Sun Network 10GbE Switch 72p

Software Configuration Guide

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Contents

Using This Documention vii

Configuring SEFOS 1

Understanding SEFOS System Features 1

Basic SEFOS Features 2

Packet Capturing Device 3

Default Configurations 3

Connecting to SEFOS 4

- Connect to SEFOS 5
- Disconnect From SEFOS 6

Configuring IP Addresses 6

- Clear the Timeout for Line Connections 7
- Configure the Default IP Address 7
- Configure the IP Address for an Interface 9

Managing Restoration Files 10

- Configure the Restoration File Name 10
- Save the Configurations to a File 12
- Erase a Saved Configuration File 13
- Copy a Configuration File To A Remote Location 15
- Copy a Configuration From A Remote Location to Flash 16
- Copy System Logs to a Remote Location 16
- Copy a File From One Remote Site or Flash to Another Remote Site or Flash 17

Configuring Save Flags 18

- Enable the Incremental Save Flag 18
- Disable the Incremental Save Flag 19
- Enable the Auto Save Flag 19
- Disable the Auto Save Flag 20

- Configure the Default VLAN Identifier 21

Configuring Trap Generation 22

- Enable Trap Generation on an Interface 23
- Disable Trap Generation on an Interface 24

- Configure Debug Logging 26
- Configure ACL Filters 28
- Configure QoS 31
- Configure Port Mirroring 36
- Configure Rate Limiting 39

Configuring the Switching Feature 41

Switching Feature Topology 42

- Group Ports 43
- Configure Initial Settings 43
- Verify the Configuration 46
- Configure VLAN Forwarding 48
- Configure RSTP 51
- Configure LA 55
- Save Configurations 58

Configuring the Routing Feature 61

Routing Feature Topology 62

- Configure Static Unicast Route Entries 63
- Add Static Routes 70

▼ Remove the Static Route on SEFOS-1 and SEFOS-2 73
▼ Configure Dynamic Routing (RIP) 73
▼ Disable RIP on SEFOS-1 and SEFOS-2 76
▼ Configure Dynamic Routing (OSPF) 76
▼ Disable OSPF on SEFOS-1 and SEFOS-2 79

Glossary 81

Index 83

Using This Documention

This guide describes how to install and configure the Sun Network 10GbE Switch 72p from Oracle.

These instructions are designed for enterprise system administrators with experience installing network hardware and software.

- "Related Documentation" on page viii
- "CLI Command Modes" on page viii
- "Feedback" on page ix
- "Support and Accessibility" on page ix

Product Notes

For late-breaking information and known issues about this product, refer to the product notes at:

http://www.oracle.com/pls/topic/lookup?ctx=SN-10GbE-72p

Related Documentation

Documentation	Links
All Oracle products	http://oracle.com/documentation
Sun Blade 6000 Ethernet Switched NEM 24p 10GbE	http://www.oracle.com/pls/topic/lookup?ctx=SB6K-24p-10GbE
Sun Network 10GbE Switch 72p	http://www.oracle.com/pls/topic/lookup?ctx=SN-10GbE-72p
Sun Blade 6000 modular system	http://www.oracle.com/pls/topic/lookup?ctx=sb6000
Oracle Integrated Lights Out Manager (Oracle ILOM) 3.0	http://www.oracle.com/pls/topic/lookup?ctx=ilom30

For detailed information about the commands and options described in this document, refer to the *Sun Ethernet Fabric Operating System CLI Base Reference Manual*.

CLI Command Modes

The following table lists the configuration modes used in this document with their access and exit methods.

Command Mode	Access Method	Prompt	Exit Method
User EXEC	Access SEFOS from Oracle ILOM with read-only rights (privilege level 1).	`SEFOS>`	Use the `logout` or `exit` command to return to the Oracle ILOM prompt.
Privileged EXEC	Access SEFOS from Oracle ILOM with full administrative rights (privilege level 15).	`SEFOS#`	Use the `logout` or `exit` command to return to the Oracle ILOM prompt.
Global Configuration	From User EXEC mode, use the `enable` command.	`SEFOS(config)#`	Use the `end` command to return to Privileged EXEC mode.
Interface Configuration	From Global Configuration mode, use the `interface interface-type interface-id` command.	`SEFOS(config-if)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.

Feedback

Provide feedback on this documentation at:

http://www.oracle.com/goto/docfeedback

Support and Accessibility

Description	Links
Access electronic support through My Oracle Support	http://support.oracle.com For hearing impaired: http://www.oracle.com/accessibility/support.html
Learn about Oracle's commitment to accessibility	http://www.oracle.com/us/corporate/accessibility/index.html

Configuring SEFOS

These topics describe how to configure SEFOS software on the switch.

- "Connecting to SEFOS" on page 4
- "Understanding SEFOS System Features" on page 1
- "Configuring IP Addresses" on page 6
- "Managing Restoration Files" on page 10
- "Configuring Save Flags" on page 18
- "Configure the Default VLAN Identifier" on page 21
- "Configuring Trap Generation" on page 22
- "Configure Debug Logging" on page 26
- "Configure ACL Filters" on page 28
- "Configure QoS" on page 31
- "Configure Port Mirroring" on page 36
- "Configure Rate Limiting" on page 39

Related Information

- "Configuring the Switching Feature" on page 41
- "Configuring the Routing Feature" on page 61

Understanding SEFOS System Features

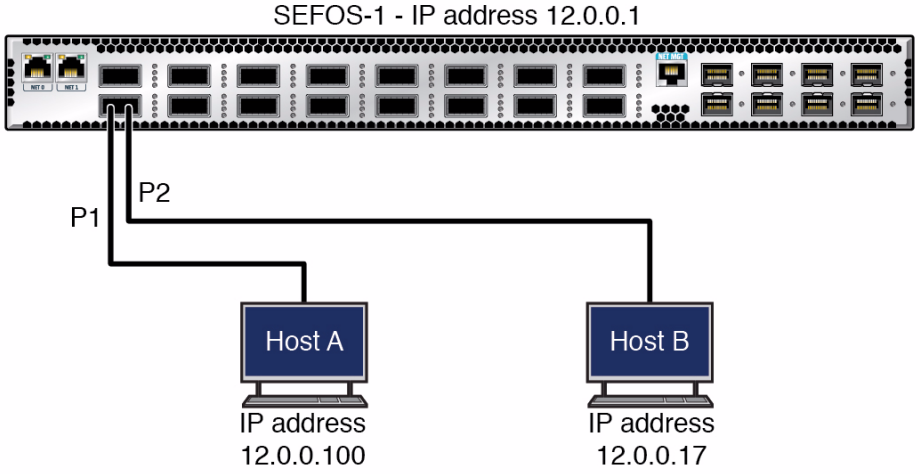
These topics describe how to configure the system features of SEFOS.

- "Basic SEFOS Features" on page 2
- "Packet Capturing Device" on page 3
- "Default Configurations" on page 3

Related Information

- "Configuring IP Addresses" on page 6
- "Managing Restoration Files" on page 10
- "Configuring Save Flags" on page 18
- "Configuring Trap Generation" on page 22
- "Configure the Default VLAN Identifier" on page 21
- "Configure Debug Logging" on page 26
- "Configure ACL Filters" on page 28
- "Configure QoS" on page 31
- "Configure Port Mirroring" on page 36
- "Configure Rate Limiting" on page 39

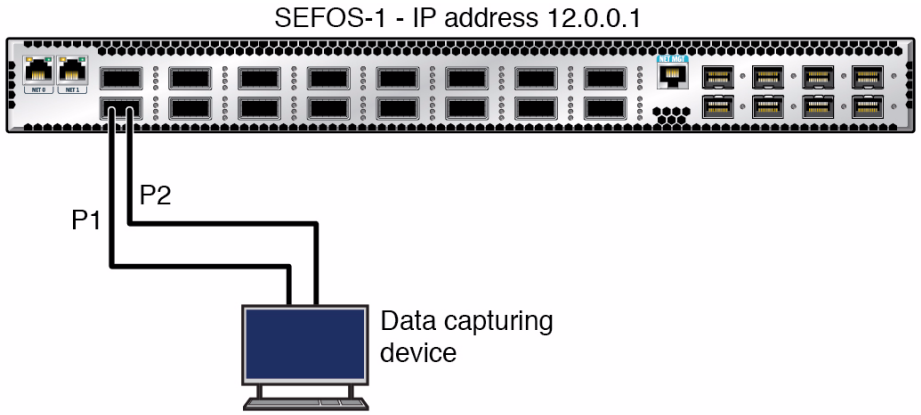
Basic SEFOS Features



Related Information

- "Packet Capturing Device" on page 3
- "Configure ACL Filters" on page 28
- "Configure QoS" on page 31
- "Configure Port Mirroring" on page 36
- "Configure Rate Limiting" on page 39

Packet Capturing Device



Related Information

- "Basic SEFOS Features" on page 2

Default Configurations

Feature	Default Setting
IP Address and Subnet Mask	10.0.0.1 and 255.0.0.0
IP Allocation Mode	Manual
Dynamic IP Allocation Protocol	DHCP
Base MAC Address	The switch's base MAC address is derived from the system's standard unique MAC address, shown on the yellow sticker. This MAC address should be sufficient for normal functionality of the switch, so you do not have to change it.
Login Authentication Mode	Local
Authorized Managers	All users are allowed to configure the switch
Restoration File Name	`switch.conf`
CLI Console	Enabled
HTTP Status	Disabled
Management VLAN	VLAN 1

Feature	Default Setting
MTU	9216
Trap Generation on an Interface	Enabled
Checksum on Tunnel Interface	Disabled
MTU Discovery on Tunnel Interface	Disabled
Debug logging	Logs in console

Related Information

- "Basic SEFOS Features" on page 2
- "Packet Capturing Device" on page 3
- "Configure Port Mirroring" on page 36
- "Configure ACL Filters" on page 28
- "Configure QoS" on page 31
- "Configure Rate Limiting" on page 39
- "Basic SEFOS Features" on page 2

Connecting to SEFOS

These topics describe how to connect and disconnect from SEFOS.

- "Connect to SEFOS" on page 5
- "Disconnect From SEFOS" on page 6

Related Information

- "Configuring IP Addresses" on page 6
- "Managing Restoration Files" on page 10
- "Configuring Save Flags" on page 18
- "Configuring Trap Generation" on page 22
- "Configure the Default VLAN Identifier" on page 21
- "Configure Debug Logging" on page 26
- "Configure ACL Filters" on page 28
- "Configure QoS" on page 31
- "Configure Port Mirroring" on page 36

■ "Configure Rate Limiting" on page 39

▼ Connect to SEFOS

To configure the SEFOS software, you must first establish a connection to your system and then connect to SEFOS through Oracle ILOM. The instructions in this topic assume that you are connecting to Oracle ILOM using a serial connection directly to the Sun Network 10GbE Switch 72p. Refer to the *Sun Network 10GbE Switch 72p User's Guide* (E27245) for other ways to connect to SEFOS.

Refer to the Oracle ILOM documentation for additional details.

1. **Connect a terminal or terminal emulator to the serial management port on the switch.**
2. **Press Enter on the terminal device.**

   This action establishes the connection between the terminal device and the switch Oracle ILOM. The switch Oracle ILOM login prompt appears.

```
SUNSPnnnnnnnnnn login:
```

3. **Log in to Oracle ILOM.**

   The default user is root and the default password is `changeme`. Once you have successfully logged in, the switch Oracle ILOM displays the Oracle ILOM default command prompt.

```
->
```

4. **Access SEFOS.**

```
-> cd /SYS/fs_cli
```

   The `SEFOS#` prompt appears, for example.

```
-> cd /SYS/fs_cli/
cd: Connecting to Fabric Switch CLI as user root

SEFOS#
```

   You are now connected to SEFOS and you can begin to configure the SEFOS features.

Related Information

- "Disconnect From SEFOS" on page 6
- "Configure Initial Settings" on page 33

▼ Disconnect From SEFOS

1. **When you are finished using SEFOS, type `exit` to return to the Oracle ILOM prompt.**

```
SEFOS# exit
Connection closed by foreign host.
cd: The session with /SYS/fs_cli has ended.

->
```

2. **When you are finished using Oracle ILOM, exit the program.**

```
-> exit
```

Related Information

- "Connect to SEFOS" on page 5
- "Configure Initial Settings" on page 33

Configuring IP Addresses

These topics describe how to configure IP addresses

- "Clear the Timeout for Line Connections" on page 7
- "Configure the Default IP Address" on page 7
- "Configure the IP Address for an Interface" on page 9

Related Information

- "Understanding SEFOS System Features" on page 1
- "Managing Restoration Files" on page 10
- "Configuring Save Flags" on page 18
- "Configuring Trap Generation" on page 22

- “Configure the Default VLAN Identifier” on page 21
- “Configure Debug Logging” on page 26
- “Configure ACL Filters” on page 28
- “Configure QoS” on page 31
- “Configure Port Mirroring” on page 36
- “Configure Rate Limiting” on page 39

▼ Clear the Timeout for Line Connections

If you leave a session idle for too long, the session might get disconnected and return you to the Oracle ILOM prompt. The following instructions clear the timeout for line connections so that idle sessions are not disconnected.

1. Enter Global Configuration mode.

```
SEFOS# configure terminal
```

2. Clear the timeout for line connections.

```
SEFOS(config)# line vty
SEFOS (config)# exit
SEFOS (config)#
```

Related Information

- “Configure the Default IP Address” on page 7

▼ Configure the Default IP Address

When you configure the default IP address, it is written to the flash. This default IP address is used as the IP address of the default interface when the switch is restarted.

1. Configure the default IP address.

a. Enter the Global Configuration mode.

```
SEFOS# configure terminal
```

b. Configure the default IP address and subnet mask as 12.0.0.1 and 255.255.0.0, respectively.

```
SEFOS(config)# default ip address 12.0.0.1 subnet-mask 255.255.0.0
```

c. Exit from the Global Configuration mode.

```
SEFOS(config)# end
```

2. View the default IP address and subnet mask.

```
SEFOS# show nvram

Default IP Address                          : 12.0.0.1
Default Subnet Mask                         : 255.255.0.0
Default IP Address Config Mode              : Manual
Default IP Address Allocation Protocol      : DHCP
Switch Base MAC Address                     : 00:14:4f:6c:69:ee
Default Interface Name                      : Ex0/1
Default RM Interface Name                   : NONE
Config Restore Option                       : No restore
Config Save Option                          : No save
Auto Save                                   : Disable
Incremental Save                            : Enable
Roll Back                                   : Enable
Config Save IP Address                      : 0.0.0.0
Config Save Filename                        : switch.conf
Config Restore Filename                     : switch.conf
PIM Mode                                    : Sparse Mode
IGS Forwarding Mode                         : MAC based
Cli Serial Console                          : No
SNMP EngineID                              : 80.00.08.1c.04.46.53
SNMP Engine Boots                           : 1
Default VLAN Identifier                     : 1
Stack PortCount                             : 0
ColdStandby                                 : Disable
NPAPI Mode                                  : Synchronous
Dynamic Port Count                          : 72
```

Note – VLAN 1 (the default VLAN) will have this IP address and subnet mask after the switch is restarted (DHCP client is not supported).

Related Information

- "Configure the IP Address for an Interface" on page 9

▼ Configure the IP Address for an Interface

This procedure describes how to configure the IP address for sending and receiving the packets.

1. Enter the Global Configuration mode.

```
SEFOS# configure terminal
```

2. Enter the Interface Configuration mode.

```
SEFOS(config)# interface vlan 1
```

3. Shut down the VLAN interface.

```
SEFOS(config-if)# shutdown
```

4. Configure the IP address and subnet mask.

```
SEFOS(config-if)# ip address 12.0.0.1 255.0.0.0
```

5. Bring up the VLAN interface.

```
SEFOS(config-if)# no shutdown
```

6. Exit from the Interface Configuration mode.

```
SEFOS(config)# end
```

Note – You must shut down the interface before you can configure the IP address for that interface.

---

7. View the configured interface IP address.

```
SEFOS# show ip interface

vlan1 is up, line protocol is up
Internet Address is 12.0.0.1/8
Broadcast Address  12.255.255.255
```

Related Information

- "Configure the Default IP Address" on page 7

Managing Restoration Files

These topics describe how to manage restoration files.

- "Configure the Restoration File Name" on page 10
- "Save the Configurations to a File" on page 12
- "Erase a Saved Configuration File" on page 13
- "Copy a Configuration File To A Remote Location" on page 15
- "Copy a Configuration From A Remote Location to Flash" on page 16
- "Copy System Logs to a Remote Location" on page 16
- "Copy a File From One Remote Site or Flash to Another Remote Site or Flash" on page 17

Related Information

- "Understanding SEFOS System Features" on page 1
- "Configuring IP Addresses" on page 6
- "Configuring Save Flags" on page 18
- "Configuring Trap Generation" on page 22
- "Configure the Default VLAN Identifier" on page 21
- "Configure Debug Logging" on page 26
- "Configure ACL Filters" on page 28
- "Configure QoS" on page 31
- "Configure Port Mirroring" on page 36
- "Configure Rate Limiting" on page 39

▼ Configure the Restoration File Name

This procedure describes how to write the restoration file to the flash. This file is used as the configuration restoration file.

1. **Configure the restoration file name.**

a. Enter the Global Configuration mode.

```
SEFOS# configure terminal
```

b. Configure the configuration restoration file name for the switch.

```
SEFOS(config)# default restore-file myconfig.conf
```

c. Exit from the Global Configuration mode.

```
SEFOS(config)# end
```

2. View the default restoration file name.

```
SEFOS# show nvram

Default IP Address                          : 12.0.0.1
Default Subnet Mask                         : 255.255.0.0
Default IP Address Config Mode              : Manual
Default IP Address Allocation Protocol      : DHCP
Switch Base MAC Address                     : 00:14:4f:6c:63:ee
Default Interface Name                      : Ex0/1
Default RM Interface Name                   : NONE
Config Restore Option                       : No restore
Config Save Option                          : No save
Auto Save                                   : Disable
Incremental Save                            : Enable
Roll Back                                   : Enable
Config Save IP Address                      : 0.0.0.0
Config Save Filename                        : switch.conf
Config Restore Filename                     : myconfig.conf
PIM Mode                                    : Sparse Mode
IGS Forwarding Mode                         : MAC based
Cli Serial Console                          : No
SNMP EngineID                               : 80.00.08.1c.04.46.53
SNMP Engine Boots                           : 1
Default VLAN Identifier                     : 1
Stack PortCount                             : 0
ColdStandby                                 : Disable
NPAPI Mode                                  : Synchronous
Dynamic Port Count                          : 72
```

Related Information

- "Save the Configurations to a File" on page 12

▼ Save the Configurations to a File

This procedure describes how to write the running configuration to a flash file, a startup configuration file or to a remote site.

1. Save the configuration that is currently running to a file.

```
SEFOS# write startup-config
```

2. View the current restoration settings.

```
SEFOS# show nvram

Default IP Address                      : 12.0.0.1
Default Subnet Mask                     : 255.255.0.0
Default IP Address Config Mode          : Manual
Default IP Address Allocation Protocol : DHCP
Switch Base MAC Address                 : 00:14:4f:6c:69:ee
Default Interface Name                  : Ex0/1
Default RM Interface Name               : NONE
Config Restore Option                   : Restore
Config Save Option                      : Startup save
Auto Save                               : Disable
Incremental Save                        : Enable
Roll Back                               : Enable
Config Save IP Address                  : 0.0.0.0
Config Save Filename                    : switch.conf
Config Restore Filename                 : myconfig.conf
PIM Mode                                : Sparse Mode
IGS Forwarding Mode                     : MAC based
Cli Serial Console                      : No
SNMP EngineID                           : 80.00.08.1c.04.46.53
SNMP Engine Boots                       : 1
Default VLAN Identifier                 : 1
Stack PortCount                         : 0
ColdStandby                             : Disable
NPAPI Mode                              : Synchronous
Dynamic Port Count                      : 72
```

3. View the restoration status.

```
SEFOS# show system information

Hardware Version                  : 2.5.5_00166738
Firmware Version                  : TOR-1.0.0.2
Switch Name                       : TOR 72P
```

```
System Contact                    : Sun Microsystems, Inc.
System Location                   : Sun Microsystems Inc.
Logging Option                    : Console Logging
Login Authentication Mode         : Local
Config Save Status                : Successful
Remote Save Status                : Not Initiated
Config Restore Status             : Not Initiated
```

4. **Reboot the switch to verify that the current configurations were saved properly.**

   Refer to the documentation that came with your switch for those instructions. If you do not want to reboot the switch at this time, you do not have to complete the rest of the steps in this procedure.

5. **View the restoration status after rebooting the switch.**

   The Config Restore Status will show Successful after the reboot.

```
SEFOS# show  system information

Hardware Version                  : 2.5.5_00166738
Firmware Version                  : TOR-1.0.0.2
Switch Name                       : TOR 72P
System Contact                    : Sun Microsystems, Inc.
System Location                   : Sun Microsystems, Inc.
Logging Option                    : Console Logging
Login Authentication Mode         : Local
Config Save Status                : Not Initiated
Remote Save Status                : Not Initiated
Config Restore Status             : Successful
```

Related Information

- "Configure the Restoration File Name" on page 10
- "Erase a Saved Configuration File" on page 13
- "Copy a Configuration File To A Remote Location" on page 15
- "Copy a Configuration From A Remote Location to Flash" on page 16
- "Copy a File From One Remote Site or Flash to Another Remote Site or Flash" on page 17

▼ Erase a Saved Configuration File

This procedure describes how to clear the contents of the startup configuration or set the parameters in flash to their default values.

1. **Erase the saved configuration file.**

```
SEFOS# erase startup-config
```

2. **View the erase status settings.**

```
SEFOS# show nvram

Default IP Address                              : 12.0.0.1
Default Subnet Mask                             : 255.255.0.0
Default IP Address Config Mode                  : Manual
Default IP Address Allocation Protocol          : DHCP
Switch Base MAC Address                         : 00:14:4f:6c:63:ee
Default Interface Name                          : Ex0/1
Default RM Interface Name                       : NONE
Config Restore Option                           : No restore
Config Save Option                              : No save
Auto Save                                       : Disable
Incremental Save                                : Enable
Roll Back                                       : Enable
Config Save IP Address                          : 0.0.0.0
Config Save Filename                            : switch.conf
Config Restore Filename                         : switch.conf
PIM Mode                                        : Sparse Mode
IGS Forwarding Mode                             : MAC based
Cli Serial Console                              : No
SNMP EngineID                                  : 80.00.08.1c.04.46.53
SNMP Engine Boots                               : 16
Default VLAN Identifier                         : 1
Stack PortCount                                 : 0
ColdStandby                                     : Disable
NPAPI Mode                                      : Synchronous
Dynamic Port Count                              : 72
```

Note – The switch starts with the default configurations when you reboot the switch.

Related Information

- "Save the Configurations to a File" on page 12
- "Copy a Configuration File To A Remote Location" on page 15
- "Copy a Configuration From A Remote Location to Flash" on page 16
- "Copy a File From One Remote Site or Flash to Another Remote Site or Flash" on page 17

▼ Copy a Configuration File To A Remote Location

This procedure describes how to back up the initial configuration file to flash or to a remote location.

In this example, the default IP address of the switch SEFOS-1 is set to 12.0.0.1, and the IP address of Host 1 is set to 12.0.0.100. In addition, Port 1 on the switch SEFOS-1 is connected to Host 1. See "Basic SEFOS Features" on page 2 for the topology for this procedure.

1. Ping Host 1 from switch SEFOS-1.

```
SEFOS# ping 12.0.0.100

Reply Received From :12.0.0.100, TimeTaken : 30 msecs
Reply Received From :12.0.0.100, TimeTaken : 110 msecs
Reply Received From :12.0.0.100, TimeTaken : 90 msecs
--- 12.0.0.100 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
```

2. Save the configuration that is currently running to a file.

```
SEFOS# write startup-config
```

3. Copy the configuration file to Host 1 (IP address 12.0.0.10), giving it the name switch.conf on the Host 1 side.

```
SEFOS# copy startup-config tftp://12.0.0.100/switch.conf
SEFOS#
```

Related Information

- "Save the Configurations to a File" on page 12
- "Erase a Saved Configuration File" on page 13
- "Copy a Configuration From A Remote Location to Flash" on page 16
- "Copy a File From One Remote Site or Flash to Another Remote Site or Flash" on page 17

▼ Copy a Configuration From A Remote Location to Flash

This procedure describes how to copy the backup configuration file from a remote location to the location of the default configuration directory path (`/conf/sefos`) for restoration. Note that the remote location has to be on a host connected to one of the 72 ports on the switch.

- **Copy the startup configuration file `switch.conf` stored in the host 12.0.0.100 to the current (`/conf/sefos`)**

```
SEFOS# copy tftp://12.0.0.100/switch.conf startup-config
SEFOS#
```

This action copies the file `switch.conf` from host 12.0.0.100 to the default configuration directory (`/conf/sefos`) path location. This file is used as the startup configuration file when you reboot the switch.

Related Information

- "Save the Configurations to a File" on page 12
- "Erase a Saved Configuration File" on page 13
- "Copy a Configuration File To A Remote Location" on page 15
- "Copy a File From One Remote Site or Flash to Another Remote Site or Flash" on page 17

▼ Copy System Logs to a Remote Location

This procedure describes how to write the system logs to a remote location. Note that the remote location has to be a host on one of the 72 ports on the switch.

In this sample procedure, you first execute several commands to generate system logs, and you also clear the system buffers so that the log file can be copied over to the remote site.

- **Upload the log file to the remote location 12.0.0.100.**

```
SEFOS# debug npapi transmission
SEFOS# show debug-logging
[NP]:: TRACE [NP]: Packet Transmission on logicalPort 1 Pktsize 119
[NP]:: TRACE [NP]: Packet Transmission on logicalPort 1 Pktsize 119
[NP]:: TRACE [NP]: Packet Transmission on logicalPort 1 Pktsize 119
```

```
[NP]:: TRACE [NP]: Packet Transmission on logicalPort 1 Pktsize 60
[NP]:: TRACE [NP]: Packet Transmission on logicalPort 1 Pktsize 60
[NP]:: TRACE [NP]: Packet Transmission on logicalPort 1 Pktsize 60
....
......
SEFOS# configure terminal
SEFOS(config)# clear logs
SEFOS(config)# end
SEFOS#
SEFOS# copy logs tftp://12.0.0.100/logfile
% Log Upload Successful
SEFOS#
SEFOS# no debug npapi transmission
SEFOS#
SEFOS# show debugging
```

Note – Ensure you run the `no debug npapi transmission` command as shown so that the debugging function is disabled.

Related Information

- "Configure the Restoration File Name" on page 10
- "Erase a Saved Configuration File" on page 13
- "Copy a Configuration From A Remote Location to Flash" on page 16
- "Copy a File From One Remote Site or Flash to Another Remote Site or Flash" on page 17

▼ Copy a File From One Remote Site or Flash to Another Remote Site or Flash

This procedure describes how to copy a file from one remote site or flash to another remote site or flash.

- **Copy the file `script.txt` from the remote location 12.0.0.100 to flash.**

```
SEFOS# copy tftp://12.0.0.100/script.txt  flash:script.txt
Copied tftp://12.0.0.100/script.txt ==> flash:script.txt
SEFOS#
```

Related Information

- "Configure the Restoration File Name" on page 10
- "Erase a Saved Configuration File" on page 13
- "Copy a Configuration File To A Remote Location" on page 15
- "Copy a Configuration From A Remote Location to Flash" on page 16

Configuring Save Flags

These topics describe how to enable and disable save flags.

- "Enable the Incremental Save Flag" on page 18
- "Disable the Incremental Save Flag" on page 19
- "Enable the Auto Save Flag" on page 19
- "Disable the Auto Save Flag" on page 20

Related Information

- "Understanding SEFOS System Features" on page 1
- "Configuring IP Addresses" on page 6
- "Managing Restoration Files" on page 10
- "Configuring Trap Generation" on page 22
- "Configure the Default VLAN Identifier" on page 21
- "Configure Debug Logging" on page 26
- "Configure ACL Filters" on page 28
- "Configure QoS" on page 31
- "Configure Port Mirroring" on page 36
- "Configure Rate Limiting" on page 39

▼ Enable the Incremental Save Flag

Enabling the incremental save flag updates the in-memory database for every configuration at runtime.

1. Enter Global Configuration mode.

```
SEFOS# configure terminal
```

2. **Enable the incremental save flag on the switch.**

```
SEFOS(config)# incremental-save enable
```

3. **Exit Global Configuration mode.**

```
SEFOS(config)# end
```

Related Information

- "Disable the Incremental Save Flag" on page 19

▼ Disable the Incremental Save Flag

Disabling the incremental save flag does not update the in-memory database for any configuration at runtime. However, you can save the memory database by running the `write startup-config` command. See "Save the Configurations to a File" on page 12.

1. **Enter Global Configuration mode.**

```
SEFOS# configure terminal
```

2. **Disable the incremental save flag on the switch.**

```
SEFOS(config)# incremental-save disable
```

3. **Exit Global Configuration mode.**

```
SEFOS(config)# end
```

Related Information

- "Enable the Incremental Save Flag" on page 18

▼ Enable the Auto Save Flag

This procedure describes how to enable updates of the runtime configuration in the configuration file.

1. **Enter Global Configuration mode.**

```
SEFOS# configure terminal
```

2. **Enable the auto save flag on the NEM.**

```
SEFOS(config)# auto-save trigger enable
```

3. **Exit Global Configuration mode.**

```
SEFOS(config)# end
```

Related Information

- "Disable the Auto Save Flag" on page 20

▼ Disable the Auto Save Flag

This procedure describes how to disable updates of the runtime configuration in the configuration file.

1. **Enter Global Configuration mode.**

```
SEFOS# configure terminal
```

2. **Disable the auto save flag on the NEM.**

```
SEFOS(config)# auto-save trigger disable
```

3. **Exit Global Configuration mode.**

```
SEFOS(config)# end
```

Related Information

- "Enable the Auto Save Flag" on page 19

▼ Configure the Default VLAN Identifier

This procedure describes how to write the VLAN ID to the flash. This ID is used as the default VLAN ID when the switch is restarted.

1. Configure the default VLAN identifier.

a. Enter the Global Configuration mode.

```
SEFOS# configure terminal
```

b. Configure the default VLAN ID as 10.

```
SEFOS(config)# default vlan id 10
```

c. Exit from the Global Configuration mode.

```
SEFOS(config)# end
```

2. View the default VLAN ID.

```
SEFOS# show nvram
Default IP Address                          : 12.0.0.1
Default Subnet Mask                         : 255.255.0.0
Default Interface Name                      : Ex0/1
Default RM Interface Name                   : NONE
Config Restore Option                       : Restore
Config Save Option                          : Startup save
Auto Save                                   : Enable
Default IP Address Config Mode              : Manual
Incremental Save                            : Enable
Roll Back                                   : Enable
Default IP Address Allocation Protocol      : DHCPConfig Save IP
Address                       : 0.0.0.0
Switch Base MAC Address                     : 00:14:4f:6c:63:ee
Config Save Filename                        : switch.conf
Config Restore Filename                     : switch.conf
PIM Mode                                    : Sparse Mode
IGS Forwarding Mode                         : MAC based
Cli Serial Console                          : No
SNMP EngineID                              : 80.00.08.1c.04.46.53
SNMP Engine Boots                           : 2
Default VLAN Identifier                     : 10
```

```
Stack PortCount                                 : 0
ColdStandby                                     : Disable
NPAPI Mode                                      : Synchronous
Dynamic Port Count                              : 72
```

Note – Do not change the default VLAN ID when some configurations are already saved. After you have configured the default VLAN ID, you must restart the switch before saving any configuration.

Related Information

- "Configuring IP Addresses" on page 6
- "Configure VLAN Forwarding" on page 48

Configuring Trap Generation

These topics describe how to enable and disable trap generation.

- "Enable Trap Generation on an Interface" on page 23
- "Disable Trap Generation on an Interface" on page 24

Related Information

- "Understanding SEFOS System Features" on page 1
- "Configuring IP Addresses" on page 6
- "Managing Restoration Files" on page 10
- "Configuring Save Flags" on page 18
- "Configure the Default VLAN Identifier" on page 21
- "Configure Debug Logging" on page 26
- "Configure ACL Filters" on page 28
- "Configure QoS" on page 31
- "Configure Port Mirroring" on page 36
- "Configure Rate Limiting" on page 39

▼ Enable Trap Generation on an Interface

This procedure describes how to enable trap generation either on the physical interface or on the port-channel interface.

1. **Disable the SNMP trap on the interface** `extreme-ethernet 0/1`**.**

   a. **Enter Global Configuration mode.**

```
SEFOS# configure terminal
```

   b. **Enter Interface Configuration mode for** `extreme-ethernet 0/1`**.**

```
SEFOS(config)# interface extreme-ethernet 0/1
```

   c. **Enable the trap on the interface.**

```
SEFOS(config-if)# snmp trap link-status
```

   d. **Exit Global Configuration mode.**

```
SEFOS(config-if)# end
```

2. **View the trap state for the interface** `extreme-ethernet 0/1`.

```
SEFOS# show interface extreme-ethernet 0/1

Ex0/1 up, line protocol is up (connected)
Bridge Port Type: Customer Bridge Port
Hardware Address is 00:14:4f:6c:69:ee
MTU  9216 bytes, Full duplex, 10 Gbps,  No-Negotiation
HOL Block Prevention enabled.
Input flow-control is on,output flow-control is on

Link Up/Down Trap is enabled

Reception Counters
 Octets                    : 225649
Unicast Packets           : 304
Transmission Counters
   Octets                    : 955578
   Unicast Packets           : 307
   Discarded Packets         : 0
   Error Packets             : 0
Discarded Packets         : 60
Error Packets             : 0
Unknown Protocol          : 0
```

If the trap is enabled, the switch sends trap messages to the SNMP Manager on specific events such as link up, link down, and so on.

Related Information

- "Disable Trap Generation on an Interface" on page 24

▼ Disable Trap Generation on an Interface

This procedure describes how to disable trap generation either on the physical interface or on the port-channel interface.

1. **Disable the SNMP trap on the interface** `extreme-ethernet 0/1`**.**

   a. **Enter Global Configuration mode.**

```
SEFOS# configure terminal
```

b. Enter Interface Configuration mode for `extreme-ethernet 0/1`**.**

```
SEFOS(config)# interface extreme-ethernet 0/1
```

c. Disable the trap on the interface.

```
SEFOS(config-if)# no snmp trap link-status
```

d. Exit Global Configuration mode.

```
SEFOS(config-if)# end
```

2. View the trap state for the interface `extreme-ethernet 0/1`**.**

```
SEFOS# show interface extreme-ethernet 0/1

Ex0/1 up, line protocol is up (connected)
Bridge Port Type: Customer Bridge Port
Hardware Address is 00:14:4f:6c:69:ee
MTU  9216 bytes, Full duplex, 10 Gbps,  No-Negotiation
HOL Block Prevention enabled.
Input flow-control is on,output flow-control is on

Link Up/Down Trap is disabled

Reception Counters
 Octets                    : 225649
Unicast Packets           : 304
Transmission Counters
   Octets                   : 955578
   Unicast Packets          : 307
   Discarded Packets        : 0
   Error Packets            : 0
Discarded Packets         : 60
Error Packets             : 0
Unknown Protocol          : 0
```

Related Information

- "Enable Trap Generation on an Interface" on page 23

▼ Configure Debug Logging

This procedure describes how to configure where the debug logs are to be displayed (on the console or to a file).

1. Modify the logging option of debug traces.

a. Enter the Global Configuration mode.

```
SEFOS# configure terminal
```

b. Log the debug traces to a file.

```
SEFOS(config)# debug-logging file
```

c. Exit from the Global Configuration mode.

```
SEFOS(config)# end
```

2. View the logging option.

```
SEFOS# show system information

Hardware Version                    : 2.5.5_00166738
Firmware Version                    : TOR-1.0.0.2
System Contact                      : Sun Microsystems, Inc.
System Location                     : Sun Microsystems, Inc.
Switch Name                  : TOR 72PLogging Option
: File Logging
Login Authentication Mode           : Local
Config Save Status                  : Successful
Config Restore Status               : Successful
SEFOS#
Remote Save Status                  : Successful
```

3. View the debug traces logged in the file.

a. Enable the debug trace for any of the modules, such as the PNAC module.

```
SEFOS# debug dot1x all
SEFOS# show debugging

DOT1x :
DOT1x init and shutdown debugging is on
DOT1x packet dump debugging is on
DOT1x error debugging is on
SEFOS#
DOT1x management debugging is on
DOT1x control path debugging is on
```

b. View the debug logs in the file.

```
SEFOS# show debug-logging

PNAC:  SNMPPROP: Trace Option is set with value: 347
PNAC:  SNMPPROP: Trace Option is set with value: 347
ff ff ff ff ff ff 00 14 4f 6c 7d e9 81 00 00 01
08 06 00 01 08 00 06 04 00 01 00 14 4f 6c 7d e9
0c 00 00 64 ff ff ff ff ff ff 0c 00 00 64 00 00
PNAC:  Dumping received frame :
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

PNAC:  DBG:PAE: Incremented Statistics
SEFOS#
```

c. Disable the PNAC module debug trace.

```
SEFOS# no debug dot1x all
```

Related Information

- "Configure ACL Filters" on page 28
- "Configuring Save Flags" on page 18
- "Configuring Trap Generation" on page 22

▼ Configure ACL Filters

ACL filters are used to filter packets at the hardware based on certain filtering criteria configured or programmed in the switch. The switch examines each packet to determine if it should be blocked or if it should be forwarded based on the configured access lists.

The following example shows how to block the IP traffic from a host with an IP address of 12.0.0.100. See "Basic SEFOS Features" on page 2 for the topology for this procedure. Port 1 of the SEFOS-1 switch is connected to Host 1 and Port 2 of the SEFOS-1 switch is connected to Host 2. Run the following commands on the SEFOS-1 switch. The following procedure assumes that the IP address of Host 1 is set to 12.0.0.100 and the IP address of Host 2 is set to 12.0.0.17.

1. Configure the IP address of the switch to 12.0.0.1.

```
SEFOS# configure terminal
SEFOS(config)# interface vlan 1
SEFOS(config-if)# shutdown
SEFOS(config-if)# ip address 12.0.0.1  255.0.0.0
SEFOS(config-if)# no shutdown
SEFOS(config-if)# exit
SEFOS(config)# interface extreme-ethernet 0/1
SEFOS(config-if)# no shutdown
SEFOS(config-if)# exit
SEFOS(config)# interface extreme-ethernet 0/2
SEFOS(config-if)# no shutdown
SEFOS(config-if)# exit
```

2. Create an IP filter with ID 11.

```
SEFOS(config)# ip access-list extended 11
```

The filter type can be extended or standard. Standard filters are used to filter the traffic based on the source IP address and the destination IP address. Extended filters can also specify the protocol ID, TCP/UDP port numbers, DSCP values, and flow label. In this example, the IP packets with 12.0.0.100 as the source address are filtered.

3. Deny the IP traffic from host 12.0.0.100 to any network or host.

```
SEFOS(config-ext-nacl)# deny ip host 12.0.0.100 any
SEFOS(config-ext-nacl)# end
```

4. Ping from Host 1 to Host 2.

```
# ping 12.0.0.17
12.0.0.17 is alive
```

5. Apply the IP filter 11 to port1.

```
SEFOS(config)# interface extreme-ethernet 0/1
SEFOS(config-if)# ip access-group 11 in
SEFOS(config-if)# exit
SEFOS(config)# vlan 1
SEFOS(config-vlan)# ports extreme-ethernet 0/1 extreme-ethernet
0/2 untagged extreme-ethernet 0/1 extreme-ethernet 0/2
```

Note – You could see the following message if port 1 and 2 are already in vlan 1. If you see this message, you can ignore it.

```
% Member Ports cannot be added/deleted on Default VLAN
SEFOS(config-vlan)# end
```

6. View the configuration details.

```
SEFOS# show access-lists

IP ACCESS LISTS
-----------------
Extended IP Access List 11
----------------------------
Filter Priority                  : 1
Filter Protocol Type             : ANY
IP address Type                  : IPV4
Source IP address                : 12.0.0.100
Source IP address mask           : 255.255.255.255
Source IP Prefix Length          : 32
Destination IP address           : 0.0.0.0
Destination IP address mask      : 0.0.0.0
Destination IP Prefix Length     : 0
Flow Identifier                  : 0
In Port List                     : Ex0/1
Out Port List                    : NIL
Filter TOS                       : NIL
Filter DSCP                      : NIL
Filter Action                    : Deny
```

```
Status                                : Active
```

7. **Send the forwarding traffic from Host 1 to Host 2 in the same fashion as the ping from Host 1 to Host 2 in** Step 4**.**

Note – Packets sent from Host 1 are not forwarded to Port 2 because the filter action is set to `deny`. The ping to 12.0.0.17 from Host 1 fails with no answer from 12.0.0.17.

---

8. **Remove the IP filter from port 1.**

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/1
SEFOS(config-if)# no ip access-group 11 in
SEFOS(config-if)# end
SEFOS# show access-lists

IP ACCESS LISTS
-----------------
Extended IP Access List 11
----------------------------
Filter Priority                   : 1
Filter Protocol Type              : ANY
IP address Type                   : IPV4
Source IP address                 : 12.0.0.1
Source IP address mask            : 255.255.255.255
Source IP Prefix Length           : 32
Destination IP address            : 0.0.0.0
Destination IP address mask       : 0.0.0.0
Destination IP Prefix Length      : 0
Flow Identifier                   : 0
In Port List                      : NIL
Out Port List                     : NIL
Filter TOS                        : NIL
Filter DSCP                       : NIL
Filter Action                     : Deny
Status                            : InActive
```

9. **Send the forwarding traffic from Host 1 to Host 2 in the same fashion as the ping from Host 1 to Host 2 in** Step 4**.**

   The ping is answered from Host 2. Packets sent from Host 1 are forwarded to Port 2. The following two consecutive ping commands show that the `deny` filter action set in the ACL list was applied to one port and was removed from another port.

```
# ping 12.0.0.17
no answer from 12.0.0.17
# ping 12.0.0.17
12.0.0.17 is alive
```

Related Information

- "Basic SEFOS Features" on page 2
- "Configure QoS" on page 31
- "Configure Port Mirroring" on page 36
- "Configure Rate Limiting" on page 39

▼ Configure QoS

Packets received at the switch can be classified to a particular class of service based on the filters configured. Certain policies can be applied to them before forwarding the packet. The following example illustrates the classification of the TCP packets received in the switch and changing the DSCP value in the IP header of the TCP packets to 46.

See "Basic SEFOS Features" on page 2 for the topology of this procedure. Connect port 1 to Host 1 and port 2 to Host 2. Host 2 should have a command to dump traffic over a network interface such as `tcpdump` or `snoop`. If not, port 1 and port 2 can be connected to a data capturing device as shown in "Basic SEFOS Features" on page 2.

1. **Enable Port 1 and Port 2.**

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/2
SEFOS(config-if)# no shutdown
SEFOS(config-if)# exit
SEFOS(config)# interface extreme-ethernet 0/1
SEFOS(config-if)# no shutdown
```

```
SEFOS(config-if)# exit
SEFOS(config)# vlan 1
SEFOS(config-vlan)# ports extreme-ethernet 0/1 extreme-ethernet
0/2 untagged extreme-ethernet 0/1 extreme-ethernet 0/2
```

Note – You could see the following message if both interfaces are already in vlan 1.

```
% Member Ports cannot be added/deleted on Default VLAN
SEFOS(config-vlan)# end
```

2. Enable QoS.

```
SEFOS# configure terminal
SEFOS(config)# qos enable
SEFOS(config)# end
```

3. Create an access control list filter for TCP packets.

```
SEFOS# configure terminal
SEFOS(config)# ip access-list extended 11
SEFOS(config-ext-nacl)# permit tcp any any
SEFOS(config-ext-nacl)# exit
SEFOS(config)# interface extreme-ethernet 0/1
SEFOS(config-if)# ip access-group 11 in
SEFOS(config-if)# end
```

4. Specify the class mapping for the incoming packet and policy mapping for the classified packet.

a. Enter the Global Configuration mode.

```
SEFOS# configure terminal
```

b. Create a class map and enter into the Class Map Configuration mode.

```
SEFOS(config)# class-map 10
```

c. Configure the match criteria for the class map with the criteria specified by the access list 11 (already configured earlier as all tcp packets).

```
SEFOS(config-cls-map)# match access-group ip-access-list 11
SEFOS(config-cls-map)# set class 100
```

d. Exit from the Class Map Configuration mode.

```
SEFOS(config-cls-map)# exit
```

e. Create a policy map to apply on the packet before forwarding it.

```
SEFOS(config)# policy-map 10
```

f. Create a policy map for class 100 packets and set the DSCP value in the IP header for the outgoing packets matched by this class as 46.

```
SEFOS(config-ply-map)# set policy class 100 default-priority-type
ipdscp 46
SEFOS(config-ply-map)# exit
```

Note – 46 (0x2e) is a decimal number. If an 8-bit TOS value is shown, it is shown as 0xb8 because 0x2e must be shifted left 2 bits to get the 6 bits of the DSCP value.

---

5. View the configuration details.

```
SEFOS# show access-lists

IP ACCESS LISTS
-----------------
Extended IP Access List 11
----------------------------
Filter Priority                  : 1
Filter Protocol Type             : TCP
IP address Type                  : IPV4
Source IP address                : 0.0.0.0
Source IP address mask           : 0.0.0.0
Destination IP address mask      : 0.0.0.0
Destination IP Prefix Length     : 0
Flow Identifier                  : 0
Source IP Prefix Length         : 0In Port List                  :
Ex0/1
Destination IP address           : 0.0.0.0
Out Port List                    : NIL
Filter TOS                       : NIL
Filter DSCP                      : NIL
Filter Source Ports From         : 1
Filter Source Ports Till         : 65535
```

```
Filter Destination Ports From    : 1Filter Action                 :
Permit
Status                             : Active
Filter Destination Ports Till    : 65535
MAC ACCESS LISTS
-----------------
No MAC Access Lists have been configured

SEFOS# show class-map 10

QoS Class Map Entries
---------------------
ClassMapId                  : 10
L2FilterId                  : None
L3FilterId                  : 11
PriorityMapId               : None
CLASS                       : 100
PolicyMapId                 : 10
PreColor                    : None
Status                      : Active

SEFOS# show policy-map 10
QoS Policy Map Entries
----------------------
PolicyMapId  : 10
IfIndex      : 0
Class        : 100
DefaultPHB   : IP DSCP 46
MeterId      : 0
ConNClass    : 0
ExcNClass    : 0
VioNClass    : 0
ConfAct      : None.
ExcAct       : None.
VioAct       : None.
```

6. **Verify the functionality of the policy configuration by generating 100 TCP packets.**

   From Host 1 to Host 2, send TCP packets to Host 2 and use the host-supported packet dumping command to verify the DSCP value.

```
# tcpdump -xx -n -i eth3 ip
tcpdump: verbose output suppressed, use -v or -vv for full protocol
decode
listening on eth3, link-type EN10MB (Ethernet), capture size 96
bytes
0x0000:  001b 2147 d479 0014 4f6c 7de9 0800 45b8
        0x0010:  0034 baac 4000 4006 66eb 0c00 0064 0c00
        0x0020:  0011 0389 0202 2e07 2e5a 0000 0000 8002
        0x0030:  c1e8 32cf 0000 0204 05b4 0103 0300 0101
        0x0040:  0402
16:34:27.979962 IP 12.0.0.100.905 > 12.0.0.17.shell: S
772222554:772222554(0) win 49640 <mss 1460,nop,wscale
0,nop,nop,sackOK>
16:34:27.980163 IP 12.0.0.17.shell > 12.0.0.100.905: S
848773685:848773685(0) ack 772222555 win 5840 <mss
1460,nop,nop,sackOK,nop,wscale 7>
        0x0000:  0014 4f6c 7de9 001b 2147 d479 0800 4500
 0x0010:  0034 0000 4000 4006 2250 0c00 0011 0c00
0x0040:  0307
16:34:27.980296 IP 12.0.0.100.905 > 12.0.0.17.shell: . ack 1 win
49640
     0x0000:  001b 2147 d479 0014 4f6c 7de9 0800 45b8      0x0010:
0028 baad 4000 4006 66f6 0c00 0064 0c00
0x0020:  0064 0202 0389 3297 4235 2e07 2e5b 8012
0x0020:  0011 0389 0202 2e07 2e5b 3297 4236 5010
        0x0030:  c1e8 febc 0000 0000 0000 0000
0x0030:  16d0 6903 0000 0204 05b4 0101 0402 0103
```

Note – These packets are received at Port 2 and have a DSCP value 46. In this example, the dump command shows a DSCP value of 0xb8.

Related Information

- "Basic SEFOS Features" on page 2
- "Configure ACL Filters" on page 28
- "Configure Port Mirroring" on page 36

■ "Configure Rate Limiting" on page 39

▼ Configure Port Mirroring

Port mirroring is used to monitor the packets of a particular port on another port. The following example shows how to mirror all incoming packets on port 1 to port 2.

See "Basic SEFOS Features" on page 2 for the topology for this procedure. Port 1 of the SEFOS-1 switch is connected to host 1 and port 2 is connected to host 2, or a packet-capturing device is used to verify that packet is mirrored at port 2. Run the following commands on the SEFOS-1 switch. The following procedure assumes that the IP address of host 1 is set to 12.0.0.100 and the IP address of host 2 is set to 12.0.0.17.

1. Configure the IP address of the switch as 12.0.0.1.

```
SEFOS# configure terminal
SEFOS(config)# interface vlan 1
SEFOS(config-if)# shutdown
SEFOS(config-if)# ip address 12.0.0.1  255.0.0.0
SEFOS(config-if)# no shutdown
SEFOS(config-if)# end
```

2. View the ping between the host and the switch.

```
SEFOS# ping 12.0.0.100

Reply Received From :12.0.0.100, TimeTaken : 60 msecs
Reply Received From :12.0.0.100, TimeTaken : 100 msecs
Reply Received From :12.0.0.100, TimeTaken : 90 msecs

--- 12.0.0.100 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
```

The ping reply from host 1 to the switch is not captured at port 2, which is connected to the packet capturing device prior to the port-mirroring configuration.

3. Run the following commands on the SEFOS-1 switch to enable mirroring for incoming packets at port 1 to port 2.

a. Enter the Global Configuration mode.

```
SEFOS# configure terminal
```

b. Configure the destination interface for mirroring as port 2.

```
SEFOS(config)# monitor session destination interface
extreme-ethernet 0/2
```

c. Configure the source interface for mirroring as Port 1 and apply mirroring for incoming packets.

```
SEFOS(config)# monitor session source interface extreme-ethernet
0/1 rx
```

d. Exit from the Global Configuration mode.

```
SEFOS(config-if)# end
```

e. View the configuration details.

```
SEFOS# show port-monitoring

Port Monitoring  is enabled
Monitor Port : Ex0/2

Port        Ingress-Monitoring    Egress-Monitoring
----        ------------------    -----------------Ex0/1
Enabled               Disabled
Ex0/2       Disabled              Disabled
Ex0/3       Disabled              Disabled
Ex0/4       Disabled              Disabled
Ex0/7       Disabled              Disabled
Ex0/8       Disabled              Disabled
Ex0/9       Disabled              Disabled
Ex0/10      Disabled              Disabled
Ex0/5       Disabled              Disabled
Ex0/11      Disabled              Disabled
Ex0/12      Disabled              Disabled
Ex0/13      Disabled              Disabled
Ex0/14      Disabled              Disabled
Ex0/6       Disabled              Disabled
Ex0/15      Disabled              Disabled
Ex0/16      Disabled              Disabled
Ex0/17      Disabled              Disabled
Ex0/18      Disabled              Disabled
Ex0/19      Disabled              Disabled
Ex0/20      Disabled              Disabled
Ex0/23      Disabled              Disabled
Ex0/24      Disabled              Disabled
```

```
Ex0/21      Disabled              Disabled
Ex0/22      Disabled              Disabled
```

4. **Ping 12.0.0.100 and verify that the ICMP reply was received at Port 2.**

```
SEFOS# ping 12.0.0.100

Reply Received From :12.0.0.100, TimeTaken : 60 msecs
Reply Received From :12.0.0.100, TimeTaken : 90 msecs
Reply Received From :12.0.0.100, TimeTaken : 100 msecs

--- 12.0.0.100 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
```

5. **Verify that the ping reply from host 1 to the** `SEFOS-1` **switch is captured at host 2 or using the packet-capturing device, such as IXIA or SmartBits.**

```
# tcpdump -xx -n -i eth3 icmp
tcpdump: verbose output suppressed, use -v or -vv for full protocol
decode
listening on eth3, link-type EN10MB (Ethernet), capture size 96
bytes
17:09:58.595583 IP 12.0.0.100 > 12.0.0.1: ICMP echo reply, id 0,
seq 1, length 40
        0x0000:  0014 4f6c 69ee 0014 4f6c 7de9 0800 4500
 0x0010:  003c 68e6 4000 ff01 fa75 0c00 0064 0c00
17:09:58.617899 IP 12.0.0.100 > 12.0.0.1: ICMP echo reply, id 0,
seq 2, length 40
0x0020:  0001 0000 a5a4 0000 0001 a5a5 a5a5 a5a5
0x0000:  0014 4f6c 69ee 0014 4f6c 7de9 0800 4500
        0x0010:  003c 68e7 4000 ff01 fa74 0c00 0064 0c00
        0x0020:  0001 0000 a5a3 0000 0002 a5a5 a5a5 a5a5
        0x0030:  a5a5 a5a5 a5a5 a5a5 a5a5 a5a5 a5a5 a5a5
        0x0040:  a5a5 a5a5 a5a5 a5a5 a5a5
0x0030:  a5a5 a5a5 a5a5 a5a5 a5a5 a5a5 a5a5 a5a5
17:09:58.698280 IP 12.0.0.100 > 12.0.0.1: ICMP echo reply, id 0,
seq 3, length 40
```

```
0x0040:  a5a5 a5a5 a5a5 a5a5 a5a5
0x0000:  0014 4f6c 69ee 0014 4f6c 7de9 0800 4500
        0x0010:  003c 68e8 4000 ff01 fa73 0c00 0064 0c00
        0x0020:  0001 0000 a5a2 0000 0003 a5a5 a5a5 a5a5
        0x0030:  a5a5 a5a5 a5a5 a5a5 a5a5 a5a5 a5a5 a5a5
        0x0040:  a5a5 a5a5 a5a5 a5a5 a5a5
```

Related Information

- "Basic SEFOS Features" on page 2
- "Configure ACL Filters" on page 28
- "Configure QoS" on page 31
- "Configure Rate Limiting" on page 39

▼ Configure Rate Limiting

SEFOS can be configured to limit the rate of traffic received on a particular interface. If the traffic is above the configured threshold level, the packet gets dropped. The following example illustrates the configuration for limiting a multicast traffic at port 1 to a rate of 50 packets per second.

See "Basic SEFOS Features" on page 2 for the topology for this procedure. port 1 and port 2 are connected to SMART BITS/IXIA to monitor the rate of packet forwarding. Configure the rate limiting for multicast packets on port 1 as 50 packets per second and then generate a multicast traffic from IXIA at the rate of 1 Mbps. Packets received at port 2 must be at the rate of 50 packets per second.

1. Run the following commands in the switch to enable port 1 and port 2.

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/1
SEFOS(config-if)# no shutdown
SEFOS(config-if)# exit
SEFOS(config)# interface extreme-ethernet 0/2
SEFOS(config-if)# no shutdown
SEFOS(config-if)# end
```

2. Set the rate limit to 50 packets per second.

a. **Enter the Global Configuration mode.**

```
SEFOS# configure terminal
```

b. **Enter the Interface Configuration mode.**

```
SEFOS(config)# interface extreme-ethernet 0/1
```

c. **Set the rate limit to 50 packets per second.**

```
SEFOS(config-if)# storm-control multicast level 50
```

d. **Exit from Global Configuration mode.**

```
SEFOS(config-if)# end
```

3. **View the configuration details.**

```
SEFOS# show interface extreme-ethernet 0/1 storm-control

Ex0/1
DLF Storm Control            : Disabled
Broadcast Storm Control      : Disabled
Multicast Storm Control      : Enabled
Multicast Storm Control      : 50
```

4. **View the functionality by generating multicast packet from IXIA at the rate of 1 Mbps to port 1.**

   Notice that the packets received at the second port of IXIA are at the rate of 50 packets per second only.

Related Information

- "Basic SEFOS Features" on page 2
- "Configure ACL Filters" on page 28
- "Configure QoS" on page 31
- "Configure Port Mirroring" on page 36

Configuring the Switching Feature

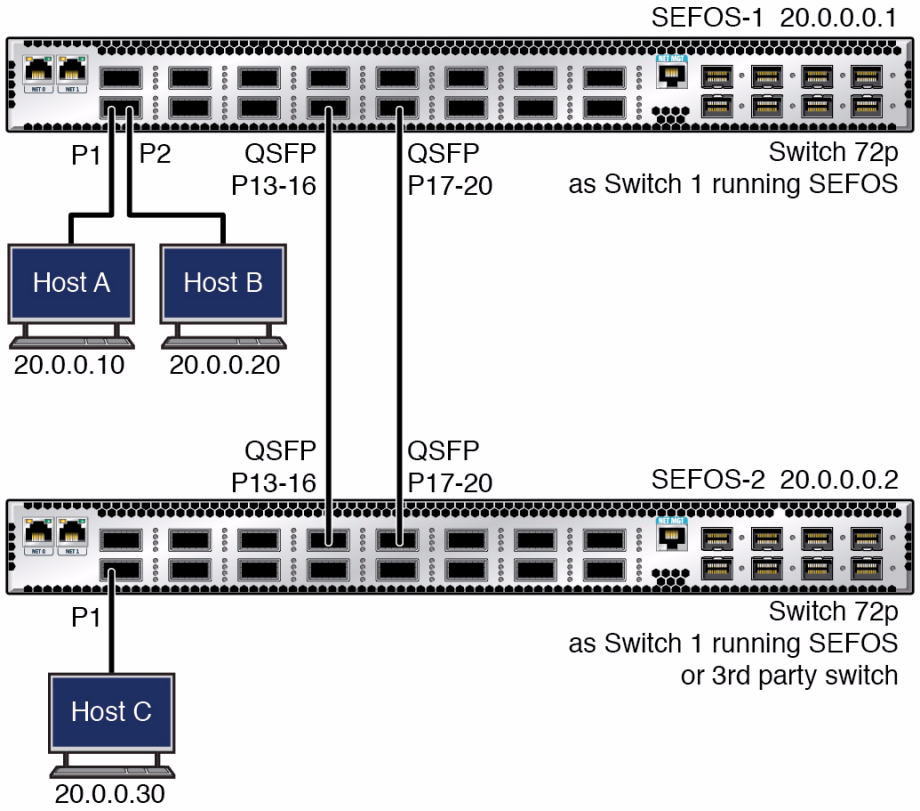
These topics describe how to configure the layer 2 switching feature used in the NEM using SEFOS. Review and perform these topics in order.

- "Switching Feature Topology" on page 42
- "Configure Initial Settings" on page 43
- "Verify the Configuration" on page 46
- "Configure VLAN Forwarding" on page 48
- "Configure RSTP" on page 51
- "Configure LA" on page 55
- "Save Configurations" on page 58

Related Information

- "Configuring SEFOS" on page 1
- "Configuring the Routing Feature" on page 61

Switching Feature Topology



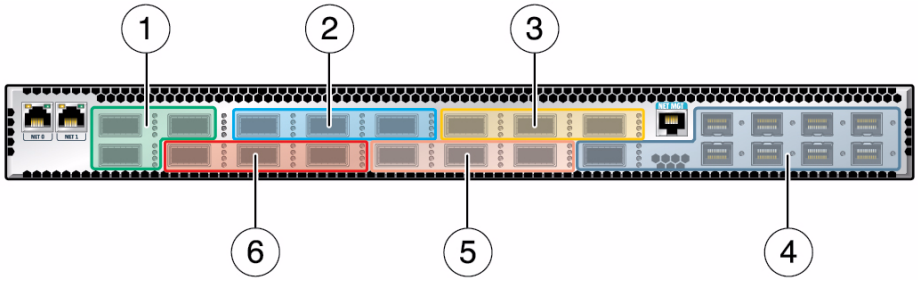
Related Information

- "Configure Initial Settings" on page 43
- "Configure VLAN Forwarding" on page 48
- "Configure RSTP" on page 51
- "Configure LA" on page 55
- "Save Configurations" on page 58

▼ Group Ports

- **To reduce latency, divide the 72 ports into six 12-port groups.**

  Each group connects up to 12 host servers.



Group	Ports
1	1, 2, 3, 4, 33, 34, 35, 36, 37, 38, 39, 40
2	41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52
3	53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64
4	29, 30, 31, 32, 65, 66, 67, 68, 69, 70, 71, 72
5	17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
6	5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Related Information

- "Switching Feature Topology" on page 42

▼ Configure Initial Settings

1. **Verify the connections between the switches and hosts shown in** "Switching Feature Topology" on page 42**.**

   a. **For the** `SEFOS-1` **switch, verify:**

   - Port1 – Connected to host server A (server A: IP address 20.0.0.10)
   - Port 2 – Connected to host server B (server B: IP address 20.0.0.20)

- Ports 17-20 – Connected to ports 17-20 on the SEFOS-2 switch

b. For the SEFOS-2 switch, verify that port 1 is connected to host server C (server C: IP address 20.0.0.30).

2. Connect to SEFOS.

If you are not already connected to SEFOS, see the instructions in "Connect to SEFOS" on page 5. You see the SEFOS prompt when you are connected to SEFOS:

```
SEFOS#
```

3. View the status of the switch interfaces.

```
SEFOS# show interface status

Port         Status           Duplex   Speed       Negotiation
----         ------           ------   -----       -----------
Ex0/1        connected        Full     10 Gbps     No-Negotiation
Ex0/2        connected        Full     10 Gbps     No-Negotiation
Ex0/5        not connected    Full     10 Gbps     No-Negotiation
Ex0/6        not connected    Full     10 Gbps     No-Negotiation
Ex0/7        not connected    Full     10 Gbps     No-Negotiation
Ex0/8        not connected    Full     10 Gbps     No-Negotiation
Ex0/3        not connected    Full     10 Gbps     No-Negotiation
...
Ex0/4        not connected    Full     10 Gbps     No-Negotiation
SEFOS# show interface description
Interface    Status   Protocol
---------    ------   --------
Ex0/1        up       up
Ex0/2        up       up
Ex0/3        down     down
Ex0/4        down     down
Ex0/5        down     down
Ex0/6        down     down
Ex0/7        down     down
Ex0/8        down     down
...
Ex0/71       down     down
Ex0/72       down     downvlan1        up       up
```

4. **View the default IP address.**

```
SEFOS# show ip interface

vlan1 is up, line protocol is up
Internet Address is 10.0.0.1/8
Broadcast Address  10.255.255.255
```

When the system is booted, it configures a default IP address of 10.0.0.1 for the default VLAN 1.

5. **Enter the Global Configuration mode.**

```
SEFOS# configure terminal
SEFOS(config)#
```

6. **Change the default IP address of VLAN 1.**

```
SEFOS(config)# interface vlan 1
SEFOS(config-if)# shutdown
SEFOS(config-if)# ip address 20.0.0.1 255.0.0.0
SEFOS(config-if)# no shutdown
SEFOS(config-if)# end
```

7. **View the default IP address of VLAN 1.**

```
SEFOS# show ip interface

vlan1 is up, line protocol is up
Internet Address is 20.0.0.1/8
Broadcast Address  20.255.255.255
SEFOS#
```

8. **Ping Host A (20.0.0.10) from the** `SEFOS-1` **switch.**

The ping should be successful.

9. **Check the MAC address entry.**

```
SEFOS# show mac-address-table

Vlan    Mac Address         Type     Ports
----    -----------         ----     -----
1       00:14:4f:6c:7d:e9   Learnt   Ex0/1

Total Mac Addresses displayed: 1
```

Note – The MAC address displayed must correspond to the MAC address of host A.

10. **Repeat** Step 6 **on the** `SEFOS-2` **switch to change the default IP address of VLAN 1 IP to** `20.0.0.2`**.**

11. **Configure the topology.**

    To configure the topology, all of the interfaces should be up. If they are not up, use the **`no shutdown`** command to bring up the ports.

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/2
SEFOS(config-if)# no shutdown
SEFOS(config)# interface range ex 0/17-20
SEFOS(config-if-range)# no shutdown
SEFOS(config-if)# end
```

    In both switches, ensure the following interfaces are up: 0/1, 0/2, 0/17, 0/18, 0/19, and 0/20.

Related Information

- "Connect to SEFOS" on page 1
- "Verify the Configuration" on page 46
- "Configure VLAN Forwarding" on page 48
- "Configure RSTP" on page 51
- "Configure LA" on page 55
- "Save Configurations" on page 58

▼ Verify the Configuration

1. **From host A, ping the** `SEFOS-1` **switch.**

```
# ping 20.0.0.1
20.0.0.1 is alive
```

2. **From host B, ping the** SEFOS-1 **switch.**

```
# ping 20.0.0.1
PING 20.0.0.1 (20.0.0.1) 56(84) bytes of data.
64 bytes from 20.0.0.1: icmp_seq=1 ttl=64 time=27.6 ms
64 bytes from 20.0.0.1: icmp_seq=2 ttl=64 time=73.0 ms
64 bytes from 20.0.0.1: icmp_seq=3 ttl=64 time=37.7 m
```

3. **From the** SEFOS-1 **switch, ping host A.**

```
SEFOS# ping 20.0.0.10
Reply Received From :20.0.0.10, TimeTaken : 20 msecs
Reply Received From :20.0.0.10, TimeTaken : 100 msecs
Reply Received From :20.0.0.10, TimeTaken : 110 msecs

--- 20.0.0.10 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
```

4. **From the** SEFOS-1 **switch, ping host B.**

```
SEFOS# ping 20.0.0.20
Reply Received From :20.0.0.20, TimeTaken : 90 msecs
Reply Received From :20.0.0.20, TimeTaken : 100 msecs
Reply Received From :20.0.0.20, TimeTaken : 100 msecs

--- 20.0.0.20 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
```

5. **From host C, ping the** SEFOS-2 **switch (20.0.0.2).**

```
SEFOS# ping 20.0.0.30
Reply Received From :20.0.0.30, TimeTaken : 40 msecs
Reply Received From :20.0.0.30, TimeTaken : 100 msecs
Reply Received From :20.0.0.30, TimeTaken : 110 msecs

--- 20.0.0.30 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
```

6. **For the port connected to the switch, use a packet-capture device or dumping utility to capture packets on host A, B, and C.**

   All three hosts should receive STP, GMRP, and GVRP packets continuously, unless these protocols were disabled with SEFOS commands. By default, all the ports on a target are members of default VLAN 1.

Related Information

- "Connect to SEFOS" on page 1
- "Configure Initial Settings" on page 43
- "Configure VLAN Forwarding" on page 48
- "Configure RSTP" on page 51
- "Configure LA" on page 55
- "Save Configurations" on page 58

▼ Configure VLAN Forwarding

This procedure describes how to configure and test the VLAN forwarding feature of SEFOS running on a Sun Network 10GbE Switch 72p target. This procedure tests whether the incoming packets are properly switched on the member ports of the VLAN.

See "Switching Feature Topology" on page 42 for the topology of this procedure.

1. Change the member ports on the `SEFOS-1` switch.

```
SEFOS# configure terminal
SEFOS(config)# vlan 1
SEFOS(config-vlan)# ports extreme-ethernet 0/1-2,0/17-20 untagged
extreme-ethernet  0/1-2,0/17-20
```

Note – You might see the following message if these ports are already in vlan 1.

```
% Member Ports cannot be added/deleted on Default VLAN
SEFOS(config-vlan)# exit
SEFOS(config)# interface range extreme-ethernet 0/1-2
SEFOS(config-if)# no shutdown
SEFOS(config-if)# end
```

2. Verify the VLAN membership.

```
SEFOS# show vlan
Vlan database
-------------
Vlan ID             : 1
```

```
Member Ports         : Ex0/1, Ex0/2, Ex0/3, Ex0/4, Ex0/5, Ex0/6
                Ex0/7, Ex0/8, ...
Untagged Ports       : Ex0/1, Ex0/2, Ex0/3, Ex0/4, Ex0/5, Ex0/6
                Ex0/7, Ex0/8, ...
Forbidden Ports      : None
Name                 :
Status               : Permanent
```

3. Ping from host A to host B.

```
# ping -s 20.0.0.20

PING 20.0.0.20 56 data bytes
64 bytes from 20.0.0.20: icmp_seq=0  ttl=255 time=0.422 ms
64 bytes from 20.0.0.20: icmp_seq=1. ttl=255 time=0.306 ms
64 bytes from 20.0.0.20: icmp_seq=2. ttl=255 time=0.286 ms
64 bytes from 20.0.0.20: icmp_seq=3. ttl=255 time=0.336 ms
...
```

4. Ping from host B to host A.

```
# ping 20.0.0.10

PING 20.0.0.10 (20.0.0.10) 56(84) bytes of data.
64 bytes from 20.0.0.10: icmp_seq=1 ttl=255 time=0.248 ms
64 bytes from 20.0.0.10: icmp_seq=2 ttl=255 time=0.451 ms
64 bytes from 20.0.0.10: icmp_seq=3 ttl=255 time=0.356 ms
64 bytes from 20.0.0.10: icmp_seq=4 ttl=255 time=0.277 ms
...
```

5. Change the member ports of VLAN 1 on `SEFOS-2` switch.

```
SEFOS# configure terminal
SEFOS(config)# vlan 1
SEFOS(config-vlan)# ports extreme-ethernet 0/1-2,0/17-20 untagged
extreme-ethernet 0/1-2,0/17-20
```

Note – If the ports are already in vlan 1, you might see the following message.

```
SEFOS(config-vlan)# exit
SEFOS(config)# interface range ex 0/17-20
SEFOS(config-if-range)# no shutdown
SEFOS(config-if-range)# end
SEFOS#
```

6. **Enable port 1, which is connected to host C.**

   Place a port in VLAN 1.

```
SEFOS# config terminal
SEFOS(config)# interface extreme-ethernet 0/1
SEFOS(config-if)# switchport access vlan 1
SEFOS(config-if)# no shutdown
SEFOS(config-if)# end
SEFOS# show vlan
Vlan database
-------------
Untagged Ports      :  Ex0/1, Ex0/2, Ex0/3, Ex0/4, Ex0/5, Ex0/6
            ....
Forbidden Ports     : None
Vlan ID             : 1
Name                :
Status              : Permanent
Member Ports        :  Ex0/1, Ex0/2, Ex0/3, Ex0/4, Ex0/5, Ex0/6
             .....
```

7. **Ping from host A to host B, or host C.**

   The ping should be successful.

```
# ping -s 20.0.0.20
PING 20.0.0.20: 56 data bytes
64 bytes from 20.0.0.20: icmp_seq=0. time=0.554 ms
64 bytes from 20.0.0.20: icmp_seq=1. time=0.240 ms
64 bytes from 20.0.0.20: icmp_seq=2. time=0.342 ms
^C
----20.0.0.20 PING Statistics----
3 packets transmitted, 3 packets received, 0% packet loss
round-trip (ms)  min/avg/max/stddev = 0.240/0.379/0.554/0.160

# ping -s 20.0.0.30
```

```
PING 20.0.0.30: 56 data bytes
64 bytes from 20.0.0.30: icmp_seq=0. time=0.798 ms
64 bytes from 20.0.0.30: icmp_seq=1. time=0.503 ms
64 bytes from 20.0.0.30: icmp_seq=2. time=0.584 ms
^C
----20.0.0.30 PING Statistics----
3 packets transmitted, 3 packets received, 0% packet loss
round-trip (ms)  min/avg/max/stddev = 0.503/0.628/0.798/0.152
#
```

Related Information

- "Connect to SEFOS" on page 1
- "Configure Initial Settings" on page 43
- "Verify the Configuration" on page 46
- "Configure RSTP" on page 51
- "Configure LA" on page 55
- "Save Configurations" on page 58

▼ Configure RSTP

This procedure shows the traffic flow in the RSTP configuration on SEFOS running on the Sun Network 10GbE Switch 72p targets. This procedure verifies whether a loop is present in the topology, if it is detected, and if the traffic is blocked for the alternate port.

See "Switching Feature Topology" on page 42 for the topology of this procedure.

1. **Configure the initial settings.**

   See "Configure Initial Settings" on page 43.

2. **Configure VLAN forwarding in `SEFOS-1` and `SEFOS-2`.**

   See "Configure VLAN Forwarding" on page 48.

3. **On `SEFOS-1`, verify the port status in RSTP mode.**

```
SEFOS# show spanning-tree
Root Id          Priority   32768
 Address     00:14:4f:6c:63:0f
Cost        0
MST00
Port        0 [0]
```

```
This bridge is the root
Spanning tree Protocol has been enabled
Max age 20 Sec, forward delay 15 Sec
MST00 is executing the rstp compatible Multiple Spanning Tree
Protocol
Bridge Id       Priority  32768
 Address  00:14:4f:6c:63:0f
Name      Role         State        Cost     Prio   Type
----      ----         -----        ----     ----   ------
Max age is 20 sec, forward delay is 15 sec
Ex0/1     Designated   Forwarding   2000     128    P2P
Ex0/2     Designated   Forwarding   2000     128    P2P
Ex0/13    Designated   Forwarding   2000     128    P2P
Dynamic Path Cost is Disabled
Ex0/14    Designated   Forwarding   2000     128    P2P
Ex0/15    Designated   Forwarding   2000     128    P2P
Ex0/16    Designated   Forwarding   2000     128    P2P
Ex0/17    Designated   Forwarding   2000     128    P2P
...
```

4. On SEFOS-2**, verify the port status in RSTP mode.**

```
SEFOS# show spanning-tree
Root Id         Priority   32768
 Address    00:14:4f:6c:69:ee
Cost       2000
MST00
Port       13 [Ex0/3]
Max age 20 Sec, forward delay 15 Sec
Spanning tree Protocol has been enabled

MST00 is executing the rstp compatible Multiple Spanning Tree
Protocol
Bridge Id       Priority  32768
 Address  00:14:4f:6c:6e:0e
Name      Role         State        Cost     Prio   Type
----      ----         -----        ----     ----   ------
```

```
Max age is 20 sec, forward delay is 15 sec
Ex0/1     Root         Forwarding   2000     128    P2P
Ex0/2     Alternate    Discarding   2000     128    P2P
Ex0/13    Alternate    Discarding   2000     128    P2P
Dynamic Path Cost is Disabled
Ex0/14    Alternate    Discarding   2000     128    P2P
Ex0/15    Designated   Forwarding   2000     128    P2P
Ex0/16    Designated   Forwarding   2000     128    P2P
...
```

5. Ping from host A to host C.

```
# ping -s 20.0.0.30

PING 20.0.0.30 56 data bytes
64 bytes from 20.0.0.30: icmp_seq=0. ttl=255 time=0.512 ms
64 bytes from 20.0.0.30: icmp_seq=1. ttl=255 time=0.591 ms
64 bytes from 20.0.0.30: icmp_seq=2. ttl=255 time=0.462 ms
```

Traffic is forwarded through the `extreme-ethernet` 0/17 port on SEFOF-1 to `SEFOS-2` port 17.

6. Shut down the `extreme-ethernet` 0/17 port from `SEFOS-2` and verify the port status.

```
SEFOS# configure terminal
SEFOS(config)# int ext 0/17; shut; exit
SEFOS(config)# exit
SEFOS# show spanning-tree
Root Id          Priority   32768
 Address    00:14:4f:6c:69:ee
Cost       2000
MST00
Port       13 [Ex0/13]
Max age 20 Sec, forward delay 15 Sec
Spanning tree Protocol has been enabled

MST00 is executing the rstp compatible Multiple Spanning Tree
Protocol
```

```
Bridge Id       Priority  32768
 Address  00:14:4f:6c:6e:0e
Name      Role         State        Cost     Prio   Type
----      ----         -----        ----     ----   ------
Max age is 20 sec, forward delay is 15 sec
Ex0/1     Root         Forwarding   2000     128    P2P
Ex0/2     Alternate    Discarding   2000     128    P2P
Ex0/13     Alternate    Discarding   2000     128    P2P
Dynamic Path Cost is Disabled
Ex0/14    Designated   Forwarding   2000     128    P2P
Ex0/15    Designated   Forwarding   2000     128    P2P
...
```

7. Ping from host A to host C.

```
# ping 20.0.0.30
PING 20.0.0.30: 56 data bytes
64 bytes from 20.0.0.30: icmp_seq=0. time=0.864 ms
64 bytes from 20.0.0.30: icmp_seq=1. time=0.478 ms
...
```

Traffic should be forwarded through the `extreme-ethernet 0/18` port on `SEFOS-1`. If RSTP is working, there will be a change in the port state.

Related Information

- "Connect to SEFOS" on page 1
- "Configure Initial Settings" on page 43
- "Verify the Configuration" on page 46
- "Configure VLAN Forwarding" on page 48
- "Configure LA" on page 55
- "Save Configurations" on page 58

▼ Configure LA

This procedure describes how to configure and test the LA feature of SEFOS running on a Sun Network 10GbE Switch 72p target.

See "Switching Feature Topology" on page 42 for the topology of this procedure.

1. **Configure the initial settings.**

   See "Configure Initial Settings" on page 43.

2. **Create a port-channel group 100 on** `SEFOS-1` **and link the ports in the group.**

```
SEFOS# configure terminal
SEFOS(config)# set port-channel enable
SEFOS(config)# interface port-channel 100
SEFOS(config-if)# no shutdown
SEFOS(config-if)# exit
SEFOS(config)# interface extreme-ethernet 0/17-20
SEFOS(config-if)# no shutdown
SEFOS(config-if)# channel-group 100 mode active
SEFOS(config-if)# exit
SEFOS(config)# interface extreme-ethernet 0/4
SEFOS(config-if)# channel-group 100 mode active
SEFOS(config-if)# no shutdown
SEFOS(config-if)# exit
SEFOS(config)# vlan 1
SEFOS(config-vlan)# ports extreme-ethernet 0/1-2 port-channel 100
untagged extreme-ethernet 0/1-2 port-channel 100
```

Note – You might see the following message if the ports are already in VLAN 1.

```
% Member Ports cannot be added/deleted on Default VLAN
SEFOS(config-vlan)# end
```

3. **Repeat** Step 2 **on** `SEFOS-2`**.**

4. **Verify the VLAN membership.**

```
SEFOS# show vlan

Vlan ID             : 1
Member Ports        : Ex0/1, Ex0/2, Ex0/3, Ex0/4, Ex0/5, Ex0/6
```

```
            ....
Untagged Ports      : Ex0/1, Ex0/2, Ex0/3, Ex0/4, Ex0/5, Ex0/6
               ...
               ..
           Ex0/71, Ex0/72, po100
           Ex0/71, Ex0/72, po100
Forbidden Ports     : None
Name                :
Status              : Permanent
```

5. Verify the STP port status on `SEFOS-1`**.**

```
SEFOS# show spanning-tree
Root Id         Priority   32768
 Address    00:14:4f:6c:69:ee
Cost       0
MST00
Port       0 [0]
This bridge is the root
Spanning tree Protocol has been enabled
Max age 20 Sec, forward delay 15 Sec
MST00 is executing the rstp compatible Multiple Spanning Tree
Protocol
Bridge Id       Priority  32768
 Address  00:14:4f:6c:69:ee
Name      Role         State        Cost     Prio   Type
----      ----         -----        ----     ----   ------
Max age is 20 sec, forward delay is 15 sec
Ex0/1     Designated   Forwarding   2000     128    P2P
Ex0/2     Designated   Forwarding   2000     128    P2P
Dynamic Path Cost is Disabled
po100     Designated   Discarding   1900     128    P2P
```

6. Ping continuously from host A to host C.

There should not be any data loss during traffic forwarding.

7. **Verify the port channel summary.**

```
SEFOS# show etherchannel summary

Port-channel Module Admin Status is enabled
Port-channel Module Oper Status is enabled
Port-channel System Identifier is  00:14:4f:6c:69:ee

Flags:
D - down         P - in port-channel
I - stand-alone  H - Hot-standby (LACP only)
Number of channel-groups in use: 1
Number of aggregators: 1
Group Port-channel  Protocol Ports
------------------------------------------------------------------
100   Po100(P)     LACP    Ex0/17(P),Ex0/18(P),Ex0/19(P),Ex0/20(P)
```

8. **Shut down the port** `extreme-ethernet 0/17` **and verify the port channel summary.**

```
SEFOS# configure terminal
SEFOS(config)# int ext 0/17
SEFOS(config-if)# shut
SEFOS(config-if)# end
SEFOS# show etherchannel summary

Port-channel Module Admin Status is enabled
Port-channel Module Oper Status is enabled
Port-channel System Identifier is  00:14:4f:6c:69:ee
Flags:
D - down         P - in port-channel
I - stand-alone  H - Hot-standby (LACP only)

Number of channel-groups in use: 1
Number of aggregators: 1
Group Port-channel  Protocol Ports
------------------------------------------------------------------
100   Po100(P)     LACP    Ex0/17(D),Ex0/18(P),Ex0/19(P),Ex0/20(P)
Port 17 shows it is in down state.
```

If traffic flows continuously through the port channel group, then LA was configured properly.

Related Information

- "Connect to SEFOS" on page 1
- "Configure Initial Settings" on page 43
- "Verify the Configuration" on page 46
- "Configure VLAN Forwarding" on page 48
- "Configure RSTP" on page 51
- "Save Configurations" on page 58

▼ Save Configurations

This procedure describes how to save configurations even after restarting the switch.

See "Switching Feature Topology" on page 42 for the topology of this procedure.

1. **Configure initial settings.**

   See "Configure Initial Settings" on page 43.

2. **Save the configurations for `SEFOS-1` and `SEFOS-2`.**

```
SEFOS# write startup-config
```

   This process might take a few seconds. You see the message `[OK]` when the configurations have been successfully saved.

3. **Exit the SEFOS session.**

```
SEFOS# exit
Connection closed by foreign host.
cd: The session with /NEM/fs_cli has ended.
```

4. **At the Oracle ILOM prompt, change directories to the /SP directory.**

```
-> cd /SP
```

5. **Reset the service processor.**

```
-> reset
Are you sure you want to reset /SP (y/n)? y
```

```
Performing reset on /SP
...
...
```

6. Log in when the system comes back online.

The default password is changeme.

```
[root]# ssh my-tor -l root

root@my-tor-password:

Sun(TM) Integrated Lights Out Manager (Fabric Component Edition)

Version 3.0.5.1

Copyright 2009 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.
Warning: password is set to factory default.
```

7. Connect to SEFOS again.

```
-> cd /NEM/fs_cli
cd: Connecting to Fabric Switch CLI
```

8. **Verify the port channel summary.**

```
SEFOS# show etherchannel summary

Port-channel Module Admin Status is enabled
Port-channel Module Oper Status is enabled
Port-channel System Identifier is  00:14:4f:6c:69:ee
Flags:
D - down         P - in port-channel
I - stand-alone  H - Hot-standby (LACP only)

Number of channel-groups in use: 1
Number of aggregators: 1
Group  Port-channel    Protocol   Ports
------------------------------------------------------------------
100    Po100(P)       LACP      Ex0/3(D),Ex0/4(P),Ex0/5(P),Ex0/6(P)
```

Once `SEFOS-1` and `SEFOS-2` are both restarted, SEFOS comes up with all the previous configurations.

Related Information

- "Connect to SEFOS" on page 1
- "Configure Initial Settings" on page 43
- "Verify the Configuration" on page 46
- "Configure VLAN Forwarding" on page 48
- "Configure RSTP" on page 51
- "Configure LA" on page 55

Configuring the Routing Feature

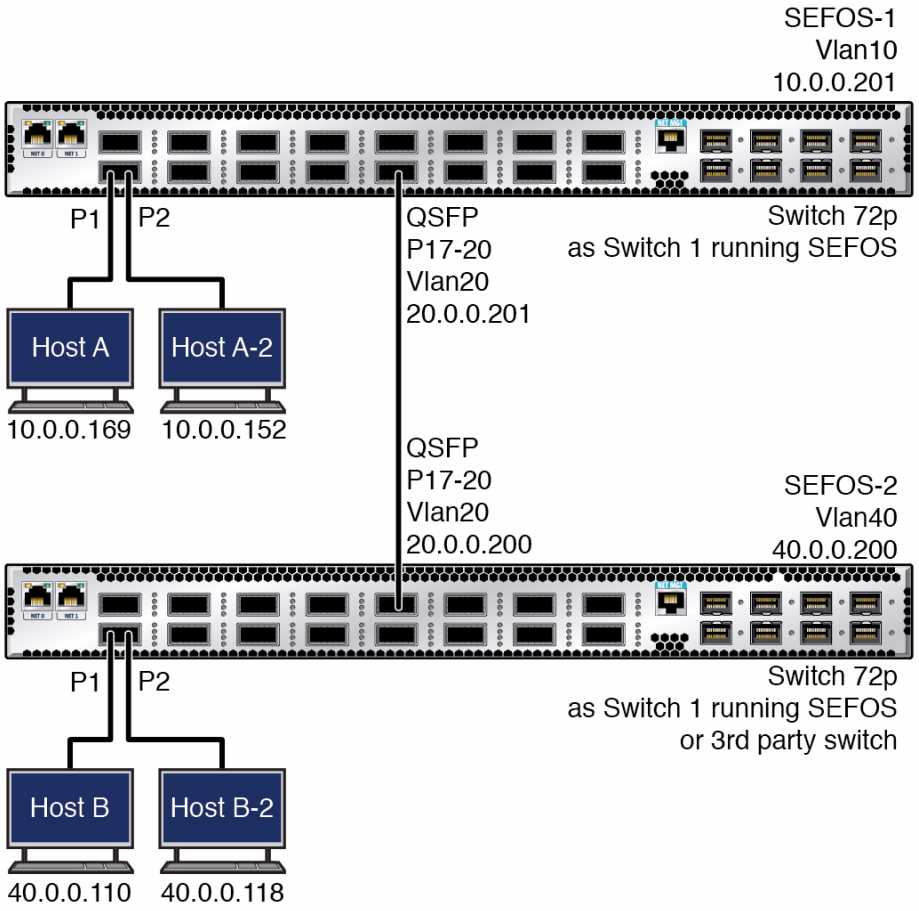
These topics describe how to configure the routing feature with SEFOS. Review and perform these topics in order.

- "Routing Feature Topology" on page 62
- "Configure Static Unicast Route Entries" on page 63
- "Add Static Routes" on page 70
- "Remove the Static Route on SEFOS-1 and SEFOS-2" on page 73
- "Configure Dynamic Routing (RIP)" on page 73
- "Disable RIP on SEFOS-1 and SEFOS-2" on page 76
- "Configure Dynamic Routing (OSPF)" on page 76
- "Disable OSPF on SEFOS-1 and SEFOS-2" on page 79

Related Information

- "Configuring SEFOS" on page 1
- "Configuring the Switching Feature" on page 41

Routing Feature Topology



Switch or Host Name	VLAN ID	IP Address
SEFOS-1	VLAN 10 VLAN 20	10.0.0.201 20.0.0.201
Host A connected to SEFOS-1, port 1	VLAN 10	10.0.0.169
Host A-2 connected to SEFOS-1, port 2	VLAN 10	20.0.0.152

Switch or Host Name	VLAN ID	IP Address
SEFOS-2	VLAN 20 VLAN 40	20.0.0.200 40.0.0.200
Host B connected to SEFOS-2, port 1	VLAN 40	40.0.0.110
Host B-2 connected to SEFOS-2, port 2	VLAN 40	40.0.0.118

Related Information

- "Configure Static Unicast Route Entries" on page 63
- "Add Static Routes" on page 70
- "Remove the Static Route on SEFOS-1 and SEFOS-2" on page 73
- "Configure Dynamic Routing (RIP)" on page 73
- "Disable RIP on SEFOS-1 and SEFOS-2" on page 76
- "Configure Dynamic Routing (OSPF)" on page 76
- "Disable OSPF on SEFOS-1 and SEFOS-2" on page 79

▼ Configure Static Unicast Route Entries

This procedure configures the static route entries in SEFOS and verifies that traffic is reachable across networks.

See "Routing Feature Topology" on page 62 for the topology of this procedure.

1. **Configure the initial settings.**

   See "Configure Initial Settings" on page 33.

2. **If GVRP and GMRP are enabled, disable them so that the VLAN creation will not be propagated.**

   The `show vlan device info` command shows the VLAN configuration information. The `set gvrp disable` and `set gmrp disable` commands disable these protocols.

```
SEFOS# configure terminal
SEFOS(config)# set gvrp disable
SEFOS(config)# set gmrp disable
SEFOS(config)# end
SEFOS# show vlan device info
```

```
Vlan device configurations
--------------------------
Vlan Status                          : Enabled
Vlan Oper status                   : Enabled
Gvrp status                          : Disabled
Gmrp status                          : Disabled
Gvrp Oper status                     : Disabled
Gmrp Oper status                     : Disabled
```

3. **Configure** SEFOS-1 **as shown in** "Routing Feature Topology" on page 62**.**

   a. **Remove the IP address of VLAN 1.**

      The default IP address of VLAN 1 is 10.0.0.1 and the IP address of VLAN 10 is 10.0.0.201. Thus you must remove the IP address of VLAN 1 before you can add the IP address for VLAN 10.

```
SEFOS# configure terminal
SEFOS(config)# interface vlan 1
SEFOS(config-if)# no ip address
SEFOS(config-if)# exit
SEFOS(config)# vlan 10
SEFOS(config-vlan)# exit
SEFOS(config)# interface range extreme-ethernet 0/1-2
SEFOS(config-if-range)# switchport access vlan 10
SEFOS(config-if-range)# no shutdown
SEFOS(config-if-range)# exit
SEFOS(config)# interface vlan 10
SEFOS(config-if)# shut
SEFOS(config-if)# ip address 10.0.0.201 255.255.255.0
SEFOS(config-if)# no shutdown
SEFOS(config-if)# end
```

   b. **Ping host A from** SEFOS-1**.**

```
SEFOS# ping 10.0.0.169

Reply Received From :10.0.0.169, TimeTaken : 30 msecs
Reply Received From :10.0.0.169, TimeTaken : 100 msecs
Reply Received From :10.0.0.169, TimeTaken : 110 msecs

--- 10.0.0.169 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
```

c. **Ping host A-2 from** SEFOS-1**.**

```
SEFOS# ping 10.0.0.152

Reply Received From :10.0.0.152, TimeTaken : 70 msecs
Reply Received From :10.0.0.152, TimeTaken : 100 msecs
Reply Received From :10.0.0.152, TimeTaken : 110 msecs

--- 10.0.0.152 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
```

d. **Ping** SEFOS-1 **and host A-2 from host A.**

```
# ping 10.0.201
10.0.201 is alive
# ping 10.0.0.152
10.0.0.152 is alive
#
```

4. **Configure the** SEFOS-2 **switch based on the topology shown in** "Routing Feature Topology" on page 62**.**

```
SEFOS# configure terminal
SEFOS(config)# interface vlan 1
SEFOS(config-if)# no ip address
SEFOS(config-if)# exit
SEFOS(config)# vlan 40
SEFOS(config-vlan)# exit
SEFOS(config)# interface range extreme-ethernet 0/1-2
SEFOS(config-if-range)# shutdown
SEFOS(config-if-range)# switchport access vlan 40
SEFOS(config-if-range)# no shutdown
SEFOS(config-if-range)# exit
SEFOS(config)# interface vlan 40
SEFOS(config-if)# shutdown
SEFOS(config-if)# ip address 40.0.0.200 255.255.255.0
SEFOS(config-if)# no shutdown
SEFOS(config-if)# end
SEFOS#
```

5. **Ping host B and host B-2 from** SEFOS-2**.**

```
SEFOS# ping 40.0.0.110
Reply Received From :40.0.0.110, TimeTaken : 50 msecs
Reply Received From :40.0.0.110, TimeTaken : 90 msecs
Reply Received From :40.0.0.110, TimeTaken : 100 msecs
```

```
--- 40.0.0.110 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss

SEFOS# ping 40.0.0.118
Reply Received From :40.0.0.118, TimeTaken : 100 msecs
Reply Received From :40.0.0.118, TimeTaken : 90 msecs
Reply Received From :40.0.0.118, TimeTaken : 110 msecs

--- 40.0.0.118 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
SEFOS#
```

6. Create `VLAN 20` **between the two switches.**

Use QSFP ports 17-20 on both switches.

a. Verify that no ports are part of a link aggregation group.

The following example shows that ports 17-20 *are* part of a link aggregation group.

```
SEFOS# show etherchannel summary

Port-channel Module Admin Status is enabled
Port-channel Module Oper Status is enabled
Port-channel System Identifier is  00:14:4f:6c:6e:0e
Flags:
D - down         P - in port-channel
I - stand-alone  H - Hot-standby (LACP only)

Number of channel-groups in use: 1
Number of aggregators: 1

Group Port-channel Protocol  Ports
------------------------------------------------------------------------
100   Po100(P)    LACP     Ex0/17(D),Ex0/18(P),Ex0/19(P),Ex0/20(P)
```

b. If required, remove QSFP ports 17-20 from a link aggregation group.

```
SEFOS# configure terminal
SEFOS# interface range extreme-ethernet 0/17-20
SEFOS(config-if-range)# no channel-group
SEFOS(config-if-range)# end
SEFOS# show etherchannel summary

Port-channel Module Admin Status is enabled
Port-channel Module Oper Status is enabled
```

```
Port-channel System Identifier is  00:14:4f:6c:6e:0e
...
Number of channel-groups in use: 1
Number of aggregators: 1
Group  Port-channel    Protocol   Ports
------------------------------------------------------------------
100    Po100(D)        LACP
SEFOS#
```

c. Create VLAN 20 **on** SEFOS-1**, ports 17-20.**

```
SEFOS# configure terminal
SEFOS(config)# interface range extreme-ethernet 0/17-20
SEFOS(config-if-range)# switchport access vlan 20
SEFOS(config-if-range)# no shutdown
SEFOS(config-if-range)# exit
SEFOS(config)# interface vlan 20
SEFOS(config-if)# shutdown
SEFOS(config-if)# ip address 20.0.0.201 255.255.255.0
SEFOS(config-if)# no shutdown
SEFOS(config-if)# end
SEFOS#
```

d. Create VLAN 20 **on** SEFOS-2**, ports 17-20.**

```
SEFOS# configure terminal
SEFOS(config)# interface range extreme-ethernet 0/17-20
SEFOS(config-if-range)# switchport access vlan 20
SEFOS(config-if-range)# no shutdown
SEFOS(config-if-range)# exit
SEFOS(config)# interface vlan 20
SEFOS(config-if)# shutdown
SEFOS(config-if)# ip address 20.0.0.200 255.255.255.0
SEFOS(config-if)# no shutdown
SEFOS(config-if)# end
SEFOS# ping 20.0.0.201

Reply Received From :20.0.0.201, TimeTaken : 110 msecs
Reply Received From :20.0.0.201, TimeTaken : 90 msecs
Reply Received From :20.0.0.201, TimeTaken : 100 msecs

--- 20.0.0.201 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
SEFOS#
```

You can now use this configuration as a starting point for different router configurations.

7. Save the configuration.

Switches start with the saved configuration on reboot.

a. Type this command on SEFOS-1**.**

```
SEFOS# write startup-config
Building configuration _
[OK]
```

b. Type this command on SEFOS-2**.**

```
SEFOS# write startup-config
Building configuration _
[OK]
```

8. Verify that the existing routes are available in SEFOS-1**.**

a. **Type this command on** SEFOS-1**.**

```
SEFOS# show ip route
Codes: C - connected, S - static, R - rip, B - bgp, O - ospf

C 10.0.0.0/24 is directly connected, vlan10
C 20.0.0.0/24 is directly connected, vlan20
SEFOS#
```

b. **Type this command on** SEFOS-2**.**

```
SEFOS# show ip route
Codes: C - connected, S - static, R - rip, B - bgp, O - ospf

C 20.0.0.0/24 is directly connected, vlan20
C 40.0.0.0/24 is directly connected, vlan40

SEFOS#
```

If there is no known route from SEFOS-1 to host B, the ping from host A to host B fails.

9. **Configure the static route in the** SEFOS-2**.**

```
SEFOS# configure terminal
SEFOS(config)# ip route 10.0.0.0 255.255.255.0 20.0.0.201
SEFOS(config)# end
```

10. **Configure the static route in** SEFOS-2**.**

```
SEFOS# configure terminal
SEFOS(config)# ip route 10.0.0.0 255.255.255.0 20.0.0.201
SEFOS(config)# end
```

11. **Verify that the routes are known to** SEFOS-1 **and** SEFOS-2**.**

a. **Type this command on** SEFOS-1**.**

```
SEFOS# show ip route

Codes: C - connected, S - static, R - rip, B - bgp, O - ospf
C 10.0.0.0/24 is directly connected, vlan10
C 20.0.0.0/24 is directly connected, vlan20S 40.0.0.0/24 [-1] via
20.0.0.200
```

b. On SEFOS-2, type.

```
SEFOS# show ip route
Codes: C - connected, S - static, R - rip, B - bgp, O - ospf

S 10.0.0.0/24 [-1] via 20.0.0.201
C 20.0.0.0/24 is directly connected, vlan20
C 40.0.0.0/24 is directly connected, vlan40
```

Related Information

- "Routing Feature Topology" on page 62
- "Add Static Routes" on page 70
- "Remove the Static Route on SEFOS-1 and SEFOS-2" on page 73
- "Configure Dynamic Routing (RIP)" on page 73
- "Disable RIP on SEFOS-1 and SEFOS-2" on page 76
- "Configure Dynamic Routing (OSPF)" on page 76
- "Disable OSPF on SEFOS-1 and SEFOS-2" on page 79

▼ Add Static Routes

Depending on how each server configures routes, you might need to add static routes with commands provided by the servers. Use the following commands as examples to add static routes on host servers.

1. **On host B, add static routes on host A to reach VLAN 40 and VLAN 20 configured on SEFOS-2.**

```
# route add 40.0.0.0 -netmask 255.255.255.0 10.0.0.201
# route add 20.0.0.0 -netmask 255.255.255.0 10.0.0.201
```

2. **On host B, add static routes to reach VLAN 10 and VLAN 20 configured on SEFOS-1.**

```
# route add -net 10.0.0.0 netmask 255.255.255.0 gw 40.0.0.200
# route add -net 20.0.0.0 netmask 255.255.255.0 gw 40.0.0.200
```

3. Ping SEFOS-2's VLAN 40 IP address from SEFOS-1.

```
SEFOS# ping 40.0.0.200
Reply Received From :40.0.0.200, TimeTaken : 90 msecs
Reply Received From :40.0.0.200, TimeTaken : 110 msecs
Reply Received From :40.0.0.200, TimeTaken : 90 msecs

--- 40.0.0.200 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
SEFOS#
```

4. Ping host B's VLAN 40 IP address from SEFOS-1.

```
SEFOS# ping 40.0.0.110
Reply Received From :40.0.0.110, TimeTaken : 60 msecs
Reply Received From :40.0.0.110, TimeTaken : 100 msecs
Reply Received From :40.0.0.110, TimeTaken : 110 msecs

--- 40.0.0.110 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
SEFOS#
```

5. Ping host B from host A.

```
# ping -s 40.0.0.110
PING 40.0.0.110: 56 data bytes
64 bytes from 40.0.0.110: icmp_seq=0. time=0.544 ms
64 bytes from 40.0.0.110: icmp_seq=1. time=0.286 ms
64 bytes from 40.0.0.110: icmp_seq=2. time=0.561 ms
64 bytes from 40.0.0.110: icmp_seq=3. time=0.343 ms
```

6. Ping SEFOS-1's VLAN 10 IP address from SEFOS-2.

```
SEFOS# ping 10.0.0.201
Reply Received From :10.0.0.201, TimeTaken : 160 msecs
Reply Received From :10.0.0.201, TimeTaken : 90 msecs
Reply Received From :10.0.0.201, TimeTaken : 100 msecs

--- 10.0.0.201 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
SEFOS#
```

7. **Ping the host A's IP address from** `SEFOS-2`**.**

```
SEFOS# ping 10.0.0.169
Reply Received From :10.0.0.169, TimeTaken : 50 msecs
Reply Received From :10.0.0.169, TimeTaken : 100 msecs
Reply Received From :10.0.0.169, TimeTaken : 110 msecs

--- 10.0.0.169 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
SEFOS#
```

8. **Ping host A from host B.**

```
# ping 10.0.0.169
PING 10.0.0.169 (10.0.0.169) 56(84) bytes of data.
64 bytes from 10.0.0.169: icmp_seq=1 ttl=253 time=0.462 ms
64 bytes from 10.0.0.169: icmp_seq=2 ttl=253 time=0.523 ms
64 bytes from 10.0.0.169: icmp_seq=3 ttl=253 time=0.445 ms
64 bytes from 10.0.0.169: icmp_seq=4 ttl=253 time=0.370 ms
...
```

To reach host A from host B, packets must be routed between `VLAN 40–VLAN 20` and between `VLAN 20–VLAN 10`. With static routes configured, you can now test the routing functions with SEFOS.

Related Information

- "Routing Feature Topology" on page 62
- "Configure Static Unicast Route Entries" on page 63
- "Remove the Static Route on SEFOS-1 and SEFOS-2" on page 73
- "Configure Dynamic Routing (RIP)" on page 73
- "Disable RIP on SEFOS-1 and SEFOS-2" on page 76
- "Configure Dynamic Routing (OSPF)" on page 76
- "Disable OSPF on SEFOS-1 and SEFOS-2" on page 79

▼ Remove the Static Route on SEFOS-1 and SEFOS-2

1. **Remove the static route on** SEFOS-1**.**

```
SEFOS# configure terminal
SEFOS(config)# no ip route 40.0.0.0 255.0.0.0 20.0.0.200
SEFOS(config)# end
```

2. **Remove the static route on** SEFOS-2**.**

```
SEFOS# configure terminal
SEFOS(config)# no ip route 10.0.0.0 255.0.0.0 20.0.0.201
SEFOS(config)# end
```

Related Information

- "Routing Feature Topology" on page 62
- "Configure Static Unicast Route Entries" on page 63
- "Add Static Routes" on page 70
- "Configure Dynamic Routing (RIP)" on page 73
- "Disable RIP on SEFOS-1 and SEFOS-2" on page 76
- "Configure Dynamic Routing (OSPF)" on page 76
- "Disable OSPF on SEFOS-1 and SEFOS-2" on page 79

▼ Configure Dynamic Routing (RIP)

This procedure configures dynamic routing with the redistribution feature of RIP in SEFOS. This procedure also verifies the accessibility of the two hosts by learning the routes dynamically through RIP.

See "Routing Feature Topology" on page 62 for the topology of this procedure.

1. **Verify that `SEFOS-1` and `SEFOS-2` still have the configuration information that you saved.**

   See "Configure Static Unicast Route Entries" on page 63.

   The basic VLAN configuration for dynamic routing is similar to the basic VLAN configuration for static routing. If the configuration information was not saved on `SEFOS-1` and `SEFOS-2`, follow Step 1 through Step 6 in "Configure Static Unicast Route Entries" on page 63, then return here.

2. **Enable the RIP protocol on `SEFOS-1`.**

```
SEFOS# configure terminal
SEFOS(config)# router rip
SEFOS(config-router)# neighbor 20.0.0.200
SEFOS(config-router)# network 20.0.0.201
SEFOS(config-router)# network 10.0.0.201
SEFOS(config-router)# redistribute all
SEFOS(config-router)# end
```

3. **Enable the RIP protocol on `SEFOS-2`.**

   If `SEFOS-2` is a third-party switch, verify that the RIP is enabled on `SEFOS-2` and that related configurations are applied accordingly.

```
SEFOS# configure terminal
SEFOS(config)# router rip
SEFOS(config-router)# neighbor 20.0.0.201
SEFOS(config-router)# network 20.0.0.200
SEFOS(config-router)# network 40.0.0.200
SEFOS(config-router)# redistribute all
SEFOS(config-router)# end
```

4. **Check the routing database on `SEFOS-1`.**

```
SEFOS# show ip rip database
Vrf default
10.0.0.0/8 [1] auto-summary
10.0.0.0/24 [1] directly connected, vlan10
20.0.0.0/8 [1] auto-summary
20.0.0.0/24 [1] directly connected, vlan20
40.0.0.0/8 [2] auto-summary
40.0.0.0/8 [2] via 20.0.0.200, vlan20
```

5. **Check the routing database on** `SEFOS-2`**.**

```
SEFOS# show ip rip database
Vrf default
10.0.0.0/8 [2] auto-summary
10.0.0.0/8 [2] via 20.0.0.201, vlan20
20.0.0.0/8 [1] auto-summary
20.0.0.0/24 [1] directly connected, vlan20
40.0.0.0/8 [1] auto-summary
40.0.0.0/24 [1] directly connected, vlan40
```

6. **Ping the VLAN interface on** `VLAN 10` **on** `SEFOS-1` **from blade server B.**

```
# ping 10.0.0.201
PING 10.0.0.201 (10.0.0.201) 56(84) bytes of data.
64 bytes from 10.0.0.201: icmp_seq=1 ttl=63 time=1.64 ms
....
```

7. **Ping blade server A from blade server B.**

```
# ping 10.0.0.169
PING 10.0.0.169 (10.0.0.169) 56(84) bytes of data.
64 bytes from 10.0.0.169: icmp_seq=1 ttl=62 time=2.35 ms
```

8. **Ping blade server B from blade server A.**

```
# ping 40.0.0.110
PING 40.0.0.110 (40.0.0.110) 56(84) bytes of data.
64 bytes from 40.0.0.110: icmp_seq=1 ttl=62 time=3.41 ms
64 bytes from 40.0.0.110: icmp_seq=2 ttl=62 time=2.32 ms
64 bytes from 40.0.0.110: icmp_seq=3 ttl=62 time=2.10 ms
64 bytes from 40.0.0.110: icmp_seq=4 ttl=62 time=2.10 ms
```

You can test the basic routing features of SEFOS now that SEFOS is able to dynamically learn the routing entries using the redistribution feature of RIP.

Related Information

- "Routing Feature Topology" on page 62
- "Configure Static Unicast Route Entries" on page 63
- "Add Static Routes" on page 70
- "Remove the Static Route on SEFOS-1 and SEFOS-2" on page 73
- "Disable RIP on SEFOS-1 and SEFOS-2" on page 76
- "Configure Dynamic Routing (OSPF)" on page 76

■ “Disable OSPF on SEFOS-1 and SEFOS-2” on page 79

▼ Disable RIP on SEFOS-1 and SEFOS-2

Perform this procedure only if you want to disable the RIP routing feature.

1. **Disable RIP on** SEFOS-1**.**

```
SEFOS# configure terminal
SEFPS(config)# no router rip
SEFOS(config)# end
```

2. **Disable RIP on** SEFOS-2**.**

   If SEFOS-2 is a third-party switch, follow the instructions that came with the switch to disable RIP. Otherwise, follow Step 1 to disable RIP on SEFOS-2.

Related Information

- “Routing Feature Topology” on page 62
- “Configure Static Unicast Route Entries” on page 63
- “Add Static Routes” on page 70
- “Remove the Static Route on SEFOS-1 and SEFOS-2” on page 73
- “Configure Dynamic Routing (RIP)” on page 73
- “Configure Dynamic Routing (OSPF)” on page 76
- “Disable OSPF on SEFOS-1 and SEFOS-2” on page 79

▼ Configure Dynamic Routing (OSPF)

This procedure describes how to configure dynamic routing using the redistribution feature of the OSPF protocol in SEFOS. This procedure verifies that the reachability between two hosts is established after learning the in-between routes dynamically through OSPF .

See “Routing Feature Topology” on page 62 for the topology of this procedure.

1. **Verify that SEFOS-1 and SEFOS-2 still have the configuration information that you saved**

   See "Configure Static Unicast Route Entries" on page 63.

   The basic VLAN configuration for dynamic routing is similar to the basic VLAN configuration for static routing. If the configuration information was not saved on SEFOS-1 and SEFOS-2, follow Step 1 through Step 6 in "Configure Static Unicast Route Entries" on page 63.

   If SEFOS-1 or SEFOS-2 is a third-party switch, configure the basic VLAN and the dynamic routing as recommended by the switch's manufacturer.

2. **Enable OSPF on SEFOS-1.**

```
SEFOS# configure terminal
SEFOS(config)# router ospf
SEFOS(config-router)# asBR router
SEFOS(config-router)# network 20.0.0.201 area 0.0.0.0
SEFOS(config-router)# router-id 20.0.0.201
SEFOS(config-router)# network 10.0.0.201 area 0.0.0.0
SEFOS(config-router)# router-id 10.0.0.201
SEFOS(config-router)# redistribute all
SEFOS(config-router)# end
```

3. **Enable OSPF on SEFOS-2.**

   If SEFOS-2 is a third-party switch, verify that the OSPF protocol is enabled on SEFOS-2 and that related configurations are applied accordingly.

```
SEFOS# configure terminal
SEFOS(config)# router ospf
SEFOS(config-router)# asBR router
SEFOS(config-router)# network 20.0.0.200 area 0.0.0.0
SEFOS(config-router)# router-id 20.0.0.200
SEFOS(config-router)# network 40.0.0.200 area 0.0.0.0
SEFOS(config-router)# router-id 40.0.0.200
SEFOS(config-router)# redistribute all
SEFOS(config-router)# end
```

4. **Check the neighbor router status of SEFOS-1.**

```
SEFOS# show ip ospf neighbor

Vrf default

Neighbor-IDPriStateDeadTimeAddress    Interface
-----------------------------------------
40.0.0.2001FULL/DR  3920.0.0.200 vlan20
```

```
SEFOS# show ip routeCodes: C - connected, S - static, R - rip, B -
bgp, O - ospf
C 10.0.0.0/24 is directly connected, vlan10
C 20.0.0.0/24 is directly connected, vlan20
O 40.0.0.0/24 [2] via 20.0.0.200
```

5. **Verify the neighbor router status of** `SEFOS-2`**.**

   If `SEFOS-2` is a third-party switch, use the appropriate command to verify the neighbor router status.

```
SEFOS# show ip ospf neighbor

Vrf default
Neighbor-ID Pri State DeadTime Address Interface
----------- --- ----- -------- ------- ---------
SEFOS# show ip route10.0.0.201 1 FULL/BACKUP 32 20.0.0.201 vlan20
Codes: C - connected, S - static, R - rip, B - bgp, O - ospf

O 10.0.0.0/24 [2] via 20.0.0.201
C 20.0.0.0/24 is directly connected, vlan20
C 40.0.0.0/24 is directly connected, vlan40
```

6. **Verify connectivity between** `SEFOS-1` **and** `SEFOS-2` **with the** `ping` **command.**

Related Information

- "Routing Feature Topology" on page 62
- "Configure Static Unicast Route Entries" on page 63
- "Add Static Routes" on page 70
- "Remove the Static Route on SEFOS-1 and SEFOS-2" on page 73
- "Configure Dynamic Routing (RIP)" on page 73
- "Disable RIP on SEFOS-1 and SEFOS-2" on page 76
- "Disable OSPF on SEFOS-1 and SEFOS-2" on page 79

▼ Disable OSPF on SEFOS-1 and SEFOS-2

Follow this procedure only if you want to disable OSPF.

1. **Disable OSPF on SEFOS-1.**

```
SEFOS# configure terminal
SEFOS(config)# no router ospf
SEFOS(config)# end
```

2. **Disable OSPF on Swich 2.**

   If SEFOS-2 is a third-party switch, follow the instructions that came with the switch to disable OSPF. Otherwise, follow Step 1 to disable OSPF on SEFOS-2.

Related Information

- "Routing Feature Topology" on page 62
- "Configure Static Unicast Route Entries" on page 63
- "Add Static Routes" on page 70
- "Remove the Static Route on SEFOS-1 and SEFOS-2" on page 73
- "Configure Dynamic Routing (RIP)" on page 73
- "Disable RIP on SEFOS-1 and SEFOS-2" on page 76
- "Disable OSPF on SEFOS-1 and SEFOS-2" on page 79

Glossary

10

10GbE 10 Gigabit Ethernet.

I

ILOM Oracle Integrated Lights Out Manager. ILOM provides advanced server processor hardware and software to manage and monitor servers.

L

LR Long-range. A long-range SFP+ optical tranceiver module.

LR-M Long-range multi-mode. A long range multi-mode SFP+ optical tranceiver module.

Q

QSFP Quad small form-factor, pluggable. A transceiver specification for 4x 10GE modules.

S

SEFOS Sun Ethernet Fabric Operating System. A full-featured fabric and switch management software package for configuring and monitoring the switches network infrastructure.

SEL System event log. The switch includes a number of replaceable component sensors that generate entries in the SEL when the sensor crosses a threshold. Many of these readings are used to adjust the fan speeds and perform other actions, such as illuminatiing LEDs and powering off the switch.

SFP+ Small form-factor, pluggable. A transceiver module specification for several physical layer technologies. In this document, SFP+ refers to Gigabit Ethernet, or 10GE, modules.

SR Short range. A short range SFP+ optical tranceiver module.

T

TOR Top of Rack. The Sun Network 10GbE Switch 72p is a standalone Top of Rack switch.

Index

F

features, 1

I

installing
  switch, 41, 61

P

product description, 1