

Sun Ethernet Fabric Operating System

Port Mirroring Administration Guide



Part No.: E41618-01
July 2013

Copyright © 2013, Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related software documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT END USERS. Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

Copyright © 2013, Oracle et/ou ses affiliés. Tous droits réservés.

Ce logiciel et la documentation qui l'accompagne sont protégés par les lois sur la propriété intellectuelle. Ils sont concédés sous licence et soumis à des restrictions d'utilisation et de divulgation. Sauf disposition de votre contrat de licence ou de la loi, vous ne pouvez pas copier, reproduire, traduire, diffuser, modifier, breveter, transmettre, distribuer, exposer, exécuter, publier ou afficher le logiciel, même partiellement, sous quelque forme et par quelque procédé que ce soit. Par ailleurs, il est interdit de procéder à toute ingénierie inverse du logiciel, de le désassembler ou de le décompiler, excepté à des fins d'interopérabilité avec des logiciels tiers ou tel que prescrit par la loi.

Les informations fournies dans ce document sont susceptibles de modification sans préavis. Par ailleurs, Oracle Corporation ne garantit pas qu'elles soient exemptes d'erreurs et vous invite, le cas échéant, à lui en faire part par écrit.

Si ce logiciel, ou la documentation qui l'accompagne, est concédé sous licence au Gouvernement des Etats-Unis, ou à toute entité qui délivre la licence de ce logiciel ou l'utilise pour le compte du Gouvernement des Etats-Unis, la notice suivante s'applique :

U.S. GOVERNMENT END USERS. Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

Ce logiciel ou matériel a été développé pour un usage général dans le cadre d'applications de gestion des informations. Ce logiciel ou matériel n'est pas conçu ni n'est destiné à être utilisé dans des applications à risque, notamment dans des applications pouvant causer des dommages corporels. Si vous utilisez ce logiciel ou matériel dans le cadre d'applications dangereuses, il est de votre responsabilité de prendre toutes les mesures de secours, de sauvegarde, de redondance et autres mesures nécessaires à son utilisation dans des conditions optimales de sécurité. Oracle Corporation et ses affiliés déclinent toute responsabilité quant aux dommages causés par l'utilisation de ce logiciel ou matériel pour ce type d'applications.

Oracle et Java sont des marques déposées d'Oracle Corporation et/ou de ses affiliés. Tout autre nom mentionné peut correspondre à des marques appartenant à d'autres propriétaires qu'Oracle.

Intel et Intel Xeon sont des marques ou des marques déposées d'Intel Corporation. Toutes les marques SPARC sont utilisées sous licence et sont des marques ou des marques déposées de SPARC International, Inc. AMD, Opteron, le logo AMD et le logo AMD Opteron sont des marques ou des marques déposées d'Advanced Micro Devices. UNIX est une marque déposée d'The Open Group.

Ce logiciel ou matériel et la documentation qui l'accompagne peuvent fournir des informations ou des liens donnant accès à des contenus, des produits et des services émanant de tiers. Oracle Corporation et ses affiliés déclinent toute responsabilité ou garantie expresse quant aux contenus, produits ou services émanant de tiers. En aucun cas, Oracle Corporation et ses affiliés ne sauraient être tenus pour responsables des pertes subies, des coûts occasionnés ou des dommages causés par l'accès à des contenus, produits ou services tiers, ou à leur utilisation.



Contents

| | |
|---------------------------------------|-----------|
| Using This Documentation | 1 |
| Product Notes | 1 |
| Related Documentation | 2 |
| Acronyms and Abbreviations | 2 |
| CLI Command Modes | 2 |
| Feedback | 3 |
| Support and Accessibility | 3 |
| | |
| Port Mirroring Overview | 5 |
| Port Mirroring Description | 5 |
| Supported CLI Commands | 5 |
| | |
| Configuring Port Mirroring | 7 |
| Example Configuration | 7 |
| Configuring Port Mirroring | 8 |
| ▼ Configure Port Mirroring | 9 |
| ▼ Show Commands | 10 |
| | |
| Common Erroneous Configuration | 13 |
| Common Errors | 13 |

Using This Documentation

Port mirroring is implemented as a part of SEFOS. This document provides the configuration examples of port mirroring on the switch.

- “Product Notes” on page 1
- “Related Documentation” on page 2
- “Acronyms and Abbreviations” on page 2
- “CLI Command Modes” on page 2
- “Feedback” on page 3
- “Support and Accessibility” on page 3

Product Notes

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

Oracle Switch ES1-24:

<http://www.oracle.com/goto/ES1-24/docs>

Sun Network 10GbE Switch 72p:

<http://www.oracle.com/goto/SN-10GbE-72p/docs>

Sun Blade 6000 Ethernet Switched NEM 24p 10GbE:

<http://www.oracle.com/goto/SB6K-24p-10GbE/docs>

Related Documentation

| Documentation | Links |
|--|---|
| All Oracle products | http://oracle.com/documentation |
| Oracle Switch ES1-24 | http://www.oracle.com/goto/ES1-24/docs |
| Sun Network 10GbE Switch 72p | http://www.oracle.com/goto/SN-10Gbe-72p/docs |
| Sun Blade 6000 Ethernet Switched NEM 24p 10GbE | http://www.oracle.com/goto/SB6k-24p-10GbE/docs |
| 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*.

Acronyms and Abbreviations

| Acronym or Abbreviation | Explanation |
|-------------------------|--------------------------------------|
| VLAN | Virtual local area network |
| SEFOS | Sun Ethernet Fabric Operating System |

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 <code>logout</code> or <code>exit</code> 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 <code>logout</code> or <code>exit</code> command to return to the Oracle ILOM prompt. |
| Global Configuration | From Privileged EXEC mode, use the <code>configure terminal</code> command. | SEFOS(config)# | Use the <code>end</code> command to return to Privileged EXEC mode. |
| Interface Configuration | From Global Configuration mode, use the <code>interface interface-type interface-id</code> command. | SEFOS(config-if)# | Use the <code>exit</code> command to return to Global Configuration mode, or use the <code>end</code> command to return to Privileged EXEC mode. |

Feedback

Provide feedback on this documentation at:

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

Support and Accessibility

Oracle customers have access to electronic support through My Oracle Support. For information visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Port Mirroring Overview

These sections describe port mirroring and supported CLI commands.

- [“Port Mirroring Description” on page 5](#)
- [“Supported CLI Commands” on page 5](#)

Port Mirroring Description

Port mirroring is used on a network switch to forward a copy of a packet received on one interface (source), to another interface (destination) on the same switch. This helps in monitoring network traffic where both ingress and egress packets are forwarded to another host. In the current implementation, the packet can be forwarded to multiple monitor (destination) interfaces.

The implementation in SEFOS allows up to four independent port mirroring sessions on a switch, with each session having one source interface, a primary destination interface, and a maximum of three secondary interfaces.

Supported CLI Commands

You can use the following CLI commands to configure port mirroring:

- Configure destination port for mirroring:

```
monitor session session-id (1-4) destination {interface interface-type interface-id}[secondary interface interface-type interface-id vlan vlan-id]
```
- Configure source port for mirroring:

```
monitor session session-id (1-4) {source {interface interface-type interface-id [{rx|tx|both}]}}
```
- Show command:

```
show monitor session 1-4
```

```
show monitor all
```

- Delete mirroring session:

```
no monitor [session session-no | all]
```

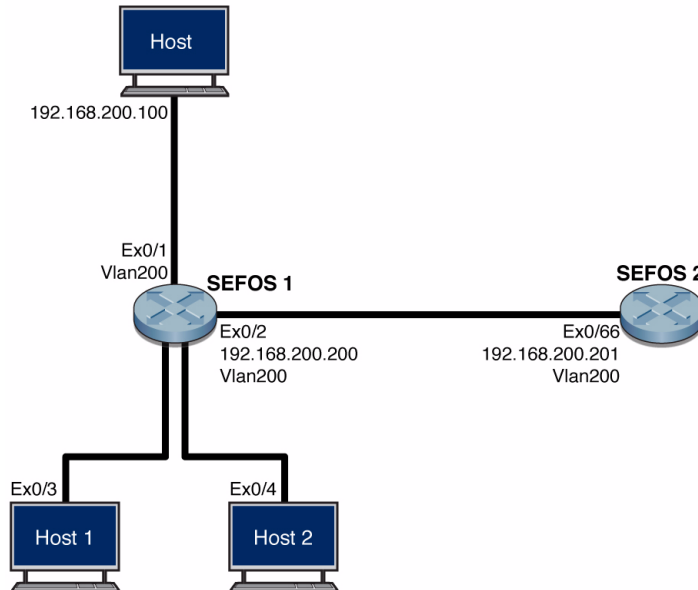
Configuring Port Mirroring

This section provides examples of a configuring port mirroring on the switch.

- [“Example Configuration” on page 7](#)
- [“Configuring Port Mirroring” on page 8](#)

Example Configuration

This figure shows the example configuration of port mirroring.



| Mirroring Requirements | Description |
|------------------------|-------------|
| Source interface | Ex 0/1 |

| Mirroring Requirements | Description |
|--|---|
| Destination interfaces | Ex 0/3, Ex 0/4 (Optional secondary destination interface) |
| Packets ingress/egress on Ex 0/1 should be mirrored to | Ex 0/3 and/or Ex 0/4 |

| Switch Configuration | Description |
|----------------------|--|
| Layer 3 vlan 200 | IP address 192.168.200.200 |
| vlan 200 | Ports Ex 0/1 (host) , Ex 0/2 (SEFOS-2) |
| Ex 0/1 | Connected to host (source) |
| Ex 0/3 | Connected to Host1 (primary destination) |
| Ex 0/4 | Connected to Host2 (secondary destination) |

Note – The switch (SEFOS-1) that has the secondary interface configured will not mirror packets to the secondary interface, if the packet is destined to the switch itself. For example, in the configuration above, packets sourced from 192.168.200.100 (host) destined to 192.168.200.201 (SEFOS-2) will be mirrored to Ex 0/3 and Ex 0/4. But if the packets are destined to 192.168.200.200 (SEFOS-1), you will only see mirrored packets on Ex 0/3.

Configuring Port Mirroring

This section provides steps to configure port mirroring with multiple destination ports.

- [“Configure Port Mirroring” on page 9](#)
- [“Show Commands” on page 10](#)

▼ Configure Port Mirroring

1. Assign the mirroring source interface.

Enables packet forwarding for this interface.

```
SEFOS-01# configure terminal  
SEFOS-01(config)# monitor session 1 source interface  
extreme-ethernet 0/1 both  
SEFOS-01(config)# end
```

Note – The command allows to mirror either rx/tx or both packets. In this case we enable both ingress and egress packets to be forwarded.

2. Assign the mirroring destination interfaces.

These are the interfaces to which packets are forwarded.

```
SEFOS-01# configure terminal  
SEFOS-01(config)# monitor session 1 destination interface  
extreme-ethernet 0/3 secondary interface extreme-ethernet 0/4 vlan  
100  
SEFOS-1 (config)# end
```

Note – The use of the secondary interface is optional. You could use `monitor session 1 destination interface Ex 0/3`, and `Ex 0/3` would be the only destination interface.

Note – A maximum of three secondary destination interfaces are allowed per session.

Note – You must assign a VLAN when you configure a secondary interface.

3. Disable spanning tree on the primary destination interface.

Note – This is only required when you configure a secondary destination interface.

```
SEFOS-1 # configure terminal
SEFOS-1 (config) # interface extreme-ethernet 0/3
SEFOS-1 (config-if) # spanning-tree disable
SEFOS-1 (config)# end
```

4. (Optional) Create multiple sessions (maximum 4).

```
SEFOS-1 # configure terminal
SEFOS-1 (config) # monitor session 2 destination interface
extreme-ethernet 0/10
SEFOS-1 (config) # monitor session 2 source interface
extreme-ethernet 0/12 rx
SEFOS-1 (config)# end
```

Source or destination ports of one session cannot be used in another session.

▼ Show Commands

1. Verify the details of all the monitor sessions.

```
SEFOS-1# show monitor all
Session      : 1
-----
Source Ports
Rx           : None
Tx           : None
Both        : Ex0/1
Destination Ports : Ex0/3 Ex0/4e
VLAN        : 100

Session      : 2
-----
Rx           : Ex 0/12
Tx           : None
Both        : None
Destination Ports : Ex0/10
```

2. Verify the details of a monitor session.

```
SEFOS-1# show monitor session 1
Session      : 1
-----
Source Ports
Rx           : None
Tx           : None
Both        : Ex0/1
Destination Ports : Ex0/3 Ex0/4
VLAN        : 100
```


Common Erroneous Configuration

This chapter provides the common errors while configuring monitor sessions.

- [“Common Errors” on page 13](#)

Common Errors

Consider a monitor session with source as Ex 0/1 and destinations as Ex 0/2 and Ex 0/3 with vlan 100.

```
SEFOS-1# show monitor all
Session      : 1
-----
Source Ports
Rx           : None
Tx           : None
Both        : Ex0/1
Destination Ports : Ex0/2 Ex0/3
VLAN        : 100
```

The following are the common errors while configuring monitor sessions.

- **Configuring a port as a mirror destination.**

```
SEFOS-1# configure terminal
SEFOS-1(config)# monitor session 1 source interface
extreme-ethernet 0/2
% Port already configured as Mirror Destination
SEFOS-1 (config)# end
```

- **Configuring a port as a mirror source.**

```
SEFOS-1(config)# monitor session 1 source interface  
extreme-ethernet 0/3  
% Port already configured as Mirror Source  
SEFOS-1 (config)# end
```

- **Configuring a destination port again for the same session.**

```
SEFOS-1(config)# monitor session 1 destination interface  
extreme-ethernet 0/5  
% CLI Command Failed  
% Maximum primary destination mirror ports exceeded  
SEFOS-1 (config)# end
```

- **Configuring a mirror destination as a destination or source of the other session.**

```
SEFOS-1(config)# monitor session 2 destination interface  
extreme-ethernet 0/1 secondary interface extreme-ethernet 0/2 vlan  
1223  
%Command Failed: Invalid use secondary interfaces  
SEFOS-1 (config)# end
```

- **Configuring a mirror with the primary VLAN.**

| | |
|------------------|----------------|
| vlan ID | 200 |
| Member Ports | Ex0/15, Ex0/16 |
| Untagged Ports | None |
| Forbidden Ports | None |
| Reflective-Relay | Disabled |
| Name | |
| Status | Other |

```
SEFOS-1(config)# monitor session 1 destination interface  
extreme-ethernet 0/1 secondary interface extreme-ethernet 0/10  
vlan 200  
%Cannot configure Mirror with Principal VLAN  
SEFOS-1(config)# monitor session 1 destination interface  
extreme-ethernet 0/1 secondary interface extreme-ethernet 0/10  
vlan 500  
SEFOS-1 (config)# end
```

■ **Configuring a VLAN being used in the secondary mirror.**

```
SEFOS-1# show monitor all
Session      : 1
-----
Destination Ports : Ex0/1 Ex0/10
VLAN         : 500
SEFOS-1# configure terminal
SEFOS-1(config)# vlan 500
SEFOS-1(config-vlan)# ports add extreme-ethernet 0/9
%Cannot configure Vlan 500:Currently being used for Mirroring
SEFOS-1(config-vlan)# end
```

