

## Chapter 6

# Configuring the System

This chapter describes how to view and modify a device configuration and update system-level attributes.

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## Overview

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The NMC-RX application lets you manage devices on your network by means of a graphical user interface (GUI) and modify a device configuration from the Device Workshop.

## Configuration Tasks

You can perform the following tasks on the device that you want to configure using the NMC-RX application:

- View the current configuration.
- Modify the configuration.
- Update the configuration.

## Viewing a Device Configuration

You can view the current configuration of any device on your network from either the Network Workshop or the Device Workshop.

To view a device configuration from the Network Workshop:

1. In the context area, select the device whose configuration you want to view.
2. Right-click, and select View.

The current configuration appears.

The screenshot displays the configuration window for a device named JNPR1400. The window has three tabs: 'System Info', 'Boot Config Control', and 'Timing'. The 'System Info' tab is active, showing various system parameters and their current values.

| Parameter            | Value                                   |
|----------------------|---|
| System Name          | JNPR1400                                |
| System Type          | ERX-700                                 |
| Primary Address      | 10.6.129.203                            |
| Software Version     | 5.0.0 beta-1.9 [BuildId 439] Jan ...    |
| System Up Time       | 1 day, 1 hours, 59 minutes, 18 seconds. |
| Chassis Revision     | 0                                       |
| System Contact       | Siobhan Tully                           |
| Fan Tray Status      | OK                                      |
| System Location      | swlab                                   |
| Default BGP Template | [Empty] ...                             |

| System Memory                                    |     | L2TP Parameters                      |                       |
|--|-----|--------------------------------------|-----------------------|
| Total (M)  | 536 | High Memory Threshold (%)            | 85                    |
| Available (M)                                    | 375 | Abated Memory Threshold (%)          | 75                    |
| Usage  | 30% | <input type="checkbox"/> IP Checksum | Destruct Timeout: 600 |
| <input type="checkbox"/> Memory Utilization Trap |     | Admin State: enable                  |                       |

| Global Redundancy Revert         | Non-Volatile Storage (NVS) | Fabric                 |
|----------------------------------|----------------------------|------------------------|
| Control: off                     | Status: OK                 | Fabric Speed (Gps): 10 |
| Time Of Day (hh:mm:ss): 00:00:00 | Total (M): 488             | Fabric Rev: 8          |
|                                  | Available (M): 195         |                        |
|                                  | Usage: 60%                 |                        |

| Trap Proxy                       |
|----------------------------------|
| <input type="checkbox"/> Enabled |
| Virtual Router: [Empty] ...      |

To view the device configuration from the Device Workshop:

1. From either the Instance Explorer or the Device-wide Explorer, select the System folder.
2. Right-click, and select View.

The System Info tab appears in the work area.



**NOTE:** In View mode, you cannot modify the configuration of a device.

## Modifying a Device Configuration

From the Device Workshop, you can modify most system attributes through either the Instance Explorer or the Device-wide Explorer.

To modify a device configuration:


1. From either the Instance Explorer or Device-wide Explorer, select the System folder, right-click, and select Configure.

The System Info tab displays the current configuration of the device and has fields that you can edit.


| Parameter                          | Value                                   |
|------------------------------------|---|
| System Name                        | JNPR1400                                |
| System Type                        | ERX-700                                 |
| Primary Address                    | 10.6.129.203                            |
| Software Version                   | 5.0.0 beta-1.9 [BuildId 439] Jan ...    |
| System Up Time                     | 1 day, 1 hours, 41 minutes, 34 seconds. |
| Chassis Revision                   | 0                                       |
| System Contact                     | Siobhan Tully                           |
| Fan Tray Status                    | OK                                      |
| System Location                    | swlab                                   |
| Default BGP Template               | [...]                                   |
| <b>System Memory:</b>              |   |
| Total (M)                          | 536                                     |
| High Memory Threshold (%)          | 85                                      |
| Available (M)                      | 375                                     |
| Abated Memory Threshold (%)        | 75                                      |
| Usage                              | 30%                                     |
| Memory Utilization Trap            | <input type="checkbox"/>                |
| <b>L2TP Parameters:</b>            |   |
| Admin State                        | enable                                  |
| IP Checksum                        | <input type="checkbox"/>                |
| Destruct Timeout                   | 600                                     |
| <b>Global Redundancy Revert:</b>   |   |
| Control                            | off                                     |
| Time Of Day (hh:mm:ss)             | 00:00:00                                |
| <b>Non-Volatile Storage (NVS):</b> |   |
| Status                             | OK                                      |
| Total (M)                          | 488                                     |
| Available (M)                      | 195                                     |
| Usage                              | 60%                                     |
| <b>Fabric:</b>                     |   |
| Fabric Speed (Gps)                 | 10                                      |
| Fabric Rev.                        | 8                                       |
| <b>Trap Proxy:</b>                 |   |
| Enabled                            | <input type="checkbox"/>                |
| Virtual Router                     | [...]                                   |

2. Modify the parameter settings (Table 15).

**Table 15: System Configuration Parameters**

| Parameter                       | Description  |
|---------------------------------|--|
| System Name                     | Name that you assign to the E-series router  |
| Primary Address                 | IP address that is used to communicate with the E-series router  |
| System Up Time                  | Amount of time in hours, minutes, and seconds that the system has run  |
| System Contact                  | Contact person for the device (optional)   |
| System Location                 | Location of the device (optional)  |
| Default BGP Template            | Click  to select a BGP template from the Apply Template dialog box. See <i>Related Dialog Boxes</i> on page 82. |
| System Type                     | E-series router  |
| Software Version                | Version of JUNOS software running on the device  |
| Chassis Revision                | Chassis revision number  |
| Fan Tray Status                 | Status of the fan tray; cannot edit; range: Failed, OK   |
| <b>System Memory</b>            |  |
| Total (M)                       | Total memory capacity of the system; cannot edit; range 0–2147483647 bytes   |
| Available (M)                   | Amount of unused memory; cannot edit; range 0–2147483647 bytes   |
| Usage                           | Percentage of system memory utilization; cannot edit; range –1 through 100; value of –1 indicates utilization unknown  |
| High Memory Threshold (%)       | Value of system memory utilization; if reached for the first time, generates high memory utilization event notification to the management entity on the system; range –1 through 100; default 85 |
| Abated Memory Threshold (%)     | Value of system memory utilization used to determine when to generate an abated memory utilization event notification to the management entity on the system; range –1 through 100; default 75   |
| Memory Utilization Trap         | Controls sending system memory utilization events; options: On, Off; default: Off  |
| <b>L2TP Parameters</b>          |  |
| Admin State                     | Enable or disable Layer 2 Tunneling Protocol (L2TP) for your E-series router<br><br><b>NOTE:</b> The NMC-RX application offers full support for tunnel server modules.                           |
| IP Checksum                     | Enable or disable (default) checking data integrity  |
| Destruct Timeout                | Time period in the range 10–3600 seconds (1 hour) for which the E-series router maintains dynamic destinations, tunnels, and sessions  |
| <b>Global Redundancy Revert</b> |  |
| Control                         | Global revert control; range: off, immediate, time of day; default: off  |
| Time of Day                     | Number of seconds past midnight on any given day at which time reversions are allowed to occur. Can edit only if set to time of day; range 00:00:00 to 23.59.59; default 00:00:00                |

**Table 15: System Configuration Parameters (continued)**

| Parameter                         | Description  |
|-----------------------------------|--|
| <b>Non-Volatile Storage (NVS)</b> |  |
| Status                            | State of NVS   |
| Total (M)                         | Percentage of total capacity of NVS  |
| Available (M)                     | Amount of unallocated NVS  |
| Usage                             | Total NVS currently allocated  |
| <b>Fabric</b>                     |  |
| Fabric Speed (GPS)                | Either 5 Gbps or 10 Gbps   |
| Fabric Rev                        | Revision number of the fabric board on the E-series device   |
| <b>Trap Proxy</b>                 |  |
| Enabled                           | Configuration setting for SNMP trap proxying. Enabling the trap proxy configures the associated SNMP agent to proxy internally generated traps. Options: Enabled or Disabled; default: Disabled  |
| Virtual Router                    | Name of the virtual router that is configured for trap proxying. Click  to select a virtual router from the Associated Virtual Router dialog box. See <i>Related Dialog Boxes</i> on page 82. |

3. Click Save.
4. Click the Boot Config Control tab.

5. Modify the parameter settings (Table 16).

**Table 16: System Boot Parameters**

| <b>Parameter</b>             | <b>Description</b>  |
|------------------------------|---|
| Force Revert: to Backup      | Forces the system to revert to the backup configuration the next time the system is rebooted regardless of the Auto-Revert parameter settings       |
| <b>Current Configuration</b> |   |
| Control                      | Current system boot configuration control; default: running configuration; cannot edit in Release 4.0   |
| Configuration File           | Current local boot configuration filename, with extension .cnf; default: blank; cannot edit in Release 4.0  |
| Release File                 | Current local boot release filename, with extension .rel; default blank; cannot edit in Release 4.0   |
| <b>Backup Configuration</b>  |   |
| Control                      | Backup system boot configuration control; default running configuration; default: none; cannot edit in Release 4.0                                  |
| Configuration File           | Local backup boot configuration filename, with extension .cnf; default: blank; cannot edit in Release 4.0   |
| Release File                 | Local backup boot release filename, with extension .rel; default: blank; cannot edit in Release 4.0   |
| <b>Auto-Revert</b>           |   |
| Control                      | Forces the system to revert to the backup configuration if the primary configuration fails beyond the configured tolerance values; default: default |
| Count Tolerance              | Can edit only if Auto-Revert Control is set to "set"; default 3   |
| Time Tolerance               | Time tolerance in seconds; can edit only if Auto Revert Control is set to "set"; default 1800   |

6. Click Save.
7. Click the Timing tab.

System Info | Boot Config Control | Timing

Operations Timing Source: primary

Administrative Timing Source: primary  Auto Upgrade

Primary Timing Source:

Status: OK

Type: internal Interface Location: [ ] ...

Secondary Timing Source:

Status: OK

Type: internal Interface Location: [ ] ...

Tertiary Timing Source:

Status: OK

Type: internal Interface Location: [ ] ...


8. Modify the parameter settings (Table 17).

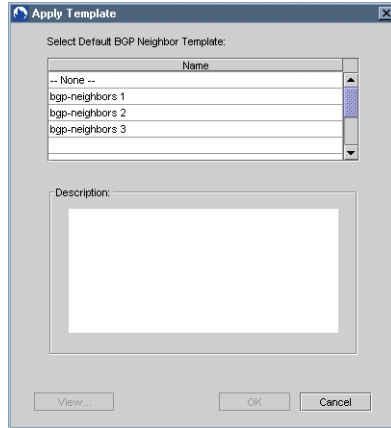
**Table 17: System Timing Parameters**

| Parameter   | Description   |
|---|---|
| Operations Timing Source                          | If the current time source for the E-series router fails, the system automatically downgrades to the next timing source. Cannot edit; default: primary  |
| Administrative Timing Source                      | If Auto Upgrade is enabled, the system never attempts to upgrade to a source higher than the selected administrative timing source. Default: primary  |
| Auto Upgrade                                      | Controls the automatic timing selector upgrade. If the current timing source for the system fails, the E-series router automatically downgrades to the next timing source. When you enable this parameter, the E-series router automatically switches back to a higher timing source when that source becomes available. When you disable this parameter, the E-series router prevents automatic upgrade to the next highest timing selector. |
| <b>Timing Source (Primary/Secondary/Tertiary)</b> |   |
| Status  | Status associated with the timing selector; cannot edit; default: Unknown   |
| Type  | System timing source type; can edit only for JUNOS versions 4.1.0 and later   |
| Interface IF Index                                | Can edit only if the timing source type is Interface IF Index   |

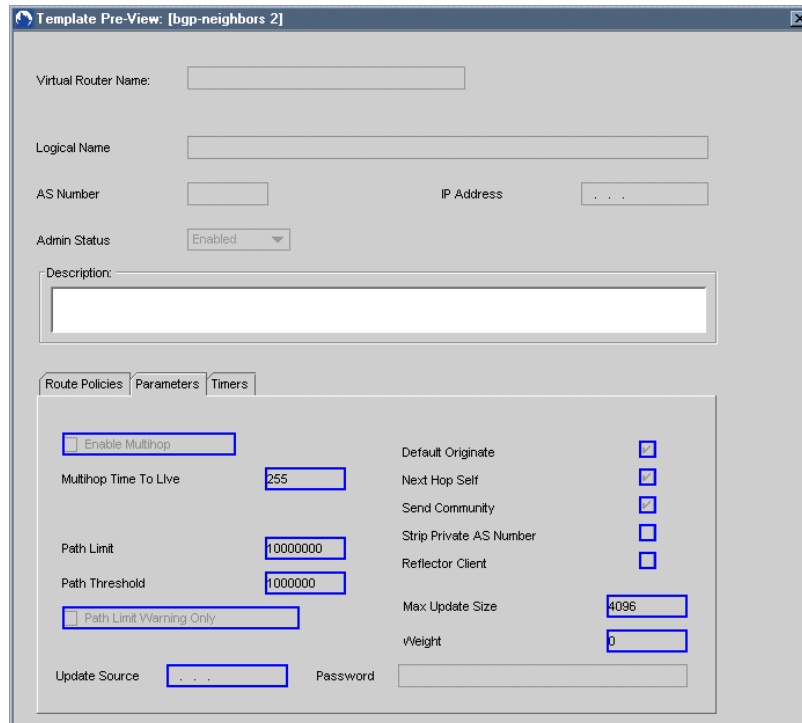
9. Click Save.

## Related Dialog Boxes

**Apply Template** The Apply Template dialog box appears when you click  in the description column next to Default BGP Template on the System Info tab. Use it to select a template.




1. Click a template.
2. (Optional) Click View to display the full configuration of the template.

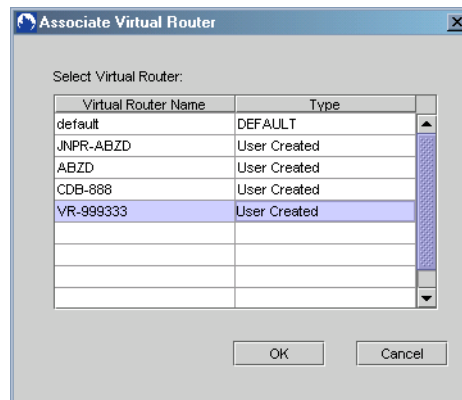


3. Close the Template Pre-View dialog box.
4. Click OK in the Apply Template dialog box.

The information is entered in the Default BGP Template text box in the System Info tab.

### Associate Virtual Router

The Associate Virtual Router dialog box appears when you click  in the description box next to Virtual Router on the System Info tab. Use it to select a virtual router.



1. Click a virtual router.
2. Click OK.

The virtual router name is entered in the Virtual Router text box in the System Info tab.

## Updating a Device Configuration

You can update the NMC-RX configuration for the device so that it matches the current configuration on the physical device.

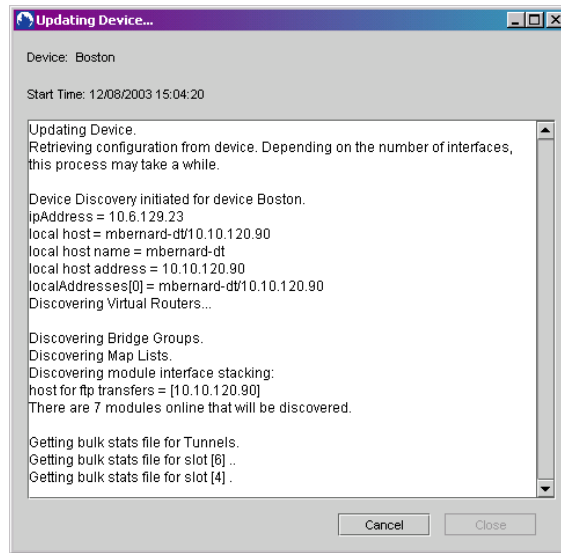


**NOTE:** See “Updating Global Configuration Settings” on page 100 for more information.

To update your system:

1. In either the Instance Explorer or the Device-wide Explorer, select System, right-click, and select Update.

The Updating Device progress dialog box appears and indicates that the NMC-RX application is downloading the most recent configuration from the device.

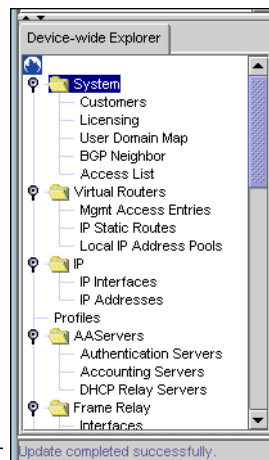


**NOTE:** When the NMC-RX application starts automapping the device and you close the Creating Device dialog box or click the Cancel button, a confirmation dialog box appears.

Any error messages or warnings that may occur during the update appear in the Updating Device dialog box. When the update is complete, a pop-up dialog box appears if there are any errors or warnings.

2. If you want to update the device regardless of the error or warning, click Yes.

When the process is complete, the status of the configuration appears in the status bar at the bottom of the window.



**Status bar**

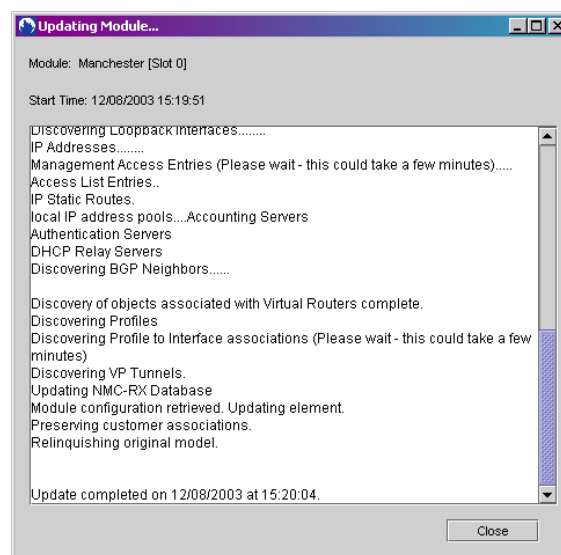
## Updating a Single Module or Port

You can update the NMC-RX configuration for a single module or port to match the current configuration on the physical device.

To update a single module or port:

1. In the Instance Explorer, select the module or port, right-click, and select Update.

The Update Module window or Update Port window (not shown) appears.



Any error messages or warnings that may occur during the update appear in the Updating Device dialog box. If only warnings occur, the update continues. However, if any errors occur, the update does not take place.

2. Click Close after the update is complete.

## Line Module Redundancy Groups

The NMC-RX software can recognize line module redundancy groups on a device and display which module is active and inactive (spared for). A redundancy group folder is created in the Instance Explorer, and the line modules in that group are placed in the folder.

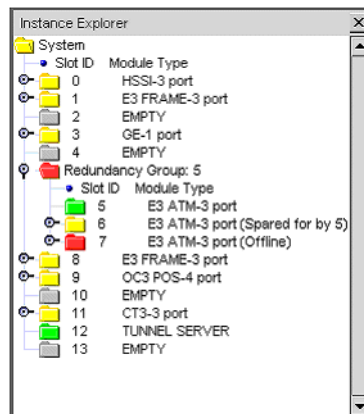
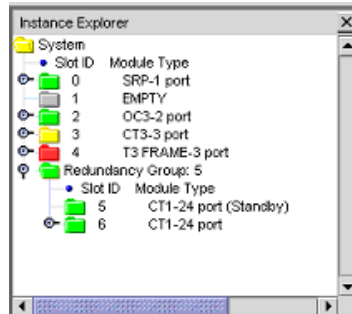


Table 18 contains some common redundancy group terms.

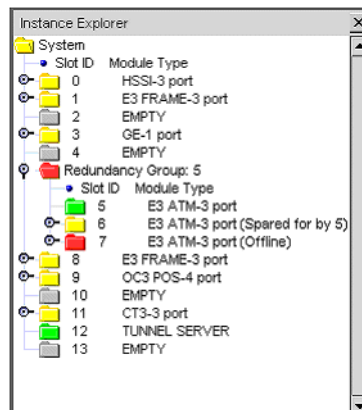
**Table 18: Line Module Redundancy Group Terms**

| Term                | Description   |
|---------------------|---|
| Redundancy group    | <p>Group of line modules that contain a spare and one or more primary line modules in adjacent slots. To have a redundancy group, you must install a special midplane that allows the spare line module to take over (or spare) for any of the primary line modules. Redundancy groups come in several sizes from 2 to 6 line modules. For example:</p> <ul style="list-style-type: none"> <li>■ 2-module group is referred to as 1 + 1 (1 primary + 1 spare) redundancy</li> <li>■ 3-module group is referred to as 2 + 1 (2 primary + 1 spare) redundancy</li> <li>■ 6-module group is referred to as 5 + 1 (5 primary + 1 spare) redundancy</li> </ul> |
| Spare line module   | <ul style="list-style-type: none"> <li>■ Line module in the lowest-numbered slot of the redundancy group. The spare takes over when a primary line module goes offline.</li> <li>■ Not configurable (except for admin status)</li> </ul>  |
| Primary line module | <ul style="list-style-type: none"> <li>■ Active line module that is not a spare</li> <li>■ When offline, primary line modules are spared for by the spare line module in the group</li> <li>■ Configurable when online and when being spared for by a spare line module</li> <li>■ If there are multiple offline primary line modules, only one can be spared for by a spare line module</li> </ul>   |
| Sparing for         | <ul style="list-style-type: none"> <li>■ Spare line module takes over for a primary line module</li> <li>■ When the primary line module is offline, the state of the spare line module changes from standby to online. This process is also called switchover or failover.</li> </ul>   |

**Example 1** In this example, slot 5 has a spare line module in standby mode, and slot 6 has a primary line module that is online in a 1 + 1 redundancy group. Note that the group is issued an ID (5).



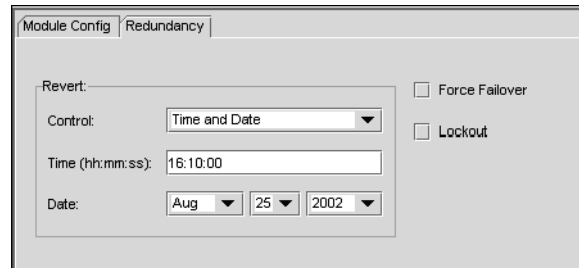
**Example 2** In this example, slots 5 through 7 are in a 2 + 1 redundancy group. The spare line module in slot 5 is currently sparing for the primary line module in slot 6, which is inactive. The primary line module in slot 7 is also inactive, but because the spare line module is already sparing for slot 6, slot 7 is colored red and labeled Offline.



## Configuring a Redundancy Module

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When you configure a line module, set redundancy features by clicking the Redundancy tab. The tab is visible only when the current slot is a member of a redundancy group and is a primary module. The tab is not displayed for spare line modules.



The screenshot shows a window titled "Module Config" with a "Redundancy" tab selected. The window contains a "Revert:" section with the following controls:

- Control:** A dropdown menu set to "Time and Date".
- Time (hh:mm:ss):** A text input field containing "16:10:00".
- Date:** Three dropdown menus for month, day, and year, set to "Aug", "25", and "2002" respectively.
- Force Failover:** An unchecked checkbox.
- Lockout:** An unchecked checkbox.

You can perform the following redundancy tasks:

- Force a failover to the spare line module.
- Prevent the spare line module from taking over for the slot where the line module is located.
- Revert to the primary line module at a particular time and date.



**NOTE:** For information about configuring modules, see each line module chapter.

---

To configure module redundancy:

1. In the Instance Explorer, select the module that you want to configure, right-click, and select Configure.
2. Click the Redundancy tab.

3. Set the parameters (Table 19).

**Table 19: Module Redundancy Parameters**

| Parameter      | Description   |
|----------------|---|
| Control        | <p>Lets you revert control to the primary module at a specific time</p> <ul style="list-style-type: none"> <li>■ Off—Default</li> <li>■ Time and Date—Select a specific time and date</li> <li>■ Immediate—Available if module is inactive</li> </ul> |
| Time, Date     | <ul style="list-style-type: none"> <li>■ Lets you select a specific time and date to revert control to the primary line module</li> <li>■ Available when Time and Date are selected from Control</li> </ul>   |
| Force Failover | <ul style="list-style-type: none"> <li>■ Select to make the current slot inactive and cause the spare line module to take over</li> <li>■ Enabled only when the primary line module is online</li> </ul>  |
| Lockout        | <ul style="list-style-type: none"> <li>■ Prevents the spare line module from taking over for the slot. Selecting Force Failover, however, overrides Lockout.</li> </ul>   |

4. Click Save.

## System Logging

The NMC-RX application has a logging feature that records several attributes, actions, events, and errors on the system. The NMC-RX application saves one log file for each client session and stores the file in the */log* directory of the NMC-RX installation directory in the following filename format:

```
nmcrxlogMMDDYYYY_HHMMSS.log
```

By default, logging is enabled when you install the application.

To turn logging off:

1. Open *traceLog.rc* (located in the NMC-RX installation directory).
2. Change **nmcrxLogFileOn=On** to **nmcrxLogFileOn=Off**.
3. Save the file.

See the following sections for the types of information that are logged.

## User Login Actions

When you log in or out, user login actions are logged in the following format:

```
MM/DD/YYYY HH:MM:SS user:[username/Privilege Level] Message
```

where:

- MM/DD/YYYY—Month, day, year
- HH:MM:SS—Hour, minute, second
- username—Name can be from 1–32 characters and must contain at least one alphabetic and one numerical character. If the username = admin, the default privilege level of “all privileges” is used.
- privilege level—Determines the privileges that are assigned to the user. The following letter codes are used:
  - s—Security
  - b—Backup
  - v—View
  - c—Create
  - m—Configure
  - d—Delete
  - e—Execute
- Message—User login action

See Table 20 for username and privilege level examples. These actions include authorized client logins, unauthorized login attempts, user login changes, and user password changes.

**Table 20: User Login Actions**

| Type                        | Description  | Example  |
|-----------------------------|--|--|
| Authorized client login     | Logs a successful user login.  | 11/13/2003 08:56:19 user:[jdoe7/--v----] logged in   |
| Unauthorized login attempts | Failed login entries show the attempted login ID, as well as the reason for failure.                                     | 11/13/2003 09:02:23 user:[admin/sbvcmde] login failed, invalid password                                    |
| User login changes          | Logout entry occurs when the user exits the NMC-RX application.  | 11/13/2003 08:57:31 user:[jdoe7/--v----] logged out  |
|                             | When a logged-in user changes login, an entry appears showing a logout of the user and a subsequent login of a new user. | 11/13/2003 08:57:31 user:[jdoe7/--v----] logged out<br>11/13/2003 08:58:19 user:[msmith/--v----] logged in |
| User password changes       | Logs when a user password is changed.  | 11/13/2003 13:46:41 user:[admin/sbvcmde] Password changed for User [jsmith2]                               |

## Execute-Only Actions

When execute-only actions are started, they are logged in the following format:

```
MM/DD/YYYY HH:MM:SS user:[username/Privilege Level] action_name message
```

These actions include ATM ping, ping, Telnet, and traceroute. The log entry includes relevant device information. For example:

**Example 1**      11/13/2003 08:57:31 user:[jdoe7/--v----] Ping from NMC-RX to 10.6.129.203

**Example 2**      11/13/2003 09:57:31 user:[jdoe7/--v----] Ping from 10.6.129.203 to  
112.34.55.2

**Example 3**      11/13/2003 10:57:31 user:[jdoe7/--v----] telnet 10.6.129.203

## Processing Actions

For actions that may take a long time to process, both the start and end time are recorded. The following message format is used:

```
MM/DD/YYYY HH:MM:SS user:[username/Privilege Level] action_name  
<initiated|completed|standby> message on device_ID
```

These actions include create, configure, delete, device updates, and configuration save and restore. For example:

**Example 1**      11/18/2003 15:56:00 user:[admin/sbvcmd] List Area create initiated on ATM  
Interface [ATM3/3]  
11/18/2003 15:56:14 user:[admin/sbvcmd] List Area create complete ATM  
Interface [ATM3/3]  
Created ATMSubIntf ATM3/3.3

**Example 2**      11/18/2003 15:56:00 user:[admin/sbvcmd] update initiated on 10.6.129.12  
...  
11/18/2003 16:16:00 user:[admin/sbvcmd] update completed on 10.6.129.12

## Downloading Software Releases to Devices

You can remotely download JUNOS software releases from a centralized location to one or more E-series routers. For example, you can select a specific software release and then download the file to multiple E-series routers at the same time.

You must store the software releases on the FTP server that is specified as the software release repository in the Software Download Settings work area of the NMC-RX application. You must configure read permission for the FTP user who is assigned to access the software release repository. List permission is optional; however, if you do not assign list permission, you must type the names of the software release files that you want to download, rather than select the files from a list.

### Configuring Software Download Settings

The Software Download Settings tab lets you enable the download software feature and configure the Software Repository FTP Settings, which you use to download the software. If you do not enable the FTP server, you cannot download the software to E-series routers using the NMC-RX application.



**NOTE:** Only users with a device maintenance privilege can configure software download settings. For more information, see *Chapter 9, Configuring Security Settings*.

To configure the software download settings:

1. From the Configuration menu in either the Network Workshop or the Device Workshop, select NMC-RX Application Settings, then click Software Download.

The Software Download tab appears in the work area.

2. Set the Software Download parameters (Table 21).

**Table 21: Software Download Parameters**

| Parameter                               | Description   |
|---|---|
| Enable Software Downloads               | Select to enable software downloads; clear to disable the feature.  |
| <b>Software Repository FTP Settings</b> |   |
| IP Address                              | IP address of the Software Release Repository where the software is stored.   |
| Login                                   | User login ID for the FTP site; can be up to 32 characters; default: anonymous.   |
| Password                                | User login password for the FTP site. The password entry is masked with "*" characters. You cannot leave the password blank; the password can be up to 1024 characters. |
| Sub Directory                           | Path from FTP root to the NMC-RX software releases directory; optional; range 255 characters.   |
| Concurrent Downloads                    | Maximum number of simultaneous downloads that the FTP server allows; range: 1-10; default: 5.   |

3. Click Save.

### **Downloading Software Releases to Devices**

The download software feature is available in both the Network Workshop and the Device Workshop.

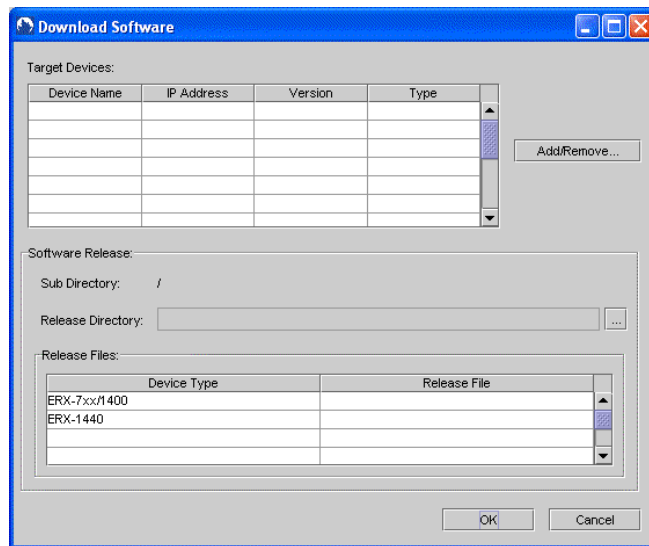
From the Network Workshop, you can download a software release to one or more devices simultaneously. From the Device Workshop, you can download to only one device.

### **Downloading Software to Multiple Devices**

To download software to multiple devices:


1. From the Network Workshop Tools menu, select Device Utilities, and select Download Software.

The Download Software dialog box appears.



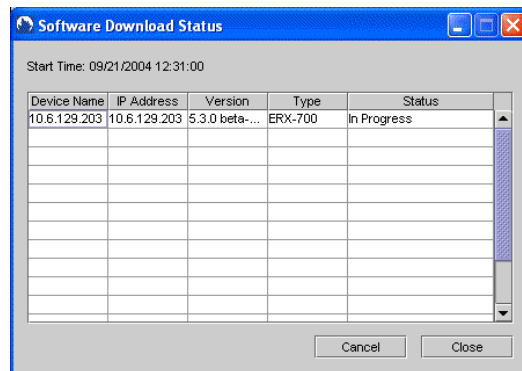
2. Select the target devices to which you want to download the software, and select the software release directory on the FTP server (Table 22).


**Table 22: Download Software Parameters for Multiple Devices**

| Parameter               | Description  |
|-------------------------|--|
| <b>Target Devices</b>   | List of devices to which the software is downloaded; click Add/Remove to add or remove devices to or from the list; see <i>Network Workshop-Related Dialog Boxes</i> on page 97.   |
| <b>Software Release</b> |  |
| Sub Directory           | Subdirectory of FTP root that contains the software releases.  |
| Release Directory       | Directory path from the FTP root directory that contains the software releases; click  to select the directory; see <i>Network Workshop-Related Dialog Boxes</i> on page 97. |
| Release Files           | List of software releases that you want to download to the target devices.   |

3. Click OK.

The selected software releases are then validated. If validation is unsuccessful, an information dialog box appears that lists the errors. If successful, downloading begins, and the Software Download Status dialog box appears and shows the status of each download.



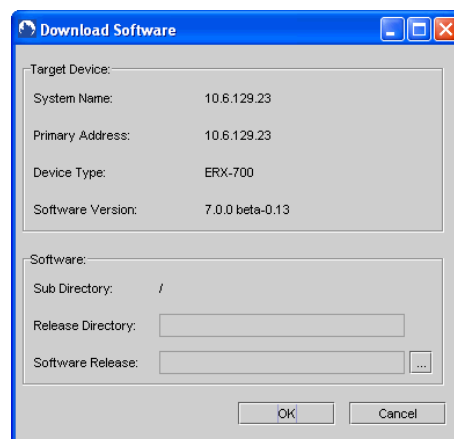
When you click Cancel, Close, or the  button, all queued downloads are canceled, but downloads already in progress continue. You cannot cancel pending downloads.

## Downloading Software to One Device

To download software to only one device:


- Use one of the following methods to begin:
  - From the Device Workshop Tools menu, select Device Utilities, and click Download Software.
  - In the Device Workshop, click the System folder, right-click, and select Download Software.
  - In the Network Workshop, select a device, right-click, and select Download Software.

The Download Software dialog box appears.



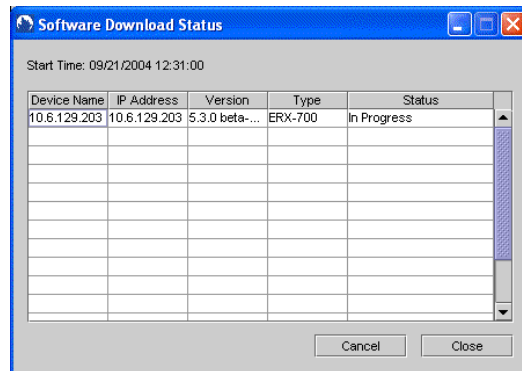
- Select the software release on the FTP server (Table 23).


**Table 23: Download Software Parameters for One Device**

| Parameter         | Description  |
|-------------------|--|
| Target Device     | Information about the device to which you are downloading the software.  |
| <b>Software</b>   |  |
| Sub Directory     | Subdirectory of FTP root that contains the software releases.  |
| Release Directory | Directory path from the FTP root directory that contains the software releases.  |
| Software Release  | Name of software release that you want to download to the selected device; click  to select the file; see <i>Device Workshop-Related Dialog Boxes</i> on page 98. |

3. Click OK.

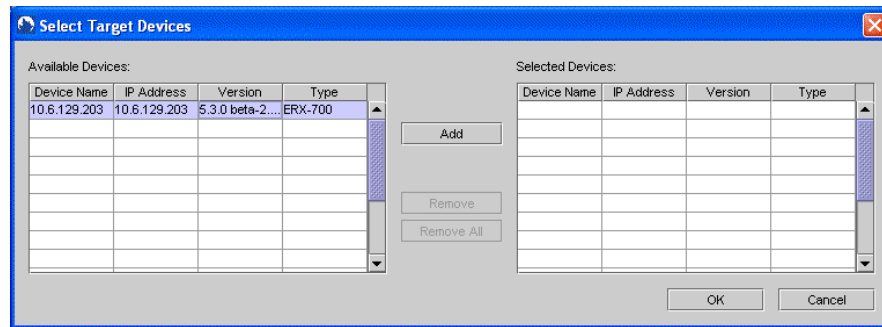
The selected software release is then validated. If validation is unsuccessful, an information dialog box appears that lists the errors. If successful, downloading begins, and the Software Download Status dialog box appears and shows the status of the file.



When you click Cancel, Close, or the  button, all queued downloads are canceled, but downloads already in progress continue. You cannot cancel pending downloads.


## Network Workshop–Related Dialog Boxes

**Select Target Devices** The Select Target Devices dialog box appears when you click the Add/Remove button in the Download Software dialog box. Use it to add or remove devices from the Target Devices list.



1. Select a device from the list, and click Add.
2. Click OK.

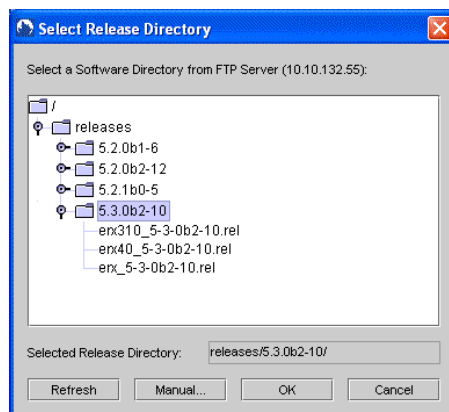
The devices are added to the Target Devices list.

**Select Release Directory** The Select Release Directory dialog box appears when you click  to the right of the Release Directory field in the Download Software dialog box. Use it to select a software directory from the FTP server that contains the software release you want to download.

Only release files and folders containing release files are displayed.



**NOTE:** Depending on the size of the software release repository, there may be a delay in listing the directories.



1. Click the folder that contains the software release you want to download.
2. Click OK.

The information is displayed in the Download Software dialog box.

**Select Release Files Manually**

When you click Manual in the Select Release Directory dialog box, the Select Release Files Manually dialog box appears. From this dialog box, you can manually enter the release directory and release file.

1. Enter the release directory and release file (Table 24).

**Table 24: Select Release Files Manually Parameters**


| Parameter         | Description   |
|-------------------|---|
| Release Directory | Directory path from the FTP root directory that contains the software releases; combined with the filename and the subdirectory, it must not exceed 255 characters.     |
| Release File      | Name of software release that you want to download to the selected device; combined with the release directory and the subdirectory, it must not exceed 255 characters. |

2. Click OK.

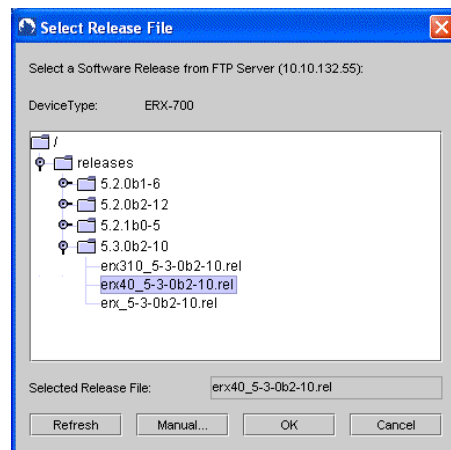
The information appears in the Download Software dialog box.

**Device Workshop–Related Dialog Boxes**

**Select Release File**

When you click  to the right of the Software Release field in the Download Software dialog box, the Select Release File dialog box appears. From this dialog box, you can select the software release file that you want to download to the selected device.

Only release files and folders that contain release files are listed.



**NOTE:** Depending on the size of the software release repository, there may be a delay in listing the directories.

1. Click the folder that contains the software release that you want to download.
2. Select the desired software release file.
3. Click OK.

The information appears in the Download Software dialog box.

**Select Release Files Manually**

When you click Manual in the Select Release File dialog box, the Select Release Files Manually dialog box appears. From this dialog box, you can manually enter the release directory and release file.

1. Enter the release directory and release file (Table 25).

**Table 25: Select Release Files Manually Parameters**

| Parameter         | Description   |
|-------------------|---|
| Release Directory | Directory path from the FTP root directory that contains the software releases; combined with the filename and the subdirectory, it must not exceed 255 characters.     |
| Release File      | Name of software release that you want to download to the selected device; combined with the release directory and the subdirectory, it must not exceed 255 characters. |

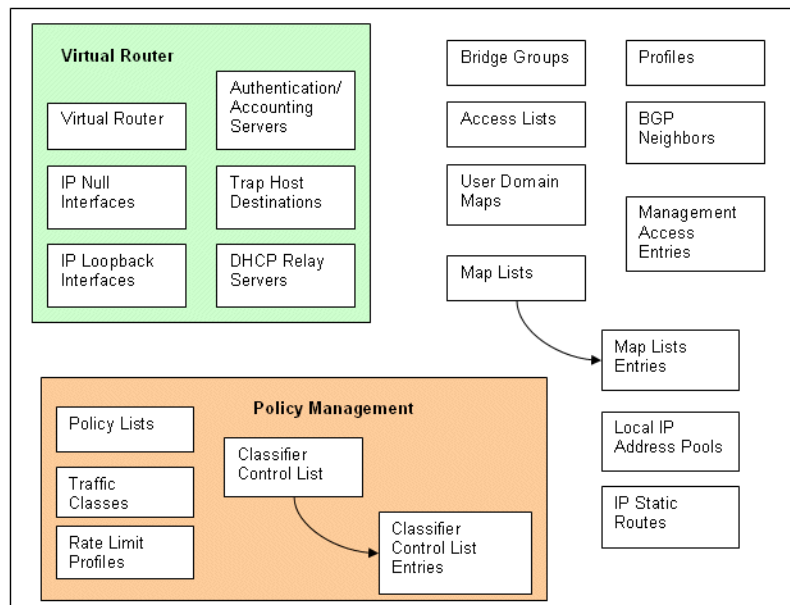
2. Click OK.

The information appears in the Download Software dialog box.

## Updating Global Configuration Settings

The Global Update command enables you to update global and device-wide settings, either on demand or as a scheduled task. These settings are not explicitly part of stacking configurations, but instead are referenced by or associated to the stackings. Figure 14 illustrates the settings that are part of a global configuration update.

**Figure 14: Global Configuration Update Settings**

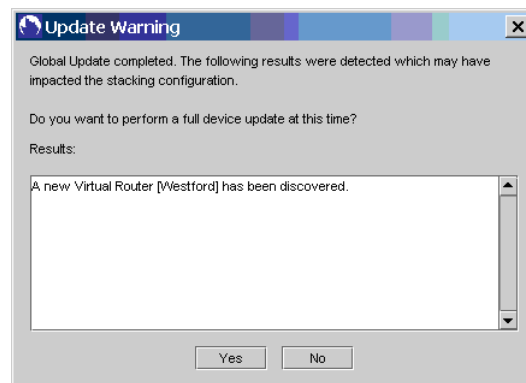


The following global configuration settings may refer to stacking configurations that are not discovered in a global configuration update:

- Virtual router
- Bridge group
- Profile
- Policy list

If a global configuration update has effected the stacking on these settings, a warning is displayed and you are given the option to perform a full device update.

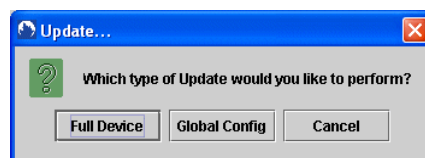
**Figure 15: Update Warning Dialog Box**



To see the changes reflected in the NMC-RX application, you should perform a full device update.

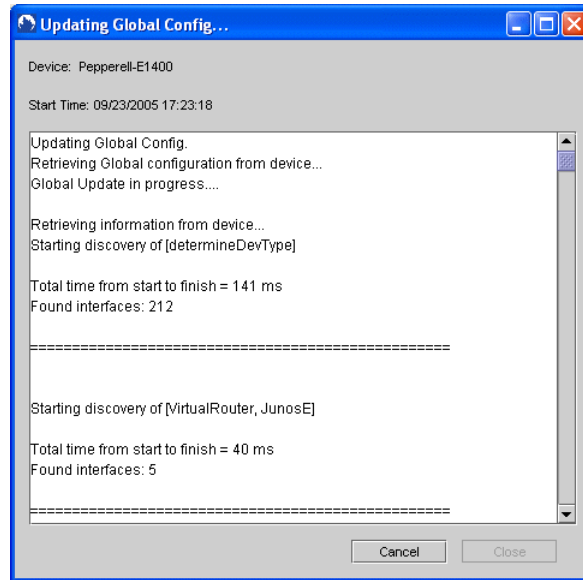
To update global configuration settings:

1. In the Network Workshop, select the device you want to update, right-click, and choose Update.
2. The Update dialog box appears.



3. Click one of the update buttons:
  - Full Device—Updates the entire router, including all modules, slots, and ports. Global configuration settings are updated.
  - Global Config—Updates only the global configuration settings listed in Figure 14.

The update begins and the Updating dialog box appears.



4. When the update is complete, the Close button is enabled. Click to close the dialog box.