Monitoring and Maintaining REP

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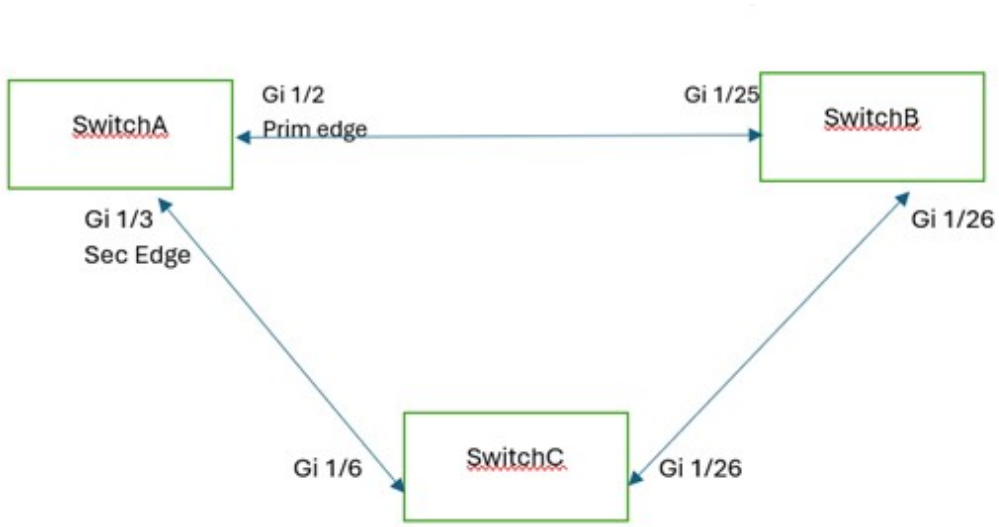
Command	Purpose
show interface [*interface-id*] **rep** [**detail**]	Displays REP configuration and status for an interface or for all interfaces.
show rep topology [**segment** *segment_id] [* **archive** *] [* **detail** *]*	Displays REP topology information for a segment or for all segments, including the primary and secondary edge ports in the segment.
copy running-config startup config	Saves your entries in the switch startup configuration file.

Investigating Broken Links

This section explains how to interpret **show rep topology** output if a link failure occurs.

Here is an example of a REP closed ring:

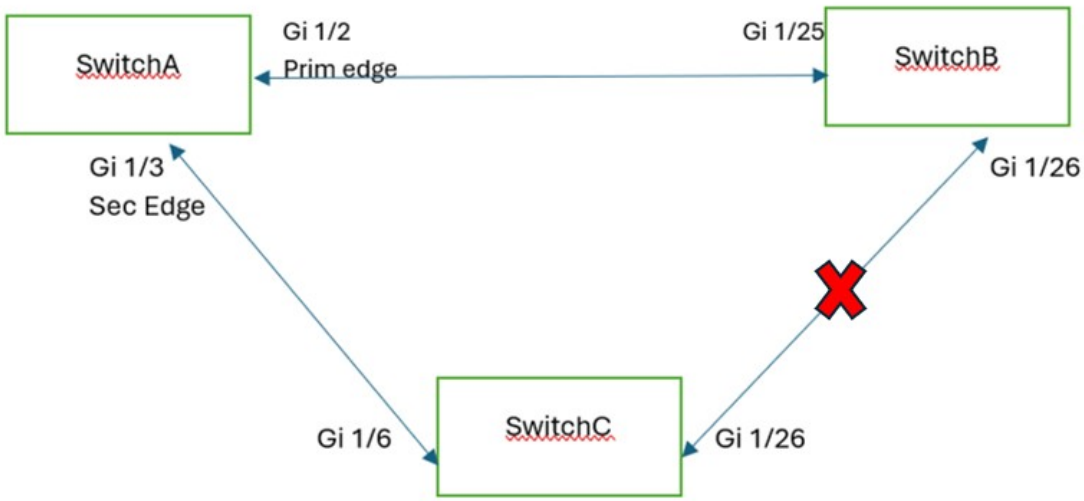
Figure 1: REP Closed Ring Topology




```
SWITCHA#sh rep topology
REP Segment 1
BridgeName                       PortName   Edge Role
-------------------------------- ---------- ---- ----
SWITCHA                          Gi1/2      Pri  Open
SWITCHB                          Gi1/25          Open
SWITCHB                          Gi1/26          Open
SWITCHC                          Gi1/26          Open
SWITCHC                          Gi1/6           Open
SWITCHA                          Gi1/3      Sec  Alt
```

Here is an example where the connection between SwitchB and SwitchC is down:

Figure 2: REP Closed Ring Topology with Link Failure



```
SWITCHA#sh rep topology
REP Segment 1
Warning: REP detects a segment failure, topology may be incomplete

BridgeName                       PortName   Edge Role
-------------------------------- ---------- ---- ----
SWITCHA                          Gi1/2      Sec  Open
SWITCHB                          Gi1/25          Open
SWITCHB                          Gi1/26          Fail
```

The **show rep topology** output relies on a database built using Edge Port Advertisement (EPA) packets. Each node in the ring is expected to receive two EPA packets, one each from the Primary and Secondary edge ports. Each port adds its own topology information to the topology information that it received.

If a failure in the topology occurs, depending on where the link failure is in relation to a node's position, the node will have a limited view of the topology starting from the connected edge port up to the node (as shown in the example **show rep topology** output above where a failure has occurred). In this case the node fails to transmit the EPA packets, resulting in each node showing different topology information in the **show rep topology** output.

Note This behavior is limited to the **show rep topology** command output only. The data path is not affected.

Displaying REP ZTP Status

Use the **show** command to identify the state of REP ZTP on an interface. In the following example, the feature is disabled on interface GigabitEthernet 1/1 and it is enabled on interface GigabitEthernet 1/2. The status of **pnp_startup_vlan** is "Blocked".

Procedure

Step 1 In priviledged exec mode, enter:

show interfaces rep detail

Example:

```
Switch#show interfaces rep detail
GigabitEthernet1/1 REP enabled
Segment-id: 100 (Segment)
PortID: 00016C13D5AC4320
Preferred flag: No
Operational Link Status: TWO_WAY
Current Key: 00026C13D5AC43209DAB
Port Role: Open
Blocked VLAN: <empty>
Admin-vlan: 1
REP-ZTP Status: Disabled
REP Segment Id Auto Discovery Status: Enabled
REP Segment Id Type: Manual
Preempt Delay Timer: disabled
LSL Ageout Timer: 5000 ms
LSL Ageout Retries: 5
Configured Load-balancing Block Port: none
Configured Load-balancing Block VLAN: none
```

```
STCN Propagate to: none
LSL PDU rx: 382, tx: 297
HFL PDU rx: 0, tx: 0
BPA TLV rx: 1, tx: 19
BPA (STCN, LSL) TLV rx: 0, tx: 0
BPA (STCN, HFL) TLV rx: 0, tx: 0
EPA-ELECTION TLV rx: 95, tx: 0
EPA-COMMAND TLV rx: 0, tx: 0
EPA-INFO TLV rx: 95, tx: 95

GigabitEthernet1/2 REP enabled
Segment-id: 100 (Segment)
PortID: 00026C13D5AC4320
Preferred flag: No
Operational Link Status: NO_NEIGHBOR
Current Key: 00026C13D5AC43209DAB
Port Role: Fail No Ext Neighbor
Blocked VLAN: 1-4094
Admin-vlan: 1
REP-ZTP Status: Enabled
REP-ZTP PnP Status: Unknown
REP-ZTP PnP Vlan: 1
REP-ZTP Port Status: Blocked
REP Segment Id Auto Discovery Status: Enabled
REP Segment Id Type: Manual
Preempt Delay Timer: disabled
LSL Ageout Timer: 5000 ms
LSL Ageout Retries: 5
Configured Load-balancing Block Port: none
Configured Load-balancing Block VLAN: none
STCN Propagate to: none
LSL PDU rx: 11, tx: 11
HFL PDU rx: 0, tx: 0
BPA TLV rx: 0, tx: 0
BPA (STCN, LSL) TLV rx: 0, tx: 0
BPA (STCN, HFL) TLV rx: 0, tx: 0
EPA-ELECTION TLV rx: 0, tx: 0
EPA-COMMAND TLV rx: 0, tx: 0
EPA-INFO TLV rx: 0, tx: 0
```

Step 2 Use the show command again to display the status of **pnp_startup_vlan**.

When the downstream device is booted up, it sends notification to the connected upstream switch interface to unblock the **pnp_startup_vlan** for it to get the DHCP IP address and further establish communication with the PNP server or DNAC. The show command indicates the status as "Unblocked".

The following syslogs on the upstream switch notify you about FWD and BLK of ports. There are no syslogs in the downstream switch as PnP takes control of the console and no syslogs can be printed on the console.

```
REP-6-ZTPPORTFWD: Interface GigabitEthernet1/2 moved to forwarding on ZTP notification
```

```
REP-6-ZTPPORTBLK: Interface GigabitEthernet1/2 moved to blocking on ZTP notification
```

Example:

```
Switch#show interfaces rep detail
GigabitEthernet1/1 REP enabled
Segment-id: 100 (Segment)
PortID: 00016C13D5AC4320
Preferred flag: No
Operational Link Status: TWO_WAY
Current Key: 00026C13D5AC43209DAB
```

```
Port Role: Open
Blocked VLAN: <empty>
Admin-vlan: 1
REP-ZTP Status: Disabled
REP Segment Id Auto Discovery Status: Enabled
REP Segment Id Type: Manual
Preempt Delay Timer: disabled
LSL Ageout Timer: 5000 ms
LSL Ageout Retries: 5
Configured Load-balancing Block Port: none
Configured Load-balancing Block VLAN: none
STCN Propagate to: none
LSL PDU rx: 430, tx: 358
HFL PDU rx: 0, tx: 0
BPA TLV rx: 1, tx: 67
BPA (STCN, LSL) TLV rx: 0, tx: 0
BPA (STCN, HFL) TLV rx: 0, tx: 0
EPA-ELECTION TLV rx: 107, tx: 0
EPA-COMMAND TLV rx: 0, tx: 0
EPA-INFO TLV rx: 107, tx: 108

GigabitEthernet1/2 REP enabled
Segment-id: 100 (Segment)
PortID: 00026C13D5AC4320
Preferred flag: No
Operational Link Status: NO_NEIGHBOR
Current Key: 00026C13D5AC43209DAB
Port Role: Fail No Ext Neighbor
Blocked VLAN: 1-4094
Admin-vlan: 1
REP-ZTP Status: Enabled
REP-ZTP PnP Status: In-Progress
REP-ZTP PnP Vlan: 69
REP-ZTP Port Status: Unblocked
REP Segment Id Auto Discovery Status: Enabled
REP Segment Id Type: Manual
Preempt Delay Timer: disabled
LSL Ageout Timer: 5000 ms
LSL Ageout Retries: 5
Configured Load-balancing Block Port: none
Configured Load-balancing Block VLAN: none
STCN Propagate to: none
LSL PDU rx: 32, tx: 40
HFL PDU rx: 0, tx: 0
BPA TLV rx: 0, tx: 0
BPA (STCN, LSL) TLV rx: 0, tx: 0
BPA (STCN, HFL) TLV rx: 0, tx: 0
EPA-ELECTION TLV rx: 0, tx: 0
EPA-COMMAND TLV rx: 0, tx: 0
EPA-INFO TLV rx: 0, tx: 0

Switch#show interfaces rep detail
GigabitEthernet1/1 REP enabled
Segment-id: 100 (Segment)
PortID: 00016C13D5AC4320
Preferred flag: No
Operational Link Status: TWO_WAY
Current Key: 00026C13D5AC43209DAB
Port Role: Open
Blocked VLAN: <empty>
Admin-vlan: 1
REP-ZTP Status: Disabled
REP Segment Id Auto Discovery Status: Enabled
REP Segment Id Type: Manual
```

```
Preempt Delay Timer: disabled
LSL Ageout Timer: 5000 ms
LSL Ageout Retries: 5
Configured Load-balancing Block Port: none
Configured Load-balancing Block VLAN: none
STCN Propagate to: none
LSL PDU rx: 430, tx: 358
HFL PDU rx: 0, tx: 0
BPA TLV rx: 1, tx: 67
BPA (STCN, LSL) TLV rx: 0, tx: 0
BPA (STCN, HFL) TLV rx: 0, tx: 0
EPA-ELECTION TLV rx: 107, tx: 0
EPA-COMMAND TLV rx: 0, tx: 0
EPA-INFO TLV rx: 107, tx: 108

GigabitEthernet1/2 REP enabled
Segment-id: 100 (Segment)
PortID: 00026C13D5AC4320
Preferred flag: No
Operational Link Status: NO_NEIGHBOR
Current Key: 00026C13D5AC43209DAB
Port Role: Fail No Ext Neighbor
Blocked VLAN: 1-4094
Admin-vlan: 1
REP-ZTP Status: Enabled
REP-ZTP PnP Status: Completed
REP-ZTP PnP Vlan: 69
REP-ZTP Port Status: Blocked
REP Segment Id Auto Discovery Status: Enabled
REP Segment Id Type: Manual
Preempt Delay Timer: disabled
LSL Ageout Timer: 5000 ms
LSL Ageout Retries: 5
Configured Load-balancing Block Port: none
Configured Load-balancing Block VLAN: none
STCN Propagate to: none
LSL PDU rx: 32, tx: 40
HFL PDU rx: 0, tx: 0
BPA TLV rx: 0, tx: 0
BPA (STCN, LSL) TLV rx: 0, tx: 0
BPA (STCN, HFL) TLV rx: 0, tx: 0
EPA-ELECTION TLV rx: 0, tx: 0
EPA-COMMAND TLV rx: 0, tx: 0
EPA-INFO TLV rx: 0, tx: 0
```

Step 3 (Optional) Use the following debug commands to troubleshoot REP ZTP:

- **debug rep lslsm**: This command helps you understand LSL state machine events in the NO_NEIGHBOR state.
- **debug rep packet**: Use this command to dump LSL packets with the REP ZTP LSL TLV to check the PnP status on the peer client node.

View REP Segment ID Autodiscovery Status

You can use the **show interfaces rep detail** CLI command to check the status of REP Segment-ID Autodiscovery on the segment.

Procedure

Enter **show interfaces rep detail** to confirm that REP Segment-ID Autodiscovery is globally enabled on the switch and to see whether the segment ID on the interface is configured automatically or manually.

Example:

```
Switch3#show interface rep detail
GigabitEthernet1/10   REP enabled
Segment-id: 100 (Edge)
PortID: 000A54A274103B00
Preferred flag: No
Operational Link Status: TWO_WAY
Current Key: 00062C3311D266001510
Port Role: Open
Blocked VLAN: <empty>
Admin-vlan: 2
REP Segment Id Type: Auto
Preempt Delay Timer: disabled
LSL Ageout Timer: 5000 ms
Configured Load-balancing Block Port: none
Configured Load-balancing Block VLAN: none
STCN Propagate to: none
LSL PDU rx: 953387, tx: 1056967
HFL PDU rx: 97, tx: 63
BPA TLV rx: 344515, tx: 446
BPA (STCN, LSL) TLV rx: 0, tx: 0
BPA (STCN, HFL) TLV rx: 0, tx: 0
EPA-ELECTION TLV rx: 0, tx: 0
EPA-COMMAND TLV rx: 0, tx: 0
EPA-INFO TLV rx: 260153, tx: 261511

Switch3#
```