

Troubleshooting of Optical Application Alarms

This chapter provides a description, severity, and troubleshooting procedure for each commonly encountered Cisco NCS 1010 optical application alarm and condition. When an alarm is raised, refer to its clearing procedure.

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APC-BLOCKED-RX

Default Severity: Minor (MN), Non-Service-Affecting (NSA)

Logical Object: OTS Controller

The APC-BLOCKED-RX alarm is raised when:

- The APC domain (OLT—OLT) is down due to:
  - Fiber cut in the receive (RX) direction of the span in the network.
  - Network events such as: OTS controller fail or shutdown, OSC fail or shutdown, LC reload, RP reload, and power cycle events.
- The topology is not discovered by the OSPF end-to-end and the connection bring up is pending.
- The user configured amplifier safety conditions, such as Optical safety remote interlock (OSRI) and Automatic power reduction (APR), and so on.
- Safety condition is triggered due to a High Back Reflection event.
- The participating agent nodes have locally disabled the APC.

Clear the APC-BLOCKED-RX Alarm

This alarm gets cleared when:

- The fiber issues are resolved and the network connectivity is restored in the receive direction.
- All the participating nodes are recovered from High Availability (HA) events.
- The end-to-end topology is discovered using the **show olc apc** command.
- All the safety conditions are cleared from the network.
- Verify that all the agent nodes in the domain have APC enabled using the **show olc apc-local** command.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

APC-BLOCKED-TX

Default Severity: Minor (MN), Non-Service-Affecting (NSA)

Logical Object: OTS Controller

The APC-BLOCKED-TX alarm is raised when:

- The APC domain (OLT—OLT) is down due to:
  - Fiber cut in the transmit (TX) direction of the span in the network.
  - Network events such as: OTS controller fail or shutdown, OSC fail or shutdown, LC reload, RP reload, and power cycle events.
- The topology is not discovered by the OSPF end-to-end and the connection bring up is pending.
- The user configured amplifier safety conditions, such as Optical safety remote interlock (OSRI) and Automatic power reduction (APR), and so on.
- Safety condition is triggered due to a High Back Reflection event.
- The participating agent nodes have locally disabled the APC.

Clear the APC-BLOCKED-TX Alarm

This alarm gets cleared when:

- The fiber issues are resolved and the network connectivity is restored in the transmit direction.
- All the participating nodes are recovered from High Availability (HA) events.
- The end-to-end topology is discovered using the **show olc apc** command.
- All the safety conditions are cleared from the network.
- Verify that all the agent nodes in the domain have APC enabled using the **show olc apc-local** command.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

APC-OUT-OF-RANGE-TX

Default Severity: Minor (MN), Non-Service-Affecting (NSA)

Logical Object: OTS Controller

The APC-OUT-OF-RANGE-TX alarm is raised when the APC system fails to regulate and achieve the target PSD power level in the transmit direction.

The possible conditions are:

- amplifier gain is exhausted in a particular gain range.
- WSS range (0-25 dB) is exhausted for a single or multiple channels.
- DGE range (0-3 dB) is exhausted for a single or multiple channels.
- increased span loss and the amplifier gain is not enough to achieve the target PSD.

Clear the APC-OUT-OF-RANGE-TX Alarm

This alarm gets cleared in the following conditions:

- If the requested amplifier gain is outside the current configured gain range, change it to the correct gain-range using the **controller ots egress-ampli-gain-range** *{normal | extended}*.
- If the WSS range is exhausted for a channel, check and correct the power levels on the add ports and ensure that there is no extra attenuation added due to a bad patchcord.
- Check the TX power is configured as required using the **show controllers osc** command. If required, configure the TX power using the **controller osc transmit-power** *value* command.
- Check and clear if there are any SPAN-LOSS-OUT-OF-RANGE alarms.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

APC-OUT-OF-RANGE-RX

Default Severity: Minor (MN), Non-Service-Affecting (NSA)

Logical Object: OTS Controller

The APC-OUT-OF-RANGE-RX alarm is raised when the APC system fails to regulate and achieve the target PSD power level in the receive direction.

The possible conditions are:

- amplifier gain is exhausted in a particular gain range.
- WSS range (0-25 dB) is exhausted for a single or multiple channels.

- DGE range (0-3 dB) is exhausted for a single or multiple channels.
- increased span loss and the amplifier gain is not enough to achieve the target PSD.

Clear the APC-OUT-OF-RANGE-RX Alarm

This alarm gets cleared in the following conditions:

- If the requested amplifier gain is outside the current configured gain range, change it to the correct gain-range using the **controller ots egress-ampli-gain-range** *{normal | extended}*.
- If the WSS range is exhausted for a channel, check and correct the power levels on the add ports and ensure that there is no extra attenuation added due to a bad patchcord.
- Check the RX power is configured as required using the **show controllers osc** command. If required, configure the RX power using the **controller osc transmit-power** *value* command.
- Check and clear if there are any SPAN-LOSS-OUT-OF-RANGE alarms.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

APC-PARTIAL-TOPOLOGY

Default Severity: Minor (MN), Non-Service-Affecting (NSA)

Logical Object: OTS Controller

The APC-PARTIAL-TOPOLOGY alarm is raised when:

- The APC domain (OLT—OLT) is down due to:
  - Fiber cut in one of the spans in the network.
  - Network events such as: OTS Controller fail/shutdown, OSC fail/shutdown, LC reload, RP reload, and powercycle events.
- The topology is not discovered by the OSPF end-to-end and the connection bring up is pending.

Clear the APC-PARTIAL-TOPOLOGY Alarm

This alarm gets cleared when:

- The fiber issues in the network are resolved, and the connectivity is restored.
- All the participating nodes are recovered from HA events.
- The OSPF is able to discover the topology OLT to OLT.
- All the safety conditions are cleared from the network.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

RAMAN-TUNE-FAILED

Default Severity: Not Alarmed (NA), Non-Service-Affecting (NSA)

Logical Object: OTS Controller

The RAMAN-TUNE-FAILED alarm is raised when Raman tuning is blocked due to:

- Raman tuning turns the Raman pumps off and goes into blocked state because of high Raman back reflection (BR).

  If peer nodes are unreachable due to span down, OSC fail, DFB fail and High Availability events like powercycle and card cold reload. Raman tuning requires communication between peer nodes to run.

Clear the RAMAN-TUNE-FAILED Alarm

This alarm gets cleared when:

- Clear the high BR by cleaning the fiber and port, and reconnect the fiber to the port. When BR is at acceptable levels, the system triggers Raman tuning and turns the Raman pumps on which in turn clears the alarm.
- Check the OSPF neighbors are established using the **show ospf neighbor** command. When OSPF neighbors are established, Raman Tuning is started automatically and completes calibration.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

RAMAN-TUNE-GAIN-UNREACHABLE

Default Severity: Not Alarmed (NA), Non-Service-Affecting (NSA)

Logical Object: OTS Controller

The RAMAN-TUNE-GAIN-UNREACHABLE alarm is raised when Raman Tuner is unable to achieve the target gain set by the user or algorithm.

Clear the RAMAN_TUNE_GAIN_UNREACHABLE Alarm

Configure the target Raman gain to the maximum possible value. This triggers the Raman tuning with the new target gain which clears the alarm. Use the following commands to configure the target Raman gain:

configure

optical-line-control

controller ots *Rack/Slot/Instance/Port*

raman-tuning raman-gain-target *value*

commit

end

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

RAMAN-TUNE-IN-PROGRESS

Default Severity: Major (MJ), Non-Service-Affecting (NSA)

Logical Object: OTS Controller

The RAMAN-TUNE-IN-PROGRESS alarm is raised when Raman tuning is in progress.

Clear the RAMAN-TUNE-IN-PROGRESS Alarm

This alarm is cleared automatically when any of the following conditions are met:

- Raman tuning is completed. To check the status of Raman tuning, use the **show olc raman-tuning** command.
- Raman tuning is disabled. To disable Raman tuning, use the **raman-tuning disable** command.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

SPAN-LOSS-OUT-OF-RANGE

Default Severity: Minor (MN), Non-Service-Affecting (NSA)

Logical Object: OTS Controller

The Span Loss Value Out Of Range (SPAN-LOSS-OUT-OF-RANGE) alarm is raised when the span loss measured is not within the configured threshold range.

The hysteresis value used for this alarm is 0.5dB.

Clear the SPAN-LOSS-OUT-OF-RANGE Alarm

Check and fix any fiber related issues using the OTDR scan measurements results stored in the SOR file. Use the **show controllers ots R/S/I/P otdr-info direction** command to view the OTDR scan events and the location of the SOR file.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).