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FastIron Ethernet Switch

Software Upgrade Guide

Supporting FastIron Software Release 08.0.30

BROCADE

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Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Brocade technical documentation.

Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier font may be used in the flow of the text to highlight specific words or phrases.

Format	Description
bold text	Identifies command names
	Identifies keywords and operands
	Identifies the names of user-manipulated GUI elements
	Identifies text to enter at the GUI
italic text	Identifies emphasis
	Identifies variables
	Identifies document titles
`Courier font`	Identifies CLI output
	Identifies command syntax examples

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
italic text	Identifies a variable.
value	In Fibre Channel products, a fixed value provided as input to a command option is printed in plain text, for example, **--show** WWN.

Convention	Description
[ ]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
{ **x** | **y** | **z** }	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options. In Fibre Channel products, square brackets may be used instead for this purpose.
x | **y**	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, *member*[*member*...].
\	Indicates a “soft” line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Notes, cautions, and warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the 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.

ATTENTION
An Attention statement indicates a stronger note, for example, to alert you when traffic might be interrupted or the device might reboot.

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.

Brocade resources

Visit the Brocade website to locate related documentation for your product and additional Brocade resources.

You can download additional publications supporting your product at www.brocade.com. Select the Brocade Products tab to locate your product, then click the Brocade product name or image to open the individual product page. The user manuals are available in the resources module at the bottom of the page under the Documentation category.

To get up-to-the-minute information on Brocade products and resources, go to MyBrocade. You can register at no cost to obtain a user ID and password.

Release notes are available on MyBrocade under Product Downloads.

White papers, online demonstrations, and data sheets are available through the Brocade website.

Contacting Brocade Technical Support

As a Brocade customer, you can contact Brocade Technical Support 24x7 online, by telephone, or by e-mail. Brocade OEM customers contact their OEM/Solutions provider.

Brocade customers

For product support information and the latest information on contacting the Technical Assistance Center, go to http://www.brocade.com/services-support/index.html.

If you have purchased Brocade product support directly from Brocade, use one of the following methods to contact the Brocade Technical Assistance Center 24x7.

Online	Telephone	E-mail
Preferred method of contact for non-urgent issues: • My Cases through MyBrocade • Software downloads and licensing tools • Knowledge Base	Required for Sev 1-Critical and Sev 2-High issues: • Continental US: 1-800-752-8061 • Europe, Middle East, Africa, and Asia Pacific: +800-AT FIBREE (+800 28 34 27 33) • For areas unable to access toll free number: +1-408-333-6061 • Toll-free numbers are available in many countries.	support@brocade.com Please include: • Problem summary • Serial number • Installation details • Environment description

Brocade OEM customers

If you have purchased Brocade product support from a Brocade OEM/Solution Provider, contact your OEM/Solution Provider for all of your product support needs.

- OEM/Solution Providers are trained and certified by Brocade to support Brocade® products.
- Brocade provides backline support for issues that cannot be resolved by the OEM/Solution Provider.

- Brocade Supplemental Support augments your existing OEM support contract, providing direct access to Brocade expertise. For more information, contact Brocade or your OEM.
- For questions regarding service levels and response times, contact your OEM/Solution Provider.

Document feedback

To send feedback and report errors in the documentation you can use the feedback form posted with the document or you can e-mail the documentation team.

Quality is our first concern at Brocade and 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. You can provide feedback in two ways:

- Through the online feedback form in the HTML documents posted on www.brocade.com.
- By sending your feedback to documentation@brocade.com.

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

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What's new in this document

This document is updated for FastIron software release 08.0.30. The following tables include information on new upgrade considerations introduced with the release. For a full description of new features, refer to the FastIron 08.0.30 release notes.

TABLE 1 Summary of Enhancements in FastIron Release 08.0.30

Feature	Description	Location
BGP4+ Multi-VRF	Added in this release.	Upgrading to or downgrading from FastIron 08.0.30 on page 11
Equal Cost Multi-Path	Equal Cost Multi-Path (ECMP) increases the maximum number of paths to 32 on ICX 7750 devices.	Upgrading to or downgrading from FastIron 08.0.30 on page 11
Flash timeout configuration	This release allows the user to change flash timeout.	Upgrading to or downgrading from FastIron 08.0.30 on page 11
ICX 6610 license merge	Premium and advanced licensing features are merged under the premium license.	Upgrading to or downgrading from FastIron 08.0.30 on page 11. For more information on licenses, refer to the *FastIron Ethernet Switch Licensing Guide*, Release 08.0.30.
ICX 7450 10 Gbps stacking	10 Gbps stacking is available on 4x10G modules inserted in slot 2.	Upgrading to or downgrading from FastIron 08.0.30 on page 11
ICX 7750 breakout ports	This release introduces physical breakout of 40-Gbps ports on the ICX 7750 into four configurable 10-Gbps sub-ports.	Upgrading to or downgrading from FastIron 08.0.30 on page 11
ICX 7750 cut-through mode	This release introduces cut-through mode on the ICX 7750.	Upgrading to or downgrading from FastIron 08.0.30 on page 11
LAG enhancements	This release introduces several LAG enhancements, including the ability to rename the LAG dynamically, increased port capacity, and the addition of the **show interface lag** command.	Upgrading to or downgrading from FastIron 08.0.30 on page 11
Layer 3 multicast routing over MCT	This feature is introduced on the ICX 7750.	Upgrading to or downgrading from FastIron 08.0.30 on page 11

TABLE 1 Summary of Enhancements in FastIron Release 08.0.30 (Continued)

Feature	Description	Location
Layer 3 unicast routing over MCT	This feature is introduced on the ICX 7750.	
sflow CLI changes	Several **sflow source** commands are introduced.	Upgrading to or downgrading from FastIron 08.0.30 on page 11
Stacking CLI changes	Stacking CLI changes are introduced to support removable modules on the ICX 7450.	Upgrading to or downgrading from FastIron 08.0.30 on page 11
Stacking flash file changes	The stacking.boot file changes format in this release.	Upgrading to or downgrading from FastIron 08.0.30 on page 11
Unicast Reverse Path Forwarding (uRPF) check	This feature is introduced.	Upgrading to or downgrading from FastIron 08.0.30 on page 11

Supported hardware

This guide supports the following product families from Brocade:

- FastIron X Series devices (chassis models):
  - FastIron SX 800
  - FastIron SX 1600
- Brocade FCX Series (FCX) Switch
- Brocade ICX™ 6610 (ICX 6610) Switch
- Brocade ICX 6430 Series (ICX 6430)
- Brocade ICX 6450 Series (ICX 6450)
- Brocade ICX 6650 series (ICX 6650)
- Brocade ICX 7250 series (ICX 7250)
- Brocade ICX 7450 series (ICX 7450)
- Brocade ICX 7750 series (ICX 7750)

For information about the specific models and modules supported in a product family, refer to the hardware installation guide for that product family.

NOTE
The Brocade ICX 6430-C switch supports the same feature set as the Brocade ICX 6430 switch unless otherwise noted.

NOTE
The Brocade ICX 6450-C switch supports the same feature set as the Brocade ICX 6450 switch unless otherwise noted.

Upgrade and Downgrade Considerations

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Upgrading to or downgrading from FastIron 08.0.30

NOTE
You must upgrade to the boot code that supports this release. Refer to "Software image files for Release 08.0.xx" in the release notes for detailed information.

The following sections cover the details that should be considered before upgrading to FastIron 08.0.30 or downgrading to previous releases from FastIron 08.0.30.

BGP4+ Multi-VRF

Downgrade from FastIron 08.0.30 will cause all BGP VRF6 configuration and previously learned routes to be deleted.

Equal Cost Multi-Path

ECMP is set to 8 by default in FastIron 8.0.30 but may be configured to larger values. Downgrading from FastIron 08.0.30 restores the ECMP default, and previously learned paths are lost. The ranges for ip load-sharing are also reduced. Before downgrading to an earlier release, the customer is advised to reduce the ECMP parameter to 8.

Flash timeout configuration

The default flash timeout will remain at 12 minutes. Users can change it to any value between 12 and 60 minutes using the **flash-timeout** command. The configured timeout is synced across a stack, and is applied after configuration to the next and all subsequent flash operations. On downgrade from FastIron 08.0.30, the flash timeout returns to the default of 12 minutes.

ICX 6610 license merge

In FI 8.0.30, the advanced features for ICX6610 are available with a premium license. If an advanced license has been previously installed on the system, the system will function as if it has been upgraded to FI 8.0.30. However, if the FI 08.0.30 premium license is installed on the system and the system is downgraded to an earlier release, the advanced features will be lost. Refer to the *FastIron Ethernet Switch Licensing Guide* for more information on licensing changes.

ICX 7750 breakout port configuration

FastIron 08.0.30 adds breakout port capability on the ICX 7750, which allows a breakout cable to be applied on a 40-Gbps port and for four 10-Gbps sub-ports to be configured. If you have configured breakout ports and then downgrade to an earlier release, parsing errors are returned during bootup for any port that still has breakout configuration. The configuration for the 10-Gbps ports will be lost after reload, and the port will be returned to 40-Gbps mode.

NOTE
Cut-through mode is not supported globally if any 40 Gbps port is configured for breakout. The user is prompted to switch to “store-and-forward” mode before breakout CLI can be used.

ICX 7750 cut-through mode

In FastIron 08.0.30, cut-through mode disables port flow control by default. Previous code enabled incoming port flow control ("honor flow control") by default. Cut-through mode is enabled by default on the ICX 7750, and the **disable port flow** option is disabled by default. To switch modes, store-and-forward must be configured in global configuration mode.

LAG enhancements

After a downgrade from FastIron 08.0.30 to an earlier release, the configuration is removed from all LAG ports, and the LAG is returned to an undeployed state. Maximum configurable ports per LAG is reduced to eight on downgrade. Brocade recommends that you avoid downgrading from FastIron 08.0.30 to an earlier release if you have configured LAGs. Otherwise, reduce the number of ports per LAG to eight, save the configuration, and then downgrade.

Layer 3 multicast over MCT

If you have configured Layer 3 multicast routing over MCT and you downgrade from FastIron 08.0.30 to an earlier release, the PIM configurations on MCT member VLAN VEs will be lost.

Layer 3 unicast routing over MCT

If you have configured Layer 3 unicast routing over MCT and you downgrade from FastIron 08.0.30 to an earlier release, the OSPF configuration on the MCT member VEs will be rejected.

sflow CLI changes

Several **sflow source** commands are added in FastIron 08.0.30. Their use is documented in the *FastIron Ethernet Switch Administration Guide*. If you configure these commands and then downgrade to an earlier release, the system assumes the default behavior; that is, the IP address of the outgoing interface is used as the source IP address of the sFlow datagram.

Stacking CLI changes and ICX 7450 10 Gbps stacking

FastIron 08.0.30 introduces 10-Gbps stacking on the ICX 7450. When you downgrade an ICX 7450 from FastIron 08.0.30 to an earlier release and the unit contains 4x10-Gbps stacking configuration, stack-ports are reset to x/3/1 and x/3/4. In addition, these commands may be rejected and return errors: **default-port** and **stack-port**.

NOTE
MACsec is also introduced on the ICX 7450 in FastIron 08.0.30 on the same 4x10G module. When the module is inserted in slot 2, either MACsec or stacking can be supported on the module, but not both. Refer to the *FastIron Ethernet Switch Stacking Configuration Guide* for more information.

Stacking image upgrade/downgrade

The flash file stacking.boot is present in every unit in a stack. It may also be present in a standalone unit that has previously been a master stacking unit. Port numbers are not compatible between FastIron 08.0.30 and earlier releases because of the way they are stored in the stacking.boot file. Consequently, if you switch between FastIron 08.0.30 or a later release and any release that pre-dates FastIron 08.0.30, the following message is displayed for an upgrade:

```
Upgrade stacking.boot from non-breakout to breakout. Modify stacking ports.
```

The following message is displayed for a downgrade:

```
Downgrade stacking.boot from breakout to non-breakout. Modify stacking ports.
```

Upgrade procedure on the ICX 7750 for uRPF check

Unicast reverse path forwarding (uRPF) check is introduced in FastIron 08.0.30. While there is no pre-existing configuration to consider on upgrade, Brocade recommends that users follow these upgrade guidelines. For additional information on configuring uRPF, refer to the *FastIron Ethernet Switch Layer 3 Configuration Guide*.

- uRPF should not be configured on an active device and should not be changed frequently.

Due to hardware limitations, system software automatically reduces **system-max** values by half when uRPF is enabled. As a side-effect, some VRF configuration may be deleted.

Follow this sequence to avoid issues:

1. Enable uRPF on an inactive device.
2. Reload the device to prepare the hardware for subsequent configuration.
3. Configure system-max parameters for routes and VRF as needed. Reload.
4. Configure interfaces and any other parameters.

ICX 7750 downgrade considerations for uRPF check

Brocade recommends that you disable the uRPF feature and remove related configuration before you downgrade to a previous release from FastIron 08.0.30 or a later release. If you downgrade without disabling the feature, existing VRF configuration may be deleted because of changes to system default values and **system-max** limitations. The following **system-max** values are reset to their default values and must be reconfigured after reload:

- **ip-route**
- **ip6-route**
- **ip-route-default-vrf**
- **ip6-route-default-vrf**
- **ip-route-vrf**
- **ip6-route-vrf**

General considerations

- MACsec in FastIron 08.0.20a and later releases is not compatible with previous versions of the MACsec feature due to changes in CLI functionality. An upgrade is required.
- The **erase startup-config** command erases all startup configuration files (startup-config.txt and also the backup files).
- FSX devices with FastIron 08.0.xx installed, as well as all ICX 6430 and ICX 6450 devices, support only one configured system boot preference.
- In an FSX device, using an SX Series 0-Port Third Generation XL management module together with an SX Series 2-Port 10GbE Third Generation XL management module is not supported.
- On an FSX device with the SX Series 0-Port Third Generation XL management module, a hitless upgrade from FastIron 08.0.00a or 08.0.01 to 08.0.10 is not supported.
- For ICX 6430 devices, the **system-max mac-filter-sys** parameter value changed from 512 to 508 in FastIron 08.0.xx. If the current value of **system-max mac-filter-sys** is more than 508, you should change this value to 508 before upgrading. Otherwise, during upgrade, its value will be set to the default value of 64.
- To use a FastIron 07.x.xx configuration on a device upgraded to a FastIron 08.0.xx image, replacing the running configuration with the FastIron 07.x.xx configuration is not supported. Instead, you must copy the FastIron 07.x.xx configuration onto the startup configuration file and reload the device.

Deprecated or removed features and commands

- SNTP is no longer supported. NTPv4 replaces SNTP.
- The **stack persistent-mac-timer** command is deprecated in FastIron 08.0.20.
- The Port Speed Down-Shift feature is deprecated in FastIron 08.0.xx.
- The **link-config gig copper autoneg-control down-shift ethernet** command is deprecated.
- The **show cpu-utilization** command replaces the **show process cpu** command.

Flash memory capacity

Consider the following limitations of different devices when upgrading software:

- All FastIron devices except ICX 6430 devices can hold two Layer 2 or Layer 3 images (for example, ICX64S08030.bin for Layer 2 and ICX64R08030.bin for Layer 3).
- ICX 6430 devices can hold only two Layer 2 images.

Security

- SSHv2 RSA host key format differs between FastIron 07.x.xx and 08.0.xx software versions.
- When you upgrade from FastIron 07.x.xx or 08.0.00 to a FastIron 08.0.xx software version, if an RSA key is present in the FastIron 07.x.xx or 08.0.00 software version, the same size key is regenerated in the FastIron 08.0.xx software version. The old SSHv2 host key is also retained. Old keys can be cleared using the **crypto key zeroize** command.
- SSH host keys created with the DSA method are interoperable with FastIron 07.x.xx, 08.0.00, and 08.0.xx software versions.
- By default, the RADIUS server key encryption type is 2 (simple_encryption_base64) in FastIron 08.0.xx. This is in contrast to earlier releases, where the default value for simple_encryption is 1. If you do not follow the upgrade procedure, the RADIUS server key configuration is removed during downgrade.

Downgrade considerations

- Any new command in FastIron 08.0.xx is discarded during downgrade.
- The startup configuration as well as the run time changes in a FastIron 08.0.xx configuration are lost during downgrade.
- If software-based licensing is in effect on the device, and if the software is downgraded to a version earlier than FastIron 07.1.00, software-based licensing is not supported.
- SSHv2 RSA host key format differs among FastIron 07.x.xx, 08.0.00, and 08.0.xx software versions.
- On an FSX device with the SX Series 0-Port Third Generation XL management module, a hitless downgrade from FastIron 08.0.10 to 08.0.00a or 08.0.01 is not supported.
- When you downgrade from FastIron 08.0.xx to 08.0.00 or 07.x.xx, consider the following scenarios:
  - When an SSHv2 RSA host key in FastIron 08.0.00a or later is retained from FastIron 07.x.xx or 08.0.00, booting up with FastIron 07.x.xx or 08.0.00 reads the old format SSHv2 RSA host keys and enables the SSHv2 RSA server on the switch.
  - When an SSHv2 RSA host key is created in FastIron 08.0.00a and later, booting up with FastIron 07.x.xx or 08.0.00 software does not read the new format SSHv2 RSA host key, and the SSHv2 server is not enabled on the switch.

Considerations for devices with LAGs

- If you are upgrading to FastIron 08.0.xx and have either LAGs or LACP configured, the previous configuration is automatically updated to form a new equivalent LAG. To accomplish this, the old **trunk** and **link-aggregation** commands are maintained during startup configuration parsing but are disabled during normal configurations. The following are the major differences in LAG configuration in FastIron 08.0.xx compared to earlier releases:
  - A LAG is not created until a LAG is deployed using the **deploy** command.
  - LACP is not started until a dynamic LAG is deployed.
  - The number range for LAG ports is 1 to 8. For FSX third generation modules, the range is 1 to 12.
  - A LAG is created even if a static or dynamic LAG has only one port.
- If link aggregation is configured on your device and you are upgrading to a FastIron 08.0.xx configuration, the link aggregation configuration should have the key configured to identify the LAG. If the key is not configured, when you upgrade to FastIron 08.0.xx, all the link aggregation interfaces (without the key) are bundled as one misconfigured LAG. The configuration will fail if it exceeds the supported maximum number of members per LAG limit.
- All LAG configurations are lost during downgrade.
- The trunk configuration commands (**trunk ethernet** , **trunk deploy**, **trunk-cfg-ind** , **link-aggregation active | passive** , **link-aggregation conf key**) are deprecated. Instead, you can use the new LAG configuration commands.

Considerations for devices in stack configurations

Upgrade considerations

- Hitless stacking is enabled by default for FastIron 08.0.20 and later releases. In previous releases, **hitless-failover enable** must be configured. Upgrade behavior is as follows:

  - If you install a FastIron 08.0.20 or later image on a new system with no previous configuration, hitless-failover is enabled by default.
  - If you upgrade to FastIron 08.0.20 or later from a previous version that has **hitless-failover enable** configured, hitless-failover is retained as the default.
  - If you upgrade to FastIron 08.0.20 or later on a system with an earlier release that does not have hitless-failover enabled in its configuration, the previous configuration is retained.
- The FastIron 07.2.00a or later image uses different Interprocessor Communications (IPC) versions for FCX devices; however, units in a stack must run the same IPC version to communicate. After upgrading from FastIron 07.2.00 or earlier to FastIron 08.0.xx, you must verify that the same image is downloaded to every unit in the stack before reloading the entire stack. To verify the images, enter the **show flash** command at any level of the CLI. A stack cannot be built and will not operate if one or more units have different software images.
- To upgrade an ICX 6430 or ICX 6450 stack running software version 07.4.00 to version 08.0.10 or later, first upgrade the desired primary or secondary flash image to the new code version and reboot the stack onto the new code version before upgrading the bootrom image. Failure to reboot onto the new code version before upgrading the bootrom image could result in mismatched bootrom images for the stack member units, which will prevent the stack from successfully forming after the upgrade.
- All devices in a mixed stack must run the same version of the software. A stack cannot form if the software images are of different major versions. A stack member is not operational if it runs a different minor version than other stack members; however, the active controller can download an image and reset a non-operational unit that has a minor version number different from the active controller.
- To upgrade to a mixed stack, the peripheral ports must be configured manually.
- The Layer 3 configuration on your device becomes part of the default VRF after upgrade. If no configurations are done, all interfaces are part of the default VRF.

Downgrade considerations

- ICX 6610 devices in a mixed stack form a homogenous stack when the software is downgraded from FastIron 08.0.xx. Other devices in the mixed stack are left out. You should manually configure the remaining mixed stack members after downgrade from FastIron 08.0.xx.
- On downgrade from 08.0.xx to 07.x.xx, core ICX 6610 devices lose the ICX 6450 configuration, and they lose peri-port and peri-trunk configurations.
- For FCX units, the 10G module name in FastIron 08.0.xx software releases differs from the 10G module name in FastIron 07.0.01b and 07.0.01c. Consequently, if an FCX device is downgraded from FastIron 08.0.xx to FastIron 07.0.01b or 07.0.01c, the stacking port configuration is lost, and the unit is not able to join the stack.
- If FCX units in an traditional stack are downgraded from FastIron 08.0.xx to earlier releases, in some instances, the units may not be able to form a stack. This occurs if there is a mismatch of BGP capability within the stack (that is, some units support it and others do not). If you encounter this problem, contact Brocade Technical Support for assistance.

Upgrade considerations for devices with flexible authentication

The following behavior associated with flexible authentication should be taken into consideration when you upgrade to FastIron 08.0.20 or later.

- **Dot1x authentication and MAC authentication configured on default VLAN**

After you upgrade to FastIron 08.0.20 or later, global configuration for both dot1x authentication and MAC authentication move under the **authentication** command, and the first unused VLAN becomes

auth-default-vlan (the authentication default VLAN), VLAN 2 in the following example. Interface level configuration for dot1x authentication and MAC authentication conform to any new CLI changes that are part of the upgrade.

For example, before upgrade, with dot1x authentication enabled on port 2/1/24 and MAC authentication enabled on 2/1/23 globally and at the interface level, the configured ports are part of the default VLAN. After upgrade, since port 2/1/23 and 2/1/24 are part of the default VLAN, they become part of the auth-default-vlan, VLAN 2 in this example.

```
vlan 1 name DEFAULT-VLAN by port  >> 2/1/24 and 2/1/23 ports are part of default vlan
!
vlan 3 by port
tagged ethe 1/1/5
!
vlan 100 by port
tagged ethe 1/1/9
 untagged ethe 1/1/18
!
vlan 200 by port
untagged ethe 1/1/15
!
vlan 201 by port
!
dot1x-enable  >> global configuration
enable ethe 2/1/24
!
mac-authentication enable  >> global configuration
mac-authentication auth-passwd-format xxxx.xxxx.xxxx
!
interface ethernet 2/1/24  >> interface level
dot1x port-control auto
!
interface ethernet 2/1/23  >> interface level
mac-authentication enable
mac-authentication enable-dynamic-vlan
mac-authentication max-accepted-session 32
```

The following example shows the configuration after the upgrade.

```
vlan 1 name DEFAULT-VLAN by port
!
vlan 2 by port
!
vlan 3 by port
tagged ethe 1/1/5
!
vlan 100 by port
tagged ethe 1/1/9
 untagged ethe 1/1/18
!
vlan 200 by port
untagged ethe 1/1/15
!
vlan 201 by port
!
authentication  >>> both dot1x and mac-auth global commands appears under
authentication command
auth-default-vlan 2
dot1x enable
dot1x enable ethe 2/1/24
mac-authentication enable
mac-authentication enable ethe 2/1/23
 mac-authentication password-format xxxx.xxxx.xxxx
!
interface ethernet 2/1/23
authentication max-sessions 32
!
interface ethernet 2/1/24
dot1x port-control auto
```

```
!
```

- **Dot1x authentication and MAC authentication configured on a VLAN other than the default VLAN**

After you upgrade to FastIron 08.0.20 or later, global configuration for both dot1x authentication and MAC authentication move under the **authentication** command, and the first unused VLAN becomes auth-default-vlan, VLAN 2 in the following example.

For example, before upgrade, with dot1x authentication enabled globally on port 2/1/24 and MAC authentication enabled globally on port 2/1/23, the configured ports are part of VLANs 600 and 601. After upgrade, VLAN 600 becomes the auth-default-vlan for prot 2/1/24, and 601 becomes the auth-default-vlan for port 2/1/23.

```
vlan 1 name DEFAULT-VLAN by port
!
vlan 3 by port
tagged ethe 1/1/5
!
vlan 100 by port
tagged ethe 1/1/9
 untagged ethe 1/1/18
!
vlan 200 by port
untagged ethe 1/1/15
!
vlan 201 by port
!
vlan 600 by port
 untagged ethe 2/1/24 or tagged ethe 2/1/24
!
vlan 601 by port
untagged ethe 2/1/23 or tagged ethe 2/1/23
!
dot1x-enable  >> global configuration
enable ethe 2/1/24
!
mac-authentication enable  >> global configuration
mac-authentication auth-passwd-format xxxx.xxxx.xxxx
!
interface ethernet 2/1/24  >> interface level
dot1x port-control auto
!
interface ethernet 2/1/23  >> interface level
mac-authentication enable
mac-authentication enable-dynamic-vlan
mac-authentication max-accepted-session 32
```

The following example shows the configuration after the upgrade.

```
vlan 1 name DEFAULT-VLAN by port
!
vlan 2 by port
!
vlan 3 by port
tagged ethe 1/1/5
!
vlan 100 by port
tagged ethe 1/1/9
 untagged ethe 1/1/18
!
vlan 200 by port
untagged ethe 1/1/15
!
vlan 201 by port
!
vlan 600 by port  >> 2/1/24 should be removed
!
vlan 601 by port >> 2/1/23 should be removed
!
authentication
auth-default-vlan 2
```

```
dot1x enable
dot1x enable ethe 2/1/24
mac-authentication enable
mac-authentication enable ethe 2/1/23
 mac-authentication password-format xxxx.xxxx.xxxx
!
interface ethernet 2/1/24
authentication auth-default-vlan 600
dot1x port-control auto
!
interface ethernet 2/1/23
authentication auth-default-vlan 601
authentication max-sessions 32
!
```

- **Dot1x authentication and MAC authentication configured on a voice VLAN**

After you upgrade to FastIron 08.0.20 or later, global configuration for both dot1x authentication and MAC authentication moves under the **authentication** command, and the first unused VLAN moves as auth-default-vlan (the authentication default VLAN), VLAN 2 in the following example. Any **dual-mode** commands on the interface are replaced by the auth-default-vlan at the interface level. The **voice-vlan** command remains the same.

For example, before upgrade, with dot1x authentication enabled globally on port 2/1/24 and MAC authentication enabled globally on port 2/1/23, the configured ports are part of VLANs 100 and 200 respectively as tagged. Both of these ports are also part of voice-vlan VLAN 1000 as tagged. After upgrade, VLAN 100 becomes auth-default-vlan for port 2/1/24, and VLAN 200 becomes auth-default-vlan for port 2/1/23. The **voice-vlan** *1000* command is retained.

```
vlan 1 name DEFAULT-VLAN by port
!
vlan 3 by port
tagged ethe 1/1/5
!
vlan 100 by port
tagged ethe 1/1/9 ethe 2/1/24
 untagged ethe 1/1/18
!
vlan 200 by port
tagged ethe 2/1/23
 untagged ethe 1/1/15
!
vlan 1000 by port
tagged ethe 2/1/23 to 2/1/24
!
dot1x-enable  >> global configuration
enable ethe 2/1/24
!
mac-authentication enable  >> global configuration
mac-authentication auth-passwd-format xxxx.xxxx.xxxx
!
interface ethernet 2/1/24  >> interface level
dot1x port-control auto
dual-mode  100
voice-vlan 1000
!
interface ethernet 2/1/23  >> interface level
mac-authentication enable
mac-authentication enable-dynamic-vlan
mac-authentication max-accepted-session 32
dual-mode  200
voice-vlan 1000
```

The following example shows the configuration after the upgrade.

```
FCX_Stack(2U)# sh run vlan
vlan 1 name DEFAULT-VLAN by port
!
vlan 2 by port
!
vlan 3 by port
tagged ethe 1/1/5
```

```
!
vlan 100 by port
tagged ethe 1/1/9   >> 2/1/24 should be removed
untagged ethe 1/1/18
!
vlan 200 by port  >> 2/1/23 should be removed
untagged ethe 1/1/15
!
vlan 1000 by port
tagged ethe 2/1/23 to 2/1/24
!
authentication
auth-default-vlan 2
dot1x enable
dot1x enable ethe 2/1/24
mac-authentication enable
mac-authentication enable ethe 2/1/23
 mac-authentication password-format xxxx.xxxx.xxxx
!
interface ethernet 2/1/24
authentication auth-default-vlan 100
dot1x port-control auto
voice-vlan 1000
!
interface ethernet 2/1/23
authentication auth-default-vlan 200
authentication max-sessions 32
voice-vlan 1000
!
```

Software Upgrade and Downgrade

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Software upgrade overview

Follow these steps to upgrade software.

1. Determine the current software versions and license requirements, and download the software as described in Initial steps on page 21.
2. Upgrade the software as described in Upgrade process on page 23.

   FastIron 08.0.00a and later also support manifest file upgrade, but this process can be used only to upgrade to a later release. For more information, refer to Upgrade using a manifest file on page 25.

Initial steps

Perform the following steps before an upgrade or downgrade.

NOTE
You must upgrade to the boot code that supports this release. Refer to "Software image files for Release 08.0.xx" in the release notes for detailed information.

NOTE
In this section, the output is truncated. Only relevant portions of the output is displayed. For detailed output, see Sample output - determining the software versions on page 22.

1. Determine the current boot image version using the **show flash** command.

```
device# show flash
Active Management Module (Slot 9):
Compressed Pri Code size = 3613675, Version 03.1.00aT3e3 (sxr03100a.bin)
Compressed Sec Code size = 2250218, Version 03.1.00aT3e1 (sxs03100a.bin)
Compressed BootROM Code size = 524288, Version 03.0.01T3e5
Code Flash Free Space = 9699328
<output is truncated to show relevant sections only>
```

2. Determine the current flash image version using the **show version** command.

```
device# show version
Copyright (c) 1996-2012 Brocade Communications Systems, Inc. All rights reserved.
    UNIT 1: compiled on Mar  2 2012 at 12:38:17 labeled as ICX64S07400
                (10360844 bytes) from Primary ICX64S07400.bin
```

```
        SW: Version 07.4.00T311

  Boot-Monitor Image size = 774980, Version:07.4.00T310 (kxz07400)
  HW: Stackable ICX6450-24
<output is truncated to show relevant sections only>
```

3. Determine the current license installed using the **show version** command.

```
device# show version
...
License: BASE_SOFT_PACKAGE   (LID: dbuFJJHiFFi)
         P-ENGINE  0: type DEF0, rev 01
...
<output is truncated to show relevant sections only>
```

4. Generate a new license, if required, from the Software License page on Brocade.com. If you are upgrading to a different type of image that uses a different license from the one already installed on the device, generate a separate license file. For more information on licenses, refer to the *FastIron Ethernet Switch Licensing Guide*.
5. Download the required software images from the Downloads page on the MyBrocade website. For the list of software image files available for FastIron 08.0.xx, refer to the release notes.

Determining the software versions (sample output)

This section provides examples to help you determine the following:

- flash image version
- boot image versions
- current licenses installed.

Determining the flash image version

To determine the flash image version, enter the **show version** command at any level of the CLI.

```
device# show version
Copyright (c) 1996-2012 Brocade Communications Systems, Inc. All rights reserved.
    UNIT 1: compiled on Mar  2 2012 at 12:38:17 labeled as ICX64S07400
                (10360844 bytes) from Primary ICX64S07400.bin
        SW: Version 07.4.00T311

  Boot-Monitor Image size = 774980, Version:07.4.00T310 (kxz07400)
  HW: Stackable ICX6450-24
==========================================================================
UNIT 1: SL 1: ICX6450-24 24-port Management Module
         Serial  #: BZSXXXXXXXX
         License: BASE_SOFT_PACKAGE   (LID: dbuFJJHiFFi)
         P-ENGINE  0: type DEF0, rev 01
==========================================================================
UNIT 1: SL 2: ICX6450-SFP-Plus 4port 40G Module
==========================================================================
  800 MHz ARM processor ARMv5TE, 400 MHz bus
65536 KB flash memory
  512 MB DRAM
STACKID 1  system uptime is 3 minutes 39 seconds
The system : started=warm start  reloaded=by "reload"
```

In the previous example:

- "07.4.00T311" indicates the flash code version number.
- "labeled as ICX64S07400" indicates the flash code image label. The label indicates the image type and version and is especially useful if you change the image file name.
- "Primary ICX64S07400.bin" indicates the flash code image file name that was loaded.
- "License: BASE_SOFT_PACKAGE (LID: dbuFJJHiFFi)" indicates the license currently installed on the device.

Determining the boot image versions

To determine the boot and flash images installed on a device, enter the **show flash** command at any level of the CLI.

```
device# show flash
Active Management Module (Slot 9):
Compressed Pri Code size = 3613675, Version 03.1.00aT3e3 (sxr03100a.bin)
Compressed Sec Code size = 2250218, Version 03.1.00aT3e1 (sxs03100a.bin)
Compressed BootROM Code size = 524288, Version 03.0.01T3e5
Code Flash Free Space = 9699328
Standby Management Module (Slot 10):
Compressed Pri Code size = 3613675, Version 03.1.00aT3e3 (sxr03100a.bin)
Compressed Sec Code size = 2250218, Version 03.1.00aT3e1 (sxs03100a.bin)
Compressed BootROM Code size = 524288, Version 03.0.01T3e5
Code Flash Free Space = 524288
```

In the previous example:

- The "Compressed Pri Code size" line lists the flash code version installed in the primary flash area.
- The "Compressed Sec Code size" line lists the flash code version installed in the secondary flash area.
- The "Compressed BootROM Code size" line lists the boot code version installed in flash memory. The device does not have separate primary and secondary flash areas for the boot image. The flash memory module contains only one boot image.

Determining the current licenses installed

Use the **show version** command to display the licenses installed on the device.

```
device# show version
Copyright (c) 1996-2012 Brocade Communications Systems, Inc. All rights reserved.
    UNIT 1: compiled on Mar  2 2012 at 12:38:17 labeled as ICX64S07400
                (10360844 bytes) from Primary ICX64S07400.bin
         SW: Version 07.4.00T311
  Boot-Monitor Image size = 774980, Version:07.4.00T310 (kxz07400)
  HW: Stackable ICX6450-24
==========================================================================
UNIT 1: SL 1: ICX6450-24 24-port Management Module
         Serial  #: BZSXXXXXXXX
         License: BASE_SOFT_PACKAGE   (LID: dbuFJJHiFFi)
         P-ENGINE  0: type DEF0, rev 01
```

In the previous example, a base software package license is installed, with a license ID of dbuFJJHiFFi.

Upgrade process

FastIron 08.0.xx introduces several new features and enhancements across all FastIron products. Before upgrading the software on the device, refer to Upgrade and Downgrade Considerations on page 0 .

NOTE
If you are upgrading from FastIron 08.0.00a or later, you can upgrade using a manifest file. It provides a simplified upgrade mechanism, especially for units in a stack. For details, refer to Upgrade using a manifest file on page 25.

Software upgrade on ICX 6430, ICX 6450, ICX 6610, ICX 6650, ICX 7450, ICX 7750, and FCX devices

NOTE
For limitations on upgrading an ICX 6650 device from FastIron 07.5.xx to 08.0.xx, refer to Software upgrade from 07.5.xx to 08.0.01 on page 25.

1. Load the boot code and flash code. For detailed steps, refer to Loading images on the device on page 30.
2. Enter the **write memory** command to back up the existing startup configuration and to save the running configuration as the startup configuration. The existing startup configuration file, startup-config.txt, is automatically copied and synched to the standby unit.

NOTE
When a device boots up with a FastIron 08.0.xx image after an upgrade, the commands in the startup configuration are converted to corresponding FastIron 08.0.xx commands. The running configuration will have supported FastIron 08.0.xx commands, and the startup configuration file will have the configuration commands supported in the releases prior to FastIron 08.0.xx. When you enter the **write memory** command, the startup configuration file (startup-config.txt) is first backed up as the startup-config.legacy file. Then the running configuration file is saved as the startup configuration. The backup configuration file (startup-config.legacy) is used when you downgrade to an earlier version.

Software upgrade on FSX devices

On FastIron SX series devices, the old management module does not support FastIron 08.0.xx. The FastIron SX Series 0-Port Third Generation XL Management Module supports only FastIron 08.0.00a or later versions, and the FastIron SX Series 2-Port 10GbE Third Generation XL Management Module supports only FastIron 08.0.10 or later versions.

NOTE
For FSX devices, you can perform a hitless upgrade to a minor or patch release. For details, refer to "Hitless management on the FSX 800 and FSX 1600" in the *FastIron Ethernet Switch Administration Guide*.

To upgrade an FSX device to FastIron 08.0.xx, perform the following steps.

1. Verify that the currently installed management module supports FastIron 08.0.xx. If it does not, uninstall the management module and install a management module that supports the release. For information on installing a management module in FSX, refer to the *Brocade FastIron SX Series Chassis Hardware Installation Guide*.

NOTE
If you have installed a management module that was factory-loaded with the required software version, the upgrade is complete, and you can skip the next step.

2. Load the required boot code. For detailed steps, refer to Loading images on the device on page 30.
3. Load the required flash code. For detailed steps, refer to Loading the flash code on page 31.

NOTE
When upgrading an FSX device with the FastIron SX Series 0-Port Third Generation XL Management Module from FastIron 08.0.0x to 08.0.10 or 08.0.10a, download the flash image to the primary flash only. Downloading the flash image to the secondary flash is not supported. Reload the device with the **boot system flash primary** command to boot from the primary flash. After reload, the device automatically copies the image to the secondary flash. After a successful upgrade to FastIron 08.0.10 or 08.0.10a, downloading a later software version to the secondary as well as primary flash is supported; however, a mix of FastIron 08.0.10 or 08.0.10a and an earlier version image in the flash partitions is not supported.

Software upgrade from FastIron 07.5.xx to 08.0.01

The following limitations are applicable when upgrading from FastIron 07.5.xx to 08.0.01:

- When you load the FastIron 08.0.01 boot code on a FastIron device with FastIron 07.5.xx installed, the device loses all boot environment variables. As a result, you cannot use the **boot system flash primary** or **boot system flash secondary** commands to configure boot preference. The device also ignores any boot preference stated in the startup configuration file. As a result, the device boots from the default primary flash. This is only an upgrade limitation. Once the upgrade is complete, the device boots from the preferred flash partition as configured.
- You must load the primary as well as the secondary flash with the FastIron release 08.0.01 flash image. A mix of FastIron 07.5.xx and FastIron 08.0.01 images in the flash partitions is not supported.

Upgrade using a manifest file

FastIron 08.0.00a introduces a manifest file to provide a simplified upgrade mechanism from FastIron 08.0.00a to later releases, especially for units in a stack. You can use a single command to copy boot and flash images. Using the official manifest file, the images are copied onto the devices, and all member units are upgraded.

NOTE
These devices support software upgrades using a manifest file for standalone devices as well as for homogeneous and mixed stacks: FCX, ICX 6430, ICX 6450, ICX 6610, ICX 6650, ICX 7450, and ICX 7750 devices.

NOTE
The manifest file upgrade process is only applicable when you upgrade a device from FastIron 08.0.00a to a later version. For upgrade from FastIron 07.x.xx to FastIron 08.0.xx, refer to Upgrade process on page 23.

1. Unzip the downloaded FastIron image files on the TFTP server. This places the manifest file at the top of the directory structure with the images in subdirectories. Ensure that the Brocade device has access to the TFTP server.
2. If upgrading from FastIron 08.0.00x, delete the following lines from the manifest text file.

```
-DIRECTORY /RP/Boot

fxz08001b007.bin

-DIRECTORY /RP/Images

ICXS08001q033.bin
ICXR08001q033.bin
```

```
-DIRECTORY /RP/Signatures

fxz08001b007.sig
ICXS08001q033.sig
ICXR08001q033.sig

-DIRECTORY /RP/MIBs

ICXS08001q033.mib
ICXR08001q033.mib

-DIRECTORY /RP/Manuals
```

3. If upgrading to FastIron 08.0.10, delete the following lines from the manifest text file.

```
-DIRECTORY /ICX7750/Boot

swz10100.bin

-DIRECTORY /ICX7750/Images

SWS08010.bin
SWR08010.bin

-DIRECTORY /ICX7750/Signatures

swz10100.sig
SWS08010.sig
SWR08010.sig

-DIRECTORY /ICX7750/MIBs

SWS08010.mib
SWS08010.mib

-DIRECTORY /ICX7750/Manuals
```

4. If the FastIron device has only 8 MB of flash memory or if you want to install a full Layer 3 image on a device, delete the primary and secondary images before upgrading the image.

NOTE
Make sure that the TFTP server and the image files are reachable before deleting the image from flash. If the primary flash contains additional files that are not related to the software update, those files should also be deleted.

5. The manifest file upgrade process does not support downloading boot images in a mixed stack. If a newer boot image version is available, load the boot code manually in the stack units of a mixed stack. For detailed steps, refer to Upgrade process on page 23.
6. Enter the following commands to copy the manifest file and the images from the TFTP server to the device:

   copy tftp system-manifest *server-ip-address manifest-file-name* [**primary** | **secondary**]

   or

   copy tftp system-manifest *server-ip-address manifest-file-name* [**all-images-primary** | **all-images-secondary**]

   For example:

```
Brocade # copy tftp system-manifest 192.168.10.12 manifest.txt primary
```

   You can use the **all-images-primary** and **all-images-secondary** options to copy all the images.

NOTE
Copying the manifest file using SCP is not supported.

NOTE
For standalone devices or a homogeneous stack, the manifest upgrade process downloads the boot image to the device only if a newer boot image version is available.

The manifest file specifies images for both router and switch types. Based on the device family and the type of image (switch or router), the appropriate images are installed.

After all the relevant images have been installed on the device, you are prompted to reboot the device to complete the upgrade process.

Example of a manifest file upgrade

```
Brocade# copy tftp system-manifest 10.20.65.49 FI08000B3_Manifest.txt all-images-
primary
You are about to download boot image and boot signature image as well, ARE YOU SURE?
(enter 'y' or 'n'): y
Brocade# Flash Memory Write (8192 bytes per dot) .
DOWNLOADING MANIFEST FILE   Done.
Brocade# Flash Memory Write (8192 bytes per dot)
Automatic copy to member units:  2
DOWNLOAD OF ICX6610 BOOT SIGNATURE  Done.
Brocade# Load to buffer (8192 bytes per dot)
Automatic copy to member units:  2
.............................................................Write to boot flash..
DOWNLOAD OF ICX6610 BOOT  Done.
Brocade#Flash Memory Write (8192 bytes per dot)
Automatic copy to member units:  2
Copy ICX6610 signature from TFTP to Flash Done
Brocade#Flash Memory Write (8192 bytes per dot)
Automatic copy to member units:  2
................................................................................
................................................................................
.....................................................................
WARNING: New user connected to this port.
         Current number of users: 5
................................................................................
................................................................................
................................................................................
................................................................................
................................................................................
.....................................................................................
Copy ICX6610 from TFTP to Flash Done.
Brocade# Flash Memory Write (8192 bytes per dot)
Automatic copy to member units:  3  4  5  7  8
.
COPY ICX6450 SIGNATURE TFTP to Flash Done .
Brocade# Flash Memory Write (8192 bytes per dot)
Automatic copy to member units:  3  4  5  7  8
................................................................................
................................................................................
................................................................................
................................................................................
................................................................................
................................................................................
................................................................................
................................................................................
................................................................................
.....................................................................PLEASE WAIT. MEMBERS
SYNCING IMAGE TO FLASH. DO NOT SWITCH OVER OR POWER DOWN THE UNIT....
Copy ICX6450 from TFTP to Flash Done
Brocade# Flash Memory Write (8192 bytes per dot)
Automatic copy to member units:  3  4  5  7  8
.
DOWNLOAD OF ICX6450 BOOT SIGNATURE  Done
Brocade# Load to buffer (8192 bytes per dot)
Automatic copy to member units:  3  4  5  7  8
................................................................................
.........PLEASE WAIT. MEMBERS SYNCING IMAGE TO FLASH. DO NOT SWITCH OVER OR POWER
DOWN THE UNIT...Write to boot flash..
ICX6450 Boot IMAGE COPY IS DONE .
```

Downgrade process

Before downgrading the software on the device, refer to Upgrade and Downgrade Considerations on page 0 .

Software downgrade on ICX 6430, ICX 6450, ICX 6610, ICX 6650, and other FCX devices

1. If you are downgrading from FastIron 08.0.30 to a FastIron 7.x.40 release that the device was upgraded from, enter the **downgrade_to** command at the privileged EXEC level. This funky command renames the backup startup-config.legacy file as startup-config.txt and underwrites the existing startup configuration file.

```
Brocade# downgrade_to 7.x-releases
This operation will delete the current configuration. Are you sure? (enter 'y' or
'n'):
```

NOTE
Do not run the **write memory** command after using the **downgrade_to** command; otherwise, you will lose the legacy configuration. Use another command.

NOTE
The **downgrade_to** command renames the backup configuration file startup-config.legacy as startup-config.txt, which overwrites the FastIron 08.0.xx startup configuration file. If there is no startup-config.legacy file, the device boots with the default configuration. During downgrade, the FastIron 08.0.xx startup configuration file is not saved. You can manually back up the startup configuration file if required.

NOTE
If you reboot from a flash partition that has a FastIron image version (earlier than FastIron 08.0.xx) without running the **downgrade_to** command, a warning message prompts you to enter the **downgrade_to** command.

2. Load an earlier version of the boot code and flash code. Refer to Loading images on the device on page 30.

NOTE
If you are downgrading an ICX 6650 from Fastiron 08.0.01 to FastIron 07.5.xx, refer to Loading images on the device on page 30.

NOTE
For downgrading ICX 6430, ICX 6450, ICX 6610, and FCX devices, it is not mandatory to load an earlier version of the boot code.

Software downgrade on FSX devices

On FastIron SX series devices, the old management module does not support FastIron 08.0.xx releases. The FastIron SX Series 0-Port Third Generation XL Management Module supports only FastIron 08.0.00a or later. The FastIron SX Series 2-Port 10GbE Third Generation XL Management Module supports only FastIron 08.0.10 or later.

NOTE
For FSX devices, you can perform a hitless downgrade if the current software is a minor upgrade or a patch release to the lower software version. For details, refer to "Hitless management on the FSX 800 and FSX 1600" in the *FastIron Ethernet Switch Administration Guide*.

To downgrade an FSX device, perform the following steps.

1. Check whether the currently installed management module supports the earlier software version. If not, uninstall the management module, and install the correct management module. For information on installing the management module in an FSX device, refer to the *Brocade FastIron SX Series Chassis Hardware Installation Guide*.

   NOTE
   If you have installed a management module that was factory-loaded with the required software version, skip the next step, as the downgrade is complete.

2. Load the required boot code. For detailed steps, refer to Loading images on the device on page 30.
3. Load the required flash code. For detailed steps, refer to Loading the flash code on page 31.

   NOTE
   When downgrading an FSX device with the FastIron SX Series 0-Port Third Generation XL Management Module from FastIron 08.0.10 or FastIron 08.0.10a to FastIron 08.0.0x, download the 08.0.0x flash image to the primary flash only. Downloading the 08.0.0x flash image to the secondary flash is not supported. Reload the device with the **boot system flash primary** command to boot from the primary flash. After reload, enter the **copy flash flash secondary command** to copy the 08.0.0x image to the secondary flash. After a successful downgrade to FastIron 08.0.0x, downloading a different FastIron 08.0.0x release to the secondary as well as primary flash is supported; however, a mix of FastIron 08.0.10 or 08.0.10a and an earlier version image in the flash partitions is not supported.

Software downgrade from FastIron 08.0.01 to FastIron 07.5.xx

Note the following while downgrading from FastIron 08.0.01 to FastIron 07.5.xx:

- You must load the primary as well as the secondary flash with the 07.5.xx flash image. A mix of 07.5.xx and 08.0.01 images in the flash partitions is not supported.
- After loading the 07.5.xx boot and flash images, reboot the device. Then load just the 07.5.xx flash image again and reboot the device. This completes the downgrade process.

Loading images on the device

Any software upgrade or downgrade requires you to copy the downloaded images onto the device and load the new image on the device. You must load the boot code and flash code on the device.

Software upgrade and downgrade file transfers

Software images for all Brocade devices can be uploaded and downloaded between flash modules on the devices and a TFTP server on the network.

Brocade devices have two flash memory modules:

- Primary flash - The default local storage device for image files and configuration files
- Secondary flash - A second flash storage device. You can use secondary flash to store redundant images for additional booting reliability or to preserve one software image while testing another one.

Only one flash device is active at a time. By default, the primary image becomes active when you reboot the device.

You can use TFTP to copy an update image from a TFTP server onto a flash module. You can also use SCP to copy images to and from a host. When you want to back up the current configuration and images for a device, you can copy the images and configuration files from a flash module to a TFTP server.

NOTE
Brocade devices are TFTP clients, not TFTP servers. You must perform a TFTP transaction from the Brocade device.

Loading the boot code

You can load the boot code using either TFTP or SCP as described in the following sections.

NOTE
To upgrade FastIron 07.3.00f to 08.0.xx or FastIron 08.0.00a to 08.0.01, it is strongly recommended that you use SCP to reliably and securely load boot code. To upgrade FastIron 07.4.xx to 08.0.xx or FastIron 07.5.xx to 08.0.01, use TFTP to ensure that you have no network disruptions during upgrade.

Loading the boot code using TFTP

1. Place the new boot code on a TFTP server to which the Brocade device has access.
2. If the device has only 8 MB of flash memory or if you want to install a full Layer 3 image on an FCX or FSX device, delete both the primary and secondary images using the **erase flash** command.
3. Enter the following command at the privileged EXEC level of the CLI to copy the boot code from the TFTP server into flash memory:

   copy tftp flash *ip-addr image-file-name* **bootrom**

   For example:

```
Brocade # copy tftp flash 192.168.10.12 grz07302.bin bootrom
```

FSX, FCX, and ICX 6610 devices generate an output similar to the following:

```
Brocade # Flash Memory Write (8192 bytes per dot) ........................
(Boot Flash Update)Erase.........Write.............
TFTP to Flash Done
```

ICX 6430 and ICX 6450 devices generate an output similar to the following:

```
Brocade # Load to buffer (8192 bytes per dot)
.....................................................................................
...........
SYNCING IMAGE TO FLASH. DO NOT SWITCH OVER OR POWER DOWN THE UNIT...
.....................................................................................
...........
TFTP to Flash Done
```

NOTE
It is recommended that you use the **copy tftp flash** command to copy the boot code to the device during a maintenance window. Attempting to do so during normal networking operations may cause disruption to your network.

4. Verify that the code has been successfully copied by using the **show flash** command at any level of the CLI to check the boot code version. The output displays the compressed boot ROM code size and the boot code version.

Loading the boot code using SCP

1. Place the new boot code on an SCP-enabled host to which the Brocade device has access.
2. If the device has only 8 MB of flash memory, or if you want to install a full Layer 3 image, delete both the primary and secondary image using the **erase flash** command.
3. Enter the following command to copy the boot code from the SCP-enabled host into flash memory:

   pscp *image-file-name hostname@management-ip:***flash:bootrom**

   For example:

   ```
   C:\> pscp grz07302.bin terry@10.168.1.50:flash:bootrom
   ```

4. Verify that the code has been successfully copied onto the device by using the **show flash** command at any level of the CLI. The output displays the compressed boot ROM code size and the boot code version.

Loading the flash code

You can load the flash code using either TFTP or SCP as described in the following sections.

NOTE
It is strongly recommended that you use SCP for reliable and secure loading of flash code.

Loading the flash code using TFTP

1. Place the new flash code on a TFTP server to which the Brocade device has access.
2. If the device has only 8 MB of flash memory, or if you want to install a full Layer 3 image, make sure that the TFTP server and the image file are reachable and then delete the primary and secondary images before proceeding.

NOTE
If the primary flash contains additional files that are not related to the software update, it is recommended that these files also be deleted.

3. Enter the following command at the privileged EXEC level of the CLI to copy the flash code from the TFTP server into flash memory.

   copy tftp flash *ip-addr image-file-name* **primary** | **secondary**

   For example,

   ```
   Brocade # copy tftp flash 192.168.10.12 TIS07300f.bin primary
   ```

   FSX, FCX, and ICX 6610 devices generate an output similar to the following:

   ```
   Device# Flash Memory Write (8192 bytes per dot) ..............................
   ..................................................................................
   ..................................................
   TFTP to Flash Done
   ```

   ICX 6430 and ICX 6450 devices generate an output similar to the following:

   ```
   Brocade # Load to buffer (8192 bytes per dot)
   ..................................................................
   ....................
   SYNCING IMAGE TO FLASH. DO NOT SWITCH OVER OR POWER DOWN THE UNIT...
   ..................................................................
   ....................
   TFTP to Flash Done.
   ```

4. Verify the flash image version by using the **show flash** command at any level of the CLI.

NOTE
When upgrading the flash image version, the image is automatically updated across all stack units. For other devices, when upgrading from one major release to another (for example, from FastIron 07.1.00 to 07.2.00), make sure that every unit in the traditional stack has the same code. If you reboot the stack while units are running different code versions, the units will not be able to communicate.

5. Reboot the device using the **reload** or **boot system** command.
6. Verify that the new flash image is running on the device by using the **show version** command.

Loading the flash code using SCP

1. Place the new flash code on an SCP-enabled host to which the Brocade device has access.
2. If the device has only 8 MB of flash memory, or if you want to install a full Layer 3 image, delete the primary and secondary images before upgrading the image. If the primary flash contains additional files that are not related to the software update, delete these files also.
3. Copy the flash code from the SCP-enabled host into the flash memory with the following command:

   scp *image-file-name hostname@management-ip*:**flash**:**primary** | **secondary**

   Or, if you also want to specify the name for the image file on the FastIron device, enter the following command:

   scp *image-file-name-on-scp-host hostname@management-ip*:**flash**:**pri** | **sec**:*image-file-name-on-device*

NOTE
The *image-file-name-on-device* variable is case-insensitive and converts any uppercase characters in the image file name to lowercase characters.

For example:

```
C:\> scp FCXR08000.bin terry@10.168.1.50:flash:primary
```

or

```
C:\> scp FCXR08000.bin terry@10.168.1.50:flash:pri:FCXR08000.bin
```

or

```
C:\> scp FCXR08000.bin terry@10.168.1.50:flash:secondary
```

or

```
C:\> scp FCXR08000.bin terry@10.168.1.50:flash:sec:FCXR08000.bin
```

NOTE
On ICX 6430 and ICX 6450 devices, you can use the same syntax as for FCX devices. However, after the copy operation is completed at the host, you do not get the command prompt back because the device is synchronizing the image to flash. To ensure that you have successfully copied the file, enter the **show flash** command. If the copy operation is not complete, the **show flash** command output shows the partition (primary or secondary) as EMPTY.

4. Verify that the flash code has been successfully copied onto the device by using the **show flash** command at any level of the CLI.
5. Reboot the device using the **reload** or **boot system** command.
6. Verify that the new flash image is running on the device by using the **show version** command.

Software recovery

If the software upgrade or downgrade fails, the device may reboot continuously as shown in the following CLI ouput:

```
bootdelay: ===
Booting image from Primary
   Bad Magic Number
could not boot from primary, no valid image; trying to boot from secondary
Booting image from Secondary
   Bad Magic Number
## Booting image at 01ffffc0 ...
Bad Magic Number
## Booting image at 01ffffc0 ...
Bad Magic Number
could not boot from secondary, no valid image; trying to boot from primary
Booting image from Primary
   Bad Magic Number
## Booting image at 01ffffc0 ...
Bad Magic Number
```

This section explains how to recover devices from image installation failure or deleted or corrupted flash images.

NOTE
Software recovery should be performed under the supervision of a Brocade support engineer.

Software recovery on FCX and ICX 6610 devices

NOTE
In practice, the TFTP server is also used as the terminal server to see the CLI output.

1. Connect a console cable from the console port to the terminal server.
2. Connect an Ethernet cable from the management port (port located under the console port on the device) to the TFTP server.
3. On the TFTP server, assign an IP address to the connected NIC; for example, 10.10.10.1 mask 255.255.255.0.
4. Reboot the device, and go to the boot monitor mode by pressing "**b** "; for example:

```
BOOT INFO: RESET ACTIVE
master arbitrate : become primary arbitrator.
BOOT INFO: Become active CPU module
M2 BI Boot Code Version 07.06.05
Enter 'b' to go to boot monitor ...
BOOT MONITOR>
```

5. Set a temporary IP address from the same subnet as the TFTP server NIC for the device management port using the **ip address** command; for example:

```
BOOT MONITOR> ip address 10.10.10.2/24
BOOT INFO: set ip addr to 10.10.10.2, ip mask to 255.255.255.000
```

6. Test the connectivity from the device to the TFTP server using the **ping** command to ensure a working connection; for example:

```
BOOT MONITOR> ping 10.10.10.1
Reply from 10.10.10.1 : bytes=100 time=1ms TTL=64
```

7. Enter the following command to boot from the image on a TFTP server that hosts a valid software image:

   boot system tftp *ip-address image-file-name*

   For example:

```
Brocade # boot system tftp 192.168.1.200 FCXR08000.bin
```

   You will get an output similar to the following:

```
BOOT MONITOR>
BOOT MONITOR> boot system tftp 192.168.1.200 FCXR08000.bin
BOOT INFO: try to boot thru tftp 192.168.001.200, FCXR08000.bin
BOOT INFO: tftp copy successful!
BOOT INFO: bootparam at 27ffffe0, mp_flash_size = 002d022b
BOOT INFO: code decompression completed
BOOT INFO: start with hardware reset
BOOT INFO: branch to 20000104


                                                                Reset
all modules ...
Init Management module 1 ...
Init DMA 1.. 2.. 3.. 4..
Init module 5 ...
Init DMA 1.. 2.. 3..
Parsing Config Data ...
Load config data from flash memory...
```

```
SW: Version 08.0.00acT5 Copyright (c) 1996-2004 Foundry Networks, Inc.
    Compiled on Apr 06 2013 at 20:13:29 labeled as FCXR08000
    (2949675 bytes) from Tftp
```

8. Copy the image from the TFTP server to the primary and secondary flash partition using the **copy tftp flash** *ip-address image-file-name* **primary** | **secondary** command; for example:
```
copy tftp flash 192.168.1.200 FCXR08000.bin primary
```
9. Enter the **show flash** command to check whether the image copy process was successful.
10. Reboot the device using the **reload** command.

Software recovery on ICX 6430, ICX 6450, ICX 6650, ICX 7450, ICX 7750, and FSX devices

NOTE
In practice, the TFTP server is also used as the terminal server to see the CLI output.

1. Connect a console cable from the console port to the terminal server.
2. Connect an Ethernet cable from the management port (the port located under the console port on the device) to the TFTP server.
3. On the TFTP server, assign an IP address to the connected NIC; for example, *IP address 10.10.10.21 mask 255.255.255.0*.
4. Reboot the device, and go to the boot monitor mode by pressing "**b**".
5. When in boot mode, enter the **printenv** command to display details of the images available on the device memory; for example:

```
ICX64XX-boot> printenv
baudrate=9600
uboot=/foundry/FGS/bootcode/kxz07400.bin
ver=07.4.00T310 (Mar  1 2012 - 11:28:23)
```

6. Provide the IP address of the TFTP server that hosts a valid software image using the **setenv serverip** command; for example:

```
ICX64XX-boot> setenv serverip 10.10.10.21
```

7. Set the IP address, gateway IP address, and netmask for the device management port, and save the configuration using the **setenv ipaddr**, **setenv gatewayip**, **setenv netmask**, and **saveenv** commands; for example:

```
ICX64XX-boot> setenv ipaddr 10.10.10.22
ICX64XX-boot> setenv gatewayip 10.10.10.1
ICX64XX-boot> setenv netmask 255.255.255.0
ICX64XX-boot> saveenv
```

NOTE
The IP address and the gateway IP address set for the device management port should be for the same subnet as the TFTP server NIC.

8. Enter the **printenv** command to verify the IP addresses that you configured for the device and the TFTP server; for example:

```
ICX64XX-boot> printenv
baudrate=9600
ipaddr=10.10.10.22
gatewayip=10.10.10.1
netmask=255.255.255.0
serverip=10.10.10.1
uboot=/foundry/FGS/bootcode/kxz07400.bin
ver=07.4.00T310 (Mar  1 2012 - 11:28:23)
```

9. Test the connectivity to the TFTP server from the device using the **ping** command to ensure a working connection; for example:

```
ICX64XX-boot> ping 10.10.10.21
ethPortNo = 0
Using egiga0 device
host 10.10.10.21 is alive
```

10. Provide the file name of the image that you want to copy from the TFTP server using the **setenv image_name** command; for example:

```
ICX64XX-boot> setenv image_name images/ICX/ICX64R08000.bin
```

11. Update the primary flash using the **update_primary** command; for example:

```
ICX64XX-boot> update_primary
ethPortNo = 0
Using egiga0 device
TFTP from server 10.10.10.21; our IP address is 10.10.10.22
Download Filename 'ICX64S07400.bin'.
Load address: 0x3000000
Download to address: 0x3000000
Loading: %#################################################################
         #################################################################
         #################################################################
         #################################################################
         #################################################################
         #################################################################
         #################################################################
         #################################################################
         #################################################################
         ###########################################################
done
Bytes transferred = 10360844 (9e180c hex)
prot off f8100000 f907ffff
................................................................................
................................................................................
................................................................................
........
Un-Protected 248 sectors
erase f8100000 f907ffff
................................................
................................................................
................................................................
................................................................
....
Erased 248 sectors
copying image to flash, it will take sometime...
sflash write 3000000 100000 f80000
TFTP to Flash Done.
```

12. Load the image from the primary flash using the **boot_primary** command; for example:

```
ICX64XX-boot> boot_primary
Booting image from Primary
## Booting image at 00007fc0 ...
   Created:      2012-03-02  20:38:52 UTC
   Data Size:    10360268 Bytes =  9.9 MB
   Load Address: 00008000
   Entry Point:  00008000
   Verifying Checksum ... OK
OK
Starting kernel in BE mode ...
Uncompressing Image.............................................................
................................................................................
................................................................................
................................................................................
................................................................................
..................................... done, booting the kernel.
Config partition mounted.
```

13. Enter **show flash** and see the output to check whether the image copy process was successful.
14. Copy the image from the primary to the secondary flash partition using the **copy flash flash secondary** command.

Appendix A: Changes Between Releases

- Changes between FastIron 07.4.00 or 07.5.00 and FastIron 08.0.xx..... 37

Changes between FastIron 07.4.00 or 07.5.00 and FastIron 08.0.xx

FastIron 08.0.xx adds support and enhanced functionality for a variety of desired Layer 3 features.

Modifications in specific features have changed a large amount of CLI configuration commands, **show** commands, and **show** command output. These changes are in large part due to VRF-light support in these FastIron products: FSX 800, FSX 1600, ICX 6610, ICX 6650, and FCX.

For detailed information on commands, configurations, and feature behaviors, refer to the FastIron 08.0.xx configuration guides.

For more information on supported features and platforms, refer to FastIron 08.0.xx release notes.

New or modified parameter values

The following sections cover the changes in parameters for several protocols in FastIron 08.0.xx as compared to FastIron 07.4.00.

NOTE
Only the parameters with changes to allowable values or ranges are listed.

Management parameter default values

TABLE 2 Changes in management defaults

Parameter	FastIron 08.0.xx	FastIron 07.4.00
Maximum number of outbound Telnet sessions	5	1
Maximum number of outbound SSH sessions	5	1

Multicast parameter values

TABLE 3 Changes in multicast parameter values

Parameter	Device	FastIron 08.0.xx (minimum/ maximum/default)	FastIron 07.4.00 (minimum/maximum/ default)
Layer 2 Multicast			
IGMP Group	ICX 6430	256/4096/1024	256/1024/256

TABLE 3 Changes in multicast parameter values (Continued)

Parameter	Device	FastIron 08.0.xx (minimum/ maximum/default)	FastIron 07.4.00 (minimum/maximum/ default)
MLD Groups	FCX	256/8192/4096	256/32768/8192
	ICX 6610	256/8192/4096	256/32768/8192
	SX Gen2	256/8192/4096	256/32768/8192
	SX Gen3	256/8192/4096	256/32768/8192
	ICX 6450	256/8192/4096	256/32768/8192
	ICX 6430	256/4096/1024	256/1024/256
Layer 3 Multicast			
IGMP Groups	FCX	1/8192/4096	256/8192/4096
	ICX 6610	1/8192/4096	256/8192/4096
	SX Gen2	1/8192/4096	256/8192/4096
	SX Gen3	1/8192/4096	256/8192/4096
PIM (S,G) mcache	FCX	256/6144/1024	256/4096/1024
	ICX 6610	256/6144/1024	256/4096/1024
	SX Gen3	256/6144/1024	256/4096/1024
MSDP SA cache	FCX	1024/8192/4096	Not supported in FastIron 07.4.00
	ICX 6610	1024/8192/4096	Not supported in FastIron 07.4.00
MLD Groups	FCX	1/8192/4096	Not supported in FastIron 07.4.00
	ICX 6610	1/8192/4096	Not supported in FastIron 07.4.00
	SX Gen2	1/8192/4096	Not supported in FastIron 07.4.00
	SX Gen3	1/8192/4096	Not supported in FastIron 07.4.00
PIM6 (S.G) mcache	FCX	256/1024/512	Not supported in FastIron 07.4.00
	ICX 6610	256/1024/512	Not supported in FastIron 07.4.00
	SX Gen3	256/1800/1024	Not supported in FastIron 07.4.00

BGP parameter default values

TABLE 4 Changes in BGP, BGP4+, and Route Maps defaults

Parameter	FastIron 08.0.xx	FastIron 07.4.00	Note
Maximum retry interval	160	N/A	If an error occurs during the establishment of BGP adjacency, the retry interval would have exponential backoff. The maximum delay can be 160 seconds.
Maximum route map length	81	32	Configures the maximum route map length when configured through SNMP (not configurable)
Default behavior for invalid confederation AS path	Ignore	Not ignored	Not configurable
Minimal route advertisement interval	0	30	Configurable
Maximum route advertisement interval	3600 sec	600 sec	Configurable
Update time	0 - 30 sec	1 - 30 sec	Configures iBGP route update interval.
Maximum ECMP paths in BGP	8/6 (stackable and TI/ others); 32 in FastIron 08.0.30	8	Configures the number of ECMP paths
Minimum allowed update time	0	1	Not configurable
Routes displayed per page	13	5	Not configurable

Command changes

Several commands have been replaced or modified in FastIron 08.0.xx. Brocade recommends that you use the new set of commands. The following sections summarize the differences in commands between FastIron 07.4.00 and FastIron 08.0.xx.

OSPFv2

TABLE 5 New OSPFv2 commands

Command	Note
Global level command (router OSPF and sub-command)	
[no] router ospf *vrf*	Configures OSPF instance with VRF index
[no] default-passive-interface	Sets OSPF interface passive

TABLE 5 New OSPFv2 commands (Continued)

Command	Note
[no] max-metric	Configures Stub Router Advertisement
[no] nonstop-routing	Enables OSPF nonstop routing capability
[no] nssa-translator	Enables NSSA Type 7 to Type 5 LSA translation
[no] vrf-lite-capability	Configures CE Router VRF-Lite capability (disables DN bit checks)
cost (**area** *decimal* **range** sub-command)	Configures area range cost
cost (**area** *decimal* **range advertise** sub-command)	Configures area range cost for Advertise this type-3 summarization
cost (**area** *decimal* **range not-advertise** sub-command)	Configures the area range cost for Not Advertise this type-3 summarization
Interface level command	
[no] active	Configures Active information. FastIron 07.4.00 behavior was always active.
Show command	
show ip ospf database database-summary	Displays summary of OSPF database
show ip ospf summary	Displays summary of OSPF instances
show ip ospf traffic	Displays OSPF packet counters and errors
show ip ospf vrf	Displays OSPF information for interfaces configured in a particular VRF
Clear command	
clear ip ospf traffic	Clears OSPF packet counters and errors
clear ip ospf vrf	Resets OSPF for VRF

TABLE 6 Modified OSPFv2 commands

FastIron release 08.0.xx	FastIron release 07.4.00	Note
Global level command (router OSPF and sub-command)		

TABLE 6 Modified OSPFv2 commands (Continued)

FastIron release 08.0.xx	FastIron release 07.4.00	Note
[no] timers throttle spf *delay hold-time max-hold*	**timers spf** *delay hold-time*	**FastIron release 07.4.00:** *delay* corresponds to delay between receiving changes to SPF calculation. The valid range is 0 through 65535. *hold-time* corresponds to hold time between consecutive SPF calculations. The valid range is 0 through 65535. **FastIron release 08.0.xx:** *delay* corresponds to initial delay (milliseconds) between receiving a change to SPF. The valid range is 0 through 60000. *hold-time* corresponds to hold time (milliseconds) between two SPF calculations. The default is 0 and the valid range is 0 through 60000. *max-hold* corresponds to maximum hold time (milliseconds) between two SPF calculations. The default is 0 and the valid range is 0 through 60000.
default-information-originate always	**default-information-originate**	In FastIron 07.4.00, the **default-information-originate** command was enough to originate the default route irrespective of any static or dynamic default route present on the router. However, in FastIron 08.0.xx, if no default route is present on the router, you are required to use the **default-information-originate always** command.
distribute-list [*standard-ip-access-list* | **extended-ip-access-list** | **access-list-name** | **route-map** *route-map-name*] **in**	**distribute-list** [*standard-ip-access-list* | **extended-ip-access-list** | **access-list-name**] **in** [**ethernet** | **ve**]	In FastIron 08.0.xx, the distribute-list is applied to all interfaces. Also, you can configure the OSPF **distribute-list** command to use **route-map** *route-map* as input.
Show command		
show ip ospf area *ip-addr* **database link-state nssa** *link-id* **adv-router** *router-id*	**show ip ospf area** *ip-addr* **database link-state nssa**	In FastIron 08.0.xx, you can display the link state for a specific advertising router.
show ip ospf virtual link	**show ip ospf virtual-links**	Displays OSPF virtual link information
show ip ospf virtual neighbor	**show ip ospf virtual-neighbor**	Displays OSPF virtual neighbor information
Clear command		
clear ip ospf route	**clear ospf route**	Clears all OSPF routes or a specific OSPF route

TABLE 7 Deprecated OSPFv2 commands

Command	Note
Global level commands (router OSPF and sub-commands)	
RFC 1583-type3-cost	In FastIron 08.0.xx, if RFC 1583 compatibility is configured, sets the cost for advertised type 3 summary LSAs to the smallest cost of any of the component networks
Show command	
show ip ospf error	Displays OSPF warnings and errors
show growable pool info	Displays growable pool information
Clear command	
clear ip ospf area	Clears OSPF area
clear ip ospf error	Clears OSPF error
clear ip ospf graceful-restart	Clears OSPF graceful restart
clear ip ospf redistribution	Clears all routes redistributed through other protocols

OSPFv3

TABLE 8 New OSPFv3 commands

Command	Note
Global-level command (router OSPF and sub-command)	
[no] ipv6 router ospf *vrf*	Configures OSPFv3 with a VRF index
[no] graceful-restart helper	Configures OSPFv3 graceful restart options (helper only)
[no] nonstop-routing	Enables the OSPFv3 nonstop routing capability
area *decimal* **sub-command nssa**	Specifies an NSSA area
area *decimal* **range sub-command cost**	Configures area range cost
area *decimal* **range advertise sub-command cost**	Configures area range cost for Advertise this type-3 summarization
area *decimal* **range not-advertise sub-command cost**	Configures area range cost for Not Advertise this type-3 summarization
distribute-list prefix-list ascii string *in loopback*	Configures the OSPFv3 distribution list using an IPv6 prefix list as input
Interface-level commands	

TABLE 8 New OSPFv3 commands (Continued)

Command	Note
[no] active	Sets active status. FastIron 07.4.00 behavior was always active.
[no] hello-jitter	Configures jitter between HELLO packets, in percentage
[no] suppress-linklsa	Suppresses link LSA advertisements
Show commands	
show ipv6 ospf summary	Displays summary of IPv6 OSPF instances
show ipv6 ospf vrf	Displays IPv6 OSPF information for a specific VRF interface or all VRF interfaces
Clear commands	
clear ipv6 ospf route	Clears OSPF routes
clear ipv6 ospf *vrf*	Clears all OSPF data, or clears data for a specific VRF interface

TABLE 9 Deprecated OSPFv3 commands

Command	Note
Global level command (router OSPF and sub-command)	
[no] virtual-link-if-address	Configures the source address to use with virtual links

RIP

TABLE 10 New RIP commands

Command	Note
Global-level command (router RIP and sub-command)	
[no] learn-default	Enables learning RIP default routes
[no] poison-local-routes	Advertises local routes with maximum metrics when they go down
Interface level commands	
[no] ip rip learn-default	Enables learning RIP default routes from this interface

TABLE 11 Modified RIP commands

FastIron release 08.0.xx	FastIron release 07.4.00	Note
Global-level command (router RIP and sub-command)		
[no] redistribute connected | **bgp** | **ospf** | **static** |**metric value** | **route-map name**]	**[no] redistribution**	Redistributes routes from other routing protocols
[no] prefix-list *name* **in** | **out**	**filter** *filter-num* **permit** | **deny** *source-ip-address* | **any** *source-mask* | **any** [**log]**	Specifies the prefix list as route map to filter out specific routes
[no] timers *seconds*	**update-time** *1-1000*	Configures timer to set how often RIP sends updates. This command is added for backward compatibility.
Interface-level command		
[no] ip rip metric-offset *num* **in** | **out**	**ip metric** *1-16*	**ip metric** is not supported. Since **ip metric** was used to modify RIP metric, it is changed to **ip rip metric-offset**. It is added for backward compatibility only.
[no] ip rip prefix-list *name* **in** | **out**	**[no] ip rip filter-group in** | **out** *filter-list*	Specifies the prefix list as route map to filter out specific routes.

TABLE 12 Deprecated RIP commands

Command	Note
Global-level command (router RIP and sub-command)	
[no] offset-list *ACL-number-or-name* **in** | **out offset** [**ethernet** *port*]	Instead, the **route-map** or **prefix-list** command can be used.
[no] permit | deny redistribute *filter-num* **all** | **bgp** | **ospf** | **static address** *ip-addr ip-mask* [**match-metric** *value* | **set-metric** *value*]	Instead, the **route-map** command can be used.
[no] dont-advertise-connected	Connected routes are not redistributed by default in FastIron 08.0.xx.

BGP and Route-Map

TABLE 13 Modified BGP commands

FastIron release 08.0.xx	FastIron release 07.4.00	Note
Clear command		
clear ip bgp flap-statistics	**clear ip bgp flap-statistics as-path-filter** *list-num*	The **as-path-filter** option is removed because flap statistics no longer have the as-path-filter option.

TABLE 14 Deprecated BGP and Route Map commands

Command	Note
Global-level command	
[no] set mirror-interface *int-num*	Sets a mirror interface for route maps
[no] neighbor *ipvx-addr* **distribute-list** [**in** | **out**] *list-num*	Configures the distribution list for BGP neighbors
[no] neighbor *ipvx-addr* **filter-list** [**in** | **out**] *filter-num*	Configures the filter list for BGP neighbors
[no] neighbor *peer-group* **distribute-list** [**in** | **out**] *list-num*	Configures the distribution list for BGP peer groups
[no] neighbor *peer-group* **filter-list** [**in** | **out**] *filter-num*	Configures the filter list for BGP peer groups
[no] set next-hop *next-hop-addr*	Configures the set route map rule for a next hop address
[no] match address-filter *filter-num*	Configures the match route map rule with an address filter
[no] match as-path-filters *filter-num*	Configures the match route map rule with an as-path filter
[no] match community-filters *num*	Configures the match route map rule with a community filter
[no] match next-hop *next-hop-addr*	Configures the match route map rule with a next hop address
[no] aggregate-address *ip-addr mask* **nlri** [**multicast** | **unicast**] [**multicast** | **unicast**]	Configures the MBGP Aggregate Address to advertise in BGP
[no] neighbor *ip-addr* **peer-group** *string* **nlri** [**multicast** | **unicast**] [**multicast** | **unicast**]	Configures the BGP peer group with specific NLRIs to advertise
[no] network *ip-addr mask* **nlri** [**multicast** | **unicast**] [**multicast** | **unicast**]	Configures the BGP neighbor to announce a network with specific NLRIs to filter
[no] match nlri [**multicast** | **unicast**]	Configures the route map match rule with multicast or unicast NLRI
[no] set nlri [**multicast** | **unicast**]	Configures the route map set rule with multicast or unicast NLRI
[no] neighbor *peer-group* **update-source pos** *interface*	Configures the router to communicate with a neighbor through a specified interface

ARP

TABLE 15 Modified ARP commands

FastIron release 08.0.xx	FastIron release 07.4.00	Note
[no] arp *ip-addr mac-addr* [**ethernet** *slot/port* | **vlan** *vlan-id*]	**[no] arp** *num ip-addr mac-addr* **ethernet** *port*	For static ARP configuration, the index number in the CLI is no longer needed.

IGMP Snooping

TABLE 16 Modified IGMP Snooping command

FastIron release 08.0.xx	FastIron release 07.4.00	Note
Global level command		
[no] system-max igmp-snoop-group-addr *num*	**[no] system-max igmp-max-group-addr** *num*	Sets the maximum limit for IGMP group records

MLD Snooping

TABLE 17 Modified MLD Snooping commands

FastIron release 08.0.xx	FastIron release 07.4.00	Note
Global-level command		
ipv6 multicast	**ipv6 mld-snooping**	Configures MLD snooping globally. This command is now consistent with the IGMP snooping command.
[no] system-max mld-snoop-group-addr *num*	**[no] system-max mld-max-group-addr** *num*	Sets the maximum limit for the MLD group records
VLAN-level command		
multicast6	**mld-snooping**	Configures MLD snooping on a particular VLAN. This command is now consistent with the IGMP snooping command.
Show commands		
show ipv6 multicast	**show ipv6 mld-snooping**	Displays information related to MLD snooping. This command is now consistent with the IGMP snooping command.
Clear commands		
clear ipv6 multicast	**clear ipv6 mld-snooping**	Clears MLD snooping mcache or counters. This command is now consistent with the IGMP snooping command.

IGMP (Layer 3 routing)

TABLE 18 New IGMP Layer 3 routing commands

Command	Note
Show command	
show ip igmp [**vrf** *vrf-name*] **static**	Displays IGMP static membership information. The **show ip igmp group** command also displays static IGMP membership information.

TABLE 19 Modified IGMP Layer 3 routing commands

FastIron release 08.0.xx	FastIron release 07.4.00	Note
Global-level command		
[no] ip igmp group-membership-time *seconds* default: 260 secs allowed range: [5 -26000] secs	**[no] ip igmp group-membership-time** *seconds* default: 260 secs allowed range: [20 - 7200] secs	Configures IGMP group membership times. The allowed range for time has changed.
Interface-level command		
[no] ip igmp port-version *version* **ethernet** *num* allowed range: [2-3]	**[no] ip igmp port-version** *version* **ethernet** *num* allowed range: [1-3]	Configures the IGMP version on a physical port within a virtual routing interface. The allowed IGMP version range has changed.
[no] ip igmp static-group *group-addr* [**ethernet ...**]	**[no] ip igmp static-group** *group-addr* [**count** *num*] [**ethernet ...**]	Configures a static member of an IGMP group. In FastIron 08.0.xx, the command does not support specifying multiple contiguous static groups using the **count** option.

PIM

TABLE 20 New PIM commands

Command	Note
ipv6 pimsm-snooping	Enables PIM6 SM snooping globally
multicast6 pimsm-snooping	Enables PIM6 SM snooping on the VLAN
Show command	
show ipv6 multicast pimsm-snooping	Displays PIM6 SM snooping information
show ip igmp [**vrf** *vrf-name*] **static**	Displays IGMP static membership information. The **show ip igmp group** command also displays static IGMP membership information.

TABLE 20 New PIM commands (Continued)

Command	Note
Clear command	
clear ipv6 multicast pimsm-snooping	Clears PIM6 SM snooping information

TABLE 21 Modified PIM commands

FastIron 08.0.xx	FastIron 07.4.00	Note
Global level command		
[no] hello-timer *seconds* default: 30 secs allowed range: [10 -3600] secs	**[no] hello-timer** *seconds* default: 60 secs allowed range: [10 -3600] secs	Configures the hello timer. The default value has been changed.
[no] nbr-timeout *seconds* default: 105 secs allowed range: [3 - 65535] secs	**[no] nbr-timeout** *seconds* default: 180 secs allowed range: [60 - 8000] secs	Configures the PIM neighbor timeout value. The default value and the allowed range have changed.
[no] prune-wait *seconds* default: 3 secs allowed range: [0 - 30] secs	**[no] prune-wait** *seconds* default: 3 secs allowed range: [0 - 3] secs.	Configures the PIM prune wait timer. The allowed range has changed.
[no] message-interval *seconds* default: 60 secs allowed range: [10 - 65535] secs	**[no] message-interval** *seconds* default: 60 secs allowed range: [1 - 65535] secs	Configures the message interval. The allowed range has changed.
[no] hardware-drop-disable Default: PMRI is enabled.	**[no] hardware-drop**	Configures Passive Multicast Router Insertion (PMRI). PMRI is now enabled by default.
[no] rp-address *address* [*acl-num* | *acl-name*]	**[no] rp-address** address [*std-acl-num* [**override**]]	Configures static RP using ACL. FastIron 07.4.00 supports only standard numbered ACL, whereas in FastIron 08.0.xx, all ACLs (standard, extended, numbered, and named) are supported. In FastIron 07.4.00, an RP address learned from the Bootstrap protocol takes precedence over static RP, so the **override** option was provided to give precedence to static RP. In FastIron 08.0.xx, static RP takes precedence.

TABLE 21 Modified PIM commands (Continued)

FastIron 08.0.xx	FastIron 07.4.00	Note
[no] rp-candidate ethernet | **ve** | **loopback** *num*	**[no] rp-candidate ethernet** | **ve** | **loopback** *num* [**group-list** *std-acl-num*]	Configures RP candidate using ACL. In FastIron 07.4.00, ACLs can be used to limit the RP candidate for certain groups. In FastIron 08.0.xx, this feature is not available, so the RP candidate is for all the groups.
[no] system-max pim-hw-mcache *num*	**[no] system-max pim-mcache** *num*	Sets the maximum limit for the PIM mcache (flows) that can be programmed in the hardware.
Interface level command		
[no] ip pim [**version**]	**[no] ip pim** [**version**]	Configures the PIM SM/DM version on a particular interface. PIM DM version 1 is no longer supported. Supported versions are PIM-SM v2, PIM-DM v1, and PIM-DM v2.

TABLE 22 Deprecated PIM commands

Command	Note
Global level command	
[no] disable-pim	Disables the PIM operation without removing the PIM configuration.
[no] rp-address all	Removes all static RP configurations. In FastIron 08.0.xx, all static RP address configurations must be deleted individually.
Interface level command	
[no] ip pim ttl-threshold *ttl*	Configures Multicast TTL threshold on a particular interface. This feature was never supported in FastIron software, even though the command was available. A TTL threshold value of 1 was used internally. The behavior is the same in FastIron 08.0.00.
ip-multicast-disable	Disables multicast routing and snooping on this particular interface, or on a list of ports within a virtual interface.
Show command	
show ip pim error	Displays PIM errors counters. In FastIron 08.0.xx, a new command, **show ip pim counter**, displays the error counters.
Clear command	
clear pim flow	Clears all PIM flows from hardware.

Network management

TABLE 23 New network management commands

Command	Note
show ip dns	Shows the Domain List and IP address of the DNS server
show ip dns-server domain-list	Shows the Domain List of DNS servers
show ip dns-server server-address	Shows the IP addresses of DNS servers
show ip ssl	Displays the SSL connection in use
show management-vrf	Shows Management Virtual Routing and Forwarding (VRF) instance information
show ntp associations	Shows NTP associations
show ntp associations detail	Shows NTP associations in detail Shows the IPv4 address of the NTP server/peer Shows the IPv6 address of the NTP server/peer
show ntp status	Shows NTP status information
show snmp buffer	Shows the SNMP buffer
show cpu-utilization tasks	Shows CPU utilization tasks
show running-config vrf	Shows the VRF-Lite running configuration
show running-config vlan *vlanid*	Shows information on a VLAN ID in the running configuration

TABLE 24 Deprecated network management commands

Command	Note
show cpu-utilization detail	Shows the CPU utilization rate in detail
show rmon statistics unit	Shows the RMON Ethernet statistics table
show rmon statistics unit *num*	Shows the RMON Ethernet statistics table for the specified unit

Appendix B: Show Command Output Differences between 07.4.00 and 08.0.xx Releases

There are differences in several show command outputs between FastIron 07.4.00 and 08.0.xx releases. This section provides more information about the show command output changes.

07.4.00 CLI	08.0.xx Output	Comments
show ip ospf database external-link-state advertise 2	Brocade#sh ip ospf database external-link-state advertise 1 Type-5 AS External Link States Index Age LS ID Router Netmask Metric Flag Fwd Address SyncState 1 343 0.0.0.0 192.168.98.190 0 0000000a 0000 0.0.0.0 Done LSA Header: age: 343, options: 0x02, seq-nbr: 0x80001ab8, length: 36 NetworkMask: 0.0.0.0 TOS 0: metric_type: 2, metric: 10 forwarding_address: 0.0.0.0 external_route_tag: 0	The output display includes the "Fwd Address" and "Sync State" fields.
show ip ospf database external-link-state extensive	Brocade#sh ip ospf database external-link-state extensive Type-5 AS External Link States Index Age LS ID Router Netmask Metric Flag Fwd Address SyncState 1 427 0.0.0.0 192.168.98.190 0 0000000a 0000 0.0.0.0 Done LSA Header: age: 427, options: 0x02, seq-nbr: 0x80001ab8, length: 36 NetworkMask: 0.0.0.0 TOS 0: metric_type: 2, metric: 10 forwarding_address: 0.0.0.0 external_route_tag: 0	The output display includes the "Fwd Address" and "Sync State" fields.
show ip ospf database external-link-state link-state-id 1.2.3.4	Brocade#sh ip ospf database external-link-state link-state-id 0.0.0.0 Ospf ext link-state by link-state ID 0.0.0.0 are in the following: Type-5 AS External Link States Index Age LS ID Router Netmask Metric Flag Fwd Address SyncState 1 476 0.0.0.0 192.168.98.190 0 0000000a 0000 0.0.0.0 Done LSA Header: age: 476, options: 0x02, seq-nbr: 0x80001ab8, length: 36 NetworkMask: 0.0.0.0 TOS 0: metric_type: 2, metric: 10 forwarding_address: 0.0.0.0 external_route_tag: 0	The output display includes the "Fwd Address" and "Sync State" fields.

show ip ospf database external-link-state router-id 1.2.3.4	Brocade#sh ip ospf database external-link-state router-id 192.168.98.190 Ospf ext link-state by router ID 192.168.98.190 are in the following: Type-5 AS External Link States Index Age LS ID Router Netmask Metric Flag Fwd Address SyncState 1 536 0.0.0.0 192.168.98.190 0 0000000a 0000 0.0.0.0 Done LSA Header: age: 536, options: 0x02, seq-nbr: 0x80001ab8, length: 36 NetworkMask: 0.0.0.0 TOS 0: metric_type: 2, metric: 10 forwarding_address: 0.0.0.0 external_route_tag: 0	The output display includes the "Fwd Address" and "Sync State" fields.
show ip ospf database external-link-state sequence-number 7FFF	Brocade#sh ip ospf database external-link-state sequence-number 80001ab8 Ospf ext link-state by sequence number 80001ab8 are in the following: Type-5 AS External Link States Index Age LS ID Router Netmask Metric Flag Fwd Address SyncState 1 707 0.0.0.0 192.168.98.190 0 0000000a 0000 0.0.0.0 Done LSA Header: age: 707, options: 0x02, seq-nbr: 0x80001ab8, length: 36 NetworkMask: 0.0.0.0 TOS 0: metric_type: 2, metric: 10 forwarding_address: 0.0.0.0 external_route_tag: 0	The output display includes the "Fwd Address" and "Sync State" fields.
show ip ospf database external-link-state ?	Brocade#sh ip ospf database external-link-state Type-5 AS External Link States Index Age LS ID Router Netmask Metric Flag Fwd Address SyncState 1 198 0.0.0.0 192.168.98.190 0 0000000a 0000 0.0.0.0 Done	The output display includes the "Fwd Address" and "Sync State" fields.

show ip ospf interface ?	Brocade#sh ip ospf interface e 2/3/1 admin down, oper down, ospf enabled, state down IP Address 192.213.112.213, Area 0.0.0.200 Database Filter: Not Configured State down, Pri 1, Cost 1, Options 2, Type broadcast Events 0 Timers(sec): Transmit 1, Retrans 5, Hello 10, Dead 40 DR: Router ID 0.0.0.0 Interface Address 0.0.0.0 BDR: Router ID 0.0.0.0 Interface Address 0.0.0.0 Packets Received Packets Sent Hello 0 0 Database 0 0 LSA Req 0 0 LSA Upd 0 4 LSA Ack 0 0 No Packet Errors! Neighbor Count = 0, Adjacent Neighbor Count= 0 Authentication-Key: None MD5 Authentication: Key None, Key-Id None, Auth-change-wait-time 300 e 4/3/1 admin up, oper up, ospf enabled, state up IP Address 193.213.111.213, Area 0.0.0.200 Database Filter: Not Configured State DR, Pri 1, Cost 1, Options 2, Type broadcast Events 3 Timers(sec): Transmit 1, Retrans 5, Hello 10, Dead 40 DR: Router ID 192.168.98.213 Interface Address 193.213.111.213 BDR: Router ID 192.168.98.111 Interface Address 193.213.111.111 Packets Received Packets Sent Hello 525 524 Database 4 3 LSA Req 0 1 LSA Upd 106 24 LSA Ack 17 52 No Packet Errors! Neighbor Count = 1, Adjacent Neighbor Count= 1 Neighbor: 193.213.111.111 [id 192.168.98.111] (BDR) Authentication-Key: None MD5 Authentication: Key None, Key-Id None, Auth-change-wait-time	The output display includes the " DataBase Filter" and Packet Count table.
show ip ospf interface 1.2.3.4	Brocade#sh ip ospf interface 192.213.111.213 ve 17 admin up, oper up, ospf enabled, state up IP Address 192.213.111.213, Area 0.0.0.200 Database Filter: Not Configured State DR, Pri 1, Cost 1, Options 2, Type broadcast Events 2 Timers(sec): Transmit 1, Retrans 5, Hello 10, Dead 40 DR: Router ID 192.168.98.213 Interface Address 192.213.111.213 BDR: Router ID 192.168.98.111 Interface Address 192.213.111.111 Packets Received Packets Sent Hello 536 538 Database 3 3 LSA Req 0 1 LSA Upd 108 27 LSA Ack 24 104 No Packet Errors! Neighbor Count = 1, Adjacent Neighbor Count= 1 Neighbor: 192.213.111.111 [id 192.168.98.111] (BDR) Authentication-Key: None MD5 Authentication: Key None, Key-Id None, Auth-change-wait-time 300	The output display includes the " DataBase Filter" and Packet Count table.

show snmp group	Brocade#show snmp group groupname = admingrp security model = v3 security level = authNoPriv ACL id = 0 readview = all writeview = all	The output display does not include the "notifyview = all" field.
show ip ospf database link-state ?	Brocade#sh ip ospf database link-state Link States Index Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 1 0.0.0.200 Rtr 192.168.98.111 192.168.98.111 800001ce 1432 0xafbc Done 2 0.0.0.200 Rtr 192.168.98.213 192.168.98.213 8000001e 852 0xb281 Done 3 0.0.0.200 Rtr 192.168.98.113 192.168.98.113 800001ad 790 0x8749 Done 4 0.0.0.200 Rtr 192.168.98.112 192.168.98.112 80000256 720 0x2532 Done 5 0.0.0.200 Net 192.113.112.113 192.168.98.113 800000c0 790 0xfbd4 Done 6 0.0.0.200 Net 192.213.111.213 192.168.98.213 80000006 1572 0x6595 Done 7 0.0.0.200 Net 192.113.111.113 192.168.98.113 80000113 1512 0x5727 Done 8 0.0.0.200 Net 193.213.111.213 192.168.98.213 80000007 852 0x56a2 Done 9 0.0.0.200 Summ 192.213.1.166 192.168.98.112 80000004 720 0xca12 Done 10 0.0.0.200 Summ 192.213.2.180 192.168.98.112 80000004 720 0x339a Done 11 0.0.0.200 Summ 192.213.1.242 192.168.98.112 80000004 720 0xcfc0 Done 12 0.0.0.200 Summ 192.213.2.62 192.168.98.112 80000004 720 0xd370 Done 13 0.0.0.200 Summ 192.213.1.48 192.168.98.112 80000004 720 0x6be7 Done 14 0.0.0.200 Summ 192.213.2.138 192.168.98.112 80000004 720 0xd81f Done 15 0.0.0.200 Summ 192.213.1.124 192.168.98.112 80000004 720 0x7096 Done 16 0.0.0.200 Summ 192.213.1.200 192.168.98.112 80000004 720 0x7545 Done 17 0.0.0.200 Summ 192.213.2.214 192.168.98.112 80000004 720 0xddcd Done	The output display includes the "Sync State" field.

show ip ospf border-routers ?	Brocade#sh ip ospf border-routers router ID router type next hop router outgoing interface Area 1 192.168.98.111 ABR 193.213.111.111 4/3/1*8/3/1 0.0.0.200 1 192.168.98.111 ABR 192.213.111.111 v17 0.0.0.200 1 192.168.98.112 ABR 193.213.111.111 4/3/1*8/3/1 0.0.0.200 1 192.168.98.112 ABR 192.213.111.111 v17 0.0.0.200 1 192.168.98.113 ABR 193.213.111.111 4/3/1*8/3/1 0.0.0.200 1 192.168.98.113 ABR 192.213.111.111 v17 0.0.0.200 1 192.168.98.113 ABR 192.213.163.163 v222 400 1 192.168.98.111 ABR 193.213.111.111 4/3/1*8/3/1 0 1 192.168.98.111 ABR 192.213.111.111 v17 0 1 192.168.98.112 ABR 193.213.111.111 4/3/1*8/3/1 0 1 192.168.98.112 ABR 192.213.111.111 v17 0 1 192.168.98.190 ASBR 193.213.111.111 4/3/1*8/3/1 0 1 192.168.98.190 ASBR 192.213.111.111 v17 0 Brocade#	The output display field "type" is renamed as "Router type".
show ip ospf border-routers 1.2.3.4	Brocade#sh ip ospf border-routers 192.168.98.111 router ID router type next hop router outgoing interface 192.168.98.111 ABR 193.213.111.111 4/3/1*8/3/1 0	The output display field "type" is renamed as "router type".
show ipv6 vrrp ?	Brocade#sh ipv6 vrrp brief Summary ethernet Ethernet port stat Status statistics VRRP/VRRP-E packet counts ve Virtual Ethernet port vrid Virtual router ID | Output modifiers <cr>	The "show ipv6 vrrp" command output display includes the Hello TX statistics packet counts.

show ip vrrp stat	Brocade#sh ip vrrp stat Interface ethernet 1/1/12 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 200 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 991 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 11 Interface ethernet v100 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 100 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 991 backup advertisements received = 0	The "show ip vrrp statistics" command output display includes the Hello TX statistics packet counts.
show ip vrrp stat ethernet 1/1	Brocade#sh ip vrrp stat eth 1/1/12 Interface ethernet 1/1/12 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 200 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 1282 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 16	The "show ip vrrp-extended statistics [ethernet <slackid> | <slotnum> | <portnum>]" command output display includes the Hello TX statistics packet counts.

show ip vrrp stat ve 2	Brocade#sh ip vrrp stat ve 100 Interface ethernet v100 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 100 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 1353 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 23	The "show ip vrrp statistics [ve <num>]" command output display includes the Hello TX statistics packet counts.
show ip vrrp-extended stat	Brocade#sh ip vrrp-extended stat Interface ethernet 1/1/12 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 200 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 991 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 11 Interface ethernet v100 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 100 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 991 backup advertisements received = 0	The "show ip vrrp-extended statistics " command output display includes the Hello TX statistics packet counts.

show ip vrrp-extended stat ethernet 1/1	Brocade#sh ip vrrp-extended stat eth 1/1/12 Interface ethernet 1/1/12 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 200 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 1282 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 16	The "show ip vrrp-extended statistics [ethernet <slackid> | <slotnum> | <portnum>]" command output display includes the Hello TX statistics packet counts.
show ip vrrp-extended stat ve 2	Brocade#sh ip vrrp-extended stat ve 100 Interface ethernet v100 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 100 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 1 transitioned to master state count = 2 transitioned to backup state count = 3 total number of vrrp-extended packets received = 1697 backup advertisements received = 0 total number of vrrp-extended packets sent = 14 backup advertisements sent = 31	The "show ip vrrp-extended statistics [ve <num>]" command output display includes the Hello TX statistics packet counts.

show ipv6 vrrp stat	Brocade#sh ipv6 vrrp stat Interface ethernet 1/1/12 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 200 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 1802 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 31 Interface ethernet v100 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 100 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 1801 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 31	The "show ipv6 vrrp statistics " command output display includes the Hello TX statistics packet counts.
show ipv6 vrrp stat ethernet 1/1	Brocade#sh ipv6 vrrp stat ethernet 1/1/12 Interface ethernet 1/1/12 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 200 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 1864 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 32	The "show ipv6 vrrp statistics [ethernet <slackid> | <slotnum> | <portnum>] " command output display includes the Hello TX statistics packet counts.

show ipv6 vrrp stat ve 2	Brocade#sh ipv6 vrrp stat ve 100 Interface ethernet v100 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 100 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 1873 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 32	The "show ipv6 vrrp statistics [ve <num>]" command output display includes the Hello TX statistics packet counts.
show ipv6 vrrp-extended stat	Brocade#sh ipv6 vrrp-extended stat Interface ethernet 1/1/12 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 200 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 991 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 11 Interface ethernet v100 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 100 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 991 backup advertisements received = 0	The "show ipv6 vrrp-extended statistics " command output display includes the Hello TX statistics packet counts.

show ipv6 vrrp-extended stat ethernet 1/1	Brocade#sh ipv6 vrrp-extended stat eth 1/1/12 Interface ethernet 1/1/12 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 200 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 0 transitioned to master state count = 0 transitioned to backup state count = 1 total number of vrrp packets received = 1282 backup advertisements received = 0 total number of vrrp packets sent = 0 backup advertisements sent = 16	The "show ipv6 vrrp-extended statistics [ethernet <slackid> | <slotnum> | <portnum>] " command output display includes the Hello TX statistics packet counts.
show ipv6 vrrp-extended stat ve 2	Brocade#sh ipv6 vrrp-extended stat ve 100 Interface ethernet v100 rxed vrrp header error count = 0 rxed vrrp auth error count = 0 rxed vrrp auth passwd mismatch error count = 0 rxed vrrp vrid not found error count = 0 VRID 100 rxed arp packet drop count = 0 rxed ip packet drop count = 0 rxed vrrp port mismatch count = 0 rxed vrrp number of ip address mismatch count = 0 rxed vrrp ip address mismatch count = 0 rxed vrrp hello interval mismatch count = 0 rxed vrrp priority zero from master count = 0 rxed vrrp higher priority count = 1 transitioned to master state count = 2 transitioned to backup state count = 3 total number of vrrp-extended packets received = 1697 backup advertisements received = 0 total number of vrrp-extended packets sent = 14 backup advertisements sent = 31	The "show ipv6 vrrp-extended statistics [ve <num>] " command output display includes the Hello TX statistics packet counts.
show ip vrrp ?	Brocade#sh ipv6 vrrp brief Summary ethernet Ethernet port stat Status statistics VRRP/VRRP-E packet counts ve Virtual Ethernet port vrid Virtual router ID | Output modifiers <cr>	The new Hello TX statistics packet counts is added in the output.
show ip vrrp-extended ?	Brocade#show ip vrrp-extended brief Summary ethernet Ethernet port stat Status statistics VRRP/VRRP-E packet counts ve Virtual Ethernet port vrid Virtual router ID | Output modifiers <cr>	The new Hello TX statistics packet counts is added in the output.

show ipv6 vrrp-extended ?	Brocade#show ipv6 vrrp-extended
	  brief Summary
	  ethernet Ethernet port
	  stat Status
	  statistics VRRP/VRRP-E packet counts
	  ve Virtual Ethernet port
	  vrid Virtual router ID
	  | Output modifiers
	  <cr>
		The new Hello TX statistics packet counts is added in the output.

show arp mac-address ?	Brocade#show arp mac-address HHHH.HHHH.HHHH MAC address in xxxx.xxxx.xxxx	| pipe and <CR> removed from output.
show cluster	Brocade#sh cluster Brocade#sh cluster Cluster SX800 1 ========== Rbridge Id: 1, Session Vlan: 2 Cluster State: Deploy Client Isolation Mode: Loose Member Vlan Range: 101 to 118 ICL Info: --------- Name Port Trunk 1 8/1 449 Peer Info: ---------- Peer IP: 1.1.1.2, Peer Rbridge Id: 2, ICL: 1 KeepAlive Interval: 10 , Hold Time: 90, Fast Failover Active Vlan Range: 101 to 121 Peer State: CCP Up (Up Time: 0 days: 0 hr: 5 min:26 sec) Client Info: ------------ Number of Clients configured: 13 Name Rbridge-id Config LACP Port Trunk FSM-State A-CCEP-102--002438795280 2426 Deployed yes 3/5 - Local Deploy A-CCEP-103--002438790240 2488 Deployed yes 3/9 - Local Deploy A-CCEP-104--002438793f20 2070 Deployed yes 3/13 - Local Deploy A-CCEP-105--0012f2e5dbc0 888 Deployed no 3/17 145 Up A-CCEP-106--002438d1c0c0 320 Deployed no 3/21 149 Local Deploy A-CCEP-107--001beda4a1c0 4072 Deployed no 4/1 193 Up A-CCEP-108--00e052000100 3032 Deployed yes 4/5 - Local Deploy A-CCEP-110--001bed902400 1632 Deployed no 4/13 205 Up	Due to LAG changes, LACP column is removed.

show ipv6 route 2000:5678:90ab:cdef:0123:4567:890a:bcde/64debug	Brocade#show ipv6 route 2000:5:5:5::5/64 deb Type Codes - B:BGP C:Connected I:ISIS L:Local O:OSPF R:RIP S:Static BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Type IPv6 Prefix Next Hop Router Interface Dis/Metric Uptime C 2000:5:5:5::/64 :: loopback 5 0/0 5d18h IPv6 fwd route 2000:5:5:5::/64 (0x1003a98e) rib#:0, rib:0x1003e325, redis:0x40, best:1 type:1, sub:0, tag:0, path:1 PIM:0 route info:0x1004459b, direct 1 Parent fwd route ::/0 (0x1003aa21)	The output is modified.
show ipv6 route connect	Brocade#show ipv6 route connect Type Codes - B:BGP C:Connected I:ISIS L:Local O:OSPF R:RIP S:Static BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Type IPv6 Prefix Next Hop Router Interface Dis/Metric Uptime C 2000:2:2:2::/64 :: loopback 2 0/0 5d18h C 2000:5:5:5::/64 :: loopback 5 0/0 5d18h C 2000:10:10:10::/64 :: loopback 10 0/0 5d18h C fd00:60:69bc:224::/64 :: e mgmt1 0/0 5d18h	New field "Uptime" is added.
show ipv6 route 2000:5678:90ab:cdef:0123:4567:890a:bcde	Brocade#show ipv6 route 2000:5:5:5::5 Type Codes - B:BGP C:Connected I:ISIS L:Local O:OSPF R:RIP S:Static BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Type IPv6 Prefix Next Hop Router Interface Dis/Metric Uptime C 2000:5:5:5::/64 :: loopback 5 0/0 5d18h	New field "Uptime" is added.
show ip pim rp-set	Brocade#show ip pim rp-set Number of group prefixes Learnt from BSR: 1 Group prefix = 224.0.0.0/4 # RPs expected: 4 # RPs received: 4 RP 1: 25.0.0.25 priority=0 age=0 holdtime=150	"age", and "holdtime" information is added.
show ip pim interface ?	Brocade#show ip pim int ethernet Ethernet port loopback Loopback port tunnel Tunnel Interface ve Virtual port | Output modifiers <cr>	Explanation for options "ethernet" and "loopback" added in help.

show ip pim interface STR ?	Brocade#sh ip pim interface
	  ethernet Ethernet port
	  loopback Loopback port
	  tunnel Tunnel Interface
	  ve Virtual port
	  | Output modifiers
	  <cr>
	Brocade#
	
	Brocade#sh ip pim vrf white interface
	  ethernet Ethernet port
	  loopback Loopback port
	  tunnel Tunnel Interface
	  ve Virtual port
	  | Output modifiers
	  <cr>
	
	Brocade#
		Explanation for options "ethernet" and "loopback" added in help.

show ip pim mcache 1.2.3.4 ?	Brocade#show ip pim mc 226.0.0.201
	  A.B.C.D Multicast cache IP source or group address
	  | Output modifiers
	  <cr>
		Filtering option is added.

show ip pim flowcache 1.2.3.4 1.2.3.4	Brocade#show ip pim flowcache 90.1.1.32, 226.0.0.201
	Invalid input -> 90.1.1.32, 226.0.0.201
	Type ? for a list
	Brocade#show ip pim flowcache 90.1.1.32 226.0.0.201
	
	1. Multicast flow (90.1.1.32 226.0.0.201):
	 Vidx for source vlan forwarding: 4188 (Blackhole, no L2 clients)
	 Hardware MC Entry hit on devices: 0
	 Route Prefix TCAM Index: Row=3103 Column=2
	 MC Entry[14]: [3]=00000000, [2]=00040000, [1]=00148002, [0]=05A00000
	
	 ------------------- MLL contents read from Device 0 -------------------
	 MLL[2]: [3]=00000800, [2]=405F8169, [1]=00000800, [0]=40738371
	  last0 [0]= last mll startOfTunnel0 [1]= False
	  mllVid0 [3:14]= 110 useVIDX0 [15]= True
	  VIDX0 [16:28]= 115 mllRpfFailCmd0 [29:31]= trap
	  ttl/HopLimitThreshold0 [43:50]= 1 excludeSrcVlan0 [51]= False
	  last1 [64]= last mll startOfTunnel1 [65]= False
	  reserved [66]= 0 mllVid1 [67:78]= 45
	  useVIDX1 [79]= True VIDX1 [80:92]= 95
	  mllRpfFailCmd1 [93:95]= trap ttl/HopLimitThreshold1
	[107:114]= 1
	  excludeSrcVlan1 [115]= False nextMllPtr [116:127]= 0x000
	
	1 flow printed
		MLL and Vidx information is added.

show ip pim mcache 1.2.3.4 1.2.3.4	Brocade#show ip pim mc 90.1.1.32 226.0.0.201 IP Multicast Mcache Table Entry Flags : SM - Sparse Mode, SSM - Source Specific Multicast, DM - Dense Mode RPT - RPT Bit, SPT - SPT Bit, LSRC - Local Source, LRCV - Local Receiver HW - HW Forwarding Enabled, FAST - Resource Allocated, TAG - Need For Replication Entry REGPROB - Register In Progress, REGSUPP - Register Suppression Timer MSDPADV - Advertise MSDP, NEEDRTE - Route Required for Src/RP, PRUN - DM Prune Upstream Interface Flags: IM - Immediate, IH - Inherited, WA - Won Assert MJ - Membership Join, MI - Membership Include, ME - Membership Exclude BR - Blocked RPT, BA - Blocked Assert, BF - Blocked Filter, BI - Blocked IIF 1 (90.1.1.32, 226.0.0.201) in v90 (tag e1/3/2), Uptime 02:09:34, Rate 0 (SM) Source is directly connected. RP 25.0.0.25 Flags (0x2042cce1) SM SPT L2REG LSRC HW FAST TAG MSDPADV fast ports: ethe 1/1/13 AgeSltMsk: 1, FID: NotReq, DIT: 2 , RegPkt: 0, AvgRate: 0, profile: none Forwarding_oif: 1, Immediate_oif: 1, Blocked_oif: 0 L3 (HW) 1: TR(e1/1/13,e1/1/13)(VL110), 01:28:23/174, Flags: IM IH L2 FID: 105c Src-Vlan: 90 REP_IDX 2: L:VL110 FID: 1073 FSID: 2a680a00	More detailed explanation provided for the acronyms in the output.
show ip pim sparse	Brocade#show ip pim sparse Global PIM Sparse Mode Settings Maximum Mcache : 4096 Current Count : 605 Hello interval : 30 Neighbor timeout : 105 Join/Prune interval : 60 Inactivity interval : 180 Hardware Drop Enabled : Yes Prune Wait Interval : 3 Bootstrap Msg interval : 60 Candidate-RP Msg interval : 60 Register Suppress Time : 60 Register Probe Time : 10 Register Stop Delay : 60 Register Suppress interval : 60 SSM Enabled : No SPT Threshold : 1 Route Precedence : mc-non-default mc-default uc-non-default uc-default	More fields added for detailed PIM parameters.
show ip pim mcache ?	Brocade#show ip pim mc A.B.C.D Multicast cache IP source or group address counts Display only the count of entries dense Display only the Dense entries dit-idx Display on the entries using this resource fid Display on the entries using this resource g_entries Display only the (*, G) entries receiver Display the IGMP/PIM Receiver sg_entries Display only the (S, G) entries sparse Display only the Sparse entries ssm Display only the SSM entries | Output modifiers <cr>	More options such as "counts", "dense", etc. have been added.

	Brocade#show ip pim
	  all-vrf Show all VRF
	  anycast-rp PIM Anycast RP info
	  bsr Bootstrap router
	  counter PIM internal counters
	  dense Dense-mode settings
	  flowcache Active PIM flow
	  group IP multicast group and its associated information
	  interface PIM interface
	  mcache PIM multicast cache
	  neighbor PIM neighbor states
	  nsr Multicast NSR status
	  optimization PIM Optimization
	  prune Active prunes for PIM operations
	  resource PIM resources
	  rp-candidate Candidate rendezvous point (RP)
	  rp-hash Multicast group to rendezvous point (RP) hash
	  rp-map Active multicast group to rendezvous point (RP) mappings
	  rp-set List of rendezvous point (RP) candidates
	  rpf Find the reverse path forwarding
	  sparse Sparse-mode settings
	  traffic Active multicast traffic
	  vrf VRF-based PIM
		Options such as "all-vrf", "anycast-rp", "nsr", "optimization", "vrf". And Deprecate option "error" have been added.

show ip pim flowcache 1.2.3.4 ?	Brocade#show ip pim flowcache 226.1.1.1
	  A.B.C.D Multicast flow IP group address
	  | Output modifiers
	  <cr>
		Pipe option for filtering is added.

show ip pim prune	Brocade#show ip pim prune Total Prune entries: 0	Prune entry count information is added.

show ip pim bsr	Brocade#show ip pim bsr
	
	 PIMv2 Bootstrap information for Vrf Instance : default-vrf
	-- 	
	  This system is a Candidate BSR
	  BSR address: 54.0.0.54. Hash Mask Length 4. Priority 20.
	
	  Configuration:
	  Candidate loopback 1 (Address 25.0.0.25). Hash Mask Length 4. Priority 20.
	
	Next Candidate-RP-advertisment in 00:00:20
	  RP: 25.0.0.25
	  group prefixes:
	  224.0.0.0 / 4
	
	  Candidate-RP-advertisement period: 60
		VRF category, etc. are added.

show ip pim resource	PIM IPV4 CLASS Num alloc:1, System max:17, Size:378155 Vrf Instance : default-vrf ---------- alloc in-use avail get-fail limit get-mem size init NBR list 256 5 251 0 512 17 96 256 RP set list 256 1 255 0 1536 1480 49 256 Static RP 64 0 64 0 64 0 42 64 LIF Entry 512 0 512 0 512 0 47 512 Anycast RP 64 0 64 0 64 0 190 64 timer 256 0 256 0 59392 26 64 256 prune 128 0 128 0 29696 0 34 128 pimsm J/P elem 1024 0 1024 0 48960 8687 29 1024 Timer Data 256 118 138 0 59392 589 28 256 mcache SLIB Sync 1280 0 1280 0 296960 13464 34 1280 mcache 1024 605 419 0 4096 794 1144 256 graft if no mcache 197 0 197 0 45704 0 64 197 HW replic vlan 2000 133 1867 0 464000 624 66 2000 HW replic port 1024 133 891 0 237568 624 81 1024 pim/dvm intf. group 256 0 256 0 59392 0 24 256 pim/dvm global group 256 1 255 0 59392 1 46 256 repl entry(Global) 1024 7 1017 0 237568 601	VRF category, ITC, etc. are added.
show ip pim group	Brocade#show ip pim group Total number of groups for VRF default-vrf: 1 1 Group 226.1.1.1 Group member at e2/3/4: v90	VRF information category is added.
show ip bgp peer-group STR	Brocade#show ip bgp peer-group STR 1 BGP peer-group is STR Address family : IPV4 Unicast activate Address family : IPV4 Multicast no activate Address family : IPV6 Unicast no activate Address family : IPV6 Multicast no activate Address family : VPNV4 Unicast no activate Address family : L2VPN VPLS no activate Members: IP Address: 125.1.1.1, AS: 5	"activate" or "no activate" information is added for Address-family.

show ipv6 interface tunnel 2	Brocade#show ipv6 interface tunnel 1
	Interface Tunnel 1 is up, line protocol is up
	  IPv6 is enabled, link-local address is fe80::101:102 [Preferred]
	  Global unicast address(es):
	  2001:100::2 [Preferred], subnet is 2001:100::/64
	  2001:100:: [Anycast], subnet is 2001:100::/64
	  Joined group address(es):
	  ff02::1:ff00:2
	  ff02::1:ff01:102
	  ff02::16
	  ff02::d
	  ff02::1:ff00:0
	  ff02::2
	  ff02::1
	  Port belongs to VRF: default-vrf
	  MTU is 1480 bytes
	  ICMP redirects are disabled
	  No Inbound Access List Set
	  Outbound Access List
		Anycast and VRF information are added.

show ip ospf routes 1.2.3.4 ?	Brocade#sh ip ospf route 192.190.101.0
	
	  Destination Mask Path_Cost Type2_Cost Path_Type
	  192.190.101.0 255.255.255.0 3 0 Intra
	  Adv_Router Link_State Dest_Type State Tag
	Flags
	  192.168.98.190 192.168.98.190 Network Valid 0
	0000
	  Paths Out_Port Next_Hop Type State
	  1 e 4/3/1 193.213.111.111 OSPF 29 a8
	  2 ve 17 192.213.111.111 OSPF 00 00
		ARP index field is deprecated.

show ipv6 cache 2	Total number of IPv6 and IPv6 VPN cache entries: 44 IPv6 Address Next Hop Port 2 2000:824:824:824::8 DIRECT ve 824 3 fe80:512::512:1 LOCAL e 5/1/2 4 2000:202:202:202::1 LOCAL loopback 2 5 2000:400:400:400::2 LOCAL ve 400 6 2000:824:824:824::4 LOCAL ve 824 7 2000:411:411:411::1 LOCAL e 1/1/1 8 2000:400:400:400::3 DIRECT ve 400 9 fe80:824::824:4 LOCAL ve 824 10 fe80:411::411:1 LOCAL e 1/1/1 11 2000:512:512:512::1 LOCAL e 5/1/2 12 fe80::234:ff:fe34:34 LOCAL loopback 2	The output is modified as highlighted in red.

show ipv6 debug	Brocade#show ipv6 debug RTM Class for vrf default-vrf/0, safi 0, route_update 0 client connected (0x10042036): enabled 1, itc_id 0, import default 0 EventQ: count 0, head 0, tail 0 alloc 0, get 0, free 0 client static (0x10042064): enabled 1, itc_id 0, import default 0 EventQ: count 0, head 0, tail 0 alloc 0, get 0, free 0 client ripng (0x10042092): enabled 0, itc_id 0, import default 0 EventQ: count 0, head 0, tail 0 alloc 0, get 0, free 0 client ospf6 (0x100420c0): enabled 1, itc_id 35, import default 0 EventQ: count 0, head 0, tail 0 alloc 0, get 0, free 0 client bgp (0x1004211c): enabled 0, itc_id 0, import default 0 bgp route limit 4294967295, current 0 EventQ: count 0, head 0, tail 0 alloc 0, get 0, free 0 client mcast (0x10042178): enabled 0, itc_id 0, import default 0 EventQ: count 0, head 0, tail 0 alloc 0, get 0, free 0 RTM6: switchover_over_pending 0x0 rtm6 (0x23327d54), itc_ctx 0x2660ec00, routes 400 (alloc 401, config 0), path 8 mem 0x10042000, size 216909, event 0x10077000, size 10875 rtable 0x100421dc, count 1, default_valid 0, default 0x0 top 0x100422d4, pool 0x10042298, next 0x10042310 (0x10042298) fwd 0x1004809c, next 0x100480fe, count 1, mng 0 0 rib 0x1004cd65, next 0x1004cdb9, count 1, max 800, dy_pool 0 pool: 23327fa7, unit_size: 0, initial_number:0, upper_limit:0 total_number:0, allocated_number:0, alloc_failure 0 flag: 0, pool_index:0, avail_data:0 rinfo 0x100550ad, next 0x100550ff, count 1 (1), max 1600, dy_pool 0	RTM6 class for VRF is displayed.
show ip ospf neighbor detail (show ip ospf neighbor extensive)	Brocade#sh ip ospf neigh extensive Number of Neighbors is 3, in FULL state 3 Port Address Pri State Neigh Address Neigh ID Ev Opt Cnt 4/3/1*8/3/1 193.213.111.213 1 FULL/BDR 193.213.111.111 192.168.98.111 6 2 0 Neighbor is known for 0d:01h:32m:39s and up for 0d:01h:32m:36s v17 192.213.111.213 1 FULL/BDR 192.213.111.111 192.168.98.111 6 2 0 Neighbor is known for 0d:01h:32m:37s and up for 0d:01h:32m:36s v222 192.213.163.213 1 FULL/BDR 192.213.163.163 192.168.98.163 6 2 0 Neighbor is known for 0d:01h:32m:40s and up for 0d:01h:32m:36s	Command is changed to "sh ip ospf neighbor extensive". Options and CNT fields are added.
show ip route 1.2.3.0 255.255.255.0 longer	Brocade#show ip route 1.102.1.0 255.255.255.0 longer 1 1.102.1.0/24 1.1.1.2 ve 100 110/2 0 6m46s	Description field removed.
show ip route 1.2.3.0/24 longer	Brocade#show ip route 1.102.1.0/24 longer 1 1.102.1.0/24 1.1.1.2 ve 100 110/2 0 9m5s	Description field removed.

show ip ospf virtual-neighbor 2	Brocade# sh ip ospf virtual-neigh 1 Transit Area Router ID Neighbor address options 0.0.0.200 192.168.98.111 192.213.111.111 2 Port Address state events count 4/3/1*8193.213.111.213 FULL 5 0 address 192.213.111.111, priority 1, id 192.168.98.111 designated_router 0.0.0.0, backup_designated_router 0.0.0.0, interface state Point To Point state 8, event 5, mode 2, flags 1, option 2 ls_request_queue_count 0, ls_request_list_has_changed 0, ls_req_can_be_sent 0 retransmit_queue_count 0, database_summary_queue_count 0 pkt_rx_count 0 inactivity_timer_enabled 1, periodic_inactivity_time_counter 10 md5_sequence 0, sequence 43320, neighbor_sequence 0 last_dd_sequence 43319, last_exchange 0 last_dd_flags 24d713d9, last_dd_options 24d713d8 periodic_slave_hold_time_counter 6126 sptr_retransmit 0, sptr_retransmit_tail 0 sptr_database_summary 0 sptr_ls_request[1-5, 9] 0 0 0 0 0 0 interface 4/3/1*8/3/1, address 193.213.111.213, subnet/nexthop 193.213.111.111 sptr_nbr->retransmit_queue:	The output is more detailed.
show sflow	Brocade#sh sflow sFlow version: 5 sFlow services are enabled. sFlow agent IPv6 address: 10::12 4 collector destinations configured: Collector IP 10.37.224.233, UDP 6343, Configured VRF: None, Using VRF: default-vrf Collector IP 10.37.224.233, UDP 6343, Configured VRF: sflow Collector IP 10.37.224.164, UDP 6343, Configured VRF: None, Using VRF: default-vrf Collector IPv6 10::2, UDP 6343, Configured VRF: 6sflow UDP source port: 8888 (Default) Polling interval is 20 seconds. Configured default sampling rate: 1 per 500 packets. Actual default sampling rate: 1 per 500 packets. The maximum sFlow sample size: 128. sFlow exporting cpu-traffic is disabled. 123 UDP packets exported 0 sFlow flow samples collected. sFlow ports: ethe 1/1/9 to 1/1/10 ethe 1/2/4 ethe 2/1/7 to 2/1/8 ethe 2/1/12 Module Sampling Rates ----------	The output is more detailed.

show radius aaa-auth-queue	Brocade#sh radius aaa-auth-queue AAA Queue Display Start... PortId=1/1/1 context=0 Username=, RadiusClient=0 PortId=1/1/1 context=1 Username=, RadiusClient=0 PortId=1/1/1 context=2 Username=, RadiusClient=0 PortId=1/1/1 context=3 Username=, RadiusClient=0 PortId=1/1/1 context=4 Username=, RadiusClient=0 PortId=1/1/1 context=5 Username=, RadiusClient=0 PortId=1/1/1 context=6 Username=, RadiusClient=0 PortId=1/1/1 context=7 Username=, RadiusClient=0 PortId=1/1/1 context=8 Username=, RadiusClient=0 PortId=1/1/1 context=9 Username=, RadiusClient=0 PortId=1/1/1 context=10 Username=, RadiusClient=0 PortId=1/1/1 context=11 Username=, RadiusClient=0 PortId=1/1/1 context=12 Username=, RadiusClient=0 PortId=1/1/1 context=13 Username=, RadiusClient=0 PortId=1/1/1 context=14 Username=, RadiusClient=0 PortId=1/1/1 context=15 Username=, RadiusClient=0 PortId=1/1/1 context=16 Username=, RadiusClient=0 PortId=1/1/1 context=17 Username=, RadiusClient=0 PortId=1/1/1 context=18 Username=, RadiusClient=0 PortId=1/1/26 context=19 Username=, RadiusClient=0 PortId=1/1/1 context=20 Username=, RadiusClient=0 PortId=1/1/1 context=21 Username=, RadiusClient=0 PortId=1/1/1 context=22 Username=, RadiusClient=0 PortId=1/1/1 context=23 Username=, RadiusClient=0 PortId=1/1/1 context=24 Username=, RadiusClient=0 PortId=1/1/1 context=25 Username=, RadiusClient=0 PortId=1/1/1 context=26 Username=, RadiusClient=0 PortId=1/1/1 context=27 Username=, RadiusClient=0 PortId=1/1/1 context=28 Username=, RadiusClient=0 PortId=1/1/1 context=29 Username=, RadiusClient=0 PortId=1/1/1 context=30 Username=, RadiusClient=0 PortId=1/1/1 context=31 Username=, RadiusClient=0 PortId=1/1/1 context=32 Username=, RadiusClient=0 PortId=1/1/1 context=33 Username=, RadiusClient=0 PortId=1/1/1 context=34 Username=, RadiusClient=0 PortId=1/1/1 context=35 Username=, RadiusClient=0 PortId=1/1/1 context=36 Username=, RadiusClient=0	The output is more detailed.

show webauth vlan 2 webpage	Brocade#sh who Console connections: established, monitor enabled, privilege super-user, in config mode you are connecting to this session Telnet server status: Enabled Telnet connections (inbound): 1 established, client ip address 10.120.35.95, user is rose, privilege super-user using vrf default-vrf. 4 seconds in idle 2 closed 3 closed 4 closed 5 closed Telnet connection (outbound): 6 closed 7 closed 8 closed 9 closed 10 closed SSH server status: Enabled SSH connections: SSH connections (inbound): 1 closed 2 closed 3 closed 4 closed 5 closed SSH connection (outbound): 6 closed 7 closed 8 closed 9 closed 10 closed HTTP server status: Enabled HTTPS server status: Disabled	The ouput is more detailed.
show ip pim interface STR ethernet 1/1	Brocade#sh ip pim interface e 1/1/7 ---------+---------------+----+---+----------------------+---+---------+-------+------+---------+ Interface|Local |Ver |St | Designated Router |TTL|Multicast| VRF | DR | Override |Address | | |Address Port|Thr|Boundary | | Prio | Interval ---------+---------------+----+---+----------------------+---+---------+-------+------+---------+ e1/1/7 33.0.0.6 SMv2 Ena Itself 1 None default 1 3000ms Total Number of Interfaces : 1 Brocade#	The output is modified and it now also shows VRF information.

show ip pim interface STR loopback 2	Brocade#sh ip pim interface loopback 6 ---------+---------------+----+---+----------------------+---+--------- +-------+------+---------+ Interface|Local |Ver |St | Designated Router |TTL|Multicast| VRF | DR | Override |Address | | |Address Port|Thr|Boundary | | Prio | Interval ---------+---------------+----+---+----------------------+---+--------- +-------+------+---------+ l6 100.0.0.6 SMv2 Ena Itself 1 None default 1 3000ms Total Number of Interfaces : 1 Brocade#	The output is modified and it now also shows VRF information.
show ip pim interface STR tunnel	Brocade#sh ip pim vrf white interface tunnel DECIMAL Number Brocade#	The output is modified and it now also shows VRF information.
show ip pim interface STR tunnel 2	Brocade#sh ip pim vrf white interface tunnel 11 ---------+---------------+----+---+----------------------+---+--------- +-------+------+---------+ Interface|Local |Ver |St | Designated Router |TTL|Multicast| VRF | DR | Override |Address | | |Address Port|Thr|Boundary | | Prio | Interval ---------+---------------+----+---+----------------------+---+--------- +-------+------+---------+ tn11 61.0.0.6 SMv2 Ena 61.0.0.11 1/1/7 1 None white 1 3000ms Total Number of Interfaces : 1 Brocade#	The output is modified and it now also shows VRF information.
show ip pim interface STR ve	Brocade#sh ip pim vrf white interface ve DECIMAL Number Brocade#	The output is modified and it now also shows VRF information.
show ip pim interface STR ve 2	Brocade#sh ip pim vrf white interface ve 25 ---------+---------------+----+---+----------------------+---+--------- +-------+------+---------+ Interface|Local |Ver |St | Designated Router |TTL|Multicast| VRF | DR | Override |Address | | |Address Port|Thr|Boundary | | Prio | Interval ---------+---------------+----+---+----------------------+---+--------- +-------+------+---------+ v25 25.0.0.6 SMv2 Ena Itself 1 None white 1 3000ms Total Number of Interfaces : 1 Brocade#	The output is modified and it now also shows VRF information.
show auth-mac-addresses 1234.4567.89AB ip-addr	Brocade#sh auth-mac-addresses 54d1.1896.0000 ip-addr --- ------ MAC Address SourceIp Port Vlan Auth Age dot1x ACL --- ------ 54d1.1896.0000 102.1.1.1 2/1/8 1006 Yes S28 Ena 103	The output is displayed differently. ACL field is shown before dot1x in FastIron 07.4.00b.

show auth-mac-addresses authorized-mac ip-addr	Brocade#sh auth-mac-addresses authorized-mac ip-add -- ------ MAC Address SourceIp Port Vlan Auth Age dot1x ACL -- ------ 54d1.1896.0000 102.1.1.1 2/1/8 1006 Yes Ena Ena 103	The output is displayed differently. ACL field is shown before dot1x in FastIron 07.4.00b.
show ipv6 interface ethernet 1/1 ?	Interface Eth 1/1/1 is up, line protocol is up IPv6 is enabled, link-local address is fe80:411::411:1 [Preferred] Global unicast address(es): 2000:411:411:411::1 [Preferred], subnet is 2000:411:411:411::/64 2000:411:411:411:: [Anycast], subnet is 2000:411:411:411::/64 Joined group address(es): ff02::1:ff00:1 ff02::1:ff11:1 ff02::16 ff02::d ff02::1:ff00:0 ff02::2 ff02::1 Port belongs to VRF: default-vrf MTU is 1500 bytes ICMP redirects are disabled ND DAD is enabled, number of DAD attempts: 3 ND reachable time is 30000 miliseconds ND retransmit interval is 1000 miliseconds ND advertised reachable time is 0 seconds ND advertised retransmit interval is 0 miliseconds ND router advertisements are sent every 113 seconds ND router advertisements live for 1800 seconds Hosts use stateless autoconfig for addresses No Inbound Access List Set Outbound Access List	"Port belongs to VRF" information is added.

show tech-support memory	Brocade#sh tech-support memory
	
	MEMORY Related Information :
	Stack unit 1:
	  Total DRAM: 536870912 bytes
	  Dynamic memory: 427036672 bytes total, 291012608 bytes free, 31% used
	Stack unit 2:
	  Total DRAM: 536870912 bytes
	  Dynamic memory: 427053056 bytes total, 293904384 bytes free, 31% used
	
	FLASH Related Information :
	Stack unit 1:
	  Compressed Pri Code size = 8780516, Version:008.0.00a.00áT7f3 (FCXR08000b1.bin)
	  Compressed Sec Code size = 7184942, Version:07.4.00bT7f3 (FCXR07400b.bin)
	  Compressed Boot-Monitor Image size = 370733, Version:07.3.03T7f5
	  Code Flash Free Space = 48627712
	Stack unit 2:
	  Compressed Pri Code size = 8780516, Version:008.0.00a.00BT7f3 (FCXR08000b1.bin)
	  Compressed Sec Code size = 7184942, Version:07.4.00BT7f3 (FCXR07400b.bin)
	  Compressed Boot-Monitor Image size = 370733, Version:07.3.03T7f5
	  Code Flash Free Space = 48889856
		DM memory-related information is removed.

show auth-mac-addresses detailed ethernet ?	Brocade#sh auth-mac-addresses detailed e 2/1/8 Port : 2/1/8 Dynamic-Vlan Assignment : Enabled RADIUS failure action : Block Traffic Failure restrict use dot1x : No Override-restrict-vlan : Yes Port Default VLAN : 1006 (RADIUS assigned: Yes) (1006) Port Vlan State : RADIUS VLAN 802.1x override Dynamic PVID : NO Original PVID : 1 DOS attack protection : Disabled Accepted Mac Addresses : 1 Rejected Mac Addresses : 0 Authentication in progress : 0 Authentication attempts : 0 RADIUS timeouts : 0 RADIUS timeouts action : Retry MAC Address on PVID : 1 MAC Address authorized on PVID : 1 Aging of MAC-sessions : Enabled Port move-back vlan : Port-configured-vlan Max-Age of sw mac session : 120 seconds hw age for denied mac : 70 seconds MAC Filter applied : No Dynamic Acl applied : Yes(103) default ACL ID on port : 0 number of dynamic ACL : 1 num Dynamic Tagged Vlan : 0 ---------- ----- MAC Address RADIUS Server Authenticated Time Age Dot1x ---------- ----- 54d1.1896.0000 10.20.79.121 Yes 00d00h01m57s Ena Ena	"Dynamic ACL applied" field shows correct information in FastIron 08.0.00a.

show ipv6 interface ve 2 debug	Brocade#show ipv6 int ve 400 debug Interface ve 400 , Port 2065, addr c:0x263019d6, p:0x2a588300, n:0x263886c6 Conf: #Addr 1, enabled_conf 1, curr: enabled 1 port_enabled 1, port_is_up 0, mtu 1500, metric 1, redir 0 Address: 2000:400:400:400::3/64 LL address fe80:400::400:1 RUN: Port 2065, EUI 205:ff:fe05:5/64, MAC 0005.0005.0005/6, #Addr 0 MC addr ff02::16, ref 1, valid 1 MC addr ff02::d, ref 1, valid 1 MC addr ff02::1:ff00:0, ref 1, valid 1 MC addr ff02::2, ref 1, valid 1 MC addr ff02::1, ref 1, valid 1 ND6: reachable time 23241, base 30000 dad_transmit 3, retransmit_timer(NS) 1000 (mSecs) link_mtu 0, max_mtu 0, hop_limit 64 flags 0, managed_flag 0, other_config_flag 0 send_router_solicit 0, solicit_sent_count 0, solicit_timer 0 send_rtr_advert 1, send_init_rtr_advert 0, time_since_last_ra_sent 2 rtr_adv_interval (cfg)(curr) 3(3), rtr_adv_timer 2, rtr_adv_sent_cnt 3 adv: default_lifetime 1800, reachable_time 0, retransmit_timer 0 (milisecs) adv: link_mtu 1500, hop_limit 64, managed_flag 0, other_config_flag 0 Brocade#	VLAN ID greater than 255 can now be used.
show ipv6 interface loopback 2 ?	Interface Loopback 2 is up, line protocol is up IPv6 is enabled, link-local address is fe80::205:ff:fe05:5 [Preferred] Global unicast address(es): 2000:2:2:2::20 [Preferred], subnet is 2000:2:2:2::/64 2000:2:2:2:: [Anycast], subnet is 2000:2:2:2::/64 Joined group address(es): ff02::1:ff00:20 ff02::1:ff05:5 ff02::16 ff02::d ff02::1:ff00:0 ff02::2 ff02::1 Port belongs to VRF: default-vrf MTU is 1500 bytes ICMP redirects are disabled No Inbound Access List Set Outbound Access List OSPF enabled	"Port belongs to VRF" information is added.

show ip ospf area 1.2.3.4 database link-state ?	Brocade#sh ip ospf area 0.0.0.200 database link-state Link States Index Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 1 0.0.0.200 Rtr 192.168.98.111 192.168.98.111 800001c3 498 0x2cb1 Done 2 0.0.0.200 Rtr 192.168.98.213 192.168.98.213 8000000b 498 0x723b Done 3 0.0.0.200 Rtr 192.168.98.113 192.168.98.113 800001a4 1246 0x9940 Done 4 0.0.0.200 Rtr 192.168.98.112 192.168.98.112 8000024f 646 0x332b Done 5 0.0.0.200 Net 192.113.112.113 192.168.98.113 800000ba 1246 0x08ce Done 6 0.0.0.200 Net 192.213.111.111 192.168.98.111 80000002 535 0x6d5e Done 7 0.0.0.200 Net 192.113.111.113 192.168.98.113 8000010e 1246 0x6122 Done 8 0.0.0.200 Net 193.213.111.213 192.168.98.213 80000002 498 0x609d Done	The output format is different. And, new "sync state" field is added.
show ip ospf ?	Brocade#sh ip ospf OSPF Version Version 2 Router Id 192.168.98.213 ASBR Status Yes ABR Status Yes (1) Redistribute Ext Routes from Connected RIP Initial SPF schedule delay 0 (msecs) Minimum hold time for SPFs 0 (msecs) Maximum hold time for SPFs 0 (msecs) External LSA Counter 2 External LSA Checksum Sum 000104fc Originate New LSA Counter 737 Rx New LSA Counter 1591 External LSA Limit 6990506 Database Overflow Interval 0 Database Overflow State : NOT OVERFLOWED RFC 1583 Compatibility : Enabled NSSA Translator: Enabled Nonstop Routing: Disabled Graceful Restart: Enabled, timer 120 Graceful Restart Helper: Enabled	The output format is different. And, more fields are added including ABR Status, Redistribution status, SPF delay, Hold time for SPFs, NSSA translator, Nonstop routing info, and GR helper.

show ip ospf area 1.2.3.4 database link-state advertise 2	Brocade#sh ip ospf area 0.0.0.200 database link-state advertise 1 Index Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 1 0.0.0.200 Rtr 192.168.98.111 192.168.98.111 8000010a 477 0xbe56 Done LSA Header: options: 0x02, seq-nbr: 0x8000010a, length: 72, flags:0x0500 link id = 193.213.111.213, link data = 193.213.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.113.111.113, link data = 192.113.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.213.111.111, link data = 192.213.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 193.113.111.113, link data = 193.113.111.111, type = transit(2) tos count = 0, tos0_metric = 1	The output format is different. And, new "sync state" field is added.
show ip ospf area 1.2.3.4 database link-state asbr	Brocade#sh ip ospf area 0.0.0.200 database link-state asbr Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 ASBR 192.168.98.213 192.168.98.113 80000003 1129 0xc1b7 Done LSA Header: options: 0x02, seq-nbr: 0x80000003, length: 28 NetworkMask: 0.0.0.0 TOS 0: metric: 2 Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 ASBR 192.168.98.190 192.168.98.111 80000108 1776 0x9def Done LSA Header: options: 0x02, seq-nbr: 0x80000108, length: 28 NetworkMask: 0.0.0.0 TOS 0: metric: 1 Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 ASBR 192.168.98.190 192.168.98.112 80000143 814 0x2b25 Done LSA Header: options: 0x02, seq-nbr: 0x80000143, length: 28 NetworkMask: 0.0.0.0 TOS 0: metric: 2	The output format is different. And, new "sync state" field is added.

show ip ospf area 1.2.3.4 database link-state extensive	Brocade#sh ip ospf area 0.0.0.200 database link-state extensive Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Rtr 192.168.98.111 192.168.98.111 800001cc 874 0xb3ba Done LSA Header: options: 0x02, seq-nbr: 0x800001cc, length: 72, flags:0x0500 link id = 193.213.111.213, link data = 193.213.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.113.111.113, link data = 192.113.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.213.111.213, link data = 192.213.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 193.113.111.0, link data = 255.255.255.0, type = stub(3) tos count = 0, tos0_metric = 1 Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Rtr 192.168.98.213 192.168.98.213 8000001c 337 0xb67f Done LSA Header: options: 0x02, seq-nbr: 0x8000001c, length: 3072, flags:0x0700 link id = 192.168.98.213, link data = 255.255.255.255, type = stub(3) tos count = 0, tos0_metric = 1 link id = 192.169.98.113, link data = 255.255.255.255, type = stub(3) tos count = 0, tos0_metric = 1 link id = 193.213.111.213, link data = 193.213.111.213, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.213.111.213, link data = 192.213.111.213, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.213.101.0, link data = 255.255.255.0, type = stub(3) tos count = 0, tos0_metric = 1 link id = 192.213.1.2, link data = 255.255.255.254, type = stub(3) tos count = 0, tos0_metric = 1	The output format is different. And, new "sync state" field is added.

show ip ospf area 1.2.3.4 database link-state link-state-id 1.2.3.4	Brocade#sh ip ospf area 0.0.0.200 database link-state link-state-id 192.168.98.111 Ospf link-state by link-state ID 192.168.98.111 are in the following: Area ID Aging LS ID Router Seq(hex) Chksum SyncState Type 0.0.0.200 991 192.168.98.111 192.168.98.111 800001cc 0000b3ba Done RTR LSA Header: options: 0x02, seq-nbr: 0x800001cc, length: 72, flags:0x0500 link id = 193.213.111.213, link data = 193.213.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.113.111.113, link data = 192.113.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.213.111.213, link data = 192.213.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 193.113.111.0, link data = 255.255.255.0, type = stub(3) tos count = 0, tos0_metric = 1 Area ID Aging LS ID Router Seq(hex) Chksum SyncState Type 0.0.0.200 746 192.168.98.111 192.168.98.111 80000107 0000c618 Done SUMM LSA Header: options: 0x02, seq-nbr: 0x80000107, length: 28 NetworkMask: 255.255.255.255 TOS 0: metric: 1 Area ID Aging LS ID Router Seq(hex) Chksum SyncState Type 0.0.0.200 1686 192.168.98.111 192.168.98.112 800001fc 0000de08 Done SUMM LSA Header: options: 0x02, seq-nbr: 0x800001fc, length: 28 NetworkMask: 255.255.255.255 TOS 0: metric: 2	The output format is different. And, new "sync state" field is added.

show ip ospf area 1.2.3.4 database link-state network	Brocade#sh ip ospf area 0.0.0.200 database link-state network Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Net 192.113.112.113 192.168.98.113 800000be 409 0xffd2 Done LSA Header: options: 0x02, seq-nbr: 0x800000be, length: 32 NetworkMask: 255.255.255.254 attached router: 192.168.98.113 attached router: 192.168.98.112 Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Net 192.213.111.213 192.168.98.213 80000004 1063 0x6993 Done LSA Header: options: 0x02, seq-nbr: 0x80000004, length: 32 NetworkMask: 255.255.255.0 attached router: 192.168.98.213 attached router: 192.168.98.111 Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Net 192.113.111.113 192.168.98.113 80000111 1098 0x5b25 Done LSA Header: options: 0x02, seq-nbr: 0x80000111, length: 32 NetworkMask: 255.255.255.0 attached router: 192.168.98.113 attached router: 192.168.98.111 Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Net 193.213.111.213 192.168.98.213 80000005 436 0x5aa0 Done LSA Header: options: 0x02, seq-nbr: 0x80000005, length: 32 NetworkMask: 255.255.255.0 attached router: 192.168.98.213 attached router: 192.168.98.111 Brocade#	The output format is different. And, new "sync state" field is added.
show ip ospf area 1.2.3.4 database link-state router	Brocade#sh ip ospf area 0.0.0.200 database link-state router Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Rtr 192.168.98.111 192.168.98.111 800001ce 260 0xafbc Done LSA Header: options: 0x02, seq-nbr: 0x800001ce, length: 72, flags:0x0500 link id = 193.213.111.213, link data = 193.213.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.113.111.113, link data = 192.113.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.213.111.213, link data = 192.213.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 193.113.111.0, link data = 255.255.255.0, type = stub(3) tos count = 0, tos0_metric = 1	The output format is different. And, new "sync state" field is added.

show ip ospf area 1.2.3.4 database link-state router-id 1.2.3.4	Brocade#sh ip ospf area 0.0.0.200 database link-state router-id 192.168.98.111 Ospf link-state by router ID 192.168.98.111 are in the following: Area ID Aging LS ID Router Seq(hex) Chksum SyncState Type 0.0.0.200 1928 192.168.98.111 192.168.98.111 800001cd 0000b1bb Done RTR LSA Header: options: 0x02, seq-nbr: 0x800001cd, length: 72, flags:0x0500 link id = 193.213.111.213, link data = 193.213.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.113.111.113, link data = 192.113.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 192.213.111.213, link data = 192.213.111.111, type = transit(2) tos count = 0, tos0_metric = 1 link id = 193.113.111.0, link data = 255.255.255.0, type = stub(3) tos count = 0, tos0_metric = 1 Area ID Aging LS ID Router Seq(hex) Chksum SyncState Type 0.0.0.200 1686 192.168.42.111 192.168.98.111 80000108 00002fe6 Done SUMM LSA Header: options: 0x02, seq-nbr: 0x80000108, length: 28 NetworkMask: 255.255.255.255 TOS 0: metric: 1 Area ID Aging LS ID Router Seq(hex) Chksum SyncState Type 0.0.0.200 1686 192.190.101.0 192.168.98.111 80000108 0000fe34 Done SUMM LSA Header: options: 0x02, seq-nbr: 0x80000108, length: 28 NetworkMask: 255.255.255.0 TOS 0: metric: 2	The output format is different. And, new "sync state" field is added.

show ip ospf area 1.2.3.4 database link-state summary	Brocade#sh ip ospf area 0.0.0.200 database link-state summary Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Summ 192.213.1.166 192.168.98.112 80000003 1670 0xcc11 Done LSA Header: options: 0x02, seq-nbr: 0x80000003, length: 28 NetworkMask: 255.255.255.254 TOS 0: metric: 4 Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Summ 192.213.2.180 192.168.98.112 80000003 1670 0x3599 Done LSA Header: options: 0x02, seq-nbr: 0x80000003, length: 28 NetworkMask: 255.255.255.254 TOS 0: metric: 4 Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Summ 192.213.1.242 192.168.98.112 80000003 1670 0xd1bf Done LSA Header: options: 0x02, seq-nbr: 0x80000003, length: 28 NetworkMask: 255.255.255.254 TOS 0: metric: 4 Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Summ 192.213.2.62 192.168.98.112 80000003 1670 0xd56f Done LSA Header: options: 0x02, seq-nbr: 0x80000003, length: 28 NetworkMask: 255.255.255.254 TOS 0: metric: 4 Area ID Type LS ID Adv Rtr Seq(Hex) Age Cksum SyncState 0.0.0.200 Summ 192.213.1.48 192.168.98.112 80000003 1670 0x6de6 Done LSA Header: options: 0x02, seq-nbr: 0x80000003, length: 28 NetworkMask: 255.255.255.254	The output format is different. And, new "sync state" field is added.
show ip ospf area 1.2.3.4 database link-state sequence-number 7FFF	Brocade#sh ip ospf area 0.0.0.200 database link-state sequence-number 80000143 Ospf link-state by sequence number 80000143 are in the following: Area ID Aging LS ID Router Seq(hex) Chksum SyncState Type 0.0.0.200 865 192.168.98.190 192.168.98.112 80000143 0000430d Done SUMM LSA Header: options: 0x02, seq-nbr: 0x80000143, length: 28 NetworkMask: 255.255.255.255 TOS 0: metric: 3 Area ID Aging LS ID Router Seq(hex) Chksum SyncState Type 0.0.0.200 865 192.168.98.190 192.168.98.112 80000143 00002b25 Done ASBR LSA Header: options: 0x02, seq-nbr: 0x80000143, length: 28 NetworkMask: 0.0.0.0 TOS 0: metric: 2	The output format is different. New "sync state" field is added. "tos count" field is changed to "TOS", "tos0_metric" is changed to"metric". "Flags" option is removed.

show ip bgp debug network 1.2.3.0 255.255.255.0	Brocade#show ip bgp debug network 1.1.1.32/32 BGP: network 1.1.1.32/32 found (x26ce0498, 0, 26ce0405) 1.1.1.32/32 weight:32768 back_door:0 imported:1 route-map:<> sptr:x0 next_hop:0.0.0.0 med:0 tag:0 type:1	Found entry is added in front of network.
show ipv6 ospf memory	Brocade#sh ipv6 ospf memory Total Dynamic Memory Allocated for this instance : 7944947 bytes Memory Type Size Allocated Max-alloc Alloc-Fails MTYPE_OSPF6_AREA 471191 3 4 0 MTYPE_OSPF6_AREA_RANGE 29 0 4 0 MTYPE_OSPF6_SUMMARY_ADDRE 25 0 4 0 MTYPE_OSPF6_IF 280 254 256 0 MTYPE_OSPF6_NEIGHBOR 12502 3 8 0 MTYPE_OSPF6_ROUTE_NODE 21 324 512 0 MTYPE_OSPF6_ROUTE_INFO 35 322 512 0 MTYPE_OSPF6_PREFIX 20 0 4 0 MTYPE_OSPF6_LSA 129 976 1024 0 MTYPE_OSPF6_VERTEX 166 14 16 0 MTYPE_OSPF6_SPFTREE 44 3 4 0 MTYPE_OSPF6_NEXTHOP 28 258 512 0 MTYPE_OSPF6_EXTERNAL_INFO 40 2 512 0 MTYPE_THREAD 32 75 1024 0 MTYPE_OSPF6_LINK_LIST 20 15544 16384 0 MTYPE_OSPF6_LINK_NODE 12 2885 4096 0 MTYPE_OSPF6_LSA_RETRANSMI 6 0 1024 0 global memory pool for all instances Memory Type Size Allocated Max-alloc Alloc-Fails MTYPE_OSPF6_TOP 61475 1 1 0 MTYPE_OSPF6_LSA_HDR 5072 976 977 0 MTYPE_OSPF6_RMAP_COMPILED 0 0 0 0 MTYPE_OSPF6_OTHER 0 0 0 0 MTYPE_THREAD_MASTER 84 1 1 0	Global Memory pool for all instances is added.
show ip ssh config	Brocade#show ip ssh config SSH server : Enabled SSH port : tcp\22 Host Key : DSA 1024 Encryption : AES-256, AES-192, AES-128, 3-DES Permit empty password : No Authentication methods : Password, Public-key, Interactive Authentication retries : 3 Login timeout (seconds) : 120 Idle timeout (minutes) : 0 Strict management VRF : Disabled SCP : Enabled SSH IPv4 clients : All SSH IPv6 clients : All SSH IPv4 access-group : SSH IPv6 access-group : SSH Client Keys : Brocade#	The output is modified and now it also shows Host Key, Strict management VRF, and SSH Client Keys.

show ipc_stats	Brocade#show ipc_stats Total available Hsync channel space = 1572868 Total available Appl channel space = 1572868 Total number of application msgs in dyn queue = 0 Total number of hsync msgs in dyn queue = 0 Total number of rx pkt msgs in standby dynamic queue = 0 Total number of rx pkts relayed = 458429 Total number of rx pkts received = 0 Total number of dy-sync messages received so far = 0 Total number of rel-sync pending complete = 0 Total number of L3 baseline-sync packets = 1 Avg number of retries for packet send on IPC = 0 Is image_sync_in_progress? = 0 Is hotswap_in_progress? = 0 Is mgmt_hswap_in_progress? = 0 Total num of rx dyn queue drops = 0 Total num of jumbo corrupts = 0 Is l3_ip6_cleanup_not_done? = 0 Rel Sync Ready Status = 2 Is Console Access through Appl Task? = 1 Is reload required? = 0 Real-time yeilds = 0 Brocade#	The output is modified.
show ipv6 memory	Brocade#show ipv6 memory Memory Type Size Allocated Max-alloc Alloc-Fails MTYPE_TMP 0 0 0 0 MTYPE_ROUTE_TABLE 180 121 121 0 MTYPE_ROUTE_NODE 0 0 0 0 MTYPE_IF_PORT 120 22 22 0 MTYPE_IF_ADDRESS_CONFIG 23 27 27 0 MTYPE_IF_ADDRESS 56 66 66 0 MTYPE_IF_PREFIX 0 0 0 0 MTYPE_MC_ADDRESS 24 187 187 0 MTYPE_DEFAULT_ROUTE 0 0 0 0 MTYPE_ND6_NEIGHBOR_STATIC 0 0 0 0 MTYPE_ND6_DAD 22 0 34 0 MTYPE_ND6_PREFIX_ADV 0 0 0 0 MTYPE_LINK_LIST 0 0 0 0 MTYPE_LINK_NODE 0 0 0 0 MTYPE_ECHO_RESULTMTYPE_RI 0 0 0 0 0 0 0 0	MTYPE_RIPNG_PORT field is removed. Also, MTYPE_ECHO_RESULT fields are different.

show ipv6 interface loopback 2 debug	Interface Loopback 2 is up, line protocol is up
	  IPv6 is enabled, link-local address is fe80::234:ff:fe34:34
	[Preferred]
	  Global unicast address(es):
	  2000:202:202:202::1 [Preferred], subnet is 2000:202:202:202::/64
	  2000:202:202:202:: [Anycast], subnet is 2000:202:202:202::/64
	  Joined group address(es):
	  ff02::1:ff00:1
	  ff02::1:ff34:34
	  ff02::16
	  ff02::d
	  ff02::1:ff00:0
	  ff02::2
	  ff02::1
	  Port belongs to VRF: default-vrf
	  MTU is 1500 bytes
	  ICMP redirects are disabled
	  No Inbound Access List Set
	  Outbound Access List
	  OSPF enabled
	Interface loopback 2, Port 2304, addr c:0x2598e600, p:0x29c03880, n:0x259f6600
	Conf:
	 #Addr 1, enabled_conf 1, curr: enabled 1
	 port_enabled 1, port_is_up 1, mtu 1500, metric 1, redir 0
	 Address: 2000:202:202:202::1/64
	RUN:
	 Port 2304, EUI 234:ff:fe34:34/64, MAC 0034.0034.0034/6, #Addr 2
	 LL Addr fe80::234:ff:fe34:34, Preferred, Cache 0
	  flags 00, preferred_lifetime 4294967295, valid_lifetime 4294967295
	 Addr 2000:202:202:202::1, Preferred, subnet 2000:202:202:202::/64
	  flags 00, preferred_lifetime 4294967295, valid_lifetime 4294967295
	 Addr 2000:202:202:202::, Anycast, subnet 2000:202:202:202::/64
	  flags 21, preferred_lifetime 4294967295, valid_lifetime 4294967295
	 MC addr ff02::1:ff00:1, ref 1, valid 1
	 MC addr ff02::1:ff34:34, ref 1, valid 1
	 MC addr ff02::16, ref 1, valid 1
	 MC addr ff02::d, ref 1, valid 1
	 MC addr ff02::1:ff00:0, ref 1, valid 1
		"Port belongs to VRF" information is added.

show ipv6 ospf area 1.2.3.4	Brocade#show ipv6 ospf area 100 Area 100: Authentication: Not Configured Active interface(s)attached to this area: ve 100 Inactive interface(s)attached to this area: None Number of Area scoped LSAs is 5 Sum of Area LSAs Checksum is 2e293 Statistics of Area 100: SPF algorithm executed 3 times SPF last updated: 15 sec ago Current SPF node count: 3 Router: 2 Network: 1 Maximum of Hop count to nodes: 2	Inactive interfaces and virtual-link interface information are added.

show tech-support l3 ipv4-uc	Too big to paste	IP Routing Table, IP Ospf Trap, IP Ospf Error, IP Ospf Resource, IP Ospf Neighbor Detail, IP Ospf Virtual-link, IP Ospf Virtual-neighbor, IP RIP Routes, and IP RIP Interfaces information removed.
show ipv6 route rip	Brocade#show ipv6 route rip Type Codes - B:BGP C:Connected I:ISIS L:Local O:OSPF R:RIP S:Static BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Type IPv6 Prefix Next Hop Router Interface Dis/Metric Uptime R 7124::/64 fe80::224:38ff:febb:e500 ve 4011 100/2 0m0s R 8111::1/128 fe80::224:38ff:febb:e500 ve 4011 100/2 0m0s Brocade#	ISIS option is added. And, OSPF Codes displayed in a different format.
show ipv6 route static	Brocade#show ipv6 route static Type Codes - B:BGP C:Connected I:ISIS L:Local O:OSPF R:RIP S:Static BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Type IPv6 Prefix Next Hop Router Interface Dis/Metric Uptime	ISIS option is added. And, OSPF codes are displayed in a different format.
show ipv6 route summary	Brocade#show ipv6 route summary IPv6 Routing Table - 6 entries: 6 connected, 0 static, 0 RIP, 0 OSPF, 0 BGP, 0 ISIS Number of prefixes: /64:6	ISIS option is added.

show ip ospf config	Brocade#sh ip osp config Router OSPF: Enabled Nonstop Routing: Enabled Graceful Restart: Disabled Graceful Restart Helper: Enabled Graceful Restart Time: 120 Graceful Restart Notify Time: 0 Redistribution: Disabled Default OSPF Metric: 10 OSPF Auto-cost Reference Bandwidth: Disabled Default Passive Interface: Disabled OSPF Redistribution Metric: Type2 OSPF External LSA Limit: 6990506 OSPF Database Overflow Interval: 0 RFC 1583 Compatibility: Enabled Router id: 1.2.3.4 Interface State Change Trap: Enabled Virtual Interface State Change Trap: Enabled Neighbor State Change Trap: Enabled Virtual Neighbor State Change Trap: Enabled Interface Configuration Error Trap: Enabled Virtual Interface Configuration Error Trap: Enabled Interface Authentication Failure Trap: Enabled Virtual Interface Authentication Failure Trap: Enabled Interface Receive Bad Packet Trap: Enabled Virtual Interface Receive Bad Packet Trap: Enabled Interface Retransmit Packet Trap: Disabled Virtual Interface Retransmit Packet Trap: Disabled Originate LSA Trap: Disabled Originate MaxAge LSA Trap: Disabled Link State Database Overflow Trap: Disabled Link State Database Approaching Overflow Trap: Disabled OSPF Area currently defined: Area-ID Area-Type Cost 100 normal 0 0 normal 0	List of OSPF configure interfaces is not listed under this command in FastIron 08.0.00a. You can instead use "show ip ospf interface" command to see them.
show ip pim flowcache	Router OSPF: Enabled	Explanation is changed.
show arp ?	Nonstop Routing: Enabled	Management and VRF option is added.
show arp	Graceful Restart: Disabled	Maximum capacity is removed. And, default routing instance is added.
show arp 2	Graceful Restart Helper: Enabled	Maximum capacity is removed. And, default routing instance is added.

show arp inspect	Graceful Restart Time: 120	Maximum capacity is removed. And, default routing instance is added.
show ip ospf redistribute route ?	Graceful Restart Notify Time: 0	"metric" keyword is added.
show ip ospf redistribute route 1.2.3.4 1.2.3.4	Redistribution: Disabled	"metric" keyword is added.
show ip pim nbr	Default OSPF Metric: 10	Header format is modified.
show ip pim neighbor	OSPF Auto-cost Reference Bandwidth: Disabled	Header format is modified.
show ip pim traffic	Default Passive Interface: Disabled	Header format is modified.
show ip pim rp-map	OSPF Redistribution Metric: Type2	Header format is modified.
show ip rip ?	OSPF External LSA Limit: 6990506	The output is modified to provide more details.
show snmp server	OSPF Database Overflow Interval: 0	More options are added. For example, "Status: Enabled".
show ip rip interface ?	RFC 1583 Compatibility: Enabled	The output format is modified. Metric-offset, Prefix List, and Route-map information are added.
show ip rip interface ethernet 1/1	Router id: 1.2.3.4	The output format is different. Metric-offset, Prefix List, Route-map information, RIP sent/receive packet statistics, and RIP error packet statistics information are added.

show ip rip interface ve 2	Interface State Change Trap: Enabled	The output format is different. Metric-offset, Prefix List, Route-map information, RIP sent/receive statistics, and Error information are added.
show ip ?	Virtual Interface State Change Trap: Enabled	"mroute" is removed. And, dns-server, msdp, rtm, ssl, and vrf are added.
show ipsec policy	Interface Authentication Failure Trap: Enabled	The output format is different.
show ipv6 ospf interface ?	Virtual Interface Authentication Failure Trap: Enabled	The output format is different.
show ipv6 ospf interface tunnel ?	Interface Receive Bad Packet Trap: Enabled	The output format is different.
show ipv6 ospf routes 2000:5678:90ab:cdef:0123:4567:890a:bcde	Virtual Interface Receive Bad Packet Trap: Enabled	The output format is different.

show ip ospf debug memory	WEN-FCX(config-vif-100)#sh ip osp debug mem OSPF Memory Use 1233360, Mem_Quota 251658240, DEFAULT_LSDB_LIMIT 6990506 Pid BlkSize BlkTotal UsedBlks FreeBlks AllocErr StartAddr ListAddr 0 0 0 0 0 0 0 0 1 40 2000 13 1987 0 274a4004 274a41e4 2 104 4000 11 3989 0 274b8004 274b847c 3 132 32 0 32 0 2751e004 2751e004 4 260 16 0 16 0 27520004 27520004 5 519 32 2 30 0 27522004 27522412 6 1504 32 0 32 0 27527004 27527004 7 4309 16 1 15 0 27533004 275340d9 8 37204 16 2 14 0 27544004 275562ac 9 0 0 0 0 0 0 0 10 0 0 0 0 0 0 0 11 0 0 0 0 0 0 0 Total Memory blocks allocated 29 Mega Memory List Pool Id = 1, Total Mega blocks = 1 Errors = 0 Pool Id = 2, Total Mega blocks = 1 Errors = 0 Pool Id = 3, Total Mega blocks = 1 Errors = 0 Pool Id = 4, Total Mega blocks = 1 Errors = 0 Pool Id = 5, Total Mega blocks = 1 Errors = 0 Pool Id = 6, Total Mega blocks = 1 Errors = 0 Pool Id = 7, Total Mega blocks = 1 Errors = 0 Pool Id = 8, Total Mega blocks = 1 Errors = 0 OSPF Main Routing Table: 2660fc00 node_count 3, top 0x26857024, default_valid 0, default_route 0xffffffff Table private pool: init#=4096 unit_s=36 total=4096 in_use=2 **fail=0** limit=950272 UsedBlks AllocErr TotAlloc PType 0 0 0 0 OSPF_MEMORY_POOL_ANY 1 3 0 9 OSPF_MEMORY_POOL_ROUTER_LINK_ADVERTISEMENT 2 1 0 1 OSPF_MEMORY_POOL_NETWORK_LINK_ADVERTISEMENT 3 3 0 5 OSPF_MEMORY_POOL_SUMMARY_LINK_ADVERTISEMENT 4 0 0 0 OSPF_MEMORY_POOL_EXTERNAL_LINK_ADVERTISEMENT 5 0 0 0 OSPF_MEMORY_POOL_OPAQUE_LINK_ADVERTISEMENT 6 0 0 2 OSPF_MEMORY_POOL_LS_DATABASE_SUMMARY 7 0 0 2 OSPF_MEMORY_POOL_LS_DATABASE_NODE 8 0 0 10 OSPF_MEMORY_POOL_SHORTEST_PATH_NODE	New memory allocation table is added.

show ip route summary	Brocade#show ip route summary
	IP Routing Table - 13 entries:
	  7 connected, 2 static, 1 RIP, 2 OSPF, 1 BGP
	  Number of prefixes:
	  /8: 1 /24: 7 /26: 1 /30: 2 /32: 2
	Nexthop Table Entry - 9 entries
		Nexthop Table Entry information is added.

show processes cpu 2	Brocade#show process cpu 2 Statistics for last 1 sec and 988 ms Process Name Sec(%) Time(ms) ARP 0.08 1 BGP 0.00 0 DOT1X 0.00 0 GVRP 0.00 0 ICMP 0.00 0 IP 0.00 0 OSPF 0.00 0 RIP 0.00 0 STP 0.00 0 VRRP 0.70 14 Statistics for last 1 sec and 988 ms Process Name Sec(%) Time(ms) IPv6 0.00 0 ICMP6 0.01 0 ND6 0.02 0 RIPng 0.00 0 OSPFv3 0.00 0 IPV6_RX 0.00 0 NULL 0.00 0 Brocade#	NULL entry is added.
show ipv6 route ?	Brocade#show ipv6 route X:X::X:X IPv6 address X:X::X:X/M IPv6 prefix bgp Display BGP routes connect Display directly attached routes ospf Display OSPFv3 routes rip Display RIPng routes static Display static IPv6 routes summary Summary display vrf Display VRF routes | Output modifiers <cr>	Option vrf will now display VRF specific routes.
show ipv6 ospf virtual-neighbor	Brocade#sh ipv6 ospf virtual-neigh Index Router ID Address State Interface 1 192.168.98.111 5100::192:113:111:111 Full e 4/3/1 Option: 00-00-00 QCount: 0 Timer: 476	Option, Qcount and Timer options are added.
show ip ospf neighbor ?	Brocade#sh ip ospf neigh Number of Neighbors is 3, in FULL state 3 Port Address Pri State Neigh Address Neigh ID Ev Opt Cnt 4/3/1*8/3/1 193.213.111.213 1 FULL/BDR 193.213.111.111 192.168.98.111 6 2 0 v17 192.213.111.213 1 FULL/BDR 192.213.111.111 192.168.98.111 6 2 0 v222 192.213.163.213 1 FULL/BDR 192.213.163.163 192.168.98.163 6 2 0	Options and CNT fields are added.
show ip ospf neighbor 2	Brocade#sh ip ospf neigh 2 Port Address Pri State Neigh Address Neigh ID Ev Opt Cnt v17 192.213.111.213 1 FULL/BDR 192.213.111.111 192.168.98.111 6 2 0	Options and CNT fields are added.

show ip ospf neighbor router-id 1.2.3.4	Brocade#sh ip ospf neighbor router-id 192.168.98.111 Port Address Pri State Neigh Address Neigh ID Ev Opt Cnt 4/3/1*8/3/1 193.213.111.213 1 FULL/BDR 193.213.111.111 192.168.98.111 6 2 0 v17 192.213.111.213 1 FULL/BDR 192.213.111.111 192.168.98.111 6 2 0	Options and CNT fields are added.
show ip route 2	Brocade#show ip route 2 Total number of IP routes: 8 Type Codes - B:BGP D:Connected O:OSPF R:RIP S:Static; Cost - Dist/Metric BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Destination Gateway Port Cost Type Uptime 2 1.0.0.2/32 1.1.1.2 ve 100 110/501 O 41m45s 3 1.1.1.0/30 DIRECT ve 100 0/0 D 42m24s 4 1.100.1.0/24 DIRECT e 1/1/24 0/0 D 45m26s 5 1.102.1.0/24 1.1.1.2 ve 100 110/2 O 13m26s 6 1.111.1.0/30 DIRECT tunnel 2 0/0 D 29m12s 7 10.0.0.0/8 10.20.75.126 e mgmt1 1/1 S 12h24m 8 10.20.75.64/26 DIRECT e mgmt1 0/0 D 12h24m	OSPF and BGP sub-codes, and Uptime information are added.
show ip route bgp	Brocade#show ip route bgp Type Codes - B:BGP D:Connected O:OSPF R:RIP S:Static; Cost - Dist/Metric BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Destination Gateway Port Cost Type Uptime 1 1.202.1.0/24 1.1.1.2 ve 100 200/0 Bi 2m3s	OSPF and BGP sub-codes, and Uptime information are added.
show ip route direct	Brocade#show ip route direct Type Codes - B:BGP D:Connected O:OSPF R:RIP S:Static; Cost - Dist/Metric BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Destination Gateway Port Cost Type Uptime 1 1.0.0.1/32 DIRECT loopback 1 0/0 D 12h36m 2 1.1.1.0/30 DIRECT ve 100 0/0 D 54m2s 3 1.100.1.0/24 DIRECT e 1/1/24 0/0 D 57m4s 4 1.111.1.0/30 DIRECT tunnel 2 0/0 D 40m50s 5 1.201.1.0/24 DIRECT loopback 2 0/0 D 4m13s 6 10.20.75.64/26 DIRECT e mgmt1 0/0 D 12h36m	OSPF and BGP sub-codes, and Uptime information are added.

show ip route ospf	Brocade#show ip route ospf Type Codes - B:BGP D:Connected O:OSPF R:RIP S:Static; Cost - Dist/Metric BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Destination Gateway Port Cost Type Uptime 1 1.0.0.2/32 1.1.1.2 ve 100 110/501 O 1h3m 2 1.102.1.0/24 1.1.1.2 ve 100 110/2 O 35m5s	OSPF and BGP sub-codes, and Uptime information are added.
show ip route rip	Brocade#show ip route rip Type Codes - B:BGP D:Connected O:OSPF R:RIP S:Static; Cost - Dist/Metric BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Destination Gateway Port Cost Type Uptime 1 1.252.1.0/24 1.1.1.2 ve 100 120/2 R 0m28s	OSPF and BGP sub-codes, and Uptime information are added.
show ip route static	Brocade#show ip route static Type Codes - B:BGP D:Connected O:OSPF R:RIP S:Static; Cost - Dist/Metric BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Destination Gateway Port Cost Type Uptime 1 1.212.1.0/24 1.1.1.2 ve 100 1/1 S 0m29s 2 10.0.0.0/8 10.20.75.126 e mgmt1 1/1 S 12h49m	OSPF and BGP sub-codes, and Uptime information are added.
show ipv6 rip route 2000:5678:90ab:cdef:0123:4567:890a:bcde	Brocade#show ipv6 route 2001:db8:: Type Codes - B:BGP C:Connected I:ISIS L:Local O:OSPF R:RIP S:Static BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Type IPv6 Prefix Next Hop Router Interface Dis/Metric Uptime C 2001:db8::/64 :: e 1/2/3 0/0 3h8m Brocade# Brocade#	Output has Uptime and other header information.
show ipv6 rip route 2000:5678:90ab:cdef:0123:4567:890a:bcde/64	Brocade# Brocade#show ipv6 route 2001:db8::/64 Type Codes - B:BGP C:Connected I:ISIS L:Local O:OSPF R:RIP S:Static BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Type IPv6 Prefix Next Hop Router Interface Dis/Metric Uptime C 2001:db8::/64 :: e 1/2/3 0/0 3h8m Brocade# Brocade#	Output has Uptime and other header information.

show ip rip route	Brocade#show ip rip route RIP Routing Table - 8 entries: 1.1.1.1/32, from 0.0.0.0, null (0) CONNECTED, metric 1, tag 0, timers: none 1.1.1.2/32, from 192.168.1.2, e 1/1/1 (5923) RIP, metric 2, tag 0, timers: aging 15 1.1.1.3/32, from 192.168.1.2, e 1/1/1 (7043) RIP, metric 4, tag 0, timers: aging 15 1.1.1.4/32, from 192.168.1.2, e 1/1/1 (5513) RIP, metric 3, tag 0, timers: aging 15 1.1.1.5/32, from 192.168.1.2, e 1/1/1 (5514) RIP, metric 4, tag 0, timers: aging 15 1.1.1.6/32, from 192.168.1.2, e 1/1/1 (5515) RIP, metric 3, tag 0, timers: aging 15 1.1.1.7/32, from 192.168.1.2, e 1/1/1 (9650) RIP, metric 3, tag 0, timers: aging 15	The output is modified.
show ip mtu-profile detail	Brocade#show ip mtu-profile detail idx size usage ref-count 0 1500 1 default port(s) ethe 1/1/1 to 1/1/2 1 1480 1 1 port(s) ethe 1/1/2 2 1476 0 1	Port information is added.
show ip ospf virtual-neighbor ?	Brocade# sh ip ospf virtual-neigh Indx Transit Area Router ID Neighbor address options 1 0.0.0.200 192.168.98.111 192.213.111.111 2 Port Address state events count 4/3/1*8193.213.111.213 FULL 5 0	Port information is added.
show dot1x configuration ethernet	Brocade#sh dot1x configuration e 2/1/8 Port-Control : control-auto filter strict security : Enable Action on RADIUS timeout : Treat as a successful authentication Authentication-fail-action : Global action PVID State : Normal (1006) Original PVID : 1006 Authorized PVID ref count : 1 Restricted PVID ref count : 0 Radius assign PVID ref count : 0 num mac sessions : 1 num mac authorized : 1 num Dynamic Tagged Vlan : 0 Number of Auth filter : 0	PVID state shows as Radius in FastIron 07.4.00 whereas it shows as Normal in FastIron 08.0.00a.

show ip traffic	Brocade#show ip traffic
	IP Statistics
	  5145 received, 5751 sent, 0 forwarded
	  0 filtered, 0 fragmented, 0 reassembled, 0 bad header
	  0 no route, 0 unknown proto, 0 no buffer, 0 other errors
	
	ARP Statistics
	  944 total recv, 826 req recv, 143 req sent, 99 rep sent
	  0 pending drop, 0 invalid source, 0 invalid dest
	
	ICMP Statistics
	Received:
	  0 total, 0 errors, 0 unreachable, 0 time exceed
	  0 parameter, 0 source quench, 0 redirect, 0 echo,
	  0 echo reply, 0 timestamp, 0 timestamp reply, 0 addr mask
	  0 addr mask reply, 0 irdp advertisement, 0 irdp solicitation
	Sent:
	  0 total, 0 errors, 0 unreachable, 0 time exceed
	  0 parameter, 0 source quench, 0 redirect, 0 echo,
	  0 echo reply, 0 timestamp, 0 timestamp reply, 0 addr mask
	  0 addr mask reply, 0 irdp advertisement, 0 irdp solicitation
	
	UDP Statistics
	  102 received, 216 sent, 0 no port, 0 input errors
	
	TCP Statistics
	  1 active opens, 0 passive opens, 1 failed attempts
	  2 active resets, 0 passive resets, 0 input errors
	  130 in segments, 128 out segments, 1 retransmission
		RIP Statistics removed.

show ipv6 ospf ?	Brocade#show ipv6 ospf OSPFv3 Process number 0 with Router ID 0xc0a862d5(192.168.98.213) Running 0 days 2 hours 55 minutes 36 seconds Number of AS scoped LSAs is 4 Sum of AS scoped LSAs Checksum is 18565 External LSA Limit is 250000 Database Overflow Interval is 10 Database Overflow State is NOT OVERFLOWED Route calculation executed 15 times Pending outgoing LSA count 0 Authentication key rollover interval 300 seconds Number of areas in this router is 3 Router is operating as ABR Router is operating as ASBR, Redistribute: CONNECTED RIP High Priority Message Queue Full count: 0 Graceful restart helper is enabled, strict lsa checking is disabled Nonstop Routing is disabled	Router role information , GR helper info and NONSTOP routing information is added.

show snmp ?	Brocade#show snmp
	  engineid show local and remote SNMP engine IDs
	  group show SNMP groups
	  server Display SNMP server status and trap information
	  user show SNMPv3 users
	  | Output modifiers
	  <cr>
		Server explanation is added.

show ipv6 route rip	Brocade#show ipv6 route rip Type Codes - B:BGP C:Connected I:ISIS L:Local O:OSPF R:RIP S:Static BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Type IPv6 Prefix Next Hop Router Interface Dis/Metric Uptime R ada::1:1:1:2/128 fe80::224:38ff:fe8f:3000 e 1/1/1 120/2 22h11m R 2003:db8::/64 fe80::224:38ff:fe8f:3000 e 1/1/1 120/2 22h11m R 2004:db8::/64 fe80::224:38ff:fe8f:3000 e 1/1/1 120/2 22h11m R 2004:db9::/64 fe80::224:38ff:fe8f:3000 e 1/1/1 120/2 22h11m R 2006:db8::/64 fe80::224:38ff:fe8f:3000 e 1/1/1 120/3 22h11m R 2007:db8::/64 fe80::224:38ff:fe8f:3000 e 1/1/1 120/4 22h11m R bebe::1:1:1:4/128 fe80::224:38ff:fe8f:3000 e 1/1/1 120/3 22h11m R cccc::1:1:1:3/128 fe80::224:38ff:fe8f:3000 e 1/1/1 120/4 22h11m R feed:acee:0:0:223:223::/96 fe80::224:38ff:fe8f:3000 e 1/1/1 120/5 22h11m	Uptime information is added.
show ip pim dense	Brocade#show ip pim dense Global PIM Dense Mode Settings Maximum Mcache : 4096 Current Count : 105 Hello interval : 30 Neighbor timeout : 105 Join/Prune interval : 60 Inactivity interval : 180 Hardware Drop Enabled : Yes Prune Wait Interval : 3 Graft Retransmit interval : 180 Prune Age : 180 Route Precedence : mc-non-default mc-default uc-non-default uc-default	More pim dense parameter information is displayed.

show ipv6 interface ?	Brocade#sh ipv6 interface Routing Protocols : R - RIP O - OSPF Interface Status Routing Global Unicast Address VRF Eth 1/1/1 up/up 2000:411:411:411::1/64 default-vrf Eth 5/1/2 up/up 2000:512:512:512::1/64 default-vrf Ve 300 up/up O 2000:300:300:300::2/64 alpha Ve 301 up/up O 2000:301:301:301::2/64 scale1 Ve 302 up/up O 2000:302:302:302::2/64 scale2 Ve 303 up/up O 2000:303:303:303::2/64 scale3 Ve 304 up/up O 2000:304:304:304::2/64 scale4 Ve 305 up/up O 2000:305:305:305::2/64 scale5 Ve 306 up/up O 2000:306:306:306::2/64 scale6 Ve 307 up/up O 2000:307:307:307::2/64 scale7 Ve 308 up/up O 2000:308:308:308::1/64 scale8 Ve 309 up/up O 2000:309:309:309::1/64 scale9 Ve 310 up/up O 2000:310:310:310::1/64 scale10 Ve 311 up/up O 2000:311:311:311::1/64 scale11 Ve 312 up/up O 2000:312:312:312::1/64 scale12 Ve 313 up/up O 2000:313:313:313::1/64 scale13 Ve 314 up/up O 2000:314:314:314::1/64 scale14 Ve 315 up/up O 2000:315:315:315::1/64	The VRF to which the interface belongs, is added in the output.

show ip route ?	Brocade#show ip route rip Type Codes - B:BGP D:Connected O:OSPF R:RIP S:Static; Cost - Dist/Metric BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Destination Gateway Port Cost Type Uptime 1 1.1.1.2/32 192.168.1.2 e 1/1/1 120/2 R 1d3h 2 1.1.1.3/32 192.168.1.2 e 1/1/1 120/4 R 1d0h 3 1.1.1.4/32 192.168.1.2 e 1/1/1 120/3 R 1d3h 4 1.1.1.6/32 192.168.1.2 e 1/1/1 120/3 R 1d3h 5 1.1.1.7/32 192.168.1.2 e 1/1/1 120/3 R 1d3h 6 1.1.2.1/32 192.168.1.2 e 1/1/1 120/2 R 1d3h 7 1.1.6.1/32 192.168.1.2 e 1/1/1 120/3 R 1d3h 8 1.1.26.1/32 192.168.1.2 e 1/1/1 120/2 R 1d3h 9 1.1.26.2/32 192.168.1.2 e 1/1/1 120/2 R 1d3h 10 1.1.26.3/32 192.168.1.2 e 1/1/1 120/2 R 1d3h 11 1.1.26.4/32 192.168.1.2 e 1/1/1 120/2 R 1d3h	Row number and uptime for a route, are added.

show tech-support stack	Brocade#sh tech-support stack Stacking Status. alone: standalone, D: dynamic config, S: static config ID Type Role Mac Address Pri State Comment 1 S ICX6610-24F standby 748e.f834.8198 0 remote Ready 2 S ICX6610-24 active 748e.f893.4e1c 0 local Ready active standby +---+ +---+ =2/6| 2 |2/1==2/6| 1 |2/1= | +---+ +---+ | | | |------------------------| Standby u1 - protocols ready, can failover or manually switch over Current stack management MAC is 748e.f834.8199 Image-Auto-Copy is Enabled. Stack Port Status Neighbors Unit# Stack-port1 Stack-port2 Stack-port1 Stack-port2 1 up (1/2/1-1/2/2) up (1/2/6-1/2/7) U2 (2/2/6-2/2/7) U2 (2/2/1-2/2/2) 2 up (2/2/1-2/2/2) up (2/2/6-2/2/7) U1 (1/2/6-1/2/7) U1 (1/2/1-1/2/2) Unit# System uptime 1 2 days 20 hours 57 minutes 35 seconds 2 2 days 21 hours 33 seconds Stack Resource information. alloc in-use avail get-fail limit get-mem size init register attribute 19200 13636 5564 0 556800 18708 336 2400 general 12B data 32 2 30 0 7424 3 12 32 RB-tree node 16384 13641 2743 0 237568 14114 18 1024	Some extra information is added in "sh tech-support stack" output.
show ip bgp filtered-routes as-path-access-list STR	Brocade#sh ip bgp filtered-routes as-path-access-list Block Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 42.42.42.42/32 103.1.1.1 0 100 0 EF AS_PATH: 5 2 42.42.42.42/32 106.1.1.1 0 100 0 EF AS_PATH: 5	Status string m: not-local-multipath is changed to m: not-installed-multipath.

show ip bgp filtered-routes detail prefix-list STR	Brocade#sh ip bgp filtered-routes detail prefix-list STR Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE 1 Prefix: 42.42.42.42/32, Status: EF, Age: 0h29m37s NEXT_HOP: 103.1.1.1, Not Reachable, Learned from Peer: 103.1.1.1 (5) LOCAL_PREF: 100, MED: 0, ORIGIN: igp, Weight: 0 AS_PATH: 5 2 Prefix: 42.42.42.42/32, Status: EF, Age: 0h29m33s NEXT_HOP: 106.1.1.1, Not Reachable, Learned from Peer: 106.1.1.1 (5)	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes as-path-access-list STR	Brocade#show ip bgp routes as-path-access-list Block Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 1.1.1.2/32 6.1.1.1 30 100 32768 BL AS_PATH: 2 1.1.1.32/32 0.0.0.0 0 100 32768 BL AS_PATH: 3 6.6.6.0/24 6.1.1.1 30 100 32768 BL AS_PATH: 4 7.7.7.0/24 6.1.1.1 30 100 32768 BL AS_PATH: 5 11.1.1.0/24 6.1.1.1 30 100 32768 BL AS_PATH:	Status string m: not-local-multipath is changed to m: not-installed-multipath.

show ip bgp routes best	Brocade#sh ip bgp routes best Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 36.5.5.5/32 36.0.0.1 100 0 BE AS_PATH: 3 2 36.5.5.6/32 36.0.0.1 100 0 BE AS_PATH: 3 3 36.5.5.7/32 36.0.0.1 100 0 BE AS_PATH: 3 4 36.5.5.8/32 36.0.0.1 100 0 BE AS_PATH: 3 5 36.5.5.9/32 36.0.0.1 100 0 BE AS_PATH: 3 6 36.5.5.10/32 36.0.0.1 100 0 BE AS_PATH: 3 7 36.5.5.11/32 36.0.0.1 100 0 BE AS_PATH: 3 8 36.5.5.12/32 36.0.0.1 100 0 BE AS_PATH: 3 9 36.5.5.13/32 36.0.0.1 100 0 BE AS_PATH: 3 --More--, next page: Space, next line: Return key, quit: Control-c	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes community 2	Brocade#sh ip bgp routes community 2 Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 18.18.18.0/24 106.1.1.2 0 150 200 BE AS_PATH: 3	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes community 0:11	Brocade#sh ip bgp routes community 0:11 Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 18.18.18.0/24 106.1.1.2 0 150 200 BE AS_PATH: 3	Status string m: not-local-multipath is changed to m: not-installed-multipath.

show ip bgp routes community internet	Brocade#sh ip bgp routes community internet Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 36.5.5.5/32 36.0.0.1 100 0 BE AS_PATH: 3 2 36.5.5.6/32 36.0.0.1 100 0 BE AS_PATH: 3 3 36.5.5.7/32 36.0.0.1 100 0 BE AS_PATH: 3 4 36.5.5.8/32 36.0.0.1 100 0 BE AS_PATH: 3 5 36.5.5.9/32 36.0.0.1 100 0 BE AS_PATH: 3 6 36.5.5.10/32 36.0.0.1 100 0 BE AS_PATH: 3	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes community local-as	Brocade#sh ip bgp routes community local-as Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 18.18.18.0/24 106.1.1.2 0 150 200 BE AS_PATH: 3	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes community no-advertise	Brocade#sh ip bgp routes community no-advertise Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 18.18.18.0/24 106.1.1.2 0 150 200 BE AS_PATH: 3	Status string m: not-local-multipath is changed to m: not-installed-multipath.

show ip bgp routes community no-export	Brocade#sh ip bgp routes community no-export Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 18.18.18.0/24 106.1.1.2 0 150 200 BE AS_PATH: 3	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes community-access-list STR	Brocade#show ip bgp routes community-access-li SECURE:IXP Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 1.1.1.1/32 0.0.0.0 1 100 32768 BL AS_PATH: 2 1.1.1.2/32 100.1.1.2 30 100 0 BE AS_PATH: 3	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes community-reg-expression STR regexp	Brocade#sh ip bgp routes community-reg-expression n Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 18.18.18.0/24 106.1.1.2 0 150 200 BE AS_PATH: 3	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes detail 2	Brocade#sh ip bgp routes detail 36.5.5.5 Number of BGP Routes matching display condition : 1 Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE 1 Prefix: 36.5.5.5/32, Status: BE, Age: 0h2m10s NEXT_HOP: 36.0.0.1, Metric: 0, Learned from Peer: 36.0.0.1 (3) LOCAL_PREF: 100, MED: none, ORIGIN: igp, Weight: 0 AS_PATH: 3 Adj_RIB_out count: 2, Admin distance 20 Last update to IP routing table: 0h2m10s, 1 path(s) installed: Route is advertised to 2 peers: 100.0.0.3(65002) 100.0.0.5(65002)	Status string m: not-local-multipath is changed to m: not-installed-multipath.

show ip bgp routes best	Brocade#show ip bgp routes best Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 1.1.1.2/32 6.1.1.1 30 100 32768 BL AS_PATH: 2 1.1.1.32/32 0.0.0.0 0 100 32768 BL AS_PATH: 3 18.18.0.0/16 0.0.0.0 100 32768 BAL AS_PATH: 4 18.18.18.0/24 0.0.0.0 0 100 32768 BLS AS_PATH: 5 160.10.0.0/16 0.0.0.0 100 32768 BAL AS_PATH: 6 160.10.10.10/32 0.0.0.0 30 100 32768 BL AS_PATH: 7 192.213.0.0/16 0.0.0.0 30 100 32768 BL AS_PATH:	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes cidr-only	Brocade#show ip bgp routes cidr-only Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 1.1.1.2/32 6.1.1.1 30 100 32768 BL AS_PATH: 2 1.1.1.32/32 0.0.0.0 0 100 32768 BL AS_PATH: 3 18.18.0.0/16 0.0.0.0 100 32768 BAL AS_PATH: 4 18.18.18.0/24 0.0.0.0 0 100 32768 BLS AS_PATH: 5 160.10.10.10/32 0.0.0.0 30 100 32768 BL AS_PATH: 6 192.213.0.0/16 0.0.0.0 30 100 32768 BL AS_PATH:	Status string m: not-local-multipath is changed to m: not-installed-multipath.

show ip bgp routes best	Brocade#show ip bgp routes best Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 1.1.1.2/32 6.1.1.1 30 100 32768 BL AS_PATH: 2 1.1.1.32/32 0.0.0.0 0 100 32768 BL AS_PATH: 3 18.18.0.0/16 0.0.0.0 100 32768 BAL AS_PATH: 4 18.18.18.0/24 0.0.0.0 0 100 32768 BLS AS_PATH: 5 160.10.0.0/16 0.0.0.0 100 32768 BAL AS_PATH: 6 160.10.10.10/32 0.0.0.0 30 100 32768 BL AS_PATH: 7 192.213.0.0/16 0.0.0.0 30 100 32768 BL AS_PATH:	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes community 2	Brocade#sh ip bgp routes detail 36.5.5.5 Number of BGP Routes matching display condition : 1 Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE 1 Prefix: 36.5.5.5/32, Status: BE, Age: 0h2m10s NEXT_HOP: 36.0.0.1, Metric: 0, Learned from Peer: 36.0.0.1 (3) LOCAL_PREF: 100, MED: none, ORIGIN: igp, Weight: 0 AS_PATH: 3 Adj_RIB_out count: 2, Admin distance 20 Last update to IP routing table: 0h2m10s, 1 path(s) installed: Route is advertised to 2 peers: 100.0.0.3(65002) 100.0.0.5(65002)	Status string m: not-local-multipath is changed to m: not-installed-multipath.

show ip bgp routes community internet	Brocade#show ip bgp routes community internet Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE Prefix Next Hop MED LocPrf Weight Status 1 1.1.1.2/32 125.1.1.2 30 150 0 BE AS_PATH: 3 2 1.1.1.2/32 100.1.1.2 30 100 0 E AS_PATH: 3 3 1.1.1.2/32 101.1.1.2 30 100 0 E AS_PATH: 3 4 1.1.1.2/32 104.1.1.2 30 100 0 E AS_PATH: 3 65540 65540 65540 3 5 1.1.1.2/32 105.1.1.2 30 100 0 E AS_PATH: 3 6 1.1.1.2/32 107.1.1.2 30 100 0 E AS_PATH: 3 7 1.1.1.2/32 109.1.1.2 30 100 0 E AS_PATH: 3 8 1.1.1.2/32 110.1.1.2 30 100 0 E AS_PATH: 3 9 1.1.1.2/32 111.1.1.2 30 100 0 E AS_PATH: 3	Status string m: not-local-multipath is changed to m: not-installed-multipath.
show ip bgp routes detail local	Brocade#show ip bgp routes detail local Searching for matching routes, use ^C to quit... Status A:AGGREGATE B:BEST b:NOT-INSTALLED-BEST C:CONFED_EBGP D:DAMPED E:EBGP H:HISTORY I:IBGP L:LOCAL M:MULTIPATH m:NOT-INSTALLED-MULTIPATH S:SUPPRESSED F:FILTERED s:STALE 1 Prefix: 1.1.1.2/32, Status: BL, Age: 8h48m10s NEXT_HOP: 6.1.1.1, Learned from Peer: Local Router LOCAL_PREF: 100, MED: 30, ORIGIN: incomplete, Weight: 32768 AS_PATH: Adj_RIB_out count: 58, Admin distance 120 2 Prefix: 18.18.0.0/16, Status: BAL, Age: 4h49m11s NEXT_HOP: 0.0.0.0, Learned from Peer: Local Router LOCAL_PREF: 100, MED: none, ORIGIN: igp, Weight: 32768 AS_PATH: ATOMIC_AGGREGATE: set, AGGREGATOR: 3(32.32.32.32) Adj_RIB_out count: 58, Admin distance 200	Status string m: not-local-multipath is changed to m: not-installed-multipath.

show ipv6 ospf database ?	Brocade#sh ipv6 ospf database LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 897 192.168.98.213 80000007 1277 9044 64 Yes 0.0.0.200 Link 136 192.168.98.111 80000007 582 fb0b 64 Yes 0.0.0.200 Link 2049 192.168.98.213 80000006 1277 381a 64 Yes 0.0.0.200 Link 1156 192.168.98.111 80000007 582 cf38 64 Yes 0.0.0.200 Link 2052 192.168.98.213 80000004 799 5b06 64 Yes 0.0.0.200 Rtr 0 192.168.98.111 800002ea 823 cb7b 56 Yes 0.0.0.200 Rtr 0 192.168.98.213 800001c7 799 8402 56 Yes 0.0.0.200 Net 1156 192.168.98.111 80000004 823 b2d2 32 Yes 0.0.0.200 Net 136 192.168.98.111 80000008 823 aed2 32 Yes	Sync information is added.
show ipv6 ospf database advrtr 1.2.3.4	Brocade#sh ipv6 ospf database advr 192.168.98.111 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 136 192.168.98.111 80000007 634 fb0b 64 Yes Router Priority: 1 Options: V6E---R-- LinkLocal Address: fe80::768e:f8ff:fe3e:1800 Number of Prefix: 1 Prefix Options: Prefix: 5100::193:213:111:0/112	Sync information is added.

show ipv6 ospf database as-external	Brocade#sh ipv6 ospf database as-external LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync N/A Extn 2 192.168.98.213 80000004 895 6e5e 44 Yes Bits: E-- Metric: 0 Prefix Options: Referenced LSType: 0 Prefix: 5100:213:213:0:192:213:1:0/112 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync N/A Extn 1 192.168.98.190 80001394 643 1cc9 28 Yes Bits: E-- Metric: 1 Prefix Options: Referenced LSType: 0 Prefix: ::/0 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync N/A Extn 2 192.168.98.71 80000258 132 a3ff 32 Yes Bits: E-T	Sync information is added.

show ipv6 ospf database extensive	Brocade#sh ipv6 ospf database extensive LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 897 192.168.98.213 80000007 1432 9044 64 Yes Router Priority: 1 Options: V6E---R-- LinkLocal Address: fe80::214:ff:fe77:96ff Number of Prefix: 1 Prefix Options: Prefix: 5100::193:213:111:0/112 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 136 192.168.98.111 80000007 737 fb0b 64 Yes Router Priority: 1 Options: V6E---R-- LinkLocal Address: fe80::768e:f8ff:fe3e:1800 --More--, next page: Space, next line: Return key, quit: Control-c	Sync information is added.

show ipv6 ospf database inter-prefix	Brocade#sh ipv6 ospf database inter-prefix LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Inap 32 192.168.98.213 80000004 987 4198 44 Yes Metric: 1 Prefix Options: Prefix: 5100::192:111:6:111/128 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Inap 750 192.168.98.111 800000e2 772 199d 44 Yes Metric: 1 Prefix Options: Prefix: 5100::192:111:101:0/112	Sync information is added.

show ipv6 ospf database inter-router	Brocade#sh ipv6 ospf database inter-router LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Inar 8 192.168.98.111 800000b4 811 aaf9 32 Yes Options: V6E---R-- Metric: 1 Destination Router ID: 192.168.98.190 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Inar 23 192.168.98.111 80000004 571 8e40 32 Yes Options: --------- Metric: 3 Destination Router ID: 192.168.98.71 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link	Sync information is added.

show ipv6 ospf database intra-prefix	Brocade#sh ipv6 ospf database intra-prefix LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Iap 3 192.168.98.213 80000009 1054 6a0e 1272 Yes Number of Prefix: 62 Referenced LS Type: Router Referenced LS ID: 0 Referenced Advertising Router: 192.168.98.213 Prefix Options: Metric: 1 Prefix: 5100:213:213:0:192:213:186:0/112 Prefix Options: Metric: 1 Prefix: 5100:213:213:0:192:213:187:0/112 Prefix Options: Metric: 1 Prefix: 5100:213:213:0:192:213:188:0/112 Prefix Options: Metric: 1 Prefix: 5100:213:213:0:192:213:189:0/112 Prefix Options: Metric: 1 Prefix: 5100:213:213:0:192:213:190:0/112 Prefix Options: Metric: 1 Prefix: 5100:213:213:0:192:213:191:0/112 Prefix Options: Metric: 1 Prefix: 5100:213:213:0:192:213:192:0/112 Prefix Options: Metric: 1 Prefix: 5100:213:213:0:192:213:193:0/112 Prefix Options: Metric: 1 Prefix: 5100:213:213:0:192:213:194:0/112 Prefix Options: Metric: 1 Prefix: 5100:213:213:0:192:213:195:0/112 Prefix Options: Metric: 1	Sync information is added.

show ipv6 ospf database link	Brocade#sh ipv6 ospf database link LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 897 192.168.98.213 80000007 1574 9044 64 Yes Router Priority: 1 Options: V6E---R-- LinkLocal Address: fe80::214:ff:fe77:96ff Number of Prefix: 1 Prefix Options: Prefix: 5100::193:213:111:0/112 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 136 192.168.98.111 80000007 879 fb0b 64 Yes Router Priority: 1 Options: V6E---R-- LinkLocal Address: fe80::768e:f8ff:fe3e:1800 Number of Prefix: 1 Prefix Options: Prefix: 5100::193:213:111:0/112 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 2049 192.168.98.213 80000006 1575 381a 64	Sync information is added.

show ipv6 ospf database link-id 2	Brocade#sh ipv6 ospf database link-id 1156 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 1156 192.168.98.111 80000007 914 cf38 64 Yes Router Priority: 1 Options: V6E---R-- LinkLocal Address: fe80::768e:f8ff:fe3e:1800 Number of Prefix: 1 Prefix Options: Prefix: 5100::192:213:111:0/112 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Net 1156 192.168.98.111 80000004 1155 b2d2 32 Yes Options: V6E---R-- Attached Router: 192.168.98.111 Attached Router: 192.168.98.213	Sync information is added.

show ipv6 ospf database network	Brocade#sh ipv6 ospf database network LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Net 1156 192.168.98.111 80000004 1238 b2d2 32 Yes Options: V6E---R-- Attached Router: 192.168.98.111 Attached Router: 192.168.98.213 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Net 136 192.168.98.111 80000008 1238 aed2 32 Yes Options: V6E---R-- Attached Router: 192.168.98.111 Attached Router: 192.168.98.213 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter	Sync information is added.

show ipv6 ospf database prefix 2000:5678:90ab:cdef:0123:4567:890a:bcde/64	Brocade#sh ipv6 ospf database prefix 5100::192:168:98:190/128 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Inap 839 192.168.98.111 800000db 1033 8153 44 Yes Metric: 1 Prefix Options: Prefix: 5100::192:168:98:190/128 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Inap 270 192.168.98.213 80000004 1250 235d 44 Yes Metric: 2 Prefix Options: Prefix: 5100::192:168:98:190/128 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 400 Inap 272 192.168.98.213 80000004 1249 0f6f 44 Yes Metric: 2 Prefix Options: Prefix: 5100::192:168:98:190/128 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter	Sync information is added.

show ipv6 ospf database router	Brocade#sh ipv6 ospf database router LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Rtr 0 192.168.98.111 800002ea 1300 cb7b 56 Yes Capability Bits: --V-B Options: V6E---R-- Type: Transit Metric: 1 Interface ID: 136 Neighbor Interface ID: 136 Neighbor Router ID: 192.168.98.111 Type: Transit Metric: 1 Interface ID: 1156 Neighbor Interface ID: 1156 Neighbor Router ID: 192.168.98.111 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Rtr 0 192.168.98.213 800001c7 1276 8402 56 Yes Capability Bits: --VEB Options: V6E---R-- Type: Transit Metric: 1 Interface ID: 897 Neighbor Interface ID: 136 Neighbor Router ID: 192.168.98.111 Type: Transit Metric: 1 Interface ID: 2049 Neighbor Interface ID: 1156 Neighbor Router ID: 192.168.98.111 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace	Sync information is added.

show ipv6 ospf database scope area ?	Brocade#sh ipv6 ospf database scope area LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Rtr 0 192.168.98.111 800002ea 1356 cb7b 56 Yes Capability Bits: --V-B Options: V6E---R-- Type: Transit Metric: 1 Interface ID: 136 Neighbor Interface ID: 136 Neighbor Router ID: 192.168.98.111 Type: Transit Metric: 1 Interface ID: 1156 Neighbor Interface ID: 1156 Neighbor Router ID: 192.168.98.111 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Rtr 0 192.168.98.213 800001c7 1332 8402 56 Yes Capability Bits: --VEB Options: V6E---R-- Type: Transit Metric: 1 Interface ID: 897 Neighbor Interface ID: 136 Neighbor Router ID: 192.168.98.111 Type: Transit Metric: 1 Interface ID: 2049 Neighbor Interface ID: 1156 Neighbor Router ID: 192.168.98.111 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace	Sync information is added.

show ipv6 ospf database scope area 0.0.0.200	Brocade#sh ipv6 ospf database scope area 0.0.0.200 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Rtr 0 192.168.98.111 800002ea 1383 cb7b 56 Yes Capability Bits: --V-B Options: V6E---R-- Type: Transit Metric: 1 Interface ID: 136 Neighbor Interface ID: 136 Neighbor Router ID: 192.168.98.111 Type: Transit Metric: 1 Interface ID: 1156 Neighbor Interface ID: 1156 Neighbor Router ID: 192.168.98.111 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Rtr 0 192.168.98.213 800001c7 1359 8402 56 Yes Capability Bits: --VEB Options: V6E---R-- Type: Transit Metric: 1 Interface ID: 897 Neighbor Interface ID: 136 Neighbor Router ID: 192.168.98.111 Type: Transit Metric: 1 Interface ID: 2049 Neighbor Interface ID: 1156 Neighbor Router ID: 192.168.98.111 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace	Sync information is added.

show ipv6 ospf database scope as	Brocade#sh ipv6 ospf database scope as LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync N/A Extn 2 192.168.98.213 80000004 1409 6e5e 44 Yes Bits: E-- Metric: 0 Prefix Options: Referenced LSType: 0 Prefix: 5100:213:213:0:192:213:1:0/112 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync N/A Extn 1 192.168.98.190 80001394 1157 1cc9 28 Yes Bits: E-- Metric: 1 Prefix Options: Referenced LSType: 0 Prefix: ::/0 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync N/A Extn 2 192.168.98.71 80000258 630 a3ff 32 Yes Bits: E-T	Sync information is added.

show ipv6 ospf database scope link	Brocade#sh ipv6 ospf database scope link LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 136 192.168.98.111 80000007 1227 fb0b 64 Yes Router Priority: 1 Options: V6E---R-- LinkLocal Address: fe80::768e:f8ff:fe3e:1800 Number of Prefix: 1 Prefix Options: Prefix: 5100::193:213:111:0/112 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 897 192.168.98.213 80000008 11 8e45 64 Yes Router Priority: 1 Options: V6E---R-- LinkLocal Address: fe80::214:ff:fe77:96ff Number of Prefix: 1 Prefix Options: Prefix: 5100::193:213:111:0/112 LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link Iap:IntraPrefix Grc:Grace Area ID Type LSID Adv Rtr Seq(Hex) Age Cksum Len Sync 0.0.0.200 Link 1156 192.168.98.111 80000007 1228 cf38 64	Sync information is added.
show ipv6 ?	Brocade#show ipv6 access-list Show IPv6 Access Lists bgp Show IPv6 bgp cache Show IPv6 cache dhcp-relay Show IPv6 dhcp relay agent info dhcp6 Show DHCPv6 info dns-server Show IPv6 DNS server info interface Show interface level IPv6 settings mld Show MLD commands multicast Show MLD snooping neighbor Show IPv6 neighbors ospf Show IPv6 ospf version 3 pim Show IPv6 pim prefix-lists Show IPv6 Prefix Lists commands raguard Show IPv6 RA-guard information rip Show IPv6 rip route Show IPv6 routes router Show local IPv6 routers static Show static route information tcp Show TCP INFO traffic Show IPv6 traffic statistics tunnel Show IPv6 tunnels vrrp Show VRRP commands vrrp-extended Show VRRP-Extended commands | Output modifiers <cr>	The output is modified.

show tech-support cpu	Brocade#sh tech-support cpu CPU Usage Information Current total CPU utilization = 73% ... Usage average for all tasks in the last 1 second ... ========== Name % idle 27 con 0 mon 0 flash 0 dbg 0 boot 0 main 0 stkKeepAliveTsk 0 keygen 0 itc 0 poeFwdfsm 0 tmr 0 scp 0 appl 73 snms 0 rtm 0 rtm6 0 rip 0 bgp 0 bgp_io 0 ospf 0 ospf_r_calc 0 mcast_fwd 0 mcast 0 msdp 0 ripng 0 ospf6 0 ospf6_rt 0 mcast6 0	The CPU usage information is shown differently as FastIron 08.0.00a has task based achitecture. CPU utilization is shown for each task.
show ip cache 1.2.3.4	Brocade#show ip cache 5.1.1.1 Entries in default routing instance: D:Dynamic P:Permanent F:Forward U:Us C:Complex Filter W:Wait ARP I:ICMP Deny K:Drop R:Fragment S:Snap Encap IP Address Next Hop MAC Type Port Vlan Pri 5.1.1.1 DIRECT 0000.0000.0000 PU n/a 0	Total number of cache entries is removed. Entries in default routing instance are added.
show ip cache 2	Brocade#show ip cache 2 Entries in default routing instance: D:Dynamic P:Permanent F:Forward U:Us C:Complex Filter W:Wait ARP I:ICMP Deny K:Drop R:Fragment S:Snap Encap IP Address Next Hop MAC Type Port Vlan Pri 3 5.20.1.1 DIRECT 0000.0000.0000 PU n/a 0 4 5.10.1.1 DIRECT 0000.0000.0000 PU n/a 0 5 5.1.1.1 DIRECT 0000.0000.0000 PU n/a 0 6 5.3.1.254 DIRECT 0000.0000.0000 PU n/a 0 7 10.20.75.99 DIRECT 0000.0000.0000 PU n/a 0 8 255.255.255.255 DIRECT 0000.0000.0000 PU n/a 0	Total number of cache entries is removed. Entries in default routing instance are added.

show ip pim rpf 1.2.3.4 ?	Brocade#show ip pim rpf A.B.C.D Source address for RPF check	The explanation for A.B.C.D is updated.
show ip pim rpf 1.2.3.4 1.2.3.4	Brocade#show ip pim rpf 90.1.1.32 226.0.0.201 upstream nbr 110.1.1.25 on v110	The explanation details are updated.
show ipv6 route ospf	Brocade#show ipv6 route ospf Type Codes - B:BGP C:Connected I:ISIS L:Local O:OSPF R:RIP S:Static BGP Codes - i:iBGP e:eBGP OSPF Codes - i:Inter Area 1:External Type 1 2:External Type 2 Type IPv6 Prefix Next Hop Router Interface Dis/Metric Uptime O2 ::/0 fe80::768e:f8ff:fe3e:1800 e 4/3/1 110/1 6h12m fe80::768e:f8ff:fe3e:1800 ve 17 O 5100::192:61:1001:0/112 fe80::768e:f8ff:fe3e:1800 e 4/3/1 110/3 6h7m fe80::768e:f8ff:fe3e:1800 ve 17 O 5100::192:111:3:111/128 fe80::768e:f8ff:fe3e:1800 e 4/3/1 110/1 6h7m fe80::768e:f8ff:fe3e:1800 ve 17 O 5100::192:111:4:111/128 fe80::768e:f8ff:fe3e:1800 e 4/3/1 110/1 6h7m fe80::768e:f8ff:fe3e:1800 ve 17	Uptime field is added.

show ip interface ethernet 1/1	Brocade#show ip interface ethernet 1/1/24
	Interface Ethernet 1/1/24
	  port enabled
	  port state: UP
	  ip address: 1.100.1.1 subnet mask: 255.255.255.0
	  Port belongs to VRF: default-vrf
	  encapsulation: ETHERNET, mtu: 1500, metric: 1
	  directed-broadcast-forwarding: disabled
	  proxy-arp: disabled
	  ip arp-age: 10 minutes
	  No Helper Addresses are configured.
	  No inbound ip access-list is set
	  No outgoing ip access-list is set
		VRF information is added.

show ip interface loopback 2	Brocade#show ip interface loopback 1
	Interface Loopback 1
	  port enabled
	  port state: UP
	  ip address: 1.0.0.1 subnet mask: 255.255.255.255
	  Port belongs to VRF: default-vrf
	  encapsulation: ETHERNET, mtu: 1500, metric: 1
	  directed-broadcast-forwarding: disabled
	  proxy-arp: disabled
	  ip arp-age: 10 minutes
	  No Helper Addresses are configured.
	  No inbound ip access-list is set
	  No outgoing ip access-list is set
		VRF information is added.

show ip interface tunnel 2	Brocade#show ip interface tunnel 2
	Interface Tunnel 2
	  port enabled
	  port state: UP
	  ip address: 1.111.1.1 subnet mask: 255.255.255.252
	  Port belongs to VRF: default-vrf
	  encapsulation: GRE, mtu: 1476, metric: 1
	  directed-broadcast-forwarding: disabled
	  proxy-arp: disabled
	  ip arp-age: 10 minutes
	  No Helper Addresses are configured.
	  No inbound ip access-list is set
	  No outgoing ip access-list is set
		VRF information is added.

show ip interface ve 2	Brocade#show ip interface ve 100
	Interface Ve 100
	  members: ethe 1/1/1
	  active: ethe 1/1/1
	  port enabled
	  port state: UP
	  ip address: 1.1.1.1 subnet mask: 255.255.255.252
	  Port belongs to VRF: default-vrf
	  encapsulation: ETHERNET, mtu: 1500, metric: 1
	  directed-broadcast-forwarding: disabled
	  proxy-arp: disabled
	  ip arp-age: 10 minutes
	  No Helper Addresses are configured.
	  No inbound ip access-list is set
	  No outgoing ip access-list is set
		VRF information is added.

show ip tcp status 1.2.3.4 2 1.2.3.4 2	Brocade#show ip tcp status 1.0.0.1 179 1.0.0.2 8132
	TCP: TCB = 0x24dcee60
	TCP: 1.0.0.1:179 <-> 1.0.0.2:8132: state: ESTABLISHED VRF: 0
	  Send: initial sequence number = 2676825448
	  Send: first unacknowledged sequence number = 2676826779
	  Send: current send pointer = 2676826779
	  Send: next sequence number to send = 2676826779
	  Send: remote received window = 16384
	  Send: total unacknowledged sequence number = 0
	  Send: total used buffers 0
	  Receive: initial incoming sequence number = 725765880
	  Receive: expected incoming sequence number = 725767021
	  Receive: received window = 16384
	  Receive: bytes in receive queue = 0
	  Receive: congestion window = 1455
		VRF information is added.

show ip ospf routes ?	Brocade#sh ip ospf summ Total number of OSPF instances: 1 Seq Instance Intfs Nbrs Nbrs-Full LSAs Routes 1 default-vrf 259 4 4 1742 310 Brocade#sh ip ospf route OSPF Area 0 ASBR Routes 1: Destination Mask Path_Cost Type2_Cost Path_Type 192.168.98.190 255.255.255.255 2 0 Intra Adv_Router Link_State Dest_Type State Tag Flags 192.168.98.190 192.168.98.190 Asbr Valid 0 4000* Paths Out_Port Next_Hop Type State 1 e 4/3/1 193.213.111.111 OSPF 29 a8 2 ve 17 192.213.111.111 OSPF 00 00 OSPF Regular Routes 309: Destination Mask Path_Cost Type2_Cost Path_Type 0.0.0.0 0.0.0.0 2 10 Type2_Ext Adv_Router Link_State Dest_Type State Tag Flags 192.168.98.190 0.0.0.0 Ase Valid 0 1800 Paths Out_Port Next_Hop Type State 1 e 4/3/1 193.213.111.111 OSPF 29 a8 2 ve 17 192.213.111.111 OSPF 00 00 Destination Mask Path_Cost Type2_Cost Path_Type 192.112.61.0 255.255.255.0 3 0 Intra Adv_Router Link_State Dest_Type State Tag Flags 192.168.98.112 192.112.61.112 Network Valid 0 0000 Paths Out_Port Next_Hop Type State 1 e 4/3/1 193.213.111.111 OSPF 29 a8 2 ve 17 192.213.111.111 OSPF 00 00	VRF instance information is added.
show running-config ?	Brocade#show running-config interface Interface running-config section vlan VLAN running-config section vrf VRF-Lite running-config section | Output modifiers <cr>	VRF option is added.
show ip bgp ?	Brocade#sh ip bgp A.B.C.D or A.B.C.D/L Route IP address attribute-entries Display AS-path attribute entries config Display BGP running configuration dampened-paths Display paths suppressed due to dampening filtered-routes Display filtered routes flap-statistics Display flap statistics of routes neighbors Details on TCP and BGP neighbor connections peer-group Display information of peer-groups routes BGP routes information summary Summary of BGP neighbor status vrf Display information for a Virtual Routing/Forwarding instance | Output modifiers <cr>	VRF option is added.

show ip cache ?	Brocade#show ip cache
	  DECIMAL Cached entry index
	  A.B.C.D Cached IP address
	  vrf VPN Routing/Forwarding instance
	  | Output modifiers
	  <cr>
		VRF option is added.