

Gain Estimator

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Gain estimator

Gain estimator

- analyzes the span loss,
- sets the gain mode of the EDFA amplifier, and
- provides the initial target gain for the amplifier.

Modes of gain estimator

EDFA amplifiers are present in both OLT and ILA line cards of NCS 1010. These EDFA amplifiers are variable-gain optical amplifiers that can operate in two gain modes: normal and extended. Extended mode provides higher gain than normal mode. Running the gain estimator can impact traffic.

Parameters used by gain estimator

The gain estimator uses these parameters to estimate the gain necessary on a span:

- Ingress span loss
- Span length
- Transmitter (Tx) connector loss
- Spectrum density
- Fiber type
- Raman gain (only on Raman spans)

The gain estimator uses the estimated gain to set the gain range.

Automatic start of gain estimator

NCS 1010 and NCS 1020 automatically starts gain estimator

- during automatic link bring-up,

- after line card cold reload, and
- after device power cycle.

Enable or disable gain estimator

Use this task to control whether the gain estimator feature on the optical line controller is activated or deactivated.

Procedure

Use the **gain-estimator enable** command to enable the gain estimator.

Example:

```
RP/0/RP0/CPU0:ios#configure terminal
Mon Jun 13 05:35:20.510 UTC
RP/0/RP0/CPU0:ios(config)#optical-line-control
RP/0/RP0/CPU0:ios(config-olc)#controller ots 0/0/0/0
RP/0/RP0/CPU0:ios(config-olc-ots)#gain-estimator enable
RP/0/RP0/CPU0:ios(config-olc-ots)#commit
```

Use the **gain-estimator disable** command to disable the gain estimator.

Start gain estimator

Use this task to analyze the span loss and set the gain mode of the EDFA amplifier. This task provides the initial target gain for the amplifier.

Procedure

Use the **olc start-gain-estimation controller ots** *Rack/Slot/Instance/Port* command to start the gain estimator.

Example:

```
RP/0/RP0/CPU0:ios# olc start-gain-estimation controller ots 0/0/0/0
Thu May 12 09:32:05.414 UTC

Gain Estimation: is running
```

The gain estimation operation runs, then the system calculates the estimated gain and gain mode for the EDFA amplifier on the specified controller.

View gain estimator status

Use this task to view the gain estimation details of the optical line controller.

Procedure

Step 1 Use the **show olc gain-estimator** command to view the gain estimation details.

Example:

```
RP/0/RP0/CPU0:ios#show olc gain-estimator
Thu May 12 09:30:39.987 UTC
Controller                          : Ots0/0/0/0
Egress  Gain Estimator Status       : IDLE
Egress  Estimated Gain              : 25.9 dB
Egress  Estimated Gain Mode         : Extended
Egress  Gain Estimation Timestamp   : 2022-05-07 09:16:53

Controller                          : Ots0/0/0/2
Egress  Gain Estimator Status       : IDLE
Egress  Estimated Gain              : 11.7 dB
Egress  Estimated Gain Mode         : Normal
Egress  Gain Estimation Timestamp   : 2022-05-07 10:13:53
```

Step 2 Use the **show olc gain-estimator controller ots** *Rack/Slot/Instance/Port* command to view the gain estimation details for a specific controller.

Example:

```
RP/0/RP0/CPU0:ios#show olc gain-estimator controller Ots 0/0/0/0
Fri Jun 10 05:47:21.119 UTC
Controller                          : Ots0/0/0/0
Ingress Gain Estimator Status       : IDLE
Ingress Estimated Gain              : 21.7 dB
Ingress Estimated Gain Mode         : Normal
Ingress Gain Estimation Timestamp   : 2022-06-10 05:46:48
```

The output displays the gain estimator status, estimated gain, gain mode, and the timestamp of the gain estimation for each controller or for a specific controller.