CHAPTER 2

Working with the Cisco ANA NetworkVision Client

The following topics describe the user access roles required to use Cisco ANA NetworkVision, the Cisco ANA NetworkVision working environment, and how to access the Cisco ANA NetworkVision tools and commands:

User Roles Required to Work with Cisco ANA NetworkVision

Table 2-1 identifies the GUI default permission or device scope security level that is required to work with Cisco ANA NetworkVision. Cisco ANA determines whether you are authorized to perform a task as follows:

- For GUI-based tasks (tasks that do not affect devices), authorization is based on the default permission that is assigned to your user account.
- For device-based tasks (tasks that do affect devices), authorization is based on the default permission that is assigned to your account. That is, whether the device is in one of your assigned scopes and whether you meet the minimum security level for that scope.

For more information on user authorization, see the *Cisco Active Network Abstraction 3.7.1 Administrator Guide*.

Table 2-1 Default Permission/Security Level Required for Cisco ANA NetworkVision Functions

Task	Viewer	Operator	OperatorPlus	Configurator	Administrator
Start Cisco ANA NetworkVision	X	X	X	X	X
Change a user password in Cisco ANA NetworkVision	—	—	—	—	X[1]
Set Cisco ANA NetworkVision options	X	X	X	X	X
Work with Cisco ANA NetworkVision tables	X	X	X	X	X

1. Each user can change their own password, but only the Administrator role can change another user's password.

Starting Cisco ANA NetworkVision

This topic provides instructions for launching the Cisco ANA NetworkVision application. Cisco ANA NetworkVision is password protected to ensure security. Before you start working with Cisco ANA NetworkVision, make sure you know your username, password, and the Cisco ANA gateway IP address or hostname that you require.

Note If you do not log into the Cisco ANA Manage, Cisco ANA NetworkVision, or Cisco ANA EventVision application during a specified period of time (the default is one month), your account is automatically locked. The default period can be changed per user in Cisco ANA Manage. The period of time is measured from the time you last logged out of any of the Cisco ANA client applications.

Note When working intensively on Cisco ANA NetworkVision or Cisco ANA EventVision, you might experience a Java crash causing the GUI application to close. This issue does not affect the Cisco ANA server and is related only to the Java GUI applications running on a Windows machine with some models of graphics cards.

This situation can occur while working with multiple open windows of Cisco ANA applications and occurs sporadically with no specific scenario.

If you encounter this situation, do either of the following:
- Restart the Cisco ANA application.
- Consider updating your graphics card driver.

To start Cisco ANA NetworkVision:

Step 1 Choose **Start > Programs > Cisco ANA > Cisco ANA NetworkVision**.

The Cisco ANA NetworkVision Login dialog box is displayed. The last four Cisco ANA gateways you logged into are displayed in the Host drop-down list. The list is displayed in chronological order with the most recent Cisco ANA gateway at the top of the list.

Step 2 Enter your username and password.

Step 3 Choose a Cisco ANA gateway in either of the following ways:

- Enter an IP address or hostname in the Host field.
- Select a Cisco ANA gateway from the Host drop-down list. (The Cisco ANA gateway IP address or hostname that was used when you last logged in is automatically displayed at the top of the Host drop-down list.)

Note Make sure that you use the leading IP address (the IP address on which the Cisco ANA gateway was configured) when logging into the system.

Step 4 Click **OK**.

If any client updates are available, Cisco ANA automatically installs them.

When you launch Cisco ANA NetworkVision, messages are displayed if the server and client have different versions of the application that launches the client. For more information about these messages, see the *Cisco Active Network Abstraction 3.7.1 Installation Guide*.

The Cisco ANA NetworkVision window appears empty when it is opened for the first time. You can create a new map or open a map that has been previously saved; see Chapter 4, "Working with Cisco ANA NetworkVision Maps," for information on network maps.

After logging into Cisco ANA NetworkVision and launching the application, you can customize the Cisco ANA NetworkVision settings. For example, you can:

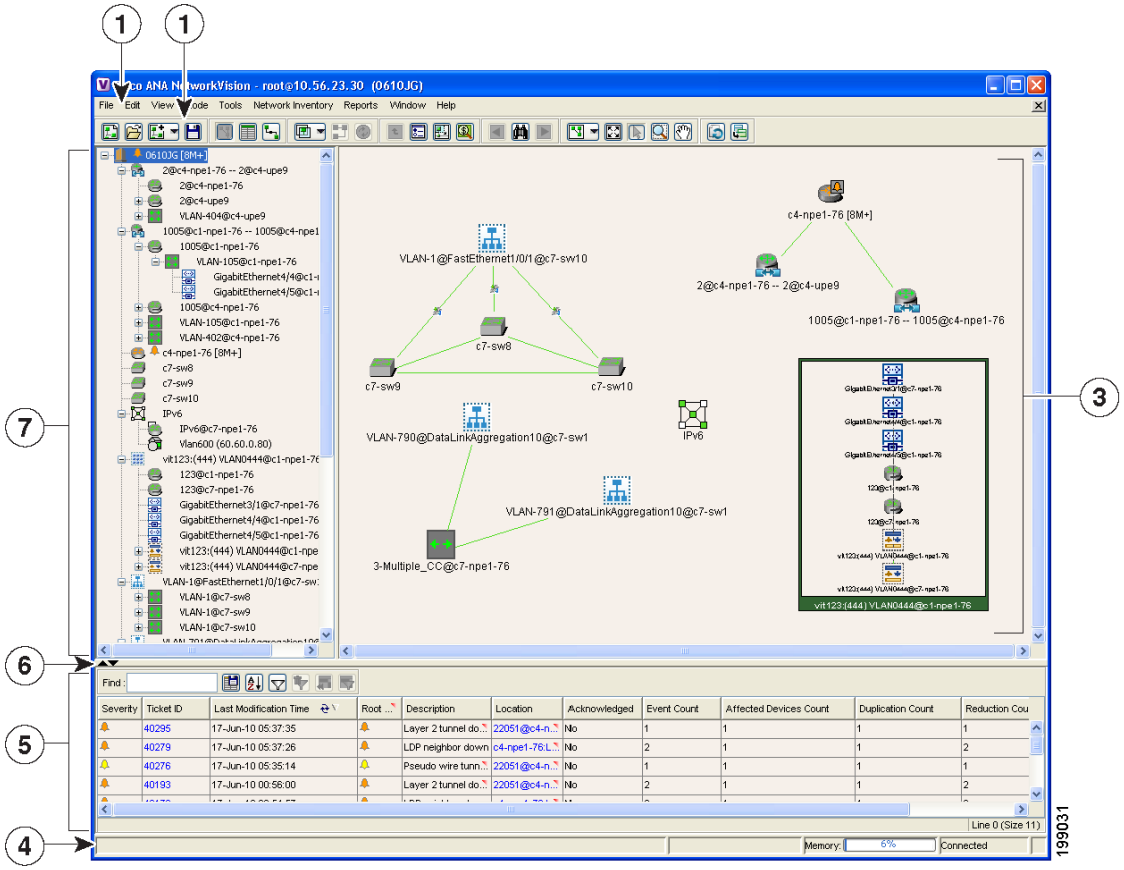
- Load the content pane with information when starting Cisco ANA NetworkVision.
- Display network elements in the Cisco ANA NetworkVision content pane and navigation pane.
- Configure audio responses when different alarms are triggered.

For more information on customizing Cisco ANA NetworkVision startup and display options, see Selecting Cisco ANA NetworkVision Map and Alarm Options, page 2-39.

Cisco ANA NetworkVision Window

Figure 2-1 displays the Cisco ANA NetworkVision window with an open map.

Figure 2-1 Cisco ANA NetworkVision Window



1	Menu bar	**5**	Ticket pane
2	Toolbar	**6**	Hide/display ticket pane
3	Content pane (showing the map view)	**7**	Navigation pane
4	Status bar		

The content pane, ticket pane, and navigation pane are the three main components of the Cisco ANA NetworkVision user interface.

Note The ticket pane can be displayed or hidden by clicking the arrows below the navigation pane.

The status bar at the bottom of the window provides information about the current connection status for the view. The status bar also displays what is happening to the command that was sent while the application waits for an answer.

The memory utilization bar in the status bar displays the amount of memory used by the client. By default, if memory utilization exceeds 60%, it is colored yellow, and if it exceeds 80%, it is colored red.

Dragging the borders of the Cisco ANA NetworkVision window adjusts the size of each pane. The navigation pane and content pane are correlated; this means that selecting an option in the navigation pane affects the information displayed in the content pane.

Some of the functions that the Cisco ANA NetworkVision window enables you to perform are:

- View the network.
- View network element properties.
- View physical and logical inventory information.
- View a complete list of the physical links and their status.
- View link properties.
- View and manage tickets.

Navigation Pane

The navigation pane displays a tree-and-branch representation of the network elements and aggregations defined for the loaded map.

The highest level in the navigation tree displays the map name (for example, the name of a geographic area). When the map name is changed, the Cisco ANA NetworkVision window is updated. The new map name is displayed, between brackets, at the top of the navigation tree, and in the title bar of the window.

The lowest level of the navigation tree displays a single NE (for example, a router and the device name, or the name of the business tag).

For information about the status of network objects, see Network Element Status Indicators, page 2-17.

Content Pane: Map, List, and Links Views

The content pane enables you to view and modify low-level information. It supports the following views:

- Map view—Displays managed network elements on a geographical map. For more information, see Map View, page 2-6.
- List view—Displays the details of the network elements contained in the currently selected hierarchy or subnetwork (map), such as the IP address and system name. For more information, see List View, page 2-10.
- Links view—Displays a complete list of the links shown in the map view and their status. For more information, see Links View, page 2-13.

When you switch between the map, list, and links views, the following are preserved:

- The currently selected network elements or links.
- The sorting preferences.
- The filtering preferences, as defined using:
  - The Map Options dialog box—See Filtering Links According to Type, page 4-24.
  - The Filter dialog box—See Filtering Table Contents, page 2-43.
  - The links view collection method—See Filtering Links Using the Collection Method, page 5-14.

Map View

Click **Show Map View** on the toolbar to display the map view in the Cisco ANA NetworkVision window.

In the map view, Cisco ANA NetworkVision displays:

- Managed network elements

  Each NE is displayed using an NE icon, the color of which reflects severity, as described in Severity Indicators, page 2-10. In addition, a management state or alarm icon is displayed with the IP address. A tooltip displays the NE name, NE type, and IP address.
- VLANs
- VPNs
- Links and link aggregations

  The links (and link aggregations) that are presented in the map view:

  – Display arrowheads if they are unidirectional.

  – Do not have arrowheads if they are bidirectional.
- Relationships between network elements, aggregations, and networks

Note If the maximum number of links is exceeded, a warning message is displayed, all links are removed from the map, and the map is surrounded by a red border.

You can view the links in either of the following ways:
- Choose **Show Links view** in the toolbar.
- Filter the links to reduce the number of links that are to be displayed. This filtering allows the client to return to a normal state.

For more information on the maximum number of links, contact your Cisco account representative.

The links have tooltips that provide you with information regarding the number of links that are represented by a line, along with partial descriptions. Physical links are highlighted in bold. Because a single link may actually represent a number of links, you can use the links view to get more details (see Links View, page 2-13).

For more information about links in Cisco ANA NetworkVision, see Chapter 5, “Working with Links.”

Note If you apply a link filter to the map, the Links tooltip displays only the relevant links.

The map view enables you to view network objects down to the device level. An example of the map view is displayed in Figure 2-1.

You can move the NEs manually on the map by dragging the required NE. You can also click **Layout Map** in the toolbar or choose **View > Zoom In** or **View > Zoom Out** to change the way NEs are displayed on the map.

Right-Click Functions

Table 2-2 describes some of the functions that can be performed using the right-click shortcut menu in the map view, including launching external applications or tools. Some of these functions are also available in the navigation pane, links view, and ticket pane.

Table 2-2 Right-Click Functions in Map View

Right-Click Functions Available from Map View	For more information, see:
Go to Parent	Goes to the parent in the tree pane and map pane so you can view different information.
Go to Root	Goes to the root in the tree pane and map pane so you can view different information.
Aggregate network elements	Chapter 4, "Working with Cisco ANA NetworkVision Maps"
Change the view and content of network maps	Chapter 4, "Working with Cisco ANA NetworkVision Maps"
Communicate with network elements	Chapter 4, "Working with Cisco ANA NetworkVision Maps"
Configure the topology	Chapter 5, "Working with Links"
Create and attach business tags	Chapter 6, "Working with Business Tags and Business Elements"
Create and view tickets	Chapter 9, "Working with Tickets in Cisco ANA NetworkVision"
Filter tickets	Chapter 9, "Working with Tickets in Cisco ANA NetworkVision"
Generate reports on events, inventory, and networks services	Chapter 10, "Working with Reports"
Launch external applications or tools from Cisco ANA NetworkVision navigation tree, map pane, links view, and ticket pane	*Cisco Active Network Abstraction 3.7.1 Customization User Guide*
Launch components installed with Cisco ANA: • Cisco Active Network Abstraction Configuration and Image Management • Cisco Active Network Abstraction Network Service Activation	• *Cisco Active Network Abstraction 3.7.1 Configuration and Image Management User and Administrator Guide* • *Cisco Active Network Abstraction Network Service Activation 1.1 User Guide*
Launch available activation and configuration scripts, including those you create using Cisco ANA Command Builder (can be launched against multiple NEs)	*Cisco Active Network Abstraction 3.7.1 Customization User Guide*
View device inventory	Chapter 3, "Viewing Network Element Properties"
View NE information (device properties)	Chapter 3, "Viewing Network Element Properties"

Network Element Icons

Table 2-3 identifies the icons used to represent network elements in the Cisco ANA NetworkVision window's navigation pane and content pane.

Table 2-3 Network Element Icons

Icon	Device
	ATM switch
	Basic rate access (BRA)
	Connection termination point (TP) Ethernet flow point
	Cross-connect
	Digital subscriber line access multiplexer (DSLAM)
	Ethernet service
	Ethernet switch
	Ethernet virtual connection (EVC)
	Generic SNMP
	Logical Circuit Aggregation (LCA) business element
	Logical Circuit Peer (LCP) business element
	Logical Circuit Peer with one or more hidden connected devices
	Network pseudowire
	Network, subnetwork, or logical aggregation
	Pseudowire switching entity Switching entity

Table 2-3 Network Element Icons (continued)

Icon	Device
	Router
	Site
	Site with one or more hidden connected devices
	Unknown, or ghost, device
	Unmanaged network or cloud
	Viewable by a user with a higher permission level
	Virtual router
	VLAN
	VPLS
	VPN
	VSI

Note When Cisco ANA NetworkVision detects a network device for which it does not have enough information available, Cisco ANA NetworkVision displays as a ghost device on the map. When this occurs, you cannot view the ghost device properties or communicate with it. When the information for the ghost device becomes available, Cisco ANA NetworkVision replaces its icon with the relevant device icon, and all the related device information and communication become available.

Severity Indicators

Table 2-4 shows the colors that are used to display the severity (or propagated severity) of a network device in the navigation, content, and ticket panes.

Table 2-4 Severity Indicators

Icon	Color	Severity
	Red	Critical
	Orange	Major
	Yellow	Minor
	Sky Blue	Warning
	Green	Cleared, Normal, or OK
	Dark Blue	Information
	White	Indeterminate

The same coloring conventions apply to the link severity displayed in the map and links views.

Note The color of a selected link can be customized. The default color is blue.

When an aggregated node is selected in the navigation tree, the content pane displays the elements contained within the aggregation and the relationships between them.

For more information about how the status of a network element is displayed in a map, see Network Element Status Indicators, page 2-17.

List View

Click **Show List View** in the toolbar to display the Cisco ANA NetworkVision list view. The list view displays the tabs described in Table 2-5, depending on the items included in the current map and the item selected in the navigation tree.

Table 2-5 Cisco ANA NetworkVision List View Tabs

Tab	Description
Aggregations	Aggregations contained in the current map.
Connection TP	Connection termination points (TPs) contained in the current map.

Table 2-5 Cisco ANA NetworkVision List View Tabs (continued)

Tab	Description
EFP Cross-Connect	EFP cross-connects contained in the current map.
Ethernet Flow Points	EFPs contained in the current map.
Ethernet Services	Ethernet services contained in the current map.
EVCs	EVCs contained in the current map.
Network Elements	Network elements contained in the current map.
Network Pseudowire	Network pseudowire contained in the current map.
Pseudowires	Pseudowires contained in the current map.
Pseudowire Edge	Pseudowire endpoints contained in the current map.
PW Switching Entity	Pseudowire switching entities contained in the current map.
Sites	Sites for the selected VLAN. Site properties include site name, description, location, and IP interface.
Switching Entities	Switching entities contained in the current map.
Virtual Routers	Virtual routers on the selected VLAN. Virtual router properties include the virtual router name and description.
VLANs	VLANs contained in the current map. VLAN properties include VLAN name, ID, description, and Ethernet flow points.
VPLS Forward	VPLS forwards contained in the current map.
VPLS Instance	VPLS instances contained in the current map.
VPNs	VPNs contained in the current map. VPN properties include VPN name and description

Table 2-6 describes the network element properties displayed in Network Elements tab. (Locked network elements display only managed element information and the locked device icon.)

Table 2-6 Network Element Information Displayed in List View

Field Name	Description
Name	Name of the network element managed by Cisco, as defined in Cisco ANA Manage. The Name property also displays a network element icon. The icon color reflects the highest network element alarm severity. In addition, the management state or an alarm icon is displayed.
IP Address	IP address used for managing the network element.
System Name	System name of the network element, as defined in the network element's MIB. If the network element is configured for Telnet access, the prompt is displayed.
Communication State	Ability of the VNE to reach the network element, according to the health of the device. For more information about communication states, see the *Cisco Active Network Abstraction 3.7.1 Administrator Guide*.
Investigation State	Level of network element discovery that has been performed or is being performed by the VNE. For more information about investigation states, see the *Cisco Active Network Abstraction 3.7.1 Administrator Guide*.

Table 2-6 Network Element Information Displayed in List View (continued)

Field Name	Description
Element Category	Network element category, such as Router or Eth-Switch (Ethernet switch).
Element Type	Network element type including the manufacturer's name, such as Cisco 7200.
Vendor	Vendor name.
Up Since	Date and time when the network element was last reset.
System Description	Detailed description of the software installed on the network element.
Location	Location of the network element.
File Systems	Device file systems.
Sending Alarms	Whether the network element is configured for sending alarms: True or False. Reporting the status of alarms can be enabled on only part of the device.

Tip Click the red triangle in a cell to expand the cell and view all the information it contains. You can also use a tooltip to view all the information.

Table 2-7 identifies the buttons that are displayed in the list view toolbar.

Table 2-7 List View Toolbar

Icon	Name	Description
	Export to CSV	Exports the information displayed in the table, or selected portions, to a CSV file. For more information, see Exporting Tables to a File, page 2-45
	Sort Table Values	Sorts the information displayed in the table by the criteria you specify. For more information, see Sorting a Table, page 2-42.
	Filter	Filters the information displayed in the table by the criteria you specify. For more information, see Filtering Table Contents, page 2-43.
	Clear Filter	Clears the existing filter.
	Show All Rows	Displays all table rows that meet the current filtering criteria.
	Show Only Selected Rows	Displays only the rows that you select. For more information, see Viewing Selected Rows, page 2-45.

See Working with Cisco ANA Tables, page 2-40, for more information about filtering, finding details about a network element in Cisco ANA NetworkVision tables, and the keyboard shortcuts used for accessing table functionality.

Some of the options that are available in the right-click shortcut menu in the list view are:

Option	Related Documentation
View network element properties	Chapter 3, "Viewing Network Element Properties"
View network element inventory	Chapter 3, "Viewing Network Element Properties"
Launch external applications or tools, such as an SSH client.	*Cisco Active Network Abstraction 3.7.1 Customization User Guide*
Launch available activation and configuration scripts, including those you create using Cisco ANA Command Builder (can be launched against multiple NEs).	*Cisco Active Network Abstraction 3.7.1 Customization User Guide*
Configure the topology.	Chapter 5, "Working with Links"
Configure and view business tag information.	Chapter 6, "Working with Business Tags and Business Elements"

Tip Click a column heading in a table to sort the information by that property.

Links View

Click **Show Links View** in the toolbar to display the links view in the Cisco ANA NetworkVision window.

When you view a map, it might have many links, and some links might consist of a collection, or *aggregation*, of links. This can make it difficult for you to view the links you are interested in. The links view enables you to clearly view the links, search for a specific link, and view the status of a link.

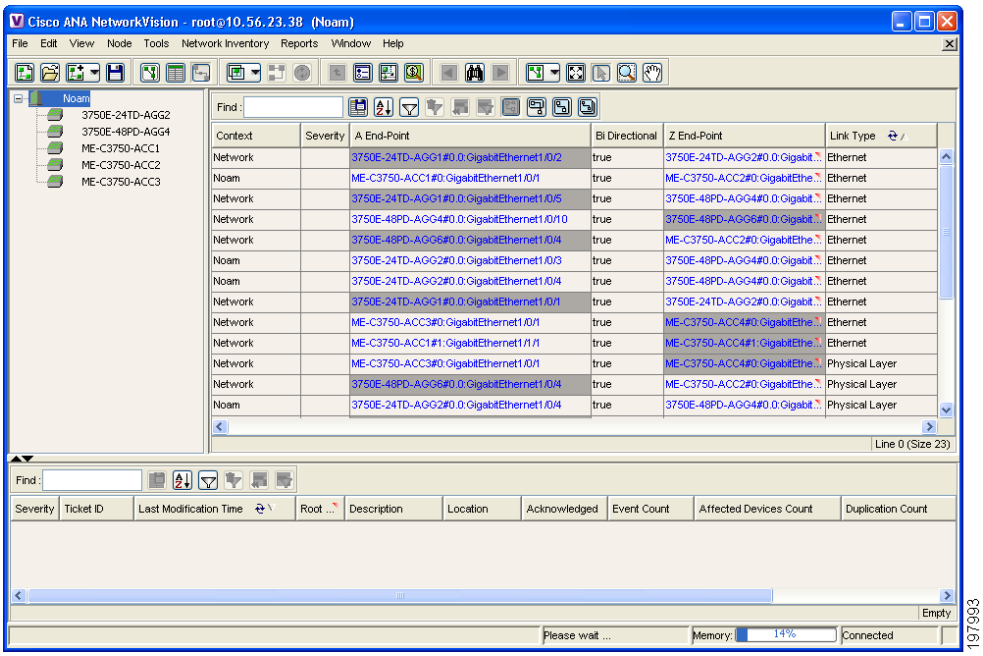
Note You can view and filter the links according to type using the Map Options dialog box. For more information, see Filtering Links According to Type, page 4-24.

Any links that are added or removed from the map are automatically added or removed from the links view, provided they have not been filtered out.

The links view is selection sensitive; that is, the links displayed in the links view depend on the context selected in the navigation pane or map. For example, if an aggregated node is selected, the links in the selected aggregation are displayed in the links view.

Figure 2-2 shows a links view.

Figure 2-2 Links View



Note An external link has a gray cell background in the table, and you can open the inventory window by clicking the hyperlink. For more information about external links, see Viewing Link Properties in the Links View, page 5-5.

Table 2-8 describes the information that is displayed in the links view.

Table 2-8 Information Displayed in the Links View

Field Name	Description
Context	Name of the map or aggregated node containing the link.
Severity	Link alarm severity, represented by a bell icon. The color indicates the alarm severity and thereby the impact of the alarm on the network. For more information about severity, see Map View, page 2-6.
A End-Point	Device or site that is the source of the link as a hyperlink to the inventory of the device or site.
Bi Directional	Whether the link is bidirectional or unidirectional: true (bidirectional) or false (unidirectional). If the link is unidirectional (false), the traffic is from A to Z.
Z End-Point	Device or site that is the destination of the link as a hyperlink to the inventory of the device or site.
Link Type	Type of link, such as Physical Layer, VPN, or MPLS.

Note Clicking a column heading in the links view sorts the information by that header value.

The links view toolbar includes the tools described in Table 2-7 and the link filtering buttons described in Table 2-9.

Table 2-9 Link Filtering Buttons

Button	Name	Description
	All Links	Displays the complete list of links for the selected context (map or aggregated node). In other words, the list is not filtered and all the links are displayed, including external links.
	External Links	Displays links with only one side of the link in this context (map or aggregated node) and the other side either not in the map or outside the selected context.
	Flat Links (Surface)	Displays the links currently visible on the map for the selected context (map or aggregated node), excluding any thumbnails.
	Deep Links	Displays the links for the current aggregated node where both endpoints are within the currently selected context.

For more information about filtering and sorting links in the links view, see Viewing Link Properties in the Links View, page 5-5.

Ticket Pane

When Cisco ANA detects faulty behavior in the network, the VNEs and their internal device components initiate an internal, end-to-end message flow, resulting in the full understanding and containment of the fault across all relevant network elements and network layers.

The ticket pane enables you to view and manage tickets as well as identify elements or links that are affected by a ticket. All the tickets that are reported by Cisco ANA are stored in the Cisco ANA gateway database.

The ticket pane is displayed beneath the navigation and content panes in the Cisco ANA NetworkVision window. You can view or hide the ticket pane by clicking the arrows displayed below the navigation pane.

A ticket represents the complete hierarchy of correlated alarms representing a single specific fault scenario. A ticket points to the root cause alarm that is the top-most alarm in the correlation hierarchy. Examples of alarms are Link Down, Device Unreachable, or Module Out. Some event types are capable of creating tickets. When an event is generated, it is correlated to an existing event, which is correlated to a ticket. If there is no existing ticket, a new ticket is created.

Note For detailed definitions of the key concepts in fault management, such as tickets, alarms, and events, see the *Cisco Active Network Abstraction 3.7.1 Theory of Operations Guide*. For information on managing tickets, see Chapter 9, "Working with Tickets in Cisco ANA NetworkVision."

Cisco ANA identifies the relationship between a root cause alarm and its consequent alarms. It automatically correlates the consequent alarms as *children* of the root alarm. The ticket pane displays the ticket (the root cause alarm), the aggregated severity of the ticket, and the severity of the root cause alarm. The Ticket Properties window enables you to view all correlated alarms.

Note The root cause alarm severity is the top-most severity of its contained alarms.

The ticket pane enables you to perform the following functions:

- View all tickets or only the filtered tickets of a selected device. For more information, see Filtering Tickets by Device, page 9-5.
- View and filter all tickets that meet specified criteria. See Filtering Tickets by Criteria, page 9-6.
- View and acknowledge tickets.
- View the properties of a ticket, including the history, correlated alarms, severity of the root cause alarm, and affected parties.
- Clear a ticket.
- Remove a ticket.
- Clear and remove a ticket.
- Locate the elements or links affected by the ticket in the map or links view.
- Sort the tickets displayed.

Table 2-10 describes the information displayed in the ticket pane.

Table 2-10 Ticket Information Displayed in the Ticket Pane

Field Name	Description
Severity	Severity of alarm, represented by a bell icon. The color indicates the alarm severity and thereby the impact of the alarm on the network. For more information about severity, see Map View, page 2-6. • Red—Critical • Orange—Major • Yellow—Minor • Sky Blue—Warning • Green—Cleared, Normal, or OK • Dark Blue—Informational • White—Indeterminate
Ticket ID	Ticket identifier, assigned sequentially. Click the hyperlinked entry to view ticket properties, and to acknowledge, clear, or refresh the ticket. For more information, see Chapter 9, "Working with Tickets in Cisco ANA NetworkVision."
Last Modification Time	Date and time the ticket was last modified. The ticket is modified when a user acknowledges the ticket or when an event is correlated.
Root Cause	Severity of the root cause alarm, represented by a bell icon. The color indicates the severity of the root cause alarm, as described in the Severity field.
Description	Supported ticket name.

Table 2-10 Ticket Information Displayed in the Ticket Pane (continued)

Field Name	Description
Location	Entity that triggered the ticket, as a hyperlink that displays the relevant location in the inventory.
Acknowledged	Whether or not the ticket has been acknowledged: Yes or No.
Event Count	Number of events associated with the ticket.
Affected Devices Count	Number of devices affected by the ticket, including the sources of the alarm and their subsequent alarms.
Duplication Count	For network events, the duplication count is calculated by the VNE and pertains only to flapping events. The duplication count represents the number of noncleared events aggregated by the flapping event. For tickets, the duplication count is the sum of the duplication counts of all events that are associated with the root alarm.
Reduction Count	For network events, the reduction count is calculated by the VNE and pertains only to flapping events. The reduction count represents the number of events that are aggregated by the flapping event. Ticket reduction count is the sum of reduction counts of all the events that are associated to the ticket. The History tab in the Windows Properties window displays one reduction count for each event listed. For more information, see Chapter 9, "Working with Tickets in Cisco ANA NetworkVision."
Alarm Count	Total number of alarms associated with the ticket, including the root alarm.

The ticket details in the ticket pane change automatically as new information arrives. For example, Port Down is updated to Port Up.

By default, the tickets in the ticket pane are sorted according to Ticket ID. For information about tickets, see Chapter 9, "Working with Tickets in Cisco ANA NetworkVision."

The Find field enables you to search for information in the ticket pane table according to the selected column. For more information about the buttons displayed in Cisco ANA NetworkVision tables and table functionality, see Working with Cisco ANA Tables, page 2-40.

The Location bar below the table displays:

- The location of the selected rows in the table; for example, Line 3.
- The number of selected rows and the total number of rows in the table; for example, 2/16 Selected.

For more information about network element status indicators, see Network Element Status Indicators, page 2-17.

Network Element Status Indicators

The following topics describe the ways in which the status of a network element is displayed in Cisco ANA NetworkVision:

Severity

Severity indicates the operational health of the network element. An icon has only one severity value at any given time, and this value is displayed using the severity colors. For more information about the colors used to display the severity (or propagated severity) of network elements and links, see Severity Indicators, page 2-10.

Propagation

Severity is propagated upward in the network hierarchy, displaying the top-most severity of the NE's children and thereby ensuring that every single problem in the network is propagated and visible.

The same severity propagation rules that are used for network elements apply to links. A link is a child object of an aggregation *only* if it is fully contained in the aggregation; that is, the network elements on both sides of the link are part of the aggregation, as shown in Figure 2-3 and Figure 2-4.

Figure 2-3 Link Severity Example 1

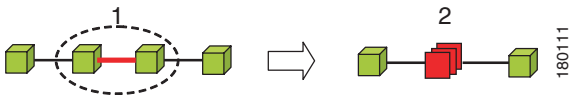


Figure 2-3 shows critical link 1 between two NEs in an aggregation. This critical link affects the severity of aggregation 2. That is, the aggregation is critical because it contains a link with a critical severity. Link severity affects the context.

Figure 2-4 Link Severity Example 2

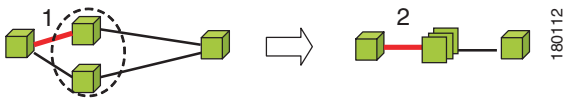


Figure 2-4 shows critical link 1 that forms part of a link aggregation. This affects the severity of link 2 because it contains a link with a critical severity.

New Ticket Propagation

A new ticket indicates a new local fault or accumulates and propagates the number of new faults in its children. New tickets are propagated upward, displaying the number of new tickets and the top-most severity.

When new tickets are accumulated, a label is displayed in the navigation pane and map, based on the following formula:

n s [+]

where:

Symbol	Description
n	The number of tickets with the highest severity in the new ticket count.
s	The highest severity level in the new tickets: • C = Critical • M = Major • m = Minor • W = Warning • N = Normal (cleared alarm) • i = Informational
+	Additional, less severe tickets (optional) exist.

For example:

- An object with three critical new alarms, two major alarms, and one warning alarm is labeled 3C+.
- An object with five minor new alarms is labeled 5m.

A bell represents unacknowledged tickets, and the bell color is that of the most severe, unacknowledged ticket.

If all relevant tickets are acknowledged, no bell is displayed.

Network Element Management State

The management state indicates the state or mode of the software component (a VNE) managing an NE and the communication with it. This enables you to determine the accuracy of the network information and the availability of VNEs to carry out network operations.

Management states are always local indications and are not propagated. A partial exception to this rule is the propagation of unreachable network elements.

The management state indication applies only to network elements and network element components. A network object can have only one state (for example, Unsupported or Initializing).

A managed network element icon consists of a managed element icon and one or two overlay icons, or *badges*:

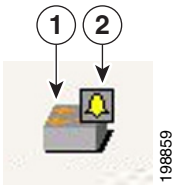
- The managed element icon displays a symbol of the element, and the color of the symbol indicates the highest severity ticket that is *not cleared* for the element. For more information about network element icons, see Network Element Icons, page 2-8. For more information about severity colors, see Severity Indicators, page 2-10.
- An alarm badge (a bell) is displayed on top of a managed element icon, and the color of the alarm badge indicates the severity of the highest severity ticket that is *not acknowledged* for the element. If all tickets are acknowledged, no alarm icon appears.

  Figure 2-5 shows an example of an element with the following ticket and alarm severities:

  – The highest severity ticket that is not cleared for the element is Major, as indicated by the orange color applied to the element icon.

  – The highest severity alarm that is not acknowledged for the element is Minor, as indicated by the yellow alarm badge.

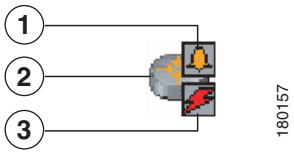
Figure 2-5 Element with Ticket and Alarm Severity Indicators



1	Element icon with severity Major (orange)
2	Alarm badge with severity minor (yellow)

- A VNE management state badge is displayed on top of the managed element icon to indicate the management state in the navigation tree and map. For example, a router that Cisco ANA failed to access (the router is unreachable) is displayed as illustrated in Figure 2-6.

Figure 2-6 Element with Overlay Badges



1	Alarm badge
2	Managed element icon
3	VNE management state badge

Table 2-11 describes network element communication and management states and shows the related badge for each state.

Table 2-11 Network Element Communication and Management States

State Name	Description	Badge
Communication States		
Device Reachable	All element protocols are enabled and connected.	None
Device Partially Reachable	The element is not fully reachable because: • At least one protocol is not operational. • All protocols are not operational but the element is still sending syslogs or traps.	
Device Unreachable	No protocols are responding and the element has not sent traps or syslogs in the last three minutes.	
VNE/Agent Unreachable	The VNE is not responding to the gateway. This can occur if the unit or AVM is overutilized or the connection between the gateway and unit or AVM was lost.	

Table 2-11 Network Element Communication and Management States (continued)

State Name	Description	Badge
Connecting	The VNE is starting and the initial connection has not yet been made to the device. This is a momentary state.	None
Investigation States		
Defined Not Started	The initial state of the VNE, as soon as it is created. The VNE was created but not started, or an existing VNE was stopped. A VNE remains in this state until it is started by a user. In this state, the VNE is managed but does not yet have any device information because the VNE has not yet connected to the device.	None
Unsupported	The device type is not supported by Cisco ANA, specifically because no VNE driver was found for the device.	
Discovering	The VNE is building the model of the device (the device type was found and is supported by Cisco ANA).	
Operational	The VNE has a stable model for the device. Modeling might not be fully complete, but enough information exists to monitor the device.	None
Currently Unsynchronized	The VNE model is inconsistent with the element for one of the following reasons: • A required, recoverable device command failed. • The device did not respond in a timely manner. • The VNE was in maintenance state but has restarted and is now resynchronizing with the network element. • The VNE was in the Device Unreachable state and is now resynchronizing with the network element.	
Maintenance	The VNE is no longer polling the device; therefore, the VNE does not know the device status. This can occur when a user moves the VNE to maintenance mode, or the VNE is using adaptive polling and CPU information is too high.	
Partially Discovered	The VNE model is inconsistent with the device because a required device command failed three times. A common cause of this state is that the device contains an unsupported module.	
Reconciliation	The business element with this badge is associated with a network element that does not exist. For example, the device configuration has changed and a network problem exists.	
Shutting Down	The VNE has been stopped or deleted by the user, and the VNE is terminating its connection to the device.	
Stopped	The VNE process has terminated; it will immediately move to Defined Not Started.	None

More than one management state can occur at the same time. For example, a single overlay icon can be displayed, reflecting the device status based on the following priorities: Unsupported > Discovering > VNE/Agent Unreachable > Device Unreachable > Partially Discovered > Operational.

For more information about each of these states and how to troubleshoot any issues, see the *Cisco Active Network Abstraction 3.7.1 Administrator Guide.*

Tickets

A bell icon is displayed in the navigation, map, and ticket panes to indicate one or more tickets. Every alarm is assigned a severity level, representing the impact of the fault on the network device. The bell icon displays the severity level of the top-most alarm. The following is an example:

Value	Navigation Pane	Map
Ticket		

Cisco ANA NetworkVision Toolbar

The Cisco ANA NetworkVision toolbar is context-sensitive and the options vary depending on your selection in the application.

Note The functionality that a user can access from the toolbar and in menus depends on the permissions defined for the user.

Table 2-12 identifies the icons and describes the functions that are available in the Cisco ANA NetworkVision toolbar.

Table 2-12 Cisco ANA NetworkVision Toolbar

Button	Name	Function
Map Options		
	New Map	Creates a new map in the database.
	Open Map	Opens a map saved in the database using the Open dialog box.
	Add to Map	Adds an element to the map or to the subnetwork selected in the navigation pane and displayed in the content pane.
	Save Map Appearance	Saves the current map (the background and the location of devices) to the database.
Viewing Options		
	Show Map View	Displays the map view in the Cisco ANA NetworkVision content pane (the button toggles when selected or deselected).
	Show List View	Displays the list view in the Cisco ANA NetworkVision content pane (the button toggles when selected or deselected).
	Show Links View	Displays the links view in the Cisco ANA NetworkVision content pane (the button toggles when selected or deselected).

Table 2-12 Cisco ANA NetworkVision Toolbar (continued)

Button	Name	Function
Overlay Tools		
	Choose Overlay Type	Chooses and displays an overlay of a specific type on top of the elements displayed in the content pane in a map view. Available overlay options are: • Ethernet Service • Pseudowire • VLAN • VPLS • VPN • None—Removes the existing overlays.
	Show Overlay / Hide Overlay	Displays or hides a previously defined overlay on top of the elements displayed in the map view. **Note** Overlays do not reflect changes that occur in the selected service. As a result, the information in an overlay can become stale.
	Refresh Overlay	Refreshes the overlay that was last selected.
Navigation Tools		
	Go to Parent	Moves up a branch in the navigation pane and content pane to enable you to view different information.
	Link Filter	Opens the Map Options dialog box, enabling you to display or hide different types of links in the map and links views.
	Overview	Opens a window displaying an overview of the network.
	Find Previous	Finds the previous instance of the search string entered in the Find in Map dialog box.
	Find	Opens the Find in Map dialog box, enabling you to find a device or aggregated node in the map by its name or IP address.
	Find Next	Finds the next instance of the search string entered in the Find in Map dialog box.
	Find Business Tag	Opens the Find Business Tag dialog box, enabling you to find and delete a business tag according to name, key, or type.
Map Zoom and Layout Tools		
	Layout Map	Defines the way in which the NEs are arranged in the Cisco ANA PathTracer window: circular, symmetric, tree, or hierarchical.
	Fit in Window	Fits the entire subnetwork or map in the content pane.

Table 2-12 Cisco ANA NetworkVision Toolbar (continued)

Button	Name	Function
	Normal Selection Mode	Activates the normal selection mode (the button toggles when selected or deselected).
	Zoom Selection Mode	Activates the zoom selection mode, which enables you to select a pane in the map to enlarge by clicking and dragging (the button toggles when selected or deselected).
	Pan Mode	Activates the pan mode, which enables you to move around in the map by clicking and dragging (the button toggles when selected or deselected).
Application-Specific Tools		
	Open Activation	Displayed if Cisco ANA Network Service Activation is installed with Cisco ANA. Opens the Activation dialog box. For more information, see the *Cisco Active Network Abstraction Network Service Activation 1.1 User Guide.*
	Show Recent Activations	Displayed if Cisco ANA Network Service Activation is installed with Cisco ANA. Opens the Service Activation List dialog box. For more information, see the *Cisco Active Network Abstraction Network Service Activation 1.1 User Guide.*

Cisco ANA NetworkVision Menu Bar

The following topics describe the options that are available in each Cisco ANA NetworkVision menu:

Note Based on the security level and access permissions assigned to a user, some of the menu options may not be available.

Note The menus are context-sensitive and the options vary depending on your selection in the application.

File Menu

Table 2-13 describes the options that are available in the Cisco ANA NetworkVision File menu. For more information, see Chapter 4, "Working with Cisco ANA NetworkVision Maps."

Table 2-13 File Menu Options

File Menu Option	Description
New Map	Creates a new empty map in the database.
Open	Opens a map saved in the database using the Open dialog box.
Close	Closes the map that is currently displayed.
Load MultiPath	Loads a Cisco ANA PathTracer map from a previously saved file in the Cisco ANA PathTracer Multi-Path window.
Add to Map	Opens the Add dialog box and enables you to add any of the following to the map or to the subnetwork selected in the navigation pane and displayed in the content pane: • Cross-Connect • Ethernet Service • Network Element • Pseudowire • Unassociated Bridge • VLAN • VPLS • VPN This option is enabled when a map is open and you have the required security level (OperatorPlus).
Save Map	Saves the appearance of the map (the background and the location of devices) to the database. This option is enabled when a map is open and you have the relevant security level (OperatorPlus).
Save As Image	Saves the active map as an image and automatically displays the Save as Image dialog box. Use this dialog box to save an image using a different file format or name.
Print Preview	Displays each map as it will look when printed.
Print	Prints the active map as displayed in the Print Preview dialog box.
Exit	Exits the Cisco ANA NetworkVision application and saves the content pane.

Edit Menu

Table 2-14 identifies the options available in the Cisco ANA NetworkVision Edit menu. For more information, see Chapter 4, "Working with Cisco ANA NetworkVision Maps."

Table 2-14 Edit Menu Options

Edit Menu Option	Description
Find in Map	Searches for a device in the map that contains the specified text in the name or the IP address fields.
Find Business Tag	Searches for business tag information in the database.
Resize	Displays the Resize dialog box, enabling you to define the percentage used to resize device icons or aggregated nodes in the map. **Note** The Resize option is only available when device icons or aggregated nodes are selected.

View Menu

Table 2-15 identifies the options available in the Cisco ANA NetworkVision View menu. For more information, see Viewing the Network Map, page 4-15.

Table 2-15 View Menu Options

View Menu Option	Description
Layout	Defines the way in which the map is displayed in the Cisco ANA NetworkVision content pane: circular, symmetric, tree, or hierarchical.
Overview	Opens a window displaying an overview of the network map.
Zoom In	Zooms in on the network map.
Zoom Out	Zooms out of the network map.
Fit In Window	Displays the entire network map in the content pane.
Normal Select	Activates the normal selection mode. The selected option is dimmed.
Pan	Activates the pan mode, which enables you to move around in a map by clicking and dragging. The selected option is dimmed.
Zoom Selection	Activates the zoom selection mode, which enables you to select an area in a map to be enlarged by clicking and dragging to view the selected area. The selected option is dimmed.

Node Menu

Table 2-16 describes the Node menu options.

Note Most of the functionality available in this menu is only available when a device icon or an aggregated node is selected in the navigation pane or a map.

Table 2-16 Node Menu Options

Node Menu Option	Description
Inventory	Displays a dialog box that enables you to view the physical and logical inventory. For physical inventory, you can view all the components of the device, such as modules and ports. In addition, you can view the status of each component. For logical inventory, you can view all the profiles and virtual channels or routing tables of the device. For more information, see Chapter 3, "Viewing Network Element Properties."
Aggregate	Groups selected items into an aggregation in the Cisco ANA NetworkVision content pane, and enables you to define a name for the aggregation. For more information, see Chapter 4, "Working with Cisco ANA NetworkVision Maps."
Disaggregate	Ungroups the selected aggregated node in the navigation pane and a map of the Cisco ANA NetworkVision window. All the aggregations in the selected node move up one level, and the original aggregated node is removed. For more information, see Chapter 4, "Working with Cisco ANA NetworkVision Maps." **Note** This option is available only when an aggregated node is selected in the navigation or a map.
Mark as A Side	Starts the process of creating a new static link. This option is enabled when a device, port or unmanaged network is selected.
Mark as Z Side	Launches the Add Static Link dialog box, enabling you to create a static link between the two selected nodes. This option is enabled after a device, port or unmanaged network is selected and after the Mark as A Side option is selected. **Note** If you select two ports, the Add Static Link dialog box is not displayed.
Properties	Displays a dialog box enabling you to view the properties of the selected device, such as the severity, IP address, and communication state. For more information, see Chapter 3, "Viewing Network Element Properties."

Tools Menu

Table 2-17 describes the Tools menu options.

Table 2-17 Tools Menu Options

Tools Menu Option	Description
Change User Password	Enables you to change the password used when logging in to the Cisco ANA client application suite. The change takes effect the next time you log into the application. **Note** The administrator can also change a user password in Cisco ANA Manage.
Options	Enables you to customize several of Cisco ANA NetworkVision's options, such as whether or not to load the content upon startup. For more information, see Selecting Cisco ANA NetworkVision Map and Alarm Options, page 2-39.
Config and Image Mgmnt	Displays the Cisco Active Network Abstraction Configuration and Image Management dashboard. For more information, see the *Cisco Active Network Abstraction 3.7.1 Configuration and Image Management User and Administrator Guide*.

Activation Menu

The Activation menu is displayed if the Cisco ANA Network Service Activation application is installed with Cisco ANA.

See the *Cisco Active Network Abstraction Network Service Activation 1.1 User Guide* for more information about any of the options in this menu.

Table 2-18 describes the Activation menu options.

Table 2-18 Activation Menu Options

Activation Menu Option	Description
Activation	Opens the Activation dialog box.
Show Recent Activations	Opens the Service Activation List dialog box.
Service Modification Utility	Opens the Service Metadata Modification Utility dialog box.

Network Inventory Menu

Table 2-19 describes the Network Inventory menu options.

Table 2-19 Network Inventory Menu Options

Network Inventory Menu Option	Description
Ethernet Flow Domains	Opens the Ethernet Flow Domain List Properties window, which lists the domains. For more information, see Viewing and Renaming Ethernet Flow Domains, page 12-30
VTP Domains	Enables you to view a current snapshot of the VLAN Trunk Protocol (VTP) domains. See Viewing VLAN Trunk Group Properties, page 12-57.

Reports Menu

Table 2-20 describes the Reports menu options.

Table 2-20 Reports Menu Options

Reports Menu Option	Description
Report Manager	Opens the Reports Manager window so you can create, run, and manage reports.
Run Report	Enables you to run standard or user-defined events, inventory, and network service reports on demand.

For more information about Report Manager and reports, see Chapter 10, "Working with Reports."

Window Menu

The Cisco ANA NetworkVision Window menu displays the names of all the maps open in the Cisco ANA NetworkVision content pane, enabling you to move between the maps.

Help Menu

Table 2-21 describes the Help menu options.

Table 2-21 Help Menu Options

Help Menu Option	Description
Cisco ANA NetworkVision Help	Opens the online help for Cisco ANA NetworkVision and Cisco ANA EventVision.
Icon Legend	Opens a window that identifies and describes the icons used in Cisco ANA.
Cisco ANA NSA Help	This option appears only if Cisco ANA Network Service Activation is installed with Cisco ANA. Opens the online help for the Cisco ANA Network Service Activation application.
Cisco.com	This option is unavailable in this version.
About Cisco ANA NetworkVision	Displays application information about Cisco ANA NetworkVision and any additionally installed applications.

Cisco ANA NetworkVision Shortcut Menus

Right-clicking a specific area, link, network element, device, or alarm in the Cisco ANA NetworkVision window opens the following menus:

- Device Shortcut Menu, page 2-30
- Map Shortcut Menu, page 2-33
- Aggregated Node Shortcut Menu, page 2-33
- Link Shortcut Menu, page 2-34
- List View Shortcut Menu, page 2-35
- Links View Shortcut Menu, page 2-36
- Ticket Shortcut Menu, page 2-37

A menu is displayed when you right-click in many of the Cisco ANA NetworkVision windows or tables. For example, you can open a map from the Open Map dialog box using the right-click menu. The options displayed vary depending on the window or table currently displayed and the selection as described in the following topics.

Note

- Based on the security level and access permissions assigned to a user, some menu options might not be available.
- The menus are context-sensitive and the options vary according to your selection in the application; for example, the shortcut menus for NEs and aggregated nodes are different.

Device Shortcut Menu

The Device shortcut menu is displayed when you right-click a device in the navigation pane or in the content pane.

Note The Device shortcut menu is context-sensitive and the options vary depending on your selection in the application. Some options might not be available when multiple devices are selected.

Table 2-22 describes the options available in the device shortcut menu.

Table 2-22 Device Shortcut Menu Options

Device Shortcut Menu Option	Description
Open VRF Table	Opens the VRF Table window. For more information, see Viewing VRF Properties, page 17-18.
Inventory	Displays a window enabling you to view the physical and logical inventory. For physical inventory, you can view all the components of the device, such as the modules, ports, and its IP address or configured VLANs. In addition, you can view the status of each component. For logical inventory, you can view all the profiles and VC tables of the device. For more information, see Chapter 3, "Viewing Network Element Properties."
Aggregate	Groups the selected devices into an aggregation in the Cisco ANA NetworkVision content pane, and enables you to define a name for the new aggregated node. For more information, see Chapter 4, "Working with Cisco ANA NetworkVision Maps."
Disaggregate	Ungroups the devices in the selected aggregated node in the navigation pane and a map of the Cisco ANA NetworkVision window. For more information, see Chapter 4, "Working with Cisco ANA NetworkVision Maps." **Note** This option is available only when an aggregated node is selected in the navigation or a map.
Attach Business Tag	Attaches a business tag to the selected network element. For more information, see Chapter 6, "Working with Business Tags and Business Elements."
Detach / Edit	You can detach or edit a business tag from the selected NE. For more information, see Chapter 6, "Working with Business Tags and Business Elements." **Note** The Detach and Edit options are only displayed when a business tag is attached to an NE.

Table 2-22 Device Shortcut Menu Options (continued)

Device Shortcut Menu Option	Description
Config Mgmnt	Displays the Configuration Management page for the selected device in Cisco Active Network Abstraction Configuration and Image Management. For more information, see the *Cisco Active Network Abstraction 3.7.1 Configuration and Image Management User and Administrator Guide.*
Image Mgmnt	Displays the Image Management page for the selected device in Cisco Active Network Abstraction Configuration and Image Management. For more information, see the *Cisco Active Network Abstraction 3.7.1 Configuration and Image Management User and Administrator Guide.*
Filter Tickets	Filters the tickets shown in the ticket pane so that only the tickets of a selected device or network element are displayed.
Resize	Enables you to resize an object on the map by percentage or predefined sizes.
Remove from Map	Removes the selected device and all its children from the map (navigation pane and content pane). The device that has been removed is still maintained in the network.
Save as New Map	Creates a new map and places the selected aggregation as the root, while leaving the original map intact.
Run Report	Enables you to run standard or user-defined events, inventory, and network service reports on demand.
Add Associated VLAN	Opens the Add Associated VLAN dialog box so that you can add an associated VLAN to the selected VLAN. For more information, see Adding an Associated VLAN, page 12-43.
Delete	Deletes the selected item from the map.
Modify	Displays the Modify dialog box so that you can change the selected item's name, description, or icon.
Rename	Renames the selected item.
Show VRF Egress Adjacents	Displays the Adjacents window for the selected VRF.
Show VRF Ingress Adjacents	Displays the Adjacents window for the selected VRF.
Edit	Move the selected item to the location you specify.
Show as Aggregation / Show Thumbnail	Displays the selected item as a single entity or as a collection of items.
Tools	The Tools option contains the following choices: • CPU Usage—Displays memory and CPU usage information for a device or network element. • Ping—Pings the device from the client station. • Telnet—Communicates with the device using the Telnet window from the client station.

Table 2-22 Device Shortcut Menu Options (continued)

Device Shortcut Menu Option	Description
Topology	The Topology option enables you to add: • A static link between two devices. • A static topology between a device and an unmanaged network. • A tunnel to a VPN. When working with static links, the following submenu options enable you to define the A Side and Z Side of the link: • Mark as A Side • Mark as Z Side When working with VPNs in VPN Service View, the Add Tunnel submenu option allows you define and configure tunnels.
Launch external applications	Starts an external application or tool that has been configured for access via the shortcut menu. For more information, see the *Cisco Active Network Abstraction 3.7.1 Customization User Guide.*
Script names	Launches available activation and configuration scripts, including those you create using Command Builder (can be launched against multiple NEs). For more information, see the *Cisco Active Network Abstraction 3.7.1 Customization User Guide.*
PathTracer	Launches a path trace from the selected item.
Properties	Displays the properties of the selected item, such as the IP address and system name. In addition, you can open the VNE Properties dialog box and manage VNE properties. For more information, see Chapter 3, "Viewing Network Element Properties."
VNE Tools	Changes the status of the VNE by starting or stopping it. For more information, see Chapter 3, "Viewing Network Element Properties."
Management	Contains the following submenu options: • Command Builder—Defines commands and scripts using the Cisco ANA Command Builder tool (Configurator security level required). • Soft Properties Management—Extends VNEs by adding SNMP MIB or Telnet/SHH/TL-1 properties to the device's collected information model using the Cisco ANA Soft Properties Manager (Administrator security level required). For more information about Command Builder and Soft Properties Manager, see the *Cisco Active Network Abstraction 3.7.1 Customization User Guide.*

Map Shortcut Menu

The Map shortcut menu is displayed when you right-click anywhere on a map in the content pane.

Table 2-23 describes the map shortcut menu options.

Table 2-23 Map Shortcut Menu Options

Map Shortcut Menu Option	Description
Go to Parent	Goes to the parent in the navigation pane and content pane to enable you to view different information.
Go to Root	Goes to the root in the navigation pane and content pane to enable you to view different information.
Aggregate	Creates an aggregation of the selected nodes in the navigation pane and a map in the Cisco ANA NetworkVision window and enables you to define a name for the aggregation. For more information, see Chapter 4, "Working with Cisco ANA NetworkVision Maps."
Filter Tickets	Filters the tickets shown in the ticket pane so that only the tickets of a selected device or network element are displayed.
Launch external applications	Launch external applications or tools, such as an SSH client. See the *Cisco Active Network Abstraction 3.7.1 Customization User Guide.*
Script names	Launches available activation and configuration scripts, including those you create using Command Builder (can be launched against multiple NEs). For more information, see the *Cisco Active Network Abstraction 3.7.1 Customization User Guide.*
Add Associated VLAN	Opens the Add Associated VLAN dialog box so that you can add an associated VLAN to the selected VLAN. For more information, see Adding an Associated VLAN, page 12-43.

Aggregated Node Shortcut Menu

The Aggregated Node shortcut menu is displayed when you right-click an aggregated node in a map.

Table 2-24 describes the aggregated node shortcut menu options.

Table 2-24 Aggregated Node Shortcut Menu Options

Aggregated Node Shortcut Menu Option	Description
Aggregate	Groups the selected aggregated nodes into an aggregation in the Cisco ANA NetworkVision content pane, and enables you to define a name for the new aggregated node. For more information, see Chapter 4, "Working with Cisco ANA NetworkVision Maps."
Disaggregate	Ungroups the selected aggregated node in the navigation pane and map in the Cisco ANA NetworkVision window. All the aggregations in the selected node move up one level, and the original aggregated node is removed. For more information, see Chapter 4, "Working with Cisco ANA NetworkVision Maps."

Table 2-24 Aggregated Node Shortcut Menu Options (continued)

Aggregated Node Shortcut Menu Option	Description
Attach Business Tag	Attaches a business tag to the selected network element. For more information, see Chapter 6, "Working with Business Tags and Business Elements."
Filter Tickets	Filters the tickets shown in the ticket pane so that only the tickets of the selected aggregated node are displayed.
Rename	Renames the selected aggregated node.
Resize	Defines the size of selected aggregated nodes in a map according to predefined sizes or according to a percentage of the current size.
Remove from Map	Removes the selected aggregated node and all its children from the navigation pane and the map.
Save as New Map	Creates a new map and places the selected aggregation as the root, while leaving the original map intact.
Add Associated VLAN	Opens the Add Associated VLAN dialog box so that you can add an associated VLAN to the selected VLAN. For more information, see Adding an Associated VLAN, page 12-43.
Run Report	Enables you to run standard or user-defined events, inventory, and network service reports.
Show Thumbnail	Displays a thumbnail of the selected aggregated node in the content pane, including all aggregated devices.
Show as Aggregation	Displays the aggregated node in a map. **Note** The Show as Aggregation option is displayed in the shortcut menu when a thumbnail is displayed in content pane.
Delete	Deletes the selected item.
Rename	Enables you to rename the selected item.

Link Shortcut Menu

The Link shortcut menu is displayed when you right-click a link in the map view. For more information, see Chapter 5, "Working with Links."

Table 2-25 describes the link shortcut menu options.

Table 2-25 Link Shortcut Menu Options

Link Shortcut Menu Option	Description
Filter Tickets	Filters the tickets shown in the ticket pane so that only the tickets of a selected network element are displayed.
Properties	Displays the properties of the selected link.

List View Shortcut Menu

The list view shortcut menu is displayed when you right-click an entry in the list view table displayed in the Cisco ANA NetworkVision content pane. For more information, see List View, page 2-10.

Table 2-26 describes the list view shortcut menu options.

Table 2-26 List View Shortcut Menu Options

List View Shortcut Menu Option	Description
Inventory	Displays a window enabling you to view the physical and logical inventory. For physical inventory, you can view all the components of the device, such as the modules, ports, and its IP address or configured VLANs. In addition, you can view the status of each component. For logical inventory, you can view all the profiles and VC tables of the device. For more information, see Chapter 3, "Viewing Network Element Properties."
Attach Business Tag	Attaches a business tag to the selected link. For more information, see Chapter 6, "Working with Business Tags and Business Elements."
Detach/Edit	Detaches or edits a business tag from the selected link. For more information, see Chapter 6, "Working with Business Tags and Business Elements." **Note** The Detach and Edit options are only displayed when a business tag is attached to a link.
Run Report	Enables you to run standard or user-defined events, inventory, and network service reports.
Show Only Selected Rows	Displays only the rows that you select. For more information, see Viewing Selected Rows, page 2-45.
Show All Rows	Displays all table rows that meet the current filtering criteria.
Tools	Contains the following submenu options: • CPU Usage—Displays memory and CPU usage information for a device or network element. • Ping—Pings the device from the client station. • Telnet—Communicates with the device using the Telnet window from the client station.
Topology	Enables you to add: • A static link between two devices. • A static topology between a device and an unmanaged network. • A tunnel to a VPN. When working with static links, the following submenu options enable you to define the A Side and Z Side of the link: • Mark as A Side • Mark as Z Side When working with VPNs in VPN Service View, the Add Tunnel submenu option allows you define and configure tunnels.

Table 2-26 List View Shortcut Menu Options (continued)

List View Shortcut Menu Option	Description
Launch external applications	Launches external applications or tools, such as an SSH client. See the *Cisco Active Network Abstraction 3.7.1 Customization User Guide.*
Properties	Displays the properties of the selected item, such as the IP address and system name. In addition, you can open the VNE Properties dialog box and manage VNE properties. For more information, see Chapter 3, "Viewing Network Element Properties."
Script names	Launches available activation and configuration scripts, including those you create using Command Builder (can be launched against multiple NEs). For more information, see the *Cisco Active Network Abstraction 3.7.1 Customization User Guide.*
VNE Tools	Changes the status of the VNE by starting or stopping it. For more information, see Chapter 3, "Viewing Network Element Properties."
Management	Contains the following submenu options: • Command Builder—Defines commands and scripts using the Cisco ANA Command Builder tool (Configurator security level required). • Soft Properties Management—Extends VNEs by adding SNMP MIB or Telnet/SHH/TL-1 properties to the device's collected information model using the Cisco ANA Soft Properties Manager (Administrator security level required). For more information about Command Builder and Soft Properties Manager, see the *Cisco Active Network Abstraction 3.7.1 Customization User Guide.*

Links View Shortcut Menu

The links view shortcut menu is displayed when you right-click a link in the links view table displayed in the Cisco ANA NetworkVision content pane. For more information, see Chapter 5, "Working with Links."

Table 2-27 describes the links view shortcut menu options.

Table 2-27 Links View Shortcut Menu Options

Links View Shortcut Menu Option	Description
Attach Business Tag	Attaches a business tag to the selected link. For more information, see Chapter 6, "Working with Business Tags and Business Elements."
Detach/Edit	Detaches or edits a business tag from the selected link. For more information, see Chapter 6, "Working with Business Tags and Business Elements." **Note** The Detach and Edit options are only displayed when a business tag is attached to a link.
Select Link in Map	Highlights the selected link in the content pane.

Table 2-27 Links View Shortcut Menu Options (continued)

Links View Shortcut Menu Option	Description
Show Only Selected Rows	Displays only the rows that you select. For more information, see Viewing Selected Rows, page 2-45.
Show All Rows	Displays all table rows that meet the current filtering criteria.
Properties	Displays the properties of the selected link.

Ticket Shortcut Menu

The Ticket shortcut menu is displayed when you right-click a ticket in the ticket pane. The Ticket shortcut menu enables you to view ticket properties and highlights the links or elements that are affected by a ticket. The Ticket menu also enables you to acknowledge, clear, and remove a ticket. For more information, see Chapter 9, "Working with Tickets in Cisco ANA NetworkVision."

Table 2-28 describes the ticket shortcut menu options.

Table 2-28 Ticket Shortcut Menu Options

Ticket Shortcut Menu Option	Description
Acknowledge	Acknowledges that the ticket is being handled; the ticket is displayed as true in the ticket pane. Acknowledging an alarm removes the alarm icon from the device icon. Multiple tickets can be acknowledged at the same time.
Clear	Approves the reported faulty ticket and clears the faulty networking entity from Cisco ANA. The ticket is displayed as Clear in the ticket pane. **Note** When a Card Out or Link Down alarm occurs, the relevant information is displayed in the inventory and maintained in the VNE.
Remove	Removes the ticket and all its active subtickets from the ticket pane (this option is only available after the ticket has been cleared). The deleted tickets can be viewed using Cisco ANA EventVision. Multiple tickets can be removed at the same time. **Note** When a ticket is removed, the information is no longer displayed in the inventory and is removed from the VNE.
Clear and Remove	Approves the reported faulty ticket and clears the faulty networking entity from Cisco ANA. In addition, the ticket and all its active subtickets are removed from the ticket pane.
Find Affected Elements	Finds any elements affected by the selected ticket: • If only one element is affected, it is selected in the Cisco ANA NetworkVision navigation pane and content area. • If multiple elements are affected, they are displayed in the Affected Elements window.
Show Only Selected Rows	Displays only the rows that you select. For more information, see Viewing Selected Rows, page 2-45.

Table 2-28 Ticket Shortcut Menu Options (continued)

Ticket Shortcut Menu Option	Description
Show All Rows	Displays all table rows that meet the current filtering criteria.
Properties	Displays the Ticket Properties dialog box, enabling you to view ticket information, including impact analysis details of the affected parties and correlated alarms. See Viewing Ticket Properties, page 9-7.

Changing a User Password in Cisco ANA NetworkVision

Cisco ANA enables you to provide authentication by Cisco ANA or an external Lightweight Directory Access Protocol (LDAP) server. The method used to change your password depends on whether authentication is provided by Cisco ANA or an LDAP server:

- If Cisco ANA provides login authentication, Cisco ANA NetworkVision enables you to change your login password. If needed, the administrator can also change your password in Cisco ANA Manage.
- If Cisco ANA uses an LDAP server for authentication, you cannot change your password in Cisco ANA NetworkVision. Only users with Administrator privileges can change your password, which must be done on the LDAP server.
  - For more information about external authentication, see the *Cisco Active Network Abstraction 3.7.1 Customization User Guide*.
  - For more information about password guidelines, see the *Cisco Active Network Abstraction 3.7.1 Administrator Guide*.

To change your password:

Step 1 Choose **Tools > Change User Password**. The Change User Password dialog box is displayed.

Note If Cisco ANA uses an LDAP server for authentication, the Change User Password option is dimmed. Contact your administrator to change your password on the LDAP server.

Step 2 Enter the following information:

- Old password—Enter the old user password.
- New password—Enter the new user password.
- Confirm password—Enter the new password again to confirm the entry.

Step 3 Click **OK**. The change takes effect the next time you log into the application.

Selecting Cisco ANA NetworkVision Map and Alarm Options

Cisco ANA NetworkVision enables you to select map, display, and audio options.

To select Cisco ANA NetworkVision options:

Step 1 Choose **Tools > Options** from the main menu.

Step 2 In the Startup tab, check the Load Workspace on Startup check box to automatically view the content pane when you log in. Uncheck the check box if you do not want to view the content pane when you log in.

Step 3 Click the **Display** tab. Set the display options using the information in the following table.

Table 2-29 Cisco ANA NetworkVision Display Options

Field	Description
Preferences	
Map Labels Font Size	In the drop-down list, choose the preferred font size for labels on maps. Font sizes range from 10 to 14, with a default of 12.
Severity	
Show Severity Text (e.g. [3M+]	Check the check box to view severity labels in the navigation pane and maps, using the formula described in New Ticket Propagation, page 2-18. Uncheck the check box to hide severity labels.
Show Acknowledged	Check the check box to view the number of both acknowledged and unacknowledged alarms in the network element display name. Uncheck the check box to view only the number of unacknowledged alarms in the network element display name. For example, assume that device NE1 has two alarms with the severity M. One of these two alarms is acknowledged, and the other is not. If you check the Show Acknowledged check box, the display name will be NE1 [2M]. If you uncheck the Show Acknowledged check box, the display name will be NE1 [1M].
Show Propagated	Check the check box to view propagated alarms on the specific entity. Uncheck the check box to view only the alarms on the specific entity.
Display Name	
Display Name	Select the preferred setting for network element names: • Do not use Business Tag—Displays the original network element name only. • Add Business Tag to name—Displays the original network element name and the name of the business tag. • Replace name with Business Tag—Replaces the network element name with the name of the business tag. When a subscriber is attached to a port, the name of the subscriber is also added.

Step 4 Click the **Audio** tab.

Step 5 Select your preferences for audio notifications:

a. Check the Enable Audio Response for Alarm check box to indicate that a sound is to be issued when an alarm is triggered. Uncheck the check box to prevent a sound from being issued when an alarm is triggered.

b. In the Critical field, specify the .wav file to use for critical alarms.

c. In the Major field, specify the .wav file to use for major alarms.

d. In the Minor field, specify the .wav file to use for minor alarms.

e. Check the Loop Sound on Critical Alarm check box to play the critical alarm sound continuously when a critical alarm is triggered. Uncheck the check box to play the critical alarm sound only once when a critical alarm is triggered.

Step 6 Click **Apply** to apply your selections.

Step 7 Click **OK**.

Working with Cisco ANA Tables

Cisco ANA uses tables to display different types of information. The following topics describe how to work with Cisco ANA tables so that you can view the information that you want and, optionally, save the information to a file:

- Table Toolbar Options, page 2-40
- Finding Text in a Table, page 2-41
- Sorting a Table, page 2-42
- Filtering Table Contents, page 2-43
- Viewing Selected Rows, page 2-45
- Exporting Tables to a File, page 2-45

To view all text in a table cell, you can do either of the following:

- Click the red triangle in the cell to automatically expand the cell to the size of the cell's contents.
- Hover your mouse cursor over the cell.

Table Toolbar Options

Table 2-30 describes the options available in table toolbars.

Table 2-30 Table Toolbar Options

Option	Name	Description
	Find	Searches the current table for the string you enter. For more information, see Finding Text in a Table, page 2-41.
	Export to CSV	Exports the information displayed in the table, or selected portions, to a CSV file. For more information, see Exporting Tables to a File, page 2-45
	Sort Table Values	Sorts the information displayed in the table by the criteria you specify. For more information, see Sorting a Table, page 2-42.
	Filter	Filters the information displayed in the table by the criteria you specify. For more information, see Filtering Table Contents, page 2-43.
	Clear Filter	Clears the existing filter.
	Show All Rows	Displays all table rows that meet the current filtering criteria.
	Show Only Selected Rows	Displays only the rows that you select. For more information, see Viewing Selected Rows, page 2-45.

Finding Text in a Table

Cisco ANA enables you to search for information about a specific network object in a table by entering search criteria, such as a partial IP address.

Table 2-31 lists the keyboard shortcuts that you can use when working with tables.

Table 2-31 Keyboard Shortcuts for Tables

Keyboard Shortcut	Description
Ctrl + A	Selects all the rows in the table.
Ctrl + Space	Deselects all the rows in the table.
Enter	On a selected row, opens the default action.
Arrow Navigation Keys	Navigates up and down in the rows.
Ctrl + Up/Down	Keeps the selected row and moves up or down.
Ctrl + Up/Down + Space	Keeps the selected row and moves up or down. The space selects the required row.

Table 2-31 Keyboard Shortcuts for Tables (continued)

Keyboard Shortcut	Description
Shift + Up/Down	Keeps the selected row and selects all the rows that are above or below it.
Shift + F10	Opens the shortcut menu.
F3	Finds next.
Shift + F3	Finds previous.

To find text in a table:

Step 1 In the Find field on the toolbar, enter the search criterion for the entity that you want to find and press **Enter**.

Step 2 Press **F3** to continue searching the table or press **Ctrl + F** to return to the Find field.

Sorting a Table

Cisco ANA NetworkVision enables you to sort a table in one or more of the following ways:

- According to a column, by clicking the required column heading. The  icon is displayed next to the selected column heading, indicating continuous sorting.
- In ascending or descending order, by clicking a column heading.
- By clicking **Sort Table Values** in the toolbar and specifying sort criteria.

A triangle next to the column heading indicates the property by which the table is sorted.

To sort a table using the Sort Table Values option:

Step 1 In the table toolbar, click **Sort Table Values**. The Sort dialog box is displayed.

Step 2 Enter the required information as defined in Table 2-32:

Table 2-32 Sort Table Values Dialog Box

Field	Description
Sort By	Specify the first sort criterion: 1. In the drop-down list, select the column to use for the first sort criterion. 2. Click the **Ascending** or **Descending** radio button to indicate the sort order.

Table 2-32 Sort Table Values Dialog Box (continued)

Field	Description
Then By	(Optional) Specify the next sort criterion: 1. In the drop-down list, select the column to use for the second sort criteria. 2. Click the **Ascending** or **Descending** radio button to indicate the sort order.
Sort Operation	Specify the frequency of the sort operation by clicking the appropriate radio button: • Only Once—Sorts the information in the table only once according to the specified criteria. • Continuously/Repeatedly—Sorts the information in the table continuously according to the specified criteria. If you select this option, the  icon is displayed next to the selected column heading.

Step 3 Click **OK**. The table information is sorted according to the filter defined.

Filtering Table Contents

By filtering a table's contents, you can view only those items that are of interest to you. This feature can be extremely helpful when working with tables that contain many entries.

Note If you load a table with many entries, (for example, thousands of entries), it can take a while for the complete table to load. The filtering options in the table toolbar are unavailable until the table has completely loaded.

The following changes in the GUI indicate that a filter has been applied:

- The Filter button is slightly shaded.
- The Clear Filter button becomes active.
- The filter details are displayed:
  - In the status line below the table.
  - When you hover the mouse cursor over the Filter button.

To define a filter:

Step 1 In the toolbar above the table, click **Filter**. The Filter dialog box is displayed as shown in Figure 2-7.

Figure 2-7 Table Filter Dialog Box

Step 2 In the Match drop-down list, choose the rule for including items that meet the specified criteria:

- All—All of the following criteria are to be met.
- Any—Any of the following criteria are to be met.

Step 3 For each criterion, specify the following information:

a. In the first drop-down list, choose the primary match category. The drop-down list contains all columns in the current table.

b. In the second-drop down list, list choose the rule to use for this criterion. The options are:

- Contains
- Does not contain
- Equals
- Does not equal
- Greater than
- Less than

c. The third field either lists the available values or allows you to enter text:

- If a drop-down list is displayed, choose the required entry.
- If an entry field is displayed, enter a string or regular expression for the criterion. Any entry that is not a regular expression is treated as a string.

Step 4 Click + to add another criterion for this filter.

Step 5 Add additional criteria as required. To remove a criterion, click -.

Step 6 When you have specified all criteria for the filter, click **OK**.

The table data is displayed using the defined filter.

Step 7 To clear a filter, click **Clear Filter** in the table toolbar.

The table is refreshed and all entries are displayed.

The following tables have additional filtering capabilities:

- Cisco ANA NetworkVision ticket pane. For more information, see Filtering Tickets by Criteria, page 9-6.
- Links view in the content pane. For more information, see Links View, page 2-13.

Viewing Selected Rows

Cisco ANA enables you to select a line or a specific set of lines, and display them in the table. The lines that you do not select are hidden from view.

You can use this feature with the filtering mechanism to view the specific entries that you need. You can either select specific rows and then apply a filter, or you can filter the table's contents and then select specific rows to view.

If you apply a filter, the details of the filter are displayed below the table. For example, if you apply a filter that specifies all elements with names containing ME are to be displayed, the following appears in the table status line:

```
Filter: 'Name' Contains ME
```

The status bar below the table also displays the:

- Number of rows selected, if any.
- Number of the selected row, if a row is selected.
- Total number of rows currently displayed in the table.

For example, if you select line four in a table with six rows, the following information is displayed:

```
Line 4 (1/6 Selected)
```

If no rows are selected, the value for the line defaults to 0, such as:

```
Line 0 (Size 6)
```

To view selected rows:

Step 1 Select the appropriate line or lines in the table using standard Windows mouse or keystroke operations.

Step 2 Click **Show Only Selected Rows**.

The table displays the selected rows, and the Show All Rows option becomes active.

Step 3 Click **Show All Rows** to view all rows in the table.

Exporting Tables to a File

Cisco ANA enables you to export the currently displayed data from a table. You can either select specific rows to export, or clear all selections in the table to export the entire table. The data can then be imported and viewed at a later stage.

To export a table to a file:

Step 1 Press **Ctrl + Space** to clear any existing selection.

Step 2 Identify the content you want to export:

- To export specific rows, select the required rows.
- To export the entire table, ensure that nothing is selected.

Step 3 In the toolbar above the table, click **Export to CSV**. The Export Table to File dialog box is displayed.

Step 4 Browse to the directory where you want to save the table.

Step 5 In the File name field, enter a name for the table.

Step 6 Click **Save**. The content specified in Step 2 is saved in the selected directory.