



## Configure a Network

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

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## Configure a NCS 2000 Network for Contentionless Functionality

Use the following procedure to configure the contentionless functionality in a network:

### Before you begin

[Log in to Cisco ONP Web Interface](#)

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- Step 1** Create a network design. See [Design a Network Using Cisco ONP](#) .
- 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*. Similarly, click the trail under the wave (for non-SSON) or Media Channel (for SSON) and set the **Src Channel Type** property as *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**.
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# Configure an NCS 2000 Network for Colorless Functionality

Use the following procedure to configure the colorless functionality in a network:

## Before you begin

[Log in to Cisco ONP Web Interface.](#)

**Step 1** Create a network design. See [Design a Network Using Cisco ONP](#) .

**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 *Colorless*. Similarly, click the trail under the wave (for non-SSON) or Media Channel (for SSON) and 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**.

The number of colorless ports for *MF-6AD-CFS* depends on the **Scalable Upto Degree** property. The following table explains the same.

**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
SMR-20	Line	96	96
SMR-20	Terminal	120	96
SMR-9	4	5	5

- 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.

# Configure an NCS 2000 Network for Colored Functionality

Use the following procedure to configure the colored functionality in a network:

## Before you begin

[Log in to Cisco ONP Web Interface.](#)

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- Step 1** Create a network design. See [Design a Network Using Cisco ONP](#).
- Step 2** Set the channel type for the demands:
- In the **Entity Editor** window, click the **Services** tab.
  - Click the service connecting the site and set the **Src Channel Type** property as *Colored*. Similarly, click the trail under the wave (for non-SSON) or media channel (for SSON) and set the **Src Channel Type** property as *Colored*.
  - Click **Update**.
- Step 3** For SSON network, perform the following:
- 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.
  - Click **Update**.
- For non-SSON network, by default, *MD-48-ODD* or *MD-48-EVEN* is added as the **Colored Add/Drop** when **Share SMR Port** is not enabled.
- Note** If you choose *MD-48-EVEN* or *MD-48-ODD*, make sure to 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 the following steps:
- 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** The above mentioned Add/Drop units are supported from NCS 2000 Release 11.x.
  - Click **Update**.
- Step 5** Analyze the network by choosing **Network > Analyze**.  
You can see the colored Add/Drop unit getting added in the layout and BOM.
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# Configure a Network with Mixed Add/Drop Multiplexers and Demultiplexers

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

Table 2: Feature History

Feature Name	Release Information	Feature Description
Support for Mixed Add/Drop Configuration	Cisco ONP Release 4.2	<p>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:</p> <ul style="list-style-type: none"> <li>• Colored (MD-48-ODD/MD-48-EVEN) and Contentionless (16-AD-CCOFS) without shared SMR port</li> <li>• Colored and Contentionless (MD-64-C and 16-AD-CCOFS)</li> <li>• Colored (MD-64-C) and Colorless (Direct SMR)</li> <li>• Colored (MD-48) and Contentionless (16-AD-CCOFS) with Shared SMR Port</li> <li>• Colorless and MD-48-ODD/MD-48-EVEN</li> <li>• Colorless and 16-AD-CCOFS</li> </ul>

**Before you begin**

[Log in to Cisco ONP Web Interface.](#)

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- Step 1** Create a network design. See [Design a Network Using Cisco ONP](#) .
- Step 2** Set the properties of the network under the **Entity Editor** for different combinations of the functionalities, as described in the following table:

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	<ul style="list-style-type: none"> <li>• Add required number of contentionless sides.</li> <li>• <b>Channel Type</b>—Set the <b>Src Channel Type</b> and <b>Dst Channel Type</b> to be <i>Colored</i> for one wave. Set the <b>Src Channel Type</b> and <b>Dst Channel Type</b> to be <i>Contentionless</i> for the second wave created on the same site. Both wavelengths must add/drop in the same side or direction.</li> <li>• 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 <b>Channel Type</b> as <i>Colored</i> and when <b>Shared SMR Port</b> is disabled.</li> </ul> <p>By default, 16-AD-CCOFS is added in the BOM and layout, when you set the <b>Channel Type</b> as <i>Contentionless</i>.</p>
SSON	Colored and Contentionless (MD-64-C and 16-AD-CCOFS)	<ul style="list-style-type: none"> <li>• Add required number of contentionless sides.</li> <li>• <b>Channel Type</b>—Set the <b>Src Channel Type</b> and <b>Dst Channel Type</b> to be <i>Colored</i> for one media channel. Set the <b>Src Channel Type</b> and <b>Dst Channel Type</b> to be <i>Contentionless</i> for the second media channel created on the same site. Both channels must add/drop in the same side or direction.</li> <li>• <b>Colored Add/Drop</b>—MD-64-C under the side.</li> </ul>
SSON	Colored (MD-64-C) and Colorless (Direct SMR)	<ul style="list-style-type: none"> <li>• <b>Channel Type</b>—Set the <b>Src Channel Type</b> and <b>Dst Channel Type</b> to be <i>Colored</i> for one media channel. Set the <b>Src Channel Type</b> and <b>Dst Channel Type</b> to be <i>Colorless</i> for the second media channel created on the same site. Both channels must add/drop in the same side or direction.</li> <li>• Enter the number of <b>Colorless Ports</b> under the <b>Line Side</b> properties.</li> <li>• <b>Colored Add/Drop</b>—MD-64-C</li> <li>• <b>Colorless Add/Drop</b>—Direct SMR</li> </ul>

Supported Network Type	Possible Mixed Configurations	Properties to be Set
Non-SSON	Colored (MD-48) and Contentionless (16-AD-CCOFS) with Shared SMR Port	<ul style="list-style-type: none"> <li>• Add required number of contentionless sides.</li> <li>• <b>Channel Type</b>—Set the <b>Src Channel Type</b> and <b>Dst Channel Type</b> to be <i>Colored</i> for one wave. Set the <b>Src Channel Type</b> and <b>Dst Channel Type</b> to be <i>Contentionless</i> for the second wave created on the same site. Both wavelengths must add/drop in the same side or direction.</li> <li>• Check the <b>Shared SMR Port</b> check box, under the <b>Site</b> properties.</li> <li>• <b>Colored Add/Drop</b>—MD-48-ODD, MD-48-EVEN, or MD-48-ODD and MD-48-EVEN  If you choose <i>MD-48-EVEN</i>, make sure to select an even wavelength for the <b>Wavelength</b> property under <b>Trail</b>.</li> </ul>
Non-SSON	Colorless and MD-48-ODD/MD-48-EVEN	<ul style="list-style-type: none"> <li>• <b>Channel Type</b>—Set the <b>Src Channel Type</b> and <b>Dst Channel Type</b> to be <i>Colorless</i> for the wave.</li> <li>• Enter the number of <b>Colorless Ports</b> under the <b>Line Side</b> properties.</li> <li>• 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.</li> </ul>
SSON	Colorless and Contentionless (16-AD-CCOFS)	<ul style="list-style-type: none"> <li>• Add required number of contentionless sides.</li> <li>• <b>Channel Type</b>—Set the <b>Src Channel Type</b> and <b>Dst Channel Type</b> to be <i>Colorless</i> for the wave or media channel.</li> <li>• <b>Channel Type</b>—<i>Colorless</i> for one wave and <i>Contentionless</i> for another wave created on the same site. Both wavelengths must add/drop in the same side or direction.</li> </ul>

**Note** MF-6AD-CFS colorless configuration cannot be mixed with any other configurations.

The following is the list of mixed configurations that are not supported by Cisco ONP.

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)
Non-SSON	Colorless (Direct SMR) and Colorless (MF-6AD-CFS)
Non-SSON	Colored, Contentionless, and Colorless (MF-6AD-CFS)

## Configure an NCS 1010 Network for Colorless Functionality

Use the following procedure to configure the colorless functionality in an NCS 1010 network:

### Before you begin

[Log in to Cisco ONP Web Interface.](#)

**Step 1** Create a network design. See [Design a Network Using Cisco ONP](#).

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

- a) In the **Entity Editor** window, click the **Services** tab.
- b) Click the trail under the circuit set the **Src Channel Type** property as *Colorless*.
- c) Click **Update**.

**Step 3** Under the **C-Band** properties, choose *BRK-8*, *BRK-16* or *BRK-24* as the **Colorless Add/Drop**.

The Maximum number of colorless ports depends on the scalable up to degree. The following table explains the same.

Table 5: Colorless Ports for NCS 1010 Networks

Scalable Upto Degree	MPO Port Used for Degree Interconnect	Maximum Number of Colorless Ports Supported		
		BRK-24	BRK-16	BRK-8
7	4	72	48	24
9	1	66	44	22
15	3, 4	48	32	16

Scalable Upto Degree	MPO Port Used for Degree Interconnect	Maximum Number of Colorless Ports Supported		
		BRK-24	BRK-16	BRK-8
17	1, 2	42	28	14
23	2, 3, 4	24	16	8
25	1, 2, 3	18	12	6
31	1, 2, 3, 4	0	0	0
Terminal	NA	90	60	30
Line	4	72	48	24

**Note** Colorless configuration is not supported for scalable upto degree 31.

**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.

## Configure an NCS 1010 Network for Colored Functionality

Use the following procedure to configure the colored functionality in an NCS 1010 network:

### Before you begin

[Log in to Cisco ONP Web Interface](#).

**Step 1** Create a network design. See [Design a Network Using Cisco ONP](#) .

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

- In the **Entity Editor** window, click the **Services** tab.
- Click the trail under the circuit and set the **Src Channel Type** property as *Colored*.
- Click **Update**.

**Step 3** Under the **C-Band** properties, choose *MD-32-EVEN*, *MD-32-ODD*, or *MD-32- ODD+MD-32-EVEN* as the **Colored Add/Drop**.

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

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

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



# Configure an NCS 1010 Network with Mixed Add/Drop Multiplexers and Demultiplexers

Use the following procedure to configure mixed wavelengths in an NCS 1010 network:

## Before you begin

[Log in to Cisco ONP Web Interface.](#)

**Step 1** Create a network design. See [Design a Network Using Cisco ONP](#).

**Step 2** Set the properties under the **Entity Editor** for different combinations of the functionalities:

For example, set the source **Add/Drop Type** and destination **Add/Drop Type** to *Colored* for one circuit. Set the **Src Channel Type** and **Dst Channel Type** to *Colorless* for the second circuit created on the same site. Both channels must add/drop in the same side or direction.

You can choose any combination of the colored or colorless add/drop.

**Note** When the **Scalable Upto Degree** is 31, the colorless configuration is not supported, and hence mixed configuration is also not supported for **Scalable Upto Degree** 31.

# Configure an NCS 1010 C+L-Band Network with Mixed Add/Drop Multiplexers and Demultiplexers

Use the following procedure to configure mixed wavelengths in an NCS 1010 C+L-Band network:

## Before you begin

[Log in to Cisco ONP Web Interface.](#)

**Step 1** Create a network design. See [Design a Network Using Cisco ONP](#).

**Step 2** Set the properties under the **Entity Editor** for different combinations of the functionalities:

For example, set the source **Add/Drop Type** and destination **Add/Drop Type** to *Colored* or *Colorless* for the C-band circuit. Set **Band Type** as *L-band* for the second circuit created on the same site. Both channels must add/drop in the same side or direction.

You can choose any combination of the colored or colorless add/drop for C-band circuits. However, for L-band circuits, colorless add/drop is the default value.

**Note** When **Scalable Upto Degree** is 31, only C-band colored configuration is supported. Colorless cannot be created as all colorless ports are exhausted and hence mixed configuration is also not supported for **Scalable Upto Degree** 31.

