Modify Network Properties

Modify Network Properties

Use this task to modify the properties of the network.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1 In the network tree, click the network name.

You can view the basic properties of the network at the bottom of the network tree.

Step 2 Modify the following network properties as required.

Property	Description
Name	Modify the network name as required.

Property	Description
Quick Analysis	Check the **Quick Analysis** check box to quickly analyze the network by using a less accurate algorithm. The quick analysis option does not optimize DCU and amplifier placement algorithm, hence resulting in an approximate BoM. To receive an accurate BoM, uncheck the **Quick Analysis** check box.
DWDM Interfaces	Cisco ONP supports 100G and 200G transceivers as DWDM interfaces. This option is applicable only for automatically created waves, when OTN services are present. • 100G—The entire network chooses the 100G wavelength for transmission. • 200G—The entire network chooses the 200G wavelength for transmission. If you enable both 100G and 200G options, by default, the entire network chooses 200G wavelength for transmission. If 200G wavelength is not optically feasible, then it selects 100G automatically for transmission.
Customer Name	Enter the customer name.
Platform	Choose ANSI (North American standard) or ETSI (European Telecommunications Standards Institute) from the drop-down list. ANSI networks do not allow you to define SDH (ETSI) service demands. ETSI networks do not allow you to define SONET (ANSI) service demands.
Measurement Unit	Displays the unit of measurement of span length. By default, it is kilometer (km), and you cannot edit it.
A2A Mode	Choose the A2A (Any to Any) mode. The available options are: • A2A_None • A2A_FAST
A2A Power Output	The power output value is based on the chosen A2A mode.
A2A Demand Type	The demand type is based on the chosen A2A mode.
A2A Channel TypeContentionless	Choose the type of channel. You can choose multiple types. The available options are: • Contentionless—This property enables an N-degree ROADM node to accommodate N wavelengths of the same frequency from a single add or drop device. • Colorless—The colorless property enables tuning of channel wavelengths without changing the optical interface of the port. • Colored—The Colored property dedicates a separate port for each wavelength.
SSON	Indicates whether the network is an SSON network.

Property	Description
Use client Payg	Check this check box to enable the Pay As You Grow feature on the client cards.
	The PAYG feature enables you to implement a cost-effective solution when the wavelength requirements are comparatively less than the maximum capacity of the network. A standard card is configured to work on maximum supported wavelengths, whereas PAYG license comprises license restricted cards and a base license. So, instead of purchasing a standard card, you can purchase a PAYG license.
System Release	
NCS 4K	Displays the system release of the NCS 4000 node in the network.
NCS 2K	Displays the system release of the NCS 2000 node in the network.
NCS 1K (Available only on the SSON network)	Displays the system release of the NCS 1004 node in the network.
Previous NCS 2K (Available only on the Release upgraded network)	Displays the system release of the NCS 2000 node in the network, before the Release upgrade.
Naming Convention Enabled	(Display only.) By default, the Naming Convention Enabled option is enabled by default for the networks that are created in Cisco ONP, and you cannot edit it. By default, the sides are named from T, S, R, Q, P, O, N, M, L, K, J, I, H, G, F, E, and index, depending upon the used Scalable Upto parameter. • You can import a mpz network without naming convention enabled, but the Cascaded SMR option remains disabled. • You cannot edit the label name of the side.
SVO	Choose the type of network management solution. The available options are: • SVO—Chooses SVO card. • UCS—Chooses SVO application that is hosted on a server. • Auto—Chooses SVO card as default, for SVO solution.

Step 3   Click **Update**.

Step 4   To modify advanced properties of the service, click **Show Advanced Properties** or choose **Network** > **Entity Editor**.

Step 5   In the **Entity Editor** window, click the **Site** tab.

Step 6   Click the network, and modify the properties in the right pane.

Step 7   Click **Update**.

Modify Site Properties

Use this task to modify properties of the site.

Before you begin

Table 1: Feature History

Feature Name	Release Information	Feature Description
Shared SMR Port	Cisco ONP Release 4.2	You can enable the **Colored Add/Drop** property. This feature supports the use of contentionless and colored demands connected to the same port of SMR card. With the **Shared SMR Port** enabled, you can create and validate the contentionless and colored configuration on a 16-degree SMR-20 node.

Log in to Cisco ONP Web Interface.

Step 1   In the network tree, expand **Sites**, and click a site.

You can view the basic properties of the site at the bottom of the network tree.

Step 2   Modify the following site properties as required.

Property	Description
General	
Name	Enter the site name, either alphanumeric or numeric.
Type	Choose the type of site. For example, ROADM, OLA, Pass-through, or a Traffic site. • You can add a passthrough site as a place holder. You cannot add services or waves to this site and therefore cannot generate the report. Later, you can convert the passthrough site to a ROADM, OLA, or the Traffic site in the design mode. • OLA is an optical line amplifier site that is used only for amplification. You cannot add service or waves on this site. • You cannot add a Traffic site of the type 4K-2K into an SSON network.
Node Type	The default value is FLEX NG-DWDM for all nodes. This field is non-editable.
Equipment Configuration	Choose the configuration from the drop-down list. This option is available only for the Traffic site. The available options are: • Large CO - NCS 4016 • Small Site - NCS 4016 • Small Site - NCS 4009

Property	Description
Traffic Type (only for Traffic site)	Choose the traffic type. The available options are: • 4K_1K_2K (for SSON) • 1K_2K (for SSON) • 4K_2K (non- SSON)
SSON	Indicates whether the network is an SSON network.
Layout	
Chassis Type	Choose the type of chassis. Chassis type is supported for all the sites except passthrough. The available options are: • M6 Chassis • M15 Chassis • Auto M15 is the default option when you choose Auto.
Power Supply	Choose the type of Power Supply. The available options are Auto, AC Power, and DC Power. The default option is DC Power.
C Band	
Structure	Displays the structure of the site: Multi degree and Terminal for ROADM and Traffic sites, and Line for OLA and Passthrough sites. This field is non-editable.
Functionality	Displays the site functionality. This field is non-editable. Following is the functionality available for each type of sites: • Optical Cross Connect (OXC) for ROADM and traffic site • Auto for OLA site, Cisco ONP downgrades OLA site to passthrough if OLA is not required • Passthrough for passthrough site
Scalable up to Degree	This parameter determines the maximum number of degrees, ducts, or line sides that can be supported by the site. The available options are 2, 4, 8, 12, and 16. The default option is 4. The network is scalable up to 16 degrees for ROADM and Traffic sites. Choose 2 to have a LINE ROADM site. For OLA and passthrough, the value is 2 and is noneditable .

Property	Description
Site Type	Choose the type of site. The available options are: • Auto **Note** When you choose Auto, the default option is SMR-20. • SMR-20 • SMR-9 The Site type is Line for the OLA site.

Step 3   Click **Update**.

Step 4   To modify advanced properties of the site, click **Show Advanced Properties**, or choose **Network** > **Entity Editor**.

Step 5   In the **Entity Editor** window, expand **Sites** under the network tree, choose the site, and modify the following properties that are displayed in the right pane. For more information on entity editor, see Entity Editor.

Properties	Description
General	
CLLI Code	Enter a string holding the CLLI code.
Site Address	Enter the site address.
Evolved Mesh	By default, this option is unchecked. When you enable this feature on the network, it is automatically enabled on the associated sites of the network.
Status	Displays the status of the network. It shows whether the network is **Up** or **Down**.
Weight Lbs	Displays the weight of all the units of the site, in pounds.
Node Protection	Choose the Node Protection. The available options are: • Same shelf • Separated shelves
Mpo16Lc	Displays the fan-out module. The default option is MF-MPO-16LC. The MPO-16 to 16-LC fan-out module is a double slot module with one MPO-16 connector (COM) and eight LC duplex connectors. The MPO-16 connector is compatible with the SMR20 FS EXP and 16-AD-CCO FS units.
Mpo16ToMpo8	Choose the required Mpo16 to Mpo8 converter. The available options are: • MPO16ToMPO8Cable • MF-2MPO_ADP
Cascaded SMR	Enable this option to add Layer-2 contentionless sides.

Properties	Description
Flex Spectrum	By default, this check-box remains checked for newly created network. You cannot edit it.
Grooming Site	When you enable this option, it indicates that OTN traffic can be groomed at this site.
MR-MXP BreakOut Cable	Check this check box to use the ONS-MPO-MPOLC-10 breakout cable to interconnect the client ports of the MR-MXP card with the NCS2K-MF-MPO-20LC passive module.
8X10G-FO	Check this check box to use the NCS2K-MF-8X10G-FO passive module only for 10G on the client-side of the NCS2K-400G-XP card. By default, this passive module is enabled.
Bill of Material	
Enable NCS	This feature enables NCS features on all sites in the network.
Use PAYG	The Pay As You Grow (PAYG) functionality significantly reduces the initial setup cost and enables the purchase of another wavelength capacity on a need basis. PAYG enables port-based cost or licensing for SMR-9 and SMR-20 cards.
Connection Verification	Enable this check box to: • Validate the correct optical interconnection between the optical cards inside a Flex ROADM. • Measure the insertion loss of the external passive path. • Validate the quality of the connections to the patch panel. • Check if the insertion loss is within expected value. The following cards support connection verification: • SMR20 FS CV • MF-DEG-5-CV • MF-MPO-16LC-CV • MF-UPG-4-CV
New FS-SMR PID	By default, this check-box remains checked for newly created network. You cannot edit it. This option enables displaying of new SMR-20 PID in the BOM page. You can enable this option when you unlock an mpz network where SMR-20 is selected, during upgrade or release upgrade.
Layout	

Properties	Description
Chassis Type	Choose the type of chassis. The available options are: • M6, and M15 Chassis for OLA • M6 Chassis for ROADM and Traffic • M15 Chassis for ROADM and Traffic • Auto for all nodes **Note** Chassis type is not supported for the passthrough site.
Power Supply	Choose the type of Power Supply. The available options are based on the chassis type: • Auto for all type of chassis • AC Power, DC power for M15 and M2 chassis • AC Power, DC Power, AC2 Power, DC40 Power, and DC20 Power for M6 chassis
Controller Card	Choose the type of the controller card. For NCS 2000 site, the default controller card is TNCS-2. The available options are based on the chassis type chosen. By default, controller cards that are supported by M15 chassis are listed. The available options are: • Auto • TNC/TSC, TNC-E/TSC-E, TNCS, TNCS-0, TNCS-2, and TNCS-20 for M2 chassis • TNC/TSC, TNC-E/TSC-E, TNCS, TNCS-0, TNCS-2, and TNCS-20 for M6 chassis • TNCS, TNCS-0 TNCS-2, TNCS-20 for M15 chassis
Redundant Controller Card	Choose whether to use a redundant controller card.

Properties	Description

Layout Template	Choose the required layout template.
	
	Note After the chosen layout template is applied, all layout properties will be reset and disabled.
	
	Note After design analysis, if the applied layout template is not considered for card placement in the layout, check for the error message (noncritical) under the **Elements > Messages** tab. If you see a template-related error which indicates that there is a mismatch between the cards that are defined in template and the cards that are created on the site, perform the following:
	
	    • Export the template from the **Layout** page, and modify it as required.
	    • Import the modified template using the **Manage > Layout Template** option.
	    • Switch to Design mode and apply the template to the site using the **Entity Editor**.
	    • Reanalyze the network to get the correct layout populated.

UTS AC Power Cables	Choose the type of cables to be used for the AC power supply. Cables are listed based on the country type and the Chassis type selected.
Redundant Power Scheme	Choose the redundant power scheme from the drop-down list to configure the number of working and protected power units for the chassis. For NCS 2000 site, the options available are based on the chassis type. For M15 chassis, the options available are 1+0, 1+1, 2+0, 2+1, 3+0, 3+1, 2+2, 3+1 is the default redundancy power scheme for M15 DC chassis and 2+2 is the default redundancy power scheme for M15 AC chassis. For example, if you choose 3+1 redundant power scheme, there are 3 working power units and 1 protected power unit. For M6 chassis, the options available are Auto, Yes, and No.
Raman Adapter Share	This option is available only for the OLA site. By default, this check box remains checked. This option indicates that MF-2LC-ADP can be shared with EDRA amplifiers and not with RAMAN amplifiers irrespective of the default selection.

Properties	Description
ECU Type	Choose the External Connection Unit (ECU) type from the drop-down list. The options available are based on the chassis type. By default, the ECU applicable for M15 is listed. • ECU—Has 12 USB 2.0 ports and supports IEEE1588v2 PTP, time-of-day (ToD), and pulse-per-second (PPS) inputs. • ECU-S—Similar to ECU except that it has eight USB 2.0 ports and two USB 3.0 ports. • ECU60-S—Variant of ECU-S introduced for the NCS 2006 when the shelf is powered at –60VDC nominal input voltage. ECU-S and ECU60-S are supported only for M6 chassis.
MF Unit	Choose the mechanical frame for the passive optical modules from the drop-down list. The options available are Auto, MF-6RU/MF-10RU, and MF-1RU. • The NCS2K-MF-1RU has four slots for the passive optical modules. • The NCS2K-MF-6RU supports up to 14 single-slot passive optical modules such as any combination of NCS2K-MF-DEG-5, CS2K-MF-UPG-4, or Connection Verification (CV) units. • The NCS2K-MF10-6RU supports up to 10 double-slot passive optical modules such as NCS2K-MF-MPO-16LC=.
Chassis Disaggregation	If you check this check-box, ROADM and transponder cards are placed in different chassis.
Map	
X Coordinate	It represents the longitudinal location of the site. Longitude can be positive or negative (-180 to 180). Negative is west of Greenwich, and positive is eastward.
Y Coordinate	It represents the latitudinal location of the site. Latitude can be positive or negative (- 90–90), north and south of the Equator.
Position Lock	Check this check box to lock the site position on the map.
C Band	

Properties	Description

Shared SMR Port	Check this check box to connect Contentionless unit 16-AD-CCOFS and Colored unit MD-48-ODD/Even to the same MPO port of SMR-20. When Shared SMR port is enabled, MD-48-ODD/EVEN unit connects to the specific side of SMR-20 through MPO-8LC and UPG-4 instead of directly connecting to SMR-20 through MPO-16LC.
	
	Note Shared SMR port becomes disabled, if
	
	    • **Degree Mesh Type** property is *PPMESH8-5AD*
	
	    • Or, **Site Type** property is *SMR-9* and **Scalable Upto Degree** property is *8*

Degree Mesh Type	Choose the mesh type for Flex NG-DWDM site. The available options are:
	
	    • DEG-5/UPG-4
	
	    • PPMESH8-5AD
	
	DEG-5/UPG-4 is the default value.

Site Type	Displays the type of the site. For example, OLT.
L0 Platform	Displays the platform.
Degree Type	Displays the type of degree. For example, BRK-8.
Pre Equip Degree	This parameter determines the number of degrees to be considered for the site hardware placement on day 0. The values can be None, Auto, 4, 8, 12 or 16. The default option is None. If you choose None, only the sides that are present in the Cisco ONP GUI are shown. The values in the drop-down list are populated based on the value of scalable up to degree parameter.
SVO	
Chassis License Flush Out	Allows you to flush out the existing chassis license and purchase new chassis license.

SVO Pluggables	You can choose one of the following options from the drop-down list. When you choose Auto, ONS_SC+-10G_SR is the default option.
	
	    • Auto
	
	    • ONS-SC +- 10G-SR
	
	    • ONS-SC +-10G-LR
	
	Note The SVO pluggables are not applicable for UCS-based SVO network design.

Cisco NMS	

Properties	Description
SVO Full License	Enable this check box to add High Availability (Feature and License), Connection Verification license, Flex Spectrum license, and OTDR license packaged in it.
High Availability	Enable this check box to add the High Availability feature to the license package.
Connection Verification License	Enable this check box to add the Connection Verification feature to the license package.
Flex Spectrum License	Enable this check box to add the Flex Spectrum feature to the license package. For SSON networks, Flex Spectrum license is enabled by default.
OTDR License	Enable this check box to add the OTDR feature to the license package.
3rd party NMS	
3rd party Full License	Enable this check box to add NBI (North Bound Interface), Alarm Correlation, Performance Monitoring, and Circuit Provisioning features to the license package.
NBI	Enable this check box to add the NBI feature to the license package.
Alarm Correlation	Enable this check box to add the Alarm Correlation feature to the license package.
Performance Monitoring	Enable this check box to add the Performance Monitoring feature to the license package.
Circuit Provisioning	Enable this check box to add the Circuit Provisioning feature to the license package.

Step 6   Click **Update**.

Add Contentionless Side to a Site

Contentionless functionality on a site refers to the contentionless add or drop ability of an N-degree ROADM node to accommodate N wavelengths of the same frequency from a single add or drop device. For a ROADM to be contentionless, the number of drop units should be equal to ROADM degrees.

Use the following procedure to add contentionless sides to a ROADM or traffic site:

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   Choose **File** > **Open**.

The **Select Network To Open** dialog box appears.

Step 2   Click the network in which you want to add contentionless sides to a site.

The network opens.

Step 3 Choose **Network** > **Entity Editor**.

Step 4 Click the site to which you want to add contentionless sides.

Step 5 Click the **Add Contentionless Side** icon.

Step 6 Enter the appropriate value in the **Enter number of contentionless sides** field.

The number of contentionless sides that can be added to a site depends on the type of site, the **Scalable Upto Degree** property. The following table explains the same.

Table 2: Contentionless Sides for Layer-1 SMR

Site Type	Scalable Upto Degree	Number of Contentionless Sides
SMR-20	4	16
SMR-20	8	12
SMR-20	12	8
SMR-20	16	4
SMR-20	Line	8
SMR-20	Terminal	8
SMR-9	4	5
SMR-9	8	1

Step 7 To add layer-2 SMR-20 contentionless sides, perform the following steps:

a) Check the **Evolved Mesh** check box.

b) Choose **Site Type** as *SMR-20* or *Auto*.

c) Check the **Cascaded SMR** check box.

d) Choose **Degree Mesh Type** as *DEG-5/UPG-4*.

e) Click **Update**.

You can add 20 more contentionless sides on each site for layer-2 SMR. The following table explains the same.

Table 3: Contentionless Sides for Layer-2 SMR

Site Type	Scalable Upto Degree	Number of Contentionless Sides for Layer-1 Side	Number of Contentionless Sides for Layer-2 Side
SMR-20	4	16	20
SMR-20	8	12	20
SMR-20	12	8	20
SMR-20	16	4	20

Step 8   Click **OK**.

Modify Number of Contentionless Side Ports for a Site

Use this task to modify the number of contentionless ports for a side in a ROADM site.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   Choose **File** > **Open**.

The **Select Network To Open** dialog box appears.

Step 2   Click the network in which you want to modify the number of contentionless ports for a side in a ROADM site.

The network opens.

Step 3   Choose **Network** > **Entity Editor**.

Step 4   Expand a ROADM site and select a contentionless side.

You can view the properties of the side in the right panel.

Step 5   From the **Contentionless Ports** drop-down list, choose the required number of ports.

Click **Update**.

Modify Fiber Properties

Use this task to modify the properties of fiber.

Before you begin

Log in to Cisco ONP Web Interface

Step 1   In the network tree, expand **Fiber**, and click a fiber.

You can view the basic properties of the fiber at the bottom of the network tree.

Step 2   Modify the following fiber properties as required.

Property	Description
General	
Name	By default, the name of the fiber is based on the number of fibers between the source and destination sites. You can edit the name.
Source	Displays the source site name. This field is noneditable.

Property	Description
Destination	Displays the destination site name. This field is noneditable.
Bidirectional	Indicates whether standard single fiber is used to transmit the data in both directions.
Fiber Type	Select the fiber type. Cisco ONP supports the following fibers, and the default fiber type is G652-SMF. • G652-SMF-28E • TWR • MC • TWPlus • TWMinus • TWClassic • FL • TL • G652-SMF • ELEAF • True wave
Length	Displays the span length of the fiber connecting a source and destination site. If necessary, change the span length manually. • The Cisco ONP tool automatically updates the fiber length based on the actual geographical map. If you change the fiber length, then the Cisco ONP tool updates the same in the network tree and the map accordingly for the first time. Later, the fiber length does not change, when you drag and drop the sites in the map. • In the network tree pane, expand **Fiber** and select the fiber couple, A-Z and Z-A. The properties pane displays the fiber couple name, source side, destination side, its span length, loss, and, Polarization Mode Dispersion (PMD) value. • You can enter the different span length and loss values for the individual fibers in a fiber couple.
Network status	Displays the status of the network, whether the network is being deployed or not. If the network is not deployed, it shows the status as UNDISCOVERED.
Business status	Displays the status of the fiber in a business perspective view. If fiber is not deployed, it shows the status as FUTURE. This field is noneditable.
Measurement Units	Choose the measurement unit (Km or Miles) for the fiber span. You can set the measurement unit only for the duct, but not for the fiber pair (couple) or fiber.
Aging Loss [dB]	Enter the aging loss value for the fiber.

Property	Description
DCN Extension	Check this check box to enable the default use of data connection network (DCN) extension on each span in the project. This setting implies that the optical service channel (OSC) channel is not used to connect the two nodes.
OSC FrameType	Choose the OSC frame type. The options available are: • Auto • OC3 Frame • GE Frame • FE Frame The default option is Auto. When set in Auto, Cisco ONP uses FE Frame as the preferred frame type.
Aging Factor	Enter the number to fiber aging factor.
Physical	
Length-Based Loss	The fiber loss value is automatically calculated based on length and loss coefficient, when you check this option.
Tot SOL Loss w/o connectors	Enter the start of life fiber loss value for each span, excluding the connector concentrated loss.
Factors	
Loss[dB]	Enter the value of the SOL fiber loss per kilometer used to calculate the loss of each span in the network.
Raman Amplification	
Raman Amplified	Enable Raman Amplification on the ducts. **Note** When you enable Raman amplification, the side property *Enable C+L Band S/C* is automatically disabled.

Step 3   Click **Update**.

Step 4   To modify advanced properties of the fibers, click **Show Advanced Properties**, or choose **Network** > **Entity Editor**.

Step 5   Click the **FIBER** tab in the **Entity Editor** window.

Step 6   Choose the fiber and modify the following properties in the right pane.

Property	Description
General	
Aging loss	Enter the aging loss value.
DCN Extension	Enable the default use of data connection network (DCN) extension on each span in the network.

Property	Description
OSC Frame Type	Choose the OSC frame type. The options available are Auto, OC3 Frame, Gigabit Ethernet Frame, and Fast Ethernet Frame. The default option is Auto. When set in Auto, Cisco ONP uses Fast Ethernet Frame as the preferred frame type.
Aging Factor	Enter the number to factor fiber aging. This factor is multiplied by the SOL total span loss without connectors.
Physical	
Connector Loss A	Connector Loss at Source Site [dB]
Connector Loss B	Connector Loss at Destination Site [dB]
Factors	
Loss Coefficient [dB/km]	Loss is calculated based on the loss coefficient.
QD C-Band	Displays the secondary order dispersion for C-band.
CD C-Band	Displays the secondary order dispersion for L-band.
RD Factor	Displays the random dispersion value.
Extended	
Effective Mode Area	Displays the effective mode area [μm^2]
SRS tilt coefficient	Displays the Stimulated Raman Scattering tilt coefficient on the band.
DRBS coefficient	Displays the Rayleigh Scattering capture coefficient.
N2	Nonlinear index of refraction [1e-16 cm^2/W]
LFBR	Length of individual fibers for sigmaDSP [Km]
Totals	
(The properties under Totals are noneditable)	
PMD	Displays the Polarization Mode Dispersion (PMD) value.
Loss EOL	Displays the total loss EOL calculation.
Loss SOL	Displays the total loss SOL calculation.
CD C-Band	Displays the total chromatic dispersion for the C-band.
QD C-Band	Displays the secondary order dispersion for C-band.
RD	Displays the random dispersion value.

Step 7   Click **Update**.

Modify Fiber Couple Properties

Use this task to modify properties of the fiber couple.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   In the network tree, expand **Fiber**, and drill down up to a fiber couple and click the fiber couple.

You can view the basic properties of the fiber couple at the bottom of the network tree.

Step 2   Modify the following fiber couple properties as required.

Property	Description
General	
Name	By default, fiber couple is named based on the fiber name followed by COUPLE-AZ or COUPLE-ZA. The sides that are connected by the fiber couple are indicated inside brackets. The name is noneditable.
Source Side	Displays the source side name. This field is noneditable.
Destination Side	Displays the destination side name. This field is noneditable.
Length	Automatically displays the span length of the fiber connecting a source and destination side. Change the span length manually, if necessary. You can enter the different span length and loss values for the individual fibers in a fiber couple.
Physical	
Tot SOL Loss w/o connectors	Enter the start of life fiber loss value for each span, excluding the connector concentrated loss.
Factors	
Loss coefficient [dB]	Enter the value of the SOL fiber loss per kilometer used to calculate the loss of each span in the network.
Totals	
Loss SOL	Displays the total loss SOL calculation.
Loss EOL	Displays the total loss EOL calculation.

Step 3   Click **Update**.

Step 4   To modify advanced properties of the fiber couple, click **Show Advanced Properties**, or choose **Network** > **Entity Editor**.

Step 5   Click the **FIBER** tab in the **Entity Editor** window.

Step 6   Choose the fiber and drill down to the fiber couple, and modify the following properties in the right pane.

Property	Description
Physical	
Connector Loss A	Connector Loss at Source Site [dB]
Connector Loss B	Connector Loss at Destination Site [dB]
Factors	
PMD coefficient	Displays the PMD coefficient.
Totals (The properties under Totals are noneditable)	
PMD	Displays the PMD value.
Loss EOL	Displays the total loss EOL calculation.
Loss SOL	Displays the total loss SOL calculation.
CD C-Band	Displays the total chromatic dispersion for the C-band.
QD C-Band	Displays the secondary order dispersion for C-band.
RD	Displays the random dispersion value.

Step 7   Click **Update**.

Modify Service Properties

Use this task to modify the properties of the service.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   In the network tree, expand **Services** and click a service.

You can view the basic properties of the service at the bottom of the network tree.

Step 2   Modify the following service properties as required.

Property	Description
General	
Name	By default, the service name is based on the source and destination sites and the number of services between them. You can edit the name. For example, if there are two services between site 1 and site 2, the names of the services are Site-1-Site-2-1 and Site-1-Site-2-2, respectively.

Property	Description
Type	Choose the types of service.
Protection	Choose the protection type from the drop-down list. Options available are: • Unprotected • 1+1 • Disjoint • S+NS • 1+R • 1+1+R • 1+1+R+R For more information on protection types, see Supported Protection Schemes.
Source	Displays the source site name.
Destination	Displays the destination site name.

Step 3 Click **Update**.

Step 4 To modify advanced properties of the service, click **Show Advanced Properties** or choose **Network** > **Entity Editor**.

Step 5 In the **Entity Editor** window, click the **Service** tab.

Step 6 Choose the service under the network tree, and modify the following properties in the right pane.

Property	Description
General	
Tertiary Source	From the drop-down list, select the possible site as a tertiary source.
Tertiary Destination	From the drop-down list, select the possible site as a tertiary destination. Tertiary source and tertiary destination are enabled only when you select the protection scheme as Unprotected Disjoint. You can select either tertiary destination or both tertiary source and tertiary destination. • If you select only the tertiary destination, the demand is created between the source and destination and between the source and tertiary destination. These do not have common fibers in the path, which are disjoint. • If you select both tertiary source and tertiary destination, two unprotected demands are created between the source to destination, and tertiary source to tertiary destination. The demands are disjoint to each other.
Primary Path Forcing	
Path	Cisco ONP automatically selects the shortest path as working path and also allows you to force the path manually.

Property	Description
Fiber	Primary path fiber is forcing path for working trail.
Regeneration Platform	Displays the platform of the regeneration site
Regen Sites	Choose the regeneration site.
Wavelength	Click **Edit** to choose the wavelength. The default option is Auto.
ODU Timeslot	Enter the ODU timeslot value.
Section Wavelength(s)	Displays the selected **Wavelength**.
Src Channel Type	Choose the type of source channel. The available options are: • Auto—This is the default option. *Auto* option is the contentionless demand. • Contentionless • Colorless • Colored
Dst Channel Type	Choose the type of destination channel.
Secondary Path Forcing (Available only for (1+1)	
Path	Secondary path is the protected path when the primary path fails. This path is the second best path after the primary path.
Fiber	Secondary path fiber is for protected service, forcing path for the protected trail.
Regeneration Platform	Displays the platform of the regeneration site
Regen Sites	Choose the regeneration site.
Wavelength	Click **Edit** to choose the wavelength. The default option is Auto.
ODU Timeslot	Enter the ODU timeslot value.
Section Wavelength(s)	Displays the selected **Wavelength**.
Src Channel Type	Choose the type of source channel.
Dst Channel Type	Choose the type of destination channel.
Restoration 1 Path Forcing (Available for 1+R, 1+1+R, 1+1+R+R)	
Path	Cisco ONP automatically selects the first restoration path.
Fiber	Choose the first restoration path fibers.
Restoration 2 Path Forcing (Available for 1+1+R+R)	
Path	Cisco ONP automatically selects the second restoration path.

Property	Description
Fiber	Choose the second restoration path fibers.

Note
- Ensure that you force both primary and secondary path fiber or channel for protected service. Also ensure that the wave type is same for both primary and secondary paths. While doing path forcing, make sure that you perform an end-to-end path forcing from the source to the destination. Analysis fails if the partial path is forced.

- Force the wave path for the wave, which is tagged to the service.

- In case of protection type: 1+1+R+R, 1+1+R, and 1+R, you can force a path in restoration path1 or restoration path2 Fiber that is forced in primary or secondary path Fiber.

Step 7   Click **Update.**

Services Aggregation

Table 4: Feature History

Feature Name	Release Information	Feature Description
Services Aggregation	Cisco ONP Release 4.1	Services aggregation feature allows two or more services to share the same trunk port or channel. By default, the services are added to the DefaultGroup. You can also export the aggregation reports.

Services aggregation indicates whether two or more services can share the same trunk port or channel. The aggregation is defined based on the properties of the Service Group. When you add services to the Traffic site (of the type 1K-2K-4K) in an SSON network, a **DefaultGroup** is created under the **Services** in the network tree. The services that you add, are associated to the **DefaultGroup**.

Create a New Service Group

Use this task to create a new service group:

Before you begin

Log in to Cisco ONP Web Interface

Step 1   Choose **File** > **Open**.

The **Select Network To Open** dialog box appears.

Step 2   Click a network, where you want to create a new service group.

The network opens.

Step 3   Right-click **Services** under the network tree and choose **Create Service Group**.

A new service group gets created under the Services.

Modify Service Group Properties

Use this task to modify the properties of service group.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   In the network tree, expand **Services** and click a service group.

You can view the basic properties of the service at the bottom of the network tree.

Step 2   Modify the following service properties as required.

Property	Description
General	
Name	By default, Cisco ONP provides a servive group name. For example, Group-1. You can edit the name.
	For example, if there are two services between site 1 and site 2, the name of the services are Site-1-Site-2-1 and Site-1-Site-2-2, respectively.
Demand Types	Choose the demand type. For default group all demand types are available, and you cannot edit them.
Default Group	Indicates whether the service group is a default group or a user created group.
NCS 4 K	
Exclusive LC Usage	Indicates whether the services belonging to this group must have an exclusive Line Card (LC) or not.
	For example, when you check this check box, neither the Client LC nor the Trunk LC of the services belonging to this group can be shared by services belonging to any other groups.

Property	Description
Symmetric Aggregation	Indicates whether this group allows aggregation of only symmetric services. Services are symmetric if they have same protection scheme. Following are the various protection schemes: • Unprotected • 1+R • 1+1 • 1+1+R • 1+1+R+R For Example, all "1+1" services are symmetrical. If you check this check box, this service group allows aggregation of only symmetrical services. For example, "Unprotected" can be aggregated only with "Unprotected", "1+R" only with "1+R", "1+1" only with "1+1", and so on. If this check box is unchecked, this service group allows aggregation of symmetrical and unsymmetrical services together. For example, "Unprotected" can be aggregated with either "Unprotected", "1+R", "1+1" "1+1+R" or "1+1+R+R". See Aggregation Rules, on page 24.
NCS 1 K	
Exclusive LC Usage	Same as NCS 4 K.
Symmetric Aggregation	Same as NCS 4 K.

Step 3   Click **Update**.

Aggregation Rules

Following are the rules for any two services (symmetrical or nonsymmetrical) to be aggregated:

- The services must have the same Source and Destination.

- The services must have same paths for the same path types.

  For example:

    - For symmetric aggregation between two "1+1" services, the working path of the first service must match with the working path of the second service and the protection path of the first service must match with the protection path of the second service.

    - For non-symmetric aggregation between "1+1" and "1+1+R" services, the working path of the first service must match with the working path of the second service and the protection path of the first

service must match with the protection path of the second service. The restoration path of second service can be anything.

- The services must be configured to use same wavelength for same path types.

- If the wavelength is set to "auto", it is flexible to be aggregated with other "auto" wavelength or a fixed wavelength.

- The services must be configured to use same trunk mode for same path types.

- The services must be configured to use same regeneration sites for same path types.

Note Demand Type is not used as a constraint for aggregation (except for trunk capacity availability).

Associate a Service to the Newly Created Group

By default, the services are associated to the **DefaultGroup**. But you can change the group.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1 In the network tree, click the service that you want to associate to a group.

You can view the basic properties of the network at the bottom of the network tree.

Step 2 Choose the group from the **Service Group** drop-down list.

Step 3 Click **Update**.

Note For an LNI imported network, by default, all the services are present in the Default group. Only when you upgrade the LNI imported network for the first time, you can move the services to other newly created Service Groups without having to unlock them. On subsequent upgrades, you must unlock the services to facilitate the movement between Service Groups. Also, the Service Groups are in locked state in the upgrade mode, unless a complete Network-level unlock has been performed.

What to do next

Export Aggregation Reports

Use this task to export the service aggregation reports:

Before you begin

Log in to Cisco ONP Web Interface.

Step 1 Choose **File** > **Open**.

The **Select Network To Open** dialog box appears.

Step 2   Click an analyzed network.

The network opens.

Step 3   Choose **Export** > **Service Aggregation**.

Step 4   Save the aggregation report in the form of an Excel sheet to your local system.

Modify Wave Properties

Use the following task to modify the properties of the wave.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   In the network tree, expand **Waves**, and click a wave.

You can view the basic properties of the wave at the bottom of the network tree.

Step 2   Modify the following wave properties as required.

Step 3   Click **Update**.

Modify Media Channel Properties

Use the following task to modify properties of the media channel.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   In the network tree, expand **Media Channels**, and click a media channel.

You can view the basic properties of the media channel at the bottom of the network tree.

Alternatively, you can choose **Network** > **Entity Editor** > **Services**, expand **Media Channels**, and click a media channel to view the properties.

Step 2   Modify the following properties as required.

Property	Description
General	

Property	Description
Label	By default, the media channel is named based on the source and destination sites and the number of media channels between them. You can edit the name. For example, if there are two media channels between site 1 and site 2, they are named as Site-1-Site-2-1 and Site-1-Site-2-2, respectively.
Source Site	Displays the source site name.
Destination Site	Displays the destination site name.
Traffic Type	Choose the traffic type from the drop-down list. The available options are: • Optical Source • 100GE • 10GE LAN PHY • 40GE LAN PHY • Fiber Channel 10G • Fiber Channel 16G • Fiber Channel 8G • OC-192/STM-64 • OTU2 • OTU2e • OTU4 • Pluggable Card
Protection Type	Choose the protection type. • **Unprotected** • **Client 1+1** For more information on protection types, see Supported Protection Schemes. For Client 1+1, ensure that the sites have contentionless sides for the analysis to be successful. By default, Cisco ONP finds both span and node disjoint path for Client1+1 protected waves, but allows you to force span and node disjoint path.
Forecast	Check this check box to change a present wave to a forecast wave.
Encryption	Check this check box to enable encryption.

Step 3 Click **Update**.

Modify Trail Properties

Use this task to modify the properties of the trail.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   In the network tree, expand **Waves**, or **Media Channels**, drill down up to trail and click a trail.

The basic properties of the trail are displayed at the bottom of the network tree.

Step 2   Modify the following trail properties as required.

Property	Description
General	
Label	Displays the name of the trail. You can edit the name.
Path of Wave	Select a fiber from the drop-down list.
Regen Sites	Select the regeneration site.
Source Site	Displays the source site name.
Destination Site	Displays the destination site name.
Wavelength	Click **Edit** to choose the wavelength. The default option is Auto.
Central Wavelength	Click **Edit** to choose the central wavelength. The default option is Auto.
Multicarrier	Indicates whether the transmission is a multicarrier transmission.
Trunk Mode	Choose the trunk mode from the drop-down list.

Step 3   To modify the advanced properties of the trail, click **Show Advanced Properties** or choose **Network** > **Entity Editor**.

Step 4   In the **Entity Editor** window, click the **Service** tab.

Step 5   Expand **Waves**, or **Media Channels**, under the network tree, drill down to the trail, click the trail, and modify the following properties that are displayed in the right pane.

Property	Description
General	
OSNR Forward [dB]	Displays the forward optical signal to noise ratio.
OSNR Reverse [dB]	Displays the reverse optical signal to noise ratio.
Colorless	Indicates whether colorless functionality is enabled on the trail.
Omni-directional	Indicates whether omni-directional functionality is enabled on the trail.

Property	Description
Contentionless	Indicates whether contentionless functionality is enabled on the trail.
Filtering Penality	Displays the value of the penalties that are caused by the different filter types (OADM, and ROADM).
OTN	
First ODU	Displays the first Optical Data Unit.
Last ODU	Displays the last Optical Data Unit.
SRLGs	Displays the SRLGs associated with the trail.
OTN Hops	Displays the number of OTN hops.
Quantity	Displays the number of OTN services on the trail.
Source	
Src Card Type	Choose the card used in the source site. See Supported Cards and Pluggables and Supported Optical Sources for more information on the list of supported cards.
Src Client Interface	Choose the pluggable from the drop-down list. The pluggables suitable for the chosen card type are displayed. See Supported Cards and Pluggables for more information on the list of supported pluggables. The pluggable FR-1(QSFP-100G-FR-S) is supported on the client ports of the 400G-XP LC starting from NCS 2000 Release 11.1.0.
Src Channel Type	Choose the type of source channel. The available options are: • Auto • Contentionless • Colorless • Colored
Src Trunk Type	Choose the trunk type from the drop-down list.
Src Contentionless Side	Choose the contentionless side from the drop-down list.
Destination	
Dst Card Type	The destination card type is auto populated based on the source card type chosen.
Dst Client Interface	Choose the pluggable from the drop-down list. The pluggables suitable for the chosen card type are displayed.
Dst Trunk Type	Choose the trunk type from the drop-down list.

Property	Description
Dst Channel Type	Choose the type of the destination channel. The available options are: • Auto • Contentionless • Colorless • Colored
Dst Contentionless Side	Choose the contentionless side from the drop-down list.

Step 6   Click **Update**.

Modify Section Properties

Use this task to modify properties of the section.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   In the network tree, expand **Waves**, drill down up to section and click a section.

You can view the basic properties of the section at the bottom of the network tree.

Step 2   Modify the section properties as required.

Section and trail have the same properties. Refer Modify Trail Properties, on page 28 for the descriptions of the properties.

Step 3   Click **Update**.

Modify Side Properties

Table 5: Feature History

Feature Name	Release Information	Feature Description
Support for NCS2K-MF-CL-SC (C and L-band combiner and splitter)	Cisco ONP Release 4.2	Cisco ONP supports the passive module, NCS2K-MF-CL-SC (C and L-band combiner and splitter), starting from the NCS 2000 system release 12.2 for SSON and non-SSON networks. This feature enables combining C and L band wavelengths.

Use this task to modify the properties of a side in a site.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1 In the network tree, Choose **Sites** > **Site** > **Site domain** > **Side**.

Step 2 To modify the side properties, perform the following steps:

a) Click **Show Advanced Properties**.

b) In the right pane of **Entity Editor** window, modify the following properties of the side.

Note You cannot edit the properties of the Pass through site side.

Property	Description
General	
Label	Displays the label of the side.
Type	Displays the type of the side. The available options are: • Line • Contentionless
Colorless Ports (Displayed for Line side)	Enter the number of colorless ports.
Contentionless Ports (Displayed for Contentionless side)	Choose the number of contentionless ports.

Property	Description
Enable C+L Band S/C (Displayed for Line side type)	Cisco ONP supports the passive module, NCS2K-MF-CL-SC (C and L-band combiner and splitter), starting from the NCS 2000 system release 12.2 for SSON and non-SSON networks. Check this check box to enable the NCS2K-MF-CL-SC card. This card is supported for ROADM, OLA, and traffic nodes, but not on the passthrough node.
	Note When you enable this option on a side:
	• It is automatically enabled on the side that is connected to the selected side through a fiber.
	• The fiber property *Raman Amplified is* automatically disabled, and the opposite way.
	• This card introduces a certain amount of attenuation and insertion loss that is reflected in the ANS parameters.
	The NCS2K-MF-CL-SC module does not appear in the layout.

c) Click **Update**.

Modify C-Band Amplifier Properties

Table 6: Feature History

Feature Name	Release Information	Feature Description
Manual Editing of Raman COP values	Cisco ONP Release 4.1	This feature allows you to edit the crosstalk values of the Raman COP amplifier in the SSON network, starting from NCS 2000 Release 11.1.

Table 7: Feature History

Feature Name	Release Information	Feature Description
Inline Amplifier	Cisco ONP Release 4.2	The **Inline Amplifier** option allows you to enable an inline amplifier in the network. You can simulate the optical feasibility of the network with and without an inline amplifier. Based on the colorless or colored add/drop type selected and the QSFP-DD pluggable status, a default inline amplifier is enabled for the network.

Use this task to modify the properties of a c-band amplifier in a site.

✎

Note   Make sure that SMR card is forced on the site before you update the c-band amplifier properties.

Before you begin

Log in to Cisco ONP Web Interface

Step 1   In the network tree, choose **Sites** > **Site** > **Site domain** > **Side** > **C-Band**.

Step 2   To modify the amplifier properties, perform the following steps:

a) Click **C-Band Amplifier**.

You can view the properties of the C-Band Amplifier at the bottom of the network tree. For more information, see Supported Amplifiers.

b) Modify the following properties of the amplifier:

You can also modify the properties by choosing the **C-Band Amplifier** under **Network** > **Entity Editor**.

Options	Description
General	
Raman COP Tilt	The default value is Auto. You can enter a value.
Pre Tilt	The default value is Auto. You can enter a value.
Raman Tilt	The default value is Auto. You can enter a value.
Booster Tilt	The default value is Auto. You can enter a value.

Options	Description
Inline Amplifier	

Options	Description

	Choose whether inline amplifier can be forced. The available options are:
	
	• Yes—EDFA17 or EDFA35 amplifier is chosen as the default amplifier when you choose colored add/drop module MD-64-C or colorless add/drop MF-6AD-CFS, respectively. See Modify Add/Drop Multiplexer Properties, on page 40.
	
	• No—No amplifier can be forced.
	
	• Auto
	
	    • EDFA17 amplifier is chosen as the default amplifier when any one of the demands aggregated in MD-64-C has low launch power optical resource or QSFP-DD pluggable is forced.
	
	    • EDFA35 amplifier is chosen as the default amplifier when any one of the demands aggregated in MF-6AD-CFS has low launch power optical resource or QSFP-DD pluggable is forced.
	
	Note When you configure MF-6AD-CFS+EDFA35 in an SSON or non-SSON network, the optical results show system error for the demands of the same or different types. This error affects the what-if analysis. Hence we recommend choosing the appropriate channel and client attenuators so that the inline amplifier works at the proper gain range.
	
	You can view the amplifier added in the **IPC**, **BOM**, and **Layout** tabs, after the successful analysis.
	
	Note • When you add a QDD demand while upgrading a network where the Inline Amplifier property is set as *no*, the inline amplifier can be included in the network only if you unlock the side and set the Inline amplifier property as *Auto* or *Yes*.
	
	     • Default colorless configuration does not require inline amplifier.
	
	     • When there are no demands passing through the colored or colorless Add/Drop device, the forced Inline

Options	Description
	amplifier is not placed.
From Fiber	
Pre Amp	Choose a preamplifier from the drop-down list. The default value is Auto. To enable this field for ROADM and Traffic nodes, you must choose SMR-9 or SMR-20 from the **Site Type** drop-down list under the Site properties.

If you choose SMR-9, the available options are:

    • SMR9-FS-EDFA17-PRE

    • SMR9-FS-EDFA24-PRE

    • SMR9-FS-EDFA24-PRE

If you choose SMR-20, the available options are:

    • SMR20-FS-EDFA17-PRE

    • SMR20-FS-EDFA24-PRE

For the OLA site, the available options are:

    • EDFA35-35-PRE

    • EDFA35-24-PRE

    • OPT -EDFA-17

    • OPT -EDFA-24 |
| Output Power | The default value is Auto. You can enter a value. |
| Attenuator In | This field is enabled only when you choose a preamplifier. Choose an attenuator from the drop-down list. The available options are:

    • ATT-LC-2

    • ATT-LC-3

    • ATT-LC-5

    • ATT-LC-7

    • ATT-LC-10

    • ATT-LC-12

    • ATT-LC-15

    • ATT-LC-18 |

Options	Description
Attenuator Out	This field is enabled only when you choose a preamplifier. Choose an attenuator from the drop-down list. The available options are: • ATT-LC-2 • ATT-LC-3 • ATT-LC-5 • ATT-LC-7 • ATT-LC-10 • ATT-LC-12 • ATT-LC-15 • ATT-LC-18
To Fiber	
Booster	The default value is Auto. To enable this field for ROADM and Traffic nodes, you must choose SMR-9 or SMR-20 from the **Site Type** drop-down list under the Site properties. If you choose SMR-20, the default booster is 20SMR-FS-BST. If you choose SMR-9, default booster is SMR9-FS-EDFA-BST. For the OLA node, the available options are: • EDFA35-35-BST • EDFA35-24-BST • OPT -EDFA-17 • OPT -EDFA-24
Output Power	The default value is Auto. You can enter a value.

Options	Description
Attenuator In	This field is enabled only when you choose a booster. Choose an attenuator from the drop-down list. The available options are: • ATT-LC-2 • ATT-LC-3 • ATT-LC-5 • ATT-LC-7 • ATT-LC-10 • ATT-LC-12 • ATT-LC-15 • ATT-LC-18
Attenuator Out	This field is enabled only when you choose a booster. Choose an attenuator from the drop-down list. The available options are: • ATT-LC-2 • ATT-LC-3 • ATT-LC-5 • ATT-LC-7 • ATT-LC-10 • ATT-LC-12 • ATT-LC-15 • ATT-LC-18
Raman Amplification	

Options	Description
Raman Amp	Choose the Raman amplifier from the drop-down list. **Note** To force the RAMAN amplifier, you must enable **RAMAN amplified** on the fiber, else the **Raman Amp** is disabled, and network analysis fails. The available options for ROADM and Traffic sites are: • RAMAN-CTP • RAMAN-COP-CTP Raman Amp can be forced only between two nodes. The available options for the OLA site are: • EDRA1-26 • EDRA1-35 • EDRA2-26 • EDRA2-35 • RAMAN-CTP
Raman CTP Gain	Enter a value.
Raman COP Gain	Enter a value. This field is enabled only when you choose RAMAN-COP-CTP.
Static Data	By default, this option is disabled. Enable it to edit the crosstalk values of the Raman COP amplifier. **Note** Static data is supported from Release 11.1 for SSON network.
Linear XT Avg	Edit the value of average linear crosstalk.
Linear XT Six	Edit the value average linear crosstalk sigma.
NonLinear XT Avg	Edit the value of average nonlinear crosstalk.
NonLinear XT Sig	Edit the value of average nonlinear crosstalk sigma.

Note Raman crosstalk values are present in the ANS file under *logoparameters* section.

c) Click **Update**.

Modify Add/Drop Multiplexer Properties

Table 8: Feature History

Feature Name	Release Information	Feature Description		
Modify Properties of Add/Drop Multiplexer and Demultiplexer	Cisco ONP Release 4.2	You can create and validate network designs by choosing colored and colorless add/drop multiplexers and demultiplexers, and interlever under **C-Band** > **Add/Drop**. The following options are supported in this release:		
		Type of Add/Drop	Options	Network Supported
		Colorless	• Direct SMR • MF-6AD-CFS	• SSON • Non-SSON
		Colored	• MD-64-C • MD-48-ODD • MD-48-EVEN • MD-48-ODD+ MD-48-EVEN	• SSON • Non-SSON
		Interlever	• MpoCable • MD-48-CM	• Non-SSON

Use this task to modify the properties of the add/drop multiplexer in a site.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   In the network tree, Choose **Sites** > **Site** > **Site domain** > **Side** > **C-Band**.

Step 2   To modify the Add/Drop multiplexer card properties, perform the following steps:

a) Click **Add/Drop**.

You can view the properties of the add/drop multiplexer at the bottom of the network tree.

b) Modify the following properties of the add/drop multiplexer:

c) Click **Update**.

Modify Client Properties

Use this task to modify the properties of a client-side attenuator in a site.

Before you begin

Table 9: Feature History

Feature Name	Release Information	Feature Description
Channel Attenuators	Cisco ONP Release 4.2	You can set up channel attenuators for QSFP-DD demands. You can choose different channel attenuators based on the specific configuration and check for the optical feasibility of the channel.

Log in to Cisco ONP Web Interface

Step 1   In the network tree, choose **Sites** > **Site** > **Site domain** > **Side** > **Clients** > **Channel-Attenuators**.

Step 2   In the right pane of the **Entity Editor** window, modify the following properties of the client-side attenuator.

Options	Description
General	
Wavelength	This column displays the selected wavelength.
RX-Attenuator	Choose an RX-Attenuator from the drop-down list. The default option is Auto. **Note** You must select a wavelength to edit this field.
TX-Attenuator	Choose a TX-Attenuator from the drop-down list. The default option is Auto. **Note** You must select a wavelength to edit this field.
New Wavelength - Auto	Click **Edit** to select a Flex Grid or Fixed Grid wavelength. **Note** Select **Fixed Grid (64-Chs)** for SSON network with NCS1K-MD-64-C card. **Note** NCS1K-MD-64-C card has First Channel limitation for Colored sites. First Channel (196.1 THz) in Fixed Grid (64-Chs) wavelength supports only Terminal Add/Drop sites and not ROADM sites.

Step 3   Click **Update**.

Sort the Network Elements

You can sort the sites, services, fibers, waves, and SRLG in ascending or descending order. This feature is helpful for huge networks, to find out the required site, fiber, waves, or SRLG names quickly. Right-click the network element, for example **Sites** and choose **Ascending** or **Descending**. You can sort based on alphabets, numbers, or alphanumeric.

Regeneration Support

In optical networks, as the fiber length increases, a loss in the signal ratio and power could occur due to attenuation and dispersion. You require a regenerator to recreate the weak and distorted optical signals through reamplification, regeneration, and retiming processes. The regenerators remove noise and distortion, convert the optical signal to electrical signal, and then convert the signals back to optical signals (OEO conversion). Cisco ONP supports creation of regeneration sites in the network.

Note   A regenerator site can only be a ROADM site.

Create a Regeneration Site

Table 10: Feature History

Feature Name	Release Information	Feature Description
Wavelength Forcing at the Section Level	Cisco ONP Release 4.1	This feature allows you to assign different wavelengths for different sections of the Regen sites.

Use the following procedure to create a regeneration site in the network.

Before you begin

Log in to Cisco ONP Web Interface.

Step 1   Choose **File > Open**.

The **Select Network To Open** dialog box appears.

Step 2   Select a network from the list of networks. This opens the selected network's map.

You can also add a regeneration site when you are designing a new network or upgrading a network.

Step 3   In the network tree, expand **Waves**, select a wave and drill down to its trail.

Note   If the network is an SSON network , you see **Media Channels** instead of waves. Expand **Media Channels** , and drill down to its trail.

Step 4   Click the trail.

You can view the properties of the trail at the bottom of the network tree.

Step 5 From the **Regen Sites** drop-down list, select a regeneration site.

Note If you select a fiber from the **Path of Wave** drop-down list, you cannot select any regeneration site to force a path. Similarly, if you select a regeneration site, you cannot force a path for the wave. However, if you want to force a fiber, select the fiber from the **Path of Wave** drop-down list available under the section properties.

Step 6 (Optional) Select the wavelength of each section in the properties for non-SSON network.

Note For the SSON network, you can select the wavelength only at the trial level.

Step 7 Click **Update**.

A new section is added along with the existing section under the trail, whenever a regeneration site is created. Regeneration can be performed using any two cards back-to-back or with a dedicated regenerator card.

Step 8 Click **Analyze** to analyze the network.

After analysis, if you click trail or section in the network tree, the map highlights the trail in orange color, and the section in green color.

Note You can assign different wavelengths for different sections. The **Central Wavelength** is denoted as a *, when different wavelengths are assigned for different sections.

Multidegree ROADM

In multidegree ROADM, sites have two or more sides and face two or more fibers spans. You can select the degree of a node from the Cisco ONP GUI. The values are 2, 4, 8, 12, and 16 for Evolved Mesh (EV) ON and OFF scenarios. The default value is 4. Degrees 5, 9, and 13 are not supported. EV flag is editable.

Prerequisites for Cascaded SMR

- The **Structure** field under **C Band** in the **Entity Editor** must be Multidegree.

- The **Site Type** field under **C Band** in the **Entity Editor** must be SMR-20.

- The **Evolved Mesh** check box under **General** in the **Entity Editor** must be checked.

- The **Degree Mesh Type** field under **C Band** in the **Entity Editor** must be Auto or DEG-5/UPG-4.

- The **Mpo16TOMpo8** field under **General** in the **Entity Editor** must be MPO16To2MPO8 cable.

- By default, the **Cascaded SMR** check box is unchecked, but you can edit in the design mode as a site property. Check the **Cascaded SMR** check box for contentionless side creation. L2 SMR is supported for both SSON and Non-SSON networks.

- You can edit the **Cascaded SMR** check box when **Evolved Mesh** is ON and the SMR-20 card is selected. You can create Layer 2 SMR sides only after you check the **Cascaded SMR** check box.

- You can create contentionless sides manually and force the contentionless ports. The default value is 16 for the contentionless ports. The range of values is 0–16.

Limitations

- Supports only contentionless add/drop demands.

- Supports Layer-2 SMR for SMR-20 card only.