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Web NMS 4

Release 4.7.0

User Guide

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7.1 About This Document

The AdventNet Web NMS User Guide helps you to understand and work with the Web NMS Clients. Only authorized users can log on to Web NMS Client and after logging on, each operation in the Client is governed by user privileges. Hence, to explore the various features of Web NMS, you need to know your user privileges accordingly. Contact your system administrator for more help on understanding your assigned user privileges.

Contents

- Chapter 1, About This Document, is a prelude to the User Guide.
- Chapter 2, Getting Started, helps you in understanding the various types of Web NMS Clients and how to bring up a Client.
- Chapter 3, Working with Application Client, helps you in understanding the features and functions of Web NMS Application Client, Applet Client, and Web Start Client. All through this chapter, all these three Clients are referred to as 'Application Client'.
- Chapter 4, Working with Web Client, helps you in understanding the features and functions of Web Client.
- Appendix, provides information on the Application Client menus and toolbars, various properties/details, and a Glossary.

Document Conventions

To understand the conventions used across the User Guide, click **Help**  provided on the top frame of the User Guide.

Product Support

- For technical support, send an e-mail to nms-support@adventnet.com.
- For contact information, refer to Contact page on our Web site www.adventnet.com.

Related Documents

- For information on installing the product, refer to Installation Guide.
- If you are an administrator and require information on the administrative tasks available in Web NMS, refer to Administrator Guide. Also for further reading on administrative tasks and tools such as Policies, Batch Configuration, and Simulators & Browsers, refer to Administrator Guide.
- For information on Web NMS product features, refer to Quick Tour.
- For complete list of Web NMS documents, refer to Product Documentation page on our Web site.

Viewing Help

To view Web NMS Help

From **Help** menu, choose **Help Contents**. An HTML file with links to all Web NMS documents is displayed in a Web browser (the default browser that has been configured in your system).

To view context-sensitive Help in Application Client, do any of the following

Context-sensitive help displays appropriate Help topic which assists you to get specific information about whatever part of the client you are using at any given moment.

- Press **F1** on any dialog box or window (or)
- Click the **Help** button on the toolbar in a window.

A help file associated with the screen you are working on is displayed.

To view Context-Sensitive Help in Application Client dialog boxes

Click the **Help** button.

7.2 Getting Started

This chapter introduces you to the different types of Web NMS Clients and helps you in choosing the right one. This chapter also helps you in getting started with the Client.

Topics in this chapter include:

- Understanding Web NMS Clients
- Bringing Up Web NMS Client

7.2.1 Understanding Web NMS Clients

The Web NMS Clients provide a graphical display of information, accessed from Web NMS Server. You can browse through the discovered devices in your network, view network and device information, monitor their performance, and identify faults in your network with ease using the graphically rich clients of Web NMS.

This topic helps you in understanding each type of Web NMS Clients. Based on this, choose the type of client that best suits your need.

- Application Client
- Applet Client
- Web Start Client
- Web Client
- Choosing a Client

Application Client

The Application Client is a standalone client that facilitates viewing data on the fly by just installing the client-related files in your local machine. This is launched as a Java application from the local machine and contacts the Web NMS Server for data. As it is a standalone Client, the accessibility speed of the Client is enhanced thereby making user interaction easy and quick.

The Application Client can be installed in a separate machine and connected to a Web NMS Server running in a remote machine.

For information on installing the Application Client, refer to the Installation Guide and for information on launching the Application Client, refer to Bringing Up Web NMS Client.

Applet Client

Web NMS can be launched as an Applet Client. All you need is a Java-enabled Web browser using which you can connect to a Web NMS Server running in a remote machine. The look and feel and work area of the Applet Client is the same as Application Client.

For information on launching the Applet Client, refer to Bringing Up Web NMS Client.

See Also: Applet Security

Web Start Client

The Web Start Client is launched using a Web browser or the Java Web Start Application Manager. To use this Client, you need to install Java Web Start in the machine where you are launching the Web Start Client.

For more information on launching and working with this Client, refer to Bringing Up Web NMS Client.

User Experience - Difference between Application, Applet, and Web Start Clients

The end-user experience in using an Application Client, Applet Client, and Web Start Client differ based on the following aspects:-

- Launching mechanism differs.
- In the case of Web Start you will be restricted to connect only to the Web NMS Server from where the Client was downloaded for the first time. This restriction is enforced by the Security Sandbox provided by Web Start (similar to Applet restrictions), which prohibits the downloaded application from connecting to any other machine, than the one from where it was downloaded.
- In the case of Web Start, the Application Client log console will not be displayed. Instead, the logs are displayed in Web Start console. Use the **Show Console** option in Web Start control panel.

Web Client

The Web Client is launched using a Web browser which does not require any Java plug-ins. The Web Client helps you in connecting to the Web NMS Server from any place and at any time. For more information, refer to Getting Started in the Working with Web Client chapter.

Choosing a Client

As it is imperative to access network information through a Client, you need to choose a Client that fits your working environment to provide you fast and efficient user interface. The following table provides the advantages of one Client over the other to enable you in choosing the Client that best suits your requirement.

Refer to the Installation Guide for complete information on the OS and Browser support.

	Application Client	Applet Client	Web Start Client	Web Client
Installation Requirement	Requires local installation of the Application Client. Web browser not required.	Requires a Java-enabled Web browser.	Requires installation of Java Web Start Application. Can also be launched using Web browser.	Requires a Web browser (no plug-ins required).
On Startup	Only configuration information is downloaded from the Web NMS Server to the Client.	Client-related jars (from the machine in which the Web NMS Server is running) is downloaded into the local machine.	The client-related jars are downloaded when the Web Start Client connects to the server for the first time. The downloaded files are verified (for updates),every time the	JSP pages are downloaded in the client side. Startup speed is good.

	Application Client	Applet Client	Web Start Client	Web Client
	Startup speed is good.	Startup speed is good.	Client connects to the same server. [This Client occupies less than 15 MB storage space.] As the caching mechanism is good the startup speed will be comparatively better than Applet Client.	
Network Speed	Requires high speed link of 1 Mbps or higher.	Requires high speed link of 1 Mbps or higher.	Requires high speed link of 1 Mbps or higher.	Functions well even when the link is of low speed of a dial-up Internet connection at 64 kbps.

7.2.2 Bringing Up Web NMS Client

This topic helps you in bringing up the Web NMS Client. For information on choosing the right client for your needs, refer to Understanding Web NMS Clients.

- Bringing Up Application Client
- Bringing Up Applet Client
- Bringing Up Web Start Client
- Bringing Up Web Client
- Quitting the Client
- Configuring Your Password
- Troubleshooting

Bringing Up Application Client

In *Windows* platform, perform any of the following procedures:

- From **Start** menu, choose **AdventNet Web NMS Client > Start Application Client**.
- Invoke the **startApplicationClient.bat** file located in the <*Web NMS Home*>*/bin* directory. <*Web NMS Home*> is the directory where the Application Client is installed.
- Invoke the **WebNMSLauncher.bat** file located in the <*Web NMS Home*> directory. The Web NMS Launcher is displayed. Use the **Application Client** option.

The **Web NMS Authentication** dialog box is displayed.

In *Unix* platform, perform any of the following procedures:

- Invoke the **startApplicationClient.sh** file located in the <*Web NMS Home*>*/bin* directory. <*Web NMS Home*> is the directory where the Application Client is installed.
- Invoke the **WebNMSLauncher.sh** file located in the <*Web NMS Home*> directory. The Web NMS Launcher is displayed. Use the **Application Client** option.

The **Web NMS Authentication** dialog box is displayed.

To Log on

The Web NMS Authentication box is displayed to provide an authenticated access to the Web NMS. Hence you need to enter a valid user name and password to access the Application Client.

1. Enter the User ID assigned to you in the **User ID** field. If you do not have a User ID, contact your System Administrator. For unconfigured systems, the default User ID is **root**.
2. Enter the password assigned to you in the **Password** field. To learn how to configure your password, see Configuring the Password. For unconfigured systems, the default password is **public**.
3. Click **Advanced**.
4. Enter the name of the host where the Application Client has to be connected, i.e, the machine name or IP address of the machine where the Web NMS Server runs in the **Host** field. If the Web NMS Server and Application Client are running in the same machine, specify host name as **localhost**.
5. The default port is **9090**. If the port to which the Web NMS Server is listening has been configured as any other port, specify the configured port number in the **Port** field.
6. Select the language and country of your preference from **Language** and **Country** drop-down boxes respectively. If your Application Client does not support the chosen language, then **English** is the default language.

7. The**Show Console** option is selected by default. When the Application Client is launched, a console with client logs is displayed. If you do not require the console to be displayed, do not select this option. Henceforth the client logs will be stored in *<Web NMS Home>/client* logs directory, where the *<Web NMS Home>* is the directory where Application Client is installed.
8. Click **Connect**.

The Application Client console is displayed (if you had opted for it). The splash screen with progress bar is shown before the Application Client is completely opened. For information on the Application Client work area, refer to Understanding Client Work Area.

Bringing Up Applet Client

To bring up an Applet Client

1. Open a Java-enabled Web browser. Check for Supported Web Browsers.
2. Type **http://<machine_name>:<port>** in the address bar and press **Enter**. *<machine_name>* is the name of the machine where Web NMS Server runs. By default, Web NMS Server runs on port 9090. Example: *http://mark:9090.* The login page is displayed.
3. Select **Applet Client**.
4. Enter a valid user name and password in **User Name** and **Password** fields. This provides an authenticated access to Web NMS. By default, for unconfigured systems, the user name and password are **root** and **public** respectively. If you do not have login permission, contact your System Administrator.
5. Click **Login**.

A connection is tried to be established with the Web NMS Server. Once the connection is established, all client-related files are downloaded to your local machine. The downloading time depends on your machine capability and bandwidth.

Once the essential files are downloaded, the Applet Client is launched. The Applet Client functions the same way as the Application Client. For more information, refer to Working with Application Client.

Bringing Up Web Start Client

To bring up Web Start Client [for the first time]

1. Open a Java-enabled Web browser. Check for Supported Web Browsers.
2. Type **http://<machine_name>:<port>** in the address bar and press **Enter**. *<machine_name>* is the name of the machine where Web NMS Server runs. By default, Web NMS Server runs on port 9090. Example: *http://mark:9090.* The login page is displayed.
3. Click **Web Start Client**.
4. Java Web Start is initialized and client-related files are downloaded from the machine, where Web NMS Server runs, to your local machine. The downloading time depends on the machine capability and bandwidth. When started for the first time, a **Desktop Integration** dialog box is displayed. To place a shortcut icon in your desktop, click **Yes**.

 **Note**	If Java Web Start is not installed in your machine, then a notification page with the URL to download Web Start is displayed.

5. Once the essential files are downloaded, the **Web NMS Authentication** dialog box is displayed. Follow steps 2 to 7 as explained in To bring up Application Client.

On subsequent restarts

Once the Web Start Client is launched through the Web Start for the first time, the plug-in downloads all the essential client-related files from the machine where Web NMS Server runs and caches in the local machine.

Hence on subsequent restarts, it is enough to launch the application from the Web Start Application Manager, instead of connecting to the Web NMS Server. If you had placed a desktop icon while starting the Web Start Client for the first time (refer to Step 4 in To bring up Web Start Client), then start it by accessing the shortcut icon.

Bringing Up Web Client

For complete information on the Web Client, refer to Getting Started in the Working with Web Client chapter.

Quitting the Client

The option to exit or quit the client is the same for Application, Applet, and Web Start Clients. For information on quitting Web Client, refer to Getting Started in the Working with Web Client chapter.

To quit the client, perform any of the following procedures:

- From **File** menu, choose **Exit**
- Press **Alt+F4**

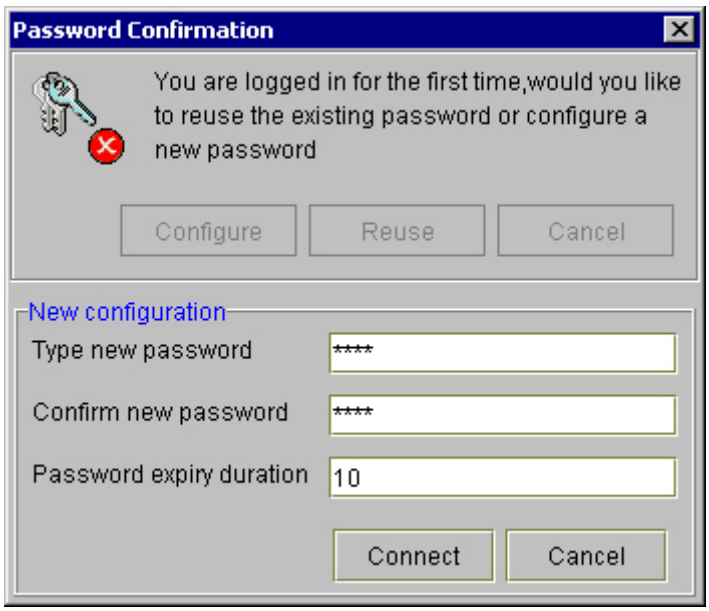
A Confirmation Message dialog box is displayed. Click **Yes** to quit the client.

Configuring Your Password

For information on configuring the password in Web Client, refer to Getting Started in the Working with Web Client chapter.

To configure your password before connecting to the client

When you log on to the Application Client for the first time, a **Password Confirmation** dialog box is displayed (only if this has been enabled by your administrator). If you do not see this dialog box, then ignore this section and perform the steps explained in the next section To configure your password from the client.



1. In the **Password Confirmation** dialog box, click **Reuse** to continue using the same password for the same period as previously configured. To enter a new password, click **Configure** and perform further steps.
2. Enter the new password in the **Type new password** field.
3. Re-enter the same password in the **Confirm new password** field.
4. Enter the number of days you want your password to be valid in **Password expiry duration**. If no value or zero is entered in this field, then the password never expires.
5. Click **Connect**.

The new password is assigned to you and you are connected to the Application Client. You need to use this new password from the subsequent login.

To configure your password from the client

1. After having logged on to the application, from **Tools** menu, choose **Change Password**. The **Password Configurator** dialog box is displayed.
2. Enter the new password in the **New Password** field.
3. Re-enter the same password in the **Confirm Password** field.
4. Enter the number of days you want your password to be valid in **Password expiry duration**. If no value or zero is entered in this field, then the password never expires.
5. Click **OK**.

The new password is assigned to you. You need to enter this new password from the subsequent login.

Troubleshooting

The following table lists the messages that are displayed in certain situations during the login process.

Message	Why Am I Getting This?	What Do I Do?
You are logged in for the first time, would you like to reuse the existing password or configure a new password	This pop-up message is displayed when you log on to the Application Client for the first time (only if this has been enabled by your administrator).	Refer to the To configure your password before connecting to the client section for the procedure.
Your password has expired. Would you like to reuse the old password or configure a New password?	Your password has expired.	You can either set a new password or retain the old password. Click **Reuse** to keep the same password and for the same expiration period configured before. Click **Configure** to enter a new password. Refer to the To configure your password before connecting to the client section for the procedure. If you do not have the permission to set your password, contact your system administrator.

Message	Why Am I Getting This?	What Do I Do?
This User account has Expired. Please contact the Administrator for further details	Your user account has expired. The user account is created by your system administrator.	Contact your system administrator to renew your user account.
This User account is Disabled. Please contact the Administrator for further details	Your user account has been disabled by your system administrator. Also, if your consecutive login attempts fail for a certain number of retries (number is configured by the administrator), the user account is automatically disabled.	Contact your system administrator to enable your user account.
Connection lost to the Web NMS server at <host>. Do you want to shutdown the client?	This message is displayed if the connection between the client and server is lost due to network problems or if the server is shut down abruptly.	Click **Yes** to shut down the client or **No** to continue working. If you decide not to close the client even after the connection is lost, the screens, views, and data of the client remain the same, but you cannot perform any further operations in the client and no updates occur. You need to reopen the client and reconnect to the Web NMS Server.
[Lock Screen dialog box] *Please enter your password to unlock the client*	This dialog box is displayed when the Application Client is idle for more than a specific period, that is, when there is no interaction between the user and the Application Client (no mouse or keyboard events).	Enter a valid password in the **Password** field and click **Unlock** to resume working on the Application Client. To disable this prompt every time the Application Client is idle (only for that session), select **Don't show this dialog for the current session any more** Only specific number of unsuccessful logins are allowed. When exceeded, the session with Application Client is forcefully terminated and you need to reopen the Application Client.
Web NMS Application Client has been terminated	This message is displayed when the Application Client is idle for more than a specified period, that is, when there is no interaction between the user and the Application Client. The Application Client is terminated.	Bring up/reopen the client again.

7.3 Working with Application Client

This chapter helps you in understanding the various functions and features available in the Application Client. The Application, Applet, and Web Start Clients have only a few differences. Hence, this chapter uses the term Application Client all through, which implies that the functions and features are the same for Applet and Web Start Clients.

A Web Client's working environment differs from that of the Application Client. For complete information on Web Client, refer to the Working with Web Client chapter.

Topics in this chapter include:

- Understanding Client Work Area
- Viewing and Navigating Networks
- Monitoring Fault in Networks
- Monitoring Network Performance
- Traversing Network Database

7.3.1 Understanding Client Work Area

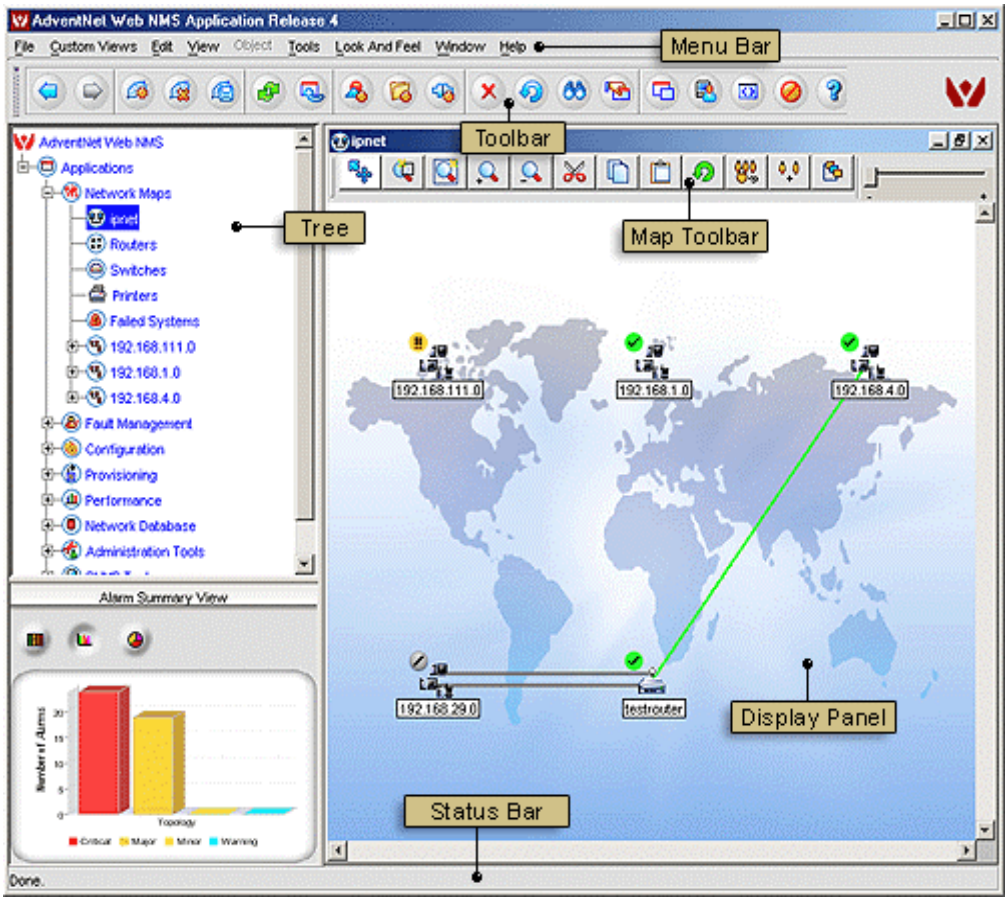
Web NMS Client presents the management information in two different approaches. The first approach is the visual representation of the network elements in the form of graphical maps, which capture the topological or geographical organization of these elements. The other approach is an easy-to-access dynamic data representation in the form of tables, which list the various elements managed by Web NMS. This includes fault management, performance management, and provisioning.

- Client Work Area Components
- Performing Basic Operations
- Performing Table View Operations
- Working with Custom Views
- Broadcasting Messages
- Changing Look and Feel
- Setting Themes
- Performing Tree Operations

7.3.1.1 Client Work Area Components

When you log on to the Application Client, the ipnet map is the default window displayed. The basic components of the Application Client work area are:

- Menu bar
- Toolbar
- Tree
- Alarm Count Panel
- Status Bar
- LED Indicator
- Display Panel



Menu Bar

A menu bar is a rectangular component that is positioned at the top edge of the Display area. A separator in the menu bar is simply a separating line drawn on a menu which is used to separate one set of operations from another. By clicking the menu and choosing a particular menu item, the preferred function can be performed.

The menu bar differs from screen to screen based on the functions and also based on your privileges as a user. For instance, the Fault Management module has additional menu items, such as Actions and Custom Views. But certain menu items, such as File, Custom Views, Edit, Tools, Look And Feel, Window, and Help are common for the complete Application Client.

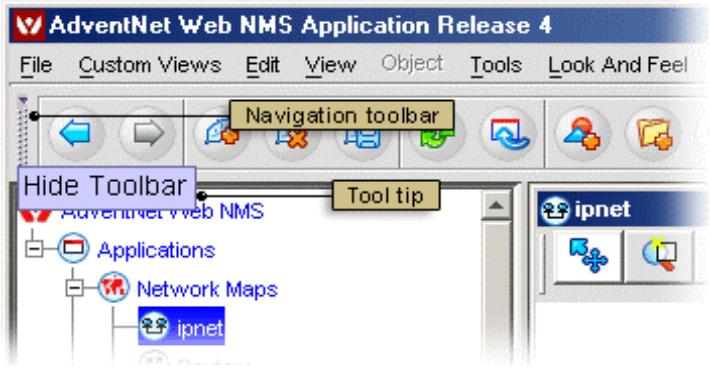
See Also: Application Clients Menus, Map Menus

Toolbar

Toolbar is a component that displays a collection of actions, commands, or control functions. Toolbar is useful to display the frequently used components. It is placed below the menu bar and consists of various tools for different nodes. A tool tip is provided for each tool, which indicates the operations performed by them.

To hide the toolbar, perform any of the following procedure.

- Click the navigation button with the tool tip **Hide Toolbar**.
- From **Window** menu, choose **Show Toolbar**.



On performing either of the above two options, the navigation button changes from vertical to horizontal position.

The toolbar differs from screen to screen based on a module's functions. For instance, the Fault Management module has additional toolbar options, such as Add Custom View, Modify Custom View, etc. Toolbar options, such as Go Back to Previous, Go Forward to Next, Save, Refresh, Help, etc. are common for the complete Application Client.

Map Toolbar

Maps have a separate toolbar that is located above the display panel (refer to image). For more information, refer to Performing Map Operations and Map Toolbar Options.

See Also: Toolbar Options

Tree

The tree present on the left-side of the Application Client displays set of hierarchical data (refer to image). The fundamental object in a tree is called a node, which represents a data item in the given hierarchical set. Thus, a tree is composed of one or more nodes. The root node is the top node of the hierarchical data. Nodes inside the root nodes are called child nodes. Nodes that contain no child nodes are called leaf nodes. By choosing a particular node, the corresponding panel is displayed on the right-side display panel.

See Also: Performing Tree Operations.

Alarm Count Panel

The Alarm Count panel shows the alarm count of each severity (major, minor, critical, etc.). The Alarm Count panel is located below the Application Client tree (refer to image). On clicking the count displayed in the Alarm Count panel, the alarms of specific severity are displayed in the corresponding Alarm panel. This panel is updated automatically and the counts can be seen all the time, irrespective of the functional view, be it maps or events that are chosen.

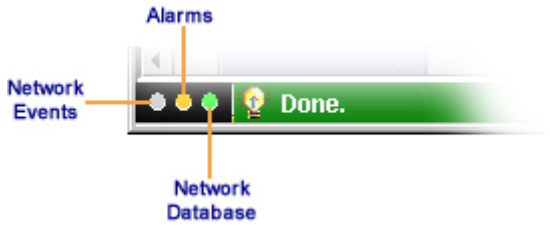
For more information, refer to Viewing Alarms.

Status Bar

The Status Bar is present at the bottom of the screen (refer to image). It indicates the status of the ongoing process, i.e., it displays **Done** if all the data is loaded and displays **loading...** if the process is still going on. The transformation of the color of the status bar from dark blue to green takes place while loading the Application Client.

LED Indicator

The LED indicator is located at the left bottom corner of the screen, beside the status bar. There are three LEDs in the indicator representing Network Events, Alarms, and Network Database. These indicators show the severity of the latest network event, alarm, and generated network database.
Note: This component is available in the Client only if necessary configurations have been made.



Display Panel

The display panel is displayed on the right-side of Application Client and appears as a window within the main window (refer to image). This panel is shown when a tree node is selected. For example, if you click **Fault Management > Events** on the tree, the **Events** display panel is displayed on the right-side.

7.3.1.2 Client Logs

When you log on to any of the Java clients, the client logs will be enabled by default, and the basic operations performed on client startup will be logged in this console. Apart from the startup details, logs can be printed in this console in more detail to facilitate the debugging of client side issues .

This section explains the options available for printing various client details.

Debug Mode

The Debug Mode can be enabled on selecting the **Tools** > **Debug Mode** option. On enabling "Debug Mode" in the client all client operations can be logged in the client logs.

Client Details

The Client Details can be enabled by selecting the **Tools** > **Client Details** option. The details in the client cache can be logged by enabling the "Client Details" option.

7.3.1.3 Performing Basic Operations

- Navigating through Active Windows
- Detaching a Window from the Client
- Arranging Windows
- Saving Location and Size of Windows
- Closing a Window

Navigating through Active Windows

When many windows are open in the display panel, you can move forward to the next active screen or move back to the previous one.

- To move back to the previous window, from the **File menu**, choose **Back** or click **Go Back to Previous**  on the toolbar or press **Ctrl+Shift+B**.
- To move to the next window, from **File menu**, choose **Forward** or click **Go Forward to Next**  on the toolbar or press **Ctrl+Shift+F**.

Detaching a Window from the Client

To detach a window from the display panel of the Application Client and view it as a separate window, perform any of the following procedures.

- From **File** menu, choose **Detach**.
- Click **Detach Current Window**  on the toolbar.
- Press **Ctrl+Shift+T**.

Arranging Windows

You can arrange windows horizontally, vertically, or as a cascade of windows.

- To tile all the open windows horizontally, from the **Window** menu, choose **Tile Horizontal**.
- To tile all the open windows vertically, from the **Window** menu, choose **Tile Vertical**.
- To display a cascade of all the open windows, from the **Window** menu, choose **Cascade**. The windows overlap each other with their title bars visible.

Saving Location and Size of Windows

When you rearrange and resize windows, you need to save them to retain the same location and size. To save location and size after rearranging and resizing windows, from the **Window** menu, choose **Save Location and Size**.

You will be able to see the retained location and size when you reopen the Application Client.

Closing a Window

To close the current active window, perform any of the following procedures.

- From **File** menu, choose **Close**.
- Press **Ctrl+Shift+C**.

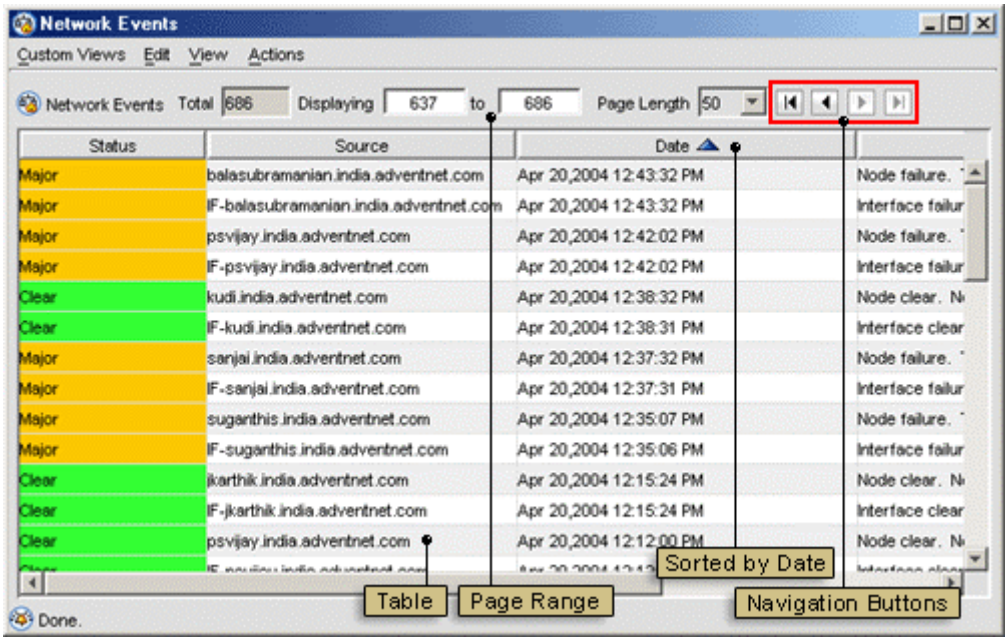
To close all the open windows, perform any of the following procedures.

- From **File** menu, choose **Close All**.
- Press **Ctrl+Shift+O**.

7.3.1.4 Performing Table View Operations

Table View refers to the display panel that you can view on the right side of the Application Client. For instance, clicking on **Alarms** node under **Fault Management** node displays a panel on the right side that shows a table containing details of the generated alarms. Similarly, clicking any of the nodes under **Network Database** displays a table with the database information.

The following image depicts a Network Events Table View:-



The table views are available only in Fault Management, Network Database, and Configured Collection modules and they differ from module to module.

This section explains:-

- Navigating through the Table
- Setting the Page Length for a Table
- Refreshing the Page View
- Viewing a Range of Table Details
- Sorting Table Details
- Rearranging and Resizing Columns in a Table
- Viewing Row Details

Navigating through the Table

This section explains the ways in which you can navigate through the table.

The four navigator buttons, **First Page**, **Previous Page**, **Next Page**, and **Last Page** are located at the top of each table. The purpose of these buttons is detailed in the following table.

Button	Purpose
First Page	To view the first page of the window that displays the data retrieved from the database.
Previous Page	To view the previously viewed page of the window that displays the data retrieved from the database.
Next Page	To view the next page of the window frame that displays the data retrieved from the database.
Last Page	To view the last page of the window that displays the data retrieved from the database.

Setting the Page Length for a Table

To display only a certain number of rows per page, select the value from the Page Length drop-down box.

Refreshing the Page View

To refresh the page view, perform any of the following procedures.

- Right-click a row and click **Refresh**.
- From **View** menu, choose **Refresh**.
- Press **F5**.

Viewing a Range of Table Details

To view a range of details

1. Enter the starting range number in the **Displaying** field.
2. Enter the ending range number in the **to** field.
3. Press **Enter**.

Sorting Table Details

You can sort the data in a table based on the column type and the details can be viewed either in ascending or descending order. The type of sorting (ascending or descending) is indicated by arrows.

A simple click on the column header does the sorting, i.e., the complete data will be sorted. Subsequent click on the same header sorts the data in ascending order (if it were sorted in descending before).

There are two types of sorting.

- **Server-side sorting:** Server-side sorting sorts all data in the Web NMS Server and is not restricted to the data available in the Application Client. For example, if there are 100 events in the Web NMS Server and only 50 are displayed in the Page View of the table, a server-side sorting sorts the complete set of 100 events and not just the 50 events. For server-side sorting, click the column header. Subsequent click on the same column header sorts the data in ascending order (if it were sorted in descending before). The sort indicators for server-side sorting for ascending and descending are  and  , respectively.
- **Client-side sorting:** Client-side sorting sorts data displayed only in the Application Client. For example, if there are 50 alarms in the Web NMS Server and only 25 are displayed in the Page View of the table (25 per page), a client-side sorting sorts only 25 alarms and not the 50 alarms in the Web NMS Server. For client-side sorting, press the **Ctrl** button and click the column header. Subsequent click on the same header sorts the data in ascending order (if it were sorted in descending before). The sort indicator for client-side sorting for ascending and descending are  and  , respectively.

Rearranging and Resizing Columns in a Table

For easy view of the data, rearrange the columns by just dragging the column header and moving it to the required place in the table. This will be helpful to view a couple of data at closer position.

To resize the column header, simply drag the right-side edge of a column.

Tip: On performing the rearrangement and resizing, the table remains the same only until the Application Client is open. When reopened, the settings would be lost. Hence to retain the same size of columns, save the style by choosing **Custom Views > Save Custom View State** menu or right-click on the node in tree and choose **Custom Views > Save Custom View State** or press **Ctrl+S**. It has to be noted that on saving the custom view the resizing will only be saved and the rearrangement will not get saved, and the custom view will be displayed in the default order.

Viewing Row Details

To view details or object properties of each row in a table, perform any of the following procedures.

- Double-click a row.
- Right-click a row and click **Details**.
- Press **Alt+D**.

A dialog box is displayed with specific details about the selected row. This feature has been explained in detail in each of the modules, such as Monitoring Fault in Networks, Monitoring Network Performance, and Traversing Network Database.

7.3.1.5 Working with Custom Views

A Custom View is a tailored view that you can create for viewing a subset of data that satisfies specific criteria. For example, the network elements in a Network Database view could be numerous and hence difficulty arises in identifying elements of your interest. Search operation can be performed to locate the elements you are looking for, but for a lot of elements that satisfy a certain set of criteria, **Custom Views** come in handy. This helps you in getting the network elements of your interest alone in that view, instead of doing a search every time.

Note	The Custom Views can be created in Maps, Network Events, Alarms, Audit, Configured Collection, and Network Database views. The option to create a custom view is available to you based on your privileges as a user. Contact your system administrator to know your user privileges. For information on creating custom views in Audit, refer to Administrator Guide.

This topic explains the following operations that you can perform in the **Network Events**, **Alarms**, **Performance**, and **Network Database** views.

Adding a New Custom View

You can add/create a view by specifying various criteria and providing a name for the view. The views you create enable you to quickly monitor only the required devices. Multiple custom views can also be created to display a variety of information.

To add a new custom view

1. Open the Network Events / Fault / network Database view.
2. Perform any of the following procedures:-
3. From **Custom Views** menu, choose **Add Custom View**.
4. Click **Add Custom View** on the toolbar.
5. Right-click the node (Network Events/Alarms/Network Database) on the tree and choose **Custom Views > Add Custom Views**.

The Show object with these Properties **dialog box with two tabbed panes, namely** Properties **and** Tree Node Properties **is displayed.**

3. Specify the match criteria to be used to filter the data in the **Properties** pane.

Tip: The more fields you complete, the more limited and refined the view gets.

Note	The fields and properties displayed in this dialog box differ for Events, Alarms, and Network Database views. The explanation for each of the fields is given at the end of this topic. See also Tips and Tricks section.

4. Click **Select Props To View**. The **Select Table Columns** dialog box is displayed. The selected fields are the columns that you see in your table view. Perform one or more of the following procedures:

- To display a column, check the check box next to the column name.
- To hide a column, clear the check box next to the column name.
- To view additional table columns, click **Additional table columns**. The **User Defined Table Columns** dialog box is displayed. Enter the display name and corresponding property name in **Display Name** and **Property Name** fields.
- Click **OK**.

On specifying columns, click **OK** in the **Select Props To View** dialog box. Skip this step if you do not want to make changes to the columns.

5. To define how the custom view is displayed in the navigation tree, click the **Tree Node Properties** tab and fill in the required fields. For information on each of the fields, refer to Custom View Properties in Appendix.
6. Click **Apply Filter**.

A new node with the custom name you have configured is created on the tree, clicking which displays your custom view on the display panel.

You can create more child views under a parent node. For example, create a new view named *Master* (parent node) which shows only network elements that are in *Major* status. Within this *Master* view, you can create more views, say *M1*, *M2*, etc. *M1* can have a different set of criteria, say only SNMP nodes in that particular network. Deleting *Master* deletes its child views *(M1*, *M2*, etc.) as well.

Modifying a Custom View

After creating a custom view, you can refine it, or make changes to expand or limit the information displayed in a custom view.

To modify a custom view

1. Open the custom view in Network Events / Fault / network Database view to be modified.
2. Perform any of the following procedures:-
3. From **Custom Views** menu, choose **Modify Custom View**.
4. Click **Modify Custom View** on the toolbar.
5. Right-click the custom view node (Network Events/Alarms/Network Database) on the tree and choose **Custom Views > Modify Custom View**.

The Show object with these Properties dialog box is displayed.

3. Follow steps 3 to 6 as explained in the To add a new custom view section.

Saving a Custom View

To save a custom view, perform any of the following procedures.

- In the custom view, from **Custom Views** menu, choose **Save Custom View State**.
- Right-click the custom view node (Network Events/Alarms/Network Database) on the tree and choose **Custom Views > Save Custom View State**.

A message that the custom view has been saved is displayed in the status bar.

Deleting a Custom View

Note	Deleting a parent custom view also deletes all the child custom views. For example, you create a custom view named Master (parent) and under this create more custom views named M1 and M2. Deleting Master would also delete M1 and M2 custom views.

To delete a custom view

1. Open the custom view to be deleted.
2. Perform any of the following procedures:-
3. From **Custom Views** menu, choose **Remove Custom View**.
4. Click **Remove Custom View** on the toolbar.
5. Right-click the custom view node (Network Events/Alarms/Network Database) on the tree and choose **Custom Views > Remove Custom View**.

A confirmation is asked for. Click Yes to remove the custom view. The custom view and the tree node are deleted.

Note	The parent custom views (Network Events, Alarms, Network Database) that are available by default in the Application Client cannot be deleted.

Renaming a Custom View

To rename a custom view

1. On the tree, click the custom view node that you need to rename.
2. Perform any of the following procedures:-
3. From **Custom Views** menu, choose **Rename Custom View**.
4. Right-click the custom view node in the tree and choose **Custom Views > Rename Custom View**.
5. Press **F2**.

Performing any of the options makes the custom view name editable on the tree.

3. Type the new name and press **Enter**.

Tip: While renaming the custom view name (on performing Step 2), if you want to retain the same old name, press Esc (before performing Step 3). This retains the old name.

See Also

- *Show objects with these Properties* field description for Network Events
- *Show objects with these Properties* field description for Alarms
- *Show objects with these Properties* field description for Network Database
- *Show objects with these Properties* field description for Performance
- Tips and Tricks

7.3.1.6 Broadcasting Messages

The option **Broadcast Message** can be used to send messages to all the clients connected to the Web NMS Server.

To broadcast a message

1. In the Application Client, from the **File** menu, choose **Broadcast Message** or press **Ctrl+G**. The **Broadcast Message** dialog box is displayed.
2. Type the message to be broadcast in the **Message** field.
3. If **Send to my FE client only** is selected, the message is sent to all the clients connected to that particular Front-End Server. If **Send to all client** is selected, the message is sent to all the clients connected to different FE Servers, which, in turn, are managed by the main Web NMS Back-End Server.
4. Click **Broadcast**.

The message is delivered to intended clients that are connected to the Web NMS Server and is displayed on the status bar.

7.3.1.7 Changing Look and Feel

Web NMS Application Client supports three different types of Look and Feel: **Metal**, **CDE/Motif**, and **Windows**.

To change the look and feel of Application Client

1. Choose **Look And Feel** menu.
2. Click the desired look and feel: **Metal**, **CDE/Motif**, or **Windows**.

The Application Client changes to the mode that you have selected.

7.3.1.8 Setting Themes

A theme is an entity which is used to define the set of colors and the presentation of the various components in the GUI. Various GUI components, such as background color for a button, foreground color for a menu, etc., are defined in a theme.

Note	The Themes can be set only when the Look and Feel of the Application Client is set as Metal.

To set the theme for Application Client

1. From Tools menu, choose Themes. The Themes Configurator listing all the available themes is displayed.
2. Click the desired theme from the Theme Name field.
3. Click Apply.

The complete Application Client is changed to the theme you select.

7.3.1.9 Performing Tree Operations

The Application Client has a preset tree structure with parent and child nodes. For information on tree component, refer to Client Work Area Components. Some nodes are available in the Application Client permanently (by default) while some are added dynamically.

This section explains the operations that you can perform on tree nodes.

- Adding Tree Node
- Modifying Tree Node
- Deleting Tree Node
- Moving Tree Node

Adding Tree Node

To add a tree node, perform any of the following procedures.

- Click a tree node. From **File** menu, choose **Node Operations > Add Node**.
- Right-click a tree node and choose **Node Operations > Add Node**.
- Press **Ctrl+Shift+N**.

The **Add Tree Node** dialog box is displayed. The fields in this dialog box are explained in the following table.

Field	Description
Default Properties	
Tree Node Attributes	
Parent Node	Choose the parent node under which you need to create a new node.
Name	Enter a name for the node. This is a mandatory field
Icon File Name	Specify the icon file name located in <Web NMS Home>/images directory. The node that you create is represented with the specified icon.
Popup Menu File Name	Specify the pop-up menu file name. This is the menu that is displayed when you right-click the tree node.
Include Tree Node In	Choose the Web NMS Clients where you need this tree node. **both Java UI** and **HTML UI** - Creates the tree node in both Application Client and Web Client. **Java UI** only - Creates the tree node only in Application Client. **HTML UI** only - Creates the tree node only in Web Client.
Panel Attributes	
Class Name	Specify the class name associated with the tree node.
Menu File Name	Specify the menu file name. This is the menu that is displayed in the menu bar when the tree node is selected.
Initialize the Panel On Startup?	When you click a tree node, its corresponding view/panel is displayed on the right side display panel. This field determines whether the corresponding view should be initialized only after clicking the tree node or right when the Application Client is started. Possible values are: **true** - The panel is initialized when the Application Client is started. **false** - The panel is initialized only when you click the tree node. When this field is left blank, the default value of true is set.

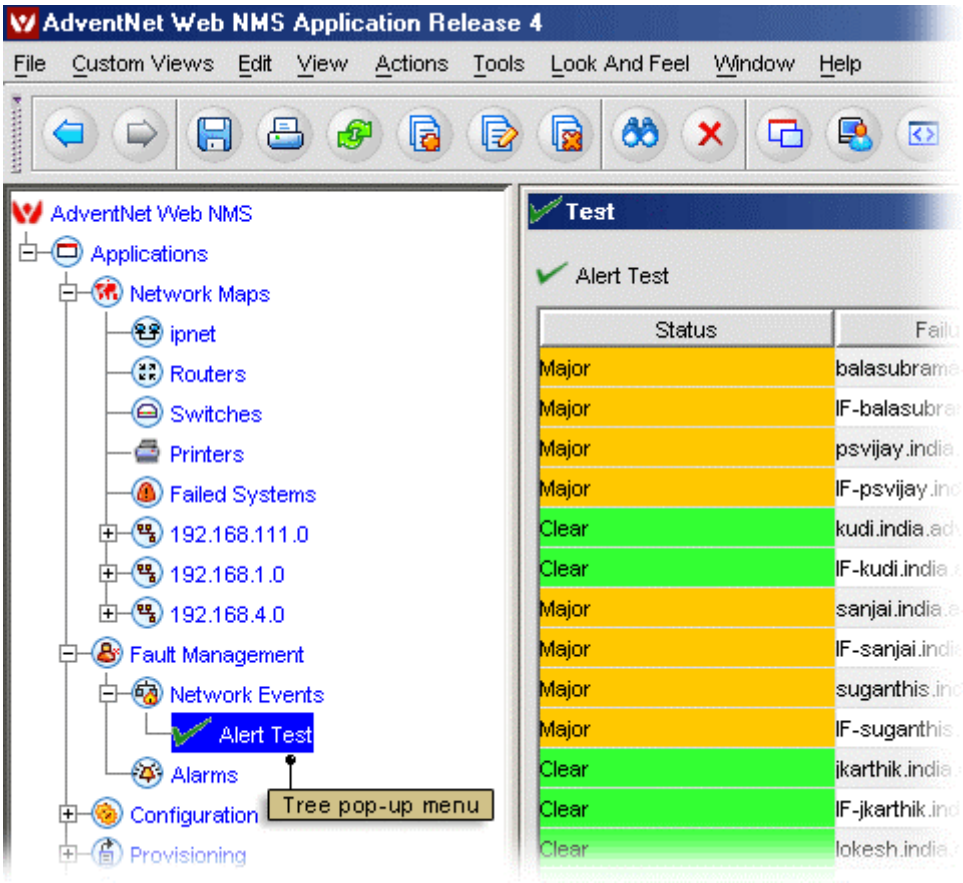
Field	Description
Frame Attributes	
Title	Specify the title for the view/panel that is displayed in the right side display panel.
Default Close operation	This field determines what should be done when the view/panel is closed. For example, clicking Alarms tree node displays the Alarms Viewer/panel on the right side display panel. This field determines what should be done when you close the Alarms Viewer/panel. Do Nothing - The panel is not closed. Hide Only - The panel is not closed but remains hidden behind other open panels. Next time when you access the same panel, it is displayed quickly as there is no fresh initialization. Dispose Only - The panel is closed and when you access it the next time, a fresh initialization takes place. Dispose and Remove Tree Node - The panel is closed and the tree node is removed from the Application Client. Dispose and Remove Tree Node from DB - The panel is closed and the tree node is removed from the Application Client as well as the database.
User Defined Properties	In the Add Tree Node dialog box, click Next. The User Defined Properties are displayed. If default properties available are not enough to be displayed in the table, you can add custom properties to be displayed based on your requirement. By providing the property key and its value, you can display the property name and the value in the table for the particular tree node. You can add any number of user-defined properties and all these are added to the database. Enter user-defined property key and property value in Key and Value fields and click Add to add a new property. Use Modify and Delete options to modify or delete an existing property respectively.

Example: Let us create a new tree node named **Alert Test** under **Network Events** parent node which will work the same as **Alarms** view. The table given below provides the values that you need to specify in the **Add Tree Node** dialog box.

Field	Example Value
Default Properties	
Tree Node Attributes	
Parent Node	Network Events
Name	Alert Test
Icon File Name	images/tick.png
Popup Menu File Name	Custom View, frameoptions.xml This file is located in <Web NMS Home>/users/<user name> directory.
Include Tree Node In	both Java UI and HTML UI

Field	Example Value
Panel Attributes	
Class Name	com.adventnet.nms.alertui.AlertApplet
Menu File Name	alertsmenu.xml This file is located in <Web NMS Home>/html/defaultsToAllUsers.
Initialize the Panel On Startup?	true
Frame Attributes	
Title	Test
Default Close operation	Do Nothing
User Defined Properties	Nothing is to be configured here.

On specifying the values, click **Apply**. The screen shot given below depicts the tree node added in the tree, the pop-up menu, panel menu, and the view/panel.



Modifying Tree Node

To modify tree node

1. Perform any of the following procedures.

- Click a tree node. From **File** menu, choose **Node Operations > Modify Node**. (or)
- Right-click a tree node and choose **Node Operations > Modify Node**. (or)
- Press **Ctrl+Shift+Y**.

The **Modify Tree Node** dialog box is displayed.

2. Make the required modifications and click **Apply**.
3. Click **Close**.

Note	The **Class Name** field cannot be modified and is non-editable.

Deleting Tree Node

To delete tree node

1. Perform any of the following procedures.
2. Click a tree node. From **File** menu, choose **Node Operations > Remove Node**. (or)
3. Right-click a tree node and choose **Node Operations > Remove Node**. (or)
4. Press **Ctrl+Shift+X**.

The **Delete Tree Node** dialog box is displayed.

2. From **Tree Node** drop-down box, select the tree node to be deleted.
3. Click **Apply**. A **Confirmation Message** is displayed.
4. Click **Yes** to delete the tree node.
5. Click **Close**.

The tree node is deleted from the Application Client as well as from the database.

Note	The default tree nodes that are created in the Application Client cannot be deleted.

Moving Tree Node

To move tree node

1. Perform any of the following procedures.
2. Click a tree node. From **File** menu, choose **Node Operations > Move Node**. (or)
3. Right-click a tree node and choose **Node Operations > Move Node**. (or)
4. Press **Ctrl+Shift+V**.

The **Move Tree Node** dialog box is displayed.

2. From **Select the Tree Node to be moved** drop-down box, select the tree node to be moved (re-arranged) on the tree.
3. From **Select the Destination Tree Node** drop-down box, select the tree node under which it has to be placed.
4. In Node Index field, enter the index value of the node. **Applications** node on the tree is of index '0'. Hence the next node on the tree **Network Maps** is of index '1' and the value goes on for each of the tree nodes. For example, if you need to move the node after **Network Maps**, enter the index value as '2'.
5. Click **Apply**. A **Confirmation Message** is displayed.

7.3.2 Viewing and Navigating Networks

Web NMS automatically discovers your network and the devices in that network. The discovered elements are depicted pictorially in **Maps**. This chapter explains the default maps that are created in the Application Client and the various operations that you can perform in a map.

How is this chapter organized?

This chapter provides information on each type of default maps and the operations that you can perform in a map. Certain operations are common to all these default maps and hence they are explained in Performing Map Operations topic. The Understanding Default Maps topic explains the operations that you can perform only in that specific default map.

Example: An option to view the events in a device is available across all the maps, hence this operation is explained in Performing Map Operations topic. Similarly, an option to drill down further networks is available only in IPnet map, hence this operation is explained in IPnet Map topic under Understanding Default Maps.

- Understanding Default Maps
- Performing Map Operations

7.3.2.1 Understanding Default Maps

The capability of maps to expose logical relationships between the elements, capture minute changes in their state, and clearly display cumbersome networks make maps an integral component of the Application Client.

By default, Web NMS provides a set of maps that can be viewed in the Application Client. This topic explains the default maps and the operations that you can perform in those maps.

Apart from the default maps, tailor-made maps can also be created to arrange a set of device logically (based on a hierarchy), organize devices with growing level of network, or create maps specific to individual users. To perform map creation and customization, you need permission as a user. Contact your system administrator to know the privileges of your user account. For more information on creating custom maps, refer to Adding Custom Maps.

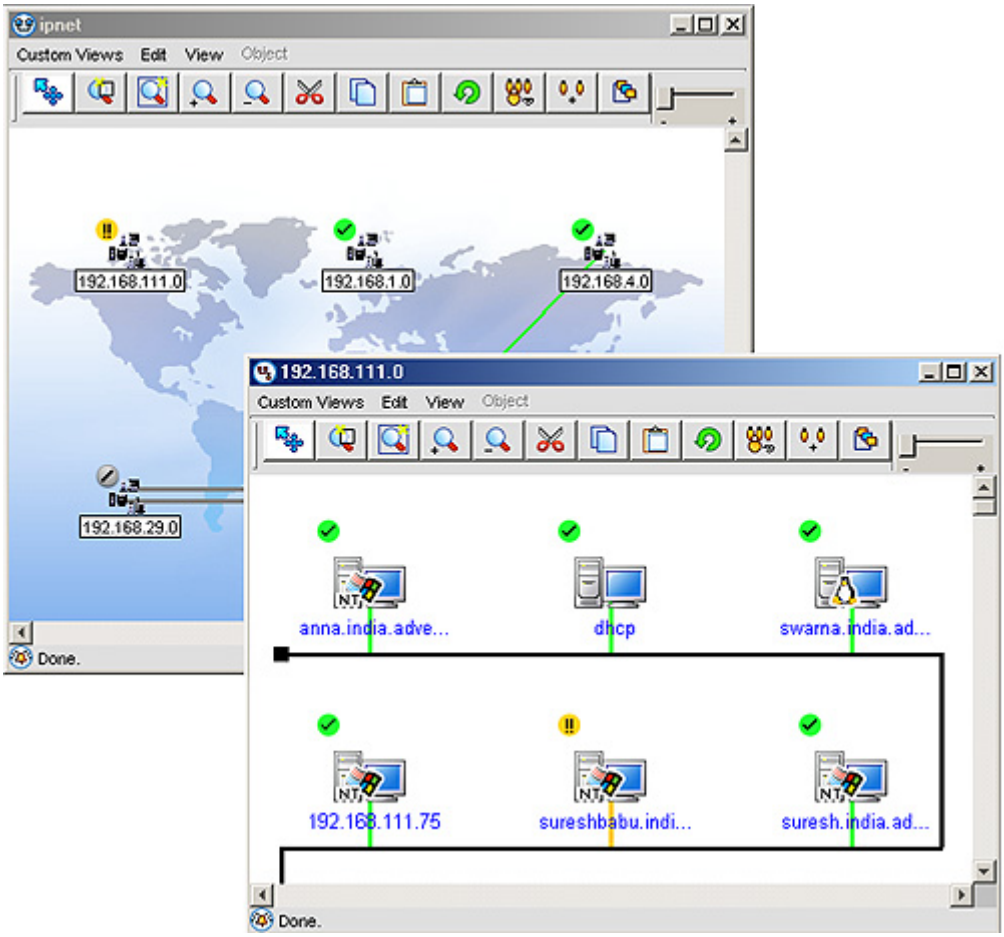
The default maps created in Application Client are:-

- IPnet map: A map that depicts all the discovered networks and routers.
- Sub-network map: A map that depicts a single network and its elements.
- Switches map: A map that depicts all the switches discovered in a network.
- Routers map: A map that depicts all the routers discovered in a network.
- Printers map: A map that depicts all the printers discovered in a network.
- **Failed Systems map**: A map that depicts all the failed devices in a network.
- **TL1 Panels**: A map that depicts all the TL1 devices discovered in a network.

Differentiating IPnet map and Sub-network Maps

The IPnet map displays all the networks and routers discovered by Web NMS. It represents each network and router as distinct icons and also represents the logical connection between them. When you drill down a particular network, you can view the Sub-network. The Sub-network map is a distinct map which has sub-maps for each of its elements.

For example, if Web NMS has discovered 3 networks, say 192.168.1.0, 192.168.2.0, and 192.168.3.0. All these networks are represented as 3 different icons in the IPnet map. When one of the networks, say 192.168.1.0 is drilled down, you can view the Sub-network map which displays all the elements (switches, printers, nodes, etc.) in that particular network. Further, the 192.168.1.0 Sub-network map provides you sub-maps for each type of device discovered (switches, printer, nodes, etc.). Refer to the following image.



Understanding Objects and Symbols

An object is an entity or a resource discovered in a network which represents a device or an element in the network, a part/component in a device, or a specific part of the network itself. Each object has properties (attributes) that define that object. You can view the object properties from the map.

These objects are graphically represented in the map as symbols. These symbols are distinct for each type of device in the network and reflect the current status of that device in varied colors.

Hence, when a device is discovered, it is modeled as an object (device-specific attributes) and the same is depicted as a symbol in the map.

7.3.2.1.1 IPnet Map

The IPnet map depicts all the networks and routers discovered by Web NMS. This map provides you a high-level view of the complete network system that is being managed, for example, your organization at different geographical locations. To learn the differences between IPnet map and Sub-network map, refer to Differentiating IPnet map and Sub-network maps.

Viewing IPnet Map

When you open the Application Client, IPnet map is displayed, by default.

To view IPnet map

1. Log on to Application Client.
2. Click the **IPnet** node on the tree.

The IPnet map is opened on the display panel.

Drilling Down the Network in IPnet Map (viewing Sub-network map)

To drill down a network

1. Open the **IPnet** map.
2. Select the desired network.
3. Perform any of the following procedures:-
    - From **Network** menu, choose **Open Submap**.
    - Double-click that network map symbol.
    - Right-click that map symbol and choose **Open Submap**.

The Sub-network map of that network is opened on the display panel. The tree node selection also shifts from IPnet map to the Sub-network map.

See Also

- Performing Map Operations
- Map Menus
- Map Toolbar Options
- Map and Device Details

7.3.2.1.2 Sub-network Map

The Sub-network map depicts all the elements discovered in a particular network. The sub-network map is represented as a separate node in the tree which has sub-maps under them. For example, if a network 192.168.2.0 is discovered, a new node with the same IP is added in the tree. This map has sub-maps for each type of the device, such as Printers, Switches, Routers, etc. To learn the differences between IPnet map and Sub-network map, refer to Differentiating IPnet map and Sub-network maps.

Viewing Sub-network Map

When you open the Application Client, IPnet map is displayed, by default.

To view Sub-network Map

1. Log on to Application Client.
2. Click the sub-network map node on the tree. By default, the sub-network maps are denoted by their IP address in the tree.

The sub-network map is opened on the display panel.

Viewing Discovery Status

In a sub-network map, the discovery progress icons provided near the Zoom Slider help you in obtaining the status of the discovery. The following are the various discovery progress representations.

Icon	Implies
	The discovery of that network has been completed.
	The discovery of that network has been disabled.
	The discovery of that network is in progress.
	The discovery of that network is yet to being.

Viewing Advanced Information of a Device

When a network is being discovered by Web NMS, different devices, such as Switches, Routers and Printers connected in a network are also discovered. In a network, information travels in the form of packets. The details as to how these packets travel through the network are presented as Advanced

Device Information in Web NMS. The term Advanced Device Information includes the communication details of devices, such as Switches, Routers, etc., and also the inventory details of devices, such as Printers.

The Advanced Device Information of these managed devices is presented in a tabular form. The tabular information derived from the SNMP Agents associated with these devices is defined in the RFC 1213 MIB, Bridge-MIB, and the Printer MIB.

The tables that you can view for each of the devices are listed below:-

Device	Tables
SNMP Node/Routers	Routing Table Interfaces TCP Table UDP Table IpNetMedia Table
Switches	Interfaces Routing Table Port Table Spanning Tree Forwarding Table Filter Table
Printers	Printer Device Table Cover Table Input Table Output Table Supplies Table Interfaces Routing Table

Note

The procedure to view advanced information is the same for all the devices, such as SNMP nodes, Switches, Routers, and Printers.

To view advanced information of a device

1. Select a device in the map. For example, a switch in the Switches map.
2. From the **<device-specific>** menu, choose **<table>**. [**Note:** The <table> denotes the table name as listed in the table above]. For example, Network Hub.

The respective table is displayed. Complete information on these tables and how to view information using these tables are provided in the MIB Browser > Table Handling topic in the Administrator Guide.

Tip: You can view advanced information of a device also from the Network Database view. For more information, refer to Traversing Network Database.

Performing Device-Specific Operations

The operations explained in this section are available only for certain types of devices, such as SNMP Nodes and Routers.

Tip: You can perform all these operations also from the Network Database view. For more information, refer to Traversing Network Database.

Pinging a Device

Ping option is used in networks to test and monitor the reachability/accessibility of a device in the network.

To ping a device

1. Select a device in the map.
2. From the **<device-specific>** menu, choose **Ping** or press **Ctrl+P**.

A **Status Message** dialog box with ping details is displayed.

Tracing the Route

The **Trace Route** option is used to view the path through which data traverses from Web NMS to a destined device in the network.

To trace the route

1. Select a device in the map.
2. From the **<device-specific>** menu, choose **Trace Route**.

A **Status Message** window with the trace route and number of hops a packet of information undergoes to reach the destined device is displayed.

Browsing MIBs

Browse MIBs option is used to retrieve information on the type of MIBs that are loaded for an SNMP device.

To browse MIBs

1. Select an SNMP device in the map.
2. From the **<device-specific>** menu, choose click **Browse MIBs**.

The MIB Manager with the loaded MIBs is displayed in the display panel.

Monitoring Device Performance

For complete information, refer to Monitoring Network Performance.

Opening a Telnet Session

Telnet session can be opened to access a telnet-enabled device (i.e. a node) in the network.

To open a telnet session

1. Select a Node in the map.
2. From the **Node** menu, choose **Telnet to device** or right-click the node and choose **Node > Telnet to device**. The Telnet console is displayed for that node.
3. Enter the login ID and password to access the node.
4. To disconnect the telnet session, choose **File > Disconnect**; and to quit the console, choose **File > Exit**.

See Also

- Performing Map Operations
- Map Menus
- Map Toolbar Options
- Map and Device Details

7.3.2.1.3 Switches Map

All the switches in your network are automatically discovered by Web NMS and they are displayed in a default map called **Switches**. The details of discovered switches are also displayed in the Network Database view. For more information, refer to Traversing Network Database.

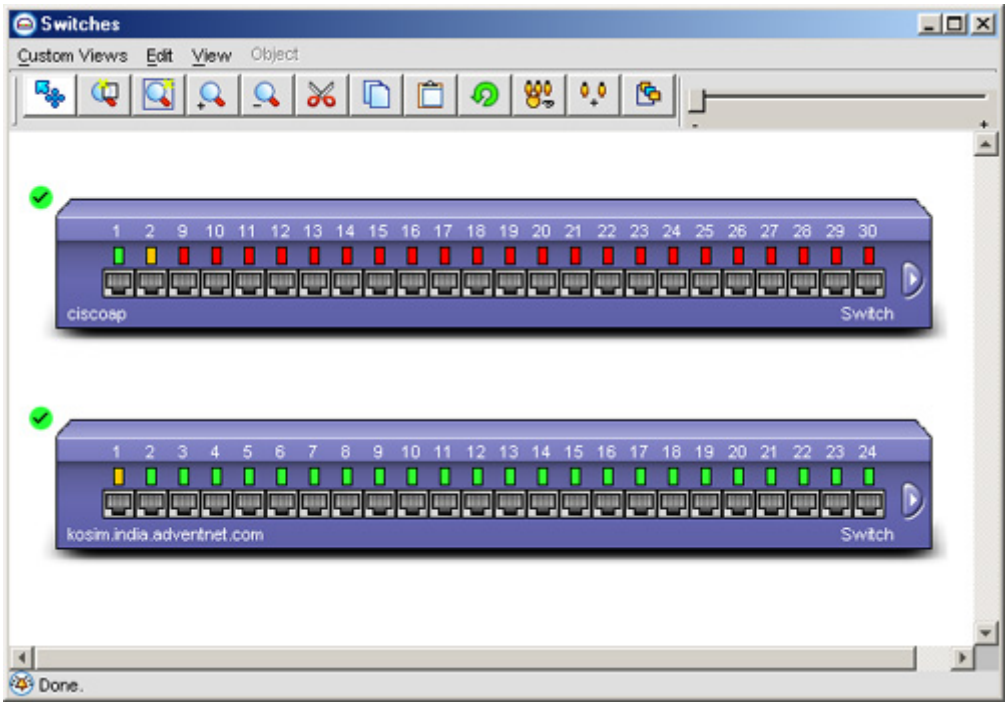
Viewing Switches Map

When you open the Application Client, IPnet map is displayed, by default.

To view Switches map

1. Log on to Application Client.
2. Click the **Switches** map node on the tree. This node is available on the tree only if at least one switch is discovered in your network.

The **Switches** map is opened on the display panel. This map displays all the discovered switches as well as ports in them. You can manage the switch and the ports individually.

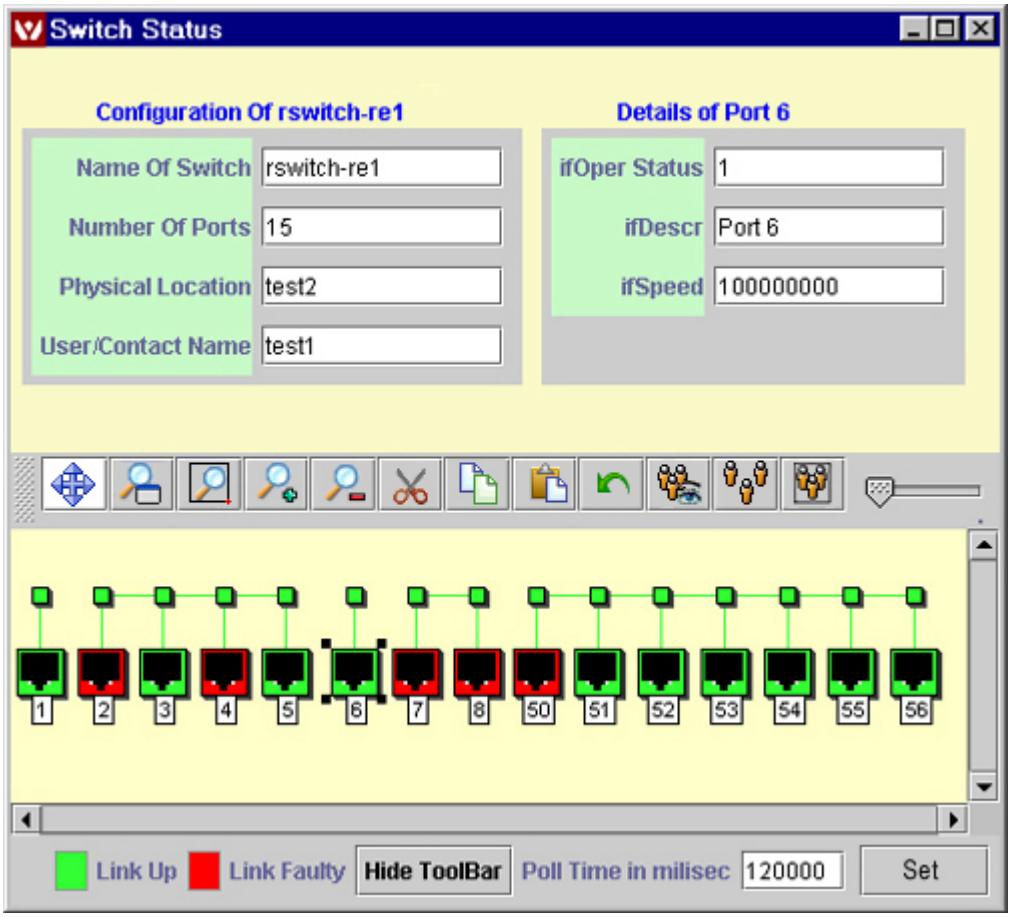


Viewing Switch Status

To view switch status

1. Select a switch in the **Switches** map.
2. From the **Network Hub** menu, choose **Switch Status** or right-click the switch and choose **Switch Status**.

Each port in the switch is queried and a **Switch Status** window for that switch is displayed. A screen shot of the same is given below:-



All the ports in the switch are displayed with their current status at the bottom of the window. Click each port to view its details in the **Details of** fields located at the top right side. The **Configuration of** fields display information on the switch. Details on each of the fields are provided in the following table:-

Field	Description
Configuration of	
Name of Switch	Displays the name of the switch for which the details are being viewed.
Number of Ports	Displays the number of ports in that switch.
Physical Location	Displays the place where the switch is located physically in the network.
User/Contact Name	Displays the name and how to contact the person handling that switch.
Details of	
ifOper Status	Displays the operational status of the selected port on that switch. If **1** is displayed: *The link is up.* If **2** is displayed: *The link is faulty.* If **3** is displayed: *No operational packets can be transmitted.*
ifDescr	Displays the description of the selected port, such as Manufacturer details, date of manufacturing, and more.
ifSpeed	Displays an estimate of the selected port's current bandwidth in *bits per second*.

Tips:-

- The ports that have the same speed are connected together and the others are shown separately.
- The link up and link faulty status are differentiated with green and red colors respectively.
- Change the time interval in which the ports are to be queried periodically in **Poll Time in millisec** field and click **Set**.
- You can view switch status from the Network Database view also. For more information, refer to Traversing Network Database.

See Also

- Viewing Advanced Information of a Device
- Performing Map Operations
- Map Menus
- Map Toolbar Options
- Map and Device Details

7.3.2.1.4 Routers Map

All the routers in your network are automatically discovered by Web NMS and they are displayed in a default map called **Routers**. The discovered routers are displayed also in the IPnet map and Network Database view. For more information, refer to IPnet Map and Traversing Network Database.

Viewing Routers Map

When you open the Application Client, IPnet map is displayed, by default.

To view Routers map

1. Log on to Application Client.
2. Click the **Routers** map node on the tree. This node is available on the tree only if at least one router is discovered in your network.

The **Routers** map is opened on the display panel. This map displays all the routers discovered by Web NMS in your network.

Viewing Router Details

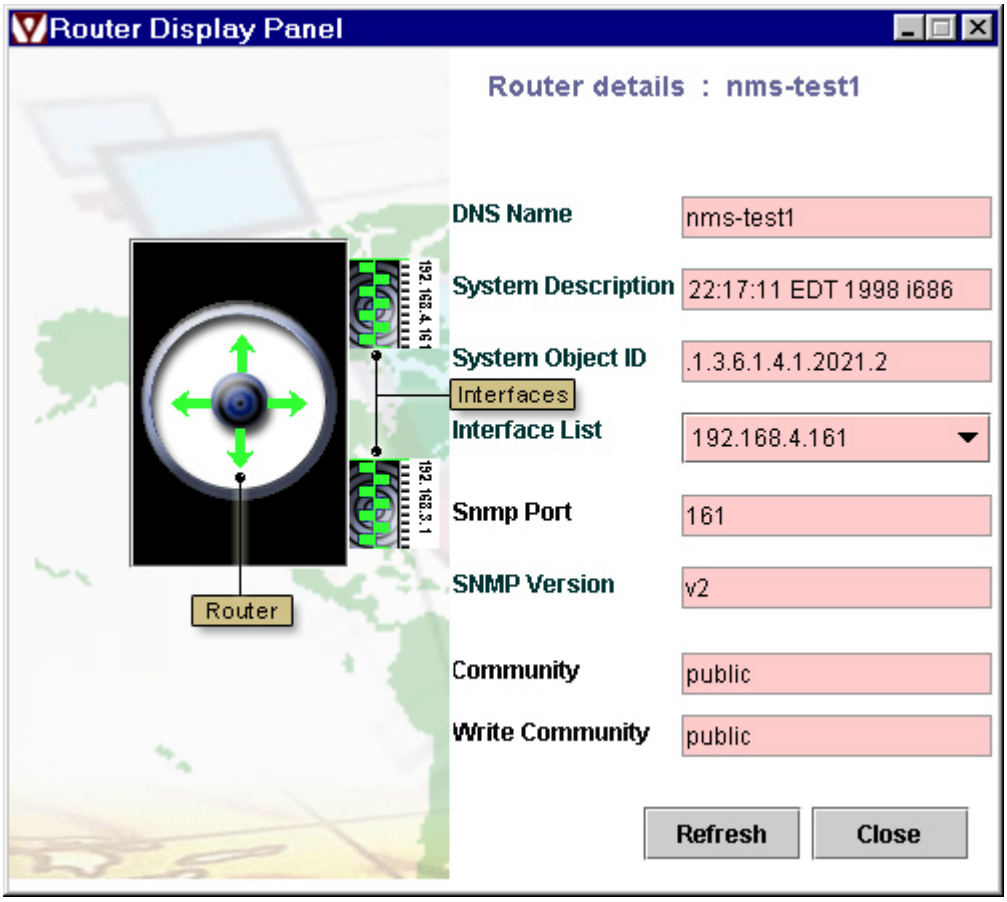
To view router details

1. Select a router in the **Routers** map.
2. From **Router** menu, choose **Router Details**.

The **Router Display Panel** is displayed. The following table provides the description of the fields in **Router Display Panel**.

Field	Description
DNS Name	Displays the domain name of the router, whose details are being viewed. This is a hierarchical, domain-based naming system.
System Description	Displays a textual description of the router. Value includes the full name and version identification of the system's hardware type, operating system, and networking software.
System Object ID	Displays the vendor's authoritative identification of the network management sub-system contained in the router. This value provides an easy and unambiguous means for determining the device that is being managed.
Interface List	Displays a list of the IP addresses of the interfaces connected to the node.
Snmp Port	Displays the port number to which the interface is connected.

SNMP Version	Displays the SNMP version used (v1, v2, v3).
Community	Displays the community string of the corresponding agent associated with the interface.
Write Community	Displays the write community string used for Set requests.



Click the **Interfaces** tab (refer to the image above) to view the details of the interfaces. To view the router details again, click the **Router** (refer to the image above). The following table provides the description of the interface fields

Field	Description
IP Address	Displays the IP address of the interface connected to the node, whose details are currently being viewed.
Netmask	Displays the Netmask which is used to identify the network to which each device in the network is connected.
Inerface Descriptor	Displays the description of the interface that is connected to the node.
Interface Speed (Mbps)	Displays the rate of transfer of the packets.
MAC Address	Displays the physical address of the device.
Physical media	Displays the physical media which refers to the hardware incorporated in the system.

Click **Refresh** to get the latest information of the router.

To view router object details

1. Select a router in the **Routers** map.
2. From the **Router** menu, choose **Managed Object Properties**.

The **Object Properties** dialog box is displayed. For information on each of the properties, refer to Map and Device Details in Appendix.

To view router map symbol details

For information, refer to the Viewing Map Symbol Properties section in the Performing Map Operations topic.

Tip: You can view object and map symbol details also from the Network Database view. Refer to Traversing Network Database.

See Also

- Viewing Advanced Information of a Device
- Performing Map Operations
- Performing Device-specific Operations
- Map Menus
- Map Toolbar Options
- Map and Device Details

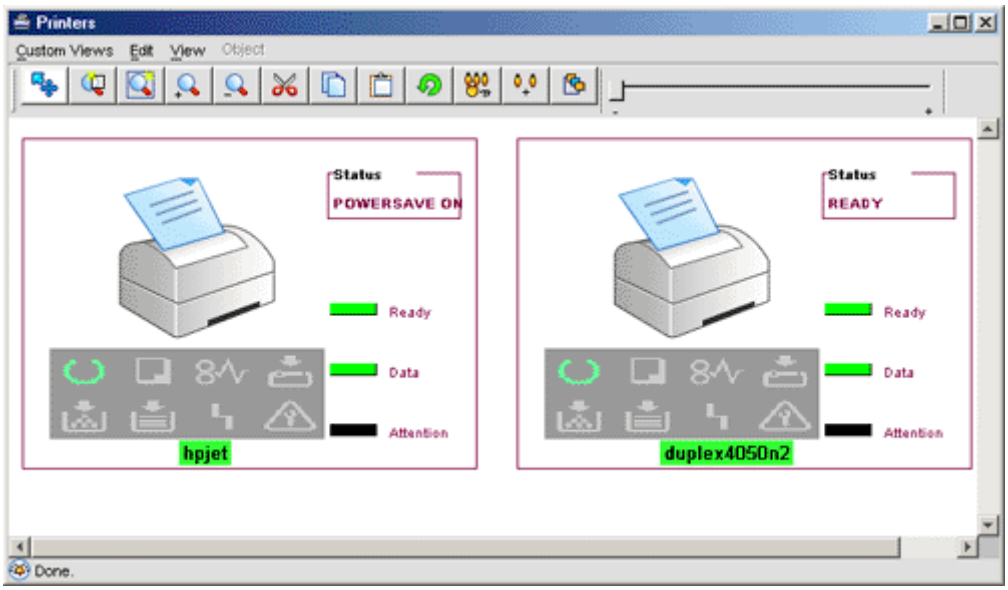
7.3.2.1.5 Printers Map

All the printers in your network are automatically discovered by Web NMS and they are displayed in a default map called **Printers**. This map is created and available in the Application Client only when at least one printer is discovered in your network.

- Viewing Printers Map
- See Also

Viewing Printers Map

When you open the Application Client, IPnet map is displayed, by default.



To view Printers map

1. Log on to Application Client.
2. Click the **Printers** map node on the tree. This node is available on the tree only if at least one printer is discovered in your network.

The **Printers** map is opened on the display panel. This map displays all the printers discovered by Web NMS in your network.

See Also

- Viewing Advanced Information of a Device
- Performing Map Operations
- Map Menus
- Map Toolbar Options
- Map and Device Details

7.3.2.1.6 Failed Systems Map

The Failed Systems map displays all the devices in the network that has failed. A network element is said to have failed if it has not responded to the regular monitoring checks done by Web NMS. This map helps you to easily identify the devices that have failed in the network and take quick action.

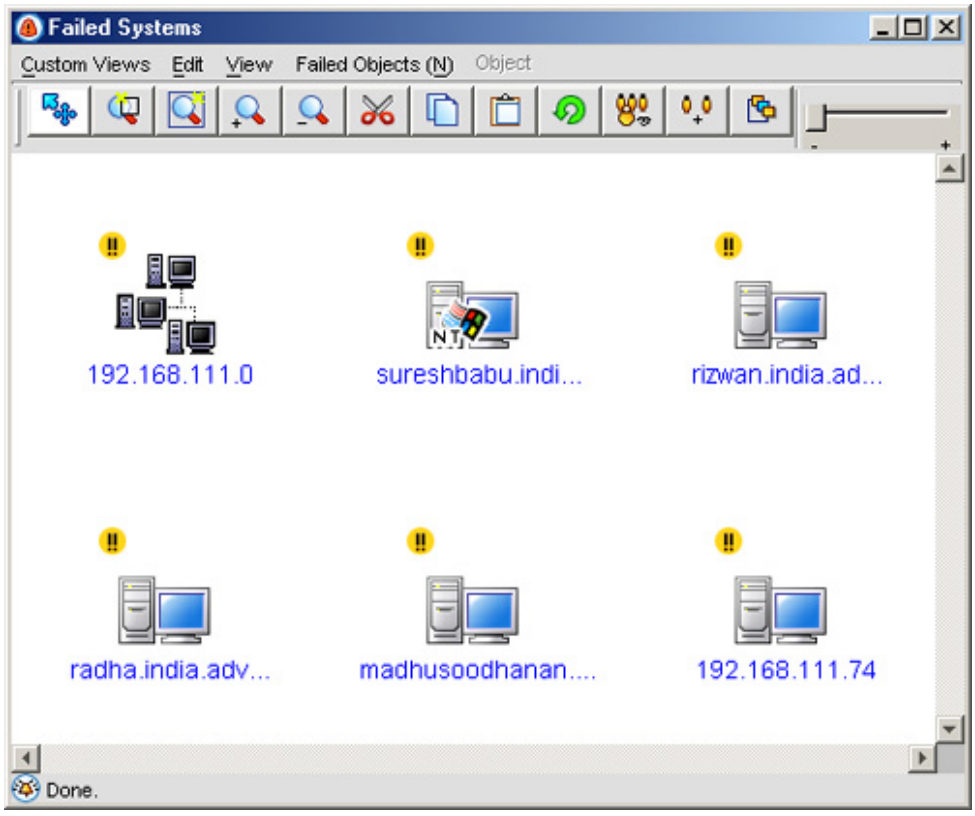
Viewing Failed Systems Map

When you open the Application Client, IPnet map is displayed, by default.

To view Failed Systems map

1. Log on to Application Client.
2. Click the **Failed Systems** map node on the tree. The Failed Systems map is also available under a sub-network map which displays failed devices only in that network.

The **Failed Systems** map is opened on the display panel.



See Also

- Performing Map Operations
- Map Menus
- Map Toolbar Options
- Map and Device Details

7.3.2.1.7 TL1 Panels

The TL1 Panels is created in the Application Client only when at least one TL1 device is discovered in the network. When the discovered TL1 device is deleted from the database, the TL1 Panels is also removed from the Application Client.

Viewing TL1 Panels

When you open the Application Client, IPnet map is displayed, by default.

To view TL1 Panels

1. Log on to Application Client.
2. Click the **TL1-Panels** node on the tree. This node is available on the tree only if at least one TL1 device is discovered in your network.

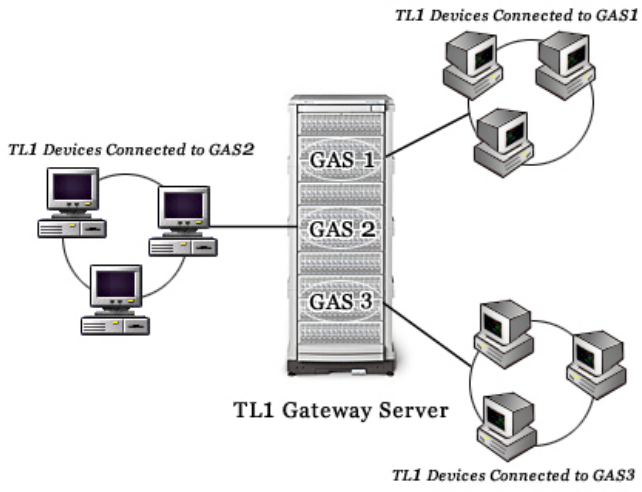
The **TL1-Panels** has the following child nodes:-

- TL1-Map
- TL1-Topo-Map
- TL1 Events
- TL1 Alarms
- TL1 Nodes
- TL1-Gateway-Nodes
- TL1-GatewayAccess
- TL1-Interfaces
- TL1-Performance-Views

TL1-Map

This map displays all TL1 devices discovered in the network (except the TL1 Gateway Servers).

Prior to working with the map, let us understand the physical connection between the server, access sessions, and the nodes. TL1 Gateway Server is the main server which contains several ports or Gateway Access Sessions (GAS). Each of these ports is connected with the TL1 devices. Pictorially, this relationship can be explained as shown below



See Also: Performing Map Operations.

TL1-Topo-Map

This map displays the TL1 Gateway Servers and the standalone TL1 nodes. From the TL1-Topo-Map, you can drill down to see the TL1 Gateway Access Sessions and then the TL1 Nodes.

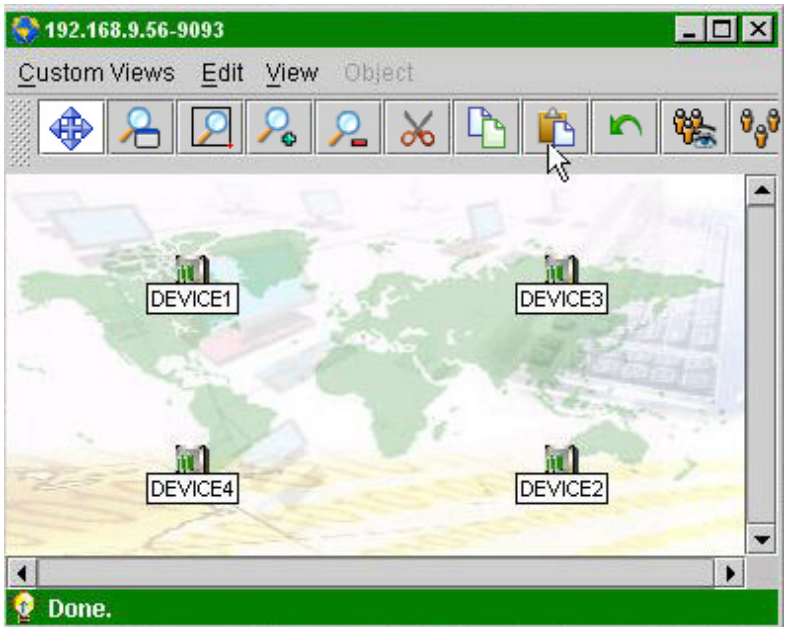
Perform any of the following to drill down the TL1 Gateway Servers:-

- Select any **TL1 Gateway Server** in the TL1-Topo-Map. Right-click and choose **Open Sub Map**.

  A new map, with the name as that of the TL1Gateway Server is displayed. This map displays the Gateway Access Sessions of the Gateway Server.

- Select any **TL1 Gateway Access Session** in the TL1-Topo-Map. Right-click and choose **Open Sub Map**.

  A new map, with the name as that of the Gateway Access Session, pops up. This map displays the TL1 nodes connected to this gateway access session.



This map displays the TL1 Gateways or the TL1 Terminal Servers discovered in your network. TL1 Terminal Servers are the most important devices to which the management application communicates.

See Also: Performing Map Operations

TL1-Events

This view displays all the autonomous message related to the TL1 device. For more information on Event Operations, refer to Viewing Network Events.

TL1-Alarms

This view displays all the alarms related to the TL1 device. For more information on Alarm Operations, refer to Viewing Alarms.

The count of the alarms generated for TL1 devices will be displayed against the category **TL1AutonomousMessages** in the Alarm Count Panel.

 **Note**	For the events/alarms generated from TL1 agents, the source field column will hold the **name** of the agent. But in case of TL1 network elements managed behind the terminal server, the source field of the event/alarm will hold the **Target Identifier (TID)** and the failure object will hold the value of Target Identifier (TID) along with the corresponding failure. The TID is used to uniquely identify each TL1 network element present behind the gateway.

TL1-Nodes

This view displays all the TL1 Node objects representing the TL1 network elements behind the gateway. The name of the object is the target ID of the device.

See Also: Performing Map Operations

TL1-Gateway-Nodes

This view displays all the TL1 Gateway Node objects representing the proxy node through which the TL1 network elements can be contacted. The name of the object is **dnsname**.

See Also: Performing Map Operations

TL1-GatewayAccess

This view displays all the TL1 Gateway Access Point objects representing the ports in the TL1 Gateway Node through which the communication with the TL1 devices behind the gateway happens. The name of the object is **dnsname-portno**.

See Also: Performing Map Operations

TL1-Interfaces

This view displays the TL1 Interface objects representing the IP Address object of the TL1Gateway Node and the TL1 Nodes.

See Also: Performing Map Operations

TL1-Performance-View

This view displays performance data that is collected from TL1 devices. For more information on monitoring performance, refer to Monitoring Network Performance.

See Also

- Performing Map Operations
- Map Menus
- Map Toolbar Options
- Map and Device Details

7.3.2.2 Performing Map Operations

Note	The operations explained in this topic can be performed in all the default maps. These operations are available in your Application Client based on your privileges as a user. For example, if you do not have the permission to save maps, then the Save Map option will not be available in the menu bar. Contact your system administrator to understand your privileges in accessing the Application Client.

- Viewing Properties
- Viewing Fault
- Viewing Performance Data of a Device
- Working with Map Symbols
- Working with Map Layout
- Searching Elements in a Map
- Updating Status
- Unmanaging a Network and Device
- Adding New Map Elements

Refer to Glossary for Containers and Links.

7.3.2.2.1 Viewing Properties

- Viewing Network/Device Properties
- Viewing Map Symbol Properties
- Viewing Map Details
- Viewing Link Details

Viewing Network/Device Properties

To view network/device details

1. Open the map.
2. Select a network/device in that map.
3. From the **device-specific** menu, choose **Managed Object Properties**.

What is device-specific menu?
A menu that is available in the Application Client only for a specific type of device. For example, if you select an SNMP node in the map, a menu named '**Snmp-Node**' is available. Similarly, if you select a printer, a menu named '**Printer**' is available.

The **Managed Object Properties** dialog box is displayed with the network/device properties. For information on each of the properties, refer to Map and Device Details in Appendix. To understand the difference between an object and a symbol, refer to Differentiating Object and Symbol.

Tip: You can view object and map symbol details also from the Network Database view. For more information, refer to Traversing Network Database.

Viewing Map Symbol Properties

To view the properties or details of a map symbol

1. Select the map symbol in a map.
2. Perform any of the following procedures:-
    - From the **View** menu, choose **Details**.
    - Click **Properties** on the toolbar.
    - Press **Alt+D**.
    - Double-click the map symbol.

The **Object Properties** dialog box is displayed. For information on the each of the properties in this dialog box, refer to Map and Device Details in Appendix.

Viewing Map Details

To view the properties or details of a map

1. Open the map.
2. Click the background of the map.
3. Perform any of the following procedures:-
    - From **View** menu, choose **Details**.

- Click **Properties** on the toolbar.
- Press **Alt+D**.
- Double-click the map background.

The **Map Properties** dialog box is displayed. For information on the each of the properties in this dialog box, refer to Map and Device Details in Appendix.

Viewing Link Details

To view the properties or details of a link in a map

1. Select the link in a map.
2. Perform any of the following procedures:-
   - From **View** menu, choose **Details**.
   - Click **Properties** on the toolbar.
   - Press **F4**.
   - Double-click the link.

The **Symbol Properties** dialog box is displayed. For information on the each of the properties in this dialog box, refer to Map and Device Details in Appendix.

7.3.2.2.2 Viewing Fault

- Viewing Events
- Viewing Alarms

Viewing Events

To view events generated in a network or for a device

1. Open the network or device map.
2. Select the map symbol.
3. From the **View** menu, choose **Events**.

The Network Events Viewer is displayed, which shows all the events that are generated in that network or for that device. For more information on Network Events Viewer, refer to Viewing Network Events. The latest event status is depicted in the map symbol using color differentiation.

Viewing Alarms

To view alarms generated in a network or for a device

1. Open the network or device map.
2. Select the map symbol.
3. From the **View** menu, choose **Alarms**.

The Alarms Viewer is displayed which shows all the alarms that are generated in that network or for that device. For more information on Alarms Viewer, refer to Viewing Alarms.

7.3.2.2.3 Viewing Performance Data of a Device

To view performance data of a device

1. Open the device map or sub-network map.
2. Select the map symbol.
3. From the **View** menu, choose **Statistics(P)**.

The **Configured Collection** view is displayed. For information on the Configured Collection view, refer to Viewing Data Collection Details in the Monitoring Network Performance topic.

7.3.2.2.4 Working with Map Symbols

- Grouping Map Symbols
- Ordering Map Symbols
- Rearranging Map Symbols
- Changing Tooltip of Displayed Map Symbols

Grouping Map Symbols

Each map displays symbols as icons that represent a device in that network. Hence, all icons, such as Printers, Switches, Routers, Nodes, and other devices are collectively called 'map symbols'.

You can group these map symbols to view devices within a local vicinity or to view devices sharing a logical connection. For example, you can group the devices in a particular locality that are being monitored by you or of your interest.

To group map symbols

Perform any of the following procedure:-

Procedure 1

Follow this procedure to group map symbols only of your interest and not the complete set of map symbols in the map.

1. Open the map.
2. Select the map symbols in a map. You can click and drag your mouse over the map symbols or perform **Ctrl+click** for selective map symbols.
3. After selecting at least one map symbol, click **Group Selected Symbols** in the map toolbar.
4. To add more groups, repeat step 2 and step 3.

The map symbols are grouped and the name and label of the group are assigned automatically.

Procedure 2

Follow this procedure to group the complete set of map symbols in a map (not specific symbols).

1. Open the map.
2. From the **Edit** menu, choose **No of Symbols Per Group**.
3. In the dialog box that pops up, enter the number of map symbols to be placed in a group in the **Enter Number Of Symbols Per Group** field. Enter a minimum value of 1, but there is no restriction on the maximum number of symbols per group.
4. If you need to save the grouping pattern, select **Save changes**. If this option is not chosen, your grouping is temporary and will not exist when you reopen your Application Client.
5. Click **OK**.

All the map symbols in that map are grouped based on the number you set. For example, if you have set 4, then each group will have 4 symbols.

A group symbol is represented as  . The group symbols also depict the current status of the device in that group. For example, if one of the nodes in that group is in Major state, then the group symbol is also depicted as Major.

To view the map symbols in a single Group

1. Click a group in a map.
2. From the **Group** menu, choose **Open Group**, or right-click the group and choose **Open Group**, double-click the group symbol.

A new view with only the devices in that group is displayed.

To view map symbols in all the groups

If you need to view all the map symbols in a map that are a part of various groups, perform the following procedure:-

1. Click the groups using **Ctrl+click**.
2. Click **Expand Selected (Or All) Groups**.

For example, if you have selected *Group A* and *Group B* and performed this operation, then a new view is created in the display panel which displays all the devices in *Group A* as well as *Group B*.

If you are in the group view and need to get back to the main map view, click **Group View**.

To ungroup

1. Right-click a group in the map.
2. Click **UnGroup**.

The group no more exists and map symbols in that group are displayed in the main map area. If you need to save this permanently, ensure to save the map once you ungroup.

To disable grouping

1. From the **Edit** menu, choose **Disable Grouping**.

All the groups are dissolved and the map symbols in those groups are displayed in the main map area.

To change the label of a group

Each group in a map is displayed with a label that is created automatically while creating groups. For example, Group A, Group B, etc. To change the label that is displayed in the map, follow these steps:

1. Right-click a group in the map and click **Symbol Properties**, click a group and from the **Group** menu, choose **Symbol Properties**. The **Object Properties** dialog box is displayed.
2. Enter the label name in the **Label** field.
3. If you need to save this label for that group, select **Save changes on server**. If you do not select this option, when you reopen the Application Client, the default label name is displayed instead of the one you had set.
4. Click **Modify**.

Ordering Map Symbols

By default, the symbols in a map are arranged based on their order of discovery (as fetched from the database). You can reorder the symbols based on your preference by using the **Edit > Order by** menu and choosing any one of the following criteria.

Criteria	Description
name	Sorts the map symbols based on their names. Order of sorting is A-Z.
label	Sorts the map symbols based on the symbols' label values. Order of sorting is A-Z.
objName	Sorts the map symbols based on the name of the managed object that is represented by the symbol.
status	Sorts the map symbols based on the status of the managed objects represented by the symbols. Order of sorting is from critical to clear, where symbols with critical state will be positioned first followed by symbols with lower severity.
groupName	Sorts the map symbols based on the name of the group to which they belong.
objType	Sorts the map symbols based on the type of the managed object represented by the symbols. (Node, Network, Router, Switch, etc.)

These criteria are the properties of a device. For more information on the properties, refer to Map and Device Details in Appendix.

Tip: If you need to retain the ordering even if the map window is closed and reopened or used later, save it before proceeding with other map views. For information on saving, refer to Saving Map Layout.

Note	After ordering the symbols, if more devices (represented as map symbols) are added to that map, those symbols are not placed as per your ordering, but are added at the end of the map in the sequence of their discovery. You need to perform the ordering operation again.

Rearranging Map Symbols

The **Cut** , **Copy** , and **Paste** options (similar to the options provided in Windows OS) are available to move map symbols from one map to the other. For example, if you need to move a map symbol named '*xyz*' from *Map A* to *Map B*, follow the procedure given below:-

1. Open Map A.
2. Select 'xyz' symbol.
3. Click **Cut**. [**Tip:** Save Map A if you want 'xyz' to be removed from it permanently. If you do not save Map A, then the 'xyz' symbol will be available in both Map A and Map B.]
4. Open Map B.
5. Click **Paste**.

The 'xyz' symbol is placed in Map B.

Changing Tooltip of Displayed Map Symbols

A Tooltip is displayed when you move the mouse pointer over a map symbol in a map. You can change the tooltip text that is displayed for all the map symbols by using the **Edit > Change ToolTip Text** menu option. You can change them based on name, objName, status, iconName, and menuName. These criteria are properties of a device. For more information on the properties, refer to Map and Device Details in Appendix.

For example, if you have chosen **status**, then all the map symbols in that map show a tooltip depicting the status of the symbol, such as Critical, Major, Clear, etc.

7.3.2.2.5 Working with Map Layout

- Resetting Map Layout
- Changing Map Background
- Saving Map Layout
- Refreshing Map Layout
- Zooming In and Out

Resetting Map Layout

The Application Client has a default map layout where the symbols in a map are arranged based on its discovery (as retrieved from database). After having rearranged symbols in the map, if you need to re-position or reset the symbols to their default position again, use the **Relayout** option.

To relayout map view

- From the **Custom View** menu, choose **Relayout Map**.
- Click **Relayout** on the toolbar.
- Press **Ctrl+R**.

Changing Map Background

The background display of the maps differs from one map to the other and these backgrounds are images either in PNG or JPEG format. You can change the background of each of the map based on your requirement.

To Change Map Background

1. Open the map for which you need to change its background. For example, *ipnet* map.
2. Double-click the background of the map. The **Map Properties** dialog box is displayed.
3. The **ImageName** field is where the background image is specified. Click **Select a File** button next to this field. The File Dialog box is displayed. By default, *<images>* directory located in *<Web NMS Home>* is displayed.
4. You can either use any of the existing images in that directory or use an image of your preference. To do so, place the image file in the *<images>* directory or any other directory inside *<Web NMS Home>*. Then browse for that file and select it. Click **Open**. The image name is displayed in the **Map Properties** dialog box.
5. Click **Modify**.

Now the background display of the map is changed with the chosen image.

Saving Map Layout

If you have made changes to your map, such as creating groups, rearranging map symbols, etc, you need to save the map to retain the changes when you reopen the Application Client.

To save the map layout

- From the **Custom View** menu, choose **Save Map**.
- Click **Save Map** on the toolbar.
- Press **Ctrl+S**.

Refreshing Map Layout

The refresh option can be used to reset the map layout to the last saved layout. This option differs from the **Relayout** option. Relayout is used to set your map with the Application Client's default layout, whereas the **Refresh** option helps in setting your map to the last saved layout.

To refresh map

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

For example, if you have created two groups in your default map, save that map. Now perform further operations, such as adding more groups or rearranging map symbols in the same map. Now use the Refresh option. On performing the refresh operation, the map displays the last saved map, that is, with the two groups.

Zooming In and Out

You can zoom in the map to focus on specific symbol or zoom out to see more of the symbols in a network. The Zoom options are available in the toolbar and they are below:

Toolbar Option	Description
Select Mode	The Select option is used to select a map symbol in the map view, which is indicated by enclosing it within four blocks. You can select only one map symbol at a time using this option.
Zoom Window	This option displays the Zoom Overview window highlighting the area of the Map (with red bars) which is being zoomed. Click and drag the red bar to run through the open map. This option is useful when there are many map symbols displayed in the map view, wherein you can find the exact location of the map symbol.
Zoom Mode	This tool enables you to zoom in map symbols in a map. This option is used for viewing the enlarged version of a specific map symbol. When using this option, the map symbols cannot be selected. They can only be enlarged. If you need to select map symbols in the enlarged view, click the Select Mode option and then select the map symbols.
Zoom In	Click **Zoom In** for an enlarged view of the selected map. The selected map is zoomed at the center. The difference between Zoom Mode and Zoom In options is that, Zoom Mode is used to enlarge a specific map symbol or an area of the map, whereas the Zoom In option is used to enlarge the complete map from the center.
Zoom Out	Retracts the zoomed map. With every click on the tool, the Map retracts by one size.

7.3.2.2.6 Searching Elements in a Map

To search for an element (map symbol) based on certain criteria

1. Open the map in which you need to search for elements.
2. Perform any of the following procedures:-
    - From **Edit** menu, choose **Search**.
    - Click **Find** on the toolbar.
    - Press **Ctrl+F**.

   The **Find** dialog box is displayed.
3. Enter the label name of the symbol you are searching for in the **Symbol Label** text field. For example, *test-machine*, *test-server*.
4. Choose **Up** or **Down** for the search pattern. For example, if you are at the bottom of the map view, select **Up** for the search to be enabled upwards.
5. Select **Ignore case** if you do not want the symbol to be searched based on the label's case. For example, if you enter the label as *TEST*, and you need to search for symbols even if their labels are not capitalized.
6. Select **Match whole** word if you want the search to be based on the complete label that you provide. For example, if you enter the label as '*Test server*' and do not select this option, then your search results include all symbols having '*test*'.
7. Click **Find Next**. To skip a particular map, click the **Next Map** button, which moves to the next map available in the tree.

If the symbol is found, then you are taken to that symbol and it is automatically selected. If no symbols meeting your criteria are found, use the **Find Next** or **Next Map** options to search in further maps (in the sequence as available in the tree).

Clicking **New Search** resets the value to default. To close the **Find** dialog box, click **Close** and for information on using this feature, click **Help**.

7.3.2.2.7 Updating Status

- To update the status of a network
- To update the status of a device

By default, Web NMS checks and monitors a device's existence and health in the network and displays its currents status in the Application Client. Hence the status of a device or the network itself is updated on a regular interval. You can also update the status manually.

For example, if Web NMS gets (or polls for) the status of a router every 300 seconds, during the process, if you want to know the latest status of that router without waiting until the polling to occur, you can simply update its status manually. This retrieves the latest status of the router and makes it available to the map and database.

To update the status of a network

1. Open the IPnet map.
2. Perform any of the following procedures.
    - Click a network icon. From the **Network** menu, choose **Update Status**.
    - Right-click a network icon and click **Update Status**.

When a problem occurs in the network, say a printer goes down, events are fired by Web NMS. The event can be viewed in the IPnet map. For example, if a printer in a network (named '*NW*') goes down, the icon in the Printers Map turns red denoting the critical state. Simultaneously, the '*NW*' symbol depicted in the IPnet Map also is denoted in red. Hence, just by looking at the IPnet Map, you can identify that a particular network has a problem. Further, you can double-click the '*NW*' network to view the list of devices in that network and identify the device at fault.

To update the status of a device

1. Open the device map. For example, Switches Map, Routers Map, and Sub-network Map.
2. Perform any of the following procedures:-
    - Click a device icon. From the device-specific menu, choose **Update Status**.
    - Right-click a device icon and click **Update Status**.

7.3.2.2.8 Unmanaging a Network and a Device

- To unmanage/manage a network
- To unmanage/manage a device

Managing a network element means that the element is being monitored by Web NMS. By default, Web NMS monitors all the devices that it discovers. Regular check is done by Web NMS to gather information on a network element's integrity. This option can be disabled by unmanaging the network element which consequently stops the Web NMS from monitoring that element.

To unmanage/manage a network

1. Open the IPnet map.
2. Perform any of the following procedures:-
    - Click a network icon. From **Network** menu, choose **UnManage/Manage**.
    - Right-click a network icon and click **UnManage/Manage**.

The network and all the devices in that network are unmanaged/managed. When unmanaged, the network icon and the device icons are depicted in gray.

To unmanage/manage a device

1. Open the device map. For example, Switches Map, Routers Map, and Sub-network Map.
2. Perform any of the following procedures:-
    - Click a device icon. From the device-specific menu, choose **UnManage/Manage**.
    - Right-click a device icon and click **UnManage/Manage**.

The selected device is unmanaged/managed. When unmanaged, the device icon is depicted in gray.

7.3.2.2.9 Adding New Map Elements

Apart from the default maps that you view in the Application Client, you can add your own custom maps. This is similar to the custom views that you create for Events, Alarms, and Performance views. Similarly, map elements, such as symbols, links, and containers can also be manually added in your maps.

Note	These options are available to you based on your user privileges. Contact your system administrator to know your user privileges.

- Adding Custom Maps
- Adding a Symbol
- Adding a Container
- Adding a Link

Adding Custom Maps

Differentiating Custom Maps and Default Maps

Custom maps have some specified criteria based on which map objects are displayed on it. For example, if you need to add a map that contains only Windows systems in your network, then you can specify the criteria as *Type* = *windows*. A custom map is created satisfying this criterion and displays only Windows systems in that map.

Unlike the custom maps, which demand the map objects to satisfy certain criteria, the default maps do not require the map objects to satisfy any criterion. Any object can be added into a default map.

To add a new map

1. Open any of the maps in the Application Client.
2. Perform any of the following procedures:-
   - From the **Custom Views** menu, click **Add New Map**.
   - From toolbar, click **Add Map**.
   - Press **Ctrl+N**.

   The **Map Properties** dialog box is displayed.
3. Enter values in the fields. For explanation on the fields, refer to Map Properties in Appendix.
4. If you need to set more criteria apart from what is provided in this dialog box, click **More**. The **Custom Map Properties** dialog box is displayed. Enter the property name and its value and click **OK**. You can add one or more properties in this dialog box. If you do not require additional criteria, skip this step.
5. Click **Add Map**.

The new map is created based on the criteria that you have configured.

See Also: Resetting Map Layout and Saving Map Layout.

Adding a Symbol

To add a map symbol

1. Open the map in which you need to add a map symbol.
2. Perform any of the following procedures:-
    - From the **Edit** menu, choose **Add Symbol**.
    - From toolbar, click **Add Symbol**.

   The **Properties** dialog box is displayed.
3. Enter the required fields in this dialog box. For explanation on each of the fields, refer to Map and Device Details in Appendix.
4. If you need to save the addition/modification that you make permanently on the Web NMS Server, select the **Save Changes On Server** option. If this is not selected, then the map symbol you add or modify is retained only for that Client session.
5. Click **Modify**.

The map symbol is added to the map.

Adding a Container

To add a container

1. Open the map in which you need to add a container.
2. Perform any of the following procedures:-
    - From the **Edit** menu, choose **Add Container**.
    - From toolbar, click **Add Container**.

   The **Properties** dialog box is displayed.
3. Enter the required fields in this dialog box. For explanation on each of the fields, refer to Map and Device Details in Appendix.
4. If you need to save the addition/modification that you make permanently on the Web NMS Server, select the **Save Changes On Server** option. If this is not selected, then the link you add or modify is retained only for that Client session.
5. Click **Modify**.

The container is added to the map.

Adding a Link

To add a link

1. Open the map in which you need to add a link.
2. Perform any of the following procedures:-
    - From **Edit** menu, choose **Add Link**.
    - From toolbar, click **Add Link**.

   The **Properties** dialog box is displayed.
3. Enter the required fields in this dialog box. For explanation on each of the fields, refer to Map and Device Details in Appendix.
4. If you need to save the addition/modification that you make permanently on the Web NMS Server, select the **Save Changes On Server** option. If this is not selected, then the link you add or modify is retained only for that Client session.
5. Click **Modify**.

The link is added to the map.

 **Note**	To delete a symbol, container, or a link, use the **Delete Symbol** option.

Difference between *Delete Symbol* and *Delete Object and Traces* Options

Delete Symbol option deletes only the symbol from the map in Application Client. **Delete Object and Traces** deletes the symbol and the object associated with that symbol from the database. These options are available in the Application Client based on your user privileges.

7.3.3 Monitoring Fault in Networks

All events and alarms in a network can be viewed in **Network Events** and **Alarms** views in the Application Client. This chapter provides information on each of the views and the operations that you can perform in them.

- Viewing Network Events
- Viewing Alarms

Refer to Glossary for Network Events, Alarms.

7.3.3.1 Viewing Network Events

- Viewing Network Events
- Performing Table View Operations
- Viewing Event Details
- Searching Events
- Viewing Related Alarms
- Saving Events
- Exporting Events
- Printing Events
- Working with Custom Views

Viewing Network Events

To view network events

1. Open the Application Client.
2. Click **Network Events** node in the tree.

The network events are displayed in an **Event Viewer** on the display panel.

Performing Table View Operations

All the events are displayed in the Event Viewer in a table format where each row depicts an event. Refer to Performing Table View Operations in Understanding Client Work Area for complete information.

Viewing Event Details

Event details provide information on each of the properties of an event.

To view event details

1. Open the Event Viewer.
2. Perform any of the following procedures.
   - Click a row in the table and from **View** menu, choose **Details**.
   - Right-click a row in the table and choose **Details**.
   - Click a row in the table and press **Alt+D**.
   - Double-click a row in the table.

The **Event** dialog box is displayed. For information on each of the properties explained in this dialog box, refer to Fault Details in Appendix.

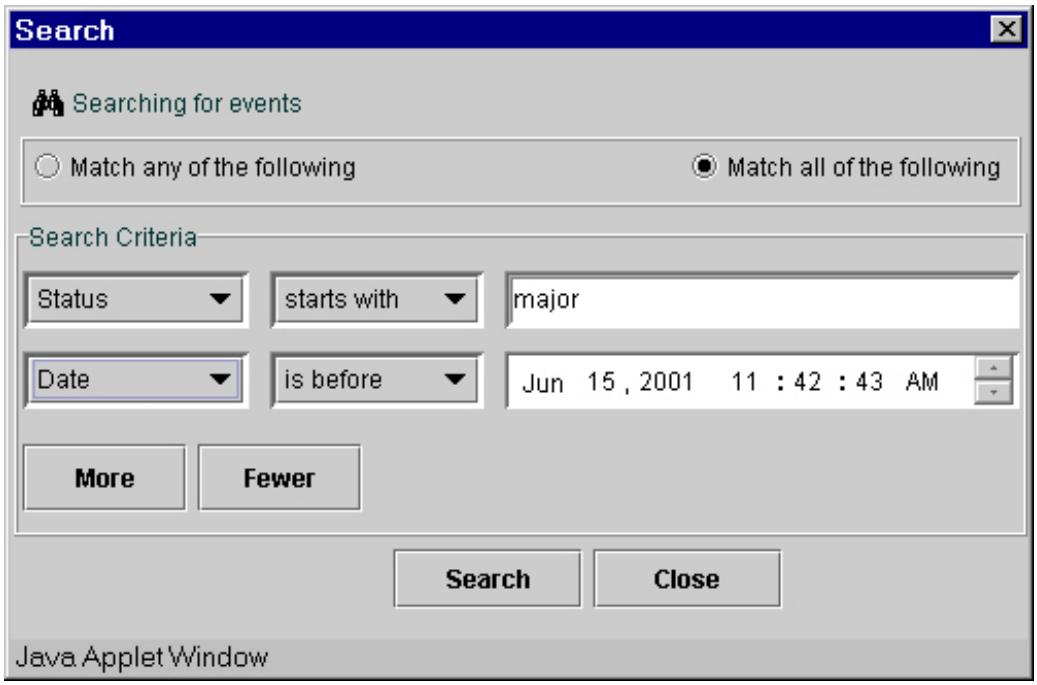
Searching Events

The search option comes handy when you are looking for a particular event in the list of events. This search operation is performed in the database and is not restricted only to the events that you see on the Application Client.

To search for an event

1. Open the Event Viewer.
2. Perform any of the following procedures.
   - From **Edit** menu, choose **Find**.
   - From the toolbar, click **Find** button.
   - Press **Ctrl+F**.

   The **Search** dialog box is displayed.



3. If you want to perform a search operation that satisfies any of the matching criteria that you specify, select **Match any of the following**. If you need all the matching criteria to be satisfied for your search operation, select **Match all of the following**.
4. In the **Properties** field, select the property based on which you need to perform your search. For information on each of the properties, refer to Fault Details in Appendix.
5. In the **Conditions** field, select the condition based on which you need to restrict your search.
6. In the **Value** text field, enter the exact information you are looking for. For example, if you have selected severity in the Properties combo box, then you need to specify the severity value here, e.g., critical, major, etc. If you have selected date or time related properties in **Property** field, then a Date/Time spin box is available wherein you need to set the date and time.
7. To specify additional criteria, click **More** and repeat steps 4 to 6. **Fewer** option can be used to remove the criteria that were last added.
8. To begin the search, click **Search**.

Events satisfying the configured criteria are displayed in the same view. After performing the search, if you need to view the default Event Viewer (with all events), click **Show All** button on the Event Viewer located at top right corner.

Viewing Related Alarms

Events are converted to alarms (based on their significance), which are messages that require administrator's/operator's attention. From the Event Viewer, you can view the alarm that has been created for an event.

To view related alarms

1. Open the Event Viewer.
2. Click a row whereby you select an event.
3. Perform any of the following procedures.
   - From **View** menu, choose **Alarms**.
   - Right-click the row and choose **Alarms**.
   - Press **Ctrl+L**.

   Alarm Viewer with only the alarms related to the selected event is displayed. For more information on alarms, refer to Fault Details in Appendix.

Saving Events

The Save option can be used to save the current range of events displayed in the Event Viewer. For example, if the current table in the Event Viewer displays 200 events, then this range can be saved to a file.

To save the events

1. Open the Event Viewer.
2. Perform any of the following procedures.
   - From **Actions** menu, choose **Save To File**.
   - In the toolbar, click **Save**.
   - Press **Ctrl+I**.

   The **Properties** dialog box is displayed.
3. Enter the file name in **File Name** field.
4. Click **Save File**. A status message is displayed.

By default the saved file is located in <*Web NMS Home*>*/state* directory. <*Web NMS HOME*> is where Web NMS is installed.

Tip: To view the saved file, open a Web browser and access the URL - **http://<machine_name>:9090/state** [where <machine_name> is the machine's name where Web NMS Server is running].

Exporting Events

The Export Events option can be used to save the Event Custom View data as a CSV (comma-separated values) file in the Web NMS server. Option is provided to export the entire Custom View data or only the data that is currently displayed in the Custom View.

To export the events

1. Open the Event Viewer.
2. From **Actions** menu, choose **Export Events**. The **Export Data** dialog box is displayed.

3. Choose the desired option from the radio buttons **Export Entire Custom View Data** or **Export Displayed Data**
4. Enter the file name in **File name** field.
5. Click **Export**. A status message is displayed.

The exported custom view data file will be saved in the <*Web NMS Home*> directory.

Printing Events

The **Print** option can be used to print the current range of events displayed in the Event Viewer.

To print events

1. Open the Event Viewer.
2. Perform any of the following procedures.
   - From **Actions** menu, choose **Print**.
   - In the toolbar, click **Print** button.
   - Press **Ctrl+P**.

The current range of events in the Event Viewer is printed.

Are you getting the message **'server printing not configured'?**

This means the Web NMS Server is not configured to execute the printing operation from the Application Client. Contact your system administrator to enable the printing operation.

Tip: You can customize the Event Viewer by adding or removing columns using the Custom View options, order the events by sorting, or by creating new custom views. After customization, use the print option to get a printed version of your customized view.

Working with Custom Views

Refer to Working with Custom Views section in Understanding Client Work Area.

7.3.3.2 Viewing Alarms

- Viewing Alarms
- Performing Table View Operations
- Viewing Alarm Details
- Searching Alarms
- Viewing Related Events
- Picking Up / Unpicking an Alarm
- Adding Comments to an Alarm
- Viewing Alarm History
- Viewing Both Annotation and History of an Alarm
- Saving Alarms
- Exporting Alarms
- Printing Alarms
- Working with Custom Views

Viewing Alarms

To view alarms

1. Open the Application Client.
2. Click **Alarms** node in the tree.

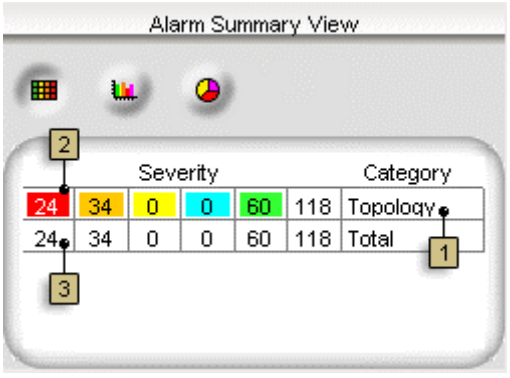
The alarms are displayed in **Alarm Viewer** in the display panel.

Another quick way of viewing alarms is using the **Alarm Summary View** or **Alarm Count Panel**.

The Alarm Summary View is displayed below the tree which enables you to view a summary of all the alarms generated by Web NMS. The summary gives the number of alarms that are generated under various categories and severity levels. This panel is automatically refreshed every 30 seconds. The three different views provided are:

- Tabular View
- Bar Graph
- Pie Chart

Tabular View



The Alarm Count panel is presented in a tabular format where each row corresponds to a specific category of alarms. The number of rows correspond to the number of alarm categories. The last row provides the total number of alarms for each severity level. An alarm can have the severity levels - Critical Alarms, Major Alarms, Minor Alarms, Warning Alarms, and Clear Alarms.

The Alarm count is based on the severity. When a new alarm is generated, the count is updated automatically and under appropriate severity column.

You can view all the alarms under a specific severity or for a specific category:

1. Viewing all alarms with a specific severity

From the Alarm Count panel, click the count in the Total row that corresponds to the specific severity of the alarms you want to view. For example, if you want to view all the critical alarms, click the total count in the first (red) column.

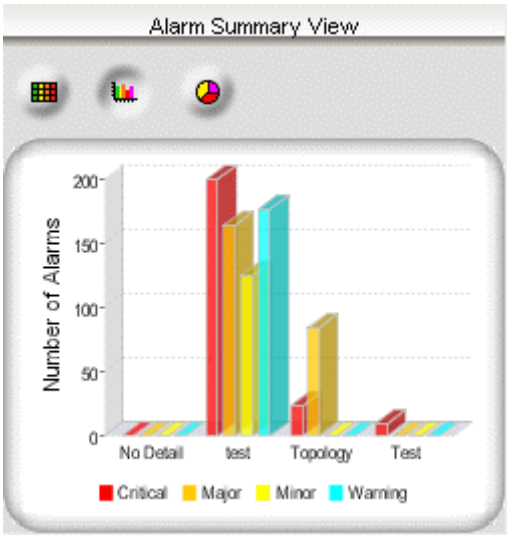
2. Viewing all the alarms for a specific category

From the Alarm Count panel, click the category name of the alarms you want to view. For example, if you want to view all the alarms in the topology category, click Topology in the Category column.

3. Viewing all the alarms with a specific severity level for a specific category

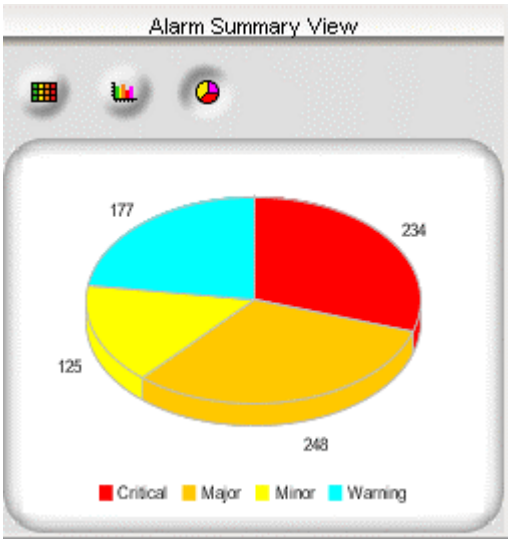
From the Alarm Count panel, click the count corresponding to the specific severity and category of the alarms you want to view. For example, if you want to view all the critical alarms for the topology category, click the count in the first (red) column and in the Topology row.

Bar Graph



The bar graph depicts the Critical, Major, Minor, and Warning severity information. For each of the category, a separate set of bar graph is created (see image above). Clicking a severity bar on the graph (for example, Major), displays all the alarms of that severity on the Alarm Viewer.

Pie Chart



The Pie Chart of the Alarm Summary View displays all the severity. Each severity on the pie chart is depicted with its count. Clicking on a severity (for example, Critical), displays all the alarms of that severity on the Alarm Viewer.

Performing Table View Operations

All the alarms are displayed in the Alarm Viewer in a table format where each row depicts an alarm. Refer to Performing Table View Operations in Understanding Client Work Area for complete information.

Viewing Alarm Details

Alarm details provide information on each of the properties of an alarm.

To view alarm details

1. Open the Alarm Viewer.
2. Perform any of the following procedures.
   - Click a row in the table and from **View** menu, choose **Details**.
   - Right-click a row in the table and choose **Details**.
   - Click a row in the table and press **Alt+D**.
   - Double-click a row in the table.

The **Alarm details for <source>** dialog box is displayed. For information on each of the properties explained in this dialog box, refer to Fault Details in Appendix.

Tip: Click **Refresh** button in the Alarm details for <source> dialog box to update the alarm details instantly.

Searching Alarms

The procedure to search alarms is the same as explained in Searching Events of Viewing Network Events.

Viewing Related Events

To view related events

1. Open the Alarm Viewer.
2. Click a row whereby you select an alarm.
3. Perform any of the following procedures.
   - From **View** menu, choose **Events**.
   - Right-click the row and choose **Events**.
   - Press **Ctrl+E**.

Alarm Viewer with only the alarms related to the selected event is displayed. For more information on alarms, refer to Fault Details in Appendix.

Picking Up / Unpicking an Alarm

Pick Up is a mechanism that helps in assigning a particular alarm/fault of a device to a work group or user. This ensures that all problems are picked up and work is not duplicated. It is also possible to **Unpick** an Alarm which has already been assigned to a user or work group.

An alarm annotation entry is entered with the name of the user who has picked up / unpicked the alarm and the time it was performed.

To *pick up* an alarm [Procedure 1]

1. Open the Alarm Viewer.
2. Click a row whereby you select an alarm.
3. From **Edit** menu, choose **Pick Up / UnPick** or press **Ctrl+U**. The **AlertAssignDialog** dialog box is displayed.
4. Enter the user name or group name to whom you need to assign the alarms in **Assign To** field and click **OK**.

To *pick up* an alarm [Procedure 2]

1. Open the Alarm Viewer.
2. Click a row whereby you select an alarm.
3. From **View** menu, choose **Details** or press **Alt+D**. The **Alarm details for <source>** dialog box is displayed.
4. Click **Pick Up** button. The **AlertAssignDialog** dialog box is displayed.
5. Enter the user name or group name to whom you need to assign the alarms in **Assign To** field and click **OK**.

Note	The **AlertAssignDialog** dialog box is displayed only if you have the administrative permission to assign alarms to others. If you do not have the permission, then on clicking **Pickup**, the alarms are assigned to your user name**.**

To *unpick* an alarm [Procedure 1]

1. Open the Alarm Viewer.
2. Click a row whereby you select an alarm. Ensure that you select an alarm that has already been picked.
3. From **Edit** menu, choose **Pick Up / UnPick** or press **Ctrl+U**.

To *unpick* an alarm [Procedure 2]

1. Open the Alarm Viewer.
2. Click a row whereby you select an alarm. Ensure that you select an alarm that has already been picked.
3. From **View** menu, choose **Details** or press **Alt+D**. The **Alarm details for <source>** dialog box is displayed.
4. Click **UnPick**.

Adding Comments to an Alarm

It is important to track any action you have taken to fix an alarm or any new information you have gathered about the alarm. Annotate option can be used to add notes to the alarm for future reference. For example, the solution for a problem resolved by you can be entered by using the Annotate option. This enables other users to solve the same problem with less effort, by just reading the annotation.

To add comments to alarm

1. Open the Alarm Viewer.
2. Click a row whereby you select an alarm. Ensure that you select an alarm that has already been picked.
3. From **View** menu, choose **Details** or press **Alt+D**. The **Alarm details for <source>** dialog box is displayed.
4. Click **Annotate** button. The **Add Notes Dialog** dialog box is displayed.
5. Enter your comments in the Message field.
6. Click **Update**.

You can view the annotation in the non-editable **Annotations for this alarm** field in **Alarm details for <source>** dialog box.

Viewing Alarm History

The history of the alarms gives the complete information on the status of the alarms, such as when they are added / updated. For example, when a critical alarm is generated, the Alarms Viewer displays the current status of the alarm. If the problem has been fixed, an alarm with clear severity updates the one with critical severity.

To view history of an alarm

1. Open the Alarm Viewer.
2. Click a row whereby you select an alarm. Ensure that you select an alarm that has already been picked.
3. From **View** menu, choose **Details** or press **Alt+D**. The **Alarm details for <source>** dialog box is displayed.
4. Click **View history** button.

The **Alarm details for <source>** dialog box displays a field **History for this alarm** (on hiding **Annotations for this alarm** field). This field displays the history of that alarm, from first to the last alarm, i.e., the time at which the problem occurred, the fix time, and severity change.

To view the annotations, click **View Annotation** button.

Viewing Both Annotation and History of an Alarm

To view both annotation and history of an alarm

1. Open the Alarm Viewer.
2. Click a row whereby you select an alarm. Ensure that you select an alarm that has already been picked.
3. From **View** menu, choose **Details** or press **Alt+D**. The **Alarm details for <source>** dialog box is displayed.
4. Click **Merge**.

Saving Alarms

The procedure to save alarms is the same as explained in Saving Events of Viewing Network Events.

Exporting Alarms

The procedure to export alarms is the same as explained in Exporting Events of Viewing Network Events.

Printing Alarms

The procedure to print alarms is the same as explained in Printing Events of Viewing Network Events.

Working with Custom Views

Refer to Working with Custom Views section in Understanding Client Work Area.

7.3.4 Monitoring Network Performance

Web NMS monitors the performance of your network periodically by collecting necessary data from each of the devices and by providing reports on the same. The performance is measured based on various factors, such as number of bytes of data received/sent (over a period) by a particular interface of a device, the interface's current bandwidth in bits per second, etc.

After discovery, Web NMS begins to collect data (by default, 5 minutes after a device is discovered) from each of the devices in the network and adds it to the database. Henceforth the data collection occurs every 600 seconds (default interval). The data collected from a device in the network is termed **Performance Data**.

There are two types of performance data that you can view in the Application Client - **Current Performance Data** and **Historical Performance Data**. For difference between these two types, refer to Viewing Current Performance Data. This performance data can be viewed using **Graphs** and **Reports**.

The pattern in which data is to be collected from a device is defined in variable called **Statistics** (otherwise called **Polled Data**).

- Viewing Data Collection Details
- Viewing Historical Performance Data
- Viewing Current Performance Data

Also See

- Working with Custom Views

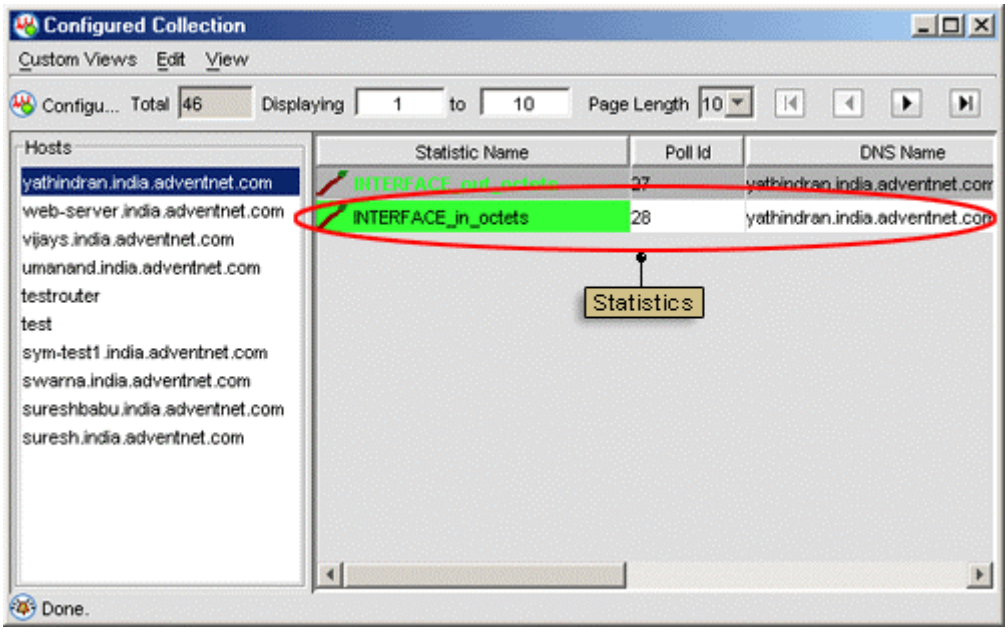
Refer to Glossary for Statistics, Polled Data, Polling, Threshold.

7.3.4.1 Viewing Data Collection Details

Web NMS collects data from a device based on the statistics that are defined. This topic provides information on viewing the statistics that are defined for each device in the network.

To view data collection details

1. Open the Application Client.
2. Click **Performance > Configured Collection** node in the tree. The **Configured Collection** window is opened on the right-side display panel.



3. The **Hosts** column displays the devices available for data collection in the network. Use browsing sequence option to view the number of hosts as required.
4. Click a host for which you need to view data collection details (statistics). The data for the selected host is displayed in the next column as a table. Each row of data is called **Statistic** (refer to above image). The table displays the following details:

Property	Description
Statistic Name	A string to identify the Statistic.
Poll Id	A unique number generated automatically and associated with each Statistic.
DNS Name	Host name (device name) with which this Statistic is associated.
Data Identifier	A unique identification number of the device interface from which data about the device is to be collected.
Community	The community to be used when sending the SNMP request for collecting the Statistic.
Interval	The interval at which data should be collected for the Statistic. For example, the value 600 indicates that after every 600 seconds, data has to be collected.
Active	Specifies whether data collection for the selected device is active or not. The possible values are **true** or **false**. If it is **false**, data collection is not performed for that device.
Multiple	Specifies the type used to poll columnar value of the tables.

5. To view the object details of a statistic, double-click a row. The **ObjectDetails** dialog box is displayed. For information on each of the properties, refer to Custom View Properties in Appendix.

Tips:

- Statistics are of three types, namely **Node, Interface,** and **Multiple**.  indicates type **Multiple**.
- The rows (statistics) are depicted in green color which means data is being collected for those devices. If data collection for a device is temporarily disabled, then that specific row is depicted in blue color.
- You can sort the columns. Refer to Sorting for more information.

Monitoring Performance Using Thresholds

A threshold constitutes a value, type (Max, Min or Equal), what message should be generated when the threshold is exceeded, at what value should this threshold be reset. Also refer Administrator Guide for information on configuring thresholds.

The statistics defined can be associated with thresholds. A single statistic can have many thresholds indicating various severity such as Critical, Major, Minor, etc. Whenever data is collected for the statistic, it is cross-checked with the associated thresholds. If the collected value exceeds the thresholds, then a threshold message is displayed. If multiple thresholds are associated with a statistic then the collected value will be checked with every threshold value. For every threshold value exceeded, a separate message is displayed.

The messages that arise out of thresholds are sent as notifications and you can view them in Events Viewer. Also, the Alarm Count Panel displays a row of details for thresholds.

Example: Assume you have a statistic *Interface_in_octet* for a switch *switch-rj5*. For efficient performance of the switch, the value of this statistic must be between *1300* and *1370*. This means you should have some notification mechanism to inform you when the statistic value is not within this limit. Let us assume that the thresholds are defined as given below.

- value = *1320*
- type = *max*
- threshold message = *Has entered violation stage*
- reset value = 1319

When the statistic value is 1320, the message *'Has entered violation state'* is generated as an event. Until the collected value reaches the reset value (1319 in our example), the event retains the same severity state. As soon as it reaches the reset value, the threshold is reset and waits for the collected data to exceed its limit again.

 **Note**	• If another threshold exists of lower severity and if the collected data falls in its limits then that threshold will generate the message (event). • If another threshold exists with higher severity, then the higher severity threshold will take precedence and its message (event) is displayed. The threshold with lower severity loses its importance and no message is generated until the threshold with higher severity reaches reset state.

7.3.4.2 Viewing Historical Performance Data

Web NMS collects data automatically (based on statistics configured) and stores it in database. Data collected per day is stored separately, i.e. every day's data is stored in separate database tables. Also, the current date is appended to the table name.

This historical data that has been collected and stored in the database can be viewed using **graphs** and **reports** which help you in analyzing the trend of what has been happening over a period of time.

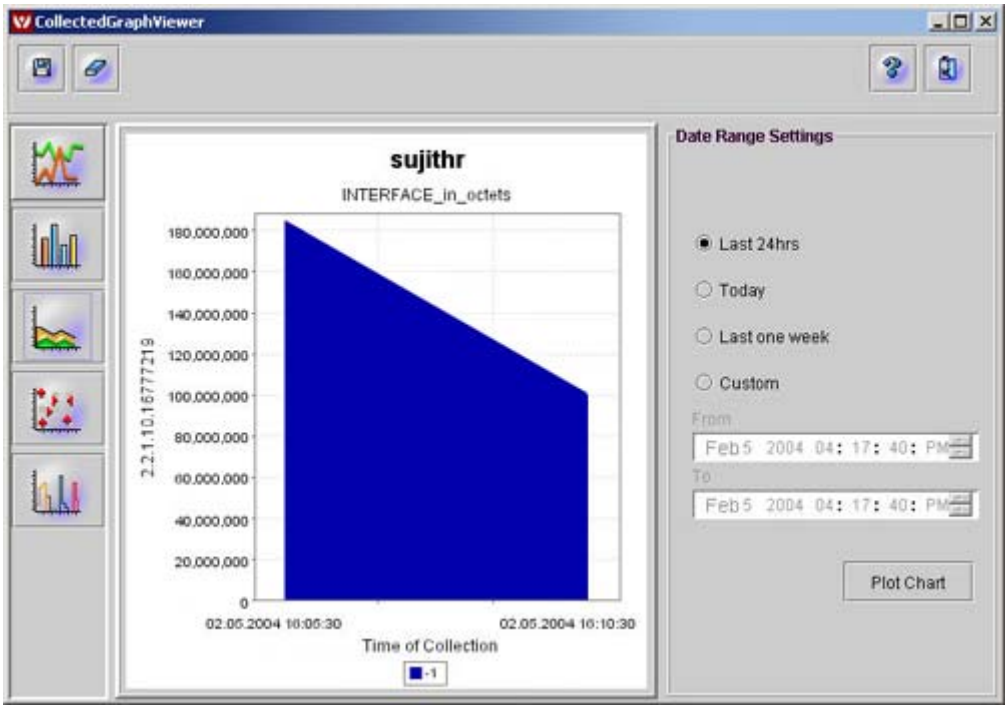
- Using Graphs
- Using Reports

Using Graphs

To view historical performance data using graphs

1. Open the Application Client.
2. Click **Performance > Configured Collection** node in the tree.
3. Click the host in the **Hosts** column in **Configured Collection** window. The statistics are displayed in the next column.
4. Click the row (statistic) for which you need to view the graph and perform any of the following procedures.
    - From **View** menu, choose **Plot > Collected Statistics(P)**.
    - Right-click the row and choose **Plot > Collected Statistic(P)**.
    - Press **Ctrl+O**.

The **CollectedGraphViewer** window is displayed.



5. The **CollectedGraphViewer** window displays the graph (by default, Line Chart) with historical performance data plotted in it. There are five types of graphs that you can view:
    1. **Line Chart**
    2. **Bar Chart**
    3. **Area Chart**
    4. **Scatter Chart**
    5. **X-Y Chart**
6. By default, historical data for the last 24 hours is displayed. Choose **Today**, **Last one week**, and **Custom** based on the range of data you are looking for. If you select custom, set the **From** and **To** range in **Month:Date:Year:Hour:Minute:Seconds:AM/PM** pattern. On selecting any of the options, click **Plot Chart** button.
7. To save the graph to a file, click **Save**.
8. To clear the graph, click **Clear Graph**. To plot it afresh, click **Plot Chart** button.
9. To print the graph, right-click on the graph and choose **Print... Note:** Right-click the graph for performing operations, such as zooming in and out, saving, and setting properties.
10. To exit the **CollectedGraphViewer** window, click **Exit**.

Note	The graph is plotted by fetching the data that has already been collected and is available in the database. After the graph is opened, no dynamic update (plotting) is made in the graph.

Does your graph display any of the following messages?

- **'No data available'**

  Reason: By default, automatic data collection starts after 5 minutes after the Web NMS Server is started and the discovery of the device. Also, data collection for a newly added statistic starts after 5 minutes. But this delay is configurable and will be set according to the requirement in your network. Hence the message 'No data available' means the data is yet to be collected and there is a delay in the collection process.

  Note: For Counter type OIDs, the initial data collected is not stored. When data is collected for the second time, the difference between the two values is calculated and stored. Hence depending on the polling interval set, the data will be collected second time. So, more delay in plotting of data in graph is possible in case of Counter type OIDs.

- **'Cannot plot [Data is String type]'**

  Reason: The collected data from the device is of string type, hence the graph is not plotted.

- **'Date Range Setting incorrect [From-Date is greater than To-Date]'**

  Reason: The **From** date and **To** date that you set in **Custom Date Range Settings** are incorrect. Check for the date/time values set and click **Plot Chart** again.

Using Reports

To view historical performance data using graphs

1. Open the Application Client.
2. Click **Performance > Configured Collection** node in the tree.
3. Click the host in the **Hosts** column in **Configured Collection** window. The statistics are displayed in the next column.
4. Click the row (statistic) for which you need view the graph and click **Reports** (or) click a row and from **View** menu, choose **Reports**.

The Web Client Reports is displayed. For more information on reports, refer to Viewing Performance Reports in Working with Web Client chapter.

7.3.4.3 Viewing Current Performance Data

Current Performance Data is collected from a device instantly and shown in graphs and tables.

Differentiating Historical and Current Performance Data

- Web NMS automatically collects data from devices in a predefined interval and stores it in the database. This data is called historical performance data. You can view this data using graphs as well as reports.

  Current performance data is collected from the device instantly and depicted in graphs and reports. On request, Web NMS queries the devices and collects data instantly. The current data is not stored in the database.

- Collected performance data when displayed in graphs/reports is not updated or the plotting does not occur as you view it. You need to reopen the graph or click **Plot Chart** time and again to view updated data.

  Current performance data when viewed in graph/tables are updated (based on predefined interval) as you view it.

You can view current performance data in graphs, in a table view, or using Monitor Collections option.

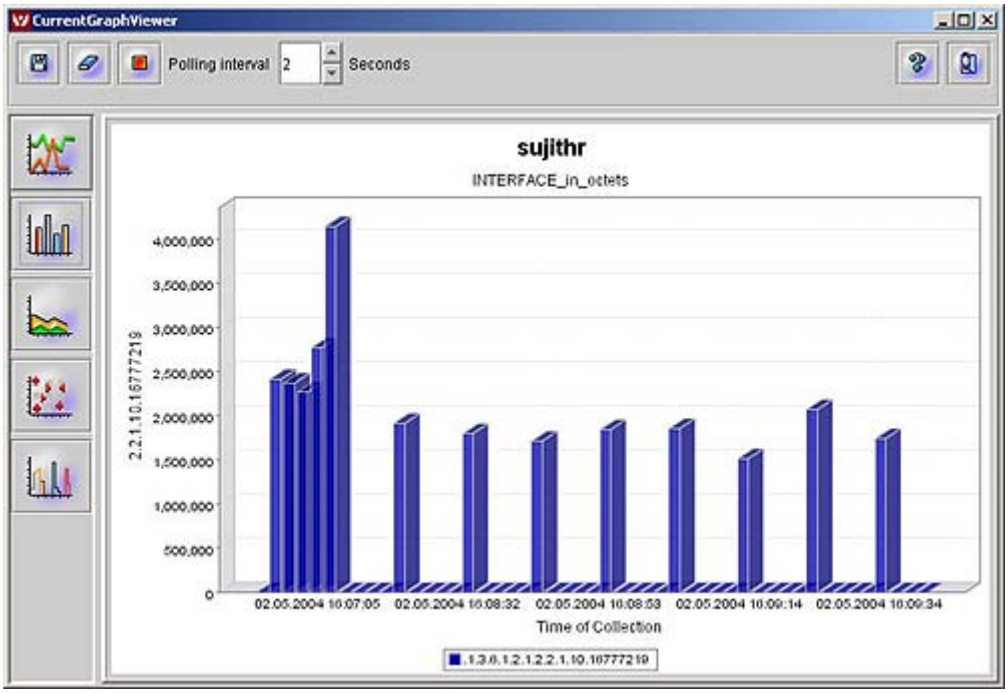
- Using Graphs
- Using Table
- Using Monitor Collections Option

Using Graphs

To view current performance data using graphs

1. Open the Application Client.
2. Click **Performance > Configured Collection** node in the tree.
3. Click the host in the **Hosts** column in **Configured Collection** window. The statistics are displayed in the next column.
4. Click the row (statistic) for which you need view the graph and perform any of the following.
   - From **View** menu, choose **Plot > Current Statistics**.
   - Right-click the row and choose **Plot > Current Statistic**.
   - Press **Ctrl+Shift+P**.

The **CurrentGraphViewer** window is displayed.



5. The **CurrentGraphViewer** window displays the graph (by default, Line Chart) with current performance data plotted in it. There are five types of graphs that you can view:
    1. **Line Chart**
    2. **Bar Chart**
    3. **Area Chart**
    4. **Scatter Chart**
    5. **X-Y Chart**
6. To save the graph to a file, click **Save**.
7. To clear the graph, click **Clear Graph**.
8. By default, the performance data from the device is plotted in the graph every 15 seconds. To change this interval, click **Stop Poller**. Enter the new interval (in seconds) in the spin box. Click **Start Poller**. The performance data is now plotted based on the newly configured interval.
9. To print the graph, right-click the graph and choose **Print... Note:** Right-click the graph also for performing operations such as zooming in and out, saving and setting properties.
10. To exit the **CurrentGraphViewer** window, click **Exit**.

Does your graph display any of the following messages?

- **'Fetching Data....'**

  Reason: The data is being collected from the device.

- **'Time out...'**

  Reason: There is either a delay in the agent's response or the agent is down. Hence try contacting the agent for its status.

- '**No Response from agent**'

  Reason: This is no response from the agent running in the device.

- **'Cannot plot [Data is String type]'**

  Reason: The collected data from the device is of string type. Hence the graph is not plotted.

Does your graph display only a *zero* value?

This is because a constant value would have been got from the agent for the first two observations. Hence, the difference will be zero, and this is shown in the graph.

Note: This tends to happen as the saveAbsolutes property value of a statistic is set *false* by default. Had the saveAbsolutes value been set *true*, then, only the absolute value will be plotted and you will not encounter **'zero'** often.

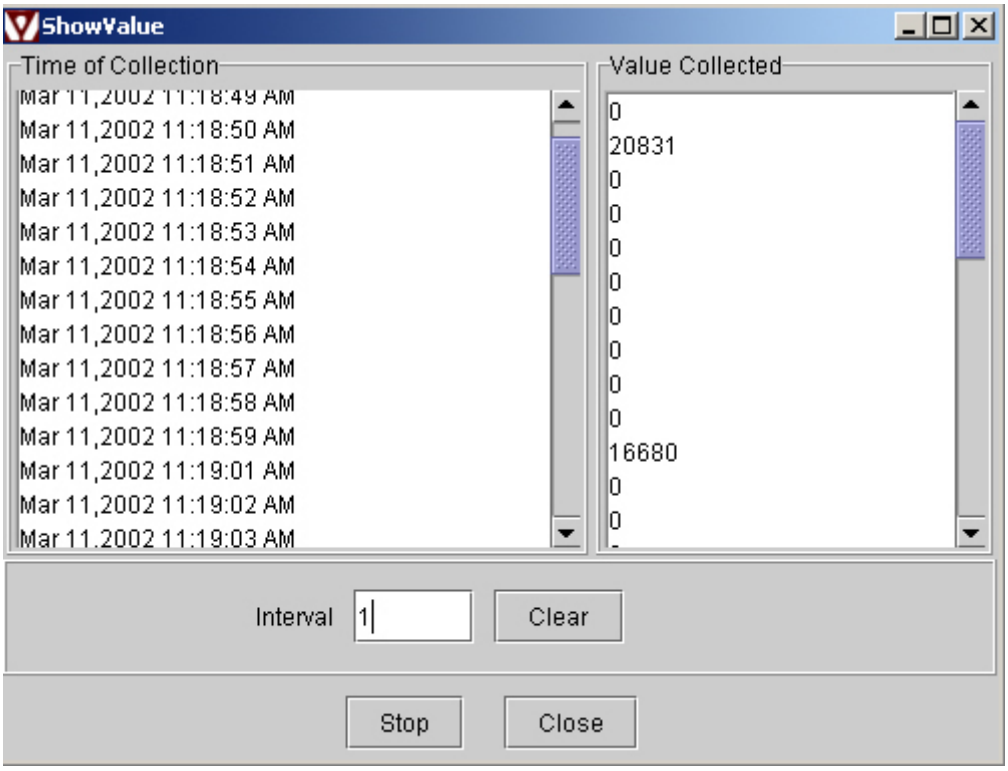
Using Table

Note	By default, this facility is not available in the Application Client unless your administrator has provided the option.

To view current performance data using table

1. Open the Application Client.
2. Click **Performance > Configured Collection** node in the tree.
3. Click the host in the **Hosts** column in **Configured Collection** window. The statistics are displayed in the next column.
4. Click the row (statistic) for which you need to view the graph and perform any of the following.
    - From **View** menu, choose **Plot > Current Statistic Table**.
    - Right-click the row and choose **Plot > Current Statistic Table**.

The **ShowValue** window is displayed. This depicts the time of performance data collection and the collected value.



5. By default, the performance data from the device is displayed in the table every 15 seconds. To change this interval, click **Stop**. Enter the new interval (in seconds) in

the **Interval** field. Click **Start**. The performance data is now displayed based on the newly configured interval.

6. To exit the **ShowValue** window, click **Close**.

Using Monitor Collections Option

To view performance data

1. Open the **Network Database > Nodes** view.
2. Click any SNMP node in the table view (select the row corresponding to that SNMP node). Perform any of the following.
    - From **Performance** menu, choose **Monitor Collections**.
    - Right-click the row and choose **Performance > Monitor Collections**.

   The **Performance Monitoring** window with statistics details is displayed.
3. Click a statistic in **Polled Statistics** and click **Register**. Based on the poll interval (displayed in **Poll period** field), the performance data is collected and displayed in the **Value** field.
4. To view the collected performance data using graphs, click **Collected Statistics**. To view the current performance data using graphs, click **Current Statistics**. To view reports, click **Report**.

Tip: The Monitor Collections option is also available in the maps.

7.3.5 Traversing Network Database

The Network Database maintains the properties of all the Managed Objects representing the network resources. These Managed Objects and their properties are listed in the Network Database panel/view in a tabular format. To view the Network Database panel, click **Network Database** node in the tree.

The maps and the Network Database views are similar. All operations that you perform in a map can also be performed in the Network Database views.

Network Maps and Network Database Views

- Network Maps and Network Database views are similar. All operations that can be performed in a map is possible in a Network Database view also.
- All device-specific menus available in a map are available in a Network Database view.
- Network elements or resources are depicted pictorially in a map and as tabular data in a Network Database view.

The Network Database panel has a set of default child views, such as Networks, Nodes, Interfaces, Switches, and Routers. Apart from these default views, custom views can also be added. Clicking each child node in the tree displays corresponding database table details on the display panel.

- **Network Database:** This is the parent node. This view is a compilation of your entire network.
- **Networks:** This view displays details of the networks only. This is similar to the IPnet map.
- **Nodes:** This view displays details of the nodes only in all networks.
- **Interfaces:** This view displays details of the interfaces only in devices.
- **Switches:** This view displays details of the switches only discovered in your network. This is similar to the Switches map.
- **Routers:** This view displays details of only the routers only discovered in your network. This is similar to the Routers map.

7.3.5.1 Performing Network Database Operations

- Performing Table View Operations
- Working with Custom Views
- Searching Network Elements
- Viewing Network and Device Details
- Viewing Network Fault
- Viewing Network Performance Data
- Performing Device-specific Operations
- Exporting Topology Data

Performing Table View Operations

Refer to Performing Table View Operations in Understanding Client Work Area.

Working with Custom Views

Apart from the default Network Database views, you can create custom views to display details of your interest. Refer to Working with Custom Views in Understanding Client Work Area.

Searching Network Elements

The Search operation helps you retrieve or find specific details based on your requirement. The search operation will be done on the entire database and is not restricted to the displayed details on a table alone.

The procedure to search for network elements is the same as explained in Searching Events in Viewing Network Events.

Viewing Network and Device Details

To view network/device details

1. Open the desired Network Database view.
2. Click a row in the table.
3. Perform any of the following procedures.
   - From **View** menu, choose **Details**.
   - Double-click the row.
   - Right-click the row and from <device-specific> menu, choose **Managed Object Properties**.

The **Managed Object Properties** dialog is displayed.

Viewing Network Fault

To view network/device events

1. Open the desired Network Database view.
2. Click a row in the table.

3. Perform any of the following procedures.
    - From **View** menu, choose **Events**.
    - Press **Ctrl+E**.

The Network Events Viewer with the events related only to that device is displayed.

To view network/device alarms

1. Open the desired Network Database view.
2. Click a row in the table.
3. Perform any of the following procedures.
    - From **View** menu, choose **Alarms**.
    - Press **Ctrl+L**.

The Alarms Viewer with the alarms related only to that device is displayed.

Viewing Network Performance Data

To view performance data of a device

1. Open the desired Network Database view.
2. Click a row in the table.
3. Perform any of the following procedures.
    - From **View** menu, choose **Statistics(P)**.
    - Press **Ctrl+O**.

The Configured Collection view with the statistics related only to that device is displayed.

Performing Device-Specific Operations

Refer to Performing Device-specific Operations in Sub-network Map.

Exporting Topology Data

The procedure to export Topology data is the same as explained in Exporting Events of Viewing Network Events.

7.4 Working with Web Client

The Web NMS Web Client is a light-weight interface that facilitates in connecting to the Web NMS Server using a Web browser over the local network or the internet. Lower download time and lower bandwidth utilization serve as prime factors of the Web Client. Using a Web browser on any PC or UNIX operating system, you can log on to the Web and access Web NMS for maps, fault, and other network information. The Web Client helps you easily monitor your network from any place and at any time.

Using the Web Client, you can

- get distinct views for network management modules such as fault, reports (CPU Utilization, Bandwidth Utilization etc), user administration etc., which are completely localized.
- view network maps that provides rich graphical display of network elements.
- view fault occurring in a network in neatly aligned tabulated views.
- view the database entries of network elements in a neatly aligned tabulated view.
- create custom views for easy viewing of network element information of your interest.
- search for network elements with ease.
- perform administrative functions such as add new networks or nodes, manage faults etc.,
- perform user administration tasks such as adding new users, modifying user profiles and removing users.
- view performance reports using graph and table views.
- query SNMP devices using Mib Manager tool.

The Web Client chapter includes the following topics:

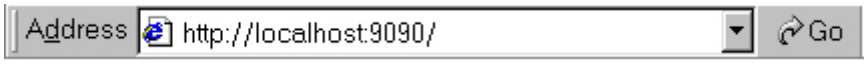
- Getting Started
- Working with Network Maps
- Working with Network Database
- Working with Network Events
- Working with Alarms
- Viewing Performance Reports

7.4.1 Getting Started

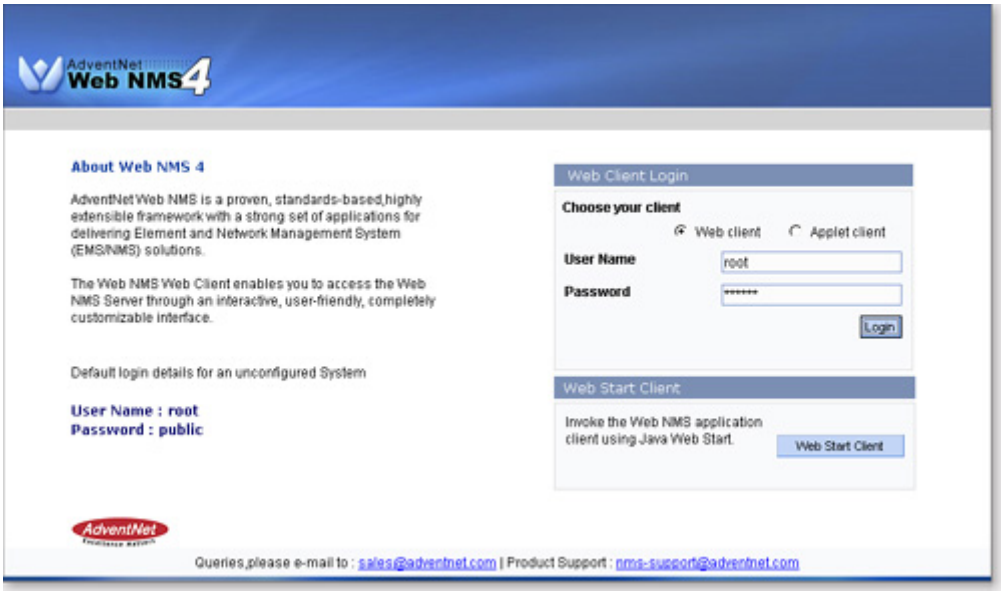
- Invoking Web Client
- Understanding Basic Components of Web Client Work Area
- Personalizing the Web Client

Invoking Web Client

1. Open a JavaScript enabled Web Browser. Check for Supported Web Browsers.
2. Type **http://<machine_name>:<port>** in the address bar and press **Enter**. **<machine_name>** is the name of the machine where Web NMS Server runs. By default, Web NMS Server runs on port 9090. **Example:**



3. The login page is displayed. **Web client** option is selected by default. Enter a valid user name and password. This provides an authenticated access to Web NMS. By default, the user name and password are **root** and **public** respectively for unconfigured systems.



4. Click **Login**.

On performing this, the Web Client is launched in the Web browser.

To log out from Web Client

- Click **Logout** link located at top right-side of the Web Client.

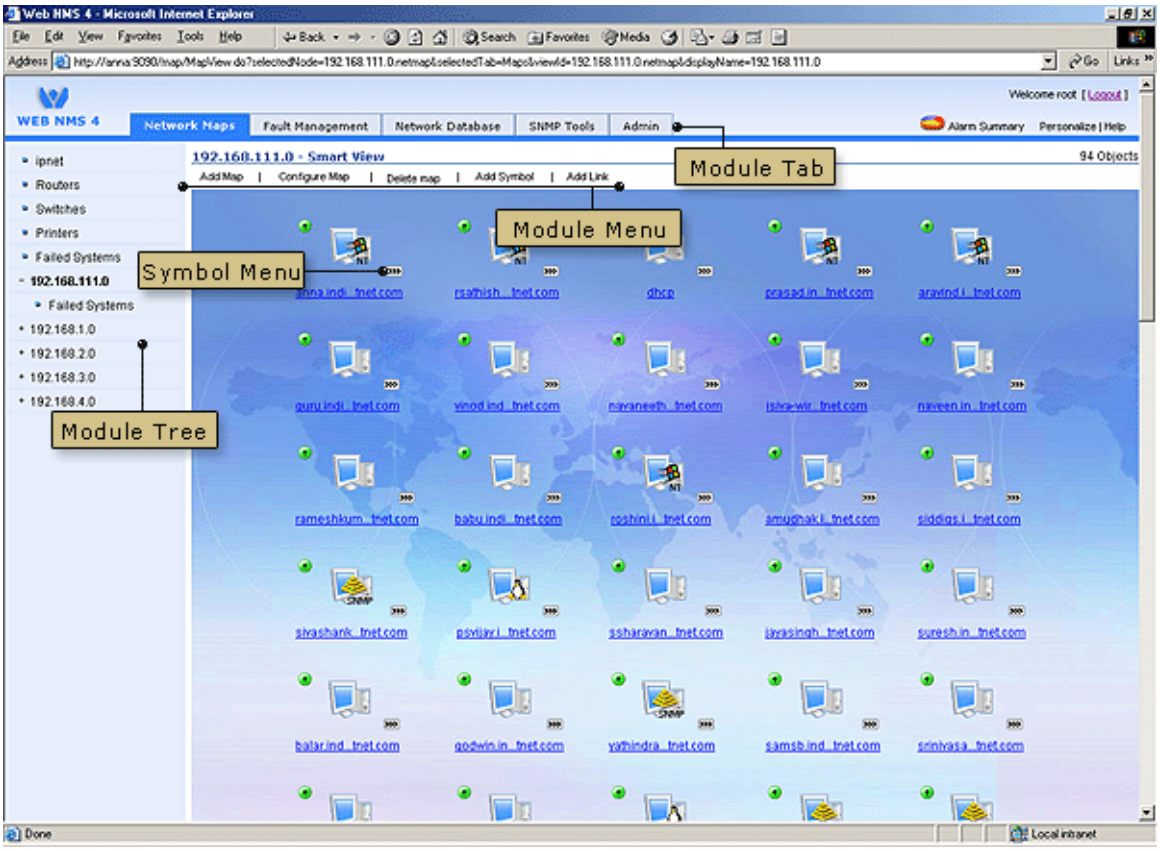
Understanding Basic Components of Web Client Work Area

Once you have logged into the Web Client, the major components that you see are:

1. Module Tabs
2. Module Tree

3. Module Menus
4. Alarm Count Panel

Back option (top right side) is provided in all the pages of the Web Client which helps you in returning to the last page that you viewed. The user name is displayed on the top right side of the Web Client. For example, if you have logged in with user name "root", the same is depicted next to the **Back** option.



Module Tabs

The different module tabs available in the Web Client are

- Network Maps
- Network Database
- Fault Management
- SNMP Tools
- Admin

Clicking each tab displays the respective module view on the right-side frame of the Web Client.

Module Tree

A tree is provided on the left-side of the Web Client which contains various nodes. This tree differs from module to module. Clicking each of the tree nodes displays related information on the right-side frame of the Web Client. For example, in the Network Maps view, clicking Routers node on the tree displays all the routers discovered in the network.

Module Menus

Menus are available as links. The links is handy when you need to perform an operation over multiple elements in a view. For example, in the Network Database view, use options available on using symbol menu ››› to perform an operation, say **Delete Object and Traces** over a single network element. In the same view, when you need to perform the same operation over more than one network element, select the check boxes of those elements and then click the option provided as link.

Symbol Menus

A set of pop up menus is available when you click the symbol menu ››› on a symbol. This menu is specific to the map symbol that you select.

Alarm Summary

For complete information, refer to Alarm Summary in Working with Alarms.

Personalizing the Web Client

The Web Client can be personalized using skins. The skins are used to change the look of the Web Client. By default, the Web Client is displayed with the **Steel Blue** skin.

To apply other skins

1. Click **Personalize** provided at top right-side of the Web Client. The **Personalize** page is displayed.
2. Choose the desired skin. A preview of the skin is shown in the same page.
3. Click **Apply**.

On performing this, the complete Web Client's look and feel is changed to the skin type you choose

7.4.2 Working with Network Maps

- Viewing Maps
- Understanding Map Types
- Viewing Network Element Details
- Managing/Unmanaging Network Elements
- Deleting Network Elements
- Viewing Performance Reports of a Network Element
- Querying SNMP OID of a Network Element
- Viewing Events and Alarms
- Performing Discovery Operations
- Refreshing a Node
- Performing Map Operations
    - Adding a New Map
    - Configuring a Map
    - Adding a Map Symbol
    - Deleting a Map Symbol
    - Adding a Link
    - Deleting a Map

Map is a graphical representation of networks and network elements (NEs). Network elements, such as desktops, workstations, storage devices, servers, notebooks, printers, switches, routers, etc., which are connected in a network can be represented pictorially in a map.

The Network Maps provides you lucid and accurate information on the state of network elements. Its change in state is represented using colors which make you identify faults in the network with ease.

Viewing Maps

By default, when you log in to the Web Client, the **Network Maps** view is displayed. If you are in another view, click **Network Maps** module tab in the Web Client to view the maps.

Understanding Map Types

When you open the **Network Maps** view, the **Network Maps** tree is available in the left side. This tree has the following types of maps (as tree nodes):

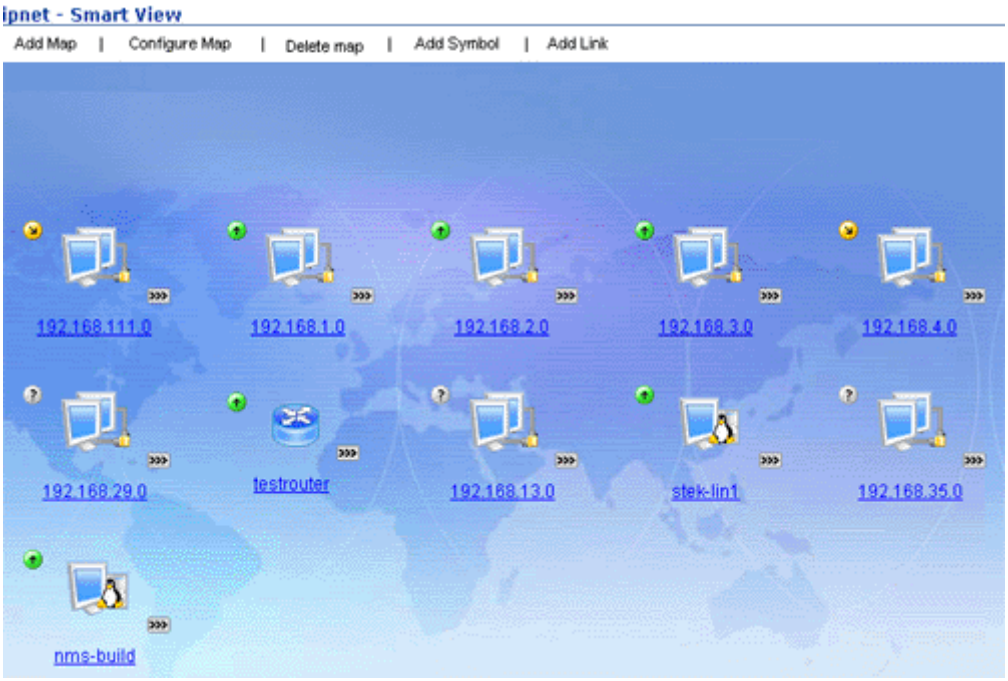
- ipnet Map
- Routers Map
- Switches Map
- Printers Map
- Failed System Map
- Sub-network Map

All information and operations available in the various network maps are also available in the Network Database view. For example, all the networks and the operations that can be performed in the **ipnet** map are also available in the **Network Database > Networks view**. The maps are graphical representation of network elements while the Network Database view is a tabular representation of network data.

Note	The map types differ based on the devices in your network. The new maps that you add will also be depicted in the Network Maps tree.

ipnet Map

The ipnet map depicts all the networks and routers that are discovered.



To view devices in a network

Click the network symbol in the ipnet map. All devices discovered in that network is displayed. It also traverses you to the Sub-network node in **Network Maps** tree.

Routers Map

The Routers map depicts all the routers discovered in the network. This map is added dynamically only after at least one router is discovered.

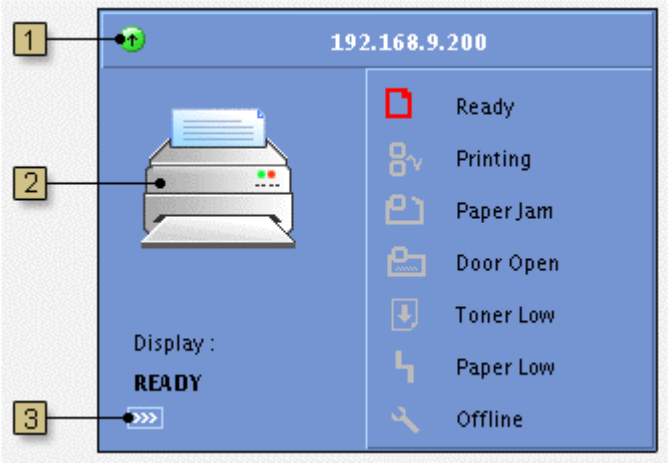
Switches Map

The Switches map depicts all the switches discovered in the network. This map is added dynamically only after at least one switch is discovered. Refer the screen shot given below for working on the Switches Map.

1 - Click to view the severity information of the switch.
2 - Click to view the Ports in the switch in a separate map.
3 - Click to view port details.
4 - Click to view severity information of the port.
5 - Click to view the switch details.
6 - Click to access the switch-related menu.

Printers Map

The Printers map depicts all the printers discovered in the network. This map is added dynamically only after at least one printer is discovered. Refer the screen shot given below for working on the Switches Map.



1 - Click to view the severity information of the printer.
2 - Click to view printer details.
3 - Click to access the printer-related menu.

Failed Systems Map

The Failed Systems map depicts all the devices in the network that has failed. A network element is said to have failed if it has not responded to the regular monitoring checks done by Web NMS. This map helps you easily identify the devices that have failed in the network and enables you to take quick action henceforth.

Sub-network Map

A Sub-network map is named after the IP address of the network discovered. For example, if a network say 192.168.1.0 is discovered, then a node named **192.168.1.0** is available in the **Network Maps** tree. Similarly, for every network that is discovered a sub-network map is available.

Clicking the sub-network map depicts only the devices discovered in that network, on the right-side frame. Each sub-network map node in the **Network Maps** tree has child nodes, such as Routers, Switches, Printers, and Failed Systems which depict their corresponding devices discovered in that network only.

Viewing Network Element Details

To view a network element's detail

- In the desired map, click the name or IP address of the device that is displayed below the map symbol.

Detailed information of that network or device is displayed. In a Switch, clicking each port displays detailed information on that port.

For example, if you need to view the details of a printer

- Click the **Printers** tree node in **Network Maps** tree.
- Click the printer's name or IP address below the printer symbol.

The same device details can also be viewed from the **Network Database** view. For more information, refer to Viewing Network Element Details section in Working with Network Database topic.

Managing/Unmanaging Network Elements

By 'managing a network element' we mean that the element is being monitored by Web NMS. By default, Web NMS monitors all the devices that it discovers. Regular check is done by Web NMS to gather information on a network element's integrity. This option can be disabled by unmanaging the network element which consequently stops the Web NMS from monitoring that element.

To manage/unmanage a network element

1. In the desired map, click icon in a network element.
2. Click **Object > Manage** or **Object > Unmanage** in the menu that is displayed. A network element has only either **Manage** or **Unmanage** option based on its status. For example, if a device is already in an unmanaged state, then only **Manage** option is available.

An unmanaged network element can be identified by its icon - .

Deleting Network Elements

To delete a network element

1. In the desired map, click icon in a network element.
2. Click **Delete Object and Traces** in the device-specific menu that is displayed.

On performing this, the element is deleted from the map as well as from the database. If you have deleted a network, then the network and all the devices in that network is also removed from the map and the database.

The same network or network element can also be deleted from the **Network Database** view. For more information, see Deleting Network Elements section in Working with Network Database topic.

Viewing Performance Reports of a Network Element

To view performance reports of a network element

1. In the desired map, click icon in a network element.
2. Select **Performance** and the desired report type from the menu that is displayed. The **Performance** module view is displayed.

For more information, refer to Viewing Performance Reports topic.

Querying SNMP OID of a Network Element

To query SNMP OID of a network element

1. In the desired map, click icon in a network element.
2. Select the desired table view from the device-specific menu that is displayed. For example, in a printer, click **Printer** and click the table type.

For more information on the tables, refer to Viewing Advanced Information of a Device.

Viewing Event and Alarms

To view events related to a network element

1. In the desired map, click icon in a network element.
2. Click **Object > View Events**.

On performing this, all events related to that network element is displayed in the Network Events view. For more information, refer to Working with Network Events.

To view alarms related to a network element

1. In the desired map, click icon in a network element.
2. Click **Object > View Alerts**.

On performing this, all alarms related to that network element is displayed in the Alarms view. For more information, refer to Working with Alarms.

Tip: Another quick way to view the severity and its details of a network element is by clicking the severity icon above the network element symbol.

- Clear
- Critical
- Info
- Major
- Minor
- Unmanaged
- Warning

Performing Discovery Operations

Networks and their elements are discovered automatically by Web NMS and the discovery process is carried out in a pre-determined way. If you need to stop the discovery process of a network when it is in progress, use the **Stop Discovery** option. Similarly, to resume the discovery process of that network, use the **Start Discovery** option.

Note	Only a network's discovery can be stopped or started and not its elements (such as nodes, switches, printers, etc.). Hence these operations can be performed only in the **ipnet** map.

To start/stop discovery of a network

1. In the ipnet map, click icon in a **Network**.
2. Click **Network > Start Discovery** or **Stop Discovery** based on your requirement. Only either of the options are available for a network. For example, if the discovery of a network has already started, then **Stop Discovery** option is only available for that network.

On performing this, a message confirming the success or failure of the intended operation is displayed. This operation can be performed from the Network Database View also.

Refreshing a Node

To rediscover a node in the network, use the **Refresh Node** option. A node or device could have been down for a while or it would not have been discovered when you performed a manual discovery of that node. In these cases, refresh the node manually to obtain its latest information.

To refresh a node

1. In the desired network map, click  in a network device.
2. Click **Refresh Node** from the device-specific menu that is displayed.

Performing Map Operations

Apart from the default maps that you view in the Web Client, you can add your own custom maps. This is similar to the custom views that you create. Similarly, map elements, such as symbols and links can also be manually added in your maps. These options are available to you based on your user privileges. Contact your system administrator to know your user privileges.

- Adding a New Map
- Configuring a Map
- Adding a Map Symbol
- Deleting a Map Symbol
- Adding a Link
- Deleting a Map

Adding a New Map

To add a map

1. Open any of the maps in the Web Client.
2. Click **Add Map** link provided at the top of the map panel. The **Add Map** page with Map Properties fields is displayed.
3. Specify appropriate values in the fields. For explanation on each of the fields, refer to Map Properties in Appendix.
4. If you need to set more criteria apart from what is provided in this page, click **More**. Another **Criteria Properties** field is displayed. Select the property from the drop-down box and specify it value in the text field.
5. Click **Add Map**.

The new map is created based on the criteria that you have configured.

Note: If you add a map without configuring any **Criteria Properties**, a map is added, but it does not depict any map elements. Further, this map cannot be configured. Hence, ensure to specify Criteria Properties while adding a new map.

Configuring a Map

This section explains how you can modify an existing map in Web Client.

To configure a map

1. Open the map to be modified or configured in the Web Client.
2. Click **Configure Map** link provided at the top of the map panel. The **Modify Map** page is displayed. This page displays the properties and its values of the page you are trying to edit.
3. Modify the required fields.
4. If you need to set more criteria apart from what is provided in this page, click **More**. Another **Criteria Properties** field is displayed. Select the property from the drop-down box and specify it value in the text field.
5. Click **Modify Map**.

The map is configured based on the criteria that you have set.

Adding a Map Symbol

To add a map symbol

1. Open the map in which you need to add a new map symbol.
2. Click **Add Symbol** link provided at the top of the map panel. The **Add Symbol** page with the symbol properties is displayed.
3. Specify appropriate values in the fields. For explanation on each of the fields, refer to Map Symbol Properties in Appendix.
4. Click **Add Symbol**.

The map symbol with the set properties is added to the map.

Deleting a Map Symbol

To delete a map symbol

1. Open the map in which you need to delete a map symbol.
2. Click >>> icon in a network element and click **Delete Symbol** from the device-specific menu.

The map symbol and the associated links are deleted from the map and a confirmation message is displayed.

Adding a Link

To add a link

1. Open the map in which you need to add a link.
2. Click **Add Link** link provided at the top of the map panel. The **Add Link** page with the link properties is displayed.
3. Specify appropriate values in the fields. For explanation on each of the fields, refer to Link Properties in Appendix.
4. Click **Add Link**.

The link with the set properties is added to the map.

Deleting a Map

This section explains how you can delete an existing map. **Note:** You cannot delete a default map.

To delete a map

1. Open the map which you need to delete.
2. Click **Delete Map** link provided at the top of the map panel.
3. A confirmation is asked. Click **Yes** to delete the map.

7.4.3 Working with Network Database

- Viewing the Network Database
- Sorting Network Elements
- Searching Network Elements
- Viewing Network Element Details
- Viewing Events and Alarms
- Viewing Performance Reports of a Device
- Querying SNMP OID of a Device
- Managing/Unmanaging Network Elements
- Performing Discovery Operations
- Deleting Network Elements
- Printing Network Elements
- Refreshing a Network Element
- Working with Network Database Views

The network database maintains the properties of all the elements managed in a network. These elements and their associated properties are listed in the **Network Database** view. The information is available in a table format which is called **List View**.

Viewing the Network Database

To view the **Network Database** view, click the **Network Database** tab in the Web Client. By default the **Complete View** is displayed on the right-side frame and the **Network Database** tree is displayed on the left-side frame of the Web Client. This tree has the following elements as its nodes.

Complete View

- Networks
- Nodes
- Interfaces
- Switches
- Routers

Clicking each node in the **Network Database** tree displays its corresponding element details. For example, clicking Routers node, displays an Inventory View on the right-side frame with information on the routers discovered by Web NMS. The **Complete View** lists all the discovered networks and the devices in that network.

Customizing Network Elements Per Page Count
By default, 25 elements are shown per page in the List View.

To view more number of network elements per page

In the List View, choose a value from **entries per page** combo box.

Browsing the Network Elements

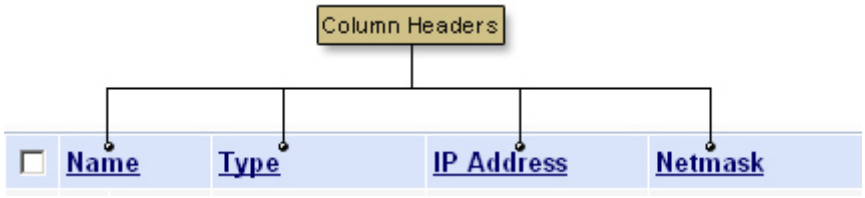
To browse through the network elements, use the **First**, **Previous**, **Next**, and **Last** links provided below the **entries per page** drop-down box links. Clicking navigation links display the desired page, such as the first page, previous page, next page, and the last page of List View.

Customizing the Columns

You can add more columns or remove existing columns in the List View by using the **Customize Columns** option. The procedure for using this is the same as explained in To customize columns section in Working with Network Events topic.

Sorting Network Elements

By default, the network elements are displayed in the order of its discovery and in descending order. This order can be changed using the **Sorting** option.



To sort network elements

1. Click the desire Network Database view in the **Network Database** tree on the left side frame.
2. In the List View, click the column header.

When you click the column header for the first time, the column is sorted in ascending order. Clicking the same column header again sorts the column in descending order. ▲ and ▼ represent ascending and descending order respectively.

For example, if you need to sort the nodes based on their status

1. Click **Nodes** in the **Network Database** tree.
2. In the List View, click the **Status** column header.

This sorts the nodes based on their status and the order of precedence is Critical, Major, Minor, Warning, Clear, and info (ascending).

Searching Network Elements

The **Search** option in Web Client facilitates in searching for one or more network elements. The search operation is performed on the entire database and is not restricted to the displayed view alone. You can search for a required network element based on a general condition or a unique criterion.

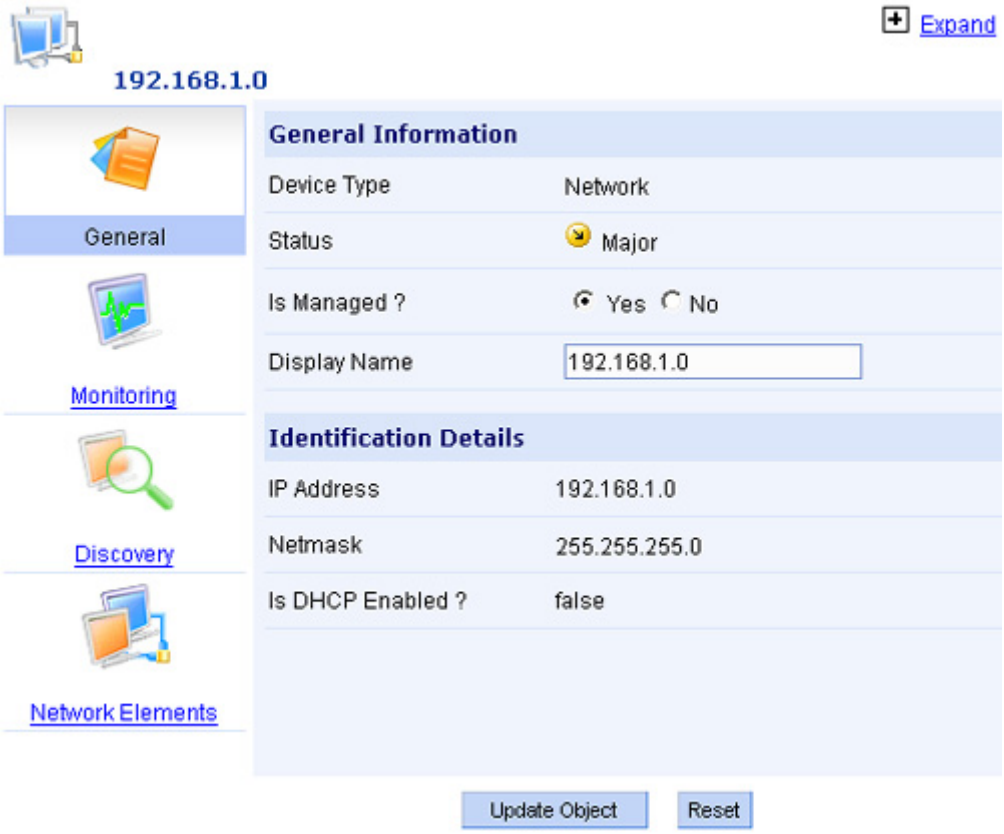
The procedure to search for network elements is the same as explained in Searching Events section in Working with Network Events topic.

Viewing Network Element Details

To view network element details

1. Click the desired Network Database view in the **Network Database** tree on the left side frame.
2. In the List View, click the network element link under **Name** column.

On performing this, a **Details Sheet** depicting all the information related to that element (managed resource) is displayed in a categorized manner. For example, the Details Sheet of a **Network** provides categories, such as General, Monitoring, Discovery, and Network Elements where clicking each category displays relevant information. The categories differ from one network element (Node, Printer, Switch, Port, etc.) to the other.



Click **Expand** and **Collapse** option to view the complete list of details (expanded view) of the managed resource option for a categorized view.

Certain properties in the **Details Sheet** are editable. If you have edited any of the fields, click **Update Object**. The edited values are updated to the database and the result is displayed in the Details Sheet and the same change is reflected in other related Views.

For information on each of the properties displayed in the Details Sheet, refer to Map and Device Details in Appendix.

Viewing Events and Alarms

From the Network Database view, events and alarms related to a network element can be viewed.

To view *events* related to a single network element

1. Click the desired Network Database view in the **Network Database** tree on the left side frame.
2. Click ››› icon in the desired network element in the List View and click **Object > View Events**.

To view *events* related to multiple network elements

1. Click the desired Network Database view in the **Network Database** tree on the left side frame.

2. Select the check boxes of the desired network elements in the List View.
3. From the **Events & Alarms** drop-down menu located above the List View, click **View Events**.

To view *alarms* related to a single network element

1. Click the desired Network Database view in the **Network Database** tree on the left side frame.
2. Click ››› icon in the desired network element in the List View and click **Object > View Alarms**.

To view *alarms* related to multiple network elements

1. Click the desired Network Database view in the **Network Database** tree on the left side frame.
2. Select the check boxes of the desired network elements in the List View.
3. From the **Events & Alarms** drop-down menu located above the List View, click **View Alarms**.

Viewing Performance Reports of a Device

To view reports of a device

1. Click the desired Network Database view in the **Network Database** tree on the left side frame.
2. In the List View that is displayed on the right side frame, click ››› icon in a device.
3. Select **Performance** and click the desired report type from the menu that is displayed. The **Performance** View is displayed.

For more information, refer to Viewing Performance Reports topic.

Querying SNMP OID of a Device

To query SNMP OID of a device

1. Click the desired Network Database view in the **Network Database** tree on the left side frame.
2. In the List View that is displayed on the right side frame, click ›››icon in an SNMP device.
3. Select **Snmp-Node** and the desired and the desired table view option from the menu that is displayed.

For more information on the tables, refer to Viewing Advanced Information of a Device.

Managing/Unmanaging Network Elements

By 'managing a network element' we mean that the element is being monitored by Web NMS. By default, Web NMS monitors all the devices that it discovers. Regular check is done by Web NMS to gather information on a network element's integrity. This option can be disabled by unmanaging the network element which consequently stops the Web NMS from monitoring that element.

To manage/unmanage a single network element

1. In the desired map, click ››› icon in a network element.
2. Click **Object > Manage** or **Object > Unmanage** in the menu that is displayed. A network element has only either **Manage** or **Unmanage** option based on its status. For example, if a device is already in an unmanaged state, then only **Manage** option is available.

To manage/unmanage multiple network elements

1. In the desired map, select the check boxes of the network elements to be managed/unmanaged.
2. From **Operations** drop-down menu, click **Manage** or **Unmanage** based on your requirement.

This operation can be performed from the Details Sheet also.

Performing Discovery Operations

Networks and their elements are discovered automatically by Web NMS and the discovery process is carried out in a pre-determined way. If you need to stop the discovery process of a network when it is in progress, use the **Stop Discovery** option. Similarly, to resume the discovery process of that network, use the **Start Discovery** option.

 **Note**	Only a network's discovery can be stopped or started and not its elements (such as nodes, switches, printers, etc.)

To start/stop discovery of a single network

1. Click **Networks** in the **Network Database** tree on the left side frame.
2. Click in the desired network and click **Network > Start Discovery** or **Stop Discovery** based on your requirement. Only either of the options are available for a network. For example, if the discovery of a network has already started, then **Stop Discovery** >option is only available for that network.

To start/stop discovery of multiple networks

1. Click **Networks** in the **Network Database** tree on the left side frame.
2. Select the check boxes of the desired networks.
3. From the **Operations** drop-down menu, click **Start Discovery** or **Stop Discovery** based on your requirement.

On performing this, a message confirming the success or failure of the intended operation is displayed.

These operations can be performed from the Details Sheet also.

Deleting Network Elements

Network elements that no more need to be managed can be deleted from the client as well as the database. You can either delete a complete network or only a few elements in that network.

To delete a single network

1. Click **Networks** in the **Network Database** tree on the left side frame.
2. Click  icon in the network to be deleted and click **Delete Objects and Traces** from the device-specific menu.

To delete multiple networks

1. Click **Networks** in the **Network Database** tree on the left side frame.
2. Select the check boxed of the networks to be deleted.
3. From the **Operations** menu, click **Delete Objects**. A confirmation is asked for. Click **Yes** to proceed with the deletion.

On performing this, the network as well as the elements in that network is deleted from the client as well as from the database.

To delete a single network element

1. Click the desired element (Nodes, Interfaces, Switches, Routers) in the **Network Database** tree.
2. Click icon in the network element to be deleted and click **Delete Objects and Traces** from the device-specific menu.

To delete multiple network elements

1. Click the desired element (Nodes, Interfaces, Switches, Routers) in the **Network Database** tree.
2. Select the check boxes of the network elements to be deleted.
3. From the **Operations** menu, Click **Delete Objects**. A confirmation is asked for. Click **Yes** to proceed with the deletion.

On performing this, the network element is deleted from the client as well as from the database.

Printing Network Elements

Note	You need to have a printer configured in the machine where you are performing this operation.

To print network elements

1. Click the desired Network Database view in the **Network Database** tree on the left side frame.
2. Click **Print Version** located above the List View displayed on the right side frame. A new page with the list of network elements is displayed.
3. Click **Print**.

On performing this, your operating system's printer options UI is displayed.

Printing a Network Database view helps you to gather information on all the elements or those of your interest alone. For example, you can customize a view by adding or removing columns using Customize Columns option, order the list by sorting, or by creating child views. After customization, use the print option to get a printed version of the same.

Refreshing a Network Element

To rediscover a node in the network, use the **Refresh Node** option. A node or device could have been down for a while or it would not have been discovered when you performed a manual discovery of that node. In these cases, refresh the node manually to obtain its latest information.

To refresh a node

1. Click the desired element (Nodes, Interfaces, Switches, Routers) in the **Network Database** tree.
2. Click icon in a network device and click **Refresh Node** from the device-specific menu that is displayed.

Working with Network Database Views

The network elements in a Network Database view could be numerous and hence difficulty arises in identifying elements of your interest. A search can be performed to locate the elements you are looking for, but if you are looking for a lot of elements that satisfy a certain set of criteria, then use the View options such as **Add Child View**, **Edit View Criteria**, and **Remove View**. This helps you in getting the network elements of your interest alone in that view, instead of doing a search every time.

A Child View that you create is a subset of data that satisfy a given criteria from a larger collection. By creating new views, you will easily filter the desired data that is displayed, and sort through large amount of network element data.

Adding a New View

By default, the **Network Database** module has default types of views such as Complete View, Networks, Nodes, Interfaces, Switches, and Routers. You can create new views under these default views.

For example, you can create a new view named *MasterDB* under **Nodes** which shows only elements that are in Major status. Within this *MasterDB* view, you can create more views, say *MD1*, *MD2,* etc. *MD1* can have a different set of criteria, say only SNMP nodes in that particular network. Deleting *MasterDB* deletes its child views (*MD1*, *MD2*, etc.) as well.

You can add/create a view by specifying various criteria and providing a name for the view. The views you create enable you to quickly monitor the devices of your concern. Multiple views can be created to display a variety of information.

To add a view

1. Click the desired Network Database view in **Network Database** tree on the left side frame.
2. Click **Add Child View**. The options to create the view are displayed.
3. Enter the view's name in **Custom view name** field. This is a mandatory field.
4. Select **Match any of the Following** option if you want to perform a search operation that satisfies any of the matching criteria that you specify. If you need all the matching criteria to be satisfied, select **Match all the Following**.
5. The first combo box is the **Properties** field. Select the property based on which you need to create the view. For information on each of the properties, refer to Custom View Properties in Appendix book.

   If you have selected property related to date or time, the  option comes handy. Clicking this displays the **Date Input Helper**. The current month, year, date, and time is displayed. Select the desired date and time for which you need the view criteria to be based on and click **Apply** On performing this, the Value text field is set with the configured date and time.
6. The second combo box is the **Conditions** field. Select the condition based on which you need to restrict your view.
7. The third text field is the **Value** field where you need to enter the exact information based on which you need to create the view.
8. To specify additional criteria, click **More** and repeat steps 5 to 7. **Fewer** option can be used to remove any criteria.
9. Use **Preview Results** for a preview of the desired view.
10. On configuring the criteria, click **Add Custom View**.

On performing this, a new child node with the configured view name is created in the tree. Following the same procedure, more custom views can be created.

Modifying a View

A view can be modified to change the criteria that were set or to rename the view.

To modify a view

1. Click the desired view in the **Network Database** tree.
2. Click **Edit View Criteria**. A form with the configurations made for that view is displayed.
3. Make the required changes and click **Modify Custom View.**

On performing this, the view is refreshed to provide you the new view based on modified criteria.

Removing a View

A view can be deleted from the Network Database view when you do not require it anymore.

To remove a view

1. Click the desired view on the **Network Database** tree.
2. Click **Remove View**. A confirmation is asked for. Click **Yes** to remove the view.

7.4.4 Working with Network Events

- Viewing Events
- Sorting Events
- Searching Events
- Viewing Event Details
- Printing Events
- Viewing Related Alarms
- Working with Event Views

Network Events are entities that represent the various happenings in the network devices. Events can convey either any general information or the current status of the devices in a network. An operator/user can know the history of a device by browsing through the Network Events view in the Web Client.

Viewing Events

To view the Network Events view

- Click the Fault Management module tab in the Web Client.

On performing this, the Network Events view is displayed on the right-side frame in a table format. This table format is called Events List View. On clicking the Fault Management module tab, the Fault Management tree is displayed on the left-side frame which displays Events and Alarms as its nodes.

Customizing Events Per Page Count

By default, 50 events are shown per page in the Events List View.

To view more number of events per page

In the Events List View, choose a value from entries per page combo box.

Browsing the Events

To browse through the list of events, use **First**, **Previous**, **Next**, and **Last** navigation facility located above the Events list view. Clicking navigation icons display the desired page, such as the first page, previous page, next page, and the last page of Events list view.

Customizing the Columns

The event's properties are displayed as columns in the Events List View. You can add more columns or remove existing columns in the Events List View.

To customize columns

1. In the Events List View, click **Customize Columns** link. The **Customize Columns** page is displayed.
2. To add new columns, select the desired property (based on which columns are created) from **Field to be added** field and click **Add to view**  . The property is moved to **Field to be viewed** field. Multiple properties can be selected using **Ctrl+Click** and **Shift+Click** options.

3. Similarly, to remove existing columns, select the desired property from **Field to be viewed** field and click **Remove from view**  . The property is moved to **Field to be added** field.

   In the **Field to be viewed** field, use **Move Up**  and **Move Down**  options to order the columns as you prefer to view them on the Events List View.
4. On performing the required customization, click **Apply**.

On performing this, the Events List View is refreshed and provides you a view based on your column customization.

Example

If you need your Events List View to display only the **id**, **Status**, **Source**, **Date**, **Message**, and **Node** columns and in the same order

1. In the Events List View, Click **Customize Columns**.
2. Click the properties **id**, **Status**, **Source**, **Date**, **Message**, and **Node** in **Fields to be added** and click **Add to view**  . Remove any other properties in **Field to be viewed** using **Remove from view**  option.
3. Using the **Move Up**  and **Move Down**  options arrange the properties in the desired order.
4. Click **Apply**.

On performing this, the desired Events List View is available with the customized columns.

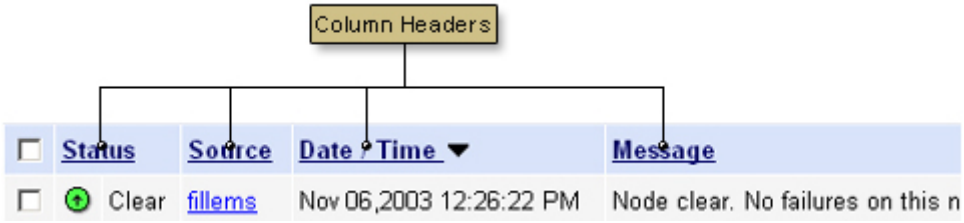
Top

Sorting Events

By default, the events in the Events List View are displayed in the order of precedence based on the Date/Time and Event ID and in descending order. Events are assigned IDs and these are based on the date and time they are generated. Hence these two properties are interrelated. This order can be changed using the **Sorting** option.

To sort events

- In the Events List View, click the column header.



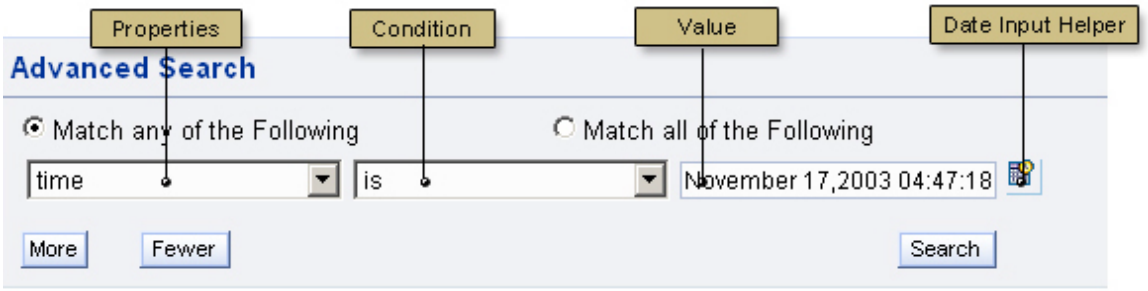
When you click the column header for the first time, the column is sorted in ascending order. Clicking the same column header again sorts the column in descending order. ▲ and ▼ represents ascending and descending order respectively.

For example, if you need to sort the events based on its status, click the **Status** column header. This sorts the events based on its status and the default order of precedence is Critical, Major, Minor, Warning, Clear, and info. For descending order of the same column, click the **Status** column header again.

Searching Events

The search option in Web Client facilitates searching for one or more events. The search operation is performed on the entire database and is not restricted to the displayed view alone. You can search for a required event based on a general condition or a unique criteria.

To search for event(s)



1. In the Events list view, click **Search**. The **Advanced Search** page is displayed.
2. Select **Match any of the Following** option if you want to perform a search operation that satisfies any of the matching criteria that you specify. If you need all the matching criteria to be satisfied for your search operation, select **Match all of the Following** option.
3. In the **Properties** field, select the property based on which you need to perform your search.

   If you have selected property related to date or time, the **Date Input Helper** option comes handy.

Using Date Input Helper

1. Click **Date Input Helper** option. By default, the current system month, year, date, and time are displayed when the **Date Input Helper** is displayed.
2. Select the desired month from the **Month** combo box. By default, current system month is displayed.
3. Select the desired year from the **Year** combo box. By default, the current system year is displayed.
4. Click the desired date in the calendar. The calendar is based on the month you select and by default the current system date is highlighted.
5. Enter the time in **Time** field and select **AM/PM** from the combo box. By default, the system time is displayed.
6. Click **Apply**.

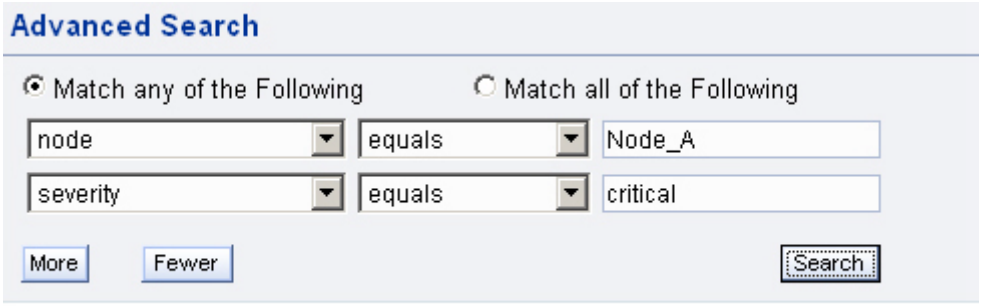
On performing this, the **Value** text field is set with the selected date and time. To modify the date or time, click the **Date Input Helper** option again and follow steps 1 to 5 as explained above.

4. In the **Conditions** field, select the condition based on which you need to restrict your search.
5. In the **Value** text field, enter the exact information you are looking for. For example, if you have selected **severity** in the **Properties** combo box, then you need to specify the severity value here, say critical, major, etc.
6. To specify additional criteria, click **More** and repeat steps 3 to 5. **Fewer** option can be used to remove the criteria that were last added.
7. To begin the search, click **Search**.

On performing this, events satisfying the configured criteria set are displayed.

Example

Let us take an example where you need to look for critical events of a particular node, say 'Node_A'.



1. In the Events List View, click **Search**. The **Advance Search** page is displayed.
2. Select **Match all of the Following** option.
3. Select **node** from **Properties** combo box, **equals** from **Conditions** combo box, and enter **Node_A** in **Value** text field.
4. Click **More**.
5. In the new fields that are displayed, select **severity** and **equals**, and enter the value as **critical**.
6. Click **Search**.

Viewing Event Details

To view the event details

In the Events List View, click the desired event link under **Source** column.

On performing this, detailed information on the event is displayed. For information on the properties displayed, refer to Event Details in Appendix.

Printing Events

Note	You need to have a printer configured in the machine where you are performing this operation.

To print events

1. Click **Print Version** located above the Events List View. A new page with the list of events is displayed.
2. Click **Print**.

On performing this, your operating system's printer options UI is displayed.

Printing Events List View helps in gathering information on all events or those of your interest alone. For example, you can customize the Events List View by adding or removing columns using the Customize Columns option, order the events by sorting, or by creating new views. After customization, you can use the print option to get a printed version of the Events List View.

Viewing Related Alarms

Events are converted to alarms based on their significance which are messages that require administrator's/operator's attention. From the Events view, you can view the alarm that has been created for an event.

To view related alarm of an event

1. In the Events List View, select the check box of the desired event. To view related alarms for more than one event, select multiple check boxes.
2. From the **Operations** drop-down menu, click **View Alarms**.

The Alarms view with all the alarms related to those events are displayed and they are displayed in a descending order based on the time of its modification.

For more information on Alarms view, refer to Working with Alarms topic.

Working with Event Views

The events in the Events List View could be numerous and hence difficulty arises in identifying events of your interest. A Search can be performed to locate the events you are looking for. But if you are looking for a lot of events that satisfy a certain set of criteria, then use the **Add Child View**, **Modify View Criteria**, and **Remove View** options. This helps you in getting the events of your interest alone in that view, instead of doing a search every time.

A Child View that you create is a subset of data that satisfy a given criteria from a larger collection. By creating new views, you will easily filter the desired data that is displayed, and sort through large amount of events data.

Adding a New View

You can add/create a new view by specifying various criteria and providing a name for the view. The views you create enable you to quickly monitor the devices of your concern. Multiple views can also be created to display a variety of information.

For example, you can create a new view named *MasterEvents* which shows only events in a particular network. Within this *MasterEvents* view, you can create more views, say *ME1*, *ME2,* etc. *ME1* can have a different set of criteria, say only critical events in that particular network. Deleting *MasterEvents* deletes its child views (*ME1*, *ME2*, etc.) as well.

To add a view

1. In the Events List View, click **Add Child View**. The options to create the view are displayed.
2. Enter the view's name in **Custom view name** field. This is a mandatory field.
3. Enter the required criteria in the fields available. For information on each of the fields in this form, refer to Custom View Properties in Appendix book. Wildcard characters can be used to specify the matching criteria. For information on the wildcard characters that can be used, refer to Tips and Tricks in Appendix. If none of the fields is filled in (except for **Custom view name**), then by default all the fields are set with the value '**all**'.
4. On configuring the criteria, click **Submit**.

On performing this, a new child node with the configured view name is created under **Fault Management > Network Events** tree node. Following the same procedure, more custom views can be created.

Modifying a View

A view can be modified to change the criteria that were set or to rename the view.

To modify a view

1. In the Events List View, click the desired view on the **Fault Management > Network Events** tree.
2. Click **Edit View Criteria**. The custom view form is displayed with the configurations (made at the time of creation or last modification). For information on each of the fields in this form, refer to Custom View Properties in Appendix. Wildcard characters can be used to specify the matching criteria. For information on the wildcard characters that can used, refer to Tips and Tricks in Appendix.
3. Make the required changes and click **Submit**.

On performing this, the view is refreshed to provide you the new view based on modified criteria.

Removing a View

A view can be deleted from the Events view when you do not require it anymore.

 **Note**	The parent node **Network Events** cannot be deleted from the **Fault Management** tree. Only those custom views created under this parent node can be deleted.

To remove a view

1. In the Events List View, click the desired view on the **Fault Management > Network Events** tree.
2. Click **Remove View**. A confirmation is asked for. Click **Yes** to remove the view.

7.4.5 Working with Alarms

- Viewing Alarms
- Sorting Alarms
- Searching Alarms
- Viewing Alarm Details
- Clearing Alarm Status
- Deleting Alarms
- Printing Alarms
- Working with Alarm Views

Alarms are generated when a failure or fault is detected in the network devices. The events generated are converted to alarms based on its significance and they are simply messages calling for operator's/administrator's attention.

Viewing Alarms

To view the Alarms view

1. Click the **Fault Management** module tab in the Web Client. By default the Events view is displayed.
2. Click **Alarms** on the left-side **Fault Management** tree.

The **Alarms** view is displayed on the right-side frame in a table format. This table format is called **Alarms List View**.

Customizing Alarms Per Page Count

By default, 25 alarms are shown per page in the Alarms List View.

To view more number of alarms per page

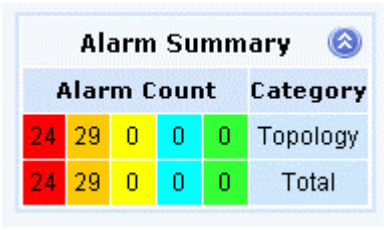
In the Alarms List View, choose a value from **entries per page** combo box.

Browsing the Alarms

To browse through the list of alarms, use the **First**, **Previous**, **Next**, and **Last** navigation facility placed above the Alarms List View. Clicking navigation icons display the desired page, such as the first page, previous page, next page, and the last page of Alarms List View.

Alarm Summary

To view the total number of alarms generated in Web NMS, **Alarm Summary** is provided at the bottom left corner in the Web Client pages. It is a table listing the total alarm count on module/category basis.

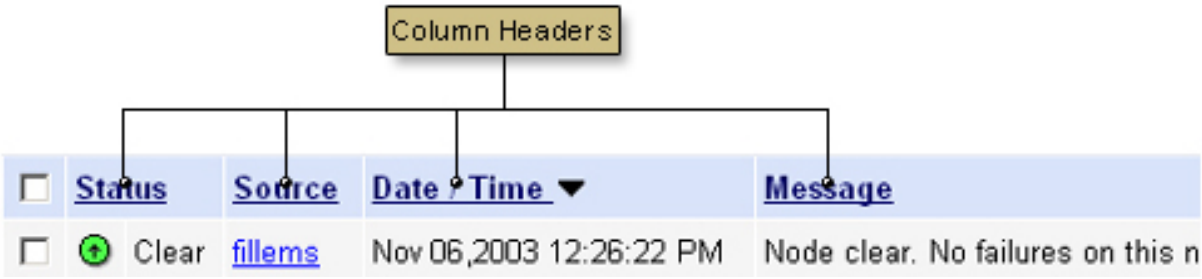


Customizing the Columns

The alarms's properties are displayed as columns in the Alarms List View. You can add more columns or remove existing columns using the **Customize Columns** option. The procedure for using this is the same as explained in To customize columns section in Working with Events topic.

Sorting Alarms

By default, in the Alarms List View, the alarms are displayed in the order of precedence based on time and in descending order. This order can be changed using the Sorting option.



To sort alarms

- In the Alarms List View, click the column header.

When you click the column header for the first time, the column is sorted in ascending order. Clicking the same column header again sorts the column in descending order. ▲ and ▼ represent ascending and descending order respectively.

For example, if you need to sort the alarms based on their status, click the Status column header. This sorts the alarms based on its status and the default order of precedence is Critical, Major, Minor, Warning, Clear, and info. For descending order of the same column, click the Status column header again.

Searching Alarms

The Search option in Web Client facilitates searching for one or more alarms. The search operation is performed on the entire database and is not restricted to the displayed page alone. You can search for a required alarm based on a general condition or a unique criterion.

The procedure to search for alarms is the same as explained in Searching Events section in Working with Network Events topic.

Viewing Alarm Details

To view the alarm details

In the Alarms List View, click the desired alarm link under Source column.

On performing either of this, detailed information on the alarm is displayed. The details give a brief description of the device which has failed, the owner with whom the Alarm is associated, the date and time of the Alarm, and the severity of the Alarm. For information on the properties displayed, refer to Alarm Details in Appendix.

When an Alarm is created, it has to be handled and the problem associated with it should be solved. To handle the Alarms, the following options in the Alarm Properties view comes handy.

- Viewing Related Events
- Picking Up / Unpicking the Alarm
- Adding Comments to the Alarm
- Viewing Alarm Annotation
- Viewing Alarm History
- Viewing both Annotation and History
- Viewing Related Alarms

Viewing Related Events

There are two ways in which related events can be viewed.

[1] Viewing related events from Alarm Properties view

In the Alarm Properties view, click **Events** link.

[2] Viewing related events from Alarm List View

1. In the Alarms List View, select the check box of the desired alarm. To view related events of more than one alarm, select multiple check boxes.
2. Click **View Events**.

The Events view with only the events related to that alarm is displayed. If multiple alarms are selected, all events related to the alarms selected are displayed in a descending order based on event ID and time.

For more information on Events view, see Working with Network Events topic.

Picking Up / Unpicking the Alarm

Pick Up is a mechanism that helps in assigning a particular alarm/fault of a device to a work group or user. This ensures that all problems are picked up and work is not duplicated. It is also possible to **Unpick** an Alarm which has already been assigned to a user or work group.

An alarm annotation entry will be entered with the name of the user who has picked up / unpicked the alarm and the time it was performed.

To pick up an alarm

1. In the Alarm Properties view, click **Pickup** link. If you are in the Alarms List View, then select the check box of the alarm which you need to pick up and click **Pickup**. To pick up multiple alarms, select all those alarms' check boxes and then click **Pickup**.

2. An **Assign Alarm** page is displayed. Enter the user name or group name to whom you need to assign the alarm(s) in **Assign To** field and click **Assign**.

Note	This **Assign Alarm** page is displayed only if you have the administrative permission to assign alarms to others. If you do not have the permission, then on clicking **Pickup**, the alarms are assigned to your user name.

To unpick an alarm

1. In the Alarm Properties view, click **Unpick** link. If you are in the Alarms List View, then select the check box of the alarm which you need to unpick and click **Unpick**. To unpick multiple alarms, choose all those alarms' check boxes and then click **Unpick**.

Adding Comments to the Alarm

It is important to track any action you have taken to fix an alarm or any new information you have gathered about the alarm. **Annotate** option can be used to add notes to an alarm for future reference. For example, the solution for a problem resolved by you can be entered by using the Annotate option. This enables other users to solve the same problem with less effort, by just reading the annotation.

To add comments to alarm

1. In the Alarm Properties view, click **Annotate** link. An **Annotate** form is displayed.
2. Enter your comments in the **Message** field.
3. Click **Annotate**.

Viewing Alarm Annotation

To view all the user-defined annotations along with the time of annotation, click **Annotation & History** in the Alarm Properties view.

Viewing Alarm History

The history of the Alarms give the complete information on the status of the Alarms, such as when they are added / updated. For example, when a critical alarm is generated, the Alarms view displays the current status of the alarm. If the problem has been fixed, an alarm with clear severity will update the one with critical severity.

By clicking the **Annotation & History** in Alarm Properties view, you can view the history of that alarm, from first alarm to the latest one, i.e., the time at which the problem was created and fixed along with the timings of alarm generation and severity change.

Viewing both Annotation and History

The **Merge history** option in Alarm Properties view enables you to view the annotations and history together in an order of precedence based on time. To get back to the separate views of annotation and history, click **Annotation & History**.

Viewing Related Alarms

To view other alarms generated for the same network element, click **Related Alarms** in the Alarm Properties view.

Clearing Alarm Status

An alarm can be cleared when it has been resolved or if it is inconsequential.

To clear status of an alarm

1. In the Alarms List View, select the check box of the desired alarm. To clear the status of more than one alarm, select multiple check boxes.
2. Click **Clear**.

Deleting Alarms

You also have an option to delete an alarm when you feel the alarm is not significant or the alarm has been cleared. By default, the alarms that are in Clear status for more than 24 hours are deleted and this deletion happens every 60 minutes automatically. But if you want to manually delete the cleared alarms, use this option.

To delete alarms

1. In the Alarms List View, select the check box of the desired alarm. To delete more than one alarm, select multiple check boxes.
2. Click **Delete**.

Printing Alarms

Note	You need to have a printer configured in the machine where you are performing this operation.

To print alarms

1. To see how printed Alarms List View will look, in the Alarms List View, click **Print Version**. A new page with the list of alarms is displayed.
2. Click **Print**.

On performing this, your operating system's printer options UI is displayed.

Printing Alarms List View helps to gather information on all alarms or those of your interest alone. For example, you can customize the Alarms List View by adding or removing columns using the Customize Columns option, order the alarms by sorting, or by creating new views. After customization, use the print option to get a printed version of the Alarms List View.

Working with Alarm Views

The alarms in the Alarms List View could be numerous and hence difficulty arises in identifying alarms of your interest. A Search can be performed to locate the alarms you are looking for. But if you are looking for a lot of alarms that satisfy a certain set of criteria, then use the Add Child View, Edit View Criteria, and Remove View options. This helps you to get the alarms of your interest alone in that custom view, instead of doing a search every time.

A Child View that you create is a subset of data that satisfy a given criteria from a larger collection. By creating new views, you will easily filter the desired data that is displayed and sort through large amount of alarms data.

Adding a New View

You can add/create a new view by specifying various criteria and providing a name for the view. The views you create enable you to quickly monitor the devices of your concern. You can create multiple views that display a variety of information.

For example, you can create a new view named *MasterAlarms* which shows only alarms in a particular network. Within this *MasterAlarms* view, you can create more views, say *MA1*, *MA2,* etc. *MA1* can have a different set of criteria, say only critical alarms in that particular network. Deleting *MasterAlarms* deletes its child views (*MA1*, *MA2*, etc.,) as well.

To add a view

1. In the Alarms List View, click **Add Child View**. The options to create the view are displayed.
2. Enter the required criteria in the fields available. For information on each of the fields in this form, refer to Custom View Properties in Appendix. Wildcard characters can be used to specify the matching criteria. For information on the wildcard characters that can used, refer to Tips and Tricks in Appendix. If none of the fields is filled in (except for **Custom View Name**), then by default all the fields are set with the value '**all**'.
3. On configuring the criteria, click **Submit**.

On performing this, a new child node with the configured view name is created under **Fault Management > Alarms** tree node. Following the same procedure, more custom views can be added.

Modifying a View

A view can be modified to change the criteria that were set or to rename the view.

To modify a view

1. In the Alarms List View, click the desired view on the **Fault Management > Alarms** tree.
2. Click **Edit View Criteria**. The custom view form is displayed with the configurations (made at the time of creation or last modification). For information on each of the fields in this form, refer to Custom View Properties in Appendix. Wildcard characters can be used to specify the matching criteria. For information on the wildcard characters that can used, refer to Tips and Tricks in Appendix.
3. Make the required changes and click **Submit**.

On performing this, the view is refreshed to provide you with the new view based on modified criteria.

Removing a View

A view can be deleted from the Alarms List View when you do not require it anymore.

Note	The parent node **Alarms** cannot be deleted from the **Fault Management** tree. Only those views created under this parent node can be deleted.

To remove a view

1. In the Alarms List View, click the desired view on the **Fault Management > Alarms** tree.
2. Click **Remove View**. A confirmation is asked for. Click **Yes** to remove the view.

7.4.6 Viewing Performance Reports

- Understanding Types of Reports
- Viewing Reports for a Device

Understanding Types of Reports

Web NMS provides a variety of reports that help you in monitoring the performance of network elements. By default, the following reports are available in the Web Client.

- **Receive Traffic**

  Provides reports as Line Graph, Area Graph, and Tabular View for the number of packets received using one or more interfaces on the selected device.

- **Transmit Traffic**

  Provides reports as Line Graph, Area Graph, and Tabular View for the number of packets transmitted using one or more interfaces on the selected device.

- **CPU Utilization**

  Provides reports as Line Graph, Area Graph, and Tabular View for the percentage of CPU utilized by the selected device.

- **Rx Utilization** (also called *InterfaceInUtilization*)

  Provides reports as Line Graph, Area Graph, and Tabular View for the utilization of bandwidth while receiving packets using one or more interfaces on the selected device. This is calculated using the formula: *Interface Rx utilization: (2.2.1.10*8*100)/(2.2.1.5 * pollInterval)*

- **Tx Utilization** (also called *InterfaceOutUtilization*)

  Provides reports as Line Graph, Area Graph, and Tabular View for the utilization of bandwidth while transmitting packets using one or more interfaces on the selected device. This is calculated using the formula: *Interface Tx utilization: (2.2.1.16*8*100)/(2.2.1.5 * pollInterval)*

Viewing Reports for a Device

To view performance reports for a device

1. Click ››› symbol menu icon in a device.
2. Select **Performance** and click the desired report type from the menu that is displayed. On performing this, the report is displayed.
3. To view performance report of another device from the same page, perform the following procedure.
    1. Enter the name or the IP address of the device for which you need to view reports in the **Managed Object** field.
    2. The **Reports** combo box displays the types of reports available. Using this combo box, you can also choose to view other types of reports.

3. Select the format in which you prefer to view the report from the **View** combo box. Default views available are **Line Graph**, **Area Graph**, and **Tabular View**.
4. The report can be viewed for a specific period of time by configuring **Period** combo box. You have option to view reports for the day (**Today**), for a week (**Past 7 Days**), for a month (**Past 30 Days**), or a specific period of time (**Custom**). When you choose **Custom**, you need to specify the **From** and **To** period. Click  and provide required month, date, and time in the Date Input Helper that is displayed.
5. Click **View Graph**.

On performing this, the desired report is displayed. If no data has been collected for the device, appropriate message is displayed conveying the same.

Appendix

Appendix A: Application Client Menus

This section explains the purpose of all the common menus and menu items available in the Application Client.

Menu	Menu Item	Purpose
File	Back	Refer to Navigating Through Active Windows.
	Forward	
	Detach	Refer to Detaching a Window from the Client.
	Close	Refer to Closing a Window.
	Close All	
	Node Operations > Add Node, Modify Node, Remove Node, Mode Node.	Refer to Performing Tree Operations.
	Broadcast Message	Refer to Broadcasting Messages.
	Exit	Refer to To quit the Application Client.
Tools	System Administration	Administrative option. Refer to Administrator Guide.
	Runtime Administration	
	Security Administration	
	Change Password	Refer to Configuring Your Password.
	Themes	Refer to Setting Themes.
Look And Feel	Metal	Refer to Changing Look and Feel.
	CDE/Motif	
	Windows	
Window	Cascade	Refer to Arranging Windows.
	Tile Horizontal	
	Tile Vertical	
	Save Location and Size	Refer to Saving Location and Size of Windows.
	Show Toolbar	Refer to Toolbar.
Help	Help Contents	Refer to Viewing Context-Sensitive Help.
	About Web NMS...	Displays Web NMS product and contact information.

Appendix B: Toolbar Options

The toolbar options differ from one view to the other. This section provides information on the common and view-specific toolbar options available in the Application Client.

- Common Toolbar Options
- Map Toolbar
- Network Events, Alarms, Configured Collection, and Network Database Toolbar

Common Toolbar Options

These toolbar options are available in common for all the views in the Application Client. For more information, refer to Understanding Client Work Area.

	Go Back to Previous	Refer to Navigating Through Active Windows.
	Go Forward to Next	
	Find	Refer to Searching Elements in a Map, Searching Events, Searching Alarms.
	Properties	Refer to Viewing Properties, Viewing Row Details.
	Detach Current Window	Refer to Detaching a Window from the Client.
	System Administration	Administrative option. Refer to Administrator Guide.
	HTML UI	Displays the Web Client Login page. Refer to Working with Web Client.
	Stop	Stops the current process that is being executed.
	Help	Refer to Viewing Context-Sensitive Help.

Map Toolbar

These toolbar options are available in all the types of maps. For information on maps, refer to Viewing and Navigating Networks.

	Add Map	Refer to Adding Custom Maps.
	Delete Map	Administrative option. Refer Administrator Guide.
	Save Map	Refer to Saving Map Layout.
	Refresh	Refer to Refreshing Map Layout.
	Relayout	Refer to Resetting Map Layout.
	Add Symbol	Refer to Adding a Symbol.

	Add Container	Refer to Adding a Container.
	Add Link	Refer to Adding a Link.
	Delete	Administrative option. Refer to Administrator Guide.
	Undo Add/Delete	To undo the last operation performed of adding or deleting a symbol.
	Select Mode	Refer to Zooming In and Out.
	Zoom Window	
	Zoom Mode	
	Zoom In	
	Zoom Out	
	Cut	Refer to Rearranging Map Symbols.
	Copy	
	Paste	
	Undo	To undo the last action performed in the map.
	Group View	Refer to Grouping Map Symbols.
	Expand Selected (Or All) Groups	
	Group Selected Symbols	

Network Events, Alarms, Configured Collection, and Network Database Toolbar

These toolbar options are common for the Network Events, Alarms, Configured Collection, and Network Database views.

	Save	Option available only for Network Events and Alarms view. Refer to Saving Events.
	Print	Option available only for Network Events and Alarms view. Refer to Printing Events.
	Refresh	Refer to Refreshing the Page View.
	Add Custom View	Refer to Working with Custom Views.
	Modify Custom View	
	Remove Custom View	
	Delete	Administrative option. Refer to Administrator Guide.

Appendix C: Map Menus

All map menus available in the maps (of Application Client) are tabulated below. This serves as a quick reference to understand the purpose of each menu item.

- Common Menu Items in All Maps
- Menus in IPnet Map
- Menus in Routers Map
- Menus in Switches Map
- Menus in Printers Map
- Menus in Failed Systems Map
- Menus in Sub-network Map
- Menus in TL1 Panels

Common Menu Items in All Maps

Menu	Menu Item	Purpose
Custom Views	Add New Map	Refer to Adding Custom Maps.
	Delete Map	Administrative option. Refer to Administrator Guide.
	Relayout Map	Refer to Resetting Map Layout.
	Save Map	Refer to Saving Map Layout.
Edit	Undo Add/Delete	Administrative option. Refer to Administrator Guide.
	Add Symbol	Refer to Adding a Symbol.
	Add Container	Refer to Adding a Container.
	Add Link	Refer to Adding a Link.
	Delete Symbol	Administrative option. Refer to Administrator Guide.
	No Of Symbols Per Group	Refer to Working with Map Symbols.
	Disable Grouping	
	Clear Alarms	Administrative option. Refer to Administrator Guide.
	Delete Alarms	
	Configure Nodes	
	Order By	Refer to Changing Tooltip of Displayed Map Symbols.
	Change ToolTip Text	
	Select All	
	Search	Refer to Searching Elements in a Map.
View	Details	Refer to Viewing Properties.
	Events	Refer to Viewing Fault.
	Alarms	
	Statistics(P)	Refer to Viewing Performance Data of a Device.
	Refresh	Refer to Refreshing Map Layout.

Menus in IPnet Map

See Also: IPnet Map

Menu	Menu Item	Purpose
Network [This is a device-specific menu, which is available when you select a network]	Open Submap	Refer to Drilling Down the Network in IPnet Map.
	Symbol Properties	Refer to Viewing Properties.
	Managed Object Properties	
	Node Edit >Delete Symbol From Map	Administrative option. Refer to Administrator Guide.
	Node Edit > Add/Delete Property	
	Delete Object and Traces	
	Stop Discovery	
	UnManage	Refer to Unmanaging a Network and Device.
	Update Status	Refer to Updating Status.

Menus in Routers Map

See Also: Routers Map

Menu	Menu Item	Purpose
Router [This is a device-specific menu, which is available when you select a router]	Router Details	Refer to Viewing Router Details.
	Symbol Properties	Refer to Viewing Properties.
	Managed Object Properties	
	Node Edit >Delete Symbol From Map	Administrative option. Refer to Administrator Guide.
	Node Edit > Add/Delete Property	
	Delete Object and Traces	
	Routing Table	Refer to Viewing Advanced Information of Device.
	Interfaces	
	TCP Table	
	UDP Table	
	IpNetToMedia Table	
	Configure Router	Administrative option. Refer to Administrator Guide.
	Events and Alarms	Refer to Viewing Fault.
	Telnet to device	Refer to Opening a Telnet Session.
	SnmpMonitor > Ping	Refer to Pinging a Device.
	SnmpMonitor > Trace Route	Refer to Tracing the Route.
	SnmpMonitor > Browse MIBs	Refer to Browsing MIBs.
	Performance > Monitor Collections	Refer to Using Monitor Collections Option.
	UnManage	Refer to Unmanaging a Network and Device.
	Update Status	Refer to Updating Status.

Menus in Switches Map

See Also: Switches Map

Menu	Menu Item	Purpose
Network Hub [This is a device-specific menu, which is available when you select a switch]	Symbol Properties	Refer to Viewing Properties.
	Managed Object Properties	
	Node Edit >Delete Symbol From Map	Administrative option. Refer to Administrator Guide.
	Node Edit > Add/Delete Property	
	Delete Object and Traces	
	Interfaces	Refer to Viewing Advanced Information of a Device.
	Routing Table	
	Port Table	
	Spanning Tree	
	Forwarding Table	
	Filter Table	
	Configure Switch	Administrative option. Refer to Administrator Guide.
	Switch Status	Refer to Viewing Switch Status.
	UnManage	Refer to Unmanaging a Network and Device.
	Update Status	Refer to Updating Status.

Menu	Menu Item	Purpose
Port(N) [This is a device-specific menu, which is available when you select a port in a switch]	Symbol Properties	Refer to Viewing Properties.
	Managed Object Properties	
	Node Edit >Delete Symbol From Map	Administrative option. Refer to Administrator Guide.
	Node Edit > Add/Delete Property	
	Delete Object and Traces	
	UnManage	Refer to Unmanaging a Network and Device.
	Update Status	Refer to Updating Status.

Menus in Printers Map

See Also: Printers Map

Menu	Menu Item	Purpose
Printer [This is a device-specific menu, which is available when you select a printer]	Symbol Properties	Refer to Viewing Properties.
	Managed Object Properties	
	Node Edit >Delete Symbol From Map	Administrative option. Refer to Administrator Guide.
	Node Edit > Add/Delete Property	
	Delete Object and Traces	
	Printer Device Table	Refer to Viewing Advanced Information of a Device.
	Cover Table	

Menu	Menu Item	Purpose
	Input Table	
	Output Tree	
	Supplies Table	
	Interfaces	
	Routing Table	
	Configure Printer	Administrative option. Refer to Administrator Guide.
	UnManage	Refer to Unmanaging a Network and Device.
	Update Status	Refer to Updating Status.

Menus in Failed Systems Map

See Also: Failed Systems Map

The menus in this map are device-specific. For example, if you have a failed switch, then refer to Menus in Switches Map.

Menus in Sub-network Map

See Also: Sub-network Map

The menus in this map are device-specific. For example, if you have a switch in the sub-network map, then refer to Menus in Switches Map.

Menu	Menu Item	Purpose
Snmp-Node [This is a device-specific menu, which is available when you select an SNMP node]	Symbol Properties	Refer to Viewing Properties.
	Managed Object Properties	
	Node Edit >Delete Symbol From Map	Administrative option. Refer to Administrator Guide.
	Node Edit > Add/Delete Property	
	Delete Object and Traces	
	Routing Table	Refer to Viewing Advanced Information of a Device.
	Interfaces	
	TCP Table	
	UDP Table	
	IpNetToMedia Table	
	Configure Node	Administrative option. Refer to Administrator Guide.
	Events and Alarms	Refer to Viewing Fault.
	UnManage	Refer to Unmanaging a Network and Device.
	Update Status	Refer to Updating Status.
SnmpMonitor [This is a device-specific menu, which is available when you select an SNMP node]	Ping	Refer to Pinging a Device.
	Trace Route	Refer to Tracing the Route.
	Browse MIBs	Refer to Browsing MIBs.

Menu	Menu Item	Purpose
Node [This is a device-specific menu, which is available when you select a node]	Symbol Properties	Refer to Viewing Properties.
	Managed Object Properties	
	Node Edit >Delete Symbol From Map	Administrative option. Refer to Administrator Guide.
	Node Edit > Add/Delete Property	
	Delete Object and Traces	
	Configure Node	
	Events and Alarms	Refer to Viewing Fault.
	Telnet to device	Refer to Opening a Telnet Session.
	UnManage	Refer to Unmanaging a Network and Device.
	Update Status	Refer to Updating Status.
Node Monitor [This is a device-specific menu that is available when you select a node]	Ping	Refer to Pinging a Device.
	Trace Route	Refer to Tracing the Route.

Menus in TL1 Panels

TL1 nodes are associated with four types of menu namely TL1Gateway Menu, TL1 GatewayAccess Menu, TL1-Node menu, and ACME-MSU menu.

Menu	Associated with
TL1-Gateway Menu	TL1 Gateway Nodes
TL1-GatewayAccess Menu	TL1 Gateway Access Points
TL1-Node Menu	TL1 Nodes
ACME-MSU Menu	TL1 Nodes

TL1-Gateway Menu

Menu Item	Purpose
Open Sub-Map	Opens the device map in a separate panel.
Symbol Properties	Refer to Viewing Properties.
Managed Object properties	
Node Edit	Administrative option. Refer to Administrator Guide.
Delete	
UnManage	Refer to Unmanaging a Network and Device.
Update Status	Refer to Updating Status.

TL1-GatewayAccess Menu

Menu Item	Action
Open Sub Map	Opens the device map in a separate panel.
Symbol Properties	Refer to Viewing Properties.
Managed Object Properties	
Node Edit	Administrative option. Refer to Administrator Guide.
Delete	
Events	Refer to Viewing Fault.
Alarms	
Connect Device Ring	Establishes the session with the access point thus, connecting all the devices behind the access point.
Disconnect Device Ring	Closes the session with the access point and thus disconnects all the devices behind that access point.
UnManage	Refer to Unmanaging a Network and Device.
Update Status	Refer to Updating Status.

TL1-Node Menu

Menu Item	Action
Connect Device	Establishes a session with the TL1 Agent in the respective device by creating a session ID. • If the device is not connected previously and the connection is established, then AdventNet Status Message dialog box appears with the message "Connected successfully". • If the device is already connected, then an error message pops up displaying "Error- This device is already connected". • If the device is switched off or the agent is not running, then an error message pops up displaying "Error- Cannot connect to the device. Please check if the TL1 Agent is running in the device".
Disconnect Device	Closes the session with the TL1 Agent in the respective device and turns the session ID to null. • On successful disconnection of the TL1 device a dialog which reads "Disconnected successfully" is displayed. • If the device is already disconnected an error message pops up saying "Error - Connection already closed".

ACME-MSU Menu

Menu Item	Action
Network Elements	Retrieves identification information about target node. The response carries information about the manufacturing date, company etc. The input command for the Network Elements is as given below: RTRV-NE:::; This command calls for a response as given below: FACTORY 2001-05-12 04:17:29 M COMPLD "-1:FACTORY" ;
IP Ether	Retrieves information about the Gateway device, IP address, Net mask, Broadcast address, MAC Address etc. The input command for the IP Ether is as given below: RTRV-IP::ETHER This input command brings out a response as given below: FACTORY 1999-02-15 02:39:28 M 1 COMPLD "ETHER::GATEWAY=ON,IP=192.168.7.203,MASK=255.255.255.0,BRDCAST=172.16.55,MTU=1500,MACADDR=00:a0:1b:00:12:12" ;
Inventory	Gives information about the cards available in the device and also the specifications of the cards. The Input command for the Inventory sub-menu item is as given below: RTRV-INVENTORY:::; This command calls for a response as given below: FACTORY 2001-05-12 01:44:43 M COMPLD "SLT-1::CRDTYPE=CPU,CRDSN=57,MFDAT=01/24/2000,PRODNO=712700,CRDREV=A2" "SLT-2::CRDTYPE=ST1,CRDSN=23,MFDAT=01/25/2000,PRODNO=712800,CRDREV=A0" "SLT-3::CRDTYPE=ST1,CRDSN=23,MFDAT=01/25/2000,PRODNO=712800,CRDREV=A0" "SLT-4::CRDTYPE=ST1,CRDSN=23,MFDAT=01/25/2000,PRODNO=712800,CRDREV=A0" "SLT-5::CRDTYPE=ST1,CRDSN=23,MFDAT=01/25/2000,PRODNO=712800,CRDREV=A0" "SLT-6::CRDTYPE=ST1,CRDSN=23,MFDAT=01/25/2000,PRODNO=712800,CRDREV=A0" "SLT-7::CRDTYPE=ST1,CRDSN=23,MFDAT=01/25/2000,PRODNO=712800,CRDREV=A0" "SLT-8::CRDTYPE=ST1,CRDSN=23,MFDAT=01/25/2000,PRODNO=712800,CRDREV=A0" "SLT-9::CRDTYPE=ST1,CRDSN=23,MFDAT=01/25/2000,PRODNO=712800,CRDREV=A0" "SLT-10::CRDTYPE=ST1,CRDSN=23,MFDAT=01/25/2000,PRODNO=712800,CRDREV=A0" ;

Menu Item	Action
Equipment	Retrieves previously provisioned parameters and settings of a specific logic card or all logic cards of a specific type in the system. The retrieve equipment command gives information such as the type of the card, work mode etc. The Input command for the sub-menu is as given below: RTRV-EQPT::ALL:; and the response is as given below: FACTORY 2001-05-12 01:53:13 M COMPLD "CPU-1:::PST=IS" "ST1-1::PRIORITY=1,TYPE=DSX,WKMOD=WK,ST=IS" "ST1-2::PRIORITY=1,TYPE=DSX,WKMOD=WK,ST=IS" "ST1-3::PRIORITY=1,TYPE=CSU,WKMOD=WK,ST=IS" "ST1-4::PRIORITY=1,TYPE=DSX,WKMOD=WK,ST=IS" "ST1-5::PRIORITY=1,TYPE=DSX,WKMOD=WK,ST=IS" "ST1-6::PRIORITY=1,TYPE=DSX,WKMOD=WK,ST=OOS" "ST1-7::PRIORITY=1,TYPE=CSU,WKMOD=WK,ST=IS" "ST1-8::PRIORITY=1,TYPE=DSX,WKMOD=WK,ST=IS" "ST1-9::PRIORITY=1,TYPE=CSU,WKMOD=WK,ST=OOS" "ST1-10::PRIORITY=1,TYPE=DSX,WKMOD=WK,ST=IS" ;
Image	Retrieves information about the software image block. The Input command for the sub-menu is as given below: RTRV-IMG::CPU-1-1:; and the response for this command is as given below: FACTORY 1999-02-12 02:28:53 M COMPLD "CPU-1-1::STATE=DEACTIVE,VER=2.1.3,BOOT_VER=1.0.0 (O),CHECKSUM=A5E75F59" ;
Alarm	Permits configuration and maintenance of the system alarms, alarm specifics, alarm history and it carries information about the alarms received. The Input command for this menu is as given below: RTRV-ALM::ALL:; for which the response is as given below: FACTORY 2001-05-12 04:30:03 M COMPLD "ST1-7-1,T1:MJ,LOS,SA,2001-05-12,01-47-28,,:" "ST1-7-1,T1:MJ,LOF,SA,2001-05-12,01-47-32,,MASK:" "ST1-7-1,T1:MJ,CGA-RED,SA,2001-05-12,01-47-28,,:" "ST1-8-1,T1:MJ,LOS,SA,2001-05-12,01-51-14,,:" "ST1-8-1,T1:MJ,LOF,SA,2001-05-12,01-51-18,,MASK:" "ST1-8-1,T1:MJ,CGA-RED,SA,2001-05-12,01-51-15,,:" "ST1-10,EQPT:MJ,IO_CARD_MISSING,SA,2001-05-12,01-51-43,,:" "ST1-10-1,T1:MJ,LOS,SA,2001-05-12,01-51-43,,MASK:" "ST1-10-1,T1:MJ,LOF,SA,2001-05-12,01-51-45,,MASK:" "ST1-10-1,T1:MJ,CGA-RED,SA,2001-05-12,01-51-43,,MASK:" "SYS,SYS:MN,POWER_A_FAIL,NSA,2001-05-12,01-04-12,,:" ;

Menu Item	Action
Performance	Permits monitoring of individual cards in the system. The input command for the sub-menu item is as given below: RTRV-PM::ALL:; and the response is as given below: FACTORY 2001-05-12 04:35:08 M COMPLD "ST1-8-1,T1:ESL,305,NA,NEND,RX,15-MIN,0" "ST1-8-1,T1:SESL,306,NA,NEND,RX,15-MIN,0" "ST1-8-1,T1:LOSSL,306,NA,NEND,RX,15-MIN,0" "ST1-8-1,T1:ESP,11,NA,NEND,RX,15-MIN,0" "ST1-8-1,T1:CSSP,11,NA,NEND,RX,15-MIN,0" ;
Initialize PM	Clears all performance monitoring counts of pre-existing data and has no response message. INIT-PM::ALL:;

Appendix D: Map and Device Details

This section provides explanation on the properties of maps and devices that you see in Application Client.

Map Properties

For information on viewing these properties, refer to Viewing Map Details.

Property	Description
Name	Specifies a unique name of the map.
Label	Specifies label of the map as displayed in the tree and also on the display panel (internal frame). Edit this field to change the name of the map as displayed in the tree and then click Modify to effect change.
TreeIconFileName	Specifies the image name and location of the icon representing the map in the tree. Edit this field to specify any other icon image from <Web NMS Home>/images directory and then click Modify to effect the change.
ImageName	Specifies the image name and location of the background image for that map. If nothing is specified in this field, a blank white background is set to the map. Edit this field to provide the background image from <Web NMS Home>/image directory and then click Modify to effect the change.
MapLinkRenderer	Specifies the Map Link Renderer that renders the links in the map.
MapSymbolRenderer	Specifies the Map Symbol Renderer that renders the symbols in the map.
CurrentTopology	Specifies the topology property which has to be set as the default topology.
Anchored	If this field is selected (click Modify for change to take effect), the user will not be able to edit that map anymore.
AutoPlacement	When set true, the map layout is set with the CurrentTopology.
HelpDoc	Specifies the URL for the help documentation to be displayed when the Help button is clicked in the Map Properties dialog. Edit this field to provide a new URL and then click Modify to effect the change.
MenuName	Specifies the map-specific menu file (XML) name. This menu is shown in the menu bar when the map is selected or as a pop-up when you right-click the map.
Save changes to server	If you want to effect the changes you have made to the fields in Map Properties dialog, select this option. On selecting this, all the clients connected incorporate the change you have made. If this option is not selected, then the changes you make are reflected only in the client you are working on.

Link Properties

For information on viewing these properties, refer to Viewing Link Details.

Property	Description
Name	Specifies the unique name of the link.
Label	Specifies the label for the link. On entering a label name, the same is depicted next to the link on the map. If you do not want a label, leave the field empty. On editing this field, click Modify to effect the change. Tip: If you want this change to be reflected in all the clients connected, save changes to server.
ObjName	Specifies the name of the object that the link represents.
Source	Specifies the map symbol name from where the link starts.
Destination	Specifies the destination map symbol with which the link is established.
MapName	Specifies the map name in which the link is located.
MenuName	Specifies the menu name in which link-related tasks are available.
ObjType	Specifies the type of the object.
LinkType	Specifies the type of the link (can be used to paint the link).
Community	Specifies the community string of the agent associated with the link.
Status	Specifies the current status of the link in that network.
Managed	Specifies whether that link is in managed or unmanaged state.
INITIAL_MIBS	Specifies the initial MIB associated with that link.
Thickness	Specifies the current thickness of the link as displayed in the map. By default the thickness is '3'. Enter the value (1 or more than 1) and click Modify to effect the change. Tip: If you want this change to reflect in all the connected clients, save changes to server.
OwnerName	Specifies the owner to whom the link is associated.
IconName	Specifies the image and its location representing the link in the map. Edit this to provide new image for the link from <Web NMS Home>/images directory and click Modify to effect the change. Tip: If you want this change to reflect in all the connected clients, save changes to server.
Y	Specifies the X coordinate value where the link is positioned.
X	Specifies the Y coordinate value where the link is positioned.
GroupName	Specifies the group name to which the link belongs. 'null' is displayed if the link does not belong to any group.
ParentName	Specifies the name of the parent tree node
Save changes to server	If you want to effect the changes you have made to the fields in link Object Properties dialog, select this option. On selecting this, all the clients connected incorporates the change you have made. If this option is not selected, then the changes you make is be reflected only in the client you are working on.

Map Symbol Properties

For information on viewing these properties, refer to Viewing Map Symbol Properties.

Property	Description
Name	Specifies the unique name of the map symbol.
Label	Specifies the label for the map symbol. Edit this field to change the label of the map symbol and then click Modify for change to take effect. Tip: If you want this change to be reflected in all the clients connected, Save changes to server.
ObjName	Specifies the object name of the selected symbol.
MapName	Specifies the map name in which the map symbol is located.
IconName	Specifies the image and its location representing the map symbol. Edit this to provide new image for the map symbol from <Web NMS Home>/images directory and click Modify to effect the change. Tip: If you want this change to reflect in all the connected clients, save changes to server.
MenuName	Specifies the menu name in which the map symbol-related tasks are available.
ParentName	Specifies the parent name of the selected symbol.
GroupName	Specifies the group name to which the map symbol belongs. 'null' is displayed if the link does not belong to any group.
Community	Specifies the community string of the agent associated with that map symbol.
Status	Specifies the current status of the map symbol in that network.
Managed	Specifies whether that map symbol is in managed or unmanaged state.
INITIAL_MIBS	Specifies the initial MIB associated with that map symbol.
Y	Specifies the current X coordinate value where the map symbol is positioned. Edit this field to place the map symbol as and click Modify to effect the change.
X	Specifies the current Y coordinate value where the map symbol is positioned. Edit this field to place the map symbol as and click Modify to effect the change.
Height	Specifies the current height of the map symbol. Edit this field to resize the map symbol and click Modify to effect the change.
Width	Specifies the current width of the map symbol. Edit this field to resize the map symbol and click Modify to effect the change.
OwnerName	Specifies the owner to whom the link is associated.
Type	Specifies the type of the device associated with that map symbol.
Save changes to server	If you want to effect the changes you have made to the fields in map symbol Object Properties dialog, select this option. On selecting this, all the clients connected incorporate the change you have made. If this option is not selected, then the changes you make is be reflected only in the client you are working on.

Container-related Properties

Property	Description
containment	Specifies whether the symbols inside the container should truly be contained within the boundaries of the container or not. If the value is set to true, you cannot move any of the symbols outside the boundaries of the container. If set to false, you can move symbols outside the boundaries and still they will be children objects of the container with their ParentName referring to the container object.
topology	Specifies the layout of the map. For more than one layout, specify as comma separated values. Example: $grid(width=55, height=55), star, ring, flow
CurrentTopology	Specifies the topology property which has to be set as the default topology.

Network Object Properties

For information on viewing these properties, refer to Viewing Network/Device Properties.

Property	Description
Base Properties	
Name	Specifies a unique name of the object, such as network, node, router.
Display Name	Specifies a unique name of the object as displayed in the map.
Type	Specifies the type of the object. For example, Network.
Classname	Specifies the class name (not fully qualified name) and this property is used while restoring the device sub-class when it is stored in the Relational Database.
Status	Specifies the current status (severity) of the object in the network.
Managed	Specifies whether the object is managed. true - Managed false - Unmanaged
Discover	Specifies whether the discovery of devices in the selected network should occur or not. If the option is not selected, the discovery of the network stops.
IP Related Properties	
IpAddress	Specifies the unique IP address of the object.
Netmask	Specifies the netmask of the object.
InterfaceList	Specifies all the interfaces in that object.
NodeList	Specifies all the nodes in that network.
Status Related Properties	
StatusUpdateTime	Specifies the time (in milliseconds) at which status polling was last done for a device. This property is updated every time a status poll is done for the device, irrespective of the result of the status poll.
StatusChangeTime	Specifies the time (in milliseconds) at which the status of the device last changed.
PollInterval	Specifies the interval between two successive status polling of the object.
FailureCount	Specifies a counter to indicate how many consecutive attempts of status poll for this object have failed. The count is reset to 0, once the object is declared as failed or when the object recovers after the failure. The failureCount is incremented once, for each successive failure of the status poll and when the value of failureCount equals to that of failureThreshold, the object will be declared failed.
Other Properties	
UserClass	Specifies the class to be invoked for status polling of the device. This has effect only if the 'tester' property is set to the value 'usertest'.
Tester	Specifies user tester class used for the status polling of selected objects.
FailureThreshold	Specifies the number of consecutively failed status poll attempts, to declare the object as failed. A status change event for the object is generated when the status polling for the object fails for 'failureThreshold' times.
User Properties	
DiscoveryStatus	Specifies the discovery status of the Network object. 1 - YET_TO_BEGIN 2 - IN_PROGRESS 3 - FINISHED 4 - DISCOVERY_DISABLED
ChildrenKeys	Specifies the child keys of the network object.
GroupNames	Specifies the names of groups to which the object belongs.
UserName	Specifies the user name which is used for the security of SNMP agent.

Property	Description
IsDHCP	Specifies whether the object is DHCP enabled or not. True denotes that the object is DHCP enabled.
StatusPollEnabled	Specifies whether the object status polling has been enabled for the object. true - Enabled false - Disabled
ParentNetwork	Specifies the parent network of the selected network object.
IsGroup	Specifies whether the object is in a group. true - In a group false - Not in a group
IsContainer	Specifies whether the object is a container. true - Container false - Not a container
ContextName	Specifies the details of the context name required for the security of the SNMP agent.
IsRouter	Specifies whether the object is a router. true - Is a router false - Not a router
Version	Specifies the version number of the SNMP agent.
ParentNetmask	Specifies the parent netmask of the selected network object. This is available only if a parent network exists for the selected network.
IsInterface	Specifies whether the object is an interface. true - Is an interface false - Not an interface
IsNetwork	Specifies whether the object is a network. true - Is a network false - Not a network

Router Object Properties

The following table explains router-specific properties. For some of the Base Properties, IP Related Properties, and User Properties, refer to Network Object Properties table.

See Also: Routers Map, Viewing Properties.

Property	Description
IP Related Properties	
ParentNet	Specifies the name of the network to which the router belongs.
Host Netmask	The netmask of the IP address of the Managed Object
SNMP Related Properties	
Snmpport	Specifies the port number to which the interface is connected.
Community	Specifies the community string of the corresponding agent associated with the interface.
WriteCommunity	Specifies the write community string used for Set requests.
SysName	Specifies the system name as reported by the SNMP agent.
SysDescr	Specifies system description associated with the type of object.

Property	Description
SysOID	Specifies the Object Identifier.
SNMP Version	Indicates the SNMP version of the agent running in the Network Element
Base MIBs	List of MIBs implemented by the Network Element that the Managed Object represents
User Properties	
IsNode	Specifies whether object is a node. true - Is a node false - Not a node
IsSNMP	Specifies whether object is an SNMP device. true - Is SNMP device false - Not an SNMP device

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Switch Object Properties

The following table explains switch-specific properties. For some of the Base Properties, IP Related Properties, and User Properties, refer to Network Object Properties table. For SNMP Related Properties, refer to Router Object Properties.

See Also: Switches Map, Viewing Properties.

Property	Description
User Properties	
ChildrenKeys	Specifies the children keys (all ports) of the selected switch.
RootPort	Specifies the number of the port which offers the lowest cost path from this selected bridge to the root bridge.
NumPorts	Specifies the number of ports in the selected switch.
RootCost	Specifies the cost of the path to the root as seen from the selected bridge.

Switch Port Object Properties

The following table explains switch port-specific properties. For some of the Base Properties, IP Related Properties, and User Properties, refer to Network Object Properties table. For SNMP Related Properties, refer to Router Object Properties.

See Also: Switches Map, Viewing Properties.

Property	Description
User Properties	
PortIfDescr	Specifies information on the port.
PortIfSpeed	Specifies an estimate of the port interface's current bandwidth (in bits per second).
PortState	Specifies the state of the port. Example: disabled, blocking, listening, learning, forwarding, broken, unknown
PortIfIndex	Specifies the index of the port.

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Printer Object Properties

The following table explains printer-specific properties. For some of the Base Properties, IP Related Properties, and User Properties, refer to Network Object Properties table. For SNMP Related Properties, refer to Router Object Properties.

See Also: Printers Map, Viewing Properties.

Property	Description
User Properties	
ConsoleLightString	Specifies the vendor description or label of this light in the localization specified by prtConsoleLocalization.
ConsoleDispBufferText	Specifies the content of a line in the logical display buffer of the operator's console of the printer.
PrinterDeletedErrStatus	Specifies any error condition detected by the printer.
DeviceStatus	Specifies the current operational state of the device. 1 - unknown 2 - running 3 - warning 4 - testing 5 - down

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Node Object Properties

For the Base Properties, IP Related Properties, and User Properties, refer to Network Object Properties table. For SNMP Related Properties, refer to Router Object Properties.

See Also: Sub-network Map, Viewing Properties.

SNMP Node Object Properties

For the Base Properties, IP Related Properties, and User Properties, refer to Network Object Properties table. For SNMP Related Properties, refer to Router Object Properties.

See Also: Sub-network Map, Viewing Properties.

TL1 Node Object Properties

The following table explains tl1 node-specific properties. For some of the Base Properties, IP Related Properties, and User Properties, refer to Network Object Properties table.

Property	Description
TL1 Related Properties	
ConnectionHandler	This handles the non-TL1 tasks before and after the TCP connection is established.
Dictionary	Specifies the XML file which contains the syntax for input and output messages for this particular type of TL1 device.

Property	Description
Tl1port	Specifies the port used to connect to this device.
PortList	Specifies the list of TL1 ports to connect to this device.
SessionId	Specifies a unique ID generated for the session established with the device.
NotifyId	Specifies a unique ID generated for receiving autonomous message from the device.
LoginCommand	Specifies the command to log in to the TL1 device.
InitCommand	Specifies the initial commands to be sent to the TL1 device after login.
InfoCommand	Specifies command which will be used for data collection from device data immediately after discovery.
User Properties	
IsContentUpgraded	

See Also: TL1 Panels, Viewing Properties.

Appendix E: Fault Details

This section provides information on Event and Alarm Properties. For information on how to view the details, refer to Network Events and Alarms.

- Severity Representation
- Event Messages
- Network Event Details
- Alarm Details

Severity Representation

Severity Color							
Represents	Critical	Major	Minor	Warning	Clear	Info	Unmanaged State

Event Messages

The following table lists the various default messages generated by Web NMS (without any configuration) along with their severities and their significance.

Message	Signifies	Severity
Network added to database	Network Addition	Info
Node Added to Database	Node Addition	Info
Interface Added to Database	Interface Addition	Info
Port Object Added to Database	Port Addition	Info
Port Added in disable state	Port Failure	Major
At least one node in this network is in failure state	Network Failure	Major
No nodes failed in this network	Network Clear	Clear
This probably means one or more interfaces have failed	Status Poll failed (Node Failure)	Major
Status Poll failed	Status Poll failed (Interface Failure)	Major
No failures in this node	Status Poll Clear (Node Clear)	Clear
Interface clear	Status Poll Clear (Interface Clear)	Clear

Network Event Details

Property	Description
Index	Specifies a unique ID created for each of the events that are generated.
Severity	Specifies the severity of the event, such as *Critical, Major, Minor, Clear, Warning, Info.*
Message	Specifies the message associated with the event.
Category	Specifies the category to which the event belongs. Example: *Topology*.
Domain	Specifies the domain-specific information which is based on physical location, functional categorization, or logical categorization of the source of the event.

Property	Description
Network	Specifies the network to which the event belongs to.
Node	Specifies the node to which the event belongs to. For example, if the event is for an interface, the node value is specified as interface parent node.
Failure Object	Specifies the specific entity (in the source) that has failed and is primarily responsible for the event.
Source	Specifies the exact source (network, node, interface) of the event.
Help URL	Specifies the URL for locating the help documentation on clicking the **Help** button in the same dialog box.
Date/Time	Specifies the date and time when the event was generated.
GroupName	Specifies the group name to which the event belongs.

Alarm Details

Property	Description
Message	Specifies the message associated with the alarm.
Failure object	Specifies the specific entity (in the source) that has failed and is primarily responsible for the alarm.
Source	Specifies the source of the alarm.
Owner	Specifies the owner associated with the alarm.
Category	Specifies the category to which the alarm belongs.
Created	Specifies the date and time when the alarm was created.
Modified	Specifies the date and time when the alarm was last modified.
Group	Specifies the group name to which the alarm belongs.
Severity	Specifies the current severity of the alarm, such as *Critical, Major, Minor, Warning*.
Previous severity	Specifies the previous severity of the alarm.
Other alarms in this group	Specifies other alarms belonging to the same group. Double-click alarms in this field to view its details.

Appendix F: Custom View Properties

The procedure to create custom views is the same for Network Events, Alarms, and Network Database. For more information, refer to Working with Custom Views. The fields and properties (criteria) differ for these modules. This section explains the properties and fields for each of the modules.

- Network Events
- Alarms
- Network Data
- Performance
- Tips and Tricks

Note:

- If all the above parameters (except filter view name) are left blank, then the default value **all** is assigned.
- By default, the Date/Time property shows the current date and time. This requires data in the order of month, date, year, hour, minute, second and AM / PM which can be chosen by using the up and down arrows.

Tip: Wildcard characters can be used to specify filtering criteria. For more information, refer to Tips and Tricks.

Show objects with these Properties field description for Network Events

Properties

Field	Description
Filter View Name	Specify name for the custom view you are creating or modifying. If no value is specified in this field, the custom views are created with default values, such as Network Events0, Network Events1, Network Events2.
ParentName	Choose the parent tree node under which your custom view has to be placed in the tree from the drop-down box. The criteria set for the parent custom view will be automatically used for child custom view. Hence, it is enough to specify only additional criteria for the child custom view.
Severity	Choose the severity of the event based on which you need to filter events in your custom view from the editable drop-down box. For multiple severities, type the severity as comma separated values. For example, *Major,Info.*
Message	Specify all or part of a message associated with the events you want to view. **Example:** If the message is specified as ***Interface failure. Status poll failed.***, then only events with this message are displayed in the custom view.
Category	Specify the category of the events you want to view. For example, *Topology.*
Domain	Specify the domain name of the events to be displayed in this view. The domain-specific information is based on physical location, or functional categorization, or logical categorization of the source of the event.
Network	Specify the network to which the source of the event belongs.
Node	Specify the name of the node based on which the events are to be filtered.

Field	Description
Failed Object	Specify the name of the failed entity (that is primarily responsible for the event) based on which the events are to be filtered.
Source	Specify the source of the event based on which the events are to be filtered.
From Date/Time	The events occurred after the time specified in this field [Month, Date, Year, Hour, Min, Sec, AM/PM] are displayed in the custom view.
To Date/Time	The events occurred up to the time specified in this field [Month, Date, Year, Hour, Min, Sec, AM/PM] are displayed in the custom view.
Event Age	Specify age of the event based on which the events are to be filtered. **Age of an event** denotes the time lapsed since the last modification of the event in the Web NMS system. By default, the value specified is **Any**, whereby events of all age is displayed. Other options are: minutes, hours, days, today, and, yesterday. **Example:** Age in **hrs > 1** displays all the events that are less than an hour old. After this custom view is created, the events are dynamically added to the view as they satisfy the criteria of being less than an hour old. In this case, the old events remain in the view. If you require to delete the old events and need to view only those currently satisfying the criteria, set the minutes in which the custom view should be refreshed in **Refresh period in minutes** (by default, it is set as **1** minute). On setting this, the server sends data automatically at the time interval specified.

Tree Node Properties

Field	Description
Frame Title	Specify the name to be displayed on the title bar of the custom view.
Menu File Name	Specify the panel-specific menu file name. If this field is left blank, the default menu is displayed.
Icon File	Specify the icon name (in *<Web Home>/images* directory) to use for the custom view. This icon is visible in the tree as well as in the title bar of the custom view.
Table Popup Menu	Specify the file name of the menu used to display a contextual menu for the objects displayed in the table of the new custom view.
Tree Popup Menu	Specify the file name of the menu used to display a contextual menu for the new custom view node in the Navigation tree.
Node Index	Specify the position of the custom view in relation to previously added views. If this field is left blank, the view will be appended to the end of the current list of custom views.

Show objects with these Properties field description for Alarms

Properties

Field	Description
Filter View Name	Specify name for the custom view you are creating or modifying. If no value is specified in this field, default values, such as Alarms0, Alarms1, Alarms2 are created.
ParentName	Choose the parent tree node under which your custom view has to be placed in the tree from the drop-down box. The criteria set for the parent custom view will be automatically used for child custom view. Hence, it is enough to specify only additional criteria for the child custom view.

Field	Description
Severity	Choose the severity of the alarm based on which you need to filter alarms in your custom view from the editable drop-down box. **Tip:** For multiple severities, type the severity as comma separated values. For example, *Major,Minor.*
Previous severity	In the drop-down list, choose the previous severity of the alarms you want to view from the editable drop-down box. For example, if you want to view alarms that were previously minor and then became critical, select Minor is this field. **Tip:** For multiple severities, type the severity as comma separated values. For example, *Major,Minor.*
Owner	Specify the name of the owner with whom the alarm is associated. **Tip:** To create a custom view for alarms that are un-owned by any user, set the value as **null**. For multiple owners, specify owner names as comma separated values. **Example:** If the value is set as "Ed", then only the alarms owned by "Ed" are displayed in the custom view.
Category	Specify the category of the alarms you want to view. For example, *Topology.*
Group	Specify the group based on which the alarms are to be filtered. **Example:** If the group is specified as **it-test**, then only alarms forming a part of this group id are displayed in custom view.
Message	Specify all or part of a message associated with the alarms you want to view in the created custom view. **Example:** If the message is specified as ***Node Clear.***, then only alarms with this message are displayed in the custom view.
Failure Object	Specify the name of the failed entity (that is primarily responsible for the alarm) based on which the alarms are to be filtered.
Source	Specify the source of the alarm based on which the alarms are to be filtered.
From Date/Time (modified)	The alarms modified after the time specified in this field [Month, Date, Year, Hour, Min, Sec, AM/PM] are displayed in the custom view.
To Date/Time (modified)	The alarms modified up to the time specified in this field [Month, Date, Year, Hour, Min, Sec, AM/PM] are displayed in the custom view.
From Date/Time (created)	The alarms generated after the time specified in this field [Month, Date, Year, Hour, Min, Sec, AM/PM] are displayed in the custom view.
To Date/Time (created)	The alarms generated up to the time specified in this field [Month, Date, Year, Hour, Min, Sec, AM/PM] are displayed in the custom view.
GroupViewMode	Choose the mode in which you need to group the alarms in a custom view from the drop-down box. **max** - the alarms of maximum severity are grouped and displayed at the beginning of the list. **latest** - the newest alarms are grouped and displayed at the beginning of the list. **none** - the alarms are not grouped.
Alarm Age (modified time)	Specify age of the alarm based on which the alarms are to be filtered. **Age of an alarm** denotes the time lapsed since the last modification of the alarm in the Web NMS system.

Field	Description
	By default, the value specified is **Any**, whereby alarms of all age is displayed. Other options are: minutes, hours, days, today, and, yesterday. **Example:** Age in **hrs > 1** displays all the alarms that are less than an hour old. After this custom view is created, the alarms are dynamically added to the view as they satisfy the criteria of being less than an hour old. In this case, the old alarms remain in the view. If you require to delete the old alarms and need to view only those currently satisfying the criteria, set the minutes in which the custom view should be refreshed in **Refresh period in minutes** (by default, it is set as **1** minute). On setting this, the server sends data automatically at the time interval specified.

Tree Node Properties

Refer to Tree Node Properties in Network Events section.

Show objects with these Properties field description for Network Database

Properties

Field	Description
Filter View Name	Specify name for the custom view you are creating or modifying. If no value is specified in this field, default values, such as Network Database1, Network Database2 are created.
ParentName	Choose the parent tree node under which your custom view has to be placed in the tree from the drop-down box. The criteria set for the parent custom view will automatically be used for child custom view. Hence, it is enough to specify only additional criteria for the child custom view.
name	Specify the name of the device. This is stored as a unique key in the database. **Example:** If the name is specified as **test-machine**, then only that machine is displayed in the custom view. **Tip:** Specify multiple names as comma separated values. *Example: test-machine,it-test*
ipAddress	Specify the IP address of the device. This is stored as a unique key in the database. **Tip:** Specify multiple IP addresses as comma separated values. For example, *192.168.1.1,192.168.1.2*
status	Choose the status of the device based on which you need to filter network elements in your custom view from the editable drop-down box. Example: If the status is specified as **Major**, then only devices with **Major** status is displayed in the custom view. **Tip:** For multiple status, specify the status as comma separated values. For example, *Major,Minor.*

Field	Description
type	Specify the type of the device (such as Network, Node or an Interface, user specified device like router, switch etc.) based on which network elements are to be filtered. **Example:** WindowsNT, Node, Network, snmp-node **Tip:** For multiple types, specify the types as comma separated values. For example, *Node,Network*.
isSNMP	Choose whether the device supports SNMP. **True** - Includes all SNMP devices. **False** - Excludes all SNMP devices. **All** - Includes all devices. **Example:** If you choose **true**, only SNMP enabled devices are displayed in the custom view.
netmask	Specify the netmask assigned to the device.
classname	Specify the class name of the device. **Example:** Network, Node, IpAddress, SnmpNode, SwithObject, etc.
managed	Specify the device state. **True** - Includes all managed devices. **False** - Excludes all managed devices. **All** - Include all devices. Example: If you choose **true**, only devices that are in managed state are displayed in the custom view.
pollInterval	Specify the poll interval (the time between two successive status polling (or monitoring) of a device).
statusUpdateTime	Specify the time at which the status polling was taken for a device. The time is represented in milliseconds and is updated every time a status poll is taken for the device, irrespective of the results of the status poll.
statusChangeTime	Specify the time at which the status of the device changed. The time is represented in milliseconds.
tester	Specify the class used for the status polling of selected devices.
uClass	Specify the class to be invoked for status polling. Use this field only if the value in the **tester** field is set as **usertest**.
isRouter	Specify if the device is of type Router. **True** - Includes all routers. **False** - Excludes all routers. **All** - Includes all devices.
sysOID	Specify the system object identifier of the devices as reported by the SNMP agent.
sysName	Specify the system name as reported by the SNMP agent.
sysDescr	Specify the value of the system description associated with the type of managed devices.
community	Specify the community string of the corresponding agent associated with the type of managed devices.

Tree Node Properties

Refer to Tree Node Properties in Network Events section.

Show objects with these Properties field description for Performance

Properties

Field	Description
Filter View Name	Specify name for the custom view you are creating or modifying. If no value is specified in this field, default values, such as Configured Collection0, Configured Collection1, Configured Collection2 are created.
ParentName	Choose the parent tree node under which your custom view has to be placed in the tree from the drop-down box. The criteria set for the parent custom view will automatically be used for child custom view. Hence, it is enough to specify only additional criteria for the child custom view.
name	Specify the name of the statistic. **Example:** If the statistic name is specified as 'Interface_in_octets', then only devices with the that statistic are displayed in the custom view. **Tip:** Specify multiple statistic names as comma separated values. Example: Interface_in_octets,Interface_out_octets
id	Specify the Poll ID.
dnsName	Specify the host (node) based on which you need the statistics to be displayed. **Example:** If the dnsName is specified as 'test-machine', then all statistics pertaining to 'test-machine' are displayed.
oid	Specify the object identifier as reported by the SNMP agent.
community	Specify the community string of the corresponding agent associated with the type of managed devices.
period	Specify the polling interval. **Example:** If period is specified as '2', then the statistics that have been scheduled for data collection with 2 seconds as interval are displayed.
active	Specify any of the following values to view only those statistics for which data collection is taking place. **true** - Displays those statistics for which data collection is enabled. **false** - Displays those statistics for which data collection is disabled. **All** - Displays all statistics irrespective of their active state whether enabled or disabled.
isMultiplePolledData	Specify the type used to poll columnar value of the tables. **true** - Displays only those statistics which are of type multiple PolledData. **false** - Displays statistics other than multiple PolledData. **All** - Displays all statistics irrespective of their type (node, interface, multiple).
snmpVersion	Specify SNMP agent's version, such as v1, v2, v3 from which data is collected.
agent	Specify the agent's name.

Field	Description
	Example: If agent name is specified as 'Node1agent', then only statistics for which data is collected from that agent is displayed.
port	Specify the port number to which the agent is listening for data collection requests. Default SNMP agent port is 161.
threshold	Specify whether you need to display data based on thresholds set. **All** - Displays those statistics which have thresholds and also those which do not have thresholds associated. **true** - Displays only those statistics which have thresholds associated. **false** - Displays only those statistics which do not have thresholds associated.
lastCounterValue	Specify a numeric value. Those statistics (counter type OIDs only.) whose last collected value equals the value specified is displayed.
previousSeverity	Specify the last severity level (in numerical) that the Statistic had reached when threshold was applied on it. Possible values are, **1** for Critical, **2** for Major, **3** for Minor, **4** for Warning, **5** for Clear, **6** for Info, **0** for Unknown. **Example:** If 2 is specified, those statistics whose last severity level was Major when threshold was applied on it are displayed.
numericType	Specify the type of collected data (whether it is of type **long** or **string**). Possible values are **1** - Retrieves Statistic of Long type and **2** - Retrieves Statistic of String type.
groupName	Specify the group based on which the statistics are to be filtered.
save	Possible values are: **All** - Displays all the statistics irrespective of their saved state. **true** - Displays only those statistics whose collected data is saved in the database. **false** - Displays only those statistics whose collected data is not saved in the database.
saveAbsolutes	Possible values are: **true** - Displays those Counter type statistics for which the absolute value of the collected data is stored in the database. **false** - Displays those Counter type statistics for which the differential value between the latest and previous collected data is stored in the database. **Note:** The saveAbsolutes can be set only for Counter type OIDs.
logDirectly	Possible values are: **All** - Displays all statistics irrespective of the value in this property i.e. Log Directly. **true** - Displays those statistics for which collected data is stored in flat files. **false** - Displays those statistics for which collected data is not stored in flat files.
logFile	Specify a log filename (string), based on which the statistics is to be displayed.
parentObj	Specify the name of the Managed Object whose statistics you want to display.
thresholdList	Specify the name of the thresholds in comma-separated format.
failureCount	Specify the failure count (numeric value) **Example:** If failure count is set as 2, all statistics whose Failure count have been set as 2 are displayed.

Field	Description
protocol	Specify the name of a protocol. **Example:** SNMP, TL1
statsDataTableName	If you have customized tables (defined your own tables) for storing collected data, specify the table name in this field. All statistics associated with this table name are displayed.
savePollCount	Specify save poll count (numeric value). All statistics with the specified save poll count are displayed.
failureThreshold	Specify save failure threshold value (numeric value). All statistics with the specified failure threshold value is displayed.
suffix	Specify the suffix appended to the Data identifier for "interface" types. For example, if the ID is '2.2.1.10', the corresponding PolledData will have the Data identifier as "2.2.1.10.x" where x is the suffix part. For example, 1 (or) 16777219 for 2.2.1.10.
saveOnThreshold	Possible values are **true** or **false**. **true** indicates that the collected data is saved only when it exceeds threshold. The default value is **false**.
ownerName	A string to denote the owner of the statistic.
timeAvg	Possible values are **true** or **false**. The default value is **false**. This is calculated for Counter type OIDs where the collected data will be an incremental value and at one point will reach the final value and reset to zero. As this reset happens soon and very often, it is preferred that a delta value is derived from two consecutive polls.

Tree Node Properties

Refer to Tree Node Properties in Network Events section.

Tips and Tricks

- Most of the properties listed while adding a custom view are string based. Additionally, properties to be specified as boolean are given in drop-down box with values **all**, **true**, and **false**. **Show object with these Properties** dialog box dialog box **all**, **true**, and **false**. Choosing **all** will amount to the property not being taken into consideration. Selecting **true** or **false** will have the expected behavior.
- For string-based properties, the string value is absolutely matched. For example, the string **Router** matches the exact word only.
- Status, Severity, etc. are also treated as strings. Hence, for a filter of Alarms, with severity **critical**, simply specify **'crit*'**.
- In Alarms and Events views, filtering based on time can be done by specifying the starting time and the ending time. The format in which the time is to be specified are as follows:
    - **MON DD,YYYY HH:MM:SS AM/PM** (For Application Client) e.g.Mar 27,1998 12:24:12AM and
    - **MONTH DD, YYYY HH:MM:SS AM/PM** (For Application Client) e.g.March 27,1998 12:24:12 AM. (The incompatibility is due to different JVM versions on Client and Server sides).
- It is advisable to leave the fields blank that are not necessary but a part of the filtering criteria.
- Depending on the total number of objects/elements, the complexity of the filter criteria, and the mode of storage, the time taken for filtering varies.

- Custom views, thus created, continue to be updated and navigable for additions/deletions until the Application Client is closed. You can either save your views or remove it.
- **Wildcard characters** can be used for effective filtering. The following table provides the wildcard characters that can be used.

Wildcard Character	Description
* (Asterisk)	This is used to match zero or more characters. **Examples:** • To view all objects whose names start with **'test'**, specify the criterion as **'test*'**. • To view all objects that end with **'com'**, specify as **'*com'**.
! (Exclamation Mark)	This is used for filtering the search using NOT operator. **Examples:** • To view all objects whose names do not start with **'test**, specify the criterion as **'!test*'**. • To view all alarms except alarms with *Critical* and *Major* severity, specify as **!war*, !cle*** (or) **!warning, !clear**
, (comma)	This is used for specifying multiple criteria for the same property. **Example:** If you want to view objects named **nms-server1, nms-server2,** and **nms-server3** then specify as *nms-server1,nms-server2,nms-server3*.
&&	This is used for searching objects where a single value should be matched with many patterns. Example: If all the objects with names starting with **'abc'** and ending with **'xyz'** are required, then specify as **'abc*&&*xyz*'**.
\ (Back Slash)	This is used when the name of the object itself contains a comma. This character is called an escape sequence, since it avoids searching of the objects, as if it were two different names. **Example:** If an object with name **'a,b'** has to be searched, then specify **'a\,b'**.
<between>"value1" and "value2"	This is used to get objects with some numeric values within a specific range. **Example:** If object names with poll interval value ranging from **300** to **305** is required, then specify as **'300 and 305'**. **Note** that the first number is smaller than the second number. Only the values in between the given values, including the limits, will be matched.
? (Question Mark)	This is not supported and is treated as an ordinary character.

Appendix G: Glossary

Alarm	Object
Container	Polled Data
Link	Polling
Managed Object	Statistics
Map Symbol	Status Polling
Network Events	Threshold

Alarm

Alarm results from correlation of events and represents failure or fault in a network element that may need immediate attention.

Container

This is the interface for grouping together and managing a set of managed objects, using the containment relationship model.

Link

A link is a diagrammatical representation of the connection between two symbols.

Managed Object

A Managed object holds information about a network entity. The network entity can be a network device, such as computer, printer, router or a component of the device like port, card, slot, interface etc.

Map Symbol

Diagrammatical representation of objects in a map are called Map Symbols. For example, a Switches Map depicts switches as images which are called the Map Symbol.

Network Events

Event is the basic unit of management information that is complete in itself and relates to an occurrence, such as discovery of an element, status update of an element or failure in an element. Events form a repository of information for all the occurrences in the system.

Object

Refer to Managed Object.

Polled Data

Basic object used for data collection. It contains the details such as which device has to be contacted, what data needs to be collected, in what time interval etc. This does not store the collected data. Poll engine reads PolledData defintion and according collects data from the network device. Also termed **Statistics**.

Polling

Process of contacting the device agent and collecting the data for the specified OID. PolleData will contain the OID details.

Statistics

Also termed Polled Data.

Status Polling

Process of pinging the device and determining its state such as up/down at regular intervals. If Status Polling yields negative results, i.e. if the device is not responding, provisions are made to report the condition, which requires attention.

Threshold

It is a value that determines the minimum and maximum limit for the collected data. If the collected data violates the threshold then it indicates some severe fault in the device which requires attention.

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