Sun Ethernet Fabric Operating System

IEEE DCBX Administration Guide

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Contents

Using This Documentation

The DCBX protocol is used to exchange DCB configuration parameters with LLDP neighbors. The CEE DCBX standard specifies two major feature sets, priority group, also known as enhanced transmission selection, and priority-flow control. This document describes the SEFOS DCB implementation, which is based on the CEE standard version 1.01 DCBX base specification revision 1.0.1.

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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
IEEE	Institute of Electrical and Electronic Engineers
CLI	Command-line interface
CNA	Converged network adapter
DCB	Data center bridging
DCBX	DCB Capability Exchange Protocol
ETS	Enhanced transmission selection
FC	Fibre Channel
FCoE	Fibre Channel over Ethernet
LLDP	Link Layer Discovery Protocol, IEEE 802.1AB

Acronym or Abbreviation	Explanation
OUI	Organizationally unique identifier
PFC	Priority-based flow control
TC	Traffic class to which the priority belongs
QoS	Quality of service
SEFOS	Sun Ethernet Fabric Operating System
TLV	Type length value

CLI Command Modes

The following table provides the access and exit methods to various general configuration modes.

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.

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Support and Accessibility

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DCB Overview

These sections describe DCB, the ETS feature, the PFC feature, the application priority feature, and an example topology.

DCB Protocol

DCB is a term commonly used to describe Ethernet enhancements to improve Ethernet networking and management in data center environments. DCB is a framework that defines the enhancements that are required for switches and endpoints and includes the following features:

- ETS is the enhanced transmission selection specification, which provides bandwidth management as well as a scheduling algorithm for various traffic classes on a converged link.
- PFC is an enhancement to the existing Ethernet pause protocol. This feature allows "no-drop" packet delivery for certain traffic classes.

This release of the SEFOS DCB feature supports both IEEE DCBX and DCB version 1.0.1, as specified by the DCB task group. By default, DCB version 1.0.1 (CEE) is chosen. Only one version of DCB protocol can be configured at one time.

DCB features are discovered and exchanged using the DCBX protocol. DCBX uses LLDP to exchange parameters between two converged link peers. The parameters that are exchanged by DCB are packaged into organizationally specific TLVs and sent to the peer through LLDP messages.

The OUI used for the IEEE DCBX TLV is `0x001B21`. Because DCBX is an acknowledged protocol that uses LLDP, both transmit and receive directions from LLDP must be enabled on the interface that runs DCBX.

In addition to exchanging DCB parameters with the link partner, the local system DCBX entity works closely with the QoS module to configure the scheduling policy, manage bandwidth, and control the priority flow control in the hardware.

ETS Feature

ETS allocates link bandwidth based on the ETS setting on a link. Different traffic types might have different network bandwidth requirements. With a traffic class identifier, one or more priorities can be grouped together for the purpose of bandwidth allocation. The number of traffic types that can be supported cannot exceed the number of traffic classes supported.

Before you configure the ETS, you must identify the priority to the traffic class mapping based on the the network traffic types and the bandwidth requirement for each traffic class. Traffic classes from 0 to 7 are available for bandwidth allocation.

The ETS feature is an asymmetric parameter exchange feature. The desired ETS configuration for the peer does not have to match the local ETS configuration.

PFC Feature

The PFC feature provides "no-drop" packet delivery for certain traffic classes while maintaining existing LAN behavior for other traffic classes on a converged link. Priority 3 is enabled by default for flow control. The Ethernet per-priority pause is applied only to PFC packets.

The PFC feature is a symmetric exchange feature. The desired PFC configuration for the peer must match the local PFC configuration.

Application Priority Feature

The application protocol feature allows the DCB node to advertise the upper-layer protocols and associated priority mapping over a DCB link. Because the SEFOS switch is only a DCB-capable switch and is not FCoE-capable, EtherType for layer 2 protocols is the only protocol supported. The protocol's main purpose is to advertise

its capability to the link partner, which is a CNA port, and the host runs FCoE over this CNA link. The priority mapping for this feature is taken from what the PFC feature has configured.

Configuring DCB

These sections describe an example topology, configuration requirements and how to configure the topology.

DCB Example Topology

All the configurations explained in this document are based on the following topology.

Opus Switch: DCBX enabled Switch
(switch A)

Host server
(server 1)
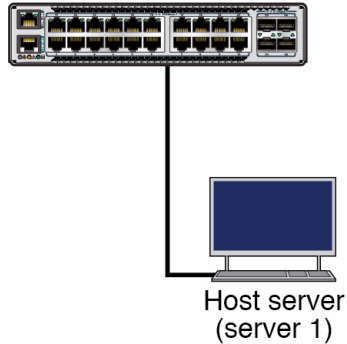
Configuration Specifications

The topology in this document is configured with these specifications:

In a configuration using DCB with SEFOS switches, the host server (server 1) has the following specifications:

- Sun Dual 10GbE PCIe 2.0 low profile adapter connected to the switch.
    - Oracle Solaris interface - `net3  ixgbe1`
    - Switch port number - 21
- Host server running Oracle Solaris 11 or later.

SEFOS DCB only supports a server with a Sun Dual 10GbE SFP+ PCIe 2.0 Adapter installed.

Switch A has the following specifications:

- Port 21 is connected to the host Oracle Solaris server.

Configuration Guidelines

The following configuration guidelines apply where DCB is used:

- The default version of DCBX is CEE, so to use IEEE DCBX, you must set the DCB version to IEEE.
- Configure the ETS based on the traffic types and bandwidth requirements.
- The PFC priority set must match the peer's configuration, or the willing bit should be set for the switch to accept the peer's configuration. VLAN priority 3 is normally used.
- Evaluate the following default settings table to determine if the default settings are applicable.
- If SEFOS DCB is used as a pass-through for FCoE traffic, the port connected to the host CNA running FCoE and the port connected to a third-party FCoE switch must be configured to belong to the same VLAN as what is configured on the third-party switch.
  - LLDP system control status must be started before DCBX TVLs can be exchanged.
  - LLDP must be enabled for both transmit and receive, which is the default behavior.
- To enable and configure SEFOS DCB, you must complete the following minimum tasks:
  - Enable LLDP.
  - Enable DCB globally.
  - Enable the interface DCB feature that will be involved in DCBX exchange.
  - Configure the VLAN to DCB-capable ports if needed.
- The SEFOS DCB accepts its configurations from the peer if the willing bit is set.

Refer to the *Sun Ethernet Fabric Operating System CLI Base Reference Manual* for the complete set of commands and the various options available for configuring DCB.

Default Settings

When DCB is enabled, SEFOS configures each of the DCB features with the following default values.

Priority	Traffic Class (TC)	ETS Bandwidth Allocation (%)	Priority Flow Control	Application Priority Mapping
0	0	50 (share with same group)	disable	disable
1	1	30 (share with same group)	disable	disable
2	2	20 (share with same group)	disable	disable
3	3	0	enable	enable
4	4	0	disable	disable
5	5	0	disable	disable
6	6	0	disable	disable
7	7	0	disable	disable

▼ Configure DCB Features

Perform the following task to apply the default DCB configuration, enabling all the three DCB features.

See "Default Settings" on page 11 for detailed information about the specifications used here. See other sections in this document for additional details on each command.

1. Start DCB globally.

```
SEFOS# configure terminal
SEFOS(config)# no shutdown dcb
```

2. Set the DCB version to IEEE.

You must set the DCB version to IEEE before starting the configuration.

```
SEFOS(config)# set dcb version ieee
```

3. **Enable DCB features on interface** `0/21` **and start the interface.**

```
SEFOS(config)# interface extreme-ethernet 0/21
SEFOS(config-if)# set dcb enable
SEFOS(config-if)# set dcb priority-flow-control enable
SEFOS(config-if)# set dcb priority-flow-control vlan-priority 0 0
0 1 0 0 0 0
SEFOS(config-if)# set dcb priority-flow-control mode auto
SEFOS(config-if)# set dcb enhanced-transmission-selection enable
SEFOS(config-if)# set dcb enhanced-transmission-selection 0 1 2 3
4 5 6 7 bandwidth 50 30 20 0 0 0 0 0 algo 2 2 2 2 2 2 2 2
SEFOS(config-if)# set dcb enhanced-transmission-selection mode
auto
SEFOS(config-if)# set dcb application-etype-fcoe enable
SEFOS(config-if)# lldp tlv-select dot1dcbxtlv
enhanced-transmission-selection priority-flow-control
application-etype-fcoe
SEFOS(config-if)# no shutdown
SEFOS(config-if)# exit
```

4. **Start LLDP globally.**

   You must start and enable LLDP for the DCBX protocol TLV exchange.

```
SEFOS(config)# no shutdown lldp
SEFOS(config)# set lldp enable
SEFOS# end
```

Verifying DCB and LLDP Configurations

If the peers that are connected to port 21 have been configured properly, you can use various show ommands to verify the configurations. Use the following commands to display the configurations and verify that a DCB feature is configured correctly, and that DCBX TVLs are exchanged with a peer.

-
-

▼ Determine Whether Interfaces Are Active

● **Determine whether interfaces are active.**

```
show interfaces extreme-ethernet 0/21 description
```

If interfaces are not in the up state, DCBX TLVs will not be exchanged.

▼ Determine Whether LLDP is Running and Recognizing Peers

In a correct DCB configuration, LLDP must be running and recognizing peers. If LLDP does not show the neighbors for port 21, perform the following steps to determine whether the peers are configured correctly and both links are up.

1. Display the DCB administrative, operational, and peer configurations.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection detail
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control detail
SEFOS# show interfaces extreme-ethernet 0/21 dcb
application-etype-fcoe detail
SEFOS# show interfaces extreme-ethernet 0/21 dcb counters
```

In the following steps, DCB features are exchanged, and DCB is in operating mode with its peer.

2. Ensure that the interface is up on a specified port (port `0/21`, in this example).

```
SEFOS# show interfaces extreme-ethernet 0/21 description
Interface    Status   Protocol  Description
---------    ------   --------  -----------
Ex0/21       up       up
```

3. Display the LLDP global configuration details.

```
SEFOS# show lldp

LLDP is enabled
Transmit Interval       : 30
Holdtime Multiplier     : 4
Reinitialization Delay  : 2
```

```
Tx Delay                  : 2
Notification Interval     : 5
Chassis Id SubType        : Mac Address
Chassis Id                : 00:10:e0:2c:0f:41
```

4. Display information about the neighbors learned on the interfaces.

```
SEFOS# show lldp neighbors

Capability Codes  :
(R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device,
(W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other

Chassis ID    Local Intf  Hold-time  Capability  Port Id
848c6f2c      Ex0/21      121                    00:1b:21:bc:b6:ac
Total Entries Displayed : 1
```

5. Display the local configuration, operational status, and peer configuration of the ETS feature.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection detail

Port             :     Ex0/21
Show Type        :     Admin Config
Feature          :     Enhanced Transmission Selection
Enable           :     true
Advertise        :     true
Willing          :     true
Priority      :    0    1    2    3    4    5    6    7
Traffic Class :    0    1    2    3    4    5    6    7
Bandwidth     :   50   50    0    0    0    0    0    0
Algorithm     :    2    2    2    2    2    2    2    2
Max Traffic Class:  8

Show Type        :     Oper Config
Feature          :     Enhanced Transmission Selection
Errors           :     0x0 - none
Syncd with Peer  :     false
Priority      :    0    1    2    3    4    5    6    7
Priority      :    0    1    2    3    4    5    6    7
Bandwidth     :   50   30   20    0    0    0    0    0
Algorithm     :    2    2    2    2    2    2    2    2
Max Traffic Class:  8

Show Type        :     Peer Config
Feature          :     Enhanced Transmission Selection
```

```
Local Interface   :        Ex0/21
Status            :        successful
Enable            :        true
Willing           :        true
Priority      :     0      1      2      3      4      5      6      7
Traffic Class :     0      1      2      3      4      5      6      7
Bandwidth     :    50     30     20      0      0      0      0      0
Algorithm     :     2      2      2      2      2      2      2      2
Max Traffic Class:  8


---------------------------------------------------------------

Total Entries Displayed : 1
```

6. **Display the local configuration, operational status, and peer configuration of the PFC feature.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control detail

Port              :        Ex0/21
Show Type         :        Admin Config
Feature           :        Priority Flow Control
Enable            :        true
Advertise         :        true
Willing           :        true
Priority Mask   :  0      0      0      0      1      0      0      0
Max Traffic Class: 8

Show Type         :        Oper Config
Feature           :        Priority Flow Control
Errors            :        0x0 - none
Operational Mode  :        true
Syncd with Peer   :        true
Priority Mask   :  0      0      0      0      1      0      0      0
Max Traffic Class: 8

Show Type         :        Peer Config
Feature           :        Priority Flow Control
Local Interface   :        Ex0/21
Status            :        successful
Enable            :        true
Willing           :        false
Priority Mask   :  0      0      0      0      1      0      0      0
Max Traffic Class: 8
```

```
-----------------------------------------------------------

Total Entries Displayed : 1
```

7. **Display the local configuration, operational status, and peer configuration of the application priority feature.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
application-etype-fcoe detail

Port            :       Ex0/21
Show Type       :       Admin Config
Feature         :       Application FCoE
Enable          :       true
Advertise       :       true
Priority Map    :   0     0     0     1     0     0     0     0


Show Type       :       Oper Config
Feature         :       Application FCoE
Errors          :       0x0 - none
Priority Map    :   0     0     0     1     0     0     0     0

Show Type       :       Peer Config
Feature         :       Application FCoE
Local Interface :       Ex0/21
Priority Map    :   0     0     0     1     0     0     0     0


-----------------------------------------------------------

Total Entries Displayed : 1
```

In addition to the commands shown in this section, you can also use the following commands to display information:

- `show lldp`
- `show lldp interface`
- `show lldp neighbor`
- `show lldp traffic`

▼ Enable DCB

After you have configured the desired DCB features, perform the following steps to start DCB in the switch. By default, DCB is disabled globally.

1. Enable DCB in the switch.

```
SEFOS# configure terminal
SEFOS(config)# no shutdown dcb
SEFOS(config)# end
```

2. View the DCB information.

```
SEFOS# show dcb global info

DCB Global Information
----------------------
System Control            : Start
```

▼ Disable DCB

By default, DCB is disabled globally.

1. Disable DCB.

```
SEFOS# configure terminal
SEFOS(config)# shutdown dcb
SEFOS(config)# end
```

2. View the DCB information.

```
SEFOS# show dcb global info

DCB Global Information
----------------------
System Control            : Shutdown
```

▼ Enable DCB for Each Interface

By default, all three features are enabled. However, to use the features, the global interface state must be turned on.

This example uses port `0/21`.

1. Enable DCB on a specific interface.

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/21
SEFOS(config-if)# set dcb enable
SEFOS(config-if)# no shutdown
SEFOS(config-if)# end
```

2. View the interface configuration.

These examples show the default configurations.

```
SEFOS# show interfaces extreme-ethernet 0/21 description

Interface    Status    Protocol
---------    ------    --------
Ex0/21           up        up
```

3. Display the DCB state and feature mode on a specific interface.

```
SEFOS# show interfaces extreme-ethernet 0/2 dcb mode

Port                 : Ex0/21
Show Type            : Admin State
DCB Capable State    : on
Priority Group(FTS)  : auto
Priority Flow Control : auto
```

4. Display the local configuration of ETS.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection

Port           :       Ex0/21
Show Type      :       Admin Config
Feature        :       Enhanced Transmission Selection
Enable         :       true
```

```
Advertise       :       true
Willing         :       false
Priority     :      0     1     2     3     4     5     6     7
Traffic Class :      0     1     2     3     4     5     6     7
Bandwidth     :     50    30    20     0     0     0     0     0
Algorithm     :      2     2     2     2     2     2     2     2
Max Traffic Class:   8
```

5. Display the local configuration of the priority flow control feature.

```
SEFOS# show interfaces extreme-ethernet 0/2 dcb
priority-flow-control
Port            :       Ex0/2
Show Type       :       Admin Config
Feature         :       Priority Flow Control
Enable          :       true
Advertise       :       true
Willing         :       false
Priority Mask  :    0     0     0     1     0     0     0     0
Max Traffic Class:   8
```

6. Display the local configuration of the application feature.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control

Port            :       Ex0/21
Show Type       :       Admin Config
Feature         :       Priority Flow Control
Enable          :       true
Advertise       :       true
Willing         :       false
Priority Mask  :    0     0     0     0     1     0     0     0
Max Traffic Class:   8
```

▼ Disable DCB for Each Interface

This example uses port `0/21`.

1. Enter Global Configuration mode.

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/21
```

2. Disable DCB.

```
SEFOS(config-if)# set dcb disable
```

3. Exit Global Configuration mode.

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

4. View the interface DCB state after it was disabled.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb mode

Port                 : Ex0/21
Show Type            : Admin State
DCB Capable State    : off
Priority Group (ETS) : auto
Priority Flow Control : auto
```

▼ Enable and Disable a Specific DCB Feature

You can enable and disable a specific DCB feature after DCB has been globally enabled. For example, when exchanging a DCBX protocol with its peer, you might want to inform its peer that a DCB-specific feature has been enabled or disabled.

The following example enables the PFC feature and disables ETS and the application. This example uses port 0/21.

1. Enable DCB.

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/21
SEFOS(config-if)# set dcb enable
```

2. Enable PFC.

```
SEFOS(config-if)# set dcb priority-flow-control enable
```

3. **Disable ETS and the application.**

```
SEFOS(config-if)# set dcb enhanced-transimission-selection disable
SEFOS(config-if)# set dcb application-etype-fcoe disable
SEFOS(config-if)# end
```

4. **View the DCB state and feature mode.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb mode

Port                 : Ex0/21
Show Type            : Admin State
DCB Capable State    : on
Priority Group       : auto
Priority Flow Control : auto
```

5. **View the DCB ETS parameters.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection

Port             :        Ex0/21
Show Type        :        Admin Config
Feature          :        Enhanced Transmission Selection
Enable           :        false
Advertise        :        false
Willing          :        false
Priority    :     0     1     2     3     4     5     6     7
Traffic Class :    0     1     2     3     4     5     6     7
Bandwidth   :    50    30    20     0     0     0     0     0
Algorithm   :     2     2     2     2     2     2     2     2
Max Traffic Class:  8
```

6. **View the PFC parameters.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control

Port             :        Ex0/21
Show Type        :        Admin Config
Feature          :        Priority Flow Control
Enable           :        true
Advertise        :        true
Willing          :        false
Priority Mask  :     0     0     0     0     1     0     0     0
Max Traffic Class:  8
```

7. View the application parameters.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
application-etype-fcoe
Port            :        Ex0/21
Show Type       :        Admin Config
Feature         :        Application FCoE
Enable          :        false
Advertise       :        false
Priority Map    :     0     0     0     0     1     0     0     0
```

▼ Configure the Mode for the DCB Feature

In normal operation, the DCB feature is in automatic mode. Whenever applicable, the hardware configuration is set after a feature is exchanged with its peer and the feature attributes are compatible with its peer. In some cases, force mode might be needed to set the hardware configuration, regardless of its peer configuration, without waiting for DCBX TLV to be exchanged.

1. Set the ETS feature to auto mode.

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/21
SEFOS(config-if)# set dcb enhanced-transmission-selection mode
auto
SEFOS(config-if)# set dcb priority-flow-control mode auto
SEFOS(config-if)# end
```

2. View the DCB mode.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb mode

Port                 : Ex0/21
Show Type            : Admin State
DCB Capable State    : on
Priority Group (ETS) :  auto
Priority Flow Control : auto
```

3. Set the ETS feature to force mode.

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/21
SEFOS(config-if)# set dcb enhanced-transmission-selection mode on
SEFOS(config-if)# set dcb priority-flow-control mode on
SEFOS(config-if)# end
```

4. View the interface mode after setting it to force mode.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb mode

Port                 : Ex0/21
Show Type            : Admin State
DCB Capable State    : on
Priority Group (ETS) : force
Priority Flow Control : force
```

▼ Configure DCB ETS Attributes

You can set ETS feature attributes. But whether your configuration takes effect depends on the willing state on both local and remote side. This example configures a total of three groups with bandwidths of 40%, 20%, and 40%.

When the local willing state is false, the new configuration changes local operational status, but changes the remote configuration only if the remote willing state is true.

1. **View the original configuration before any change is made.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection detail

Port            :       Ex0/21
Show Type       :       Admin Config
Feature         :       Enhanced Transmission Selection
Enable          :       true
Advertise       :       true
Willing         :       false
Priority        :   0     1     2     3     4     5     6     7
Traffic Class   :   0     1     2     3     4     5     6     7
Bandwidth       :  50    30    20     0     0     0     0     0
Algorithm       :   2     2     2     2     2     2     2     2
Max Traffic Class:  8

Show Type       :       Oper Config
Feature         :       Enhanced Transmission Selection
Errors          :       0x0 - none
Operational Mode :      true
Syncd with Peer :       false
Priority        :   0     1     2     3     4     5     6     7
Priority        :   0     1     2     3     4     5     6     7
Bandwidth       :  50    30    20     0     0     0     0     0
Algorithm       :   2     2     2     2     2     2     2     2
Max Traffic Class:  8

Show Type       :       Peer Config
Feature         :       Enhanced Transmission Selection
Local Interface :       Ex0/21
Status          :       successful
Enable          :       true
Willing         :       true
Priority        :   0     1     2     3     4     5     6     7
Traffic Class   :   0     1     2     3     4     5     6     7
Bandwidth       :  50    30    20     0     0     0     0     0
Algorithm       :   2     2     2     2     2     2     2     2
Max Traffic Class: 8
-------------------------------------------------------------
Total Entries Displayed : 1
```

Local willing state is `false` and remote willing state is `true`, so local
configuration change is used on both the local switch and the remote Oracle
Solaris server.

2. **Configure ETS with different bandwidth allocation.**

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/21
SEFOS(config-if)# set dcb enhanced-transmission-selection 0 1 2 3
4 5 6 7 bandwidth 40 20 40 0 0 0 0 0 algorithm 2 2 2 2 2 2 2 2
SEFOS(config-if)# end
```

3. **View the configuration to verify that the configuration changes have been applied to both the local and remote systems.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection detail

Port             :  Ex0/21
Show Type        :  Admin Config
Feature          :  Enhanced Transmission Selection
Enable           :  true
Advertise        :  true
Willing          :  false
Priority       : 0     1     2     3     4     5     6     7
Traffic Class  : 0     1     2     3     4     5     6     7
Bandwidth      : 40    20    40    0     0     0     0     0
Algorithm      : 2     2     2     2     2     2     2     2
Max Traffic Class:   8

Show Type        :  Oper Config
Feature          :  Enhanced Transmission Selection
Errors           :  0x0 - none
Operational Mode :  true
Syncd with Peer  :  false
Priority       : 0     1     2     3     4     5     6     7
Priority       : 0     1     2     3     4     5     6     7
Bandwidth      : 40    20    40    0     0     0     0     0
Algorithm      : 2     2     2     2     2     2     2     2
Max Traffic Class: 8

Show Type        :  Peer Config
Feature          :  Enhanced Transmission Selection
Local Interface  :  Ex0/21
Status           :  successful
Enable           :  true
Willing          :  true
Priority       : 0     1     2     3     4     5     6     7
Traffic Class  : 0     1     2     3     4     5     6     7
Bandwith       : 40    20    40    0     0     0     0     0
Algorithm      : 2     2     2     2     2     2     2     2
```

```
Max Traffic Class: 8


------------------------------------------------------------


Total Entries Displayed : 1
```

4. **Change the willing state so that both local and remote willing states are** true.

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/21
SEFOS(config-if)# set dcb enhanced-transmission-selection willing
enable
SEFOS(config-if)# end
```

5. Check output on the switch again to verify.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection detail

Port            :    Ex0/21
Show Type       :    Admin Config
Feature         :    Enhanced Transmission Selection
Enable          :    true
Advertise       :    true
Willing         :    true
Priority        :  0      1      2      3      4      5      6      7
Traffic Class   :  0      1      2      3      4      5      6      7
Bandwidth       :  40     20     40     0      0      0      0      0
Algorithm       :  2      2      2      2      2      2      2      2
Max Traffic Class:  8

Show Type       :    Oper Config
Feature         :    Enhanced Transmission Selection
Errors          :    0x0 - none
Operational Mode :   true
Syncd with Peer  :   false
Priority        :  0      1      2      3      4      5      6      7
Priority        :  0      1      2      3      4      5      6      7
Bandwidth       :  100    0      0      0      0      0      0      0
Algorithm       :  2      2      2      2      2      2      2      2
Max Traffic Class:  8

Show Type       :    Peer Config
Feature         :    Enhanced Transmission Selection
Local Interface :    Ex0/21
Status          :    successful
Enable          :    true
Willing         :    true
Priority        :  0      1      2      3      4      5      6      7
Traffic Class   :  0      1      2      3      4      5      6      7
Bandwith        :  100    0      0      0      0      0      0      0
Algorithm       :  2      2      2      2      2      2      2      2
Max Traffic Class:  8

----------------------------------------------------------------

Total Entries Displayed : 1
```

Since the ETS is asymmetric, when the local willing state is true, the local switch blindly accepts the remote configuration.

6. **Change the configuration again on the switch.**

   The operational and remote configuration is not affected.

```
SEFOS# configure terminal
SEFOS(config)# interfaces extreme-ethernet 0/21
 SEFOS(config-if)# set dcb enhanced-transmission-selection 0 1 2 3
4 5 6 7 bandwidth 50 30 20 0 0 0 0 0 algorithm 2 2 2 2 2 2 2 2
SEFOS(config-if)# end
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection detail

Port              :    Ex0/21
Show Type         :    Admin Config
Feature           :    Enhanced Transmission Selection
Enable            :    true
Advertise         :    true
Willing           :    true
Priority       :   0      1      2      3      4      5      6      7
Traffic Class  :   0      1      2      3      4      5      6      7
Bandwidth      :   50     30     20     0      0      0      0      0
Algorithm      :   2      2      2      2      2      2      2      2
Max Traffic Class:   8

show Type         :    Oper Config
Feature           :    Enhanced Transmission Selection
Errors            :    0x0 - none
Operational Mode  :    true
Syncd with Peer   :    false
Priority       :   0      1      2      3      4      5      6      7
Priority       :   0      1      2      3      4      5      6      7
Bandwidth      :   100    0      0      0      0      0      0      0
Algorithm      :   2      2      2      2      2      2      2      2
Max Traffic Class:   8

Show Type         :    Peer Config
Feature           :    Enhanced Transmission Selection
Local Interface   :    Ex0/21
Status            :    successful
Enable            :    true
Willing           :    true
Priority       :   0      1      2      3      4      5      6      7
Traffic Class  :   0      1      2      3      4      5      6      7
Bandwith       :   100    0      0      0      0      0      0      0
Algorithm      :   2      2      2      2      2      2      2      2
Max Traffic Class:   8
```

```
        ---------------------------------------------------------

        Total Entries Displayed : 1
```

7. Change the willing state so that local willing is `true` **and remote willing is**
`false`**.**

Since local willing state has already been set to `true`, type the following Oracle
Solaris commands to change the remote willing state to `false`.

```
# lldpadm set-atp -p willing=off -a net3 etscfg
# lldpadm show-atp -a net3 etscfg
POSSIBLEAGENT       TLVNAME PROPERTY    PERM VALUE      DEFAULT
net3                etscfg  willing     rw   off
```

8. **Check output on the switch again to verify.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection detail
Port            :    Ex0/21
Show Type       :    Admin Config
Feature         :    Enhanced Transmission Selection
Enable          :    true
Advertise       :    true
Willing         :    true
Priority      :  0     1     2     3     4     5     6     7
Traffic Class :  0     1     2     3     4     5     6     7
Bandwidth     :  40    20    40    0     0     0     0     0
Algorithm     :  2     2     2     2     2     2     2     2
Max Traffic Class:  8

Show Type       :    Oper Config
Feature         :    Enhanced Transmission Selection
Errors          :    0x0 - none
Operational Mode :   true
Syncd with Peer :    false
Priority      :  0     1     2     3     4     5     6     7
Priority      :  0     1     2     3     4     5     6     7
Bandwidth     :  100   0     0     0     0     0     0     0
Algorithm     :  2     2     2     2     2     2     2     2
Max Traffic Class:  8

Show Type       :    Peer Config
Feature         :    Enhanced Transmission Selection
Local Interface :    Ex0/21
Status          :    successful
Enable          :    true
Willing         :    false
Priority      :  0     1     2     3     4     5     6     7
Traffic Class :  0     1     2     3     4     5     6     7
Bandwith      :  100   0     0     0     0     0     0     0
Algorithm     :  2     2     2     2     2     2     2     2
Max Traffic Class:  8

-------------------------------------------------------------

Total Entries Displayed : 1
```

The local operational status has been changed to the remote configuration once the willing state is changed. If the configuration is changed again on the switch, the

operational status and remote configuration is not affected.

```
SEFOS# configure terminal
SEFOS(config)# interfaces extreme-ethernet 0/21
SEFOS(config-if)# set dcb enhanced-transmission-selection 0 1 2 3
4 5 6 7 bandwidth 50 30 20 0 0 0 0 0 algorithm 2 2 2 2 2 2 2 2
SEFOS(config-if)# end
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection detail
Port               :       Ex0/21
Show Type          :       Admin Config
Feature            :       Enhanced Transmission Selection
Enable             :       true
Advertise          :       true
Willing            :       true
Priority      :      0      1      2      3      4      5      6      7
Traffic Class :      0      1      2      3      4      5      6      7
Bandwidth     :     50     30     20      0      0      0      0      0
Algorithm     :      2      2      2      2      2      2      2      2
Max Traffic Class:       8

Show Type          :       Oper Config
Feature            :       Enhanced Transmission Selection
Errors             :       0x0 - none
Operational Mode   :       true
Syncd with Peer    :       false
Priority      :      0      1      2      3      4      5      6      7
Priority      :      0      1      2      3      4      5      6      7
Bandwith      :    100      0      0      0      0      0      0      0
Algorithm     :      2      2      2      2      2      2      2      2
Max Traffic Class:       8

Show Type          :       Peer Config
Feature            :       Enhanced Transmission Selection
Local Interface    :       Ex0/21
Status             :       successful
Enable             :       true
Willing            :       false
Priority      :      0      1      2      3      4      5      6      7
Traffic Class :      0      1      2      3      4      5      6      7
Bandwith      :    100      0      0      0      0      0      0      0
Algorithm     :      2      2      2      2      2      2      2      2
Max Traffic Class:       8

-----------------------------------------------------------

Total Entries Displayed : 1
```

9. **Change the willing state again so that both local willing and remote willing states are** `false`**.**

```
SEFOS# configure terminal
SEFOS(config)# interfaces extreme-ethernet 0/21
SEFOS(config-if)# set dcb enhanced-transmission-selection willing
disable
SEFOS(config-if)# end
```

10. Check output on the switch again to verify.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection detail
Port             :       Ex0/21
Show Type        :       Admin Config
Feature          :       Enhanced Transmission Selection
Enable           :       true
Advertise        :       true
Willing          :       false
Priority       :    0    1    2    3    4    5    6    7
Traffic Class  :    0    1    2    3    4    5    6    7
Bandwidth      :   50   30   20    0    0    0    0    0
Algorithm      :    2    2    2    2    2    2    2    2
Max Traffic Class:   8

Show Type        :       Oper Config
Feature          :       Enhanced Transmission Selection
Errors           :       0x0 - none
Operational Mode :       true
Syncd with Peer  :       false
Priority       :    0    1    2    3    4    5    6    7
Priority       :    0    1    2    3    4    5    6    7
Bandwidth      :   50   30   20    0    0    0    0    0
Algorithm      :    2    2    2    2    2    2    2    2
Max Traffic Class:   8

Show Type        :       Peer Config
Feature          :       Enhanced Transmission Selection
Local Interface  :       Ex0/21
Status           :       successful
Enable           :       true
Willing          :       false
Priority       :    0    1    2    3    4    5    6    7
Traffic Class  :    0    1    2    3    4    5    6    7
Bandwith       :  100    0    0    0    0    0    0    0
Algorithm      :    2    2    2    2    2    2    2    2
Max Traffic Class:   8

--------------------------------------------------------------

Total Entries Displayed : 1
```

The operational configuration is changed back to the admin configuration once the local willing state is set to false.

11. Change the configuration on the switch side.

The operational operation also is changed.

```
SEFOS# configure terminal
SEFOS(config)# interfaces extreme-ethernet 0/21
SEFOS(config-if)# set dcb enhanced-transmission-selection 0 1 2 3
4 5 6 7 bandwidth 40 20 40 0 0 0 0 0 algorithm 2 2 2 2 2 2 2 2
SEFOS(config-if)# end
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection detail

Port              :   Ex0/21
Show Type         :   Admin Config
Feature           :   Enhanced Transmission Selection
Enable            :   true
Advertise         :   true
Willing           :   false
Priority       :  0     1     2     3     4     5     6     7
Traffic Class  :  0     1     2     3     4     5     6     7
Bandwidth      :  40    20    40    0     0     0     0     0
Algorithm      :  2     2     2     2     2     2     2     2
Max Traffic Class:  8

Show Type         :   Oper Config
Feature           :   Enhanced Transmission Selection
Errors            :   0x0 - none
Operational Mode :    true
Syncd with Peer  :    false
Priority       :  0     1     2     3     4     5     6     7
Priority       :  0     1     2     3     4     5     6     7
Bandwidth      :  40    20    40    0     0     0     0     0
Algorithm      :  2     2     2     2     2     2     2     2
Max Traffic Class:  8

Show Type         :   Peer Config
Feature           :   Enhanced Transmission Selection
Local Interface  :    Ex0/21
Status            :   successful
Enable            :   true
Willing           :   false
Priority       :  0     1     2     3     4     5     6     7
Traffic Class  :  0     1     2     3     4     5     6     7
Bandwith       :  100   0     0     0     0     0     0     0
Algorithm      :  2     2     2     2     2     2     2     2
Max Traffic Class:  8
```

```
-----------------------------------------------------------

Total Entries Displayed : 1
```

▼ Configure DCB PFC Attributes

You can set PFC feature attributes. But whether your configuration takes effect depends on the willing state on both local and remote side.

When local willing state is `false`, the new configuration changes the operational status, but changes the remote configuration only if the remote willing state is `true`.

1. **View the original configuration before any change is made.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control detail

Port             :      Ex0/21
Show Type        :      Admin Config
Feature          :      Priority Flow Control
Enable           :      true
Advertise        :      true
Willing          :      false
Priority Mask    :   0     0     0     0     1     0     0     0
Max Traffic Class:      8

Show Type        :      Oper Config
Feature          :      Priority Flow Control
Errors           :      0x0 - none
Operational Mode :      true
Syncd with Peer  :      false
Priority Mask    :   0     0     0     0     1     0     0     0
Max Traffic Class:      8

Show Type        :      Peer Config
Feature          :      Priority Flow Control
Local Interface  :      Ex0/21
Status           :      successful
Enable           :      true
Willing          :      true
Priority Mask    :   0     0     0     0     1     0     0     0
Max Traffic Class:      8

---------------------------------------------------------

Total Entries Displayed : 1
```

The local willing state is `false` and the remote willing state is `true`, so local configuration change are used on both the local switch and the remote Oracle Solaris server.

2. **Configure ETS with different bandwidth alocation.**

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/21
SEFOS(config-if)# set dcb priority-flow-control vlan-priority 0 0
1 1 0 0 0 0
SEFOS(config-if)# end
```

3. **View the configuration to verify that configuration changes have been applied to both the local and remote systems.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control detail

Port               :      Ex0/21
Show Type          :      Admin Config
Feature            :      Priority Flow Control
Enable             :      true
Advertise          :      true
Willing            :      false
Priority Mask   :    0    0    1    1    0    0    0    0
Max Traffic Class:     8

Show Type          :      Oper Config
Feature            :      Priority Flow Control
Errors             :      0x0 - none
Operational Mode :        true
Syncd with Peer  :        true
Priority Mask   :    0    0    1    1    0    0    0    0
Max Traffic Class:     8

Show Type          :      Peer Config
Feature            :      Priority Flow Control
Local Interface  :        Ex0/21
Status             :      successful
Enable             :      true
Willing            :      true
Priority Mask   :    0    0    1    1    0    0    0    0
Max Traffic Class:     8

------------------------------------------------------------

Total Entries Displayed : 1
```

The PFC configuration on the remote server is the same as the local configuration and is synchronized up with the switch.

4. **Change the willing state so that both local and remote willing states are** true**.**

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/21
SEFOS(config-if)# set dcb priority-flow-control willing enable
SEFOS(config-if)# end
```

5. Check output on the switch again to verify.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control detail

Port             :      Ex0/21
Show Type        :      Admin Config
Feature          :      Priority Flow Control
Enable           :      true
Advertise        :      true
Willing          :      true
Priority Mask    :   0     0     1     1     0     0     0     0
Max Traffic Class:      8

Show Type        :      Oper Config
Feature          :      Priority Flow Control
Errors           :      0x0 - none
Operational Mode :      true
Syncd with Peer  :      true
Priority Mask    :   0     0     1     1     0     0     0     0
Max Traffic Class:      8

Show Type        :      Peer Config
Feature          :      Priority Flow Control
Local Interface  :      Ex0/21
Status           :      successful
Enable           :      true
Willing          :      true
Priority Mask    :   0     0     1     1     0     0     0     0
Max Traffic Class:      8

----------------------------------------------------------

Total Entries Displayed : 1
```

6. Change the configuration again on the switch.

The operational and remote configuration is not affected.

```
SEFOS# configure terminal
SEFOS(config)# interfaces extreme-ethernet 0/21
SEFOS(config-if)# set dcb priority-flow-control vlan-priority 0 0
1 0 0 0 0 0
SEFOS(config-if)# end
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control detail
Port            :       Ex0/21
Show Type       :       Admin Config
Feature         :       Priority Flow Control
Enable          :       true
Advertise       :       true
Willing         :       true
Priority Mask   :    0     0     1     0     0     0     0     0
Max Traffic Class:      8

Show Type       :       Oper Config
Feature         :       Priority Flow Control
Errors          :       0x0 - none
Operational Mode :      true
Syncd with Peer :       true
Priority Mask   :    0     0     1     0     0     0     0     0
Max Traffic Class:      8

Show Type       :       Peer Config
Feature         :       Priority Flow Control
Local Interface :       Ex0/21
Status          :       successful
Enable          :       true
Willing         :       true
Priority Mask   :    0     0     1     0     0     0     0     0
Max Traffic Class:      8

------------------------------------------------------------

Total Entries Displayed : 1
```

When both sides are willing to accept the changes, configuration on the interface
with smaller MAC address is used. Port 21 of the switch has the MAC address
00:10:e0:2c:0f:41 and net 3 of the Oracle Solaris server has the MAC address
00:1b:21:bc:b4:89. The preceding output shows that the configuration of the
switch is used.

7. **Change the willing state so that local willing is** `true` **and remote willing is** `false`**.**

Since the local willing state has already been set to `true`, type the following Oracle Solaris commands to change the remote willing state to `false`.

```
# lldpadm set-atp -p willing=off -a net3 pfc
# lldpadm show-atp -a net3 pfc
AGENT       TLVNAME PROPERTY   PERM VALUE       DEFAULT       POSSIBLE
net3          pfc    willing    rw   off           on            on,off
```

8. **Check output on the switch again to verify.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control detail

Port             :      Ex0/21
Show Type        :      Admin Config
Feature          :      Priority Flow Control
Enable           :      true
Advertise        :      true
Willing          :      true
Priority Mask    :    0     0     1     0     0     0     0     0
Max Traffic Class:      8

Show Type        :      Oper Config
Feature          :      Priority Flow Control
Errors           :      0x0 - none
Operational Mode :      true
Syncd with Peer  :      true
Priority Mask    :    0     0     0     1     1     0     0     0
Max Traffic Class:      8

Show Type        :      Peer Config
Feature          :      Priority Flow Control
Local Interface  :      Ex0/21
Status           :      successful
Enable           :      true
Willing          :      false
Priority Mask    :    0     0     0     1     1     0     0     0
Max Traffic Class:      8


-----------------------------------------------------------

Total Entries Displayed : 1
```

The local operational status has been changed to the remote configuration once the willing state is changed.

9. Change the configuration again on the switch.

The operational and remote configuration is not affected.

```
SEFOS# configure terminal
SEFOS(config)# interfaces extreme-ethernet 0/21
SEFOS(config-if)# set dcb priority-flow-control vlan-priority 0 0
1 1 0 0 0 0
SEFOS(config-if)# end
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control detail
Port            :       Ex0/21
Show Type       :       Admin Config
Feature         :       Priority Flow Control
Enable          :       true
Advertise       :       true
Willing         :       true
Priority Mask   :    0     0     1     1     0     0     0     0
Max Traffic Class:      8

Show Type       :       Oper Config
Feature         :       Priority Flow Control
Errors          :       0x0 - none
Operational Mode :      true
Syncd with Peer :       true
Priority Mask   :    0     0     0     1     1     0     0     0
Max Traffic Class:      8

Show Type       :       Peer Config
Feature         :       Priority Flow Control
Local Interface :       Ex0/21
Status          :       successful
Enable          :       true
Willing         :       false
Priority Mask   :    0     0     0     1     1     0     0     0
Max Traffic Class:      8

-------------------------------------------------------------

Total Entries Displayed : 1
```

10. **Show the configuration details.**

   When the local willing and remote willing states are both `false`, the local admin configuration should match the peer's configuration, since neither side is willing to accept the peer's configuration.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control detail
Port            :      Ex0/21
Show Type       :      Admin Config
Feature         :      Priority Flow Control
Enable          :      true
Advertise       :      true
Willing         :      false
Priority Mask   :    0    0    0    1    0    0    0    0
Max Traffic Class:     8

Show Type       :      Oper Config
Feature         :      Priority Flow Control
Errors          :      0x0 - none
Operational Mode :     true
Syncd with Peer :      true
Priority Mask   :    0    0    0    1    0    0    0    0
Max Traffic Class:     8

Show Type       :      Peer Config
Feature         :      Priority Flow Control
Local Interface :      Ex0/21
Status          :      successful
Enable          :      true
Willing         :      false
Priority Mask   :    0    0    0    1    0    0    0    0
Max Traffic Class:     8

--------------------------------------------------------

Total Entries Displayed : 1
```

▼ Configure DCB APP features

There is no direct way to configure the application priority feature. But the application priority map is always the same as the PFC priority map.

1. Check the current application priority configuration.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
application-etype-fcoe detail
Port            :       Ex0/21
Show Type       :       Admin Config
Feature         :       Application FCoE
Enable          :       true
Advertise       :       true
Priority Map    :   0     0     1     0     0     0     0     0


Show Type       :       Oper Config
Feature         :       Application FCoE
Errors          :       0x0 – none
Priority Map    :   0     0     1     0     0     0     0     0

Show Type       :       Peer Config
Feature         :       Application FCoE
Local Interface :       Ex0/21
Priority Map    :   0     0     1     0     0     0     0     0


-------------------------------------------------------------

Total Entries Displayed : 1
```

2. Change the PFC priority map.

```
SEFOS# configure terminal
SEFOS(config)# interfaces extreme-ethernet 0/21
SEFOS(config-if)# set dcb priority-flow-control vlan-priority 0 0
0 1 0 0 0 0
SEFOS(config-if)# end
SEFOS# show interfaces extreme-ethernet 0/21 dcb
application-etype-fcoe detail
Port            :      Ex0/21
Show Type       :      Admin Config
Feature         :      Application FCoE
Enable          :      true
Advertise       :      true
Priority Map    :   0     0     0     1     0     0     0     0

Show Type       :      Oper Config
Feature         :      Application FCoE
Errors          :      0x0 - none
Priority Map    :   0     0     0     1     0     0     0     0

Show Type       :      Peer Config
Feature         :      Application FCoE
Local Interface :      Ex0/21
Priority Map    :   0     0     1     0     0     0     0     0

-----------------------------------------------------------

Total Entries Displayed : 1
```

Since the application priority is only informative, the configuration on both sides
do not affect each other.

▼ Configure LLDP DCBX TLVs

You can enable or disable the transmission of DCBX TLV (type, length, value) types
on a port. This example uses port 0/21.

1. **Enable DCBX TLVs for ETS, PFC, and the application.**

```
SEFOS# configure terminal
SEFOS(config)# interface extreme-ethernet 0/21
SEFOS(config-if)# lldp tlv-select dcb1tlv
enhanced-transmission-selection priority-flow-control
application-etype-fcoe
SEFOS(config)# end
```

2. **View the TLV settings.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection

Port               :        Ex0/21
Show Type          :        Admin Config
Feature            :        Enhanced Transmission Selection
Enable             :        true
Advertise          :        true
Willing            :        false
Priority        :     0     1     2     3     4     5     6     7
Traffic Class   :     0     1     2     3     4     5     6     7
Bandwidth       :    40    20    40     0     0     0     0     0
Algorithm       :     2     2     2     2     2     2     2     2
Max Traffic Class:    8
```

3. **View the PFC settings.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control

Port               :        Ex0/21
Show Type          :        Admin Config
Feature            :        Priority Flow Control
Enable             :        true
Advertise          :        true
Willing            :        false
Priority Mask   :     0     0     0     0     1     0     0     0
Max Traffic Class:    8
```

4. **View the application settings.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
application-etype-fcoe

Port               :        Ex0/21
```

```
Show Type       :       Admin Config
Feature         :       Application FCoE
Enable          :       true
Advertise       :       true
Priority Map :     0     0     0     0     1     0     0     0
```

5. Disable DCBX TLVs for ETS, PFC, and the application.

```
SEFOS# configure terminal
SEFOS(config-if)# no lldp tlv-select dcb1tlv
enhanced-transmission-selection priority-flow-control
application-etype-fcoe
SEFOS(config-if)# end
```

6. View the TLV settings after disabling them for the ETS.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
enhanced-transmission-selection

Port             :       Ex0/21
Show Type        :       Admin Config
Feature          :       Enhanced Transmission Selection
Enable           :       false
Advertise        :       false
Willing          :       false
Priority      :     0     1     2     3     4     5     6     7
Traffic Class :     0     1     2     3     4     5     6     7
Bandwidth     :    40    20    40     0     0     0     0     0
Algorithm     :     2     2     2     2     2     2     2     2
Max Traffic Class:   8
```

7. View the TLV settings after disabling them for the PFC.

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
priority-flow-control

Port             :       Ex0/21
Show Type        :       Admin Config
Feature          :       Priority Flow Control
Enable           :       false
Advertise        :       false
Willing          :       false
Priority Mask :    0     0     0     0     1     0     0     0
Max Traffic Class:   8
```

8. **View the TLV settings after disabling them for the PFC.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb
application-etype-fcoe

Port          :      Ex0/21
Show Type     :      Admin Config
Feature       :      Application FCoE
Enable        :      false
Advertise     :      false
Priority Map :    0     0     0     0     1     0     0     0
```

▼ Show DCBX Feature Statistics and Control Information

- **Type.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb counters
Port                  :   Ex0/21
Show Type             :   Control and Feature Stats
Priority Group        :
  Frames Out          :   29
  Frames In           :   5

Priority Flow Control:
  Frames Out          :   21
  Frames In           :   7

Application Proto     :
  Frames Out          :   17
  Frames In           :   5
```

▼ Display Output of Unstarted DCBX Protocol Exchange

● **Type.**

```
SEFOS# show interfaces extreme-ethernet 0/21 dcb counters
Port                   :  Ex0/21
Show Type              :  Control and Feature Stats
Priority Group         :
  Frames Out           :  0
  Frames In            :  0

Priority Flow Control:
  Frames Out           :  0
  Frames In            :  0

Application Proto      :
  Frames Out           :  0
  Frames In            :  0
```

All controls and features are zeroes, which indicates that the DCBX protocol exchange has not yet been started.

▼ Clear Feature Statistics

● **Type.**

```
SEFOS# clear interfaces extreme-ethernet 0/2 dcb counters
SEFOS# show interfaces extreme-ethernet 0/2 dcb counters

Port                   :  Ex0/21
Show Type              :  Control and Feature Stats
Priority Group         :
  Frames Out           :  0
  Frames In            :  0

Priority Flow Control:
  Frames Out           :  0
  Frames In            :  0
```

```
Application Proto    :
  Frames Out         :  0
  Frames In          :  0
```

▼ Display Output Showing a Down Link

● **Type.**

```
SEFOS# show interfaces extreme-ethernet 0/3 dcb counters

Port                 :  Ex0/3
Show Type            :  Control and Feature Stats
Status               :  Link Down

SEFOS# show interfaces extreme-ethernet 0/3 description

Interface    Status    Protocol
---------    ------    --------
Ex0/3        down      down
```