

# Configure a Network

This chapter describes the various ways of configuring the network designed through Cisco ONP.


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- Configure a network with mixed Add/Drop multiplexers and demultiplexers, on page 4


# Configure a network for contentionless functionality

Use this procedure to configure contentionless functionality in a network.

**Before you begin**

Log in to the Cisco ONP web interface as a user with the admin role.

**Procedure**

**Step 1** Create a network design. See #unique_172.

**Step 2** Add contentionless sides to the required sites. See Add contentionless side to a site.

**Step 3** Set the channel type for the demands:

a) In the **Entity Editor** window, click the **Services** tab.

b) Click the service connecting the site and set the **Src Channel Type** property as *Auto* or *Contentionless*. Then, click the trail under the wave (for non-SSON) or Media Channel (for SSON) and set the **Src Channel Type** property to *Auto* or *Contentionless*.

**Note**
Contentionless is the default option when you select *Auto*.

c) Click **Update**.

**Step 4** Analyze the network by choosing **Network** > **Analyze.**

# Configure a network for colorless functionality

This procedure guides you through the process of configuring colorless functionality in an NCS 2000 optical network.

**Before you begin**

Log in to the Cisco ONP web interface as a user with the admin role.

**Procedure**

**Step 1** Create a network design. See #unique_172 .

**Step 2** Set the channel type for the demands:

a) In the **Entity Editor** window, click the **Services** tab.

b) Click the service connecting the site. Set the **Src Channel Type** property as *Colorless*. For non-SSON click the trail under the wave. For SSON, click the Media Channel (for SSON). Set the **Src Channel Type** property as *Colorless*.

c) Under the **Site > Side** properties, choose the Line type side from which you want to create the colorless demand, and enter the number of **Colorless Ports**.

From Release 24.3.1, you can select the colorless ports for the SMR-9 card.

The number of colorless ports for MF-6AD-CFS depends on the **Scalable Upto Degree** property. See Colorless ports for SSON and Non-SSON networks, on page 2.

d) Click **Update**.

**Step 3** Under the **C-Band** properties, choose *MF-6AD-CFS* or *Direct SMR* as the **Colorless Add/Drop**.

**Step 4** Click **Update.**.

**Step 5** Analyze the network by choosing **Network** > **Analyze.**

You can see the colorless Add/Drop unit getting added in the layout and BOM.

# Colorless ports for SSON and Non-SSON networks

This table explains the maximum number of colorless ports that can be added based on the **Scalable Upto Degree** property for the MF-6AD-CFS card.

***Table 1: Colorless ports for SSON and Non-SSON networks***

| Site type | Scalable upto degree | Maximum number of colorless ports for SSON | Maximum number of colorless ports for non-SSON |
|---|---|---|---|
| **SMR-20** | 4 | 72 | 72 |
| **SMR-20** | 8 | 72 | 72 |
| **SMR-20** | 12 | 24 | 24 |
| **SMR-20** | 16 | 24 | 24 |

| Site type | Scalable upto degree | Maximum number of colorless ports for SSON | Maximum number of colorless ports for non-SSON |
|---|---|---|---|
| **SMR-20** | Line | 96 | 96 |
| **SMR-20** | Terminal | 120 | 96 |

### Configure a network for colorless functionality

# Configure a network for colored functionality

This procedure guides you through the process of configuring colored functionality in an NCS 2000 optical network.

**Before you begin**

Log in to the Cisco ONP web interface as a user with the admin role.

**Procedure**

**Step 1** Create a network design. See #unique_172 .

**Step 2** Set the channel type for the demands:

a) In the **Entity Editor** window, click the **Services** tab.

b) Click the service connecting the site and set the **Src Channel Type** property as **Colored**. For non-SSON click the trail under the wave. For SSON, click the Media Channel (for SSON). Set the **Src Channel Type** property as **Colored**.

c) Click **Update**.

**Step 3** For an SSON network, complete these steps.

a) Under the **C-Band** properties, choose **MD-64-C** as the **Colored Add/Drop**.

**Note**
MD-64-C is supported from NCS 2000 Release 12.x.

b) Click **Update.**.

By default, the system adds **MD-48-ODD** or **MD-48-EVEN**as the **Colored Add/Drop** when **Share SMR Port** is not enabled.

**Note**
If you choose **MD-48-EVEN** or **MD-48-ODD**, select an even wavelength for the **Wavelength** property under **Trail**.

**Step 4** When **Share SMR Port** port is enabled, you can select the **Colored Add/Drop** by using these steps:

a) Under the **C-Band** properties, choose **MD-48-ODD**, **MD-48-EVEN**, or **MD-48-ODD+MD-48-EVEN** as the **Colored Add/Drop**.

**Note**
These Add/Drop units are supported from NCS 2000 Release 11.x.

b) Click **Update**.

**Step 5** Analyze the network by choosing **Network** > **Analyze**.

The colored Add/Drop unit appears in the layout and BOM.

# Configure a network with mixed Add/Drop multiplexers and demultiplexers

Use the following procedure to configure mixed wavelengths in a network:

**Before you begin**

Log in to the Cisco ONP web interface as a user with the admin role.

***Table 2: Feature History***

| Feature Name | Release Information | Feature Description |
|---|---|---|
| Support for Mixed Add/Drop Configuration | Cisco ONP Release 4.2 | You can configure different functionalities in the network created in Cisco ONP. Mixed wavelengths such as colorless and contentionless, colored and contentionless, can be added/dropped on the same side or direction. The following mixed configurations are supported:<br>• Colored (MD-48-ODD/MD-48-EVEN) and Contentionless (16-AD-CCOFS) without shared SMR port<br>• Colored and Contentionless (MD-64-C and 16-AD-CCOFS)<br>• Colored (MD-64-C) and Colorless (Direct SMR)<br>• Colored (MD-48) and Contentionless (16-AD-CCOFS) with Shared SMR Port<br>• Colorless and MD-48-ODD/MD-48-EVEN<br>• Colorless and 16-AD-CCOFS |

**Procedure**

**Step 1** Create a network design. See #unique_172.

**Step 2** Set the properties of the network under the **Entity Editor** for different combinations of the functionalities, as described in Supported and unsupported mixed configurations, on page 5.

**Note**
You cannot mix the MF-6AD-CFS colorless configuration with any other configuration.

# Supported and unsupported mixed configurations

This section describes the list of mixed configurations that are supported and unsupported by Cisco ONP.

***Table 3: Supported mixed Configurations***

| Supported network type | Possible mixed configurations | Properties to be set |
|---|---|---|
| **Non-SSON** | Colored (MD-48-ODD/MD-48-EVEN) and Contentionless (16-AD-CCOFS) without shared SMR port | • Add required number of contentionless sides.<br>• **Channel Type—**Set the **Src Channel Type** and **Dst Channel Type** to be **Colored** for one wave. Set the **Src Channel Type** and **Dst Channel Type** to be **Contentionless** for the second wave created on the same site. Both wavelengths must add/drop in the same side or direction.<br>• By default, MD-48-ODD or MD_48-EVEN is added as the Colored Add/Drop in the BOM and layout when you set the **Channel Type** as **Colored** and when **Shared SMR Port** is disabled.<br>By default, 16-AD-CCOFS is added in the BOM and layout when you set the **Channel Type** as **Contentionless**. |

| Supported network type | Possible mixed configurations | Properties to be set |
|---|---|---|
| **SSON** | Colored and Contentionless (MD-64-C and 16-AD-CCOFS) | • Add required number of contentionless sides.<br>• **Channel Type—**Set the **Src Channel Type** and **Dst Channel Type** to be **Colored** for one media channel. Set the **Src Channel Type** and **Dst Channel Type** to be **Contentionless** for the second media channel created on the same site. Both channels must add/drop in the same side or direction.<br>• **Colored Add/Drop—**MD-64-C under the side. |
| **SSON** | Colored (MD-64-C) and Colorless (Direct SMR) | • **Channel Type—**Set the **Src Channel Type** and **Dst Channel Type** to be **Colored** for one media channel. Set the **Src Channel Type** and **Dst Channel Type** to be **Colorless** for the second media channel created on the same site. Both channels must add/drop in the same side or direction.<br>• Enter the number of **Colorless Ports** under the **Line Side** properties.<br>• **Colored Add/Drop—**MD-64-C<br>**Colorless Add/Drop—**Direct SMR |

| Supported network type | Possible mixed configurations | Properties to be set |
|---|---|---|
| **Non-SSON** | Colored (MD-48) and Contentionless (16-AD-CCOFS) with Shared SMR Port | • Add required number of contentionless sides.<br>• **Channel Type—**Set the **Src Channel Type** and **Dst Channel Type** to be **Colored** for one wave. Set the **Src Channel Type** and **Dst Channel Type** to be **Contentionless** for the second wave created on the same site. Both wavelengths must add/drop in the same side or direction.<br>• Check the **Shared SMR Port** check box, under the **Site** properties.<br>• **Colored Add/Drop—**MD-48-ODD, MD-48-EVEN, or MD-48-ODD and MD-48-EVEN<br>• If you choose **MD-48-EVEN**, make sure to select an even wavelength for the **Wavelength** property under **Trail**. |
| **Non-SSON** | Colorless and MD-48-ODD/MD-48-EVEN | • **Channel Type—**Set the **Src Channel Type** and **Dst Channel Type** to be **Colorless** for the wave.<br>• Enter the number of **Colorless Ports** under the **Line Side** properties.<br>•<br>•<br>• By default, MD-48-ODD/MD-48-EVEN is added as colored Add/Drop in the BOM and layout, when any colored demand is added in the non-SSON network. |

| Supported network type | Possible mixed configurations | Properties to be set |
|---|---|---|
| **SSON** | Colorless and Contentionless (16-AD-CCOFS) | • Add required number of contentionless sides.<br>• **Channel Type—**Set the **Src Channel Type** and **Dst Channel Type** to be **Colorless** for the wave or media channel.<br>• **Channel Type—Colorless** for one wave and **Contentionless** for another wave created on the same site. Both wavelengths must add/drop in the same side or direction. |

***Table 4: Unsupported mixed configurations***

| Network type | Mixed configurations |
|---|---|
| **SSON** | Colored (MD-64-C) and Colorless (MF-6AD-CFS) |
| **SSON** | Contentionless and Colorless (MF-6AD-CFS) |
| **SSON** | Colored (MD-64-C), Contentionless, and Colorless (MF-6AD-CFS) |
| **SSON** | Colored (MD-64-C) and Layer-2 Contentionless |
| **Non-SSON** | Contentionless and Colorless (MF-6AD-CFS) |
| **Non-SSON** | Colored (MD-48) and Colorless (MF-6AD-CFS) |
| | Colorless (Direct SMR) and Colorless (MF-6AD-CFS) |
| **Non-SSON** | Colored, Contentionless, and Colorless (MF-6AD-CFS) |