

Cisco Unified Service Statistics Manager 8.5

Deployment Best Practices Deployment Guide

June, 2011

For further information, questions and comments please contact ccbu-pricing@cisco.com

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Introduction

This document outlines best practices for a successful deployment of Cisco Unified Service Statistics Manager (SSM). It documents the initial deployment and ongoing operational environments.

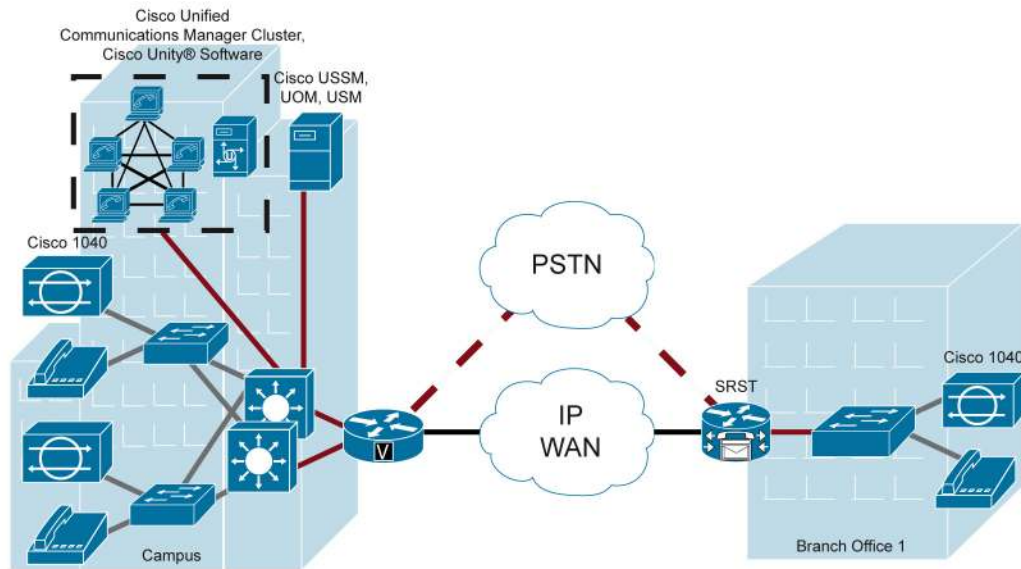
This document is not an alternative to the installation guide or the user guide, as it does not cover all the features and functions of the product. It is a supplement to the installation guide and the user guide. Detailed steps are provided for best practices wherever relevant.

Product Overview

Cisco® Unified Service Statistics Manager, which is part of the Cisco Unified Communications Management Suite, provides advanced statistics analysis and reporting capabilities for Cisco Unified Communications deployments. Cisco Unified Service Statistics Manager 8.5 is an easy-to-use web-based software product that features a variety of advanced reports for executive, operations, and capacity planning functions. Cisco Unified Service Statistics Manager provides ready-made reports as well as customizable reports that provide visibility into key metrics including call volume, call quality, resource utilization, and capacity across the Cisco Unified Communications System, including across multiple Cisco Unified Communications Manager (formerly known as Cisco Unified CallManager) clusters, gateways, and related devices. It helps enable users to view information based on network, service, business, and user criteria and to define service-level agreement (SLA) constructs as well as to measure and verify them based on collected Unified Communications statistics. Customizable report templates and automatic report invocation and scheduling provide users with a great deal of flexibility.

Cisco Unified Service Statistics Manager 8.5 can be deployed for statistics analysis and reporting for small, medium-sized, and large Cisco Unified Communications deployments. Cisco Unified Service Statistics Manager 8.5 integrates with and relies on the data collection capabilities of Cisco Unified Operations Manager (UOM) 8.5 and Cisco Unified Service Monitor (USM) 8.5; the latter two products are prerequisites for the deployment of Cisco Unified Service Statistics Manager 8.5. For small and medium-sized deployments (generally up to 10,000 Cisco Unified IP phones), Cisco Unified Service Statistics Manager 8.5, Cisco Unified Service Monitor 8.5, and Cisco Unified Operations Manager 8.5 may be deployed on the same Windows-based server/workstation. For larger deployments, it is recommended that Cisco Operations Manager 8.5 be run on a separate server. Figure 1 shows a sample deployment.

Figure 1. Deployment Example



Features and Benefits

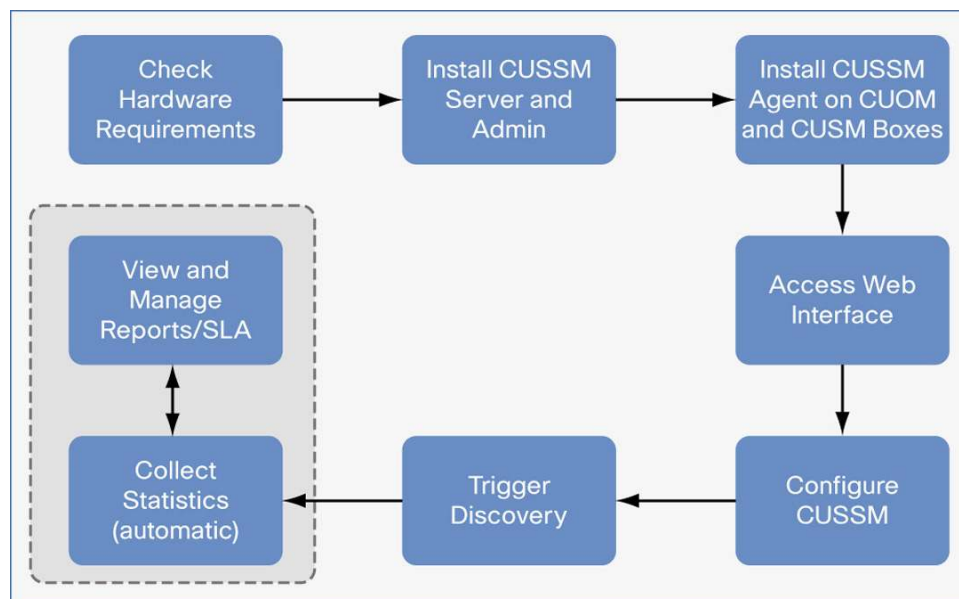
Cisco Unified Service Statistics Manager provides the following features and benefits:

- Integrates with and uses the data collection capabilities of Cisco Unified Operations Manager and Cisco Unified Service Monitor to harvest and consolidate Cisco Unified Communications statistics information from a variety of Cisco devices and systems, including Cisco Unified Communications Manager, Cisco Unified Communications Manager Express (formerly known as Cisco Unified Call Manager Express), Cisco Unity® software, Cisco Unity Connection, Cisco Unity Express, and Cisco IOS® Software-based voice gateways; the collected data stored in a consolidated database can be partitioned based on a variety of network, service, user, and business criteria for detailed analysis and reporting.
- Provides a variety of ready-made reports on key metrics including call volume, call quality, and resource utilization across the Cisco Unified Communications System. Cisco Unified Service Statistics Manager 8.5 provides a variety of reports for executive, operations, and capacity planning personnel. These include:
 - Call volume, call duration, service quality, call completion, and mean opinion score (MOS) reports across multiple Cisco Unified Communications Manager clusters, with capabilities to get more information about specific clusters and time periods
 - A variety of top-N reports based on calls, users, endpoints, and other entities in the Cisco Unified Communications deployment
 - Gateway and trunk traffic and utilization reports over time, with capacity trending and capabilities to get more detailed information
 - Call failure analysis reports over time, including cause code information
 - Top-N upgrade and downgrade candidates reports for capacity planning and trending
 - IP phone and inventory reports
 - IP telephony testing reports, including IP SLA test results over time

- A variety of exception and operations reports, including most frequently dialed numbers, longest calls, calls to specified number, and more
- A variety of SLA reports, including SLA capacity trends, SLA compliance history, SLA executive summary, SLA health summary, and more
- Helps enable the user to personalize reports, customizing the content as well as the format and presentation of the reports.
- Facilitates the distribution of reports to executive, operations, and capacity planning personnel through email as well as a user-friendly web-based portal that features a customizable dashboard displayed when the user logs in. Users can specify the reports to be shown on their dashboard as well as the layout in a user-friendly manner. The product features intuitive navigation and detailed reporting from aggregate to fine levels.
- Provides powerful scheduling features, facilitating the generation and distribution of user-specified reports automatically at specific times.
- Facilitates the export of data and reports to external applications and users in a variety of formats, including HTML, PDF, and comma-separated value (CSV) file formats.
- Cisco Unified Service Statistics Manager 8.5 adds the following new reports:
 - Device pool-based reports
 - Route group utilization reports
 - Session Initiation Protocol (SIP) trunk in call volume reports
 - Call Admission Control (CAC) location bandwidth reports
 - Erlangs and Common Channel Signaling (CCS) added for capacity planning

Service Statistics Workflow

Figure 2. Cisco Unified Service Statistics Manager Workflow



Cisco Unified Service Statistics Manager uses the short-term wealth of operational data collected from Cisco Unified Operations Manager and Cisco Unified Service Monitor to perform long-term analysis and reporting (Figure 2). It is therefore mandatory to have Unified Operations Manager and Unified Service Monitor operational prior to deploying Unified Service Statistics Manager.

Service Statistics Manager has the following components:

- **Service Statistics Manager server:** The primary component of Service Statistics Manager. It hosts the database and web interface. It is responsible for talking to remote Service Statistics Manager agents and gathers data from Cisco Unified Operations Manager and Cisco Unified Service Monitor.
- **Service Statistics Manager agent:** Sends data to the Service Statistics Manager server for data mining. Required to be running in all Cisco Unified Operations Manager and Cisco Unified Service Monitor servers.
- **SSM web user interface:** Primary user interface for viewing reports, graphs, and SLAs and for administering the dial plan, call quality, and so on.
- **SSM administration console:** Java console for administering users, groups, and agents. Uses Java Remote Method Invocation (RMI) to communicate with the Service Statistics Manager server. A maximum limit of four instances of the administration console can be installed and used to manage Service Statistics Manager.

Preinstallation Tasks

Server Requirements

- The hardware configuration needed to operate Cisco Unified Service Statistics Manager at different scalability levels and the client requirements are detailed in the Quick Start Guide for Cisco Unified Service Statistics Manager 8.5 available at http://www.cisco.com/en/US/products/ps7285/prod_installation_guides_list.html.

Hardware requirements for installing Service Statistics Manager on a system with Operations Manager and Service Monitor are provided in the [Co resident Guidelines](#) section in the Installation Guide for Cisco Unified Operations Manager 8.5 (Includes Service Monitor).

Postinstallation Tasks

Integrating with Operations Manager and Service Monitor

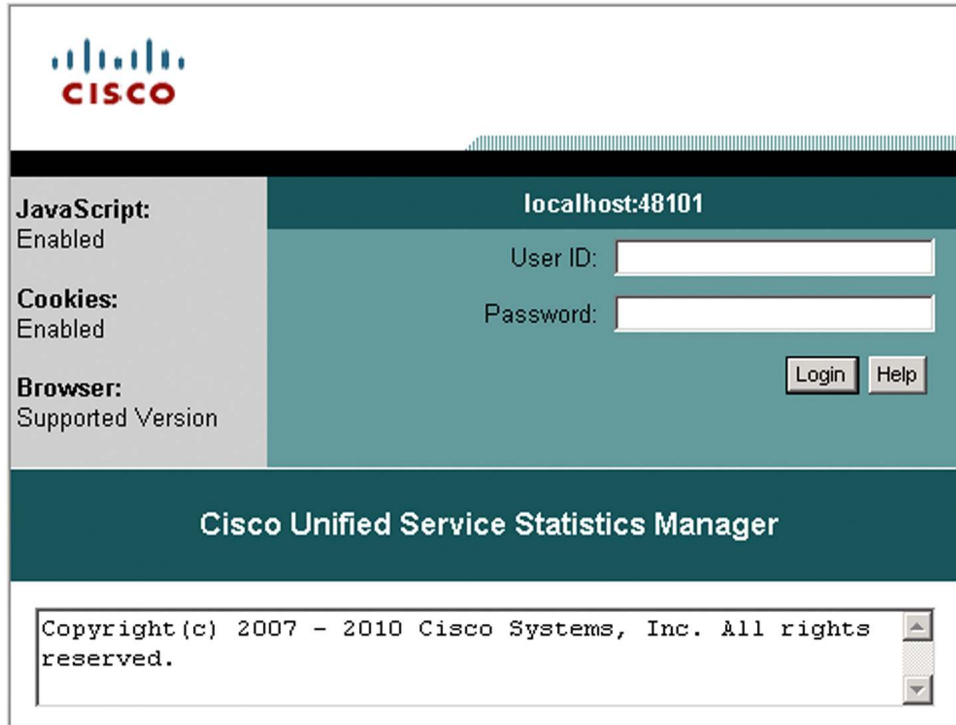
- This section assumes that installation procedures as specified in the Quick Start Guide (installation guide) have been completed.

The Quick Start Guide for Cisco Unified Service Statistics Manager 8.5 provides a checklist (Table 10, Configuration Checklist) of installation procedures. Make sure that the installer has checked all the items on the checklist (for example, things to do in Cisco Unified Operations Manager and Cisco Unified Service Monitor - make sure Cisco Voice Transmission Quality is turned on, make sure that Cisco Unified Operations Manager polling is being done and displayed for desired statistics, and so on) **before** using Cisco Unified Service Statistics Manager.

After Cisco Unified Service Statistics Manager has been installed, integration with Operations Manager and Service Monitor will have to be configured. To accomplish this:

1. Log in to the Cisco Unified Service Statistics Manager GUI through <http://<hostname>:48101>, where hostname is the name of the machine running SSM. See Figure 3.

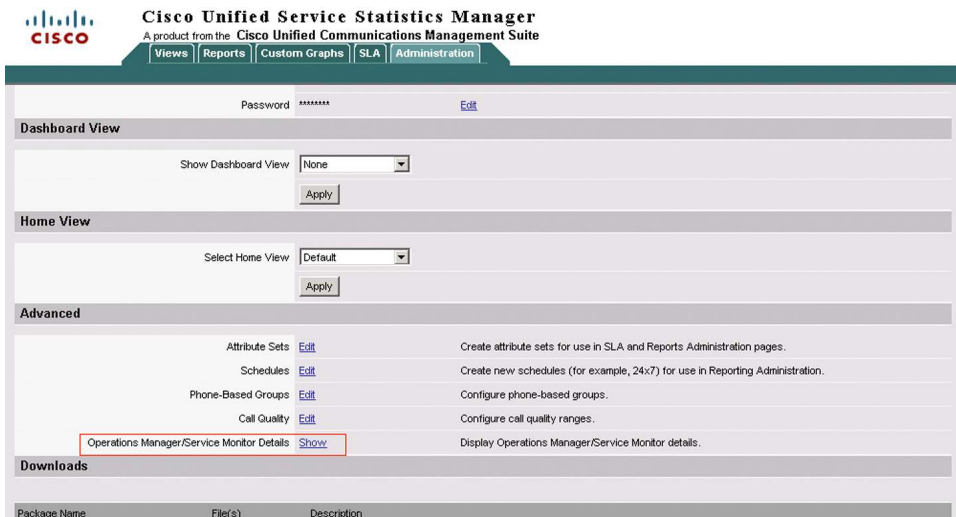
Figure 3. Log In to Cisco Unified Service Statistics Manager



The login page features the Cisco logo at the top left. Below it, a sidebar on the left contains status information: "JavaScript: Enabled", "Cookies: Enabled", and "Browser: Supported Version". The main area has a teal header with "localhost:48101". Below the header are input fields for "User ID:" and "Password:", followed by "Login" and "Help" buttons. A dark teal banner below the login fields reads "Cisco Unified Service Statistics Manager". At the bottom, a scrollable box contains the copyright notice: "Copyright (c) 2007 - 2010 Cisco Systems, Inc. All rights reserved."

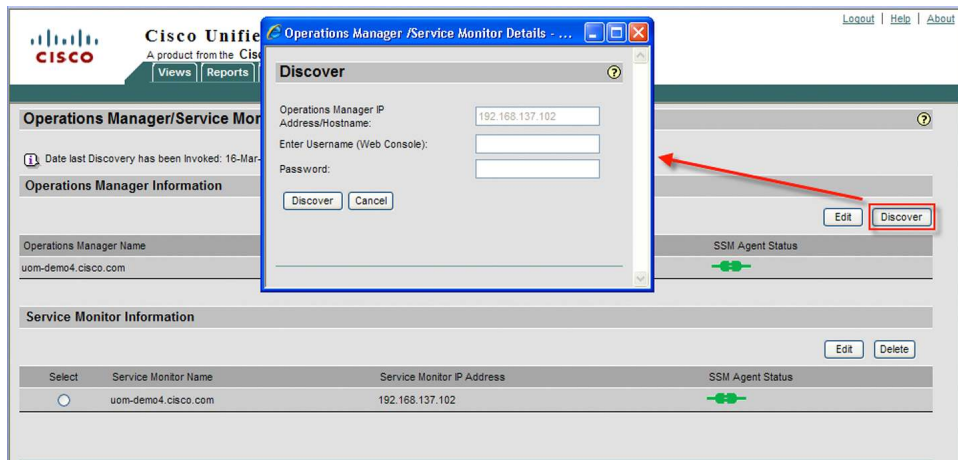
2. Then click **Administration > Show** (in the Advanced section - see Figure 4).

Figure 4. Click Show in the Advanced Section



The Administration page has a teal header with the Cisco logo and the text "Cisco Unified Service Statistics Manager" and "A product from the Cisco Unified Communications Management Suite". Below the header is a navigation bar with tabs: "Views", "Reports", "Custom Graphs", "SLA", and "Administration". The "Administration" tab is active. The page is divided into sections: "Dashboard View" with a "Show Dashboard View" dropdown set to "None" and an "Apply" button; "Home View" with a "Select Home View" dropdown set to "Default" and an "Apply" button; "Advanced" with a list of configuration items: "Attribute Sets" (Edit), "Schedules" (Edit), "Phone-Based Groups" (Edit), "Call Quality" (Edit), and "Operations Manager/Service Monitor Details" (Show, highlighted with a red box). Each item has a brief description. The "Downloads" section at the bottom has a table with columns "Package Name", "File(s)", and "Description".

Figure 5. Enter the Operations Manager Server Name, Username, and Password and Click Discover



3. Enter the IP address of the Operations Manager server, username, and password. See Figure 5.

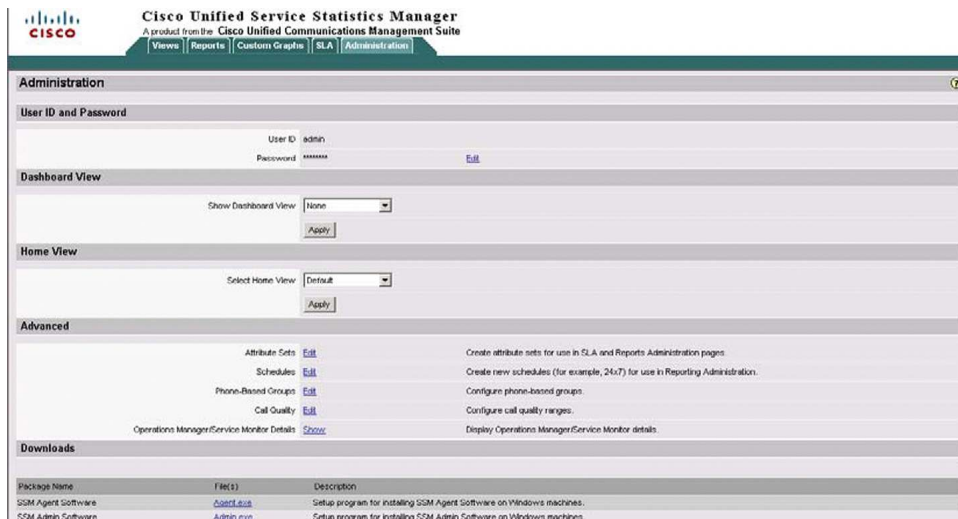
4. Click **Discover**.

Service Monitor software associated with the Operations Manager will be discovered as well.

Administration Tab

There are other functions in the Administration tab that you should explore, such as changing the default Admin password, selecting the Dashboard and Home views, and setting Advanced options. See Figure 6.

Figure 6. Functions in the Administration Tab



User Scenarios

Creating a Capacity Planning Home View

Users can create a Capacity Planning Home view that includes top-N gateways and trunk utilization, trunk capacity trends, call volume, and voice-mail port utilization. The sample Capacity Planning Home view is displayed in Figure 7.

1. Click the **Create** button.
2. Enter **Capacity Planning Home** in the View Title field.
3. Click **Add Reports**.
4. Select the reports for this view.

Figure 7. Creating a Capacity Planning Home View

The screenshot shows the 'Cisco Unified Service Statistics Manager' interface. At the top, there are tabs for 'Views', 'Reports', 'Custom Graphs', 'SLA', and 'Administration'. The 'Reports' tab is active. Below the tabs, there is a table of reports. The table has columns for 'Report Name', 'Type', 'Frequency', 'Filter', and 'User'. The 'Add Reports' dialog is open, showing a list of reports with checkboxes for selection. The 'Add To View' button is highlighted.

Report Name	Type	Frequency	Filter	User
<input type="checkbox"/> Top N Gateways - T1 & E1 PRI Utilization	Top N Performers	Daily	General	admin
<input type="checkbox"/> Top N Gateways by Utilization - Monthly	Top N Performers	Monthly	General	admin
<input type="checkbox"/> Top N Service Availability Across Clusters by Time - Monthly	Top N Performers	Monthly	General	admin
<input type="checkbox"/> Top N Trunks - Monthly	Top N Performers	Daily	General	admin
<input checked="" type="checkbox"/> Top N Trunks by Utilization - Monthly	Top N Performers	Monthly	General	admin
<input type="checkbox"/> Top N Users	Top N Users	Weekly	General	admin
<input type="checkbox"/> Total Duration Across Clusters - Monthly	Instance Aggregation	Monthly	General	admin
<input type="checkbox"/> Total Traffic Across Clusters - Monthly	Instance Aggregation	Monthly	General	admin
<input type="checkbox"/> Traffic Summary - Day of Month	Traffic Summary	Weekly	General	admin
<input type="checkbox"/> Traffic Summary - Day of week	Traffic Summary	Weekly	General	admin
<input type="checkbox"/> Traffic Summary - Hour of Day	Traffic Summary	Daily	General	admin
<input type="checkbox"/> Trunk Traffic Over Time	Time Aggregation	Daily	General	admin
<input checked="" type="checkbox"/> Trunk Utilization - Daily	Time Aggregation	Daily	General	admin
<input type="checkbox"/> Trunk Utilization - Monthly	Time Aggregation	Monthly	General	admin
<input type="checkbox"/> Trunk Utilization - Weekly	Time Aggregation	Weekly	General	admin
<input type="checkbox"/> Voicemail Port Utilization - Daily	Instance Aggregation	Daily	General	admin
<input type="checkbox"/> Voicemail Port Utilization - Monthly	Instance Aggregation	Monthly	General	admin
<input type="checkbox"/> Voicemail Port Utilization - Weekly	Instance Aggregation	Weekly	General	admin
<input checked="" type="checkbox"/> Voicemail Port Utilization Over Time - Daily	Time Aggregation	Daily	General	admin
<input type="checkbox"/> Voicemail Port Utilization Over Time - Monthly	Time Aggregation	Monthly	General	admin
<input type="checkbox"/> Voicemail Port Utilization Over Time - Weekly	Time Aggregation	Weekly	General	admin

At the bottom of the dialog, there are buttons for 'Add To View' (highlighted) and 'Cancel'.

5. Click **Add to View** after selecting the reports.

Figure 8. Click Finish to Add the Reports

The screenshot displays the Cisco Unified Service Statistics Manager web interface. At the top, the Cisco logo is on the left, and the title 'Cisco Unified Service Statistics Manager' is centered, with a subtitle 'A product from the Cisco Unified Communications Management Suite'. Below the title is a navigation bar with tabs for 'Views', 'Reports', 'Custom Graphs', 'SLA', and 'Administration'. The 'Reports' tab is active.

Below the navigation bar, there are two rows of information:

- View Type: Report based | Date Created: Monday 08/20/2007 05:56 PM
- Layout Type: 4 column(s) | Date Last Accessed: Thursday 04/10/2008 11:07 AM

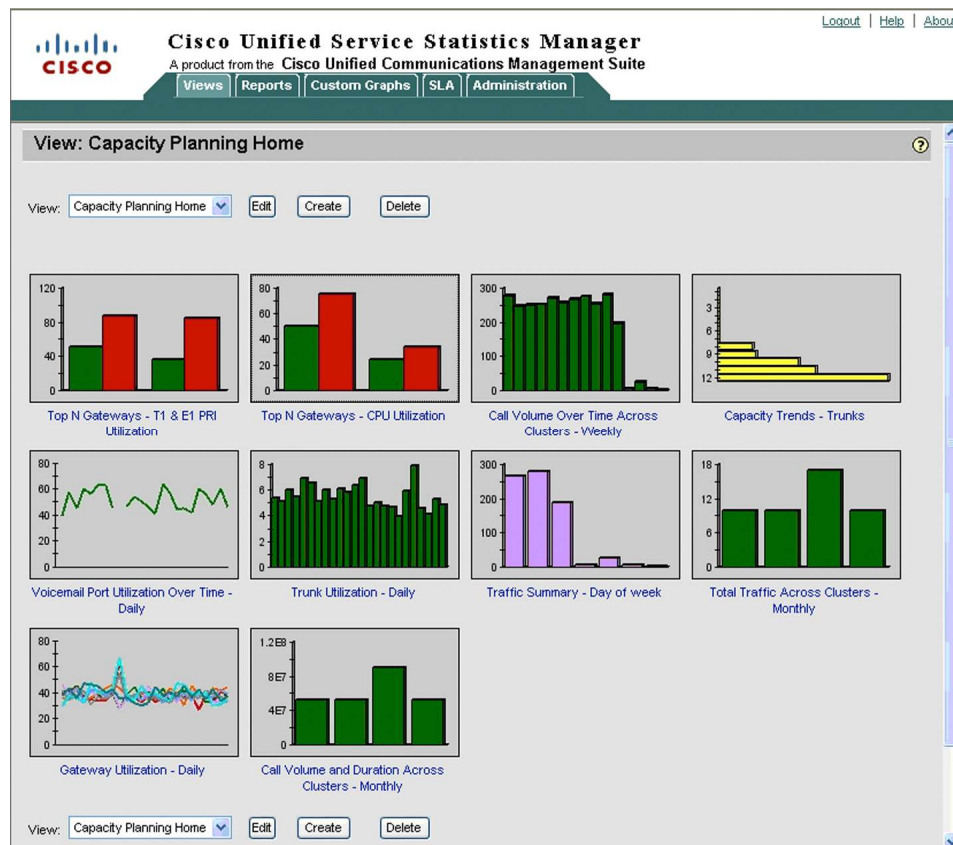
The main section is titled 'Reports in View'. It contains three buttons: 'Delete Selected', 'Add Reports', and 'Order'. Below these buttons is a 'Select All' checkbox. A table follows with two columns: 'Delete' and 'Report Title'. The table lists ten reports, each with a checkbox in the 'Delete' column:

Delete	Report Title
<input type="checkbox"/>	Top N Gateways - T1 & E1 PRI Utilization
<input type="checkbox"/>	Top N Gateways - CPU Utilization
<input type="checkbox"/>	Call Volume Over Time Across Clusters - Weekly
<input type="checkbox"/>	Capacity Trends - Trunks
<input type="checkbox"/>	Voicemail Port Utilization Over Time - Daily
<input type="checkbox"/>	Trunk Utilization - Daily
<input type="checkbox"/>	Traffic Summary - Day of week
<input type="checkbox"/>	Total Traffic Across Clusters - Monthly
<input type="checkbox"/>	Gateway Utilization - Daily
<input type="checkbox"/>	Call Volume and Duration Across Clusters - Monthly

Below the table is another 'Select All' checkbox. At the bottom of the section are two buttons: 'Finish' (highlighted with a red box) and 'Cancel'.

6. Click **Finish** (see Figure 8).

Figure 9. To View Details, Click the Appropriate Graph or Title



Details of each report can be viewed by clicking the graph or title (Figure 9).

Capacity Trend Reports

Capacity trend reports will predict threshold violations in the specified time period based on the monitored attributes. The report will display whether the threshold has been violated or the days to violation.

Creating a Trunk Group

If your environment consists of trunk groups, those trunk groups must be created in Cisco Unified Service Statistics Manager. Reports then can be generated using those groups. This is accomplished in the Service Statistics Manager Administration Console.

1. Launch the console from **Start > Programs > Cisco Unified Service Statistics Manager > Cisco Unified Service Statistics Manager Admin** (Figure 10) and log in (Figure 11).

Figure 10. Launch the Administration Console

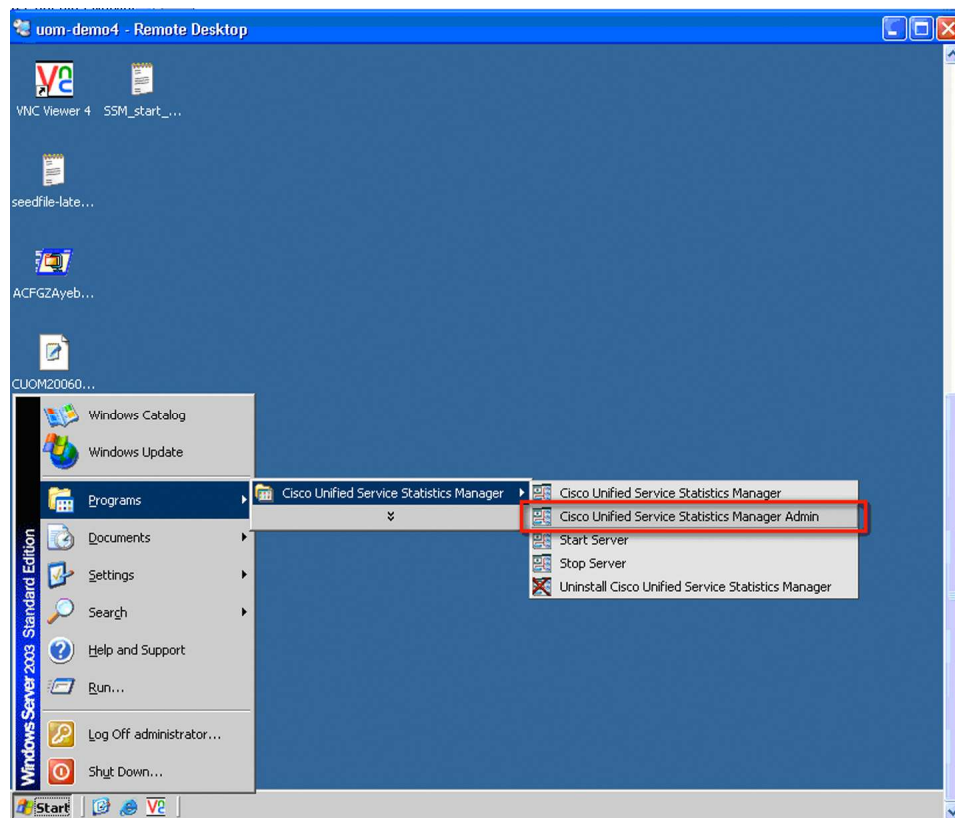
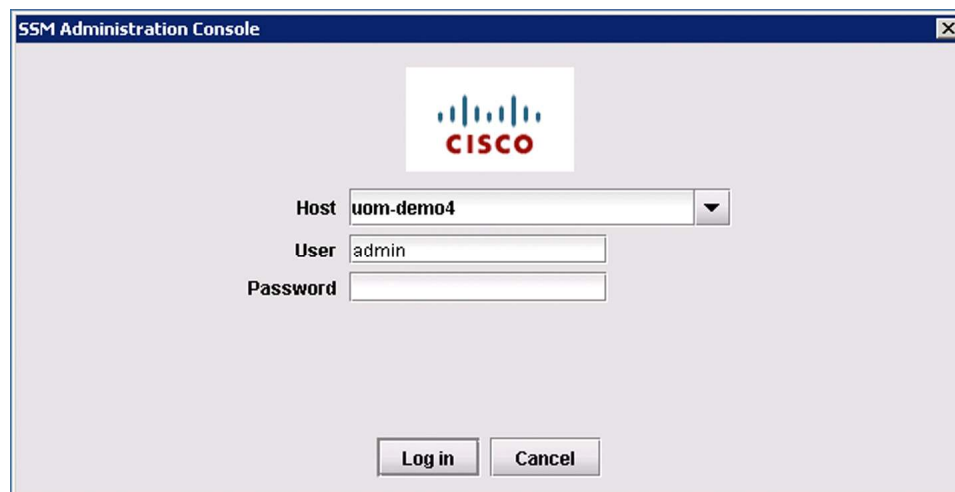
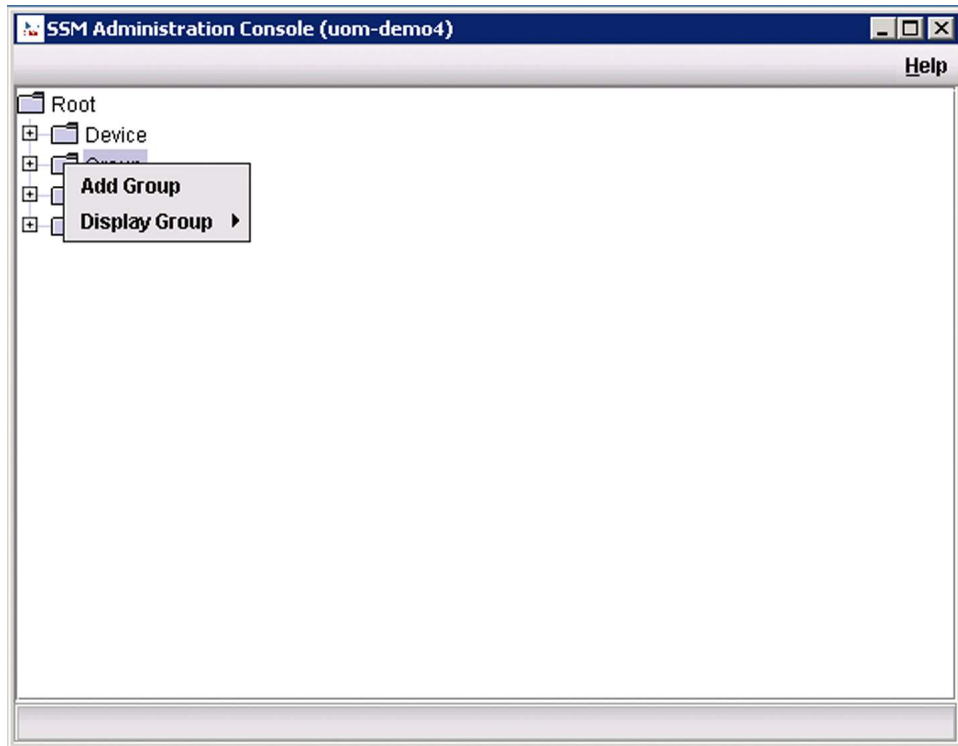


Figure 11. Log In



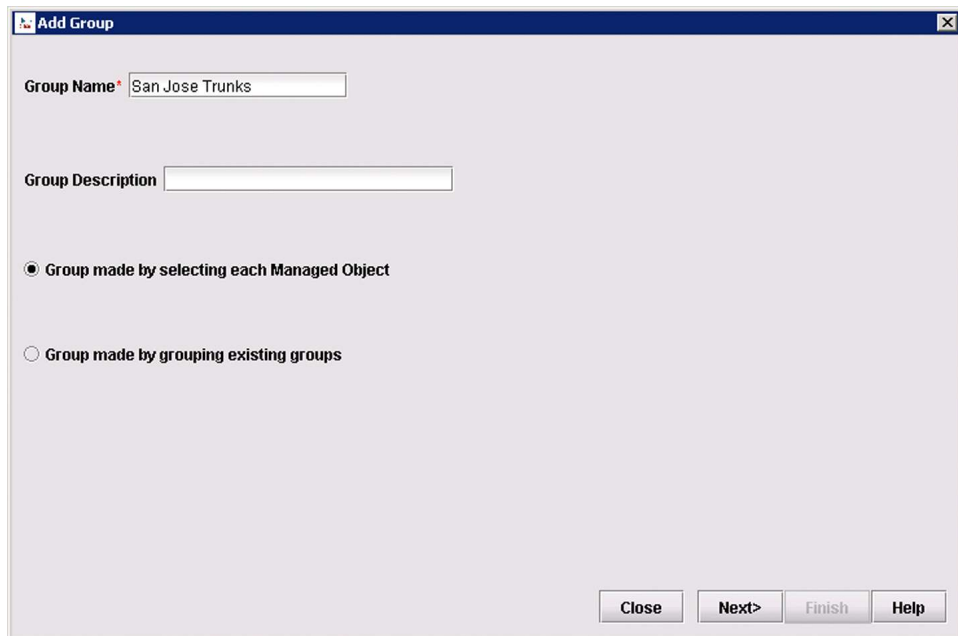
2. Right-Click **Group** > **Add Group** (see Figure 12).

Figure 12. Click Add Group



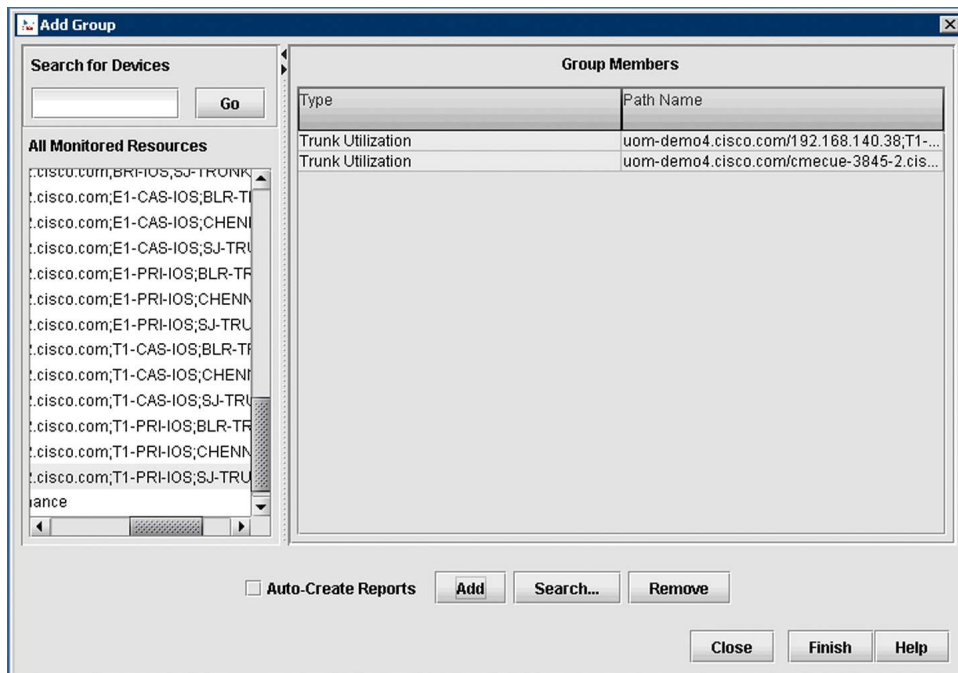
3. Enter the group name (Figure 13).

Figure 13. Add the Group Name



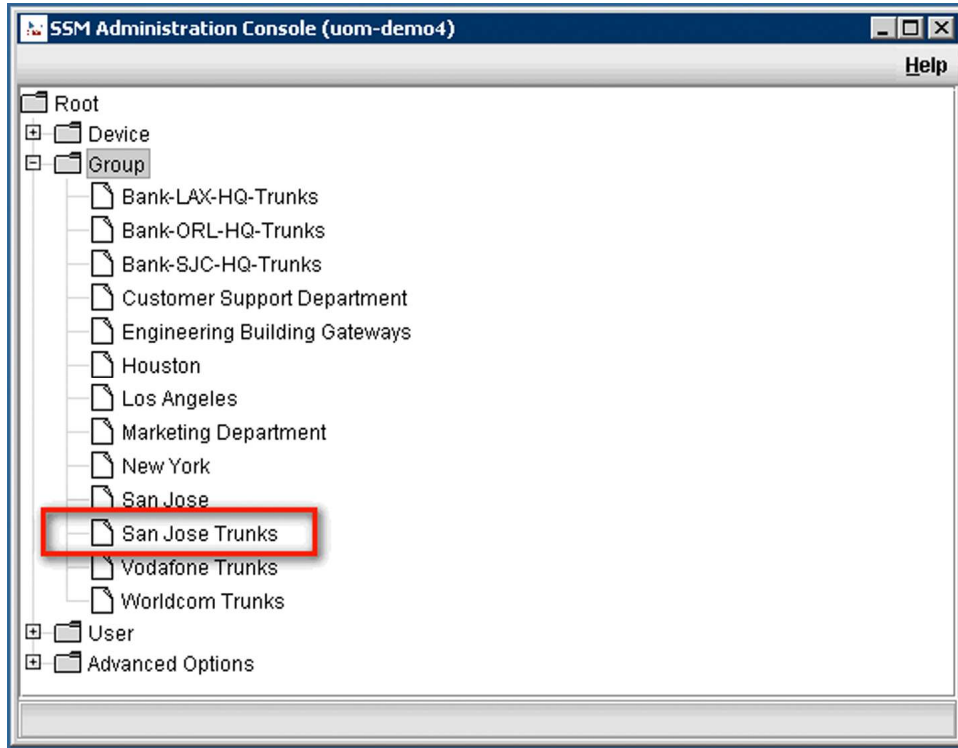
- Expand the **All Monitored Resources** tree to **Trunk Utilization**. Select the trunks in the San Jose group and click **Add** (Figure 14).

Figure 14. Click Add to Add the Resources



- Click **Finish**.

Figure 15. Creating a Trunk Capacity Trend Report

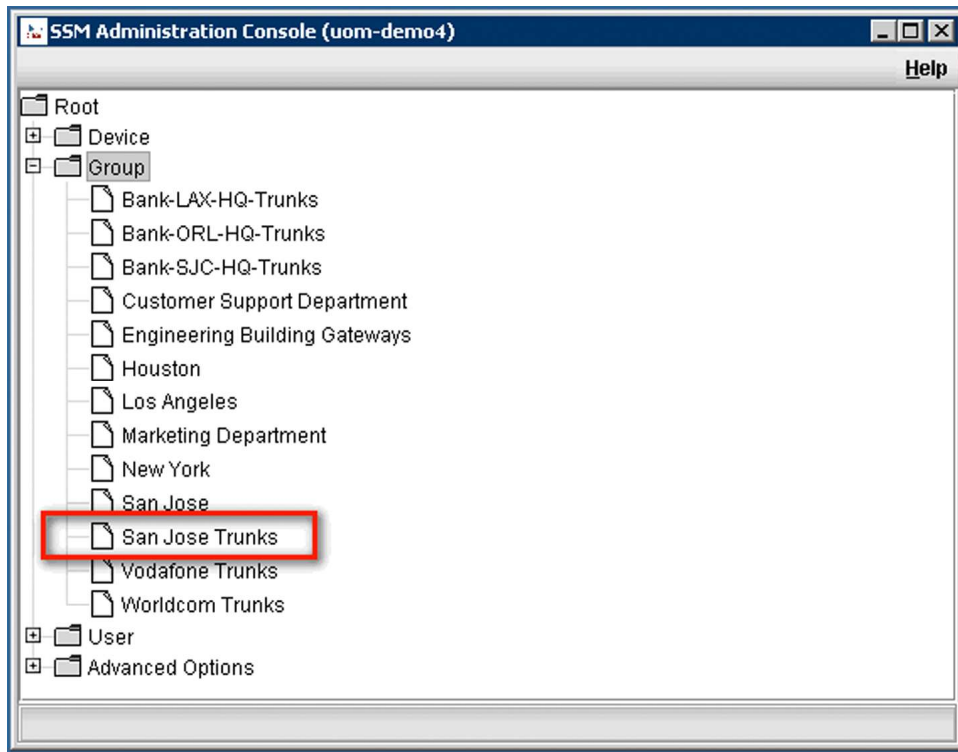


Creating a Trunk Capacity Trend Report

The San Jose Trunks group created (Figure 15) will be used in the capacity trend report.

1. Select the **Reports** tab and click **Create** (see Figures 16 and 17).

Figure 16. Creating a Capacity Trends Report



2. Click the **Selected Groups** option.
3. Highlight **San Jose Trunks** and move to **Selected Groups**.
4. Click the **Single Attribute** option.
5. Select **Trunk Utilization** and **Utilization** from the drop-down lists.
6. Enter the Capacity Threshold.
7. Select the appropriate time duration for the **"Show Instance that will violate in the next:"** and **"Use data of the last:"** options.
8. Click **Next** (see Figure 18).

Figure 17. Choosing Report Options

The screenshot shows the Cisco Unified Service Statistics Manager interface. At the top, there's a header with the Cisco logo and the product name. Below the header, there's a navigation bar with tabs for Views, Reports, Custom Graphs, SLA, and Administration. The main content area is divided into two sections: 'Group Selection' and 'Report Options'.

Group Selection:

- Radio buttons for 'No Filter' and 'Selected Groups' (selected).
- A search box labeled 'Search for:'.
- Two list boxes: 'Available Groups' and 'Selected Groups'. The 'Available Groups' list includes: Bank-SJC-HQ-Trunks, Customer Support Department, Engineering Building Gateways, Houston, Los Angeles, Marketing Department, New York, San Jose, Vodafone Trunks, and Worldcom Trunks. The 'Selected Groups' list contains 'San Jose Trunks'.
- Buttons for moving items between the lists (left and right arrows).
- Radio buttons for 'Single Attribute' and 'Attribute Set' (selected).
- Under 'Single Attribute', a dropdown menu shows 'Trunk Utilization'.
- Under 'Attribute Set', a dropdown menu shows 'Trunk Utilization', with 'New' and 'Edit' buttons.
- Capacity Threshold: Radio buttons for 'Above' and 'Below' (selected), followed by a text box containing '4'.

Report Options:

- A checkbox for 'Hide Attribute Name Column'.
- 'Show Instance that Will Violate in the Next': A text box with '7' and a dropdown menu with 'Day(s)'.
- 'Use Data for the Last': A text box with '4' and a dropdown menu with 'Week(s)'.
- 'Maximum Number of Bars in Graph': A dropdown menu with '20'.
- Buttons: 'Cancel', '< Back', and 'Next >'.
- A warning icon and text: 'The value for Use Data for the Last x Days field should be at least equal to the value for the Show Instances that Will Violate Thresholds in the Next x Days field. Only certain types of attributes are suitable for Capacity Trending reports. Please refer to the documentation for more details.'

9. Select the **3D Bar** radio button for the Graph Type.
10. Select the **“Show Device name with Monitor Info”**, **“Show Source Agent with Monitor Info”**, and **“Show Report Details at:”** check boxes.
11. Select the **“Generate This Report Immediately After Adding to the Schedule”** check box.
12. Click **Finish**.

Figure 18. Enter Report Details

Cisco Unified Service Statistics Manager
A product from the Cisco Unified Communications Management Suite

Views | Reports | Custom Graphs | SLA | Administration

Logout | Help | About

Edit Report: Capacity Trend - SJ Trunks (Step 3 of 3) - Enter Report Details

Report Display Options

Graph Type: ☐ 2D Bar ☒ 3D Bar

Number of Rows per Page (applicable for tables):

☒ Show Device name with Monitor Info

☒ Show Source Agent with Monitor Info

☒ Show Report Details at: ☒ Top of the Page ☐ Bottom of the Page

☐ Show Comments at: ☐ Top of the Page ☒ Bottom of the Page

Global Comments:

Font size:

Help:

- Press the Enter key to start a new line.
- Use spaces for indentation.
- To link the report to a URL, specify a fully qualified URL between <url> and </url>. (For example, <url>http://www.cisco.com</url>.)
- Font size applies to the entire global comments section.

E-Mail Options

Enter E-Mail Address:

List of added E-Mail Addresses:

Schedule Options

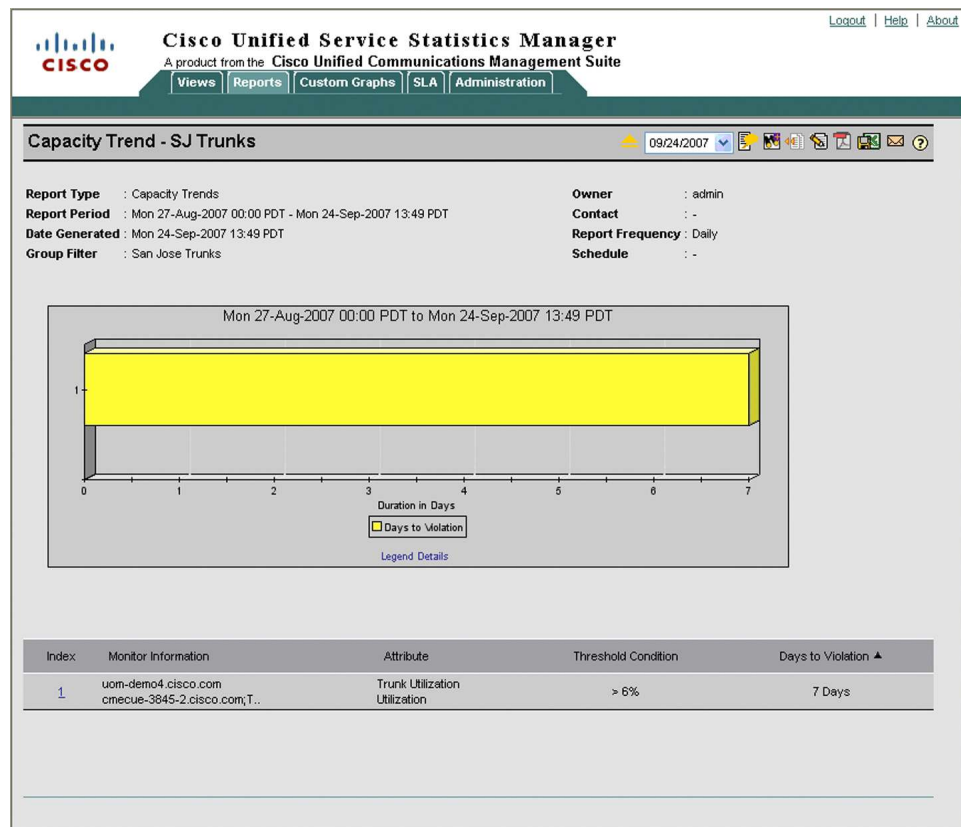
Report Frequency: ☒ Daily ☐ Weekly ☐ Monthly

Sharing: ☐ Share This Report with Everybody ☐ Share This Report with My User Group ☒ Do Not Share This Report

☒ Generate This Report Immediately After Adding to the Schedule

13. Click the **Capacity Trend** report from the Reports table (Figure 19).

Figure 19. The Capacity Trend Report for San Jose Trunks



SLA Creation

You can create service-level agreements to measure any attributes of elements managed by Service Statistics Manager. You can use the default attributes or modify them and create others.

Modify/Create Attribute Set

Modify the Trunk Utilization attribute set and add a Call Count attribute.

1. In the Administration tab, select the **Edit** option for **Attribute Sets** (Figure 20).

Figure 20. Edit the Attribute Sets

Cisco Unified Service Statistics Manager
A product from the Cisco Unified Communications Management Suite

Views Reports Custom Graphs SLA Administration

Administration

User ID and Password

User ID: admin
Password: ***** [Edit](#)

Dashboard View

Show Dashboard View: None [Apply](#)

Home View

Select Home View: Default [Apply](#)

Advanced

Attribute Sets Edit	Create attribute sets for use in SLA and Reports Administration pages.
Schedules Edit	Create new schedules (for example, 24x7) for use in Reporting Administration.
Phone-Based Groups Edit	Configure phone-based groups.
Call Quality Edit	Configure call quality ranges.
Operations Manager/Service Monitor Details Show	Display Operations Manager/Service Monitor details.

Downloads

2. Click **Add** or **Edit** an existing attribute, for example, **System Utilization**.
3. Add attributes (Figures 21 and 22).

Figure 21. The Attribute Set Administration Dialog Box

Attribute Set Administration

Attribute Set Type: No filter [v](#)

[Add](#) [Delete](#)

☐ Select All

Select	Name ▲	Type	Edit
<input type="checkbox"/>	Call Quality	Global	Edit
<input type="checkbox"/>	Gateway Utilization	Global	Edit
<input type="checkbox"/>	IP SLA	Global	Edit
<input type="checkbox"/>	System Utilization	Global	Edit
<input type="checkbox"/>	Trunk Utilization	Global	Edit
<input type="checkbox"/>	Unified CM Performance	Global	Edit

☐ Select All

Figure 22. The Edit Attribute Set Dialog Box

Edit Attribute Set

Attribute Set Name: **Trunk Utilization**

☐ Select All

Select	Monitor Type▲	Attributes
<input type="checkbox"/>	Trunk Utilization	Utilization (%)

☐ Select All

4. Select **Trunk Utilization** and click **Next**.
5. Select the **Call Count** attribute and click **Next** (Figures 23 and 24).

Figure 23. Select Trunk Utilization

Edit Attribute Set

Attribute Set Type:

1. Monitor Type (Select all that apply)

Search for:

- Call Quality
- Call Volume
- Gateway Utilization
- IPSLA Data Jitter
- IPSLA Gatekeeper RD
- IPSLA Ping Echo
- IPSLA Ping Path Echo
- IPSLA UDP Echo
- System Utilization For Gateway
- System Utilization For IPCC
- System Utilization For Unified CM
- System Utilization For Unity
- Trunk Utilization**
- Unified CM Performance
- Unity Performance

2. Attributes (Select attributes to be added to the attribute set)

Trunk Utilization

Search for:

- Call Count**
- Utilization**

Figure 24. Select the Call Count Attribute

Edit Attribute Set

Attribute Set Name: **Trunk Utilization**

☐ Select All

Select	Monitor Type	Attributes
<input type="checkbox"/>	Trunk Utilization	Utilization (%), Call Count (#)

☐ Select All

Create a Trunk Utilization SLA

1. On the SLA tab, click **SLA Administration > Add**.
2. Enter the name and contact information, then select **Trunk Utilization** from the SLA Type drop-down list and fill in **75%** for the SLA Compliance Objective (Figure 25).
3. Click **Next**.

Figure 25. Entering the SLA Details

Create SLA: (Step 1 of 3) - Enter the SLA Details

Name:

Owner:

Contact Information:

SLA Contents: ☐ SLAs ☒ Instances

SLA Type:

Schedule:

SLA Compliance Objective: %

4. Select the trunks to monitor and click **Next** (Figure 26).

Figure 26. Select the Elements to Monitor

5. Select all or individual trunks, enter the condition parameters, and click **Apply** and **Finish** (Figure 27).

Figure 27. Enter the Service-Level Objective Values

Update	Monitor Type	Device Name	Element	Attribute	Service Level Objective	Minimum Duration	Weighting	Financial Impact (per hr)
					Condition	Value		
<input checked="" type="checkbox"/>	Trunk Utilization	uom-demo4.cisco.com	192.168.140.38;T1-PRI-IO;SJ-TRUNK	Utilization	Less than or equal	75 %	30 min	45 \$
<input checked="" type="checkbox"/>	Trunk Utilization	uom-demo4.cisco.com	cmecue-3845-2.cisco.com;T1-PRI-IO;SJ-TRUNK	Utilization	Less than or equal	75 %	30 min	45 \$

6. The Trunk Utilization SLA is created; to view it, click **Compliance Matrix** (Figures 28 and 29).

Figure 28. Click Compliance Matrix to View the Trunk Utilization SLA

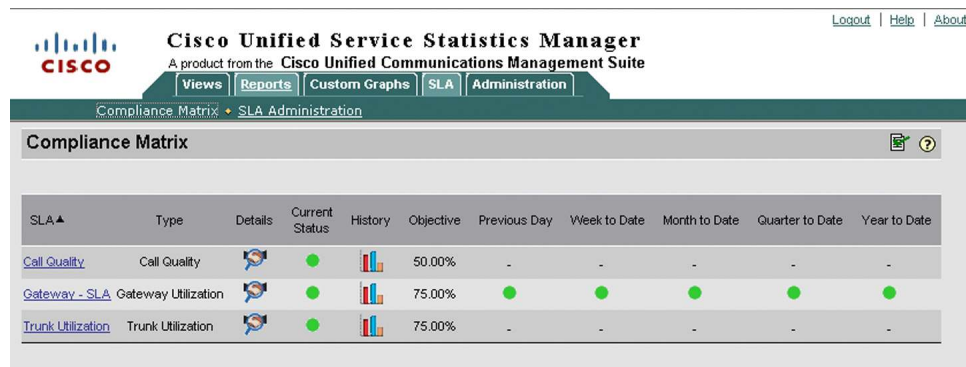
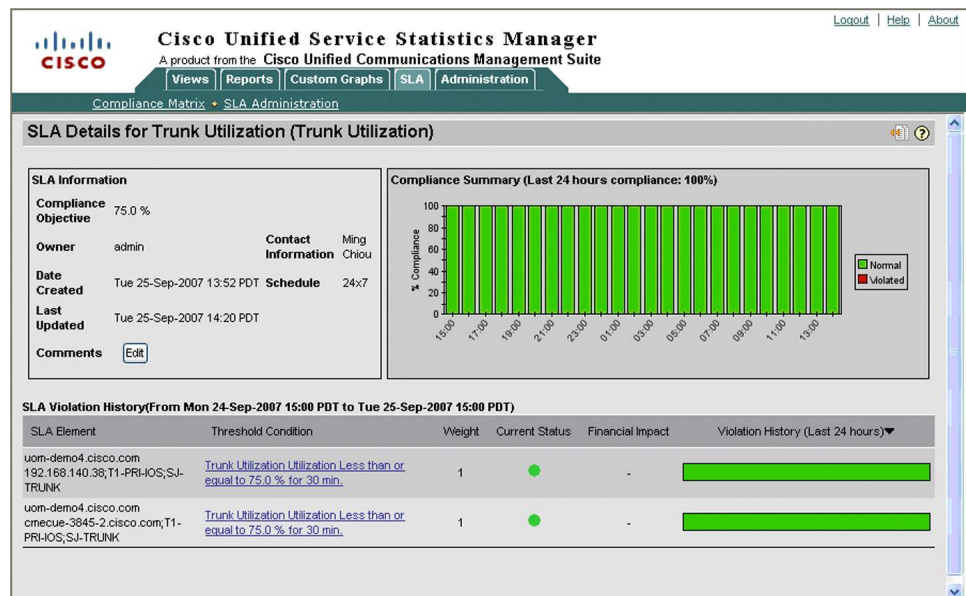
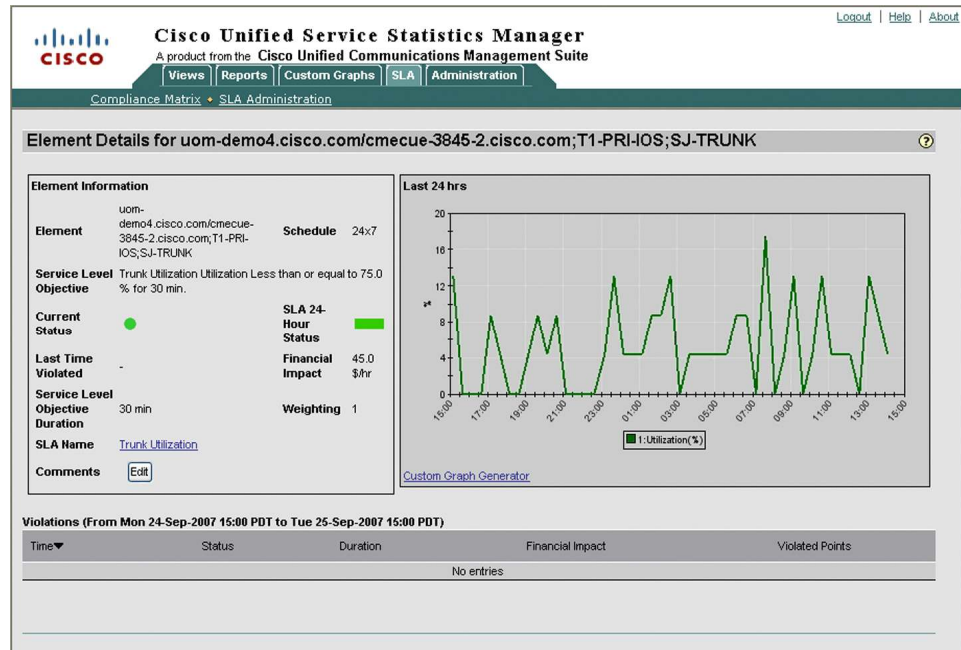


Figure 29. Details for the Trunk Utilization SLA



7. Click one of the **Threshold Condition** links to see more details (Figure 30).

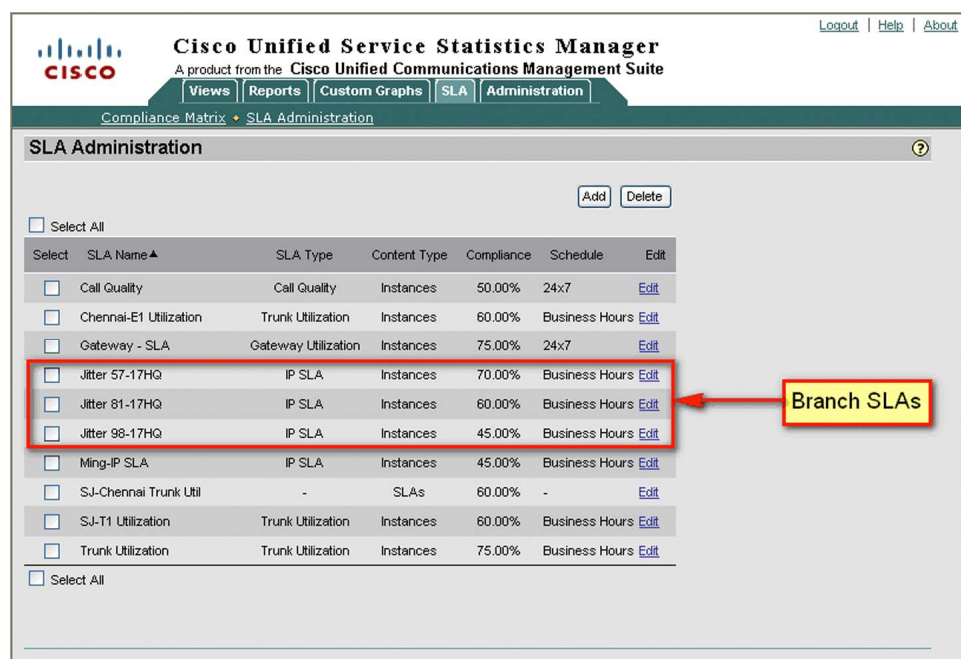
Figure 30. The Threshold Condition Links Provide More Details



Super-SLA

Individual SLAs can be rolled up into a super-SLA; for example, jitter for trunks from three branches can roll up to a higher-level regional SLA. Create the individual jitter SLAs through SLA Administration (refer to the “Create a Trunk Utilization SLA” section for creating the SLAs). Once the branch-level SLAs have been created, the main/super-SLA can be created (Figure 31).

Figure 31. Branch SLAs



1. Click **Add** in SLA Administration to create the regional SLA (Figure 32).

Figure 32. Enter the SLA Details

The screenshot shows the 'Create SLA: SJ-Jitter (Step 1 of 3) - Enter the SLA Details' form in the Cisco Unified Service Statistics Manager. The form includes the following fields and options:

- Name:** SJ-Jitter
- Owner:** admin
- Contact Information:** (empty field)
- SLA Contents:** ☒ SLAs ☐ Instances
- ☐ Use this SLA for grouping only, and not to calculate Aggregate Compliance values.
- SLA Compliance:**
 - Objective:** 60 %
- Buttons:** Cancel, Next >

The 'SLAs' radio button is highlighted with a red box.

2. Select the three branch SLAs from the list and click the top arrow (Figure 33).

Figure 33. Select the SLAs

The screenshot shows the Cisco Unified Service Statistics Manager interface. At the top, there is a navigation bar with links for Logout, Help, and a user profile icon. Below this is a header section with the Cisco logo and the product name 'Cisco Unified Service Statistics Manager', followed by the text 'A product from the Cisco Unified Communications Management Suite'. The main navigation menu includes Views, Reports, Custom Graphs, SLA, and Administration. The current page is 'SLA Administration', and the specific page title is 'Create SLA: SJ-Jitter (Step 2 of 3) - Select SLAs'. A search bar is located at the top left of the main content area. Below the search bar, there are two columns: 'Available SLAs' and 'Selected SLAs'. The 'Available SLAs' list includes: Chennai-E1 Utilization (Trunk Utilization), Trunk Utilization (Trunk Utilization), SJ-Chennai Trunk Util, Ming-IP SLA (IP SLA), Call Quality (Call Quality), SJ-T1 Utilization (Trunk Utilization), and Gateway - SLA (Gateway Utilization). The 'Selected SLAs' list includes: Jitter 81-17HQ (IP SLA), Jitter 57-17HQ (IP SLA), and Jitter 98-17HQ (IP SLA). There are arrows between the two lists to move items. At the bottom, there are buttons for Cancel, < Back, and Next >.

3. The weight can be changed, or you can accept the default setting; click **Finish** (Figure 34).

Figure 34. Enter a Weight for the Selected SLAs

Cisco Unified Service Statistics Manager
A product from the Cisco Unified Communications Management Suite

Views Reports Custom Graphs SLA Administration

Compliance Matrix SLA Administration

Create SLA: SJ-Jitter (Step 3 of 3) - Enter weightage for selected SLAs ?

SLA Name	SLA Type	Weight
Jitter 98-17HQ Instances		1
Jitter 57-17HQ Instances		1
Jitter 81-17HQ Instances		1

Cancel < Back Finish

- The newly created SLA is shown in the SLA Administration table (Figure 35).

Figure 35. The SLA Administration Table

Cisco Unified Service Statistics Manager
A product from the Cisco Unified Communications Management Suite

Views Reports Custom Graphs SLA Administration

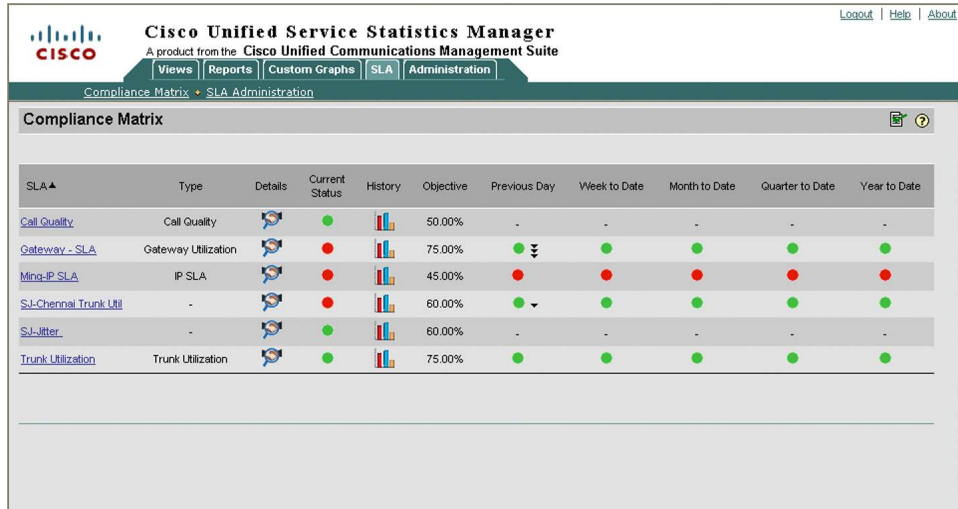
Compliance Matrix SLA Administration

Compliance Matrix

SLA	Type	Details	Current Status	History	Objective	Previous Day	Week to Date	Month to Date	Quarter to Date	Year to Date
Call Quality	Call Quality		●		50.00%	-	-	-	-	-
Gateway - SLA	Gateway Utilization		●		75.00%	●	●	●	●	●
Ming-IP SLA	IP SLA		●		45.00%	●	●	●	●	●
SJ-Channel Trunk Util	-		●		60.00%	●	●	●	●	●
SJ-Jitter	-		●		60.00%	-	-	-	-	-
Trunk Utilization	Trunk Utilization		●		75.00%	●	●	●	●	●

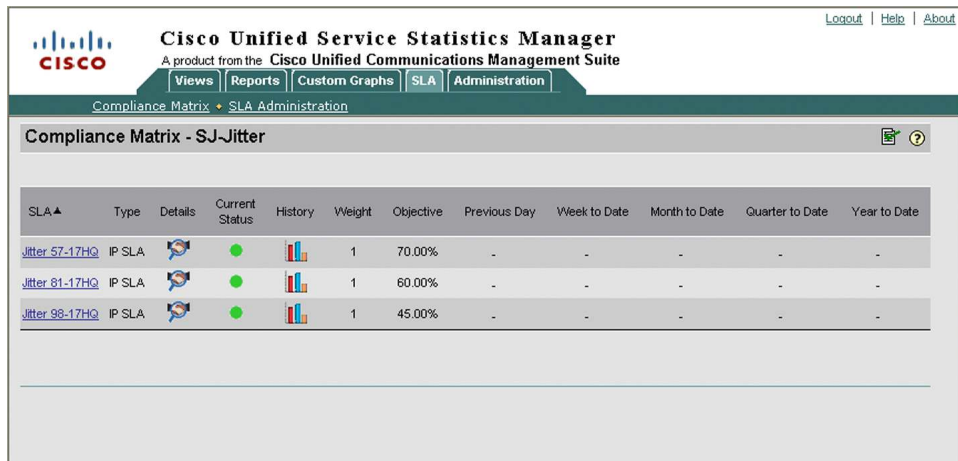
- Click the Compliance Matrix to view the status of the SLAs. The table will display only the SJ-Jitter SLA since the branch SLAs have been rolled up into SJ-Jitter (Figure 36).

Figure 36. The Compliance Matrix



6. View the branch SLAs by clicking **SJ-Jitter** in the list of SLAs (Figure 37).

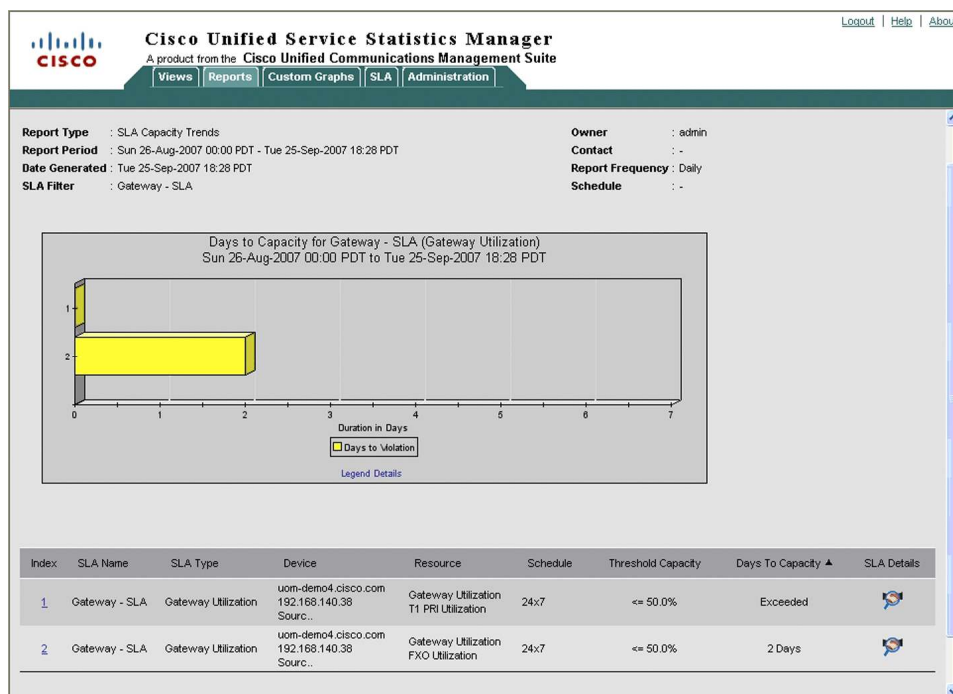
Figure 37. The Branch SLAs



SLA Capacity Trends

Similar to the trunk capacity trend report created in the “Creating a Trunk Capacity Trend Report” section, SLA capacity trends reports can be created based on the SLAs in the Compliance Matrix (Figure 38).

Figure 38. SLA Capacity Trends Report



Troubleshooting

Note: Cisco Unified Service Statistics Manager collects data from Cisco Unified Operations Manager and Cisco Unified Service Monitor. Ensure Operations Manager and Service Monitor (optional) is running first and operational prior to troubleshooting Service Statistics Manager.

Service Statistics Manager could run separately on its own server (stand alone mode), or it could run on same server with Operations Manager and Service Monitor (coresident mode).

If Service Statistics Manager is running in standalone mode, make sure to install Service Statistics Manager Agents in Operations Manager and Service Monitor servers. Service Statistics Manager Agent is installed automatically if deployed in coresident mode.

Service Statistics Manager log files are located in <Install Directory>\pw\pronto\logs\l. It is recommended to zip and forward these logs when opening a Cisco Technical Assistance Center (TAC) service request.

Installation Failing

- Service Statistics Manager Installer automatically checks for system requirements prior to the start of installation. This is to help ensure that the target server complies with Service Statistics Manager's minimum system requirements.
- The TCP ports listed in Table 1 are in use by Service Statistics Manager and must be available and exempted from firewall inspections.

Table 1. TCP Ports Used by Service Statistics Manager

Port	Use
8008	Connector port between Apache web server and Tomcat servlet engine
8009	Connector port between Apache web server and Tomcat servlet engine used for agent and agent controller tunneling
8093	JMS server port
9149	Port JServer listens for events from agent controller/rate
12123	Agent controller listener
12124	Default agent port
12126	Agent controller callback port
12130	Checkpoint monitor port for receiving log messages (optional)
12140	CLServer port
12141	Log server port
40402	Flex LM port
45000	Message server port
48443	SSL port
48099	RMI port
48100	JBoss port
48101	Http port
48102	Database port

The following logs are useful when troubleshooting Service Statistics Manager installation issues: <Install Directory>\pw\pronto\bin\SSMPreinstall.log, proactivenet_server_install.log and proactivenet_agent_install.log

Logon Failure

- Check whether Cisco Unified Operations Manager is reachable from Cisco Unified Service Statistics Manager. Try launching the Operations Manager web interface from Service Statistics Manager server, that is, open a browser to <http://CUOM:1741>.
- Check whether the Service Statistics Manager agent is running in the remote Operations Manager server. Windows Control Panel > Services > Agent must be running.
- Check whether the Operations Manager admin password has been changed. To synchronize the Operations Manager password with Service Statistics Manager, run <Install Directory>\pw\pronto\bin\runjava scripts.ssm.UpdateOMPassword. The script will ask for the new Operations Manager password. Then restart Service Statistics Manager from Start > Programs > SSM > Stop/Start shortcuts.
- Check the Service Statistics Manager log file at \pw\pronto\logs\ProactiveNet.log. If the log file shows multiple SSL handshake errors, run this script at \pw\pronto\bin\ConfigureSSMToSSLom <CUOM_IP_Address>. Then restart Service Statistics Manager.

Autodiscovery

- Make sure that the Operations Manager IP address and password are correct and that the Service Statistics Manager agent is running on that remote Operations Manager server.
- If Monitor Types are not getting created, make sure Performance Polling is enabled in Operations Manager. On how to enable performance polling in Operations Manager, refer to http://www.cisco.com/en/US/partner/docs/net_mgmt/cisco_unified_operations_manager/2.3/user/guide/cfg_PT.html#wp1546763.

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- If call volume and call quality monitors are not getting created, check whether Service Monitor is configured in Operations Manager > UC Management tab > Service Monitor.
 - If new devices are added in Operations Manager or Service Monitor, make sure to rerun discovery from Service Statistics Manager.
 - To further troubleshoot autodiscovery issues, enable Service Statistics Manager detailed logging by running the following in the command line: `pw debug -p jserver -s SSMAutoDiscovery`. Log files will be stored in the `\pw\pronto\logs\Debug` folder.

Data Collection Failure

- Check whether Service Statistics Manager processes are still running. Run `\CUSSM\serverstatus.bat`. If Service Statistics Manager processes are not in the running state (that is, are stopped), you may restart Service Statistics Manager.
- Check whether Operations Manager and Service Monitor are operational. Try rediscovering Operations Manager and make sure discovery succeeds.

Cisco Unified Service Statistics Manager Licensing

The Cisco Unified Service Statistics Manager license dictates the Cisco Unified Service Statistics Manager features that are available and the number of IP phones that can be managed. Standard and Premium licenses are available. The only difference is that Premium includes the SLA features; these are unavailable with the Standard license and are activated when the Premium license is entered.

Product evaluation licenses are available and are good for 90 days.



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