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Installing and Using Device Manager

Ethernet Routing Switch 1600 Series, Software
Release 2.1



NORTEL

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Contents

Preface	11
Before you begin	12
Text conventions	12
Related information	14
Publications	14
How to get help	15
Finding the latest updates on the Nortel web site	15
Getting help from the Nortel web site	15
Getting help over the phone from a Nortel Solutions Center	15
Getting help from a specialist using an Express Routing Code	16
Getting help through a Nortel distributor or reseller	16
 Chapter 1	
Installing Device Manager software	17
JDM installation precautions	18
Installing the Device Manager software	19
Installing JDM on Windows	19
Windows minimum requirements	19
Removing previous versions of JDM on Windows	20
Installing JDM on Windows from the CD	20
Installing JDM on Windows from the web	21
Executing the JDM installation software on Windows	22
Installing JDM on UNIX or Linux	29
Minimum requirements	30
Installing JDM on Solaris from the CD	30
Installing JDM on HP-UX from the CD	30
Installing JDM on Linux from the CD	31
Installing JDM on UNIX or Linux from the web	31
Executing the JDM installation software on UNIX or Linux	33
Removing JDM in Unix or Linux environments	40

Chapter 2	
Starting Device Manager	41
Starting Device Manager using Windows and UNIX	41
Setting the Device Manager properties	42
Opening a device	45
Opening a device using the Open Last option	47
Chapter 3	
Understanding the Device Manager window	49
Using the menu bar	50
Using the toolbar	51
Using the Device view	52
Selecting objects	52
Interpreting the status of LEDs and ports	53
Using shortcut menus	54
Using the status bar	56
Using the buttons in Device Manager dialog boxes	56
Using Device Manager dialog boxes	57
Editing objects	58
Working with statistics and graphs	58
Types of statistics	58
Types of graphs	59
Statistics for single and multiple objects	62
Viewing statistics as graphs	63
Online help	65
Appendix A	
Troubleshooting	67
Login prompt fails to appear from the serial port	67
Switch fails to open in Device Manager	68
Index	69

Figures

Figure 1	InstallAnywhere Introduction dialog box	22
Figure 2	License Agreement dialog box	23
Figure 3	Choose Install Set dialog box	23
Figure 4	Feature Sets dialog box	24
Figure 5	Choose Install Folder dialog box	25
Figure 6	Choose Shortcut Folder dialog box	26
Figure 7	Pre-Installation Summary dialog box	27
Figure 8	Install Complete dialog box	28
Figure 9	InstallAnywhere Introduction dialog box	33
Figure 10	License Agreement dialog box	34
Figure 11	Choose Install Set dialog box	35
Figure 12	Feature Sets dialog box	36
Figure 13	Choose Install Folder dialog box	37
Figure 14	Pre-Installation Summary dialog box	38
Figure 15	Installing Java Device Manager dialog box	39
Figure 16	Install Complete dialog box	40
Figure 17	Device Manager window	42
Figure 18	Properties dialog box	43
Figure 19	Open Device dialog box	45
Figure 20	Device Manager showing an Ethernet Routing Switch 1648T	46
Figure 21	Parts of the Device Manager window	49
Figure 22	Menu bar	50
Figure 23	Objects in a 1600 Series switch device view	52
Figure 24	Chassis shortcut menu	54
Figure 25	Port shortcut menus	55
Figure 26	Line graph	60
Figure 27	Area graph	60
Figure 28	Bar graph	61
Figure 29	Pie graph	61
Figure 30	Interface statistics for a single port	62
Figure 31	Interface statistics for multiple ports	62
Figure 32	Statistics dialog box for a port	64

Figure 33	Serial port	67
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Tables

Table 1	Properties dialog box fields	43
Table 2	SNMP community string default values	46
Table 3	Open Device dialog box fields	47
Table 4	Device Manager menu bar description	50
Table 5	Toolbar buttons	51
Table 6	Device Manager port color codes	53
Table 7	Chassis shortcut menu options	55
Table 8	Port shortcut menu options	55
Table 9	Device Manager buttons	56
Table 10	Types of statistics	59
Table 11	Graph dialog box buttons	65
Table 12	Help file locations	66

Preface

The Ethernet Routing Switch 1600 Series is a fixed port, hardware-based Layer 3 routing switch that is available in three models:

- the Ethernet Routing Switch 1612G with 12 Small Form Factor (SFP) GBICs, which provides small to medium aggregation
- the Ethernet Routing Switch 1624G with 24 SFP GBICs, which provides small to medium aggregation
- the Ethernet Routing Switch 1648T with 48 10/100 ports and 4 SFP GBICs, which provides small edge concentration

The Ethernet Routing Switch 1600 Series Layer 3 routing switch can reside in the wiring closet (1648T) and in the data center or network core (1612G and 1624G):

- The Ethernet Routing Switch 1648T provides Layer 3 functionality in the wiring closet.
- The Ethernet Routing Switch 1612G and 1624G provide gigabit Ethernet ports for wiring closet aggregation, as well as high-speed connections for servers and power users. These aggregation devices typically reside in the network core or data center but can be placed anywhere.

Java Device Manager (Device Manager) is a graphical user interface (GUI) used to configure and manage Ethernet Routing Switches. You install it on a management station in the network.

This guide describes how to install and start the Java Device Manager (JDM) software on a Windows* or UNIX* platform. It also describes some common startup problems and how to troubleshoot them.

Before you begin

This guide is intended for network administrators who have the following background:

- basic knowledge of networks, Ethernet bridging, and IP routing
- familiarity with networking concepts and terminology
- experience with windowing systems or GUIs
- basic knowledge of network topologies

Text conventions

This guide uses the following text conventions:

angle brackets (< >)	Enter text based on the description inside the brackets. Do not type the brackets when entering the command. Example: If the command syntax is <code>ping <ip_address></code> , you enter ping 192.32.10.12
bold text	Objects such as window names, dialog box names, and icons, as well as user interface objects such as buttons, tabs, and menu items.
bold Courier text	Command names, options, and text that you must enter. Example: Use the dinfo command. Example: Enter show ip {alerts routes} .
braces ({ })	Required elements in syntax descriptions where there is more than one option. You must choose only one of the options. Do not type the braces when entering the command. Example: If the command syntax is <code>show ip {alerts routes}</code> , you must enter either show ip alerts or show ip routes , but not both.

brackets ([])	<p>Optional elements in syntax descriptions. Do not type the brackets when entering the command.</p> <p>Example: If the command syntax is show ip interfaces [-alerts], you can enter either show ip interfaces or show ip interfaces -alerts.</p>
ellipsis points (. . .)	<p>Repeat the last element of the command as needed.</p> <p>Example: If the command syntax is ethernet/2/1 [<parameter> <value>] . . . , you enter ethernet/2/1 and as many parameter-value pairs as needed.</p>
<i>italic text</i>	<p>Variables in command syntax descriptions. Also indicates new terms and book titles. Where a variable is two or more words, the words are connected by an underscore.</p> <p>Example: If the command syntax is show at <valid_route>, <i>valid_route</i> is one variable and you substitute one value for it.</p>
plain Courier text	<p>Command syntax and system output, for example, prompts and system messages.</p> <p>Example: Set Trap Monitor Filters</p>
separator (>)	<p>Menu paths.</p> <p>Example: Protocols > IP identifies the IP command on the Protocols menu.</p>
vertical line ()	<p>Options for command keywords and arguments. Enter only one of the options. Do not type the vertical line when entering the command.</p> <p>Example: If the command syntax is show ip {alerts routes}, you enter either show ip alerts or show ip routes, but not both.</p>

Related information

This section lists information sources that relate to this document.

Publications

Refer to the following publications for information about Ethernet Routing Switch 1600 Series, Software Release 2.1:

- *Installing the Ethernet Routing Switch 1600 Series Switch* (316860-D)
- *Upgrading to Ethernet Routing Switch 1600 Series Software Release 2.1* (321327-B)
- *Quick Start Guide* (321819-A)
- *Getting Started* (321821-A)
- *Configuring IP Routing and Multicast Operations using Device Manager* (321712-B)
- *Configuring IP Routing and Multicast Operations using the CLI* (321711-B)
- *Configuring QOS and Filters using the CLI and Device Manager* (321822-A)
- *Configuring and Managing Security using Device Manager* (321713-B)
- *Configuring and Managing Security using the CLI* (321714-B)
- *Configuring VLANs, Spanning Tree, and Static Link Aggregation using the CLI* (321717-B)
- *Configuring VLANs, Spanning Tree, and Static Link Aggregation using Device Manager* (321718-B)
- *CLI Command Line Reference for the Ethernet Routing Switch 1600 Series* (316862-D)
- *Network Design Guidelines* (321823-A)
- *Configuring Network Management using the CLI and Device Manager* (321816-A)
- *Managing Platform Operations* (321817-A)
- *System Messaging Platform Reference Guide* (321820-A)
- *Release Notes for the Ethernet Routing Switch 1600 Series, Software Release 2.1* (316859-J)

How to get help

This section explains how to get help for Nortel products and services.

Finding the latest updates on the Nortel web site

The content of this documentation was current at the time the product was released. To check for updates to the latest documentation and software for the Ethernet Routing Switch 1600 Series, click one of the following links:

Latest Software	Takes you directly to the Nortel page for Ethernet Routing Switch 1600 Series software
Latest Documentation	Takes you directly to the Nortel page for Ethernet Routing Switch 1600 Series documentation

Getting help from the Nortel web site

The best way to get technical support for Nortel products is from the Nortel Technical Support web site:

www.nortel.com/support

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. From this site, you can:

- download software, documentation, and product bulletins
- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

Getting help over the phone from a Nortel Solutions Center

If you do not find the information you require on the Nortel Technical Support web site, and you have a Nortel support contract, you can also get help over the phone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following web site to obtain the phone number for your region:

www.nortel.com/callus

Getting help from a specialist using an Express Routing Code

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

www.nortel.com/erc

Getting help through a Nortel distributor or reseller

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller.

Chapter 1

Installing Device Manager software

Java Device Manager (JDM) is an SNMP-based graphical user interface (GUI) tool designed for managing single devices. To use Java Device Manager (also referred to in this manual as Device Manager), you must have network connectivity to a management station running JDM in one of the supported environments.

The JDM software is provided on the device software CD as a self-extracting executable file, and is also available from the Nortel Networks web site. This chapter provides instructions to install the JDM software in a Windows*, UNIX*, or Linux* environment.

The Java Runtime Environment (JRE) is bundled with the JDM software and does not require a separate installation.

For details about installing JDM, refer to the following topics:

Topic	Page
JDM installation precautions	18
Installing the Device Manager software	19
Installing JDM on Windows	19
Installing JDM on UNIX or Linux	29

JDM installation precautions

The following warnings apply to Device Manager on all operating environments:

- The JDM and Ethernet Switch software versions must match for the correct dialog boxes and information to be shown and accessible. Refer to the Release Notes for a complete compatibility list.
- If you want to use JDM to support multiple Nortel switches in your network, ensure that the JDM version you use supports each version of software running on each Nortel device in your network.
- Before you upgrade JDM, either uninstall your previous version of the Device Manager software or install the new software to a different directory. (You can have multiple versions of Device Manager stored on your Windows, UNIX, or Linux machine, provided that each version is stored in a separate directory.)



Note: Do not install the JDM to a directory where a previous version of Device Manager software exists.

- JDM saves the IP addresses that are visited to a settings file. Uninstalling JDM does not remove this settings file.
 - In a Windows environment, the settings file is *dm.ini*, and is created in the JDM installation directory.
 - In a UNIX environment, the settings file is *~/jdm/dm.ini*.
 - In a Linux environment, the settings file is *~/jdm/dm.ini*.
- The *dm.ini* file containing IP addresses visited from a previous JDM version is automatically used by a new JDM version installed in the same directory. You must manually move or copy the *dm.ini* file from a previous version of JDM to a new JDM installation in a different directory.

Installing the Device Manager software

Device Manager software can be installed in Windows, UNIX, or Linux environment. The following sections provide information about the system requirements and installation procedures to install Device Manager software in Windows, UNIX, and Linux environments.

- [“Installing JDM on Windows](#)
- [“Installing JDM on UNIX or Linux” on page 29](#)

Installing JDM on Windows

This section includes the following topics:

- [“Windows minimum requirements](#)
- [“Removing previous versions of JDM on Windows” on page 20](#)
- [“Installing JDM on Windows from the CD” on page 20](#)
- [“Installing JDM on Windows from the web” on page 21](#)
- [“Executing the JDM installation software on Windows” on page 22](#)

Windows minimum requirements

The minimum system requirements for installing JDM on Microsoft* Windows NT*, Windows 95, Windows 98, Windows 2000, or Windows XP are:

- 350 MHz or higher Pentium processor
- 256 MB DRAM
- 300 MB space on hard drive

Removing previous versions of JDM on Windows



Note: Removing previous versions of JDM is optional. Multiple versions of JDM can exist on one system, as long as each version is in a separate location.

If you decide to keep previous versions of JDM, then you must choose a different folder to use during the installation process.

Remove existing versions of Device Manager software by using the Uninstall DM option that was created in the Windows Start menu during installation.

For example, to remove Device Manager from a Windows XP system using the default program group, choose the following option from the Windows Start menu: **All Programs > Nortel > Java Device Manager > Uninstall DM**.

If no program group was added to the Windows Start menu during installation, then complete the following steps to remove existing Device Manager software:

- 1 Navigate to the folder where the JDM software is installed.
 - 2 Open the UninstallerData subfolder.
 - 3 Run the following file: *Uninstall Java Device Manager.exe*.
-



Note: If more than one version of Device Manager software is installed, ensure you select the correct software to uninstall.

Installing JDM on Windows from the CD

To access the JDM software from the installation CD:

- 1 Close all programs.
- 2 Insert the software CD into your CD-ROM drive.
- 3 From the Windows Start menu, choose **Run**.
The **Run** dialog box appears.
- 4 Use **Browse** to navigate to the drive the CD-ROM drive.
- 5 On the CD-ROM drive, locate the **\Windows\Device Manager** subdirectory.

- 6 Double-click the *jdm_xxxx.exe* file.



Note: In the file name, *xxxx* represents the current version of the JDM software.

Continue with “[Executing the JDM installation software on Windows](#)” on [page 22](#).

Installing JDM on Windows from the web

To obtain the JDM software from the Nortel Networks web site:

- 1 Go to the following URL:
www.nortel.com/support
- 2 Select the software support page for your product.
The software page appears.
- 3 Click the Java Device Manager version you want.
The Software Detail Information page appears.
- 4 Download the JDM software for Windows to a desired directory on your system. The software download is a self-extracting .exe file.
After the file transfer is complete, continue with [step 5](#).
- 5 Close all programs.
- 6 Navigate to the directory on your system where you downloaded the JDM Software.
- 7 Double-click the *jdm_xxxx.exe* file.



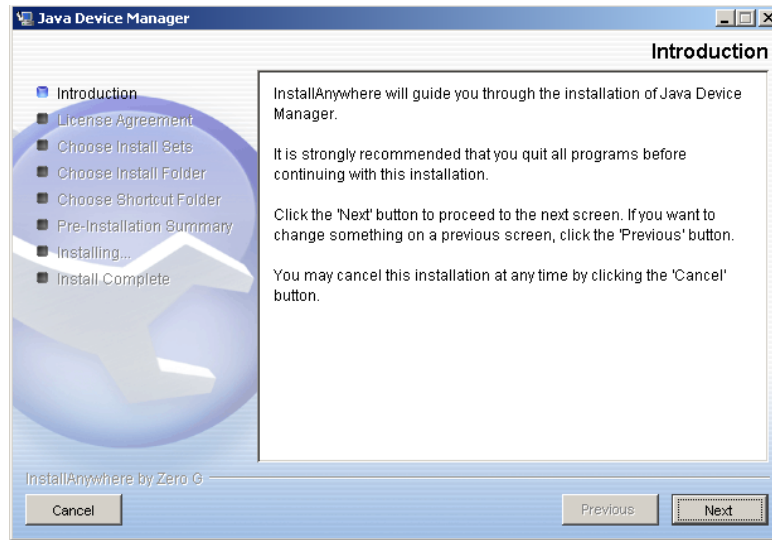
Note: In the file name, *xxxx* represents the current version of the JDM software.

Continue with “[Executing the JDM installation software on Windows](#)” on [page 22](#).

Executing the JDM installation software on Windows

An installation screen appears, followed by a Nortel dialog box. When the InstallAnywhere Introduction dialog box appears ([Figure 1](#)), you are ready to install the JDM.

Figure 1 InstallAnywhere Introduction dialog box

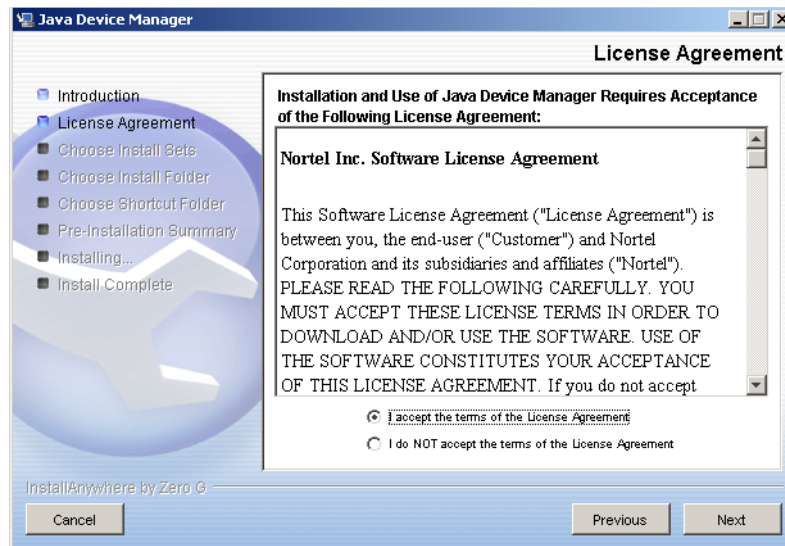


- 1 Click **Next** to begin the installation.

The **License Agreement** dialog box appears.

- 2 Click **I accept the terms of the License Agreement** (Figure 2).

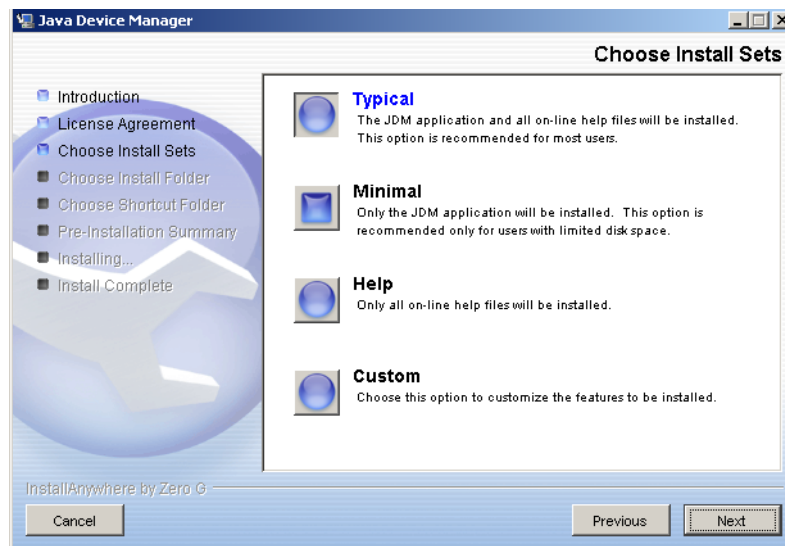
Figure 2 License Agreement dialog box



- 3 Click **Next**.

The **Choose Install Set** dialog box appears (Figure 3).

Figure 3 Choose Install Set dialog box



4 Do one of the following:

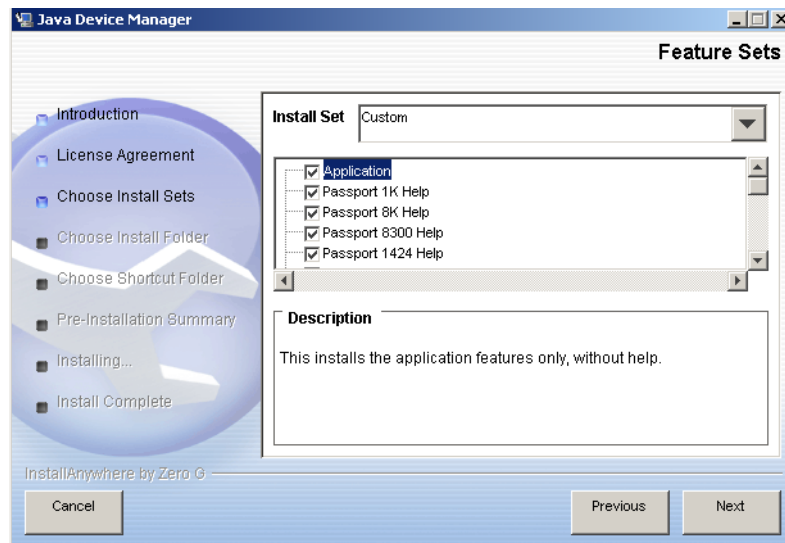
- Select **Typical** installation to install the common set features, as well as online help.
- Select **Minimal** installation to select minimal features to install (recommended for those with limited disk space).
- Select **Help** to install only the online help.
- Select **Custom** installation to customize the features prior to installation.

5 Click **Next**.

If you did not select **Custom** installation in [step 4](#), then the **Choose Install Folder** dialog box appears. Continue with [step 8](#) on [page 25](#).

If you selected **Custom** installation in [step 4](#), then the **Feature Sets** dialog box appears ([Figure 4](#)).

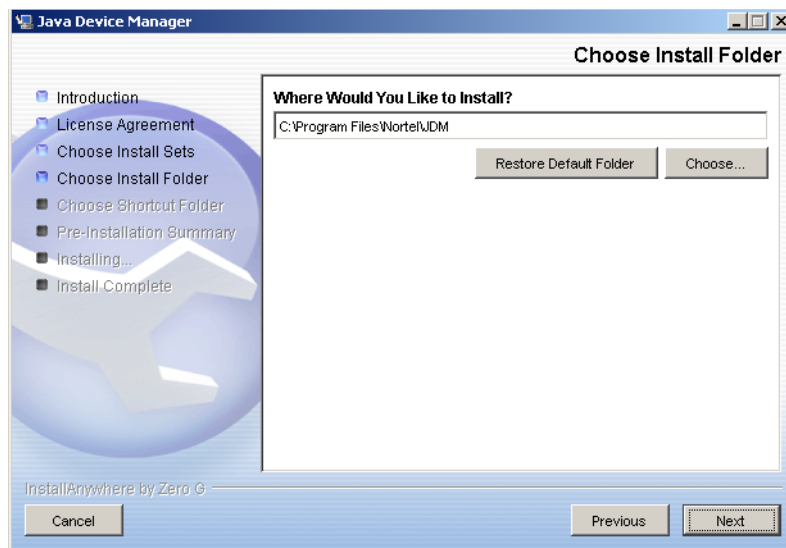
Figure 4 Feature Sets dialog box

**6** Select which features to install from the feature sets list.

7 Click **Next**.

The **Choose Install Folder** dialog box appears (Figure 5).

Figure 5 Choose Install Folder dialog box



8 Click **Restore Default Folder** to use the default location for JDM, or click **Choose** to select a different storage path.

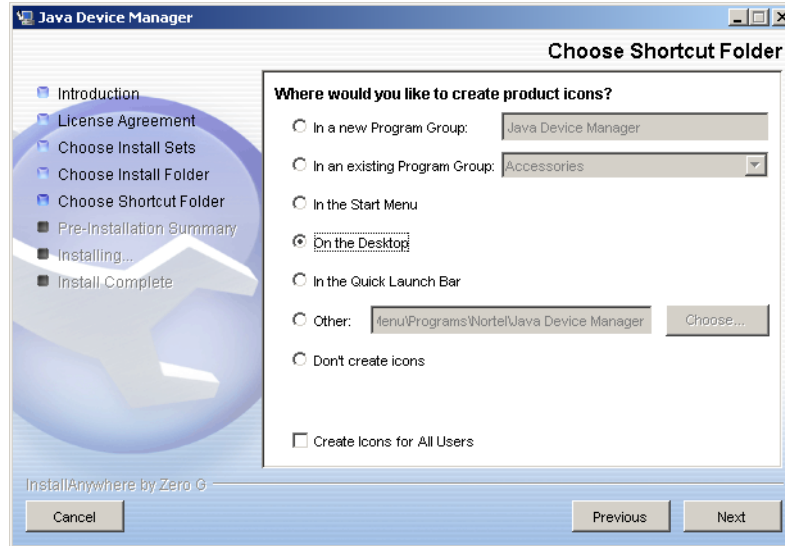


Note: If Device Manager is already installed on your computer, you must choose a storage path that does not conflict with the existing version.

9 Click **Next**.

The **Choose Shortcut Folder** dialog box appears (Figure 6).

Figure 6 Choose Shortcut Folder dialog box

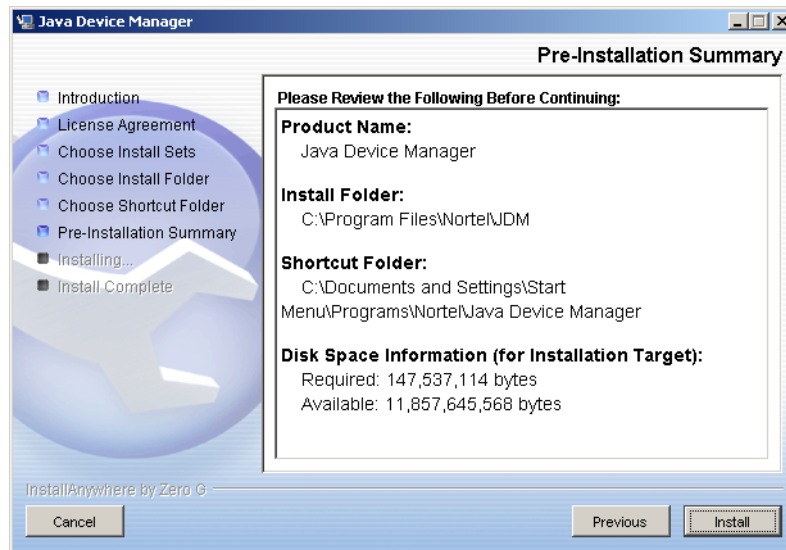


10 Select the desired shortcut path from the list provided.

11 Click **Next**.

The **Pre-Installation Summary** dialog box appears (Figure 7). A summary of the choices you made is displayed for confirmation.

Figure 7 Pre-Installation Summary dialog box

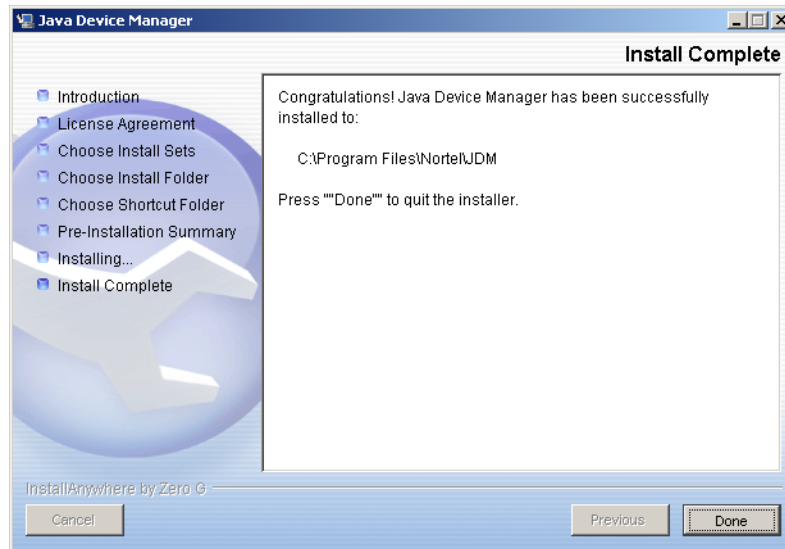


- 12** Verify the folder, shortcut, and disk space required to install the software. If necessary, click **Previous** to return to the appropriate dialog box and make changes.

13 Click **Install.**

The installation begins. When the installation is complete, the **Install Complete** dialog box appears (Figure 8).

Figure 8 Install Complete dialog box



14 Click **Done to exit the installation.**

JDM is now installed on your machine.

Installing JDM on UNIX or Linux



Note: JDM installation procedures are standardized across all platforms. In addition, the required Java Runtime Environment (JRE) version 1.4.1 is part of the JDM installation package and does not require a separate installation. The bundled JRE is used with this JDM only and does not affect other Java applications on the same system.



Note: With Solaris and HP-UX, certain OS patches are required for JRE and JDM to function properly. Consult SUN or HP to install the appropriate OS patches before launching JDM.



Note: UNIX and Linux systems are case-sensitive. Use lower-case to specify file names, and check to ensure that directories are entered correctly.

This section includes the following topics:

- [“Minimum requirements” on page 30](#)
- [“Installing JDM on Solaris from the CD” on page 30](#)
- [“Installing JDM on HP-UX from the CD” on page 30](#)
- [“Installing JDM on Linux from the CD” on page 31](#)
- [“Installing JDM on UNIX or Linux from the web” on page 31](#)
- [“Executing the JDM installation software on UNIX or Linux” on page 33](#)
- [“Removing JDM in Unix or Linux environments” on page 40](#)

Minimum requirements

JDM supports two UNIX platforms and one Linux platform:

- a UNIX SPARC* workstation running the Sun* Solaris* 2.7.x (or higher)
- an HP* workstation running the HP-UX* 11.x operating system (or higher)
- a PC running Linux Kernel 2.2 operating system (or higher)

The minimum system requirements for installing JDM on any UNIX or Linux platform are:

- 4 MB available in a temporary directory
- 300 MB free in the directory where you want to install the JDM software
- 128 MB DRAM

Installing JDM on Solaris from the CD

To install the JDM software to a Solaris environment from the CD:

- 1 Close all programs.
- 2 Insert the software CD into your CD-ROM drive.
- 3 Navigate to the **Solaris/JDM** subdirectory on the software CD.
- 4 Run the *dm_xxxx_solaris_sparc.sh* file.

Continue with [“Executing the JDM installation software on Windows” on page 22.](#)

Installing JDM on HP-UX from the CD

To install the JDM software to a HP-UX environment from the CD, follow these steps with the exact syntax:

- 1 Close all programs.
- 2 Insert the software CD into your CD-ROM drive.
- 3 Navigate to the **HP-UX/JDM** subdirectory on the software CD.

- 4 Run the *jdm_xxxx_hpux_pa-risc.sh* file.

Continue with “[Executing the JDM installation software on UNIX or Linux](#)” on page 33.

Installing JDM on Linux from the CD

To install the Device Manager software to a Linux environment from the CD:

- 1 Close all programs.
- 2 Insert the software CD into your CD-ROM drive.
- 3 Navigate to the **Linux/JDM** subdirectory on the software CD.
- 4 Run the *jdm_xxxx_linux.sh* file.

Continue with “[Executing the JDM installation software on UNIX or Linux](#)” on page 33.

Installing JDM on UNIX or Linux from the web

To install the JDM software to a UNIX (Solaris or HP-UX) environment from the web:

- 1 Go to the following URL:
www.nortel.com/support
- 2 Select the software support page for your product.
The software page appears.
- 3 Click the Java Device Manager version you want.
The Software Detail Information page appears.
- 4 Download the JDM software for your operating environment to a desired directory on your system. The software download is a self-extracting .sh file.
After the file transfer is complete, continue with [step 5](#).
- 5 Close all programs.
- 6 Navigate to the directory on your system where you loaded the JDM software.

7 Make the installation file executable.

For the Solaris environment, make the file executable by entering:

```
chmod a+x dm_xxxx_solaris_sparc.sh
```

For the HP-UX environment, make the file executable by entering:

```
chmod a+x jdm_xxxx_hpux_pa-risc.sh
```

For the Linux environment, make the file executable by entering:

```
chmod a+x jdm_xxxx_linux.sh
```

8 Run the installation file.

For the Solaris environment, run the *dm_xxxx_solaris_sparc.sh* file.

For the HP-UX environment, run the *jdm_xxxx_hpux_pa-risc.sh* file.

For the Linux environment, run the *jdm_xxxx_linux.sh* file.

Continue with [“Executing the JDM installation software on UNIX or Linux”](#) on page 33.

Executing the JDM installation software on UNIX or Linux

An installation screen appears, followed by a Nortel dialog box. When the **InstallAnywhere Introduction** dialog box appears (Figure 9), you are ready to begin the JDM installation.

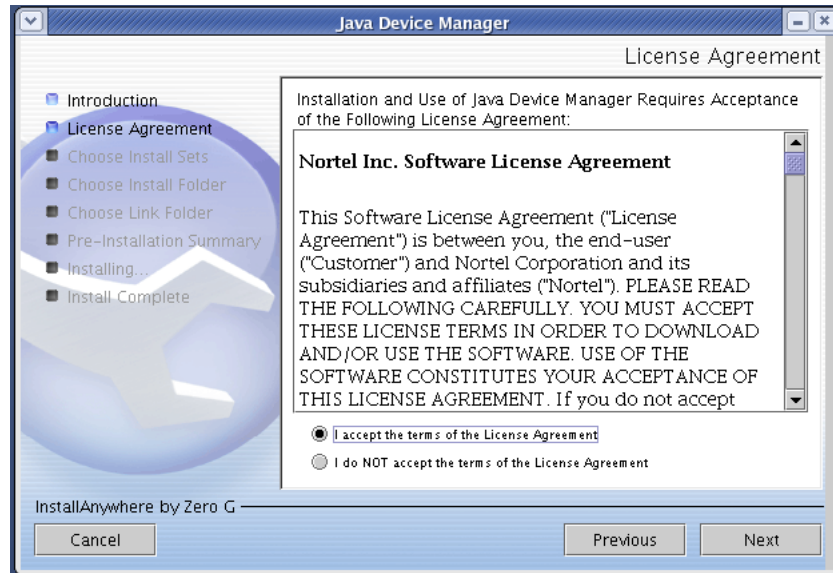
Figure 9 InstallAnywhere Introduction dialog box



- 1 Click **Next** to continue the installation.

The **License Agreement** dialog box appears (Figure 10).

Figure 10 License Agreement dialog box



- 2 Click **I accept the terms of the License Agreement**.

3 Click **Next**.

The **Choose Install Set** dialog box appears (Figure 11).

Figure 11 Choose Install Set dialog box



4 Do one of the following:

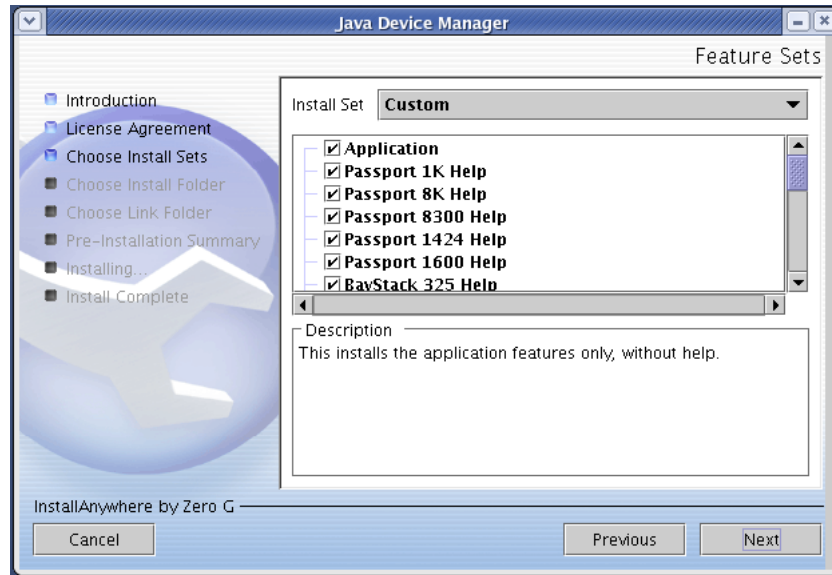
- Select **Typical** installation to install the common set features, as well as online help.
- Select **Minimal** installation to select minimal features to install (recommended for those with limited disk space).
- Select **Help** to install only the online help.
- Select **Custom** installation to customize the features prior to installation.

5 Click **Next**.

If you did not select **Custom** installation in [step 4](#), then the **Choose Install Folder** dialog box appears. Continue with [step 8](#) on [page 37](#).

If you selected **Custom** installation in [step 4](#), then the **Feature Sets** dialog box appears ([Figure 12](#)).

Figure 12 Feature Sets dialog box



6 Select which features to install from the feature sets list.

7 Click **Next**.

The **Choose Install Folder** dialog box appears ([Figure 13](#)).

Figure 13 Choose Install Folder dialog box

- 8** Click **Restore Default Folder** to use the default location for JDM, or click **Choose** to select a storage path.



Note: If Device Manager is already installed on your computer, you must choose a storage path that does not conflict with the existing version.

9 Click **Next**.

The **Pre-Installation Summary** dialog box appears (Figure 14).

Figure 14 Pre-Installation Summary dialog box

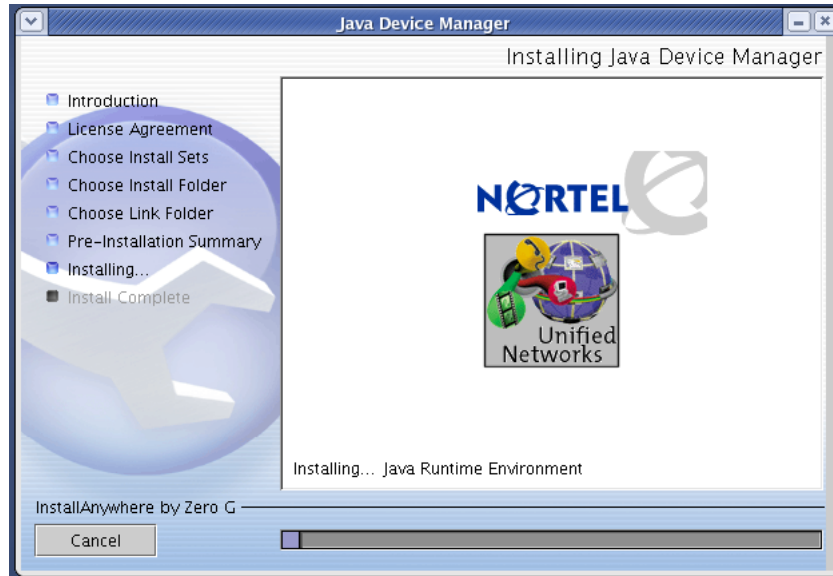


10 Verify the folder and disk space required to install the software. If necessary, click **Previous** to return to the appropriate dialog box and make changes.

11 Click Install.

The installation begins (Figure 15).

Figure 15 Installing Java Device Manager dialog box



When the installation is complete, the **Install Complete** dialog box appears (Figure 16).

Figure 16 Install Complete dialog box



12 Click **Done** to exit the installation.

JDM is now installed on your machine.

Removing JDM in Unix or Linux environments

In a UNIX or Linux environment, complete the following steps to remove the existing JDM software:

- 1** Navigate to the directory where the JDM software is installed (for example **/JDM**).
- 2** Open the UninstallerData subdirectory.
- 3** Run the following file: *Uninstall_Java_Device_Manager*.

Chapter 2

Starting Device Manager

This chapter describes the basic procedures for starting the Device Manager software and includes the following topics:

Topic	Page
Starting Device Manager using Windows and UNIX	41
Setting the Device Manager properties	42
Opening a device	45

Starting Device Manager using Windows and UNIX

➔ Do one of the following, depending upon your operating system environment:

- In a Microsoft® Windows® environment, choose **Programs > Nortel > Java Device Manager > DM** from the Windows Start menu.
- In a UNIX environment, verify that the Device Manager installation directory is in your search path; then enter:

. /JDM

The initial Device Manager window appears ([Figure 17](#)).



Note: On startup, the Device Manager performs a DNS lookup for the machine on which it is running. If the DNS lookup is slow or fails, the initial Device Manager window can take up to 30 seconds to open.

Figure 17 Device Manager window

Setting the Device Manager properties

Device Manager uses the Simple Network Management Protocol (SNMP) to configure and manage the 1600 Series switch. You can use the Device Manager Properties dialog box to configure important communication parameters such as the polling interval, timeout, and retry count. You can set these parameters at any time before or after you open a device.

To set the Device Manager properties:

- 1 From the initial Device Manager window menu bar, choose **Device > Properties**.

The **Device Manager: Properties** dialog box ([Figure 18](#)) appears.

- 2 Select properties you want to change and set their values.
- 3 Click **OK**.

Figure 18 Properties dialog box

Device Manager: Properties

Polling

Status Interval: 20 secs

(If Traps, Status Interval: 60 secs)

Hotswap Detect every: 1 intervals

☒ Enable

SNMP

Retry Count: 1 1..5

Timeout: 5 3..30 secs

☐ Trace

☐ Register for Traps

☒ Listen for Traps

Max Traps in Log: 500 1..10000

Trap Port: 162

☒ Listen for Syslogs

☐ Confirm row deletion

Default Read Community: public

Default Write Community: private

Ok Close Help...

[Table 1](#) describes the **Properties** dialog box fields.

Table 1 Properties dialog box fields

Field	Description
Status Interval	Interval at which statistics and status information are gathered (default is 20 seconds).
(IfTraps, Status Interval)	If the Register for Traps box is checked, interval, in seconds, at which statistics and status information are gathered.
Hotswap Detect every	Enter a number for the number of intervals at which Device Manager checks for hot swaps.

Table 1 Properties dialog box fields (continued)

Field	Description
Enable	If checked, Device Manager polls the switch according to the settings listed above the Enable box.
Retry Count	If Device Manager cannot transmit polling information at startup, the number of times Device Manager retransmits polling information.
Timeout	Length of each retry of each polling waiting period. When accessing the device through a slow link, you may want to increase the timeout interval and then change the Retransmission Strategy to superlinear.
Trace	If checked, SNMP information is exchanged between Device Manager and the SNMP agent.
Register for Traps	If checked, Device Manager registers traps.
Listen for Traps	If checked, Device Manager listens for traps.
Max Traps in Log	The specified number of traps that can exist in the trap log. The default is 500.
Trap Port	The number of the port on which trap messages are captured. The default is 162.
Listen for Syslogs	If checked, Device Manager listens for syslogs.
Confirm row deletion	If checked, Device Manager sends a message when a system table row is deleted.
Default Read Community	Displays the default Read Community type. You can edit this field by highlighting the current value and typing over it.
Default Write Community	Displays the default Write Community type. You can edit this field by highlighting the current value and typing over it.

Opening a device

Opening a device displays the device view, a picture of the device. Before you can display the device view, you must enter community strings that determine the access level granted to the device.

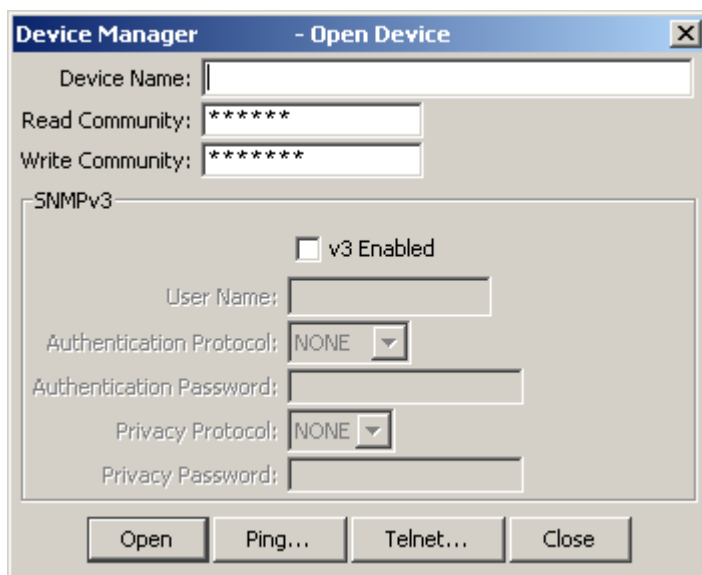
To open a device:

- 1 From the abbreviated Device Manager window menu bar, choose **Device > Open**, or from the Device Manager toolbar, click the open device button.



The **Open Device** dialog box appears (Figure 19).

Figure 19 Open Device dialog box

The screenshot shows the 'Open Device' dialog box within the 'Device Manager' application. The dialog has a title bar with 'Device Manager' and '- Open Device'. It contains several input fields: 'Device Name' (empty), 'Read Community' (filled with '*****'), and 'Write Community' (filled with '*****'). Below these is a section for 'SNMPv3' settings, which includes a checkbox for 'v3 Enabled' (unchecked), a 'User Name' field (empty), an 'Authentication Protocol' dropdown menu (set to 'NONE'), an 'Authentication Password' field (empty), a 'Privacy Protocol' dropdown menu (set to 'NONE'), and a 'Privacy Password' field (empty). At the bottom of the dialog are four buttons: 'Open', 'Ping...', 'Telnet...', and 'Close'.

- 2 Identify the device by typing the DNS name or IP address of the device in the **Device Name** field.

- 3 Type the proper community strings in the **Read Community** and **Write Community** fields.



Note: To gain read/write/all access to a device in Device Manager, you must enter the read/write/all community string for both the Read Community and Write Community strings.

- 4 Click **Ping** to check if the switch is reachable, or **Telnet** to initiate a Telnet session.
- 5 Click **Open**.

Device Manager automatically determines what version of software the selected device is running. The Device Manager window appears, showing a picture of the device (Figure 20) that represents the physical features of the device.

Figure 20 Device Manager showing an Ethernet Routing Switch 1648T

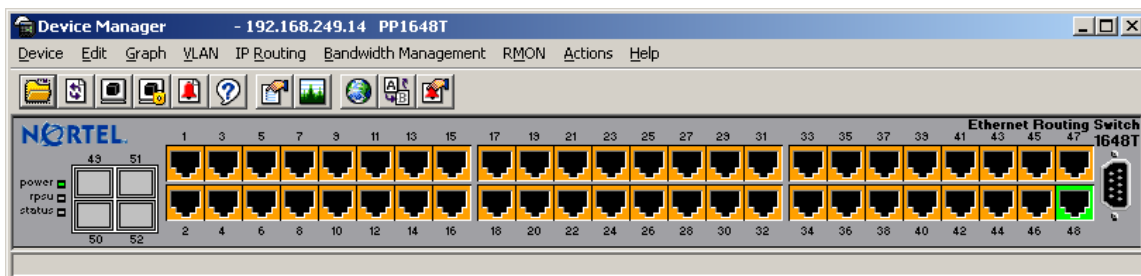


Table 2 shows the default access community strings for Device Manager software.

Table 2 SNMP community string default values

Access Level	Description
read-only	Public
read/write	Private

Table 3 describes the **Open Device** dialog box fields.

Table 3 Open Device dialog box fields

Field	Description
Device Name	Identifies the DNS name or IP address of the device.
Read Community	Indicates the length of the read community password string.
Write Community	Indicates the length of the write community password string.
v3 Enabled	Enables (checked) or disables (not checked) SNMPv3.
User Name	Indicates the user's security name. If v3 Enabled is checked, this name appears in the Edit > SnmpV3 tables.
Authentication Protocol	Indicates the selected authentication protocol: NONE, MD5, or SHA-96.
Authentication Password	Indicates the length of the authentication password string.
Privacy Protocol	Indicates the selected privacy protocol: NONE or DES.
Privacy Password	Indicates the length of the privacy password string.

Opening a device using the Open Last option

You can use Device Manager's Open Last option to view and/or select from a list of available devices.

To open a previously opened device:

- 1 From the abbreviated Device Manager window menu bar, choose **Device > Open Last**.
A pull-down menu appears, listing the devices that were previously opened. The open last list displays up to 200 previously opened devices.
- 2 Choose the IP address/system name of the device that you want to open. The **Open Device** dialog box for that device appears.

To delete devices from the Open Last Device List, choose **Device > Open Last > Edit**. The **Devices** dialog box appears. Highlight the device that you want to remove from the list, and click **Delete**.

If you cannot open a device in Device Manager, see [“Switch fails to open in Device Manager” on page 68](#) for information about how to troubleshoot the problem.

Chapter 3

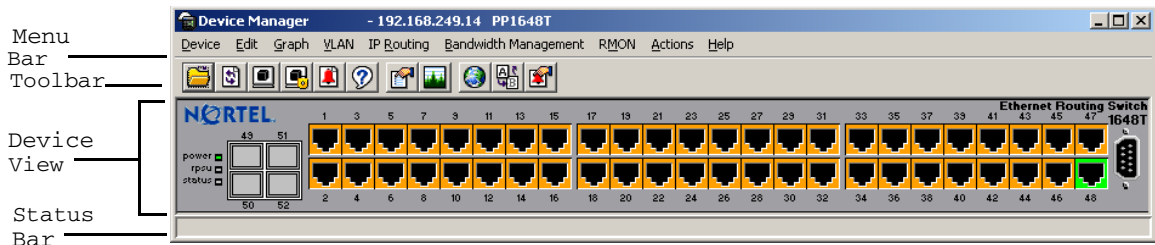
Understanding the Device Manager window

The Device Manager window has the following four parts:

- Menu bar
- Toolbar
- Device view
- Status bar

Figure 21 displays the parts of the Device Manager Window.

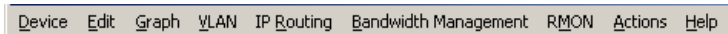
Figure 21 Parts of the Device Manager window



Using the menu bar

The menu bar on the Device Manager window ([Figure 22](#)) provides menus with commands that let you monitor a device.

Figure 22 Menu bar



[Table 4](#) describes the menu bar fields.

Table 4 Device Manager menu bar description

Menu	Description
Device	From the Device menu, you can open a device, refresh the device view, and set polling and SNMP properties. You can also open and view the Trap Log and Log.
Edit	From the Edit menu, you can view parameters for the chassis or for selected objects. The object can be a card, port, or console port. You can also set security parameters, run diagnostic tests, and select all objects in the device.
Graph	From the Graph menu, you can view Device Manager statistics and produce graphs of the chassis or port statistics.
VLAN	From the VLAN menu, you can view information about VLANs, Spanning Tree Protocol (STP), MultiLink Trunks, and MAC Learning.
IP Routing	From the IP Routing menu, you can set up IP routing functions for the switch, including OSPF, RIP, VRRP, Multicast, IGMP, PIM, UDP forwarding, and IP policies.
Bandwidth Management	From the Bandwidth Management menu, you can set up QoS and Filtering properties for the switch.
RMON	From the RMON menu, you can set up RMON alarms and view the alarm log and history log. You can also enable or disable RMON history or statistics on all ports.
Actions	From the Actions menu, you have quick access to selected actions without using other menus and submenus. Use this menu to open the Web management interface or to save boot configurations.
Help	From the Help menu, you can view online Help topics for Device Manager. This menu also contains a legend for the port colors in the device view.

Using the toolbar

The toolbar buttons provide quick access to commonly used commands and some additional actions.

Table 5 describes the toolbar buttons.

Table 5 Toolbar buttons












Button	Name	Description	Menu equivalent
	Open Device	Opens a device.	Device > Open
	Refresh Device Status	Refreshes the device view information.	Device > Refresh Status
	Telnet	Opens a Telnet session.	Device > Telnet
	SSH	Opens an SSH session.	Device > SSH Connection
	Trap Log	Opens the trap log.	Device > Trap Log
	Help	Opens online Help in a Web browser window.	Help > Device
	Edit Selected	Displays configuration data windows for the selected chassis object.	Edit > Chassis Edit > Port Edit > Console
	Graph Selected	Opens statistics and graphing windows.	Graph > Chassis Graph > Port
	Open Device's Home Page	Opens the Web interface home page.	Actions > Open Home Page

Table 5 Toolbar buttons (continued)

	Save to NVRAM	Saves the configuration.	Actions > Save Config
	Alarm Manager	Opens the RMON Alarm Manager window.	Rmon > Alarm Manager

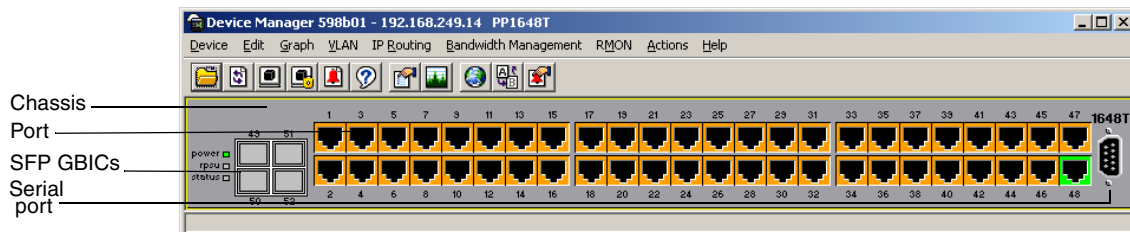
Using the Device view

From the device view, you can determine at a glance the operating status of the switch and ports. You also use the device view to perform management tasks on specific objects.

Selecting objects

In the device view ([Figure 23](#)), you can select the following types of objects:

- The entire chassis
- A port or multiple ports
- Small Form Factor Pluggable (SFP) GBICs
- A serial port

Figure 23 Objects in a 1600 Series switch device view

To select a single object, click the edge of the object. The object is outlined in yellow, indicating that it is selected. Subsequent activities in Device Manager refer to the selected object.

To select multiple ports, use *one* of the following actions:

- For a block of contiguous ports, drag to select the group of objects.
or
- For multiple ports anywhere in the switch chassis, **Ctrl+click** the objects anywhere in the device view.

To select all the ports in the switch:

➡ Choose **Edit > Select All > Ports**.

The rule for selecting multiple physical objects is that the selected objects must belong to the same category or family or have some kind of parent-child relationship.

Interpreting the status of LEDs and ports

The conventions on the device view are similar to the actual switch appearance. LEDs are in one of three states: on, off, or blinking. For a full description of what each state means, refer to *Installing the Ethernet Routing Switch 1600 Series Switch* (316860-D).

The ports on the device view are color-coded to provide at-a-glance port status. [Table 6](#) shows the status assigned to each color.

Table 6 Device Manager port color codes

Color	Description
Green	Port is up and operating.
Red	Port was manually disabled.
Orange	Port has no link.
Light Blue	Port is in standby mode.
Dark Blue	Port is being tested.
Grey	Port is not reachable by Device Manager.
Pink	Port has a loopback connector connected to it.

In addition, the Help menu provides a legend that identifies the port colors and their meanings.

Using shortcut menus

Objects in the device view such as the chassis, ports, and cards have shortcut menus. These menus provide a faster path for editing objects and applying changes; however, you can access the same options through the menu bar or the toolbar.

To display the chassis shortcut menu ([Figure 24](#)), select the chassis and right-click.

Figure 24 Chassis shortcut menu

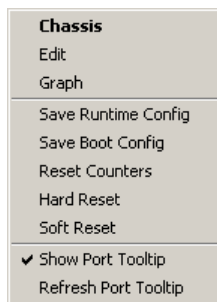


Table 7 describes the chassis shortcut menu options.

Table 7 Chassis shortcut menu options

Option	Description
Edit	Edits chassis parameters.
Graph	Graphs chassis statistics.
Save Runtime Config	Saves any changes made to the run-time configuration.
Save Boot Config	Saves any changes made to the boot configuration.
Reset Counters	Resets all the statistics counters for the switch.
Hard Reset	Performs a hard reset of the switch.
Soft Reset	Performs a soft reset of the switch.
Show Port Tooltip	Indicates that the tooltip function is active. When unchecked, the tooltip function is disabled. A Tooltip is a descriptive text box that appears when the mouse pointer is held over a tool, button, or other object.
Refresh Port Tooltip	Refreshes the tooltip information.

To display the port shortcut menu (Figure 25), select one or more ports and right click.

Figure 25 Port shortcut menus

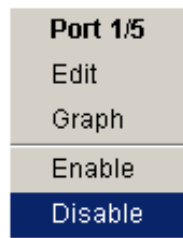


Table 8 describes the I/O port shortcut menu options.

Table 8 Port shortcut menu options

Option	Description
Edit	Display edit port menu.
Graph	Graph port statistics.

Table 8 Port shortcut menu options

Option	Description
Enable	Administratively bring a port up.
Disable	Administratively shut down a port.

Using the status bar

At the bottom of the Device Manager window is the status bar. This area displays error and informational messages from the software application. These messages are not related to the device being managed.

Using the buttons in Device Manager dialog boxes

[Table 9](#) describes buttons that appear in Device Manager dialog boxes and tabs. Be aware that not all buttons appear in all dialog boxes.

Table 9 Device Manager buttons













Button	Name	Description
	Apply	Applies the changes you entered in fields on a tab or dialog box. The button appears dimmed out until you change a parameter. Changes are displayed as bold_text or numbers.
	Stop	Stops the current action (polling).
	Refresh	Refreshes the information in the window. Every time you click Refresh, new information is polled from the switch and displayed.
	Insert	Opens a dialog box to create a new entry for a table; then from the dialog box, inserts the new entry in the table.
	Delete	Deletes a selected entry.
	Copy	Copies selected items to your clipboard.
	Paste	Pastes the contents of your clipboard.

Table 9 Device Manager buttons (continued)

Button	Name	Description
	Reset Changes	Causes changed (but not applied) fields to revert to their previous values.
	Export Data	Exports information to a file you specify. You can then import this file into a text editor or spreadsheet for further analysis.
	Print Table or Print Graph	Prints a table or graph.
	Close	Closes the tab or dialog box and disregards any changes you have made to fields.
	Help	Opens context-sensitive online Help.

Using Device Manager dialog boxes

Many Device Manager dialog boxes contain editable fields where you can enter parameter values, and many of the parameters have predetermined possible values. For example, a port can be set to be enabled or disabled. Other parameter values are ranges of user-determined values. For example, the value for a system contact is a name you enter in the SysContact field.

Editable fields in Device Manager dialog boxes are displayed in white.

To change the value in a field:

- 1** Click the field and type the value.
- 2** When you enter values for IP addresses, MAC addresses, or time, follow these guidelines:
 - Enter an IP address in decimal format:
`<xxx> . <xxx> . <xxx> . <xxx>`
 - Enter a MAC address in hexadecimal format:
`xx:xx:xx:xx:xx:xx`
 - Time is a value based on the delta from the switch boot-up time.

Editing objects

You can edit objects and values in the Device Manager device view in the following ways:

- Select an object and, on the toolbar, click the Edit Selected button.



The edit dialog box opens for that object.

- From a switch or port shortcut menu, choose **Edit**. The edit dialog box appears for that object.
- Double-click an object. The edit dialog box appears for that object.

When you change the value in a box, the changed value is shown in **bold**. However, changes are not applied to the running configuration until you click **Apply**.



Note: Many dialog boxes contain a Refresh button. After you apply changes to fields, click Refresh to display the new information in the dialog box.

Working with statistics and graphs

Device Manager tracks a wide range of statistics for each switch and each port. You can view and graph statistics for a single object or multiple objects.

This section describes the types of statistics and graphs available, the graph dialog boxes, and the procedure for creating a graph.

Types of statistics

The data tables in the statistics dialog boxes list the counters, or categories of statistics being gathered, for the specified object. For example, the categories for ports include Interface, Ethernet Errors, Bridge, and Rmon. Each category can be associated with six types of statistics.

You can set the polling intervals for each graph from a pull-down menu offering the following choices: None, 2 seconds, 5 seconds, 10 seconds, 30 seconds, 1 minute, 5 minutes, 30 minutes, or 1 hour.

[Table 10](#) describes the types of statistics shown in the statistics dialog boxes.

Table 10 Types of statistics

Statistic	Description
AbsoluteValue	The total count since the last time counters were reset. A system reboot resets all counters.
Cumulative	The total count since the statistics window was first opened. The elapsed time for the cumulative counter is shown at the bottom of the graph window.
Average/sec	The cumulative count per polling interval.
Minimum/sec	The minimum average for the counter per polling interval.
Maximum/sec	The maximum average for the counter per polling interval.
LastVal/sec	The average for the counter during the previous polling interval.

Types of graphs

With Device Manager, you can create line, area, bar, and pie graphs. [Figure 26 on page 60](#), [Figure 27 on page 60](#), [Figure 28 on page 61](#), and [Figure 29 on page 61](#) illustrate the different graph styles, respectively.

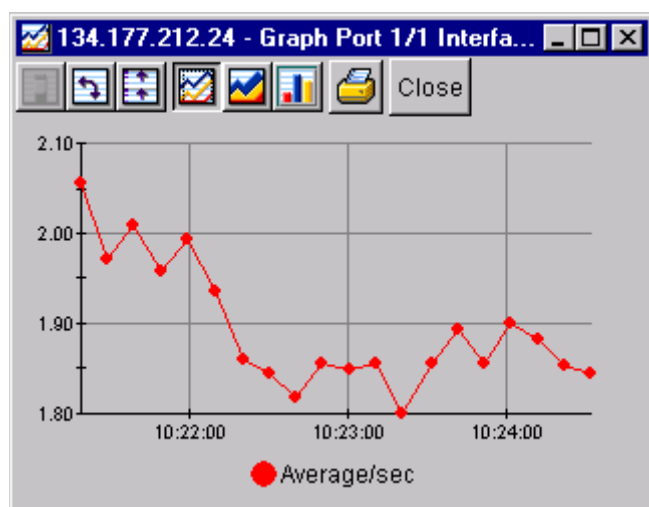
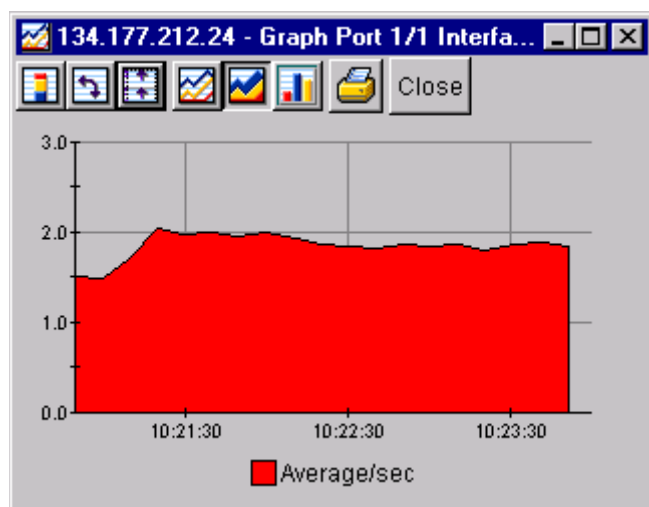
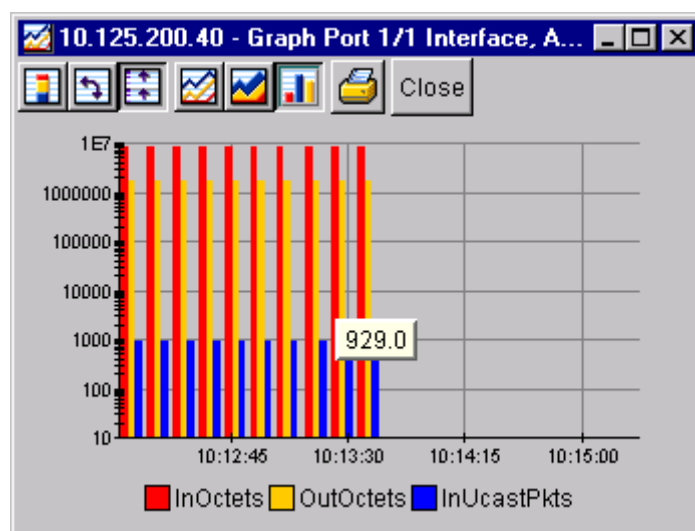
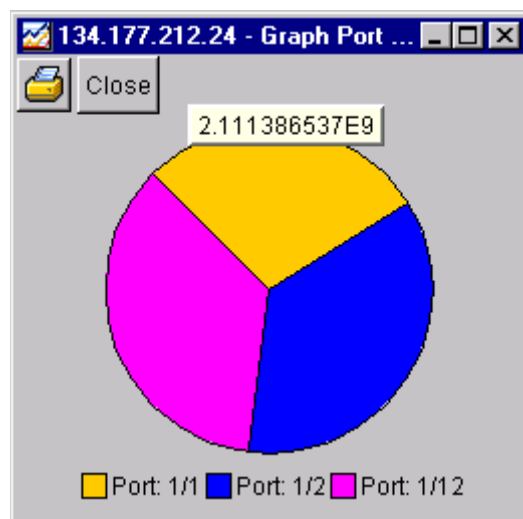
Figure 26 Line graph**Figure 27** Area graph

Figure 28 Bar graph**Figure 29** Pie graph

Statistics for single and multiple objects

The statistics dialog box displays statistics for a selected object.

The dialog box for a single object shows all six types of statistics for each counter (Figure 30).

Figure 30 Interface statistics for a single port

	AbsoluteValue	Cumulative	Average/sec	Minimum/sec	Maximum/sec	LastVal/sec
InOctets	38,983,579	1,760	176	176	176	176
OutOctets	42,097,782	2,243	224.3	224.3	224.3	224.3
InUcastPkts	20,269	3	0.3	0.3	0.3	0.3
OutUcastPkts	20,816	3	0.3	0.3	0.3	0.3
InMulticastPkts	335,985	13	1.3	1.3	1.3	1.3
OutMulticastPkts	596,007	20	2	2	2	2
InBroadcastPkts	66,736	0	0	0	0	0
OutBroadcastPkts	24	0	0	0	0	0
InErrors	0	0	0	0	0	0
InFlowCtrlPkts	0	0	0	0	0	0
OutFlowCtrlPkts	0	0	0	0	0	0

The statistics dialog box for multiple objects shows a single type of statistics (Table 10 on page 59) for the selected objects. For example, Figure 31 shows AbsoluteValue statistics for the selected ports.

Figure 31 Interface statistics for multiple ports

	InOctets	OutOctets	InUcastPkts	OutUcastPkts	InMulticastPkts	OutMulticastPkts	InBroadcastPkts	OutBroadcastPkts	InErrors	InFlowCtrlPkts	OutFlowCtrlPkts
Port: 1/46	0	0	0	0	0	0	0	0	0	0	0
Port: 1/48	39,045...	42,167,945	20,447	20,988	336,348	596,651	66,802	24	0	0	0

To change the type of statistics displayed, select a different type from the **Show** list at the bottom of the dialog box.

The statistics are updated based on the poll interval shown at the bottom of the dialog box. You can select a different polling interval.

You can export the statistics to a tab-separated file format and import the file into other applications. To export the information, use the Export Data button below the table.



Viewing statistics as graphs

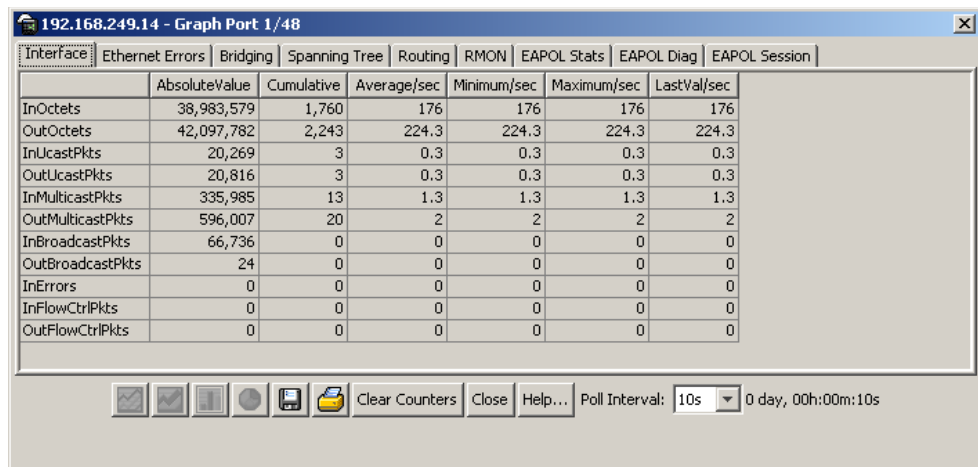
To create a graph for an object:

- 1 Select the object or objects to be graphed
See [“Selecting objects” on page 52](#) for more information.
- 2 Do one of the following:
 - On the toolbar, click Graph Selected.



- From the shortcut menu for the object, choose **Graph**.
- From the main menu, choose **Graph > Chassis** or **Graph > Port**.

A statistics dialog box appears with tabs for different categories of statistics for the selected object ([Figure 32 on page 64](#)).

Figure 32 Statistics dialog box for a port

- 3 Select a tab for the group of statistics you want to view.
- 4 On the displayed data table, drag to select the cells you want to graph. (They must be in the same row or column.)
- 5 Click one of the graph buttons at the bottom of the dialog box.
See [“Types of graphs” on page 59](#) for more information.

A **Graph** dialog box appears for the selected graph type.








- 6 To print a copy of the graph, click **Print**.



Buttons at the top of the **Graph** dialog boxes for line, area, and bar graphs allow you to change the orientation of the graph, change the scale, or change the graph type.

Table 11 describes the buttons in the **Graph** dialog boxes.

Table 11 Graph dialog box buttons

Button	Name	Description
	Stacked	Stacks data quantities instead of displaying them side-by-side.
	Horizontal	Rotates the graph 90 degrees.
	Log Scale	Changes the scale of the x-axis (of an unrotated graph) from numeric to logarithmic.
	Line Chart	Converts an area graph or bar graph to a line graph.
	Area Chart	Converts a line graph or bar graph to an area graph.
	Bar Chart	Converts a line graph or area graph to a bar graph.
	Pie Chart	Converts a line, bar, or area graph into pie chart.

Online help

Online help in Device Manager is context-sensitive. You use a Web browser to display online help. The Web browser should launch automatically when you click help. To display online help correctly, Nortel Networks recommends using the following Web browsers:

- Microsoft Internet Explorer 5.0 or later
- Netscape Navigator 4.7 or later

In a Unix environment, for Device Manager (or Enterprise Switch Manager) to launch a Netscape browser properly, the shell in which Device Manager was launched must have a Netscape browser in its path.

In a Solaris environment, Device Manager may not open a Netscape window when you click a Help button. To work around this issue, first launch Netscape manually; and then the Help system properly opens in the Netscape browser window.

The Help menu may behave erratically after you view the “About Device Manager” selection. If the edge of the Help menu extends beyond the device view window, you may not be able to select Legend using the cursor. The workaround for this problem is to use the arrow keys to select from this menu or to widen the device view window so that the Help menu is displayed in entirety on top of the device view.

If, for some reason, the Web browser does not launch, the location of the Help files are the default install directories listed in [Table 12](#).

Table 12 Help file locations

Help files	Default path
Device Manager	<i>default install directory.../help/pp1424_basics</i>
Device specific help	<i>default install directory.../help/<device>/<version></i> <i>where:</i> <i><device> is the device name, for example pp1600</i> <i><version> is the software version number, for example v210</i> <i>Thus, the default path for device specific help for the pp16xx device, version210 is /help/pp1600/v210.</i>

Appendix A

Troubleshooting

This appendix contains information about problems that can occur while you are operating the switch, and includes the following topics:

Topic	Page
Login prompt fails to appear from the serial port	67
Switch fails to open in Device Manager	68

Login prompt fails to appear from the serial port

If you connect a terminal to the serial port ([Figure 33](#)) and are unable to obtain a login prompt, use Device Manager to check the port settings.

Figure 33 Serial port



To check the serial port settings:

- 1 In the Device View, select the serial port.
- 2 From the Device Manager menu bar, choose **Edit > Serial Port**.
- 3 Check to see that the port settings are as follows:
 - BaudRate: **baud9600**
 - DataBits: **eight**

Switch fails to open in Device Manager

If a switch does not open, Device Manager displays a timeout message. Timeouts can occur in slower networks and indicate that you need to increase your retransmission retries and timeout interval. For information about setting these values, refer to [“Setting the Device Manager properties” on page 42](#).

If increasing the retransmission retries and timeout interval does not solve the problem, in the Open Device dialog box, make sure that you entered the correct read and write community information.

For instructions to enter community strings, see [“Opening a device” on page 45](#).

If the switch cannot be reached through IP (the management station cannot communicate with the switch), verify the following:

- Is the switch connected to the network?
- Is the switch turned on?
- Does the switch have an incorrect IP address?
- Is the incorrect IP address specified in the Open Device field in Device Manager?
- Is the network misconfigured?

If you are using SNMPv3, verify the following:

- Is the encryption module correctly loaded on the switch?
- Is the user login and password correct?
- Is the authentication protocol and password correct?
- Is the privacy protocol and password correct?

Index

A

- AbsoluteValue statistics 59
- Actions menu 50
- Alarm Manager button 52
- Apply button 56
- Area Chart button 65
- area graph example 60
- Average statistics 59

B

- Bar Chart button 65
- Browse Device's Home Page button 51
- buttons
 - task 56
 - toolbar 51
 - using Device Manager 56

C

- chassis, selecting 52
- Close button 57
- color-coded ports 53
- community strings
 - default 46
- configuration, saving 52
- Console port, checking settings 67
- conventions, text 12
- Cumulative statistics 59

D

- data, exporting 63
- Delete button 56
- device
 - opening 45, 47
 - viewing 52
 - window parts 49
- Device Manager
 - help files 65
 - installing on UNIX 30
 - installing on Windows 19
 - menu bar descriptions 50
 - requirements 17
 - setting properties 42
 - toolbar buttons 51
- Device Manager window 41, 42
- dialog boxes, using Device Manger 57

E

- Edit menu 50
- Edit Selected button 51
- Export Data button 57, 63

F

- failure of switch to open in Device Manager 68

G

- graph
 - creating 63
 - modifying 64
- graph dialog box 64

Graph menu 50
Graph Selected button 51, 63
graph types 59

H

Help button 51, 57
Help menu 50
Help, Device Manager 65
Horizontal button 65

I

Insert button 56
installing the Device Manager software 19
IP address
 incorrect 68
IP Routing menu 50

L

LastValue statistics 59
LEDs, interpreting 53
Line Chart button 65
Log Scale button 65

M

Maximum statistics 59
menus. See individual menu names
Minimum statistics 59

O

objects
 editing 58
 selecting 52
online help 65
Open Device button 51
Open Device dialog box 45

P

polling interval 63
polling intervals 59
polling waiting period 44
ports
 color-coded 53
Print button 57
Properties dialog box 42
 (IfTraps, Status Interval) field 43
 Confirm row deletion field 44
 Default Read Community field 44
 Default Write Community field 44
 Enable field 44
 Hotswap Detect every field 43
 Listen for Syslogs field 44
 Listen for Traps field 44
 Max Traps in Log field 44
 Register for Traps field 44
 Retry Count field 44
 Status Interval field 43
 Timeout field 44
 Trace field 44
 Trap Port field 44

R

Read Community, SNMP 46
Read-Write-All access 46
Refresh button 56
Refresh Device Status button 51
requirements
 Device Manager 17
 UNIX installation of Device Manager 30
 Windows installation of Device Manager 19
Reset Changes button 57
retransmission retries 68
RMON, menu 50

S

Save to NVRAM button 52

- shortcut menus, using 54
- software installation
 - UNIX 30
 - Windows 19
- SSH button 51
- SSH session 51
- Stacked button 65
- statistics
 - for a single object 62
 - for multiple objects 62
 - graphing 58
 - single port 62
 - types 58
- statistics dialog box, multiple objects 62
- status bar, Device Manager 56
- Stop button 56
- switch fails to open in Device Manager 68

T

- Telnet
 - button 51
 - session 51
- text conventions 12
- timeout interval 68
- timeout messages 68
- toolbar buttons 51
- toolbar, Device Manager 51
- tooltip 55
- Trap Log button 51
- troubleshooting
 - switch does not open 68

U

- UNIX
 - installing Device Manager 30

V

- value, changed 58
- VLAN menu 50

W

- Web interface, opening 51
- Windows
 - installing Device Manager 19
- Write Community, SNMP 46

