

Troubleshooting of Data Path Alarms

This chapter provides a description, severity, and troubleshooting procedure for each commonly encountered data path alarm and condition in Cisco NCS 1020. When an alarm is raised, refer to its clearing procedure.

- CHANNEL-NOISE-LOADED, on page 2
- EGRESS-AMPLI-GAIN-HIGH, on page 2
- EGRESS-AMPLI-GAIN-LOW, on page 3
- EGRESS-AMPLI-LASER-OFF, on page 3
- EGRESS-AUTO-LASER-SHUT, on page 4
- EGRESS-AUTO-POW-RED, on page 4
- FEFI, on page 5
- HIGH-RX-BR-PWR, on page 5
- HIGH-TX-BR-PWR, on page 6
- INGRESS-AMPLI-GAIN-HIGH, on page 6
- INGRESS-AMPLI-GAIN-LOW, on page 7
- INGRESS-AMPLI-LASER-OFF, on page 8
- INGRESS-AUTO-LASER-SHUT, on page 8
- INGRESS-AUTO-POW-RED, on page 9
- LINK-DOWN, on page 9
- RAMAN-AMPLI-OSRI, on page 10
- RAMAN-AUTO-LASER-SHUT, on page 10
- RAMAN-AUTO-POW-RED, on page 11
- RAMAN-[1-5]-HIGH-PWR, on page 11
- RAMAN-[1-5]-LOW-PWR, on page 12
- RX-LOC, on page 12
- RX-LOS-P, on page 13
- SPAN-TOO-SHORT-RX, on page 14
- SPAN-TOO-SHORT-TX, on page 14
- TD-FAILED, on page 14
- TD-INPROGRESS, on page 15
- TD-SUCCESS, on page 15
- TG-INPROGRES, on page 16
- TX-POWER-FAIL-LOW, on page 16

CHANNEL-NOISE-LOADED

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

Logical Object: OTS-OCH

The CHANNEL-NOISE-LOADED alarm is raised when a traffic channel is loaded with noise. When a traffic channel fails, an equivalent temporary Amplified Spontaneous Emission (ASE) channel is inserted to maintain the spectral density of the port.

Clear the CHANNEL-NOISE-LOADED Alarm

Procedure

This alarm is cleared automatically when the original traffic channel is restored and the temporary ASE channel is removed. To check the channel status, use the **show hw-module location** *location* **terminal-ampli** 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).

EGRESS-AMPLI-GAIN-HIGH

Default Severity: Non Service-Affecting (NSA)

Logical Object: Controller OTS

The EGRESS-AMPLI-GAIN-HIGH alarm is raised when the EGRESS EDFA module cannot reach the gain setpoint. This condition occurs if the amplifier reaches its range boundaries and the Egress Amplifier Gain Degrade is high.

Clear the EGRESS-AMPLI-GAIN-HIGH Alarm

Procedure

Step 1 Adjust the gain setting to a correct value using the **controller ots egress-ampli-gain** command.

If the APC value is set to the disabled state, the applied gain results from the configuration. Therefore, you must adjust the gain setting to a high value.

Step 2 Check the overall system settings, performance, and the configured EDFA Gain using the **show configuration commit changes all** command.

If the APC value is set to the enabled state, it may be due to an unexpected long or short span, or due to other measured channels. If the alarm persists, it may indicate an amplifier hardware failure.

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).

EGRESS-AMPLI-GAIN-LOW

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

Logical Object: Controller OTS

The EGRESS-AMPLI-GAIN-LOW alarm is raised when the Egress Amplifier Gain Degrade is Low.

Clear the EGRESS-AMPLI-GAIN-LOW Alarm

Procedure

Step 1 Adjust the gain setting to a correct value using the **controller ots egress-ampli-gain** command.

If the APC value is set to the disabled state, the applied gain results from the configuration. Therefore, you must adjust the gain setting to a low value.

Step 2 Check the overall system settings, performance, and the configured EDFA Gain using the **show configuration commit changes all** command.

If the APC value is set to the enabled state, it may be due to an unexpected long or short span, or due to other measured channels. If the alarm persists, it may indicate an amplifier hardware failure.

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).

EGRESS-AMPLI-LASER-OFF

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

Logical Object: Controller OTS

The *Egress Amplifier OFF for Fail Low Input Power*(EGRESS-AMPLI-LASER-OFF) alarm is raised on the node when the Egress EDFA is switched off due to low input power, resulting in no output power transmission. This issue may arise from a fiber cut on another upstream span present in the topology or a hardware failure.

Clear the EGRESS-AMPLI-LASER-OFF Alarm

To clear this alarm, perform these steps:

Procedure

Step 1 Check and clear the RX-LOC alarm by repairing any cut in fiber cable.

Step 2 Check and fix any hardware failure alarms using the **show alarms brief system active** 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).

EGRESS-AUTO-LASER-SHUT

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

Logical Object: Controller OTS

The EGRESS-AUTO-LASER-SHUT alarm is raised when the Egress EDFA shuts down its Tx power if it is not receiving any input power on the Line Rx port due to a fiber cut. This alarm is raised if the safety-control-mode is set to the auto state on line OTS controller.

Clear the EGRESS-AUTO-LASER-SHUT Alarm

Procedure

Step 1 Check and clear the RX-LOC alarm by repairing any cut in fiber cable.

Step 2 Check and clear the RX-LOS-P alarm by adjusting the threshold setting.

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).

EGRESS-AUTO-POW-RED

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

Logical Object: Controller OTS

The EGRESS-AUTO-POW-RED alarm is raised when LOS is detected on the line RX, the line TX normalizes the signal output power. In this case, if safety-control-mode set to auto, the egress amplifier goes into power reduction mode for safety reasons.

Clear the EGRESS-AUTO-POW-RED Alarm

Procedure

Step 1 Check if the egress amplifier automatic power reduction is active using the **show controllers** *Controller-type R/S/I/P* command.

Step 2 Check if the safety conditions of the Egress EDFA are active using the **show controllers** *Controller-type R/S/I/P* 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).

FEFI

Default Severity: Major (MJ), Service-Affecting (SA)

Logical Object: GigabitEthernet Interface

The *Far End Fault Indication*(FEFI) alarm is raised on a node when the far-end node encounters issues receiving the Ethernet signal over the Optical Service Channel (OSC).

Clear the FEFI Alarm

To clear this alarm, perform these steps:

Procedure

Check and repair any unidirectional fiber cut on the span where the alarm is reported.

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).

HIGH-RX-BR-PWR

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

Logical Object: Controller OTS

The HI-RX-BR-PWR alarm is raised when there is a high back reflection power at the egress port due to a poor fiber connection.

Clear the HIGH-RX-BR-PWR Alarm

Procedure

Ensure that the span fiber is thoroughly clean and properly connected. For more details about cleaning fiber, see the Cleaning and Maintaining Fiber-Optic Connectors section of the *Hardware Installation Guide for Cisco NCS 1020*.

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).

HIGH-TX-BR-PWR

Default Severity: Critical (CR), Service-Affecting (SA)

Logical Object: Controller OTS

The HI-TX-BR-PWR alarm is raised when there is a high back reflection power at the ingress port due to a poor fiber connection.

Clear the HIGH-TX-BR-PWR Alarm

Procedure

Ensure that the span fiber is thoroughly clean and properly connected. For more details about cleaning fiber, see the Cleaning and Maintaining Fiber-Optic Connectors section of the *Hardware Installation Guide for Cisco NCS 1020*.

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).

INGRESS-AMPLI-GAIN-HIGH

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

Logical Object: Controller OTS

The INGRESS-AMPLI-GAIN-HIGH alarm is raised when the Ingress EDFA module cannot reach the gain setpoint. This condition occurs if the amplifier reaches its range boundaries.

Clear the INGRESS-AMPLI-GAIN-HIGH Alarm

Procedure

Step 1 Adjust the ingress amplification gain to a correct value using the **controller ots ingress-ampli-gain** command.

If the APC value is set to the disabled state, the applied gain results from the configuration. Therefore, you must adjust the gain setting to a high value.

Step 2 Check the overall system settings, performance, and the configured EDFA Gain using the **show configuration commit changes all** command.

If the APC value is set to the enabled state, it may be due to an unexpected long or short span, or due to other measured channels. If the alarm persists, it may indicate an amplifier hardware failure.

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).

INGRESS-AMPLI-GAIN-LOW

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

Logical Object: Controller OTS

The INGRESS-AMPLI-GAIN-LOW alarm is raised when the Ingress EDFA module cannot reach the gain setpoint. This condition occurs if the amplifier reaches its range boundaries.

Clear the INGRESS-AMPLI-GAIN-LOW Alarm

Procedure

Step 1 Adjust the ingress amplification gain to a correct value using the **controller ots ingress-ampli-gain** command.

If the APC value is set to the disabled state, the applied gain results from the configuration. Therefore, you must adjust the gain setting to a high value.

Step 2 Check the overall system settings, performance, and the configured EDFA Gain using the **show configuration commit changes all** command.

If the APC value is set to the enabled state, it may be due to an unexpected long or short span, or due to other measured channels. If the alarm persists, it may indicate an amplifier hardware failure.

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).

INGRESS-AMPLI-LASER-OFF

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

Logical Object: Controller OTS

The *Ingress Amplifier OFF for Fail Low Input Power*(INGRESS-AMPLI-LASER-OFF) alarm is raised on the node when the Ingress EDFA is switched off due to low input power, resulting in no output power transmission. This issue may arise from a fiber cut on an OLT or a hardware failure.

Clear the INGRESS-AMPLI-LASER-OFF Alarm

To clear this alarm, perform these steps:

Procedure

Step 1 Check and clear the RX-LOC alarm by repairing any cut in fiber cable.

Step 2 Check and fix any hardware failure alarms using the **show alarms brief system active** 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).

INGRESS-AUTO-LASER-SHUT

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

Logical Object: Controller OTS

Supported from release: R25.1.1

The INGRESS-AUTO-LASER-SHUT alarm is raised when the ingress amplifier is off for safety Reasons.

Clear the INGRESS-AUTO-LASER-SHUT Alarm

Procedure

Step 1 For the controller OTS, check the RX-LOC or RX-LOSP alarm.

Step 2 Check if the safety conditions of the Ingress EDFA ALS are active.

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).

INGRESS-AUTO-POW-RED

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

Logical Object: Controller OTS

Supported from release: R25.1.1

The INGRESS-AUTO-POW-RED alarm is raised when the ingress amplifier is in power reduction mode for safety reasons.

Clear the INGRESS-AUTO-POW-RED Alarm

Procedure

Step 1 For controller OTS, check if the APR configuration is active.

Step 2 Check if the safety conditions of the Ingress EDFA for APR are active.

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).

LINK-DOWN

Default Severity: Major (MJ), Service-Affecting (SA)

Logical Object: Ethernet

Supported from release: R25.4.1

The *Ethernet Link Down*(LINK-DOWN) alarm is raised due to these reasons:

- A single or bidirection fiber cut.
- The OSC or GigbitEthernet port going down.

Clear the LINK-DOWN alarm

Before you begin

Follow these steps to clear the alarm:

Procedure

Step 1 Check the optical power for OSC on near end and far end node using the **show controllers osc** *R/S/I/P* command.

Step 2 Check and repair any cut in fiber cable.

Step 3 Check if any OSC or GigbitEthernet port is not in shut down state.

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-AMPLI-OSRI

Default Severity: Major(MJ), Service-Affecting (SA)

Logical Object: OTS Controller

The RAMAN-AMPLI-OSRI alarm is raised when Raman optical safety remote interlock (OSRI) is enabled.

Clear the RAMAN-AMPLI-OSRI alarm

Perform this step to clear the alram:

Procedure

Disable the Raman OSRI using this command.

controller ots R/S/I/P

raman-osri off

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-AUTO-LASER-SHUT

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

Logical Object: Controller OTS

The RAMAN-AUTO-LASER-SHUT alarm is raised when the laser inside the Raman pumps is automatically shut down if loss of signal is detected on the receiving fiber.

Clear the RAMAN-AUTO-LASER-SHUT Alarm

Procedure

Step 1 Check and clear the RX-LOC alarm by repairing any cut in fiber cable.

Step 2 Check if the safety conditions of the Raman pumps are active using the **show controllers ots** *0/0/0/0* **raman-info**.

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-AUTO-POW-RED

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

Logical Object: Controller OTS

The RAMAN-AUTO-POW-RED alarm is raised when the Raman amplifier is in power reduction mode for safety reasons.

Clear the RAMAN-AUTO-POW-RED Alarm

Procedure

Step 1 Check if the Automatic Power Reduction (APR) and safety conditions for Raman amplifier are enabled using the **show configuration commit changes all** command.

Step 2 If APR is disabled, enable using the **controller ots** *R/S/I/P* **raman-force-apr on** command.

Step 3 If safety conditions are disabled, enable using the **controller ots** *R/S/I/P* **raman-osri on** 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).

RAMAN-[1-5]-HIGH-PWR

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

Logical Object: Controller OTS

The RAMAN-[1-5]-HIGH-PWR alarm is raised when the Raman [1-5] pumps have high power.

Clear the RAMAN-[1-5]-HIGH-PWR Alarm

Procedure

Check the span length and configured Raman pump power for controller OTS.

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-[1-5]-LOW-PWR

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

Logical Object: Controller OTS

The RAMAN-[1-5]-LOW-PWR alarm is raised when the raman [1-5] pumps have low power.

Clear the RAMAN-[1-5]-LOW-PWR Alarm

Procedure

Check the span length and configured Raman pump power for controller OTS.

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).

RX-LOC

Default Severity: Critical (CR), Service-Affecting (SA)

Logical Object: Line OTS Controller

The RX-LOC alarm is raised when there is a loss in the fiber connection continuity.

When the RX-LOC alarm is raised at the line OTS, the following alarms at the controller and port are suppressed:

Table 1: Suppressed Alarms List

Alarms	Controller	Port
RX-LOS-P	• DFB • OSC • OTS • Line OTS-OCH	Line RX
TX-POWER-FAIL-LOW	• OTS • OTS-OCH	LINE TX

Alarms	Controller	Port
RX-LOS-P	OTS-OCH	Line RX

Clear the RX-LOC Alarm

Procedure

Check and repair any cut in fiber cable.

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).

RX-LOS-P

Default Severity: Critical (CR), Service-Affecting (SA)

Logical Object: Controller DFB, Controller OSC, Controller OTS-OCH, Controller OMS, Controller OTS, or Controller OCH

The RX-LOS-P alarm is raised when:

- there is a loss of signal payload.
- the cable is not properly inserted or disconnected from a port.
- port is not currently in use.

Clear the RX-LOS-P Alarm

Procedure

Step 1 Check and adjust the threshold values using the **controller ots** *0/0/0/0* **rx-low-threshold** *value* command.

Step 2 Check if the received power is between -1dBm to -40dBm.

Step 3 Check if the cable is properly inserted into the port.

Step 4 If the port is not in use, shutdown the port using the **controller ots** *R/S/I/P* **shutdown** 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-TOO-SHORT-RX

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

Logical Object: Controller OTS

The SPAN-TOO-SHORT-RX alarm is raised when the input of the OTS span is too short.

Clear the SPAN-TOO-SHORT-RX Alarm

Procedure

Step 1 Inspect the RX fiber for any signs of damage.

Step 2 Increase the span length of the fiber using the **controller ots** *R/S/I/P* **span-length** *length* 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-TOO-SHORT-TX

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

Logical Object: Controller OTS

The SPAN-TOO-SHORT-TX alarm is raised when the output of the OTS span is too short.

Clear the SPAN-TOO-SHORT-TX Alarm

Procedure

Step 1 Inspect the TX fiber for any signs of damage.

Step 2 Increase the span length of the fiber using the **controller ots** *R/S/I/P* **span-length** *length* 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).

TD-FAILED

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

Logical Object: Controller OTS, Controller OMS, or Controller OCH

The TD-FAILED alarm is raised when the Tone Detection fails.

Clear the TD-FAILED Alarm

Procedure

Stop Tone Detection on the corresponding controller using the **tone-pattern-detect controller ots** *R/S/I/P* **stop** 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).

TD-INPROGRESS

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

Logical Object: Controller OTS, Controller OMS, or Controller OCH

The TD-INPROGRESS alarm is raised when the Tone Detection is in progress.

Clear the TD-INPROGRESS Alarm

Procedure

This alarm is cleared automatically when Tone Detection is completed successfully.

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).

TD-SUCCESS

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

Logical Object: Controller OTS, Controller OMS, or Controller OCH

The TD-SUCCESS alarm is raised when Tone Detection is completed successfully.

Clear the TD-SUCCESS Alarm

Procedure

Stop Tone Detection on the corresponding controller using the **tone-pattern-detect controller ots** *R/S/I/P* **stop** 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).

TG-INPROGRES

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

Logical Object: Controller OTS, Controller OMS, or Controller OCH

The TG-INPROGRES alarm is raised when the Tone Generation is in progress.

Clear the TG-INPROGRES Alarm

Procedure

Stop Tone Generation on the corresponding controller using the **tone-pattern controller ots** *R/S/I/P* **stop** 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).

TX-POWER-FAIL-LOW

Default Severity: Critical (CR), Service-Affecting (SA)

Logical Object: Controller DFB, Controller OSC, Controller OTS-OCH, Controller OMS, or Controller OCH

Supported from release: R25.1.1

The TX-POWER-FAIL-LOW alarm is raised when the output of the OTS power reading is below the Fail-Low threshold.

Clear the TX-POWER-FAIL-LOW Alarm

Procedure

Step 1 Check if the threshold values are correct using the **show controllers ots** *R/S/I/P* command.

Step 2 Check if the corresponding Rx power is correct using the **show controllers ots** *R/S/I/P* command. For example, an OTS Controller 2 TX receives power from the controller 0 RX.

Step 3 Check the configured EDFA gain values using the using the **show controllers ots** *R/S/I/P* command.

Step 4 Check for any hardware failure alarms using the **show alarms brief system active** 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).