

## Chapter 2

# Installing, Reconfiguring, Reinstalling, Upgrading, or Uninstalling the JUNOScope Software

This chapter describes how to install the JUNOScope software to run on a UNIX server in your network, how to connect to the software from a supported Web browser, and how to log in. It also describes how to reinstall, upgrade, and deinstall the software.

This chapter includes the following topics:

- JUNOScope Software System Requirements on page 20
- JUNOScope Software Client Workstation Requirements on page 21
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## JUNOScope Software System Requirements

You can install the JUNOScope software on a UNIX Sun Solaris or Linux server. Ensure that the UNIX server on which you install the JUNOScope software meets the minimum system requirements. For a Sun Solaris server, see Table 6. For a Linux server, see Table 7.

### Sun Solaris Server System Minimum Requirements

Before you install the JUNOScope software on a UNIX Sun Solaris server, ensure that the server meets the minimum system requirements shown in Table 6.

**Table 6: JUNOScope Minimum Sun Solaris Server System Requirements**

System	Minimum Requirement
Operating system	Solaris 5.8 and above
Processor	UltraSPARC III or equivalent
Speed	2.8 GHz or faster
RAM	1 gigabyte (GB)
Free disk space	1 GB

### Red Hat Linux Server System Minimum Requirements

Before you install the JUNOScope software on a UNIX Linux server, ensure that the server meets the minimum system requirements shown in Table 7. (See also “Red Hat Enterprise Linux ES File Package Requirements” on page 21.)

**Table 7: JUNOScope Minimum Linux Server System Requirements**

System	Minimum Requirement
Hardware	Red Hat certified hardware platforms
Operating system	Red Hat Enterprise Linux ES version 3 and 4
Processor	Pentium 4 processor
Speed	2.8 GHz or faster
RAM	1 GB
Free disk space	1 GB



**NOTE:** To receive system log messages from the JUNOScope software, start `syslogd` in Red Hat Enterprise Linux with the `-r` option.

## Red Hat Enterprise Linux ES File Package Requirements

If a minimal install of Red Hat Enterprise Linux ES is done on the server, the JUNOScope software administrator should ensure that the file packages shown in Table 8 are installed for the JUNOScope software to run properly. Each package should be available in a full install of Red Hat Enterprise Linux ES.

**Table 8: Red Hat Enterprise Linux ES File Package Requirements**

Version	Required File Packages
Red Hat Enterprise Linux ES version 3 (Update 5)	krb5-libs-1.2.7-44.i386.rpm XFree86-libs-4.3.0-81.EL.i386.rpm
Red Hat Enterprise Linux ES version 3 (Update 6)	krb5-libs-1.2.7-47.i386.rpm XFree86-libs-4.3.0-97.EL.i386.rpm
Red Hat Enterprise Linux ES version 4 (Update 1)	compat-libcom_err-1.0-5.i386.rpm krb5-libs-1.3.4-12.i386.rpm xorg-x11-deprecated-libs-6.8.2-1.EL.13.6.i386.rpm xorg-x11-libs-6.8.2-1.EL.13.6.i386.rpm
Red Hat Enterprise Linux ES version 4 (Update 2)	compat-libcom_err-1.0-5.i386.rpm krb5-libs-1.3.4-17.i386.rpm xorg-x11-deprecated-libs-6.8.2-1.EL.13.6.i386.rpm xorg-x11-libs-6.8.2-1.EL.13.6.i386.rpm

To verify that the file package `krb5-libs-1.3.4-17.i386.rpm` is installed, use the following command:

```
hostname% rpm -query --package krb5-lib-1.3.4-17.i386.rpm
```

You can install each package individually using `rpm`, from the original Red Hat Enterprise Linux ES distribution.

To install the file package `xorg-x11-libs-6.8.2-1.EL.13.6.i386.rpm`, use the following command:

```
hostname% rpm -install xorg-x11-libs-6.8.2-1.EL.13.6.i386.rpm
```

## JUNOScope Software Client Workstation Requirements

Ensure that the client workstation from which you connect to the JUNOScope software is running either Microsoft Internet Explorer 6 or Netscape Navigator 6 or later with JavaScript enabled.

## RADIUS Server Requirements

Ensure that the Remote Authentication Dial-In User Service (RADIUS) server complies with RFC 2865.

## Prerequisite Information

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Before you install the JUNOScope software, you should know the following information:

- The user who installs the JUNOScope software on a Linux server as root must exist in `\etc\passwd`. This is a MySQL requirement.
- SQL database connection—The JUNOScope default installation uses a locally installed MySQL database for which the default Java Database Connectivity (JDBC) URL is appropriate. If you enter a URL that points to a JDBC database other than the one bundled with the product, it is not supported.
- Information for creating an X.509 digital certificate—The JUNOScope software installation creates an X.509 digital certificate for the HTTPS server. You must provide the following information:
  - Common server name; for example, `nms.juniper.net`.
  - Organization that runs the server; for example, `Juniper Networks, Inc.`
  - State or province where the server is located; for example, `California`.
  - Country where the server is located; for example, a two-letter code such as `US`.
- JUNOScope software installation directory—By default, the JUNOScope software is installed into the current working directory.
- Recommended Java Runtime patch cluster—The JUNOScope installation recommends the current patch cluster for the JUNOScope software for correct operation. For example, for a workstation running Solaris 5.8, the following patch cluster is required: `J2SE_Solaris_8_Recommended Patch Cluster`. The patch cluster is available from <http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/patch-access>. Installation must be performed by root. If your workstation does not have the required patch cluster, you can install it after the JUNOScope installation.

## Installation Overview

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This section provides an overview summary of what happens when you run the JUNOScope software installation program. The installation program does the following:

- Displays the JUNOScope Software License Agreement for you to accept. If you do not accept the agreement, the installation program will not continue.
- Informs you of and recommends the proper Java Runtime patch cluster that must be installed for the UNIX workstation operating system. If your workstation does not have the proper patch cluster, the JUNOScope software will not operate correctly. You can install the patch cluster as root after you install the JUNOScope software.

- Checks the JUNOScope software installation file data integrity and extracts the required files. If a data integrity problem is detected, the installation will not continue.
- Asks whether you want to protect user, group, or all data files.
- Prompts for the HTTPS port that the JUNOScope software Web server uses for its transactions.
- Asks whether you want the JUNOScope software Web server to accept insecure HTTP requests and prompts for the HTTP port on which to listen.
- Asks whether you want the JUNOScope software Web server to resolve client addresses.
- Prompts for the JDBC URLs to access the JUNOScope database and the JUNOScope demo database.
- Prompts for the key used to encrypt and decrypt sensitive data.
- Prompts for the password for the JUNOScope software database superuser.
- Prompts for the JUNOScope software database username and password.
- Prompts for the database username and password for the SQL interface to the Inventory Management System.
- Asks whether you want to enable the SQL interface to the Inventory Management System.
- Prompts for the JUNOScope software administrator username and password.
- Confirms whether you want to enable JUNOScope debug logging.
- Prompts for a pipe or syslog logging server facility to indicate how the syslog daemon (`syslogd`) decides where to send JUNOScope software system log messages it receives. There are eight logging facilities commonly used for syslog, including `local0` through `local7`. The default is `local2`.
- Generates an X.509 digital certificate to authenticate the JUNOScope HTTPS Web server.
- Confirms whether you want to continue the JUNOScope installation, go back and change existing installation settings, or quit.
- Extracts the database files and generates an X.509 digital certificate with the settings you indicated.
- Prompts you to select to install the JUNOScope software licensed features—such as Looking Glass, Configuration Manager (Configuration menu), or Inventory Management—that you have purchased and are authorized to use. Only the software features that you install will be enabled in the JUNOScope main window.
- Prepares the JUNOScope software database tables, then installs them.

- Initializes and checks the JUNOScope software database.
- Starts Tomcat, an application server from the Apache Software Foundation that executes Java servlets and renders Web pages.

## Starting the JUNOScope Software Installation

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This section describes how to start the JUNOScope software installation. Before installing the JUNOScope software, ensure that the workstation meets the system requirements (see “JUNOScope Software System Requirements” on page 20). You can install the JUNOScope software from the product CD-ROM or download it from the Juniper Networks Web site.

This section includes the following topics:

- Starting the JUNOScope Installation from the CD-ROM on page 24
- Downloading the JUNOScope Software from the Juniper Networks Software Web Page on page 25

### Starting the JUNOScope Installation from the CD-ROM

To run and start the JUNOScope installation from the product CD-ROM, follow these steps:

1. Insert the JUNOScope software CD-ROM into the CD-ROM drive.
2. Mount the CD-ROM. For example, specify `/mnt`.
3. Start the JUNOScope installation with the following command:

```
hostname% cdrom-mount-directory/jtk-installer install-directory
```



**NOTE:** If you do not specify an installation directory for the JUNOScope software, the software will be installed into the current directory.

Replace *cdrom-mount-directory* with the directory on which the CD-ROM is mounted—either `/mnt`, `/cdrom`, or `/cdrom/JUNOScope`, depending on your host setup.

Replace *install-directory* with the directory in which to install the JUNOScope software. If you do not specify an installation directory, the software is installed in the current directory.

For information on installing JUNOScope, see “Installing the JUNOScope Software” on page 26.

## Downloading the JUNOScope Software from the Juniper Networks Software Web Page

To download the JUNOScope software, follow these steps:

1. Using a Web browser, go to the following location:

`http://www.juniper.net/support/csc/swdist-encr/swdist-jtk/`

2. Log in to the Juniper Networks authentication system using your username and password supplied by a Juniper Networks representative. To download the software, you must have a service contract and an access account. If you do not have an access account, complete the registration form at the Juniper Networks Web site, <https://www.juniper.net/registration/Register.jsp>.
3. Download the JUNOScope software to your local UNIX host.
4. Start the JUNOScope installation program with the following command:

```
hostname% download-directory/jtk-install-X.XXX.X-sunos5-sparc.sh install-directory
```

or

```
hostname% download-directory/jtk-install-X.XXX.X-linux2-i386.sh install-directory
```

Replace *download-directory* with the directory into which you downloaded the JUNOScope software from the software download page.

**/jtk-install-X.XXX.X-sunos5-sparc.sh** or **jtk-install-X.XXX.X-linux2-i386.sh** is the JUNOScope software file. Replace *X* with the software version to download (for example, 7.3R1.3).

Replace *install-directory* with the directory in which to install the JUNOScope software. If you do not specify an installation directory, the software is installed in the current directory.

For information about installing JUNOScope, see “Installing the JUNOScope Software” on page 26.

## Installing the JUNOScope Software

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To install the JUNOScope software, follow these steps:

1. To accept the JUNOScope Software License Agreement, type **Yes**. If you do not accept the terms of the agreement, you cannot install the JUNOScope software.

The JUNOScope installation informs you that if problems are encountered with the Java Runtime, you must install or update the required patch cluster. The installation recommends the required patch cluster; for example for Solaris 5.8, **J2SE\_Solaris\_8\_Recommended Patch Cluster** is required. Patch clusters are available from

<http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/patch-access>. We recommend that you install the latest patch cluster before reporting problems with the Java Runtime.

2. To confirm whether you want to continue the JUNOScope installation or quit, type **C**.

The JUNOScope installation checks the installation file data integrity, then extracts the installation files. This process takes a few minutes.

3. Specify how you want to protect JUNOScope data files. The available options for protecting data files associated with JUNOScope include:
  - **user**—Only the user installing JUNOScope can read.
  - **group**—Any user in the JUNOScope installer's group can read but not write.
  - **all**—Any JUNOScope user can read but not write.
4. Indicate the HTTPS port on which the JUNOScope Web server should listen for HTTPS requests. The default port is 8443.



**NOTE:** If you specify a port number less than 1024, the server must run as root.

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5. Indicate the HTTP port on which to listen for HTTP requests. The default port is 8080.



**NOTE:** If you specify a port number less than 1024, the server must run as root.

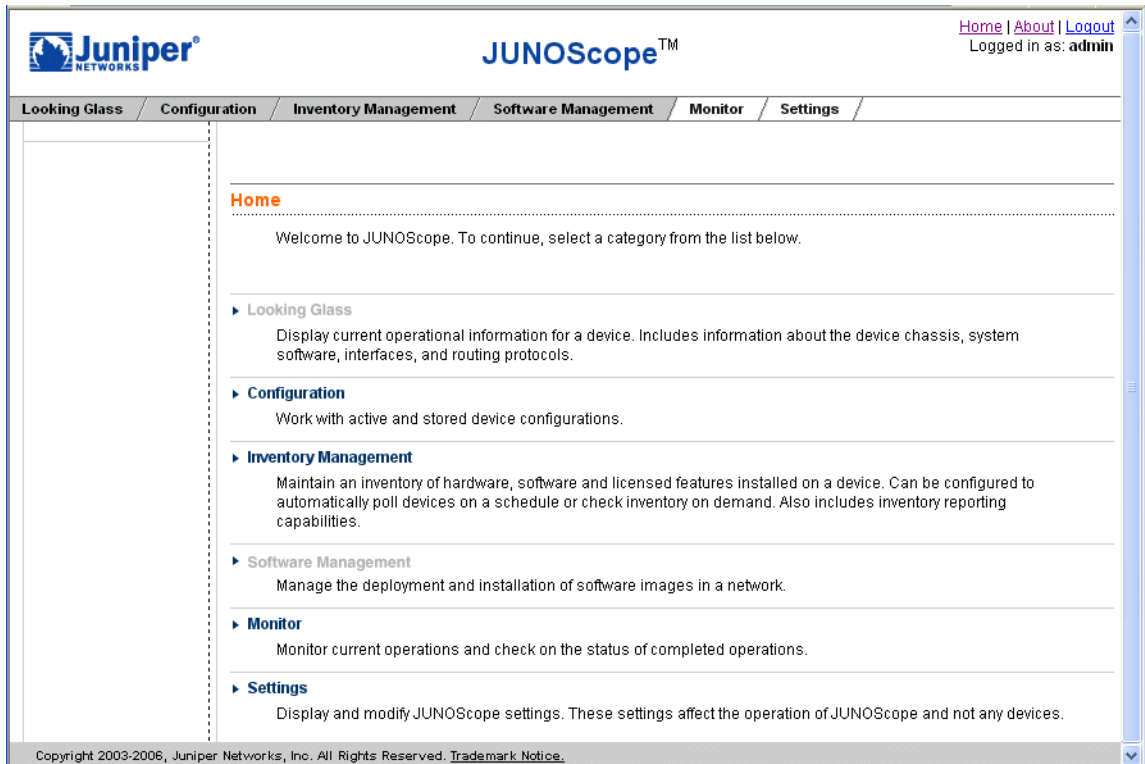
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6. Indicate the port on which the JUNOScope server should listen for control messages. The recommended port is 8005. The server listens on local port 8005 for control. Connections can only be made from the local host.
7. Indicate the HTTP port on which the JUNOScope report server should listen. The default is 8888.
8. Indicate the JDBC URLs for accessing the JUNOScope database. The default URL is `jdbc:mysql://localhost/jtk`.

9. Indicate the JDBC URLs for the demo database. The default URL is `jdbc:mysql://localhost/demo`.
10. Type the key used to encrypt and decrypt the import and export of sensitive data. This key can be up to 16 characters long. Retype the password to confirm it. The key is concealed and stored in the JUNOScope software.
11. Confirm whether you want the JUNOScope installation to install MySQL in `<install-directory>/mysql`. The default is **yes**. If MySQL is already installed on the workstation, indicate **no** to use that database.
12. (Prompted only if install is done as root.) Type the username of the person installing the JUNOScope software, not root. If the JUNOScope installation is run by root, MySQL will change its UID identifier to a less privileged user. Unless using privileged ports, the JUNOScope server is also run as this user.
13. (Prompted only if install is done as root.) Type the name of the group that owns the JUNOScope installation. The default is the primary group of the user you specified in Step 12.
14. Type the password for the database (internal) administrative user, then retype the password to confirm it. The password should contain numbers and/or punctuation.
15. Type the database user for JDBC access. The default is `jtk`. All access to the JUNOScope database is done as this user.
16. Type the password for the database user, then retype the password to confirm it. The password should contain numbers and/or punctuation.
17. Confirm whether you want to enable access to the Inventory Management System SQL interface. The default is **no**. If you select **no**, the database username and password (see Steps 18 and 19) will not be displayed because the SQL interface is not enabled.
18. (If you enabled the Inventory Management System SQL interface) Type the username for the SQL interface to the Inventory Management System database. The default is `ims`.
19. (If you enabled the Inventory Management System SQL interface) Type a password for the SQL interface to the Inventory Management System, then retype the password to confirm it. The password should contain numbers and/or punctuation.
20. Type the JUNOScope administrative user account name. The default account name is `admin`. The JUNOScope installation creates this initial JUNOScope administrative user account so the administrator can use it to add other users.
21. Type the password for the JUNOScope administrator, then retype the password to confirm it. The password for the administrator should not match the username, and should not be a word that can be easily guessed.
22. Confirm whether you want to enable debug logging for technical support purposes. The default is **no**.

23. Type the idle session timeout in minutes. The default is 60 minutes.
24. Type the syslog facility or pipe where you want the syslog daemon (**syslogd**) to send JUNOScope software system log messages it receives. The available eight logging facilities include **local0** to **local7**. The default is **local2**.
25. Provide the following information to generate an X.509 certificate for the JUNOScope HTTPS server (Web browsers will not accept a certificate that appears to belong to a different host):
  - The common name for the JUNOScope software server. For example, specify the Common Name field of an X.509 certificate. A wildcard entry such as **\*.juniper.net** will work. The default name is the hostname.
  - The organization unit that runs the server (optional). For example, specify **Network Management**.
  - The organization that runs the server. For example, specify **Juniper Networks Inc.**
  - The locality name or location of this server (optional). For example, specify **Sunnyvale**.
  - The state or province where the server is located. For example, specify **California**.
  - The country code where this server is located. For example, type a two-letter code such as **US** or **AU**.

26. Select the JUNOScope software features that you are licensed to operate: Looking Glass, Configuration Manager (Configuration menu), Inventory Manager, or Software Manager. If you do not have a license to install a feature, select **no** (the default). If you have a license to install a feature, select **yes**. Any feature that you select not to install will be disabled (unavailable) in the JUNOScope main window.



- For more information about the Looking Glass feature, see “Using Looking Glass” on page 325.
  - For more information about the Configuration Manager features, see “Using the Configuration Browser” on page 333 and “Using the Configuration Editor” on page 341.
  - For more information about the Inventory Management feature, see “Using Inventory Reports” on page 239.
  - For more information about the Software Manager feature, see “Using the Software Manager” on page 309.
27. Confirm whether you want to continue the JUNOScope installation, start over, reset the selections to their default, or quit.

The JUNOScope installation program extracts the database files and generates a certificate for the settings that you indicated. For example, CN = sunmaker.juniper.net, OU = Engineering, O = Juniper Networks Inc., S = California, C = US.

The JUNOScope installation takes a few minutes to prepare and install the database tables. The installation then shuts down the database, then restarts and checks it.

The installation starts Tomcat, an application server from the Apache Software Foundation that executes Java servlets and renders Web pages. When this is done, the JUNOScope installation is complete.

## Reconfiguring the JUNOScope Software

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You can change the following JUNOScope software installation settings without rerunning the installation program.

- The HTTPS and HTTP ports on which the JUNOScope Web server should listen
- The port on which the JUNOScope server listens for control messages
- The HTTP port on which the JUNOScope report server should listen
- The Java Database Connectivity (JDBC) URL for accessing the JUNOScope database
- Access to the Inventory Management System SQL interface
- Debug logging
- Idle session timeout
- Licensed software modules

You cannot change some settings such as passwords.

To change JUNOScope software settings, use the following command:

```
hostname% <install-directory>/jtk/bin/jtk-setup.sh
```

## Reinstalling and Upgrading the JUNOScope Software

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The process for reinstalling or upgrading the JUNOScope software is the same as for installing the software. To install the JUNOScope software, see “Installing the JUNOScope Software” on page 26.

To reinstall or upgrade the JUNOScope software, you must use the same user ID as the one used for the currently installed software.

## Starting the JUNOScope Software Manually

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The JUNOScope software is automatically started after you install or upgrade the JUNOScope software. If you stop the JUNOScope software, you can restart it using the following procedure.

To start the JUNOScope software after running the installation program, follow these steps:

1. Type the following command:

```
hostname% <install-directory>/jtk/rc.d/jtk start
```

2. Connect to the JUNOScope software server and log in. For more information, see “Connecting to the JUNOScope Software from a Client Workstation and Logging In” on page 31.

If you reboot the UNIX workstation on which you installed the JUNOScope software, the JUNOScope software will not start automatically. For more information, see “Starting the JUNOScope Software Automatically at Boot Time” on page 31.

## Starting the JUNOScope Software Automatically at Boot Time

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To start the JUNOScope software and the database when the UNIX workstation boots, type the following command:

```
hostname% ln -s <install-directory>/jtk/rc.d/jtk/ /etc/rc2.d/S99jtk
```

## Connecting to the JUNOScope Software from a Client Workstation and Logging In

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You can connect to the JUNOScope software Web server from a UNIX or PC client workstation running Microsoft Internet Explorer 6 or Netscape Navigator 6 or later.

The JUNOScope administrator can log in to JUNOScope with the administrative username and password specified during the installation process.

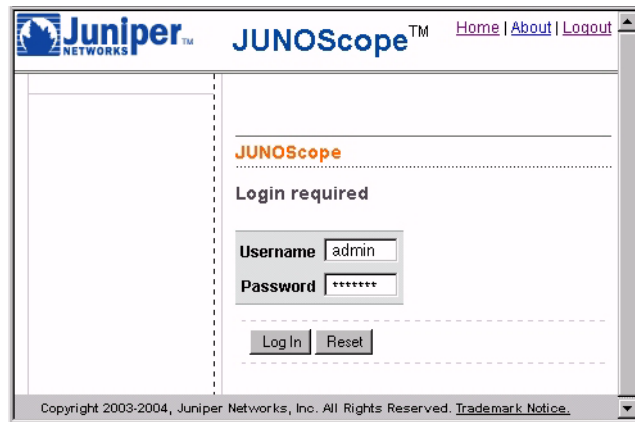
The default administrative username is **admin**. The administrator can add new users to log in and use the JUNOScope software. Each user must have a unique username and password. For more information about adding new users, see “Setting Up User Local Authentication” on page 111.

To connect to the JUNOScope software Web server and log in, follow these steps:

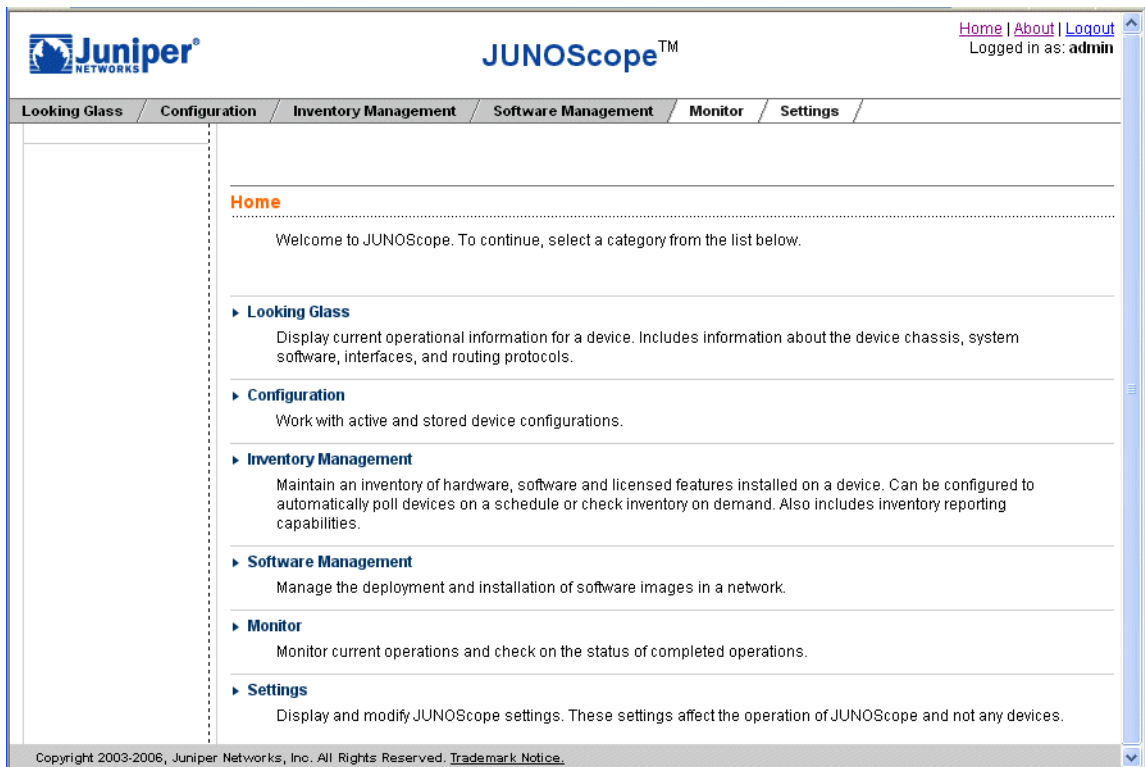
1. Start your Web browser.
2. Enter the following URL in your Web browser Address text box:

```
https://hostname:port-number/jtk
```

Where *hostname* is the name of the UNIX workstation on which the JUNOScope software is installed, and *port-number* is the port on which the JUNOScope Web server listens for HTTPS requests. The default port is 8443. The JUNOScope Login dialog box appears.



3. In the Username text box, type the administrative username. The username is the JUNOScope software administrative username specified during installation.
4. In the Password text box, type the administrative user's password.
5. Click Log In. The JUNOScope main window appears.



For more detailed information about the JUNOScope main window, see “JUNOScope Main Window” on page 353.

## Stopping the JUNOScope Software

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To stop the JUNOScope software and the database, type the following command:

```
hostname% <install-directory>/jtk/rc.d/jtk stop
```

## Shutting Down the JUNOScope Software

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To automatically shut down the JUNOScope software during system shutdown, type the following commands:

```
hostname% ln -s <install-directory>/jtk/rc.d/jtk /etc/rc2.d/K19jtk  
hostname% ln -s <install-directory>/jtk/rc.d/jtk /etc/rc0.d/K19jtk
```

## Where to Go from Here

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To set up the JUNOScope software for configuration and fault management operations, see the following sections:

- To specify the authentication information (login and password for accessing a router) configured on a router for remotely connecting to that router from the JUNOScope software, see “Setting Up Authentication Information” on page 39.
- To specify the access method (JUNOScript access protocol to connect to the JUNOScript server running on a router) configured on a router for remotely connecting to that router from the JUNOScope software, see “Setting Up Access Methods” on page 47.
- To specify the Juniper Networks routing platforms to which you want to connect the JUNOScope software, see “Setting Up Devices” on page 59.
- To specify router groups for configuration management operations, see “Setting Up Groups” on page 71.
- To add labels for dynamically organizing and categorizing groups of devices, see “Setting Up Labels” on page 93.
- To add schedules for archiving router configuration files, see “Setting Up Schedules” on page 103.
- To add user local authentication and RADIUS configuration settings, see “Setting Up User Local Authentication” on page 111.
- To configure user authentication on a RADIUS server and in the JUNOScope software so that users with a RADIUS account can log in to the JUNOScope software, see “Setting Up RADIUS Configuration” on page 127.
- To import all JUNOScope data from another server or to export all JUNOScope data to another server, see “Importing and Exporting All Settings Data” on page 147.

