F Commands

This chapter describes the Cisco NX-OS Fibre Channel, virtual Fibre Channel, and Fibre Channel over Ethernet (FCoE) commands that begin with F.

fabric profile

To utilize a preset quality of service (QoS) setting, use the **fabric profile** command. To restore the default, use the **no** form of this command.

fabric profile {**reliable-multicast** | **unicast-optimized**}

no fabric profile

Syntax Description

reliable-multicast	Optimizes the QoS parameters in the fabric to ensure reliable delivery of multicast traffic.
unicast-optimized	Optimizes the QoS parameters in the fabric for unicast traffic.

Command Default

Unicast-optimized

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to set the fabric to ensure reliable delivery of multicast traffic:

```
switch(config)# fabric profile reliable-multicast
```

This example shows how to set the fabric profile to the default value:

```
switch(config)# no fabric profile
```

Related Commands

Command	Description
show fabric profile	Displays the current setting of the fabric.

fabric-binding activate

To activate fabric binding in a Virtual SAN (VSAN), use the **fabric-binding activate** command. To disable this feature, use the **no** form of this command.

fabric-binding activate vsan *vsan-id* [**force**]

no fabric-binding activate vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies the VSAN. The ID of the VSAN is from 1 to 4093.
force	(Optional) Forces fabric binding activation.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to activate the fabric binding database for the specified VSAN:

```
switch(config)# fabric-binding activate vsan 1
```

This example shows how to deactivate the fabric binding database for the specified VSAN:

```
switch(config)# no fabric-binding activate vsan 10
```

This example shows how to forcefully activate the fabric binding database for the specified VSAN:

```
switch(config)# fabric-binding activate vsan 3 force
```

This example shows how to revert to the previously configured state or to the factory default (if no state is configured):

```
switch(config)# no fabric-binding activate vsan 1 force
```

Related Commands

Command	Description
fabric-binding database	Configures a fabric-binding database.
fabric-binding enable	Enables fabric-binding.

fabric-binding database copy

To copy from the active fabric binding database to the configuration fabric binding database, use the **fabric-binding database copy** command.

fabric-binding database copy vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies the Virtual SAN (VSAN). The ID of the VSAN is from 1 to 4093.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Fabric binding is configured on a per-VSAN basis and can be implemented in both FICON VSANs and Fibre Channel VSANs.

If the configured database is empty, this command is not accepted.

Examples

This example shows how to copy from the active database to the configuration database in VSAN 1:

```
switch# fabric-binding database copy vsan 1
```

Related Commands

Command	Description
fabric-binding diff	Provides the differences between the fabric-binding databases.

fabric-binding database diff

To view the differences between the active database and the configuration database in a Virtual SAN (VSAN), use the **fabric-binding database diff** command.

fabric-binding database diff {**active** | **config**} **vsan** *vsan-id*

Syntax Description

active	Provides information about the differences in the active database relating to the configuration database.
config	Provides information about information on the differences in the configuration database relating to the active database.
vsan *vsan-id*	Specifies the VSAN. The ID of the VSAN is from 1 to 4093.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Fabric binding is configured on a per-VSAN basis and can be implemented in both FICON VSANs and Fibre Channel VSANs.

Examples

This example shows how to display the differences between the active database and the configuration database in VSAN 1:

```
switch# fabric-binding database diff active vsan 1
```

This example shows how to display information about the differences between the configuration database and the active database:

```
switch# fabric-binding database diff config vsan 1
```

Related Commands

Command	Description
fabric-binding copy	Copies from the active to the configuration fabric binding database.

fabric-binding database vsan

To configure a user-specified fabric binding list in a Virtual SAN (VSAN), use the **fabric-binding database vsan** command. To disable the fabric binding, use the **no** form of this command.

fabric-binding database vsan *vsan-id*
swwn *switch-wwn* **domain** *domain-id*

fabric-binding database vsan *vsan-id*
no swwn *switch-wwn* **domain** *domain-id*

no fabric-binding database vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies the VSAN. The ID of the VSAN is from 1 to 4093.
swwn *switch-wwn*	Configures the switch WWN in dotted hexadecimal format.
domain *domain-id*	Specifies the specified domain ID. The domain ID is a number from 1 to 239.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Fabric binding is configured on a per-VSAN basis. In a Fibre Channel VSAN, only the switch world wide name (sWWN) is required; the domain ID is optional.

A user-specified fabric binding list contains a list of switch WWNs (sWWNs) within a fabric. If an sWWN attempts to join the fabric and that sWWN is not on the list, or the sWWN is using a domain ID that differs from the one specified in the allowed list, the ISL between the switch and the fabric is automatically isolated in that VSAN and the switch is denied entry into the fabric.

Examples

This example shows how to enter the fabric binding database mode and adds the sWWN and domain ID of a switch to the configured database list:

```
switch(config)# fabric-binding database vsan 5
switch(config-fabric-binding)# swwn 21:00:05:30:23:11:11:11 domain 102
```

This example shows how to delete a fabric binding database for the specified VSAN:

```
switch(config)# no fabric-binding database vsan 10
```

This example shows how to delete the sWWN and domain ID of a switch from the configured database list:

```
switch(config)# fabric-binding database vsan 5
```

```
switch(config-fabric-binding)# no swwn 21:00:15:30:23:1a:11:03 domain 101
```

Related Commands

Command	Description
fabric-binding activate	Activates fabric binding.
fabric-binding enable	Enables fabric binding.

fabric-binding enable

To enable fabric binding in a Virtual SAN (VSAN), use the **fabric-binding enable** command. To disable fabric binding, use the **no** form of this command.

fabric-binding enable

no fabric-binding enable

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Fabric binding is configured on a per-VSAN basis.

The fabric binding feature must be enabled in each switch in the fabric that participates in the fabric binding.

Examples

This example shows how to enable fabric binding on the switch:

```
switch(config)# fabric-binding enable
```

This example shows how to disable fabric binding on the switch:

```
switch(config)# no fabric-binding enable
```

Related Commands

Command	Description
fabric-binding activate	Activates fabric binding.
fabric-binding database	Configures a fabric-binding database.

fc-port-security

To configure port security features and reject intrusion attempts, use the **fc-port-security** command. To negate the command or revert to the factory defaults, use the **no** form of this command.

fc-port-security {**activate vsan** *vsan-id* [**force** | **no-auto-learn**] | **auto-learn vsan** *vsan-id* | **database vsan** *vsan-id*}

no fc-port-security {**activate vsan** *vsan-id* [**force** | **no-auto-learn**] | **auto-learn vsan** *vsan-id* | **database vsan** *vsan-id*}

Syntax Description

activate	Activates a port security database for the specified VSAN and automatically enables auto-learning.
vsan *vsan-id*	Specifies the Virtual SAN (VSAN) ID. The range is from 1 to 4093.
force	(Optional) Forces the database activation.
no-auto-learn	(Optional) Disables the auto-learning feature for the port security database.
auto-learn	Enables auto-learning for the specified VSAN.
database	Enters the port security database configuration mode for the specified VSAN.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

When you activate the port security feature, the **auto-learn** option is also automatically enabled. You can choose to activate the fc-port-security feature and disable auto-learning by using the **fc-port-security activate vsan** *number* **no-auto-learn** command. In this case, you need to manually populate the port security database by individually securing each port.

If the **auto-learn** option is enabled on a VSAN, you cannot activate the database for that VSAN without the **force** option.

Examples

This example shows how to activate the port security database for the specified VSAN and automatically enable auto-learning:

```
switch(config)# fc-port-security activate vsan 1
```

This example shows how to deactivate the port security database for the specified VSAN and automatically disable auto-learning:

```
switch(config)# no fc-port-security activate vsan 1
```

This example shows how to disable the auto-learning feature for the port security database in VSAN 1:

```
switch(config)# fc-port-security activate vsan 1 no-auto-learn
```

This example shows how to enable auto-learning so the switch can learn about any device that is allowed to access VSAN 1. These devices are logged in the port security active database.

```
switch(config)# fc-port-security auto-learn vsan 1
```

This example shows how to disable auto-learning and stops the switch from learning about new devices accessing the switch:

```
switch(config)# no fc-port-security auto-learn vsan 1
```

This example shows how to enter the port security database mode for the specified VSAN:

```
switch(config)# fc-port-security database vsan 1
switch(config-fc-port-security)#
```

This example shows how to force the VSAN 1 port security database to activate even if there are conflicts:

```
switch(config)# fc-port-security activate vsan 1 force
```

Related Commands

Command	Description
show fc-port-security database	Displays configured port security information.

fc-port-security abort

To discard the port security Cisco Fabric Services (CFS) distribution session in progress, use the **fc-port-security abort** command.

fc-port-security abort vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies the VSAN ID. The range is from 1 to 4093.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to discard a port security CFS distribution session in progress:

```
switch(config)# fc-port-security abort vsan 33
```

Related Commands

Command	Description
fc-port-security distribute	Enables CFS distribution for port security.
show fc-port-security	Displays port security information.

fc-port-security commit

To apply the pending configuration pertaining to the port security Cisco Fabric Services (CFS) distribution session in progress in the fabric, use the **fc-port-security commit** command.

fc-port-security commit vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies the VSAN ID. The range is from 1 to 4093.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to commit changes to the active port security configuration:

```
switch(config)# fc-port-security commit vsan 13
```

Related Commands

Command	Description
fc-port-security distribute	Enables CFS distribution for port security.
show fc-port-security	Displays port security information.

fc-port-security database

To copy the port security database or to view the difference within the port security database, use the **fc-port-security database** command.

fc-port-security database {**copy** | **diff** {**active** | **config**}} **vsan** *vsan-id*

Syntax Description

copy	Copies the active database to the configuration database.
diff	Provides the difference between the active and configuration port security database.
active	Writes the active database to the configuration database.
config	Writes the configuration database to the active database.
vsan *vsan-id*	Specifies the VSAN ID. The ranges is from 1 to 4093.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

If the active database is empty, the fc-port-security database is empty. Use the **fc-port-security database diff active** command to resolve conflicts.

Examples

This example shows how to copy the active database to the configured database:

```
switch# fc-port-security database copy vsan 1
```

This example shows how to provide the differences between the active database and the configuration database:

```
switch# fc-port-security database diff active vsan 1
```

This example shows how to provide information on the differences between the configuration database and the active database:

```
switch# fc-port-security database diff config vsan 1
```

Related Commands

Command	Description
fc-port-security database	Copies and provides information on the differences within the port security database.
show fc-port-security database	Displays configured port security information.

fc-port-security distribute

To enable Cisco Fabric Services (CFS) distribution for port security, use the **fc-port-security distribute** command. To disable this feature, use the **no** form of this command.

fc-port-security distribute

no fc-port-security distribute

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Before distributing the Fibre Channel timer changes to the fabric, the temporary changes to the configuration must be committed to the active configuration by using the **fc-port-security commit** command.

Examples

This example shows how to distribute the port security configuration to the fabric:

```
switch(config)# fc-port-security distribute
```

Related Commands

Command	Description
fc-port-security commit	Commits the port security configuration changes to the active configuration.
show fc-port-security	Displays port security information.

fcalias clone

To clone a Fibre Channel alias, use the **fcalias clone** command.

fcalias clone *origFcalias-Name cloneFcalias-Name* **vsan** *vsan-id*

Syntax Description

origFcalias-Name cloneFcalias-Name	Fibre Channel alias. The name can be a maximum of 64 characters.
vsan	Specifies the clone Fibre Channel alias for a Virtual SAN (VSAN).
vsan-id	VSAN ID. The range is from 1 to 4093.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

To disable a Fibre Channel alias, use the **no** form of the **fcalias name** command.

Examples

This example shows how to clone a fcalias called origAlias to cloneAlias on VSAN 45:

```
switch(config)# fcalias clone origAlias cloneAlias vsan 45
```

Related Commands

Command	Description
show fcalias	Displays the member name information in a Fibre Channel alias (fcalias).

fcalias name

To configure a Fibre Channel alias, use the **fcalias name** command. To disable a Fibre Channel alias, use the **no** form of this command.

fcalias name *alias-name* **vsan** *vsan-id*

no fcalias name *alias-name* **vsan** *vsan-id*

Syntax Description

alias-name	Name of the fcalias. The name can a maximum of 64 characters.
vsan	Specifies the fcalias for a Virtual SAN (VSAN).
vsan-id	VSAN ID. The range is from 1 to 4093.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

To include multiple members in any alias, use the FCID, fWWN, or pWWN values.

Examples

This example shows how to configure an fcalias called AliasSample on VSAN 3:

```
switch(config)# fcalias name AliasSample vsan 3
switch(config-fcalias)#
```

Related Commands

Command	Description
member (fcalias configuration mode)	Configures alias members for a specified zone.

fcalias rename

To rename a Fibre Channel alias (fcalias), use the **fcalias rename** command. To revert to the defaults, use the **no** form of this command.

fcalias rename *current-name new-name* **vsan** *vsan-id*

no fcalias rename *current-name new-name* **vsan** *vsan-id*

Syntax Description

current-name	Current fcalias name. The name can be a maximum of 64 characters.
new-name	New fcalias name. The name can be a maximum of 64 characters.
vsan *vsan-id*	Specifies the VSAN ID. The range is from 1 to 4093.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to rename an fcalias:

```
switch(config)# fcalias rename oldalias newalias vsan 10
```

Related Commands

Command	Description
fcalias name	Configures fcalias names.
show fcalias	Displays fcalias information.

fcdomain

To configure the Fibre Channel domain feature, use the **fcdomain** command. To disable the Fibre Channel domain, use the **no** form of this command.

fcdomain {**allowed** *domain* **vsan** *vsan-id* | **auto-reconfigure vsan** *vsan-id* | **contiguous-allocation vsan** *vsan-id* | **domain** *id* {**preferred** | **static**} **vsan** *vsan-id* | **fabric-name** *name* **vsan** *vsan-id* | **fcid** {**database** | **persistent vsan** *vsan-id*} | **optimize fast-restart vsan** *vsan-id* | **priority** *value* **vsan** *vsan-id* | **restart** [**disruptive**] **vsan** *vsan-id* | **vsan** *vsan-id*}

no fcdomain {**allowed** *domain* **vsan** *vsan-id* | **auto-reconfigure vsan** *vsan-id* | **contiguous-allocation vsan** *vsan-id* | **domain** *id* {**preferred** | **static**} **vsan** *vsan-id* | **fabric-name** *name* **vsan** *vsan-id* | **fcid** {**database** | **persistent vsan** *vsan-id*} | **optimize fast-restart vsan** *vsan-id* | **priority** *value* **vsan** *vsan-id* | **restart** [**disruptive**] **vsan** *vsan-id* | **vsan** *vsan-id*}

Syntax Description

allowed *domain*	Configures the allowed domain ID list ranging from 1 to 239.
vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.
auto-reconfigure	Configures autoreconfigure.
contiguous-allocation	Configures contiguous allocation.
domain *id*	Configures the domain ID and its type. The range is from 0 to 239.
preferred	Configures the domain ID as preferred. By default, the local switch accepts the domain ID assigned by the principal switch and the assigned domain ID becomes the runtime domain ID.
static	Configures the domain ID as static. The assigned domain ID is discarded, all local interfaces are isolated, and the local switch assigns itself the configured domain ID, which becomes the runtime domain ID.
fabric-name *name*	Specifies the fabric name. The name format is *hh***:***hh***:***hh***:***hh***:***hh***:***hh***:***hh***:***hh*.
fcid	Configures Fibre Channel domain persistent FC IDs.
database	Enters persistent FC IDs mode.
persistent	Enables or disables Fibre Channel domain persistent FC IDs.
optimize fast-restart	Enables a domain manager fast restart on a specified VSAN.
priority *value*	Specifies the Fibre Channel domain priority. The range is from 1 to 254.
restart	Starts a disruptive or nondisruptive reconfiguration.
disruptive	(Optional) Forces the disruptive fabric reconfiguration.

Command Default

Enabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You can use this command to select the principal switch, configure domain ID distribution, reconfigure the fabric, and allocate FC IDs.

We recommend using the **optimize fast-restart** option on most fabrics, especially those with a large number of logical ports (3200 or more), where a logical port is an instance of a physical port in a VSAN.

Examples

This example shows how to configure a preferred domain ID for VSAN 87:

```
switch(config)# fcdomain domain 3 preferred vsan 87
```

This example shows how to specify the disruptive fabric reconfiguration for VSAN 1:

```
switch(config)# fcdomain restart disruptive vsan 1
```

This example shows how to enable the domain manager fast restart for VSANs 7 through 10:

```
switch(config)# fcdomain optimize fast-restart vsan 7 - 10
```

This example shows how to configure the fabric world wide name (fWWN) for VSAN 3:

```
switch(config)# fcdomain fabric-name 20:1:ac:16:5e:0:21:01 vsan 3
```

Related Commands

Command	Description
show fcdomain	Displays global information about the Fibre Channel domain configurations.

fcdomain abort vsan

To flush cached data without committing the cached data and release the lock, use the **fcdomain abort vsan** command. To disable the flushing of cached data, use the **no** form of this command.

fcdomain abort vsan *vsan-id*

no fcdomain abort vsan *vsan-id*

Syntax Description

vsan-id	Virtual SAN (VSAN) ID. The range is from 1 to 4093.

Command Default

Enabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to flush cached data:

```
switch(config)# fcdomain abort vsan 10
```

Related Commands

Command	Description
fcdomain	Configures Fibre Channel domain features.
fcdomain commit vsan	Commits cached data and releases the lock.
show fcdomain	Displays global information about the Fibre Channel domain configurations.

fcdomain commit vsan

To commit cached data and release the lock, use the **fcdomain commit vsan** command. To release the lock without committing the cached data, use the **no** form of this command.

fcdomain commit vsan *vsan-id*

no fcdomain commit vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

Enabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to commit cached data:

```
switch(config)# fcdomain commit vsan 10
```

Related Commands

Command	Description
fcdomain	Configures Fibre Channel domain features.
fcdomain abort vsan	Flushes cached data without committing and releases the lock.
show fcdomain	Displays global information about the Fibre Channel domain configurations.

fcdomain distribute

To enable fabric distribution using Cisco Fabric Services (CFS), use the **fcdomain distribute** command. To disable fabric distribution using CFS, use the **no** form of this command.

fcdomain distribute

no fcdomain distribute

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to enable the fabric distribution using CFS:

```
switch(config)# fcdomain distribute
```

This example shows how to disable the fabric distribution using CFS:

```
switch(config)# no fcdomain distribute
```

Related Commands

Command	Description
fcdomain	Configures Fibre Channel domain features.
show fcdomain	Displays global information about the Fibre Channel domain configurations.

fcdomain rcf-reject

To enable the reconfigure fabric (RCF) rejection flag for a Fibre Channel interface, use the **fcdomain rcf-reject** command. To disable this feature, use the **no** form of this command.

fcdomain rcf-reject vsan *vsan-id*

no fcdomain rcf-reject vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies a Virtual SAN (VSAN) ID. The range is from 1 to 4093.

Command Default

Enabled

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Use this command to configure the RCF reject option for the selected Fibre Channel or virtual Fibre Channel interface.

Examples

This example shows how to configure the FCIP RCF reject fcdomain feature on a virtual Fibre Channel interface:

```
switch(config)# interface vfc 3
switch(config-if)# fcdomain rcf-reject vsan 1
```

Related Commands

Command	Description
show fcdomain	Displays global information about the Fibre Channel domain configurations.
show interface fc	Displays an interface configuration for a specified Fibre Channel interface.

fcdroplatency

To configure the network and switch Fibre Channel drop latency time, use the **fcdroplatency** command. To disable the Fibre Channel latency time, use the **no** form of this command.

fcdroplatency {**network** *milliseconds* [**vsan** *vsan-id*] | **switch** *milliseconds*}

no fcdroplatency {**network** *milliseconds* [**vsan** *vsan-id*] | **switch** *milliseconds*}

Syntax Description

network *milliseconds*	Specifies network latency. The range is from 500 to 60000.
vsan *vsan-id*	(Optional) Specifies a Virtual SAN (VSAN) ID. The range is from 1 to 4093.
switch *milliseconds*	Specifies switch latency. The range is from 0 to 60000 milliseconds.

Command Default

2000 millisecond network latency
500 millisecond switch latency

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to configure the network latency to 5000 milliseconds:

```
switch(config)# fcdroplatency network 5000
```

This example shows how to revert to the default switch latency:

```
switch(config)# no fcdroplatency switch 4000
```

Related Commands

Command	Description
show fcdroplatenc	Displays the configured Fibre Channel drop latency parameters.

fcflow stats

To configure fcflow statistics, use the **fcflow stats** command. To disable the counter, use the **no** form of this command.

fcflow stats {**aggregated index** *flow-number* **vsan** *vsan-id* | **index** *flow-number destination-fcid source-fcid netmask* **vsan** *vsan-id*}

no fcflow stats {**aggregated index** *flow-number* | **index** *flow-number*}

Syntax Description

aggregated	Configures aggregated fcflow statistics.
index *flow-number*	Specifies a flow index. The range is from 1 to 2147483647.
vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.
destination-fcid	Destination FCID in hexadecimal format.
source-fcid	Source FCID in hexadecimal format.
netmask	Mask for the source and destination FCID (restricted to 6 hexadecimal characters ranging from 0xff0000 to 0xffffff).

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

If you enable flow counters, you can enable a maximum of 1024 entries for aggregate flow and flow statistics. Be sure to assign an unused flow index for each new flow. The number space for the flow index is shared between the aggregate flow statistics and the flow statistics.

Examples

This example shows how to enable the aggregated flow counter:

```
switch(config)# fcflow stats aggregated index 1005 vsan 1
```

This example shows how to disable the aggregated flow counter:

```
switch(config)# no fcflow stats aggregated index 1005
```

This example shows how to enable the flow counter for a specific flow:

```
switch(config)# fcflow stats index 1 0x145601 0x5601 0xffffff vsan 1
```

This example shows how to disable the flow counter for index 1001:

```
switch(config)# no fcflow stats index 1001
```

Related Commands

Command	Description
show fcflow stats	Displays the configured Fibre Channel drop latency parameters.

fcid-allocation

To manually add a FCID to the default area company ID list, use the **fcid-allocation** command. To remove a FCID from the default area company ID list, use the **no** form of this command.

fcid-allocation area company-id *company-id*

no fcid-allocation area company-id *company-id*

Syntax Description

area	Modifies the auto area list of company IDs.
company-id *company-id*	Configures the company IDs.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Fibre Channel standards require a unique FCID to be allocated to an N port attached to a Fx port in any switch. To conserve the number of FCIDs used, Cisco Nexus 5000 Series switches use a special allocation scheme.

Some Host Bust Adaptors (HBAs) do not discover targets that have FC IDs with the same domain and area. The switch software maintains a list of tested company IDs that do not exhibit this behavior. These HBAs were allocated with single FC IDs, and for others a full area was allocated.

To allow further scalability for switches with numerous ports, the switch software maintains a list of HBAs that exhibit this behavior. Each HBA is identified by its company ID (also known as an Organizational Unique Identifier, or OUI) used in the pWWN during a fabric login. A full area is allocated to the N ports with company IDs that are listed and for the others, a single FC ID is allocated. Regardless of the type (whole area or single) of FC ID allocated, the FC ID entries remain persistent.

Examples

This example shows how to add a new company ID to the default area company ID list:

```
switch(config)# fcid allocation area company-id 0x003223
```

Related Commands

Command	Description
show fcid-allocation	Displays the Fibre Channel area list of company IDs.

fcinterop fcid-allocation

To allocate FCIDs on the switch, use the **fcinterop fcid-allocation** command. To disable FCIDs on the switch, use the **no** form of this command.

fcinterop fcid-allocation {**auto** | **flat** | **none**}

no fcinterop fcid-allocation {**auto** | **flat** | **none**}

Syntax Description

auto	Assigns a single FCID to compatible HBAs.
flat	Assign a single FCID.
none	Assigns an FCID range.

Command Default

The default is automatic allocation of FCIDs.

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command defines how the switch assigns FCIDs.

Examples

This example shows how to set the FCID allocation to flat:

```
switch(config)# fcinterop fcid-allocation flat
```

Related Commands

Command	Description
show flogi database	Displays the fabric login (FLOGI) table.

fcns no-auto-poll

To enable or disable automatic polling in the name server database, use the **fcns no-auto-poll** command.

fcns no-auto-poll [**vsan** *vsan-id*] | [**wwn** *wwn-id*]

no fcns no-auto-poll [**vsan** *vsan-id*] | [**wwn** *wwn-id*]

Syntax Description

vsan *vsan-id*	(Optional) Specifies a Virtual SAN (VSAN) ID. The range is from 1 to 4093.
wwn *wwn-id*	(Optional) Specifies the port WWN, with the format *hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to disable automatic polling for VSAN 2:

```
switch(config)# fcns no-auto-poll vsan 2
```

Related Commands

Command	Description
show fcns	Displays the name server database and statistical information for a specified VSAN or for all VSANs.

fcns proxy-port

To register a name server proxy, use the **fcns proxy-port** command.

fcns proxy-port *wwn-id* **vsan** *vsan-id*

no fcns proxy-port *wwn-id* **vsan** *vsan-id*

Syntax Description

wwn-id	Port WWN, with the format *hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*.
vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

One name server can be configured to proxy another name server, and the name server information can be displayed using the CLI. The name server can be viewed using the CLI or the Cisco Fabric Manager.

All name server registration requests come from the same port whose parameter is registered or changed. If it does not, then the request is rejected.

Examples

This example shows how to configure a proxy port for VSAN 2:

```
switch(config)# fcns proxy-port 21:00:00:e0:8b:00:26:d vsan 2
```

Related Commands

Command	Description
show fcns	Displays the name server database and statistical information for a specified VSAN or for all VSANs.

fcns reject-duplicate-pwwn vsan

To reject duplicate Fibre Channel name server (FCNS) proxies on a Virtual SAN (VSAN), use the **fcns reject-duplicate-pwwn vsan** command.

fcns reject-duplicate-pwwn vsan *vsan-id*

no fcns reject-duplicate-pwwn vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to reject duplicate FCNS pWWNs for VSAN 2:

```
switch(config)# fcns reject-duplicate-pwwn vsan 2
```

Related Commands

Command	Description
show fcns	Displays the name server database and statistical information for a specified VSAN or for all VSANs.

fcoe

To associate a Cisco Nexus 2000 Series Fabric Extender (FEX) to a switch for pinning Fibre Channel over Ethernet (FCoE) Initialization Protocol (FIP) and FCoE traffic, use the **fcoe** command. To remove the association, use the **no** form of this command.

fcoe [**vsan** *vsan-id*]

no fcoe [**vsan**]

Syntax Description

vsan *vsan-id*	Specifies the VSAN status. The VSAN ID range is from 1 to 4094.

Command Default

None

Command Modes

FEX configuration mode
VLAN configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, make sure that you enable the Fabric Extender (FEX) features on the switch by using the **feature fex** command.

You can use this command only on a Cisco Nexus 2232P Fabric Extender. When you bind an interface to a virtual Fibre Channel interface to enable FCoE traffic, you must use slot number 1. The port number can be from 1 to 32.

Examples

This example shows how to configure a FEX as FCoE enabled:

```
switch# configure terminal
switch(config)# feature fex
switch(config)# fex 100
switch(config-fex)# fcoe
switch(config-fex)#
```

This example shows how to configure a pair of FEXs to carry FCoE traffic in a fabric virtual port channel (vPC) topology, with the host uplink ports in the FEXs configured to the same port channel:

```
switch# configure terminal
switch(config)# feature lacp
switch(config)# feature fex
switch(config)# feature fcoe
switch(config)# fex 100
switch(config-fex)# fcoe
switch(config-fex)# exit
switch(config)# interface vfc 1
switch(config-if)# bind interface eth101/1/1
```

```
switch(config)# interface eth101/1/1
switch(config-if)# channel-group 1
switch(config)# fex 102
switch(config-fex)# fcoe
switch(config)# interface vfc 1
switch(config-if)# bind interface eth102/1/2
switch(config)# interface eth102/1/2
switch(config-if)# channel-group 1
switch(config-if)#
```

This example shows how to configure FCoE traffic on a VLAN:

```
switch# configure terminal
switch(config)# vlan 5
switch(config-vlan)# fcoe vsan 1
switch(config-vlan)#
```

This example shows how to disable FCoE on a FEX:

```
switch# configure terminal
switch(config)# fex 100
switch(config-fex)# no fcoe
switch(config-fex)#
```

Related Commands

Command	Description
feature fcoe	Enables the FCoE feature on the switch.
feature fex	Enables the FEX feature on the switch.
feature lacp	Enables the Link Aggregation Control Protocol (LACP).
show fex	Displays information about a specific FEX.

fcoe fcf-priority

To configure the FCoE Initialization Protocol (FIP) priority value advertised by the Fibre Channel Forwarder (FCF) to FCoE nodes (ENodes), use the **fcoe fcf-priority** command. To revert to the default FCF priority value, use the **no** form of this command.

fcoe fcf-priority *value*

no fcoe fcf-priority *value*

Syntax Description

value	FCF priority value. The range is from 0 to 255, and the default is 128.

Command Default

128

Command Modes

Global configuration mode
Interface vFC mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, you must enable FCoE on the switch by using the **feature fcoe** command.

The Cisco Nexus 5000 Series switch advertises its priority. The priority is used by the converged network adapters (CNAs) in the fabric to determine the best switch to connect to.

Examples

This example shows how to configure the FCF priority on the switch:

```
switch(config)# fcoe fcf-priority 50
switch(config)#
```

Related Commands

Command	Description
fcoe fcmap	Configures the FCoE MAC address prefix (FC-Map) value.
fcoe fka-adv-period	Configures the time interval at which FIP keep alive (FKA) messages are transmitted to the MAC address of the ENode.
feature fcoe	Enables FCoE on the switch.
show fcoe	Displays the FCoE parameters, such as FC-Map, default FCF priority value, and FKA advertisement period.

fcoe fcmap

To configure the FCoE MAC address prefix (FC-Map) used to associate the FCoE node (ENode), use the **fcoe fcmap** command. To restore the default global FC-Map value of 0xefc00, use the **no** form of this command.

fcoe fcmap *value*

no fcoe fcmap *value*

Syntax Description

value	FC-Map value. The range is from 0xefc00 to 0xefcff, and the default is 0xefc00.

Command Default

0xefc00

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, you must enable FCoE on the switch by using the **feature fcoe** command.

You can prevent data corruption due to cross-fabric talk by configuring an FC-Map, which identifies the Fibre Channel fabric for this Cisco Nexus 5000 Series switch. When the FC-Map is configured, the switch discards the MAC addresses that are not part of the current fabric.

This command requires a license.

Examples

This example shows how to configure the FC-Map value on the switch:

```
switch(config)# fcoe fcmap 0xefc10
switch(config)#
```

Related Commands

Command	Description
fcoe fcf-priority	Configures the FCoE Initialization Protocol (FIP) priority value.
fcoe fka-adv-period	Configures the time interval at which FIP keep alive (FKA) messages are transmitted to the MAC address of the ENode.
feature fcoe	Enables FCoE on the switch.
show fcoe	Displays the FCoE parameters, such as an FC-Map, default FCF priority value, and FKA advertisement period.

fcoe fka-adv-period

To configure the time interval at which FIP keep alive (FKA) messages are transmitted to the MAC address of the FCoE node (ENode), use the **fcoe fka-adv-period** command. To revert to the default value of 128 seconds, use the **no** form of this command.

fcoe fka-adv-period *value*

no fcoe fka-adv-period *value*

Syntax Description

value	FKA advertisement period (in seconds). The range is from 4 to 60 seconds, and the default is 8.

Command Default

8 seconds

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, FCoE must be enabled on the switch, using the **feature fcoe** command.

Examples

This example shows how to configure the FKA advertisement period for the switch to 5 seconds:

```
switch(config)# fcoe fka-adv-period 5
switch(config)#
```

Related Commands

Command	Description
fcoe fcf-priority	Configures the FCoE Initialization Protocol (FIP) priority value.
fcoe fcmap	Configures the FCoE MAC address prefix (FC-Map) used to associate the FCoE node (ENode).
feature fcoe	Enables FCoE on the switch.
show fcoe	Displays the FCoE parameters, such as an FC-Map, default FCF priority value, and FKA advertisement period.
show fcoe database	Displays the FCoE database information.

fcoe veloopback

To enable a virtual fabric ID (VFID) check for virtual E (VE) ports, use the **fcoe veloopback** command. To disable checking of VE ports, use the **no** form of this command.

fcoe veloopback

no fcoe veloopback

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, make sure that you enable Fibre Channel over Ethernet (FCoE) N-Port Virtualizer (NPV) on the switch by using the **feature fcoe-npv** command.

This command requires the FCoE NPV license.

Examples

This example shows how to enable VFID checks for VE ports:

```
switch# configure terminal
switch(config)# fcoe veloopback
switch(config)#
```

This example shows how to disable VFID checks for VE ports:

```
switch# configure terminal
switch(config)# no fcoe veloopback
switch(config)#
```

Related Commands

Command	Description
feature fcoe-npv	Enables the FCoE NPV feature.
show fcoe-npv issu-impact	Displays FCoE NPV configuration information.

fcoe vsan

To map a Virtual SAN (VSAN) to a VLAN that carries Fibre Channel over Ethernet (FCoE) traffic, use the **fcoe vsan** command. To remove the mapping, use the **no** form of this command.

fcoe vsan [*vsan_ID*]

no fcoe vsan [*vsan_ID*]

Syntax Description

vsan_ID	(Optional) VSAN ID. The range is from 1 to 4094.

Command Default

None

Command Modes

Vlan configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Before you map the FCoE VLAN to the VSAN, make sure that you create a VSAN using the **vsan** command in the Vsan database configuration mode.

You should use an FCoE VLAN only for FCoE. Do not use the default VLAN, VLAN1, as an FCoE VLAN. FCoE is not supported on private VLANs.

When you map a FCoE VLAN to a VSAN, ensure that the VSAN is not mapped to any other FCoE VLAN. If you map a FCoE VLAN to a VSAN that is already mapped to another FCoE VLAN, the following error appears:

```
vlan 30:another FCOE VLAN mapping exists using the requested VSAN
```

If you do not specify a VSAN number, a mapping is created from the FCoE VLAN in use to the VSAN with the same number.

Examples

This example shows how to map a FCoE VLAN to a VSAN:

```
switch(config)# vlan 30
switch(config-vlan)# fcoe vsan 337
switch(config-vlan)#
```

Related Commands

Command	Description
show vsan	Displays the configuration information of VSANs.
show vlan fcoe	Displays the FCoE VLAN to VSAN mappings.

Command	Description
show vsan membership	Displays VSAN membership information.
vsan	Configures the VSAN information or membership.
vsan database	Enters the VSAN database mode.

fcping

To ping an N port, use the **fcping** command.

fcping {**device-alias** *aliasname* | **fcid** {*fc-port* | *domain-controller-id*} | **pwwn** *pwwn-id*} **vsan** *vsan-id* [**count** *number* [**timeout** *value* [**usr-priority** *priority*]]]

Syntax Description

device-alias *aliasname*	Specifies the device alias name. The name can be a maximum of 64 characters.
fcid	Specifies the FCID of the destination N port.
fc-port	FCID port, with the format *0xhhhhhh*.
domain-controller-id	Controller ID to connect to the destination switch.
pwwn *pwwn-id*	Specifies the port WWN of the destination N port, with the format *hh:hh:hh:hh:hh:hh:hh:hh*.
vsan *vsan-id*	Specifies the VSAN ID of the destination N port. The range is from 1 to 4093.
count *number*	(Optional) Specifies the number of frames to send. A value of 0 sends forever. The range is from 0 to 2147483647.
timeout *value*	(Optional) Specifies the timeout value in seconds. The range is from 1 to 10, and the default period to wait is 5 seconds.
usr-priority ***priority***	(Optional) Specifies the priority the frame receives in the switch fabric. The range is from 0 to 1.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

To obtain the domain controller ID, concatenate the domain ID with FFFC. For example, if the domain ID is 0xda(218), the concatenated ID is 0xfffcda.

Examples

This example shows how to configure an fcping operation for the FCID of the destination. By default, five frames are sent.

```
switch# fcping fcid 0xd70000 vsan 1
```

This example shows how to configure the number of frames to be sent using the count option. The range is from 0 through 2147483647. A value of 0 will ping forever.

```
switch# fcping fcid 0xd70000 vsan 1 count 10
```

This example shows how to configure the timeout value:

```
switch# fcping fcid 0xd500b4 vsan 1 timeout 10
```

This example shows how to display the fcping operation using the device alias of the specified destination:

```
switch# fcping device-alias x vsan 1
```

Related Commands

Command	Description
show fcdomain	Displays the Fibre Channel domain (fcdomain) information.

fcroute

To configure Fibre Channel routes and to activate policy routing, use the **fcroute** command. To remove a configuration or revert to factory defaults, use the **no** form of this command.

fcroute {*fcid* [*network-mask*] **interface** {**fc** *slot*/*port* | **san-port-channel** *port* | **vfc** *vfc-id*} **domain** *domain-id* {**metric** *number* | **remote** | **vsan** *vsan-id*}}

no fcroute {*fcid* [*network-mask*] **interface** {**fc** *slot*/*port* | **san-port-channel** *port* | **vfc** *vfc-id*} **domain** *domain-id* {**metric** *number* | **remote** | **vsan** *vsan-id*}}

Syntax Description

fcid	FC ID. The format is 0xhhhhhh.
network-mask	(Optional) Network mask of the FC ID. The format is 0x0 to 0xffffff.
interface	Specifies an interface.
fc *slot*/*port*	Specifies a Fibre Channel interface and its slot number and port number.
san-port-channel *port*	Specifies a SAN port channel interface.
vfc *vfc-id*	Specifies a virtual Fibre Channel interface.
domain *domain-id*	Specifies the route for the domain of the next hop switch. The range is from 1 to 239.
metric *number*	Specifies the cost of the route. The range is from 1 to 65535. Default cost is 10.
remote	Configures the static route for a destination switch remotely connected.
vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Use this command to assign forwarding information to the switch and to activate a preferred path route map.

Examples

This example shows how to specify the Fibre Channel interface and the route for the domain of the next hop switch for VSAN 2:

```
switch(config)# fcroute 0x111211 interface fc3/1 domain 3 vsan 2
```

This example shows how to specify the SAN port channel interface and the route for the domain of the next hop switch for VSAN 4:

```
switch(config)# fcroute 0x111211 interface san-port-channel 1 domain 3 vsan 4
```

This example shows how to specify the Fibre Channel interface, the route for the domain of the next hop switch, and the cost of the route for VSAN 1:

```
switch(config)# fcroute 0x031211 interface fc1/1 domain 3 metric 1 vsan 1
```

This example shows how to specify the Fibre Channel interface, the route for the domain of the next hop switch, the cost of the route, and configures the static route for a destination switch remotely connected for VSAN 3:

```
switch(config)# fcroute 0x111112 interface fc3/1 domain 3 metric 3 remote vsan 3
```

Related Commands

Command	Description
show fcroute	Displays Fibre Channel routes.
fcroute-map	Specifies a preferred path Fibre Channel route map.
show fcroute-map	Displays the preferred path route map configuration and status.
fcroute policy fcroute-map	Activates the preferred path Fibre Channel route map.

fcs plat-check-global

To enable Fabric Configuration Server (FCS) platform and node-name checking fabric wide, use the **fcs plat-check-global** command. To disable this feature, use the **no** form of this command.

fcs plat-check-global vsan *vsan-id*

no fcs plat-check-global vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies the VSAN ID for platform checking, which is from 1 to 4096.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to enable FCS platform and node-name checking fabric wide:

```
switch(config)# fcs plat-check-global vsan 2
```

Related Commands

Command	Description
show fcs	Displays fabric configuration server information.

fcs register

To register Fabric Configuration Server (FCS) attributes, use the **fcs register** command. To disable this feature, use the **no** form of this command.

fcs register

no fcs register

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to register FCS attributes:

```
switch(config)# fcs register
```

Related Commands

Command	Description
show fcs	Displays fabric configuration server information.

fcs virtual-device-add

To include a virtual device in a query about zone information from an FCS, use the **fcs virtual-device-add** command. To remove a virtual device, use the **no** form of this command.

fcs virtual-device-add [**vsan-ranges** *vsan-ids*]

no fcs virtual-device-add [**vsan-ranges** *vsan-ids*]

Syntax Description

vsan-ranges *vsan-ids*	(Optional) Specifies one or multiple ranges of VSANs. The range is from 1 to 4093.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

VSAN ranges are entered as *vsan-ids*-*vsan-ids*. When you specify more than one range, separate each range with a comma. If no range is specified, the command applies to all VSANs.

Examples

This example shows how to add to one range of VSANs:

```
switch(config)# fcs virtual-device-add vsan-ranges 2-4
```

This example shows how to add to more than one range of VSANs:

```
switch(config)# fcs virtual-device-add vsan-ranges 2-4,5-8
```

Related Commands

Command	Description
show fcs	Displays fabric configuration server information.

fcsp

To configure a Fibre Channel Security Protocol (FC-SP) authentication mode for a specific interface in a FC-SP-enabled switch, use the **fcsp** command. To disable an FC-SP on the interface, use the **no** form of this command.

fcsp {**auto-active** | **auto-passive** | **on** | **off**} [*timeout-period*]

no fcsp

Syntax Description

auto-active	Configures the auto-active mode to authenticate the specified interface.
auto-passive	Configures the auto-passive mode to authenticate the specified interface.
on	Configures the on mode to authenticate the specified interface.
off	Configures the off mode to authenticate the specified interface.
timeout-period	(Optional) Time out period to reauthenticate the interface. The time ranges from 0 (default—no authentication is performed) to 100,000 minutes.

Command Default

Auto-passive mode

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

To use this command, FC-SP must be enabled using the **feature fcsp** command.

Examples

This example shows how to turn on the authentication mode for Fibre Channel interface in port 1 of slot 2:

```
switch(config)# interface fc 2/1
switch(config-if)# fcsp on
switch(config-if)#
```

This example shows how to revert to the factory default of auto-passive for the selected interface:

```
switch(config-if)# no fcsp
```

This example shows how to change the selected interface to initiate FC-SP authentication but does not permit reaunthentication:

```
switch(config-if)# fcsp auto-active 0
```

Related Commands

Command	Description
feature fcsp	Enables FC-SP.
show interface	Displays an interface configuration for a specified interface.

fcsp dhchap

To configure DHCHAP options in a switch, use the **fcsp dhchap** command. To revert to the factory defaults, use the **no** form of this command.

fcsp dhchap {**devicename** *switch-wwn* **password** [**0** | **7**] *password* |
dhgroup [**0**] [**1**][**2**][**3**][**4**] | **hash** [**md5** | **sha1**] | **password** [**0** | **7**] *password* [*wwn-id*]}

no fcsp dhchap {**devicename** *switch-wwn* **password** [**0** | **7**] *password* |
dhgroup [**0**] [**1**][**2**][**3**][**4**] | **hash** [**md5** | **sha1**] | **password** [**0** | **7**] *password* [*wwn-id*]}

Syntax Description

devicename	Configures a password of another device in the fabric.
switch-wwn	WWN of the device being configured.
password	Configures a DHCHAP password for the local switch.
0	(Optional) Specifies a clear text password.
7	(Optional) Specifies a password in encrypted text.
dhgroup	Configures a DHCHAP Diffie-Hellman group priority list.
0	(Optional) Specifies Null DH—no exchange is performed (default).
1 | 2 | 3 | 4	(Optional) Specifies one or more of the groups specified by the standards.
hash	Configures a DHCHAP hash algorithm priority list in order of preference.
md5	(Optional) Specifies the MD5 hash algorithm.
sha1	(Optional) Specifies the SHA-1 hash algorithm.
wwn-id	(Optional) Specifies the WWN ID with the format hh:hh:hh:hh:hh:hh:hh:hh.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You can only see the **fcsp dhchap** command if you enter the **feature fcsp** command.

Using SHA-1 as the hash algorithm may prevent RADIUS or TACACS+ usage.

If you change the DH group configuration, make sure that you change it globally for all switches in the fabric.

Examples

This example shows how to enable FC-SP:

```
switch(config)# # feature fcsp
```

This example shows how to configure the use of only the SHA-1 hash algorithm:

```
switch(config)# fcsp dhchap hash sha1
```

This example shows how to configure the use of only the MD-5 hash algorithm:

```
switch(config)# fcsp dhchap hash md5
```

This example shows how to define the use of the default hash algorithm priority list of MD-5 followed by SHA-1 for DHCHAP authentication:

```
switch(config)# fcsp dhchap hash md5 sha1
```

This example shows how to revert to the factory default priority list of the MD-5 hash algorithm followed by the SHA-1 hash algorithm:

```
switch(config)# no fcsp dhchap hash sha1
```

This example shows how to prioritize the use of DH group 2, 3, and 4 in the configured order:

```
switch(config)# fcsp dhchap dhgroup 2 3 4
```

This example shows how to configure a clear text password for the local switch:

```
switch(config)# fcsp dhchap password 0 mypassword
```

This example shows how to configure a clear text password for the local switch to be used for the device with the specified WWN:

```
switch(config)# fcsp dhchap password 0 mypassword 30:11:bb:cc:dd:33:11:22
```

This example shows how to configure a password entered in an encrypted format for the local switch:

```
switch(config)# fcsp dhchap password 7 sfsfdf
```

Related Commands

Command	Description
feature fcsp	Enables FC-SP.
show fcsp	Displays configured FC-SP information.

fcsp reauthenticate

To reauthenticate a Fibre Channel or virtual Fibre Channel interface, use the **fcsp reauthenticate** command. To revert to the factory defaults, use the **no** form of this command.

fcsp reauthenticate interface {**fc** *slot*/*port* | **vfc** *vfc-id*}

no fcsp reauthenticate interface {**fc** *slot*/*port* | **vfc** *vfc-id*}

Syntax Description

interface	Specifies the interface on which to perform the reauthentication.
fc *slot*/*port*	Specifies the Fibre Channel interface slot number and port number.
vfc *vfc-id*	Specifies the virtual Fibre Channel interface by the virtual interface group number and virtual interface ID.

Command Default

30 seconds

Command Modes

EXEC mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to configure the Fibre Channel Security Protocol (FC-SP) reauthentication on a virtual Fibre Channel interface:

```
switch# fcsp reauthenticate vfc 1
```

Related Commands

Command	Description
feature fcsp	Enables FC-SP.
show fcsp	Displays configured FC-SP information.

fcsp timeout

To configure the timeout value for a Fibre Channel Security Protocol (FC-SP) message, use the **fcsp timeout** command. To revert to the factory defaults, use the **no** form of this command.

fcsp timeout *timeout-period*

no fcsp timeout *timeout-period*

Syntax Description

timeout-period	Timeout period. The time range is from 20 to 100 seconds.

Command Default

30 seconds

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You can only see the **fcsp timeout** command if you enable FC-SP by using the **feature fcsp** command.

Examples

This example shows how to configure the FCSP timeout value:

```
switch(config)# feature fcsp
switch(config)# fcsp timeout 60
```

Related Commands

Command	Description
feature fcsp	Enables FC-SP.
show fcsp	Displays configured FC-SP information.

fctimer

To change the default Fibre Channel timers, use the **fctimer** command. To revert to the default values, use the **no** form of this command.

fctimer {**d_s_tov** *milliseconds* | **e_d_tov** *milliseconds* | **r_a_tov** *milliseconds*} [**vsan** *vsan-id*]

no fctimer {**d_s_tov** *milliseconds* | **e_d_tov** *milliseconds* | **r_a_tov** *milliseconds*} [**vsan** *vsan-id*]

Syntax Description

d_s_tov *milliseconds*	Specifies the distributed services timeout value (DS_TOV). The range is from 5000 to 100000 milliseconds.
e_d_tov *milliseconds*	Specifies the error detect timeout value (ED_TOV). The range is from 1000 to 100000 milliseconds, with a default of 2000.
r_a_tov *milliseconds*	Specifies the resolution allocation timeout value (RA_TOV). The range is from 5000 to 100000 milliseconds with a default of 10000.
vsan *vsan-id*	(Optional) Specifies the VSAN ID. The range is from 1 to 4096.

Command Default

The Fibre Channel timers have the following default values:

- 30 seconds for DS_TOV.
- 2 seconds for ED_TOV.
- 10 seconds for RA_TOV.

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The Cisco, Brocade, and McData FC Error Detect (ED_TOV) and Resource Allocation (RA_TOV) timers default to the same values. They can be changed if needed. In accordance with the FC-SW2 standard, these values must be the same on each switch in the fabric.

Use the **vsan** option to configure different TOV values for specific VSANs.

Examples

This example shows how to change the default Fibre Channel timers:

```
switch(config)# fctimer e_d_tov 5000
switch(config)# fctimer r_a_tov 7000
```

Related Commands

Command	Description
show fctimer	Displays the configured Fibre Channel timer values.

fctimer abort

To discard a Fibre Channel timer (fctimer) Cisco Fabric Services (CFS) distribution session in progress, use the **fctimer abort** command.

fctimer abort

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to discard a CFS distribution session in progress:

```
switch(config)# fctimer abort
```

Related Commands

Command	Description
fctimer distribute	Enables CFS distribution for the fctimer.
show fctimer	Displays fctimer information.

fctimer commit

To apply the pending configuration pertaining to the Fibre Channel timer (fctimer) Cisco Fabric Services (CFS) distribution session in progress in the fabric, use the **fctimer commit** command.

fctimer commit

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to commit changes to the active Fibre Channel timer configuration:

```
switch(config)# fctimer commit
```

Related Commands

Command	Description
fctimer distribute	Enables CFS distribution for the fctimer.
show fctimer	Displays fctimer information.

fctimer distribute

To enable Cisco Fabric Services (CFS) distribution for the Fibre Channel timer (fctimer), use the **fctimer distribute** command. To disable this feature, use the **no** form of this command.

fctimer distribute

no fctimer distribute

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Before distributing the Fibre Channel timer changes to the fabric, the temporary changes to the configuration must be committed to the active configuration using the **fctimer commit** command.

Examples

This example shows how to change the default Fibre Channel timer:

```
switch(config)# fctimer distribute
```

Related Commands

Command	Description
fctimer commit	Commits the Fibre Channel timer configuration changes to the active configuration.
show fctimer	Displays fctimer information.

fctrace

To trace the route to an N port, use the **fctrace** command.

fctrace {**device-alias** *aliasname* | **fcid** *fcid* | **pwwn** *pwwn-id*} **vsan** *vsan-id* [**timeout** *seconds*]

Syntax Description

device-alias *aliasname*	Specifies the device alias name. The name can be a maximum of 64 characters.
fcid *fcid*	Specifies the FCID of the destination N port, with the format **0x***hhhhhh*.
pwwn *pwwn-id*	Specifies the PWWN of the destination N port, with the format *hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*.
vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.
timeout *seconds*	(Optional) Specifies the timeout value. The range is from 1 to 10.

Command Default

By default, the period to wait before timing out is 5 seconds.

Command Modes

EXEC mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to trace a route to the specified FCID in VSAN 1:

```
switch# fctrace fcid 0x660000 vsan 1
```

This example shows how to trace a route to the specified device alias in VSAN 1:

```
switch# fctrace device-alias x vsan 1
```

Related Commands

Command	Description
fcping	Pings an N port.

fdmi suppress-updates

To suppress Fabric-Device Management Interface (FDMI) updates, use the **fdmi suppress-updates** command.

fdmi suppress-updates vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

By default, FDMI updates are not suppressed.

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to suppress the FDMI updates in VSAN 1:

```
switch# fdmi suppress-updates vsan 1
```

Related Commands

Command	Description
show fdmi	Displays the FDMI database information.

feature fabric-binding

To enable fabric binding in a Virtual SAN (VSAN), use the **feature fabric-binding** command. To disable fabric binding, use the **no** form of this command.

feature fabric-binding

no feature fabric-binding

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Fabric binding is configured on a per-VSAN basis.

The fabric binding feature must be enabled in each switch in the fabric that participates in the fabric binding.

Examples

This example shows how to enable fabric binding on the switch:

```
switch# configure terminal
switch(config)# feature fabric-binding
switch(config)#
```

This example shows how to disable fabric binding on the switch:

```
switch# configure terminal
switch(config)# no feature fabric-binding
switch(config)#
```

Related Commands

Command	Description
fabric-binding activate	Activates fabric binding.
fabric-binding database	Configures a fabric-binding database.

feature fc-port-security

To enable port security, use the **feature fc-port-security** command. To disable port security, use the **no** form of this command.

feature fc-port-security

no feature fc-port-security

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Entering the **feature fc-port-security** command enables the other commands that are used to configure FC port security.

Examples

This example shows how to enable port security:

```
switch(config)# feature fc-port-security
```

This example shows how to disable port security:

```
switch(config)# no feature fc-port-security
```

Related Commands

Command	Description
show fc-port-security	Displays port security information.

feature fcoe

To enable virtual and native Fibre Channel interfaces after installing the FC_FEATURES_PKG license, use the **feature fcoe** command. To disable Fibre Channel interfaces and return the FC_FEATURES_PKG license to the license manager software, use the **no** form of this command.

feature fcoe

no feature fcoe

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You must save the configuration, and then reboot the switch to enable or disable the FCoE feature.

Examples

This example shows how to enable FCoE on the switch:

```
switch(config)# feature fcoe
```

Related Commands

Command	Description
fcoe	Configures FCoE parameters.
show feature	Displays whether or not FCoE is enabled on the switch.

feature fcoe-npv

To enable Fibre Channel over Ethernet (FCoE) N-Port Virtualizer (NPV), use the **feature fcoe-npv** command. To disable FCoE NPV, use the **no** form of this command.

feature fcoe-npv

no feature fcoe-npv

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You cannot enable the FCoE NPV feature if you have previously enabled FCoE (using the **feature fcoe** command) on the switch. To enable FCoE NPV, you must disable the FCoE feature, reload the system, and then enable FCoE NPV on the switch.

This command requires the FCoE NPV license.

Examples

This example shows how to enable FCoE NPV on the switch:

```
switch(config)# feature fcoe-npv
FCoE NPV license checked out successfully
fc_plugin extracted successfully
FC plugin loaded successfully
FCoE manager enabled successfully
FCoE NPV enabled on all modules successfully
Warning: Ensure class-fcoe is included in qos policy-maps of all types
switch(config)#
```

This example shows how to disable FCoE NPV on the switch:

```
switch(config)# no feature fcoe-npv
switch(config)#
```

Related Commands

Command	Description
bind mac-address	Binds a MAC address to a virtual Fibre Channel interface.
show feature	Displays whether or not FCoE is enabled on the switch.

feature fcsp

To enable the Fibre Channel Security Protocol (FC-SP) in a switch, use the **feature fcsp** command. To disable FC-SP, use the **no** form of this command.

feature fcsp

no feature fcsp

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Additional FC-SP commands are available when the FC-SP feature is enabled.

Examples

This example shows how to enable FC-SP:

```
switch(config)# feature fcsp
```

Related Commands

Command	Description
show fcsp	Displays configured FC-SP information.

feature fex

To enable Fabric Extender (FEX) features on the switch, use the **feature fex** command. To disable FEX, use the **no** form of this command.

feature fex

no feature fex

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Examples

This example shows how to enable FEX features on the switch:

```
switch# configure terminal
switch(config)# feature fex
switch(config)#
```

Related Commands

Command	Description
fex	Creates a Fabric Extender and enters fabric extender configuration mode.
show feature	Displays the features enabled or disabled on the switch.

feature npiv

To enable N Port Identifier Virtualization (NPIV) for all Virtual SANs (VSANs) on a switch, use the **feature npiv** command. To disable NPIV, use the **no** form of this command.

feature npiv

no feature npiv

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

NPIV provides a means to assign multiple port IDs to a single N port. This feature allows multiple applications on the N port to use different identifiers and allows access control, zoning, and port security to be implemented at the application level.

You must globally enable NPIV for all VSANs on the switch to allow the NPIV-enabled applications to use multiple N port identifiers.

Examples

This example shows how to enable NPIV for all VSANs on the switch:

```
switch(config)# feature npiv
```

This example shows how to disable NPIV for all VSANs on the switch:

```
switch(config)# no feature npiv
```

Related Commands

Command	Description
show interface	Displays interface configurations.

feature npv

To enable N Port Virtualization (NPV) mode, use the **feature npv** command. To disable this feature, use the **no** form of this command.

feature npv

no feature npv

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

When NPV mode is enabled, switch configuration related to interfaces is erased and the switch is rebooted. The switch restarts in NPV mode. Configuration and verification commands for NPV are available only when NPV is enabled on the switch. When you disable NPV mode, all related configurations are automatically erased and the switch is rebooted.

Examples

This example shows how to enable NPV mode:

```
switch(config)# feature npv
```

Related Commands

Command	Description
show npv status	Displays the NPV current status.

feature port-track

To enable port tracking for indirect errors, use the **feature port-track** command. To disable this feature, use the **no** form of this command.

feature port-track

no feature port-track

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The software brings the linked port down when the tracked port goes down. When the tracked port recovers from the failure and comes back up again, the tracked port is also brought up automatically (unless otherwise configured).

Examples

This example shows how to enable port tracking:

```
switch(config)# feature port-track
```

This example shows how to disable port tracking:

```
switch(config)# no feature port-track
```

Related Commands

Command	Description
show interface fc	Displays configuration and status information for a specified Fibre Channel interface.
show interface san-port-channel	Displays configuration and status information for a specified SAN port channel interface.

feature-set virtualization

To enable the Cisco virtual machine features on the switch, use the **feature-set virtualization** command. To disable the virtualization feature, use the **no** form of this command.

feature-set virtualization

no feature-set virtualization

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, make sure that you install the virtualization feature set on the switch by using the **install feature-set virtualization** command.

You cannot view or access any virtualization commands until you enable a Cisco virtual machine on the switch.

Note You must install the Cisco virtual machine feature set before you enable virtualization on the switch.

Before you disable this feature on the switch, do the following:

- Remove all virtual Ethernet interface configurations on the switch.
- Remove all virtual network tag (VNTag) configurations on the switch.
- Remove all port profiles of type vethernet.
- Change the port mode to access by using the **switchport mode access** command.

This command requires an Enhanced Layer 2 license.

Examples

This example shows how to enable the virtualization feature on the switch:

```
switch# configure terminal
switch(config)# feature-set virtualization
switch(config)#
```

This example shows how to disable the virtualization feature on the switch:

```
switch# configure terminal
switch(config)# no feature-set virtualization
```

```
switch(config)#
```

Related Commands

Command	Description
interface vethernet	Configures virtual Ethernet (vEth) interfaces.
install feature-set virtualization	Installs the virtualization feature set on the switch.
show feature-set	Displays the status of the virtualization feature set.

fex

To create a Cisco Nexus 2000 Series Fabric Extender and enter fabric extender configuration mode, use the **fex** command. To delete the Fabric Extender configuration, use the **no** form of this command.

fex *chassis_ID*

no fex *chassis_ID*

Syntax Description

chassis_ID	Fabric Extender chassis ID. The chassis ID range is from 100 to 199.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You can create and configure the Fabric Extender before you connect and associate it to an interface on the parent switch. Once you associate the Fabric Extender to the switch, the configuration you created is transferred over to the Fabric Extender and applied.

Examples

This example shows how to enter Fabric Extender configuration mode:

```
switch# configure terminal
switch(config)# fex 101
switch(config-fex)#
```

This example shows how to delete the Fabric Extender configuration:

```
switch# configure terminal
switch(config)# no fex 101
switch(config)#
```

Related Commands

Command	Description
fcoe	Attaches a Fabric Extender to a switch for Fibre Channel over Ethernet (FCoE) traffic.
show fex	Displays all configured Fabric Extender chassis connected to the switch.

fspf config

To configure an Fabric Shortest Path First (FSPF) feature for an entire Virtual SAN (VSAN), use the **fspf config** command. To delete an FSPF configuration for the entire VSAN, use the **no** form of this command.

fspf config vsan *vsan-id*
min-ls-arrival *ls-arrival-time*
min-ls-interval *ls-interval-time*
region *region-id*
spf {**hold-time** *spf-holdtime* | **static**}

no min-ls-arrival
no min-ls-interval
no region
no spf {**hold-time** | **static**}

no fspf config vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.
min-ls-arrival *ls-arrival-time*	Specifies the minimum time before a new link state update for a domain will be accepted by the switch. *ls-arrival-time* is an integer that specifies time in milliseconds. The range is from 0 to 65535.
min-ls-interval *ls-interval-time*	Specifies the minimum time before a new link state update for a domain will be generated by the switch. *ls-interval-time* is an integer that specifies time in milliseconds. The range is from 0 to 65535.
region *region-id*	Specifies the autonomous region to which the switch belongs. The backbone region has region-id=0. *region-id* is an unsigned integer value ranging from 0 to 255.
spf	Specifies parameters related to the shortest path first (SPF) route computation.
hold-time *spf-holdtime*	Specifies the time between two consecutive SPF computations. If the time is small, then routing will react faster to changes but CPU usage will be more. *spf-holdtime* is an integer that specifies time in milliseconds. The range is from 0 to 65535.
static	Forces static SPF computation.

Command Default

This command is not applicable to virtual Fibre Channel interfaces.

In FSPF configuration mode, the default is dynamic SPF computation.

If configuring the *spf hold-time*, the default value for FSPF is 0.

If configuring the *min-ls-arrival*, the default value for FSPF is 1000 milliseconds.

If configuring the *min-ls-interval*, the default value for FSPF is 5000 milliseconds.

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The **fspf config** command enters FSPF configuration mode for the specified Virtual SAN (VSAN). In FSPF configuration mode, the commands configure FSPF for this VSAN.

Examples

This example shows how to configure a static SPF computation in VSAN 1 and delete the FSPF configuration in VSAN 3:

```
switch(config)# fspf config vsan 1
switch(fspf-config)# spf static
switch(fspf-config)# exit
switch(config)# no fspf config vsan 3
switch(config)#
```

Related Commands

Command	Description
show fspf interface	Displays information for each selected interface.
fspf enable	Enables FSPF routing protocol in the specified VSAN.
fspf cost	Configures the cost for the selected interface in the specified VSAN.
fspf hello-interval	Specifies the hello message interval to verify the health of a link in the VSAN.
fspf passive	Disables the FSPF protocol for the specified interface in the specified VSAN.
fspf retransmit	Specifies the retransmit time interval for unacknowledged link state updates in the specified VSAN.

fspf cost

To configure the Fabric Shortest Path First (FSPF) link cost for a Fibre Channel over IP (FCIP) interface or virtual Fibre Channel interface, use the **fspf cost** command. To revert to the default value, use the **no** form of this command.

fspf cost *link-cost* **vsan** *vsan-id*

no fspf cost *link-cost* **vsan** *vsan-id*

Syntax Description

link-cost	FSPF link cost, in seconds. For an FCIP interface, the range is from 1 to 65535. For a virtual FC interface, the range is from 1 to 30000.
vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

1000 seconds for 1 Gigabits per second interfaces
500 seconds for 2 Gigabits per second interfaces

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

FSPF tracks the state of links on all switches in the fabric, associates a cost with each link in its database, and then chooses the path with a minimal cost. The cost associated with an interface can be changed using the **fspf cost** command to implement the FSPF route selection.

For virtual Fibre Channel interfaces, this command configures the FSPF parameters for the virtual E (VE) port.

Examples

This example shows how to configure the FSPF link cost on an FCIP interface:

```
switch(config)# interface fc 2/1
switch(config-if)# fspf cost 5000 vsan 1
```

This example shows how to configure the FSPF link cost on a virtual Fibre Channel interface:

```
switch(config)# interface vfc 5
switch(config-if)# fspf cost 2100 vsan 1
switch(config-if)#
```

Related Commands

Command	Description
show fspf interface	Displays information for each selected interface.
show interface fc	Displays an interface configuration for a specified Fibre Channel interface.
switchport mode E	Configures a virtual Fibre Channel interface as a VE port.

fspf dead-interval

To set the maximum interval for which a hello message must be received before the neighbor is considered lost, use the **fspf dead-interval** command. To revert to the default value, use the **no** form of this command.

fspf dead-interval *seconds* **vsan** *vsan-id*

no fspf dead-interval *seconds* **vsan** *vsan-id*

Syntax Description

seconds	FSPF dead interval in seconds. The range is from 2 to 65535.
vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

80 seconds

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This value must be the same in the ports at both ends of the ISL.

Caution An error is reported at the command prompt if the configured dead time interval is less than the hello time interval.

For virtual Fibre Channel interfaces, this command configures the FSPF parameters for the virtual E (VE) port.

Examples

This example shows how to configure the maximum interval of 4000 seconds for a hello message before the neighbor is considered lost:

```
switch(config)# interface fc 2/1
switch(config-if)# fspf dead-interval 4000 vsan 1
switch(config-if)#
```

This example shows how to configure the maximum interval of 300 seconds for a hello message in a virtual Fibre Channel interface before the neighbor is considered lost:

```
switch(config)# interface vfc 5
switch(config-if)# fspf dead-interval 300 vsan 1
switch(config-if)#
```

Related Commands

Command	Description
show fspf interface	Displays information for each selected interface.
show interface fc	Displays an interface configuration for a specified Fibre Channel interface.
switchport mode E	Configures a virtual Fibre Channel interface as a VE port.

fspf enable

To enable Fabric Shortest Path First (FSPF) for a Virtual SAN (VSAN), use the **fspf enable** command. To disable FSPF routing protocols, use the **no** form of this command.

fspf enable vsan *vsan-id*

no fspf enable vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

Enabled

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command is not applicable to virtual Fibre Channel interfaces.

This command configures FSPF on VSANs globally.

Examples

This example shows how to enable a FSPF in VSAN 5 and disable FSPF in VSAN 7:

```
switch(config)# fspf enable vsan 5
switch(config)# no fspf enable vsan 7
```

Related Commands

Command	Description
fspf config vsan	Configures FSPF features for a VSAN.
show fspf interface	Displays information for each selected interface.

fspf hello-interval

To verify the health of the link, use the **fspf hello-interval** command. To revert to the default value, use the **no** form of this command.

fspf hello-interval *seconds* **vsan** *vsan-id*

no fspf hello-interval *seconds* **vsan** *vsan-id*

Syntax Description

hello-interval *seconds*	Specifies the FSPF hello interval in seconds. The range is from 2 to 65535 for Fibre Channel over IP (FCIP) interfaces and from 1 to 65534 for virtual Fibre Channel interfaces.
vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

20 seconds

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command configures Fabric Shortest Path First (FSPF) for the specified Fibre Channel interface. This value must be the same in the ports at both ends of the ISL for Fibre Channel over IP (FCIP) interfaces.

For virtual Fibre Channel interfaces, this command configures the FSPF parameters for the virtual E (VE) port.

Examples

This example shows how to configure a hello interval of 3 seconds on VSAN 1:

```
switch(config)# interface fc 2/1
switch(config-if)# fspf hello-interval 3 vsan 1
```

This example shows how to configure a hello interval of 30 seconds for a virtual Fibre Channel interface on VSAN 1:

```
switch(config)# interface vfc 5
switch(config-if)# fspf hello-interval 30 vsan 1
```

Related Commands

Command	Description
show fspf interface	Displays information for each selected interface.
switchport mode E	Configures a virtual Fibre Channel interface as a VE port.

fspf passive

To disable the Fabric Shortest Path First (FSPF) protocol for selected interfaces, use the **fspf passive** command. To revert to the default state, use the **no** form of this command.

fspf passive vsan *vsan-id*

no fspf passive vsan *vsan-id*

Syntax Description

vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

FSPF is enabled

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

By default, FSPF is enabled on all E ports and TE ports of an Fibre Channel over IP (FCIP) interface. FSPF can be disabled by setting the interface as passive using the **fspf passive** command. FSPF must be enabled on the ports at both ends of the ISL for the protocol to operate correctly.

For virtual Fibre Channel interfaces, this command configures the FSPF parameters for the virtual E (VE) port.

Examples

This example shows how to disable the FSPF protocol for an FCIP interface on VSAN 1:

```
switch(config)# interface fc 2/1
switch(config-if)# fspf passive vsan 1
```

This example shows how to disable the FSPF protocol for a virtual Fibre Channel interface on VSAN 1 and verify the interface configuration:

```
switch(config)# interface vfc 5
switch(config-if)# fspf passive vsan 1
switch(config-if)# show fspf interface
FSPF interface vfc5 in VSAN 1
FSPF routing administrative state is passive
Timer intervals configured, Hello 30 s, Dead 300 s, Retransmit 5 s
FSPF State is DOWN

switch(config-if)#
```

Related Commands

Command	Description
show fspf interface	Displays information for each selected interface.
show interface fc	Displays an interface configuration for a specified FCIP interface.
switchport mode E	Configures a virtual Fibre Channel interface as a VE port.

fspf retransmit-interval

To specify the time after which an unacknowledged link state update should be transmitted on the interface, use the **fspf retransmit-interval** command. To revert to the default value, use the **no** form of this command.

fspf retransmit-interval *seconds* **vsan** *vsan-id*

no fspf retransmit-interval *seconds* **vsan** *vsan-id*

Syntax Description

seconds	Fabric Shortest Path First (FSPF) retransmit interval in seconds. The range is from 1 to 65535.
vsan *vsan-id*	Specifies a VSAN ID. The range is from 1 to 4093.

Command Default

5 seconds

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This value must be the same in the ports at both ends of the ISL for Fibre Channel over IP (FCIP) interfaces.

For virtual Fibre Channel interfaces, this command configures the FSPF parameters for the virtual E (VE) port.

Examples

This example shows how to specify a retransmit interval of 6 seconds after which an unacknowledged link state update should be transmitted on the interface for VSAN 1:

```
switch(config)# interface fc 2/1
switch(config-if)# fspf retransmit-interval 6 vsan 1
```

This example shows how to specify a retransmit interval of 3 seconds after which an unacknowledged link state update should be transmitted on the virtual Fibre Channel interface on VSAN 1:

```
switch(config)# interface vfc 5
switch(config-if)# fspf retransmit-interval 3 vsan 1
```

Related Commands

Command	Description
show fspf interface	Displays information for each selected interface.

Command	Description
show interface fc	Displays an interface configuration for a specified FCIP interface.
switchport mode E	Configures a virtual Fibre Channel interface as a VE port.