C H A P T E R 4

Working with Cisco ANA NetworkVision Maps

The topological map is the main tool used by Cisco ANA NetworkVision to display the links and relationships between the network elements and aggregated nodes. The following topics describe how to work with the topological maps displayed in the content pane of the Cisco ANA NetworkVision window:

You can also perform the following functions from the map and list views if they are configured for your client. These are described in the *Cisco Active Network Abstraction 3.7.1 Customization User Guide*.

- Launch external applications or tools, such as an SSH client.
- Launch available activation and configuration scripts, including those you create using Command Builder. These scripts can be launched against multiple NEs at the same time.

User Roles Required for Working with Cisco ANA NetworkVision Maps

Table 4-1 identifies the roles that are required to work with Cisco ANA NetworkVision maps. 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 4-1   Default Permission/Security Level Required for Working with Cisco ANA NetworkVision Maps

Task	Viewer	Operator	OperatorPlus	Configurator	Administrator
Map-Related Tasks					
Add elements to a map	—	—	X	X	X
Create maps	—	—	X	X	X
Define a map layout	X	X	X	X	X
Delete maps	—	—	X	X	X
Group and ungroup aggregations	—	X	X	X	X
Preview and print maps	X	X	X	X	X
Remove elements from a map	—	—	X	X	X
Rename maps	—	—	X	X	X
Resize elements in a map	X	X	X	X	X
View maps[1]	X	X	X	X	X
Link-Related Tasks					
Filter links	—	—	X	X	X
Find and select a link in a map	—	—	X	X	X
Other Tasks					
Open the CPU Usage Graph	—	—	—	—	X
Use Ping and Telnet to communicate with devices	—	—	—	—	X

1. A user with Viewer, Operator, OperatorPlus, or Configurator access can view objects in a map, but the objects are generic in their representation and are displayed with a locked icon on them.

Opening Maps

Cisco ANA provides two methods for opening maps:

- You can open commonly used maps (if you left the maps open when you last exited Cisco ANA NetworkVision). See Opening Commonly Used Maps, page 4-3.

- You can view all existing maps and choose the ones you want to open. See Opening a New Map from the Open Map Dialog Box, page 4-4.

For information on how to close a map, see Closing a Map, page 4-5.

When you open a map, the network information is automatically refreshed. For example, if a device was up the last time that the map was saved and closed, and then the device is moved to maintenance, the next time you open the map the management status of the device is updated accordingly and the device displays a maintenance status.

Opening Commonly Used Maps

When you launch Cisco ANA NetworkVision, it lists the maps you recently viewed but did not close when you exited the client session. This list of maps that you recently viewed prevents you from having to view the complete list of available maps, which can be quite lengthy.

Note   This list is not available to first-time users or users who closed their maps before closing the application.

To open a commonly used map that you did not close previously:

Step 1   Launch Cisco ANA NetworkVision as described in Starting Cisco ANA NetworkVision, page 2-2. The Cisco ANA NetworkVision window opens, and the Last Open Maps dialog box is displayed.

Step 2   Check the check boxes for the maps you want to open, and uncheck the check boxes for the maps you do not want to open.

Step 3   Click **OK**.

Opening a New Map from the Open Map Dialog Box

You can open any maps that are in the Open Map dialog box, even if you have never accessed them before.

To open a new map:

Step 1   Display the Open Map dialog box by doing one of the following:

- Click **Open Map** in the main toolbar.

- Choose **File > Open**.

The Open Map dialog box lists the existing maps.

The Find field enables you to search for a map containing the string that you enter. For more information, see Finding Text in a Table, page 2-41.

You can use the tools described in Table 4-2 to manage maps in the Open Map dialog box.

Table 4-2   Open Map Dialog Box Options

Tool	Description
	Export to CSV—Exports the information displayed in the table. For more information, see Exporting Tables to a File, page 2-45.
	Delete Map—Deletes the selected map from the Open Map dialog box, the Cisco ANA NetworkVision window and the database. If a map that is opened is deleted, the map closes. For more information, see Deleting a Map from the Cisco ANA Database, page 4-13.
	Rename Map—Renames the selected map in the Open Map dialog box and Cisco ANA NetworkVision window. For more information, see Renaming a Map, page 4-14.
	Sort Table Values—Sorts the information displayed in the table.
	Filter—Defines a filter for the information displayed in the table. For more information, see Filtering Table Contents, page 2-43. **Note** When a filter is applied, the Clear Filter button is activated.
	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.

Step 2   Select the maps you want to open using one of the following methods. You can select multiple maps by pressing **Ctrl** while you select individual maps.

- Select the maps in which you are interested, and then click **Open**.
- Right-click the required maps and choose **Open**.
- Double-click the required maps.

Use the Window menu in the Cisco ANA NetworkVision window to move between the open maps. For more information on the Cisco ANA NetworkVision window, see Cisco ANA NetworkVision Window, page 2-4.

Note   By default you can view and work on a maximum of five maps at any given time in the Cisco ANA NetworkVision window. To change this default setting, contact your Cisco account representative. To create a new map or select a new map, close the required number of maps.

Closing a Map

When you close a map, Cisco ANA saves basic map information whether or not you manually save the map. This default information includes device and link additions, device and link removals, aggregations, and disaggregations. However, you must use the Save Map option if you want to retain the following information in the database:

- The location of the devices on the map
- The layout
- Thumbnails
- The size of the devices

To close a map:

Step 1   (Optional) To save more than the default map information, use one of the following methods:

- Click **Save Map Appearance** in the main toolbar.
- Choose **File > Save Map** from the main menu.

Step 2   Do one of the following:

- Choose **File > Close**.
- Click ☒ in the upper right corner of the content pane.

If changes have been made to the map, an information message is displayed.

Step 3   Click **Yes**. The map is saved and closed. An empty Cisco ANA NetworkVision window is displayed, or the map that was last opened is displayed.

Creating a New Map

Cisco ANA NetworkVision enables you to create multiple network maps to represent specific network views. Views can cover specific network segments, customer networks, or any other mix of network elements desired. When you create a map, it is available to other users if they have sufficient access and security privileges.

The network maps provide a graphic display of active faults and alarms, and serve as an easy access point for activating services.

Keep the following in mind when creating a new map:

- You cannot specify the same name for two or more maps.
- If you use non-US characters for a map name, they are not displayed correctly in the navigation pane. However, the names are displayed correctly in the Window menu.

To create a new map:

Step 1   Do one of the following:

- Click **New Map** in the main toolbar.
- Choose **File > New Map** in the main menu.

The Create Map dialog box is displayed.

The Advanced button enables you to filter the links displayed in the map pane. For more information, see Filtering Links According to Type, page 4-24.

Step 2   Enter a name for the new map and click **OK**.

An empty new map is displayed in the navigation pane and map pane.

Step 3   Add elements to your new map as described in Adding Elements to a Map, page 4-6.

See the following topics for information on adding elements to and removing elements from a map:

- Adding Elements to a Map, page 4-6
- Removing Elements from a Map, page 4-9

Adding Elements to a Map

When you add a network element to a map, the map is automatically saved in the Cisco ANA database.

Note   Based on the security level and access permissions assigned, this option might not be available to all users.

To add a network element:

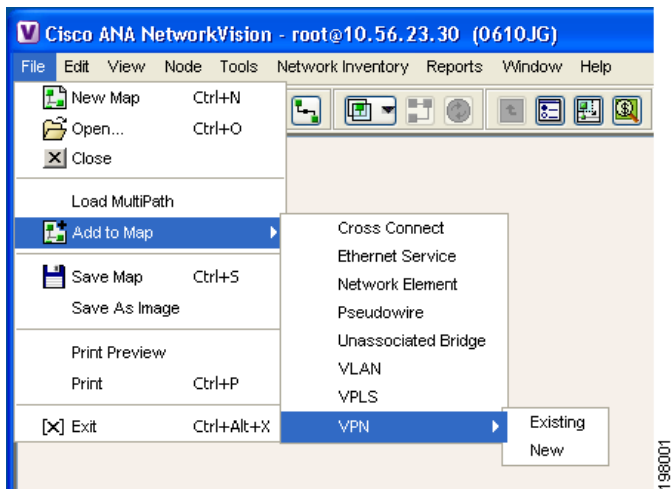**Step 1**   Do one of the following:

- Click **Add to Map** in the main toolbar, and then choose the required element.
- Choose **File > Add to Map >** *element*.

Figure 4-1 shows the elements available for adding to maps.

Figure 4-1   *Available Elements to Add to Maps*

Table 4-3 describes the types of elements that you can add to a map and the available search criteria for each type.

Table 4-3   Network Elements to Add to Maps

Name	Description
Cross-Connect	EFP cross-connects that can be added to the map. The Search field allows you to search for an EFP cross-connect by name.
Ethernet Service	Ethernet services that can be added to the map. The Search field allows you to search for an Ethernet Service by any of the following categories: • EVC-terminating EFPs • Name • System name
Network Element	Devices that can be added to the map. The Search field allows you to search for a device by any of the following categories: • Element Category • Element Type • IP Address • Name • System Name • Vendor
Pseudowire	Pseudowires that can be added to the map. The Search field allows you to search for a pseudowire by any of the following categories: • Description • Is Multisegment Pseudowire • Name • Pseudowire Type • System Name
Unassociated Bridge	Unassociated bridges that can be added to the map. The Search field allows you to search for unassociated bridges by name.
VLAN	VLANs that can be added to the map. The Search field allows you to search for a VLAN by any of the following categories: • Ethernet Flow Domain • ID • Name
VPLS	VPLS instances that can be added to the map. The Search field allows you to search for a VPLS instance by name.

Table 4-3   Network Elements to Add to Maps (continued)

Name	Description
VPN > Existing	Existing VPNs that can be added to the map.
	The Search field allows you to search for a VPN by either of the following categories:
	• Description
	• Name
VPN > New	Opens the Create VPN dialog box so that you can create a new VPN to add to the map.
	For information on creating a VPN, see Creating a VPN, page 17-6.

After you select the required type of element, the Add *element* to *map* dialog box is displayed. For example, if you are adding a pseudowire to a map named CompanyEast, the dialog box is named Add Pseudowire to CompanyEast.

Step 2   In the Add *element* dialog box, do either of the following:

- To search for specific elements:

  a. In the Search field, choose a search category.

  b. Enter a search string to narrow the display to a range of elements or to a specific element. Table 4-3 identifies the search categories available for each type of element.

  c. Click **Go**.

  For example, if you choose IP Address and enter `254`, the network elements that have IP addresses beginning with 254 are displayed. If you choose Vendor and enter Cisco, only Cisco network elements are displayed.

- To view all available elements, choose **Show All** and click **Go**.

  ✎

  Note   If you choose **Show All** and the number of elements for that type is large, it might take a while for all elements to be displayed.

The available elements that meet the specified search criteria are displayed in the Add *element* dialog box in table format. The dialog box also displays the date and time at which the list was generated. To update the list, click **Refresh**.

✎

Note   If a network element is not included in your scope, it is displayed with the locked device icon.

For information about sorting and filtering the table contents, see Working with Cisco ANA Tables, page 2-40.

Step 3   In the Add *element* dialog box, select the elements that you want to add. You can select and add multiple elements by pressing **Ctrl** while selecting individual network elements or by pressing **Ctrl +Shift** to select a group of elements.

Step 4   Click **OK**.

If you selected more than 25 business elements (such as VLANs or VPLS instances) to add, a message is displayed, stating that the action can take a while to complete and asking if you want to continue. Click **OK** to continue or **Cancel** to change your selection.

The elements are displayed in the navigation pane and content area. In addition, any associated tickets are displayed in the ticket pane.

The network element information is saved with the map in the Cisco ANA database.

Removing Elements from a Map

When you delete an element or aggregated node from a map, it is removed from the map in the database, but the elements are still managed by Cisco ANA.

Note   Based on the security level and access permissions assigned, this option might not be available to all users.

To remove a network element or aggregated node from a map:

Step 1   In the navigation pane or map, select the network element or aggregated node that you want to delete.

Step 2   Right-click to display the shortcut menu and choose **Remove from Map**. The selected network element or aggregated node is removed from the map.

The network element is removed from the map in the database, but is still managed by Cisco ANA and can be added again.

Defining a Map Layout

Cisco ANA NetworkVision enables you to select the way in which the network object topology is displayed. The map view displays the objects in the selected layout: circular, symmetric, tree, or hierarchical.

You can select the map layout by using either of the following methods:

- In the toolbar, click the drop-down list next to the Layout Map button, and choose one of the options.
- Choose **View > Layout** from the main menu and select one of the layout options.

By default, Cisco ANA uses the circular layout for maps. If you click **Layout Map** in the main toolbar, Cisco ANA displays the map according to the option last selected.

Saving Maps

Cisco ANA provides three options for saving maps:

- To save more map information than Cisco ANA saves by default, see Saving a Map with Information, page 4-10.
- To save a copy of a map so you can use it as a template for another map, see Saving a Map as a New Map, page 4-11.

- To save a map as an image, see Saving a Map as an Image, page 4-11.

Saving a Map with Information

By default, Cisco ANA saves basic map information whether or not you manually save the map. This default information includes device and link additions, device and link removals, aggregations, and disaggregations. However, you must use the Save Map option if you want to retain the following information in the database:

- The location of the devices on the map
- The layout
- Thumbnails
- The size of the devices

To save these changes, do one of the following:

- Click **Save Map Appearance** in the main toolbar.
- Choose **File > Save Map**.

Saving a Map as a New Map

You can save a copy of an entire map or parts of a map (such as specific devices and aggregations) while leaving the original map intact.

To save a map as a new map:

Step 1   Make sure that the map that you want to save is displayed in the Cisco ANA NetworkVision content pane.

Step 2   Select the required map, elements, or aggregated nodes in the navigation tree or the map.

Step 3   Right-click in the navigation pane or one of the selected items in the map pane, and choose **Save as New Map**.

Step 4   In the Create Map dialog box, enter a new name for the map.

Step 5   Click **OK**. The new map is created.

Note   For information about opening the new map, see Opening a New Map from the Open Map Dialog Box, page 4-4.

Saving a Map as an Image

To save a map as an image:

Step 1   Display the required map in Cisco ANA NetworkVision.

Step 2   Choose **File > Save As Image** from the main menu.

Step 3   In the Save as Image dialog box, define the image characteristics as described in Table 4-4.

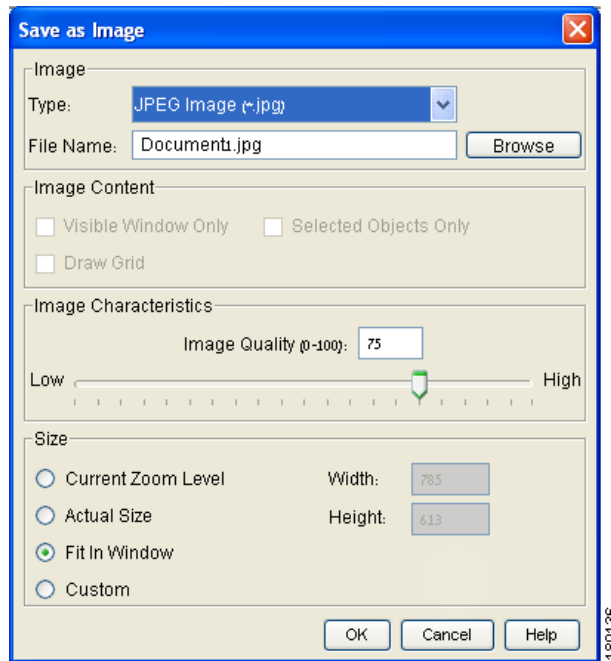*Figure 4-2   Save as Image Dialog Box*

Table 4-4   Save as Image Dialog Box Options

Attribute	Description
Image	Specify the image type and filename:
	• Type—In the drop-down list, select JPEG Image (*.jpg). The file types .svg and .png are not available.
	• File Name—Enter a filename for the image.
Image Content	Check the appropriate check box for the content to be included in the image:
	• Visible Window Only—Saves the currently selected map as an image, even if the content area displays the list view or the links view.
	• Draw Grid—This option is not available.
	• Selected Objects Only—Saves the selected network objects as an image.

Table 4-4 **Save as Image Dialog Box Options (continued)**

Attribute	Description
Image Characteristics	Define the quality of the image using one of the following methods. Both methods use values of 0 to 100 where 0 is the lowest quality and 100 is the highest quality. • Image Quality (0-100)—Enter a value from 0 to 100. • Low-High—Click and drag the slider to the required level of quality.
Size	Specify the required zoom level for the image: • Current Zoom Level—Saves the image at the currently selected zoom level. Selecting this option enables the Visible Window Only check box. • Actual Size—Saves the image at the actual size. • Fit in Window—Saves the image so that it fits in the window. • Custom—Saves the image at an enlarged or reduced size. Selecting this option enables the Width and Height options, so that you can enter the required size.

Step 4 Click **OK**. The map is saved as an image in the directory you specified.

Deleting a Map from the Cisco ANA Database

Cisco ANA NetworkVision enables you to delete a map from all the views in the Cisco ANA NetworkVision window.

If another client is using a map that you are deleting, Cisco ANA displays a message to those clients advising them that the map is being closed and deleted from the database.

To delete a map from Cisco ANA NetworkVision and the Cisco ANA database:

Step 1 Open the Open Map dialog box in one of the following ways:

- Click **Open Map** in the main toolbar.
- Choose **File > Open** from the File menu.

Step 2 In the Open Map dialog box, complete the following steps:

   a. In the Open Map dialog box, select the map that you want to delete.

   b. In the toolbar, click **Delete Map**. A confirmation message is displayed.

   c. Click **Yes**. The selected map is deleted from the Open Map dialog box, the Cisco ANA NetworkVision window, and the database.

   d. Click **Cancel** to close the Open Map dialog box.

Renaming a Map

Cisco ANA NetworkVision enables you to rename a map that is displayed in the Cisco ANA NetworkVision window. The name change affects all users of the map and the new name is displayed in the Cisco ANA NetworkVision window of all users.

To rename a map:

Step 1   Do one of the following:

   • Click **Open Map** in the main toolbar.

   • Choose **File > Open** from the main menu.

Step 2   In the Open Map dialog box, select the map that you want to rename.

Step 3   Click **Rename Map** in the toolbar.

Step 4   Enter the new map name.

Step 5   Click **OK**. The selected map is renamed in the Open Map dialog box, in the Cisco ANA NetworkVision window, and in the database.

Step 6   Click **Cancel** to close the Open Map dialog box.

Resizing a Map Element

Cisco ANA NetworkVision enables you to define the size of selected devices or aggregated nodes in the map view, according to predefined sizes or according to a percentage of the current size.

Note   You can manually resize a node by selecting it and dragging the corner (handle).

To resize a device or aggregated node:

Step 1   In the map, select the devices or aggregated node that you want to resize.

Note   The Resize option is enabled only when devices or aggregated nodes are selected. Links cannot be resized.

Step 2   Do one of the following:

   • Choose **Edit > Resize** from the main menu.

   • Right-click the selected devices or aggregated node in the map, and choose **Resize**.

Step 3   In the Resize Nodes Controller dialog box, set the size of the devices or nodes:

   • In the Resize Node field, select a resizing percentage from the drop-down list.

   • In the Set Nodes Sizes field, select a fixed size from the drop-down list.

Step 4   Click **OK**. The selected devices or aggregated node are resized.

Viewing the Network Map

Cisco ANA NetworkVision enables you to display the entire network map or any part of the map in the Cisco ANA NetworkVision map view.

Use the Zoom tools or the Overview window to display the part of the map that you require. Viewing the Overview window enables you to see all the changes and alarms taking place in the network. In addition, you can display an aggregated node in a thumbnail.

Viewing a Network Overview

To open an overview of the network:

Step 1   Do one of the following:

- Click **Overview** in the main toolbar.
- Choose **View > Overview** from the main menu.

*Figure 4-3   Overview Window*
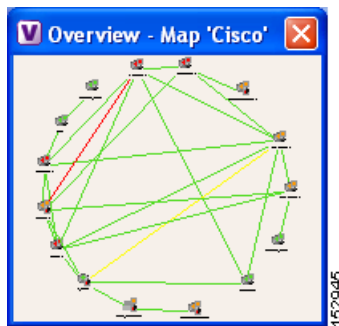
Step 2   In the Overview window, select the required area by clicking and dragging the mouse, thereby enlarging it in the map pane. A blue rectangle is displayed around the selected area. You can move the selected area by placing the mouse within the rectangle. The mouse icon changes to a hand, and you can then click and drag the mouse to move the rectangle over the required area.

Step 3   Click and drag the rectangle again to select or resize a different network area.

Step 4   Click the upper right corner to close the Overview window.

Viewing an Aggregated Node Thumbnail

In addition, you can display a thumbnail of the selected aggregated node in the map pane, including all aggregated devices. Thumbnails can also be nested.

To display a thumbnail of the node:

Step 1   Right-click an aggregated node, and choose **Show Thumbnail**. The thumbnail is displayed in the map pane.

Figure 4-4   Thumbnail
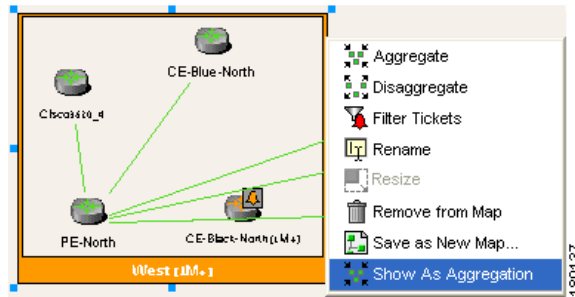
Step 2   From here you can do the following:

- To redisplay the aggregated node in the map, right-click the thumbnail frame and choose **Show As Aggregation**.

- To resize the thumbnail, select the thumbnail frame and then click and drag any of the thumbnail handles.

Viewing a Network Device

To view a network device, select the device in the navigation tree or in the map. You can:

- Use the Zoom tools when viewing the network (see Cisco ANA NetworkVision Toolbar, page 2-22).

- Click **Overview** in the main toolbar to display the network in the Overview window.

For more information, see:

- Finding a Network Device or Service, page 4-19

- Chapter 3, "Viewing Network Element Properties"

Selecting Map Views

Cisco ANA NetworkVision provides you with various selection and display tools that can be used to view and analyze maps in the content area.

You can view graphical representations of NEs and various links that appear in the map view in the Cisco ANA NetworkVision content area by using the toolbar buttons.

The Show List View and Show Links View icons open dynamic tables that present network element information, device information, and respective map context links.

Table 4-5 identifies and describes the tools that you can use to view and manipulate maps in the Cisco ANA NetworkVision content area.

Table 4-5   Cisco ANA NetworkVision Map Viewing Options

Button	Name	Function
Viewing Options		
	Show Map View	Displays the map view in the Cisco ANA NetworkVision content area. The button toggles when selected or deselected.
	Show List View	Displays the list view in the Cisco ANA NetworkVision content area. The button toggles when selected or deselected.
	Show Links View	Displays the links view in the Cisco ANA NetworkVision content area. The button toggles when selected or deselected.
Map Zoom and Layout Tools		
	Layout Map	Defines the way in which the map is displayed in the map pane of the Cisco ANA NetworkVision window: circular, symmetric, tree, or hierarchical.
	Fit in Window	Fits the entire subnetwork or map in the map pane.
	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 an area in the map pane to be enlarged by clicking and dragging to view the selected area. The button toggles when selected or deselected.
	Pan Mode	Activates the pan mode, which enables you to move around in the map pane by clicking and dragging. The button toggles when selected or deselected.

To select a tool, do one of the following:

- From the View menu, choose the required selection tool.
- In the toolbar, click the required tool icon.

Finding Elements Affected by a Ticket

Cisco ANA NetworkVision enables you to find the elements that might be affected by a ticket displayed in the ticket pane.

To find elements affected by a ticket:

Step 1   In the ticket pane, right-click the required ticket and choose **Find Affected Elements**. Depending on the number of affected elements, the information is displayed in one of the following ways:

- If only one element is affected, the affected element is selected in the navigation pane and the content area.

- If two or more elements are affected, the affected elements are displayed in the Affected Elements window as shown in Figure 4-5.

Figure 4-5 **Affected Elements Window**
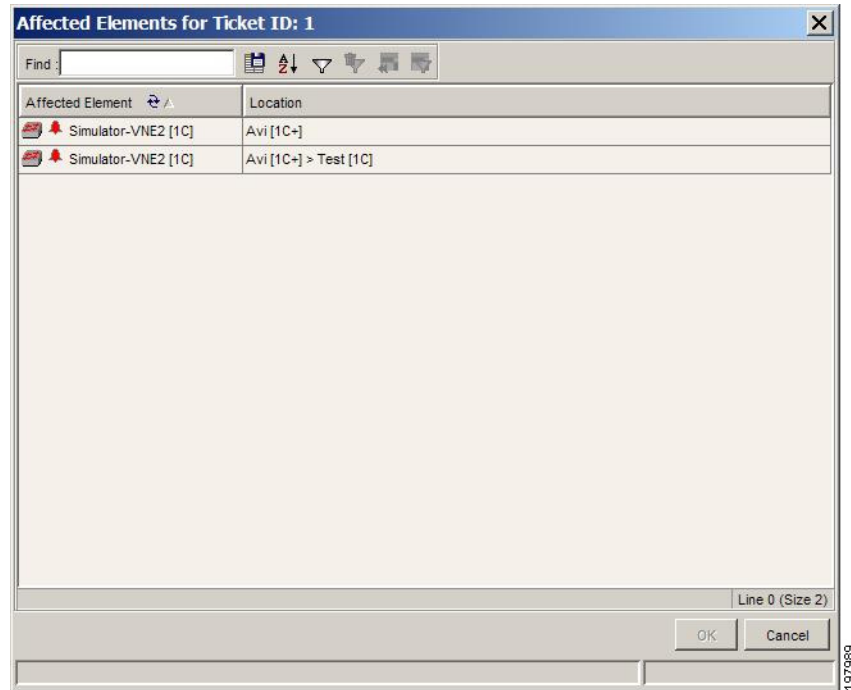
Step 2 Do one of the following, as appropriate:

- Click in the navigation pane or the map pane to remove the highlight from the selected device or link.
- Close the Affected Elements table.

Finding and Selecting Links in Maps

Cisco ANA NetworkVision enables you to find a specific link and select it in the map pane.

To find and select a link:

Step 1 In the Links view, right-click the required link and choose **Select Link in Map**.

The link is highlighted in the map pane.

Step 2 If two or more lines represent the same link (such as a VRF link), the Select Link Context dialog box is displayed. Select the required link context from the drop-down list and click **OK**. The link is highlighted in the map pane.

Step 3 Click in the content area to remove the highlight from the selected link.

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

Finding a Network Device or Service

Cisco ANA NetworkVision enables you to find a device or service (such as a VPN or VLAN) in the map by entering the device or service name, the device IP address, or any part of the name or IP address.

To find a device or service in a map:

Step 1   Do one of the following:

- Click **Find** in the main toolbar.
- Choose **Edit > Find in Map** from the main menu.

Step 2   In the Find in Map dialog box, enter the device name or the IP address.

> **Note**   You can enter a partial name (case sensitive) or IP address. For example, entering `xy` finds devices or services with names containing the letters XY.

The Search all map levels check box enables you to search for a device, name, or IP address at all levels of the map. When disabled, this option searches for the device or service, but excludes aggregations from the search. This option is disabled by default.

Step 3   Check or uncheck the Search all map levels check box, as required.

Step 4   Click **OK.** A device or service matching the search criteria is displayed on the map.

Step 5   Continue searching using the following methods:

- To view the next device or service that matches the search criteria, click **Find Next** in the toolbar or press **F3**.
- To view the previous device or service that matches the search criteria, click **Find Previous** in the toolbar or press **Shift + F3**.

Working with Overlays

Cisco ANA NetworkVision enables you to apply overlays to a map and thus isolate the parts of a network that are being used by a specific service.

The following topics discuss the overlay options in more detail:

- Applying an Overlay, page 4-20
- Hiding or Viewing an Overlay, page 4-22
- Removing an Overlay, page 4-22

Applying an Overlay

To apply an overlay:

Step 1   In Cisco ANA NetworkVision, choose the map in which you want to apply an overlay.

Step 2   From the toolbar, choose **Choose Overlay Type >** *overlay-type* where *overlay-type* is one of the following options:

Overlay Option	Description
Ethernet Service	Applies an Ethernet service overlay to the map.
None	Removes any existing overlays on the map.
Pseudowire	Applies a pseudowire overlay to the map.
VLAN	Applies a VLAN overlay to the map.
VPLS	Applies a VPLS instance overlay to the map.
VPN	Applies a VPN overlay to the map.

With the exception of the None option, a dialog box is displayed that allows you to select the specific overlay to apply.

Figure 4-6 shows an example of the Select Ethernet Service Overlay dialog box.

Figure 4-6   Select Overlay Dialog Box
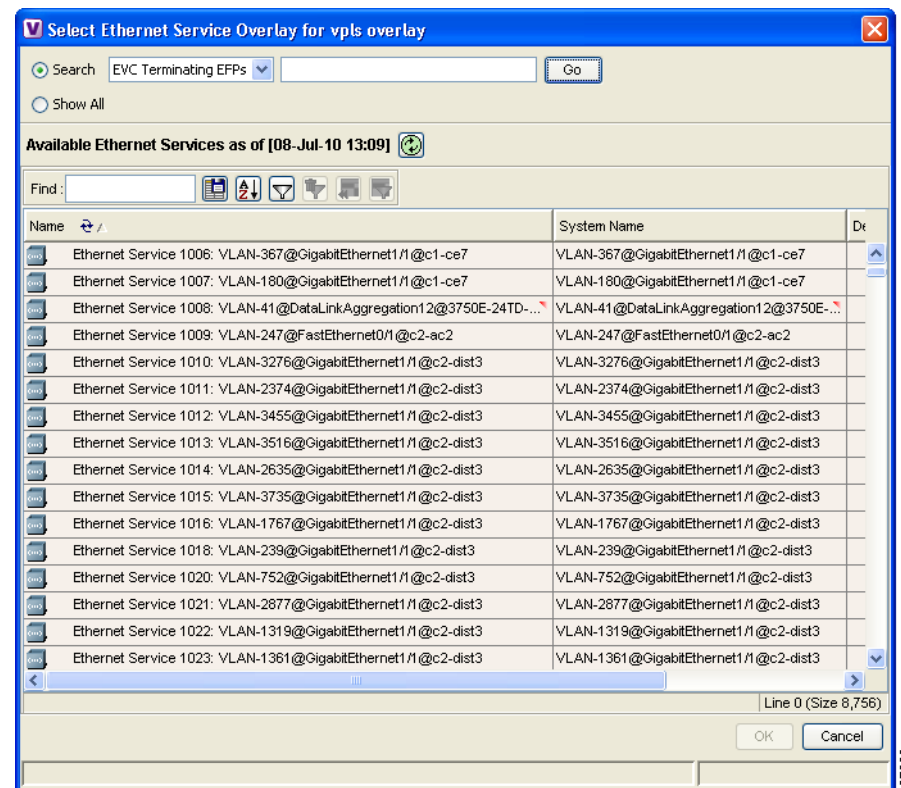
Each overlay type allows you to search for specific overlays. Table 4-6 identifies the fields you can search for each overlay type.

Table 4-6   Overlay Type Search Fields

Overlay Type	Search Fields
Ethernet Service	• EVC Terminating EFPs • Name • System Name
Pseudowire	• Description • Is Multisegment Pseudowire • Name • Pseudowire Type • System Name
VLAN	• Ethernet Flow Domain • ID • Name
VPLS	Name
VPN	• Description • Name

Step 3   In the Select Overlay dialog box, do either of the following:

- To search for specific overlays:

  a. In the Search field, choose a search category.

  b. Enter a search string to narrow the display to a range of overlays or to a specific overlay. Table 4-6 identifies the search categories available for each type of overlay.

  c. Click **Go**.

  Search strings are case-insensitive. If you choose Name and enter **NET**, the overlays that contain "net" in their names are displayed. If you choose System Name and enter **System123**, only the overlay with the system named System123 is displayed.

- To view all available overlays, choose **Show All** and click **Go**.

The available overlays that meet the specified search criteria are displayed in the Select Overlay dialog box in table format. The dialog box also displays the date and time at which the list was generated. To update the list, click **Refresh**.

Step 4   Select the overlay that you want to apply to the map.

The elements and links that are used by the overlay are displayed in the map, and the overlay name and date are displayed in the toolbar.

> **Note** The overlay is a snapshot taken at a specific point in time and does not reflect changes that occur in the service. As a result, the information in an overlay can become stale. To update the overlay, click **Refresh Overlay** in the toolbar.

Hiding or Viewing an Overlay

When an overlay is applied to a map, the Show Overlay/Hide Overlay button becomes active in the toolbar.

To hide and view the overlay, click **Hide Overlay/Show Overlay** in the toolbar. The button toggles depending on whether the overlay is currently displayed or hidden.

Removing an Overlay

To remove an overlay, choose **Choose Overlay Type > None**. The overlays are removed from the map.

Working with Aggregations

Cisco ANA NetworkVision enables you to group network elements and display them as an aggregated node. Aggregations can contain devices, VPNs, other aggregated nodes, and so forth.

For more information, see the following topics:

- Grouping Network Elements into Aggregations, page 4-22
- Ungrouping Aggregated Nodes, page 4-23
- Renaming Aggregated Nodes, page 4-23

Grouping Network Elements into Aggregations

To aggregate network elements:

Step 1   Select the network elements using one of the following methods:

- Select a single item in the map pane or navigation tree.
- Select multiple items in the map pane or navigation tree while pressing **Ctrl**.

Step 2   Aggregate the network elements using one of the following methods:

- Choose **Node > Aggregate** from the main menu.
- Right-click in the navigation pane or map pane and choose **Aggregate**.

Step 3   In the Aggregation dialog box, enter a unique name for the aggregated node and click **OK**. The aggregated node is displayed in the navigation pane and the map pane. Aggregated nodes are displayed as a single entity with the Aggregation icon.

The aggregated node icon changes color according to the alarm severity. For more information about device colors, see Network Element Status Indicators, page 2-17.

Ungrouping Aggregated Nodes

All aggregated nodes can be ungrouped. If the node you disaggregate contains any child aggregations, the child aggregations move up one level, and the original aggregated node is removed.

If an element in the aggregation that you ungroup also exists at the parent level, the element is represented only once after the aggregated node is ungrouped. As a result, no elements are represented twice at the same level.

To disaggregate a node:

Step 1   Select the required aggregation in Cisco ANA NetworkVision.

Step 2   Disaggregate the node using one of the following methods:

- Choose **Node > Disaggregate** from the main menu.
- Right-click the aggregated node in the navigation tree or map pane and choose **Disaggregate**.

If the aggregation contains elements that already exist at the parent level, a confirmation message is displayed, stating that any duplicate elements will be removed.

Step 3   Confirm the disaggregation.

The node is disaggregated. Any aggregations in the selected node move up one level, and the original aggregated node is removed.

For more information about resizing an aggregated node, see Resizing a Map Element, page 4-14.

Renaming Aggregated Nodes

You can rename aggregated nodes that are displayed in Cisco ANA NetworkVision. The name change affects all users of the map, and the new name is displayed in the Cisco ANA NetworkVision window of all users.

To rename an aggregated node:

Step 1   Select the aggregated node that you want to rename in the navigation tree or the map.

Step 2   Right-click the aggregated node and choose **Rename**.

Step 3   In the Rename Node dialog box, enter a new name for the aggregated node and click **OK**. The selected aggregated node is renamed in the navigation tree, map pane, and database.

Filtering Links According to Type

The links filter enables you to filter the links displayed in the map view and the links view.

You can quickly select the types of links to be filtered by selecting from a predefined set of link types in the list, or by manually configuring a customized set of link types. You can do either of the following:

- (Method 1) Create a new map, select a filter and then add the devices to the map. This filter is applied to the new map and only the required link types are visible in the map view and the links view.

- (Method 2) Create a map and add the devices with all links enabled and visible in the map view and links view. You can then filter (display or hide) the different types of links as required.

The links filter applies to all aspects of Cisco ANA NetworkVision: the map view, links view, ticket pane, severity calculation, and other items, such as memory consumption and thresholds. Cisco ANA NetworkVision holds only the links that are relevant to the filter and synchronizes the links with the gateway according to that filter.

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

**Method 1**

To filter links according to type (method 1):

Step 1   Open the Create Map dialog box using one of the following methods:

- Click **New Map** in the main toolbar.

- Choose **File > New Map** from the main menu.

The Create Map dialog box is displayed. For more information, see Creating a New Map, page 4-6.

Step 2   Click **Advanced**. The Link Filter dialog box is displayed.

Figure 4-7   Link Filter Dialog Box
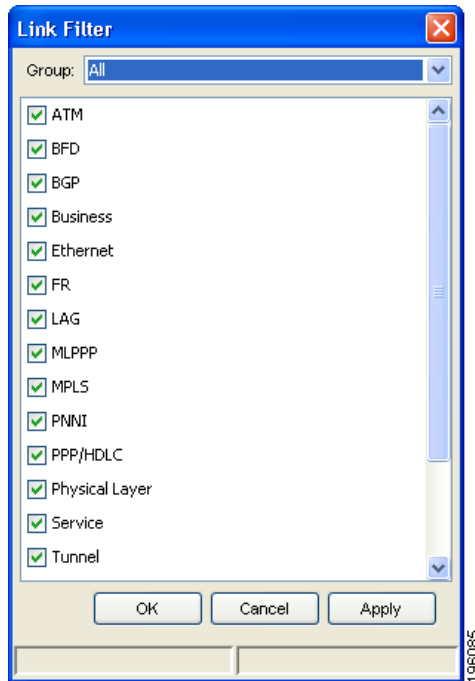
The Link Filter dialog box displays a list of all the types of links that you can filter in the map view and links view.

Note   By default all link types are selected in the Link Filter dialog box. That is, all links are displayed in the map view and links view.

Step 3   Select the required option from the Group drop-down list:

- All—All the links are displayed in the map view and links view.
- Custom—Only the links defined for the customized filter are displayed in the map view and links view.
- Data Link—The data link layer class of links (ATM and Frame Relay) is displayed in the map view and links view.
- None—None of the links are displayed in the map view and links view.
- Physical—Only the physical links are displayed in the map view and links view.
- VPN—Only the VPN links are displayed in the map view and links view.

Note   You can customize the Group drop-down list options by selecting an option and adding or removing the required link types. The next time the Link Filter dialog box is opened, the Custom option is displayed with the specified link types.

Step 4   Check the check boxes for the links that you want to display in the map view and links view. Uncheck the check boxes for the links you do not want to display in the map view and links view.

Step 5   Click **Apply** to apply the defined link filter settings and continue with more selections.

Step 6   Click **OK** when you have completed your selections.

Step 7 In the Create Map dialog box, enter a name for the new map and click **OK**. An empty new map is displayed in the navigation pane and content area.

Step 8 Add the required devices to the map. For more information, see Creating a New Map, page 4-6.

The links are displayed in the map view and links view according to your selections.

Method 2

You can also create a map and add the devices with all the links enabled and visible in the map view and links view. You can then filter (display or hide) the different types of links as required.

To filter links according to type (method 2):

Step 1 Click **Link Filter** in the main toolbar.

Step 2 In the Link Filter dialog box, uncheck the check boxes for the links that you do not want to display in the map view and links view.

Step 3 Click **Apply** to apply the defined link filter settings and continue with more selections.

Step 4 Click **OK** when you have completed your selections.

The links are displayed in the map view and links view according to the defined filter.

Opening the CPU Usage Graph

Cisco ANA NetworkVision enables you to display memory and CPU usage information for a device or network element, including its history.

To open the CPU usage graph:

Step 1 Right-click a network element in the navigation tree and choose **Tools > CPU Usage**.

The CPU Usage dialog box displays the following information:

- CPU Usage—The CPU usage rate as a percentage.
- CPU Usage History—The CPU usage rate history is graphically displayed.
- Memory Usage—The memory usage rate as a percentage.
- Memory Usage History—The memory usage rate history is graphically displayed.

Step 2 If desired, click **Save to CSV File** to export the displayed data. For more information, see Exporting Tables to a File, page 2-45.

Step 3 Click the upper right corner to close the CPU Usage dialog box.

Communicating with Devices Using Ping and Telnet

Cisco ANA NetworkVision enables you to communicate with devices in the following ways:

- Pinging a Device, page 4-27
- Telneting a Device, page 4-27

Pinging a Device

Cisco ANA NetworkVision enables you to ping a device to verify that the device is responding.

Note   The ping is performed from the client to the device, and not from the Cisco ANA unit hosting the VNE to the device.

To ping a device, right-click a device in the navigation tree or map, and choose **Tools > Ping**.

Telneting a Device

Cisco ANA NetworkVision enables you to communicate with a device using the Telnet window.

Note   The telnet is performed from the client to the device, and not from the Cisco ANA unit hosting the VNE to the device.

To telnet a device:

Step 1   Right-click a device in the navigation tree or map, and choose **Tools > Telnet**.

Step 2   Log in and use the Telnet window as needed.

Previewing and Printing a Map

To print a map, choose **File > Print**. If you would like to preview a map before printing it, or define the print setup for a map, see the following topics:

- Previewing a Map Before Printing It, page 4-27
- Defining the Print Setup for a Map, page 4-28

Previewing a Map Before Printing It

Using Cisco ANA NetworkVision, you can preview a map before printing it.

To preview a map:

Step 1   In Cisco ANA NetworkVision, display the map that you want to print.

Step 2   From the main menu, choose **File > Print Preview**. The Print Preview dialog box is displayed with the active map.

The following buttons are displayed in the Print Preview dialog box:

Button	Description
Print	Prints the displayed network or map to the selected printer.
Print Setup	Opens the Print Setup dialog box, enabling you to define how the network or map is printed. For more information, see Defining the Print Setup for a Map, page 4-28.
Zoom In	Zooms in on the network or map.
Zoom Out	Zooms out of the network or map.
Zoom %	Zooms in to get a close-up view of your network or map or zooms out to see more of the network or map at a reduced size. Use the drop-down list to choose the zoom setting that you want.
Fit In Window	Displays the entire network or map in the Print Preview dialog box.
Close	Closes the Print Preview dialog box.

Step 3   Click **Print**. The required map is printed to the selected printer.

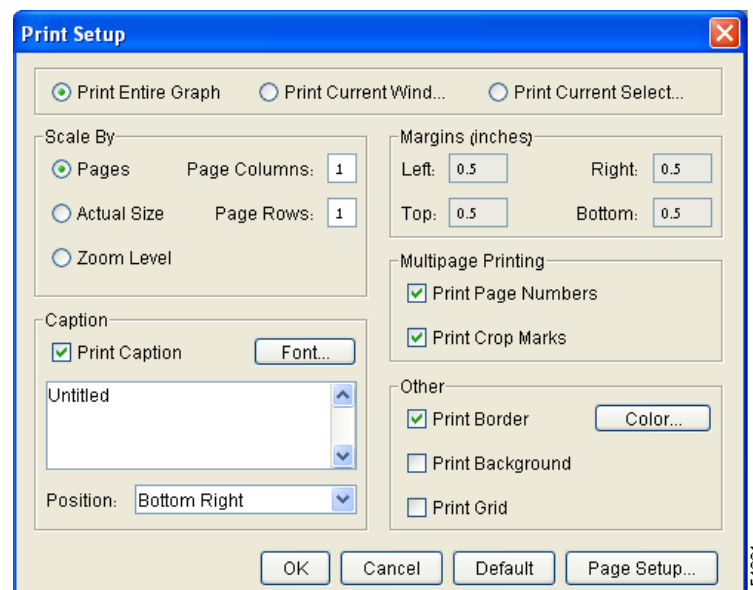## Defining the Print Setup for a Map

Cisco ANA NetworkVision enables you to define the print setup of a map before it is printed.

To define the print setup:

Step 1   From the main menu, choose **File > Print Preview** to open the Print Preview dialog box.

Step 2   Click **Print Setup**. The Print Setup dialog box is displayed.

Figure 4-8   Print Setup Dialog Box

Step 3   Define the print setup, using the information in Table 4-7.

Table 4-7   Print Setup Dialog Box Options

Option	Description
Print Selection	
Print Entire Graph	Prints the currently displayed map, including aggregated nodes.
Print Current Window	Prints the currently displayed map, excluding aggregated nodes.
Print Current Selection	Prints the area selected in the currently displayed map.
Page and Scale	
Pages	Prints the currently displayed map according to the numbers specified in the Page Columns and Page Rows fields.
Actual Size	Prints the currently displayed map at the actual size.
Zoom Level	Prints the currently displayed map according to the selected zoom level.
Caption	
Print Caption	Adds the specified caption to the printed map.
Position	Defines the position of the caption in the printed map.
Page Margins	
Margins	Prints the map with the specified page margins.
Multipage Printing	
Print Page Numbers	Prints the map with page numbers.
Print Crop Marks	Prints the map with crop marks.
Border, Background, and Grid	
Print Border	Prints a border around the printed map.
Print Background	Prints the background of the currently displayed map.
Print Grid	Prints a grid for the printed map.
Page Layout	
Page Setup	Offers standard printer options, such as printing in portrait or landscape mode.

Step 4   Click **OK** to save your settings, or **Default** to restore the default settings.

The Print Preview dialog box is refreshed with the current settings.

Step 5   If you are satisfied with your settings, click **Print**. Otherwise, click **Print Setup** and revise your settings.