a built-in list of regular expression characters.
Escape the following characters	Click the option and then enter the characters to escape in the string text.
Escape character	Enter the escape character to use in the string escape activity. Note For a list of common string escape characters, see Common String Escapes , page C-2.

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- Knowledge Base—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Find String Activity](#).
 - Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Find String Activity](#).

**Note**

To view the string query results, see [Viewing String Escape Results, page C-28](#).

Defining the String Lowercase Activity

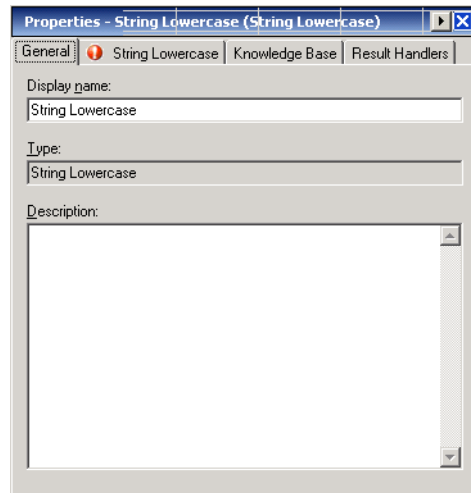
Use the String Lowercase activity to lower the text case in the string content.

To define the String Lowercase from activity:

- Step 1** On the Toolbox pane, choose the **String Lowercase** activity, then drag and drop the activity onto the Workflow pane.

The String Lowercase property pages display.

Figure C-9 String Lowercase Activity—General Tab



- Step 2** On the General tab, enter the following information:

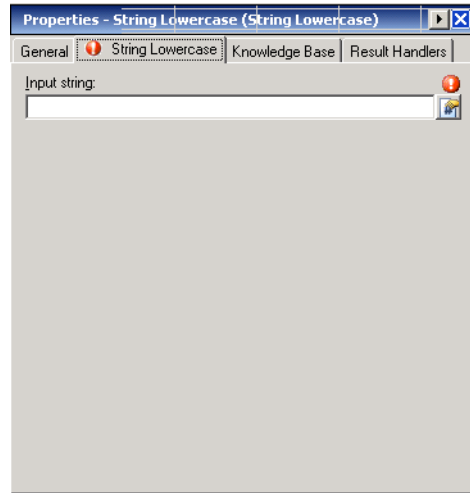
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **String Lowercase** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure C-10 *String Lowercase Activity—String Lowercase Tab*



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting String Activity Variable References](#), page C-23.

Step 4 On the String Lowercase tab, specify the following:

Field	Description
Input string	Enter the string to be queried with text case to be lowered.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Find String Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Find String Activity](#).



Note To view the lowercase string results, see [Viewing String Lowercase Results](#), page C-29.

Defining the String Uppercase Activity

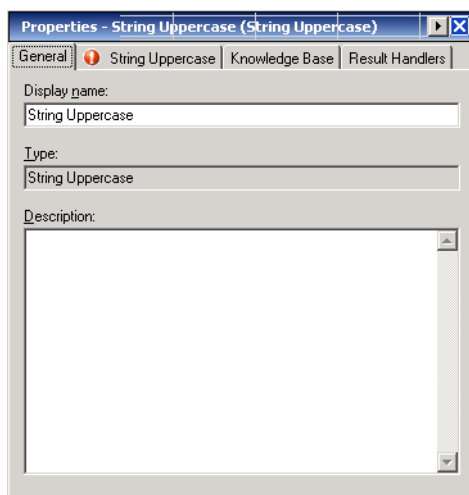
Use the String Uppercase activity to capitalize the text case in the string content.

To define the String Uppercase activity:

- Step 1** On the Toolbox pane, choose the **String Uppercase** activity, then drag and drop the activity onto the Workflow pane.

The String Uppercase property pages display.

Figure C-11 String Uppercase Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

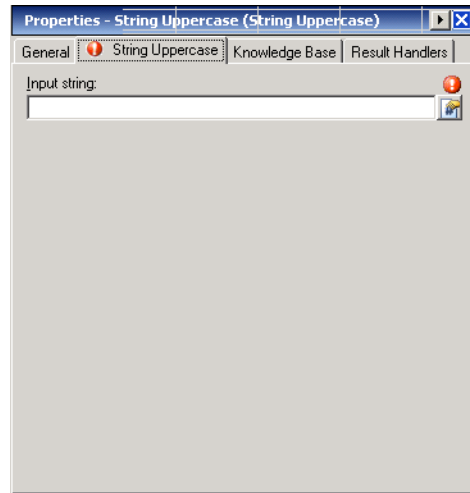
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **String Uppercase** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure C-12 String Uppercase Activity—String Uppercase Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting String Activity Variable References](#), page C-23.

Step 4 On the String Uppercase tab, specify the following the source table and the associated values:

Field	Description
Input string	Enter the string to be queried with text case to be capitalized.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Find String Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Find String Activity](#).



Note To view the uppercase string results, see [Viewing String Uppercase Results](#), page C-30.

Defining the Substring Activity

Use the Substring activity to retrieve the index within this string of the first and last occurrence of the specified substring.

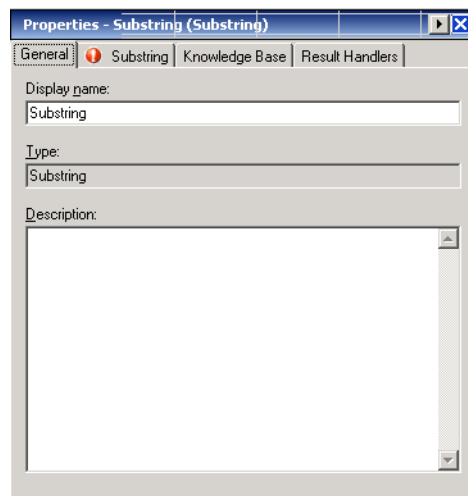
Example:

```
Input string = 'dictionary'
Start position = 4
End position = 6
Dictionary
0123456 <- using 0 as the starting point
Positions 4 through 6 yield 'ion'
```

To define the Substring activity:

- Step 1** On the Toolbox pane, choose the **Substring** activity, then drag and drop the activity onto the Workflow pane.
- The Substring property pages display.

Figure C-13 Substring Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

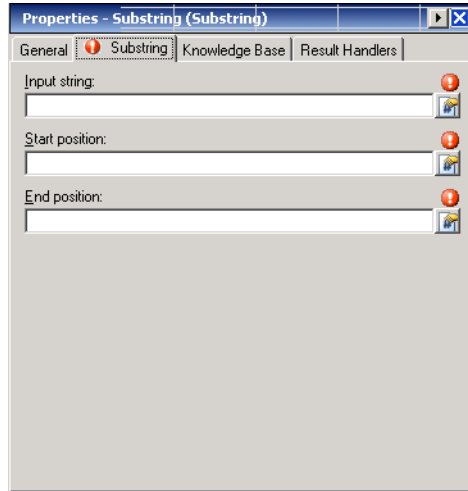
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Substring** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure C-14 Substring Activity—Substring Tab




Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting String Activity Variable References](#), page C-23.

Step 4 On the Substring tab, specify the following:

Field	Description
Input string	Enter the appropriate substring to be queried.
Start position	Enter the numeric string characters from where the query is to start.
End position	Enter the numeric string characters from where the query is to end.



Note Both Start and End positions start with zero(0), not one (1).

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Find String Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Find String Activity](#).

**Note**

To view the substring results, see [Viewing Substring Results, page C-31](#).

Defining the Trim String Activity

Use the Trim String activity to trim characters from the content in a string. When no character is specified, the activity will trim all leading and trailing whitespace characters, including empty lines at the beginning and at the end.

To define the Trim String activity:

- Step 1** On the Toolbox pane, choose the **Trim String** activity, then drag and drop the activity onto the Workflow pane.

The Trim String property pages display.

Figure C-15 Trim String Properties Page—General Tab

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Trim String** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure C-16 Trim String Activity—Trim String Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting String Activity Variable References](#), page C-23.

Step 4 On the Trim String tab, specify the following:

Field	Description
Input string	Enter the string containing the content to be trimmed.
Trim leading characters	Checked check box indicates the lead characters in the string will be trimmed
Trim trailing characters	Checked check box indicates the trailing characters in the string will be trimmed
Characters to trim	Enter the list of characters to trim.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Find String Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Find String Activity](#).

**Note**

To view the trimmed string results, see [Viewing Trim String Results, page C-32](#).

Managing String Activity Definitions

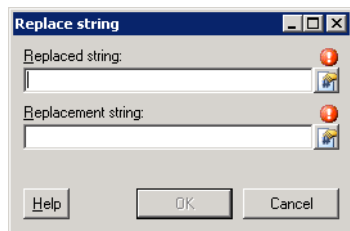
Use the following section to modify information in the String activities. Use the activity-specific property page to perform the following functions.

Adding Replacement String Properties

Use the following steps to add the string text and the replacement string to the Replace String activity. To add a replacement string:

- Step 1** On the activity property page, click the **Replace String** tab to modify the list of replacement strings for the activity.
- Step 2** Under Replace list, click **New** to launch the Replace string dialog box.

Figure C-17 Replace string Dialog Box



- Step 3** Complete the following fields:

Name	Description
Replaced string	The string text to be replaced
Replacement string	The string text use to replace the specified string

- Step 4** After defining the replacement string properties, click **OK**.
The new replacement string is displayed under Replace list on the Replace String property page.
- Step 5** Click the **Save**  tool to save.

Removing Replacement Strings

Use the following steps to remove a replacement string from the list.

-
- Step 1** On the activity property page, click the **Replace Strings** tab to modify the replacement string properties for the activity.
- Step 2** Under Replace list, highlight the appropriate replacement string and click **Delete**.
The replacement string is removed from the table.
- Step 3** Click the **Save**  tool to save.
-

Inserting String Activity Variable References

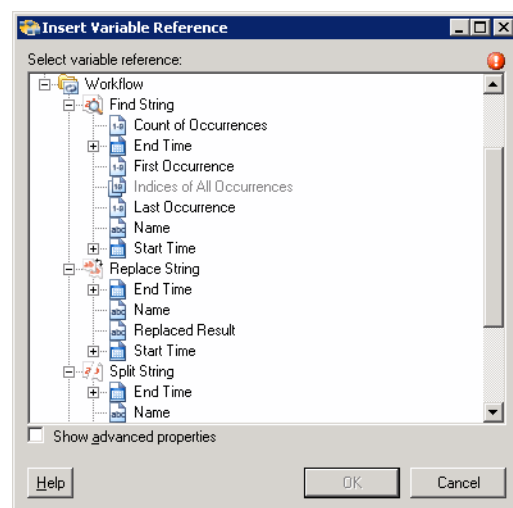
The Reference  icon to the right of a text field indicates that the field can be populated by referencing a defined variable or the property of another activity or process. Use the Insert Variable Reference dialog box to select a defined variable or object to populate a field.

Only variables valid for the selected field can be selected in this dialog box. The OK button does not activate until a valid property or variable is selected.

To insert a variable reference:

-
- Step 1** To the right of a field on a property page, click the **Reference** tool.
The Insert Variable Reference dialog box displays.

Figure C-18 Insert Variable Reference Dialog Box



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

-
- Step 2** Check the **Show Advanced** check box to display all items that are available for referencing.

If the check box is not checked, then only the most commonly-used items are displayed for activities, processes or events.

Step 3 Click the **Workflow Activity Expand (+)** to display the reference objects for the activities in the Workflow pane. The properties in the Insert Reference Variable dialog box depend on the activities.

Step 4 From the list of displayed objects, select the appropriate property:

Reference Variable	Description
Name	Display name of the activity
Notes	Description for the activity
Created by	User name or the owner of the activity
Created Time	The date and time the activity was created
Modified by	User name of the individual who modified the activity
Type	Type of activity
Description	Description of the activity
Audit Starts	Date and time the process audit starts
Audit Successes	Indicates the number of successful audits
End Time	Date and time the activity stopped
Error Information	Description of the error that has occurred
Group Name	Name of toolbox activity group
Instance Cancelled	Indicates the process was cancelled manually
Instance Failed	Indicates the process has failed
Instance Failed (Completed)	Indicates the process has failed but the process execution was completed
Instance Failed (Not Completed)	Indicates the process has failed and did not complete the process execution
Start Time	Date and time the activity was started
Process Id	ID number of the TEO process
Process Instance Id	ID number of the TEO process instance
Count of Occurrences	Number of string occurrences
First Occurrence	Index of the first occurrence
Last Occurrence	Index of the last occurrence
Indices of all Occurrences	List of integers that are indices of all occurrences
Replaced Result	String content that successfully replaced the old strings
Results	String content that was successfully delimited by elements of a specified string or character array
Result	String content that successfully escaped the strings
Lowercase Result	Queried string text content replaced with lowercase text
Uppercase Result	Queried string text content replaced with uppercase text
Trim Result	Displays the remaining string content not trimmed from the activity

Step 5 Click **OK** to add the selected reference variable to the related text field.

Viewing String Activity Instance Results

This section provides the results for the String activities after they have run in a process. The activity instance properties shown from the Operations—Activity View are display-only.

Viewing Find String Results

When the Find String activity is launched, the results of the properties used to search for specific string content are displayed from the Operations Workspace activity instance view.

To view the Find String results:

Step 1 On the Operations workspace, click the **Activity Views** folder.

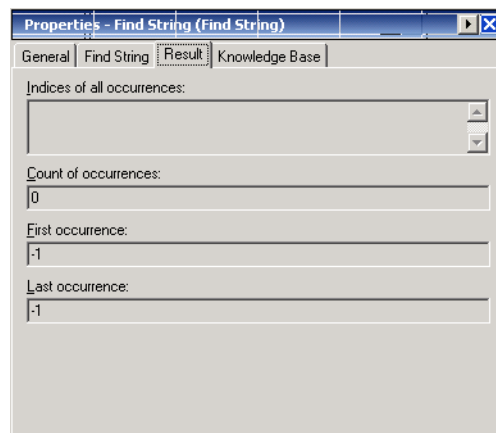
Step 2 Use *one* of the following methods:

- Highlight the **Find String** activity instance, right-click and choose **Properties**.
- or-
- Double-click the appropriate activity instance.

The Find String Properties dialog box displays.

Step 3 Click the **Result** tab to display the output of the query in the Find String activity.

Figure C-19 Find String Properties Page—Result Tab



The following information is displayed:

Field	Description
Indices of all occurrences	List of integers that are indices of all occurrences
Count of occurrences	Number of string occurrences

Field	Description
First occurrence	Index of the first occurrence
Last occurrence	Index of the last occurrence

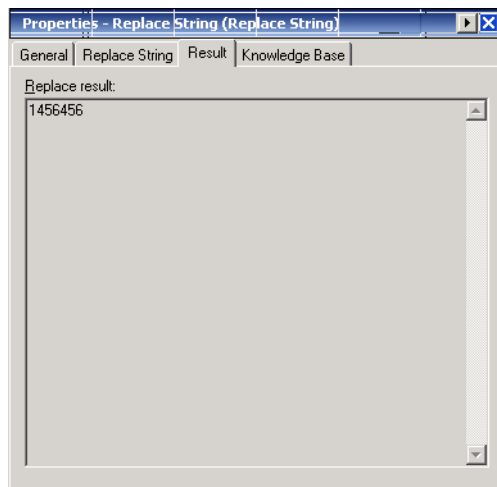
Viewing Replace String Results

When the Replace String activity is launched, the results of the properties used to define the string that need to be replaced and the associated replacement string properties. are displayed from the Operations Workspace activity instance view.

To view the Replace String results:

- Step 1** In the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
 - Highlight the **Replace String** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.The Replace String Properties dialog box displays.
- Step 3** Click the **Result** tab to display output of the string properties in the Replace String activity.

Figure C-20 Replace String Instance Properties Page—Result Tab



The following information is displayed:

Field	Description
Replace Result	String content that successfully replaced the old strings

Viewing Split String Results

When the Split String activity is launched, the results of the properties used to split the string characters around matches of the given delimiter are displayed from the Operations Workspace activity instance view.

To view the Split String results:

Step 1 In the Operations workspace, click the Activity Views folder.

Step 2 Use *one* of the following methods:

- Highlight the **Split String** activity instance, right-click and choose **Properties**.

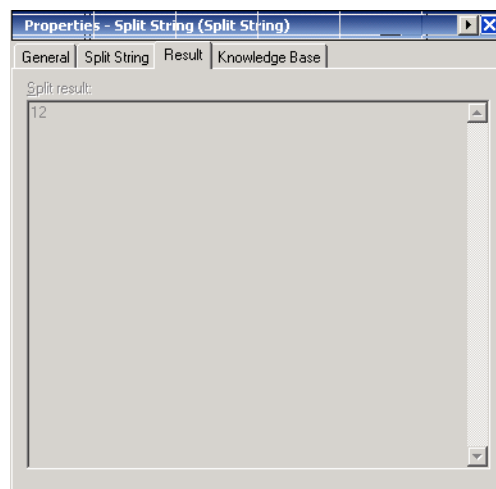
-or-

- Double-click the appropriate activity instance.

The Split String Properties dialog displays.

Step 3 Click the **Result** tab to display the output of the delimited strings returned by in the Split String activity.

Figure C-21 Split String Instance Properties Page—Result Tab



The following information is displayed:

Field	Description
Split result	String content that was successfully delimited by elements of a specified string or character array

Viewing String Escape Results

When the String Escape activity is launched, the results of the properties used to insert information into messages or file names are displayed from the Operations Workspace activity instance view.

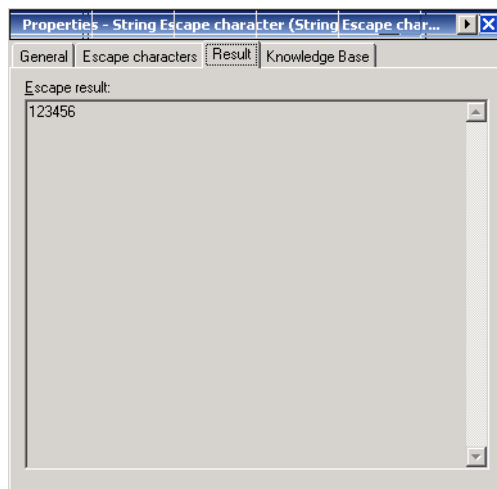
To view the String Escape results:

-
- Step 1** In the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the **String Escape** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.

The String Escape character Properties dialog box displays.

- Step 3** Click the **Result** tab to display the output of the escaped results of the string properties in the String Escape activity.

Figure C-22 String Escape Instance Properties Page—Result Tab



The following information is displayed:

Field	Description
Escape result	String content that successfully escaped the strings

Viewing String Lowercase Results

When the String Lowercase activity is launched, the results of the properties used to lower the case in the requested string content are displayed from the Operations Workspace activity instance view.

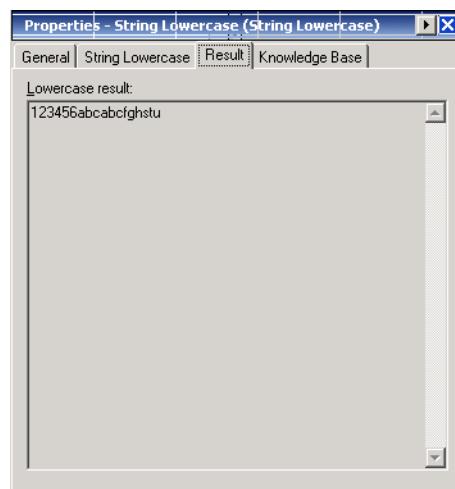
To view the String Lowercase results:

-
- Step 1** In the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the **String Lowercase** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.

The String Lowercase Properties dialog box displays.

- Step 3** Click the **Result** tab to display the lowercase text output of the requested string content in the String Lowercase activity.

Figure C-23 String Lowercase Instance Properties Page—Result Tab



The following information is displayed:

Field	Description
Lowercase result	Queried string text content replaced with lowercase text

Viewing String Uppercase Results

When the String Uppercase activity is launched, the results of the properties used to capitalize the case in the requested string content are displayed from the Operations Workspace activity instance view.

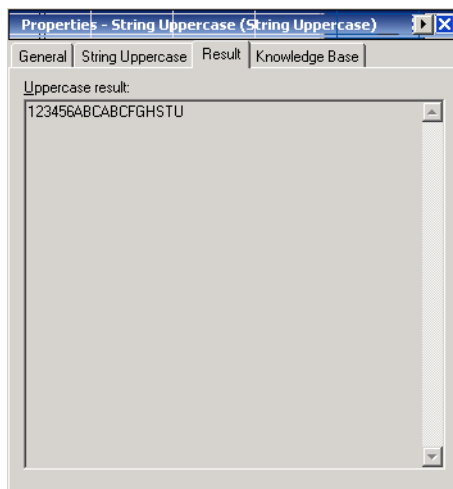
To view the String Uppercase results:

-
- Step 1** In the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the **String Uppercase** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.

The String Uppercase Properties dialog box displays.

- Step 3** Click the **Result** tab to display the capitalized output of the requested string content in the String Uppercase activity.

Figure C-24 String Uppercase Instance Properties Page—Result Tab



The following information is displayed:

Field	Description
Uppercase result	Queried string text content replaced with uppercase text

Viewing Substring Results

When the Substring activity is launched, the results of the properties used to retrieve the first and last occurrence of the specified substring are displayed from the Operations Workspace activity instance view.

To view the Substring results:

Step 1 In the Operations workspace, click the **Activity Views** folder.

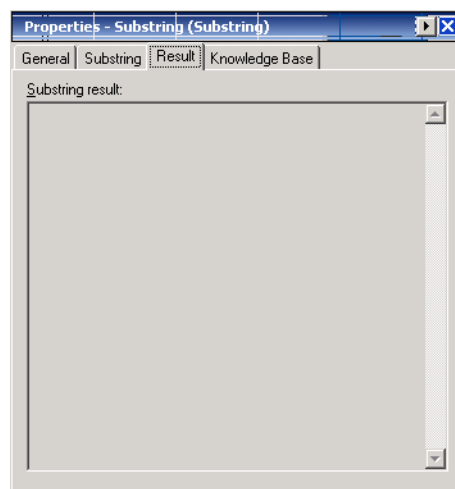
Step 2 Use *one* of the following methods:

- Highlight the **Substring** activity instance, right-click and choose **Properties**.
- or-
- Double-click the appropriate activity instance.

The Substring Properties dialog box displays.

Step 3 Click the **Result** tab to display the output of the requested string content in the Substring activity.

Figure C-25 Substring Instance Properties Page—Result Tab



The following information is displayed:

Field	Description
Substring result	String content queried between start and end position required in the activity

Viewing Trim String Results

When the Trim String activity is launched, the results of the properties used to trim characters from the content in a string. are displayed from the Operations Workspace activity instance view.

**Note**

When no character is specified, the activity will trim all leading and trailing whitespace characters, including empty lines at the beginning and at the end.

To view the Trim String results:

Step 1 In the Operations workspace, click the **Activity Views** folder.

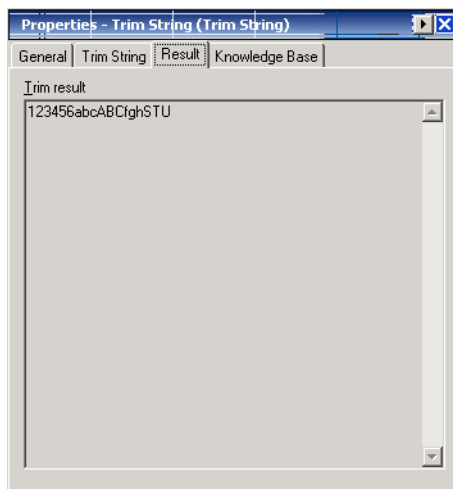
Step 2 Use *one* of the following methods:

- Highlight the **Trim String** activity instance, right-click and choose **Properties**.
- or-
- Double-click the appropriate activity instance.

The Trim String Properties dialog box displays.

Step 3 Click the **Trim String** tab to display output of the requested string content trimmed in the Trim String activity.

Figure C-26 Trim String Instance Properties Page—Result Tab



The following information is displayed:

Field	Description
Trim result	Displays the remaining string content not trimmed from the activity



APPENDIX **D**

Using Table Activities

Table activities allow users to modify the format for existing defined table variables. The available table variables can be defined as either a global or process variable.

The sections in this appendix provide instructions for defining table activities, instructions for completing the property pages for each specific activity, and instructions on viewing the activity results.

- [Table Activities, page D-2](#)
- [Defining the Add Row to Table Activity, page D-4](#)
- [Defining the Analyze Table Activity, page D-7](#)
- [Defining the Highlight Row Activity, page D-10](#)
- [Defining the Read Table from Text Activity, page D-12](#)
- [Defining the Read Table from XML Activity, page D-14](#)
- [Defining the Remove Row from Table Activity, page D-18](#)
- [Defining the Select from Table Activity, page D-21](#)
- [Defining the Set Table Variable Activity, page D-25](#)
- [Defining the Update Row in Table Activity, page D-27](#)
- [Managing Table Activity Definitions, page D-29](#)
- [Viewing Activity Instance Information, page D-32](#)

Table Activities

The following table displays the table activities provided by TEO.

Activity	Description
Add Row to Table	Appends new row to table See Defining the Add Row to Table Activity, page D-4
Analyze Table	Summarizes and analyzes data in a table variable or property using basic aggregation functions See Defining the Analyze Table Activity, page D-7 .
Highlight Row	Highlights selected rows in a table. The selected tables display as highlighted in the automation summary See Defining the Highlight Row Activity, page D-10 .
Read Table from Text	Reads a comma-separated value (CSV) file and convert the text into a table See Defining the Read Table from Text Activity, page D-12 .
Read Table from XML	Reads an XML snippet and convert the snippet into a table See Defining the Read Table from XML Activity, page D-14 .
Remove Row from Table	Removes specified rows from a table See Defining the Remove Row from Table Activity, page D-18 .
Select from Table	Queries information from specified table. See Defining the Select from Table Activity, page D-21 .
Set Table Variable	Modifies the value of a defined table variable. See Defining the Set Table Variable Activity, page D-25 .
Update Row in Table	Updates the selected rows of a table variable. See Defining the Update Row in Table Activity, page D-27 .

Common Table Activity Expressions

The expressions in the table below are available from the Analyze Table activity summary table option. The *Key* menu item for a source column will be enabled only if there are no summary columns configured based on that source column. The remaining menu item is enabled only if there is no *key* summary column configured for the source column.

Table Expression	Description
Key	Key (unique) column instructing the Analyze Table activity to summarize source table data according to the values in that column. A row will be created in the summary table for every unique value of the key column in the source table.
Count	Aggregate column containing the count of values in the source column and is available for source columns of all data types.
Avg	Aggregate column containing the average of the values in the source column and is available for source columns of numeric data types (such as Integer and Decimal).
Min	Aggregate column containing the minimum of the values in the source column and is available for source columns of numeric data types (such as Integer and Decimal).
Max	Aggregate column containing the maximum of the values in the source column and is available for source columns of numeric data types (such as Integer and Decimal).
Sum	Aggregate column containing the sum of all the values in the source column and is available for source columns of numeric data types (such as Integer and Decimal).
StDev	Aggregate column containing the statistical standard deviation of values in the source column and is available for source columns of numeric data types (such as Integer and Decimal).
Var	Adds an aggregate column containing the statistical variance of values in the source column. The menu item is available for source columns of numeric data types (such as Integer and Decimal).

Defining the Add Row to Table Activity

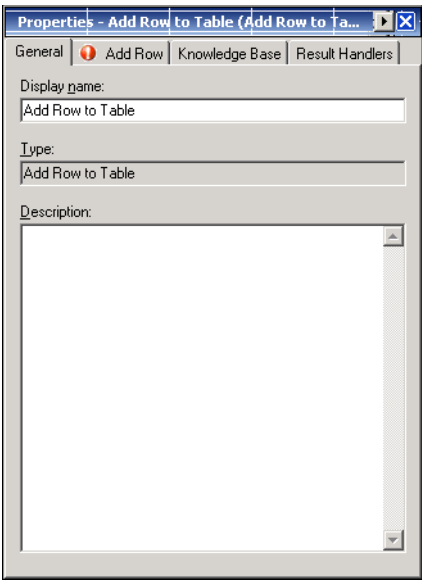
Use the Add Row to Table activity to append new rows to a table variable. The row is added to the end of the table. This activity will not work on tables that are outputs of other activities.

To define the Add Row to Table activity:

- Step 1** On the Toolbox pane, under Table Activities, choose the **Add Row to Table** activity, then drag and drop the activity onto the Workflow pane.

The Add Row to Table property pages display.

Figure D-1 Add Row to Table Activity—General Tab



- Step 2** On the General tab, enter the following information:

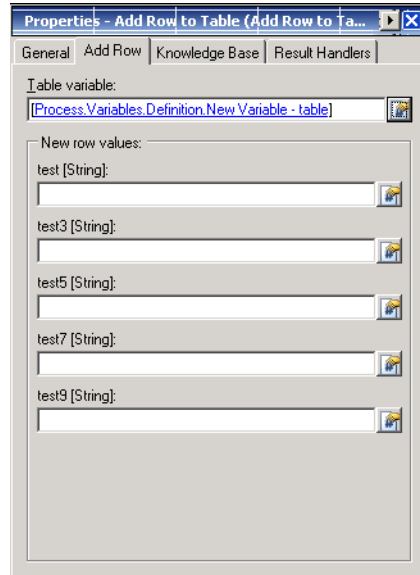
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Add Row** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure D-2 Add Row to Table Activity—Add Row Tab




Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Table Activity Variable References](#), page D-31.

Step 4 On the Add Row tab, specify the following the source table and the associated values:

Field	Description
Table variable	Enter the appropriate table variable.
New row values	This box remains empty until a data table variable is selected. After the table is selected, the name and data type of the columns from the source table variable are displayed.

Step 5 Click the Knowledge Base tab to assign a knowledge base article to the object.

Knowledge Base Field Options	Description
Text field	<i>Display-only.</i> Display name for the selected knowledge base article(s)
Delete	Highlight the appropriate knowledge base article and click the Delete  tool to remove the knowledge base article from the display.

Knowledge Base Field Options	Description
Browse	Click Browse to launch the Select Knowledge Base dialog box for a list of existing knowledge base articles. For additional information on knowledge base articles, see Chapter 17, “Managing Knowledge Base Articles.”
Properties	Highlight the appropriate knowledge base article and click the Properties  tool to view and/or modify the properties of the defined knowledge base article.

The following information is displayed on the Knowledge Base tab.

Field	Description
Summary	Brief description of the issue
Possible Cause	Explanation of the condition that may be causing the issue
Possible resolution	List of actions that can be performed to attempt to resolve the issue
Related information	Additional information related to the issue

Step 6 On the Result Handlers tab, click *one* of the following buttons to manage the condition branches on the workflow, as necessary:

Button	Description
Add	Adds a condition branch
Remove	Removes the condition branch from the activity
Move Up	Moves the condition up one position in the list of conditions
Move Down	Moves the condition down one position in the list of conditions

Step 7 Click the **Save**  tool to save the activity definition.

Defining the Analyze Table Activity

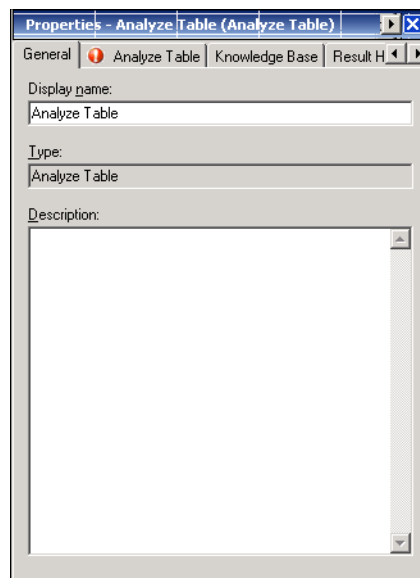
Use the Analyze Table activity to summarize and analyze data in a table variable or property using basic aggregation functions.

To define the Analyze Table activity:

- Step 1** On the Toolbox pane, under Table Activities, choose the **Analyze Table** activity, then drag and drop the activity onto the Workflow pane.

The Analyze Table property pages display.

Figure D-3 Analyze Table Activity—General Tab

The image shows a software window titled 'Properties - Analyze Table (Analyze Table)'. It has four tabs: 'General' (selected), 'Analyze Table', 'Knowledge Base', and 'Result H'. The 'General' tab contains three fields: 'Display name:' with the value 'Analyze Table', 'Type:' with the value 'Analyze Table', and 'Description:' with a large empty text area.

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

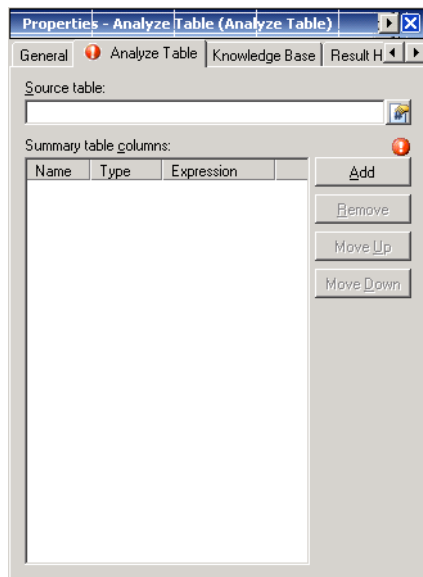
Step 3 Click the **Analyze Table** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure D-4 *Analyze Table Activity—Analyze Table Tab*



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Table Activity Variable References](#), page D-31.

Step 4 On the Analyze Table tab, specify the source table to analyze:

Field	Description
Source Table	Enter the appropriate table variable or click the Reference tool to search for a table variable.

The summary table box contains the list of columns configured for the summary table and remains empty until a table variable is selected. Each summary column can be a *key* or an *count* column.

Column	Description
Name	Name of the source column from the table

Column	Description
Type	Data type for the column
Expression	Expression associated with the column. The expression is configured based on a column from the source data table and one of the following: - Available aggregate SQL functions (Sum, Count, Avg, Max, Min, StdDev, Var) - Values in the aggregate columns that are computed for each unique combination of values in the key columns.

To modify the list of columns on the table, click the appropriate buttons:

Button	Description
Add	Adds a column to the list. The user adds summary columns based on the source column. This menu item is enabled only if there is no key summary column configured for the source column. The remaining menu items are enabled only if there is no key summary column configured for the source column. Note For additional information on the table expressions, see Adding a Column, page D-29.
Remove	Removes selected summary columns from the list
Move Up	Moves a summary column up the list
Move Down	Moves a summary column down the list

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Add Row to Table Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Add Row to Table Activity](#).



Note

To view the table analysis results, see [Viewing Analyze Table Results, page D-33](#).

Defining the Highlight Row Activity

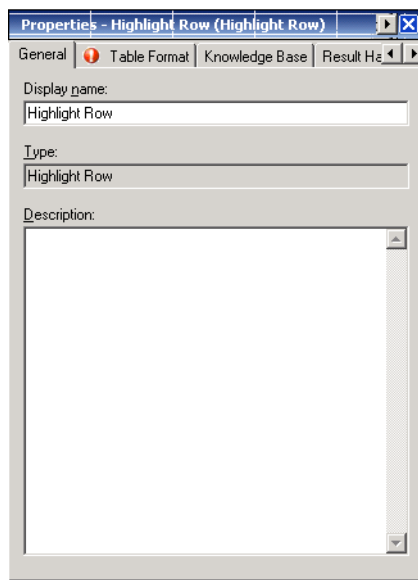
Use the Highlight Row table activity to highlight selected rows of a table variable. Highlighted rows can only be displayed in an automation summary. Therefore the user will not see the highlighted rows in TEO unless viewing the automation summary.

To define the Highlight Row activity:

- Step 1** On the Toolbox pane, under Table Activities, choose the **Highlight Row** activity, then drag and drop the activity onto the Workflow pane.

The Highlight Row property pages display.

Figure D-5 Highlight Row Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Table Format** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure D-6 Highlight Row Properties Page—Table Format Tab



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Table Activity Variable References](#), page D-31.

Step 4 On the Table Format tab, specify the color to highlight the specified rows.

Field	Description
Table	Enter the appropriate table type variable or click the Reference tool to search for a table variable.
Highlight Color	Choose the appropriate color to use to highlight the row. Users can also type the color name or a RGB value (e.g. #FF0000 for red) into the field.
Rows	Use the following options to specify the rows in the table to be highlighted - Row at the specified index—Index number of the row to highlight or clear highlighting - Rows with indices in the specified range—Enter the beginning and end of index rows to be highlighted - Rows matching specified criteria—Enter the appropriate criteria to indicate when to highlight rows in the table.

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- Knowledge Base—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Add Row to Table Activity](#).
 - Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Add Row to Table Activity](#).

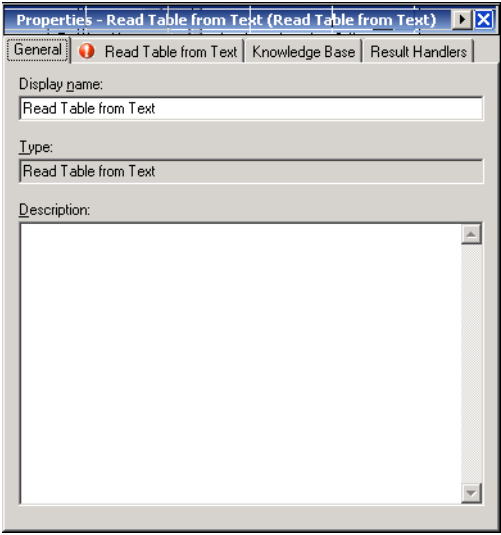
Defining the Read Table from Text Activity

Use the Read Table from Text activity to read a comma-separated value (CSV) file and convert the text into a table with a specified set of columns.

To define the Read Table from Text activity:

- Step 1** On the Toolbox pane, under Table Activities, choose the **Read Table From Text** activity, then drag and drop the activity onto the Workflow pane.
- The Read Table from Text property pages display.

Figure D-7 Read Table from Text Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

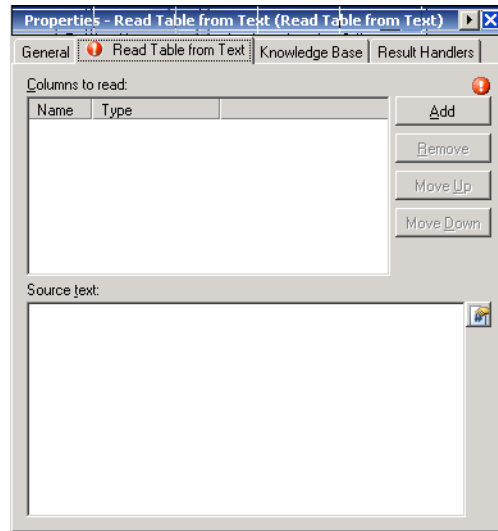
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Read Table from Text** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure D-8 *Read Table from Text Properties Page—Read Table from Text Tab*



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Table Activity Variable References](#), page D-31.

Step 4 On the Read Table from Text tab, under Columns to read, the table displays the list of column names and types for the result table to read from the XML.

Column	Description
Name	Name of the column
Type	Type of expression
Expression	Expression associated with the column

Step 5 To modify the list of columns to read and text to query, click the appropriate buttons:

Button	Description
Add	Launches Table Column dialog box to allow the user to define the name and data type for the new column. Note For additional information, see Adding a Column , page D-29.
Remove	Removes selected columns from the list. Note For additional information, see Removing a Column from Table , page D-30.

Button	Description
Move Up	Moves a column up the list
Move Down	Moves a column down the list

Step 6 To convert specific text into a table, enter the following information.

Field	Description
Source text	Source values to convert into table

Step 7 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Add Row to Table Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Add Row to Table Activity](#).

Defining the Read Table from XML Activity

Use the Read Table from XML activity to read an XML snippet and convert it into a table with a specified set of columns.

Example:

Row XML Element Name:

MyRow

Columns to read:

Name String

Age Integer

Source XML:

```
<MyData>
  <MyRow>
    <Name>Jeff</Name>
    <Age>32</Age>
  </MyRow>
  <MyRow>
    <Name>Mark</Name>
    <Age>31</Age>
  </MyRow>
  <MyRow>
    <Name>Jay</Name>
    <Age>30</Age>
  </MyRow>
</MyData>
```

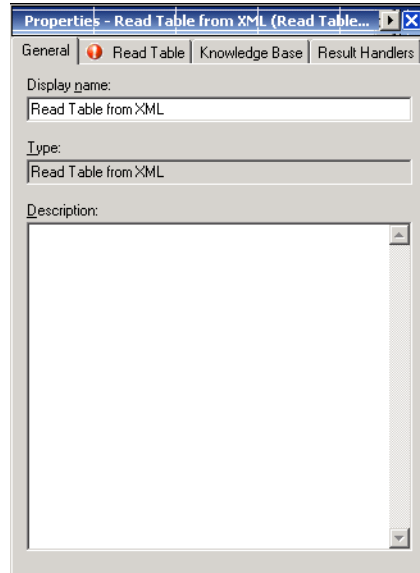
This produces a table with two columns (name, age), with three rows.

To define the Read Table from XML activity:

- Step 1** On the Toolbox pane, under Table Activities, choose the **Read Table From XML** activity, then drag and drop the activity onto the Workflow pane.

The Read Table from XML property pages display.

Figure D-9 Read Table from XML Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

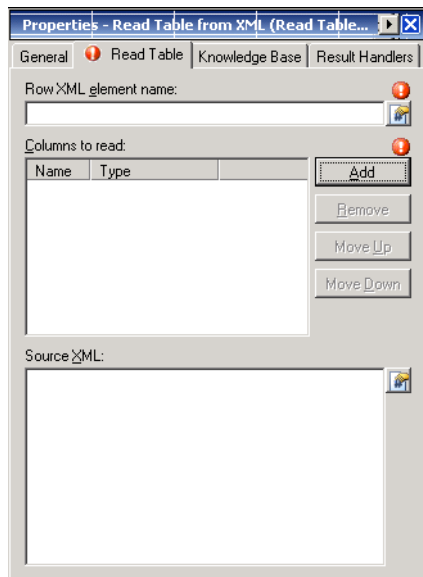
Step 3 Click the **Read Table** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure D-10 *Read Table from XML Properties Page—Read Table Tab*



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Table Activity Variable References](#), page D-31.

Step 4 In the Row XML element name field, enter the string that specifies the name of the XML element that contains information for a single row.

Step 5 Under Columns to read, the table displays the list of column names and types for the result table to read from the XML.

Column	Description
Name	Name of the column
Type	Type of expression

Step 6 To modify the list of columns to read, click the appropriate buttons:

Button	Description
Add	Launches the Table Column dialog box to allow the user to define the name and data type for the new column. Note For additional information, see Adding a Column, page D-29 .
Remove	Removes selected columns from the list. Note For additional information, see Removing a Column from Table, page D-30 .
Move Up	Moves a column up the list
Move Down	Moves a column down the list

Step 7 To convert specific XML into a table, enter the following information.

Field	Description
Source XML	XML snippet to convert into a table

Step 8 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Add Row to Table Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Add Row to Table Activity](#).



Note

To view the read XML table results, see [Viewing Read Table from XML Results, page D-34](#).

Defining the Remove Row from Table Activity

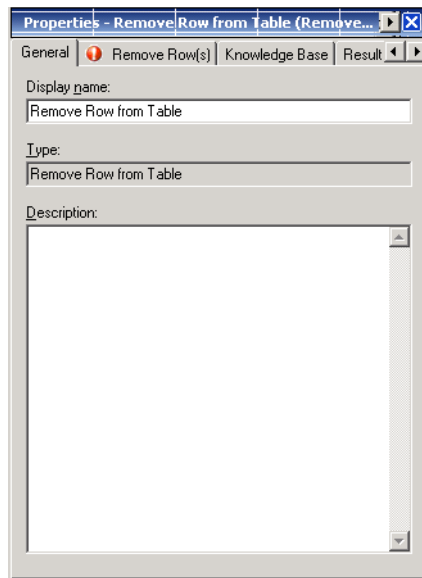
Use the Remove Row from Table activity to remove one or more rows from a table variable based on specified criteria. This activity will not work on tables that are outputs of other activities.

To define the Remove Row from activity:

- Step 1** On the Toolbox pane, under Table Activities, choose the **Remove Row from Table** activity, then drag and drop the activity onto the Workflow pane.

The Remove Row from Table property pages display.

Figure D-11 Remove Row from Table Activity—General Tab



- Step 2** On the General tab, enter the following information:

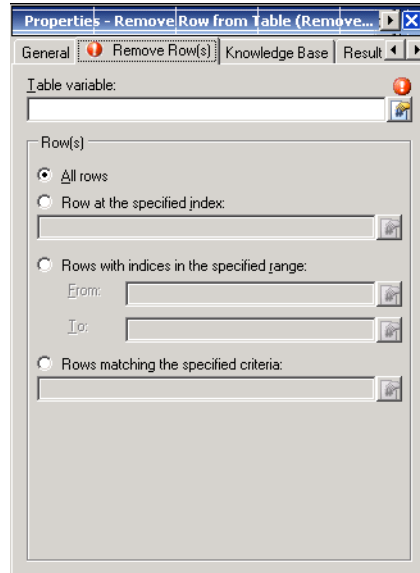
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Remove Row** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure D-12 Remove Row from Table Activity—Remove Row Tab




Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Table Activity Variable References](#), page D-31.

Step 4 On the Remove Row(s) tab, specify the following the source table and the associated values:

Field	Description
Table variable	Enter the appropriate table variable or click the Reference tool to search for a table variable.

Field	Description
Rows	Use the following options to specify the rows in the table to be removed: • All rows—All rows in the source table variable will be removed • Row at the specified index—Index number of the row to be removed • Rows with indices in the specified range—Enter the beginning and end of index rows to be removed • Rows matching specified criteria—Enter the appropriate criteria to indicate when to remove rows in the table Note Use a <i>where</i> clause-like criteria to specify which rows from the source table to remove. For where clause examples, see WHERE Clause Example, page D-24.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Add Row to Table Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Add Row to Table Activity](#).

Defining the Select from Table Activity

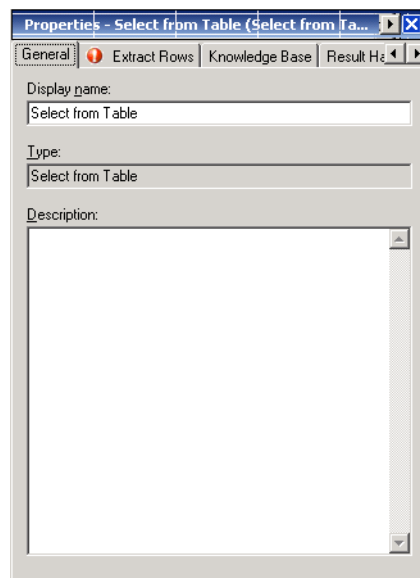
Use the Select From Table activity to query and select rows from a source table using specified criteria. The user can also determine the order of the rows selected as well as limit the number of rows displayed.

To define the Select from Table activity:

- Step 1** On the Toolbox pane, under Table Activities, choose the **Select from Table** activity, then drag and drop the activity onto the Workflow pane.

The Select from Table property pages display.

Figure D-13 Select from Table Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

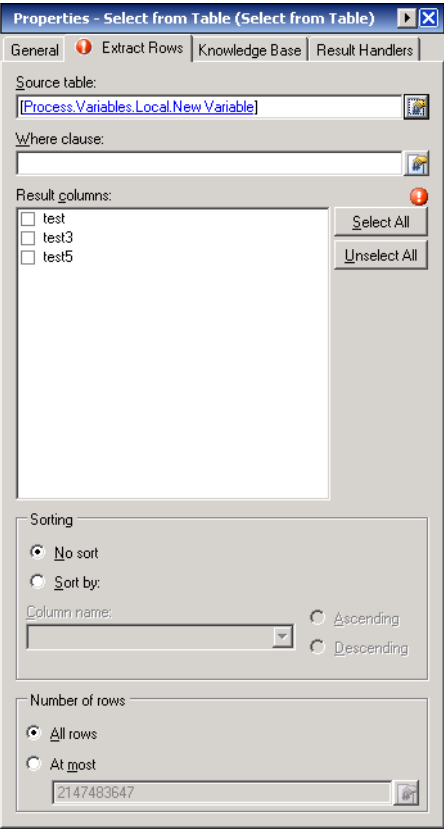
Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Extract Rows** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure D-14 *Select from Table Activity—Extract Rows Tab*



Note Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Table Activity Variable References](#), page D-31.

Step 4 On the Extract Rows tab, specify the following the source table and the associated values:

Field	Description
Source table	Enter the appropriate table variable or click the Reference tool to search for a table variable.
Where Clause	Use a <i>where</i> clause-like criteria to specify which rows from the source table to select. Note For a where clause examples, see WHERE Clause Example , page D-24.

Field	Description
Result columns	Displays the list of columns available in the selected source table. Check this check box for the columns that is to be included in the results. At least one column item must be checked. • Select All—Click this button to select all columns in the table. • Unselect All—Click this button to remove the check marks from all the columns.
No sort	Select this radio button to indicate the columns do not have to be sorted.
Sort by	Select this radio button to indicate the columns should be sorted by column name.
Column name	From the drop-down list, select the appropriate column as the table heading and the order in which it is to be sorted. • Ascending—Table to be sorted from the top row in alpha-numeric order • Descending—Table to be sorted from the bottom alpha-numeric order
Number of rows	Click the button to determine the number of rows to display in the table. • All rows—Includes all rows that match the specified criteria or <i>where</i> clause in the result table • At most—Enter the maximum number of rows matching specified criteria that should be included in the result table.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Add Row to Table Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Add Row to Table Activity](#).



Note

To view the table results, see [Viewing Select from Table Activity Results, page D-35](#).

WHERE Clause Example

The WHERE clause specifies join and filter conditions that determine the rows that the query returns.

Description

If the ColumnName, in an expression, for one column is "UnitPrice", and another "Quantity", the expression containing a WHERE clause would be as follows:

"UnitPrice * Quantity < 1000"

If a column name satisfies a condition operator, it must be wrapped in either square brackets or the "" (grave accent) quotes. For example, to use a column named "Column#" in an expression, use one of the following:

Total * [Column#]

or ""Column#`":

Total * `Column#`

If the column name is enclosed in square brackets then any ']' and '\' characters (but not any other characters) in it must be escaped by prepending them with the backslash ("\") character. If the column name is enclosed in grave accent characters then it must not contain any grave accent characters in it. For example, a column named "Column[]\" would be written:

Total * [Column[]\]

or

Total * `Column[]\`

Source: [MSDN: WHERE Clause](#)

Defining the Set Table Variable Activity

Use the Set Table Variable activity to modify the value of a defined table variable. You must specify a name for the activity, choose the defined variable that you want to modify and enter a new value for the table variable using a different table variable property.

The table variables used must match in their entirety, including the name of columns, number of columns, and the type of columns or the activity will fail.

To define the Set Table Variable activity:

- Step 1** On the Toolbox pane, under Table Activities, choose the **Set Table Variable** activity, then drag and drop the activity onto the Workflow pane.

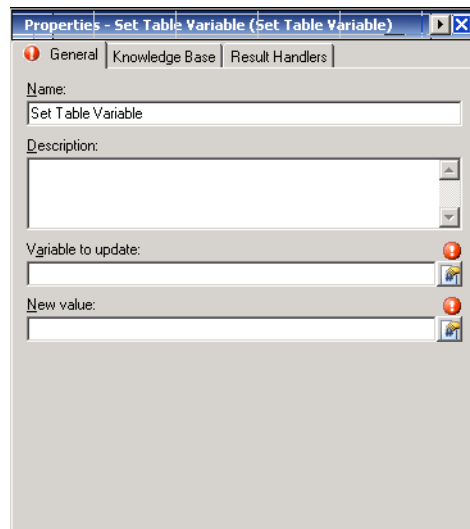
The Set Table Variable property pages display.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure D-15 Set Table Variable Properties Page—General Tab




Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Table Activity Variable References](#), page D-31.

- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Description	Brief description of the activity

Field	Description
Variable to update	Choose the appropriate table variable to be modified.
New value	Choose the appropriate table variable or output property containing the new value of the variable

Step 3 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Knowledge Base—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Add Row to Table Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Add Row to Table Activity](#).

**Note**

To view the variable results, see [Viewing Set Table Variable Activity Results, page D-36](#).

Defining the Update Row in Table Activity

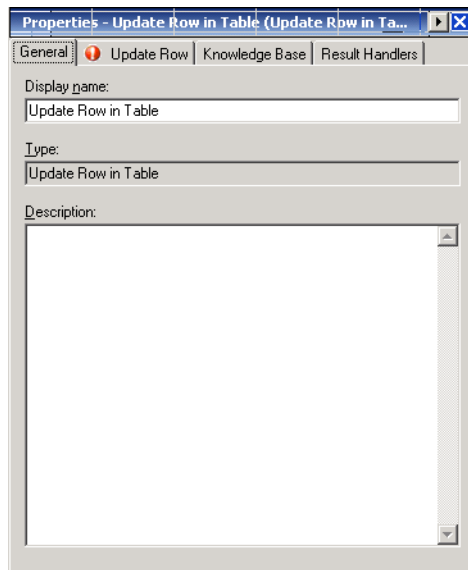
Use the Update Row in Table activity to update the selected rows of a table variable. The new rows become part of the variable being modified. The user will not see the modified rows in the automation summary, but will be able to see the rows in the variable property pages in TEO.

To define the Update Row in Table activity:

- Step 1** On the Toolbox pane, under Table Activities, choose the **Update Row in Table** activity, then drag and drop the activity onto the Workflow pane.

The Update Row in Table property pages display.

Figure D-16 Update Row in Table Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

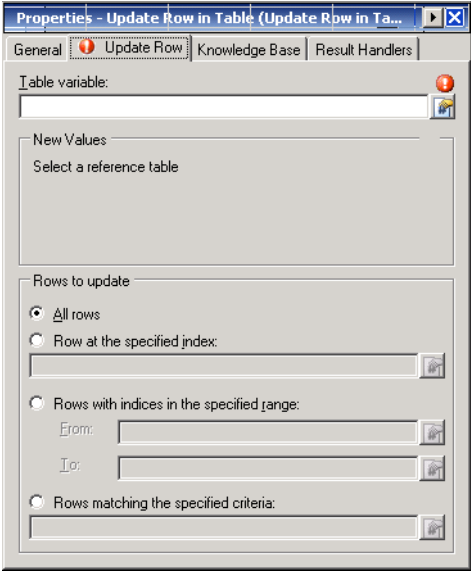
- Step 3** Click the **Update Row** tab to continue.



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

Figure D-17 Update Row in Table Activity—Update Row Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Table Activity Variable References](#), page D-31.

Step 4 On the Update Row tab, specify the following the table variable and the associated values:

Field	Description
Table variable	Enter the appropriate table variable or click the Reference tool to search for a table variable.
New Values	Displays the values of the selected table. To modify the values of the table, check this check box and then enter the new value for the selected column.
Rows	Use the following options to specify the rows in the table to be updated: • All rows—Option updates all rows in the table • Row at the specified index—Index number of the row to be updated • Rows with indices in the specified range—Enter the beginning and end of index rows to be updated • Rows matching specified criteria—Enter the appropriate criteria to indicate when to update rows in the table Note Use a <i>where</i> clause-like criteria to specify which rows from the source table to update. For where clause examples, see WHERE Clause Example, page D-24.

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the activity. See [Step 5 in Defining the Add Row to Table Activity](#).
 - **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 6 in Defining the Add Row to Table Activity](#).
-

Managing Table Activity Definitions

Modifying a process does not automatically modify an activity. Activity definitions are included in a process definition and the activity properties must be modified separately from the process properties.

Activities can only be modified in the Process Editor. With the appropriate rights from the Operations view, the Process Editor is launched when accessing the process properties.

When user rights are restricted, the Process Viewer is launched with the properties displaying a display-only view after determining that the user cannot edit the activity.

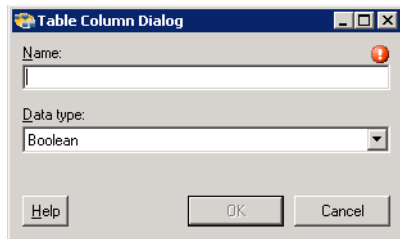
-
- Step 1** To modify an activity, use *one* of the following methods:
- On the Definitions—Process view, highlight the appropriate process, right-click and choose **Edit**.
 - or-
 - On the Operations workspace, select a process from any of the four process views, right-click and choose **Edit**.
- The Process Editor displays.
- Step 2** On the Workflow pane, select the appropriate activity, and modify activity properties, as necessary, and click **Save**.
- Step 3** Make any additional changes, as necessary, and click **Exit** to close the Process Editor.
-

Adding a Column

Use the following steps to add a column to a table converted from an XML element or a CSV file. The XML snippet is converted from XML code provided by the Read Table from XML activity. The CSV file is converted to a table using the Read Table from Text activity.

To add a column:

-
- Step 1** On the activity property page, click the **Read Table** tab to modify the list of columns to read for the activity.
- Step 2** Under Columns to read, click **Add** to launch the Table Columns dialog box.

Figure D-18 Table Column Dialog Box

Step 3 Complete the following fields:

Name	Description
Name	Name of the column
Data type	The data type specified for the column • Boolean—Indicates elements should be <i>true</i> or <i>false</i> • String (Default)—Sequence of characters such as letters, numbers, and punctuation marks • Integer—Must be whole numbers and contain only digits from 0 to 9. Can be positive or negative (Examples: 0, 10, 345, -689) • Decimal—Requires exact numeric data values • Identity—Represents the value of a user identity

Step 4 After defining the table column properties, click **OK**.

The new column is displayed under Columns to Read on the Read Table property page.

Step 5 Click the **Save**  tool to save.

Removing a Column from Table

Use the following steps to remove a column from the list of columns on the table.

Step 1 On the activity property page, click the **Read Table** tab to modify the assignee properties for the activity.

Step 2 Under Columns to read, highlight the appropriate column and click **Remove**.

The column is removed from the table.

Step 3 Click the **Save**  tool to save.

Inserting Table Activity Variable References

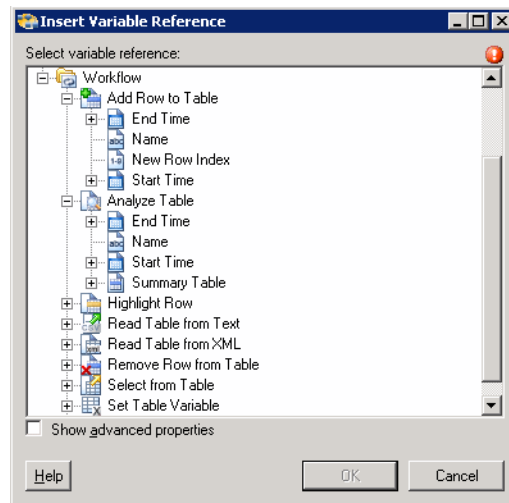
The Reference  icon to the right of a text field indicates that the field can be populated by referencing a defined variable or the property of another activity or process. Use the Insert Variable Reference dialog box to select a defined variable or object to populate a field.

Only variables valid for the selected field can be selected in this dialog box. The OK button does not activate until a valid property or variable is selected.

To insert a variable reference:

- Step 1** To the right of a field on a property page, click the **Reference** tool.
The Insert Variable Reference dialog box displays.

Figure D-19 Insert Variable Reference Dialog Box



Note

The Required Value  icon displayed on a tab or page indicates that the field is required and is missing a value.

- Step 2** Check the **Show Advanced** check box to display all items that are available for referencing.
If the check box is not checked, then only the most commonly-used items are displayed for activities, processes or events.
- Step 3** Click the **Workflow Activity Expand (+)** to display the reference objects for the activities in the Workflow pane. The properties in the Insert Reference Variable dialog box depend on the activities.
- Step 4** From the list of displayed objects, select the appropriate property:

Reference Variable	Description
Name	Display name of the activity
Notes	Description for the activity
Created by	User name or the owner of the activity
Created Time	The date and time the activity was created
Modified by	User name of the individual who modified the activity

Reference Variable	Description
Type	Type of activity
Description	Description of the activity
Audit Starts	Date and time the process audit starts
Audit Successes	Indicates the number of successful audits
End Time	Date and time the activity stopped
Error Information	Description of the error that has occurred
Group Name	Name of toolbox activity group
Instance Cancelled	Indicates the process was cancelled manually
Instance Failed	Indicates the process has failed
Instance Failed (Completed)	Indicates the process has failed but the process execution was completed
Instance Failed (Not Completed)	Indicates the process has failed and did not complete the process execution
Start Time	Date and time the activity was started
Process Id	ID number of the TEO process
Process Instance Id	ID number of the TEO process instance
New Row Index	Index number of the new row
Summary Table	Summary data from the analyst table results
Highlighted Row Count	Number of highlighted rows in the table
Result Table	Table containing results generated from the read activities
Removed Row Count	Number of rows removed from the table
Updated Row Count	Number of rows updated in the table

Step 5 Click **OK** to add the selected reference variable to the related text field.

Viewing Activity Instance Information

This section describes what the user should expect to see after a process with a Table activity is launched. Certain activities display additional activity instance information for review by users.

For example, there will be certain activities that generate information based on the defined properties of the activities. In those situations, the activity instance properties displayed from the Operations—Activity View will show the display-only configuration properties as well as the generated results of the configuration properties.

To view activity instance properties:

-
- Step 1** On the Operations workspace, choose any of the four activity views to display the activity instances in the Results pane.
- Step 2** On the Results pane, expand the appropriate process instance to display the related activities.

Step 3 Highlight the appropriate activity, and use *one* of the following methods:

- Double-click the appropriate activity instance.
- Right-click and choose **Properties**.
- On the Details pane, click the hyperlink of any item on tabs.

The [Activity Name] Properties dialog box displays.

Viewing Analyze Table Results

When the Analyze Table activity is launched, the summary information from the activity results are displayed from the from the Operations Workspace activity instance view.

To view the analyze table results:

Step 1 On the Operations workspace, click the Activity Views folder.

Step 2 Use *one* of the following methods:

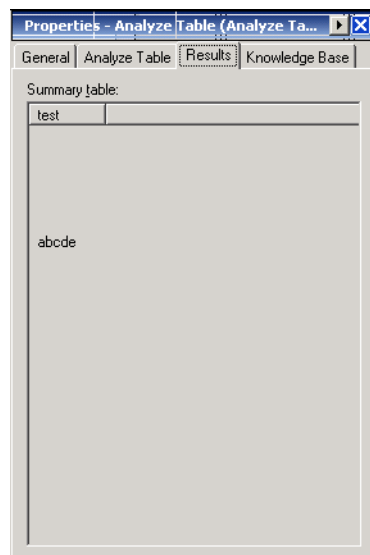
- Highlight the **Analyze Table** activity instance, right-click and choose **Properties**.
- or-
- Double-click the appropriate activity instance.

The Analyze Table Properties dialog box displays.

Step 3 Click the **Results** tab to display the output data in a new summary table.

The columns displayed in the Results tab are from the Name columns.

Figure D-20 Analyze Table Instance Properties Page—Results Tab



Viewing Read Table from XML Results

When the Read Table from XML activity is launched, the source XML code that was entered on the Read Table property page is generated into a table. The information from the activity results is displayed from the Operations Workspace activity instance view.

To view the read table from XML results:

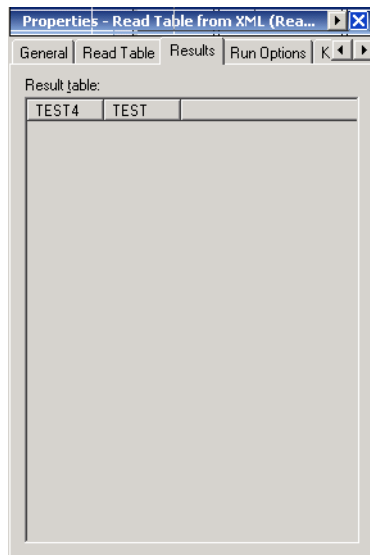
-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.

The [Read Table] Properties dialog box displays.

- Step 3** Click the **Results** tab to display the output data in a new table.

The information displayed in the Results tab are the columns created in the Columns to read box which displays the source XML code in a tabular form.

Figure D-21 Read Table from XML Instance Properties Page—Results Tab



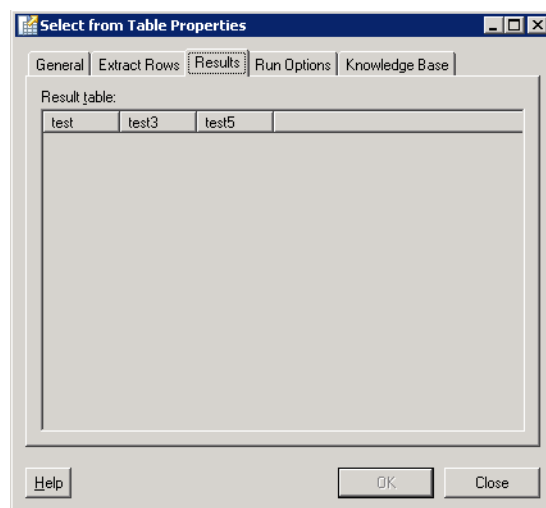
Viewing Select from Table Activity Results

When the Select from Table activity is launched, results are displayed from the Operations Workspace activity instance view.

To view Select from Table results:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The Select from Table dialog box displays.
- Step 3** Click the **Results** tab to display the related data in the columns selected in the Result Columns field on the Select from Table activity.

Figure D-22 Select from Table Properties Page—Results Tab



Viewing Set Table Variable Activity Results

When the Set Table Variable activity is launched, results are displayed from the Operations Workspace activity instance view.

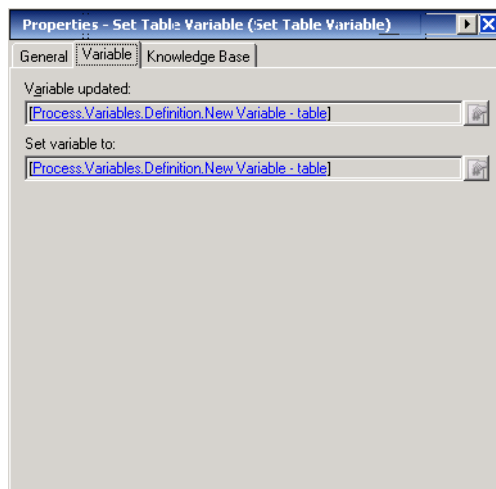
To view Set Table Variable results:

-
- Step 1** On the Operations workspace, click the **Activity Views** folder.
- Step 2** Use *one* of the following methods:
- Highlight the activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.

The Set Table Variable dialog box displays.

- Step 3** Click the **Variable** tab to display the updated values for the table variable specified in the process definition.

Figure D-23 Set Table Variable Properties Page—Variable Tab



The Variable tab displays the following information:

Field	Description
Variable updated	Displays the table variable specified in the process definition
Set variable to	Updated value of the selected table variable



INDEX

A

- Accessing Administration - Automation Packs [22-2](#)
- Accessing Administration - Security View [21-2](#)
- Accessing automation packs [22-2](#)
- Accessing Condition Properties [10-2](#)
- Accessing Conditions, Condition Branch [10-2](#)
- Accessing Conditions, Task Rules view [10-2](#)
- Accessing Conditions, Triggers view [10-2](#)
- Accessing Definitions - Calendars [12-2](#)
- Accessing Definitions - Processes [6-3](#)
- Accessing Definitions - Target Groups [15-2](#)
- Accessing Definitions - Targets [13-2](#)
- Accessing Process Editor, Process Editor, accessing [6-7](#)
- Accessing Reports [23-14](#)
- Accessing Reports in Business Objects InfoView [23-32](#)
- Accessing Tasks view [4-2, 19-3](#)
- Accessing the Operations Workspace [3-2](#)
- Accessing Triggers [8-2](#)
- Action menu, global variables [11-4, 14-4](#)
- Action menu and toolbar options, processes [6-4](#)
- Actions menu, process editor [6-9](#)
- Actions menu and toolbar, runtime users [16-4](#)
- Actions Menu and Toolbar Categories [18-3](#)
- Actions Menu and Toolbar Options, Calendars [12-3](#)
- Actions toolbar [1-19](#)
- Activities
 - Built-in Adapter
 - Set Variable [A-45](#)
 - Sleep [A-48](#)
 - Core Adapter
 - Set Target Reference [A-43](#)
- activities, view adhoc [3-19, 3-33](#)
- activities, view all [3-19, 3-33](#)
- activities, view scheduled [3-19, 3-33](#)
- activities, view triggered [3-19, 3-33](#)
- Activity, Add Row to Table [D-4](#)
- Activity, Correlate [B-17](#)
- Activity, Create Alert [B-20](#)
- Activity, Find String [C-4](#)
- Activity, Publish Metric [A-38](#)
- activity, XPath Query [A-52](#)
- activity, XPath Query properties [A-53](#)
- activity, XSL transform properties [A-55, A-56](#)
- Activity conditions [10-16](#)
- Activity definitions, modify [7-20](#)
- activity instance properties [3-31](#)
- Activity instance results pane [3-35](#)
- Activity variable references [A-65, B-65, C-24, D-31](#)
- Activity View details pane [3-23](#)
- Activity views, accessing [3-18](#)
- adapter, viewing history [20-12, 24-9](#)
- Adapters
 - Accessing Adapter Properties [20-8](#)
 - Properties, Provides [20-11](#)
 - Viewing adapter history [20-12](#)
 - Viewing Adapter-Supported Objects [20-11](#)
- adapters, viewing [20-11](#)
- Add dates [12-13](#)
- Adding a Column to the Table [D-29](#)
- Adding activities to workflow [7-14](#)
- Adding Advanced Conditions to an Object [10-6](#)
- Adding an Option to the Input Request Select Question [4-34](#)
- Adding an XPath Namespace Definition [A-59](#)
- Adding an XPath Query Definition [A-61](#)

- Adding a Related Alert [B-63](#)
- Adding a Related Task [4-43](#)
- Adding a table column [11-33, 14-26](#)
- Adding a Table Row [11-34, 14-27](#)
- Adding a Target to a Virtual Target Group [15-11](#)
- Adding Basic Conditions to an Object [10-4](#)
- Adding child processes [7-17](#)
- Adding conditions to a trigger [8-24, 19-17](#)
- Adding Dates to Group Calendar [12-13](#)
- Adding members to a category [18-5](#)
- Adding Replacement String Properties [C-22](#)
- Adding Task Properties to an Update Task Rule [19-19](#)
- Adding workflow logic [7-19](#)
- Add row properties [D-5](#)
- Add Row to Table Activity, defining [D-4](#)
- Add Row to Table Properties [D-5](#)
- adhoc process execution [7-22](#)
- Administration [20-1, 20-5](#)
 - Viewing Adapter Properties [20-11](#)
- Administration, navigation menu [20-3](#)
- Administration Workspace [1-22](#)
- Advanced Conditions [10-6](#)
- Advanced toolbar [1-19](#)
- Affected Configuration Item properties [4-13, 4-25, B-24, B-31, B-35](#)
- Affected Configuration Item properties, event [A-29, A-42](#)
- Affected target properties, event [A-29, A-42](#)
- Affected target properties, task [4-13, 4-25, B-24, B-31, B-35](#)
- Alert, create [4-11, B-20](#)
- Alert criteria [B-18](#)
- Alert properties [4-12](#)
- Alert properties, task [4-12](#)
- Analyze Table [D-7](#)
- Analyze Table Activity, defining [D-7](#)
- Analyze Table properties [D-8](#)
- Analyze Table Property Page [D-8](#)
- Analyze table results [D-33](#)
- Approval Change Request Properties [4-19](#)
- Approval Request, create [4-15](#)
- Approval Request Properties [4-16](#)
- Approval request properties [B-47](#)
- Approval Request Properties, task [4-16, B-47](#)
- Assigned Task, defining [B-7](#)
- Assigning a category to a task [4-41](#)
- Assigning a Duplicate Alert [4-42](#)
- Assigning a Duplicate Task [B-62](#)
- Assigning an Activity Starting Point [9-14](#)
- Assigning a User or Group as Principal to a Security Role [21-20](#)
- Assigning objects [18-6](#)
- Assigning Users to Local Computer Groups [21-10](#)
- Assignment properties [4-8, B-4](#)
- Assignment properties, modify [4-39, 19-20, B-60](#)
- Assignment properties, task [4-8, B-4](#)
- Assignment rule properties, modify [19-21](#)
- Assign Task properties [B-8](#)
- Assign Task Rule, create [19-5](#)
- Auditing details pane [3-38](#)
- Auditing logs, accessing [3-37](#)
- audit logs, viewing [3-39](#)
- Authoring Processes [7-1](#)
- Automation pack, create [22-16](#)
- Automation Pack Details Pane [22-4](#)
- Automation Pack Export Wizard
 - Completing the Export Objects Panel [22-26](#)
 - Dependencies Panel [22-23](#)
 - Export File Location Panel [22-25](#)
 - General Information Panel [22-24](#)
 - Objects to Export Panel [22-20](#)
 - Validate Objects Panel [22-25](#)
- Automation Pack Import Wizard [22-12](#)
 - Automation Summary Configuration panel properties [22-9](#)
 - Data Extraction Panel [22-13](#)
 - Email Configuration panel [22-9](#)
 - General Information panel [22-8](#)
 - Review Prerequisites panel [22-14](#)
 - Welcome to the Automation Pack Import Wizard Panel [22-7](#)

Automation Pack properties, adding objects Adding objects to Automation Packs [22-30](#)

Automation Pack Properties, dependencies [22-18, 22-28](#)

Automation Pack Properties, General Information [22-16](#)

Automation Pack Properties, objects [22-17, 22-30](#)

Automation Pack Properties, refreshing objects [22-34](#)

Automation Pack Properties, removing objects [22-33](#)

Automation packs, access [22-2](#)

Automation Packs, import [22-7](#)

Automation Summary [A-17](#)

automation summary, configure [24-4](#)

Automation Summary, modifying [B-59](#)

Automation Summary, viewing [4-38, A-68](#)

Automation Summary, viewing in web console [2-17](#)

Automation Summary Confirmation Panel [22-9](#)

Automation Summary properties [B-22](#)

Automation Summary properties, Create Change Request [B-30](#)

Automation Summary properties, Create Incident [B-34](#)

Automation Summary Property Page [A-17](#)

Automation Summary reports, viewing [A-68](#)

B

Basic Conditions [10-4](#)

Boolean variable [11-7, 11-22](#)

Built-in Adapter

- Set Variable [A-45](#)
- Sleep [A-48](#)

Business Objects Reporting Services [23-15](#)

Business Objects reports, BIAR reports files [22-13](#)

C

Calculate Date [A-12](#)

Calculate Date Activity, Define [A-12](#)

Calculate Date properties [A-12, A-15](#)

Calculate Date Property Page [A-12, A-15](#)

Calculate Date Time Difference [A-14](#)

Calculate Date Time Difference Activity, Define [A-14](#)

calculated date [A-70](#)

Calculated date difference results [A-71](#)

Calculated date results [A-70](#)

Calendar dates, remove [12-12](#)

calendar definition, copy [12-19](#)

calendar properties, daily recurrence [12-15](#)

calendar properties, monthly recurrence [12-17](#)

calendar properties, weekly recurrence [12-16](#)

calendar properties, yearly recurrence [12-18](#)

Calendars [12-1](#)

- Create a Group Calendar
 - Group calendar properties [12-7](#)
- Creating a Copy of a Calendar Definition [12-19](#)
- Creating a Date List Calendar [12-4](#)
 - Date list calendar properties [12-5](#)
- Creating a Group Calendar [12-6](#)
- Creating a Recurring Calendar [12-9, 12-10, 12-15, 12-16, 12-17, 12-18](#)
- Deleting [12-19](#)
- Modify calendar [12-12](#)
- Used by, calendars [12-20, 17-8, 21-22](#)
- Viewing calendar history [12-20](#)
- Viewing properties [12-3](#)

Calendars, access [12-2](#)

calendars, date list [12-4](#)

calendars, group [12-6](#)

calendars, recurring [12-9](#)

calendars, viewing history [12-20](#)

calendars, viewing used by objects [12-20, 17-8, 21-22](#)

Calendars Actions Menu and Toolbar Options [12-3](#)

Calendars Details Pane [12-3](#)

Calendar Types [12-4](#)

Categories [18-1](#)

- Creating Categories [18-4, 18-5](#)
- History, viewing [18-9](#)
- Modify category, adding members [18-6](#)
- Viewing Categories [18-2](#)

Categories, Actions Menu and Toolbar [18-3](#)

- categories, create [18-4](#)
- Categories, deleting [18-8](#)
- Categories, modify [18-6](#)
- categories, selecting [18-7](#)
- categories, viewing used by objects [18-9](#)
- Categories Detail Pane [18-3](#)
- Categories properties [4-9, B-4](#)
- Categories properties, task [4-9, B-4](#)
- category, viewing [18-2](#)
- Category definition, copy [18-8](#)
- Category history, viewing [18-5](#)
- category properties, members [18-5](#)
- Change Request, create [4-18](#)
- Change request properties [B-29](#)
- Change Request Properties, task [4-19, B-29](#)
- Changing Owner of Security Rule [21-13](#)
- Changing Process Display Icon [6-16](#)
- Changing task owners [4-39, 19-20, B-60](#)
- Changing task rule assignees [19-21](#)
- Changing the task status [4-39](#)
- Check box question [4-32](#)
- Collapsing workflow view [6-15](#)
- Collecting TEO Diagnostics [20-19](#)
- Collection Operators [10-3](#)
- color indicators [3-23](#)
- Common Regular Expressions [A-3](#)
- Common String Escapes [C-2](#)
- Common Table Activity Expressions [D-3](#)
- Common Task Properties [4-4](#)
- Common Wildcard Expressions [7-19](#)
- Comparison Operators [10-3](#)
- Completed component, define [9-3](#)
- Completing General Property Page [7-4](#)
- Completing Options Property Page [7-5](#)
- Completing Process Categories Property Page [7-13](#)
- Completing Process Credentials Property Page [7-9](#)
- Completing Process Target Property Page [7-7](#)
- Completing Process Trigger Property Page [7-12](#)
- Completing Process Variables Property Page [7-10](#)
- Completing the Export Objects Wizard panel [22-26](#)
- Compound condition, create [10-8](#)
- Condition Block, define [9-4](#)
- Condition Branch, define [9-7](#)
- Condition Descriptions [10-3](#)
- Condition properties, accessing [10-2](#)
- Conditions [10-1, 24-1](#)
 - Adding conditions from Toolbox [10-16](#)
- Conditions, delete [10-18](#)
- Conditions, modify [10-17](#)
- Conditions, triggers [8-9](#)
- Configuration settings [20-17, 23-4](#)
- configure automation Summaries [24-4](#)
- configure ROI [24-3](#)
- Configuring Automation Master Database Properties
 - Database Configuration settings [20-14](#)
- Configuring Automation Summary Settings [24-4](#)
 - Automation Summary [24-4](#)
- Configuring Columns [1-29](#)
- Configuring Core Function Adapter Properties
 - Task Properties settings [24-8](#)
- Configuring Date and Time Settings [1-35](#)
- Configuring Report Database Properties
 - Database Configuration settings [20-17, 23-4](#)
 - Database Connection settings [20-16, 23-3](#)
- Configuring Reporting Database Settings [23-3](#)
- Configuring Return on Investment Settings [24-2](#)
 - ROI [24-3](#)
- Configuring Task Expiration Settings [24-7](#)
- Configuring TEO Security [21-1](#)
- Configuring the BO connection for SQL Reporting Services [23-29](#)
- Configuring the Display Refresh Rate [1-35](#)
- Connecting to a Server [1-27](#)
- Connecting to a Server upon Startup [1-32](#)
- Connection settings [20-16, 23-3](#)
- console
 - navigating [1-7](#)
- Console, Actions menu [1-17](#)

- Console, Edit menu [1-9](#)
- Console, File menu [1-8](#)
- Console, Go menu [1-10](#)
- Console, Help menu [1-17](#)
- Console, Tools menu [1-11](#)
- Console, View menu [1-9](#)
- Console launch [1-2](#)
- Console Overview [1-7](#)
- Constructing Process Workflow [7-1](#)
 - Define Process Properties, logic [7-19](#)
- copy [17-7](#)
- Core
 - Set Target Reference [A-43](#)
- Core Activity, modify [A-58](#)
- Core activity variable reference, insert [A-65](#)
- Core Automation Pack Objects [22-35](#)
 - Imported Calendars [22-35](#)
 - Imported Categories [22-36](#)
 - Imported Global Variables [22-36](#)
 - Imported Processes [22-37](#)
- Core Function Adapter
 - Defining Core Activities [A-1](#)
- Core Reports [23-2](#)
- Correlate Alert, defining [B-17](#)
- Correlate Alerts [B-18](#)
- Correlate Alerts criteria [B-18](#)
- Correlate Alerts Criteria Property Page [B-18](#)
- Create alert [4-11](#)
- Create Alert Activity [B-20](#)
- Create Alert Affects properties [B-24](#)
- Create Alert Duplicate properties [B-26](#)
- Create Alert properties [B-21](#)
- Create alert properties [B-21](#)
- Create alert properties, automation summary [B-22](#)
- Create Alert properties, task [B-21, B-22](#)
- Create Approval Request [4-15, B-46](#)
- Create Approval Request Activity, defining [B-46](#)
- Create a schedule trigger [8-10](#)
- Create a Started by Parent Process trigger [8-12](#)
- Create a Started by User trigger [8-13](#)
- Create Automation Summary [A-16](#)
- Create Automation Summary Activity, defining [A-16](#)
- Create Automation Summary Properties [A-17](#)
- create category [18-4](#)
- Create Change Request [4-18, B-28](#)
- Create Change Request Activity, defining [B-28](#)
- Create Change Request Affects properties [B-31](#)
- Create Change Request properties, automation summary [B-30](#)
- Create Change Request properties, task [B-30](#)
- create date list calendar [12-4](#)
- create group calendar [12-6](#)
- Create Guided Operation [4-21, B-49](#)
- Create Guided Operation, defining [B-49](#)
- Create Guided Operation properties [B-50](#)
- Create incident [4-23](#)
- Create Incident, defining [B-32](#)
- Create Incident Activity [B-32](#)
- Create Incident Affects properties [B-35](#)
- Create Incident properties, automation summary [B-34](#)
- Create incident properties, related [B-36](#)
- Create Incident properties, task [B-34](#)
- Create input request [4-27](#)
- Create input request, defining [B-51, B-54](#)
- Create input request from table properties [B-55](#)
- Create Input Request from Table Properties, task [B-55](#)
- Create input request properties [B-52](#)
- Create Input Request Properties, task [B-52](#)
- create recurring calendar [12-9](#)
- Create Review [4-35](#)
- Create Review Request Activity, defining [B-57](#)
- Create Review Request Properties [B-58](#)
- Create Review Request properties [B-58](#)
- Create Runtime user [16-6](#)
- create Windows user [16-5](#)
- Creating a Boolean Target Property
 - Boolean property, Create [14-5](#)
- Creating a Boolean Variable [11-6, 11-22](#)

Creating a Change Request Task [4-18](#)
 Creating a Check Box Question [4-32](#)
 Creating a compound condition [10-8](#)
 Creating a Copy of a Category Definition [18-8](#)
 Creating a Copy of a Target Group [15-12](#)
 Creating a Copy of a Task Rule [19-17](#)
 Creating a Guided Operation Task [4-21](#)
 Creating a Hidden String Global Variable [11-8](#)
 Creating a Hidden String Target Property [14-8](#)
 Creating a Hidden String Variable [11-23](#)
 Creating a Hidden Text Question [4-31](#)
 Creating an Alert Task [4-11](#)
 Creating an Approval Request Task [4-15](#)
 Creating an Assign Task Rule [19-5](#)
 Creating a New Security Role [21-6](#)
 Creating an Identity Target Property [14-10](#)
 Creating an Identity Variable [11-10, 11-25](#)
 Creating an Incident Task [4-23](#)
 Creating an Input Request Task [4-27](#)
 Creating a Notify Task Rule [19-10](#)
 Creating a Numeric Target Property [14-12](#)
 Creating a Numeric Variable [11-12, 11-26](#)
 Creating a Prior Process Instances Condition [10-10](#)
 Creating a Review Task [4-35](#)
 Creating a Select Question [4-33](#)
 Creating a String Target Property [14-14](#)
 Creating a String Variable [11-14, 11-28](#)
 Creating a Table Target Property [14-16](#)
 Creating a Table Variable [11-16, 11-29](#)
 Creating a Target Reference Property [14-19](#)
 Creating a Task from Task View [4-7](#)
 Creating a Text Question [4-30](#)
 Creating a time condition [10-12](#)
 Creating Automation Packs [22-16](#)
 Creating a variable condition [10-14](#)
 Creating processes [7-1](#)
 Creating Tasks [4-7](#)
 Creating TEO Reporting Database

New TEO Reporting Database connection
 properties [23-7](#)

Creating TEO Reporting Database Connection [23-5](#)
 Credential properties [7-15](#)
 Credentials, FTP properties [A-50](#)
 Criteria, Target Type Group properties [15-6](#)
 Custom Date and Format Strings [A-4](#)
 Customizing the Fonts and Colors [1-31](#)

D

Daily Recurrence Pattern [12-15](#)
 Database settings [20-14](#)
 Database Settings properties [23-8](#)
 Data Extraction Panel [22-13](#)
 date, select [3-30](#)
 date difference [A-71](#)
 date list calendar, creating [12-4](#)
 Date List Properties [12-5](#)
 Date results [A-73](#)
 Dates & Times Tab, Options dialog [1-15](#)
 day offset, select [3-30](#)
 Default Windows Credential Panel [22-12](#)
 Default Windows Credential panel properties,
 domain [22-12](#)
 Default Windows Credential panel properties,
 password [22-12](#)
 Default Windows Credential panel properties, user
 name [22-12](#)
 Default Windows Credentials panel [22-12](#)
 Define Process Properties, adding activities [7-14](#)
 Define Process Properties, categories [7-13](#)
 Define Process Properties, child processes [7-17](#)
 Define Process Properties, credentials [7-9](#)
 Define Process Properties, general [7-4](#)
 Define Process Properties, modifying [7-20](#)
 Define Process Properties, options [7-5](#)
 Define Process Properties, target [7-7](#)
 Define Process Properties, trigger [7-12](#)
 Define Process Properties, variables [7-10](#)

- Defining a Core Activity [A-10](#)
- Defining a Create Alert Activity [B-20](#)
- Defining a Create Approval Request Activity [B-46](#)
- Defining a Create Change Request Activity [B-28](#)
- Defining a Create Guided Operation Activity [B-49](#)
- Defining a Create Incident Activity [B-32](#)
- Defining a Create Input Request Activity [B-51, B-54](#)
- Defining a Create Review Request Activity [B-57](#)
- Defining Activity Target Criteria [13-11](#)
- Defining a Find Alerts Activity [B-38](#)
- Defining a Find Change Requests Activity [B-40](#)
- Defining a Find Incidents Activity [B-43](#)
- Defining an Assigned Task Activity [B-3, B-7](#)
- Defining an Update Alert Activity [B-12](#)
- Defining an Update Approval Request Activity [B-12](#)
- Defining an Update Guided Operation Activity [B-12](#)
- Defining an Update Incident Activity [B-12](#)
- Defining an Update Input Request Activity [B-12](#)
- Defining an Update Review Request Activity [B-12](#)
- Defining a Publish Task to Event Log Activity [B-10](#)
- Defining a Service Target [13-8](#)
- Defining a Task Trigger [8-14, 8-16](#)
- Defining a Wait for Task to Enter State Activity [B-14](#)
- Defining IT Record Task Activities [B-17](#)
- Defining Object List Security Permission [21-16](#)
- Defining Object Type Security Permission [21-18](#)
- Defining Owner Security Permission [21-19](#)
- Defining Process Properties [7-2](#)
- Defining Process Property Pages [7-4](#)
- Defining Target Criteria for Trigger [8-25](#)
- Defining Target Information [13-7](#)
- Defining the Add Row to Table Activity [D-4](#)
- Defining the Analyze Table Activity [D-7](#)
- Defining the Calculate Date Activity [A-12](#)
- Defining the Calculate Date Time Difference Activity [A-14](#)
- Defining the Correlate Alert activity [B-17](#)
- Defining the Create Automation Summary activity [A-16](#)
- Defining the Find String Activity [C-4](#)
- Defining the Find Target Activity [A-20](#)
- Defining the Format Date Activity [A-23](#)
- Defining the Highlight Row Activity [D-10](#)
- Defining the Insert Event Activity [A-26](#)
- Defining the Insert Multiple Events Activity [A-30](#)
- Defining the Match Regular Expression Activity [A-33](#)
- Defining the Parse Date Activity [A-36](#)
- Defining the Publish Metric Activity [A-38](#)
- Defining the Publish Multiple Metrics Activity [A-41](#)
- Defining the Read Table from Text Activity [D-12](#)
- Defining the Read Table from XML Activity [D-14](#)
- Defining the Remove Row from Table Activity [D-18](#)
- Defining the Replace String Activity [C-7](#)
- Defining the Select from Table Activity [D-21](#)
- Defining the Set Table Variable Activity [D-25](#)
- Defining the Split String Activity [C-10](#)
- Defining the String Escape Activity [C-12](#)
- Defining the String Lowercase Activity [C-14](#)
- Defining the String Uppercase Activity [C-16](#)
- Defining the Substring Activity [C-18](#)
- Defining the Test FTP Destination Activity [A-49](#)
- Defining the Trim String Activity [C-20](#)
- Defining the Update Row in Table Activity [D-27](#)
- Defining XPath Query activity [A-52](#)
- Definitions
 - Calendars
 - Actions menu and toolbar options [12-3](#)
 - Details Pane [12-3](#)
 - Categories [18-2](#)
 - Actions menu [17-3, 18-3](#)
 - Getting Started, Processes [5-3](#)
 - Global Variables
 - Action menu [11-4](#)
 - Details Pane [11-4](#)
 - Knowledge Base Articles [17-2](#)
 - Processes
 - Details Pane [5-3, 6-5](#)
 - Target Groups
 - Actions menu and toolbar options [15-3](#)

Targets

- Actions menu and toolbar options [13-3](#)
- Definitions, navigation menu [5-4](#)
- Definitions, Processes View [6-3](#)
- Definitions - Details Pane [5-3](#)
- Definitions - Getting Started [5-2](#)
- Definitions - Getting Started, Results Pane [5-2](#)
- Definitions Workspace [1-21](#)
- delete calendar [12-19](#)
- Delete runtime user [16-8](#)
- Deleting a Global Variable [11-35](#)
- Deleting a Process Variable [11-35](#)
- Deleting a Security Role [21-22](#)
- Deleting a Task [4-43](#)
- Deleting a Task Rule [19-22](#)
- Deleting Conditions [10-18](#)
- Deleting Conditions from Condition Branch Component [10-18](#)
- Deleting Conditions in Triggers [10-18](#)
- Deleting Processes [7-24](#)
- Deleting target properties [14-31](#)
- Deleting triggers [8-26](#)
- Deleting variable [11-35](#)
- Dependencies, review [22-28](#)
- Dependencies panel [22-23](#)
- Detail Pane, Attributes tab [5-3](#)
- Detail Pane, Categories [18-3](#)
- Details Pane [5-3](#)
- Details pane [1-26](#)
- Details Pane, Attributes tab [6-5](#)
- Details pane, automation pack [22-4](#)
- Details Pane, Calendars [12-3](#)
- Details Pane, General tab [5-3, 6-5](#)
- Details pane, processes [6-5](#)
- Details Pane, Run Options tab [5-3](#)
- Details Pane, Run options tab [6-5](#)
- Details Pane, Runtime User [16-4](#)
- Details Pane, Workflow tab [5-3, 6-5](#)

- Determining New Server Setup Connection Behavior [1-32](#)

- Disable, time zone [20-7](#)
- disable a process [7-21](#)
- disable a target [13-9](#)
- disable a trigger [8-21](#)
- Disabling a target group [15-10](#)
- Disabling a Task Rule [19-16](#)
- Disabling a Time Zone [20-7](#)
- Disabling a trigger [8-21](#)
- Display, refresh [2-10](#)
- Displaying Adapters [20-8](#)
- Displaying Administration - Automation Packs [20-19](#)
- Displaying Administration - Database Settings [20-13](#)
- Displaying Administration - Time Zones [20-5](#)
- Displaying Recent Servers [1-27](#)
- Displaying Tasks Views [3-11](#)
- Duplicate alerts [4-42](#)
- Duplicate properties [B-26](#)
- Duplicate properties, task [B-26](#)
- Duplicate task, remove [4-42, B-63](#)

E

- Edit menu, process editor [6-8](#)
- email address setting [22-9](#)
- Email Configuration panel properties [22-9](#)
- Email Configuration panel properties, default email address [22-9](#)
- Email Configuration panel properties, default SMTP port [22-9](#)
- Email Configuration panel properties, default SMTP server [22-9](#)
- enable a process [7-21](#)
- enable a target [13-9](#)
- enable a trigger [8-21](#)
- Enabling a target group [15-10](#)
- Enabling a Task Rule [19-16](#)
- Enabling a time zone [20-6](#)
- Enabling a trigger [8-21](#)

Event log, publish task [B-10](#)
 Event Log, task [B-10](#)
 Event parameters [A-28](#)
 Event parameters, remove [A-59](#)
 Event Property Page [A-26](#)
 Excluding dates [12-14](#)
 Excluding Dates to Group Calendar [12-14](#)
 Expanding workflow view [6-15](#)
 export a process [22-20](#)
 Export File Location panel [22-25](#)
 Exporting an object [22-20](#)
 Exporting Automation Packs [22-20](#)
 Extended Property Value Updated trigger properties [8-7](#)
 Extended Target Properties [14-1](#)

- Boolean property [14-7](#)
- Creating a Copy of a Extended Target Properties Definition [14-30](#)
- Hidden String target property [14-9](#)
- Identity target property [14-11](#)
- Modify table target property [14-25](#)
- Numeric target property [14-13](#)
- String target property [14-15](#)
- Table target property [14-17](#)
- Target Reference property, Default Property Value panel [14-21](#)
- Target Reference property, type [14-20](#)

Extended Target properties, delete [14-31](#)
 Extended Target Properties definition, copy [14-30](#)
 Extended Target Properties Details Pane [14-4](#)
 Extended Target Property Descriptions [14-3](#)
 External properties [B-5](#)
 Extract Row from Table Properties [D-22](#)

F

Favorites Workspace [1-24](#)
 File menu, process editor [6-8](#)
 Filter Display

- Time [3-21](#)

Filtering My Tasks Display [2-10](#)
 Filtering Processes I Can Run Display [2-12](#)
 Filtering Processes I Have Started Display [2-12](#)
 Find alerts [B-38](#)
 Find Alerts Activity, defining [B-38](#)
 Find Alerts properties [B-39](#)
 Find change requests [B-40](#)
 Find Change Requests Activity, defining [B-40](#)
 Find Change Requests properties [B-41](#)
 Find incidents [B-43](#)
 Find Incidents Activity, defining [B-43](#)
 Find Incidents properties [B-44](#)
 Find String Activity, defining [C-4](#)
 Find String properties [C-5](#)
 Find string results [C-25](#)
 Find Target [A-20](#)
 Find Target Activity, defining [A-20](#)
 Find targets [A-72](#)
 Find Targets properties [A-20](#)
 Find Targets Property Page [A-20](#)
 Find Targets results [A-72](#)
 Folder List Workspace [1-23](#)
 For Each Block, define [9-9](#)
 Format Date [A-23](#)
 Format date [A-73](#)
 Format Date Activity, defining [A-23](#)
 Format Date properties [A-23, A-36](#)
 Format Date Property Page [A-23, A-36](#)
 Format date results [A-73](#)
 Formatting activity view [3-25](#)
 FTP credential properties [A-50](#)

G

General Information Panel [22-8](#)
 General Information panel [22-24](#)
 General task properties [4-7](#)
 General task rule properties [19-5](#)
 Get Task XSL transforms [24-6](#)

- Task XSL transform [24-6](#)
- Getting Started, Operations workspace [3-3](#)
- Getting Started, Processes [5-3](#)
- global variable, delete [11-35](#)
- global variable definition, copy [11-34](#)
- Global Variables
 - Boolean variable properties [11-7](#)
 - Create global variables [11-5](#)
 - Creating a Copy of a Global Variable Definition [11-34](#)
 - Definitions - Global Variables [11-3, 14-2](#)
 - Hidden String variable properties [11-8](#)
 - Identity variable properties [11-10](#)
 - Modify table variables [11-33](#)
 - Numeric variable properties [11-12](#)
 - String variable properties [11-14](#)
 - Table variable general properties [11-16](#)
 - Table variable properties [11-17](#)
- Global Variables Action Menu [11-4, 14-4](#)
- Global Variables Overview [11-3](#)
- group calendar, creating [12-6](#)
- Group Calendar dates, add [12-13](#)
- Group Calendar dates, excluding [12-14](#)
- Group calendar properties [12-7](#)
- Guided Operation, create [4-21, B-49](#)
- Guided Operation Properties [4-22](#)
- Guided Operation properties, create [B-50](#)
- Guided Operation Properties, task [4-22](#)

H

- Help menu, process editor [6-9](#)
- Hidden string global variable, create [11-8](#)
- Hidden String target property [14-9](#)
- Hidden string target property, create [14-8](#)
- Hidden String variable [11-8, 11-23](#)
- Hidden string variable, create [11-23](#)
- Hidden Text question [4-31](#)
- Highlight Row, defining [D-10](#)

- Highlight Row Properties [D-11](#)
- History, category [18-5](#)
- history, knowledge base article [17-6](#)
- History, Runtime User [16-7](#)
- History, Target Type group [15-9](#)
- History, task rules [19-9](#)
- History, tasks [4-10](#)
- History, viewing [4-10, 19-9](#)

- Identity property [14-11](#)
- Identity Target Property, create [14-10](#)
- Identity variable [11-10, 11-25](#)
- Importing Automation Packs [22-7](#)
- Importing Reports [23-11](#)
- Importing Reports, business objects [23-15](#)
- Importing Reports, Report Settings properties [23-11](#)
- Importing Reports into Business Objects [23-15](#)
- Incident, create [4-23](#)
- Incident properties [4-24, B-33](#)
- Incident properties, related [B-36](#)
- Incident properties, task [4-24, B-33](#)
- Incident Task affects properties [4-25](#)
- Input Request, check box [4-32](#)
- Input Request, create [4-27, B-51, B-54](#)
- Input Request, hidden text question [4-31](#)
- Input Request, select [4-33](#)
- Input Request, text question [4-30](#)
- Input Request Properties [4-28](#)
- Input Request Properties, task [4-28](#)
- Insert Core Activity Variable Reference [A-65](#)
- Insert Event [A-26](#)
- Insert Event Activity, defining [A-26](#)
- Insert Event Affects properties [A-29](#)
- Insert Event properties [A-26](#)
- Insert Metric Affects properties [A-42](#)
- Insert Multiple Events Activity, defining [A-30](#)
- Insert Multiple Events properties [A-31](#)

Insert String Activity Variable Reference [C-23](#)
 Insert Table Activity Variable Reference [D-31](#)
 Insert Task Activity Variable Reference [B-65](#)
 Insert Variable Reference [7-21](#)
 IT Record Task Activities [B-17](#)

K

Knowledge Base Article
 Create knowledge base article [17-5](#)
 knowledge base article, create [17-5](#)
 knowledge base article, delete [17-8](#)
 knowledge base article, modify [17-7](#)
 Knowledge Base article, trigger [7-16, 8-9, A-10, B-5, C-5, D-5](#)
 Knowledge Base Article, used by [17-6](#)
 Knowledge base article, viewing history [17-9](#)
 Knowledge Base article properties [17-6](#)
 Knowledge Base Article Properties, viewing [17-4](#)
 Knowledge Base Articles [17-1](#)
 Creating a Copy of a Knowledge Base Article [17-7](#)
 Deleting a Knowledge Base Article [17-8](#)
 History [17-6](#)
 Modifying a Knowledge Base Article [17-7](#)
 Properties [17-6](#)
 Knowledge Base Details Pane [17-3](#)
 Knowledge Base View [17-2](#)

L

Launching TEO Consoles [1-2](#)
 Launching the Console [1-2](#)
 Launching the Web Console [2-2](#)
 License Agreement panel [1-6](#)
 Logic [9-1](#)
 Completed [9-3](#)
 Condition Block [9-4](#)
 Condition Branch [9-7](#)
 For Each Block [9-9](#)

Parallel Block [9-10](#)
 Parallel Block, define [9-10](#)
 Sequential Block [9-12](#)
 While Block [9-15](#)
 Lowercase properties [C-15](#)

M

Managing Automation Pack Files [22-28](#)
 Managing Automation Packs [22-1](#)
 Managing Calendar Definitions [12-12](#)
 Managing Category Definitions [18-6](#)
 Managing Condition Definitions [10-16](#)
 Managing Core Activity Definitions [A-58](#)
 Managing Extended Target Properties [14-1](#)
 Managing Knowledge Base Article Definitions [17-7](#)
 Managing Process Definitions [7-19](#)
 Managing Process Properties [7-20](#)
 Managing Reports [23-1](#)
 Managing Runtime User Definitions [16-8](#)
 Managing Security [21-1](#)
 Managing Security Role [21-9](#)
 Managing String Activity Definitions [C-22](#)
 Managing Table Property Definitions [14-23](#)
 Managing Target Definitions [13-9](#)
 Managing Targets [13-1](#)
 Managing Task Activity Definitions [B-59](#)
 Managing Task Definitions [4-37](#)
 Managing Task Rule Definitions [19-16](#)
 Managing Task Rules [19-1](#)
 Managing the Console [1-27](#)
 Managing Trigger Definitions [8-21](#)
 Managing Variable Definitions [11-32](#)
 Manually Changing the Status [4-39](#)
 manual process execution [7-22](#)
 Matching targets [A-72](#)
 Match Regular Expression [A-3, A-33](#)
 match regular expression activities [A-34](#)
 Match Regular Expression Activity, defining [A-33](#)

Match Regular Expression results [A-74](#)
 member, category properties [18-5](#)
 Members, viewing target groups [15-13](#)
 Members, Virtual target group [15-9](#)
 Menu bar, Actions menu [6-9](#)
 Menu bar, Edit menu [6-8](#)
 Menu bar, File menu [6-8](#)
 Menu bar, Help menu [6-9](#)
 Menu bar, Tools menu [6-9](#)
 Menu bar, View menu [6-8](#)
 Microsoft SCOM Integration [22-13](#)
 Modify category, Removing members [18-7](#)
 Modifying a Core Activity [A-58](#)
 Modifying Activity Definition Properties [7-20](#)
 Modifying a Table Activity [D-29](#)
 Modifying Automation Summary [B-59](#)
 Modifying Category Properties [18-6](#)
 Modifying Conditions [10-17](#)
 Modifying Core Activities [A-58](#)
 Modifying Extended Target Properties [14-23](#)
 Modifying Processes, process properties [7-20](#)
 Modifying Security Role Properties [21-13](#)
 Modifying String Activities [C-22](#)
 Modifying String Target Properties [14-24](#)
 Modifying string variable properties [11-32](#)
 Modifying target groups [15-11](#)
 Modifying Task Types in Task Rule [19-21](#)
 Modifying the Assignment Properties [B-61](#)
 Modifying the assignment properties for an activity [B-60](#)
 Modifying the assignment properties for a task [4-39, 19-20](#)
 Modifying the Date and Time Appearance [1-35](#)
 Modifying the list of Recent Servers [1-32](#)
 Modifying the recipients for a task rule [19-21](#)
 Modifying the Windows and Layout of the Console [1-33](#)
 Modifying triggers [8-21](#)
 Modifying variable properties [11-32](#)
 Modify runtime user definition [16-8](#)
 Monthly Recurrence Pattern [12-17](#)
 Multiple Events Property Page [A-31](#)

N

Namespace, add [A-59](#)
 Namespace Examples [A-60](#)
 navigating
 console [1-7](#)
 Navigating Process Editor [6-8](#)
 Navigating Web Console [2-5](#)
 Normal Operators [10-3](#)
 Notes properties [4-9](#)
 Notes properties, task [4-9](#)
 Notification properties [4-8](#)
 Notification properties, task [4-8](#)
 Notify task rule, create [19-10](#)
 Notify task rule properties [19-11](#)
 Numeric property [14-13](#)
 Numeric Property, create [14-12](#)
 Numeric variable [11-12, 11-26](#)

O

Objects to Export panel [22-20](#)
 Operations
 Access activity views [3-18](#)
 Access auditing logs [3-37](#)
 Access process views [3-32](#)
 Access Tasks view [3-10](#)
 Activities [3-18](#)
 Activity View format, modifying [3-25](#)
 Activity Views details pane [3-23](#)
 Activity views header [3-20](#)
 Auditing details pane [3-38](#)
 Disabling a process [7-21](#)
 Enabling a process [7-21](#)
 Filter Activity Display
 by Category, by Name, by Description, by State [3-21](#)
 Filter Display
 by Date [3-21](#)

- by Time [3-21](#)
- Filtering the Activity View [3-26](#)
- Filtering the activity view, date [3-27](#)
- Filtering the activity view, end time
 - Querying Activities by End Time Period [3-28](#)
- Filtering the activity view, navigating time period [3-31](#)
- Filtering the activity view, specific date [3-30](#)
- Filtering the activity view, specific date, selecting [3-30](#)
- Filtering the activity view, specific end time [3-29](#)
- Filtering the activity view, start time [3-26](#)
- Filter Process Display
 - by Category, by Name, by Description, by Automation Pack [3-33](#)
- Getting Started [3-3](#)
- Processes [3-32](#)
 - Procedures [3-25](#)
- Processes View results pane [3-33](#)
- Processes View results pane, header [3-33](#)
- Processes Views results pane, activity instance [3-35](#)
- Processes Views results pane, process instance [3-34](#)
- Process Viewer [3-24](#)
- Process Views details pane [3-35](#)
- Process Workflow Viewer [3-24](#)
- Search Tasks details pane [3-5](#)
- Search Tasks view [3-4](#)
- Search Work details pane [3-15](#)
- Search Work view [3-13](#)
- Select Date Dialog, select date [3-30](#)
- Select Day Offset Dialog, select day offset [3-30](#)
- Starting a process [7-22](#)
- Tasks View details pane [3-12](#)
- View activity instance properties [3-31](#)
- View Activity View Information [3-19, 3-33](#)
- View Adhoc activities [3-19, 3-33](#)
- View All activities [3-19, 3-33](#)
- Viewing Auditing Information [3-37](#)
- Viewing Audit Log Properties [3-39](#)
- View Scheduled activities [3-19, 3-33](#)

- View Triggered activities [3-19, 3-33](#)
- Operations Workspace [1-20](#)
- Options dialog, Dates & Times Tab [1-15](#)
- Options dialog, Refresh Tab [1-16](#)
- Options dialog, Security Tab [1-13](#)
- Options Dialog, Windows and Layout Tab [1-14](#)
- Overriding Process Target [2-15](#)
- Overwriting Existing Objects [22-15](#)
- Owning a Task [2-13](#)

P

- Parameter properties [4-9, A-28, B-4](#)
- Parameter properties, event [A-28](#)
- Parameter properties, task [4-9, B-4](#)
- Parse Date [A-36](#)
- Parse Date, results [A-75](#)
- Parse Date Activity, defining [A-36](#)
- parse text [A-34](#)
- Performing Web Console Tasks [2-10](#)
- Pre-defined Security Permissions [21-3](#)
- Predefined Security Rules [21-3](#)
- Printing Workflows [6-14](#)
- Prior Process Instances Condition, create [10-10](#)
- process, category [18-7](#)
- Process, deleting [7-24](#)
- Process authoring [7-1](#)
- Process definitions, modifying [7-19](#)
- Process Editor [6-1](#)
- Process Editor, collapse view [6-15](#)
- Process Editor, expand view [6-15](#)
- Process Editor, menu bar [6-8](#)
- Process Editor, navigating [6-8](#)
- Process Editor, resize view [6-16](#)
- Process Editor, toggling [6-15](#)
- Process Editor, toolbox [6-11](#)
- Process Editor, Using [6-13](#)
- Process Editor Properties Pane [6-12](#)
- Process Editor Toolbar [6-9](#)

- Process Editor Workflow pane [6-11](#)
- processes, viewing used by objects [7-25](#)
- Processes Action menu and toolbar options [6-4](#)
- Processes Details Pane [6-5](#)
- Processes view [6-3](#)
- Processes view header [3-33](#)
- processes view results pane [3-33](#)
- Process instance results pane [3-34](#)
- process instances, viewing [3-24](#)
- process instance workflows, viewing [3-24](#)
- Process Launch Settings [1-33](#)
- Process properties [6-12](#)
- Process properties, categories [7-13](#)
- Process properties, credentials [7-9](#)
- Process properties, General tab [7-4](#)
- Process properties, options tab [7-5](#)
- Process properties, target [7-7](#)
- Process properties, triggers [7-12](#)
- Process properties, variables [7-10](#)
- Process target, override [2-15](#)
- process variable, delete [11-35](#)
- Process Variables
 - Accessing Process Variables [11-19](#)
 - Boolean variable properties [11-22](#)
 - Hidden String variable properties [11-23](#)
 - Identity variable properties [11-25](#)
 - Numeric variable properties [11-26](#)
 - String variable properties [11-28](#)
 - Table variable general properties [11-30](#)
 - Table variable properties [11-30](#)
- Process Variables Overview [11-18](#)
- Process views, accessing [3-32](#)
- Process Views details pane [3-35](#)
- Product tasks [4-7](#)
- properties, activity instance [3-31](#)
- Properties, add row [D-5](#)
- Properties, Add Row to Table [D-5](#)
- properties, Analyze Table [D-8](#)
- Properties, approval request [4-16, B-47](#)
- Properties, Assign Task [B-8](#)
- properties, automation summary [24-4](#)
- properties, Calculate Date [A-12, A-15](#)
- Properties, change request [4-19, B-29](#)
- properties, Correlate Alerts [B-18](#)
- properties, Create Automation Summary [A-17](#)
- Properties, Create Change Request [B-31](#)
- Properties, Create Guided operation [B-50](#)
- Properties, Create Incident [B-35](#)
- Properties, Create input request [B-52](#)
- Properties, Create input request from Table [B-55](#)
- Properties, credentials [7-15](#)
- Properties, Extract Rows [D-22](#)
- Properties, Find String [C-5](#)
- Properties, Find Targets [A-20](#)
- properties, Format Date [A-23, A-36](#)
- Properties, guided operation [4-22](#)
- properties, Highlight Row [D-11](#)
- Properties, input request [4-28](#)
- properties, Insert Event [A-26](#)
- properties, Insert Multiple Events [A-31](#)
- properties, knowledge base article [17-6](#)
- properties, match regular expression [A-34](#)
- Properties, Notify task rule [19-11](#)
- Properties, Provides [24-8](#)
- properties, Publish Metric [A-38](#)
- properties, Publish Multiple Metrics [A-41](#)
- Properties, Publish Task to Event Log [B-10](#)
- properties, Read Table from Text [D-13](#)
- properties, Read Table from XML [D-16](#)
- Properties, Remove row [D-19](#)
- Properties, Remove Row from Table [D-19](#)
- properties, Replace String [C-8](#)
- Properties, result handler [7-16, A-11, B-6, C-6, D-6](#)
- Properties, review [4-36](#)
- Properties, review request [B-58](#)
- properties, ROI [24-3](#)
- Properties, Search criteria [B-39, B-41, B-44](#)
- Properties, Select from Table [D-22](#)

properties, Set Target Reference [A-43](#)
 properties, Set Variable [A-45](#), [A-46](#)
 properties, Sleep [A-48](#)
 properties, Split String [C-10](#)
 properties, String Escape [C-13](#)
 Properties, String Lowercase [C-15](#)
 Properties, String Uppercase [C-17](#)
 Properties, Substring [C-19](#)
 Properties, Target [7-14](#)
 Properties, Test FTP Destination activity [A-50](#)
 Properties, Trim String [C-21](#)
 Properties, Update Row in Table [D-27](#)
 Properties, Update Rows [D-27](#)
 Properties, viewing triggers [8-2](#)
 Properties, Wait for Task to Enter State [B-15](#)
 Publish Metric Activity, defining [A-38](#)
 Publish Metric properties [A-38](#)
 Publish Metric Property Page [A-38](#)
 Publish Multiple Metrics Activity, defining
 Publish Multiple Metrics [A-41](#)
 Publish Multiple Metrics properties [A-41](#)
 Publish Multiple Metrics Property Page [A-41](#)
 Publish task, event log [B-10](#)
 Publish Task to Event Log Activity [B-10](#)
 Publish Task to Event Log Activity, defining [B-10](#)
 Publish Task to Event Log properties [B-10](#)

Q

Querying Activities by Start Time Period [3-26](#)
 Querying Activities by the Date Range [3-27](#)

R

Read Table from Text Activity, defining [D-12](#)
 Read Table from Text Properties [D-13](#)
 Read Table from Text Property Page [D-13](#)
 Read Table from XML Activity, defining [D-14](#)

Read Table from XML Properties [D-16](#)
 Read Table Property Page [D-16](#)
 Read table results [D-34](#)
 Recurrence properties [12-10](#)
 recurring calendar, creating [12-9](#)
 recurring calendar, monthly [12-17](#)
 recurring calendar, weekly [12-16](#)
 recurring calendar, yearly [12-18](#)
 recurring calendar properties [12-15](#)
 Recurring calendars, properties [12-10](#)
 Refreshing References in Automation Pack View [22-34](#)
 Refreshing the Display [2-10](#)
 Refreshing the View [1-29](#)
 Refresh objects list [22-34](#)
 Refresh Tab, Options dialog [1-16](#)
 Regular Expression Examples [A-35](#)
 Regular Expression properties [A-34](#)
 Reinstating Server Automation
 Reinstate automation [1-29](#)
 Related alert, remove [B-64](#)
 Related properties, create incident [B-36](#)
 Related task, add [4-43](#)
 Related task, remove [4-43](#)
 Remove alert, related [B-64](#)
 Remove dates [12-12](#)
 Remove related alert [B-64](#)
 Remove related task [4-43](#)
 Remove Row from Table, defining [D-18](#)
 Remove Row from Table Properties [D-19](#)
 Remove row properties [D-19](#)
 Remove task, related [4-43](#)
 Removing a category from a task [4-41](#)
 Removing a Column from Converted XML Table [D-30](#)
 Removing a Duplicate Task [4-42](#), [B-63](#)
 Removing an Assignee [B-61](#)
 Removing an Assignee from Task Activity [B-61](#)
 Removing a Related Alert [B-64](#)
 Removing a Related Task [4-43](#)
 Removing a Report Database Connection [23-10](#)

- Removing Assignee, task [B-61](#)
 - Removing Conditions from Task Rule [19-18](#)
 - Removing dates from calendar list [12-12](#)
 - Removing event parameters [A-59](#)
 - Removing event parameters from activity [A-59](#)
 - Removing members from category [18-7](#)
 - Removing Namespace and XPath Queries [A-63](#)
 - Removing namespaces [A-63](#)
 - removing objects [22-33](#)
 - Removing Objects from Automation Pack [22-33](#)
 - Removing parameters from a task [4-40](#)
 - Removing Replacement String Properties [C-23](#)
 - Removing Security Objects [21-21](#)
 - Removing Security Permissions [21-21](#)
 - Removing Task Properties from a Task Rule [19-19](#)
 - Removing XPath queries [A-63](#)
 - Renaming processes [6-13](#)
 - Replace String [C-7](#)
 - Replace String Activity, defining [C-7](#)
 - Replace String properties [C-8](#)
 - Replace String Property Page [C-8](#)
 - Replace string results [C-26](#)
 - Report database properties, viewing [20-16](#)
 - Reporting Database connection properties [23-7](#)
 - Reports, Business Objects InfoView [23-32](#)
 - Resetting User Preferences [1-34](#)
 - Resizing workflow view [6-16](#)
 - Resolve tasks [4-37](#)
 - Resolving a Task [4-37](#)
 - Resolving Tasks, web console [2-13](#)
 - Resolving tasks in a Web consoles [2-13](#)
 - Restoring Console Default Settings [1-34](#)
 - Result handler properties [7-16, A-11, B-6, C-6, D-6](#)
 - Results [A-70, A-71, A-72, A-73](#)
 - Results, Analyze Table [D-33](#)
 - Results, Correlate Alerts [B-68](#)
 - Results, find string [C-25](#)
 - Results, Read Table from XML [D-34](#)
 - Results, replace string [C-26](#)
 - Results, Select from Table [D-35](#)
 - Results, Set Table Variable [D-36](#)
 - Results, Split string [C-27](#)
 - Results, String escape [C-28](#)
 - Results, String Lowercase [C-29](#)
 - Results, String Uppercase [C-30](#)
 - Results, Substring [C-31](#)
 - Results, trim string [C-32](#)
 - Results, Wait for Task to Enter State [B-71](#)
 - Results pane [1-25, 5-2](#)
 - Return on Investment [24-3](#)
 - Reverse Process Changes [6-14](#)
 - Review, create [4-35](#)
 - Review automation pack dependencies [22-28](#)
 - Reviewing Automation Pack Dependencies [22-28](#)
 - Review Prerequisites properties [22-14](#)
 - Review Properties [4-36](#)
 - Review Properties, task [4-36](#)
 - Review Request [B-57](#)
 - Review Request Activity, defining [B-57](#)
 - Review Request Properties, task [B-58](#)
 - ROI, configuring [24-3](#)
 - Runtime user, creating [16-6](#)
 - runtime user, deleting [16-8](#)
 - Runtime User, Used by [16-7](#)
 - runtime user, viewing history [16-9](#)
 - runtime user, viewing used by object [16-9](#)
 - Runtime User Details Pane [16-4](#)
 - Runtime User history, viewing [16-7](#)
 - Runtime Users [16-1](#)
 - Definitions - Runtime users [16-2](#)
 - Runtime User Properties [16-6](#)
 - Runtime Users, Actions menu and toolbar [16-4](#)
-
- ## S
- Saving a Copy of Processes [6-13](#)
 - Saving processes [6-13](#)
 - Saving Processes, copy [6-13](#)

- Schedule trigger properties [8-11, 8-12](#)
- Search Criteria Properties, task [B-39, B-41, B-44](#)
- Searching Work [3-13](#)
- Search Tasks, accessing [3-4](#)
- Search Tasks details pane [3-5](#)
- Search Work, accessing [3-13](#)
- Search Work details pane [3-15](#)
- Security Details Pane [21-4](#)
- Security permissions [21-3](#)
- Security role, viewing history [21-23](#)
- Security rule properties [21-5](#)
- Security rules assigned to Local User Groups [21-9](#)
- Security tab, Options dialog [1-13](#)
- Security view, accessing [21-2](#)
- select day offset [3-30](#)
- Select from Table, defining [D-21](#)
- Select from Table Properties [D-22](#)
- Select from Table results [D-35](#)
- Selecting an Extended Target Property [8-22](#)
- Select question [4-33](#)
- Select Time Offset Dialog, select time offset [3-29](#)
- Server connection [1-27](#)
- Server display [1-27](#)
- Server properties, view [1-28](#)
- Service Target, define [13-8](#)
- Set Table Variable, defining [D-25](#)
- Set Table Variable properties [D-25](#)
- Set Table Variable results [D-36](#)
- Set Target Reference, results [A-76](#)
- Set Target Reference Activity [A-43](#)
- Set Target Reference properties [A-43](#)
- Set Target Reference Property Page [A-43](#)
- Set Variable, results [A-77](#)
- Set Variable Activity [A-45](#)
- Set Variable properties [A-46](#)
- Set Variable Property Page [A-46](#)
- Sleep Activity [A-48](#)
- SMTP port [22-9](#)
- SMTP server setting [22-9](#)
- Sorting Namespaces [A-63](#)
- Sorting Task Rules [19-22](#)
- Sorting the Namespace and XPath Queries [A-63](#)
- Sorting XPath Queries [A-63](#)
- Specifying Days to Offset Query [3-30](#)
- Specifying event parameters for activity [A-58](#)
- Specifying parameters for a task [4-40](#)
- Specifying target using algorithm criteria [8-25, 13-11](#)
- Specifying Time Period to Offset Query [3-29](#)
- Specifying XSL File Path [A-64](#)
- specify parameters, event [A-58](#)
- Specify Process Triggers [7-12](#)
- Split String, defining [C-10](#)
- Split String Properties [C-10](#)
- Split String Property Page [C-10](#)
- Split string results [C-27](#)
- SQL reporting services reports [22-13](#)
- Standard toolbar [1-18](#)
- Started by User trigger properties [8-13](#)
- Starting processes [2-14](#)
- Starting Processes in Web Console [2-14](#)
- start process, adhoc [7-22](#)
- State of tasks [4-6](#)
- status indicators [3-22](#)
- status indicators, color [3-23](#)
- String Activities [C-1](#)
- String activity variable reference, insert [C-23](#)
- String Escape Activity, defining [C-12](#)
- String Escape Properties [C-13](#)
- String Escape Property Page [C-13](#)
- String Escape results [C-28](#)
- String escapes [C-2](#)
- String Lowercase, defining [C-14](#)
- String Lowercase Properties [C-15](#)
- String Lowercase results [C-29](#)
- String property [14-15](#)
- String Target Property, create [14-14](#)
- String Uppercase, defining [C-16](#)
- String Uppercase Properties [C-17](#)

String Uppercase results [C-30](#)
 String variable [11-14, 11-28](#)
 String variable, modify [11-32](#)
 Substring, defining [C-18](#)
 Substring Properties [C-19](#)
 Substring results [C-31](#)
 supported adapter objects [20-11, 24-8](#)
 Suspending Server Automation
 Suspend automation [1-28](#)

T

Table [11-33, 14-25](#)
 Table Activities [D-1](#)
 Table activities [C-2, D-2](#)
 Table Activity, modify [D-29](#)
 Table Activity Definitions [C-2, D-2](#)
 Table activity variable reference, insert [D-31](#)
 Table column, add [11-33, 14-26](#)
 Table Expressions [D-3](#)
 Table Format Property Page [D-11](#)
 Table properties [11-17, 11-30](#)
 Table property [14-17](#)
 Table row, add [14-27](#)
 Table Target Property, create [14-16](#)
 Table variable [11-16, 11-30](#)
 Taking Ownership of a Task [2-13](#)
 Taking ownership of a task [4-39, 19-20, B-60](#)
 Target, trigger [8-8](#)
 Target Algorithms [13-6](#)
 Target descriptions [13-5](#)
 Target group, copy [15-12](#)
 target group, disable [15-10](#)
 target group, enable [15-10](#)
 Target Group Details Pane [15-4](#)
 Target Groups [15-1](#)
 Create a Target Type Target Group [15-5](#)
 Create a Virtual Target Group [15-8](#)
 Delete a Target [13-13](#)
 Delete a Target Group [15-12](#)
 Delete target group [15-10](#)
 Modify target group [15-10](#)
 Properties [15-4](#)
 Virtual, members [15-9](#)
 target groups, modify [15-11](#)
 Target properties [7-14](#)
 Target property, Boolean [14-7](#)
 target property, viewing history [14-32](#)
 target property, viewing used by objects [14-31](#)
 Target Reference Property, create [14-19](#)
 Targets
 Creating a Copy of a Target Definition [13-13](#)
 Disabling a target [13-9](#)
 Enabling a target [13-9](#)
 Member of [13-13](#)
 Modify targets [13-10](#)
 Properties [13-4](#)
 Used by, targets [13-14](#)
 Viewing target history [13-14, 15-14](#)
 targets, viewing history [13-14, 15-14](#)
 Targets, viewing members of [13-13](#)
 targets, viewing used by objects [13-14](#)
 Targets Action Menu [13-3](#)
 Targets Detail Pane [13-4](#)
 Targets Toolbar [13-3](#)
 Target Type Group, criteria [15-6](#)
 Target Type Group History, viewing [15-9](#)
 Target Type Target group, Used by [15-9, 18-5](#)
 Target Type Used by target group [15-9, 18-5](#)
 Task, assigning category [4-41](#)
 Task, delete [4-43](#)
 Task, removing category [4-41](#)
 Task, removing parameters [4-40](#)
 task, viewing history [4-44, 19-23](#)
 Task Activities [B-1](#)
 Task Activities Overview [B-2](#)
 Task activity variable reference, insert [B-65](#)
 Task affects properties [4-13](#)

- Task alert properties [4-12](#)
- Task approval properties [4-16](#)
- Task assignment properties [4-8, B-4](#)
- Task categories [4-9, B-4](#)
- Task changed criteria trigger properties [8-16](#)
- Task change request properties [4-19](#)
- Task criteria [8-14](#)
- Task criteria, changed [8-16](#)
- Task criteria trigger properties [8-14](#)
- task due date properties [B-61](#)
- task expiration properties [B-61](#)
- Task external properties [B-5](#)
- Task Guided Operation properties [4-22](#)
- task history [4-44](#)
- Task incident properties [4-24, B-33](#)
- Task input request properties [4-28](#)
- Task - IT Records [B-17](#)
- Task notes [4-9](#)
- Task notifications [4-8](#)
- Task parameters [4-9, B-4](#)
- task priority [B-61](#)
- Task Properties [24-8](#)
- Task properties [4-4](#)
- Task properties, external [B-5](#)
- Task properties, web form [B-5](#)
- Task review properties [4-36](#)
- Task revised criteria, trigger properties [8-17](#)
- Task rule, delete [19-22](#)
- Task Rule, disable [19-16](#)
- Task Rule, enable [19-16](#)
- Task Rule, remove [19-18](#)
- Task rule, removing task properties [19-19](#)
- Task Rule properties, add [19-19](#)
- Task Rules [19-1](#)
- task rules [19-23](#)
- Task Rules, sort [19-22](#)
- Tasks [4-7](#)
- Tasks, specify parameters [4-40](#)
- Task state [B-14](#)
- Task Status [4-6](#)
- Task status, change [4-39](#)
- Tasks view, accessing [3-10, 4-2, 19-3](#)
- Tasks View details pane [3-12](#)
- Task trigger properties [8-14, 8-16](#)
- Task View
 - Viewing Task Properties [4-3, 19-4](#)
- Task XSL transform properties [24-6](#)
- Test FTP Destination, defining [A-49](#)
- Test FTP Destination, results [A-78](#)
- Test FTP Destination properties [A-50](#)
- Text question [4-30](#)
- Tidal Enterprise Orchestrator Adapters [20-9](#)
- Time condition, create [10-12](#)
- Time condition properties [10-13](#)
- time offset, select [3-29](#)
- Time zone, enable [20-6](#)
- Time zone details pane [20-6](#)
- Time Zone properties, viewing [20-7](#)
- Time zones, viewing [20-5](#)
- Toggling process view [6-15](#)
- Toolbar [1-19](#)
- Toolbars, Actions [1-19](#)
- Toolbars, Advanced [1-19](#)
- Toolbars, Standard [1-18](#)
- Toolbox [6-11](#)
- Tools menu, process editor [6-9](#)
- trial license [1-2](#)
- trigger, disable [8-21](#)
- trigger, enable [8-21](#)
- Trigger Descriptions [8-3](#)
- Trigger knowledge base article [7-16, 8-9, A-10, B-5, C-5, D-5](#)
- Triggers [8-1](#)
 - Defining an Extended Property Value Updated Trigger [8-6](#)
 - Defining a Schedule Trigger [8-10](#)
 - Defining a Started by Parent Process Trigger [8-12](#)
 - Defining a Started by User Trigger [8-13](#)
 - Defining a Variable Updated Trigger [8-19](#)

Extended Property Value Updated Properties [8-7](#)
 Revised Criteria Properties [8-17](#)
 Schedule properties [8-11, 8-12](#)
 Started by User properties [8-13](#)
 Task Changed Criteria Properties [8-16](#)
 Task Criteria Properties [8-14](#)
 Task General Properties [8-14, 8-16](#)
 Variable Updated Properties [8-19](#)
 Triggers, conditions [8-9](#)
 Triggers, delete [8-26](#)
 Triggers, modify [8-21](#)
 Trigger target [8-8](#)
 Trim String, defining [C-20](#)
 Trim String Properties [C-21](#)
 Trim string results [C-32](#)

U

Understanding the My Tasks page, web console [2-6](#)
 Understanding the Navigation Bar, web console [2-5](#)
 Understanding the Processes I Have Started page, web console [2-8](#)
 Understanding the Run Processes page, web console [2-7](#)
 Understanding the Toolbars [1-18](#)
 Understanding the Workspaces [1-20](#)
 Update Alert properties [B-13](#)
 Update Approval Request Properties [B-13](#)
 Update Guided Operation Properties [B-13](#)
 Update Incident properties [B-13](#)
 Update Input Request Properties [B-13](#)
 update license [1-2](#)
 Update Review Request Properties [B-13](#)
 Update Row in Table, defining [D-27](#)
 Update Row in Table Properties [D-27](#)
 Uppercase Properties [C-17](#)
 Used by, categories [18-9](#)
 Used by, target groups [15-13](#)
 Used by knowledge base articles [17-6](#)
 Used by processes [7-25](#)

Used by runtime user [16-7, 16-9](#)
 Used by target property [14-31](#)
 Used by variable [11-35](#)
 Using String Activities [C-1](#)
 Using Table Activities [D-1](#)
 Using the Actions menu [1-17](#)
 Using the Choose Column Dialog [1-29](#)
 Using the Edit menu [1-9](#)
 Using the File menu [1-8](#)
 Using the Go menu [1-10](#)
 Using the Help menu [1-17](#)
 Using the Process Editor [6-1](#)
 Using the Tools menu [1-11](#)
 Using the View menu [1-9](#)

V

Validate Objects panel [22-25](#)
 variable, viewing history [11-36](#)
 variable, viewing used by objects [11-35](#)
 Variable condition, create [10-14](#)
 Variable condition properties [10-15](#)
 Variable Descriptions [11-2](#)
 variable reference, insert [7-21](#)
 Variable references
 Activity [A-65, B-65, C-24, D-31](#)
 Variables [11-1](#)
 Variable Updated trigger properties [8-19](#)
 View, refresh [1-29](#)
 view adhoc activities [3-19, 3-33](#)
 view all activities [3-19, 3-33](#)
 View Automation Summary [4-38](#)
 View Automation Summary in Web Console [2-17](#)
 view calendar [12-12](#)
 View Category history [18-5](#)
 View category history [18-9](#)
 Viewing Activity Instance Information
 Table Activities [D-32](#)
 Viewing adapter history [24-9](#)

- Viewing Adapter-Supported Objects [24-8](#)
- Viewing Administration - Getting Started [20-2](#)
- Viewing Administration - Time Zones [20-5](#)
- Viewing Analyze Table Results [D-33](#)
- Viewing Assign Instance Information
 - Task Activities [B-67](#)
- viewing audit logs [3-39](#)
- Viewing Automation Pack Properties [22-5](#)
- Viewing Automation Summary [4-38](#)
- Viewing Automation Summary, web console [2-17](#)
- Viewing Automation Summary Reports [A-68](#)
- Viewing Built-in Processes [6-6](#)
- Viewing Calculated Date Difference [A-71](#)
- Viewing Calculated Date Information [A-70](#)
- Viewing categories [18-2](#)
- Viewing Core Activity Instance Results [A-67, C-25](#)
- Viewing Correlated Alert Results [B-68](#)
- Viewing Find String results [C-25](#)
- Viewing Global Variable Properties [11-6, 14-4](#)
- Viewing History Property Page [7-25](#)
- Viewing Knowledge Base Article history [17-9](#)
- Viewing Knowledge Base Article Properties [17-4](#)
- Viewing Match Regular Expression Activity Results [A-74](#)
- viewing objects, provides [20-11, 24-8](#)
- Viewing Parsed Date Results [A-75](#)
- Viewing Pre-defined Security Rules [21-9](#)
- Viewing Process Activity Information [2-16](#)
- Viewing Processes [6-2](#)
- Viewing Processes I Have Started [2-16](#)
- Viewing Process Properties [18-5](#)
- Viewing Process Properties from Members Tab [18-5](#)
- Viewing Read Table from XML Results [D-34](#)
- Viewing Replace String results [C-26](#)
- Viewing Report Database Properties [20-16](#)
- Viewing runtime user history [16-9](#)
- Viewing Security Role history [21-23](#)
- Viewing Security Role User Assignments [21-20](#)
- Viewing Security Rule Properties [21-5](#)
- Viewing Select from Table Activity Results [D-35](#)
- Viewing Server Properties [1-28](#)
- Viewing Set Table Variable Activity Results [D-36](#)
- Viewing Set Target Reference Results [A-76](#)
- Viewing Set Variable Results [A-77](#)
- Viewing Split String results [C-27](#)
- Viewing String Escape results [C-28](#)
- Viewing String Lowercase results [C-29](#)
- Viewing String Uppercase results [C-30](#)
- Viewing Substring results [C-31](#)
- Viewing target group members [15-13](#)
- Viewing target group properties [15-4](#)
- Viewing target properties [13-4](#)
- Viewing target property history [14-32](#)
- Viewing task history [4-44](#)
- Viewing task rules history [19-23](#)
- Viewing TEO Ports [20-3](#)
- Viewing Test FTP Destination Results [A-78](#)
- Viewing the Details Pane [1-26](#)
- Viewing the Find Targets Results [A-72](#)
- Viewing the Formatted Date Result [A-73](#)
- Viewing the Results Pane [1-25](#)
- Viewing Time Zone Properties [20-7](#)
- Viewing trigger properties [8-2](#)
- Viewing Trim String results [C-32](#)
- Viewing used by target group objects [15-13](#)
- Viewing variable history [11-36](#)
- Viewing Wait for Task to Enter State Results [B-71](#)
- Viewing XSL Transform Activity Results [A-80](#)
- View menu, process editor [6-8](#)
- view process instances [3-24](#)
- view process instance workflows [3-24](#)
- View runtime user history [16-7](#)
- views, global variables [11-3, 14-2](#)
- views, process variables [11-19](#)
- views, runtime users [16-2](#)
- view scheduled activities [3-19, 3-33](#)
- View Target Type group history [15-9](#)
- View task history [4-10](#)
- View task rule history [19-9](#)

view triggered activities [3-19, 3-33](#)

W

Wait for Task to Enter State, task [B-15](#)

Wait for Task to Enter State Activity [B-14](#)

Wait for Task to Enter State Activity, defining [B-14](#)

Wait for Task to Enter State properties [B-15](#)

Web console, resolve tasks [2-13](#)

Web console, start process [2-14](#)

Web Console My Tasks page [2-6](#)

Web Console navigation bar [2-5](#)

Web Console Processes I Have Started page [2-8](#)

Web Console Requirements [2-2](#)

Web Console Run Processes page [2-7](#)

Web form properties, task [B-5](#)

Web Form Task Properties [B-5](#)

Weekly Recurrence Pattern [12-16](#)

Welcome to the Automation Pack Import Wizard Panel [22-7](#)

Windows and Layout Tab, Options Dialog [1-14](#)

Windows user, creating [16-5](#)

Windows User properties [16-6](#)

Workflow component [9-1](#)

 Completed [9-3](#)

 Condition Block [9-4](#)

 Condition Branch [9-7](#)

 For Each Block [9-9](#)

 parallel block [9-10](#)

 Sequential block. Sequential block, define [9-12](#)

 While block. While block, define [9-15](#)

Workflows, print [6-14](#)

Workspace [1-21](#)

X

XPath Query Definition, add [A-61](#)

XPath Query properties [A-53](#)

XSL Transform activity [A-55](#)

xsl transform properties [A-55, A-56](#)

XSL Transform results [A-80](#)

Y

Yearly Recurrence Pattern [12-18](#)