FastIron Ethernet Switch
Software Upgrade Guide

Supporting FastIron Software Release 08.0.30d
# FastIron Ethernet Switch Software Upgrade Guide

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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.

<table>
<thead>
<tr>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>bold</strong></td>
<td>Identifies command names</td>
</tr>
<tr>
<td></td>
<td>Identifies keywords and operands</td>
</tr>
<tr>
<td></td>
<td>Identifies the names of user-manipulated GUI elements</td>
</tr>
<tr>
<td></td>
<td>Identifies text to enter at the GUI</td>
</tr>
<tr>
<td><em>italic</em></td>
<td>Identifies emphasis</td>
</tr>
<tr>
<td></td>
<td>Identifies variables</td>
</tr>
<tr>
<td></td>
<td>Identifies document titles</td>
</tr>
<tr>
<td><strong>Courier font</strong></td>
<td>Identifies CLI output</td>
</tr>
<tr>
<td></td>
<td>Identifies command syntax examples</td>
</tr>
</tbody>
</table>

Command syntax conventions

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

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>bold</strong></td>
<td>Identifies command names, keywords, and command options.</td>
</tr>
<tr>
<td><em>italic</em></td>
<td>Identifies a variable.</td>
</tr>
<tr>
<td>value</td>
<td>In Fibre Channel products, a fixed value provided as input to a command option is printed in plain text, for example, --show WWN.</td>
</tr>
<tr>
<td>Convention</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>[ ]</td>
<td>Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.</td>
</tr>
<tr>
<td>{ x</td>
<td>y</td>
</tr>
<tr>
<td>x</td>
<td>y</td>
</tr>
<tr>
<td>&lt; &gt;</td>
<td>Nonprinting characters, for example, passwords, are enclosed in angle brackets.</td>
</tr>
<tr>
<td>...</td>
<td>Repeat the previous element, for example, member{member...}.</td>
</tr>
<tr>
<td>\</td>
<td>Indicates a &quot;soft&quot; 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.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Online</th>
<th>Telephone</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred method of contact for non-</td>
<td>Required for Sev 1-Critical and Sev 2-High issues:</td>
<td><a href="mailto:support@brocade.com">support@brocade.com</a></td>
</tr>
<tr>
<td>urgent issues:</td>
<td>• Continental US: 1-800-752-8061</td>
<td>Please include:</td>
</tr>
<tr>
<td>• My Cases through MyBrocade</td>
<td>• Europe, Middle East, Africa, and Asia Pacific:</td>
<td>• Problem summary</td>
</tr>
<tr>
<td>• Software downloads and licensing</td>
<td>+800-AT FIBREE (+800 28 34 27 33)</td>
<td>• Serial number</td>
</tr>
<tr>
<td>tools</td>
<td>• For areas unable to access toll free number:</td>
<td>• Installation details</td>
</tr>
<tr>
<td>• Knowledge Base</td>
<td>+1-408-333-6061</td>
<td>• Environment description</td>
</tr>
</tbody>
</table>

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 releases 08.0.30 through 08.0.30x. 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 08.0.30d |
|         | Feature | Description | Location |
|         | mac-authentication enable-dynamic-vlan not supported | The `mac-authentication enable-dynamic-vlan` command introduced in Fastiron 08.0.30b is deprecated. References to the command in text and CLI samples have been removed throughout the section on flexible authentication. |

| TABLE 2 | Summary of Enhancements in FastIron Release 08.0.30b |
|         | Feature | Description | Location |
|         | Flexible authentication enhancements | Several CLI changes were introduced for flexible authentication. | Upgrading to or downgrading from Fastiron 08.0.30 on page 13 |
|         | Symmetric load balancing CLI | New CLI has been added for symmetric load balancing. | Upgrading to or downgrading from Fastiron 08.0.30 on page 13 |
|         | LAG scaling | Maximum LAGs per ICX 7250, ICX 7450, or ICX 7750 device increases to 256. | Upgrading to or downgrading from Fastiron 08.0.30 on page 13 |
|         | VRF ID | A new VRF ID field is introduced in the `dhcpsnoop.txt` flash file. | Upgrading to or downgrading from Fastiron 08.0.30 on page 13 |

| TABLE 3 | 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 13 |
|         | 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 13 |
### TABLE 3  Summary of Enhancements in FastIron Release 08.0.30 (Continued)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash timeout configuration</td>
<td>This release allows the user to change flash timeout.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
<tr>
<td>ICX 6610 license merge</td>
<td>Premium and advanced licensing features are merged under the premium license.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13. For more information on licenses, refer to the Fastiron Ethernet Switch Licensing Guide, Release 08.0.30.</td>
</tr>
<tr>
<td>ICX 7450 10 Gbps stacking</td>
<td>10 Gbps stacking is available on 4x10G modules inserted in slot 2.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
<tr>
<td>ICX 7750 breakout ports</td>
<td>This release introduces physical breakout of 40-Gbps ports on the ICX 7750 into four configurable 10-Gbps sub-ports.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
<tr>
<td>ICX 7750 cut-through mode</td>
<td>This release introduces cut-through mode on the ICX 7750.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
<tr>
<td>LAG enhancements</td>
<td>This release introduces several LAG enhancements, including the ability to rename the LAG dynamically, increased port capacity, and the addition of the <code>show interface lag</code> command.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
<tr>
<td>Layer 3 multicast routing over MCT</td>
<td>This feature is introduced on the ICX 7750.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
<tr>
<td>Layer 3 unicast routing over MCT</td>
<td>This feature is introduced on the ICX 7750.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
<tr>
<td>sflow CLI changes</td>
<td>Several <code>sflow source</code> commands are introduced.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
<tr>
<td>Stacking CLI changes</td>
<td>Stacking CLI changes are introduced to support removable modules on the ICX 7450.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
<tr>
<td>Stacking flash file changes</td>
<td>The <code>stacking.boot</code> file changes format in this release.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
<tr>
<td>Unicast Reverse Path Forwarding (uRPF) check</td>
<td>This feature is introduced.</td>
<td>Upgrading to or downgrading from Fastiron 08.0.30 on page 13</td>
</tr>
</tbody>
</table>

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**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 any FastIron 08.0.30 or 08.0.30x release or downgrading to previous releases from FastIron 08.0.30 or 08.0.30x. General changes are indicated by the release number 08.0.30. Changes specific to another release are indicated, for example, as being specific to the 08.0.30b or the 08.0.30d release.

Flexible Authentication

FastIron 08.0.30b introduces the `authentication vlan-mode` and `mac-authentication enable-dynamic-vlan` commands. FastIron 08.0.30b also introduces the `authentication max-sessions` command for ICX 7250, ICX 7450, and ICX 7750 devices. These commands have upgrade and downgrade implications as described in Upgrade considerations for devices with flexible authentication on page 19.

LAG scaling

In FastIron 08.0.30b, the number of LAGs supported on each ICX 7250, ICX 7450, or ICX 7750 increases to 256. When you downgrade from FastIron 08.0.30b, only the first 128 LAGs are deployed. The remaining LAGs are not deployed, and related configuration is lost.

Symmetric load balancing

In FastIron 08.0.30b, symmetric load balancing is supported. When you downgrade to an earlier release, load balancing becomes asymmetric.

VRF ID

In FastIron 08.0.30b, a new field, VRF-id, is introduced in the flash file dhcpsnoop.txt. When upgrading to FastIron 08.0.30b or a newer version, if the flash file does not contain the VRF-id field, the VRF ID will be determined by the virtual port number. If the virtual port number is not available, the VRF ID will be determined from the VLAN ID.
When you downgrade from FastIron 08.0.30b or a newer release to an older release, the VRF-id field in the flash file will be ignored.

**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 FastIron 8.0.30, the advanced features for ICX6610 are available with a premium license. If an advanced license has been previously installed on an ICX 6610, it will function as if it has been upgraded to FastIron 8.0.30. However, if the FastIron 08.0.30 premium license is installed on an ICX 6610 and it 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.
• In FastIron 08.0.30b, the number of LAGs supported on each ICX 7250, ICX 7450, or ICX 7750 increases to 256. When you downgrade from FastIron 08.0.30b, only the first 128 LAGs are deployed. The remaining LAGs are not deployed, and any related configuration is lost.
• 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.
• Units in a stack must run the same IPC version to communicate. After an upgrade, 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.
• 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 from 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.
• 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.
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.

**NOTE**
Some behavioral differences occur when you upgrade to FastIron 08.0.30b as indicated in the following sections.

- **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 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
  !
  ```
::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.

The following example shows the configuration after the upgrade.
• **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.
mac-authentication enable
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
!

Flexible Authentication

The authentication vlan-mode command introduced in FastIron 08.0.30b affects upgrade and downgrade as summarized in the following tables.

TABLE 4  Flexible authentication upgrade results

<table>
<thead>
<tr>
<th>Upgrade scenario</th>
<th>vlan-mode</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>FastIron 08.0.10 to FastIron 08.0.20</td>
<td>Multiple untagged</td>
<td>Port can be part of multiple VLANs.</td>
</tr>
<tr>
<td>FastIron 08.0.10 to FastIron 08.0.30b or later</td>
<td>Single untagged</td>
<td>After upgrade, the default behavior is single untagged.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If required, this default behavior can be changed to multiple untagged using the new CLI.</td>
</tr>
<tr>
<td>FastIron 08.0.20 to FastIron 08.0.30b or later</td>
<td>Single untagged. There will not be any change in configuration.</td>
<td>After upgrade, the default behavior is single untagged.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If required, this default behavior can be changed to multiple untagged.</td>
</tr>
</tbody>
</table>
TABLE 5  Flexible authentication downgrade results

<table>
<thead>
<tr>
<th>Downgrade scenario</th>
<th>vlan-mode</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>FastIron 08.0.30b to FastIron 08.0.20</td>
<td>Multiple untagged</td>
<td>The new authentication vlan-mode command configuration is lost.</td>
</tr>
<tr>
<td>FastIron 08.0.30b to FastIron 08.0.10x</td>
<td>Single untagged</td>
<td>All flexible authentication configuration is lost. You must reconfigure as per CLI syntax in FastIron 08.0.10x.</td>
</tr>
<tr>
<td>FastIron 08.0.20 to FastIron 08.0.10x</td>
<td>Single untagged</td>
<td>All flexible authentication configuration is lost. You must reconfigure as per CLI syntax in FastIron 08.0.10x.</td>
</tr>
</tbody>
</table>

FastIron 08.0.30b introduces support for the **authentication max-sessions** command on ICX 7250, ICX 7450, and ICX 7750 devices. Consequently, when you upgrade to or downgrade from FastIron 08.0.30b or a newer release, CLI behavior changes. The following tables summarize changes for different FastIron devices.

TABLE 6  Upgrade behavior for the authentication max-sessions command

<table>
<thead>
<tr>
<th>Upgrade scenario</th>
<th>Behavior</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>FastIron 08.0.10 to FastIron 08.0.20</td>
<td>Maximum = 32 users</td>
<td>The default is 2 for ICX6610, FCX, ICX6430, and ICX 6450 devices. The maximum can be set to 32. For ICX 7450 and ICX 7750 devices, the default is 32 and cannot be changed.</td>
</tr>
<tr>
<td>FastIron 08.0.10 to FastIron 08.0.30b or later</td>
<td>Default = 2 users</td>
<td>Can be configured as a larger number, maximum 256 or 1024, depending on the type of device.</td>
</tr>
<tr>
<td>FastIron 08.0.20 to FastIron 08.0.30b or later</td>
<td>Default = 2 users</td>
<td>Can be configured as a larger number, maximum 256 or 1024, depending on the type of device.</td>
</tr>
</tbody>
</table>

TABLE 7  Downgrade behavior for the authentication max-sessions command

<table>
<thead>
<tr>
<th>Downgrade scenario</th>
<th>Behavior</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>FastIron 08.0.30b to FastIron 08.0.20x</td>
<td>Maximum = 32 users</td>
<td>Configuration lost on downgrade when max-sessions configured value is greater than 32.</td>
</tr>
<tr>
<td>FastIron 08.0.30b to FastIron 08.0.10x</td>
<td>Maximum = 250 users</td>
<td>Configuration lost on downgrade.</td>
</tr>
<tr>
<td>FastIron 08.0.20 to FastIron 08.0.10x</td>
<td>Maximum = 250 users</td>
<td>Configuration lost on downgrade.</td>
</tr>
</tbody>
</table>

Refer to the *FastIron Ethernet Switch Security Configuration Guide* for more information on flexible authentication.
Upgrade considerations for devices with flexible authentication
Software Upgrade and Downgrade

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 25.
2. Upgrade the software as described in Upgrade process on page 27.

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 29.

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 26.

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 IXC64S07400
   (10360844 bytes) from Primary IXC64S07400.bin
   ```
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
...
```

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 ARMvSTE, 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 ICX6450-24
(10360844 bytes) from Primary ICX6450-24.bin
SW: Version 07.4.00T311
Boot-Monitor Image size = 774980, Version:07.4.00T310 (kxz07400)
HW: Stackable ICX6450-24

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 13.

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 29.
Software upgrade on ICX 6430, ICX 6450, ICX 6610, ICX 6650, ICX 7250, 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 29.

1. Load the boot code and flash code. For detailed steps, refer to Loading images on the device on page 34.
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 34.
3. Load the required flash code. For detailed steps, refer to Loading the flash code on page 35.
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 27.

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

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 27.

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).
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
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
......................................................................................Write to boot flash..
DOWNLOAD OF ICX6610 BOOT signature Done.
Brocade# Flash Memory Write (8192 bytes per dot)
Automatic copy to member units: 2
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
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
......................................................................................................................
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......................................................................................
WARNING: New user connected to this port.
Current number of users: 5
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......................................................................................................................
.................................................................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
......................................................................................................................
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PLEAsE WAIT. MEMBERS SYNCG IMAGE TO FLASH. DO NOT SWITCH OVER OR POWER DOWN THE UNIT....
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
Download of ICX6450 Boot Signature Done.
Brocade# Load to buffer (8192 bytes per dot)
Automatic copy to member units: 3 4 5 7 8
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PLeASE WAIT. MEMBERS SYNCNG 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 13.

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 34.

   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 34.

   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 34.

3. Load the required flash code. For detailed steps, refer to Loading the flash code on page 35.

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.

   \texttt{copy tftp flash ip-addr image-file-name primary | secondary}

   For example,

   \texttt{Brocade \# copy tftp flash 192.168.10.12 TIS07300f.bin primary}

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

   \texttt{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:

   \texttt{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 \texttt{show flash} command at any level of the CLI.

   \textbf{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 \texttt{reload} or \texttt{boot system} command.

6. Verify that the new flash image is running on the device by using the \texttt{show version} command.

\textit{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 using the following methods.
   \begin{itemize}
   \item Copy the flash code using SCP tool using the following command.
   \texttt{scp image-file-name hostname@management-ip:flash:primary | secondary}
   \end{itemize}

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

   \texttt{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 SPS08030.bin terry@10.168.1.50:flash:primary
or
C:\> scp SPS08030.bin terry@10.168.1.50:flash:primary
or
C:\> scp SPS08030.bin terry@10.168.1.50:flash:secondary
or
C:\> scp SPS08030.bin terry@10.168.1.50:flash:sec:SPS08030.bin

• Copy the flash code using PSCP tool.

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

D:\Images>pscp.exe SPS08030.bin brocade@172.26.67.84:flash:primary

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 output:

```
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
```

Software recovery

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

```
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..
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: %#################################################################
   #################################################################
   #################################################################
   #################################################################
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   #################################################################
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   .................................................................
   ....
   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

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>
<thead>
<tr>
<th>Parameter</th>
<th>FastIron 08.0.xx</th>
<th>FastIron 07.4.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum number of outbound Telnet sessions</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Maximum number of outbound SSH sessions</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

Multicast parameter values

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device</th>
<th>FastIron 08.0.xx (minimum/maximum/default)</th>
<th>FastIron 07.4.00 (minimum/maximum/default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layer 2 Multicast</td>
<td>ICX 6430</td>
<td>256/4096/1024</td>
<td>256/1024/256</td>
</tr>
</tbody>
</table>
### TABLE 9  Changes in multicast parameter values (Continued)

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

### TABLE 10  Changes in BGP, BGP4+, and Route Maps defaults

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

### 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 11  New OSPFv2 commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>[no] router ospf vrf</td>
<td>Configures OSPF instance with VRF index</td>
</tr>
<tr>
<td>[no] default-passive-interface</td>
<td>Sets OSPF interface passive</td>
</tr>
</tbody>
</table>
### TABLE 11 New OSPFv2 commands (Continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>[no] max-metric</td>
<td>Configures Stub Router Advertisement</td>
</tr>
<tr>
<td>[no] nonstop-routing</td>
<td>Enables OSPF nonstop routing capability</td>
</tr>
<tr>
<td>[no] nssa-translator</td>
<td>Enables NSSA Type 7 to Type 5 LSA translation</td>
</tr>
<tr>
<td>[no] vrf-lite-capability</td>
<td>Configures CE Router VRF-Lite capability (disables DN bit checks)</td>
</tr>
<tr>
<td><strong>cost</strong> <em>(area decimal range)</em> <strong>sub-command</strong></td>
<td>Configures area range cost</td>
</tr>
<tr>
<td><strong>cost</strong> <em>(area decimal range advertise)</em> <strong>sub-command</strong></td>
<td>Configures area range cost for Advertise this type-3 summarization</td>
</tr>
<tr>
<td><strong>cost</strong> <em>(area decimal range not-advertise)</em> <strong>sub-command</strong></td>
<td>Configures the area range cost for Not Advertise this type-3 summarization</td>
</tr>
<tr>
<td><strong>Interface level command</strong></td>
<td></td>
</tr>
<tr>
<td>[no] active</td>
<td>Configures Active information. FastIron 07.4.00 behavior was always active.</td>
</tr>
</tbody>
</table>

### 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 12 Modified OSPFv2 commands

<table>
<thead>
<tr>
<th>FastIron release 08.0.xx</th>
<th>FastIron release 07.4.00</th>
<th>Note</th>
</tr>
</thead>
</table>

**Global level command (router OSPF and sub-command)**
TABLE 12  Modified OSPFv2 commands (Continued)

<table>
<thead>
<tr>
<th>FastIron release 08.0.xx</th>
<th>FastIron release 07.4.00</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>[no] timers throttle spf</td>
<td>timers spf delay hold-time max-hold</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>default-information-originate always</td>
<td>default-information-originate</td>
<td>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.</td>
</tr>
<tr>
<td>distribute-list [standard-ip-access-list</td>
<td>extended-ip-access-list</td>
<td>access-list-name</td>
</tr>
</tbody>
</table>

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 13  Deprecated OSPFv2 commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global level commands (router OSPF and sub-commands)</strong></td>
<td></td>
</tr>
<tr>
<td>RFC 1583-type3-cost</td>
<td>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</td>
</tr>
<tr>
<td><strong>Show command</strong></td>
<td></td>
</tr>
<tr>
<td>show ip ospf error</td>
<td>Displays OSPF warnings and errors</td>
</tr>
<tr>
<td>show growable pool info</td>
<td>Displays growable pool information</td>
</tr>
<tr>
<td><strong>Clear command</strong></td>
<td></td>
</tr>
<tr>
<td>clear ip ospf area</td>
<td>Clears OSPF area</td>
</tr>
<tr>
<td>clear ip ospf error</td>
<td>Clears OSPF error</td>
</tr>
<tr>
<td>clear ip ospf graceful-restart</td>
<td>Clears OSPF graceful restart</td>
</tr>
<tr>
<td>clear ip ospf redistribution</td>
<td>Clears all routes redistributed through other protocols</td>
</tr>
</tbody>
</table>

### OSPFv3

### TABLE 14  New OSPFv3 commands

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

**Interface-level commands**
### TABLE 14  New OSPFv3 commands (Continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>[no] active</td>
<td>Sets active status. FastIron 07.4.00 behavior was always active.</td>
</tr>
<tr>
<td>[no] hello-jitter</td>
<td>Configures jitter between HELLO packets, in percentage</td>
</tr>
<tr>
<td>[no] suppress-linklsa</td>
<td>Suppresses link LSA advertisements</td>
</tr>
</tbody>
</table>

#### Show commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>show ipv6 ospf summary</td>
<td>Displays summary of IPv6 OSPF instances</td>
</tr>
<tr>
<td>show ipv6 ospf vrf</td>
<td>Displays IPv6 OSPF information for a specific VRF interface or all VRF interfaces</td>
</tr>
</tbody>
</table>

#### Clear commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>clear ipv6 ospf route</td>
<td>Clears OSPF routes</td>
</tr>
<tr>
<td>clear ipv6 ospf vrf</td>
<td>Clears all OSPF data, or clears data for a specific VRF interface</td>
</tr>
</tbody>
</table>

### TABLE 15  Deprecated OSPFv3 commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>[no] virtual-link-if-address</td>
<td>Configures the source address to use with virtual links</td>
</tr>
</tbody>
</table>

### RIP

### TABLE 16  New RIP commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>[no] learn-default</td>
<td>Enables learning RIP default routes</td>
</tr>
<tr>
<td>[no] poison-local-routes</td>
<td>Advertises local routes with maximum metrics when they go down</td>
</tr>
</tbody>
</table>

#### Interface level commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>[no] ip rip learn-default</td>
<td>Enables learning RIP default routes from this interface</td>
</tr>
</tbody>
</table>
### TABLE 17  Modified RIP commands

<table>
<thead>
<tr>
<th>FastIron release 08.0.xx</th>
<th>FastIron release 07.4.00</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global-level command</strong> (router RIP and sub-command)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[no] redistribute connected</td>
<td>[no] redistribution</td>
<td>Redistributes routes from other routing protocols</td>
</tr>
<tr>
<td>bgp</td>
<td>ospf</td>
<td>static</td>
</tr>
<tr>
<td><strong>Interface-level command</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[no] timers seconds</td>
<td>update-time 1-1000</td>
<td>Configures timer to set how often RIP sends updates. This command is added for backward compatibility.</td>
</tr>
</tbody>
</table>

### TABLE 18  Deprecated RIP commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global-level command</strong> (router RIP and sub-command)</td>
<td></td>
</tr>
<tr>
<td>[no] offset-list ACL-number-or-name in</td>
<td>out offset [ethernet port]</td>
</tr>
<tr>
<td>[no] permit</td>
<td>deny redistribute filter-num all</td>
</tr>
<tr>
<td>[no] dont-advertise-connected</td>
<td>Connected routes are not redistributed by default in FastIron 08.0.xx.</td>
</tr>
</tbody>
</table>

### BGP and Route-Map

### TABLE 19  Modified BGP commands

<table>
<thead>
<tr>
<th>FastIron release 08.0.xx</th>
<th>FastIron release 07.4.00</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clear command</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>clear ip bgp flap-statistics</td>
<td>clear ip bgp flap-statistics as-path-filter list-num</td>
<td>The as-path-filter option is removed because flap statistics no longer have the as-path-filter option.</td>
</tr>
</tbody>
</table>
### TABLE 20  Deprecated BGP and Route Map commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global-level command</strong></td>
<td></td>
</tr>
<tr>
<td><code>[no] set mirror-interface</code> <code>int-num</code></td>
<td>Sets a mirror interface for route maps</td>
</tr>
<tr>
<td><code>[no] neighbor</code> <code>ipv-x-addr</code> <code>distribute-list</code> `[in</td>
<td>out]<code> </code>list-num`</td>
</tr>
<tr>
<td><code>[no] neighbor</code> <code>ipv-x-addr</code> <code>filter-list</code> `[in</td>
<td>out]<code> </code>filter-num`</td>
</tr>
<tr>
<td><code>[no] neighbor</code> <code>peer-group</code> <code>distribute-list</code> `[in</td>
<td>out]<code> </code>list-num`</td>
</tr>
<tr>
<td><code>[no] neighbor</code> <code>peer-group</code> <code>filter-list</code> `[in</td>
<td>out]<code> </code>filter-num`</td>
</tr>
<tr>
<td><code>[no] set next-hop</code> <code>next-hop-addr</code></td>
<td>Configures the set route map rule for a next hop address</td>
</tr>
<tr>
<td><code>[no] match address-filter</code> <code>filter-num</code></td>
<td>Configures the match route map rule with an address filter</td>
</tr>
<tr>
<td><code>[no] match as-path-filters</code> <code>filter-num</code></td>
<td>Configures the match route map rule with an as-path filter</td>
</tr>
<tr>
<td><code>[no] match community-filters</code> <code>num</code></td>
<td>Configures the match route map rule with a community filter</td>
</tr>
<tr>
<td><code>[no] match next-hop</code> <code>next-hop-addr</code></td>
<td>Configures the match route map rule with a next hop address</td>
</tr>
<tr>
<td><code>[no] aggregate-address</code> <code>ip-addr</code> <code>mask</code> <code>nlri</code> `[multicast</td>
<td>unicast]<code> </code>[multicast</td>
</tr>
<tr>
<td><code>[no] neighbor</code> <code>ip-addr</code> <code>peer-group</code> <code>string</code> <code>nlri</code> `[multicast</td>
<td>unicast]<code> </code>[multicast</td>
</tr>
<tr>
<td><code>[no] network</code> <code>ip-addr</code> <code>mask</code> <code>nlri</code> `[multicast</td>
<td>unicast]<code> </code>[multicast</td>
</tr>
<tr>
<td><code>[no] match nlri</code> `[multicast</td>
<td>unicast]`</td>
</tr>
<tr>
<td><code>[no] set nlri</code> `[multicast</td>
<td>unicast]`</td>
</tr>
<tr>
<td><code>[no] neighbor</code> <code>peer-group</code> <code>update-source</code> <code>pos</code> <code>interface</code></td>
<td>Configures the router to communicate with a neighbor through a specified interface</td>
</tr>
</tbody>
</table>
**ARP**

**TABLE 21  Modified ARP commands**

<table>
<thead>
<tr>
<th>FastIron release 08.0.xx</th>
<th>FastIron release 07.4.00</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>`[no] arp ip-addr mac-addr [ethernet unit/slot/port</td>
<td>vlan vlan-id]`</td>
<td><code>[no] arp num ip-addr mac-addr ethernet port</code></td>
</tr>
</tbody>
</table>

**IGMP Snooping**

**TABLE 22  Modified IGMP Snooping command**

<table>
<thead>
<tr>
<th>FastIron release 08.0.xx</th>
<th>FastIron release 07.4.00</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global level command</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>[no] system-max igmp-snoop-group-addr num</code></td>
<td><code>[no] system-max igmp-max-group-addr num</code></td>
<td>Sets the maximum limit for IGMP group records</td>
</tr>
</tbody>
</table>

**MLD Snooping**

**TABLE 23  Modified MLD Snooping commands**

<table>
<thead>
<tr>
<th>FastIron release 08.0.xx</th>
<th>FastIron release 07.4.00</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global-level command</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>ipv6 multicast</code></td>
<td><code>ipv6 mld-snooping</code></td>
<td>Configures MLD snooping globally. This command is now consistent with the IGMP snooping command.</td>
</tr>
<tr>
<td><code>[no] system-max mld-snoop-group-addr num</code></td>
<td><code>[no] system-max mld-max-group-addr num</code></td>
<td>Sets the maximum limit for the MLD group records</td>
</tr>
<tr>
<td>VLAN-level command</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>multicast6</code></td>
<td><code>mld-snooping</code></td>
<td>Configures MLD snooping on a particular VLAN. This command is now consistent with the IGMP snooping command.</td>
</tr>
</tbody>
</table>

**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 24** New IGMP Layer 3 routing commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show command</strong></td>
<td></td>
</tr>
<tr>
<td><code>show ip igmp [vrf vrf-name] static</code></td>
<td>Displays IGMP static membership information. The <code>show ip igmp group</code> command also displays static IGMP membership information.</td>
</tr>
</tbody>
</table>

**TABLE 25** Modified IGMP Layer 3 routing commands

<table>
<thead>
<tr>
<th>FastIron release 08.0.xx</th>
<th>FastIron release 07.4.00</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global-level command</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>[no] ip igmp group-membership-time seconds</code></td>
<td><code>[no] ip igmp group-membership-time seconds</code></td>
<td>Configures IGMP group membership times. The allowed range for time has changed.</td>
</tr>
<tr>
<td>default: 260 secs</td>
<td>default: 260 secs</td>
<td></td>
</tr>
<tr>
<td>allowed range: [5 -26000] secs</td>
<td>allowed range: [20 - 7200] secs</td>
<td></td>
</tr>
<tr>
<td><strong>Interface-level command</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>[no] ip igmp port-version version ethernet num</code></td>
<td><code>[no] ip igmp port-version version ethernet num</code></td>
<td>Configures the IGMP version on a physical port within a virtual routing interface. The allowed IGMP version range has changed.</td>
</tr>
<tr>
<td>allowed range: [2-3]</td>
<td>allowed range: [1-3]</td>
<td></td>
</tr>
<tr>
<td><code>[no] ip igmp static-group group-addr [ethernet ...]</code></td>
<td><code>[no] ip igmp static-group group-addr [count num] [ethernet ...]</code></td>
<td>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 <code>count</code> option.</td>
</tr>
</tbody>
</table>

**PIM**

**TABLE 26** New PIM commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>ipv6 pimsm-snooping</code></td>
<td>Enables PIM6 SM snooping globally</td>
</tr>
<tr>
<td><code>multicast6 pimsm-snooping</code></td>
<td>Enables PIM6 SM snooping on the VLAN</td>
</tr>
<tr>
<td><strong>Show command</strong></td>
<td></td>
</tr>
<tr>
<td><code>show ipv6 multicast pimsm-snooping</code></td>
<td>Displays PIM6 SM snooping information</td>
</tr>
<tr>
<td><code>show ip igmp [vrf vrf-name] static</code></td>
<td>Displays IGMP static membership information. The <code>show ip igmp group</code> command also displays static IGMP membership information.</td>
</tr>
</tbody>
</table>
### TABLE 26  New PIM commands (Continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear command</td>
<td></td>
</tr>
<tr>
<td>clear ipv6 multicast pimsm-snooping</td>
<td>Clears PIM6 SM snooping information</td>
</tr>
</tbody>
</table>

### TABLE 27  Modified PIM commands

<table>
<thead>
<tr>
<th>FastIron 08.0.xx</th>
<th>FastIron 07.4.00</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global level command</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[no] hello-timer seconds</td>
<td>[no] hello-timer seconds</td>
<td>Configures the hello timer. The default value has been changed.</td>
</tr>
<tr>
<td>default: 30 secs allowed range: [10 -3600] secs</td>
<td>default: 60 secs allowed range: [10 -3600] secs</td>
<td></td>
</tr>
<tr>
<td>[no] nbr-timeout seconds</td>
<td>[no] nbr-timeout seconds</td>
<td>Configures the PIM neighbor timeout value. The default value and the allowed range have changed.</td>
</tr>
<tr>
<td>default: 105 secs allowed range: [3 - 65535] secs</td>
<td>default: 180 secs allowed range: [60 - 8000] secs</td>
<td></td>
</tr>
<tr>
<td>[no] prune-wait seconds</td>
<td>[no] prune-wait seconds</td>
<td>Configures the PIM prune wait timer. The allowed range has changed.</td>
</tr>
<tr>
<td>default: 3 secs allowed range: [0 - 30] secs</td>
<td>default: 3 secs allowed range: [0 - 3] secs.</td>
<td></td>
</tr>
<tr>
<td>[no] message-interval seconds</td>
<td>[no] message-interval seconds</td>
<td>Configures the message interval. The allowed range has changed.</td>
</tr>
<tr>
<td>default: 60 secs allowed range: [10 - 65535] secs</td>
<td>default: 60 secs allowed range: [1 - 65535] secs</td>
<td></td>
</tr>
<tr>
<td>Default: PMRI is enabled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[no] rp-address address [acl-num</td>
<td>acl-name]</td>
<td>[no] rp-address address [std-acl-num [override]]</td>
</tr>
<tr>
<td>FastIron 07.4.00 supports only standard numbered ACL, whereas in FastIron 08.0.xx, all ACLs (standard, extended, numbered, and named) are supported.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 27  Modified PIM commands (Continued)

<table>
<thead>
<tr>
<th>FastIron 08.0.xx</th>
<th>Fastiron 07.4.00</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ve</td>
<td>loopback num]</td>
<td>[ve</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In FastIron 08.0.xx, this feature is not available, so the RP candidate is for all the groups.</td>
</tr>
<tr>
<td>[no] system-max pim-hw-mcache</td>
<td>[no] system-max pim-mcache</td>
<td>Sets the maximum limit for the PIM mcache (flows) that can be programmed in the hardware.</td>
</tr>
<tr>
<td>num</td>
<td>num</td>
<td></td>
</tr>
</tbody>
</table>

Interface level command


### TABLE 28  Deprecated PIM commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global level command</td>
<td></td>
</tr>
<tr>
<td>[no] disable-pim</td>
<td>Disables the PIM operation without removing the PIM configuration.</td>
</tr>
<tr>
<td>[no] rp-address all</td>
<td>Removes all static RP configurations. In FastIron 08.0.xx, all static RP address configurations must be deleted individually.</td>
</tr>
</tbody>
</table>

Interface level command

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

| 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.                                                          |
### TABLE 29  New network management commands

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

### TABLE 30  Deprecated network management commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>show cpu-utilization detail</td>
<td>Shows the CPU utilization rate in detail</td>
</tr>
<tr>
<td>show rmon statistics unit</td>
<td>Shows the RMON Ethernet statistics table</td>
</tr>
<tr>
<td>show rmon statistics unit num</td>
<td>Shows the RMON Ethernet statistics table for the specified unit</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>07.4.00 CLI</th>
<th>08.0.xx Output</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>show ip ospf database external-link-state advertise 2</td>
<td>Brocade#sh ip ospf database external-link-state advertise 1</td>
<td>The output display includes the &quot;Fwd Address&quot; and &quot;Sync State&quot; fields.</td>
</tr>
<tr>
<td>show ip ospf database external-link-state extensive</td>
<td>Brocade#sh ip ospf database external-link-state extensive</td>
<td>The output display includes the &quot;Fwd Address&quot; and &quot;Sync State&quot; fields.</td>
</tr>
<tr>
<td>show ip ospf database external-link-state link-state-id 1.2.3.4</td>
<td>Brocade#sh ip ospf database external-link-state link-state-id 0.0.0.0</td>
<td>The output display includes the &quot;Fwd Address&quot; and &quot;Sync State&quot; fields.</td>
</tr>
<tr>
<td>Command</td>
<td>Output</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>
| `show ip ospf database external-link-state router-id 192.168.98.190` | Type-5 AS External Link States  
Index | Age | LS ID | Router | Netmask | Metric | Flag | Fwd Address | SyncState |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>536</td>
<td>0.0.0.0</td>
<td>192.168.98.190</td>
<td>0</td>
<td>0000000a</td>
<td>0000</td>
<td>0.0.0.0</td>
<td>Done</td>
</tr>
</tbody>
</table>
| 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 |

<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
</table>
| `show ip ospf database external-link-state sequence-number 80001ab8` | Type-5 AS External Link States  
Index | Age | LS ID | Router | Netmask | Metric | Flag | Fwd Address | SyncState |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>707</td>
<td>0.0.0.0</td>
<td>192.168.98.190</td>
<td>0</td>
<td>0000000a</td>
<td>0000</td>
<td>0.0.0.0</td>
<td>Done</td>
</tr>
</tbody>
</table>
| 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 |

<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
</table>
| `show ip ospf database external-link-state` | Type-5 AS External Link States  
Index | Age | LS ID | Router | Netmask | Metric | Flag | Fwd Address | SyncState |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>198</td>
<td>0.0.0.0</td>
<td>192.168.98.190</td>
<td>0</td>
<td>0000000a</td>
<td>0000</td>
<td>0.0.0.0</td>
<td>Done</td>
</tr>
</tbody>
</table>

The output display includes the "Fwd Address" and "Sync State" fields.
The output display includes the "DataBase Filter" and Packet Count table.

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 300

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
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 0xc39a 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 0xda1f 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
 18    0.0.0.200       Summ 192.213.2.214 192.168.98.112  80000004 720 0x7545 Done

The output display includes the "Sync State" field.
<table>
<thead>
<tr>
<th>Area</th>
<th>router ID</th>
<th>router type</th>
<th>next hop router</th>
<th>outgoing interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>192.168.98.111</td>
<td>ABR</td>
<td>193.213.111.111</td>
<td>4/3/1*8/3/1</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td></td>
<td></td>
<td>192.213.111.111</td>
<td>v17</td>
</tr>
<tr>
<td>1</td>
<td>192.168.98.112</td>
<td>ABR</td>
<td>193.213.111.111</td>
<td>4/3/1*8/3/1</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td></td>
<td></td>
<td>192.213.111.111</td>
<td>v17</td>
</tr>
<tr>
<td>1</td>
<td>192.168.98.113</td>
<td>ABR</td>
<td>193.213.111.111</td>
<td>4/3/1*8/3/1</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td></td>
<td></td>
<td>193.213.111.111</td>
<td>v17</td>
</tr>
<tr>
<td>1</td>
<td>192.168.98.113</td>
<td>ABR</td>
<td>192.213.163.163</td>
<td>v222</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td></td>
<td></td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>1</td>
<td>192.168.98.111</td>
<td>ABR</td>
<td>193.213.111.111</td>
<td>4/3/1*8/3/1</td>
</tr>
<tr>
<td>1</td>
<td>192.168.98.112</td>
<td>ABR</td>
<td>193.213.111.111</td>
<td>4/3/1*8/3/1</td>
</tr>
<tr>
<td>1</td>
<td>192.168.98.190</td>
<td>ASBR</td>
<td>193.213.111.111</td>
<td>4/3/1*8/3/1</td>
</tr>
<tr>
<td>1</td>
<td>192.168.98.190</td>
<td>ASBR</td>
<td>193.213.111.111</td>
<td>4/3/1*8/3/1</td>
</tr>
</tbody>
</table>

The output display field "type" is renamed as "Router type".

**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
1  192.168.98.111 ABR  193.213.111.111 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  192.168.98.113 ABR  193.213.111.111 4/3/1*8/3/1
0.0.0.200  
1  192.168.98.113 ABR  192.213.163.163 v222  400
0.0.0.200  
1  192.168.98.111 ABR  193.213.111.111 4/3/1*8/3/1  0
1  192.168.98.111 ABR  193.213.111.111 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  193.213.111.111 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  193.213.111.111 v17  0

Brocade#
```

**show ipv6 vrrp**

```
Brocade# sh ipv6 vrrp

brief Summary
eternet Ethernet port
stat Status
statistics VRRP/VRRP-E packet counts
ve Virtual Ethernet port
vrid Virtual router ID
<cr>
```

The output display field "type" is renamed as "router type".

The "show ipv6 vrrp" command output display includes the Hello TX statistics packet counts.

FastIron Ethernet Switch Software Upgrade Guide
53-1009632-04
The 'show ip vrrp statistics' command output display includes the Hello TX statistics packet counts.

The 'show ip vrrp-extended statistics [ethernet <slackid> | <slotnum> | <portnum>]' command output display includes the Hello TX statistics packet counts.
<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
</table>
| `show ip vrrp status ve 100` | Interface ethernet v100  
  rxd vrrp header error count = 0  
  rxd vrrp auth error count = 0  
  rxd vrrp auth passwd mismatch error count = 0  
  rxd vrrp vrid not found error count = 0  
  VRID 100  
  rxd arp packet drop count = 0  
  rxd ip packet drop count = 0  
  rxd vrrp port mismatch count = 0  
  rxd vrrp number of ip address mismatch count = 0  
  rxd vrrp ip address mismatch count = 0  
  rxd vrrp hello interval mismatch count = 0  
  rxd vrrp priority zero from master count = 0  
  rxd 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 |

<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
</table>
| `show ip vrrp-extended status` | Interface ethernet 1/1/12  
  rxd vrrp header error count = 0  
  rxd vrrp auth error count = 0  
  rxd vrrp auth passwd mismatch error count = 0  
  rxd vrrp vrid not found error count = 0  
  VRID 200  
  rxd arp packet drop count = 0  
  rxd ip packet drop count = 0  
  rxd vrrp port mismatch count = 0  
  rxd vrrp number of ip address mismatch count = 0  
  rxd vrrp ip address mismatch count = 0  
  rxd vrrp hello interval mismatch count = 0  
  rxd vrrp priority zero from master count = 0  
  rxd 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  
  rxd vrrp header error count = 0  
  rxd vrrp auth error count = 0  
  rxd vrrp auth passwd mismatch error count = 0  
  rxd vrrp vrid not found error count = 0  
  VRID 100  
  rxd arp packet drop count = 0  
  rxd ip packet drop count = 0  
  rxd vrrp port mismatch count = 0  
  rxd vrrp number of ip address mismatch count = 0  
  rxd vrrp ip address mismatch count = 0  
  rxd vrrp hello interval mismatch count = 0  
  rxd vrrp priority zero from master count = 0  
  rxd 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 |
<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
<th>Notes</th>
</tr>
</thead>
</table>
| `show ip vrrp-extended stat eth 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  
  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  
  transitioned to master state count = 0  
  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. |
The "show ipv6 vrrp statistics" command output display includes the Hello TX statistics packet counts.
show ipv6 vrrp stat ve 100
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

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 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
backup advertisements sent = 32

The "show ipv6 vrrp statistics [ve <num>]
command output display includes the Hello TX statistics packet counts.

The "show ipv6 vrrp-extended statistics"
command output display includes the Hello TX statistics packet counts.
### Command Output Differences

**show ipv6 vrrp-extended stat ethernet 1/1/12**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>ethernet 1/1/12</td>
</tr>
<tr>
<td>rxd vrrp header error count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp auth error count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp auth passwd mismatch error count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp vrid not found error count</td>
<td>0</td>
</tr>
<tr>
<td>VRID</td>
<td>200</td>
</tr>
<tr>
<td>rxd arp packet drop count</td>
<td>0</td>
</tr>
<tr>
<td>rxd ip packet drop count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp port mismatch count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp number of ip address mismatch count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp ip address mismatch count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp hello interval mismatch count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp priority zero from master count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp higher priority count</td>
<td>0</td>
</tr>
<tr>
<td>transitioned to master state count</td>
<td>0</td>
</tr>
<tr>
<td>transitioned to backup state count</td>
<td>1</td>
</tr>
<tr>
<td>total number of vrrp packets received</td>
<td>1282</td>
</tr>
<tr>
<td>backup advertisements received</td>
<td>0</td>
</tr>
<tr>
<td>total number of vrrp packets sent</td>
<td>0</td>
</tr>
<tr>
<td>backup advertisements sent</td>
<td>16</td>
</tr>
</tbody>
</table>

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 100**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>ethernet v100</td>
</tr>
<tr>
<td>rxd vrrp header error count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp auth error count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp auth passwd mismatch error count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp vrid not found error count</td>
<td>0</td>
</tr>
<tr>
<td>VRID</td>
<td>100</td>
</tr>
<tr>
<td>rxd arp packet drop count</td>
<td>0</td>
</tr>
<tr>
<td>rxd ip packet drop count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp port mismatch count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp number of ip address mismatch count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp ip address mismatch count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp hello interval mismatch count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp priority zero from master count</td>
<td>0</td>
</tr>
<tr>
<td>rxd vrrp higher priority count</td>
<td>1</td>
</tr>
<tr>
<td>transitioned to master state count</td>
<td>2</td>
</tr>
<tr>
<td>transitioned to backup state count</td>
<td>3</td>
</tr>
<tr>
<td>total number of vrrp-extended packets received</td>
<td>1697</td>
</tr>
<tr>
<td>backup advertisements received</td>
<td>0</td>
</tr>
<tr>
<td>total number of vrrp-extended packets sent</td>
<td>14</td>
</tr>
<tr>
<td>backup advertisements sent</td>
<td>31</td>
</tr>
</tbody>
</table>

The `show ipv6 vrrp-extended statistics [ve <num>]` command output display includes the Hello TX statistics packet counts.

**show ip vrrp ?**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>brief</td>
<td>Summary</td>
</tr>
<tr>
<td>ethernet</td>
<td>Ethernet port</td>
</tr>
<tr>
<td>stat</td>
<td>Status</td>
</tr>
<tr>
<td>statistics</td>
<td>VRRP/VRRP-E packet counts</td>
</tr>
<tr>
<td>ve</td>
<td>Virtual Ethernet port</td>
</tr>
<tr>
<td>vrid</td>
<td>Virtual router ID</td>
</tr>
</tbody>
</table>

The new Hello TX statistics packet counts is added in the output.

**show ip vrrp-extended ?**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>brief</td>
<td>Summary</td>
</tr>
<tr>
<td>ethernet</td>
<td>Ethernet port</td>
</tr>
<tr>
<td>stat</td>
<td>Status</td>
</tr>
<tr>
<td>statistics</td>
<td>VRRP/VRRP-E packet counts</td>
</tr>
<tr>
<td>ve</td>
<td>Virtual Ethernet port</td>
</tr>
<tr>
<td>vrid</td>
<td>Virtual router ID</td>
</tr>
</tbody>
</table>

The new Hello TX statistics packet counts is added in the output.
### show ipv6 vrrp-extended?

<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show ipv6 vrrp-extended</code></td>
<td>The new Hello TX statistics packet counts is added in the output.</td>
</tr>
</tbody>
</table>

### show arp mac-address?

<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show arp mac-address</code></td>
<td><code>HHHH.HHHH.HHHH</code> MAC address in <code>xxxx.xxxx.xxxx</code> pipe and &lt;CR&gt; removed from output.</td>
</tr>
</tbody>
</table>

### show cluster

<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show cluster</code></td>
<td>Due to LAG changes, LACP column is removed.</td>
</tr>
<tr>
<td><code>show cluster</code></td>
<td>With Cluster SX800 1</td>
</tr>
<tr>
<td></td>
<td>Rbridge Id: 1, Session Vlan: 2</td>
</tr>
<tr>
<td></td>
<td>Cluster State: Deploy</td>
</tr>
<tr>
<td></td>
<td>Client Isolation Mode: Loose</td>
</tr>
<tr>
<td></td>
<td>Member Vlan Range: 101 to 118</td>
</tr>
<tr>
<td></td>
<td>ICL Info:</td>
</tr>
<tr>
<td></td>
<td>Name                  Port Trunk</td>
</tr>
<tr>
<td></td>
<td>1                     8/1 449</td>
</tr>
<tr>
<td>Peer Info:</td>
<td>`Peer IP: 1.1.1.2, Peer Rbridge Id: 2, ICL: 1</td>
</tr>
<tr>
<td></td>
<td>KeepAlive Interval: 10 , Hold Time: 90, Fast Failover</td>
</tr>
<tr>
<td></td>
<td>Active Vlan Range: 101 to 121</td>
</tr>
<tr>
<td></td>
<td>Peer State: CCP Up (Up Time: 0 days: 0 hr: 5 min:26 sec)</td>
</tr>
<tr>
<td>Client Info:</td>
<td>Number of Clients configured: 13</td>
</tr>
<tr>
<td></td>
<td>Name                     Rbridge-id Config LACP Port Trunk FSM-State</td>
</tr>
<tr>
<td></td>
<td>A-CCEP-102--002438795280 2426 Deployed yes 3/5 - Local Deploy</td>
</tr>
<tr>
<td></td>
<td>A-CCEP-103--002438790240 2488 Deployed yes 3/9 - Local Deploy</td>
</tr>
<tr>
<td></td>
<td>A-CCEP-104--002438793f20 2070 Deployed yes 3/13 - Local Deploy</td>
</tr>
<tr>
<td></td>
<td>A-CCEP-105--0012f2e5dbc0 888 Deployed no 3/17 145 Up Deploy</td>
</tr>
<tr>
<td></td>
<td>A-CCEP-106--002438d1c0c0 320 Deployed no 3/21 149 Local Deploy</td>
</tr>
<tr>
<td></td>
<td>A-CCEP-107--001beda4a1c0 4072 Deployed no 4/1 193 Up Deploy</td>
</tr>
<tr>
<td></td>
<td>A-CCEP-108--00e052000100 3032 Deployed yes 4/5 - Local Deploy</td>
</tr>
<tr>
<td></td>
<td>A-CCEP-110--001bed902400 1632 Deployed no 4/13 205 Up Deploy</td>
</tr>
</tbody>
</table>
show ipv6 route
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 l:External Type 1 2:External Type 2
IPv6 Prefix Next Hop Router Interface Dis/Metric
Type Uptime
C 2000:5:5:5::/64 :: loopback 5 0/0
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)

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 l:External Type 1 2:External Type 2
IPv6 Prefix Next Hop Router Interface Dis/Metric
Type 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

show ipv6 route
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 l:External Type 1 2:External Type 2
IPv6 Prefix Next Hop Router Interface Dis/Metric
Type Uptime
C 2000:5:5:5::/64 :: loopback 5 0/0
5d18h

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

show ip pim interface
Brocade#show ip pim int
| ethernet | Ethernet port
| loopback | Loopback port
| tunnel   | Tunnel Interface
| ve       | Virtual port
|          | Output modifiers
<cr>
<table>
<thead>
<tr>
<th>show ip pim interface</th>
<th>Brocade#sh ip pim interface</th>
<th>Explanation for options &quot;ethernet&quot; and &quot;loopback&quot; added in help.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ethernet Ethernet port</td>
<td></td>
</tr>
<tr>
<td></td>
<td>loopback Loopback port</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tunnel Tunnel Interface</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ve Virtual port</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Output modifiers</td>
<td></td>
</tr>
<tr>
<td>&lt;cr&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brocade#</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>show ip pim vrf white interface</th>
<th>Brocade#sh ip pim vrf white interface</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ethernet Ethernet port</td>
<td></td>
</tr>
<tr>
<td></td>
<td>loopback Loopback port</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tunnel Tunnel Interface</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ve Virtual port</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Output modifiers</td>
<td></td>
</tr>
<tr>
<td>&lt;cr&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brocade#</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>show ip pim mcache 1.2.3.4</th>
<th>Brocade#show ip pim mc 226.0.0.201</th>
<th>Filtering option is added.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.B.C.D</td>
<td>Multicast cache IP source or group address</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Output modifiers</td>
<td></td>
</tr>
<tr>
<td>&lt;cr&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>show ip pim flowcache 1.2.3.4</td>
<td>Brocade#show ip pim flowcache 90.1.1.32, 226.0.0.201</td>
<td>MLL and Vidx information is added.</td>
</tr>
<tr>
<td>show ip pim flowcache 1.2.3.4</td>
<td>Invalid input -&gt; 90.1.1.32, 226.0.0.201</td>
<td></td>
</tr>
<tr>
<td>show ip pim flowcache 1.2.3.4</td>
<td>Type ? for a list</td>
<td></td>
</tr>
<tr>
<td>show ip pim flowcache 1.2.3.4</td>
<td>Brocade#show ip pim flowcache 90.1.1.32 226.0.0.201</td>
<td></td>
</tr>
</tbody>
</table>

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  

------------------- MLL contents read from Device 0 -------------------  

last0 [0]= last mll  
startOfTunnel0 [1]= False  
ml1Vid0 [3:14]= 110  
useVIDX0 [15]= True  
VIDX0 [16:28]= 115  
ml1RpfFailCmd0 [29:31]= trap  
ttl/HopLimitThreshold0 [43:50]= 1  
excludeSrcVlan0 [51]= False  
last1 [64]= last mll  
startOfTunnel1 [65]= False  
reserved [66]= 0  
ml1Vid1 [67:78]= 45  
useVIDX1 [79]= True  
VIDX1 [80:92]= 95  
ml1RpfFailCmd1 [93:95]= trap  
ttl/HopLimitThreshold1  
[107:114]= 1  
excludeSrcVlan1 [115]= False  
nextMllPtr [116:127]= 0x000  

1 flow printed
**show ip pim mcache**

| 1.2.3.4 | Brocade#show ip pim mc 90.1.1.32 226.0.0.201 |
| 1.2.3.4 | 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, 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 |
| | 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 |
| | REP_IDX 2: L:VL110 FID: 1073 FSID: 2a680a00 |

**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 |

**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 the entries using this resource |
| fid | Display only the (*, G) entries |
| g_entries | Display only the Sparse entries |
| receiver | Display only 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 |
### show ip pim

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>all-vrf</td>
<td>Show all VRF</td>
</tr>
<tr>
<td>anycast-rp</td>
<td>PIM Anycast RP info</td>
</tr>
<tr>
<td>bsr</td>
<td>Bootstrap router</td>
</tr>
<tr>
<td>counter</td>
<td>PIM internal counters</td>
</tr>
<tr>
<td>dense</td>
<td>Dense-mode settings</td>
</tr>
<tr>
<td>flowcache</td>
<td>Active PIM flow</td>
</tr>
<tr>
<td>group</td>
<td>IP multicast group and its associated information</td>
</tr>
<tr>
<td>interface</td>
<td>PIM interface</td>
</tr>
<tr>
<td>mcache</td>
<td>PIM multicast cache</td>
</tr>
<tr>
<td>neighbor</td>
<td>PIM neighbor states</td>
</tr>
<tr>
<td>nsr</td>
<td>Multicast NSR status</td>
</tr>
<tr>
<td>optimization</td>
<td>PIM Optimization</td>
</tr>
<tr>
<td>prune</td>
<td>Active prunes for PIM operations</td>
</tr>
<tr>
<td>resource</td>
<td>PIM resources</td>
</tr>
<tr>
<td>rp-candidate</td>
<td>Candidate rendezvous point (RP)</td>
</tr>
<tr>
<td>rp-hash</td>
<td>Multicast group to rendezvous point (RP) hash</td>
</tr>
<tr>
<td>rp-map</td>
<td>Active multicast group to rendezvous point (RP) mappings</td>
</tr>
<tr>
<td>rp-set</td>
<td>List of rendezvous point (RP) candidates</td>
</tr>
<tr>
<td>rpf</td>
<td>Find the reverse path forwarding</td>
</tr>
<tr>
<td>sparse</td>
<td>Sparse-mode settings</td>
</tr>
<tr>
<td>traffic</td>
<td>Active multicast traffic</td>
</tr>
<tr>
<td>vrf</td>
<td>VRF-based PIM</td>
</tr>
</tbody>
</table>

### show ip pim flowcache 226.1.1.1

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.B.C.D Multicast flow IP group address</td>
<td>Output modifiers</td>
</tr>
</tbody>
</table>

### show ip pim prune

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Prune entries: 0</td>
<td></td>
</tr>
<tr>
<td>Command</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td><code>show ip pim resource</code></td>
<td>Displays PIM resource usage.</td>
</tr>
<tr>
<td><code>VRF category, ITC, etc. are added.</code></td>
<td></td>
</tr>
<tr>
<td><code>show ip pim group</code></td>
<td>Displays PIM group information.</td>
</tr>
<tr>
<td><code>Total number of groups for VRF default-vrf: 1</code></td>
<td></td>
</tr>
<tr>
<td><code>Brocade#show ip bgp peer-group STR</code></td>
<td>Displays BGP peer-group information.</td>
</tr>
<tr>
<td><code>1 BGP peer-group is STR</code></td>
<td></td>
</tr>
<tr>
<td><code>Address family : IPV4 Unicast activate</code></td>
<td></td>
</tr>
<tr>
<td><code>Address family : IPV4 Multicast no activate</code></td>
<td></td>
</tr>
<tr>
<td><code>Address family : IPV6 Unicast no activate</code></td>
<td></td>
</tr>
<tr>
<td><code>Address family : IPV6 Multicast no activate</code></td>
<td></td>
</tr>
<tr>
<td><code>Address family : VVPN4 Unicast no activate</code></td>
<td></td>
</tr>
<tr>
<td><code>Address family : L2VPN VPLS no activate</code></td>
<td></td>
</tr>
<tr>
<td><code>Members:</code></td>
<td></td>
</tr>
<tr>
<td><code>IP Address: 125.1.1.1, AS: 5</code></td>
<td></td>
</tr>
</tbody>
</table>
**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

**show ip ospf routes 1.2.3.4**

Brocade#sh ip ospf route 192.190.101.0

<table>
<thead>
<tr>
<th>Destination</th>
<th>Mask</th>
<th>Path_Cost</th>
<th>Type2_Cost</th>
<th>Path_Type</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>192.190.101.0</td>
<td>255.255.255.0</td>
<td>3</td>
<td>0</td>
<td>Intra</td>
<td>192.168.98.190 192.168.98.190 Network Valid 0 0000</td>
</tr>
</tbody>
</table>
| 192.168.98.190 | 192.213.111.111 | OSPF      | 29 a8      |          | 1e 4/3/1 | 192.213.111.111 OSPF
| 2 ve 17 | 192.213.111.111 OSPF | 00 00 | | | |

**show ipv6 cache 2**

Total number of IPv6 and IPv6 VPN cache entries: 44

<table>
<thead>
<tr>
<th>IPv6 Address</th>
<th>Next Hop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 2</td>
<td>2000:824:824:824::8 DIRECT ve 824</td>
</tr>
<tr>
<td>3</td>
<td>fe80:512::512:1 LOCAL e 5/1/2</td>
</tr>
<tr>
<td>4</td>
<td>2000:202:202:202::1 LOCAL loopback 2</td>
</tr>
<tr>
<td>5</td>
<td>2000:400:400:400::2 LOCAL ve 400</td>
</tr>
<tr>
<td>6</td>
<td>2000:824:824:824::4 LOCAL ve 824</td>
</tr>
<tr>
<td>7</td>
<td>2000:411:411:411::1 LOCAL 1/1/1</td>
</tr>
<tr>
<td>8</td>
<td>2000:400:400:400::3 DIRECT ve 400</td>
</tr>
<tr>
<td>9</td>
<td>fe80:824::824:4 LOCAL ve 824</td>
</tr>
<tr>
<td>10</td>
<td>fe80:411::411:1 LOCAL e 1/1/1</td>
</tr>
<tr>
<td>11</td>
<td>2000:512:512:512::1 LOCAL e 5/1/2</td>
</tr>
<tr>
<td>12</td>
<td>fe80::234:ff:fe34:34 LOCAL loopback 2</td>
</tr>
</tbody>
</table>
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
  Command is
  changed to "sh ip ospf neighbor extensive". Options
  and CNT fields are
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
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         O
  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         O
  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
inactive_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:

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
--------------------
Port Sampling Rates
--------------------
Port=1/1/9, configured rate=200, actual rate=200
Port=1/1/10, configured rate=500, actual rate=500
Port=1/2/4, configured rate=500, actual rate=500
Port=2/1/7, configured rate=500, actual rate=500
Port=2/1/8, configured rate=500, actual rate=500
Port=2/1/12, configured rate=400, actual rate=400
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=1/1/1 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.

FastIron Ethernet Switch Software Upgrade Guide
53-1003632-0
show command output differences between 07.4.00 and 08.0.xx

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

Brocade#sh ip pim interface e 1/1/7

<table>
<thead>
<tr>
<th>Interface</th>
<th>TTL</th>
<th>Multicast VRF</th>
<th>Designated Router</th>
<th>DR</th>
<th>Override</th>
<th>Port</th>
<th>Thr</th>
<th>Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>e1/1/7</td>
<td>33</td>
<td>3.0.0.6</td>
<td>SMv2 Ena Itself</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

Total Number of Interfaces : 1
Brocade#

The output is more detailed.

The output is modified and it now also shows VRF information.
Brocade#sh ip pim interface loopback 6
---+----------------------+---------+---+-----------------------+---+---------+
|   | Local                | Ver    | St |   Designated Router   |
|   | TTL                   | Multicast | VRF | DR                     |
|   | Address               | Prio   | Interval | Override                  |
|   |                       | Port   | Thr | Boundary                  |
-+--------------------+-----------------------+---+---------+
l6 100.0.0.6       SMv2 Ena Itself                    1 None
default 1        3000ms
Total Number of Interfaces : 1
Brocade#

Brocade#sh ip pim vrf white interface tunnel
DECIMAL   Number
Brocade#

Brocade#sh ip pim vrf white interface tunnel 11
---+----------------------+---------+---+-----------------------+---+---------+
|   | Local                | Ver    | St |   Designated Router   |
|   | TTL                   | Multicast | VRF | DR                     |
|   | Address               | Prio   | Interval | Override                  |
|   |                       | Port   | Thr | Boundary                  |
-+--------------------+-----------------------+---+---------+
  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#

Brocade#sh ip pim vrf white interface ve
DECIMAL   Number
Brocade#

Brocade#sh ip pim vrf white interface ve 25
---+----------------------+---------+---+-----------------------+---+---------+
|   | Local                | Ver    | St |   Designated Router   |
|   | TTL                   | Multicast | VRF | DR                     |
|   | Address               | Prio   | Interval | Override                  |
|   |                       | Port   | Thr | Boundary                  |
-+--------------------+-----------------------+---+---------+
v25 25.0.0.6        SMv2 Ena Itself                    1 None
white 1        3000ms
Total Number of Interfaces : 1
Brocade#

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 modified and it now also shows VRF information.

The output is modified and it now also shows VRF information.

The output is modified and it now also shows VRF information.

The output is modified and it now also shows VRF information.

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-addr

---------
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):
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 milliseconds
ND retransmit interval is 1000 milliseconds
ND advertised reachable time is 0 seconds
ND advertised retransmit interval is 0 milliseconds
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

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.00&T7f3
    (FCXR08000b1.bin)
  Compressed Sec Code size = 7184942, Version:07.4.00b&T7f3
    (FCXR07400b.bin)
  Compressed Boot-Monitor Image size = 370733, Version:07.3.03&T7f5
    Code Flash Free Space = 48627712
Stack unit 2:
  Compressed Pri Code size = 8780516, Version:008.0.00a.00&T7f3
    (FCXR08000b1.bin)
  Compressed Sec Code size = 7184942, Version:07.4.00&T7f3
    (FCXR07400b.bin)
  Compressed Boot-Monitor Image size = 370733, Version:07.3.03&T7f5
    Code Flash Free Space = 48889856
Brocade#sh auth-mac-addresses detailed e 2/1/8

<table>
<thead>
<tr>
<th>Port</th>
<th>2/1/8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic-Vlan Assignment</td>
<td>Enabled</td>
</tr>
<tr>
<td>RADIUS failure action</td>
<td>Block Traffic</td>
</tr>
<tr>
<td>Failure restrict use dot1x</td>
<td>No</td>
</tr>
<tr>
<td>Override-restrict-vlan</td>
<td>Yes</td>
</tr>
<tr>
<td>Port Default VLAN</td>
<td>1006 ( RADIUS assigned: Yes) (1006)</td>
</tr>
<tr>
<td>Port Vlan State</td>
<td>RADIUS VLAN</td>
</tr>
<tr>
<td>802.1x override Dynamic PVID</td>
<td>NO</td>
</tr>
<tr>
<td>Original PVID</td>
<td>1</td>
</tr>
<tr>
<td>DOS attack protection</td>
<td>Disabled</td>
</tr>
<tr>
<td>Accepted Mac Addresses</td>
<td>1</td>
</tr>
<tr>
<td>Rejected Mac Addresses</td>
<td>0</td>
</tr>
<tr>
<td>Authentication in progress</td>
<td>0</td>
</tr>
<tr>
<td>Authentication attempts</td>
<td>0</td>
</tr>
<tr>
<td>RADIUS timeouts</td>
<td>0</td>
</tr>
<tr>
<td>RADIUS timeouts action</td>
<td>Retry</td>
</tr>
<tr>
<td>MAC Address on PVID</td>
<td>1</td>
</tr>
<tr>
<td>MAC Address authorized on PVID</td>
<td>1</td>
</tr>
<tr>
<td>Aging of MAC-sessions</td>
<td>Enabled</td>
</tr>
<tr>
<td>Port move-back vlan</td>
<td>Port-configured-vlan</td>
</tr>
<tr>
<td>Max-Age of sw mac session</td>
<td>120 seconds</td>
</tr>
<tr>
<td>hw age for denied mac</td>
<td>70 seconds</td>
</tr>
<tr>
<td>MAC Filter applied</td>
<td>No</td>
</tr>
<tr>
<td>Dynamic Acl applied</td>
<td>Yes( 103 )</td>
</tr>
<tr>
<td>default ACL ID on port</td>
<td>0</td>
</tr>
<tr>
<td>number of dynamic ACL</td>
<td>1</td>
</tr>
<tr>
<td>num Dynamic Tagged Vlan</td>
<td>0</td>
</tr>
</tbody>
</table>

-------------------------------------------------------------------------
--
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.
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
  (miliseconds)
  adv: link_mtu 1500, hop_limit 64, managed_flag 0, other_config_flag 0

Brocade#

VLAN ID greater than 255 can now be used.

Port belongs to VRF information is added.

Brocade#show ipv6 int loopback 2 debug

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
Brocade#sh ip ospf area 0.0.0.200 database link-state

<table>
<thead>
<tr>
<th>Index</th>
<th>Area ID</th>
<th>Type LS ID</th>
<th>Adv Rtr</th>
<th>Seq (Hex)</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0.0.200</td>
<td>Rtr 192.168.98.111 192.168.98.111</td>
<td>800001c3 498</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.0.0.200</td>
<td>Rtr 192.168.98.213 192.168.98.213</td>
<td>8000000b 498</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0.0.0.200</td>
<td>Rtr 192.168.98.113 192.168.98.113</td>
<td>800001a4 1246</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0.0.0.200</td>
<td>Rtr 192.168.98.112 192.168.98.112</td>
<td>8000024f 646</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>0.0.0.200</td>
<td>Net 192.113.112.113</td>
<td>800000ba 1246</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>0.0.0.200</td>
<td>Net 192.213.111.111</td>
<td>80000002 535</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>0.0.0.200</td>
<td>Net 192.113.111.113</td>
<td>8000010e 1246</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>0.0.0.200</td>
<td>Net 193.213.111.213</td>
<td>80000002 498</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The output format is different. And, new "sync state" field is added.

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.
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  80000010a 477 0xbe56 Done
      LSA Header:  options: 0x02, seq-nbr: 0x8000010a, length: 72,
                  link id = 192.213.111.213, link data = 192.213.111.111, 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 = 192.213.111.111, link data = 192.213.111.111, 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

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

FastIron Ethernet Switch Software Upgrade Guide
53-1003632-0
show ip ospf area 0.0.0.200 database link-state extensive

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LS ID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Rtr</td>
<td>192.168.98.111</td>
<td>192.168.98.111</td>
<td>800001cc</td>
<td>874</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LS ID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Rtr</td>
<td>192.168.98.213</td>
<td>192.168.98.213</td>
<td>8000001c</td>
<td>337</td>
<td></td>
</tr>
</tbody>
</table>

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.
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:

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Aging</th>
<th>LS ID</th>
<th>Router</th>
<th>Seq(hex)</th>
<th>Chksum</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>991</td>
<td>192.168.98.111</td>
<td>192.168.98.111</td>
<td>800001cc</td>
<td>0000b3ba</td>
</tr>
</tbody>
</table>

Done

LSA Header: options: 0x02, seq-nbr: 0x800001cc, length: 72, flags:0x0500
link id = 193.213.111.213, link data = 192.213.111.111, 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       |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>746</td>
<td>192.168.98.111</td>
<td>192.168.98.111</td>
<td>80000107</td>
<td>0000c618</td>
</tr>
</tbody>
</table>

Done

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       |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>1686</td>
<td>192.168.98.111</td>
<td>192.168.98.112</td>
<td>800001fc</td>
<td>0000de08</td>
</tr>
</tbody>
</table>

Done

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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type LS ID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>SyncState</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Net</td>
<td>192.113.112.113</td>
<td>192.168.98.113</td>
<td>800000be</td>
<td>409</td>
<td></td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type LS ID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>SyncState</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Net</td>
<td>192.213.111.213</td>
<td>192.168.98.213</td>
<td>80000004</td>
<td>1063</td>
<td></td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type LS ID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>SyncState</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Net</td>
<td>192.113.111.113</td>
<td>192.168.98.113</td>
<td>80000111</td>
<td>1098</td>
<td></td>
</tr>
</tbody>
</table>

**LSA Header:** options: 0x02, seq-nbr: 0x800001be, length: 32

NetworkMask: 255.255.255.0

attached router: 192.168.98.113
attached router: 192.168.98.111

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type LS ID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>SyncState</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Net</td>
<td>192.213.111.213</td>
<td>192.168.98.213</td>
<td>80000005</td>
<td>436</td>
<td></td>
</tr>
</tbody>
</table>

**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

---

### show ip ospf area 1.2.3.4
#### database link-state router

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type LS ID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>SyncState</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Rtr</td>
<td>192.168.98.111</td>
<td>192.168.98.111</td>
<td>800001ce</td>
<td>260</td>
<td></td>
</tr>
</tbody>
</table>

**LSA Header:** options: 0x02, seq-nbr: 0x80000000, length: 72, flags:0x0050

link id = 193.213.111.213, link data = 193.213.111.111, type = transit(2)
tos count = 0, tos0_metric = 1

link id = 192.213.111.113, link data = 192.213.111.111, 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
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 = 192.168.98.111, type = transit(2)
   tos count = 0, tos0_metric = 1
   link id = 192.113.111.113, link data = 192.168.98.111, type = transit(2)
   tos count = 0, tos0_metric = 1
   link id = 192.213.111.213, link data = 192.168.98.111, 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.
Brocade#sh ip ospf area 0.0.0.200 database link-state summary

<table>
<thead>
<tr>
<th>Area ID</th>
<th>LS ID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>SyncState</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Summ 192.213.1.166</td>
<td>192.168.98.112</td>
<td>80000003</td>
<td>1670</td>
<td></td>
<td>0xcc11</td>
</tr>
<tr>
<td></td>
<td>LSA Header: options: 0x02, seq-nbr: 0x80000003, length: 28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Done</td>
</tr>
<tr>
<td></td>
<td>NetworkMask: 255.255.255.254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOS 0: metric: 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Aging</th>
<th>LS ID</th>
<th>Router</th>
<th>Seq(hex)</th>
<th>Chksum</th>
<th>SyncState</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>865</td>
<td>192.168.98.190</td>
<td>192.168.98.112</td>
<td>80000143</td>
<td>0000430d</td>
<td>SUMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LSA Header: options: 0x02, seq-nbr: 0x80000143, length: 28</td>
<td></td>
<td></td>
<td></td>
<td>Done</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NetworkMask: 255.255.255.254</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TOS 0: metric: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The output format is different. New "sync state" field is added. New "tos count" field is changed to "TOS". "tos0_metric" is changed to "metric". "Flags" option is removed.
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

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        1614     16384       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

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#
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 yields = 0
Brocade#

show ipv6 memory
Brocade#show ipv6 memory
<table>
<thead>
<tr>
<th>Memory Type</th>
<th>Size</th>
<th>Allocated</th>
<th>Max-alloc</th>
<th>Alloc- Fails</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTYPE_TMP</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_ROUTE_TABLE</td>
<td>180</td>
<td>121</td>
<td>121</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_ROUTE_NODE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_IF_PORT</td>
<td>120</td>
<td>22</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_IF_ADDRESS_CONFIG</td>
<td>23</td>
<td>27</td>
<td>27</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_IF_ADDRESS</td>
<td>56</td>
<td>66</td>
<td>66</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_IF_PREFIX</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_MC_ADDRESS</td>
<td>24</td>
<td>187</td>
<td>187</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_DEFAULT_ROUTE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE ND6_NEIGHBOR_STATIC</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE ND6_DAD</td>
<td>22</td>
<td>0</td>
<td>34</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE ND6_PREFIX_ADV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_LINK_LIST</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_LINK_NODE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MTYPE_ECHO_RESULTMTYPE_RI</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The output is modified.

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):
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

**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

*Port belongs to VRF* information is 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

<table>
<thead>
<tr>
<th>Type IPv6 Prefix</th>
<th>Next Hop Router</th>
<th>Interface</th>
<th>Dis/Metric</th>
<th>Uptime</th>
</tr>
</thead>
<tbody>
<tr>
<td>7124::/64</td>
<td>fe80::224:38ff:febb:e500</td>
<td>ve 4011</td>
<td>100/2</td>
<td>0m0s</td>
</tr>
<tr>
<td>8111::1/128</td>
<td>fe80::224:38ff:febb:e500</td>
<td>ve 4011</td>
<td>100/2</td>
<td>0m0s</td>
</tr>
</tbody>
</table>

ISIS option is added. And, OSPF Codes displayed in a different format.

## show ipv6 route static

Brocade#show ipv6 route static

<table>
<thead>
<tr>
<th>Type IPv6 Prefix</th>
<th>Next Hop Router</th>
<th>Interface</th>
<th>Dis/Metric</th>
<th>Uptime</th>
</tr>
</thead>
</table>

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.
<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show ip ospf config</code></td>
<td>Brocade#sh ip ospf config</td>
<td>List of OSPF configure interfaces is not listed under this command in FastIron 08.0.00a. You can instead use <code>show ip ospf interface</code> command to see them.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explanation is changed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Management and VRF option is added.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximum capacity is removed. And, default routing instance is added.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximum capacity is removed. And, default routing instance is added.</td>
</tr>
<tr>
<td>Command</td>
<td>Description</td>
<td>Notes</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>show arp inspect</td>
<td>Graceful Restart Time: 120</td>
<td>Maximum capacity is removed. And, default routing instance is added.</td>
</tr>
<tr>
<td>show ip ospf redistribute route</td>
<td>Graceful Restart Notify Time: 0</td>
<td>&quot;metric&quot; keyword is added.</td>
</tr>
<tr>
<td>show ip ospf redistribute route 1.2.3.4 1.2.3.4</td>
<td>Redistribution: Disabled</td>
<td>&quot;metric&quot; keyword is added.</td>
</tr>
<tr>
<td>show ip pim nbr</td>
<td>Default OSPF Metric: 10</td>
<td>Header format is modified.</td>
</tr>
<tr>
<td>show ip pim neighbor</td>
<td>OSPF Auto-cost Reference Bandwidth: Disabled</td>
<td>Header format is modified.</td>
</tr>
<tr>
<td>show ip pim traffic</td>
<td>Default Passive Interface: Disabled</td>
<td>Header format is modified.</td>
</tr>
<tr>
<td>show ip pim rp-map</td>
<td>OSPF Redistribution Metric: Type2</td>
<td>Header format is modified.</td>
</tr>
<tr>
<td>show ip rip ?</td>
<td>OSPF External LSA Limit: 6990506</td>
<td>The output is modified to provide more details.</td>
</tr>
<tr>
<td>show snmp server</td>
<td>OSPF Database Overflow Interval: 0</td>
<td>More options are added. For example, &quot;Status: Enabled&quot;.</td>
</tr>
<tr>
<td>show ip rip interface</td>
<td>RFC 1583 Compatibility: Enabled</td>
<td>The output format is modified. Metric-offset, Prefix List, and Route-map information are added.</td>
</tr>
<tr>
<td>show ip rip interface ethernet 1/1</td>
<td>Router id: 1.2.3.4</td>
<td>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.</td>
</tr>
<tr>
<td>Command</td>
<td>Trap Status</td>
<td>Additional Information</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>show ip rip</td>
<td>Interface State Change Trap: Enabled</td>
<td>The output format is different. Metric-offset, Prefix List, Route-map information, RIP sent/receive statistics, and Error information are added.</td>
</tr>
<tr>
<td>interface ve 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>show ip ?</td>
<td>Virtual Interface State Change Trap: Enabled</td>
<td>“mroute” is removed. And, dns-server, msdp, rtm, ssl, and vrf are added.</td>
</tr>
<tr>
<td>show ipsec policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>show ipv6 ospf interface ?</td>
<td>Virtual Interface Authentication Failure Trap: Enabled</td>
<td>The output format is different.</td>
</tr>
<tr>
<td>show ipv6 ospf interface tunnel ?</td>
<td>Virtual Interface Authentication Failure Trap: Enabled</td>
<td>The output format is different.</td>
</tr>
<tr>
<td>show ipv6 ospf routes</td>
<td>Virtual Interface Receive Bad Packet Trap: Enabled</td>
<td>The output format is different.</td>
</tr>
</tbody>
</table>
```plaintext
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

<table>
<thead>
<tr>
<th>Pid</th>
<th>BlkSize</th>
<th>BlkTotal</th>
<th>UsedBlks</th>
<th>FreeBlks</th>
<th>AllocErr</th>
<th>StartAddr</th>
<th>ListAddr</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>40</td>
<td>2000</td>
<td>13</td>
<td>1987</td>
<td>0</td>
<td>274a4004</td>
<td>274a41e4</td>
</tr>
<tr>
<td>2</td>
<td>104</td>
<td>4000</td>
<td>11</td>
<td>3989</td>
<td>0</td>
<td>274b8004</td>
<td>274b847c</td>
</tr>
<tr>
<td>3</td>
<td>132</td>
<td>32</td>
<td>0</td>
<td>32</td>
<td>0</td>
<td>2751e004</td>
<td>2751e004</td>
</tr>
<tr>
<td>4</td>
<td>260</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>27520004</td>
<td>27520004</td>
</tr>
<tr>
<td>5</td>
<td>319</td>
<td>2</td>
<td>30</td>
<td>27522004</td>
<td>0</td>
<td>27522412</td>
<td>27522412</td>
</tr>
<tr>
<td>6</td>
<td>1504</td>
<td>32</td>
<td>0</td>
<td>32</td>
<td>0</td>
<td>27527004</td>
<td>27527004</td>
</tr>
<tr>
<td>7</td>
<td>4309</td>
<td>16</td>
<td>1</td>
<td>15</td>
<td>0</td>
<td>27533004</td>
<td>275340d9</td>
</tr>
<tr>
<td>8</td>
<td>37204</td>
<td>16</td>
<td>2</td>
<td>14</td>
<td>0</td>
<td>27544004</td>
<td>275562ac</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Total Memory blocks allocated 29

Mega Memory List

<table>
<thead>
<tr>
<th>Pool Id</th>
<th>Total Mega blocks</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>UsedBlks</th>
<th>AllocErr</th>
<th>TotAlloc</th>
<th>PType</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>OSPF_MEMORY_POOL_ANY</td>
</tr>
<tr>
<td>1309</td>
<td>0</td>
<td>0</td>
<td>OSPF_MEMORY_POOL_ROUTER_LINK_ADVERTISEMENT</td>
</tr>
<tr>
<td>2101</td>
<td>0</td>
<td>0</td>
<td>OSPF_MEMORY_POOL_NETWORK_LINK_ADVERTISEMENT</td>
</tr>
<tr>
<td>3305</td>
<td>0</td>
<td>0</td>
<td>OSPF_MEMORY_POOL_SUMMARY_LINK_ADVERTISEMENT</td>
</tr>
<tr>
<td>4000</td>
<td>0</td>
<td>0</td>
<td>OSPF_MEMORY_POOL_EXTERNAL_LINK_ADVERTISEMENT</td>
</tr>
<tr>
<td>5000</td>
<td>0</td>
<td>0</td>
<td>OSPF_MEMORY_POOL_OPAQUE_LINK_ADVERTISEMENT</td>
</tr>
<tr>
<td>6002</td>
<td>0</td>
<td>0</td>
<td>OSPF_MEMORY_POOL_LS_DATABASE_SUMMARY</td>
</tr>
<tr>
<td>7002</td>
<td>0</td>
<td>0</td>
<td>OSPF_MEMORY_POOL_LS_DATABASE_NODE</td>
</tr>
<tr>
<td>80010</td>
<td>0</td>
<td>0</td>
<td>OSPF_MEMORY_POOL_SHORTEST_PATH_NODE</td>
</tr>
</tbody>
</table>

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
```
Brocade#show process cpu 2

Statistics for last 1 sec and 988 ms

Process Name    Sec(%)   Time(ms)

<table>
<thead>
<tr>
<th>Process Name</th>
<th>Sec(%)</th>
<th>Time(ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARP</td>
<td>0.08</td>
<td>1</td>
</tr>
<tr>
<td>BGP</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>DOT1X</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>GVRP</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>ICMP</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>IP</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>OSPF</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>RIP</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>STP</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>VRRP</td>
<td>0.70</td>
<td>14</td>
</tr>
</tbody>
</table>

Statistics for last 1 sec and 988 ms

Process Name    Sec(%)   Time(ms)

<table>
<thead>
<tr>
<th>Process Name</th>
<th>Sec(%)</th>
<th>Time(ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPv6</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>ICMP6</td>
<td>0.01</td>
<td>0</td>
</tr>
<tr>
<td>ND6</td>
<td>0.02</td>
<td>0</td>
</tr>
<tr>
<td>RIPng</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>OSPFv3</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>IPV6_RX</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>NULL</td>
<td>0.00</td>
<td>0</td>
</tr>
</tbody>
</table>

Brocade#

NULL entry is added.

Brocade#show ipv6 route

<table>
<thead>
<tr>
<th>X:/:X::X:X</th>
<th>IPv6 address</th>
</tr>
</thead>
<tbody>
<tr>
<td>X:/:X::X/M</td>
<td>IPv6 prefix</td>
</tr>
</tbody>
</table>

brocap
display BGP routes
cconnect
display directly attached routes
cdsp
display OSPFv3 routes
cd

display RIPng routes
cd

display static IPv6 routes

cd

display summary display

cv

display VRF routes

<cr>

Option vrf will now display VRF specific routes.

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.

Brocade#sh ip ospf neigh

Number of Neighbors is 3, in FULL state 3

<table>
<thead>
<tr>
<th>Port</th>
<th>Address</th>
<th>Pri</th>
<th>State</th>
<th>Neigh Address</th>
<th>Neigh ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ev</td>
<td>Opt Cnt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/3/1</td>
<td>1/8/3/1</td>
<td>193.213.111.213</td>
<td>FULL/BDR</td>
<td>193.213.111.111</td>
<td></td>
</tr>
<tr>
<td>192.168.98.111</td>
<td>6 2 0</td>
<td>192.213.111.213</td>
<td>FULL/BDR</td>
<td>192.213.111.111</td>
<td></td>
</tr>
<tr>
<td>v17</td>
<td>192.213.163.213</td>
<td>FULL/BDR</td>
<td>192.213.163.163</td>
<td></td>
<td></td>
</tr>
<tr>
<td>192.168.98.111</td>
<td>6 2 0</td>
<td>192.168.98.163</td>
<td>FULL/BDR</td>
<td>192.213.111.111</td>
<td></td>
</tr>
</tbody>
</table>

Options and CNT fields are added.

Brocade#sh ip ospf neigh 2

<table>
<thead>
<tr>
<th>Port</th>
<th>Address</th>
<th>Pri</th>
<th>State</th>
<th>Neigh Address</th>
<th>Neigh ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ev</td>
<td>Opt Cnt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>v17</td>
<td>192.213.111.213</td>
<td>FULL/BDR</td>
<td>193.213.111.111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>192.168.98.111</td>
<td>6 2 0</td>
<td>192.168.98.111</td>
<td>FULL/BDR</td>
<td>192.213.111.111</td>
<td></td>
</tr>
</tbody>
</table>

Options and CNT fields are added.
show ip ospf neighbor router-id 192.168.98.111

<table>
<thead>
<tr>
<th>Port</th>
<th>Address</th>
<th>Pri State</th>
<th>Neigh Address</th>
<th>Neigh ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/3/1</td>
<td>192.213.111.213</td>
<td>FULL/BDR</td>
<td>192.213.111.111</td>
<td></td>
</tr>
<tr>
<td>192.168.98.111</td>
<td>6 2 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>v17</td>
<td>192.213.111.213</td>
<td>FULL/BDR</td>
<td>192.213.111.111</td>
<td></td>
</tr>
<tr>
<td>192.168.98.111</td>
<td>6 2 0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Options and CNT fields are added.

show ip route 2

Total number of IP routes: 8

<table>
<thead>
<tr>
<th>Type</th>
<th>Destination</th>
<th>Gateway</th>
<th>Port</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1.0.0.2/32</td>
<td>1.1.1.2</td>
<td>ve 100</td>
<td>110/501</td>
</tr>
<tr>
<td>41m45s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.1.1.0/30</td>
<td>DIRECT</td>
<td>ve 100</td>
<td>0/0</td>
</tr>
<tr>
<td>42m24s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.100.1.0/24</td>
<td>DIRECT</td>
<td>e 1/1/24</td>
<td>0/0</td>
</tr>
<tr>
<td>45m26s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1.102.1.0/24</td>
<td>1.1.1.2</td>
<td>ve 100</td>
<td>110/2</td>
</tr>
<tr>
<td>13m26s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1.111.1.0/30</td>
<td>DIRECT</td>
<td>tunnel 2</td>
<td>0/0</td>
</tr>
<tr>
<td>29m12s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10.0.0.0/8</td>
<td>10.20.75.126</td>
<td>e mgmt1</td>
<td>1/1</td>
</tr>
<tr>
<td>12h24m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>10.20.75.64/26</td>
<td>DIRECT</td>
<td>e mgmt1</td>
<td>0/0</td>
</tr>
<tr>
<td>12h24m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OSPF and BGP sub-codes, and Uptime information are added.

show ip route bgp

<table>
<thead>
<tr>
<th>Type</th>
<th>Destination</th>
<th>Gateway</th>
<th>Port</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi</td>
<td>1.202.1.0/24</td>
<td>1.1.1.2</td>
<td>ve 100</td>
<td>200/0</td>
</tr>
<tr>
<td>2m3s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OSPF and BGP sub-codes, and Uptime information are added.

show ip route direct

<table>
<thead>
<tr>
<th>Type</th>
<th>Destination</th>
<th>Gateway</th>
<th>Port</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>12h36m</td>
<td>1.0.0.1/32</td>
<td>DIRECT</td>
<td>loopback 1</td>
<td>0/0</td>
</tr>
<tr>
<td>2</td>
<td>1.1.1.0/30</td>
<td>DIRECT</td>
<td>ve 100</td>
<td>0/0</td>
</tr>
<tr>
<td>54m2s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.100.1.0/24</td>
<td>DIRECT</td>
<td>e 1/1/24</td>
<td>0/0</td>
</tr>
<tr>
<td>57m4s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.111.1.0/30</td>
<td>DIRECT</td>
<td>tunnel 2</td>
<td>0/0</td>
</tr>
<tr>
<td>40m50s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1.201.1.0/24</td>
<td>DIRECT</td>
<td>loopback 2</td>
<td>0/0</td>
</tr>
<tr>
<td>4ml3s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>10.20.75.64/26</td>
<td>DIRECT</td>
<td>e mgmt1</td>
<td>0/0</td>
</tr>
<tr>
<td>12h36m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OSPF and BGP sub-codes, and Uptime information are added.
<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
</table>
| `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.

<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
</table>
| `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.

<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
</table>
| `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.

<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
</table>
| `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 |

Output has Uptime and other header information.

<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
</tr>
</thead>
</table>
| `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 |

Output has Uptime and other header information.
**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

---

**show ip mtu-profile detail**

<table>
<thead>
<tr>
<th>idx</th>
<th>size</th>
<th>usage</th>
<th>ref-count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1500</td>
<td>1</td>
<td>default</td>
</tr>
<tr>
<td>1</td>
<td>1480</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1476</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

---

**show ip ospf virtual-neighbor ?**

<table>
<thead>
<tr>
<th>Indx Transit Area</th>
<th>Router ID</th>
<th>Neighbor address options</th>
<th>Port Address</th>
<th>state</th>
<th>events</th>
<th>count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0.0.200</td>
<td>192.168.98.111 192.213.111.111</td>
<td>2</td>
<td></td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

---

**show dot1x configuration ethernet**

| Port-Control filter strict security | Action on RADIUS timeout Authentication-fail-action VVID State Original VVID Authorized VVID ref count Restricted VVID ref count Radius assign VVID ref count num mac sessions num mac authorized num Dynamic Tagged Vlan Number of Auth filter |
|-----------------------------------|-------------------------------------------------|-------------------|------------------|------------------------|-------------------|----------------------|------------------|------------------|----------------|----------------|
| control-auto                      | Enable                                           | Treat as a successful authentication | Global action   | Normal (1006)          | 1006              | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
### 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

### 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

### 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 information, GR helper info and NONSTOP routing information is added.
Brocade#show ipv6 route rip

<table>
<thead>
<tr>
<th>Uptime</th>
<th>IPv6 Prefix</th>
<th>Next Hop Router</th>
<th>Interface</th>
<th>Dis/Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>22h11m</td>
<td>ada::1:1:1:2/128</td>
<td>fe80::224:38ff:fe8f:3000</td>
<td>e 1/1/1</td>
<td>120/2</td>
</tr>
<tr>
<td>22h11m</td>
<td>2003:db8::/64</td>
<td>fe80::224:38ff:fe8f:3000</td>
<td>e 1/1/1</td>
<td>120/2</td>
</tr>
<tr>
<td>22h11m</td>
<td>2004:db8::/64</td>
<td>fe80::224:38ff:fe8f:3000</td>
<td>e 1/1/1</td>
<td>120/2</td>
</tr>
<tr>
<td>22h11m</td>
<td>2004:db9::/64</td>
<td>fe80::224:38ff:fe8f:3000</td>
<td>e 1/1/1</td>
<td>120/2</td>
</tr>
<tr>
<td>22h11m</td>
<td>2006:db8::/64</td>
<td>fe80::224:38ff:fe8f:3000</td>
<td>e 1/1/1</td>
<td>120/3</td>
</tr>
<tr>
<td>22h11m</td>
<td>2007:db8::/64</td>
<td>fe80::224:38ff:fe8f:3000</td>
<td>e 1/1/1</td>
<td>120/4</td>
</tr>
<tr>
<td>22h11m</td>
<td>bebe::1:1:1:4/128</td>
<td>fe80::224:38ff:fe8f:3000</td>
<td>e 1/1/1</td>
<td>120/3</td>
</tr>
<tr>
<td>22h11m</td>
<td>cccc::1:1:1:3/128</td>
<td>fe80::224:38ff:fe8f:3000</td>
<td>e 1/1/1</td>
<td>120/4</td>
</tr>
<tr>
<td>22h11m</td>
<td>feed:acee:0:0:223:223::/96</td>
<td>fe80::224:38ff:fe8f:3000</td>
<td>e 1/1/1</td>
<td>120/5</td>
</tr>
</tbody>
</table>

Brocade#show ip pim dense

Global PIM Dense Mode Settings
- Maximum Mcache : 4096
- Hello interval : 105
- Join/Prune interval : 105
- Hardware Drop Enabled : Yes
- Graft Retransmit interval : 180
- Route Precedence : mc-non-default mc-default uc-non-default uc-default

Uptime information is added.

More pim dense parameter information is displayed.
<table>
<thead>
<tr>
<th>Interface</th>
<th>Status</th>
<th>VRF</th>
<th>Global Unicast Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eth 1/1/1</td>
<td>up/up</td>
<td>2000:411:411:411::1/64</td>
<td></td>
</tr>
<tr>
<td>Eth 5/1/2</td>
<td>up/up</td>
<td>2000:512:512:512::1/64</td>
<td></td>
</tr>
<tr>
<td>Ve 300</td>
<td>up/up</td>
<td>2000:300:300:300::2/64</td>
<td></td>
</tr>
<tr>
<td>Ve 301</td>
<td>up/up</td>
<td>2000:301:301:301::2/64</td>
<td></td>
</tr>
<tr>
<td>Ve 302</td>
<td>up/up</td>
<td>2000:302:302:302::2/64</td>
<td></td>
</tr>
<tr>
<td>Ve 303</td>
<td>up/up</td>
<td>2000:303:303:303::2/64</td>
<td></td>
</tr>
<tr>
<td>Ve 304</td>
<td>up/up</td>
<td>2000:304:304:304::2/64</td>
<td></td>
</tr>
<tr>
<td>Ve 305</td>
<td>up/up</td>
<td>2000:305:305:305::2/64</td>
<td></td>
</tr>
<tr>
<td>Ve 306</td>
<td>up/up</td>
<td>2000:306:306:306::2/64</td>
<td></td>
</tr>
<tr>
<td>Ve 307</td>
<td>up/up</td>
<td>2000:307:307:307::2/64</td>
<td></td>
</tr>
<tr>
<td>Ve 308</td>
<td>up/up</td>
<td>2000:308:308:308::1/64</td>
<td></td>
</tr>
<tr>
<td>Ve 309</td>
<td>up/up</td>
<td>2000:309:309:309::1/64</td>
<td></td>
</tr>
<tr>
<td>Ve 310</td>
<td>up/up</td>
<td>2000:310:310:310::1/64</td>
<td></td>
</tr>
<tr>
<td>Ve 311</td>
<td>up/up</td>
<td>2000:311:311:311::1/64</td>
<td></td>
</tr>
<tr>
<td>Ve 312</td>
<td>up/up</td>
<td>2000:312:312:312::1/64</td>
<td></td>
</tr>
<tr>
<td>Ve 313</td>
<td>up/up</td>
<td>2000:313:313:313::1/64</td>
<td></td>
</tr>
<tr>
<td>Ve 314</td>
<td>up/up</td>
<td>2000:314:314:314::1/64</td>
<td></td>
</tr>
<tr>
<td>Ve 315</td>
<td>up/up</td>
<td>2000:315:315:315::1/64</td>
<td></td>
</tr>
</tbody>
</table>

The VRF to which the interface belongs, is added in the output.
### 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

<table>
<thead>
<tr>
<th>Type</th>
<th>Uptime</th>
<th>Destination</th>
<th>Gateway</th>
<th>Port</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1d3h</td>
<td>1.1.1.2/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/2</td>
</tr>
<tr>
<td>2</td>
<td>1d0h</td>
<td>1.1.1.3/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/4</td>
</tr>
<tr>
<td>3</td>
<td>1d3h</td>
<td>1.1.1.4/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/3</td>
</tr>
<tr>
<td>4</td>
<td>1d3h</td>
<td>1.1.1.6/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/3</td>
</tr>
<tr>
<td>5</td>
<td>1d3h</td>
<td>1.1.1.7/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/3</td>
</tr>
<tr>
<td>6</td>
<td>1d3h</td>
<td>1.1.2.1/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/2</td>
</tr>
<tr>
<td>7</td>
<td>1d3h</td>
<td>1.1.6.1/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/3</td>
</tr>
<tr>
<td>8</td>
<td>1d3h</td>
<td>1.1.26.1/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/2</td>
</tr>
<tr>
<td>9</td>
<td>1d3h</td>
<td>1.1.26.2/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/2</td>
</tr>
<tr>
<td>10</td>
<td>1d3h</td>
<td>1.1.26.3/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/2</td>
</tr>
<tr>
<td>11</td>
<td>1d3h</td>
<td>1.1.26.4/32</td>
<td>192.168.1.2</td>
<td>e 1/1/1</td>
<td>120/2</td>
</tr>
</tbody>
</table>

Row number and uptime for a route, are added.
### show tech-support stack

Stacking Status.

<table>
<thead>
<tr>
<th>ID</th>
<th>Type</th>
<th>Role</th>
<th>Mac Address</th>
<th>Pri State</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S ICX6610-24F</td>
<td>standby</td>
<td>748e.f834.8198</td>
<td>0 remote</td>
<td>Ready</td>
</tr>
<tr>
<td>2</td>
<td>S ICX6610-24</td>
<td>active</td>
<td>748e.f893.4e1c</td>
<td>0 local</td>
<td>Ready</td>
</tr>
</tbody>
</table>

active       standby

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2/6</td>
<td>2/1</td>
<td>2/6</td>
<td>1/2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Standby u1 - protocols ready, can failover or manually switch over
Current stack management MAC is 748e.f834.8199

Image-Auto-Copy is Enabled.

<table>
<thead>
<tr>
<th>Stack Port Status</th>
<th>Neighbors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit# Stack-port1</td>
<td>Stack-port2</td>
</tr>
<tr>
<td>1 up (1/2/1-1/2/2)</td>
<td>up (1/2/6-1/2/7)</td>
</tr>
<tr>
<td>2 up (2/2/1-2/2/2)</td>
<td>up (2/2/6-2/2/7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit# System uptime</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2 days 20 hours 57 minutes 35 seconds</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>2 days 21 hours 33 seconds</td>
</tr>
</tbody>
</table>

Stack Resource information.

<table>
<thead>
<tr>
<th>alloc</th>
<th>in-use</th>
<th>avail</th>
<th>get-fail</th>
<th>limit</th>
<th>get-mem</th>
</tr>
</thead>
<tbody>
<tr>
<td>19200</td>
<td>13636</td>
<td>5564</td>
<td>0 556800</td>
<td>18708</td>
<td></td>
</tr>
<tr>
<td>336</td>
<td>2400</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>12</td>
<td>32</td>
<td>30</td>
<td>0 7424</td>
<td>3</td>
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<tr>
<td>16384</td>
<td>13641</td>
<td>2743</td>
<td>0 237568</td>
<td>14114</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>1024</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### show ip bgp filtered-routes as-path-access-list STR

Searching for matching routes, use ^C to quit...

<table>
<thead>
<tr>
<th>Status</th>
<th>Prefix</th>
<th>Next Hop</th>
<th>MED</th>
<th>LocPrf</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>A:AGGREGATE</td>
<td>42.42.42.32</td>
<td>103.1.1.1</td>
<td>0</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>AS_PATH: 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B:BEST b:NOT-INSTALLED-BEST</td>
<td>42.42.42.32</td>
<td>106.1.1.1</td>
<td>0</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>AS_PATH: 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 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...


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

### 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...


<table>
<thead>
<tr>
<th>Status</th>
<th>Prefix</th>
<th>Next Hop</th>
<th>MED</th>
<th>LocPrf</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL 1</td>
<td>1.1.1.2/32</td>
<td>6.1.1.1</td>
<td>30</td>
<td>100</td>
<td>32768</td>
</tr>
<tr>
<td></td>
<td>AS_PATH:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.1.1.32/32</td>
<td>0.0.0.0</td>
<td>0</td>
<td>100</td>
<td>32768</td>
</tr>
<tr>
<td></td>
<td>AS_PATH:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.6.6.0/24</td>
<td>6.1.1.1</td>
<td>30</td>
<td>100</td>
<td>32768</td>
</tr>
<tr>
<td></td>
<td>AS_PATH:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.7.7.0/24</td>
<td>6.1.1.1</td>
<td>30</td>
<td>100</td>
<td>32768</td>
</tr>
<tr>
<td></td>
<td>AS_PATH:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.1.1.0/24</td>
<td>6.1.1.1</td>
<td>30</td>
<td>100</td>
<td>32768</td>
</tr>
<tr>
<td></td>
<td>AS_PATH:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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
   AS_PATH: 3
2  36.5.5.6/32       36.0.0.1                   100        0
   AS_PATH: 3
3  36.5.5.7/32       36.0.0.1                   100        0
   AS_PATH: 3
4  36.5.5.8/32       36.0.0.1                   100        0
   AS_PATH: 3
5  36.5.5.9/32       36.0.0.1                   100        0
   AS_PATH: 3
6  36.5.5.10/32      36.0.0.1                   100        0
   AS_PATH: 3
7  36.5.5.11/32      36.0.0.1                   100        0
   AS_PATH: 3
8  36.5.5.12/32      36.0.0.1                   100        0
   AS_PATH: 3
9  36.5.5.13/32      36.0.0.1                   100        0
   AS_PATH: 3
--More--, next page: Space, next line: Return key, quit: Control-c

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
   AS_PATH: 3

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
   AS_PATH: 3

FastIron Ethernet Switch Software Upgrade Guide
53-1003632-0
<table>
<thead>
<tr>
<th>Prefix</th>
<th>Next Hop</th>
<th>MED</th>
<th>LocPrf</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.5.5.5/32</td>
<td>36.0.0.1</td>
<td>100</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>AS_PATH: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.5.5.6/32</td>
<td>36.0.0.1</td>
<td>100</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>AS_PATH: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.5.5.7/32</td>
<td>36.0.0.1</td>
<td>100</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>AS_PATH: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.5.5.8/32</td>
<td>36.0.0.1</td>
<td>100</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>AS_PATH: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.5.5.9/32</td>
<td>36.0.0.1</td>
<td>100</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>AS_PATH: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.5.5.10/32</td>
<td>36.0.0.1</td>
<td>100</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>AS_PATH: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Status string m: not-local-multipath is changed to m: not-installed-multipath.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Next Hop</th>
<th>MED</th>
<th>LocPrf</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.18.18.0/24</td>
<td>106.1.1.2</td>
<td>0</td>
<td>150</td>
<td>200</td>
</tr>
<tr>
<td>AS_PATH: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Status string m: not-local-multipath is changed to m: not-installed-multipath.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Next Hop</th>
<th>MED</th>
<th>LocPrf</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.18.18.0/24</td>
<td>106.1.1.2</td>
<td>0</td>
<td>150</td>
<td>200</td>
</tr>
<tr>
<td>AS_PATH: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Status string m: not-local-multipath is changed to m: not-installed-multipath.
<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
<th>Status string m:</th>
</tr>
</thead>
</table>
| show ip bgp routes community no-export | Brocade#sh ip bgp routes community no-export  
Searching for matching routes, use ^C to quit...  
S:SUPPRESSED P:FILTERED s:STALE  
Prefix | Next Hop | MED | LocPrf | Weight |
| Status | 1 | 18.18.18.0/24 | 106.1.1.2 | 0 | 150 | 200 |
| AS_PATH: 3 | | | | | |
| show ip bgp routes community-access-list STR | Brocade#show ip bgp routes community-access-list STR  
Searching for matching routes, use ^C to quit...  
S:SUPPRESSED P:FILTERED s:STALE  
Prefix | Next Hop | MED | LocPrf | Weight |
| Status | 1 | 1.1.1.1/32 | 0.0.0.0 | 1 | 100 | 32768 |
| AS_PATH: 3 | | | | | |
| show ip bgp routes community-reg-expression STR regexp | Brocade#sh ip bgp routes community-reg-expression STR regexp  
Searching for matching routes, use ^C to quit...  
S:SUPPRESSED P:FILTERED s:STALE  
Prefix | Next Hop | MED | LocPrf | Weight |
| Status | 1 | 18.18.18.0/24 | 106.1.1.2 | 0 | 150 | 200 |
| AS_PATH: 3 | | | | | |
| show ip bgp routes detail 2 | Brocade#sh ip bgp routes detail 36.5.5.5  
Number of BGP Routes matching display condition : 1  
S:SUPPRESSED P:FILTERED s:STALE  
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. |
Brocade#show ip bgp routes best
Searching for matching routes, use ^C to quit...
Prefix       Next Hop      MED       LocPrf   Weight
Status       
1 1.1.1.2/32     6.1.1.1      30        100     32768  BL
2 1.1.1.32/32   0.0.0.0      0         100     32768  BL
3 18.18.0.0/16  0.0.0.0      100       32768   BAL
4 18.18.0.24    0.0.0.0      0         100     32768  BLS
5 160.10.0.0/16 0.0.0.0     100       32768   BAL
6 160.10.10.32  0.0.0.0      30        100     32768  BL
7 192.213.0.0/16 0.0.0.0    30         100     32768  BL

Status string m: not-local-multipath is changed to m: not-installed-multipath.

Brocade#show ip bgp routes cidr-only
Searching for matching routes, use ^C to quit...
Prefix       Next Hop      MED       LocPrf   Weight
Status       
1 1.1.1.2/32     6.1.1.1      30        100     32768  BL
2 1.1.1.32/32   0.0.0.0      0         100     32768  BL
3 18.18.0.0/16  0.0.0.0      100       32768   BAL
4 18.18.0.24    0.0.0.0      0         100     32768  BLS
5 160.10.0.0/16 0.0.0.0     100       32768   BAL
6 160.10.10.32  0.0.0.0      30        100     32768  BL
7 192.213.0.0/16 0.0.0.0    30         100     32768  BL

Status string m: not-local-multipath is changed to m: not-installed-multipath.
Brocade#show ip bgp routes best
Searching for matching routes, use ^C to quit...
Prefix                  Next Hop        MED    LocPrf  Weight
Status
1                       1.1.1.2/32         6.1.1.1        30    100    32768
BL 
2                       1.1.1.32/32        0.0.0.0         0    100    32768
BL 
3                       18.18.0.0/16       0.0.0.0        100    32768
BAL 
4                       18.18.0.0/24       0.0.0.0        100    32768
BLS 
5                       160.10.0.0/16      0.0.0.0        100    32768
BAL 
6                       160.10.10.10/32     0.0.0.0        100    32768
BL 
7                       192.213.0.0/16     0.0.0.0        100    32768
BL 

Brocade#sh ip bgp routes detail 36.5.5.5
Number of BGP Routes matching display condition : 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)
### show ip bgp routes community internet

Brocade#show ip bgp routes community internet

Searching for matching routes, use ^C to quit...

<table>
<thead>
<tr>
<th>Status</th>
<th>Prefix</th>
<th>Next Hop</th>
<th>MED</th>
<th>LocPrf</th>
<th>Weight</th>
<th>AS_PATH</th>
<th>Adj_RIB_out count:</th>
<th>Admin distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE</td>
<td>1.1.1.2/32</td>
<td>125.1.1.2</td>
<td>30</td>
<td>150</td>
<td>0</td>
<td>3</td>
<td>58</td>
<td>120</td>
</tr>
</tbody>
</table>

### show ip bgp routes detail local

Brocade#show ip bgp routes detail local

Searching for matching routes, use ^C to quit...

<table>
<thead>
<tr>
<th>Status</th>
<th>Prefix</th>
<th>NEXT_HOP</th>
<th>LOCAL_PREF</th>
<th>MED</th>
<th>ORIGIN</th>
<th>Weight</th>
<th>AS_PATH</th>
<th>Adj_RIB_out count:</th>
<th>Admin distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL</td>
<td>1.1.1.2/32</td>
<td>6.1.1.1, Peer</td>
<td>100</td>
<td>30</td>
<td>incomplete</td>
<td>32768</td>
<td>120</td>
<td>58</td>
<td>120</td>
</tr>
<tr>
<td>C</td>
<td>18.18.0.0/16</td>
<td>0.0.0.0, Peer</td>
<td>100</td>
<td>none</td>
<td>igp</td>
<td>32768</td>
<td>200</td>
<td>58</td>
<td>200</td>
</tr>
</tbody>
</table>

Status string m: not-local-multipath is changed to m: not-installed-multipath.
### show ipv6 ospf database

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>897</td>
<td>192.168.98.213</td>
<td>80000007</td>
<td>1277</td>
<td>9044</td>
<td>64</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>136</td>
<td>192.168.98.111</td>
<td>80000007</td>
<td>582</td>
<td>fb0b</td>
<td>64</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>2049</td>
<td>192.168.98.213</td>
<td>80000006</td>
<td>1277</td>
<td>381a</td>
<td>64</td>
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<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>1156</td>
<td>192.168.98.111</td>
<td>80000007</td>
<td>582</td>
<td>cf38</td>
<td>64</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>2052</td>
<td>192.168.98.213</td>
<td>80000004</td>
<td>799</td>
<td>5b06</td>
<td>64</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td>Rtr</td>
<td>0</td>
<td>192.168.98.111</td>
<td>800002ea</td>
<td>823</td>
<td>cb7b</td>
<td>56</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td>Rtr</td>
<td>0</td>
<td>192.168.98.213</td>
<td>800001c7</td>
<td>799</td>
<td>8402</td>
<td>56</td>
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<tr>
<td>0.0.0.200</td>
<td>Net</td>
<td>1156</td>
<td>192.168.98.111</td>
<td>80000004</td>
<td>823</td>
<td>b2d2</td>
<td>32</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td>Net</td>
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<td>192.168.98.111</td>
<td>80000008</td>
<td>823</td>
<td>aed2</td>
<td>32</td>
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</tbody>
</table>

### show ipv6 ospf database advrtr 1.2.3.4

<table>
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<tr>
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<th>LSID</th>
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<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>136</td>
<td>192.168.98.111</td>
<td>80000007</td>
<td>634</td>
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<td>64</td>
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</table>

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.
Brocade# sh ipv6 ospf database as-external

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sync</td>
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</tr>
<tr>
<td>N/A</td>
<td>Extn 2</td>
<td>192.168.98.213</td>
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<td>895</td>
<td>6e5e</td>
<td>44</td>
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<tr>
<td>Yes</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Bits:</td>
<td>E--</td>
<td>Metric: 0</td>
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<tr>
<td>Prefix Options:</td>
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<td></td>
</tr>
</tbody>
</table>

Sync information is added.

FastIron Ethernet Switch Software Upgrade Guide
53-1003632-0
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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
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<th>Seq(Hex)</th>
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<th>Cksum</th>
<th>Len</th>
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<tbody>
<tr>
<td>Sync</td>
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</tr>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>897</td>
<td>192.168.98.213</td>
<td>80000007</td>
<td>1432</td>
<td>9044</td>
<td>64</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Area ID</th>
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<th>Cksum</th>
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<td>Link</td>
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<td>80000007</td>
<td>737</td>
<td>fb0b</td>
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</tbody>
</table>

Router Priority: 1
Options: V6E---R--
LinkLocal Address: fe80::768e:f8ff:fe3e:1800
---More--, next page: Space, next line: Return key, quit: Control-c
```
<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
<th>Sync</th>
<th>Metric</th>
<th>Prefix Options:</th>
<th>Prefix</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Inap</td>
<td>32</td>
<td>192.168.98.213</td>
<td>80000004</td>
<td>987</td>
<td>4198</td>
<td>44</td>
<td>Yes</td>
<td>1</td>
<td>Prefix: 5100::192:111::6:111/128</td>
<td></td>
</tr>
<tr>
<td>0.0.0.200</td>
<td>Inap</td>
<td>750</td>
<td>192.168.98.111</td>
<td>800000e2</td>
<td>772</td>
<td>199d</td>
<td>44</td>
<td>Yes</td>
<td>1</td>
<td>Prefix: 5100::192:111::101:0/112</td>
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</tr>
</tbody>
</table>
show command output differences between 07.4.00 and 08.0.xx

<table>
<thead>
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<th>Area ID</th>
<th>Type</th>
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<th>Adv Rtr</th>
<th>Seq (Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
<th>Sync</th>
<th>Options</th>
<th>Metric</th>
<th>Destination Router ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Inar 8</td>
<td>192.168.98.111</td>
<td>800000b4</td>
<td>811</td>
<td>aaf9</td>
<td>32</td>
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<td>Yes</td>
<td>V6E---R--</td>
<td>1</td>
<td>192.168.98.190</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td>Inar 23</td>
<td>192.168.98.111</td>
<td>80000004</td>
<td>571</td>
<td>8e40</td>
<td>32</td>
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<td>Yes</td>
<td>1</td>
<td>3</td>
<td>192.168.98.71</td>
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</tbody>
</table>

Sync information is added.
**show ipv6 ospf database intra-prefix**

Brocade#sh ipv6 ospf database intra-prefix

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq (Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Iap</td>
<td>192.168.98.213</td>
<td>80000009 1054 6a0e</td>
<td>1272</td>
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<td></td>
</tr>
</tbody>
</table>

**Sync information is added.**

Number of Prefix: 62
- Referenced LS Type: Router
- Referenced LS ID: 0
- Referenced Advertising Router: 192.168.98.213
- Prefix Options: Metric: 1
  - Prefix Options: Metric: 1
  - Prefix Options: Metric: 1
  - Prefix Options: Metric: 1
  - Prefix Options: Metric: 1
  - Prefix Options: Metric: 1
  - Prefix Options: Metric: 1
  - Prefix Options: Metric: 1
  - Prefix Options: Metric: 1
  - Prefix Options: Metric: 1
  - Prefix Options: Metric: 1

---

FastIron Ethernet Switch Software Upgrade Guide
53-1003632-0
```
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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>897</td>
<td>192.168.98.213</td>
<td>80000007</td>
<td>1574</td>
<td>9044</td>
<td>64</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
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<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
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</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>136</td>
<td>192.168.98.111</td>
<td>80000007</td>
<td>879</td>
<td>fb0b</td>
<td>64</td>
</tr>
<tr>
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<td>Yes</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
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<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>2049</td>
<td>192.168.98.213</td>
<td>80000006</td>
<td>1575</td>
<td>381a</td>
<td>64</td>
</tr>
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</tr>
</tbody>
</table>
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Sync information is added.
show ipv6 ospf database link-id 1156

<table>
<thead>
<tr>
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<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq (Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>1156</td>
<td>192.168.98.111</td>
<td>80000007</td>
<td>914</td>
<td>cf38</td>
<td>64</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
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<th>Adv Rtr</th>
<th>Seq (Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Net</td>
<td>1156</td>
<td>192.168.98.111</td>
<td>80000004</td>
<td>1155</td>
<td>b2d2</td>
<td>32</td>
</tr>
</tbody>
</table>

Yes

Options: V6E---R--
Attached Router: 192.168.98.111
Attached Router: 192.168.98.213

Sync information is added.
```markdown
<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq (Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
<th>Options</th>
<th>Attached Router</th>
</tr>
</thead>
<tbody>
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<td>192.168.98.111</td>
<td>80000004</td>
<td>1238</td>
<td>b2d2</td>
<td>32</td>
<td>Yes</td>
<td>V6E---R--</td>
<td>192.168.98.111</td>
</tr>
<tr>
<td>0.0.0.200</td>
<td>Net 136</td>
<td>192.168.98.111</td>
<td>80000008</td>
<td>1238</td>
<td>aed2</td>
<td>32</td>
<td>Yes</td>
<td>V6E---R--</td>
<td>192.168.98.111</td>
</tr>
</tbody>
</table>

Sync information is added.
```
<table>
<thead>
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<th>Area ID</th>
<th>Type</th>
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<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
<th>Sync</th>
<th>Metric</th>
<th>Prefix Options:</th>
<th>Prefix:</th>
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<tbody>
<tr>
<td>0.0.0.200</td>
<td>Inap</td>
<td>839</td>
<td>192.168.168.98.111</td>
<td>8000000db</td>
<td>1033</td>
<td>8153</td>
<td>44</td>
<td>Yes</td>
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<td>5100::192:168:98:190/128</td>
</tr>
<tr>
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<td>Inap</td>
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<td>80000004</td>
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<td>0f6f</td>
<td>44</td>
<td>Yes</td>
<td>2</td>
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<td>5100::192:168:98:190/128</td>
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</table>

Sync information is added.
Brocade#sh ipv6 ospf database router

<table>
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<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Rtr</td>
<td>0</td>
<td>192.168.98.111</td>
<td>800002ea</td>
<td>1300</td>
<td>cb7b</td>
<td>56</td>
</tr>
<tr>
<td>Sync</td>
<td></td>
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</tbody>
</table>

   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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Rtr</td>
<td>0</td>
<td>192.168.98.213</td>
<td>800001c7</td>
<td>1276</td>
<td>8402</td>
<td>56</td>
</tr>
<tr>
<td>Sync</td>
<td></td>
<td></td>
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<td>Yes</td>
<td></td>
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<td></td>
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</tbody>
</table>

   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

Sync information is added.

show command output differences between 07.4.00 and 08.0.xx
show ipv6 ospf database scope area

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
<th>Sync</th>
<th>Capability Bits:</th>
<th>Options:</th>
<th>Type: Transit Metric:</th>
<th>Interface ID:</th>
<th>Neighbor Interface ID:</th>
<th>Neighbor Router ID:</th>
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<tbody>
<tr>
<td>0.0.0.200</td>
<td>Rtr  0</td>
<td>192.168.98.111</td>
<td>800002ea</td>
<td>1356</td>
<td>cb7b</td>
<td>56</td>
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<td>Yes</td>
<td>--V-B</td>
<td>V6E---R--</td>
<td>136</td>
<td>136</td>
<td>192.168.98.111</td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>0.0.0.200</td>
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<td>V6E---R--</td>
<td>897</td>
<td>136</td>
<td>192.168.98.111</td>
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</tr>
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</tr>
<tr>
<td>0.0.0.200</td>
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<td>192.168.98.111</td>
<td>800001c7</td>
<td>1332</td>
<td>8402</td>
<td>56</td>
<td></td>
<td>Yes</td>
<td>--VEB</td>
<td>V6E---R--</td>
<td>2049</td>
<td>1156</td>
<td>192.168.98.111</td>
<td></td>
</tr>
</tbody>
</table>
FastIron Ethernet Switch Software Upgrade Guide
53-1003632-0

```bash
Brocade#sh ipv6 ospf database scope area 0.0.0.200
```

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Rtr</td>
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<td></td>
<td>Options: V6E---R--</td>
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<tr>
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<td>Type: Transit Metric: 1</td>
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</tr>
<tr>
<td></td>
<td>Interface ID: 136 Neighbor Interface ID: 136</td>
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<tr>
<td></td>
<td>Neighbor Router ID: 192.168.98.111</td>
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</table>

```bash
LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter
Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link
Iap:IntraPrefix Grc:Grace
```

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Rtr</td>
<td>0</td>
<td></td>
<td>192.168.98.213</td>
<td>800001c7</td>
<td>1359 8402</td>
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<td>Interface ID: 897 Neighbor Interface ID: 136</td>
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<tr>
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<td>Neighbor Router ID: 192.168.98.111</td>
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</table>

Sync information is added.

show command output differences between 07.4.00 and 08.0.xx
Brocade#sh ipv6 ospf database scope as

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
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<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
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<tbody>
<tr>
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<td></td>
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<tr>
<td>Yes</td>
<td></td>
<td>Extn 2</td>
<td>192.168.98.213</td>
<td>80000004</td>
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<td>6e5e</td>
<td>44</td>
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</tbody>
</table>

Bits: E--
Metric: 0
Prefix Options:
Referenced LSType: 0

LSA Key - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter
Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link
Iap:IntraPrefix Grc:Grace

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
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</thead>
<tbody>
<tr>
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<td>Extn 1</td>
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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

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

Bits: E-T

Sync information is added.
### show ipv6 ospf database scope link

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
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<th>Age</th>
<th>Cksum</th>
<th>Len</th>
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</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>136</td>
<td>192.168.98.111</td>
<td>80000007</td>
<td>1227</td>
<td>fb0b</td>
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</table>

**LSA Key** - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter
Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link
Iap:IntraPrefix Grc:Grace

**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

### show ipv6 ospf database scope link

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
<th>Seq(Hex)</th>
<th>Age</th>
<th>Cksum</th>
<th>Len</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.200</td>
<td>Link</td>
<td>897</td>
<td>192.168.98.213</td>
<td>80000008</td>
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<td>8e45</td>
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</table>

**LSA Key** - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter
Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link
Iap:IntraPrefix Grc:Grace

**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

### show ipv6 ospf database scope link

<table>
<thead>
<tr>
<th>Area ID</th>
<th>Type</th>
<th>LSID</th>
<th>Adv Rtr</th>
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<th>Age</th>
<th>Cksum</th>
<th>Len</th>
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<tbody>
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<td>cf38</td>
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**LSA Key** - Rtr:Router Net:Network Inap:InterPrefix Inar:InterRouter
Extn:ASExternal Grp:GroupMembership Typ7:Type7 Link:Link
Iap:IntraPrefix Grc:Grace

**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

### show command output differences between 07.4.00 and 08.0.xx

The output is modified.

---

**FastIron Ethernet Switch Software Upgrade Guide**

53-1003632-0
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 ...

The CPU usage information is shown differently as FastIron 08.0.00a has task based architecture. 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

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
4    5.10.1.1           DIRECT          0000.0000.0000 PU   n/a
5    5.1.1.1            DIRECT          0000.0000.0000 PU   n/a
6    5.3.1.254          DIRECT          0000.0000.0000 PU   n/a
7    10.20.75.99        DIRECT          0000.0000.0000 PU   n/a
8    255.255.255.255    DIRECT          0000.0000.0000 PU   n/a

Total number of cache entries is removed. Entries in default routing instance are added.
<table>
<thead>
<tr>
<th>Command</th>
<th>Output</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show ip pim rpf 1.2.3.4</code></td>
<td><code>Brocade#show ip pim rpf A.B.C.D Source address for RPF check</code></td>
<td>The explanation for A.B.C.D is updated.</td>
</tr>
<tr>
<td><code>show ip pim rpf 1.2.3.4</code></td>
<td><code>Brocade#show ip pim rpf 90.1.1.32 226.0.0.201 upstream nbr 110.1.1.25 on v110</code></td>
<td>The explanation details are updated.</td>
</tr>
<tr>
<td><code>show ipv6 route ospf</code></td>
<td><code>Brocade#show ipv6 route ospf</code></td>
<td>Uptime field is added.</td>
</tr>
<tr>
<td></td>
<td>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 l:External Type 1 2:External Type 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type IPv6 Prefix</td>
<td>Next Hop Router</td>
</tr>
<tr>
<td></td>
<td>O2 ::/0</td>
<td>fe80::768e:f8ff:fe3e:1800</td>
</tr>
<tr>
<td></td>
<td>6h7m</td>
<td>fe80::768e:f8ff:fe3e:1800</td>
</tr>
<tr>
<td></td>
<td>O 5100::192:61:1001:0/112</td>
<td>fe80::768e:f8ff:fe3e:1800</td>
</tr>
<tr>
<td></td>
<td>6h7m</td>
<td>fe80::768e:f8ff:fe3e:1800</td>
</tr>
<tr>
<td></td>
<td>O 5100::192:111:3:111/128</td>
<td>fe80::768e:f8ff:fe3e:1800</td>
</tr>
<tr>
<td></td>
<td>6h7m</td>
<td>fe80::768e:f8ff:fe3e:1800</td>
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<td>O 5100::192:111:4:111/128</td>
<td>fe80::768e:f8ff:fe3e:1800</td>
</tr>
<tr>
<td></td>
<td>6h7m</td>
<td>fe80::768e:f8ff:fe3e:1800</td>
</tr>
<tr>
<td><code>show ip interface ethernet 1/1</code></td>
<td><code>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</code></td>
<td>VRF information is added.</td>
</tr>
<tr>
<td>Command</td>
<td>Output</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| `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 100` | **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. |
Brocade#sh ip ospf summ
Total number of OSPF instances: 1

<table>
<thead>
<tr>
<th>Seq</th>
<th>Instance</th>
<th>Intfs</th>
<th>Nbrs</th>
<th>Nbrs-Full LSAs</th>
<th>Routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>default-vrf</td>
<td>259</td>
<td>4</td>
<td>4</td>
<td>1742</td>
</tr>
</tbody>
</table>

Brocade#sh ip ospf route
OSPF Area 0 ASBR Routes 1:

<table>
<thead>
<tr>
<th>Destination</th>
<th>Mask</th>
<th>Path_Cost</th>
<th>Type2_Cost</th>
<th>Path_Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>192.168.98.190</td>
<td>255.255.255.255</td>
<td>2</td>
<td>0</td>
<td>Intra</td>
</tr>
</tbody>
</table>

Adv_Router: 192.168.98.190
Dest_Type: Asbr
State: Valid
Tag: 0

Flags: 4000*
Paths Out_Port: 1
Next_Hop: 192.168.98.190
Type: OSPF
State: 29 a8

OSPF Regular Routes 309:

<table>
<thead>
<tr>
<th>Destination</th>
<th>Mask</th>
<th>Path_Cost</th>
<th>Type2_Cost</th>
<th>Path_Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.0</td>
<td>0.0.0.0</td>
<td>2</td>
<td>10</td>
<td>Type2_Ext</td>
</tr>
</tbody>
</table>

Adv_Router: 0.0.0.0
Dest_Type: Ase
State: Valid
Tag: 1800

Flags: 1800
Paths Out_Port: 1
Next_Hop: 0.0.0.0
Type: OSPF
State: 29 a8

0000

<table>
<thead>
<tr>
<th>Destination</th>
<th>Mask</th>
<th>Path_Cost</th>
<th>Type2_Cost</th>
<th>Path_Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>192.112.61.0</td>
<td>255.255.255.0</td>
<td>3</td>
<td>0</td>
<td>Intra</td>
</tr>
</tbody>
</table>

Adv_Router: 192.112.61.0
Dest_Type: Network
State: Valid
Tag: 0

Flags: 0000
Paths Out_Port: 1
Next_Hop: 192.112.61.0
Type: OSPF
State: 29 a8

Brocade#show running-config
interface Interface running-config section
vlan VLAN running-config section
vrf VRF-Lite running-config section
| Output modifiers |
|<cr>

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>
| 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. |