

# Contents

Smart Link commands .....	1
display smart-link flush.....	1
display smart-link group .....	1
flush enable.....	2
port .....	3
port smart-link group .....	4
port smart-link group track .....	5
preemption delay.....	7
preemption mode .....	7
protected-vlan .....	8
reset smart-link statistics.....	9
smart-link flush enable .....	10
smart-link group .....	10

# Smart Link commands

## display smart-link flush

Use `display smart-link flush` to display information about the received flush messages.

### Syntax

```
display smart-link flush
```

### Views

Any view

### Predefined user roles

network-admin  
network-operator

### Examples

# Display information about the received flush messages.

```
<Sysname> display smart-link flush
Received flush packets                : 10
Receiving interface of the last flush packet : Ten-GigabitEthernet1/0/1
Receiving time of the last flush packet   : 19:19:03 2012/04/21
Device ID of the last flush packet       : 000f-e200-8500
Control VLAN of the last flush packet    : 1
```

**Table 1 Command output**

Field	Description
Received flush packets	Total number of received flush messages.
Receiving interface of the last flush packet	Port that received the last flush message.
Receiving time of the last flush packet	Time when the last flush message was received.
Device ID of the last flush packet	Device ID carried in the last flush message.
Control VLAN of the last flush packet	Control VLAN ID carried in the last flush message.

### Related commands

```
reset smart-link statistics
```

## display smart-link group

Use `display smart-link group` to display information about the specified or all smart link groups.

### Syntax

```
display smart-link group { group-id | all }
```

### Views

Any view

## Predefined user roles

network-admin  
network-operator

## Parameters

*group-id*: Specifies a smart link group by its ID. The value range for this argument is 1 to 48.

**a11**: Displays information about all smart link groups.

## Examples

# Display information about smart link group 1.

```
<Sysname> display smart-link group 1
```

```
Smart link group 1 information:
```

```
Device ID       : 0011-2200-0001
Preemption mode : None
Preemption delay: 1(s)
Control VLAN    : 1
Protected VLAN  : Reference Instance 2, 4
```

Member	Role	State	Flush-count	Last-flush-time
XGE1/0/1	PRIMARY	ACTIVE	1	16:45:20 2012/04/21
XGE1/0/2	SECONDARY	STANDBY	2	16:37:20 2012/04/21

**Table 2 Command output**

Field	Description
Preemption mode	Preemption mode: <ul style="list-style-type: none"><li>• <b>None</b>—Preemption disabled.</li><li>• <b>Role</b>—Role preemption mode.</li><li>• <b>Speed</b>—Speed preemption mode.</li></ul>
Preemption delay	Preemption delay time, in seconds.
Control-VLAN	Control VLAN ID.
Protected VLAN	Protected VLANs of the smart link group. Referenced Multiple Spanning Tree Instances (MSTIs) are displayed. To view the VLANs mapped to the referenced MSTIs, use the <b>display stp region-configuration</b> command.
Member	Member port of the smart link group.
Role	Port role: primary or secondary.
State	Port state: active, down, or standby.
Flush-count	Number of transmitted flush messages.
Last-flush-time	Time when the last flush message was transmitted (NA indicates that no flush message has been transmitted).

## flush enable

Use **flush enable** to enable flush update.

Use **undo flush enable** to disable flush update.

## Syntax

```
flush enable [ control-vlan vlan-id ]  
undo flush enable
```

## Default

Flush update is enabled for smart link groups, and VLAN 1 is used for flush message transmission.

## Views

Smart link group view

## Predefined user roles

network-admin

## Parameters

**control-vlan** *vlan-id*: Specifies the control VLAN used for transmitting flush messages. The *vlan-id* argument represents the control VLAN ID and is in the range of 1 to 4094.

## Usage guidelines

You must configure different control VLANs for different smart link groups.

- Make sure the configured control VLAN already exists, and assign the smart link group member ports to the control VLAN.
- The control VLAN of a smart link group must also be one of its protected VLANs. Do not remove the control VLAN. Otherwise, flush messages cannot be sent correctly.

## Examples

```
# Disable flush update for smart link group 1.  
<Sysname> system-view  
[Sysname] smart-link group 1  
[Sysname-smlk-group1] undo flush enable
```

## Related commands

```
smart-link flush enable
```

# port

Use **port** to assign a port to a smart link group and specify the port role.

Use **undo port** to remove a port from a smart link group.

## Syntax

```
port interface-type interface-number { primary | secondary }  
undo port interface-type interface-number
```

## Default

No member ports exist in a smart link group.

## Views

Smart link group view

## Predefined user roles

network-admin

## Parameters

*interface-type interface-number*: Specifies a port by its type and number, which can be a Layer 2 Ethernet interface or Layer 2 aggregate interface.

**primary**: Specifies a port as the primary port.

**secondary**: Specifies a port as the secondary port.

## Usage guidelines

Before configuring member ports for a smart link group, you must configure protected VLANs for the smart link group.

Disable the spanning tree feature, RRPP, and ERPS on the ports you want to add to the smart link group. You cannot enable the spanning tree feature, RRPP, or ERPS on a smart link group member port.

If you configure a port as both an aggregation group member and a smart link group member, only the aggregation group member configuration takes effect. The port is not shown in the output from the **display smart-link group** command. The smart link group member configuration takes effect after the port leaves the aggregation group.

You can also assign a port to a smart link group by using the **port smart-link group** command in interface view.

## Examples

# Configure Ten-GigabitEthernet 1/0/1 as the secondary port of smart link group 1.

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] undo stp enable
[Sysname-Ten-GigabitEthernet1/0/1] quit
[Sysname] smart-link group 1
[Sysname-smlk-group1] protected-vlan reference-instance 0
[Sysname-smlk-group1] port ten-gigabitethernet 1/0/1 secondary
```

## Related commands

**port smart-link group**

# port smart-link group

Use **port smart-link group** to assign a port to a smart link group and specify the port role.

Use **undo port smart-link group** to remove a port from a smart link group.

## Syntax

```
port smart-link group group-id { primary | secondary }
undo port smart-link group group-id
```

## Default

A port is not a smart link group member.

## Views

Layer 2 Ethernet interface view

Layer 2 aggregate interface view

## Predefined user roles

network-admin

## Parameters

*group-id*: Specifies a smart link group by its ID. The value range for this argument is 1 to 48.

**primary**: Specifies the port as the primary port.

**secondary**: Specifies the port as the secondary port.

## Usage guidelines

Before configuring member ports for a smart link group, you must configure protected VLANs for the smart link group.

Disable the spanning tree feature, RRPP, and ERPS on the ports you want to add to the smart link group. You cannot enable the spanning tree feature, RRPP, or ERPS on a smart link group member port.

If you configure a port as both an aggregation group member and a smart link group member, only the aggregation group member configuration takes effect. The port is not shown in the output from the **display smart-link group** command. The smart link group member configuration takes effect after the port leaves the aggregation group.

You can assign a port to a smart link group by using the **port** command in smart link group view.

## Examples

# Configure Ten-GigabitEthernet 1/0/1 as the primary port of smart link group 1.

```
<Sysname> system-view
[Sysname] smart-link group 1
[Sysname-smlk-group1] protected-vlan reference-instance 0
[Sysname-smlk-group1] quit
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] undo stp enable
[Sysname-Ten-GigabitEthernet1/0/1] port smart-link group 1 primary
```

# Configure Layer 2 aggregate interface 1 as the primary port of smart link group 1.

```
<Sysname> system-view
[Sysname] smart-link group 1
[Sysname-smlk-group1] protected-vlan reference-instance 0
[Sysname-smlk-group1] quit
[Sysname] interface bridge-aggregation 1
[Sysname-Bridge-Aggregation1] undo stp enable
[Sysname-Bridge-Aggregation1] port smart-link group 1 primary
```

## Related commands

**port**

## port smart-link group track

Use **port smart-link group track** to configure the collaboration between a smart link group member port and a track entry.

Use **undo port smart-link group track** to remove the collaboration between a smart link group member port and a track entry.

## Syntax

```
port smart-link group group-id track track-entry-number
```

```
undo port smart-link group group-id track track-entry-number
```

## Default

Smart link group member ports do not collaborate with track entries.

## Views

Layer 2 Ethernet interface view

Layer 2 aggregate interface view

## Predefined user roles

network-admin

## Parameters

*group-id*: Specifies a smart link group by its ID. The value range for this argument is 1 to 48.

*track-entry-number*: Specifies the ID of a track entry that has been associated with the CC function of CFD.

## Usage guidelines

Smart Link collaborates with link detection protocols through track entries. It supports only the CC function of CFD to implement link detection. To associate the CC function of CFD with a track entry, use the **track cfd** command.

Before configuring the collaboration between Smart Link and Track on a port, make sure the port has been added to the specified smart link group.

## Examples

# Configure the collaboration between Ten-GigabitEthernet 1/0/1, the primary port of smart link group 1, and the CC function of CFD through track entry 1 to detect the link status.

```
<Sysname> system-view
[Sysname] track 1 cfd cc service-instance 100 mep 2
[Sysname] smart-link group 1
[Sysname-smlk-group1] protected-vlan reference-instance 0
[Sysname-smlk-group1] quit
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] undo stp enable
[Sysname-Ten-GigabitEthernet1/0/1] port smart-link group 1 primary
[Sysname-Ten-GigabitEthernet1/0/1] port smart-link group 1 track 1
```

# Configure the collaboration between bridge-aggregation 1, the primary port of smart link group 1, and the CC function of CFD through track entry 1 to detect the link status.

```
<Sysname> system-view
[Sysname] track 1 cfd cc service-instance 100 mep 2
[Sysname] smart-link group 1
[Sysname-smlk-group1] protected-vlan reference-instance 0
[Sysname-smlk-group1] quit
[Sysname] interface bridge-aggregation 1
[Sysname-Bridge-Aggregation1] undo stp enable
[Sysname-Bridge-Aggregation1] port smart-link group 1 primary
[Sysname-Bridge-Aggregation1] port smart-link group 1 track 1
```

## Related commands

**track cfd**

# preemption delay

Use **preemption delay** to set the preemption delay.

Use **undo preemption delay** to restore the default.

## Syntax

```
preemption delay delay
```

```
undo preemption delay
```

## Default

The preemption delay is 1 second.

## Views

Smart link group view

## Predefined user roles

network-admin

## Parameters

*delay*: Specifies the preemption delay in the range of 0 to 300 seconds.

## Usage guidelines

Preemption delay is the period of time that the primary port waits before taking over to collaborate with the switchover of upstream devices.

The preemption delay configuration takes effect only after a preemption mode is configured.

## Examples

```
# Enable role preemption and set the preemption delay to 10 seconds.
```

```
<Sysname> system-view  
[Sysname] smart-link group 1  
[Sysname-smlk-group1] preemption mode role  
[Sysname-smlk-group1] preemption delay 10
```

## Related commands

```
preemption mode
```

# preemption mode

Use **preemption mode** to configure a preemption mode for a smart link group.

Use **undo preemption mode** to restore the default.

## Syntax

```
preemption mode { role | speed [ threshold threshold-value ] }
```

```
undo preemption mode
```

## Default

No preemption mode is configured for a smart link group.

## Views

Smart link group view



## Predefined user roles

network-admin

## Parameters

**role**: Specifies the role preemption mode, which enables the primary port to transition to forwarding state after the primary link recovers.

**speed**: Specifies the speed preemption mode.

**threshold** *threshold-value*: Specifies the speed preemption threshold in percentage. The value range for the *threshold-value* argument is 1 to 10000.

## Usage guidelines

If you specify the speed preemption mode, the following conditions occur when the primary link recovers:

- If you specify the **threshold** *threshold-value* option, the primary port transitions to forwarding state when the following condition is met:  
The difference between the primary port speed and the secondary port speed equals or exceeds the threshold value (in percentage) of the secondary port speed.
- If you do not specify the **threshold** *threshold-value* option, the primary port transitions to forwarding state when the primary port speed exceeds the secondary port speed.

## Examples

# Configure the role preemption mode.

```
<Sysname> system-view  
[Sysname] smart-link group 1  
[Sysname-smlk-group1] preemption mode role
```

# Configure the speed preemption mode and specify the speed preemption threshold as 1000.

```
<Sysname> system-view  
[Sysname] smart-link group 1  
[Sysname-smlk-group1] preemption mode speed threshold 1000
```

## protected-vlan

Use **protected-vlan** to configure protected VLANs for a smart link group.

Use **undo protected-vlan** to remove the protected VLAN of a smart link group.

## Syntax

```
protected-vlan reference-instance instance-id-list  
undo protected-vlan [ reference-instance instance-id-list ]
```

## Default

A smart link group does not have protected VLANs.

## Views

Smart link group view

## Predefined user roles

network-admin

## Parameters

**reference-instance** *instance-id-list*: Specifies a space-separated list of up to 10 MSTI items. Each item specifies an MSTI ID or a range of MSTI IDs in the form of *instance-id 1 to*

*instance-id 2*. The value range for MSTI IDs is 0 to 4094. 0 represents the common internal spanning tree (CIST). The *instance-id 2* must be equal to or greater than *instance-id 1*. You can use the **display stp region-configuration** command to display instance-to-VLAN mappings.

## Usage guidelines

You must configure all VLANs to which the member ports of a smart link group belongs as protected VLANs.

If the VLAN-to-MSTI mappings change, the protected VLANs change.

To remove protected VLAN configuration, follow these restrictions and guidelines:

- If you specify the **reference-instance** *instance-id-list* option, the **undo protected-vlan** command removes configuration of VLANs mapped to the specified MSTIs. If you do not specify the **reference-instance** *instance-id-list* option, the command removes configuration of all protected VLANs.
- If a smart link group has member ports, you cannot remove protected VLAN configuration. If a smart link group does not have member ports, you can remove protected VLAN configuration.

## Examples

# Map VLANs 1 through 30 to MSTI 1, and activate the MST region configuration. Configure the VLANs mapped to MSTI 1 as the protected VLANs of smart link group 1.

```
<Sysname> system-view
[Sysname] stp region-configuration
[Sysname-mst-region] instance 1 vlan 1 to 30
[Sysname-mst-region] active region-configuration
[Sysname-mst-region] quit
[Sysname] smart-link group 1
[Sysname-smlk-group1] protected-vlan reference-instance 1
```

## Related commands

**display stp region-configuration** (*Layer 2—LAN Switching Command Reference*)  
**smart-link group**

# reset smart-link statistics

Use **reset smart-link statistics** to clear statistics about flush messages.

## Syntax

```
reset smart-link statistics
```

## Views

User view

## Predefined user roles

network-admin

## Examples

```
# Clear statistics about flush messages.
<Sysname> reset smart-link statistics
```

## Related commands

**display smart-link flush**

## smart-link flush enable

Use **smart-link flush enable** to enable flush message receiving.

Use **undo smart-link flush enable** to disable flush message receiving.

### Syntax

```
smart-link flush enable [ control-vlan vlan-id-list ]  
undo smart-link flush enable [ control-vlan vlan-id-list ]
```

### Default

Flush message receiving is disabled.

### Views

Layer 2 Ethernet interface view

Layer 2 aggregate interface view

### Predefined user roles

network-admin

### Parameters

**control-vlan** *vlan-id-list*: Specifies a space-separated list of up to 10 control VLAN items. Each item specifies a control VLAN ID or a range of control VLAN IDs in the form of *vlan-id1* to *vlan-id2*. The value range for the *vlan-id* argument is 1 to 4094. The *vlan-id2* must be greater than or equal to *vlan-id1*. The default value for the *vlan-id-list* argument is 1.

### Examples

```
# Enable Ten-GigabitEthernet 1/0/1 to receive flush messages.  
<Sysname> system-view  
[Sysname] interface ten-gigabitethernet 1/0/1  
[Sysname-Ten-GigabitEthernet1/0/1] smart-link flush enable  
  
# Enable Layer 2 aggregate interface 1 to receive flush messages.  
<Sysname> system-view  
[Sysname] interface bridge-aggregation 1  
[Sysname-Bridge-Aggregation1] smart-link flush enable
```

### Related commands

**flush enable**

## smart-link group

Use **smart-link group** to create a smart link group and enter its view, or enter the view of an existing smart link group.

Use **undo smart-link group** to remove a smart link group.

### Syntax

```
smart-link group group-id  
undo smart-link group group-id
```

### Default

No smart link groups exist.

## Views

System view

## Predefined user roles

network-admin

## Parameters

*group-id*: Specifies a smart link group ID. The value range for this argument is 1 to 48.

## Usage guidelines

You cannot remove a smart link group with member ports.

## Examples

# Create smart link group 1 and enter its view.

```
<Sysname> system-view  
[Sysname] smart-link group 1  
[Sysname-smk-group1]
```