MCF5441x Ethernet Switch Command Reference

CHAPTER 1

Ethernet Switch Command-Line Interface Interview

The M5441x Ethernet switch commands were supported by the switch command-line interface (CLI). This document describes how to use those switch commands.

Before run the switch commands, the ethernet switch mode need to be configured in the kernel. Please note that the FEC and switch mode cannot be enabled at the same time.

--- Ethernet (10 or 100Mbit)

<*>   Generic Media Independent Interface device support

< >   Dave ethernet support (DNET)

< >   Broadcom 440x/47xx ethernet support

Ethernet controller selection (ethernet switch controller (of ColdFire CPUs))

The **modelo_switch** command help you enter in the CLI. The **modelo_switch -d** command help you run the CLI in the background.

[root@M54418TWR /]# modelo_switch

18:06:32 Switch>

The command-line interface (CLI) also supports RSTP configuration commands.

Notes: When the modelo switch is enabled. The tree adjacent MAC address will be used for BPDU packet. For example, if xx:xx:xx:xx:xx:01 was used for eth0, Then xx:xx:xx:xx:xx:02 and xx:xx:xx:xx:xx:03 will be used for BPDU packets.

CHAPTER 2

Ethernet Switch Command-Line Interface Commands

help

Use the **help** or **?** to list possible commands.

show mac address-table

Use the **show mac address-table** to display the MAC address table including dynamic and static entries.

Examples   This is an example of output from the **show mac address-table** command:

17:33:01 Switch> show mac address-table
Dynamic entries number: 2
Static entries number: 0
Type   MAC address   Port   Timestamp
dynamic   00-1e-c9-4d-02-b1   1   3
dynamic   00-1a-a0-2e-13-ce   1   3

show vlan

Use the **show vlan** to display the parameters for all configured VLANs on the switch.

Examples   This is an example of output from the **show vlan** command:

17:48:21 Switch> vlan 111
17:48:29 Switch> port access vlan 2 111
17:48:41 Switch> show vlan
VLAN Name   VLAN Id   Ports
0   111   2

show input-vlan

Use the **show input-vlan** to display vlan input manipulation status.

Examples   This is an example of output from the **show input-vlan** command:

17:48:21 Switch> show input-vlan
port 0: vlan input manipulation disable
port 1: vlan input manipulation disable
port 2: vlan input manipulation disable
21:45:34 Switch> port vlan input 1 mode4 789
21:47:28 Switch> show input-vlan
port 0: vlan input manipulation disable
port 1: vlan input manipulation enable (mode 4, vlan id 789)
port 2: vlan input manipulation disable

show output-vlan

Use the **show output-vlan** to display vlan output manipulation status.

Examples   This is an example of output from the **show output-vlan** command:

21:46:21 Switch> show output-vlan
port 0: vlan output manipulation disable
port 1: vlan output manipulation disable
port 2: vlan output manipulation disable
21:47:30 Switch> port vlan output 2 mode3
21:48:48 Switch> show output-vlan
port 0: vlan output manipulation disable
port 1: vlan output manipulation disable
port 2: vlan output manipulation enable (mode 3)

show ip snooping

Use the **show ip snooping** to display the programmable IP header protocols snooping configuration of the switch.

Examples   This is an example of output from the **show ip snooping** command:

17:48:43 Switch> ip snooping 1 Y mode2
17:56:54 Switch> show ip snooping
IP Protocol   Mode   Type
 1   2   Active

show port snooping

Use the **show port snooping** to display the programmable TCP/UDP port number snooping configuration of the switch.

Examples   This is an example of output from the **show port snooping** command:

18:55:10 Switch> port snooping 1080 Y Y mode1
18:56:31 Switch> show port snooping
TCP/UDP Port SrcCompare DesCompare Mode Type
* 1080   Y   Y   1   Active*

show port mirroring

Use the **show port mirroring** to display the programmable port mirroring and filtering configuration of the switch.

Examples   This is an example of output from the **show port mirroring** command:

18:56:36 Switch> mirror port match egress 2 1
19:04:26 Switch> show port mirroring
Mirror Port: 2   Egress Port Match:Y   Ingress Port Match:N
Egress Port to be mirrored: Port 1
Egress Des Address Match:N   Egress Src Address Match:N
Ingress Des Address Match:N   Ingress Src Address Match:N
19:04:31 Switch> mirror addr match egress-src 2 00:04:6d:45:f0:13
19:05:14 Switch> show port mirroring
Mirror Port: 2   Egress Port Match:Y   Ingress Port Match:N
Egress Port to be mirrored: Port 1
Egress Des Address Match:N   Egress Src Address Match:Y
Ingress Des Address Match:N   Ingress Src Address Match:N
Egress Src Address to be mirrored: 00-04-6d-45-f0-13

show port

Use the **show port** to display the parameters for the specified port.

 show port [*port-number***]**

Syntax Description

port-number   physical port number of the switch. The port number range is 0 to 2.

Examples   This is an example of output from the **show port** command:

19:05:18 Switch> show port 1
Port 1 status:
Link:Up   Blocking:N   Learning:Y
VLAN Verify:N   Discard Unknown:N   Multicast Res:N
Broadcast Res:Y   Transmit:Enable   Receive: Enable

show statistics

Use the **show statistics** to display the switch statistics.

DISCN means the total number of incoming frames processed but discarded in the switch.
DISCB means the sum of bytes of frames counted in DISCN.
NDISCN means the total number of incoming frames processed and not discarded.
NDISCB means the sum of bytes of frames counted in NDISCN.

POQC means the outgoing frames discarded due to output queue congestion.
PMVID means the incoming frames discarded due to mismatching or missing VLAN ID while VLAN verification was enabled.
PMVTAG means the incoming frames discarded due to missing VLAN tag.
PBL means the incoming frames discarded(after leaning) as port is configured in blocking mode.

Examples   This is an example of output from the **show statistics** command:

17:48:41 Switch> show statistics
DISCN :   992807   DISCB : 85391064
NDISCN: 12114   NDISCB: 980812
port 0: POQC : 0
*   PMVID : 0*
*   PMVTAG: 0*
*   PBL : 0*
port 1: POQC : 0
*   PMVID : 0*
*   PMVTAG: 0*
*   PBL : 9*
port 2: POQC : 0
*   PMVID : 0*
*   PMVTAG: 0*
*   PBL : 0*

mac address-table static

Use the **mac address-table static** to add a static mac address to the mac address table.

mac address-table static [*mac address***] [***port-select***] [***priority***]**

Syntax Description

mac address   static mac address.

port-select   there are six options to select.

port0: forward to port 0 only

port1: forward to port 1 only

port2: forward to port 2 only

port0,1: forward to port 0 and 1

port0,2: forward to port 0 and 2

port1,2: forward to port 1 and 2

priority   static mac address priority.

Examples

This example shows how to update a static mac address to mac address table from the **mac address-table static** command:

19:14:46 Switch> mac address-table static 00:1e:c9:2a:69:d5 port2 2

You can verify your settings by entering the **show mac address-table** command.

forced forwarding

Use the **forced forwarding** to enable or disable the forced forwarding of the port 0 frames (i.e. frames transmitted from the DMA0 to the port 0 of the switch) to the MAC at ports 1 and 2.

forced forwarding [*enable/disable***] [***port-select***]**

Syntax Description

enable/disable   enable or disable the forced forwarding. The option is Y(y) or N(n).

port-select   there are three options to select.

port1: forward to port 1 only

port2: forward to port 2 only

bothports: forward to both ports

Examples

This example shows how to enable the forced forwarding to both ports from the **forced forwarding** command:

19:14:46 Switch> forced forwarding y bothports

This example shows how to disable the forced forwarding function from the **forced forwarding** command:

19:14:46 Switch> forced forwarding n

port enable

Use the **port enable** to enable or disable the transmitting/receiving functions for the specified port.

port enable [*port-number***] [***enable/disable***] [***enable/disable***]**

Syntax Description

port-number   physical port number of the switch. The port number range is 0 to 2.

enable/disable   enable or disable the transmitting function for the specified port. The option is Y(y) or N(n).

enable/disable   enable or disable the receiving function for the specified port. The option is Y(y) or N(n).

Examples

This example shows how to enable the transmitting function for the specified port and disable the receiving function for the specified port from the **port enable** command:

19:40:20 Switch> port enable 1 y n

You can verify your settings by entering the **show port 1** command.

port learning

Use the **port learning** to enable or disable the learning function for the specified port.

port learning [*port-number***] [***enable/disable***]**

Syntax Description

port-number   physical port number of the switch. The port number range is 0 to 2.

enable/disable   enable or disable the learning function for the specified port. The option is Y(y) or N(n).

Examples

This example shows how to enable the learning function for the specified port from the **port learning** command:

19:40:20 Switch> port learning 1 y

This example shows how to disable the learning function for the specified port from the **port learning** command:

19:47:10 Switch> port learning 1 n

port blocking

Use the **port blocking** to enable or disable the blocking function for the specified port.

port blocking [*port-number***] [***enable/disable***]**

Syntax Description

port-number   physical port number of the switch. The port number range is 0 to 2.

enable/disable   enable or disable the blocking function for the specified port. The option is Y(y) or N(n).

Examples

(One switch named switch1 is connected to Modelo Switch's port 1. One computer named PC1 is connected to the switch1. The other computer named PC2 is connected to Modelo Switch's port 2.)

This example shows how to enable the blocking function for the specified port from the **port blocking** command:

19:47:12 Switch> port blocking 1 y

(PC2 cannot ping the IP address of PC1)

This example shows how to disable the blocking function for the specified port from the **port blocking** command:

19:51:08 Switch> port blocking 1 n

(PC2 can ping the IP address of PC1)

port multicast

Use the **port multicast** to enable or disable the specified port as the default output port for multicast resolution.

port multicast [*port-number*] [*enable/disable*]

Syntax Description

port-number   physical port number of the switch. The port number range is 0 to 2.

enable/disable   enable or disable the specified port as the default output port for multicast resolution. The option is Y(y) or N(n).

Examples

(One switch named switch1 is connected to Modelo Switch's port 1. One computer named PC1 is connected to the switch1. The other computer named PC2 is connected to Modelo Switch's port 2.)

This example shows how to enable port 2 as the default output port for multicast resolution from the **port multicast** command:

19:51:10 Switch> port multicast 2 y

(PC1 sends multicast frames, destination MAC address is 01:00:5e:aa:bb:cc. PC2 can receive these multicast frames using tcpdump tool)

This example shows how to disable port 2 as the default output port for multicast resolution from the **port multicast** command:

19:58:50 Switch> port multicast 2 n

(PC1 sends multicast frames, destination MAC address is 01:00:5e:aa:bb:cc. PC2 cannot receive these multicast frames using tcpdump tool)

port broadcast

Use the **port broadcast** to enable or disable the specified port as the default output port for broadcast resolution.

port broadcast [*port-number*] [*enable/disable*]

Syntax Description

port-number   physical port number of the switch. The port number range is 0 to 2.

enable/disable   enable or disable the specified port as the default output port for broadcast resolution. The option is Y(y) or N(n).

Examples

(One switch named switch1 is connected to Modelo Switch's port 1. One computer named PC1 is connected to the switch1. The other computer named PC2 is connected to Modelo Switch's port 2.)

This example shows how to enable the specified port as the default output port for broadcast resolution from the **port broadcast** command:

19:58:55 Switch> port broadcast 2 y

(PC1 sends broadcast frames, destination MAC address is FF-FF-FF-FF-FF-FF. PC2 can receive these broadcast frames using tcpdump tool)

This example shows how to disable the specified port as the default output port for broadcast resolution from the **port broadcast** command:

20:04:05 Switch> port broadcast 2 n

(PC1 sends broadcast frames, destination MAC address is FF-FF-FF-FF-FF-FF. PC2 cannot receive these broadcast frames using tcpdump tool)

vlan

no vlan

Use the **vlan** to add a VLAN. Use the **no** form of this command to delete the VLAN.

vlan [*vlan-id***]**

no vlan [*vlan-id***]**

Syntax Description

vlan-id   ID of the VLAN to be added and configured. For *vlan-id*, the range is 1 to 4094.

Examples

This example shows how to add an Ethernet VLAN from the **vlan** command. You can verify your setting by entering the **show vlan** command.

20:13:39 Switch> vlan 111
20:13:42 Switch> show vlan
VLAN Name   VLAN Id   Ports
 0   111

This example shows how to delete an Ethernet VLAN from the **no vlan** command. You can verify your setting by entering the **show vlan** command.

20:13:45 Switch> no vlan 111
20:16:48 Switch> show vlan
VLAN Name   VLAN Id   Ports

port access vlan

Use the **port access vlan** command to configure the specified port as a member of the specified VLAN.

port access vlan [*port-number*] [*vlan-id*]

Syntax Description

port-number   physical port number of the switch. The port number range is 0 to 2.

vlan-id   ID of the VLAN to be added and configured. For *vlan-id*, the range is 1 to 4094.

Examples

This example shows how to configure a switched port operating in the specified VLAN. You can verify your setting by entering the **show vlan** command.

20:16:50 Switch> port access vlan 2 222
20:28:41 Switch> show vlan
VLAN Name   VLAN Id   *Ports*
 0   *222*   *2*

port vlan verify

Use the **port vlan verify** command to enable or disable the VLAN domain verification for the specified port. Use the **port vlan verify** command to configure the received frames with unknown VLAN IDs or no VLAN tag discarded or forwarded.

port access vlan [*port-number*] [*vlan-verify*] [*discard-unknown*]

Syntax Description

port-number   physical port number of the switch. The port number range is 0 to 2.

vlan-verify   enable or disable vlan verification for the specified port. The option is Y(y) or N(n).

discard-unknown   discard or forward the received frames with unknown VLAN IDs or no VLAN tag. The option is Y(y) or N(n).

Examples

(One switch named switch1 is connected to Modelo Switch's port 1. One computer named PC1 is connected to the switch1. The other computer named PC2 is connected to Modelo Switch's port 2.)

This example shows how to enable the VLAN domain verification for the specified port and forward the received frames with unknown VLAN IDs or no VLAN tag. You can verify your setting by entering the **show port** command.

20:28:47 Switch> port vlan verify 1 y n
20:29:13 Switch> show port 1
Port 1 status:
Link:Up   Blocking:N   Learning:N
VLAN Verify:Y   Discard Unknown:N   Multicast Res:N
Broadcast Res:N   Transmit:Enable   Receive: Enable
Next example shows how to test VLAN resolution function.
20:30:23 Switch> vlan 111
20:30:56 Switch> vlan 222
20:31:25 Switch> port access vlan 1 111
20:31:52 Switch> port access vlan 2 222
20:32:22 Switch> port vlan verify 1 y n
20:32:38 Switch> port vlan verify 2 y n
20:33:12 Switch> show vlan
VLAN Name   VLAN Id   Ports
0   111   1
1   222   2
(PC1 sends frames to PC2 with VLAN ID 111. PC2 cannot receive these frames)
20:34:51 Switch> port access vlan 2 111
20:33:12 Switch> show vlan
VLAN Name   VLAN Id   Ports
0   111   1 2
1   222   2

(PC1 sends frames to PC2 with VLAN ID 111. PC2 can receive these frames)

port vlan input

Use the **port vlan input** command to configure the VLAN input manipulation function of the specified input port.

port vlan input [*port-number***] [***mode***] [***vlan-id***]**

Syntax Description

port-number   physical port number of the switch. The port number range is 0 to 2.

mode   there are five options to select.

mode0 : disable vlan input manipulation

mode1: single tagging with pass through (Insert a tag only if the frame is untagged. If the frame is already tagged, the frame is unmodified)

mode2: single tagging with replace (If untagged, add the tag. If single tagged, overwrite it)

mode3: double tagging with pass through (Insert a tag on untagged and tagged frames. This results a single-tagged frame when an untagged is received, and a double-tagged frame, when a single-tagged frames is received. When a double-tagged frame is received, the frame is unmodified)

mode4: double tagging with replace (Insert tag on untagged and single-tagged frames. If a double-tagged frame is received, overwrite the outer tag)

vlan-id   VLAN ID used for insertion. For *vlan-id*, the range is 1 to 4094.

Examples

(One switch named switch1 is connected to Modelo Switch's port 1. One computer named PC1 is connected to the switch1. The other computer named PC2 is connected to Modelo Switch's port 2.)

This example shows how to configure the VLAN input manipulation of the specified input port 1 in mode 1.

20:51:16 Switch> port vlan input 1 mode1 555

(PC1 sends frames to PC2 with VLAN ID 111. PC2 can receive these frames with VLAN ID 111)

Next example shows how to configure the VLAN input manipulation of the specified input port 1 in mode 2.

20:51:25 Switch> port vlan input 1 mode2 555

(PC1 sends frames to PC2 with VLAN ID 111. PC2 can receive these frames with VLAN ID 555)

port vlan output

Use the **port vlan output** command to configure the VLAN output manipulation function of the specified output port.

port vlan output [*port-number*] [*mode*]

Syntax Description

port-number   physical port number of the switch. The port number range is 0 to 2.

mode   there are four options to s`elect.

mode0: no output manipulation

mode1: strip mode (All the tags(single or doudle) are removed from incoming frame)

mode2: tag through mode (When a single-tagged frame is received, strip the tag from the frame; When a double-tagged frame is received, strip the outer tag from the frame)

mode3: transparent mode (When a single-tagged frame is received, frame is unchanged. When a double-tagged frame is received, strip the outer tag from the frame)

Examples

(One switch named switch1 is connected to Modelo Switch's port 1. One computer named PC1 is connected to the switch1. The other computer named PC2 is connected to Modelo Switch's port 2.)

This example shows how to configure the VLAN output manipulation of the specified output port 2 in mode 1.

21:09:29 Switch> port vlan output 2 mode1
(PC1 sends frames to PC2 with VLAN ID 111. PC2 can receive the frames without VLAN tag)

Next example shows how to configure the VLAN output manipulation of the specified output port 2 in mode 3.

21:10:29 Switch> port vlan output 2 mode3
(PC1 sends frames to PC2 with VLAN ID 111. PC2 can receive the frames with VLAN ID 111)

ip snooping

Use the **ip snooping** command to enable or disable the programmable IP header protocols snooping configuration of the switch.

ip snooping [*ip-protocol***][***enable/disable***] [***mode***]**

Syntax Description

ip-protocol   IP header protocol for snooping. The range is 0 to 255.

enable/disable   enable or disable IP snooping. The option is Y(y) or N(n).

mode   there are three options to select.

mode0:   forward frame to designated management port only

mode1:   copy to management port and forward normally

mode2:   discard

Examples

(One switch named switch1 is connected to Modelo Switch's port 1. One computer named PC1 is connected to the switch1. The other computer named PC2 is connected to Modelo Switch's port 2.)

This example shows how to enable IP protocol 1 (ICMP) snooping in mode 2. You can verify your setting by entering the **show ip snooping** command.

21:12:46 Switch> ip snooping 1 y mode2
21:16:27 Switch> show ip snooping
IP Protocol   Mode   Type
 1   2   Active
(PC2 cannot ping the IP address of PC1, and PC2 cannot ping the IP address of the TOWER board)

Next example shows how to enable IP protocol 1 (ICMP) snooping in mode 0. You can verify your setting by entering the **show ip snooping** command.

21:12:46 Switch> ip snooping 1 y mode0
21:16:27 Switch> show ip snooping
IP Protocol   Mode   Type
 1   0   Active
(PC2 cannot ping the IP address of PC1, but PC2 can ping the IP address of the TOWER board)

port snooping

Use the **port snooping** command to enable or disable the programmable TCP/UDP port number snooping configuration of the switch.

port snooping [*port-number*] [*src-snooping*] [*des-snooping*] [*mode*]

Syntax Description

port-number   TCP/UDP port number for snooping. The range is 0 to 65535.

src-snooping   enable or disable snooping for the source port number. The option is Y(y) or N(n).

des-snooping   enable or disable snooping for the destination port number. The option is Y(y) or N(n).

mode   there are three options to select.

mode0:   forward frame to designated management port only

mode1:   copy to management port and forward normally

mode2:   discard

Examples

(One switch named switch1 is connected to Modelo Switch's port 1. One computer named PC1 is connected to the switch1. The other computer named PC2 is connected to Modelo Switch's port 2.)

This example shows how to enable the source and destination TCP/UDP port 1 snooping in mode 2. You can verify your setting by entering the **show port snooping** command.

21:23:32 Switch> port snooping 1 y y mode2
21:28:35 Switch> show port snooping
TCP/UDP Port SrcCompare DesCompare Mode Type
1   Y   Y   2   Active
(PC1 sends TCP frames to PC2 with source and destination TCP ports are both 1. PC2 cannot receive these frames using tcpdump tool)

Next example shows how to enable the source and destination TCP/UDP port 1 snooping in mode 1. You can verify your setting by entering the **show port snooping** command.

21:23:32 Switch> port snooping 1 y y mode1
21:28:35 Switch> show port snooping
TCP/UDP Port SrcCompare DesCompare Mode Type
1   Y   Y   1   Active
(PC1 sends TCP frames to PC2 with source and destination TCP ports are both 1. PC2 can receive these frames using tcpdump tool)

mirror port match

Use the **mirror port match** command to enable or disable the mirroring for the matched egress or ingress port.

   mirror port match [*mirror-select*] [*mirror-port*] [*be-mirrored-port*]

Syntax Description

mirror-select   there are three options to select.

egress: egress port match enable

ingress: ingress port match enable

neither: neither egress nor ingress port match enable

mirror-port   port number acted as the mirror port. The port number range is 0 to 2.

be-mirrored-port   port number to be mirrored. The port number range is 0 to 2.

Examples

(One switch named switch1 is connected to Modelo Switch's port 1. One computer named PC1 is connected to the switch1. The other computer named PC2 is connected to Modelo Switch's port 2.)

This example shows how to enable the ingress port 0 mirroring on port 2, so port 2 can receive all mirrored frames. You can verify your setting by entering the **show port mirroring** command.

21:44:15 Switch> mirror port match ingress 2 0
21:57:42 Switch> show port mirroring
Mirror Port: 1   Egress Port Match:Y   Ingress Port Match:N
Egress Port to be mirrored: Port 2
Egress Des Address Match:N   Egress Src Address Match:N
Ingress Des Address Match:N   Ingress Src Address Match:N
(PC1 ping the IP address of the TOWER board, and PC2 can get the mirrored frames)

mirror addr match

Use the **mirror addr match** command to enable or disable the mirroring for the egress port with a matching destination or source address and the mirroring for the ingress port with a matching destination or source address.

   mirror addr match [*mirror-select*] [*mirror-port*] [*mac-address*]

Syntax Description

mirror-select there are five options to select.

egress-src: egress source address match enable

ingress-src: ingress source address match enable

egress-des: egress destination address match enable

ingress-des: ingress destination address match enable

none : mac address match disable

mirror-port port number acted as the mirror port. The port number range is 0 to 2.

mac-address mac address to be mirrored.

Examples

(One switch named switch1 is connected to Modelo Switch's port 1. One computer named PC1 is connected to the switch1. The other computer named PC2 is connected to Modelo Switch's port 2.)

This example shows how to enable the egress source mac address 00:04:9f:00:b3:49 mirroring on port 2, so port 2 can receive all mirrored frames. You can verify your setting by entering the **show port mirroring** command.

18:42:11 Switch> mirror addr match egress-src 2 00:04:9f:00:b3:49
18:42:25 Switch> show port mirroring
Mirror Port: 2   Egress Port Match:N   Ingress Port Match:N
Egress Des Address Match:N   Egress Src Address Match:Y
Ingress Des Address Match:N   Ingress Src Address Match:N
Egress Src Address to be mirrored: 00-04-9f-00-b3-49
(PC1 ping the IP address of the TOWER board, and the mac address of it is 00:04:9f:00:b3:49. PC2 can get the mirrored frames)

CHAPTER 3 Ethernet Switch RSTP Commands

enable

Enable command used to enable the RSTP protocol for Modelo platform, please note that the RSTP protocol was enabled by default.

disable

Disable command used to disable the RSTP protocol, please note that disable the RSTP protocol may result in network looping and broadcast storm.

show bridge

Show bridge command used to show the bridge configuration information including the bridge name, bridge ID, bridge priority and other bridge information. Some of the bridge configuration can be changed by the following commands.

show rstp port.

This command used to show the RSTP information of each port.

Show rstp port will show the RSTP summary information of all the port. For example:

08:39:42 Switch> show rstp port
BridgeId: 8000-00049f00b349 RootId: 2000-0011bc2e140d
  s p01 8001 Fwd 2000-0011bc2e140d 8001-68bdab580280 8005 R
  s p02 8002 Blk 2000-0011bc2e140d 8001-68bdab580280 8007 A

show rstp port [num] will show the detail RSTP information of the designed port. For example:

08:59:25 Switch> show rstp port 1
Stp Port p01: PortId: 8001 in Bridge 'B488':
Priority: 128
State: Forwarding   Uptime: 10
PortPathCost: admin: Auto   oper: 20
Point2Point: admin: Auto   oper: Yes
Edge: admin: Y   oper: N
Partner: oper: Slow
PathCost: 20
Designated Root: 2000-0011bc2e140d
Designated Cost: 4
Designated Bridge: 8001-68bdab580280
Designated Port: 8005
Role: Root
TcAck: N TcWhile: 0

fdWhile: 0 rcvdInfoWhile: 5
rbWhile: 0 rrWhile: 15
RSTP BPDU rx: 0
CONFIG BPDU rx: 10
TCN BPDU rx: 0

Some of the port config can be changed by the following commands.

bridge priority

This command used to change the priority of the bridge, the default priority is 0x8000, please note the new priority should be multiple of 4096.

The bridge priority changing may result in the topology change, as the bridge priority changing will change the BridgeId, and the network will reselect the root. For example:

09:25:54 Switch> show bridge
Bridge: B489   State:enabled
*BridgeId: 8000-00049f00b349   Bridge Proirity: **32768 (0x8000)***
*Designated Root: **8000-00049f00b349***
Root Port: none
Time Since Topology Change: 815
Max Age: 20   Bridge Max Age: 20
Hello Time: 2   Bridge Hello Time: 2
Forward Delay: 15   Bridge Forward Delay: 15
Hold Time: 3

09:36:02 Switch> show rstp port
 BridgeId: 8000-00049f00b349 RootId: 8000-00049f00b349
  s p01 8001 Fwd 8000-00049f00b349 8000-00049f00b349 8001 D
  s p02 8002 Fwd 8000-00049f00b349 8000-00049f00b349 8002 D

In this setting, this switch is selected as Root Bridge; The bridge priority is 0x8000. The two ports of the bridge are forwarding status.

After changing the priority:
*09:36:11 Switch> bridge priority **0x9000***
Changed rstp bridge priority
Waiting for a while:
09:38:17 Switch> show bridge
Bridge: B489   State:enabled
*BridgeId: **9000-00049f00b349**   Bridge Proirity: **36864 (0x9000)***
*Designated Root: **8001-68bdab580280***
Root Port: 8001 (p01), Root Cost: 20
Time Since Topology Change: 1538
Max Age: 20   Bridge Max Age: 20
Hello Time: 2   Bridge Hello Time: 2

Forward Delay: 15   Bridge Forward Delay: 15
Hold Time: 3

09:38:21 Switch> show rstp port
BridgeId: 9000-00049f00b349 RootId: 8001-68bdab580280
* s p01 8001 Fwd 8001-68bdab580280 8001-68bdab580280 8005 R*
* s p02 8002 Blk 8001-68bdab580280 8001-68bdab580280 8007 A*

After changing the bridge priority to 0x9000, the designated Root is changed to 8001-68bdab580280 and port 2 is set to blocking status and the port change to alternate port.

bridge maxage

This command used to change the maxage of the bridge. The configuration packet contain the message age, if the message > the maxage, the configuration message will be droped, The maxage set by the root bridge and globally used by the network. For example:

17:51:02 Switch> show bridge
Bridge: B585   State:enabled
BridgeId: 8000-00049f00b349   Bridge Proirity: 32768 (0x8000)
Designated Root: 8000-00049f00b349
Root Port: none
Time Since Topology Change: 203
*Max Age: 20   Bridge Max Age: **20***
Hello Time: 2   Bridge Hello Time: 2
Forward Delay: 15   ld Time: 3

*17:51:49 Switch> bridge maxage **15***
Changed rstp bridge max_age
17:51:55 Switch> show bridge
Bridge: B585   State:enabled
BridgeId: 8000-00049f00b349   Bridge Proirity: 32768 (0x8000)
Designated Root: 8000-00049f00b349
Root Port: none
Time Since Topology Change: 251
*Max Age: **15**   Bridge Max Age: **15***
Hello Time: 2   Bridge Hello Time: 2
Forward Delay: 15   Bridge Forward Delay: 15
Hold Time: 3

The maxage is changed, if this bridge is the root bridge, on the other switch in this network, the maxage also will be changed.

bridge fdelay

This command used to change the forward delay of the network, The forward delay set by the root and used by all the switch in the network. The forward delay = the timeout for Discarding->Learning->Forwarding transferring time. For example:

7:59:01 Switch> show bridge
Bridge: B585   State:enabled
BridgeId: 8000-00049f00b349   Bridge Proirity: 32768 (0x8000)
Designated Root: 8000-00049f00b349
Root Port: none
Time Since Topology Change: 679
Max Age: 15   Bridge Max Age: 15
Hello Time: 2   Bridge Hello Time: 2
Forward Delay: 15   Bridge Forward Delay: 15
Hold Time: 3
17:59:12 Switch>
*17:59:15 Switch> bridge fdelay **12***
Changed rstp bridge forward_delay
17:59:26 Switch> show bridge
Bridge: B585   State:enabled
BridgeId: 8000-00049f00b349   Bridge Proirity: 32768 (0x8000)
Designated Root: 8000-00049f00b349
Root Port: none
Time Since Topology Change: 697
Max Age: 15   Bridge Max Age: 15
Hello Time: 2   Bridge Hello Time: 2
Forward Delay: 12   Bridge Forward Delay: 12
Hold Time: 3
17:59:31 Switch>

bridge forseVersion

This command used to set the stp version on this bridge. 0 or 'forse slow' means the bridge work under stp version; 2 or 'regular' means the bridge work under rstp mode. For example:

17:39:17 Switch> bridge forseVersion 0

Accepted 'force_slow'
Changed rstp bridge force_version
17:39:27 Switch> bridge forseVersion 2
Accepted 'rapid'
Changed rstp bridge force_version

port priority

This command used to change the port priority, the new priority should be multiple of 16. The port priority is one of the parameters to select the port to be root port. For example:

ON the non-root bridge:

17:56:06 Switch> show rstp
 BridgeId: 9000-00049f00b349 RootId: 8000-00049f00b355
    *p01 8001 Blk 8000-00049f00b355 8000-00049f00b355 **c001 A***
    *p02 8002 Fwd 8000-00049f00b355 8000-00049f00b355 **8002 R***

With the same other parameters (RootId, RootPathCost, BridgeId), The port p01 connect to the small peer portID is set as the Root port.

Change the port priority on the root bridge(from 0xc0 to 0x70), then show the rstp port on the non-root bridge again:

17:57:03 Switch> show rstp
 BridgeId: 9000-00049f00b349 RootId: 8000-00049f00b355
    *p01 8001 Fwd 8000-00049f00b355 8000-00049f00b355 **7001 R***
    *p02 8002 Blk 8000-00049f00b355 8000-00049f00b355 **8002 A***

Then p01 change to the Root port and p02 change to the Alternate port on the non-root bridge.

port pcost

This command used to change the path cost of the port. For example:

18:04:52 Switch> show rstp port
 BridgeId: 9000-00049f00b349 RootId: 8000-00049f00b355
    *p01 8001 **Fwd** 8000-00049f00b355 8000-00049f00b355 7001 **R***
    *p02 8002 **Blk** 8000-00049f00b355 8000-00049f00b355 8002 **A***
18:05:43 Switch> show rstp port 1
Stp Port p01: PortId: 8001 in Bridge 'B376':
Priority: 128
State: Forwarding   Uptime: 703
PortPathCost: admin: Auto   oper: 20
Point2Point: admin: Auto   oper: Yes
Edge: admin: Y   oper: N
Partner: oper: Rapid
*PathCost: **20***
Designated Root: 8000-00049f00b355
Designated Cost: 0
Designated Bridge: 8000-00049f00b355
Designated Port: 7001
*Role: **Root***
TcAck: N TcWhile: 0

fdWhile: 0 rcvdInfoWhile: 6
rbWhile: 0 rrWhile: 15
RSTP BPDU rx: 301
CONFIG BPDU rx: 0
TCN BPDU rx: 0

Then change port 1 path cost from 20 to 25:

*18:08:17 Switch> port pcost 1 **25***
changed rstp port[s] path cost
18:08:21 Switch> show rstp port
 BridgeId: 9000-00049f00b349 RootId: 8000-00049f00b355
   *p01 8001 **Blk** 8000-00049f00b355 8000-00049f00b355 7001 **A***
   *p02 8002 **Fwd** 8000-00049f00b355 8000-00049f00b355 8002 **R***
18:08:26 Switch> show rstp port 1
Stp Port p01: PortId: 8001 in Bridge 'B376':
Priority: 128
State: Discarding   Uptime: 860
PortPathCost: admin: 25   oper: 25
Point2Point: admin: Auto   oper: Yes
Edge: admin: Y   oper: N
Partner: oper: Rapid
*PathCost: **25***
Designated Root: 8000-00049f00b355
Designated Cost: 0
Designated Bridge: 8000-00049f00b355
Designated Port: 7001
*Role: **Alternate***
fdWhile: 15 rcvdInfoWhile: 5
rbWhile: 0 rrWhile: 0
RSTP BPDU rx: 380
CONFIG BPDU rx: 0
TCN BPDU rx: 0
18:08:34 Switch>

As port1 path cost is changed from 20 to 25, port1 changed from Root port to Alternate port.

port mcheck

This command used to configure the port mcheck setting, if the port on switch 1 run with RSTP and the peer port on switch 2 run with STP, then the port switch 1 actually run with STP compatible mode. This command can force the port on switch 1 run with RSTP mode. This command can only be used with the bridge forseVersion >=2.

port edge

This command use to change the port edge status, when the port cannot receive the BPDU packet, the port is an edge port. For example:

17:34:29 Switch> show rstp port 1
Stp Port p01: PortId: 8001 in Bridge 'B589':
Priority: 128
State: Learning   Uptime: 28
PortPathCost: admin: Auto   oper: 20
Point2Point: admin: Auto   oper: Yes
Edge: admin: Y   oper: N
Partner: oper: Rapid
PathCost: 20
Designated Root: 8000-00049f00b349
Designated Cost: 0
Designated Bridge: 8000-00049f00b349
Designated Port: 8001
Role: Designated
TcAck: N TcWhile: 0
fdWhile: 3 rcvdInfoWhile: 0
rbWhile: 0 rrWhile: 0
RSTP BPDU rx: 1
CONFIG BPDU rx: 0
TCN BPDU rx: 0
17:34:58 Switch> show rstp port
* BridgeId: 8000-00049f00b349 RootId: 8000-00049f00b349*
*   p01 8001 Fwd 8000-00049f00b349 8000-00049f00b349 8001 D*
*   p02 8002 Blk 8000-00049f00b349 8000-00049f00b349 8001 B*
17:35:24 Switch>

Disconnect the link of port1 from the switch(which support RSTP) and connect it to a PC. Then port 1 becomes an edge port.

17:35:24 Switch> port 1 linkdown
port 1 linkup
17:37:02 Switch> show rstp
* BridgeId: 8000-00049f00b349 RootId: 8000-00049f00b349*
* E   p01 8001 Fwd 8000-00049f00b349 8000-00049f00b349 8001 D*
*   p02 8002 Blk 8000-00049f00b349 8000-00049f00b349 8002 D*
17:37:07 Switch> show rstp port 1
Stp Port p01: PortId: 8001 in Bridge 'B589':
Priority: 128
State: Forwarding   Uptime: 14
PortPathCost: admin: Auto   oper: 20
Point2Point: admin: Auto   oper: Yes
Edge: admin: Y   oper: Y
Partner: oper: Rapid
PathCost: 20
Designated Root: 8000-00049f00b349
Designated Cost: 0

Designated Bridge: 8000-00049f00b349
Designated Port: 8001
Role: Designated
TcAck: N TcWhile: 0
fdWhile: 0 rcvdInfoWhile: 0
rbWhile: 0 rrWhile: 0
RSTP BPDU rx: 0
CONFIG BPDU rx: 0
TCN BPDU rx: 0
17:37:12 Switch>

Port edge command can force the port edge status, For example:

17:38:27 Switch> port edge 1 n
changed rstp port[s] adminEdge
17:38:35 Switch> show rstp
 BridgeId: 8000-00049f00b349 RootId: 8000-00049f00b349
   p01 8001 Fwd 8000-00049f00b349 8000-00049f00b349 8001 D
   p02 8002 Fwd 8000-00049f00b349 8000-00049f00b349 8002 D
17:38:38 Switch> show rstp port 1
Stp Port p01: PortId: 8001 in Bridge 'B589':
Priority: 128
State: Forwarding   Uptime: 103
PortPathCost: admin: Auto   oper: 20
Point2Point: admin: Auto   oper: Yes
Edge: admin: N   oper: N
Partner: oper: Rapid
PathCost: 20
Designated Root: 8000-00049f00b349
Designated Cost: 0
Designated Bridge: 8000-00049f00b349
Designated Port: 8001
Role: Designated
TcAck: N TcWhile: 0
fdWhile: 0 rcvdInfoWhile: 0
rbWhile: 0 rrWhile: 0
RSTP BPDU rx: 0
CONFIG BPDU rx: 0
TCN BPDU rx: 0
17:38:43 Switch>

port nonStp

This command use to configuration the switch port participate the RSTP or not. In the following example, port1 participate the RSTP in default and port1 is an designed port:

17:45:53 Switch> show rstp port
 BridgeId: 8000-00049f00b349 RootId: 8000-00049f00b349

*p01 8001 Fwd 8000-00049f00b349 8000-00049f00b349 8001 **D***
p02 8002 Fwd 8000-00049f00b349 8000-00049f00b349 8002 D
17:50:29 Switch> show rstp port 1
Stp Port p01: PortId: 8001 in Bridge 'B558':
Priority: 128
State: Forwarding   Uptime: 388
PortPathCost: admin: Auto   oper: 20
Point2Point: admin: Auto   oper: Yes
Edge: admin: Y   oper: N
Partner: oper: Rapid
PathCost: 20
Designated Root: 8000-00049f00b349
Designated Cost: 0
Designated Bridge: 8000-00049f00b349
Designated Port: 8001
Role: Designated
TcAck: N TcWhile: 0
fdWhile: 0 rcvdInfoWhile: 0
rbWhile: 0 rrWhile: 0
RSTP BPDU rx: 30
CONFIG BPDU rx: 0
TCN BPDU rx: 0
17:50:33 Switch>

Then set port1 as nonStp:
17:52:33 Switch> port nonStp 1 y
changed rstp port[s] adminNonStp
17:52:49 Switch> show rstp port
 BridgeId: 8000-00049f00b349 RootId: 8000-00049f00b349
   *p01 8001 Fwd **0000-000000000000 0000-000000000000** 8001 -*
   p02 8002 Fwd 8000-00049f00b349 8000-00049f00b349 8002 D
17:52:54 Switch> show rstp port 1
Stp Port p01: PortId: 8001 in Bridge 'B558':
Priority: 128
State: Forwarding   Uptime: 529
PortPathCost: admin: Auto   oper: 20
Point2Point: admin: Auto   oper: Yes
Edge: admin: Y   oper: N
Partner: oper: Rapid
Role: NonStp
RSTP BPDU rx: 34
CONFIG BPDU rx: 0
TCN BPDU rx: 0
17:52:57 Switch>

port p2p

This command used to change the link type status of the port. Usually, if the link is full-duplex on the port, the link is identified as point2point link, otherwise, it is share medium. The link type can be changed by this command forcedly. For example:

18:04:15 Switch> show rstp port
 BridgeId: 8000-00049f00b349 RootId: 8000-00049f00b349
    p01 8001 Fwd 8000-00049f00b349 8000-00049f00b349 8001 D
    p02 8002 Fwd 8000-00049f00b349 8000-00049f00b349 8002 D
18:04:22 Switch> show rstp port 1
Stp Port p01: PortId: 8001 in Bridge 'B558':
Priority: 128
State: Forwarding   Uptime: 1203
PortPathCost: admin: Auto   oper: 20
Point2Point: admin: Auto   oper: Yes
Edge: admin: Y   oper: N
Partner: oper: Rapid
PathCost: 20
Designated Root: 8000-00049f00b349
Designated Cost: 0
Designated Bridge: 8000-00049f00b349
Designated Port: 8001
Role: Designated
TcAck: N TcWhile: 0
fdWhile: 0 rcvdInfoWhile: 0
rbWhile: 0 rrWhile: 0
RSTP BPDU rx: 126
CONFIG BPDU rx: 0
TCN BPDU rx: 0
18:04:24 Switch>
18:04:27 Switch> port p2p 1
   arg 3: adminPoit2Point
        y   forcePointToPoint
        n   forcePointToMultiPoint
        a   autoPointToPoint
       default 'a'
*18:04:27 Switch> **port p2p 1 n***
changed rstp port[s] p2p flag
18:04:46 Switch> show rstp port
 BridgeId: 8000-00049f00b349 RootId: 8000-00049f00b349
*   p01 8001 Fwd 8000-00049f00b349 8000-00049f00b349 8001 D
    p02 8002 Fwd 8000-00049f00b349 8000-00049f00b349 8002 D
18:04:53 Switch> show rstp port 1
Stp Port p01: PortId: 8001 in Bridge 'B558':
Priority: 128
State: Forwarding   Uptime: 1235
PortPathCost: admin: Auto   oper: 20
Point2Point: admin: ForceNo   oper: No
Edge: admin: Y   oper: N
Partner: oper: Rapid
PathCost: 20

Designated Root: 8000-00049f00b349
Designated Cost: 0
Designated Bridge: 8000-00049f00b349
Designated Port: 8001
Role: Designated
TcAck: N TcWhile: 0
fdWhile: 0 rcvdInfoWhile: 0
rbWhile: 0 rrWhile: 0
RSTP BPDU rx: 126
CONFIG BPDU rx: 0
TCN BPDU rx: 0
18:04:58 Switch>