

# Configure Optical Cross Connects (OXC) Endpoints in COSM

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## Introduction

This document describes the procedure to edit Optical Cross Connects (OXC) in Cisco Optical Site Manager (COSM) on the NCS1010.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

This behavior described in this document occurs when using a specific combination of hardware and software.

Software

- Cisco IOS® XR 26.1.1 with COSM due to Cisco bug ID [CSCwt20864](#)

## Hardware

- NCS1010-E-OLT-C or other NCS1010 Optical Line Terminal (OLT)
- NCS1K-BRK-24 or other colorless add/drop module

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

## Background Information

COSM displays cross connects under **Optical Setup > Optical Cross Connects** after creation of a channel in the XR CLI or import of an XML from Cisco Optical Network Planner (CONP). The OXC shows the logical path of the service from the add-drop port to the LINE-RX and LINE-TX.

Connection Label	Type	Admin Status	Service Status	Central Frequency (THz)	Wavelength (nm)	Allocation Width (GHz)	Signal Width (GHz)	Path 1 End-points	Path 2 End-points	Pa
A_3_0_0_191_975	bidirectional	IS	IS-NR	191.975	1561.62	75.0	0.0	1/0 (NCS1K-E-OLT-C),Port LINE-RX , 4/0 (NCS1K-E-OLT-C),Port LINE-TX	4/0 (NCS1K-E-OLT-C),Port LINE-RX , 1/0 (NCS1K-E-OLT-C),Port LINE-TX	fal
A_4_0_0_192_275	bidirectional	IS	IS-NR	192.275	1559.19	75.0	0.0	1/0 (NCS1K-E-OLT-C),Port LINE-RX , 4/0 (NCS1K-E-OLT-C),Port LINE-TX	4/0 (NCS1K-E-OLT-C),Port LINE-RX , 1/0 (NCS1K-E-OLT-C),Port LINE-TX	fal
A_5_0_0_191_375	bidirectional	IS	IS-NR	191.375	1566.52	75.0	0.0	1/0 (NCS1K-E-OLT-C),Port LINE-RX , 3/0 (NCS1K-BRK-24),Port CH-2-TX	3/0 (NCS1K-BRK-24),Port CH-0-RX , 1/0 (NCS1K-E-OLT-C),Port LINE-TX	fal
A_1_0_0_191_375	bidirectional	IS	OOS-AU,AINS	191.375	1566.52	75.0	0.0	4/0 (NCS1K-E-OLT-C),Port LINE-RX , 6/0 (NCS1K-BRK-24),Port CH-0-TX	6/0 (NCS1K-BRK-24),Port CH-1-RX , 4/0 (NCS1K-E-OLT-C),Port LINE-TX	fal

*Optical Cross Connects in COSM*

## Symptoms

When using a BRK-24 unit, a cross connect can incorrectly show the service state OOS-AU,AINS, meaning Out of Service and Autonomous, Automatic In-Service. Traffic continues to flow normally. The channel otherwise shows operational and no alarms raise against it.

```
<#root>
```

```
RP/0/RP0/CPU0:OLT-C-node#
```

```
show hw-module location 0/0/NXR0 terminal-ampli
```

```
Mon Apr 27 20:35:41.272 UTC
```

Legend:

```
NXC      - Channel not cross-connected
ACTIVE   - Channel cross-connected to data port
ASE      - Channel filled with ASE
FAILED   - Data channel failed, pending transition to ASE
```

PENDING\_ACTIVATION - Data Channel pending transition to ACTIVE/FAIL

Location: 0/0/NXR0

Status: Provisioned

#### Flex Grid Info

Channel Number	Centre Frequency(THz)	Channel Width(GHz)	Channel Status	Overlapping Cha
1	191.375000	75.000	ACTIVE	- , -
2	191.675000	75.000	ACTIVE	- , -
3	191.975000	75.000	ACTIVE	- , -
4	192.275000	75.000	ACTIVE	- , -

## Workaround



**Caution:** Please engage Cisco Technical Assistance (TAC) before attempting this workaround on a live network. Incorrectly entering the endpoints can result in unexpected system behavior.

### Lock the Node

In order to prevent the configuration from reverting, lock the node before performing the workaround steps in **COSM > Devices**:

- Select the **device** with the incorrect endpoints.
- Click **Edit**.
- Set the **Admin State** to **locked**.
- Click **Apply**.

### Determine the Current Endpoints

Under **Optical Setup > Optical Cross Connects**, note the current values of Path 1 End-point and Path 2 End-points.

### Determine the Correct Endpoints

The table shows the mapping between the BRK-24 and channel endpoints. This example uses the port A/D 26-33 on the NCS1010-E-OLT-C for the BRK-24 MPO connection.

Ots Controller (R/S/I/P)	CH-n-RX or -TX	BRK-24 Physical Port
0/0/0/26	CH-0	1
0/0/0/26	CH-1	2

0/0/0/26	CH-2	3
0/0/0/27	CH-3	4
0/0/0/27	CH-4	5
0/0/0/27	CH-5	6
0/0/0/28	CH-6	7
0/0/0/28	CH-7	8
0/0/0/28	CH-8	9
0/0/0/29	CH-9	10
0/0/0/29	CH-10	11
0/0/0/29	CH-11	12
0/0/0/30	CH-12	13
0/0/0/30	CH-13	14
0/0/0/30	CH-14	15
0/0/0/31	CH-15	16
0/0/0/31	CH-16	17
0/0/0/31	CH-17	18
0/0/0/32	CH-18	19
0/0/0/32	CH-19	20
0/0/0/32	CH-20	21
0/0/0/33	CH-21	22
0/0/0/33	CH-22	23
0/0/0/33	CH-23	24

## Edit the Endpoints

In the XR command line, enter **COSM mode** to edit the endpoints.

```
<#root>
```

```
RP/0/RP0/CPU0:OLT-C-node#
```

```
cosm
```

NODE0/<ip\_address>:cosm#

**config**

Entering configuration mode terminal

NODE0/<ip\_address>:cosm(config)#

**insert nodes node 0 oxc OLT-C\_node\_B\_1\_0\_0\_191\_375**

[Enter]

Value for 'oxc-type' [bidirectional,monodirectional]:

**bidirectional**

Value for 'central-frequency' [<decimal number>]:

**191.975**

Value for 'allocation-width' [<decimal number>]:

**75.0**

Value for 'path1 endpoints src-if' [<string>]:

**4/0/LINE-RX**

Value for 'path1 endpoints dst-if' [<string>]:

**6/0/CH-0-TX**

Value for 'path2 endpoints src-if' [<string>]:

**6/0/CH-0-RX**

Value for 'path2 endpoints dst-if' [<string>]:

**4/0/LINE-TX**

NODE0/<ip\_address>:cosm(config)#

**commit**

## Validate Configuration

Ensure the configuration change took effect with **show running-config nodes node 0 oxc <connection\_label>**.

```
<#root>
```

```
NODE0/<ip_address>:cosm#
```

```
show running-config nodes node 0 oxc OLT-C_node_B_1_0_0_191_375
```

```
nodes node 0
oxc OLT-C_node_B_1_0_0_191_375
  circuit-id      ""
  oxc-type        bidirectional
  admin-state     In-Service
  central-frequency 191.375
  allocation-width 75.0
  signal-width    0.0
  ase-loading     enabled
  path1 endpoints src-if 4/0/LINE-RX
  path1 endpoints dst-if 6/0/CH-0-TX
  path2 endpoints src-if 6/0/CH-0-RX
  path2 endpoints dst-if 4/0/LINE-TX
!
```

## Unlock the Node

- Select the same **device** with the now corrected endpoints.
- Click **Edit**.
- Set the **Admin State** to **unlocked**.
- Click **Apply**.

## Verify the Service State

After committing the configuration in the COSM CLI, verify the service state changes to In-Service (IS).

```
<#root>
```

```
NODE0/<ip_address>:cosm#
```

```
show nodes node 0 oxc OLT-C_node_B_1_0_0_191_375
```

```
oxc OLT-C_node_B_1_0_0_191_375
oper-primary-state IS
```

```
oper-secondary-state NR
programming-status  planned
partial             false
path1 oper-primary-state IS
path1 oper-secondary-state NR
...
path2 oper-primary-state IS
path2 oper-secondary-state NR
```