



## Supported Yang Models

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## Supported Yang Models

The following is the list of supported config, and oper YANG models for NCS 1010:

Config Models	Oper Models
Cisco-IOS-XR-osa-linesystem-cfg.yang	Cisco-IOS-XR-osa-hwmod-linesys-oper.yang
Cisco-IOS-XR-controller-ots-cfg.yang	Cisco-IOS-XR-controller-ots-oper.yang
Cisco-IOS-XR-ots-och-cfg.yang	Cisco-IOS-XR-controller-ots-och-oper.yang
Cisco-IOS-XR-controller-oms-cfg	Cisco-IOS-XR-controller-oms-oper.yang
Cisco-IOS-XR-controller-och-cfg	Cisco-IOS-XR-controller-och-oper.yang

Config Models	Oper Models
Cisco-IOS-XR-controller-osc-cfg.yang	Cisco-IOS-XR-controller-osc-oper.yang
Cisco-IOS-XR-controller-dfb-cfg.yang	Cisco-IOS-XR-controller-dfb-oper.yang
Cisco-IOS-XR-pmengine-cfg.yang	Cisco-IOS-XR-pmengine-oper.yang
Cisco-IOS-XR-olc-cfg.yang	Cisco-IOS-XR-olc-oper.yang
Cisco-IOS-XR-fpd-infra-cfg	Cisco-IOS-XR-show-fpd-loc-ng-oper
Cisco-IOS-XR-osa-ct-cfg	Cisco-IOS-XR-alarmgr-server-oper.yang
	Cisco-IOS-XR-platform-oper

The following is the list of supported Open Config models:

openconfig-optical-amplifier@2019-12-06
openconfig-optical-attenuator@2019-07-19

## Structure of Yang Models

YANG data models can be represented in a hierarchical, tree-based structure with nodes, which makes them more easily understandable. YANG defines four nodes types. Each node has a name, and depending on the node type, the node might either define a value or contain a set of child nodes. The nodes types (for data modeling) are:

- leaf node—Contains a single value of a specific type
- list node—Contains a sequence of list entries, each of which is uniquely identified by one or more keys leafs
- leaf-list node—Contains a sequence of leaf nodes
- container node—Contains a grouping of related nodes containing only child nodes, which can be any of the four node types

The following is the tree structure of the openconfig-optical-amplifier model.



**Note** Cisco NCS 1010 supports only the leaves that are highlighted as bold in the following open configuration models.

```

+--rw optical-amplifier
+--rw amplifiers
| +--rw amplifier* [name]
| +--rw name -> ../config/name
| +--rw config
| | +--rw name? string
| | +--rw type? identityref
| | +--rw target-gain? decimal64
| | +--rw min-gain? decimal64
| | +--rw max-gain? decimal64

```

```

| | +--rw target-gain-tilt? decimal64
| | +--rw gain-range? identityref
| | +--rw amp-mode? identityref
| | +--rw target-output-power? decimal64
| | +--rw max-output-power? decimal64
| | +--rw enabled? boolean
| | +--rw fiber-type-profile? identityref
| +--ro state
| +--ro name? string
| +--ro type? identityref
| +--ro target-gain? decimal64
| +--ro min-gain? decimal64
| +--ro max-gain? decimal64
| +--ro target-gain-tilt? decimal64
| +--ro gain-range? identityref
| +--ro amp-mode? identityref
| +--ro target-output-power? decimal64
| +--ro max-output-power? decimal64
| +--ro enabled? boolean
| +--ro fiber-type-profile? identityref
| +--ro component? -> /oc-platform:components/component/name
| +--ro ingress-port? -> /oc-platform:components/component/name
| +--ro egress-port? -> /oc-platform:components/component/name
| +--ro actual-gain
| +--ro actual-gain-tilt
| +--ro input-power-total
| +--ro input-power-c-band
| +--ro input-power-l-band
| +--ro output-power-total
| +--ro output-power-c-band
| +--ro output-power-l-band
| +--ro laser-bias-current
| +--ro optical-return-loss
+--rw supervisory-channels
+--rw supervisory-channel* [interface]
+--rw interface -> ../config/interface

```

The following is a tree structure of the openconfig-optical-attenuator model.

```

+--rw optical-attenuator
+--rw attenuators
+--rw attenuator* [name]
+--rw name -> ../config/name
+--rw config
| +--rw name? string
| +--rw attenuation-mode?
| +--rw target-output-power? decimal64
| +--rw attenuation? decimal64
| +--rw enabled? boolean
+--ro state
+--ro name? string
+--ro attenuation-mode? identityref
+--ro target-output-power? decimal64
+--ro attenuation? decimal64
+--ro enabled? boolean
+--ro component? -> /oc-platform:components/component/name
+--ro ingress-port? -> /oc-platform:components/component/name
+--ro egress-port? -> /oc-platform:components/component/name
+--ro actual-attenuation
+--ro output-power-total
+--ro optical-return-loss

```

The following is a sample tree structure of Cisco-IOS-XR-controller-ots-oper model.

```

+--ro ots-oper
  +--ro ots-ports
    +--ro ots-port* [name]
      +--ro ots-info
        | +--ro raman-tx-power
        | | +--ro raman-tx-power*
        | |   +--ro raman-tx-power-instance?   uint32
        | |   +--ro raman-tx-power-value?     uint32
        | |   +--ro raman-tx-wavelength?      uint32
        | +--ro transmit-n-power
        | | +--ro transmit-power*
        | |   +--ro instance?   uint32
        | |   +--ro value?     int32
        | +--ro receive-n-power
        | | +--ro receive-power*
        | |   +--ro instance?   uint32
        | |   +--ro value?     int32
        | +--ro ingress-channel-slice-attenuation
        | | +--ro ingress-channel-slice*
        | |   +--ro ingress-channel-slice?           uint32
        | |   +--ro ingress-channel-slice-attenuation? int32
        | +--ro egress-channel-slice-attenuation
        | | +--ro egress-channel-slice*
        | |   +--ro egress-channel-slice?           uint32
        | |   +--ro egress-channel-slice-attenuation? int32
        | +--ro raman-tx-power-config
        | | +--ro raman-tx-power*
        | |   +--ro raman-tx-power-instance?   uint32
        | |   +--ro raman-tx-power-value?     uint32
        | +--ro ingress-channel-slice-attenuation-configured
        | | +--ro ingress-channel-slice*
        | |   +--ro ingress-channel-slice?           uint32
        | |   +--ro ingress-channel-slice-attenuation? int32
        | +--ro egress-channel-slice-attenuation-configured
        | | +--ro egress-channel-slice*
        | |   +--ro egress-channel-slice?           uint32
        | |   +--ro egress-channel-slice-attenuation? int32
        | +--ro channel-attenuation-info
        | | +--ro total-channel-attenuation-slice-count?   uint32
        | | +--ro channel-attenuation-slice-spacing?       uint32
        | | +--ro channel-attenuation-first-slice-wavelength? uint32
        | | +--ro channel-attenuation-first-slice-frequency? uint32
        | | +--ro ingress-channel-attenuation-info*
        | | | +--ro slice-num?           uint32
        | | | +--ro ingress-attenuation? uint32
        | | +--ro egress-channel-attenuation-info*
        | | | +--ro slice-num?           uint32
        | | | +--ro egress-attenuation?  uint32
        | +--ro otdr-info-rx
        | | +--ro scan-status?           Otdr-scan-status
        | | +--ro tracepoint-file?       string
        | | +--ro total-events?          uint32
        | | +--ro scan-timestamp?        string
        | | +--ro event-info*
        | | | +--ro event-number?         uint32
        | | | +--ro detected-event?       uint32
        | | | +--ro location?             int64
        | | | +--ro accuracy?             int64
        | | | +--ro magnitude?           int64
        | | | +--ro attenuation?         int64
        | +--ro otdr-info-tx
        | | +--ro scan-status?           Otdr-scan-status
        | | +--ro tracepoint-file?       string
        | | +--ro total-events?          uint32

```

```

| | +--ro scan-timestamp?   string
| | +--ro event-info*
| |   +--ro event-number?   uint32
| |   +--ro detected-event? uint32
| |   +--ro location?      int64
| |   +--ro accuracy?      int64
| |   +--ro magnitude?     int64
| |   +--ro attenuation?   int64
+--ro rx-los-p
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro rx-loc
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro tx-power-fail-low
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro ingress-auto-laser-shut
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro ingress-auto-pow-red
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro ingress-ampli-gain-low
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro ingress-ampli-gain-high
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro egress-auto-laser-shut
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro egress-auto-pow-red
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro egress-ampli-gain-low
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro egress-ampli-gain-high
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro high-tx-br-pwr
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro high-rx-br-pwr
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro span-too-short-tx
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro span-too-short-rx
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro raman-auto-pow-red
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro raman1-low-pwr
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro raman2-low-pwr
| | +--ro is-detected?     boolean
| | +--ro counter?        uint32
+--ro raman3-low-pwr
| | +--ro is-detected?     boolean

```

```

| | +--ro counter?          uint32
| +--ro raman4-low-pwr
| | +--ro is-detected?    boolean
| | +--ro counter?        uint32
| +--ro raman5-low-pwr
| | +--ro is-detected?    boolean
| | +--ro counter?        uint32
| +--ro raman1-high-pwr
| | +--ro is-detected?    boolean
| | +--ro counter?        uint32
| +--ro raman2-high-pwr
| | +--ro is-detected?    boolean
| | +--ro counter?        uint32
| +--ro raman3-high-pwr
| | +--ro is-detected?    boolean
| | +--ro counter?        uint32
| +--ro raman4-high-pwr
| | +--ro is-detected?    boolean
| | +--ro counter?        uint32
| +--ro raman5-high-pwr
| | +--ro is-detected?    boolean
| | +--ro counter?        uint32
| +--ro ots-och-alamr-info
| | +--ro rx-los-p
| | | +--ro is-detected?  boolean
| | | +--ro counter?      uint32
| | +--ro tx-power-fail-low
| |   +--ro is-detected?  boolean
| |   +--ro counter?      uint32
| +--ro ots-tone-info
| | +--ro tone-freq?       string
| | +--ro tone-rate?       uint32
| | +--ro pattern?         string
| | +--ro pattern-expected? string
| | +--ro dectected-oob?   uint32
| | +--ro state?           Conn-verfcfn-state
| | +--ro pattern-received? string
| +--ro transport-admin-state? Ots-tas
| +--ro rx-pow-low-threshold?  int32
| +--ro rx-pow-high-threshold? int32
| +--ro tx-pow-low-threshold?  int32
| +--ro tx-pow-high-threshold? int32
| +--ro pm-enable?             uint32
| +--ro controller-state?     Ots-controller-state
| +--ro rx-voa-attenuation?    int32
| +--ro tx-voa-attenuation?    int32
| +--ro channel-width?        uint32
| +--ro central-frequncy?      uint32
| +--ro add-drop-channel?      string
| +--ro line-channel?          string
| +--ro ingress-ampli-gain?     int32
| +--ro ingress-ampli-tilt?     int32
| +--ro ingress-amp-gain-deg-thres-low? uint32
| +--ro ingress-amp-gain-deg-thres-high? uint32
| +--ro ingress-ampli-gain-range? Ots-amplifier-gain-range

| +--ro egress-ampli-gain?      int32
| +--ro egress-ampli-tilt?      int32
| +--ro egress-amp-gain-deg-thres-low? uint32
| +--ro egress-amp-gain-deg-thres-high? uint32
| +--ro egress-ampli-gain-range? Ots-amplifier-gain-range

| +--ro composite-raman-power?  uint32
| +--ro wavelength?            uint32

```

```

| +--ro transmit-power? int32
| +--ro receive-power? int32
| +--ro total-cl-tx-power? int32
| +--ro total-cl-rx-power? int32
| +--ro receive-signal-power? int32
| +--ro transmit-signal-power? int32
| +--ro ingress-ampli-osri? boolean
| +--ro egress-ampli-osri? boolean
| +--ro ingress-ampli-force-apr? boolean
| +--ro egress-ampli-force-apr? boolean
| +--ro ingress-ampli-safety-control-mode?
Ots-amplifier-safety-control-mode
| +--ro egress-ampli-safety-control-mode?
Ots-amplifier-safety-control-mode
| +--ro ingress-ampli-safety-control-mode-configured?
Ots-amplifier-safety-control-mode
| +--ro egress-ampli-safety-control-mode-configured?
Ots-amplifier-safety-control-mode
| +--ro ingress-ampli-osri-configured? boolean
| +--ro egress-ampli-osri-configured? boolean
| +--ro ingress-ampli-force-apr-configured? boolean
| +--ro egress-ampli-force-apr-configured? boolean
| +--ro raman-safety-control-mode?
Ots-amplifier-safety-control-mode
| +--ro raman-safety-control-mode-configured?
Ots-amplifier-safety-control-mode
| +--ro raman-osri? boolean
| +--ro raman-force-apr? boolean
| +--ro raman-osri-configured? boolean
| +--ro raman-force-apr-configured? boolean
| +--ro rx-pow-low-warning-threshold? int32
| +--ro rx-pow-high-warning-threshold? int32
| +--ro tx-pow-low-warning-threshold? int32
| +--ro tx-pow-high-warning-threshold? int32
| +--ro description? string
| +--ro channel-attenuation? int32
| +--ro rx-voa-attenuation-config-val? int32
| +--ro tx-voa-attenuation-config-val? int32
| +--ro ampli-control-mode-config-val?
Ots-amplifier-control-mode
| +--ro rx-low-th-psd-config-val? int32
| +--ro total-rx-power? int32
| +--ro total-tx-power? int32
| +--ro ingress-ampli-gain-range-config-val? Ots-amplifier-gain-range
| +--ro ingress-ampli-gain-config? uint32
| +--ro ingress-ampli-tilt-config? int32
| +--ro ingress-ampli-thr-deg-low-config? uint32
| +--ro ingress-ampli-thr-deg-high-config? uint32
| +--ro egress-ampli-gain-range-config-val? Ots-amplifier-gain-range
| +--ro egress-ampli-gain-config? uint32
| +--ro egress-ampli-tilt-config? int32
| +--ro egress-ampli-gain-thr-deg-low-config? uint32
| +--ro egress-ampli-gain-thr-deg-high-config? uint32
| +--ro channel-attenuation-configured? int32
| +--ro br-power? int32
| +--ro raman-br-power? int32
| +--ro led-state? Led-state
+--ro ots-spectrum-info
| +--ro spectrum-info
| +--ro total-spectrum-slice-count? uint32
| +--ro spectrum-slice-spacing? uint32
| +--ro first-slice-wavelength? uint32

```

```

|      +--ro first-slice-frequency?      uint32
|      +--ro spectrum-slice-power-info*
|          +--ro slice-num?      uint32
|          +--ro rx-power?      int16
|          +--ro tx-power?      int16
+--ro name                          xr:Interface-name

```

The following is a sample tree structure of Cisco-IOS-XR-controller-ots-cfg model.

```

augment /al:interface-configurations/al:interface-configuration:
  +--rw ots
    +--rw ingress-channel-slice-attns
      | +--rw ingress-channel-slice-attn* [ingress-channel-slice-attn]
      |   +--rw ingress-channel-slice-attn      uint32
      |   +--rw ingress-channel-slice-attnvalue  uint32
    +--rw raman-tx-power-disables
      | +--rw raman-tx-power-disable* [raman-tx-power-disable-instance]
      |   +--rw raman-tx-power-disable-instance  uint32
    +--rw raman-tx-powers
      | +--rw raman-tx-power* [raman-tx-power-instance]
      |   +--rw raman-tx-power-instance          uint32
      |   +--rw raman-tx-power-value            uint32
    +--rw ots-otdr
      | +--rw ots-otdr-rx
      | | +--rw ots-otdr-rx-expert
      | | | +--rw ots-otdr-rx-capture-start?    uint32
      | | | +--rw ots-otdr-rx-scan-duration?    uint32
      | | | +--rw ots-otdr-rx-pulse-width?     uint32
      | | | +--rw ots-otdr-rx-capture-end?     uint32
      | | +--rw ots-otdr-rx-auto
      | | | +--rw ots-otdr-rx-excess-reflection-threshold?  int32
      | | | +--rw ots-otdr-rx-splice-loss-threshold?      uint32
      | | | +--rw ots-otdr-rx-raman-setpoint?             uint32
      | | | +--rw ots-otdr-rx-reflectance-threshold?     int32
      | | +--rw ots-otdr-rx-back-scattering?            int32
      | | +--rw ots-otdr-rx-refractive-index?           uint32
      | +--rw ots-otdr-scan-mode
      | | +--rw ots-otdr-scan-mode-expert?             empty
      | +--rw ots-otdr-tx
      | | +--rw ots-otdr-tx-expert
      | | | +--rw ots-otdr-tx-capture-end?            uint32
      | | | +--rw ots-otdr-tx-scan-duration?          uint32
      | | | +--rw ots-otdr-tx-capture-start?          uint32
      | | | +--rw ots-otdr-tx-pulse-width?            uint32
      | | +--rw ots-otdr-tx-auto
      | | | +--rw ots-otdr-tx-splice-loss-threshold?  uint32
      | | | +--rw ots-otdr-tx-excess-reflection-threshold?  int32
      | | | +--rw ots-otdr-tx-raman-setpoint?          uint32
      | | | +--rw ots-otdr-tx-reflectance-threshold?  int32
      | | +--rw ots-otdr-tx-refractive-index?          uint32
      | | +--rw ots-otdr-tx-back-scattering?            int32
    +--rw egress-channel-slice-attns
      | +--rw egress-channel-slice-attn* [egress-channel-slice-attn]
      |   +--rw egress-channel-slice-attn      uint32
      |   +--rw egress-channel-slice-attnvalue  uint32
    +--rw ots-egress-safety-control-mode?          Ots-safety-control-mode
    +--rw ots-ingress-amplifier-gain?              uint32
    +--rw ots-tone-pattern-expected?              string
    +--rw ots-ingress-osri?                        boolean
    +--rw ots-ingress-amplifier-gain-degrade-high-threshold?  uint32
    +--rw ots-tx-voa-attenuation?                  uint32
    +--rw ots-ingress-safety-control-mode?          Ots-safety-control-mode
    +--rw ots-tone-detect-oob?                     empty
    +--rw ots-ingress-force-apr?                   boolean
    +--rw ots-raman-force-apr?                     boolean

```



```

+---rw ots-egress-amplifier-gain-degrade-low-threshold?      uint32
+---rw ots-ingress-amplifier-gain-degrade-low-threshold?    uint32
+---rw ots-egress-amplifier-tilt?                            int32
+---rw ots-raman-safety-control-mode?                        Ots-safety-control-mode
+---rw ots-tone-frequency?                                   string
+---rw ots-egress-amplifier-gain?                            uint32
+---rw ots-tone-pattern?                                     string
+---rw ots-egress-amplifier-gain-degrade-high-threshold?    uint32
+---rw ots-raman-osri?                                       boolean
+---rw ots-egress-osri?                                       boolean
+---rw ots-egress-amplifier-gain-range?
Ots-ingress-egress-ampli-gain-range
+---rw ots-ingress-amplifier-gain-range?
Ots-ingress-egress-ampli-gain-range
+---rw ots-ingress-amplifier-tilt?                            int32
+---rw ots-tone-rate?                                         uint32
+---rw ots-egress-force-apr?                                   boolean

```

## Configure Flex Grid in OLT

**Step 1** Use the Cisco-IOS-XR-osa-linesystem-cfg.yang Yang model to configure flex grid channel in the OLT card.

**Note** From release 7.9.1 L band frequency range 186.05 THz - 190.8875 THz in addition to the C band frequency range 191.3375 THz-196.1750 THz is supported.

Yang Model	Example
Cisco-IOS-XR-osa-linesystem-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;active-nodes xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-config-mdm-cfg"&gt;         &lt;active-node&gt;           &lt;node-name&gt;0/0/NXR0&lt;/node-name&gt;           &lt;terminal-amplifier xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-osa-linesystem-cfg"&gt;             &lt;olt-grid-mode&gt;               &lt;olt-channel-identifiers&gt;                 &lt;olt-channel-identifier&gt;                   &lt;channel-number&gt;1&lt;/channel-number&gt;                   &lt;centre-frequency&gt;191.375&lt;/centre-frequency&gt;                   &lt;channel-width&gt;75&lt;/channel-width&gt;                 &lt;/olt-channel-identifier&gt;               &lt;/olt-channel-identifiers&gt;             &lt;/olt-grid-mode&gt;           &lt;/terminal-amplifier&gt;         &lt;/active-node&gt;       &lt;/active-nodes&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; </pre>

**Step 2** Use the Cisco-IOS-XR-osa-hwmod-linesys-oper.yang Yang model to get the operational data of the flex grid channel configured on the OLT card.

Yang Model	Example
Cisco-IOS-XR-osa-hwmod-linesys-operyang	<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:0b9fd0cf-b58c-4af2-8503-7b20f933145d" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;osa xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-osa-hwmod-linesys-oper"&gt;       &lt;node-ids&gt;         &lt;node-id&gt;           &lt;node-name&gt;0/0/NXR0&lt;/node-name&gt;           &lt;terminal-ampli&gt;             &lt;status&gt;slice-config-complete&lt;/status&gt;             &lt;flexi-grid-info&gt;               &lt;channel-number&gt;1&lt;/channel-number&gt;             &lt;/flexi-grid-info&gt;           &lt;/terminal-ampli&gt;           &lt;centre-frequency-thz&gt;191.375000&lt;/centre-frequency-thz&gt;           &lt;channel-width-ghz&gt;75.000&lt;/channel-width-ghz&gt;         &lt;/node-id&gt;       &lt;/node-ids&gt;     &lt;/osa&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>

## Configure Flex Grid in ILA card

**Step 1** Use the Cisco-IOS-XR-osa-linesystem-cfg.yang Yang model to configure the flex grid channel in the ILA card.

Yang Model	Example
Cisco-IOS-XR-osa-linesystem-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;active-nodes xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-config-mdm-cfg"&gt;         &lt;active-node&gt;           &lt;node-name&gt;0/0/NXR0&lt;/node-name&gt;           &lt;inline-amplifier xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-osa-linesystem-cfg"&gt;             &lt;ila-grid-mode&gt;               &lt;ila-channel-identifiers&gt;                 &lt;ila-channel-identifier&gt;                   &lt;channel-number&gt;1&lt;/channel-number&gt;                   &lt;centre-frequency&gt;191.375&lt;/centre-frequency&gt;                   &lt;channel-width&gt;75&lt;/channel-width&gt;                 &lt;/ila-channel-identifier&gt;               &lt;/ila-channel-identifiers&gt;             &lt;/ila-grid-mode&gt;           &lt;/inline-amplifier&gt;         &lt;/active-node&gt;       &lt;/active-nodes&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; </pre>

**Step 2** Use the Cisco-IOS-XR-osa-hwmod-linesys-oper.yang Yang model to get the operational data for the flex grid channel configured on the ILA card.

Yang Model	Example
Cisco-IOS-XR-osa-hwmod-linesys-operyang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;active-nodes xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-config-mdm-cfg"&gt;         &lt;active-node&gt;           &lt;node-name&gt;0/0/NXR0&lt;/node-name&gt;           &lt;inline-amplifier xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-osa-linesystem-cfg"&gt;             &lt;ila-grid-mode&gt;               &lt;ila-channel-identifiers&gt;                 &lt;ila-channel-identifier&gt;                   &lt;channel-number&gt;1&lt;/channel-number&gt;                   &lt;centre-frequency&gt;191.375&lt;/centre-frequency&gt;                   &lt;channel-width&gt;75&lt;/channel-width&gt;                 &lt;/ila-channel-identifier&gt;               &lt;/ila-channel-identifiers&gt;             &lt;/ila-grid-mode&gt;           &lt;/inline-amplifier&gt;         &lt;/active-node&gt;       &lt;/active-nodes&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; </pre>

## Configure OTS Controller

**Step 1** Use the Cisco-IOS-XR-controller-ots-cfg.yang Yang model to configure the OTS controller.

Yang Model	Example
Cisco-IOS-XR-controller-ots-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;interface-configurations xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-ifmgr-cfg"&gt;         &lt;interface-configuration&gt;           &lt;active&gt;act&lt;/active&gt;           &lt;interface-name&gt;Ots0/0/0/0&lt;/interface-name&gt;           &lt;ots xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-ots-cfg"&gt;             &lt;ots-egress-safety-control-mode&gt;auto&lt;/ots-egress-safety-control-mode&gt;              &lt;ots-ingress-amplifier-gain&gt;160&lt;/ots-ingress-amplifier-gain&gt;               &lt;ots-ingress-osri&gt;true&lt;/ots-ingress-osri&gt;               &lt;ots-tx-voa-attenuation&gt;200&lt;/ots-tx-voa-attenuation&gt;               &lt;ots-ingress-force-apr&gt;false&lt;/ots-ingress-force-apr&gt;              &lt;ots-egress-amplifier-tilt&gt;-40&lt;/ots-egress-amplifier-tilt&gt;              &lt;ots-egress-amplifier-gain&gt;180&lt;/ots-egress-amplifier-gain&gt;               &lt;ots-egress-osri&gt;false&lt;/ots-egress-osri&gt;              &lt;ots-ingress-amplifier-gain-range&gt;normal&lt;/ots-ingress-amplifier-gain-range&gt;              &lt;ots-ingress-amplifier-tilt&gt;50&lt;/ots-ingress-amplifier-tilt&gt;               &lt;ots-egress-force-apr&gt;true&lt;/ots-egress-force-apr&gt;           &lt;/ots&gt;         &lt;/interface-configuration&gt;       &lt;/interface-configurations&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; </pre>

**Step 2** Use the Cisco-IOS-XR-controller-ots-oper.yang Yang model to view the parameters of the OTS controller.

**Note** In the current release, all the controller models are mapped to the OTS controller model. Hence the operational data of all the controllers display "ots-state-up" as the controller state, and "ots-tas-ui-is" as transport-admin-sate, irrespective of the functionality.

Yang Model	Example
Cisco-IOS-XR-controller-ots-oper.yang	

Yang Model	Example
	<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:1ecef265-e94d-4b42-ad53-adb137a58efc" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;ots-oper xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-ots-oper"&gt;        &lt;ots-ports&gt;         &lt;ots-port&gt;           &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;ots-info&gt;  &lt;transport-admin-state&gt;ots-tas-ui-is&lt;/transport-admin-state&gt;  &lt;controller-state&gt;ots-state-up&lt;/controller-state&gt;           &lt;tx-voa-attenuation&gt;200&lt;/tx-voa-attenuation&gt;  &lt;ingress-ampli-gain&gt;160&lt;/ingress-ampli-gain&gt;  &lt;ingress-ampli-tilt&gt;50&lt;/ingress-ampli-tilt&gt;  &lt;ingress-ampli-gain-range&gt;ots-amplifier-gain-range-normal&lt;/ingress-ampli-gain-range&gt;            &lt;egress-ampli-gain&gt;180&lt;/egress-ampli-gain&gt;           &lt;egress-ampli-tilt&gt;-40&lt;/egress-ampli-tilt&gt;           &lt;total-cl-tx-power&gt;2000&lt;/total-cl-tx-power&gt;           &lt;total-cl-rx-power&gt;-1000&lt;/total-cl-rx-power&gt;  &lt;receive-signal-power&gt;2000&lt;/receive-signal-power&gt;  &lt;transmit-signal-power&gt;2000&lt;/transmit-signal-power&gt;           &lt;ingress-ampli-osri&gt;true&lt;/ingress-ampli-osri&gt;           &lt;egress-ampli-osri&gt;&gt;false&lt;/egress-ampli-osri&gt;            .....           .....           ..... &lt;tx-power&gt;-105&lt;/tx-power&gt;           &lt;/spectrum-slice-power-info&gt;           &lt;spectrum-slice-power-info&gt;             &lt;slice-num&gt;1546&lt;/slice-num&gt;             &lt;rx-power&gt;-105&lt;/rx-power&gt;             &lt;tx-power&gt;-105&lt;/tx-power&gt;           &lt;/spectrum-slice-power-info&gt;           &lt;spectrum-slice-power-info&gt;             &lt;slice-num&gt;1547&lt;/slice-num&gt;             &lt;rx-power&gt;-105&lt;/rx-power&gt;             &lt;tx-power&gt;-105&lt;/tx-power&gt;           &lt;/spectrum-slice-power-info&gt;           &lt;spectrum-slice-power-info&gt;             &lt;slice-num&gt;1548&lt;/slice-num&gt;             &lt;rx-power&gt;-105&lt;/rx-power&gt;             &lt;tx-power&gt;-105&lt;/tx-power&gt;           &lt;/spectrum-slice-power-info&gt;           &lt;/spectrum-info&gt;         &lt;/ots-spectrum-info&gt;       &lt;/ots-port&gt;     &lt;/ots-ports&gt;   &lt;/ots-oper&gt; </pre>

Yang Model	Example
	<pre>&lt;/data&gt; &lt;/rpc-reply&gt;</pre>

## Configure OCH Controller

**Step 1** Use the Cisco-IOS-XR-controller-och-cfg.yang Yang model to configure the OCH controller.

Yang Model	Example
Cisco-IOS-XR-controller-och-cfg.yang	<pre>&lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;interface-configurations xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-ifmgr-cfg"&gt;         &lt;interface-configuration&gt;           &lt;active&gt;act&lt;/active&gt;           &lt;interface-name&gt;Och0/3/0/31&lt;/interface-name&gt;           &lt;och xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-och-cfg"&gt;             &lt;och-tone-pattern-expected&gt;1234abcd&lt;/och-tone-pattern-expected&gt;             &lt;och-tone-rate&gt;20&lt;/och-tone-rate&gt;           &lt;/och&gt;         &lt;/interface-configuration&gt;       &lt;/interface-configurations&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt;</pre>

**Step 2** Use Cisco-IOS-XR-controller-och-oper.yang Yang model to view the OCH controller parameters.



Yang Model	Example
Cisco-IOS-XR-controller-och-oper.yang	<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:50bela71-e729-442d-aec7-14f486cd6028" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;och-oper xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-och-oper"&gt;        &lt;och-ports&gt;         &lt;och-port&gt;           &lt;name&gt;Och0/3/0/31&lt;/name&gt;           &lt;och-info&gt;             &lt;rx-power&gt;0&lt;/rx-power&gt;             &lt;tx-power&gt;-5000&lt;/tx-power&gt;             &lt;channel-frequency&gt;191375&lt;/channel-frequency&gt;             &lt;channel-width&gt;1500&lt;/channel-width&gt;             &lt;channel-wavelength&gt;156652&lt;/channel-wavelength&gt;             &lt;controller-state&gt;ots-state-up&lt;/controller-state&gt;              &lt;led-state&gt;off&lt;/led-state&gt;             &lt;rx-los-p&gt;               &lt;is-detected&gt;&gt;false&lt;/is-detected&gt;               &lt;counter&gt;0&lt;/counter&gt;             &lt;/rx-los-p&gt;             &lt;tx-power-fail-low&gt;               &lt;is-detected&gt;&gt;false&lt;/is-detected&gt;               &lt;counter&gt;0&lt;/counter&gt;             &lt;/tx-power-fail-low&gt;             &lt;och-tone-info&gt;               &lt;tone-rate&gt;20&lt;/tone-rate&gt;               &lt;pattern-expected&gt;1234abcd&lt;/pattern-expected&gt;                &lt;dectected-oob&gt;0&lt;/dectected-oob&gt;               &lt;state&gt;conn-vrfcn-state-not-running&lt;/state&gt;             &lt;/och-tone-info&gt;              &lt;transport-admin-state&gt;ots-tas-ui-is&lt;/transport-admin-state&gt;           &lt;/och-info&gt;         &lt;/och-port&gt;       &lt;/och-ports&gt;     &lt;/och-oper&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>

## Configure Optical Cross-Connect

**Step 1** Use the Cisco-IOS-XR-Ots-Och-cfg.yang Yang model to configure an optical cross-connect (OTS-OCH controller).

Yang Model	Example
Cisco-IOS-XR-Ots-Och-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;interface-configurations xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-ifmgr-cfg"&gt;         &lt;interface-configuration&gt;           &lt;active&gt;act&lt;/active&gt;           &lt;interface-name&gt;Ots-Och0/0/0/0/1&lt;/interface-name&gt;           &lt;ots-och xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-Ots-Och-cfg"&gt;             &lt;add-drop-channel&gt;Ots-Och0/0/0/2/1&lt;/add-drop-channel&gt;           &lt;/ots-och&gt;         &lt;/interface-configuration&gt;       &lt;/interface-configurations&gt;     &lt;/config&gt;   &lt;/edit-config&gt; </pre>

**Step 2** Use the Cisco-IOS-XR-controller-ots-och-oper.yang Yang model to view the parameters of the OTS-OCH controller.

Yang Model	Example
Cisco-IOS-XR-controller-ots-och-oper.yang	<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:71601b7f-caee-4e65-9627-b5043e66436d" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;ots-och-oper xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-ots-och-oper"&gt;       &lt;ots-och-ports&gt;         &lt;ots-och-port&gt;           &lt;name&gt;Ots-Och0/0/0/0/1&lt;/name&gt;           &lt;ots-och-info&gt;             &lt;transport-admin-state&gt;ots-tas-ui-is&lt;/transport-admin-state&gt;             &lt;controller-state&gt;ots-state-up&lt;/controller-state&gt;             &lt;add-drop-channel&gt;Ots-Och0/0/0/2/1&lt;/add-drop-channel&gt;             &lt;total-rx-power&gt;-1050&lt;/total-rx-power&gt;             &lt;total-tx-power&gt;-1050&lt;/total-tx-power&gt;           &lt;/ots-och-info&gt;         &lt;/ots-och-port&gt;       &lt;/ots-och-ports&gt;     &lt;/ots-och-oper&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>

# Configure OMS Controller

**Step 1** Use the Cisco-IOS-XR-controller-oms-cfg.yang Yang model to configure the OMS controller.

Yang Model	Example
Cisco-IOS-XR-controller-oms-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;interface-configurations xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-ifmgr-cfg"&gt;         &lt;interface-configuration&gt;           &lt;active&gt;act&lt;/active&gt;           &lt;interface-name&gt;Oms0/3/0/32&lt;/interface-name&gt;           &lt;oms xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-oms-cfg"&gt;             &lt;oms-tone-rate&gt;20&lt;/oms-tone-rate&gt;              &lt;oms-tone-pattern-expected&gt;abcd1234&lt;/oms-tone-pattern-expected&gt;               &lt;oms-tone-detect-oob/&gt;             &lt;/oms&gt;           &lt;/interface-configuration&gt;         &lt;/interface-configurations&gt;       &lt;/config&gt;     &lt;/edit-config&gt;   &lt;/rpc&gt; </pre>

**Step 2** Use the Cisco-IOS-XR-controller-oms-oper.yang Yang model to view the parameters of the OMS controller.

Yang Model	Example
Cisco-IOS-XR-controller-oms-oper	<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:ba7b0faf-3762-4a8e-b9fe-e8d190a2dbe7" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;oms-oper xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-oms-oper"&gt;        &lt;oms-ports&gt;         &lt;oms-port&gt;           &lt;name&gt;Oms0/3/0/32&lt;/name&gt;           &lt;oms-info&gt;             &lt;rx-power&gt;0&lt;/rx-power&gt;             &lt;tx-power&gt;0&lt;/tx-power&gt;             &lt;controller-state&gt;ots-state-up&lt;/controller-state&gt;              &lt;led-state&gt;off&lt;/led-state&gt;             &lt;rx-los-p&gt;               &lt;is-detected&gt;&gt;false&lt;/is-detected&gt;               &lt;counter&gt;0&lt;/counter&gt;             &lt;/rx-los-p&gt;             &lt;tx-power-fail-low&gt;               &lt;is-detected&gt;&gt;false&lt;/is-detected&gt;               &lt;counter&gt;0&lt;/counter&gt;             &lt;/tx-power-fail-low&gt;               &lt;oms-tone-info&gt;                 &lt;tone-rate&gt;20&lt;/tone-rate&gt;                 &lt;pattern-expected&gt;abcd1234&lt;/pattern-expected&gt;                  &lt;decteded-oob&gt;1&lt;/decteded-oob&gt;                 &lt;state&gt;conn-vrfcn-state-not-running&lt;/state&gt;               &lt;/oms-tone-info&gt;              &lt;transport-admin-state&gt;ots-tas-ui-is&lt;/transport-admin-state&gt;           &lt;/oms-info&gt;         &lt;/oms-port&gt;       &lt;/oms-ports&gt;     &lt;/oms-oper&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>

## Configure DFB Controller

**Step 1** Use the Cisco-IOS-XR-controller-dfb-cfg.yang Yang model to configure the DFB controller.

Yang Model	Example
Cisco-IOS-XR-controller-dfb-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;interface-configurations xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-ifmgr-cfg"&gt;         &lt;interface-configuration&gt;           &lt;active&gt;act&lt;/active&gt;           &lt;interface-name&gt;Dfb0/0/0/0&lt;/interface-name&gt;           &lt;dfb xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-dfb-cfg"&gt;             &lt;dfb-tx-voa-attenuation&gt;150&lt;/dfb-tx-voa-attenuation&gt;           &lt;/dfb&gt;         &lt;/interface-configuration&gt;       &lt;/interface-configurations&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; </pre>

**Step 2** Use the Cisco-IOS-XR-controller-dfb-oper.yang Yang model to view the DFB controller parameters.

Yang Model	Example
Cisco-IOS-XR-controller-dfb-oper.yang	<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:41205dcf-f92f-4b73-bdf3-ba64438d15ac" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;dfb-oper xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-dfb-oper"&gt;        &lt;dfb-ports&gt;         &lt;dfb-port&gt;           &lt;name&gt;Dfb0/0/0/0&lt;/name&gt;           &lt;dfb-info&gt;             &lt;laser-state&gt;on&lt;/laser-state&gt;  &lt;controller-state&gt;ots-state-up&lt;/controller-state&gt;  &lt;transport-admin-state&gt;ots-tas-ui-is&lt;/transport-admin-state&gt;           &lt;total-rx-power&gt;1000&lt;/total-rx-power&gt;           &lt;total-tx-power&gt;2000&lt;/total-tx-power&gt;           &lt;tx-voa-attenuation&gt;150&lt;/tx-voa-attenuation&gt;  &lt;tx-voa-attenuation-config-val&gt;150&lt;/tx-voa-attenuation-config-val&gt;            &lt;rx-los-p&gt;             &lt;is-detected&gt;&gt;false&lt;/is-detected&gt;             &lt;counter&gt;0&lt;/counter&gt;           &lt;/rx-los-p&gt;           &lt;tx-power-fail-low&gt;             &lt;is-detected&gt;&gt;false&lt;/is-detected&gt;             &lt;counter&gt;0&lt;/counter&gt;           &lt;/tx-power-fail-low&gt;           &lt;/dfb-info&gt;         &lt;/dfb-port&gt;       &lt;/dfb-ports&gt;     &lt;/dfb-oper&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>

## Configure OSC Controller

**Step 1** Use the Cisco-IOS-XR-controller-osc-cfg.yang Yang model to configure the OSC controller.

Yang Model	Example
Cisco-IOS-XR-controller-osc-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;interface-configurations xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-ifmgr-cfg"&gt;         &lt;interface-configuration&gt;           &lt;active&gt;act&lt;/active&gt;           &lt;interface-name&gt;Osc0/0/0/0&lt;/interface-name&gt;           &lt;osc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-osc-cfg"&gt;             &lt;osc-transmit-power&gt;20&lt;/osc-transmit-power&gt;             &lt;osc-transmit-shutdown&gt;&gt;false&lt;/osc-transmit-shutdown&gt;           &lt;/osc&gt;         &lt;/interface-configuration&gt;       &lt;/interface-configurations&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; </pre>

**Step 2** Use Cisco-IOS-XR-controller-osc-oper.yang Yang model to view the OSC controller parameters.

Yang Model	Example
Cisco-IOS-XR-controller-osc-oper.yang	<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:57794a6c-fe5b-425e-8df7-7c09a789b757" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;osc-oper xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-controller-osc-oper"&gt;        &lt;osc-ports&gt;         &lt;osc-port&gt;           &lt;name&gt;Osc0/0/0/0&lt;/name&gt;           &lt;osc-info&gt;             &lt;laser-state&gt;off&lt;/laser-state&gt;           &lt;/osc-info&gt;         &lt;/osc-port&gt;       &lt;/osc-ports&gt;     &lt;/osc-oper&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>

## Configure FPD Package

**Step 1** Use the Cisco-IOS-XR-fpd-infra-cfg.yang Yang model to configure FPD package.



Yang Model	Example
Cisco-IOS-XR-fpd-infra-cfg.yang	<pre>&lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;fpd xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-fpd-infra-cfg"&gt;         &lt;auto-upgrade&gt;enable&lt;/auto-upgrade&gt;       &lt;/fpd&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt;</pre>

**Step 2** Use Cisco-IOS-XR-show-fpd-loc-ng-oper.yang Yang model to view the operational data for FPD package details

Yang Model	Example
Cisco-IOS-XR-show-fpd-loc-ng-oper.yang	<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:a69ef4eb-f4c8-461e-8858-4d70169df583" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;show-fpd xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-show-fpd-loc-ng-oper"&gt;        &lt;locations&gt;         &lt;location&gt;           &lt;location-name&gt;0-RP0-CPU0&lt;/location-name&gt;           &lt;fpds&gt;             &lt;fpd&gt;               &lt;fpd-name&gt;fpd_list&lt;/fpd-name&gt;               &lt;upgrade-status&gt;No upgrade in progress&lt;/upgrade-status&gt;               &lt;fpd-info-detaile&gt;                 &lt;location&gt;0/RP0/CPU0&lt;/location&gt;                 &lt;card-name&gt;NCS1010-CNTRLR-K9&lt;/card-name&gt;                 &lt;fpd-name&gt;ADMConfig&lt;/fpd-name&gt;                 &lt;hw-version&gt;0.1 &lt;/hw-version&gt;                 &lt;secure-boot-attr&gt; &lt;/secure-boot-attr&gt;                 &lt;status&gt;NEED UPGD&lt;/status&gt;                 &lt;running-version&gt; 7.01 &lt;/running-version&gt;                 &lt;programd-version&gt; 7.01 &lt;/programd-version&gt;                 &lt;reload-location&gt;0/RP0&lt;/reload-location&gt;               &lt;/fpd-info-detaile&gt;               &lt;fpd-info-detaile&gt;                 &lt;location&gt;0/RP0/CPU0&lt;/location&gt;                 &lt;card-name&gt;NCS1010-CNTRLR-K9&lt;/card-name&gt;                 &lt;fpd-name&gt;BIOS&lt;/fpd-name&gt;                 &lt;hw-version&gt;0.1 &lt;/hw-version&gt;             .             .             .           &lt;/fpds&gt;         &lt;/location&gt;       &lt;/locations&gt;       &lt;set-timestamp&gt;1654756033&lt;/set-timestamp&gt;       &lt;clear-time&gt;-&lt;/clear-time&gt;       &lt;clear-timestamp&gt;0&lt;/clear-timestamp&gt;       &lt;description&gt;Ots0/0/0/0 - APC blocked&lt;/description&gt;     &lt;/alarm-info&gt;     &lt;/active&gt;   &lt;/brief-system&gt; &lt;/alarms&gt; &lt;/data&gt; &lt;/rpc-reply&gt; </pre>

## View NCS 1010 Platform Details

Use the Cisco-IOS-XR-platform-oper.yang Yang model to view the platform details of the NCS 1010 node.

Yang Models	Example
Cisco-IOS-XR-platform-oper.yang	<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:5323a66f-728c-45a8-a8be-96751fe7081a" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;platform xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-platform-oper"&gt;       &lt;racks&gt;         &lt;rack&gt;           &lt;rack-name&gt;0&lt;/rack-name&gt;           &lt;slots&gt;             &lt;slot&gt;               &lt;slot-name&gt;RP0&lt;/slot-name&gt;               &lt;instances&gt;                 &lt;instance&gt;                   &lt;instance-name&gt;CPU0&lt;/instance-name&gt;                   &lt;state&gt;                     &lt;card-type&gt;NCS1010-CNTRLR-K9&lt;/card-type&gt;  &lt;card-redundancy-state&gt;active&lt;/card-redundancy-state&gt;                   &lt;state&gt;not-applicable&lt;/state&gt;                   &lt;admin-state&gt;NSHUT,NMON&lt;/admin-state&gt;                    &lt;node-name&gt;0/RP0/CPU0&lt;/node-name&gt;                   &lt;oper-state&gt;IOS XR RUN&lt;/oper-state&gt;                 &lt;/state&gt;               &lt;/instance&gt;             &lt;/instances&gt;           &lt;/slot&gt;         &lt;slot&gt;           .           .           .           &lt;card-type&gt;NCS1K-MD-32E-C&lt;/card-type&gt;  &lt;card-redundancy-state&gt;red-state-none&lt;/card-redundancy-state&gt;           &lt;state&gt;not-applicable&lt;/state&gt;           &lt;admin-state&gt;NSHUT,NMON&lt;/admin-state&gt;           &lt;node-name&gt;0/3&lt;/node-name&gt;           &lt;oper-state&gt;OPERATIONAL&lt;/oper-state&gt;         &lt;/state&gt;       &lt;/slot&gt;     &lt;/slots&gt;   &lt;/rack&gt; &lt;/racks&gt; &lt;/platform&gt; &lt;/data&gt; &lt;/rpc-reply&gt; </pre>

# Optical Applications

Table 1: Span Loss

<pre> Cisco IOS XE get otc span loss </pre>	<pre> ##Request## &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;get&gt;     &lt;filter&gt;       &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;         &lt;span-loss-ctrlr-tables&gt;           &lt;span-loss-ctrlr-table&gt;             &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;/span-loss-ctrlr-table&gt;         &lt;/span-loss-ctrlr-tables&gt;       &lt;/olc&gt;     &lt;/filter&gt;   &lt;/get&gt; &lt;/rpc&gt; ##Response## &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:b2b7bfbe-c5d6-42c5-8fc3-f716c7acd04e"   xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns :nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;       &lt;span-loss-ctrlr-tables&gt;         &lt;span-loss-ctrlr-table&gt;           &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;neighbour-rid&gt;10.1.1.4&lt;/neighbour-rid&gt;           &lt;apparent-rx-span-loss&gt;30.0 dB&lt;/apparent-rx-span-loss&gt;           &lt;apparent-tx-span-loss&gt;0.0 dB&lt;/apparent-tx-span-loss&gt;           &lt;dfb-rx-span-loss-with-pumps-off&gt;0.0 dB&lt;/dfb-rx-span-loss-with-pumps-off&gt;           &lt;ts-dfb-rx-span-loss-with-pumps-off&gt;2023-01-16 05:05:50&lt;/ts-dfb-rx-span-loss-with-pumps-off&gt;           &lt;dfb-tx-span-loss-with-pumps-off&gt;0.0 dB&lt;/dfb-tx-span-loss-with-pumps-off&gt;           &lt;ts-dfb-tx-span-loss-with-pumps-off&gt;2023-01-16 05:07:12&lt;/ts-dfb-tx-span-loss-with-pumps-off&gt;           &lt;est-rx-span-loss&gt;NA&lt;/est-rx-span-loss&gt;           &lt;est-tx-span-loss&gt;NA&lt;/est-tx-span-loss&gt;         &lt;/span-loss-ctrlr-table&gt;       &lt;/span-loss-ctrlr-tables&gt;     &lt;/olc&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>
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**Table 2: Configure Span Loss Thresholds**

Cisco-IOS -XR-olc-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-cfg"&gt;         &lt;controller-rsips&gt;           &lt;controller-rsip&gt;             &lt;controller&gt;Ots0/0/0/0&lt;/controller&gt;             &lt;span-loss&gt;               &lt;max-threshold&gt;110&lt;/max-threshold&gt;               &lt;min-threshold&gt;100&lt;/min-threshold&gt;             &lt;/span-loss&gt;           &lt;/controller-rsip&gt;         &lt;/controller-rsips&gt;       &lt;/olc&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="102"&gt;   &lt;commit/&gt; &lt;/rpc&gt; </pre>
-------------------------------	--

## Raman Tuning

**Table 3: Configuring Raman tuning gain**

Cisco-IOS-XR-olc-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-cfg"&gt;         &lt;controller-rsips&gt;           &lt;controller-rsip&gt;             &lt;controller&gt;Ots0/0/0/0&lt;/controller&gt;             &lt;raman&gt;               &lt;raman-tune-target-gain&gt;220&lt;/raman-tune-target-gain&gt;               &lt;raman-tune-cfg-state&gt;enable&lt;/raman-tune-cfg-state&gt;             &lt;/raman&gt;           &lt;/controller-rsip&gt;         &lt;/controller-rsips&gt;       &lt;/olc&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="102"&gt;   &lt;commit/&gt; &lt;/rpc&gt; </pre>
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Table 4: View Raman tuning status

<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:f30ed6d0-9239-4f5d-b436-3855df87d056" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns: nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;       &lt;raman-tuning-ctrlr-tables&gt;         &lt;raman-tuning-ctrlr-table&gt;           &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;status&gt;tuned&lt;/status&gt;           &lt;tuning-complete-timestamp&gt;2023-01-17 06:32:45&lt;/tuning-complete-timestamp&gt;           &lt;target-gain&gt;220.0&lt;/target-gain&gt;           &lt;max-gain&gt;240.0&lt;/max-gain&gt;           &lt;tuning-complete-gain&gt;220.0&lt;/tuning-complete-gain&gt;           &lt;last-tuned-gain&gt;220.0&lt;/last-tuned-gain&gt;           &lt;last-tuned-timestamp&gt;2023-01-17 06:32:45&lt;/last-tuned-timestamp&gt;         &lt;/raman-tuning-ctrlr-table&gt;       &lt;/raman-tuning-ctrlr-tables&gt;     &lt;/olc&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>	<pre> ##Request## &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;get&gt;     &lt;filter&gt;       &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;         &lt;raman-tuning-ctrlr-tables&gt;           &lt;raman-tuning-ctrlr-table&gt;             &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;/raman-tuning-ctrlr-table&gt;         &lt;/raman-tuning-ctrlr-tables&gt;       &lt;/olc&gt;     &lt;/filter&gt;   &lt;/get&gt; &lt;/rpc&gt;  ##Response## &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:f30ed6d0-9239-4f5d-b436-3855df87d056" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns: nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;       &lt;raman-tuning-ctrlr-tables&gt;         &lt;raman-tuning-ctrlr-table&gt;           &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;status&gt;tuned&lt;/status&gt;           &lt;tuning-complete-timestamp&gt;2023-01-17 06:32:45&lt;/tuning-complete-timestamp&gt;           &lt;target-gain&gt;220.0&lt;/target-gain&gt;           &lt;max-gain&gt;240.0&lt;/max-gain&gt;           &lt;tuning-complete-gain&gt;220.0&lt;/tuning-complete-gain&gt;           &lt;last-tuned-gain&gt;220.0&lt;/last-tuned-gain&gt;           &lt;last-tuned-timestamp&gt;2023-01-17 06:32:45&lt;/last-tuned-timestamp&gt;         &lt;/raman-tuning-ctrlr-table&gt;       &lt;/raman-tuning-ctrlr-tables&gt;     &lt;/olc&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>
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## Gain Estimator

**Table 5: Configure gain estimator status**

Cisco IOS-XR-olc.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml: ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;   &lt;/edit-config&gt;   &lt;config&gt;     &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-cfg"&gt;       &lt;controller-rsips&gt;         &lt;controller-rsip&gt;           &lt;controller&gt;0ts0/0/0/0&lt;/controller&gt;           &lt;gain-estimator&gt;             &lt;gain-estimator-cfg-state&gt;enable&lt;/gain-estimator-cfg-state&gt;           &lt;/gain-estimator&gt;         &lt;/controller-rsip&gt;       &lt;/controller-rsips&gt;     &lt;/olc&gt;   &lt;/config&gt; &lt;/edit-config&gt; &lt;/rpc&gt; &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="102"&gt;   &lt;commit/&gt; &lt;/rpc&gt; </pre>
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Table 6: View gain estimator values

<pre> GetSRReply </pre>	<pre> ##Requets## &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;get&gt;     &lt;filter&gt;       &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;         &lt;gain-estimator-ctrlr-tables&gt;           &lt;gain-estimator-ctrlr-table&gt;             &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;/gain-estimator-ctrlr-table&gt;         &lt;/gain-estimator-ctrlr-tables&gt;       &lt;/olc&gt;     &lt;/filter&gt;   &lt;/get&gt; &lt;/rpc&gt; ##Response## &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:a6de328a-907f-49f8-adf4-c8e8dcccced3f"   xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns: nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;       &lt;gain-estimator-ctrlr-tables&gt;         &lt;gain-estimator-ctrlr-table&gt;           &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;ingress-status&gt;             &lt;status&gt;idle&lt;/status&gt;             &lt;last-gain-cmpt-time-stamp&gt;2023-01-17 06:40:00&lt;/last-gain-cmpt-time-stamp&gt;             &lt;computed-gain&gt;32.5&lt;/computed-gain&gt;             &lt;computed-gain-mode&gt;Extended&lt;/computed-gain-mode&gt;           &lt;/ingress-status&gt;         &lt;/gain-estimator-ctrlr-table&gt;       &lt;/gain-estimator-ctrlr-tables&gt;     &lt;/olc&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>
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## Link Tuner

**Table 7: Configure Link tuner**

Cisco-IOS-XR-olc-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml: ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-cfg"&gt;         &lt;controller-rsips&gt;           &lt;controller-rsip&gt;             &lt;controller&gt;Ots0/0/0/0&lt;/controller&gt;             &lt;link-tuner&gt;               &lt;spectrum-density&gt;90&lt;/spectrum-density&gt;               &lt;link-tuner-cfg-state&gt;enable&lt;/link-tuner-cfg-state&gt;             &lt;/link-tuner&gt;           &lt;/controller-rsip&gt;         &lt;/controller-rsips&gt;       &lt;/olc&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="102"&gt;    &lt;commit/&gt; &lt;/rpc&gt; </pre>
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*Table 8: View Link Tuner values*

GetSNRLog	
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```

##Request##
<rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101">
  <get>
    <filter>
      <olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper">
        <link-tuner-table>
          <link-tuner-detail-ctrlr-tables/>
        </link-tuner-table>
      </olc>
    </filter>
  </get>
</rpc>
##Response##
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<rpc-reply message-id="urn:uuid:d2734b87-2bbb-4040-b346-9fa05f09bac6"
xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns
:nc="urn:ietf:params:xml:ns:netconf:base:1.0">
  <data>
    <olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper">
      <link-tuner-table>
        <link-tuner-detail-ctrlr-tables>
          <link-tuner-detail-ctrlr-table>
            <name>Ots0/0/0/0</name>
            <link-tuner-info>
              <status>operational</status>
              <last-psd-cmpt-time-stamp>2023-01-17
07:00:17</last-psd-cmpt-time-stamp>
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    <psd-info>
        <setpoint>30</setpoint>
        <computed-optimium-psd>-108.4</computed-optimium-psd>
    </psd-info>
    <psd-info>
        <setpoint>31</setpoint>
        <computed-optimium-psd>-108.5</computed-optimium-psd>
    </psd-info>
    <psd-info>
        <setpoint>32</setpoint>
        <computed-optimium-psd>-108.5</computed-optimium-psd>
    </psd-info>
    <psd-info>
        <setpoint>33</setpoint>
        <computed-optimium-psd>-108.5</computed-optimium-psd>
    </psd-info>
    </link-tuner-info>
    <computed-total-noise>-53.84</computed-total-noise>
</link-tuner-detail-ctrlr-table>
</link-tuner-detail-ctrlr-tables>
</link-tuner-table>
</olc>
</data>
</rpc-reply>
```

## Partner band configuration

**Table 9: Configuring partner band**

Cisco-IOS-XR-olc-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-cfg"&gt;         &lt;controller-rsips&gt;           &lt;controller-rsip&gt;             &lt;controller&gt;Ots0/0/0/0&lt;/controller&gt;             &lt;partner-band-config&gt;               &lt;partner-band-ipv4&gt;                 &lt;partner-port-ipv4-info&gt;                   &lt;neighbor-address&gt;12.0.0.18&lt;/neighbor-address&gt;                   &lt;controller&gt;Ots0/0/0/0&lt;/controller&gt;                 &lt;/partner-port-ipv4-info&gt;               &lt;/partner-band-ipv4&gt;             &lt;/partner-band-config&gt;           &lt;/controller-rsip&gt;         &lt;/controller-rsips&gt;       &lt;/olc&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="102"&gt;   &lt;commit/&gt; &lt;/rpc&gt; </pre>
---------------------------	---

Table 10: View partner band loss

<pre> Get CSXReply </pre>	<pre> ##Request## &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;get&gt;     &lt;filter&gt;       &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;         &lt;partnerband-loss-ctrlr-tables&gt;           &lt;partnerband-loss-ctrlr-table&gt;             &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;/partnerband-loss-ctrlr-table&gt;         &lt;/partnerband-loss-ctrlr-tables&gt;       &lt;/olc&gt;     &lt;/filter&gt;   &lt;/get&gt; &lt;/rpc&gt;  ##Response## &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:18fd9707-b1ab-43c6-9903-973698f5ba13" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns :nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;       &lt;partnerband-loss-ctrlr-tables&gt;         &lt;partnerband-loss-ctrlr-table&gt;           &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;partner-controller&gt;Ots0/0/0/0&lt;/partner-controller&gt;           &lt;partner-ip&gt;12.0.0.18&lt;/partner-ip&gt;           &lt;cl-patch-loss&gt;37.0&lt;/cl-patch-loss&gt;           &lt;cl-path-loss&gt;37.0&lt;/cl-path-loss&gt;           &lt;ts-loss&gt;2023-01-17 07:20:08&lt;/ts-loss&gt;         &lt;/partnerband-loss-ctrlr-table&gt;       &lt;/partnerband-loss-ctrlr-tables&gt;     &lt;/olc&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>
---------------------------	--

**APC(Automatic Power Control)****Table 11: Configuring APC**

Cisco-IOS-XR-olc-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml :ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-cfg"&gt;         &lt;controller-rsips&gt;           &lt;controller-rsip&gt;             &lt;controller&gt;0ts0/0/0/0&lt;/controller&gt;             &lt;apc&gt;               &lt;psds&gt;                 &lt;psd&gt;                   &lt;psd-index&gt;1&lt;/psd-index&gt;                   &lt;psd-value&gt;-52&lt;/psd-value&gt;                 &lt;/psd&gt;               &lt;/psds&gt;               &lt;apc-cfg-state&gt;enable&lt;/apc-cfg-state&gt;             &lt;/apc&gt;           &lt;/controller-rsip&gt;         &lt;/controller-rsips&gt;       &lt;/olc&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="102"&gt;    &lt;commit/&gt; &lt;/rpc&gt; </pre>
---------------------------	--



Table 12: View APC status

<pre> Get Ots Rpt </pre>	<pre> ##Request## &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;get&gt;     &lt;filter&gt;       &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;         &lt;apc-status-ctrlr-tables&gt;           &lt;apc-status-ctrlr-table&gt;             &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;/apc-status-ctrlr-table&gt;         &lt;/apc-status-ctrlr-tables&gt;       &lt;/olc&gt;     &lt;/filter&gt;   &lt;/get&gt; &lt;/rpc&gt;  ##Response## &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:b7440b4e-3df1-4e20-851a-38ec69353703" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper"&gt;       &lt;apc-status-ctrlr-tables&gt;         &lt;apc-status-ctrlr-table&gt;           &lt;name&gt;Ots0/0/0/0&lt;/name&gt;           &lt;status&gt;working&lt;/status&gt;           &lt;corr-node&gt;10.1.1.5&lt;/corr-node&gt;           &lt;node-status&gt;             &lt;node-id&gt;10.1.1.5&lt;/node-id&gt;             &lt;internal-state&gt;oor&lt;/internal-state&gt;           &lt;/node-status&gt;           &lt;node-status&gt;             &lt;node-id&gt;10.1.1.4&lt;/node-id&gt;             &lt;internal-state&gt;oor&lt;/internal-state&gt;           &lt;/node-status&gt;           &lt;node-status&gt;             &lt;node-id&gt;10.1.1.3&lt;/node-id&gt;             &lt;internal-state&gt;oor&lt;/internal-state&gt;           &lt;/node-status&gt;           &lt;node-status&gt;             &lt;node-id&gt;10.1.1.2&lt;/node-id&gt;             &lt;internal-state&gt;oor&lt;/internal-state&gt;           &lt;/node-status&gt;           &lt;node-status&gt;             &lt;node-id&gt;10.1.1.1&lt;/node-id&gt;             &lt;internal-state&gt;oor&lt;/internal-state&gt;           &lt;/node-status&gt;         &lt;/apc-status-ctrlr-table&gt;       &lt;/apc-status-ctrlr-tables&gt;     &lt;/olc&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>
--------------------------	--

*Table 13: View Band status*

GetSRing	
----------	--

```

##Request##
<rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101">
  <get>
    <filter>
      <olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper">
        <band-status-ctrlr-tables>
          <band-status-ctrlr-table>
          </band-status-ctrlr-table>
        </band-status-ctrlr-tables>
      </olc>
    </filter>
  </get>
</rpc>
##Response##
<?xml version="1.0" ?>
<rpc-reply message-id="urn:uuid:31d90a38-5856-4afb-b483-eb821573ec86"
xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"
xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0">
  <data>
    <olc xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-olc-oper">
      <band-status-ctrlr-tables>
        <band-status-ctrlr-table>
          <name>Ots0/0/0/0</name>
          <self-band>c-band</self-band>
          <band-node-info>
            <node-rid>10.1.1.5</node-rid>
            <partner-ip>12.0.0.18</partner-ip>
            <partner-controller>Ots0/0/0/0</partner-controller>
            <band-info>
              <band-type>c-band</band-type>
              <band-status>recovering</band-status>
              <psd-type>unknown</psd-type>
            </band-info>
            <band-info>
              <band-type>l-band</band-type>
              <band-status>recovering</band-status>
              <psd-type>unknown</psd-type>
            </band-info>
            <partner-band-conn-state>conn-down</partner-band-conn-state>
          </band-node-info>
          <band-node-info>
            <node-rid>10.1.1.4</node-rid>
            <partner-controller/>
            <band-info>
              <band-type>c-band</band-type>
              <band-status>unknown</band-status>
              <psd-type>unknown</psd-type>
            </band-info>
            <band-info>
              <band-type>l-band</band-type>
              <band-status>unknown</band-status>
              <psd-type>unknown</psd-type>
            </band-info>
            <partner-band-conn-state>conn-unknown</partner-band-conn-state>
          </band-node-info>
          <band-node-info>
            <node-rid>10.1.1.3</node-rid>
            <partner-controller/>
            <band-info>
              <band-type>c-band</band-type>
              <band-status>unknown</band-status>
              <psd-type>unknown</psd-type>
            </band-info>
            <band-info>

```

```

        <band-type>l-band</band-type>
        <band-status>unknown</band-status>
        <psd-type>unknown</psd-type>
    </band-info>
    <partner-band-conn-state>conn-unknown</partner-band-conn-state>
</band-node-info>
<band-node-info>
    <node-rid>10.1.1.2</node-rid>
    <partner-controller/>
    <band-info>
        <band-type>c-band</band-type>
        <band-status>unknown</band-status>
        <psd-type>unknown</psd-type>
    </band-info>
    <band-info>
        <band-type>l-band</band-type>
        <band-status>unknown</band-status>
        <psd-type>unknown</psd-type>
    </band-info>
    <partner-band-conn-state>conn-unknown</partner-band-conn-state>
</band-node-info>
<band-node-info>
    <node-rid>10.1.1.1</node-rid>
    <partner-controller/>
    <band-info>
        <band-type>c-band</band-type>
        <band-status>unknown</band-status>
    </band-info>
    <band-info>
        <band-type>l-band</band-type>
        <band-status>unknown</band-status>
    </band-info>
    <partner-band-conn-state>conn-unknown</partner-band-conn-state>
</band-node-info>
    <bfr-status>status-running</bfr-status>
</band-status-ctrlr-table>
</band-status-ctrlr-tables>
</olc>
</data>
</rpc-reply>

```

## View Performance Monitoring Parameters

Use Cisco-IOS-XR-pmengine-oper.yang Yang model to view the performance monitoring parameters on the controllers.

Yang Model	Example
Cisco-IOS-XR-pmengine-oper.yang	

Yang Model	Example
	<pre> rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;get&gt;     &lt;filter&gt;       &lt;performance-management xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-pmengine-oper"&gt;         &lt;optics&gt;           &lt;optics-ports&gt;             &lt;optics-port&gt;               &lt;name&gt;Ots0/0/0/0&lt;/name&gt;               &lt;optics-current&gt;                 &lt;optics-second30&gt;                   &lt;optics-second30-optics/&gt;                 &lt;/optics-second30&gt;               &lt;/optics-current&gt;             &lt;/optics-port&gt;           &lt;/optics-ports&gt;         &lt;/optics&gt;       &lt;/performance-management&gt;     &lt;/filter&gt;   &lt;/get&gt; &lt;/rpc&gt; #####Response##### &lt;?xml version="1.0"?&gt; &lt;rpc-reply message-id="101" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;performance-management xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-pmengine-oper"&gt;       &lt;optics&gt;         &lt;optics-ports&gt;           &lt;optics-port&gt;             &lt;name&gt;Ots0/0/0/0&lt;/name&gt;             &lt;optics-current&gt;               &lt;optics-second30&gt;                 &lt;optics-second30-optics&gt;                   &lt;optics-second30-optic&gt;                     &lt;number&gt;1&lt;/number&gt;                     &lt;index&gt;0&lt;/index&gt;                     &lt;valid&gt;true&lt;/valid&gt;                     &lt;timestamp&gt;10:00:00 - 10:00:15 Thu Jun 16 2022&lt;/timestamp&gt;                      &lt;last-clear30-sec-time&gt;never&lt;/last-clear30-sec-time&gt;                     &lt;sec30-support&gt;true&lt;/sec30-support&gt;                     &lt;flex-bin-support&gt;true&lt;/flex-bin-support&gt;                     &lt;flex-bin-interval&gt;10&lt;/flex-bin-interval&gt;                     &lt;opt&gt;                       &lt;valid&gt;true&lt;/valid&gt;                       &lt;minimum&gt;20.00&lt;/minimum&gt;                       &lt;average&gt;20.00&lt;/average&gt;                       &lt;maximum&gt;20.00&lt;/maximum&gt;                       &lt;minimum-threshold&gt;-20.00&lt;/minimum-threshold&gt;                       &lt;configured-min-thresh&gt;NA&lt;/configured-min-thresh&gt;                       &lt;minimum-tca-report&gt;&gt;false&lt;/minimum-tca-report&gt;                     .                     .                     .                       &lt;valid&gt;true&lt;/valid&gt;                       &lt;minimum&gt;0.00&lt;/minimum&gt;                       &lt;average&gt;0.00&lt;/average&gt;                       &lt;maximum&gt;0.00&lt;/maximum&gt; </pre>

Yang Model	Example
	<pre> &lt;minimum-threshold&gt;-5.00&lt;/minimum-threshold&gt; &lt;configured-min-thresh&gt;NA&lt;/configured-min-thresh&gt; &lt;minimum-tca-report&gt;&gt;false&lt;/minimum-tca-report&gt; &lt;maximum-threshold&gt;5.00&lt;/maximum-threshold&gt; &lt;configured-max-thresh&gt;NA&lt;/configured-max-thresh&gt; &lt;maximum-tca-report&gt;&gt;false&lt;/maximum-tca-report&gt; &lt;min-time&gt;1655373600749422903&lt;/min-time&gt; &lt;max-time&gt;1655373600749422903&lt;/max-time&gt; &lt;/eat1&gt; &lt;iagn&gt;  &lt;maximum-tca-report&gt;&gt;false&lt;/maximum-tca-report&gt; &lt;min-time&gt;1655373600749422903&lt;/min-time&gt; &lt;max-time&gt;1655373600749422903&lt;/max-time&gt; -thresh&gt;  &lt;minimum&gt;40.00&lt;/minimum&gt; &lt;average&gt;40.00&lt;/average&gt;  eport&gt; &lt;maximum-threshold&gt;190.00&lt;/maximum-threshold&gt; &lt;configured-max-thresh&gt;NA&lt;/configured-max-thresh&gt; &lt;maximum-tca-report&gt;&gt;false&lt;/maximum-tca-report&gt; &lt;min-time&gt;1655373600749422903&lt;/min-time&gt; &lt;max-time&gt;1655373600749422903&lt;/max-time&gt; &lt;/raman-5&gt; &lt;/optics-second30-optic&gt;  &lt;/optics-second30-optics&gt; &lt;/optics-second30&gt; &lt;/optics-current&gt; &lt;/optics-port&gt; &lt;/optics-ports&gt; &lt;/optics&gt; &lt;/performance-management&gt; &lt;/data&gt; &lt;/rpc-reply&gt; </pre>

## Configure Equipment Mismatch Alarm

Use the Cisco-IOS-XR-osa-ct-cfg.yang Yang model to configure the equipment mismatch alarm. For example, when the NCS 1010 node is loaded with the OLT- C card and if you try to configure the node with a different line card configuration, the equipment mismatch alarm rises.

Yang Model	Example
Cisco-IOS-XR-osa-ct-cfg.yang	<pre> &lt;rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"&gt;   &lt;edit-config&gt;     &lt;target&gt;       &lt;candidate/&gt;     &lt;/target&gt;     &lt;config&gt;       &lt;resrv-cli xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-osa-ct-cfg"&gt;         &lt;slot-info-cli&gt;           &lt;lc-slot&gt;0_0_NXR0&lt;/lc-slot&gt;           &lt;card-type-cli&gt;ncslk-olt-r-c&lt;/card-type-cli&gt;         &lt;/slot-info-cli&gt;       &lt;/resrv-cli&gt;     &lt;/config&gt;   &lt;/edit-config&gt; &lt;/rpc&gt; </pre>

## View the List of Alarms on the NCS 1010 Node

Use the Cisco-IOS-XR-alarmgr-server-oper.yang Yang model to view the list of alarms generated on the NCS 1010 node.



Yang Model	Example
Cisco-IOS-XR-alarmgr-server-oper.yang	<pre> &lt;?xml version="1.0" ?&gt; &lt;rpc-reply message-id="urn:uuid:518e2c10-c837-4b36-9bab-93f935148ce5" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"&gt;   &lt;data&gt;     &lt;alarms xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-alarmgr-server-oper"&gt;        &lt;brief&gt;         &lt;brief-system&gt;           &lt;active&gt;             &lt;alarm-info&gt;               &lt;location&gt;0/Rack&lt;/location&gt;               &lt;severity&gt;major&lt;/severity&gt;               &lt;group&gt;fpd-infra&lt;/group&gt;               &lt;set-time&gt;06/09/2022 06:26:48 UTC&lt;/set-time&gt;               &lt;set-timestamp&gt;1654756008&lt;/set-timestamp&gt;               &lt;clear-time&gt;-&lt;/clear-time&gt;               &lt;clear-timestamp&gt;0&lt;/clear-timestamp&gt;               &lt;description&gt;One Or More FPDs Need Upgrade Or Not In Current State&lt;/description&gt;             &lt;/alarm-info&gt;             &lt;alarm-info&gt;               &lt;location&gt;0/RP0/CPU0&lt;/location&gt;               &lt;severity&gt;major&lt;/severity&gt;               &lt;group&gt;fpd-infra&lt;/group&gt;               &lt;set-time&gt;06/09/2022 06:26:49 UTC&lt;/set-time&gt;               &lt;set-timestamp&gt;1654756009&lt;/set-timestamp&gt;               &lt;clear-time&gt;-&lt;/clear-time&gt;               &lt;clear-timestamp&gt;0&lt;/clear-timestamp&gt;               &lt;description&gt;One Or More FPDs Need Upgrade Or Not In Current State&lt;/description&gt;             &lt;/alarm-info&gt;             &lt;alarm-info&gt;               &lt;location&gt;0/0/NXR0&lt;/location&gt;               &lt;severity&gt;major&lt;/severity&gt;               &lt;group&gt;fpd-infra&lt;/group&gt;               &lt;set-time&gt;06/09/2022 06:26:51 UTC&lt;/set-time&gt;               &lt;set-timestamp&gt;1654756011&lt;/set-timestamp&gt;               &lt;clear-time&gt;-&lt;/clear-time&gt;               &lt;clear-timestamp&gt;0&lt;/clear-timestamp&gt;               &lt;description&gt;One Or More FPDs Need Upgrade Or Not In Current State&lt;/description&gt;             &lt;/alarm-info&gt;             &lt;alarm-info&gt;               &lt;location&gt;0/0/NXR0&lt;/location&gt;               &lt;severity&gt;minor&lt;/severity&gt;               &lt;group&gt;software&lt;/group&gt;               &lt;set-time&gt;06/09/2022 06:27:13 UTC&lt;/set-time&gt;               &lt;set-timestamp&gt;1654756033&lt;/set-timestamp&gt;               &lt;clear-time&gt;-&lt;/clear-time&gt;               &lt;clear-timestamp&gt;0&lt;/clear-timestamp&gt;               &lt;description&gt;Ots0/0/0/0 - APC blocked&lt;/description&gt;             &lt;/alarm-info&gt;           &lt;/active&gt;         &lt;/brief-system&gt;       &lt;/brief&gt;     &lt;/alarms&gt;   &lt;/data&gt; &lt;/rpc-reply&gt; </pre>

# Configure Optical Amplifier on OLT Line Card Using Open Config Model

The openconfig-optical-amplifier Yang model uses the following naming convention for the preamplifier and the booster amplifier in the OLT line card:

*R/S-<AMP TYPE><ID>*

- *R*—Rack.
- *S*—Slot.
- *<AMP TYPE>*—AMP-PRE (for preamplifier) or AMP-BST (for booster amplifier).
- *ID*—The value is 0 in openconfig.

For example, the amplifiers are mentioned as 0/0-AMP-PRE0 or 0/0-AMP-BST0 which is a line port 0/0/0 in the IOS-XR.

**Step 1** Use the openconfig-optical-amplifier Yang model to configure the amplifier on the OLT line card.

Openconfig Model	Example
openconfig-optical-amplifier	<pre>{   "openconfig-optical-amplifier:optical-amplifier": {     "amplifiers": {       "amplifier": [         {           "name": "0/0-AMP-PRE0",           "config": {             "name": "0/0-AMP-PRE0",             "target-gain": "19.00",             "gain-range": "MID_GAIN_RANGE",             "target-gain-tilt": "3.90",             "enabled": true           }         },         {           "name": "0/0-AMP-BST0",           "config": {             "name": "0/0-AMP-BST0",             "target-gain": "19.00",             "target-gain-tilt": "-1.5",             "enabled": true           }         }       ]     }   } }</pre>

**Step 2** Get the operational data using GNMI.

```

{
  "openconfig-optical-amplifier": {
    "optical-amplifier": {
      "amplifiers": {
        "amplifier": {
          "0/0-AMP-BST0": {
            "state": {
              "enabled": true,
              "name": "0/0-AMP-BST0",
              "target-gain": 19.00,
              "target-gain-tilt": -1.5
            }
          },
          "0/0-AMP-PRE0": {
            "state": {
              "enabled": true,
              "gain-range": "MID_GAIN_RANGE",
              "name": "0/0-AMP-PRE0",
              "target-gain": 19.00,
              "target-gain-tilt": 3.90
            }
          }
        }
      }
    }
  }
}

```

## Configure Optical Amplifier on ILA Line Card Using Open Config Model

The openconfig-optical-amplifier Yang model uses the following naming convention for the two booster amplifiers in the ILA line card:

*R/S-**<AMP TYPE>****<ID>***

- *R*—Rack.
- *S*—Slot.
- *<AMP TYPE>*—AMP-BST for the booster amplifier.
- *ID*—The value is 0 or 2 in openconfig.

For example, the amplifiers are mentioned as 0/0-AMP-BST0 and 0/0-AMP-BST2 which are the line ports ots0/0/0/0 and ots0/0/0/2 respectively in the IOS-XR.

**Step 1** Use the openconfig-optical-amplifier Yang model to configure the amplifier on the ILA line card.

Openconfig model	Example
openconfig-optical-amplifier	<pre> {   "openconfig-optical-amplifier:optical-amplifier": {     "amplifiers": {       "amplifier": [         {           "name": "0/0-AMP-BST0",           "config": {             "name": "0/0-AMP-BST0",             "target-gain": "24.00",             "target-gain-tilt": "-3.90",             "enabled": false,             "gain-range": "HIGH_GAIN_RANGE",           }         },         {           "name": "0/0-AMP-BST2",           "config": {             "name": "0/0-AMP-BST2",             "target-gain": "24.00",             "target-gain-tilt": "-3.20",             "enabled": false,             "gain-range": "HIGH_GAIN_RANGE"           }         }       ]     }   } } </pre>

**Step 2** Get the operational data using GNMI.

```

{
  "openconfig-optical-amplifier": {
    "optical-amplifier": {
      "amplifiers": {
        "amplifier": {
          "0/0-AMP-BST0": {
            "state": {
              "enabled": false,
              "gain-range": "HIGH_GAIN_RANGE",
              "name": "0/0-AMP-BST0",
              "target-gain": 24.00,
              "target-gain-tilt": -3.90
            }
          },
          "0/0-AMP-BST2": {
            "state": {
              "enabled": false,
              "gain-range": "HIGH_GAIN_RANGE",
              "name": "0/0-AMP-BST2",
              "target-gain": 24.00,
              "target-gain-tilt": -3.20
            }
          }
        }
      }
    }
  }
}

```

# Configure Optical Attenuator on OLT Line Card Using Open Config Model

The openconfig-attenuator Yang model uses the following naming convention for the Variable Optical Attenuator (VOA) on the Line-TX of the OLT line card:

*R/S-VOA-BST<ID>*

- *R*—Rack.
- *S*—Slot.
- *ID*—The value is 0 in openconfig.

For example, the VOA is mentioned as 0/0-VOA-BST0 which is a line port ots0/0/0/0 in the IOS-XR.

**Step 1** Use the openconfig-attenuator Yang model to configure the attenuator on the OLT line card.

Openconfig Model	Example
openconfig-optical-attenuator	<pre>{   "openconfig-optical-attenuator:optical-attenuator": {     "attenuators": {       "attenuator": [         {           "name": "0/0-VOA-BST0",           "config": {             "name": "0/0-VOA-BST0",             "attenuation": "20.00"           }         }       ]     }   } }</pre>

**Step 2** Get the operational data using GNMI.

```
{
  "openconfig-optical-attenuator": {
    "optical-attenuator": {
      "attenuators": {
        "attenuator": {
          "0/0-VOA-BST0": {
            "state": {
              "attenuation": 20.00,
              "enabled": true,
              "name": "0/0-VOA-BST0"
            }
          }
        }
      }
    }
  }
}
```

}

## Configure Optical Attenuator on ILA Line Card Using Open Config Model

The openconfig-attenuator Yang model uses the following naming convention for the VOAs on the Line-1 TX and Line-2 TX of the ILA line card:

*R/S*-VOA-BST<*ID*>

- *R*—Rack.
- *S*—Slot.
- *ID*—The value is 0 or 2 in openconfig to identify the line port.

For example, the VOAs are mentioned as 0/0-VOA-BST0 and 0/0-VOA-BST2 which are the line ports ots0/0/0/0 and ots0/0/0/2 respectively, in the IOS-XR.

**Step 1** Use the openconfig-attenuator Yang model to configure the attenuator on the ILA line card.

Openconfig Model	Example
openconfig-optical-attenuator	<pre>{   "openconfig-optical-attenuator:optical-attenuator": {     "attenuators": {       "attenuator": [         {           "name": "0/0-VOA-BST0",           "config": {             "name": "0/0-VOA-BST0",             "attenuation": "15.00"           }         },         {           "name": "0/0-VOA-BST2",           "config": {             "name": "0/0-VOA-BST2",             "attenuation": "14.00"           }         }       ]     }   } }</pre>

**Step 2** Get the operational data using GNMI.

```
{
  "openconfig-optical-attenuator": {
    "optical-attenuator": {
      "attenuators": {
        "attenuator": {
```

```
"0/0-VOA-BST0": {
  "state": {
    "attenuation": 15.00,
    "enabled": true,
    "name": "0/0-VOA-BST0"
  }
},
"0/0-VOA-BST2": {
  "state": {
    "attenuation": 14.00,
    "enabled": true,
    "name": "0/0-VOA-BST2"
  }
}
}
}
}
}
```

---

