



Security Threat Response Manager

Hardware Installation Guide

Release 2009.2

Juniper Networks, Inc.

1194 North Mathilda Avenue

Sunnyvale, CA 94089

USA

408-745-2000

www.juniper.net

Part Number: 530-032372

Copyright Notice

Copyright © 2008 Juniper Networks, Inc. All rights reserved. Juniper Networks and the Juniper Networks logo are registered trademarks of Juniper Networks Inc. in the United States and other countries. All other trademarks, service marks, registered trademarks, or registered service marks in this document are the property of Juniper Networks or their respective owners. All specifications are subject to change without notice. Juniper Networks assumes no responsibility for any inaccuracies in this document or for any obligation to update information in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

FCC Statement

The following information is for FCC compliance of Class A devices: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. The equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense. The following information is for FCC compliance of Class B devices: The equipment described in this manual generates and may radiate radio-frequency energy. If it is not installed in accordance with NetScreen's installation instructions, it may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in part 15 of the FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Consult the dealer or an experienced radio/TV technician for help. Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

Caution: Changes or modifications to this product could void the user's warranty and authority to operate this device.

Disclaimer

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR JUNIPER NETWORKS REPRESENTATIVE FOR A COPY.

Hardware Installation Guide
Release 2009.2

Copyright © 2008, Juniper Networks, Inc.

All rights reserved. Printed in USA.

Revision History

April 2010—Revision 1

Published: 2010-04-01

The information in this document is current as of the date listed in the revision history.

LIST OF FIGURES

Figure 1: STRM 500 Back Panel	7
Figure 2: STRM 2500 Front Panel	8
Figure 3: STRM 2500 Front Panel	8
Figure 4: STRM 2500 Back Panel	10
Figure 5: STRM 2500 Back Panel	10
Figure 6: STRM 5000 Front Panel	11
Figure 7: STRM 5000 Front Panel	11
Figure 8: STRM 5000 Back Panel	13
Figure 9: STRM 5000 Back Panel	13
Figure 10: Rear Panel of STRM 500	16
Figure 11: Front Panel of STRM 500	17
Figure 12: STRM 500 with the Flow Collector 4-port LAN card inserted .	18
Figure 13: System Console Window	28
Figure 14: Set the Date and Time Window	28
Figure 15: Time Zone Continent Window	29
Figure 16: Time Zone Region Window	30
Figure 17: Configure STRM Window	30
Figure 18: New Root Password Window	31
Figure 19: Confirm New Root Password Window	31

LIST OF TABLES

Table 1: Text Conventions	1
Table 2: STRM 500 Front Panel LEDs	6
Table 3: STRM 500 Front Panel Ports	7
Table 4: STRM 500 Rear View Components	7
Table 5: STRM 2500 Front Panel LEDs	9
Table 6: STRM 2500 Front Panel Ports	9
Table 7: STRM 2500 Back Panel Components	10
Table 8: STRM 5000 Front Panel LEDs	12
Table 9: STRM 5000 Front Panel Ports	12
Table 10: STRM 5000 Back Panel Components	13
Table 11: Required Ports of STRM	15
Table 12: Ethernet Port LEDs	17
Table 13: RJ-45 Console Connector Pinout	17
Table 14: Network Hierarchy	23
Table 15: Devices	24
Table 16: Asset Identification	25
Table 17: STRM 500, 2500 and 5000 Hardware Specifications	33

CONTENTS

ABOUT THIS GUIDE

Conventions	1
Technical Documentation	1
Contacting Customer Support	2

1 STRM OVERVIEW

2 HARDWARE OVERVIEW

STRM 500 Front Panel and Back Panel Indicators and Features	5
Front Panel Indicators	5
Back Panel Features	7
STRM 2500 Front Panel and Back Panel Indicators and Features	8
Front Panel Indicators	8
Back Panel Features	10
STRM 5000 Front Panel and Back Panel Indicators and Features	11
Front Panel Indicators	11
Back Panel Features	13

3 INSTALLING AND CONNECTING THE STRM HARDWARE

Additional Hardware Requirements	15
Installing the Hardware	16
LED Behavior	17
Chassis Console Port Pinouts	17
Installing the Flow Collector 4-port LAN card on STRM 500	18
Connecting a Laptop or Keyboard and a Monitor	19

4 PREPARING YOUR SYSTEM FOR STRM SOFTWARE INSTALATION

STRM Components	21
Browser Support	22
Preparing your network Hierarchy	22
Identifying Network Settings	23
Identifying Security Monitoring Devices and Flow Data Sources	23
Identifying Network Assets	24

5 SETTING UP STRM SOFTWARE AND CONFIGURING NETWORK SETTINGS

Logging Into STRM for the First Time 27
Accessing STRM 32

A HARDWARE SPECIFICATIONS

B MAINTAINING AND SERVICING THE HARDWARE

STRM Appliance Field-Replaceable Units 35
 RAID Array 35
 Power Supply 35
 Cooling Fans 36

ABOUT THIS GUIDE

This preface provides the following guidelines for using the *STRM Hardware Installation Guide*:

Conventions

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

[Table 1](#) shows the text conventions used in this guide.

Table 1 Text Conventions

Conventions	Description	Example
Bold typeface	Represents commands and key strokes in text	Click Next
Italics	Identify book names	<i>Security Threat Response Manager Administrator's Guide</i>

Technical Documentation

You can access technical documentation, technical notes, and release notes directly from the Juniper Customer Support web site at <https://www.juniper.net/support/>. Once you access the Juniper Customer Support web site, locate the product and software release for which you require documentation. Your comments are important to us. Please send your e-mail comments about this guide or any of the Juniper Networks documentation to:

techpubs-comments@juniper.net.

Include the following information with your comments:

- Document title
- Page number

**Contacting
Customer Support**

To help you resolve any issues that you may encounter when installing or maintaining STRM, you can contact Customer Support as follows:

- Open a support case using the Case Management link at <http://www.juniper.net/support>.
- Call 1-888-314-JTAC (from the United States, Canada, or Mexico) or 1-408-745-9500 (from elsewhere).

1

STRM OVERVIEW

STRM appliances are designed to respond to the right threats at the right time through effective analysis of networks, events, and audit log files. STRM has the ability to identify environmental anomalies in the network, an attack path, and the source of a threat. STRM provides network remediation for threat responses across all security products.

The STRM appliances use two drivers, Security Information Management (SIM) and Security Event Management (SEM), for security analysis of external and internal threats. SIM provides reporting and analysis of data from host systems, applications, and security devices to support security policy compliance management, internal threat management, and regulatory compliance initiatives. SEM improves security incident response capabilities by processing data from security devices and network devices. It helps network administrators to provide effective responses to external and internal threats.

4 STRM OVERVIEW

2

HARDWARE OVERVIEW

This chapter gives an overview of the STRM appliances. It contains the following sections:

- [STRM 500 Front Panel and Back Panel Indicators and Features](#)
- [STRM 2500 Front Panel and Back Panel Indicators and Features](#)
- [STRM 5000 Front Panel and Back Panel Indicators and Features](#)

STRM 500 Front Panel and Back Panel Indicators and Features

The STRM 500 appliance has a 2U rack-mountable chassis with optional redundant AC and DC power supplies, a 2U hot-swappable dual redundant RAID1 array, 8 GB of memory, and a Gigabit Ethernet controller.

Front Panel Indicators

See [Figure 1](#) for the front panel features of the system. [Table 1](#) and [Table 2](#) describes the front panel features.

Figure 1 STRM 500 Front Panel

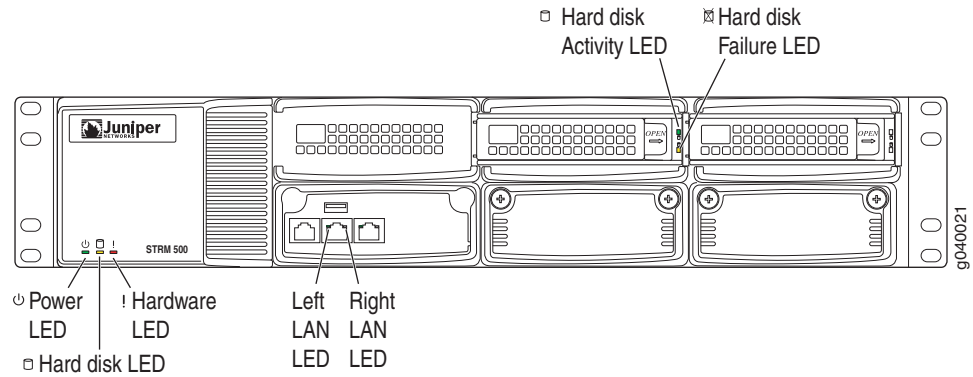


Table 1 STRM 500 Front Panel LEDs

LEDs	Description
LED	<p>Chassis LEDs</p> <ul style="list-style-type: none"> • Power (green) - Indicates that the appliance is powered on • Hard disk (yellow) - Indicates the hard disk is in use (writing or reading data) • Hardware (red) - Indicates that a fan, power supply, or temperature alarm has occurred <p>LAN LEDs</p> <ul style="list-style-type: none"> • Left LED (green) - Indicates that the link is active • Right LED - Indicates the link speed <ul style="list-style-type: none"> off - 10 Mbps green - 100 Mbps yellow - 1 Gbps • Hard disk tray LEDs <ul style="list-style-type: none"> • Top (green) - For disk activity • Bottom (yellow) - For disk failure

Table 2 STRM 500 Front Panel Ports

Ports	Description
Console port	One RJ-45 console port
Traffic port	Two RJ-45 Ethernet 10/100/1000

Back Panel Features See [Figure 2](#) for the back panel features of the system. [Table 3](#) describes the back panel features.

Figure 2 STRM 500 Back Panel

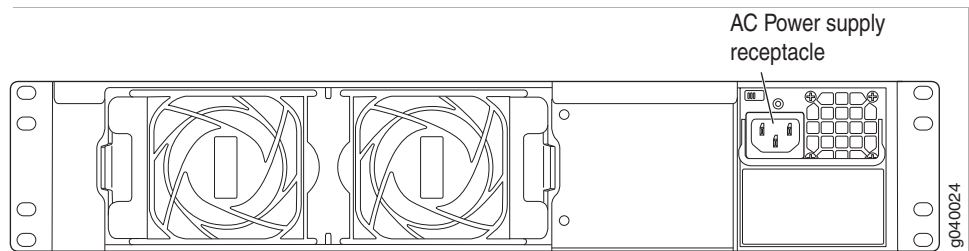


Table 3 STRM 500 Rear View Components

Components	Description
Cooling fans	Draws air through vents of the chassis and exhaust it through vents on the other side of the chassis
Power supply	Provides power to all components

STRM 2500 Front Panel and Back Panel Indicators and Features

The STRM 2500 appliance has a 2U rack-mountable chassis with optional redundant AC and DC power supplies, 2U hot-swappable dual redundant RAID5 array, 8 GB of memory, and a Gigabit Ethernet controller.

Front Panel Indicators

See [Figure 3](#) and [Figure 4](#) for the front panel features of the system. [Table 4](#) and [Table 5](#) describes the front panel features.

Figure 3 STRM 2500 Front Panel

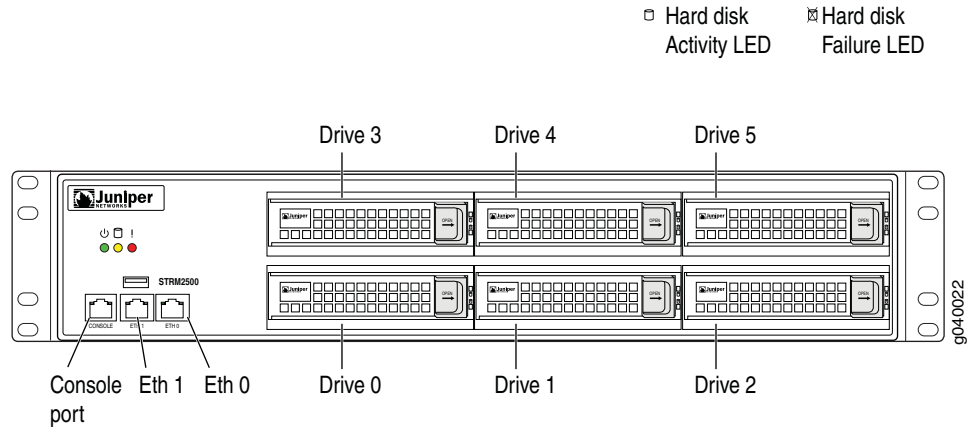


Figure 4 STRM 2500 Front Panel

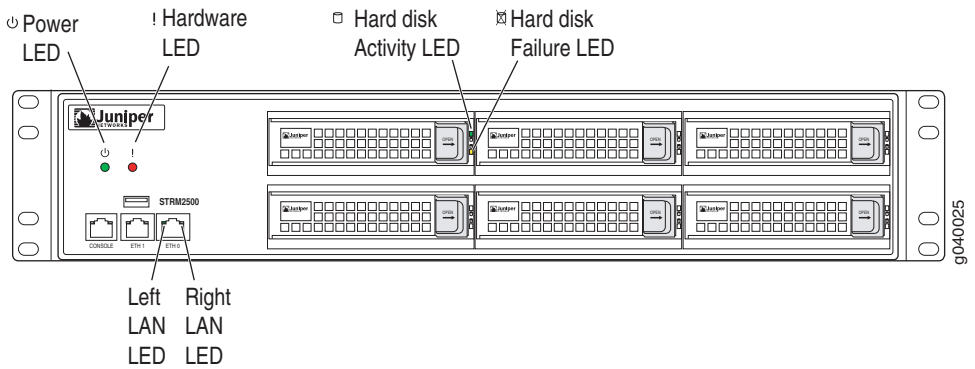


Table 4 STRM 2500 Front Panel LEDs

LEDs	Description
LED	<p>Chassis LEDs</p> <ul style="list-style-type: none"> • Power (green) - Indicates that the appliance is powered on • Hardware (red) - Indicates that a fan, power supply, or temperature alarm has occurred <p>LAN LEDs</p> <ul style="list-style-type: none"> • Left LED (green) - Indicates that the link is active • Right LED - Indicates the link speed <ul style="list-style-type: none"> off -10 Mbps green - 100 Mbps yellow - 1Gbps • Hard disk module LEDs <ul style="list-style-type: none"> • Top (green) - For disk activity • Bottom (yellow) -For disk failure

Table 5 STRM 2500 Front Panel Ports

Ports	Description
Console port	One RJ-45 console port
Traffic port	Two RJ-45 Ethernet 10/100/1000

Back Panel Features See [Figure 5](#) and [Figure 6](#) for the back panel features of the system. [Table 6](#) describes the back panel features.

Figure 5 STRM 2500 Back Panel

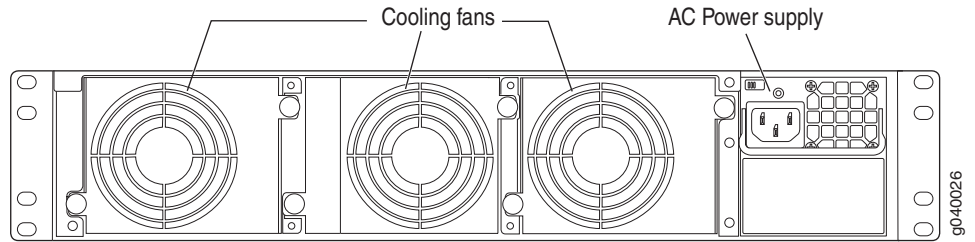


Figure 6 STRM 2500 Back Panel

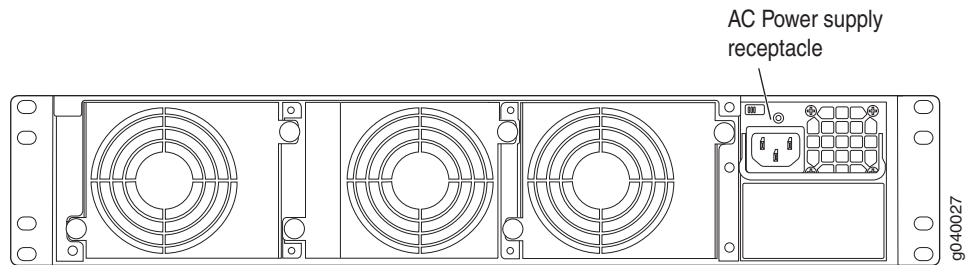


Table 6 STRM 2500 Back Panel Components

Components	Description
Cooling fans	Draws air through vents of the chassis and exhaust it through vents on the other side of the chassis
Power supply	Provides power to all components

STRM 5000 Front Panel and Back Panel Indicators and Features

The STRM 5000 appliance has a 2U rack-mountable chassis with optional redundant AC and DC power supplies, 2U hot-swappable dual redundant RAID10 array, 8 GB of memory, and a Gigabit Ethernet controller.

Front Panel Indicators

See [Figure 7](#) and [Figure 8](#) for the front panel features of the system. [Table 7](#) and [Table 8](#) describes the front panel features.

Figure 7 STRM 5000 Front Panel

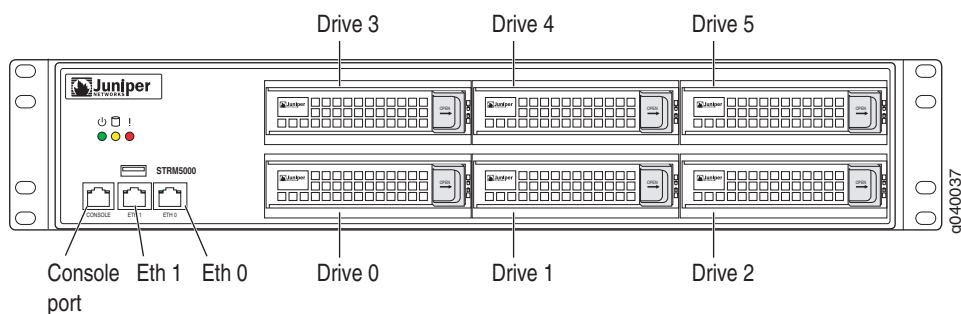


Figure 8 STRM 5000 Front Panel

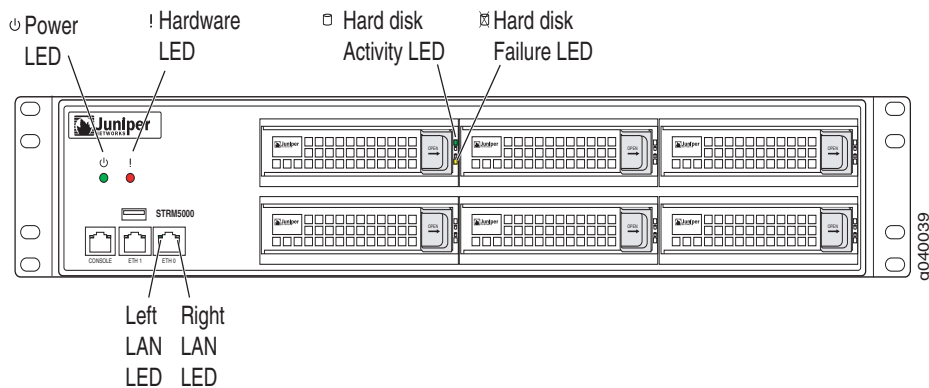


Table 7 STRM 5000 Front Panel LEDs

LEDs	Description
LED	<p>Chassis LEDs</p> <ul style="list-style-type: none"> • Power (green) - Indicates that the appliance is powered on • Hardware (red) - Indicates that a fan, power supply, or temperature alarm has occurred <p>LAN LEDs</p> <ul style="list-style-type: none"> • Left LED (green) - Indicates that the link is active • Right LED - Indicates the link speed off -10 Mbps green - 100 Mbps yellow - 1Gbps • Hard disk module LEDs • Top (green) - For disk activity • Bottom (yellow) -For disk failure

Table 8 STRM 5000 Front Panel Ports

Ports	Description
Console port	One RJ-45 console port
Traffic port	Two RJ-45 Ethernet 10/100/1000

Back Panel Features See [Figure 9](#) and [Figure 10](#) for the back panel features of the system. [Table 9](#) describes the back panel features.

Figure 9 STRM 5000 Back Panel

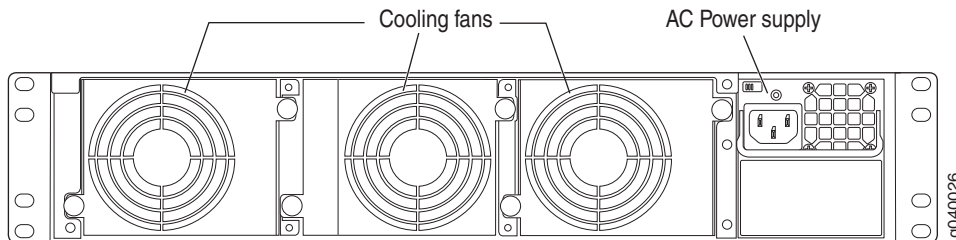


Figure 10 STRM 5000 Back Panel

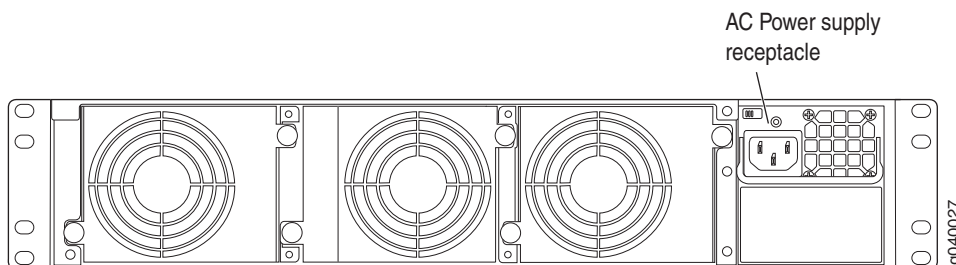


Table 9 STRM 5000 Back Panel Components

Components	Description
Cooling fans	Draws air through vents of the chassis and exhaust it through vents on the other side of the chassis
Power supply	Provides power to all components

3

INSTALLING AND CONNECTING THE STRM HARDWARE

This chapter explains how to install and connect the STRM hardware. This chapter contains the following section:

- [Additional Hardware Requirements](#)
- [Installing the Hardware](#)
- [Installing the Flow Collector 4-port LAN card on STRM 500](#)
- [Connecting a Laptop or Keyboard and a Monitor](#)

Additional Hardware Requirements

Before installing your STRM systems, ensure that you have access to the following additional hardware components:

- A serial console.
- To make sure that your STRM data is preserved during a power failure, we recommend that all STRM appliances or systems running STRM software storing data (such as, Consoles, Event Processors, or Flow Processors) be equipped with an Uninterrupted Power Supply (UPS).

We recommend that you install STRM 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 Networks update server via HTTP, Network File System (NFS) file servers (optional), and client/server applications (optional). [Table 10](#) shows port information on the STRM appliance.

Table 10 Required Ports of STRM

Direction	Port	Description	LAN	Internet	Depends on Configuration
In	22	SSH command-line management	Yes	No	No
	443	Web interface	Yes	No	No
Out	22	SSH connection to new managed device	Yes	Yes	No

Table 10 Required Ports of STRM

Direction	Port	Description	LAN	Internet	Depends on Configuration
	23	Telnet connection to new managed device	Yes	No	Yes
	53	DNS lookups	Yes	No	No
	80	System Security Updates from Juniper Networks	Yes	Yes	Yes
	123	Network Time Protocol (NTP) time synchronization	Yes	Yes	Yes

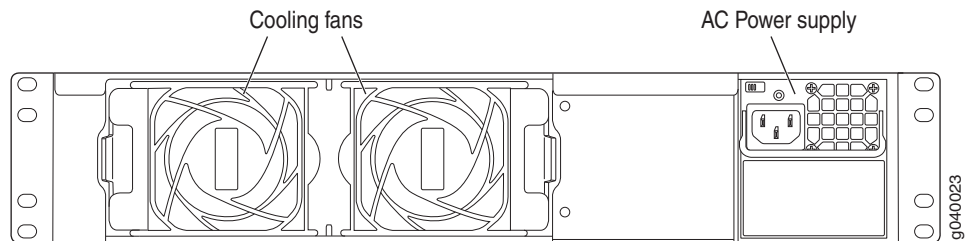
Installing the Hardware

Place the shipping container on a flat surface and remove the hardware components with care.

To install the STRM appliance:

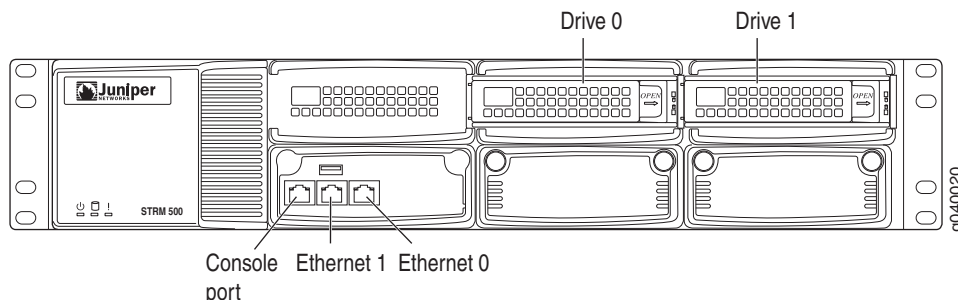
- Step 1** Mount the STRM appliance in your server rack using the attached mounting brackets.
- Step 2** Plug the power cord into the AC receptacle on the rear panel. See [Figure 11](#).
If your STRM contains two power supplies, plug a power cord into each of the AC receptacles.

Figure 11 Rear Panel of STRM 500



- Step 3** Plug the other end of the power cord into a wall socket.
If your STRM appliance contains two power supplies, plug each power cord into a separate power circuit to ensure that the device continues to receive power if one of the power circuits fails.
- Step 4** Plug the Ethernet cable into the port labeled ETH0 on the front panel. See [Figure 12](#).

Figure 12 Front Panel of STRM 500



When you turn on the power, the internal port uses two LEDs to indicate the LAN connection status, See [Table 11](#).

Step 5 Plug straight-through or crossover cable into the console port. See [Figure 12](#). This cable is shipped with your STRM appliance. It is a console cable and DB-9 connector with 1-8 pinouts. See [Table 12](#) for RJ-45 chassis console connector pinout information.

Step 6 Push the power button on the front panel. The green LED below the power button turns on. The STRM hard disk LED turns on whenever the appliance reads data from or writes data to the STRM hard disk.

LED Behavior

Table 11 Ethernet Port LEDs

LAN Status	LED 1	LED 2
10 Mbps connection	Off	N/A
100 Mbps connection	Green	N/A
1000 Mbps connection	Orange	N/A
Data is being transferred	Orange, green, or off	Blinking
No connection	Off	Off

Chassis Console Port Pinouts

Table 12 RJ-45 Console Connector Pinout

Pin	Signal	Description
1	RTS Output	Request to Send
2	DTR Output	Data Terminal Ready
3	TxD Output	Transmit Data
4	GND	Chassis Ground

Table 12 RJ-45 Console Connector Pinout

Pin	Signal	Description
4	GND	Chassis Ground
6	RxD Input	Receive Data
7	DSR Input	Data Set Ready
8	CTS Input	Clear to Send

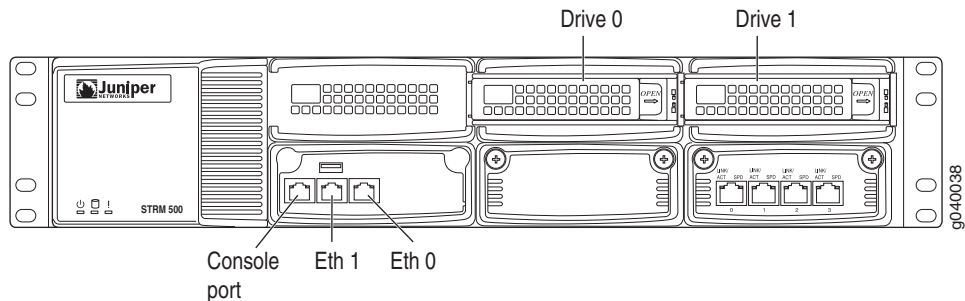
Installing the Flow Collector 4-port LAN card on STRM 500

The Flow Collector collects data from devices and various live and recorded feeds such as network taps, span/mirror ports, NetFlow, and STRM flow logs. The Flow Collector then groups related individual packets into a flow. A flow starts when the Flow Collector detects the first packet with a unique source IP address, destination IP address, source port, and destination port as well as other specific protocol options, which may determine the start of a communication. Each additional packet is evaluated and counts of bytes and packets are added to the statistical counters in the flow record. At the end of an interval a status record of the flow is sent to a Flow Processor and statistical counters for the flow are reset. A flow ends when no activity for the flow is seen within the configured period of time. Flow reporting generates records of all the active or expired flows during a specified period of time. STRM defines these flows as a communication session between two pairs of unique IP address/ports that use the same protocol. If the protocol does not support port-based connections, STRM combines all packets between the two hosts into a single flow record. However, a Flow Collector does not record flows until a connection is made to another STRM component and data is retrieved.

To install the Flow Collector 4-port LAN card on an STRM 500 unit:

- Step 1** Power down the STRM 500 unit.
- Step 2** Unscrew the two thumbscrews on the right-most blank IO module and remove the dummy tray.
- Step 3** Insert the 4-port 1GB LAN module firmly and screw in the two thumbscrews.

Figure 13 STRM 500 with the Flow Collector 4-port LAN card inserted



- Step 4** Power on the STRM 500 unit and watch it boot on the serial console.
- Step 5** Verify the link and activity LED on the new 4-port 1GB LAN module light up when connecting the ports to your Ethernet switch with a standard CAT5e or CAT6 LAN cable.

Step 6 Login to the admin console and you should now see 4 more Ethernet interfaces appear as eth2-eth5. The 4-port are labeled 0, 1, 2 and 3 and should map to Ethernet interfaces as follows (default in Linux):

- 0 = eth5
- 1 = eth4
- 2 = eth3
- 3 = eth2

Connecting a Laptop or Keyboard and a Monitor

A STRM appliance includes STRM software and a CentOS-4 operating system. You control the appliance through a connected laptop or keyboard and monitor.

Follow the appropriate step:

- Connect a laptop to the RJ-45 serial port on the front panel of the appliance.
- Connect a keyboard and monitor to their respective ports on the front panel.

See [Table 2](#) and [Table 3](#) for the location of the ports.

4

PREPARING YOUR SYSTEM FOR STRM SOFTWARE INSTALATION

This chapter explains how to prepare your system and network before you install the STRM software. It contains the following sections:

- [STRM Components](#)
- [Browser Support](#)
- [Preparing your network Hierarchy](#)
- [Identifying Network Settings](#)
- [Identifying Security Monitoring Devices and Flow Data Sources](#)
- [Identifying Network Assets](#)

STRM deployment may consist of STRM installed on one or multiple systems. You can install any or all components on a single server for small enterprises or distributed across multiple servers for maximum performance and scalability in large enterprise environments.

To ensure a successful STRM deployment, adhere to the recommendations in this document.

STRM Components

STRM components that may exist in your deployment include:

- **Flow Processor** - The Flow Processor creates superflows (aggregate flows) before the flows reach the Classification Engine.
- **Classification Engine** - Analyzes flows to classify and identify all traffic in the enterprise network into multiple objects.
- **Console** - Provides the interface for STRM. The Console provides real time views, reports, alerts, and in-depth flow views of network traffic and security threats. This Console is also used to manage distributed STRM deployments. The Console is accessed from a standard Web browser. When you access the system, it prompts you to enter the user name and password, which must be configured during the installation process.
- **Update Daemon** - Stores the database and TopN data. Typically, the Update Daemon is installed on the Console.
- **Flow Writer** - Stores the flow and asset profile data.
- **Event Collector** - Gathers events from local and remote device sources. The Event Collector normalizes events and sends the information to the Event

Processor. Before being sent to the Event Processor, the Event Collector bundles identical events to conserve system usage. During this process, Magistrate risk factors map the events to the STRM Identification System and create the bundles.

- **Event Processor** - Processes events collected from one or more Event Collectors. When events are received, the Event Processor correlates the information from STRM and distributes it to the appropriate area, depending on the type of event. The Event Processor also includes information gathered by STRM to indicate any behavioral changes or policy violations for the event. Rules are applied to the events that allow the Event Processor to process according to the configured rules. Once complete, the Event Processor sends the events to the Magistrate.
- **Magistrate** - Provides the core processing components. You can add one Magistrate component for each deployment. The Magistrate provides views, reports, alerts, and analysis of network traffic and security events. The Magistrate processes the event against the defined custom rules to create an offense. If no custom rules exist, the Magistrate uses the default rules to process the event. An offense is an event that has been processed through STRM using multiple inputs, individual events, and events combined with analyzed behavior and vulnerabilities. The Magistrate prioritizes the offenses and assigns a magnitude value based on several factors, including number of events, severity, relevance, and credibility.

Browser Support

To access the STRM interface, you must have a browser installed on your client system. STRM supports the following Web browsers:

- Microsoft Internet Explorer 7.0
- Firefox 2.0

Preparing your network Hierarchy

STRM uses the network hierarchy to understand your network traffic and provides you with the ability to view network activity for your entire deployment. STRM supports any network hierarchy that can be defined by a range of IP addresses.

You can create your network based on many different variables, including geographical or business units. For example, your network hierarchy may include corporate IP address ranges (internal or external), physical departments or areas, mails servers, and Web servers.

Once you define the components you wish to add to your network hierarchy, install STRM, and then configure the network hierarchy using the STRM interface. For each component you wish to add to the network hierarchy, use [Table 13](#) to indicate each component in your network map.

At a minimum, we recommend that you define objects in the network hierarchy for:

Internal/external demilitarized zone (DMZ)

- VPN
- All internal IP address space (for example, 0.0.0.0/8)
- Proxy servers
- Network Address Translation (NAT) IP address range
- Server network subnets
- Voice over IP (VoIP) subnets

Table 13 Network Hierarchy

Description	Name	IP/CIDR Value	Weight
-------------	------	---------------	--------

For more information, see the *STRM Administration Guide*.

Identifying Network Settings

Before you install STRM, you must have the following information for each system you wish to install:

- Hostname
- IP address
- Network mask address
- Subnet mask
- Default gateway
- Primary DNS server
- Secondary DNS server (Optional)
- Public IP address for networks using Network Address Translation (NAT)
- E-mail server
- NTP server (Console only) or Time server

Identifying Security Monitoring Devices and Flow Data Sources

STRM can collect and correlate events received from external sources such as security equipment (for example, firewalls, VPNs, or IDSs) and host or application security logs, such as - window logs. Device Support Modules (DSMs) and Flow Collectors allow you to integrate STRM with this external data. STRM automatically discovers sensor devices that are sending system log (syslog) messages to an Event Collector. The sensor devices that are automatically

discovered by STRM appear in the Sensor Devices window within the STRM Administration Console. Once auto discovery is completed, you should disable the Auto Detection Enabled option in the Event Collector configuration. For more information, see the *STRM Administration Guide*.

Non-syslog-based information sources must be added to your deployment manually. For more information, see the *Managing Sensor Devices Guide*. For each device you wish to add to your deployment, record the device in [Table 14](#).

Table 14 Devices

Device Type	QTY	Product Name/Version	Link Speed & Type	Msg Level	Avg Log Rate (Event/Sec)	No. of Users	Network Location	Geographic Location	Credibility (0 to 10)
-------------	-----	----------------------	-------------------	-----------	--------------------------	--------------	------------------	---------------------	-----------------------

In this table:

- Link Speed & Type indicates the maximum network link (in Kbps) for firewall, router, and VPN devices. Record the primary application of the host system - for example, e-mail, anti-virus, domain controller, or workstation.
- Msg Level indicates the message level you wish to log - for example, critical, informational, or debug.
- No. of Users indicates the maximum number of hosts and users using or being served by this device.
- Network Location indicates whether this device is located on the Internet demilitarized zone (DMZ), Intranet, or Extranet DMZ.
- Geographic Location indicates whether the devices are located on the same LAN as STRM or sending logs over the WAN identified in the Link Speed & Type column.

Credibility indicates the integrity of an event or offense as determined by the credibility rating from source devices. Credibility increases as multiple sources report the same event.

Identifying Network Assets

STRM can learn about your network and server infrastructure based on flow data. The Server Discovery function uses the STRM Asset Profile database to discover many types of servers.

Defining certain additional server and IP address types also improves tuning results. [Table 15](#) provides a list of possible servers. See the *STRM Users Guide* for information on defining servers within STRM. If your network includes a large number of servers, you can use CIDR or IP subnet addresses within the server networks category.

Table 15 Asset Identification

Server	IP Address(es)	QTY	Name
NAT Address Range			
Vulnerability Scanners			
Network Management Servers			
Proxy Servers			
Virus definition and Other Update Servers			
Windows Server Networks, such as, domain controllers or exchange servers			

5

SETTING UP STRM SOFTWARE AND CONFIGURING NETWORK SETTINGS

This chapter provides information on setting up your STRM software and configuring network settings:

- [Logging Into STRM for the First Time](#)
- [Accessing STRM](#)

Logging Into STRM for the First Time

To log into STRM for the first time:

- Step 1** Connect your laptop or keyboard and monitor to the STRM device, as described in Chapter 2.



Note: When using a laptop to connect to the system, you must use a terminal program, such as HyperTerminal. Be sure to set Connect Using to the appropriate COM port of the serial connector and Bits per second to 9600. You must also set Stop Bits(1), Data bits (8), and Parity (None).

- Step 2** Power on the system and log in to STRM:

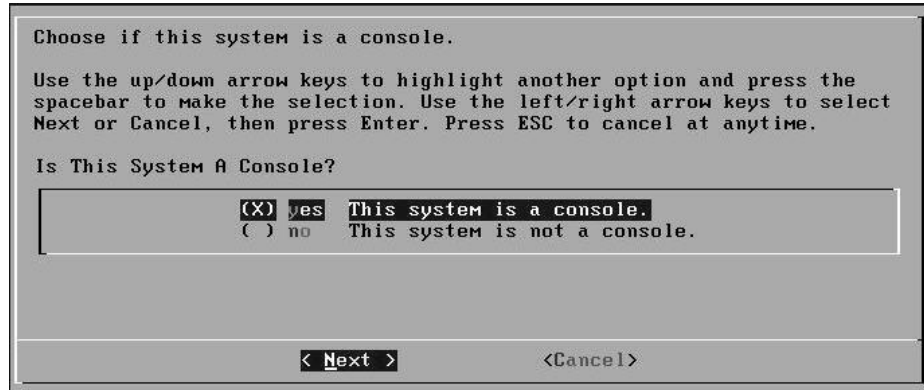
Username: `admin`
Password: `password`



Note: The username and password are case sensitive.

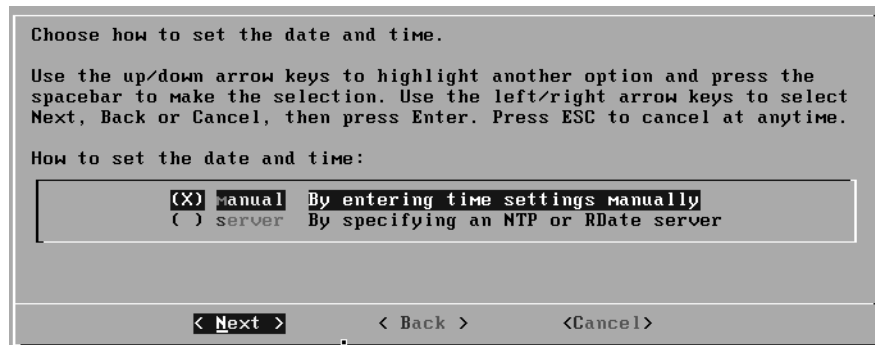
- Step 3** Press Enter. The End User License Agreement (EULA) appears.
- Step 4** Read the information in the window. Press the Spacebar to advance each window until you have reached the end of the document. Type YES to accept the agreement, then press Enter. The System Console window appears.

Figure 14 System Console Window



- Step 5** Using the up/down arrow keys, highlight one of the following options:
- **Yes** - Select this option only if this system is a Console. If you select this option, the Tuning Template window appears. Go to [Step 6](#).
 - **No** - Select this option only if this system is not a Console. If you select this option the Time Zone Continent window appears. Go to [Step 11](#).
- Step 6** Using the up or down arrow keys, select one of the following tuning templates:
- **Enterprise** - Tunes properties for internal network activity.
 - **University** - Tunes properties for education-specific concerns.
 - **ISP** - Tunes properties for Internet Service Provider (ISP) concerns.
- Step 7** Using the left or right arrow keys, select Set Template. Press the Enter key. The Set the Date and Time window appears.

Figure 15 Set the Date and Time Window



- Step 8** Using the up or down arrow keys, select the method you wish to use to set the date and time:
- **Manual** - Allows you to manually input the time and date. Use the Spacebar to select the option and then use the Tab key to select the Next option. Press Enter. The Current Date and Time window appears. Go to [Step 8](#).

- Server - Allows you to specify your time server. Use the Spacebar to select the option and then use the Tab key to select the Next option. Press Enter. The Enter Time Server window appears. Go to [Step 9](#).

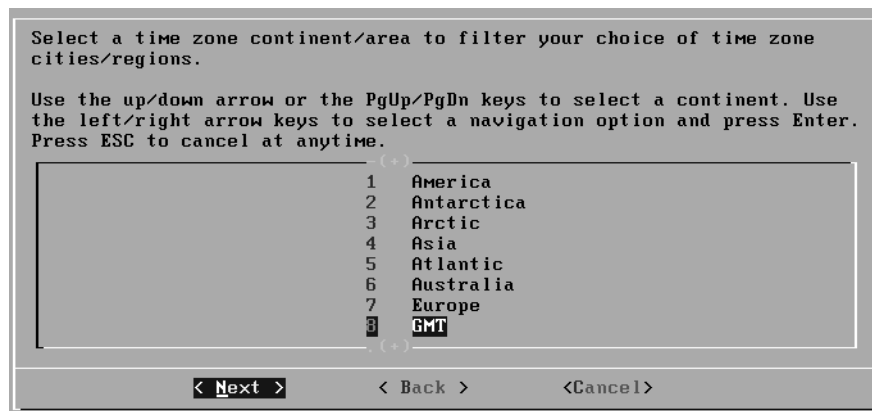
Step 9 To manually enter the time and date:

- a Enter the current date and time.
- b Using the left or right arrow keys, select Next. Press Enter.
- c Go to [Step 10](#).

Step 10 To specify a time server:

- a In the text field, enter the time server name or IP address.
- b Using the left or right arrow keys, select Next. Press Enter. The Time Zone Continent window appears.

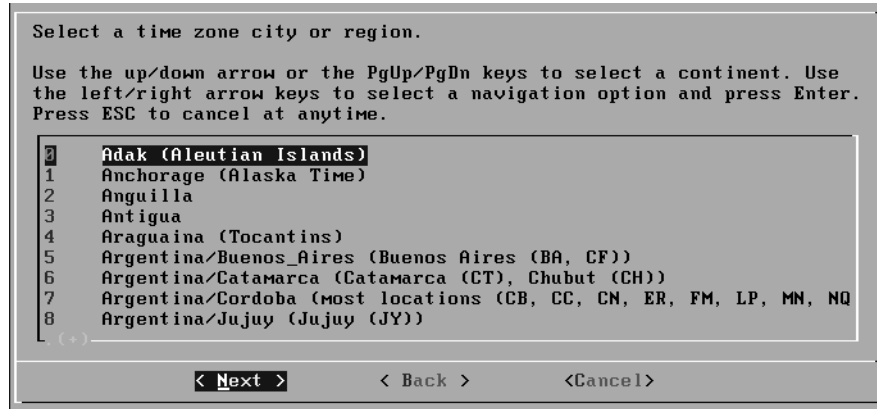
Figure 16 Time Zone Continent Window



Step 11 To select the time zone continent:

- a Using the up or down arrow keys, or the PageUp or PageDown keys, select your time zone continent or area.
- b Using the left or right arrow keys, select Next, then press Enter. The Time Zone Region window appears.

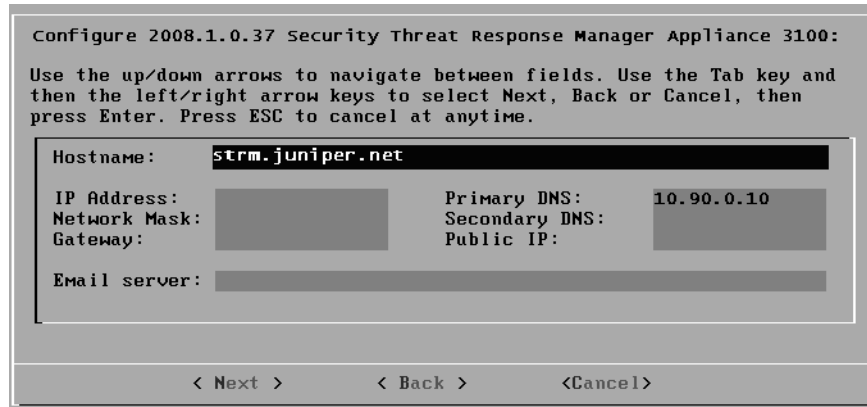
Figure 17 Time Zone Region Window



Note: The options that appear in this window are regions that are associated with the continent or area previously selected.

- c Using the up or down arrow keys, or the page up/page down keys, select your time zone region.
- d Using the left or right arrow keys, select Next. Press the Enter key. The Configure STRM window appears.

Figure 18 Configure STRM Window



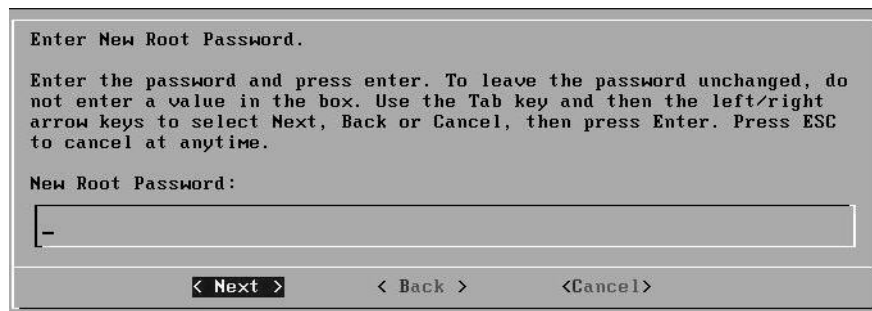
Step 12 To configure the STRM network settings, enter values for the following parameters. Use the up or down arrow keys to navigate the fields:

- Hostname - Specify a fully qualified domain name as the system hostname.
- IP Address - Specify the IP address of the system.
- Netmask - Specify the network mask address for the system.
- Gateway - Specify the default gateway of the system.
- Primary DNS - Specify the primary DNS server.

- Secondary DNS - Optional. Specify the secondary DNS server.
- Public IP - Optional. Specify the public IP address of the server. The server uses this IP address to communicate with another server that belongs to a different network using Network Address Translation (NAT). NAT translates an IP address in one network to a different IP address in another network.
- Email Server - Specify the e-mail server. If you do not have an e-mail server, specify localhost in this field.

Step 13 Use the Tab key to move to the Next option. Press Enter. The New Root Password window appears.

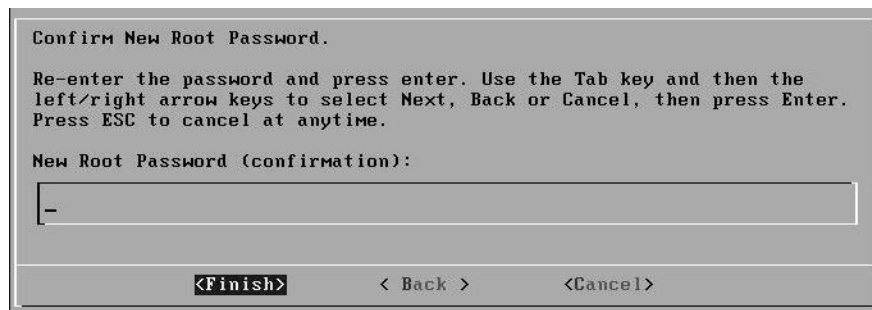
Figure 19 New Root Password Window



Step 14 To configure the STRM root password:

- a Type a new password.
- b Use the Tab key to move to the Next option. Press Enter. The Confirm New Root Password window appears.

Figure 20 Confirm New Root Password Window



- c Retype your new password to confirm it.
- d Use the Tab key to move to the Finish option. Press Enter. A series of messages appear as STRM continues with the installation. This is typically a three to five minute process. The Configuration is Complete window appears.

Step 15 Press Enter to select OK.

You are now ready to access STRM. For more information, see the section [Accessing STRM](#).

Accessing STRM To access the STRM interface:

Step 1 Open your Web browser.

Step 2 Log in to STRM:

`https://<IP Address>`

`<IP Address>` is the IP address of the STRM system.

The default values are:

Username: `admin`

Password: `<root password>`

`<root password>` is the new root password you set during the installation process.

Step 3 Click Login To STRM.

STRM includes a default license key that allows you to access the interface for five weeks. A window shows the expiry date of the temporary license key. For information on installing a permanent license key, see the *STRM Administration Guide*.



Note: You will need a permanent license for the STRM appliance to upgrade to a higher version. If you have a temporary license, the upgrade will fail; re-run the installer to upgrade to a higher version.

A

HARDWARE SPECIFICATIONS

See [Table 16](#) for hardware specifications of STRM 500 and STRM 2500.

Table 16 STRM 500, 2500 and 5000 Hardware Specifications

	STRM 500	STRM 2500 and 5000
Physical Specification		
Depth	450 mm 17.72 in.	597.5 mm 23.52 in.
Width	438.4 mm 17.26 in.	438.4 mm 17.26 in.
Height	88 mm 3.5 in.	88 mm 3.5 in.
Weight	26 lbs 2 oz	STRM 2500: 39 lbs 5 oz STRM 5000: 43lbs 10oz
Warranty	1 year HW, 90 days SW	1 year HW, 90 days SW
Peak inrush	<25 A 400w AC, <60A 710 watt DC	<60 A for both AC and DC modules
Fans	2x80 mm redundant hot-swap	3 x 80mm redundant hot-swap
Rack mountable	Front and rear or mid-mount	Front and rear or mid-mount
Ports	1 console, 2x RJ-45 10/100/1000	1 console, 2x RJ-45 10/100/1000
Power	90 V to 264 V hot-swap dual redundant 400 watt AC power module, 90 V to 264 V hot-swap dual redundant 710 watt DC power module -48V DC power supply (optional) Max efficiency: 90% 400 watt AC, 89% 710 watt DC	90 V to 264 V hot-swap dual redundant 700 watt AC power module, 90 V to 264 V hot-swap dual redundant 710 watt DC power module -48 V DC power supply (optional) Max efficiency: 80% 700 watt AC, 89% 710 watt DC
Environmental specifications		
Temperature operating	5°C – 40°C 41°F – 104°F	5°C – 40°C 41°F – 104°F

	STRM 500	STRM 2500 and 5000
Temperature storage	-40°C – 70°C -40°F – 158°F	-40°C – 70°C -40°F – 158°F
Humidity operating	8% - 90% non-condensing	8% - 90% non-condensing
Humidity storage	5% - 95% non-condensing	5% - 95% non-condensing
Altitude operating	10000' maximum	10000' maximum
Altitude storage	40000' maximum	40000' maximum
Compliance and safety		
Safety certification	CAN/CSA-C22.2 No. 60950-1-03 UL60950-1:2003 EN60950-1:2001+A11 IEC 60950-1:2001	CAN/CSA-C22.2 No. 60950-1-03 UL60950-1:2003 EN60950-1:2001+A11 IEC 60950-1:2001
Emissions certification (FCC Class A with -6dB margin is a minimum requirement)	FCC Class A, EN 55022 Class A, EN 55024 Immunity, EN 61000-3-2, VCCI Class A	FCC Class A, EN 55022 Class A, EN 55024 Immunity, EN 61000-3-2, VCCI Class A

B

MAINTAINING AND SERVICING THE HARDWARE

STRM Appliance Field-Replaceable Units

The STRM chassis supports three types of field-replaceable units (FRUs) that you can add or replace. The FRUs include redundant hot swappable hard disks, power supplies, and fans.

RAID Array

The STRM appliance ships with hot-swappable hard disks to offer component redundancy. The STRM 500 appliance has a RAID1 configuration (two 250 GB hard disks). The second (redundant) disk maintains a copy of the software image and configuration information on the working hard disk. If the working hard disk fails, the redundant hard disk immediately assumes responsibility for STRM operations. STRM 2500 has a RAID5 configuration (six 250 GB hard disks). You can hot-swap the disk if any one of the disks fails. STRM 5000 has a RAID10 configuration (six 500 GB hard disks). You can hot-swap the disk if any one of the disks fails.

Redundant array of independent disk (RAID) is an organization of multiple disks of fault tolerance and performance. It is used in the servers for data storage and to replicate data among multiple hard disk drives. There are different RAID levels designed to increase data reliability and increased I/O performance.

The key concepts in RAID are:

- Mirroring - copy data to more than one disk
- Striping - split data across more than one disk
- Error correction - redundant data storage to detect and resolve problems

STRM 500, STRM 2500, and STRM 5000 use RAID1, RAID5, and RAID10 respectively. RAID1 uses mirroring and duplexing techniques to copy data to the redundant disk. RAID5 uses block interleaved distributed parity technique to provide data striping at the byte level. In RAID10, drives are striped for performance, and all striped drives are duplicated for fault tolerance.

Power Supply

The STRM appliances has a single AC power supply module. But the STRM appliances can support dual redundant power supply modules. If one power supply fails, the optional second power supply assumes responsibility for the entire power load. STRM appliances also have a DC power supply option if you need DC power. You can have both AC and DC power supplies in the same chassis.

Cooling Fans The STRM 500 appliance has two cooling fans and the STRM 2500 and STRM 5000 appliances have three cooling fans. The fans are hot-swappable.