Brocade Mobility RFS4000 Controller

Installation Guide

Supporting software release 4.3.0.0 and later

BROCADE

53-1001933-02 Rev B

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Document History

Title	Publication number	Summary of changes	Date
Brocade Mobility RFS4000 Controller Installation Guide	53-1001933-02	Updated WEEE icon and Korea Class B statement	May 2011
Brocade Mobility RFS4000 Controller Installation Guide	53-1001933-01	New Document	July 2010

About This Document

In this chapter

Audience

This document is designed for system administrators with a working knowledge of Layer 2 and Layer 3 switching and routing.

If you are using a Brocade Layer 3 switch, you should be familiar with the following protocols if applicable to your network – IP, RIP, OSPF, BGP, ISIS, IGMP, PIM, DVMRP, and VRRP.

Supported hardware and software

The following hardware platforms are supported by this release of this guide:

- Brocade Mobility RFS4000 Controller

The following software version is supported by this release of this guide:

- Software version 4.3.0.0 and later

Document conventions

This section describes text formatting conventions and important notice formats used in this document.

Notes, cautions, and warnings

The following notices and statements are used in this manual. They are listed below in order of increasing severity of potential hazards.

NOTE
A note provides a tip, guidance or advice, emphasizes important information, or provides a reference to related information.

CAUTION

A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

DANGER

A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Contacting Brocade

When contacting Brocade support, please provide the following information:

- Serial number of the unit
- Model number or product name
- Software version

Customer Support Web Site

Brocade Support Central Web site, located at *www.brocade.com/support* provides information and online assistance including developer tools, software downloads, product manuals and online repair requests.

Downloads

http://www.brocade.com/support/

Manuals

http://www.brocade.com/support/

Because quality is our first concern at Brocade, we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. Forward your feedback to: *documentation@brocade.com*.

Provide the title and version number and as much detail as possible about your comment, including the topic heading and page number and your suggestions for improvement.

E-mail and telephone access

Go to *http://www.brocade.com/services-support/index.page* for email and telephone contact information.

Warranty coverage

Contact Brocade Communications Systems using any of the methods listed above for information about the standard and extended warranties.

Chapter

1 Introduction

In this chapter

The Brocade Mobility RFS4000 Controller is a member of Brocade's Mobility wireless controller family. The Brocade Mobility RFS4000 Controller provides centralized Wireless LAN (WLAN) configuration and management by coalescing a network "intelligence" previously spread across physically distributed access points. The Brocade Mobility RFS4000 Controller simplifies deployment of a Wired/Wireless 802.11 a/b/g/n network, for a SME/SMB. With the integrated Layer 2/Layer 3 Networking Services such as integrated Layer 2 Switching with PoE+ ports, Onboard DHCP Server, Security Services like Wired/Wireless Firewall, Wireless IDS/IPS, Onboard AAA Server and IPSEC VPN Gateway, and QoS mechanisms to support Voice & Video , the Brocade Mobility RFS4000 Controller transforms the enterprise by delivering a SMART Branch. The Brocade Mobility RFS4000 Controller is the WLAN's point of management reducing wireless networking complexity by moving management out of the ceiling and into the wiring closet. The RFS4000 can adopt upto 6 Adaptive APs or Thin Access Points and does not require any additional licenses at this time, for AP adoption.

This document is written for the network device installer.

Package contents

Inspect the package contents and report any missing or damaged items to your sales representative. The package should contain the following:

- Brocade Mobility RFS4000 Controller
- Console Cable
- *Installation Guide* (this document)
- Rubber Feet
- Power Supply Unit (Part Number: 50-14000-244R)

Document conventions

The following graphical alerts are used in this document to indicate notable situations:

NOTE
Tips, hints, or special requirements that you should take note of.

CAUTION

Care is required. Disregarding a caution can result in data loss or equipment malfunction.

DANGER

Indicates a condition or procedure that could result in personal injury or equipment damage.

Warnings

- Read all installation instructions and site survey reports, and verify correct equipment installation before connecting the system to its power source.
- Remove jewelry and watches before installing this equipment.
- Install the equipment in a rack or on a desktop with adequate dimensions and weight allowances.
- Verify the unit is grounded before connecting it to the power source.
- Verify any device connected to this unit is properly wired and grounded.
- Connect all power cords to a properly wired and grounded electrical circuit.
- Verify the electrical circuits have appropriate overload protection.
- Brocade strongly recommends the use of an Uninterruptible Power Supply (UPS) that supports the Brocade Mobility RFS4000 Controller power rating. Not using a UPS can result in data loss or equipment damage due to a power surge or power failure.
- Verify that the power connector and socket are accessible at all times during the operation of the equipment.
- Do not work with power circuits in dimly lit spaces.
- Do not install this equipment or work with its power circuits during thunderstorms or other weather conditions that could cause a power surge.
- Verify there is adequate ventilation around the device, and ambient temperatures meet equipment operation specifications.
- This product is designed for in building installation only and is not intended to be connected to exposed (outside plant) networks.

Site preparation

- Consult your site survey and network analysis reports to determine specific equipment placement, port capacity, power drops, and so on.
- Assign installation responsibility to the appropriate personnel.
- Identify where all installed components are located.
- Verify appropriate rack mounting requirements, as required.
- Provide a sufficient number of power drops for your equipment.

- Ensure adequate, dust-free ventilation to all installed equipment.
- Identify and prepare Ethernet and console port connections.
- Verify that cable lengths are within the maximum allowable distances for optimal signal transmission.
- Verify that the Brocade Mobility RFS4000 Controller is powered through an Uninterruptible Power Supply (UPS).

Chapter

2

Specifications

In this chapter

Physical specifications

Width	304.8mm (12.0in)
Height	44.45mm (1.75 in) 1 RU
Depth	254mm (10.0 in)
Weight	2.15 Kg (4.75 lbs)
Operating Temperature	0 °C - 40 °C (32 °F - 104 °F)
Operating Humidity	5% - 85% RH, non-condensing
Operating Altitude	10,000 ft @ 28deg C < 15% Relative Humidity

Power cord specifications

A power supply is included, however a power cord is not supplied with the switch. Use only a correctly rated power cord certified (as appropriate) for the country of operation.

Power protection

- If possible, use a circuit dedicated to data processing equipment. Commercial electrical contractors are familiar with wiring for data processing equipment and can help with the load balancing of these circuits.

- Install surge protection. Be sure to use a surge protection device between the electricity source and the Brocade Mobility RFS4000 Controller.
- Install an Uninterruptible Power Supply (UPS). A UPS provides continuous power during a power outage. Some UPS devices have integral surge protection. UPS equipment requires periodic maintenance to ensure reliability. A UPS of the proper capacity for the data processing equipment must be purchased.

Chapter

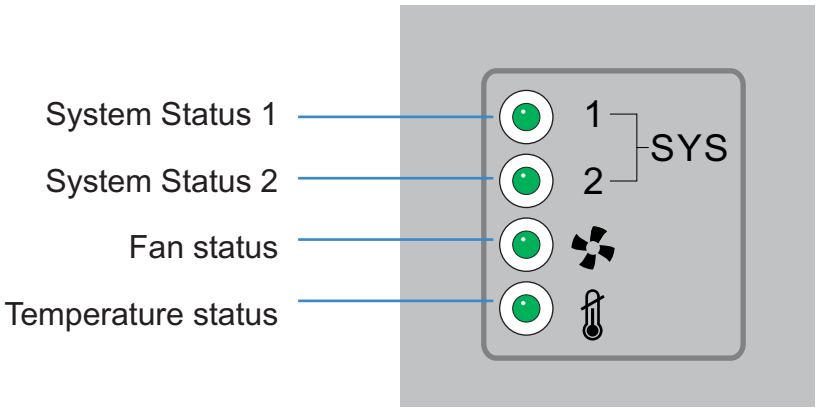
3

LED Codes

In this chapter

The Brocade Mobility RFS4000 Controller has four vertically-stacked LEDs on its front panel. Each of the six Gigabit Ethernet Ports have two status LEDs. These LEDs display two colors (green & amber), and three lit states (solid, blinking, and off). The following tables decode the combinations of LED colors and states for the System Status LEDs and the Gigabit Ethernet LEDs.

System status LEDs



Start up / POST (primary system or redundant system)

System status 1 LED	System status 2 LED	Event
off	off	power off
green blinking	green blinking	power on self test (POST) running
green solid	green blinking	post succeeded (operating system loading)
green solid	off	post succeeded (normal operation)
amber blinking	off	post failure
alternating green blinking & amber blinking	alternating green blinking & amber blinking	system boot up error

NOTE
During controller start up, the Temperature status LED will be lit Solid Amber. This is normal behavior and does not indicate an error. At the completion of start up the Temperature Status LED will controller to Solid Green.

Controller status (primary system)

System status 1 LED	System status 2 LED	Event
off	off	power off
green solid	off	redundancy feature enabled primary system normal operation no access ports adopted
green solid	green solid	redundancy feature enabled primary system normal operation actively adopting access ports
green solid	amber blinking	no country code configured on the controller or access port or adaptive ap license and country code configured, but no aps adopted

Controller status (Redundant System)

System status 1 LED	System status 2 LED	Event
off	off	power off
green solid	off	redundant system normal operation
green blinking	green solid	redundant system failed over and adopting ports
green blinking	alternating green blinking & amber blinking	redundant system not failed over.

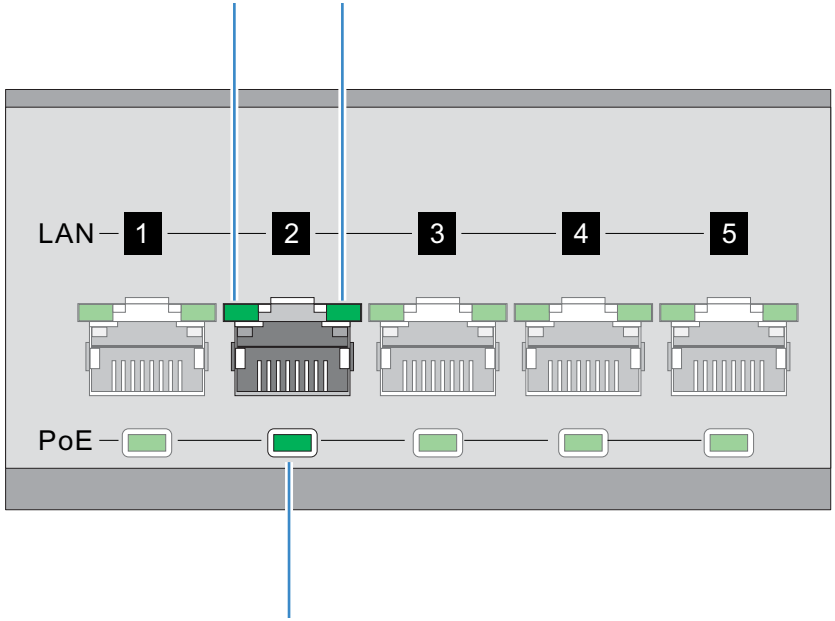
Fan LED

Fan LED	Event
off	system off / POST start
green blinking	POST in process
green solid	all system fans normal operation
amber solid	redundant cooling failure system operational
amber blinking	system cooling failure - *system will be held in reset until the issue is resolved*

Temperature status LED

Temperature LED	Event
off	system off
green solid	ambient inlet temperature is within specified operating limit
amber solid	ambient inlet temperature is near the maximum operating temperature. during controller start up this LED will be lit solid amber. this is normal behavior and does not indicate an error.
amber blinking	ambient inlet temperature is above the maximum specified operating temperature. *system will be held in reset until the issue is resolved*

RJ-45 Gigabit Ethernet LEDs



RJ-45 port speed LED

Port speed LED	Event
off	10 Mbps
green solid	100 Mbps
green blinking	1000 Mbps
amber blinking	port fault

RJ-45 port activity LED

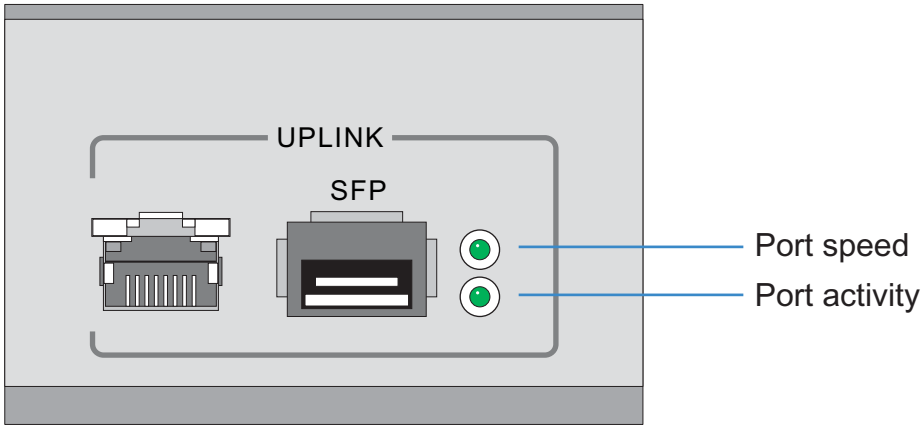
Port status LED	Event
off	no link or administratively shut down
green solid	link present

Port status LED	Event
green blinking	activity: transmit and receive
amber blinking	link fault

PoE status LED

Port status LED	Event
off	PoE disabled or not in use
green solid	PoE enabled and powering port
amber solid	PoE over-limit
amber blinking	PoE port fault

SFP Gigabit Ethernet LEDs



SFP port speed LED

Port speed LED	Event
green blinking	1000 Mbps
amber blinking	module or Tx/Rx fault loss

SFP port activity LED

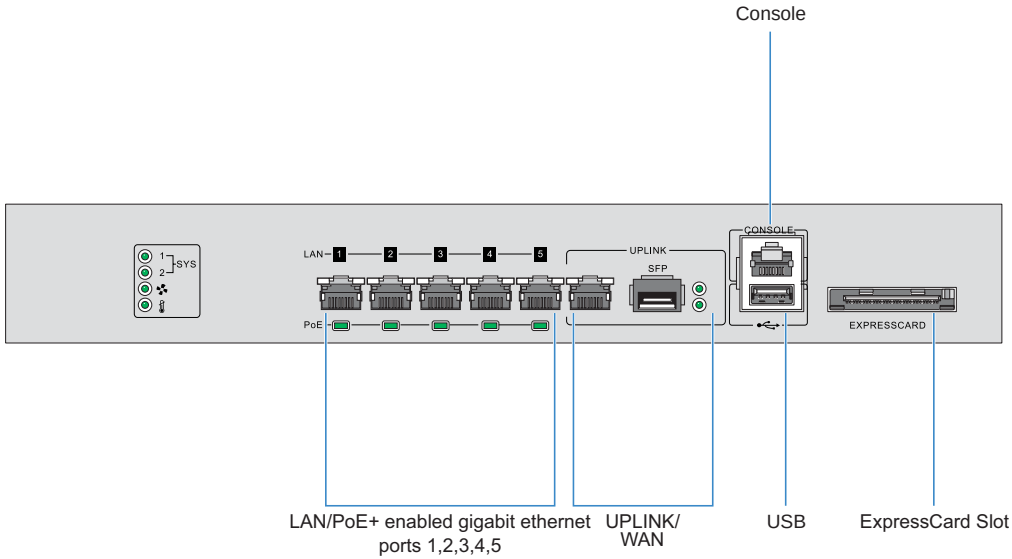
Port status LED	Event
off	no link or administratively shut down
green solid	link present / operational
amber blinking	module or Tx/Rx fault loss

Chapter

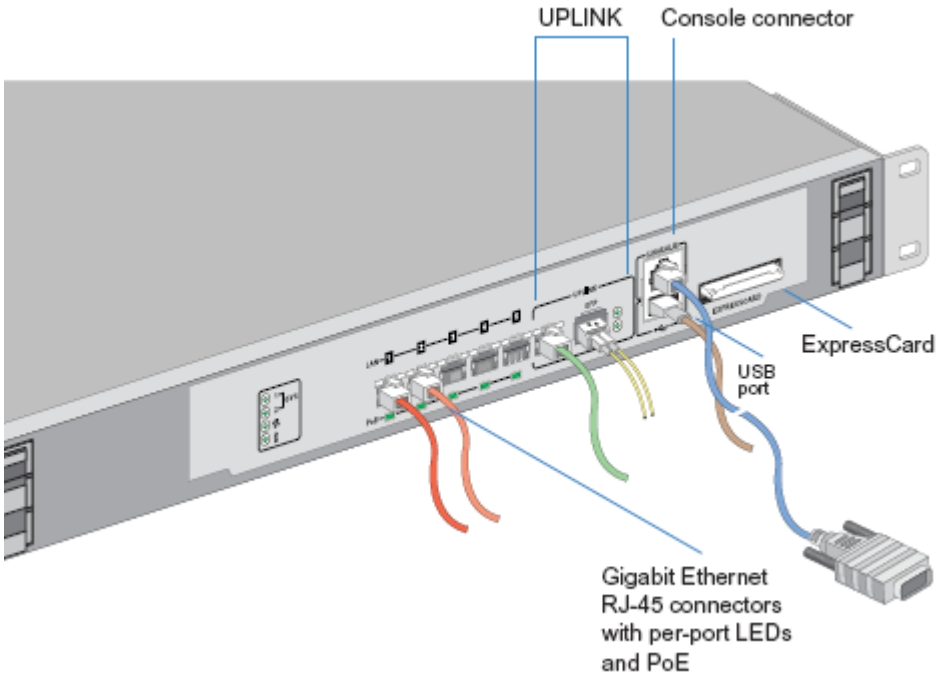
4

Hardware Setup

This chapter contains the following sections:



Cabling Information



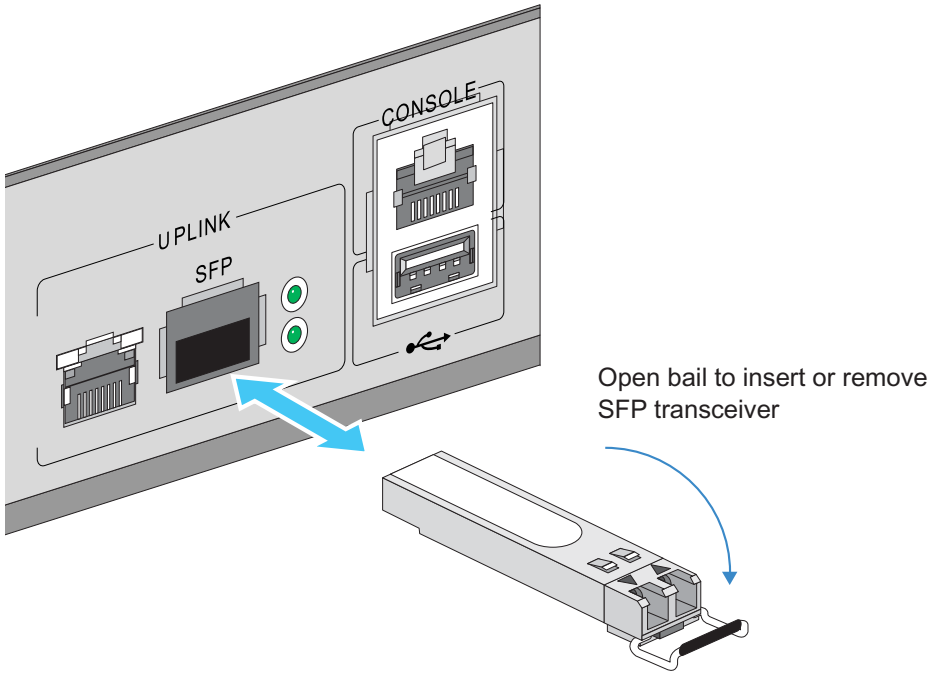
The Brocade Mobility RFS4000 Controller has five RJ-45 Gigabit Ethernet ports, one Gigabit SFP (fiber) port, one USB port, one Console connector and one ExpressCard slot. The above diagram shows each of those ports and the cables or devices attached to them. The sections that follow describe detailed connection and cabling information for each port. For software configuration, please see the *Brocade Mobility RFS4000, RFS6000 and RFS7000 System Reference Guide* available from the Brocade website at http://www.brocade.com/support/..

Gigabit Ethernet on the Brocade Mobility RFS4000 Controller

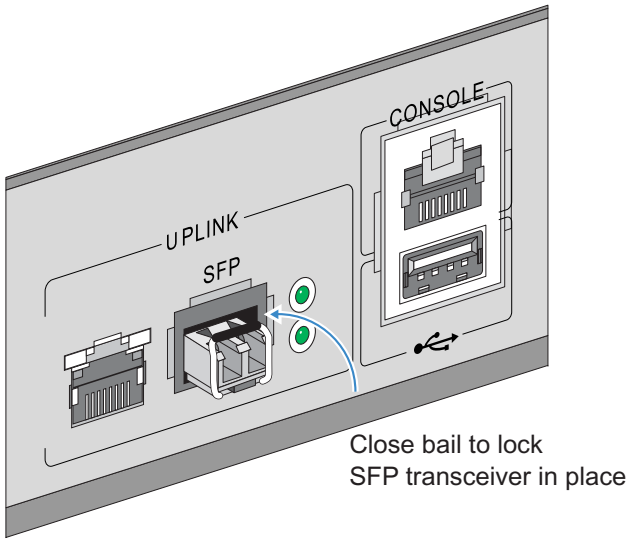
The Brocade Mobility RFS4000 Controller has five RJ-45 Gigabit Ethernet ports and one 1 combo Gigabit (RJ45 + SFP) uplink port. Using the RJ-45 ports requires connecting a Category-6 Ethernet cable to the port. To use the Gigabit SFP port, first install the SFP Module.

Installing Gigabit Ethernet SFPs

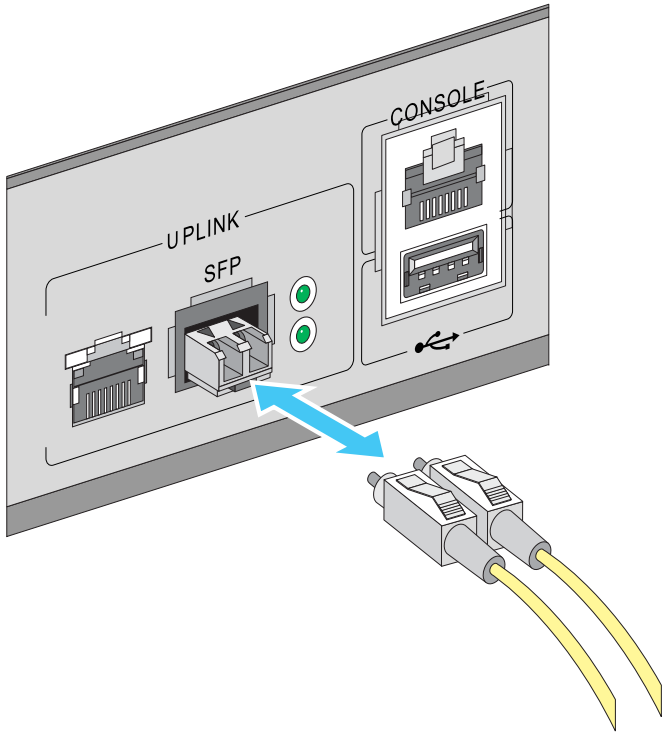
1. Open the bail on the transceiver.



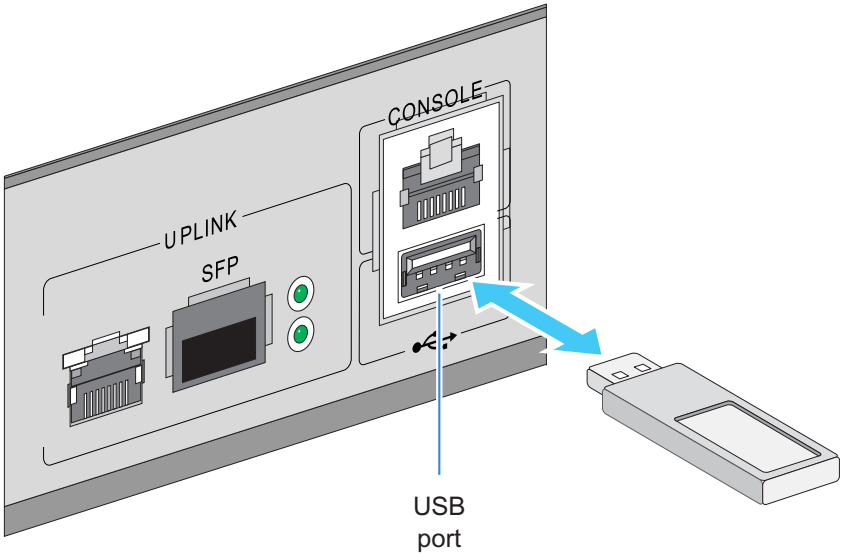
2. Insert the SFP transceiver into the corresponding port on the controller.
3. Once the SFP transceivers are properly seated in their ports, close the bails to lock the transceivers in place.



4. Insert the fiber optic cables into the installed transceivers.


CONSOLE
UPLINK
SFP

Connecting USB devices



The Brocade Mobility RFS4000 Controller contains one USB port for connecting USB flash storage devices to the controller. The controller can use the USB flash storage device for file transfers and firmware updates. Follow the setup instructions below to connect the devices to the controller and then access those devices through the Web UI or Command Line Interface.

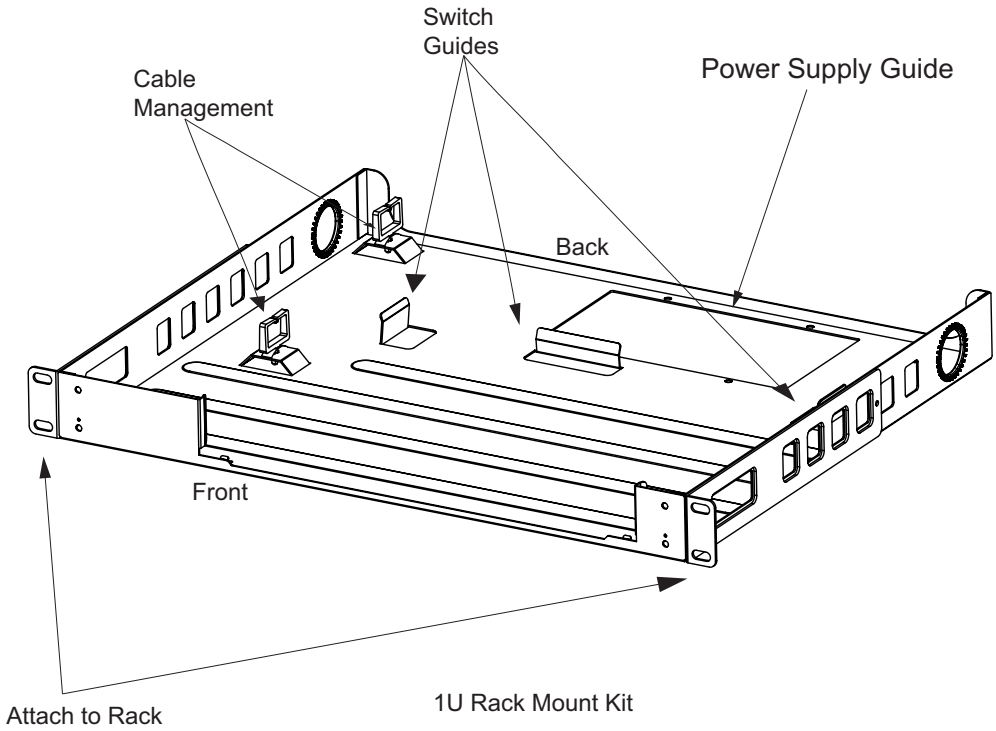
1. Connect the USB flash drive to the USB .
2. Wait a few seconds for the drive to be recognized by the controller.
3. Follow the instructions in the *Brocade Mobility RFS4000, RFS6000 and RFS7000 System Reference Guide* or *Brocade Mobility RFS4000, RFS6000 and RFS7000 CLI Reference Guide* for more information on accessing USB storage devices from the controller for file transfers or firmware updates. These guides are available from the Brocade website at http://www.brocade.com/support/

NOTE
The controller supports USB flash devices formatted with FAT or VFAT (FAT32) filesystems only. If your flash storage device is formatted with another filesystem you will need to format

Rack mount instructions

To install the Brocade Mobility RFS4000 Controller in a rack:

1. Attach the controller to the 1U rack mount kit (Part Number RFS-4010-MTKT1U-WR) using the guides provided.



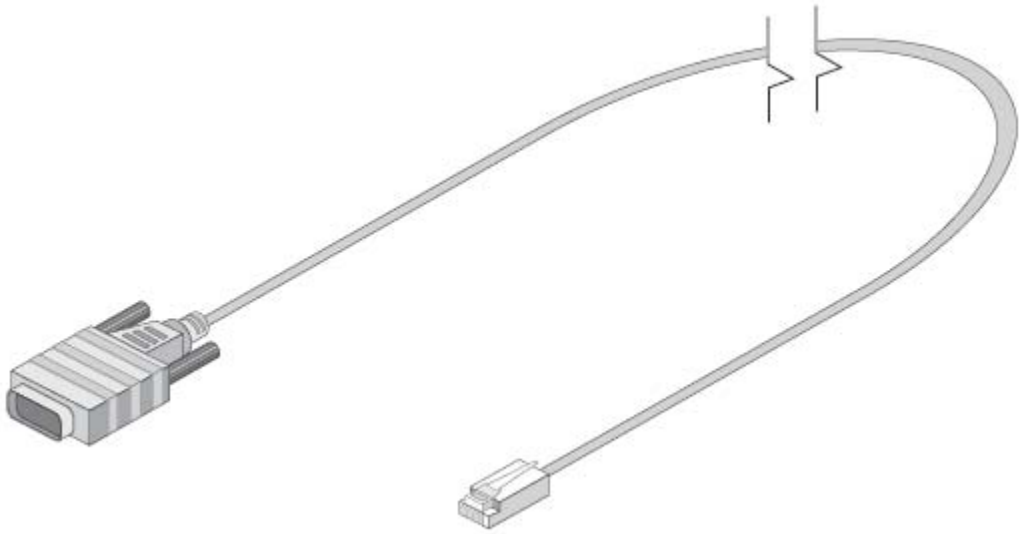
2. Place the power supply unit in the rack mount tray in the space provided.

3. Attach the mounting tray to the rack using screws appropriate for your rack's mounting holes.

Brocade Mobility RFS4000 Controller console port setup

To add the Brocade Mobility RFS4000 Controller to the network and prepare it for initial configuration:

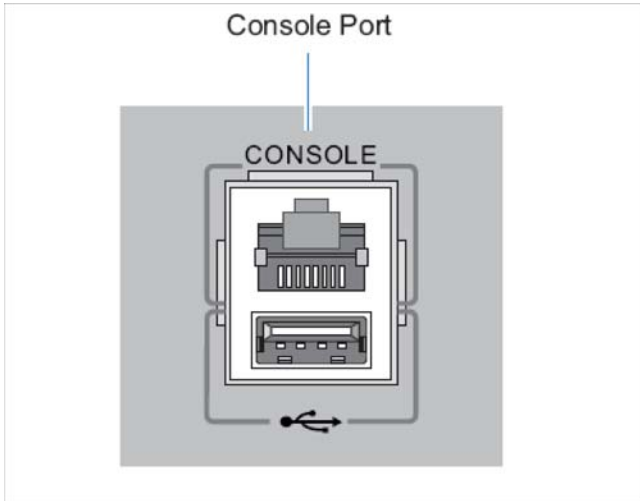
1. Using the supplied console cable (pictured below), connect the Brocade Mobility RFS4000 Controller serial port to an RS-232 (DB-9) serial port on a separate computer (the "configuration computer").



The pinout for the RJ-45 to DB9 cable is shown in the following table.

RJ-45	1	2	3	4,5	6	7	8
DB9	8	6	2	5	3	4	7

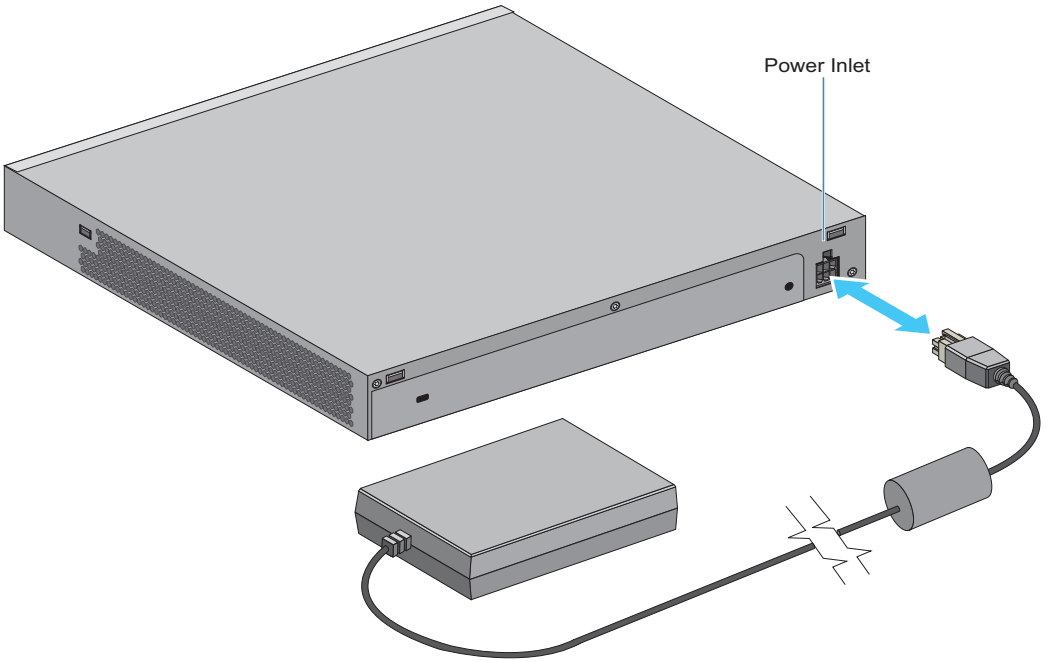
2. On the configuration computer, configure a terminal emulation application (such as *HyperTerminal*) as follows:



3. On the configuration computer, configure a terminal emulation application (such as *HyperTerminal*) as follows:

Terminal type	VT-100
Port	COM port
Terminal settings	19200bps transfer rate 8 data bits no parity 1 stop bit no flow control no hardware compression

Supplying power to the Brocade Mobility RFS4000 Controller

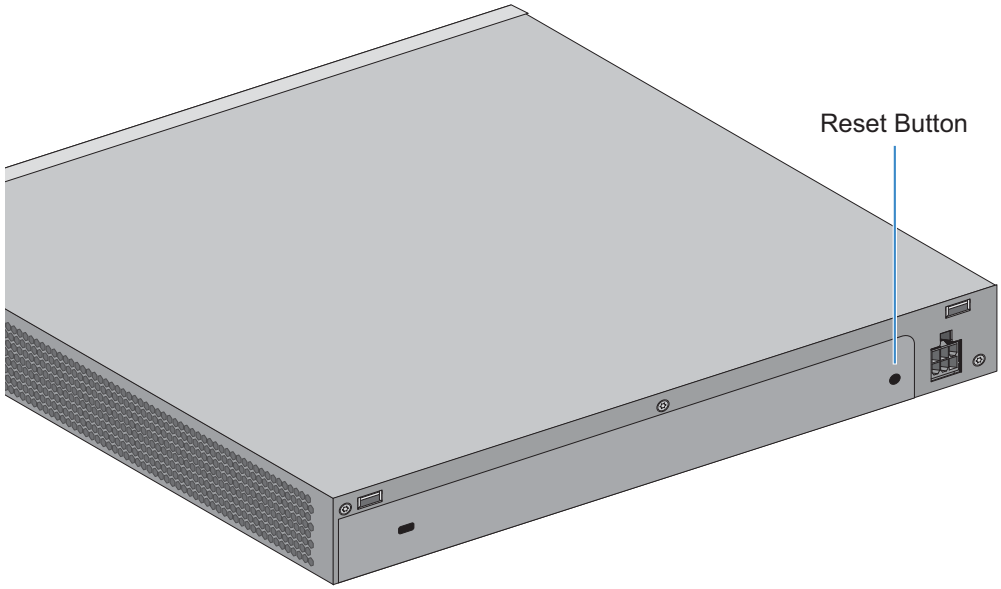


1. Plug the power supply (Part Number: 50-14000-244R) into the power inlet at the back of the Brocade Mobility RFS4000 Controller.
2. Plug the cord into a standard AC outlet with a voltage range of 100 to 240 VAC.

CAUTION

An improper shutdown can render the Brocade Mobility RFS4000 Controller inoperable such that it could require service by Brocade Support. Do not remove AC power without first following the shutdown procedure. An abrupt loss of power can corrupt the information stored on the device.

Using the Brocade Mobility RFS4000 Controller reset button



The Brocade Mobility RFS4000 Controller has a reset button on the rear of the switch near the power connector.

To reset the switch to factory defaults:

1. Connect a computer to the Console Port as outlined in Brocade Mobility RFS4000 Controller console port setup on page 4-20
2. Reset the switch using the Web UI or the Command Line Interface.
3. As soon as the switch resets, depress the reset button on the rear of the switch and continue to hold it through the boot up process until the following message is displayed in the console:

```
Startup config will be RESET to factory default
loading linux image 2 ......................
Welcome to RFS4000
```

CAUTION

Using the switch reset button will reset all configuration information and settings on the switch to factory defaults. All previously configured information and settings will be lost. The country code will need to be set when the switch is rebooted before any access ports or adaptive APs will be adopted.

Verifying the installation

View the LEDs on the front panel of the Brocade Mobility RFS4000 Controller to ensure the device is functioning properly. The normal LED pattern follows this path:

- During the Power On Self Test (POST), the System 1 and System 2 LEDs both blink green.
- If the POST test fails, the System 1 LED will blink amber. If the POST test succeeds, the System 1 LED will be lit solid green.
- As the software is initialized, the System 2 LED will blink green.

After the software has finished initializing, the System 1 LED will be lit solid green and the bottom System 2 LED will be off. The Brocade Mobility RFS4000 Controller is ready to be configured, as described in the *Brocade Mobility RFS4000, RFS6000 and RFS7000 System Reference Guide* available from the Brocade website at http://www.brocade.com/support/.

Other LED codes indicate the presence (or absence) of different standby states, or errors. A guide to the Brocade Mobility RFS4000 Controller LED codes is provided in LED Codes on page 3-7.

Chapter

5 Regulatory Information

In this chapter

This regulatory section applies to the Brocade Mobility RFS4000 Controller.

All Brocade devices are designed to be compliant with rules and regulations in locations they are sold and will be labeled as required.

Any changes or modifications to Brocade equipment, not expressly approved by Brocade, could void the user's authority to operate the equipment.

CAUTION

This product is designed and approved for in-building installation only and is not intended to be connected to exposed (outside plant) networks.

Power supply

Use only a Brocade approved power supply output rated at 48Vdc and minimum 2.5A. The power supply shall be Listed to UL/CSA 60950-1; and certified to IEC60950-1 and EN60950-1 with SELV outputs. Use of alternative power supply will invalidate any approval given to this device and may be dangerous.

Country selection

Select only the country in which you are using the device. Any other selection will make the operation of this device illegal.

Laser devices - Gigabit Ethernet SFP option

Complies with 21CFR1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated July 26, 2001.

EN60825-1:1994+ A1:2002 +A2:2001

IEC60825-1:1993+A1:1997+A2:2001

The laser classification is marked on the device.

Class 1 Laser devices are not considered to be hazardous when used for their intended purpose. The following statement is required to comply with US and international regulations:

CAUTION

Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

Radio frequency interference requirements - FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular

installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Radio frequency interference requirements - Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

CE Marking and European Economic Area (EEA)

Statement of compliance

Brocade hereby declares that this device is in compliance with all the applicable Directives, 2004/108/EC, 2006/95/EC. A Declaration of Conformity may be obtained from *http://www.2symbol.com/doc/*

Japan (VCCI) - voluntary control council for interference Class B ITE

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Japan power cord statement

添付の電源コードを他の装置や用途に使用しない
添付の電源コードは本装置に接続し、使用することを目的として設計され、その安全性が確認されているものです。決して他の装置や用途に使用しないでください。火災や感電の原因となる恐れがあります。

Korea Warning Statement for Class B ITE

B 급 기기 (가정용 방송통신기기): 이 기기는 가정용 (B 급) 으로 전자파적합등록을 한 기기로서 주로 가정에서 사용하는 것을 목적으로 하며 , 모든 지역에서 사용할 수 있습니다 .

Class B device (Broadcasting Communication Device for Home Use): This device obtained EMC registration mainly for home use (Class B) and may be used in all areas

Turkish WEEE Statement of Compliance

EEE Yönetmeli?ine Uygundur

Waste Electrical and Electronic Equipment (WEEE)

For information on WEEE, please go to:
http://www.brocade.com/sites/dotcom/company/corporate-responsibility/corporate-citizenship/product-recycling/weee.page.

5 Waste Electrical and Electronic Equipment (WEEE)