



**Juniper Networks**  
**Network and Security Manager**

## **NSMXpress User Guide**

*Release 2008.1*

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# About This Guide

About This Guide contains the following sections:

- Objectives on page xv
- Audience on page xv
- Conventions on page xv
- Documentation on page xvii
- Documentation Feedback on page xviii
- Requesting Technical Support on page xviii

## Objectives

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Juniper Networks NSM*Xpress* is an appliance version of Network and Security Manager (NSM), a software application that centralizes control and management of your Juniper Networks devices. With NSM, Juniper Networks delivers integrated, policy-based security and network management for network and security devices. NSM*Xpress* runs NSM 2008.1.

NSM*Xpress* simplifies the complexity of device administration by providing a single, integrated management interface that controls device parameters. Each appliance is preconfigured as either a regional server or central manager.

This guide describes how you can install NSM onto an appliance. In addition, this guide describes how to manage the appliance using the NSM*Xpress* command-line interface (CLI) or the Web interface.

## Audience

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This guide is intended for system administrators responsible for the security infrastructure of their organization. Specifically, this book provides procedures for firewall and VPN administrators, network/security operations center administrators, and system administrators responsible for user permissions on the network.

## Conventions

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The sample screens used throughout this guide are representations of the screens that appear when you install and configure the NSM software. The actual screens may differ.

All examples show default file paths. If you do not accept the installation defaults, your paths will vary from the examples.

Table 1 on page xvi defines notice icons used in this guide.

**Table 1: Notice Icons**





Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.

Table 2 on page xvi defines text conventions used in this guide.

**Table 2: Text Conventions**

Convention	Description	Examples
<b>Bold typeface like this</b>	<ul style="list-style-type: none"> <li>■ Represents commands and keywords in text.</li> <li>■ Represents keywords</li> <li>■ Represents UI elements</li> </ul>	<ul style="list-style-type: none"> <li>■ Issue the <b>clock source</b> command.</li> <li>■ Specify the keyword <b>exp-msg</b>.</li> <li>■ Click <b>User Objects</b></li> </ul>
<b>Bold typeface like this</b>	Represents text that the user must type.	user input
<b>fixed-width font</b>	Represents information as displayed on the terminal screen.	<pre>host1# show ip ospf Routing Process OSPF 2 with Router ID 5.5.0.250 Router is an area Border Router (ABR)</pre>
Key names linked with a plus (+) sign	Indicates that you must press two or more keys simultaneously.	Ctrl + d
<i>Italics</i>	<ul style="list-style-type: none"> <li>■ Emphasizes words</li> <li>■ Identifies variables</li> </ul>	<ul style="list-style-type: none"> <li>■ The product supports two levels of access, <i>user</i> and <i>privileged</i>.</li> <li>■ <i>clusterID</i>, <i>ipAddress</i>.</li> </ul>
The angle bracket (>)	Indicates navigation paths through the UI by clicking menu options and links.	<b>Object Manager &gt; User Objects &gt; Local Objects</b>

Table 3 on page xvii defines syntax conventions used in this guide.

**Table 3: Syntax Conventions**

Convention	Description	Examples
Words in plain text	Represent keywords	terminal length
Words in italics	Represent variables	<i>mask, accessListName</i>
Words separated by the pipe (   ) symbol	Represent a choice to select one keyword or variable to the left or right of this symbol. The keyword or variable can be optional or required.	diagnostic   line
Words enclosed in brackets ( [ ] )	Represent optional keywords or variables.	[ internal   external ]
Words enclosed in brackets followed by and asterisk ( [ ]* )	Represent optional keywords or variables that can be entered more than once.	[ level1   level2   11 ]*
Words enclosed in braces ( { } )	Represent required keywords or variables.	{ permit   deny } { in   out } { clusterId   ipAddress }

## Documentation

Table 4 on page xvii describes documentation for NSM.

**Table 4: Network and Security Manager Publications**

Book	Description
<i>Network and Security Manager Installation Guide</i>	Describes the steps to install the NSM management system on a single server or on separate servers. It also includes information on how to install and run the NSM user interface. This guide is intended for IT administrators responsible for the installation or upgrade of NSM.
<i>Network and Security Manager Administration Guide</i>	Describes how to use and configure key management features in the NSM. It provides conceptual information, suggested workflows, and examples. This guide is best used in conjunction with the NSM Online Help, which provides step-by-step instructions for performing management tasks in the NSM UI.  This guide is intended for application administrators or those individuals responsible for owning the server and security infrastructure and configuring the product for multiuser systems. It is also intended for device configuration administrators, firewall and VPN administrators, and network security operation center administrators.
<i>Network and Security Manager Configuring ScreenOS and IDP Devices Guide</i>	Describes NSM features related to device configuration and management. It also explains how to configure basic and advanced NSM functionality, including deploying new device configurations, managing security policies and VPNs, and general device administration.

**Table 4: Network and Security Manager Publications** (continued)

Book	Description
<i>Network and Security Manager Online Help</i>	Provides procedures for basic tasks in the NSM user interface. It also includes a brief overview of the NSM system and a description of the GUI elements.
<i>Network and Security Manager API Guide</i>	Provides complete syntax and description of the SOAP messaging interface to NSM.
<i>Network and Security Manager Release Notes</i>	Provides the latest information about features, changes, known problems, resolved problems, and system maximum values. If the information in the Release Notes differs from the information found in the documentation set, follow the Release Notes.  Release notes are included on the corresponding software CD and are available on the Juniper Networks Website.
<i>NSMXpress User Guide</i>	Describes how to set up and manage the NSMXpress appliance as a central manager or regional server.

## Documentation Feedback

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- Page number
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To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool located at <https://tools.juniper.net/SerialNumberEntitlementSearch/>.

### Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/> .
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, visit us at <http://www.juniper.net/support/requesting-support.html>.



# **Part 1**

# **Using NSMXpress**

Part 1 contains the following chapters:

- Getting Started on page 3
- Installing and Configuring NSM from the CLI on page 11
- Configuring NSM from the Web Interface on page 31



## Chapter 1

# Getting Started

This version of NSMXpress comes preconfigured as a regional server or central manager.

This chapter contains the following sections:

- About NSMXpress on page 3
- Hardware Installation on page 4
- Initial Setup Configuration on page 7

### About NSMXpress

---

NSMXpress is an appliance version of Network and Security Manager (NSM) and runs NSM 2008.1. NSMXpress simplifies the complexity of network administration by providing a single, integrated management interface that controls device parameters.

This robust hardware management system installs in minutes with full high availability (HA) support, making it easy to scale and deploy. Enterprise customers with limited resources can benefit significantly from NSMXpress by eliminating the need to have dedicated resources for maintaining a network and security management solution.

NSMXpress makes it easy for administrators to control device configuration, network settings, and security policy settings for multiple families of Juniper Networks devices including:

- ScreenOS firewall/VPN devices and intrusion detection and prevention (IDP) devices
- JUNOS devices, such as J-series routers and EX-series switches.
- Secure Access devices
- Unified Access Control (Infranet Controller) devices.

For a complete list of supported device families and platforms, see the *Network and Security Manager Administration Guide*.

Up to 10 administrators can log into NSMXpress concurrently.

## ***Installation and Configuration Workflow***

This guide explains the steps for installing and configuring NSMXpress and for configuring NSM.

1. Install the NSMXpress appliance hardware.
2. Set up the NSMXpress appliance, using the serial port.
3. Configure the NSMXpress software, using either the CLI or the Web interface.
4. Configure NSM software, which was preinstalled onto the NSMXpress appliance, with site-specific parameters.

## **Hardware Installation**

---

We recommend that you install NSMXpress on your LAN to ensure that it can communicate with your applicable resources, such as authentication servers, DNS servers, internal Web servers through HTTP/HTTPS, external Web sites through HTTP/HTTPS (optional), the Juniper update server via HTTP, Network File System (NFS) file servers (optional), and client/server applications (optional).



**NOTE:** If you decide to install NSMXpress in your DMZ, ensure that it can connect to your internal resources.

---

## ***NSMXpress Ports***

Table 5 on page 5 provides required port information on the NSMXpress.

**Table 5: Required Ports on NSMXpress**

Direction	Port	Description	LAN	Internet	Depends on Configuration
In	22	SSH command-line management	Yes	No	No
	443	Web interface for administrator login	Yes	No	No
	8443	Web interface for listening for NSM API messages.	LAN	Yes	Yes
	7800	Connections from managed devices to NSMXpress	Yes	Yes	No
	7801	Connections from the NSM GUI Client to NSM	Yes	No	No
	7802	Heartbeat between peers in an HA cluster	Yes	No	Yes
	7803	Connections from managed IDP devices to NSM	Yes	Yes	Yes
	7804	Connections from J-series, EX-series, Secure Access, or Infranet Controller devices	Yes	Yes	Yes
Out	22	SSH connection to new managed device	Yes	Yes	No
	23	Telnet connection to new managed device	Yes	No	Yes
	53	DNS lookups	Yes	No	No
	80	System Security Updates from Juniper Networks	No	Yes	Yes
	111	Shared Disk portmap lookup	Yes	No	Yes
	123	Network Time Protocol (NTP) time synchronization	Yes	Yes	Yes
	2049	Shared Disk NFS connection	Yes	No	Yes

For more information on ports, refer to the *Network and Security Manager Installation Guide*.

## Installing the Hardware

Follow these steps to unpack the NSMXpress appliance and connect it to your network.

To install NSMXpress:

1. Place the shipping container on a flat surface and remove the hardware components with care.
2. Remove the NSMXpress device from the shipping container and place it on a flat surface.
3. Mount NSMXpress in your server rack using the attached mounting brackets.
4. Plug the power cord into the AC receptacle on the rear panel.

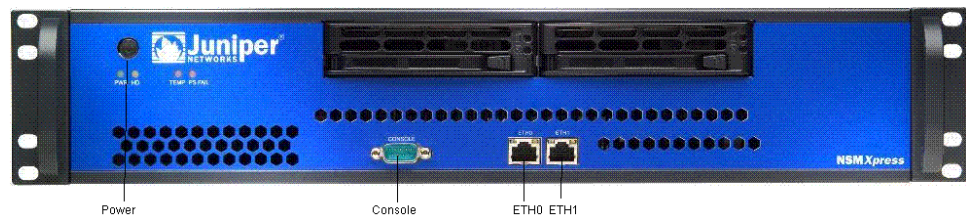
If your NSMXpress contains two power supplies, plug a power cord into each AC receptacle.

5. Plug the other end of the power cord into a wall socket.

If your NSMXpress contains two power supplies, plug each power cord into a separate power circuit to ensure that the NSMXpress continues to receive power if one of the power circuits fails.

6. Plug the Ethernet cable into the port marked ETH0 on the front panel. See Figure 1 on page 6.

**Figure 1: Front Panel of NSMXpress**



7. Plug the null modem serial cable into the console port. See Figure 1 on page 6.

This cable was shipped with your NSMXpress. If you do not have this cable, use any other null modem serial cable.

8. Push the power button in the upper left corner of the front panel.

The green LED below the power button turns on. The NSMXpress hard disk LED turns on whenever the appliance reads data from or writes data to an NSMXpress hard disk.

The internal port uses two LEDs to indicate the LAN connection status, which is described in Table 6 on page 7.

Hardware installation is now complete. The next step is to set up the software, as described in “Initial Setup Configuration” on page 7.

Table 6 on page 7 provides LED information for the ETH0 and ETH1 ports.

**Table 6: Ethernet Port LEDs**

LAN Status	LED 1	LED2
10 Mbps connection	Off	Off
100 Mbps connection	Green	Off
1000 Mbps connection	Orange	Off
Data is being transferred	Orange, Green, or Off	Blinking
No connection	Off	Off

## Initial Setup Configuration

When you first turn on an unconfigured NSMXpress appliance, you need to enter basic network and machine information through the serial console to make your appliance accessible to the network. After entering these settings, you can continue configuring the appliance using the CLI or the Web interface. You are not prompted for the initial setup information again.

This section describes the required serial console setup and the tasks you need to perform when connecting to your NSMXpress for the first time:

- Boot NSMXpress on page 7
- Set Up Your Appliance on page 8

### Boot NSMXpress

To configure NSMXpress for the first time, you must attach your NSMXpress appliance to a console terminal running an emulation utility such as HyperTerminal.

1. Configure a console terminal or terminal emulation utility to use the following serial connection parameters:
  - 9600 bits per second
  - 8-bit no parity (8N1)
  - 1 stop bit
  - No flow control
2. Connect the terminal or laptop to the null modem serial cable plugged into the NSMXpress console port.
3. Turn on the NSMXpress appliance.

When NSMXpress is powered on, the serial console displays diagnostic information before proceeding to the boot countdown. When complete, the serial console displays the login prompt terminal emulator.

```
NSMXpress.juniper.net login:
```

4. Enter **admin** as your default login name.
5. Enter **abc123** as your default password.
6. Change your default password when prompted. Enter the default password first, followed by your new password. All passwords are case sensitive.

## Set Up Your Appliance

This section provides the minimum information necessary to make your appliance active on the network.

To set up your appliance either as a regional server or a central manager, follow these steps:

1. Enter the IP address for interface eth0 and press Enter.
2. Enter the subnet mask for interface eth0 and press Enter.
3. Enter the default route or default gateway address for interface eth0 and press Enter.

```
Applying changes...
Re-loading database
ip_tables: (C) 2000-2002 Netfilter core team
ip_tables: (C) 2000-2002 Netfilter core team
ip_tables: (C) 2000-2002 Netfileter core team
Done!
```

```
Your NSMXpress is now active on the network.
To configure your system via a web browser, connect to:
https://10.150.43.205/admin
```

```
To configure your system via command line, type:
nsm_setup
```

```
For operation of NSM server, switch to user "nsm".
Please consult NSM product documentation for details.
```

```
[admin@NSMXpress ~]$
```

To complete the setup process using the CLI, go to “CLI Configuration” on page 8. To complete the setup process using the Web interface, go to “Web Interface Configuration” on page 9.

## CLI Configuration

To finish initial setup from the CLI, use the following steps. If you are logged in, enter **nsm\_setup** at the command prompt.

If you are not logged on, follow these steps:

1. Enter your admin username, and then press Enter:

```

Juniper NSMXpress OS build 2.105498
NSM 2008.1r2
Kernel 2.6.9-55.0.2.ELsmp on an i686

NSMXpress.Juniper.net login: admin
Password:
Last login: Tue May 27 17:20:25 on ttyS0
Run NSMXpress system setup? [y/N]

```

2. Enter your password and then press Enter.
3. Enter **y** to run the system setup program from the CLI.



**NOTE:** These values are not case-sensitive. However, the uppercase N indicates it is the default value. Any keystroke, including Enter but not y or Y, accepts the default value.

---

4. Go to “Installing and Configuring NSM from the CLI” on page 11 for information about how to install and configure NSM on your NSMXpress appliance from the CLI.

### NSMXpress Users

NSMXpress has three user levels. All users log in as the “admin” user. To use the command line to administer NSM, change to the “nsm” user. For advanced administration, change to the “root” user.

The following users are available to manage NSMXpress.

- “admin” user—Logs into the NSMXpress setup program and changes to “nsm” user or “root” user from the command line.
- “nsm” user—Administers NSM services. To change to the “nsm” user from the “admin” user, go to the \$ prompt, enter **sudo su - nsm** for the \$ nsm prompt, then enter the “admin” password you set when logging into the NSMXpress appliance. To return to the “admin” user, enter **exit** from the \$ prompt.
- “root” user—Administers advanced system settings. To change to “root” user from the “admin” user, go to the \$ prompt, enter **sudo su - root** for the # root prompt, then enter the “admin” password you set when logging into the NSMXpress appliance. To return to the “admin” user, enter **exit** from the # prompt.

### Web Interface Configuration

To finish initial setup from a Web interface, use the following steps.

1. Copy the URL (starting with **https://**) from the terminal emulator after installing NSMXpress:

```
Your NSMXpress is now active on the network.  
To configure your system via a web browser, connect to:  
https//10.150.43.205/admin
```

2. Open a Web browser and paste the URL into the address text box.
3. Press Enter to open the NSMXpress login page.
4. Enter the admin user name and password and then click Login.
5. See “Configuring NSM from the Web Interface” on page 31 for details about how to install and configure NSM on your NSMXpress appliance from the Web interface.

## Chapter 2

# Installing and Configuring NSM from the CLI

This chapter describes how to install and configure NSM on your NSMXpress appliance from the command-line interface (CLI). It contains the following sections:

- Navigating the Menus on page 11
- Configuring the NSM Software on page 13
- Configuring a Regional Server on page 14
- Configuring the Central Manager on page 19
- Configuring Standard Configuration Options on page 24
- NSMXpress Default Restoration on page 28

## Navigating the Menus

---

As you configure NSM on your NSMXpress appliance, the following standard navigational menu options are available to you. This section provides information on general options you can use during setup and configuration. These options include:

- General Options on page 11
- Using nsm\_setup on page 12

## General Options

The NSM Configuration Main Menu has the following options:

NSM Configuration Main Menu

- ```
1> Management IP [10.150.43.205]
  The IP address on this server that will be
  used for management

2> NSM 'super' password []
  Password for 'super' user

3> GUI server one-time password []
  Password to initiate authentication
  between HA peers and to Central Manager.
  This password must be the same for all
  NSM servers in this installation.
```

```
4> NSM License type []
Specify a license file, or select "Base Install"
to use the built-in limited device license.
```

```
A> Apply settings
C> Cancel all changes and quit
R> Redraw menu
```

```
Choice [1-4,A,C,R]:
```

To select an option, enter the number at the prompt and then press Enter. The following options are available on most menus:

- Numbered Options—Enter setting options by number (1, 2, and so on) to access individual parameters or open menus.
- Apply settings—Enter **A** to apply and save any modifications you have made and take you out of the setup program.
- Cancel all changes and quit—Enter **C** to take you out of the setup program without saving any changes you made since you last saved.
- Redraw menu—Enter **R** to redraw the screen text.
- Main Menu/Return to Main Menu—Enter **M** to return to the main menu. This option is last on most menus.
- Quit—Enter **Q** to exit from the setup program. You will be prompted to save or cancel any changes you made since you last saved:

```
Q> Quit
R> Redraw menu
```

```
Choice [1-9,Q,R]: Q
```

## Using *nsm\_setup*

After initial setup, you can cancel out of the NSMXpress setup program and later return to it. Follow these steps to return to the NSMXpress setup program. The steps in this procedure assume NSMXpress is connected to the computer running a terminal emulation program. If not, see “Initial Setup Configuration” on page 7 for details.



**NOTE:** Run **nsm\_setup** with your “admin” user login only. Do not run **nsm\_setup** as an “nsm” user.

---

To return to the setup program after the initial setup:

1. Turn on NSMXpress and wait for the login prompt:

```

Juniper NSMXpress NSM 2008.1r2
Kernel 2.6.9-42.0.8.ELsmp on an i686

NSMXpress.juniper.net logon: admin
Password:
Last Login: Tue May 17 09:43:50 on tty50
Run NSMXpress system setup? [y/N] N

To start system setup manually, type:
nsm_setup

for operation of NSM server, switch to user "nsm".
Please consult NSM product documentation for details.

[admin@NSMXpress ~]$

```

2. Log in using your “admin” user name and password.
3. Enter **nsm\_setup** at the prompt.
4. Enter your password and press Enter.
5. From the NSMXpress Settings menu:
  - For a regional server, enter **9**, and then enter **1** to display the NSM Configuration Main Menu for typical settings, or enter **2** for custom settings.
  - For a central manager, enter **9** to display the Configuration Main Menu.

## Configuring the NSM Software

---

After logging in as an “admin” user, an initial setup script walks you through additional configuration system settings before finalizing the NSM installation. This section describes that setup process.

The steps in this procedure assume you:

- Have completed all appropriate steps in “Getting Started” on page 3.
- Have a console terminal or terminal emulation utility running.
- See the following command output in the emulation utility window:

```

Your NSMXpress is now active on the network.
To configure your system via a web browser, connect to:
https://10.150.43.205/admin

To configure your system via command line, type:
nsm_setup

For operation of NSM server, switch to user "nsm"
Please consult NSM product documentation for details.

[admin@NSMXpress "$]

```

Your NSMXpress appliance comes preconfigured as a regional server or a central manager, as described in the following sections:

- Configuring a Regional Server on page 14
- Configuring the Central Manager on page 19

## Configuring a Regional Server

---

For details on using the general setup menu items, see “Navigating the Menus” on page 11.

To configure the regional server, select one of the following options by number:

- Typical Settings—Enter **1** to select typical settings. This option provides a simplified menu to install a regional server. When using these options neither HA nor statistical report server (SRS) can be in use.
- Custom Settings—Enter **2** to select custom settings. This option provides full access to all configuration options including HA and SRS for regional server.

The following sections provide details of these options:

- Configuring Typical Settings on page 14
- Configuring Custom Settings on page 15

### Configuring Typical Settings

This section describes the options that are available for a typical installation for the regional server:

#### NSM Configuration Main Menu

```
1> Management IP [10.150.43.205]
  The IP address on this server that will be
  used for management

2> NSM 'super' password []
  Password for 'super' user

3> GUI server one-time password []
  Password to initiate authentication
  between HA peers and to Central Manager.
  This password must be the same for all
  NSM servers in this installation.

4> NSM License type []
  Specify a license file, or select "Base Install"
  to use the built-in limited device license.
```

```
A> Apply settings
C> Cancel all changes and quit
R> Redraw menu
```

```
Choice [1-4,A,C,R]:
```

You have the following options:

- Management IP—Enter **1** to select interface eth0 or eth1 as the primary IP address for your management server. Once configured, the setup program displays the IP address for the interface you selected.
- NSM ‘super’ password—Enter **2** to specify an NSM super password. This password must be at least eight characters long and is case sensitive. This password is used by the NSM superuser (also referred to as the NSM administrator). This user has the highest level of privilege in NSM.
- GUI Server one-time password—Enter **3** to specify this password. This password authenticates this server to its peers in a high-availability configuration, and to the central manager.
- NSM License type [Base Install]—Enter **4** to specify the license option. Enter **Base Install** to use the built-in limited device license for as many as 25 devices. This option is the default. Otherwise, enter the filename of the license file you purchased from Juniper Networks that permits you to manage more than 25 devices.

For additional details about NSM licensing, see the *Network and Security Manager Installation Guide*.

## Configuring Custom Settings

This section describes the custom options that are available for a regional server configuration. The custom options include the typical options described in the previous section as well as the following two options:

5> Menu: High Availability [Off]

6> Menu: Advanced Options

You have the following options:

- High Availability—Enter **5** to open a menu to configure HA.
- Advanced Options—Enter **6** to open a menu of additional configurable options, including the port number for receiving messages through the NSM API, remote database replication details, and the Statistical Report Server (SRS).

The following sections provide details about these options:

- Configuring High Availability on page 16
- Configuring Advanced Options on page 17

## Configuring High Availability



**NOTE:** When installing NSM regional server in a high availability configuration with a shared disk, you must first revert the system to factory default values using the boot menu. See “NSMXpress Default Restoration” on page 28 for details.

The following options are available to configure high availability (HA) on the regional server.

- High Availability—Enter **1** to turn HA on or off.
- Primary Status—Enter **2** to specify NSMXpress as either the primary or secondary server. At the next prompt, enter **y** for the primary server. Enter **n** for a secondary server.
- HA Remote IP—Enter **3** to specify the IP address for the HA peer in the HA cluster.
- HA Link Failure Detection IP—Enter **4** to specify the IP address of a machine outside the HA cluster that you can ping to verify connection status.
- HA Inter-server password—Enter **5** to specify the heartbeat password used between the primary and secondary servers.
- Menu: Shared Disk—Enter **6** to open a menu to help you configure a shared disk. NSMXpress supports shared disks with NFS only. Because of the data-intensive nature of NSM, we recommend gigabit speed links (1000 Mbps) for shared disk usage. For more information on options available to you for custom settings, refer to the *Network and Security Manager Installation Guide*.

```

1> Shared Disk: Gui Server [n]
If 'y', data directory for GUI Server is a shared disk partition

2> Shared Disk: Device Server [n]
If 'y', data directory for Device Server is a shared disk partition

3> Shared Disk Source (NFS) []
Source of shared disk, e.g. /dev/sdc1 or server:/share

4> Shared Disk NFS Mount Options [rw]
Options when mounting shared disk e.g. rw, intr, tcp, soft, timeo=2

5> Return to High Availability menu

```

- Menu: HA Links—Enter **7** to open a menu to help you configure the second HA link in the HA cluster. Use the items in this menu to set up a redundant link for the HA cluster. If you are going to use a second link, you need to set the IP address for eth1 before configuring this setting (see “Setting Interface Options” on page 25 for more information). Setting a redundant link is optional. For more information on options available to you for custom settings, refer to the *Network and Security Manager Installation Guide*.

If you configure HA with just one heartbeat link, then device management traffic and data replication traffic both use that link. If you configure two links, device management traffic uses the first link and data replication uses the second.

If the HA link count is set to 1, the only options available are to set the HA link count and to return to the High Availability menu. If the HA link count is set to 2, all options are available.

```

1> HA Link count [2]
Number of heartbeat links between the Primary and Secondary
Servers.

2> HA Link 2 Local IP []
IP address for this machine's secondary heartbeat link

3> HA Link 2 Remote IP []
IP address for the peer's secondary heartbeat link

4> HA Remote Replication IP []
IP address used for remote HA replications

5> Return to High Availability Menu

```

- Menu: HA Advanced Settings—Enter **8** to open a menu to configure HA advanced settings. For more information on options available to you for custom settings, refer to the *Network and Security Manager Installation Guide*.

```

1> HA Heartbeat Frequency [15]
Time interval in seconds between heartbeat messages (Default is 15
seconds)

2> HA Heartbeat Failure Threshold [4]
Number of missing heartbeat messages before automatic switchover
occurs (Default is 4 missing messages)

3> HA Data Replication Timeout [1800]
Rsync Command Replication Timeout (Default is 1800 seconds)

4> Return to high Availability menu

```

## Configuring Advanced Options

The Advanced Options menu provides the following configuration options:

```

Menu: Advanced Options

1> https port for NBI service [8443]
The port number to listen for NBI
(Default is 8443)

2> Menu: Remote Replication of Database [Off]

3> Menu: SRS [Off]

M> Main Menu
R> Redraw menu

Choice [1-3,M,R]:

```

You have the following options:

- https port for NBI service—Enter **1** to change the port number for listening for messages for the NSM API. In response to the prompt, enter a value in the range 1025 through 65535. Any number outside this range returns an error message. The default value is 8443.
- Menu: Remote Replication of Database—Enter **2** to display a menu of options for configuring the time of day to take the backup, the location of the backup, and timeout value.
- Menu: SRS—Enter **3** to open a menu to configure Statistical Report Server (SRS).

The following sections provide details about configuring remote backup and SRS:

- Enabling and Configuring Remote Replication of the Database on page 18
- Enabling and Configuring Statistical Report Server on page 19

### **Enabling and Configuring Remote Replication of the Database**

On the Advanced Options menu, enter **2** to open a menu that allows you to mirror the daily backup to an external server. You can toggle it on or off. After you turn it on, use the menu options to configure this option:

```

1> Remote Replication of Database [n]
If 'y', local backups will be sent to a remote backup machine

2> Hour of day to Replicate Database [02]
Hour to start a backup

3> Remote backup IP [ ]
IP address of a remote backup machine

4> Remote Replication Timeout (seconds) [1800]
Rsync Command Backup Timeout (seconds)
(Default is 1800 seconds)

```

The screen always shows the current status of the remote backup database. If no status exists, the option has not yet been configured.

- Remote Replication of Database—Enter **1** to turn remote replication on or off. At the next prompt, enter **y** to change the state.
- Hour of day to Replicate Database—Enter **2** to start the backup at the specified time. The valid range is 00-23.
- Remote Backup IP—Enter **3** to specify the IP address of the remote backup machine. Backup information is copied to the `/var/netnscreen/dbbackup` directory on the remote server. The ‘nsm’ user must exist on both servers and you must establish an SSH trust relationship. See the *Network and Security Manager Installation Guide* for details.
- Remote Replication Timeout—Enter **4** to time out the remote backup. The valid range is 1-65535 seconds.

### Enabling and Configuring Statistical Report Server

The following options are available to configure statistical report server (SRS):



**NOTE:** SRS must be installed on a separate server from NSM.

1> SRS [n]  
Statistical Report Server will be used with this GUI Server

2> SRS DB IP []  
Database server IP address

3> SRS DB Type [pgsql]  
Database Type

4> SRS Database Name [netscreen]  
Database name

5> SRS DB Owner Name [netscreen]  
Database user name

6> SRS DB Owner Password []  
Database password

You have the following options:

- SRS—Enter **1** to turn the statistical report server on or off. At the next prompt, enter **y** to turn it on or **N** to turn it off. If you turn it on, the SRS will be used with the GUI Server.
- SRS DB IP—Enter **2** to specify the IP address for the server on which you have installed the SRS database server.
- SRS DB Type—Enter **3** to specify the database type. The options are `pgsql` (default), `oracle`, and `mssql`.
- SRS Database Name—Enter **4** to specify the name of the SRS database on the SRS server. The default value for this option is `netscreen`.
- SRS DB Owner Name—Enter **5** to specify the name of the SRS database owner. The default value for this option is `netscreen`.
- SRS DB Owner Password—Enter **6** to specify the owner password for the SRS database. At least eight characters are required. The password is case sensitive.

Click **Submit** to save the options and return to the NSM Configuration Main Menu.

## Configuring the Central Manager

For details about using the general setup menu items, see “Navigating the Menus” on page 11.

This section describes the options that are available for a central manager configuration. The central manager main menu options are:

#### NSM Configuration Main Menu

```

1> Management IP [10.150.43.205]
   The IP address on this server that will be
   used for management

2> NSM 'super' password []
   Password for 'super' user

3> GUI server one-time password []
   Password for authentication between
   HA peers and to all Regional Servers

4> Menu: High Availability [Off]

5> Menu: Advanced Options

A> Apply settings
C> Cancel all changes and quit
R> Redraw menu

```

Choice [1-5,A,C,R]:

You have the following options:

- Management IP—Enter **1** to select interface eth0 or eth1 as the primary IP address for your management server. Once configured, the setup program displays the IP address for the interface you selected.
- NSM super password—Enter **2** to specify an NSM ‘super’ password. This password must be at least eight characters long and is case sensitive. This password is used by the NSM superuser (also referred to as the NSM administrator). This user has the highest level of privileges in NSM.
- GUI Server one-time password—Enter **3** to specify this password. This password authenticates this server to its peer in a high-availability configuration, and to regional servers.
- Menu: High Availability—Enter **4** to open a menu to configure HA. See “Configuring High Availability” on page 21.
- Menu: Advanced Options—Enter **5** to open a menu of additional options, including the port number for receiving messages through the NSM API, and remote database replication details.

The following sections provide procedures for configuring HA and advanced options:

- Configuring High Availability on page 21
- Configuring Advanced Options on page 23

## Configuring High Availability

To configure high availability (HA), from the NSM Configuration Main menu, enter **4**. NSMXpress displays the High Availability menu:

```

1> High Availability [n]
  Whether to enable HA on this server or not

2> Primary Status [y]
  If 'y', this machine is a Primary Server
  and if 'n' this machine is a Secondary
  Server

3> HA Remote IP []
  IP address for the peer's primary
  heartbeat link

4> HA Link Failure Detection IP []
  IP address outside the HA cluster

5> HA Inter-server password []
  Shared password for heartbeat

6> Menu: Shared Disk [Off]

7> Menu: HA Links

8> Menu: HA Advanced Settings

```

The following options are available to configure HA.

- High Availability—Enter **1** to turn HA on or off.
- Primary Status—Enter **2** to set NSMXpress as either the primary or secondary server. At the next prompt, enter **y** for a primary server; enter **n** for a secondary server.
- HA Remote IP—Enter **3** to set the IP address for the HA peer in the HA cluster.
- HA Link Failure Detection IP—Enter **4** to set the IP address of a computer outside the HA cluster that you can ping to verify connection status.
- HA Inter-server password—Enter **5** to set the heartbeat password used between the primary and secondary servers.
- Menu: Shared Disk—Enter **6** to open the Shared Disk menu.

The options in this menu help you configure a shared disk. NSMXpress supports shared disk via NFS only. Due to the data-intensive nature of NSM, we recommend gigabit speed links (1000 Mbps) for shared disk use. For more information on custom settings, refer to the *Network and Security Manager Installation Guide*.

```

1> Shared Disk: Gui Server [n]
  If 'y', data directory for GUI Server
  is a shared disk partition

2> Shared Disk Source (NFS) []
  Source of shared disk, e.g. /dev/sdc1

```

or server:/share

3> Shared Disk NFS Mount Options []  
Options when mounting shared disk  
e.g. rw,intr,tcp,soft,timeo=2

4> Return to High Availability menu

- Menu: HA Links—Enter **7** to open the HA Links menu.

The options in this menu help you configure the second HA link in the HA cluster. If you are going to use a second link, you need to set the IP address for eth1 before configuring this setting (see “Setting Interface Options” on page 25 for details). Setting a redundant link is optional. For more information on options available to you for custom settings, refer to the *Network and Security Manager Installation Guide*.

If the HA link count is set to 1, the only options available are to set the HA link count and to return to the High Availability menu. If the HA link count is set to 2, all options are available.

1> HA Link count [2]  
Number of heartbeat links between the Primary and Secondary Server.

2> HA Link 2 Local IP []  
IP address for this machine's secondary heartbeat link

3> HA Link 2 Remote IP []  
IP address for the peer's secondary heartbeat link

4> HA Remote Replication IP []  
IP address used for remote HA replications

5> Return to High Availability menu

- Menu: HA Advanced Settings—Enter **8** to open the HA advanced Settings menu. For more information about HA advanced settings, refer to the *Network and Security Manager Installation Guide*.

1> HA Heartbeat Frequency [15]  
Time interval in seconds between heartbeat messages (Default is 15 seconds)

2> HA Heartbeat Failure Threshold [4]  
Number of missing heartbeat messages before automatic switchover occurs (Default is 4 missing messages)

3> HA Data Replication Timeout [1800]  
Rsync Command Replication timeout (Default is 1800 seconds)

4> Return to High Availability menu

## Configuring Advanced Options

To configure advanced options, from the NSM Configuration Main menu, enter **5**. NSMXpress displays the Advanced Options menu:

Menu: Advanced Options

```
1> https port for NBI service [8443]
  The port number to listen for NBI
  (Default is 8443)
```

```
2> Menu: Remote Replication of Database [Off]
```

```
M> Main Menu
```

```
R> Redraw menu
```

```
Choice [1-2,M,R]:
```

You have the following options:

- https port for NBI service—Enter **1** to change the port number for listening for messages for the NSM API. In response to the prompt, enter a value in the range 1025 through 65535. Any number outside this range returns an error message. The default value is 8443.
- Menu: Remote Replication of Database—Enter **2** to display a menu of options for configuring the time of day to take the backup, the location of the backup, and timeout value. See “Enabling and Configuring Remote Replication of the Database” on page 23.

### Enabling and Configuring Remote Replication of the Database

On the Advanced Options menu, enter **2** to open a menu that allows you to mirror the daily backup to an external server. You can toggle it on or off. After you turn it on, use the menu options to configure this option:

```
1> Remote Replication of Database [n]
  If 'y', local backups will be sent to a remote backup machine
```

```
2> Hour of day to Replicate Database [02]
  Hour to start backup
```

```
3> Remote Backup IP []
  IP address of a remote backup machine
```

```
4> Remote Replication Timeout (seconds) [1800]
  Rsync Command Backup Timeout (seconds)
  (Default is 1800 seconds)
```

The screen always shows the current status of the remote backup database. If no status exists, the option has not yet been configured.

- Remote Replication of Database—Enter **1** to turn remote replication on or off. At the next prompt, enter **y** to change the state.
- Hour of day to Replicate Database—Enter **2**, and then specify the hour to start the backup. The valid range is 00-23.
- Remote Backup IP—Enter **3** to specify the IP address of the remote backup server. Backup information is copied to the `/var/netscreen/dbbackup` directory on the remote server. The 'nsm' user must exist on both servers and you must establish an SSH trust relationship. See the *Network and Security Manager Installation Guide* for details.
- Remote Replication Timeout—Enter **4** to change the timeout period for the remote backup. The valid range is 1-65535 seconds.

## Configuring Standard Configuration Options

---

After the initial setup, continue configuring typical options, including the following tasks. Follow the setup prompts on the main menu to set or modify these options. Your configuration options (with the exception of any password changes) will not take effect until you apply the changes.

Run `nsm_setup` to access these options on the NSMXpress Settings Menu:

- Changing the Password on page 24
- Setting Interface Options on page 25
- Setting Routing Options on page 25
- Changing the NSMXpress Hostname on page 26
- Adding DNS Servers on page 26
- Setting the System Time on page 26
- Forwarding Local Status E-mails on page 27
- Updating System Security on page 27
- Saving Setup Options on page 28

### Changing the Password

To change your password:

1. On the NSMXpress Settings Menu, enter **1** at the prompt.
2. Enter **y** when prompted to change the password for an “admin” user.
3. type the new password and press Enter.
4. Retype the new password and press Enter.

Your password is changed and the setup program returns you to the NSMXpress Settings menu.

## Setting Interface Options

NSM*Xpress* has two ports labeled ETH0 and ETH1. During initial setup, you specify the eth0 interface options. Use this menu to set interface options for eth1 or modify either interface.



**NOTE:** If you are going to use a second link, you need to configure an IP address for eth1 before configuring this setting.

---

To set or modify interface options:

1. On the NSM*Xpress* Settings menu, enter **2** at the prompt. The menu shows the existing status of each interface.
2. Set or modify options for one of the interfaces by selecting one of the following options:
  - **1** to modify eth0.
  - **2** to set or modify eth1.
3. Make the following selection for interface options by selecting one of the following options:
  - **1** to change the IP address and return to the NSM*Xpress* Settings menu.
  - **2** to go to the next step.
4. Make the following selection for physical parameters (such as interface speed) by selecting one of the following options:
  - **1** to set the autonegotiate option and return to the main menu.
  - **2** to set the physical parameters manually and go to the next step.
5. Select the interface speed by entering one of the following options:
  - **1** for 10 Mbps and go to the next step.
  - **2** for 100 Mbps and go to the next step.
  - **3** for 1000 Mbps and go to the next step.
6. Enter **1** for full duplex or **2** for half duplex, and then return to the NSM*Xpress* Settings menu.

## Setting Routing Options

To set or modify routing options:

1. On the NSM*Xpress* Settings menu, enter **3** at the prompt.
2. Enter one of the following options:
  - **1** to change default gateway options (optional).

Follow the prompts to change the IP address of the default gateway and return to the NSM*Xpress* Settings menu.

- 2 to change the static routing options (optional).

Follow the prompts to add a new static route and return to the NSMXpress Settings menu.

### Changing the NSMXpress Hostname

To change the hostname:

1. On the NSMXpress Settings menu, enter **4** at the prompt.
2. Enter **y** at the verification prompt to continue.
3. Enter the new hostname and press Enter to return to the NSMXpress Settings menu.



**NOTE:** If a hostname consisting of 4 or more labels is changed to a different hostname, also with 4 or more labels, the previous hostname alias might remain in the `/etc/hosts` file. This condition can be corrected by manually editing the `/etc/hosts` file.

---

### Adding DNS Servers

You can add up to three DNS servers. Enter each one using dotted decimal notation. Each addition returns you to the main menu. If you want to add more DNS servers, repeat the following procedure.

To set the DNS servers:

1. On the NSMXpress Settings menu, enter **5** at the prompt.
2. Enter **1** to add a name server.
3. When prompted, enter the new nameserver in dotted decimal notation.

### Setting the System Time

You can change time zones or NTP configuration. The default time zone is set for Pacific Standard Time (PST)/Pacific Daylight Time (PDT). Select time zones in the following order:

- Continent or ocean
- Country
- Region



**NOTE:** NTP is disabled by default. We recommend that you enable this option to ensure that the time is always accurate.

---

To change time options:

1. On the NSM*Xpress* Settings menu, enter **6** at the prompt.
2. Enter **1** to change the time zone.

Follow the prompts to find the time zone you want based on the options listed earlier. The final selection returns you to the NSM*Xpress* Settings menu.

3. Enter **2** to set NTP servers.

NTP servers automatically set the system clock based on external time sources.

4. Enter one of the following values at the prompt:
  - **1** to enable or disable NTP.
  - **2** to add an NTP server.

The remaining numbered options allow you to remove an NTP server from the list.

5. Follow the prompts to enable, set, or delete the NTP servers and return to the NSM*Xpress* Settings menu.

### **Forwarding Local Status E-mails**

You can use this option to forward all local root e-mail messages to an e-mail address. You can add an unlimited number of e-mail addresses in addition to mailing lists to help manage large numbers of recipients.

To set the Forward Local Status:

1. On the NSM*Xpress* Settings menu, enter **7** at the prompt.
2. Enter **1** to add or change the recipient.
3. Enter **2** to remove the recipient.

### **Updating System Security**

System security updates are NSM*Xpress* operating system-level patches that protect the system against any future reported security vulnerabilities. NSM*Xpress* checks for new updates daily by connecting to Juniper Networks.

To manage system security updates:

1. On the NSM*Xpress* Settings menu, enter **8** at the prompt.
2. Enter one of the following values to select the option:
  - **1** to check for and install security updates now.
  - **2** to enable or disable automatic security updates.
  - **3** to check for and install the latest available NSM*Xpress* version.
  - **4** to set the proxy for security update check.

3. Follow the prompts to manage security updates, and then return to the NSMXpress Settings menu.

## Saving Setup Options

Before you configure the regional server or the central manager, NSMXpress opens the Apply Change submenu. If you quit out of a menu after making changes, NSMXpress also opens this screen and prompts you to save your changes. Updates are enabled by default.

```
Select a change to cancel it:
1> IP Change: eth1 is 192.168.1.78 / 255.255.255.0
2> Add route: 192.168.0.0 /255.255.0.0 -> eth1 : [192.168.1.254]
3> DNS add: 192.168.2.2
4> Enable NTP
5> Security updates: automatic check Disabled

A> Apply all changes
B> Make more changes
C> Cancel all changes and quit
R> Redraw menu
```

Choice [1-5,A,M,C,R]:

You have three options for saving changes:

- At the prompt, enter one of the following menu options:
  - **A** to apply all the new changes.
  - **M** to make more changes before configuring the regional server or the central manager.
  - **C** to cancel all new changes and quit the NSMXpress setup program. After canceling a change, the Change Apply submenu reappears.
- Enter the number next to a displayed change to cancel only the selected change.
- Highlight one of the options you modified and delete it.

## NSMXpress Default Restoration

When you reinstall NSMXpress, you restore it to its factory defaults.



**NOTE:** NSMXpress is completely reimaged by a reinstallation. No user data remains on the system. If you want to preserve your database, back it up before reinstalling.

To reinstall NSMXpress, use the following procedure. The steps in the procedure assume NSMXpress is connected to the computer with a null-modem cable. If not, refer to the section “Initial Setup Configuration” on page 7 for details.

To reinstall the NSMXpress configuration:





## Chapter 3

# Configuring NSM from the Web Interface

This chapter describes how to configure NSM from the NSMXpress Web interface. It contains the following sections:

- Configuring the NSM Software on page 31
- Managing NSM Administration on page 40
- Managing System Administration on page 45
- Maintaining NSMXpress on page 49
- Troubleshooting on page 50
- Viewing System Information on page 54

## Configuring the NSM Software

---

After logging in as an ‘admin’ user, an initial setup script walks you through additional configuration system settings before finalizing the NSM installation. This chapter describes that setup process.

Your NSMXpress appliance comes preconfigured as a regional server or a central manager. Most installation and configuration steps in this section are identical for both types of server. All exceptions are noted.

After logging into the NSMXpress Web interface, NSMXpress provides you with the following installation options:

- Configuring Basic Settings on page 31
- Configuring High Availability on page 34
- Advanced Options on page 36
- Installing NSM Software on page 39

## Configuring Basic Settings

To install the regional server or central manager software using the minimum requirements:

1. Complete all appropriate steps in “Getting Started” on page 3.
2. Enter the **https:// < ip > /admin** URL for your appliance in a Web browser. See “Web Interface Configuration” on page 9 for details.

3. Log into the Web interface as an 'admin' user to open the Install NSM Regional Server window (see Figure 2 on page 32) or the Install NSM Central Manager window (see Figure 3 on page 33).



**NOTE:** The 'admin' user default username is admin and the password is the one you created in Step 6 of "Boot NSMXpress" on page 7.

**Figure 2: Regional Server Configuration Main Menu**

Login: admin

- NSM Administration
  - Install NSM Regional Server
  - » System Administration
  - » Maintenance
  - » Troubleshooting
- System Information
- Logout

## Install NSM Regional Server

**NSM Configuration Main Menu**

**Management**  172.24.68.111

**IP**  
The IP address on this server that will be used for management

**NSM 'super' password**   
Password for 'super' user

**NSM License type**  Base Install  Upload license file:  
Specify a license file, or select "Base Install" to use the built-in limited device license.

|                                       |     |                      |
|---------------------------------------|-----|----------------------|
| <b>Remote Replication of Database</b> | Off | <a href="#">Menu</a> |
| <b>High Availability</b>              | Off | <a href="#">Menu</a> |
| <b>SRS</b>                            | Off | <a href="#">Menu</a> |

**Figure 3: Central Manager Configuration Main Menu**

4. Enter the primary IP address of your management server for eth0 (the default).

You can use the default IP address next to the first radio button or select the second radio button and then enter a different IP address. Each IP address you add (in addition to the default IP address) will be available in the drop-down list after you click the second radio button.

5. Enter the NSM superuser password in the top text box, and then reenter it in the text box below it.

This password must be at least eight characters long and is case sensitive. This password is used by the NSM superuser (also referred to as the NSM administrator). This user has the highest level of privileges in NSM.

6. Enter the GUI Server one-time password in the top text box, and then reenter it in the text box below it. This password is used to authenticate this NSM server with other NSM servers with which it communicates. Regional servers use this password to authenticate peer servers in an HA configuration and to authenticate the central manager. The central manager uses this password to authenticate its peer server in an HA configuration and any regional servers it manages. NSM servers must have the same GUI Server one-time password, or the authentication will fail.
7. Select the license option. (This option is available only for regional servers.)
  - a. Select **Base Install** to use the built-in limited device license for as many as 25 devices.
  - b. Click **Upload license file** to upload the license file you generated using the Juniper License Management System (LMS), which permits you to manage more than 25 devices. This license file must be located on your local hard drive.

See the *Network and Security Manager installation Guide* for more information about NSM licensing.

8. Click **Submit** to save any changes, and then click **Install** to install the software.

## Configuring High Availability

To configure high availability (HA) settings:

1. On the NSM Configuration Main Menu, click **Menu** next to High Availability to access HA options. See Figure 4 on page 34.

**Figure 4: High Availability Options**

The screenshot shows the 'Menu: High Availability' configuration page. It includes the following fields and options:

- High Availability:** A dropdown menu with 'y' selected. Below it is the text 'Whether to enable HA on this server or not'.
- Primary Status:** A dropdown menu with 'y' selected. Below it is the text 'If 'y', this machine is a Primary Server and if 'n' this machine is a Secondary Server'.
- HA Remote IP:** An empty text input field. Below it is the text 'IP address for the peer's primary heartbeat link'.
- HA Link Failure Detection IP:** An empty text input field. Below it is the text 'IP address outside the HA cluster'.
- HA Inter-server password:** Two empty text input fields. Below them is the text 'Shared password for heartbeat'.
- Shared Disk:** A radio button labeled 'Off'. To its right is a 'Menu' link.
- HA Links:** A 'Menu' link.
- HA Advanced Settings:** A 'Menu' link.

2. Use the High Availability option to turn HA on (**y**) or off (**n**). The default is off.
3. Use the Primary Status option to set your NSMXpress appliance as either the primary or secondary server in the HA cluster. If you select **y**, it is the primary server (the default). If you select **n**, it is the secondary server.
4. Use the HA Remote IP option to enter the IP address for the HA peer in the HA cluster.
5. Use the HA Link Failure Detection IP option to enter the IP address of a computer outside the HA cluster that you can ping to verify connection status.
6. Use the HA Inter-server password option to enter the heartbeat password used between the primary and secondary servers.
7. Click **Submit** to save the changes.
8. Click **Menu** next to Shared Disk (see Figure 4 on page 34) to configure a shared disk for regional servers (see Figure 5 on page 35) or for central managers (see Figure 6 on page 35). This step is optional.

**Figure 5: Shared Disk Options for Regional Servers**

| Menu: Shared Disk                                                   |                                                                                           |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Shared Disk: Gui Server</b>                                      | <input checked="" type="radio"/> n <input type="radio"/> y <input type="text" value="y"/> |
| If 'y', data directory for GUI Server is a shared disk partition    |                                                                                           |
| <b>Shared Disk: Device Server</b>                                   | <input checked="" type="radio"/> n <input type="radio"/> y <input type="text" value="y"/> |
| If 'y', data directory for Device Server is a shared disk partition |                                                                                           |
| <b>Shared Disk Source (NFS)</b>                                     | <input type="text"/>                                                                      |
| Source of shared disk, e.g. /dev/sdc1 or server:/share              |                                                                                           |
| <b>Shared Disk NFS Mount Options</b>                                | <input checked="" type="radio"/> rw <input type="radio"/> <input type="text"/>            |
| Options when mounting shared disk e.g. rw,intr,tcp,soft,timeo       |                                                                                           |

**Figure 6: Shared Disk Options for Central Managers**

| Menu: Shared Disk                                                |                                |
|------------------------------------------------------------------|--------------------------------|
| <b>Shared Disk: Gui Server</b>                                   | <input type="text" value="y"/> |
| If 'y', data directory for GUI Server is a shared disk partition |                                |
| <b>Shared Disk Source (NFS)</b>                                  | <input type="text"/>           |
| Source of shared disk, e.g. /dev/sdc1 or server:/share           |                                |
| <b>Shared Disk NFS Mount Options</b>                             | <input type="text"/>           |
| Options when mounting shared disk e.g. rw,intr,tcp,soft,timeo    |                                |

NSMXpress supports shared disk via NFS only. Due to the data-intensive nature of NSM, we recommend gigabit speed links (1000 Mbps) for shared disk use. For more information about custom settings, refer to the *Network and Security Manager Installation Guide*.

- Click **Menu** next to HA Links (see Figure 4 on page 34) to configure the second link in the HA cluster (see Figure 7 on page 35). This step is optional.

**Figure 7: HA Links Options**

| Menu: HA Links                                                       |                                                                                         |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>HA Link count</b>                                                 | <input checked="" type="radio"/> 1 <input type="radio"/> <input type="text" value="1"/> |
| Number of heartbeat links between the Primary and Secondary Servers. |                                                                                         |

Use the options in this menu to set up a redundant link for the HA cluster. If you are going to use a second link, you need to set the IP address for eth1 before configuring this setting (see “Configuring the Network” on page 46 for details). Setting a redundant link is optional. For more information about custom settings, refer to the *Network and Security Manager Installation Guide*.

If you configure HA with just one heartbeat link, then device management traffic and data replication traffic both use that link. If you configure two links, device management traffic uses the first link and data replication uses the second.

If you set the HA link count to 2, an expanded menu appears to configure the second link:

**Figure 8: Redundant Links**

**Menu: HA Links**

**HA Link count**  2  1  
Number of heartbeat links between the Primary and Secondary Servers.

**HA Link 2 Local IP**   
IP address for this machine's secondary heartbeat link

**HA Link 2 Remote IP**   
IP address for the peer's secondary heartbeat link

**HA Remote Replication IP**   
IP address used for remote HA replications

- Click **Menu** next to HA Advanced Settings (see Figure 4 on page 34) to configure HA advanced settings (see Figure 9 on page 36). This step is optional.

For more information about custom settings, refer to the *Network and Security Manager Installation Guide*.

**Figure 9: HA Advanced Settings**

**Menu: HA Advanced Settings**

**HA Heartbeat Frequency**  15    
Time interval in seconds between heartbeat messages (Default is 15 seconds) (Range is 5 to 3600)

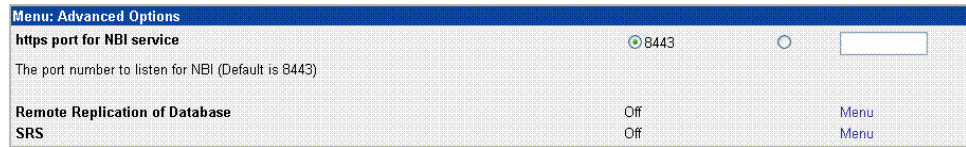
**HA Heartbeat Failure Threshold**  4    
Number of missing heartbeat messages before automatic switchover occurs (Default is 4 missing messages) (Range is 1 to 10000)

**HA Data Replication Timeout**  1800    
Rsync Command Replication Timeout (Default is 1800 seconds) (Range is 1 to 65535)

- Click **Submit** to save the HA options and return to the NSM Configuration Main Menu.

## Advanced Options

To display the Advanced Options menu, on the NSM Configuration Main Menu, select **Menu** next to Advanced Options. The Advanced Options menu appears as shown in Figure 10 on page 37.

**Figure 10: Advanced Options Menu**

Advanced installation options include:

- https port for NBI service—Allows you to configure a port to listen for messages for the NSM API. By default, this value is 8443. You can configure it to any port number from 1025 to 65535.
- Remote Replication of Database—Mirrors the daily backup to an external server. You can toggle it on or off. After you turn it on, use the menu options to configure this option.
- SRS Enabled Options (regional server only)—Opens a menu to enable and configure Statistical Report Server (SRS). These options enable NSM*Xpress* to interface with SRS. You can toggle it on or off. When it is on, a menu with additional options is available.



**NOTE:** SRS must be installed on a separate server from NSM.

The following sections provide details about the remote replication and SRS options:

- Enabling and Configuring Remote Replication of the Database on page 37
- Enabling and Configuring SRS (Regional Server Only) on page 38

### Enabling and Configuring Remote Replication of the Database

To configure remote replication of database settings:

1. On the Advanced Options menu, click **Menu** next to Remote Replication of Database (see Figure 4 on page 34) to configure daily backups (see Figure 11 on page 38).

**Figure 11: Remote Replication of Database Options**

**Menu: Remote Replication of Database**

**Remote Replication of Database**  n  y  
If 'y', local backups will be sent to a remote backup machine

**Hour of day to Replicate Database**  02  00  
Hour to start a backup

**Remote Backup IP**   
IP address of a remote backup machine

**Remote Replication Timeout (seconds)**  1800   
Rsync Command Backup Timeout (seconds) (Default is 1800 seconds) (Range is 1 to 65535)

2. Use the Remote Replication of Database option to turn remote replication on (**y**) or off (**n**). The default is off.
3. Use the Hour of day to Replicate Database option to start the backup. The valid range (in hours) is 00-23. The default is 2 AM.
4. Use the Remote Backup IP option to enter the IP address of the remote backup server.

Backup information is copied to the `/var/netscreen/dbbackup` directory on the remote server. The 'nsm' user must exist on both servers and you must establish an SSH trust relationship. See the *Network and Security Manager Installation Guide*, for details.

5. Use the Remote Replication Timeout option to set up a timeout for Rsync. The valid range (in seconds) is 1-65535. The default is 1800 seconds.
6. Click **Submit** to save the options and return to the main menu or continue with the other advanced installation options.

### Enabling and Configuring SRS (Regional Server Only)

This option is not available on central manager. To configure statistical report server (SRS) settings:

1. On the Advanced Options menu, click **Menu** next to SRS (see Figure 4 on page 34) to open the SRS menu (see Figure 12 on page 39).

**Figure 12: SRS Menu**

2. Use the SRS options to turn SRS on (**y**) or off (**n**). The default is off. If you turn on this feature, the server is used with the GUI server.
3. Use the SRS DB IP option to enter the IP address for the server on which you have installed the SRS database server.
4. Use the SRS DB Type option to select the database type. The values are pgsql (the default), oracle, or mssql.
5. Use the SRS Database Name option to enter the name of the SRS database. The default value is netscreen. To enter another name, click the radio button next to the blank text box and enter the name in the text box.
6. Use the SRS DB Owner Name option to enter the owner's name of the SRS database. The default value is netscreen. To enter another name, click the radio button next to the blank text box and enter the name in the text box.
7. Use the SRS Database Owner Password option to enter the SRS database password. The password requires a minimum of eight characters and is case sensitive. Reenter it in the second text box.
8. Click **Submit** to save the options and return to the NSM Configuration Main Menu.

## Installing NSM Software

After you submit all your configuration options, click **Install** to install the NSM software on your NSMXpress appliance. Installation takes a few minutes. A status indicator

shows the progress of the installation. Wait until installation is finished before continuing to use the Web interface.

## Managing NSM Administration

---

Expand **NSM Administration** in the left navigation tree to access the options described in this section. These options are available only after installing NSM.

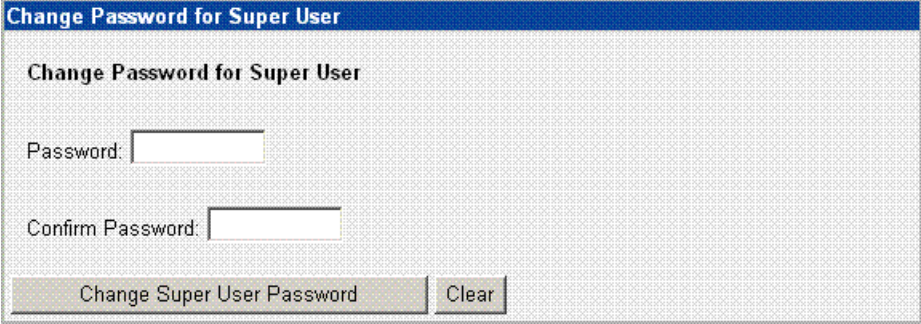
The following sections explain how to use each of the NSM Administration options:

- Changing the Superuser Password on page 40
- Downloading NSM MIBS (Regional Server Only) on page 40
- Exporting Audit Logs on page 41
- Exporting Device Logs (Regional Server Only) on page 41
- Generating Reports (Regional Server Only) on page 42
- Modifying NSM Configuration Files on page 42
- Backing Up the NSM Database on page 43
- Changing the NSM Management IP on page 44
- Scheduling Security Updates on page 44

### Changing the Superuser Password

To change the superuser password, select **NSM Administration > NSM Super User Password**. See Figure 13 on page 40.

**Figure 13: Change Superuser Password**



Change Password for Super User

Change Password for Super User

Password:

Confirm Password:

Change Super User Password Clear

### Downloading NSM MIBS (Regional Server Only)

To download any available MIBs, select **NSM Administration > Download NSM MIBS**, and then click **Download MIB**. See Figure 14 on page 41. This option is not available on central manager.

**Figure 14: Download NSM MIBs**

## Exporting Audit Logs

To export audit logs, select **NSM Administration > Export Audit Logs**. See Figure 15 on page 41.

**Figure 15: Export Audit Logs**

To export an audit log to a csv file, select **csv** in the drop-down list box, and then enter the csv file name in the text box.

To export an audit log to a syslog server, select **syslog** in the drop-down list box, and then enter the server IP address, if it is not the local host.

## Exporting Device Logs (Regional Server Only)

To export device logs, select **NSM Administration > Export Device Logs**. See Figure 16 on page 41). This option is not available on central manager.

**Figure 16: Export Device Logs**

## Generating Reports (Regional Server Only)

To generate reports, select **NSM Administration > Generate Reports**. See Figure 17 on page 42. This option is not available on central manager.

**Figure 17: Generate Reports**

**Generate Reports**

The Reports need to be created by logging in through the UI, before running the script below.

|                                                    |                                                    |                                                  |                                                     |
|----------------------------------------------------|----------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| Domain: <input style="width: 90%;" type="text"/>   | Type: <input style="width: 90%;" type="text"/>     | Report: <input style="width: 90%;" type="text"/> | Script: <input style="width: 90%;" type="text"/>    |
| Eg: global                                         | Eg: system/shared                                  | Eg: mytest                                       | Eg: ftp.sh/email.sh                                 |
| User: <input style="width: 90%;" type="text"/>     | Password: <input style="width: 90%;" type="text"/> |                                                  |                                                     |
| Eg: global/super                                   |                                                    |                                                  |                                                     |
| Schedule Reports: <input type="checkbox"/>         |                                                    |                                                  |                                                     |
| Minutes: <input style="width: 30px;" type="text"/> | Hour: <input style="width: 30px;" type="text"/>    | Day: <input style="width: 30px;" type="text"/>   | Month: <input style="width: 30px;" type="text"/>    |
|                                                    |                                                    |                                                  | Week Day: <input style="width: 30px;" type="text"/> |
| <input type="button" value="Generate Reports"/>    |                                                    |                                                  |                                                     |



**NOTE:** The user is an NSM administrator and not an NSMXpress user. Enter a user name as domain/user, such as **global/super**.

## Modifying NSM Configuration Files

To manually edit the GuiSrv.cfg, DevSvr.dfg, and HaSvr.cfg files, select **NSM Administration > Modify NSM Configuration Files**. The example in Figure 18 on page 43, shows the option to modify the GuiSrv.cfg file.

**Figure 18: NSM Configuration Files**

## NSM Configuration Files

GuiSvr.cfg   DevSvr.cfg   HaSvr.cfg

The page allows you to manually edit the `/usr/netnscreen/GuiSvr/var/guiSvr.cfg`. Be careful, as no syntax checking will be done on your edits.

**The server will be restarted once the changes are made.**

```
# this file contains just enough info for the processes
# to start up. Each process should pull its complete
# configuration from the NML DB

setuid.user          nsm
clientId             0
peerGuiSvrId        2
clientOneTimePassword dk2003ns

default.printLevel   warn
default.printProperties where=file, sync=0, maxfilenum=25
#statusMonitor.printLevel debug
#statusMonitor.printProperties where=file, sync=1, maxfilenum=250
#guiSvrDirectiveHandler.printLevel debug
#guiSvrLicenseManager.printLevel debug
#guiSvrMasterController debug
guiSvrLicenseManager.licenseFile /usr/netnscreen/GuiSvr/var/license/license.txt
#guiSvrManager.printLevel debug
```

Save



**NOTE:** If you subsequently change the NSM*Xpress* configuration by using the `nsm-setup` utility, all manual changes to the configuration files are lost.

### Backing Up the NSM Database

To configure backups of the NSM database, select **NSM Administration > NSM Database Backup** link under NSM Administration. See Figure 19 on page 44.

**Figure 19: Database Backup**

### Database Backup

| NSM Backup Configuration Parameters             |                                                       |                       |                                    |
|-------------------------------------------------|-------------------------------------------------------|-----------------------|------------------------------------|
| Local Backup Enabled                            | <input checked="" type="radio"/> y                    | <input type="radio"/> | y                                  |
| Remote Backup enabled                           | <input checked="" type="radio"/> n                    | <input type="radio"/> | y                                  |
| Hour of Day to Replicate Database               | <input checked="" type="radio"/> 02                   | <input type="radio"/> | 00                                 |
| Remote Backup IP                                |                                                       |                       | <input type="text"/>               |
| <input type="button" value="Submit"/>           |                                                       |                       |                                    |
| Execute Backup Now                              |                                                       |                       |                                    |
| <input type="button" value="Apply"/>            |                                                       |                       |                                    |
| Download Database Backup Files                  |                                                       |                       |                                    |
| File to Download                                | <input type="text" value="/var/netscreen/dbbackup/"/> |                       | <input type="button" value="..."/> |
| <input type="button" value="Download Backups"/> |                                                       |                       |                                    |

### Changing the NSM Management IP

To change the IP address of the NSM management server, select **NSM Administration** > **NSM Management IP** link under NSM Administration. See Figure 20 on page 44.

**Figure 20: Change Management IP**

| NSM Management IP |                                                                                           |
|-------------------|-------------------------------------------------------------------------------------------|
| Management Ip     | <input checked="" type="radio"/> 172.24.68.111 <input type="radio"/> <input type="text"/> |

### Scheduling Security Updates

To schedule security updates, select **NSM Administration** > **Schedule Security Updates**. See Figure 21 on page 45.

**Figure 21: Schedule Security Updates**

**Security Update**

**Select Post Action:**

update-devices skip

*Update Devices after Attack* *Select update device action: Skip(skips update of unconnected device)*

User: Password:

Eg: global/super

Schedule Security Updates:

Minutes: Hour: Day: Month: Day: Week

Run Security Update

## Managing System Administration

Use the options in the System Administration section to perform the tasks described in the following sections:

- Rebooting or Shutting Down NSMXpress on page 45
- Changing the User Password on page 45
- Configuring the Network on page 46
- Changing the System Time on page 48
- Installing Updates on page 48
- Configuring the Web Interface on page 49

### Rebooting or Shutting Down NSMXpress

To reboot or shut down NSMXpress, select **System Administration > Bootup and Shutdown**, and then click either **Reboot System** or **Shutdown System**. See Figure 22 on page 45.

**Figure 22: Boot Up and Shut Down**

**Bootup and Shutdown**

Reboot System

Shutdown System

### Changing the User Password

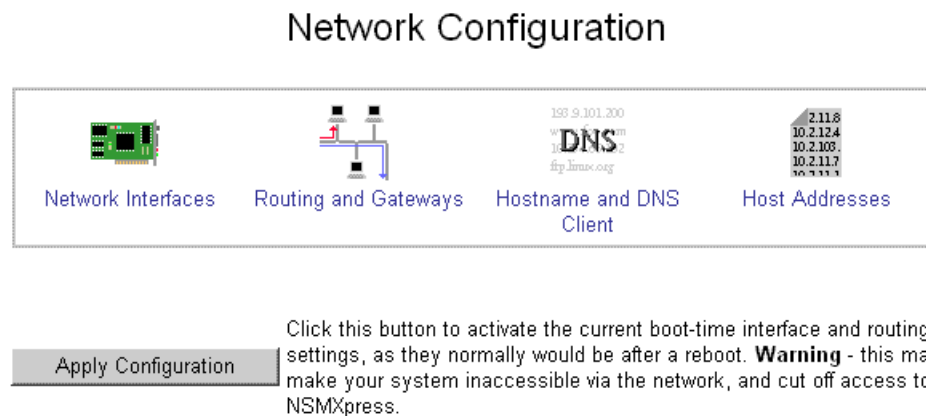
To change the user password, select **System Administration > Change User Password**, fill out the form shown in Figure 23 on page 46, and then click **Change**.

**Figure 23: Change User Password**

| Changing NSMXpress user password                                                |                      |
|---------------------------------------------------------------------------------|----------------------|
| Changing password for                                                           | admin                |
| Old password                                                                    | <input type="text"/> |
| New password                                                                    | <input type="text"/> |
| New password (again)                                                            | <input type="text"/> |
| <input type="button" value="Clear form"/> <input type="button" value="Change"/> |                      |

## Configuring the Network

To access options that allow you to configure the network, select **System Administration > Network Configuration**. The Network Configuration window appears as shown in Figure 24 on page 46.

**Figure 24: Network Interfaces Options**

The following sections describe each of the options available in the Network Configuration window:

- Network Interfaces on page 46
- Routing and Gateways on page 47
- Hostname and DNS Clients on page 48
- Host Addresses on page 48

### Network Interfaces

Use this option to manage the network interfaces. See Figure 25 on page 47.

**Figure 25: Network Interfaces**

Module Index Network Interfaces

**Interfaces Active Now**

Select all. | Invert selection. | Add a new interface.

| Name                          | Type     | IP Address    | Netmask       | Status |
|-------------------------------|----------|---------------|---------------|--------|
| <input type="checkbox"/> eth0 | Ethernet | 172.24.68.111 | 255.255.252.0 | Up     |
| <input type="checkbox"/> lo   | Loopback | 127.0.0.1     | 255.0.0.0     | Up     |

Select all. | Invert selection. | Add a new interface.

**Interfaces Activated at Boot Time**

Select all. | Invert selection. | Add a new interface. | Add a new address range.

| Name                          | Type     | IP Address    | Netmask       | Activate at boot? |
|-------------------------------|----------|---------------|---------------|-------------------|
| <input type="checkbox"/> eth0 | Ethernet | 172.24.68.111 | 255.255.252.0 | Yes               |
| <input type="checkbox"/> eth1 | Ethernet | From DHCP     | Automatic     | No                |
| <input type="checkbox"/> lo   | Loopback | 127.0.0.1     | 255.0.0.0     | Yes               |

Select all. | Invert selection. | Add a new interface. | Add a new address range.

## Routing and Gateways

Use this option to configure and manage routes and gateways. See Figure 26 on page 47.

**Figure 26: Routes and Gateways**

**Routing configuration activated at boot time**

| Default routes | Interface                         | Gateway                                  |
|----------------|-----------------------------------|------------------------------------------|
|                | <input type="text" value="eth0"/> | <input type="text" value="172.24.68.1"/> |
|                | <input type="text"/>              | <input type="text"/>                     |

Act as router?  Yes  No

| Static routes | Interface            | Network              | Netmask              | Gateway              |
|---------------|----------------------|----------------------|----------------------|----------------------|
|               | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|               | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

| Local routes | Interface            | Network              | Netmask              |
|--------------|----------------------|----------------------|----------------------|
|              | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|              | <input type="text"/> | <input type="text"/> | <input type="text"/> |

### Active Routes

| Destination                            | Gateway     | Netmask       | Interface |
|----------------------------------------|-------------|---------------|-----------|
| <input type="checkbox"/> 172.24.68.0   | None        | 255.255.252.0 | eth0      |
| <input type="checkbox"/> 169.254.0.0   | None        | 255.255.0.0   | eth0      |
| <input type="checkbox"/> Default Route | 172.24.68.1 |               | eth0      |

## Hostname and DNS Clients

Use this option to configure and manage hostnames and DNS clients. See Figure 27 on page 48.

**Figure 27: DNS Client Options**

## Host Addresses

Use this option to manage host addresses, See Figure 28 on page 48.

**Figure 28: Host Address**

| IP Address                         | Hostnames                                                             |
|------------------------------------|-----------------------------------------------------------------------|
| <input type="checkbox"/> 127.0.0.1 | NSMXpress.juniper.net , NSMXpress , localhost.localdomain , localhost |

Select all. | Invert selection. | Add a new host address.

Delete Selected Host Addresses

## Changing the System Time

To set the system time, select **System Administration > System Time**. From the System Time window, you can perform the following functions:

- Set or change the system time.
- Set the time zone.
- Configure an NTP server to synchronize the system time with an external clock.

## Installing Updates

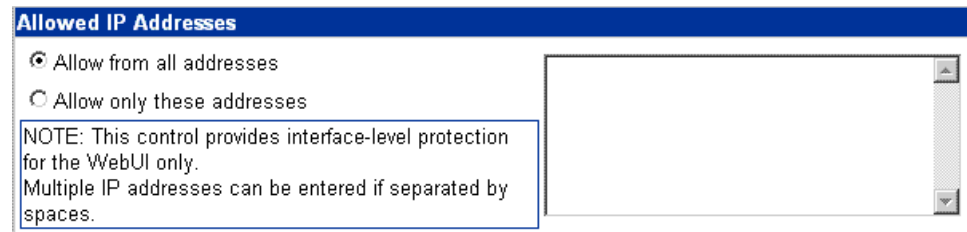
Select **System Administration > System Update** to perform the following tasks:

- Check for updates and install them.
- Enable or disable automatic updates.
- Install a new NSMXpress version.
- Add or modify proxy settings for the Yum server.

## Configuring the Web Interface

To specify which NSM client computers can access NSMXpress through the Web interface, select **System Administration > WebUI Configuration**. The Allowed IP Addresses window appears as shown in Figure 29 on page 49.

**Figure 29: Web Interface Access**



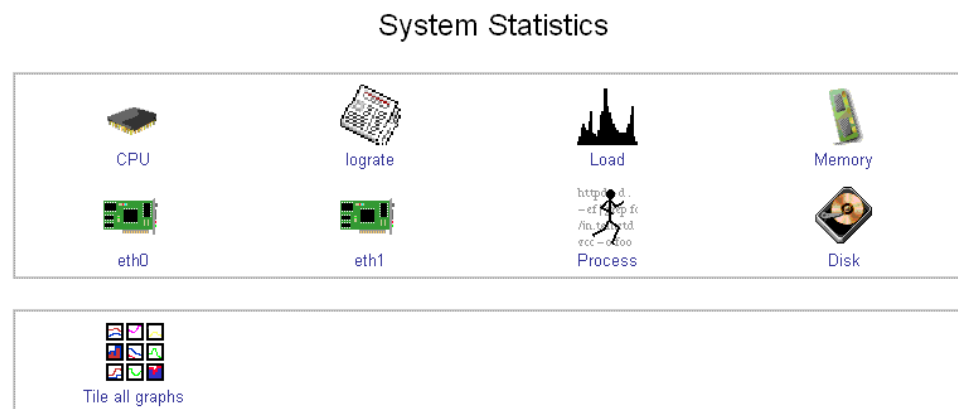
## Maintaining NSMXpress

The Maintaining section of the NSMXpress navigation tree allows you to view system statistics.

### Viewing System Statistics

To view system statistics, select **System Administration > Maintenance > System Statistics**. The system Statistics window appears as shown in Figure 30 on page 49.

**Figure 30: System Statistics**



### CPU

Select **CPU** to view graphs that monitor the CPU activity hourly, daily, weekly, monthly, or on a customizable basis.

### Log Rate

Select **lograte** to view graphs that monitor the log rate hourly, daily, weekly, monthly, or on a customizable basis.

### CPU Load

Select **Load** to view graphs that monitor the CPU load hourly, daily, weekly, monthly, or on a customizable basis.

### Memory Data

Select **Memory** to view graphs that monitor the memory activity hourly, daily, weekly, and monthly.

### Network Data

Select either **eth0** or **eth1** to view graphs that monitor network activity hourly, daily, weekly, and monthly.

### Process Count

Select **Process** to view graphs that monitor the number of processes hourly, daily, weekly, and monthly.

### Disk Data

Select **Disk** to view graphs that monitor the file system disk space usage hourly, daily, weekly, and monthly.

### Tile All Graphs

Select **Tile all graphs** to display all the statistical graphs for the system in one window.

## Troubleshooting

---

Use the options in the Troubleshooting section to access the following information and utilities:

- Error Logs on page 50
- Network Utilities on page 51
- Tech Support on page 54

### Error Logs

To review error logs, select **Troubleshooting > Error Logs**. Figure 31 on page 51 shows an example,

**Figure 31: Review Error Logs**

## System Logs

| Log File                                                | Description                        |                        |
|---------------------------------------------------------|------------------------------------|------------------------|
| File /usr/netscreen/DevSvr/var/errorLog/deviceDaemon.0  | Device Server Error Log            | <a href="#">View..</a> |
| File /usr/netscreen/DevSvr/var/errorLog/pro.dc.log      | Data Collector Error Log           | <a href="#">View..</a> |
| File /usr/netscreen/DevSvr/var/errorLog/gproDDM.log     | Device Directive Manager Error Log | <a href="#">View..</a> |
| File /usr/netscreen/DevSvr/var/errorLog/newLogWalker.0  | Log Walker Error Log               | <a href="#">View..</a> |
| File /usr/netscreen/DevSvr/var/errorLog/profilerMgr.0   | Profiler Manager Error Log         | <a href="#">View..</a> |
| File /usr/netscreen/DevSvr/var/errorLog/statusMonitor.0 | Status Monitor                     | <a href="#">View..</a> |
| File /usr/netscreen/GuiSvr/var/errorLog/guiDaemon.0     | Gui Server Error Log               | <a href="#">View..</a> |
| File /usr/netscreen/GuiSvr/var/errorLog/pro.mc.log      | Master Controller Error Log        | <a href="#">View..</a> |
| File /usr/netscreen/GuiSvr/var/errorLog/gproGDM.log     | Gui Directive Manager Error Log    | <a href="#">View..</a> |
| File /usr/netscreen/GuiSvr/var/errorLog/statusMonitor.0 | GuiSvr Status Monitor Error Log    | <a href="#">View..</a> |
| File /usr/netscreen/HaSvr/var/errorLog/highAvail.0      | High Avail Error Log               | <a href="#">View..</a> |

To view details of an individual error log, select the file you want to view and click **View**. Figure 32 on page 51 shows sample error log details.

**Figure 32: Error Log Detail**

[Module Index](#)

## View Logfile

/usr/netscreen/DevSvr/var/errorLog/gproDDM.log

Last  lines of
Only show lines with text

```
cat: /usr/netscreen/DevSvr/var/errorLog/gproDDM.log: No such file or directory
```

Last  lines of
Only show lines with text

## Network Utilities

To access basic network utilities (ping, traceroute, and nslookup) for TCP/IP Networking, select **Troubleshooting > Network Utilities**. These tools also provide an IP subnet calculator. See Figure 33 on page 51.

**Figure 33: Network Utilities Options**

### Ping

Ping is a tool for checking network connectivity. NSM*Xpress* prompts with questions so you can focus your search.

Figure 34 on page 52 shows an example.

**Figure 34: Ping Utility**

[Module Index](#)  
[Help..](#)

## Ping

Hostname 
 Verbosity Output?
  Numeric Output only?
  Bypass routing tables?

How many Packets?

Packet Size?

Pattern(s) to send (Hex)?

How many sec between sending each packet?

Pattern(s) to send (Hex)?

**How Many Packets**

Enter the number of packets this ping command will send. The default is 5. The values range from 1-99.

**Packet Size**

Enter the packet size (in bytes) this ping command will send. The default is 56. The values range from 1-9999.

**How Many Sec Between Sending Each Packet**

Enter how much time (in seconds) ping should wait between sending each packet.

**Patterns to Send (Hex)**

The data sent by ping contains a hexadecimal pattern. If you leave this option blank, ping will fill it with random data. This option is useful if you do not have problems with connectivity itself but with data loss.

**Verbosity Output**

NSMXpress lists the ICMP packets (other than ECHO\_Response) that have been received.

**Numeric Output Only**

Check this option if you do not want any attempts to be made to look up symbolic names for host addresses.

**Bypass Routing Tables**

If the host is not a directly attached network, an error is returned. This option can be used to ping a local host through an interface that has no route through it.

## Traceroute

Traceroute is a tool to print the route a packet takes to a network host. See Figure 35 on page 53.

**Figure 35: Traceroute Utility**

Module Index  
Help..

## Traceroute

Hostname:

Verbosity Output?  
 Numeric Output only?  
 Bypass routing tables?  
 Use ICMP instead of UDP?  
 Toggle Checksums?  
 Socket level debugging?

How many Hops?   
 Packet Length?   
 How many sec between sending each packet?   
 Initial time-to-live?   
 Interface:



**NOTE:** The only required field is Hostname. The value can be either a hostname or an IP address.

## Lookup

Use the lookup tool to obtain the IP address from a hostname and the hostname from an IP address (see Figure 36 on page 53). The query type drop-down list contains several types of records found in the DNS database. Enter a nameserver or select the default. If you choose the default, nslookup will use the server on which NSM*Xpress* is installed.

**Figure 36: Lookup Utility**

Module Index  
Help..

## Lookup

Hostname

Typ:

Nameserver:  Default

Timeout?

## IP Subnet Calculator

Use the IP subnet calculator to calculate the netmask for a TCP/IP-network. You can calculate a netmask by class and subnet bits or by the number of hosts (see Figure 37 on page 54). When you calculate a netmask by the number of hosts, NSMXpress returns the smallest network available.

**Figure 37: IP Subnet Calculator**

The screenshot shows two sections of the IP Subnet Calculator. The top section, titled "Calculate Netmask by Class and Bits", features a dropdown menu for "Class" set to "C (192.x.x.x-223.x.x.x)", a "Subnet Bits" dropdown set to "0", and a "Calculate Subnet" button. The bottom section, titled "Calculate Netmask by Number of Hosts", has a text input field for "Number of Hosts" and a "Calculate Subnet" button.

## Tech Support

To get contact information for Juniper Networks technical support, select **Troubleshooting > Tech Support** under Troubleshooting. To help analyze problems, select a detail type in the drop-down list box, and then click **Run Tech-Support Script**. NSMXpress creates a file you can download and send to Juniper Networks technical support. See Figure 38 on page 54.

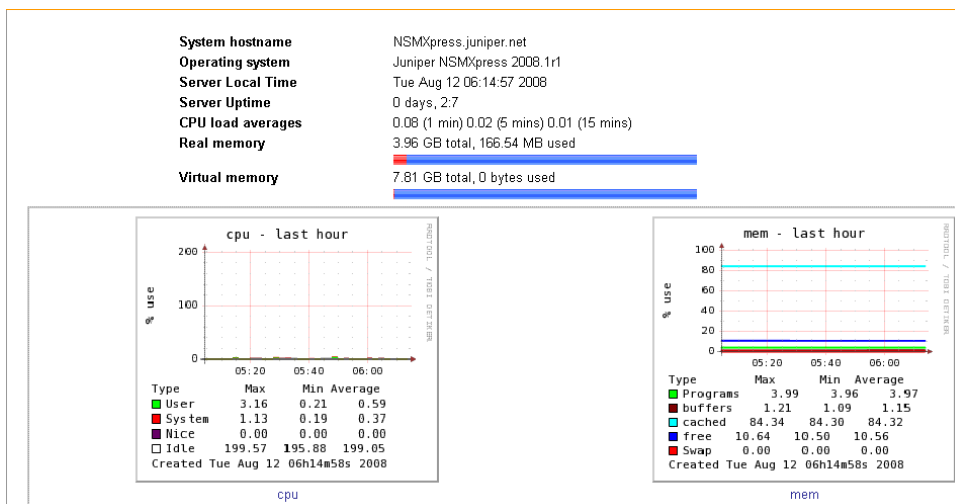
**Figure 38: Juniper Tech Support**

The screenshot shows the "Tech Support" interface. It includes a dropdown menu currently showing "Details from Gui, Device and HA servers" with a downward arrow. Below the dropdown is a "Run Tech-Support Script" button. Underneath the button, the following contact information is displayed: "JTAC WEBSITE: https://support.juniper.net", "JTAC PHONE NUMBER: 1-888-314-JTAC", and "JTAC FTP SITE: ftp.juniper.net".

## Viewing System Information

Use the System Information menu item to display information about the server, including CPU load and memory use, as shown in Figure 39 on page 55.

**Figure 39: System Information**





## **Part 2**

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- Index on page 59



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