



# Media Flow Controller and Media Flow Manager Installation Guide

Release

# 2.0.2



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## Document History

<b>Date</b>	<b>Media Flow Controller Version</b>	<b>Comments</b>
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## CHAPTER 1

# Preface

The *Juniper Networks Media Flow Controller and Media Flow Manager Installation Guide* is written for system and network administrators who plan, implement, and manage media content delivery environments. Its purpose is to guide you through the installation of Media Flow Controller and Media Flow Manager software. In addition to [Guide to This Document](#), next, this preface includes these topics:

- [Documentation and Release Notes](#)
- [Typographical Conventions](#)
- [Terminology](#)
- [Command Arguments Key](#)
- [Documentation Feedback](#)
- [Requesting Technical Support](#)

## Guide to This Document

This document provides information on the following topics:

- [Getting Started](#)—Describes pre-installation planning and system requirements applicable to all installs, and upgrade/reboot procedures.
- [Installing Media Flow Controller with CD-ROM or USB](#)—Describes how to create USB install drives, how to install Juniper Networks Media Flow Controller using a CD-ROM or USB drive, and how to configure basic network connections.
- [Installing Media Flow Controller with PXE](#)—Describes how to set up your PXE server for a Media Flow Controller installation, how to install Media Flow Controller using PXE, and how to configure basic network connections.
- [Installing Media Flow Manager](#)—Describes how to install Media Flow Manager using PXE, and how to configure basic network connections.

## Documentation and Release Notes

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## Typographical Conventions

Table 1 describes the typefaces used in this book.

Table 1 Typefaces Used in This Book

Typeface	Use	Example
Arial	Ordinary text.	The origin server organizes media content hierarchically.
<b>Arial Bold</b>	Commands in running text, and screen elements such as page titles, and option labels.	Use the <b>interface</b> command to configure IP addresses. In the Management Console, use the <b>Setup &gt; Date and time</b> page.
<i>Arial Italic</i>	Book titles, and emphasis.	See the <i>Juniper Networks Media Flow Controller Administrator's Guide and CLI Command Reference</i>
Courier New	Text displayed online at a command line.	Please enter your IP address
<b>Courier New Bold</b>	Text that you type exactly as shown; variables are shown in chevrons (< >), parameters (which may include variables) are shown in box brackets ([ ]), options are shown in curly brackets ({ }). Run-on lines are indicated by an indent (as shown at right).	<b>interface eth0 ip address &lt;IP address&gt;</b>

## Terminology

This section provides definitions for Juniper Networks and industry-standard terms that may be unfamiliar to the reader.

**Edge cache:** An appliance placed between the Internet and the Web server which caches content (like Java Script, CSS, images, etc.) and delivers them for the server, freeing up the Web server for other processes. Media Flow Controller as an edge cache is effectively a “reverse proxy,” that provides these benefits: reduces the load (network and CPU) on an origin server by servicing previously retrieved content and enhances the user experience due to a decrease in latency.

**NIC** Network Interface Controller/Card.

**Origin Library** The source of media content.

**Origin Server** The media content server. Juniper Networks Media Flow Controller can be configured as an Origin Server as well as an Edge Cache.

**SAS** Serial attached SCSI. A data transfer technology designed to move data to and from computer storage devices such as hard drives and tape drives.

**SATA** Serial Advanced Technology Attachment. A computer bus technology primarily designed for transfer of data to and from a hard disk.

**SSD** Solid-state drive, a storage device using solid-state memory to store persistent data.

## Command Arguments Key

This section is a key to the meaning and format of the angle-bracketed options described in this document.

**EXEC** The command can be executed without entering Configure mode, which is reserved for privileged users. EXEC commands are only executed once; for example, re-formatting a disk is an EXEC command. EXEC commands can't be saved across reboots.

**<domain>** A domain name; for example, **example.com**

**<hostname>** A hostname; for example, **sedona.example.com**

**<IP\_address>** An IPv4 address; for example, **192.168.0.1**.

**<MAC\_address>** A MAC address. The segments may be 8 bits or 16 bits at a time, and may be delimited by colon (:), or dot (.). Examples: **11:22:33:44:55:66**, **1122:3344:5566**, **11.22.33.44.55.66**, or **1122.3344.5566**.

**<netmask>** A netmask (for example, **255.255.255.0**) or mask length prefixed with a slash (for example, **/24**). These two express the same information in different formats.

**<network prefix>** An IPv4 network prefix specifying a network. Used in conjunction with a netmask to determine which bits are significant.e.g. "192.168.0.0".

**<regex>** An extended regular expression as defined by the **grep** man page. The value you provide here is passed on to **grep -E**.

**<port>** TCP/UDP port number

**<TCP\_port>** A TCP port number in the full allowable range [0..65535].

**<URL>** A normal URL, using any protocol that WGET supports, including HTTP, HTTPS, FTP, and TFTP; or a pseudo-URL specifying an SCP file transfer.

The SCP (secure channel protocol) pseudo-URL format is

```
scp://<username>[:<password>]@<hostname>/<path>[</filename>]
```

The path is an absolute path. Paths relative to the user's home directory are not currently supported.

**Important!** You must have an SCP or FTP server installed in order to SCP or FTP, respectively, files to your machine.

**Note!** Media Flow Controller does not support outbound FTP transactions.

**Note!** If you omit the **:password** part, you may be asked for the password in a follow-up prompt, where you can type it securely (without the characters being echoed). This prompt occurs if the **cli default prompt empty-password** setting is **true**; otherwise, the CLI assumes

you do not want any password. If you include the colon (:) character, this is taken as an explicit declaration that the password is empty, and you are not prompted in any case.

## Documentation Feedback

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- Document or topic name
- URL or page number
- Software release version (if applicable)

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Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- **JTAC Policies**—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at <http://www.juniper.net/customers/support/downloads/710059.pdf>
- **Product Warranties**—For product warranty information, visit <http://www.juniper.net/support/warranty/>
- **JTAC Hours of Operation**—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

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- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>

- Search technical bulletins for relevant hardware and software notifications:  
<https://www.juniper.net/alerts/>
- Join and participate in the Juniper Networks Community Forum:  
<http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Manager:  
<http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool located at

<https://tools.juniper.net/SerialNumberEntitlementSearch/>

## Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone. Please have the serial number of the system.

- Use the Case Manager tool in the CSC at  
<http://www.juniper.net/cm/>
- Call 1-888-314-JTAC  
(1-888-314-5822 – toll free in the USA, Canada, and Mexico)

For international or direct-dial options in countries without toll-free numbers, visit

<http://www.juniper.net/support/requesting-support.html>



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## CHAPTER 2

# Getting Started

This chapter describes pre-installation planning and requirements that applies to all types of installations; as well as upgrading, rebooting, and basic configuration file management. There are two ways you can obtain the Media Flow Controller or Media Flow Manager software for installation on generic x86 64-bit hardware from Juniper Networks Support:

- Juniper Networks ships you a CD or USB drive with the software; you can also download an ISO image and burn a CD, or download files to an empty USB drive. How to install from CD or USB drive is described in this guide.
- You use PXE (preboot execution environment) to obtain the software image. You must have a PXE server configured in order to use the PXE install option and a Web server to serve the image. How to configure your PXE server for Media Flow Controller or Media Flow Manager installation and how to install with PXE is described in this guide.

See [“Requesting Technical Support” on page 1-12](#) for PXE, USB, or CD install packages.

See [“Upgrading” on page 2-20](#) if all you need to do is an upgrade.

Installation steps for installing Media Flow Controller with specific media are provided in the following chapters:

- [Installing Media Flow Controller with CD-ROM or USB](#)
- [Installing Media Flow Controller with PXE](#)

Installation steps for installing Media Flow Manager using PXE are given in [Installing Media Flow Manager](#).

**Important!** This guide describes Media Flow Controller and Media Flow Manager installation on generic x86 64-bit hardware. This guide is not intended for use with Juniper Networks Media Flow Engine appliances.

## Pre-Installation Planning

Before installing Juniper Networks software, ensure that your hardware meets these conditions:

- Running optimally (all hardware diagnostics have been run and passed successfully).
- All data has been backed up; Juniper Networks Media Flow Controller completely format all disks when installed.
- Top-quality cables are used. Juniper Networks recommends CAT5e or CAT6 for GbE, CAT6A for 10GbE, or Fiber LL cables. However, CAT5 cables can be used for GbE if the cable lengths are expected to be short (ex. 5' or less). A poorly functioning cable can inhibit performance.
- NIC is present.
- Console server / terminal server available (recommended).

Additionally, you'll need:

- To know which physical ports you want named eth0 and eth1. This is important because eth0 (management interface) and eth1 (recommended origin-fetch interface) are usually *NOT* automatically assigned to the optimal ports (non-traffic bearing); instead, you must make this assignment as part of the installation.
- Hostnames/IP addresses (including but not limited to, Subnet Mask, Default Gateway) for traffic and management ports.
- Hostnames/IP addresses for external servers such as origin servers/libraries, DNS, NTP, logging, and/or storage servers.

**Tip!** Go to [NTP Servers Web](#) to find public NTP servers.

**Important!** Media Flow Controller and Media Flow Manager do not support RAID arrays.

## Accessing the Console Port

Set your initial console terminal settings to match the default console settings on Juniper Networks Media Flow Controller:

- 9600 baud rate
- No parity
- 8 data bits
- 1 stop bit
- No flow control (console port only)

## System Requirements

The following are required and/or recommended for Media Flow Controller optimal performance. For the most up-to-date and complete information, see the [Media Flow Controller With VXA Series and Media Flow Manager datasheet](#).

Table 2 Media Flow Controller System Requirements

Hardware	Description
Processor	One quad-core (2.0 GHz or higher) x86 64-bit processor (second quad-core processor recommended for future capacity expansion).
RAM	8GB to 16GB (or more) depending on throughput requirements.
Direct Attached Storage (DAS)	Up to 16 DAS drives (SATA or SAS), either hard disk or solid state disks, depending on server model and amount of cache. 72 GB minimum for boot drive. 32 GB minimum recommended for additional drives (used for cache only).
Network Attached Storage	NFS (Network File System) supported for handling cache misses.
Network Interfaces	Dedicated GbE ports for content delivery.
Management Interface	Dedicated 1GbE port. Note that network ports on the motherboard use lower performance controllers adequate for a management interface that typically does not require the full GbE capacity.



## Example Machine Setup

Table 3 provides details of an example configuration; your configuration may differ considerably. In Table 3, and Figure 1, the appliance wiring logic is:

- **Eth 0**—Running SNMP, sending analytics to another machine, Web management, SSH, and Telnet; connected to your internal network.
- **Eth 1**—Upstream fetching content from origin; connected to the network that connects to the origin server.
- **Eth 2 - 5**—Service traffic; connected to the public Internet.

Eth 0 and Eth 1 are onboard interfaces whereas Eth 2-5 traffic port recommendations are Intel Pro/1000 PT/VT dual- or quad-port NIC for GbE. These are the minimum TCP/UDP port requirements, other ports can be opened up on an as-needed basis. By default, the Media Flow Controller management port is 8080.

**Note!** The installation procedure provides several options for correctly identifying and naming the ethernet interfaces. See [Ethernet Naming Options](#) in Chapter 3, “Installing Media Flow Controller with CD-ROM or USB for details.

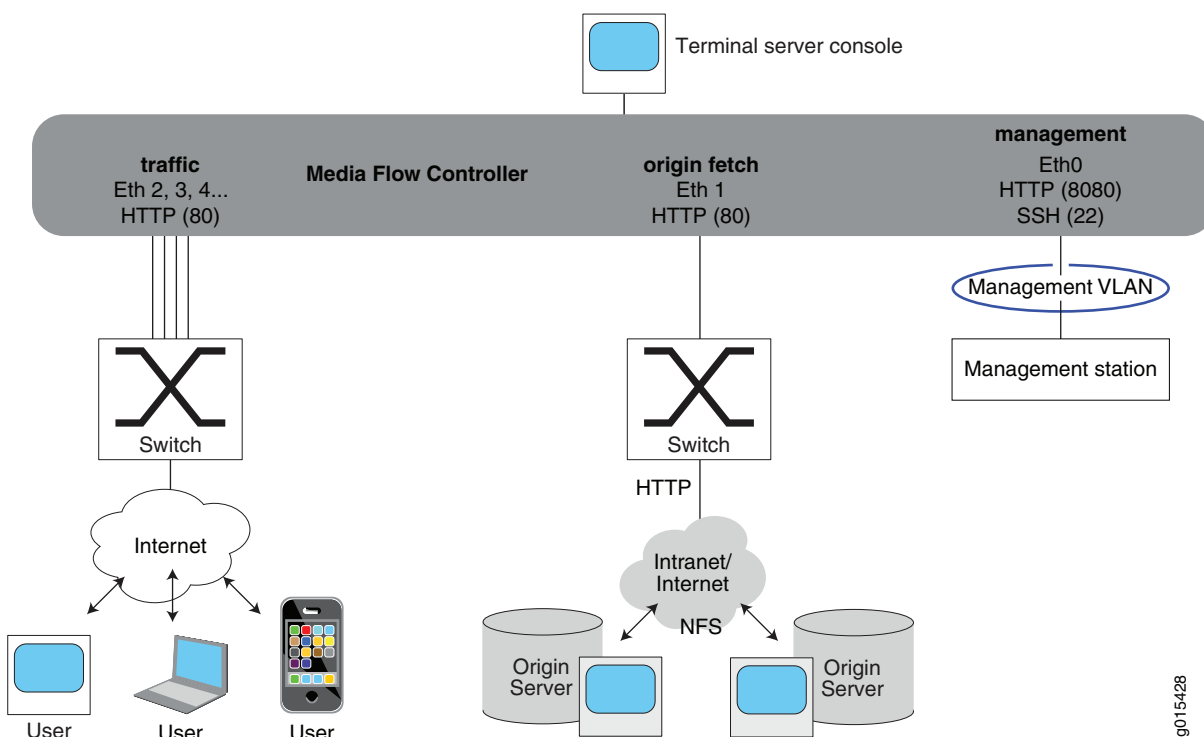


Figure 1 Example Connectivity

Table 3 Example Machine Setup of Management and Traffic Ports

Interface	Connectivity	IP Address	Subnet Mask	Gateway	Open Ports	Internet Access	Purpose
Eth 0	onboard	192.168.1.100	255.255.255.0	192.168.1.1	8080, 22	yes	Management

Table 3 Example Machine Setup of Management and Traffic Ports (continued from previous page)

Interface	Connectivity	IP Address	Subnet Mask	Gateway	Open Ports	Internet Access	Purpose
Eth 1	onboard	172.20.46.10*	255.255.255.0	n/a	80	yes	Origin fetch
Eth 2	PCIe card	10.1.1.11	255.255.255.0	n/a	80	n/a	Traffic
Eth 3	PCIe card	10.1.2.11	255.255.255.0	n/a	80	n/a	Traffic
Eth 4	PCIe card	10.1.3.11	255.255.255.0	n/a	80	n/a	Traffic
Eth 5	PCIe card	10.1.4.11	255.255.255.0	n/a	80	n/a	Traffic

\*Eth0 AND Eth1 can be on the same subnet; this examples indicates they are not.

## Connecting and Logging In

You can connect to the CLI with SSH, Telnet (once enabled, Telnet is disabled by default), or serial console using the IP address of your Media Flow Controller or Media Flow Manager. The appliance responds with a login prompt. Enter **admin** as the user; there is no default password. Once you have connected, you must enter **enable** (for Enable mode) and then **configure terminal** (for Configure mode) in order to begin configuring Media Flow ControllerMedia Flow Manager.

Likewise, you can log in to the Web-based Management Console by entering the IP address and port 8080 in a browser window and using **admin** as the login name.

## Changing Ethernet Name Assignments After Installation

When doing a restore or upgrade install, if you do not assign the correct port to eth0, your licenses may not work as the licenses are tied to the MAC address or the Host ID of the management interface. If this happens and you need to change the ethernet device naming for your system, follow these steps using the command line interface (CLI).

1. Use **show interface** to see what interfaces you have assigned. Determine which one should be eth0.
2. Use **management interface <interface\_name>** to assign that interface to be eth0.
3. Use **show interface** again to determine what the new assignments are.
4. Use **show license** to confirm that your licenses are working.

## Upgrading and Rebooting

Media Flow Controller upgrades maintain current on-box data and configurations. However, if you re-install the software (as opposed to upgrade only), you must save your current configuration off-box if you want to keep it, because the installation process deletes all the information on the root drive where the configuration data is stored. This section describes how to save a configuration off-box, perform a regular upgrade, and reboot the system plus basic connecting, logging in, and using the CLI.

## Saving and Applying a Configuration

You can save a binary file with all current configuration data that can be used to restore the system configuration. You can also reset custom configurations to their factory defaults, upload a saved configuration, and import a configuration from another Media Flow Controller.

### Saving and Applying a Configuration with the Web-Based Management Console

You can use the Web-based Management Console, **System Config > Config Mgmt** page to save a current configuration to a binary file and download it off-box. Later you can use the same page to upload the file and make it active.

### Saving and Applying a Configuration with the CLI

Follow these steps to save and apply a configuration using the CLI.

1. From Enable or Configure mode, save a configuration to a file; use **no-switch** to leave the current configuration active. Use **show configuration files** to see the saved file name.  
`configuration write to <file_name> no-switch`
2. Use SCP to send the just-saved configuration file to a server (must have SCP installed); See the [“Command Arguments Key” on page 1-11](#) for the **scp** URL format.  
`configuration upload <file_name> <URL>`
3. When you are ready, fetch the saved configuration file.  
`configuration fetch <URL>/<file_name>`
4. Verify that you have the saved configuration file.  
`show configuration files`
5. Switch to the saved configuration.  
`configuration switch-to <file_name>`

Example:

```
test-vos (config) # configuration write to 04_01_09 no-switch
test-vos (config) # show configuration files
04_01_09
initial (active)
initial.bak
test-vos (config) # configuration upload 04_01_09 scp://joe@sv05/home/joe
Password: *****
test-vos (config) # configuration delete 04_01_09
test-vos (config) # show configuration files
initial (active)
initial.bak
test-vos (config) # configuration fetch scp://joe@sv05/home/joe/04_01_09
Password: *****
test-vos (config) # show configuration files
04_01_09
initial (active)
initial.bak
test-vos (config) # configuration switch-to 04_01_09
test-vos (config) # show configuration files
04_01_09 (active)
initial
initial.bak
test-vos (config) #
```

6. Merge the common settings from a given configuration file to the active configuration file.  
`configuration merge <file_name>`
7. Revert the active configuration to either the factory defaults or the last saved configuration. Use **keep-basic** to preserve licenses and SSH host keys, use **keep-connect** to preserve anything necessary to maintain network connectivity to the system: interfaces, routes, and ARP; either or both may be used.  
`configuration revert {factory | saved} [keep-basic] [keep-connect]`

## Upgrading

When upgrades are available, Juniper Networks will broadcast the upgrade URL to use in this procedure. Note that the upgrade preserves the current, saved, configurations; however, you may still want to save the current configuration to a file off-box by following the previous procedure, [“Saving and Applying a Configuration” on page 2-19](#).

**Tip!** When upgrading, you may lose your management interface assignment. If this happens, your licenses will not work and you will not be able to log in to the Web-based Management Console or SSH to the appliance; use **show license** to see if your licenses are broken. To fix this, note the HW address part of your licenses and use **show interface brief** to find which interface matches that HW address. Then use **management interface <interface\_name>** to assign that interface as eth0 management interface. Your licenses should be working then.

### Upgrading with the Web-Based Management Console

You can use the Web-based Management Console, **System Config > Upgrade** page to easily upgrade your system if you have an install image URL or have obtained the image and installed it locally. **Important!** After upgrading to the image using the **System Config > Upgrade** page, you must go to the **System Config > Reboot** page and reboot your system for the upgrade to complete.

To install Media Flow Controller or Media Flow Manager, which means removing all the data on the root drive for a fresh install, see the following installation chapters as appropriate.

### Upgrading with the CLI

Follow these steps to upgrade your system using the CLI.

1. From Enable or Configure mode, fetch the configuration upgrade image file with the Juniper Networks URL.  
`image fetch <URL>/<filename>`
2. Install the image.  
`image install <filename>`
3. Verify which boot image contains the upgrade.  
`show images`
4. Switch to the boot partition containing the upgrade image, if needed.  
`image boot next`
5. Reboot to that partition.  
`reload`
6. Verify that the new image is booted.  
`show version`

## Rebooting

You can either reboot or shutdown the software; if you use **shutdown**, the system does not reboot until it is power-cycled. In the CLI, use these commands; in the Management Console, use the **System Config > Reboot** page.

1. From Enable or Configure mode, reboot or shutdown the system.  
`reload`
2. Set boot parameters; optionally specify from which location the image should boot by default; there are only two locations to choose from so the options are **1** and **2** for location ID. If **next** is used, set the boot location to be the next one after the one currently booted from.  
`boot {location <location_ID> | next}`
3. View boot parameters.  
`boot ?`
4. View current settings.  
`show boot`

## Configuration File Management

You can save a binary file with all current configuration data that can be used to restore the system configuration. You can also reset custom configurations to their factory defaults, upload a saved configuration, and import a configuration from another Media Flow Controller.

1. From Configure mode, view configuration file options.  
`configuration ?`
2. View current settings.  
`show configuration`
3. View configuration file viewing options.  
`show configuration ?`
4. Make a configuration file active.  
`switch-to <filename>`
5. Save the current configuration through reboots.  
`write memory`

In the Management Console, use the **Setup > Configurations** page to upload a text file with CLI commands (executed immediately in the running configuration), or enter directly to the Management Console CLI commands to be executed immediately.



---

## CHAPTER 3

# Installing Media Flow Controller with CD-ROM or USB

This chapter describes [Creating USB Images](#), [Installing Media Flow Controller Software—CD-ROM/USB](#), and configuring the necessary network connections. To obtain the Media Flow Controller CD-ROM or USB install package, see “[Requesting Technical Support](#)” on page 1-12. Before beginning, be sure to review “[Pre-Installation Planning](#)” 15 for important information.

**Important!** This chapter is for installing Media Flow Controller on hardware other than Juniper Networks VXA series hardware.

You can request a CD-ROM or a USB drive with the software, or download the ISO image and burn your own CD-ROM and/or create a USB drive, and install using it.

**Tip!** If you received a Media Flow Controller USB drive or CD-ROM, skip the next section and go directly to [Installing Media Flow Controller Software—CD-ROM/USB](#).

## Creating CD-ROMs

There are many applications for creating CD-ROMs. For example, to burn the ISO image onto a CD, in Linux, you can use a command like this:

```
sudo cdrecord -v -tao dev=/dev/cdrom <filename>
```

## Creating USB Images

The files in the Juniper Networks installation zip file package allow you to manufacture a Media Flow Controller appliance using a bootable USB storage device, like a jumpdrive, pendisk, etc.; from Windows or Linux.

## Windows Instructions

1. Plug in your USB drive. See that it shows up in **My computer**.
2. Note the drive letter that Windows has given your USB drive. It will be something like **d:** or **f:**. **Important!** Make absolutely certain you know which drive letter is your USB drive, or you may seriously damage your computer with the following instructions.
3. Unzip the Juniper Networks **mfgusb.zip** file into the top folder (root directory) of your USB drive. Choose **extract all**.
4. Double-click on the relevant install file (**inst\_X.bat**). For example, for drive **d:**, double click on **inst\_d.bat**. A window will flash up on your screen and disappear. You have made your USB drive bootable.
5. Power off (not just reboot) your computer. **Start > Shut Down**.

## Linux Instructions

1. Plug in your USB drive. Become **root**. The rest of these instructions are done as **root**.
2. Mount the USB drive somewhere of your choosing. These instructions use **/dev/sda1**, with the USB drive mounted on **/mnt/flash**. You may need to look at **/etc/fstab**, **dmesg**, or the **/var/log/messages** file to discover the partition name. Depending on how your USB drive is set up, the drive may be all one partition with no partition table (like **/dev/sda**), or may be a partition inside a partition table (like **/dev/sda1**).  

```
mount /dev/sda1 /mnt/flash
```
3. Unzip the Juniper Networks **mfgusb.zip** file into the root directory of your USB drive, and then unmount it:  

```
cd /mnt/flash
unzip ~/Work/tree/output/product-demo-i386/release/mfgusb/mfgusb-demo-i386-20050710-090757.zip
cd ~ umount /mnt/flash
```
4. Install **syslinux** on the drive to make it bootable. The default version of syslinux included is 3.09 (as **syslinux.exe**), and an older version 2.11 is also included (as **sysln211.exe**). **Important!** Remember to substitute your device name here, as it may be different than **/dev/sda1**. If you use the wrong device name you could seriously damage your computer!  

```
syslinux /dev/sda1
```
5. Power off (not just reboot) your computer.  

```
shutdown -h now
```

## Ethernet Naming Options

Most installations require manual naming of the ethernet devices (interfaces). This is because the natural order is often confusing or not completely useful. The installation procedure offers four options to help you correctly identify and name your ethernet interfaces.

**Note!** You need to know what naming you want for all the ports before beginning installation. The default naming is based on the internal PCI hardware address that each device uses. The most important port to set up is eth0, because that name must be used for the port that the Web-based Management Console uses and for SSH to get to the command line interface (CLI). Juniper Networks suggests that the built-in ports use single digits, and for each add-in card, use numbers that start with multiples of ten. For example, if the first add-in card is a four port card, then use 10, 11, 12 and 13, and if the second add-in card is a two port card, then use 20 and 21.

**Important!** Media Flow Controller licenses are tied to either the Host ID of the system or the MAC address of the "eth0" interface. If you already have a license that is tied to a MAC address, then follow these steps to make sure that the correct interface is made eth0, or your license will not work.

Once the first phase of the installation is done, the following prompt gives you several options for configuring the interface names:

```
>>> Phase 1 Installation Done <<<

Press 1 to Reboot to complete the installation.
Press 2 to Halt. Installation will continue when rebooted.
Press 3 to Flash ethernet port LEDs.
Press 4 to Configure ethernet names interactively.
```



```

Press 5 to Specify device for eth0 and eth1.
Press 6 to Reset ethernet naming back to default.

```

The following sections describe the use of options 3 through 6. Once you have configured the interface names, then enter option **1** to reboot the machine and complete the installation.

## About Option 3, Flash Ethernet Port LEDs

If you are at the machine console, you can see which ports have been assigned what by pressing **3** (Flash Ethernet Port LEDs) during the installation.

Option **3** does not provide a way to make the assignments; to make the assignments you need to use option **4** or option **5**.

**Note!** The flashing of the port LEDs works on most ethernet devices; if there is a problem, a warning is printed.

```

Enter 1, 2, 3, 4, 5 or 6 : 3

Flashing eth leds in this order:
0000:01:00.0,00:15:17:8A:49:90,eth0
0000:01:00.1,00:15:17:8A:49:91,eth1
0000:04:00.0,00:13:72:3C:33:56,eth10
0000:05:00.0,00:13:72:3C:33:57,eth11
Flashing each for 3 seconds, then a 6 second pause, for 3 times
Loop 1
Flashing eth0
Flashing eth1
Flashing eth10
Flashing eth11
Pause
Loop 2
Flashing eth0
Flashing eth1
Flashing eth10
Flashing eth11
Pause
Enter 1 to Reboot to complete the installation.
Enter 2 to Halt. Installation will continue when rebooted.
Enter 3 to Flash ethernet port LEDs.
Enter 4 to Configure ethernet device names interactively.
Enter 5 to Specify devices to use for eth0 and eth1.
Enter 6 to Reset ethernet device naming back to default.

Enter 1, 2, 3, 4, 5 or 6 :

```

## About Option 4, Configure Ethernet Names Interactively

You can see which ports have been assigned what, and make custom assignments, by pressing **4** (Configure ethernet names interactively) during the installation. Example output below (input shown in **bold**).

This example shows a machine with a two-port add-in card that has lower PCI addresses, assigned by default, than the built-in ports. The default assignments use the add-in card but the desired assignments are the built-in ports: the third default (eth10) device for eth0; and the fourth default (eth11) device for eth1. This example shows the assigning of the interfaces.

```

Enter 1, 2, 3, 4, 5 or 6 : 4

```

```

=====
Current ethernet device naming:
eth0
  PCI address: 0000:01:00.0   HW address: 00:15:17:8A:49:90
  Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06)
eth1
  PCI address: 0000:01:00.1   HW address: 00:15:17:8A:49:91
  Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06)
eth10
  PCI address: 0000:04:00.0   HW address: 00:13:72:3C:33:56
  inet addr: 172.19.172.238
  Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11)
eth11
  PCI address: 0000:05:00.0   HW address: 00:13:72:3C:33:57
  Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11)
=====

BEGIN update naming

PCI address: 0000:01:00.0   HW addr: 00:15:17:8A:49:90
  Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06)
Currently assigned name: eth0

Enter one of the following:
a: Keep the current name (eth0)
b: Flash the LED for 4 seconds
c: Flash the LED for 16 seconds
d: Flash the LED for 64 seconds
e: Flash the LED for 128 seconds
The eth number you want for the name of this device.
> 10
PCI address: 0000:01:00.1   HW addr: 00:15:17:8A:49:91
  Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06)
Currently assigned name: eth1

Enter one of the following:
a: Keep the current name (eth1)
b: Flash the LED for 4 seconds
c: Flash the LED for 16 seconds
d: Flash the LED for 64 seconds
e: Flash the LED for 128 seconds
The eth number you want for the name of this device.
> 11
PCI address: 0000:04:00.0   HW addr: 00:13:72:3C:33:56
  inet addr: 172.19.172.238
  Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11)
Currently assigned name: eth10

Enter one of the following:
a: Keep the current name (eth10)
b: Flash the LED for 4 seconds
c: Flash the LED for 16 seconds
d: Flash the LED for 64 seconds
e: Flash the LED for 128 seconds
The eth number you want for the name of this device.
> 0
PCI address: 0000:05:00.0   HW addr: 00:13:72:3C:33:57
  Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11)

```

```

Currently assigned name: eth11

Enter one of the following:
a: Keep the current name (eth11)
b: Flash the LED for 4 seconds
c: Flash the LED for 16 seconds
d: Flash the LED for 64 seconds
e: Flash the LED for 128 seconds
The eth number you want for the name of this device.
> 1
Done specifying the device to eth number mapping.
The new mapping is:
0000:04:00.0,00:13:72:3C:33:56 eth0
0000:05:00.0,00:13:72:3C:33:57 eth1
0000:01:00.0,00:15:17:8A:49:90 eth10
0000:01:00.1,00:15:17:8A:49:91 eth11

Use this mapping? (y/n) y

Saving...
Enter 1 to Reboot to complete the installation.
Enter 2 to Halt. Installation will continue when rebooted.
Enter 3 to Flash ethernet port LEDs.
Enter 4 to Configure ethernet device names interactively.
Enter 5 to Specify devices to use for eth0 and eth1.
Enter 6 to Reset ethernet device naming back to default.

Enter 1, 2, 3, 4, 5 or 6 :

```

## About Option 5, Specify Devices to Use For eth0 and eth1

If you are Ok with the interfaces being automatically assigned and only need to set up eth0 and perhaps eth1, and do not want to use the interactive method (option 4), you can use the option 5, similar to the now-deprecated **eth-setup** installation command. Option 5 provides a way to specify which devices to use for eth0 and optionally eth1. Output shown below; input shown in bold. This example shows the assigning of the interfaces.

```

Enter 1, 2, 3, 4, 5 or 6 : 5
=====
Current ethernet device naming:
eth0
  PCI address: 0000:01:00.0   HW address: 00:15:17:8A:49:90
  Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06)
eth1
  PCI address: 0000:01:00.1   HW address: 00:15:17:8A:49:91
  Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06)
eth10
  PCI address: 0000:04:00.0   HW address: 00:13:72:3C:33:56
  inet addr: 172.19.172.238
  Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11)
eth11
  PCI address: 0000:05:00.0   HW address: 00:13:72:3C:33:57
  Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11)
=====

Enter 0 to not make any ethernet device naming changes. Otherwise enter the
specification for eth0, and optionally eth1, and then press return to

```

generate the new port to name mapping. For an explanation of the specifications that can be used enter 'help'.

Enter 0, help or the spec >

Enter 0, help or the spec > **help**

Syntax forms:

```
default|least-ports|most-ports|<URL>|url
<HWaddr> [<HWaddr>]
```

Examples of all the forms:

```
default
least-ports
most-ports
http://66.224.165.46/mfd-images/1.0.0-45.img
url
00:30:48:B8:F8:22
F8:22
f8:23 ca:A8
```

When "default" is specified, eth0 and eth1 are assigned in the order that the devices are on the PCI bus. eth0 might not be assigned to the port that you want it to be. The other options allow you to specify which port to use as eth0 (and eth1).

When "least-ports" is specified, the first NIC card with the least number of ports is used for eth0 (and eth1 if there are two or more ports on that NIC). When "most-ports" is specified, the first NIC card with the most number of ports is used for eth0 and eth1.

You may specify an http or https URL, and the ethernet device that provides access to that URL will be used for eth0.

In the situation where you installed from a URL, you can specify the word "url", and it will use that URL to select eth0 as described above.

You may specify a HWaddr to force eth0 to use that device. You can specify a second HWaddr to be used for eth1. For the HWaddr, aka MAC addr, you do not have to specify all the octets, you may specify as little as two of the right most octets as long as that is unique across all the installed ethernet devices.

Enter 0 to not make any ethernet device naming changes. Otherwise enter the specification for eth0, and optionally eth1, and then press return to generate the new port to name mapping. For an explanation of the specifications that can be used enter 'help'.

Enter 0, help or the spec > **33:56 33:57**

= Assigning interface names

```
-- MAC: 00:13:72:3C:33:56 Mapping from: eth2 to: eth0
-- MAC: 00:13:72:3C:33:57 Mapping from: eth3 to: eth1
-- MAC: 00:15:17:8A:49:90 Mapping from: eth0 to: eth10
-- MAC: 00:15:17:8A:49:91 Mapping from: eth1 to: eth11
```

The new mapping is:

```
eth10
  PCI address: 0000:01:00.0   HW address: 00:15:17:8A:49:90
  Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06)
eth11
  PCI address: 0000:01:00.1   HW address: 00:15:17:8A:49:91
  Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06)
```

```

eth0
  PCI address: 0000:04:00.0   HW address: 00:13:72:3C:33:56
  inet addr: 172.19.172.238
  Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11)
eth1
  PCI address: 0000:05:00.0   HW address: 00:13:72:3C:33:57
  Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11)
Enter 0 to NOT USE this new ethernet port naming.
Enter 1 to USE this new ethernet port naming.
Otherwise enter the specification for eth0, and optionally eth1,
and then press return to generate the new port to name mapping.
For an explanation of the specifications that can be used enter 'help'.
Enter 0, 1, help or the spec > 1
Saving...

Enter 1 to Reboot to complete the installation.
Enter 2 to Halt. Installation will continue when rebooted.
Enter 3 to Flash ethernet port LEDs.
Enter 4 to Configure ethernet device names interactively.
Enter 5 to Specify devices to use for eth0 and eth1.
Enter 6 to Reset ethernet device naming back to default.
Enter 1, 2, 3, 4, 5 or 6 :
```

## About Option 6, Reset Ethernet Device Naming Back to Default

If at any time in the ethernet naming process, you want to revert back to the default names assigned by the system, you can use option **6**. Output shown below (after assigning interfaces names using option **4** or **5**, described above); input shown in bold.

```

Done specifying the device to eth number mapping.
The new mapping is:
0000:04:00.0,00:13:72:3C:33:56 eth0
0000:05:00.0,00:13:72:3C:33:57 eth1
0000:01:00.0,00:15:17:8A:49:90 eth10
0000:01:00.1,00:15:17:8A:49:91 eth11
Use this mapping? (y/n) y
Saving...

Enter 1 to Reboot to complete the installation.
Enter 2 to Halt. Installation will continue when rebooted.
Enter 3 to Flash ethernet port LEDs.
Enter 4 to Configure ethernet device names interactively.
Enter 5 to Specify devices to use for eth0 and eth1.
Enter 6 to Reset ethernet device naming back to default.
Enter 1, 2, 3, 4, 5 or 6 : 6

Done

Enter 1 to Reboot to complete the installation.
Enter 2 to Halt. Installation will continue when rebooted.
Enter 3 to Flash ethernet port LEDs.
Enter 4 to Configure ethernet device names interactively.
Enter 5 to Specify devices to use for eth0 and eth1.
Enter 6 to Reset ethernet device naming back to default.
Enter 1, 2, 3, 4, 5 or 6 :
```

## Installing Media Flow Controller Software—CD-ROM/USB

When the Media Flow Controller software is installed on a machine that does not currently have Media Flow Controller installed, it completely formats all disks in the system. While the software is installing, no progress indicator is given while formatting the drives. Please be patient. When installing on a machine that has Media Flow Controller currently installed, you have a choice to retain the data in the caches.

1. Put in the CD-ROM, or plug in the USB drive, and reboot the machine from the installation media.
2. A welcome message displays followed by a prompt for the end-user license agreement (EULA):

```
Enter 1 to Read the EULA agreement and continue with installation.  
Enter 2 to Reboot without installing or restoring.  
Enter 3 to Halt without installing or restoring.
```

```
Enter 1, 2, or 3 :
```

**Enter 1.**

3. The EULA displays; press the **Space** bar to page through it.

```
Enter 1 to Read the EULA agreement again.  
Enter 'accept' to accept the EULA agreement and continue with  
installation.  
Enter 2 to Reboot without installing or restoring.  
Enter 3 to Halt without installing or restoring.
```

```
Enter 1, 2, 3, or 'accept' :
```

**Enter accept.**

4. The following message displays:

```
Enter 1 to Install Media Flow Controller.  
Enter 2 to Restore Media Flow Controller.  
Enter 3 to Reboot without installing or restoring.  
Enter 4 to Halt without installing or restoring.
```

Note:

```
Install will delete all cached data.  
Restore attempts to keep cached data.
```

```
Enter 1, 2, 3 or 4 :
```

If you are installing on a machine that currently has Media Flow Controller installed, you have the choice of selecting or preserving all the cached data on all the drives. To keep the cached data, enter **2**. To erase all the cached data, enter **1**. Note that in some situations some or all of the cached data might not be preserved, even with option **2**.

If this is a first time installation, enter **1**.

5. The installation proceeds; it can take 10 minutes or longer depending on how many disks Media Flow Controller needs to format. When completed, the following message displays:

```
Installation is done at <number>  
>>> Phase 1 Installation Done <<<  
  
Press 1 to Reboot to complete the installation.
```

```

Press 2 to Halt. Installation will continue when rebooted.
Press 3 to Flash ethernet port LEDs.
Press 4 to Configure ethernet names interactively.
Press 5 to Specify device for eth0 and eth1.
Press 6 to Reset ethernet naming back to default.

```

Most systems need the interface names assigned manually; the ethernet naming default is based on the device's PCI bus address order and often are not optimally assigned. It is very important that eth0 be assigned to the proper port. Use options 4 or 5 to configure the interface naming. See [“Ethernet Naming Options” on page 3-24](#), for details.

6. Once you've assigned the interface names, at the menu prompt, press 1 to reboot and finish the installation.

The installation completes and an "unconfigured" prompt displays:

```
mfc-unconfigured-8a4990 login:
```

Finish with [“Basic System Configurations” on page 3-31](#).

## Basic System Configurations

Once Media Flow Controller is installed, follow these steps to set basic network connectivity. At a minimum, you must assign **eth0** an IP address, then the appliance can be remotely accessed and configured.

1. Log in as **admin**  
There is no default password.
2. Enter configuration mode with these commands:  
**enable**  
**configure terminal**
3. Set the IP address, hostname, gateway, DNS server, and a domain list (to resolve unqualified hostnames). Install licenses, if you have the license keys. Save the settings when you are finished.  

```
interface eth0 ip address <management_port_IP_address> <netmask>
hostname <hostname_for_machine>
ip default-gateway <gateway_server_IP_address>
ip name-server <DNS_server_IP_address>
ip domain-list <domain_name_for_resolving_hostnames> ...
ntp server <NTP_server_IP_address>
license install <license_key>
configuration write
```
4. As you have just changed the network information for your system, you must re-associate Media Flow Controller with the interfaces. Either reboot (**reload** command) or enter this command:  
**service restart mod\_delivery**
5. Display the software version. If you have installed licenses, check those, too.  
**show version**  
**show license**
6. Sanity check: From another machine attempt to ping each address, and open an SSH session to the server as Admin.

To complete connecting the machine to your network, plug in the traffic ports Eth2, 3, 4, 5, and configure with static IP addresses, or skip this step and hand off further configurations to your

system administrator. [Table 3. “Example Machine Setup of Management and Traffic Ports.” on page 17](#) shows a typical Media Flow Controller configuration.

You are now ready to begin configuring Juniper Networks Media Flow Controller. See the Juniper Networks *Media Flow Controller Administrator’s Guide and CLI Command Reference*.

**Note!** If an unexpected interface is assigned eth0, your installed licenses will be invalid since they rely on the MAC address of an assigned interface and that interface changed. If that is the case, you need to manually assign the interfaces; see [“Changing Ethernet Name Assignments After Installation” on page 2-18](#) for details.

## Troubleshooting

This section offers some troubleshooting tips for CD/USB installations.

### USB Won’t Boot

If your USB seems messed up, or won't boot, you may want to try these steps, which will destroy everything on the USB.

#### From Linux

1. Figure out which raw device is yours, WITHOUT the partition number. We'll assume it's **/dev/sda**. If you think it's **/dev/sda1**, use **/dev/sda**.
2. As root do the following: (Note that **mbr.bin** is included in the zip file, so the instructions assume you start out as root in the mfgusb zip, unzipped on your hard disk.)
 

```
dd if=/dev/zero of=/dev/sda bs=512 count=100 sfdisk -R /dev/sda dd
    if=mbr.bin of=/dev/sda bs=1 echo ',,6,*' | sfdisk /dev/sda mkdosfs /
    dev/sda1 syslinux /dev/sda1
```
3. Unzip the image, as in the instructions above. In the example, your device name is **/dev/sda1**, not **/dev/sda**.
 

```
mount /dev/sda1 /mnt/flash
cd /mnt/flash
unzip ~/Work/tree/output/product-demo-i386/release/mfgusb/mfgusb-demo-
i386-20050710-090757.zip
cd ~ umount /mnt/flash
```
4. Continue on with step 5 for either Windows or Linux, above

### USB Won’t Mount

In cases where the USB CD-ROM drive is not recognized/mounted during manufacture, use the following Linux commands:

```
mknod /dev/sr0 -b 11 0
mount /dev/sr0 /mnt/cdrom
```

Then run proceed with the regular installation.



---

## CHAPTER 4

# Installing Media Flow Controller with PXE

This chapter describes [Preparing Your PXE Server](#), [Installing Media Flow Controller Software from Network—PXE](#), and configuring the needed network connections. To obtain the Media Flow Controller PXE install package, contact Juniper Networks Support; see [“Requesting Technical Support” on page 1-12](#).

**Important!** Before beginning, be sure to review [“Pre-Installation Planning” 15](#) for important information.

## Preparing Your PXE Server

PXE (Preboot eXecution Environment) is a way for a machine without an operating system to find a server, download an image from it, and boot. PXE works by the BIOS first making a DHCP request. In the DHCP response it gets network information for itself as well as the IP of a TFTP server and the name of an image. It then pulls down from the TFTP server a mini-image that is interactive over the console and serial console of the machine, and allows selection of the real image to boot. The real image, in the Media Flow Controller case, consists of the boot floppy kernel and rootfloppy file system image.

## Setup Instructions

There are two parts to setting up PXE for installing Media Flow Controller. First, follow these steps to set up your PXE server, then see the following note for managing the installation software.

1. Put these two PXE install package files, both have the same **<unique ID>** string, into your PXE server tree:

```
rootflop-mfc-<uniqueID>.img
vmlinuz-bootflop-mfc-<uniqueID>
```

2. Next, edit the PXE server configuration files on your system to make these available for booting from. For example, if the **uniqueID** string in the Juniper Networks filenames is **2.1.0**, and you place them in a directory named **mfc-install**, and you want to have the PXE menu for using them be “mfc-install-2.1.0,” then, on a Redhat Linux PXE server, edit **pxelinux.cfg/default** to add a “LABEL” line, a “kernel” line, and an “append” line like this:

```
LABEL mfc-install-2.1.0
kernel mfc-install/vmlinuz-bootflop-mfc-2.1.0
append initrd=mfc-install/rootflop-mfc-2.1.0.img panic=10 noexec=off
console=ttyS0,9600n8 console=tty0 ramdisk_size=16384 rw
```

3. Next, edit the bootmsg.txt file to add a line that references the label you used:

```
<uniqueLabel> <description text>
```

Using the values above, this would be like this:

```
mfc-install-2.1.0 Juniper Networks Media Flow Controller installation
```

The Media Flow Controller installation image must be accessible to the PXE server. For example, if the machine being installed has the eth0 network connected to a download site, the image file would be on a Web server that is accessible.

**Important!** The above setup makes it possible to boot up an environment that allows you to install from the actual Media Flow Controller distribution files. There are two files, a matched pair; one is the **image\*.img** file and the other is the **manufacture\*.img** file. You need to put these both in a directory on a Web server so the machine being installed can download the files via HTTP. Example filenames for these are:

```
image-mfc-2.0.2-rc_5_10705_180.img
```

```
manufacture-mfc-2.0.2-rc_5_10705_180.tgz
```

Note that the **image\*.img** file is the same file you use for upgrades. The easiest thing to do is put these two files into a directory by themselves, and have the directory name reflect the naming of the files. Per this example, the directory name could be **mfc-2.0.2-rc\_5**. Then rename the two files to just **image.img** and **manufacture.tgz**. This makes it easier later when you have to specify the URL where these files are. When the files have these names, you only need to specify the URL of the directory.

## Installing Media Flow Controller Software from Network—PXE

You must have a configured PXE server (see [Setup Instructions](#), above) and the URL of the Juniper Networks Media Flow Controller software image in order to use this procedure.

Before you begin: Plug your machine into a serial console, with flow control disabled, and configure the BIOS to PXE boot. Juniper Networks recommends connecting the console to the terminal server and opening a TELNET session for this procedure.

1. Reboot the machine in PXE boot mode. The PXE boot prompt displays. Type in the label that you configured in the PXE server for the Media Flow Controller installation boot files (e.g. **mfc-2.2.2**) and press **Enter**. If installing from a serial console, you are prompted to log in as **root** first.
2. A welcome message displays followed by an installation menu:

```
Specify the URL to install from, or  
1 to Reboot without installing or restoring  
2 to Halt without installing or restoring
```

```
Enter 1, 2 or the URL and press return :
```

```
Enter the URL of the directory where the image.img and manufacture.tgz files are located.  
If the files are accessible then this menu is printed:
```

```
Ready to install from <URL_you_entered>
```

3. A prompt for the end-user license agreement (EULA) displays:

```
Enter 1 to Read the EULA agreement and continue with installation.  
Enter 2 to Reboot without installing or restoring.  
Enter 3 to Halt without installing or restoring.
```

```
Enter 1, 2, or 3 :
```

```
Enter 1.
```

4. The EULA displays; press the **Space** bar to page through it.

```
Enter 1 to Read the EULA agreement again.  
Enter 'accept' to accept the EULA agreement and continue with  
installation.  
Enter 2 to Reboot without installing or restoring.  
Enter 3 to Halt without installing or restoring.
```

```
Enter 1, 2, 3, or 'accept' : accept
```

Enter **accept**.

5. The following message displays:

```
Enter 1 to Install Media Flow Controller.  
Enter 2 to Restore Media Flow Controller.  
Enter 3 to Reboot without installing or restoring.  
Enter 4 to Halt without installing or restoring.
```

Note:

```
Install will delete all cached data.  
Restore attempts to keep cached data.
```

```
Enter 1, 2, 3 or 4 :
```

If you are installing on a machine that currently has Media Flow Controller installed, you have the choice of selecting or preserving all the cached data on all the drives. To keep the cached data, enter **2**. To erase all the cached data, enter **1**. Note that in some situations some or all of the cached data might not be preserved, even with option **2**.

If this is a first time installation, enter **1**.

6. The installation proceeds; it can take 10 minutes or longer depending on how many disks Media Flow Controller needs to format. When completed, the following message displays:

```
Installation is done at <number>  
>>> Phase 1 Installation Done <<<  
Press 1 to Reboot to complete the installation.  
Press 2 to Halt. Installation will continue when rebooted.  
Press 3 to Flash ethernet port LEDs.  
Press 4 to Configure ethernet names interactively.  
Press 5 to Specify device for eth0 and eth1.  
Press 6 to Reset ethernet naming back to default.
```

Most systems need the interface names assigned manually; the ethernet naming default is based on the device's PCI bus address order and often are not optimally assigned. It is very important that eth0 be assigned to the proper port. Use options **4** or **5** to configure the interface naming. See ["Ethernet Naming Options" on page 3-24](#), for details.

7. Once you've assigned the interface names, at the menu prompt, press **1** to reboot and finish the installation.

The installation completes and an "unconfigured" prompt displays:

```
mfc-unconfigured-8a4990 login:
```

Continue with ["Basic System Configurations" on page 3-31](#).



## CHAPTER 5

## Installing Media Flow Manager

Media Flow Manager is the tool that lets you remotely manage individual Media Flow Controllers, group them into logical groups, create profiles (sets of commands) and apply them to nodes or groups, and take other actions. Media Flow Manager also provides features such as Service Locator, lets you direct requests to the closest Media Flow Controller; Admission Control, lets you remotely set bandwidth parameters, and awStats Reports consolidator.

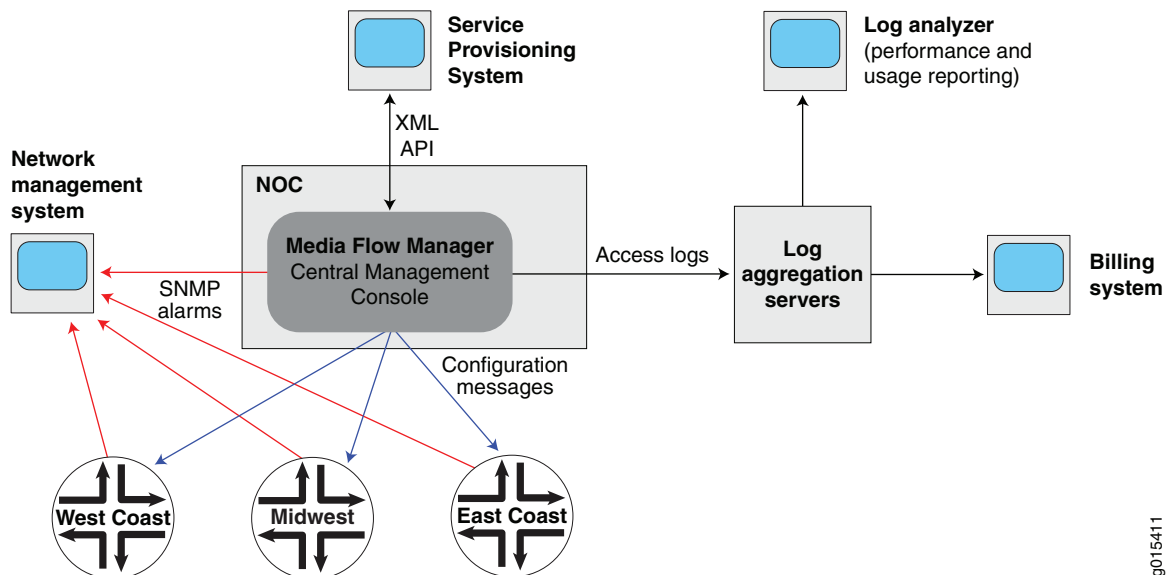


Figure 2 Media Flow Manager Interaction

Installing Media Flow Manager is very different in procedure to installing Media Flow Controller. However, much of the information in the previous chapters of this book apply, with the exception of the cache directives and ethernet naming guidelines (Media Flow Manager does not handle traffic, it is only a management device). If necessary, review this information:

- Chapter 2, “Getting Started”—[“Pre-Installation Planning” on page 2-15](#), and [“Upgrading and Rebooting” on page 2-18](#).
- Chapter 3, “Installing Media Flow Controller with CD-ROM or USB”—[“Creating CD-ROMs” on page 3-23](#), [“Creating USB Images” on page 3-23](#), and [“Troubleshooting” on page 3-32](#).
- Chapter 4, “Installing Media Flow Controller with PXE”—[“Preparing Your PXE Server” on page 4-33](#).

## Installing Media Flow Manager—CD-ROM/USB

When the Media Flow Manager software is installed on a machine that does not currently have Media Flow Manager installed, it reformats the root drive in the system. While the software is installing, at times no progress indicator is given while formatting the drives. Please be patient. When installing on a machine that has Media Flow Manager currently installed, you have a choice to retain the data in the caches.

1. Put in the CD-ROM, or plug in the USB drive, and reboot the machine from the installation media.
2. Type the following command to get the Media Flow Manager image file installed. **Note!** If using PXE, follow this command with the URL of the image file.

```
install-mfm
```

3. The end-user license agreement (EULA) displays. You must type **yes** to proceed. You can also type **no**, in which case the installation is cancelled; or **again** to see the EULA again. The following message displays:

```
Installation is done at <number>
```

4. Reboot by typing **reboot**. When prompted for build choice, do nothing; this brings up the Media Flow Manager platform now on the local disk.
5. Log in as User **admin**; there is no default password.
6. Enter configuration mode.

```
enable  
configure terminal
```

7. Set the IP address, hostname, default gateway, DNS server, and a domain list (to resolve unqualified hostnames). Install licenses, if you have the license keys.

```
interface eth0 ip address <management_port_IP_address> <netmask>  
hostname <hostname_for_machine>  
ip default-gateway <gateway_server_IP_address>  
ip name-server <DNS_server_IP_address>  
ip domain-list <domain_name_for_resolving_hostnames> ...  
ntp server <NTP_server_IP_address>  
license install <license_key>
```

8. Save these settings through a reboot.
9. As you have just changed the network information for your system, you must re-associate Media Flow Manager with the interfaces. Either reboot (**reload** command) or enter this command:

```
service restart mod_delivery
```

10. Display the software version. If you have installed licenses, check those, too.

```
show version  
show license
```

11. Sanity check: From another machine attempt to ping each address, and open an SSH session to the server as Admin.

You are now ready to begin configuring Media Flow Manager. See the Juniper Networks *Media Flow Manager Administrator's Guide and CLI Command Reference*.

**Note!** If an unexpected interface is assigned eth0, your installed licenses will be invalid since they rely on the MAC address of an assigned interface and that interface changed. If that is the case, you need to manually assign the interfaces; see [“Changing Ethernet Name Assignments After Installation” on page 2-18](#) for details.

## Installing Media Flow Manager from Network—PXE

You must have a configured PXE server (see [“Preparing Your PXE Server” on page 4-33](#)) and the URL of the Juniper Networks Media Flow Manager software image in order to use this procedure. To obtain the Media Flow Manager install package, contact Juniper Networks Support; see [“Requesting Technical Support” on page 1-12](#).

Before you begin: Plug your machine into a serial console, with flow control disabled, and configure your BIOS to PXE boot. Juniper Networks recommends connecting the console to the terminal server and opening a TELNET session for this procedure.

1. Reboot the machine in PXE boot mode. The PXE boot prompt displays. Type in the label that you configured in the PXE server for the Media Flow Manager installation boot files (e.g. **mfm-2.2.2**) and press **Enter**. If installing from a serial console, you are prompted to log in as **root** first.
2. Type the following command to get the Juniper Networks Media Flow Manager image file installed. **Note!** While the command uses the abbreviation "mfc" it is for Media Flow Manager, not Media Flow Controller.

```
install-mfc <URL_of_image_file>
```

3. The end-user license agreement (EULA) displays. You must type **yes** to proceed. You can also type **no**, in which case the installation is cancelled; or **again** to see the EULA again. The following message displays:

```
Installation is done at <number>
```

4. Reboot by typing **reboot**. When prompted for build choice, do nothing; this brings up the Media Flow Manager platform now on the local disk.
5. Log in as User **admin**; there is no default password.
6. Sanity check: From another machine attempt to ping each address, and open an SSH session to the server as Admin.  
Continue with [“Basic System Configurations” on page 3-31.](#)

You are now ready to begin configuring Media Flow Manager. See the Juniper Networks *Media Flow Manager Administrator's Guide and CLI Command Reference*.

