FSOS

Forward Control

Contents

1. Forward Control

1.1 Bandwidth-control

Bandwidth-control is mainly to achieve the bandwidth of the export or import restriction; and limit the total rate of incoming or outgoing packets from the port.

1.1.1 Configure Bandwidth Limit for Port.

In the port, configure the bandwidth limit for the inbound / outbound direction of the port.

Configure bandwidth limit for port

operation	command	remark
Enter port mode	interface ethernet ***port-number***	-
Configure the bandwidth limit for port outbound	[no]bandwidth egress ***rate***	optional
Configure the bandwidth limit for port inbound	[no]bandwidth ingress ***rate***	optional
Configure the bandwidth limit of the port based on the queue	bandwidth queue ***queue-id*** { maximum | minimum} ***rate***	optional
Cancel the bandwidth limit of the port based on the queue	no bandwidth queue ***queue-id*** { maximum | minimum }	optional

1.1.2 Bandwidth Limit Display and Maintenance

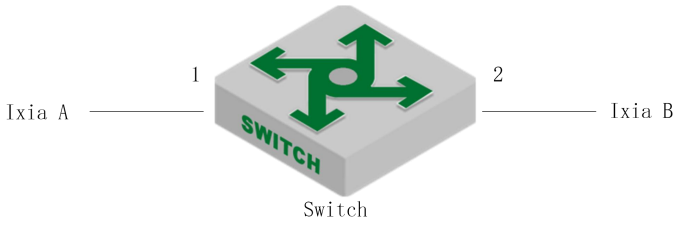
Bandwidth Limit Display and Maintenance

operation	command	remark
View the bandwidth limit information of the port	show bandwidth-control interface [ethernet ***port-number***]	optional
View the queue-based bandwidth limit of port	show bandwidth queue interface [ethernet ***port-number***]	optional

1.1.3 Bandwidth-control configuration example

I. Network requirement

Set the ingress speed of port 1 to 1024 (1M).



Bandwidth control Schematic Diagram

2. Configuration steps

Configure bandwidth control

Switch(config)#interface ethernet 0/0/1

Switch(config-if-ethernet-0/0/1)#bandwidth ingress 1024

Switch(config-if-ethernet-0/0/1)#exit

View the configuration information

Switch(config)#show bandwidth-control interface ethernet 0/0/1

port	Ingress bandwidth control	Egress bandwidth control
e0/0/1	1024 kbps	disable

Total entries: 1.

1.2 Flow Control

1.2.1 Overview for Flow Control

When one-side switch and the other-side switch enable the flow control function, if the one-side switch is congested:

- The one-side switch sends a message to other-side switch to notify the other-side switch to stop sending packets or slow down the sending speed.
- After receiving the message, the other-side switch stops sending packets to the one-side or slows down the sending speed. This prevents packets from being lost and ensures normal operation of the network services.

1.2.2 Configure Flow Control

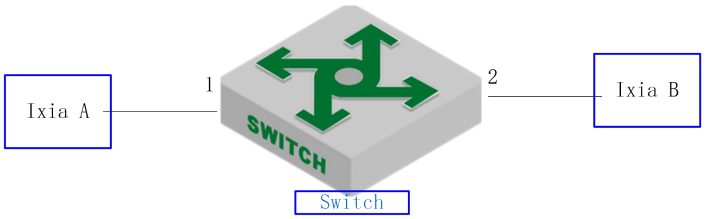
Configure Flow Control

Operation	Command	Remarks
Enter port configuration mode	configure terminal	-
Enable/disable flow control function	[no]flow-control	required; Disabled by default.
Display the flow control configuration information	show flow-control interface [ethernet ***port-number***]	optional

1.2.3 Configuration Example for Flow Control

1.Network requirements

Tester A, switch port1 and port2 enable flow control, port2 with export bandwidth 1M, tester A sends packets to ixia B, and then you can check whether the DUT issued flow control frame.



sketch map of flow control

2.Configuration steps

configure the flow control of switch port1 and port2
Switch(config)#interface range ethernet 0/0/1 ethernet 0/0/2
Switch(config-if-range)#flow-control
Switch(config-if-range)#exit

configure port2 with export bandwidth 1M
Switch(config)#interface ethernet 0/0/2
Switch(config-if-ethernet-0/0/2)#bandwidth egress 1024

3.Result validation

(1) Tester A enables the flow control, wire-speed forwarding; ------ Tester A received flow control frame issued by DUT, and the packet rate automatically adjusted to 1M.

Local-switch Function

Normally, the Switch does not forward the incoming packets from the port. However, you may need to forward the packets coming from the port sometimes. In this case, you can

use the local-switch. Configure Local-switch

Operation	Command	Remarks
Enter interface configuration mode	interface ethernet ***port-num***	-
Configure the local forwarding function	**[**no**]** Local-switch	optional
Display the configuration	show local-switch **[**interface ethernet ***port-num*** **]**	optional

1.2.4 Configuration Example for Local-switch

1.Network requirements
Enable local forwarding on port 0/0/1.

2.Configuration steps
Switch(config)#show local-switch interface ethernet 0/0/1
port local-switch-state
e0/0/1 disable
Total entries: 1 .

Switch(config)#interface ethernet 0/0/1
Switch(config-if-ethernet-0/0/1)#local-switch
Setting successfully! local-switch is enable

Switch(config)#interface ethernet 0/0/1
Switch(config-if-ethernet-0/0/1)#show local-switch interface ethernet 0/0/1
port local-switch-state
e0/0/1 enable
Total entries: 1 .

Switch(config-if-ethernet-0/0/1)#no local-switch
Setting successfully! local-switch is disable

Switch(config-if-ethernet-0/0/1)#show local-switch interface ethernet 0/0/1
port local-switch-state
e0/0/1 disable
Total entries: 1 .

1.3 Slf-control Function

Whether the Switch forwards source unknown packets or not needs to be managed by the network administrator according to the security policy. By default, Switch forwards the source unknown packets. You can disable the source unknown packet forwarding function

by using the specified command, in that case, when the device receives a packet, it checks whether the source MAC exists in the MAC table or not. If it does not exist, it discards the packet, that is, it can only forward the packet whose source address is being known.

1.3.1 Configure Slf-control

Configure Slf-control

Operation	Command	Remarks
Enter port configuration mode	**interface ethernet** *port-num*	required
Disable the forwarding function that source mac address is being unknown	**[no]src_dlf_forward**	required
Turn off mac learning	**[no] mac-address-table learning**	required
Enable the forwarding function that source mac address is being unknown	**src_dlf_forward**	
Display the configuration	**show src_dlf_forward interface [ethernet *port-num*]**	optional

This function is usually combined with the port MAC address learning function or port MAC address limit function.

1.3.2 Configuration Example for Slf-control

1.Network requirements
Disable the forwarding function of source unknown packets on the port0/0/1.

2.Configuration steps
Switch(config)#show src_dlf_forward interface ethernet 0/0/1
Port src_dlf_forward status
0/0/1 enable

Switch(config)#interface ethernet 0/0/1
Switch(config-if-ethernet-0/0/1)#no src_dlf_forward
Switch(config-if-ethernet-0/0/1)#no mac-address-table learning
Switch(config-if-ethernet-0/0/1)#show src_dlf_forward interface ethernet 0/0/1

Port src_dlf_forward status
0/0/1 disable

1.4 DLF-control Overview

Unknown packets are classified into unknown unicast packets and unknown multicast packets

Unknown unicast packets are packets that cannot find the destination MAC address of the packets in the MAC table.

Unknown multicast packets are packets that cannot find the destination MAC address of the multicast packets in the multicast MAC table.

1.4.1 Configure DLF-control

If enable based on the global configuration, this command will take effect on egress packets of all ports;

If enable based on the interface configuration, this command will take effect on egress packets of this port.

By default, unknown packets are allowed to be forwarded.

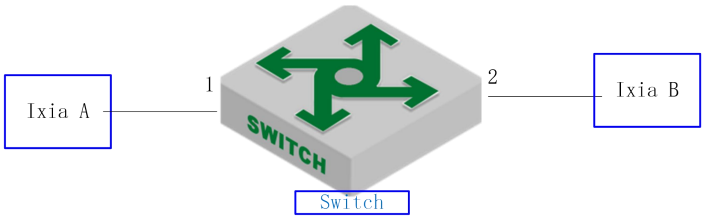
Configure dlf-forward

Operation	Command	Remarks
Enter global configuration mode	configure terminal	-
Enable the forwarding function of unknown unicast packets	[no]dlf-forward unicast	Optional. Enabled by default.
Enable the forwarding function of unknown multicast packets	[no]dlf-forward multicast	Optional. Enabled by default.
Enter interface configuration mode	interface ethernet ***port-number***	-
Enable the forwarding function of unknown unicast packets	[no]dlf-forward unicast	Optional. Enabled by default.
Enable the forwarding function of unknown multicast packets	[no]dlf-forward multicast	Optional. Enabled by default.
Display dlf-forward configuration	show dlf-forward interface [ethernet ***port-number***]	optional

1.4.2 Configuration Example for DLF-control

1.Network requirements

Configure the port 2 egress not to forward unknown unicast packets.



sketch map for Dlf-control

2.Configuration steps

Disable the port 2 forwarding function of unknown unicast packets
Switch(config-if-ethernet-0/0/2)#no dlf-forward unicast

Display the configurations
Switch(config-if-ethernet-0/0/2)#show dlf-forward interface ethernet 0/0/2
Forwarding unknown unicast packets global status: enable
Forwarding unknown multicast packets global status: enable

Port	Forwarding Unknown Unicast	Forwarding Unknown Multicast
e0/0/2	disable	enable

3.Result validation

(1) The tester A sends an unknown packet at line speed, and the tester B does not receive the packet.

(2) The tester A sends a known packet at line speed, and the tester B receives the packet.