Quickstart Guide

Ethernet Routing Switch 1600 Series Switch

QSG

Ethernet Routing Switch 1600 Series
Release 2.1

NORTEL

Copyright © 2006 Nortel Networks. All rights reserved.

Trademarks

NORTEL

Contents

This document contains the following information:

NORTEL

Introduction

This Quickstart Guide provides basic instruction on how to install the hardware and perform basic configuration of an Ethernet Routing Switch 1600 Series Switch.

Audience

The Quickstart Guide is intended for experienced installers.

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 Ethernet Routing Switch 1600 Switch, 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:

http://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:

http://www.nortel.com/callus

Getting help from a specialist by 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:

http://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.

Precautions

For your safety, review the following personal safety warnings before working with the Ethernet Routing Switch 1600 Switch.

WARNING
Risk of injury by electric shock
To avoid the danger of electric shock, be careful when working with power equipment and connections.

WARNING
Risk of injury by fan blades
When removing the fan module, do not put your hands into the opening because there are spinning fan blades in the adjacent fan modules. There is also a risk of electric shock from the electrical connector at the rear of the slot.

WARNING
Risk of eye injury by laser
Never look directly into the end of a fiber cable or use optical device to look at the end of a fiber cable unless certain the other end of the cable is not connected. The laser travelling through a fiber cable can injure the retina.

Protecting cables and connectors

- Support cables in order to prevent any stress on the connectors. If you have a high cable density configuration, you need to install additional cable management equipment.

- Do not exceed the bend radius recommended for the type of cable installed.

- Fiber optic cables and connectors require special care.

    — Protect connectors with rubber safety plugs when cables are not inserted.

    — When installing or replacing cables, follow appropriate fiber-cleaning procedures.

NORTEL

- Do not exceed the bend radius recommended for fiber optic cable. The acceptable bend radius for fiber optic cable is ten times its diameter, or 2.5-5 cm (1-2 in.). Anything less than the recommendation can cause a loss of integrity of data transmission. Loss of integrity because of incorrect bend radius is difficult to diagnose.

Electrostatic discharge

Electrostatic discharge (ESD) can change the electrical characteristics of a semiconductor device and degrade or destroy it. ESD can also disrupt the normal operation of an electronic system by causing equipment malfunction or failure.

To dissipate or neutralize electrostatic charges, use proper grounding and use conductive or dissipative materials. Use an ESD wrist strap to transfer any charge in your body to the ground rather than hardware modules.

NØRTEL

Quick Start Physical Installation

This section describes how to physically install the Ethernet Routing Switch 1600 Series Switch. For additional information about physical installation, refer to *Installing the Ethernet Routing Switch 1600 Series Switch* (316860-D).

Installing the switch

Estimated timing: 20 minutes

When choosing a place to install the 1600 Series switch, use the following guidelines:

- Ensure that the surface supports at least 3 kg (6.6 lb).
- Ensure that the power outlet is within 1.82 meters (6 feet) of the device.
- Ensure that there is proper heat dissipation from and adequate ventilation around the switch.
- Do not place heavy objects on the switch.

Installing the switch on a desktop or shelf

Step	Action
1	Attach the rubber feet included with the device to the bottom of each corner (see Figure 1).
2	Ensure you allow adequate space for ventilation between the device and the objects around it.

**Figure 1: Rubber feet and mounting bracket attachment points**
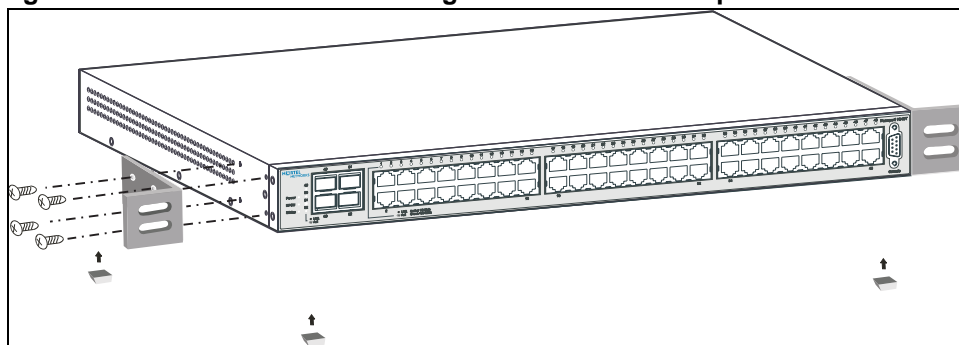
Installing the switch in a rack

The 1600 Series switch can be installed in a standard 19-inch electronic equipment rack or cabinet. Along with the required screws, two mounting brackets are included in the switch's packaging.

Step	Action
1	Attach the mounting brackets to the switch housing using the attachment points (see Figure 1).
2	Use the attached brackets to mount the switch in a standard 19-inch electronic equipment rack (see Figure 2 on page 10).

Figure 2: Mounting the switch in a 19-inch rack
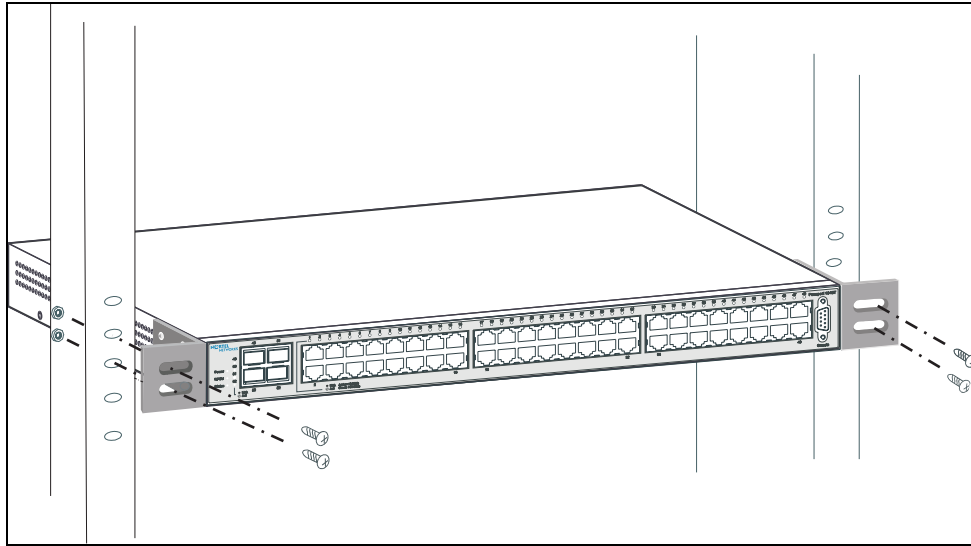
Note: The required screws or nuts and bolts required to mount the switch to the 19-inch rack should be supplied by the rack manufacturer.

Inserting SFP modules

Estimated timing: 10 minutes

The Ethernet Routing Switch 1648T provides 4 SFP slots, while the 1624G has 24 slots and the 1612G has 12 slots. These slots accept SFP fiber optic modules that operate at 1000 Mbps in full-duplex mode. They can connect fiber optic cables to other network devices.

WARNING
Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source.

NORTEL

SFP modules are sensitive to static electricity. Static discharge from your clothing or other fixtures around you, even at levels that do not create a spark, can cause damage.

CAUTION
Electrostatic discharge can damage hardware. To prevent static discharge damage when you work with a 1600 Series switch, place the switch on a grounded antistatic mat until you are ready to install it or leave the switch in the sealed ESD bag. Also, be sure to wear a discharge leash or wrist strap to free yourself of static before you touch a switch.
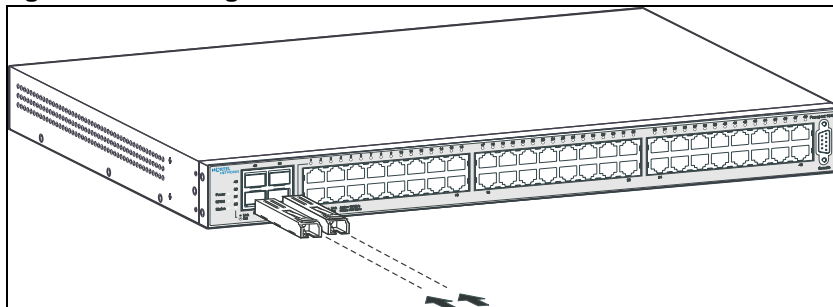
Before beginning the installation process, be aware that:

* An SFP module can be installed or replaced in an operating 1600 Series switch without turning off power to the switch.
* Use the correct fiber optic cable type to ensure the proper performance of the fiber optic network link.

Inserting the SFP module

Step	Action

1   Insert the module into an empty slot on the 1600 Series switch. Figure 3 shows the module being inserted in the 1648T model. When doing so, ensure that:

* the SFP module is properly aligned with the slot, and that the module's rear electrical connector is facing down for the two SFP slots on top of the group of four.

* the electrical connectors on the SFP fiber optic module are facing up for the two SFP slots on the bottom of the group of four.

Figure 3: Inserting an SFP module

2   Seat the electrical contacts in the rear of the SFP module are against the contacts in the SFP slot.

3   Gently press the module into the slot until you feel a slight click.

CAUTION
SFP modules are keyed to prevent improper insertion. If the module resists pressure, do not force it. Remove it, turn it over, and reinsert it.

Inserting and removing an SFP module fiber optic cable

The SFP module fiber optic cable connectors have two small tabs, similar to the tabs on copper Category 5 Ethernet cable, or a telephone cable connector. This tab retains the connector in the SFP module, so that it cannot accidentally be pulled out, causing the loss of the link.

Step	Action

| 1 | Press down on the retaining tabs on the fiber optic cable connectors. |
| 2 | Gently pull the outer plastic casing away from the SFP module. |

The connectors on many SFP fiber optic cables are grouped in pairs with a small plastic tab you can use to press both connector tabs at the same time. This allows you to remove both cable connectors as a group.

Figure 4 displays the insertion of an SFP fiber optic cable to the SFP module.

**Figure 4: Inserting an SFP fiber optic cable**
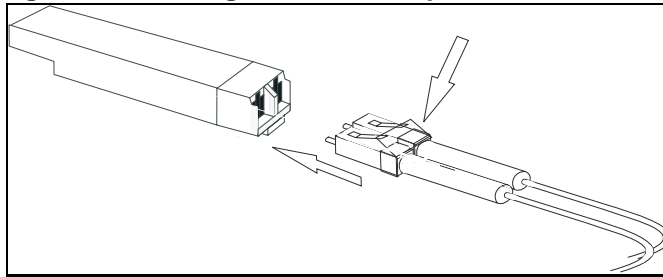
Connecting cables

Estimated timing: 10 minutes

Connecting AC power connectors

Each 1600 Series switch includes two internal power supplies. These units have two receptacles for AC power cords, with a power on/off switch to control each power supply (Figure 5). This provides a redundant power supply (RPSU) in case of failure of either the power supply itself, or the AC circuit.

Figure 5: 1648 model- rear panel
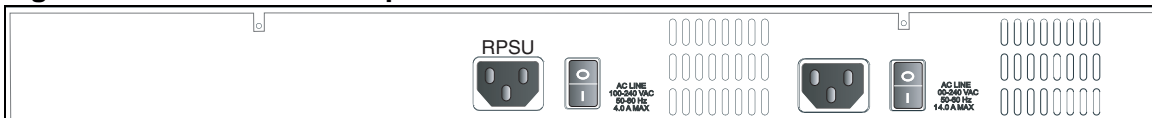
Once the 1600 Series switch is installed, visually inspect the switch to ensure that:

• both power cords are both plugged in to AC receptacles of the 1600 Series switch

• both power cords are plugged in to nearby AC power connectors

• the RPSU uses an AC power connector controlled by a separate circuit breaker than the main power source, to provide redundancy

• the on/off switches for both power supplies are switched to the on position

NORTEL

Connecting ethernet cables

Use standard LAN cables to connect to the management ethernet port and 1600 Series switch ports.

Accessing the management interface

The Ethernet Routing Switch 1612G and Ethernet Routing Switch 1624G access the management interface using a dedicated management port.

The Ethernet Routing Switch 1648T does not have a dedicated management port. In runtime mode, any port assigned to VLAN 1 can access the management interface. In bootconfig mode, only port 48 can access the management interface for file transfer.

> **Note:** Port 48 must remain in VLAN 1 to allow the Ethernet Routing Switch 1618T access to the management interface in bootconfig mode.

Connecting to the console

To connect to the console, you must use a DB-9 Female to DB-9 Female null modem (crossed) RS-232 cable.

Step	Action
1	Connect one end of the cable to the DB-9 console port on the front of the Ethernet Routing Switch 1600 Series Switch.
2	Connect the other end of that cable to the COM port on a PC or dumb terminal that will be used to access the switch.

Quick Start Basic Configuration

This section describes how to connect to and configure the Ethernet Routing Switch 1600 Series Switch. For additional information about configuring your 1600 Series switch, refer to *Getting Started* (321821-A).

Logging on to the switch

Estimated timing: 10 minutes

To configure the Ethernet Routing Switch 1600 Switch, you must first log on to the switch console. Complete the following steps to log on to the switch console:

Step	Action

1   Open a terminal connection with the switch.

The required terminal settings for this connection are listed in Table 1.

Table 1: Communication protocol settings

Setting	Value
Baud rate	9600
Data bits	8
Parity	none
Stop bits	1
Flow Control	none

2   Use the default login and password settings of `rwa` and `rwa` to log on to the switch, as shown in Figure 6.

Figure 6: Logging on to the switch

```
**************************************************
* Copyright (c) 1996-2005 Nortel Networks, Inc. *
* All Rights Reserved *

* Passport 1648T *
* Software Release REL2.1.0.0_B002 *
* *
* Unsupported Software *
* Nortel Networks, Inc. Internal Use Only. *
**************************************************
Login: rwa
Password: ***
PP1648T:1#
```

Changing passwords

Estimated timing: 5 minutes

The Ethernet Routing Switch 1600 Series Switch is shipped with default passwords set for access to the CLI. To set new passwords for each access level, or to change the login or password for the different access levels of the switch, use the following command:

```
config cli password
```

This command includes the following options:

config cli password followed by:	
`info`	Shows current level parameter settings.
`ro <username>`	Changes the read-only login and/or password. *username* is the login name.
`l1 <username>`	Changes the Layer 1 read/write login and/or password. *username* is the login name.
`l2 <username>`	Changes the Layer 2 read/write login and/or password. *username* is the login name.
`l3 <username>`	Changes the Layer 3 read/write login and/or password. *username* is the login name.
`rw <username>`	Changes the read/write login and/or password. *username* is the login name.
`rwa <username>`	Changes the read/write/all login and/or password. *username* is the login name.

Sample output of these commands is displayed in Figure 7.

NØRTEL

Figure 7: Changing passwords using the CLI

```
PP-1648T:1# config cli password ro test
Enter the old password : **
Enter the New password : *****
Re-enter the New password : *****
Password changed successfully
PP-1648T:1# config cli password info
Sub-Context: clear config monitor show test trace
Current Context:
ACCESS LOGIN
rwa rwa
rw rw
l3 l3
l2 l2
l1 l1
ro test
PP-1648T:1#
```

Configuring the switch

Estimated timing: 25 minutes

Configuring the Management IP address

To configure the management IP address, use the following command:

```
config bootconfig net mgmt ip <ipaddr/mask>
```

Configuring the Management IP routes

Up to four management routes can be added, with no default route allowed. To configure the management IP routes, use the following command:

```
config bootconfig net mgmt route add <network/mask> <gateway>
```

Configuring the management interface on the 1648T

The Ethernet Routing Switch 1648T does not use a dedicated management port, and requires an additional configuration to access the management interface in runtime mode.

Use the following commands to complete management interface configuration on an Ethernet Routing Switch 1648T:

```
config vlan 1 ip create <ip address/mask> [adds mgmt ip]
```

```
config ip static-route create <network/mask> next-hop
<gateway> cost <int> [adds mgmt rte]
```

Figure 8: Adding a static route

```
Config vlan 1 ip create 192.168.249.14/24

Config ip static-route create 207.0.0.0/8 next-hop
192.168.249.1 cost 10

save config
```

Enabling management services

To enable management services, use the following command:

```
config bootconfig flags telnetd true
```

Saving configuration changes to the switch

Estimated time: 5 minutes

To save changes to the switch configuration, enter the following commands:

```
save bootconfig
```

```
save config
```

Figure 9: Changing passwords using the CLI

```
Passport-1648T:1# save bootconfig
Save bootconfig to file /flash/boot.cfg successful.
Passport-1648T:1# save config
Save config to file /flash/config.cfg successful.
Passport-1648T:1#
```

Where to go next

The basic Ethernet Routing Switch 1600 Switch installation and configuration is completed. Check *Getting Started* (321821-A) for additional information and a complete listing of related Ethernet Routing Switch 1600 Series material.

NØRTEL