



## Attribute Reference

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This section references all objects and their attributes that are used by the Cisco Transport Manager Equipment Module.

### Table Conventions

The following codes describe attribute behavior in the GUI. They appear on a separate line in the attribute column for each attribute.

**Table A-1** *Attribute Behavior Codes*

Code	Description
M	Attribute is Mandatory.
R   W   C	R—Attribute is read-only.
	W—Attribute is writable.
	C—Attribute is writable upon creation, and read-only thereafter.
A   RDP	A—Attribute is autogenerated.
	RDP—Reverse Data Path. Attribute value is retrieved from the element or network management system after you create the corresponding object.
P	Attribute can be profiled.



**Note**

Some attributes contain restrictions or dependencies that are out of the scope of the above table conventions. In this case, the restriction or dependency will be included with the attribute description in the table or in a footnote.

### Object Viewer Common Attributes

Many object viewers will contain the following attributes under the tab "Common Attributes." This information is extracted from the attribute reference tables later in this section and is displayed here. "Name" is always required.

Table A-2 Attributes Common to All Object Viewers

Attribute	Acceptable Values
<b>Name [sname]</b> Specify the name of the profile, object, network, etc. M	Text string (up to 64 characters)
<b>Customer [vpn]</b> Specify the customer name. The customer field, like the Domain field, is used for CPC security purposes. It identifies the Service object with a customer and is used as a tag to give operators access to this customer's Service object. Refer to the <i>CPC Installation and Administration Guide</i> for details.	Text string (up to 16 characters)
<b>Domain [domain]</b> This is the management domain name. It identifies a geographical or organizational scope for operator access control and corresponds to the MD tag within the CPC security procedure. Refer to the <i>CPC Installation and Administration Guide</i> for details.	Text string (up to 16 characters)
<b>Profile [srprofile.sy_profname]</b> Specify the profile to be used to create the logical port or service element	Text string (up to 32 characters)

## Object Classification and Object Attribute Files

In this chapter, the object name and object attribute file name are provided for each object. Object attribute files (OAF) are located in the \$CCP\_BIN directory on a CPC client installation.

The OAFs list the attribute name, the FTI name, whether or not the attribute is used as a selector on a subset viewer, the read/write setting of the attribute, the syntax and a default value, if one is specified.

To view the contents of the OAFs:

- 
- Step 1** Navigate to the \$CCP\_BIN directory. The Cisco Provisioning Center environment must be sourced in order to use the \$CCP variables.
- ```
cd $CCP_BIN
```
- Step 2** All of the OAFs for each equipment module and service application are listed in this directory. Obtain a listing of the OAFs that are specific to the Cisco Transport Manager Equipment Module.
- ```
ls C5*
```
- Step 3** Use your text editor or the more command to view the files.
- ```
more C5ntNetwork.oaf
```
-

# Network

**Object Name:** C5ntNetwork

**OAF:** C5ntNetwork.oaf

A network object is created to represent the actual network within the Cisco Provisioning Center database. This object is required to upload network elements.

Within the network object, address and account information for the CTM server must be specified to establish communication between the Equipment Module and CTM. If a backup CTM server is specified, address and password information must be identical for both the primary and the backup server.

**Table A-3 Network**

| Attributes                                                                                                                                                                                | Acceptable Values                 | Default Values |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>Name [srname]</b>                                                                                                                                                                      |                                   |                |
| <b>Customer [vpn]</b>                                                                                                                                                                     |                                   |                |
| <b>Domain [domain]</b>                                                                                                                                                                    |                                   |                |
| <b>Common Parameters</b>                                                                                                                                                                  |                                   |                |
| <b>Containing Network [srsubnet.srname]</b><br>This is the name of the network of which this network object is a subnet.<br>C                                                             | Text string (up to 32 characters) |                |
| <b>Transit Cost [srcost]</b><br>This is the cost of crossing the sub-network. This attribute is used by the Threader to determine the lowest cost path when threading a service.<br>M   C | Integer                           | 50             |
| <b>Class [srclass]</b><br>The object class ID.<br>A                                                                                                                                       | Text string (up to 4 characters)  | C5nt           |
| <b>Opaque [sropaque]</b><br>The threading strategy (opaque or transparent).<br>M   C                                                                                                      | TRUE, FALSE                       | FALSE          |
| <b>Use Backup EMS [srusebackupems]</b><br>Specify whether or not to use a backup EMS. Disabled to use the primary EMS. Enabled to use the backup EMS in case of primary EMS failure.<br>C | TRUE, FALSE                       | FALSE          |
| <b>Resource Map [srrmmap]</b><br>This attribute is an integer used to carry a bit map of services supported by this Network.<br>R                                                         | Integer                           | 2047           |

Table A-3 Network

| Attributes                                                                                                                                                                                               | Acceptable Values                 | Default Values |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>Pre-provisioned [srpreprov]</b><br>Not supported in this release.<br>R                                                                                                                                | None Init Full                    | None           |
| <b>Attributes</b>                                                                                                                                                                                        |                                   |                |
| <b>Primary CTM IP address [c5ipaddress]</b><br>Specify the IP address for the primary CTM server.<br>M   W                                                                                               | Text string (up to 16 characters) |                |
| <b>Primary CTM name [c5emsname]</b><br>The terminal ID for CTM.<br>M                                                                                                                                     | Text string (up to 16 characters) | CTM            |
| <b>Management Port Number On Primary CTM [c5mngportnum]</b><br>Specify the CTM Gateway/TL1 port number. The port number must be specified in order to initiate a telnet session to CTM.<br>M   W         | Integer                           | 26715          |
| <b>CTM SW Version</b><br>Version of CTM used.                                                                                                                                                            | 2.1, 2.2                          |                |
| <b>Secondary CTM IP address [c5ipaddress2]</b><br>Specify the IP address of a secondary CTM server. This will be used to communicate with a secondary EMS only if the Use Backup EMS value is TRUE.<br>W | Text string (up to 16 characters) |                |
| <b>Secondary CTM name [c5emsname2]</b><br>Specify the terminal ID for the secondary CTM.<br>W                                                                                                            | Text string (up to 16 characters) | CTM            |
| <b>Management Port Number On Secondary CTM [c5mngportnum]</b><br>Specify the secondary CTM Gateway/TL1 port number. This is required if the Use Backup EMS value is TRUE.<br>W                           |                                   | 0              |

Table A-3 Network

| Attributes                                                                                                                                                                                                                                                                    | Acceptable Values                                                                                         | Default Values |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------|
| <b>CTM Login Account [c5account]</b><br>Specify the name of a valid user account for CTM. Since this login account will be used for both the primary CTM server and the backup CTM server (if specified), account information must be identical on both CTM servers.<br>M   W | Must be identical to the <b>OSS Profile Name</b> value specified in the OSS Client Profile for CPC in CTM |                |
| <b>CTM Login Password [c5password]</b><br>Specify the password to log in to CTM. Since this password will be used for both the primary CTM server and the backup CTM server (if specified), password information must be identical on both CTM servers.<br>W                  | Must be identical to the <b>Password</b> value specified in the OSS Client Profile for CPC in CTM         |                |

## Node

**Object Name:** C5ndNode

**OAF:** C5ndNode.oaf

A node object is created to represent the actual ONS 15454 chassis within the Cisco Provisioning Center database. This object is required to upload network elements. Node objects can be manually created or generated as a result of a node discovery operation.

Table A-4 Node

| Attributes                                                                                                                                                                                                              | Acceptable Values                 | Default Values |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>Name [srname]</b>                                                                                                                                                                                                    |                                   |                |
| <b>Customer [vpn]</b>                                                                                                                                                                                                   |                                   |                |
| <b>Domain [domain]</b>                                                                                                                                                                                                  |                                   |                |
| <b>Common Attributes</b>                                                                                                                                                                                                |                                   |                |
| <b>Containing Network [srnetwork.srname]</b><br>This is the name of the containing network.<br>R   A                                                                                                                    | Text string (up to 32 characters) |                |
| <b>Management Address [srmgmtaddress]</b><br>This is the IP address of the primary system controller.<br>R   A                                                                                                          | Text string (up to 32 characters) |                |
| <b>Transit Cost [srcost]</b><br>This is the cost of transiting the network. This attribute is used by the threader to decide on an optimum route for the service. This is typically assigned the value of 100.<br>M   C | Integer                           | 100            |

Table A-4 Node

| Attributes                                                                                                                                                                 | Acceptable Values                           | Default Values  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------|
| <b>Node Type [srtype]</b><br>This is the node type as designated by the manufacturer.<br>R   A                                                                             | Text string (up to 24 characters)           | Cisco ONS 15454 |
| <b>Class [srclass]</b><br>The object class ID.<br>R   A                                                                                                                    | Text string (up to 4 characters)            | C5nd            |
| <b>Containing Region [srarea]</b><br>The name of the administrative area containing the node (a LATA, for example). This attribute is optional.<br>W                       | Text string (up to 32 characters)           |                 |
| <b>Geographical Location [srgeoloc]</b><br>This is the geographical location of the node (for example, a GPS reference). This attribute is optional.<br>W                  | Text string (up to 32 characters)           |                 |
| <b>Organizational Location [srorgloc]</b><br>This is the organizational location of the node (for example, an X.500 directory reference). This attribute is optional.<br>W | Text string (up to 64 characters)           |                 |
| <b>Pre-provisioned [srpreprov]</b><br>Not supported in this release.<br>R   A                                                                                              | None Init Full                              | None            |
| <b>Upload State</b>                                                                                                                                                        | Required,<br>Not_Required,<br>Indeterminate | Required        |
| <b>Upload State Modification Time</b><br>R   A                                                                                                                             |                                             |                 |
| <b>Last Successful Upload Time</b><br>R   A                                                                                                                                |                                             |                 |
| <b>Last Upload Time</b><br>R   A                                                                                                                                           |                                             |                 |
| <b>Attributes</b>                                                                                                                                                          |                                             |                 |
| <b>User Account [c5account]</b><br>This is the login name to the ONS 15454.<br>M                                                                                           | Text string (up to 32 characters)           |                 |
| <b>Password for the Account [c5passwd]</b><br>This is the password to the ONS user account. This value must match the password for the TL1 gateway in CTM.<br>M            | Text string (up to 16 characters)           |                 |

Table A-4 Node

| Attributes                                                                                                                                                                                                                                                                                                        | Acceptable Values                 | Default Values |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>Node SW Version</b><br>The node software version.                                                                                                                                                                                                                                                              | 1.0, 2.2.0, 2.2.1, 2.2.2          |                |
| <b>IP Mask [c5ipmask]</b><br>This is the IP mask for the subnet that contains the ONS 15454. This attribute is fulfilled during an upload.<br>R                                                                                                                                                                   | Text string (up to 16 characters) |                |
| <b>Ring Support Capability</b><br>The node's ring capability.                                                                                                                                                                                                                                                     | UPSR, BLSR-UPSR, BLSR, NONE       | UPSR           |
| <b>IP Address of Default Router [c5defrtr]</b><br>This is the IP address of the default router. This attribute is fulfilled during an upload.<br>R                                                                                                                                                                |                                   |                |
| <b>External LAN [c5extlan]</b><br>This is the exterior LAN. This attribute is fulfilled during an upload.                                                                                                                                                                                                         | TRUE, FALSE                       | FALSE          |
| <b>Internal LAN [c5intlan]</b><br>This is the interior LAN. This attribute is fulfilled during an upload.                                                                                                                                                                                                         | TRUE, FALSE                       | FALSE          |
| <b>RTR Mode [c5rtrmode]</b><br>This specifies if revertive mode is enabled or disabled on the ONS 15454. This attribute is fulfilled during an upload.                                                                                                                                                            | TRUE, FALSE                       | FALSE          |
| <b>Synchronous Transport Mode [c5stm]</b><br>This is the synchronous transport mode. This attribute is fulfilled during an upload.                                                                                                                                                                                | SONET, STS                        | SONET          |
| <b>Support Extended Ring Protocol [c5extrng]</b><br>This specifies whether Extended Ring Protocol is supported. This attribute is fulfilled during an upload.                                                                                                                                                     |                                   |                |
| <b>Ring Wait Time to Revert [c5rngwtr]</b><br>This is the ring wait time after which the ONS 15454 will revert back to a primary timing source. This attribute is fulfilled during an upload.                                                                                                                     | Integer                           |                |
| <b>Timing Mode [c5timingmode]</b><br>This is the timing mode for the ONS 15454. External is specified if timing is derived from an external BITS source wired to the backplane pins on the NE. Line is specified if timing is derived from an optical carrier card. This attribute is fulfilled during an upload. | LINE EXTERNAL                     | LINE           |
| <b>Sync Generation Mode [c5syncgen]</b><br>This is the SSM message set used for SONET equipment: Generation 1 (GEN1) or Generation 2 (GEN2). This attribute is fulfilled during an upload.<br>R                                                                                                                   | GEN1 GEN2                         | GEN1           |

Table A-4 Node

| Attributes                                                                                                                                                              | Acceptable Values                                                                                                                 | Default Values |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Sync Quality Level [c5syncqlevel]</b><br>This is the network synchronization quality level. This attribute is fulfilled during an upload.<br>R                       | ABOVE-PRS<br>ABOVE-SMS<br>ABOVE-ST2<br>ABOVE-ST3<br>ABOVE-ST3E<br>ABOVE-ST4<br>ABOVE-STU<br>ABOVE-TNS<br>BELOW-ST4<br>SAME-AS-DUS | SAME-AS-DUS    |
| <b>VT Capable Flag [c5vtcapable]</b><br>TRUE indicates that the node supports VT cross connects. FALSE indicates that the node does not support VT cross connects.<br>W | TRUE, FALSE                                                                                                                       | FALSE          |

## Card

**Object Name:** C5cdCard

**OAF:** C5cdCard.oaf

A card object is created as a result of upload and can not be created manually. This object represents the card installed in the ONS 15454 chassis. Card types supported by this Equipment Module (identified by the Card Type attribute in the following table) will be uploaded, all other types will be ignored.

For DS1, Ethernet (E1000T-2, E100T-12) and EC (EC1-12, EC1N-12) cards, no physical port objects will be created as a result of the upload. Physical ports will be created for OC cards and DS3 cards that are uploaded. Logical ports will only be created for the physical ports on OC cards and DS3 cards.

Table A-5 Card

| Attributes                                                                                                                                                             | Acceptable Values                 | Default Values |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>Domain [domain]</b>                                                                                                                                                 |                                   |                |
| <b>Customer [vpn]</b>                                                                                                                                                  |                                   |                |
| <b>Profile [srprofile.sy_profname]</b>                                                                                                                                 |                                   |                |
| <b>Contained By</b>                                                                                                                                                    |                                   |                |
| <b>Node [srnode.srname]</b><br>This is the node that contains the card.<br>R   A                                                                                       | Text string (up to 32 characters) |                |
| <b>Card Attributes</b>                                                                                                                                                 |                                   |                |
| <b>Slot Number [c5slotnumber]</b><br>This is the chassis slot number within which the card is physically installed. This attribute is fulfilled during an upload.<br>R | Integer                           |                |

Table A-5 Card

| Attributes                                                                                                         | Acceptable Values                                                                                                                                                                                                          | Default Values |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Type [c5cardtype]</b><br>This is the type of card installed. This attribute is fulfilled during an upload.<br>R | DS1-14 DS1N-14<br>DS3-12 DS3CR-12<br>DS3N-12 DS3XM-6<br>E1000T-2 E100T-12<br>EC1-12 EC1N-12<br>OC12-IR-1<br>OC12-LR-1<br>OC12-SR-1<br>OC192-SR-1<br>OC192-LR-1<br>OC3-IR-4 OC3-SR-4<br>OC48-IR-1<br>OC48-LR-1<br>OC48-SR-1 |                |
| <b>Name [c5name]</b><br>This is the card name. This attribute is fulfilled during an upload.<br>R                  | Text string (up to 16 characters)                                                                                                                                                                                          |                |

## Physical Port

### PDH Port

**Object Name:** C5pdPDHPort

**OAF:** C5pdPDHPort.oaf

A PDH physical port object represents a physical port on a DS3-X and DS1-X cards in a Cisco ONS 15454 chassis. This object is considered a fabric element since it can not be created or deleted. This object can be modified.

This object is only recognized through upload.

Table A-6 PDH Port

| Attributes                                                                    | Acceptable Values                 | Default Values |
|-------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>Name [srname]</b>                                                          |                                   |                |
| <b>Customer, [vpn]</b>                                                        |                                   |                |
| <b>Domain, [domain]</b>                                                       |                                   |                |
| <b>Profile [srprofile.sy_profname]</b>                                        |                                   |                |
| <b>Contained By</b>                                                           |                                   |                |
| <b>Network [srnetwork.srname]</b><br>The network that contains this PDH port. | Text string (up to 32 characters) |                |
| <b>Node [srnode.srname]</b><br>The node that contains this PDH port.          | Text string (up to 32 characters) |                |

Table A-6 PDH Port

| Attributes                                                                                                              | Acceptable Values                 | Default Values                               |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------|
| <b>Relationship Attributes</b>                                                                                          |                                   |                                              |
| <b>Peer Physical Port [srpeer.srname]</b><br>The peer physical port is the port on the other side of the physical link. | Text string (up to 32 characters) |                                              |
| <b>Card [srcard.srname]</b><br>Pointer to the card containing this port.                                                | Text string (up to 32 characters) |                                              |
| <b>Common Attributes</b>                                                                                                |                                   |                                              |
| <b>Port Number [srportnumber]</b><br>The number of the port on the card.<br>M                                           | Integer                           | 0                                            |
| <b>Shelf Slot Number [srslotnumber]</b><br>The slot number in the format <shelf#>:<slot#><br>M                          | Text string (up to 16 characters) |                                              |
| <b>Port Type [srporttype]</b><br>The type of DS physical port.<br>M                                                     | DS1 E1 DS3 E3                     | DS3                                          |
| <b>Provisionable Bandwidth [srbandwidth]</b><br>The total bandwidth of this port in kbps.<br>M                          |                                   |                                              |
| <b>Max PDU Size (bytes) [srmaxpdusize]</b><br>The maximum PDU size.                                                     | Integer                           | 0                                            |
| <b>Class [srclass]</b><br>The object class ID.                                                                          | Text string (up to 4 characters)  | C5pd                                         |
| <b>Protocol [srprotocol]</b><br>The protocol supported by this physical port.                                           | PDH UnKnown                       | PDH                                          |
| <b>Maximum Channels [srmaxchans]</b><br>The maximum number of available channels on this port.                          | Integer                           | 28                                           |
| <b>EMS Name [sremsname]</b><br>The PDH port name used in the EMS.                                                       | Text string (up to 64 characters) |                                              |
| <b>Administrative State [sradminstatus]</b><br>The administrative state of this physical port.                          | Locked Unlocked                   |                                              |
| <b>Resource Model Specific Map [srrmmap]</b>                                                                            |                                   |                                              |
| <b>Service Map [srservmap]</b>                                                                                          | Text string (up to 32 characters) | DDDDDDDDDDDD<br>DDDDDDDDDDDD<br>DDDDDDDDDDDD |

Table A-6 PDH Port

| Attributes                                                                                                                                                                                                                             | Acceptable Values                                                                   | Default Values |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------|
| <b>First Channel on this Pport [srstartchan]</b><br>The channel number for the first channel on this physical port.                                                                                                                    |                                                                                     | 1              |
| <b>Reserved Channels [srrezchanmap]</b>                                                                                                                                                                                                | Text string (up to 38 characters)                                                   |                |
| <b>User Label [sruserlabel]</b>                                                                                                                                                                                                        | Text string (up to 64 characters)                                                   |                |
| <b>PDH Port Attributes</b>                                                                                                                                                                                                             |                                                                                     |                |
| <b>Direction [rsdirection]</b><br>The direction of this port.                                                                                                                                                                          | Source Sink<br>Bi-directional                                                       | Bi-directional |
| <b>Linecode [rslinecode]</b>                                                                                                                                                                                                           | AMI AMIZCS<br>B8ZS BIT7 B3ZS<br>CCHAN Unknown                                       | unknown        |
| <b>Frame format [rsframeformat]</b>                                                                                                                                                                                                    | SF ESF T1DM<br>ZBTSL DLC13<br>DLC16 SLC96<br>unframed ASYNC<br>SYNC CBIT<br>Unknown | unknown        |
| <b>Channel type [rschanneltype]</b><br>The channel type for this port.                                                                                                                                                                 | E1 DS1c DS2 DS3<br>E3 T1                                                            | T1             |
| <b>Attributes</b>                                                                                                                                                                                                                      |                                                                                     |                |
| <b>State [c5state]</b><br>This is the provisioned state of the physical port. Can be one of InService (IS), OutOfService and Assigned (OOS-AS) or OutOfService and UnAssigned (OOS-UAS). This attribute is fulfilled during an upload. | InService<br>OutOfService<br>Assigned<br>OutOfService<br>Unassigned                 |                |
| <b>STS number [c5stsnum]</b><br>This is the number of STS used for this port. This attribute is fulfilled during an upload.<br><br>M                                                                                                   | Integer                                                                             | 0              |

## SONET Port

**Object Name:** C5spSonetPort

**OAF:** C5spSonetPort.oaf

A SONET physical port object represents a physical port on an optical card in a Cisco ONS 15454 chassis. This physical port is considered a hybrid fabric/service element because it can be modified by the user.

When a multi-port optical card is used, the ports are not reported separately by the node during upload. Ports do not have a separate access identifier. Payload numbers are used to distinguish between multiple ports on a card. For example, on a 4 port OC3-4 card, the first port supports STS1 payloads 1 to 3, the second 4 to 6, the third 7 to 9, and the fourth 10 to 12.

When a multiport card is uploaded, the multiple ports are all created at the same time.

Table A-7 SONET Port

| Attributes                                                                                                              | Acceptable Values                 | Default Values |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>Name [srname]</b>                                                                                                    |                                   |                |
| <b>Customer [vpn]</b>                                                                                                   |                                   |                |
| <b>Domain [domain]</b>                                                                                                  |                                   |                |
| <b>Profile [srprofile.sy_profname]</b>                                                                                  |                                   |                |
| <b>Contained By</b>                                                                                                     |                                   |                |
| <b>Network [srnetwork.srname]</b><br>This is the network that contains this physical port.<br>R   A                     | Text string (up to 32 characters) |                |
| <b>Node [srnode.srname]</b><br>This is the node that contains this physical port.<br>R   A                              | Text string (up to 32 characters) |                |
| <b>MtptLink [srmlink.srname]</b>                                                                                        | Text string (up to 32 characters) |                |
| <b>Relationship Attributes</b>                                                                                          |                                   |                |
| <b>Lower Layer PPort [srport.srname]</b>                                                                                | Text string (up to 32 characters) |                |
| <b>Peer Physical Port [srpeer.srname]</b><br>The peer physical port is the port on the other side of the physical link. | Text string (up to 32 characters) |                |
| <b>Card [srcard.srname]</b><br>Pointer to the optical card containing this port.<br>A                                   | Text string (up to 32 characters) |                |
| <b>Common Attributes</b>                                                                                                |                                   |                |
| <b>Port Number [srportnumber]</b><br>The number of the port on the optical card.<br>M                                   | Integer                           | 0              |
| <b>Shelf Slot Number [srslotnumber]</b><br>The slot number in the format <shelf#>:<slot#><br>M                          | Text string (up to 16 characters) |                |
| <b>Port Type [srporttype]</b><br>The type of OC physical port.<br>M                                                     | OC1 OC3 OC12<br>OC48 OC192        |                |

Table A-7 SONET Port

| Attributes                                                                                                          | Acceptable Values                                     | Default Values                               |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------|
| <b>Class [srclass]</b><br>The object class ID.                                                                      | Text string (up to 4 characters)                      | C5sp                                         |
| <b>Service Object Id [srsoid]</b>                                                                                   | Text string (up to 32 characters)                     |                                              |
| <b>Protocol [srprotocol]</b><br>The protocol supported by this physical port.                                       | SONET SDH<br>UnKnown                                  | SONET                                        |
| <b>EMS Name [sremsname]</b><br>The name of the physical port in the EMS.                                            | Text string (up to 64 characters)                     |                                              |
| <b>Administrative State [sradminstatus]</b><br>The administrative state of this physical port.                      | Locked Unlocked                                       | Unlocked                                     |
| <b>Resource Model Specific Map [srrmmap]</b>                                                                        |                                                       |                                              |
| <b>Service Map [srservmap]</b>                                                                                      | Text string (up to 32 characters)                     | DDDDDDDDDDDD<br>DDDDDDDDDDDD<br>DDDDDDDDDDDD |
| <b>First Channel on this Pport [srstartchan]</b><br>The channel number for the first channel on this physical port. |                                                       | 1                                            |
| <b>Reserved Channels [srrezchanmap]</b>                                                                             | Text string (up to 38 characters)                     |                                              |
| <b>User Label [sruserlabel]</b>                                                                                     | Text string (up to 64 characters)                     |                                              |
| <b>SONET Port Relational Attributes</b>                                                                             |                                                       |                                              |
| <b>Protection Group [rspgroup.srname]</b><br>Pointer to a protection group being used by this port.<br>A            | Text string (up to 32 characters)                     |                                              |
| <b>Ring [sring.rstype]</b><br>Pointer to the ring to which this port belongs.<br>A                                  | Text string (up to 32 characters)                     |                                              |
| <b>SONET Port Attributes</b>                                                                                        |                                                       |                                              |
| <b>Wavelength [rswavelength]</b><br>The port wavelength.                                                            | Unknown 1550nm<br>1310nm                              | 1310nm                                       |
| <b>Direction [rsdirection]</b><br>The direction of this port.                                                       | Source Sink<br>Bi-directional                         | Bi-directional                               |
| <b>Protection Scheme [rsprotection]</b><br>The protection scheme used for this port.                                | 1plus1 1toN 1to1<br>2-BLSR 4-BLSR<br>Unprotected UPSR | Unprotected                                  |
| <b>Protection Role [rsprotectionrole]</b><br>The role of this port in a protection scheme.                          | None Protecting<br>Working                            | None                                         |

Table A-7 SONET Port

| Attributes                                                                                                                                                                                                                                         | Acceptable Values                                                   | Default Values |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|----------------|
| <b>Direction on Ring [rsringdir]</b><br>The direction of this port on the ring.                                                                                                                                                                    | None East West                                                      | None           |
| <b>Channel Type [rschanneltype]</b><br>The channel type for this port.                                                                                                                                                                             | VT STS1 STS3c<br>STS12c                                             | STS1           |
| <b>Total Channels [rstotalchannels]</b><br>The total channels available on this port.                                                                                                                                                              | Integer                                                             | 0              |
| <b>Working Bandwidth [rsnumchan_w]</b><br>The number of channels representing the working bandwidth to be used for non-preemptible network connections.                                                                                            | Integer                                                             | 0              |
| <b>Protecting Bandwidth [rsnumchan_p]</b><br>The number of channels representing the protecting bandwidth to be used for non-preemptible network connections.                                                                                      | Integer                                                             | 0              |
| <b>1:n Protection priority [rspreempt_pri]</b><br>Represents protection priority of this port in a 1:N protection scheme. A value of 1 represents the highest priority.                                                                            | Integer                                                             | 1              |
| <b>Attributes</b>                                                                                                                                                                                                                                  |                                                                     |                |
| <b>Wait to Restore Time [c5wtr]</b><br>The wait to restore time in minutes.                                                                                                                                                                        | Integer                                                             | 1              |
| <b>Provisioned State [c5state]</b><br>This is the provisioned state of the physical port. Can be one of InService (IS), OutOfService and Assigned (OOS-AS) or OutOfService and UnAssigned (OOS-UAS). This attribute is fulfilled during an upload. | InService<br>OutOfService<br>Assigned<br>OutOfService<br>Unassigned | InService      |
| <b>Lower Border of the Range of [c5stslow]</b><br>This is the lower border of the range of STS payloads used on this physical port. This attribute is fulfilled during an upload.                                                                  |                                                                     | 1              |
| <b>Higher Border of the Range of [c5stshigh]</b><br>This is the higher border of the range of STS payloads used on this physical port. This attribute is fulfilled during an upload.                                                               |                                                                     | 1              |
| <b>Enable SDCC for this port [c5sdcc]</b><br>TRUE enables SDCC for this port. FALSE disables this behavior.                                                                                                                                        | TRUE, FALSE                                                         | TRUE           |
| <b>Bit error rate for signal failure [c5sfber]</b><br>This is the bit error rate threshold for signal failure.                                                                                                                                     |                                                                     |                |
| <b>Bit error rate for signal degradation [c5sdber]</b><br>This is the bit error rate threshold for signal degradation.                                                                                                                             |                                                                     |                |
| <b>Reserved Channels [srrezchanmap]</b>                                                                                                                                                                                                            | Text string (up to 38 characters)                                   |                |

# Cross Connects

## SONET Cross Connect

**Object Name:** C5cnCC

**OAF:** C5cnCC.oaf

The SONET cross connect object represents several SONET channel groups and the connection between these groups.

Table A-8 outlines the mapping between cross connect types recognized by the Cisco ONS 15454 nodes and how they are modelled by this Equipment Module. Equipment Module cross connect types are taken from the SONET Resource Model.

**Table A-8 Cross connect Mapping**

| Cisco Cross Connect Type | EM Cross Connect Type |
|--------------------------|-----------------------|
| 1WAY                     | Uni-pass              |
| 2WAY                     | Bi-pass               |
| <blank>Ethernet-SONET    | Bi-pass <sup>1</sup>  |
| MON                      | Uni-pass              |
| UPSR                     | Bi-dual transmit      |
| UPSR-DC                  | Bi-pass               |
| UPSR-DROP                | Select                |
| UPSR-EN                  | Select                |
| UPSR-HEAD                | Bridge                |
| UPSR-UPSR                | UPSR-UPSR             |

1. Ethernet-SONET cross connects are uploaded to account for used channels at the SONET port. Since the Ethernet port is not uploaded, the cross connect will be single ended (dangling).



**Note**

PDH-PDH cross connects are not uploaded or downloaded. For VT-level cross connects, Cisco 1WAY, 2WAY and MON cross connects are supported.

SONET cross connect names are autogenerated groups of slot/port/sts/vt values based on the number of endpoints. For example:

1. <slot-port-sts#>:<slot-port-sts#>:<slot-port-sts#>:<slot-port-sts#>  
e.g. "1-1-1:2-1-1:3-1-1:4-1-1"
2. <slot-port-sts#>:<slot-port-sts#>:<slot-port-sts#>  
e.g. "1-1-1:2-1-1:3-1-1"
3. <slot-port-sts#>:<slot-port-sts#>  
e.g. "1-1-1:2-1-1"
4. <slot-port-sts#-vt#>:<slot-port-sts#-vt#>

e.g. "1-1-1-1:2-1-1-1"

5. <slot-port-sts#-vtgroup#-vt#>:<slot-port-sts#-vtgroup#-vt#>

e.g. "1-1-1-1:2-1-1-1"

6. B - <slot#-port#-sts#:slot#-port#sts#>:...<sup>1</sup>

e.g. "B - 1-1-1:2-1-1:..."

**Table A-9 SONET Cross Connect**

| Attributes                                                                                                                                                                                | Acceptable Values                                                                          | Default Values |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------|
| <b>Name [srname]</b>                                                                                                                                                                      |                                                                                            |                |
| <b>Customer, [vpn]</b>                                                                                                                                                                    |                                                                                            |                |
| <b>Domain, [domain]</b>                                                                                                                                                                   |                                                                                            |                |
| <b>Profile [srprofile.sy_profname]</b>                                                                                                                                                    |                                                                                            |                |
| <b>Common Attributes</b>                                                                                                                                                                  |                                                                                            |                |
| <b>Network [srnetwork.srname]</b><br>The network that contains this SONET cross connect.<br>R                                                                                             | Text string (up to 32 characters)                                                          |                |
| <b>Node [srnode.srname]</b><br>The node that contains this SONET cross connect.<br>R                                                                                                      | Text string (up to 32 characters)                                                          |                |
| <b>Service Object Id [srsoid]</b><br><br>R   A                                                                                                                                            | Text string (up to 32 characters)                                                          |                |
| <b>Transit Cost [srcost]</b><br>This is the cost of crossing the sub-network. This attribute is used by the Threader to determine the lowest cost path when threading a service.<br>M   C | Integer                                                                                    | 0              |
| <b>Direction [rsdirection]</b><br>The direction of the cross connection.                                                                                                                  | Uni-A2Z Uni-Z2A<br>Bi-directional                                                          | Bi-directional |
| <b>Type [rstype]</b><br>The type of cross connection.                                                                                                                                     | Add Drop Uni-Pass<br>Bi-Pass<br>Bi-dual-transmit<br>UPSR-UPSR<br>Add-Drop Bridge<br>Select | Add-Drop       |
| <b>Channel type [rschanneltype]</b><br>The channel type.                                                                                                                                  | VT1-5 VT-2 VT-3<br>STS1 STS3c STS12c<br>STS48c STS192c                                     | STS 1          |

1. Not applicable for Interworking cross connects.

Table A-9 SONET Cross Connect

| Attributes                                                                                                                 | Acceptable Values                 | Default Values |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>Total channels [rstotalchannels]</b><br>The total number of channels for this cross connection.                         | Integer                           | 1              |
| <b>Bandwidth (kbits/s) [srza_bandwidth]</b><br>The bandwidth of this cross connection.                                     | Integer                           | 0              |
| <b>Main SONET PPorts Association</b>                                                                                       |                                   |                |
| <b>A Endpoint</b>                                                                                                          |                                   |                |
| <b>Node [sra_tp.srnode.srname]</b>                                                                                         | Text string (up to 32 characters) |                |
| <b>PPort [sra_tp.srname]</b>                                                                                               | Text string (up to 32 characters) |                |
| <b>A Start Channel [rsa_startchan]</b><br>The A side start channel for this cross connect.                                 | Integer                           | 1              |
| <b>A Channel Map [rsa_chanmap]</b><br>The A side channel map for this cross connect.                                       | Text string (up to 64 characters) |                |
| <b>Z Endpoint</b>                                                                                                          |                                   |                |
| <b>Node [srz_tp.srnode.srname]</b>                                                                                         | Text string (up to 32 characters) |                |
| <b>PPort [srz_tp.srname]</b>                                                                                               | Text string (up to 32 characters) |                |
| <b>Z Start Channel [rsz_startchan]</b><br>The Z side start channel for this cross connect.                                 | Integer                           | 1              |
| <b>Z Channel Map [rsz_chanmap]</b><br>The Z side channel map for this cross connect.                                       | Text string (up to 64 characters) |                |
| <b>Secondary SONET PPorts Association</b>                                                                                  |                                   |                |
| <b>A2 Endpoint</b>                                                                                                         |                                   |                |
| <b>Node [rsa2_tp.srnode.srname]</b>                                                                                        | Text string (up to 32 characters) |                |
| <b>SPort [rsa2_tp.srname]</b><br>Pointer to the attached SONET port used as an A endpoint. Used for UPSR-UPSR connections. | Text string (up to 32 characters) |                |
| <b>A2 Start Channel [rsa2_startchan]</b><br>The A2 side start channel for this cross connect.                              | Integer                           | 1              |
| <b>A2 Channel Map [rsa2_chanmap]</b><br>The A2 side channel map for this cross connect.                                    | Text string (up to 64 characters) |                |
| <b>Z2 Endpoint</b>                                                                                                         |                                   |                |
| <b>Node [rsz2_tp.srnode.srname]</b>                                                                                        | Text string (up to 32 characters) |                |

Table A-9 SONET Cross Connect

| Attributes                                                                                                                 | Acceptable Values                 | Default Values |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>SPort [rsz2_tp.srname]</b><br>Pointer to the attached SONET port used as a Z endpoint. Used for UPSR cross connections. | Text string (up to 32 characters) |                |
| <b>Z2 Start Channel [rsz2_startchan]</b><br>The Z2 side start channel for this cross connect.                              | Integer                           | 1              |
| <b>Z2 Channel Map [rsz2_chanmap]</b><br>The Z2 side channel map for this cross connect.                                    | Text string (up to 64 characters) |                |
| <b>Attributes</b>                                                                                                          |                                   |                |
| <b>sraz bandwidth [sraz_bandwidth]</b><br>The bandwidth consumed by this sub network connection, A to Z direction.         | Integer                           | 0              |

## Interworking Cross Connect

**Object Name:** C5inCC

**OAF:** C5inCC.oaf

Interworking cross connects represent a cross connection between a PDH channel of a PDH port and a SONET channel of a SONET port.

SONET cross connect names are autogenerated groups of slot/port/sts/vt values based on the number of endpoints. See the “Cross Connects” section on page A-15 for more information.

Table A-10 Interworking Cross Connect

| Attributes                               | Acceptable Values                 | Default Values |
|------------------------------------------|-----------------------------------|----------------|
| <b>Name [srname]</b>                     |                                   |                |
| <b>Customer, [vpn]</b>                   |                                   |                |
| <b>Domain, [domain]</b>                  |                                   |                |
| <b>Profile [srprofile.sy_profname]</b>   |                                   |                |
| <b>Common Attributes</b>                 |                                   |                |
| <b>Network [srnode.srnetwork.srname]</b> | Text string (up to 32 characters) |                |
| <b>Node [srnode.srname]</b>              | Text string (up to 32 characters) |                |
| <b>Service Object Id [srsoid]</b>        | Text string (up to 32 characters) |                |

Table A-10 Interworking Cross Connect

| Attributes                                                                                                                                                                                | Acceptable Values                                      | Default Values |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------|
| <b>Transit Cost [srcost]</b><br>This is the cost of crossing the sub-network. This attribute is used by the Threader to determine the lowest cost path when threading a service.<br>M   C | Integer                                                | 0              |
| <b>Direction [rsdirection]</b><br>The direction of the cross connection.                                                                                                                  | Bi-directional<br>Uni-A2Z Uni-Z2A                      | Bi-directional |
| <b>Type [rstype]</b><br>The type of cross connection.                                                                                                                                     | Add Drop Add-Drop<br>Bi-dual-transmit<br>Bridge Select | Add-Drop       |
| <b>Channel type [rschanneltype]</b><br>The channel type.                                                                                                                                  | VT1-5 VT-2 VT-3<br>VT-6 DS1c DS2<br>STS1               | STS1           |
| <b>Bandwidth (kbits/s) [sraz_bandwidth]</b><br>The bandwidth of this cross connection.                                                                                                    | Integer                                                | 0              |
| <b>PPort Associations</b>                                                                                                                                                                 |                                                        |                |
| <b>A PDH Endpoint</b>                                                                                                                                                                     |                                                        |                |
| <b>Node [sra_tp.srnode.srname]</b>                                                                                                                                                        | Text string (up to 32 characters)                      |                |
| <b>PPort [sra_tp.srname]</b><br>Pointer to the attached PDH physical port acting as the A endpoint of this cross connection.                                                              | Text string (up to 32 characters)                      |                |
| <b>A Start Channel [rsa_startchan]</b><br>The A side start channel for this cross connect.                                                                                                | Integer                                                | 1              |
| <b>Z SONET Endpoint</b>                                                                                                                                                                   |                                                        |                |
| <b>Node [srz_tp.srnode.srname]</b>                                                                                                                                                        | Text string (up to 32 characters)                      |                |
| <b>PPort [srz_tp.srname]</b><br>Pointer to the attached SONET physical port acting as the Z endpoint of this cross connection.                                                            | Text string (up to 32 characters)                      |                |
| <b>Z Start Channel [rsz_startchan]</b><br>The Z side start channel for this cross connect.                                                                                                | Integer                                                | 1              |
| <b>Z Channel Map [rsz_chanmap]</b><br>The Z side channel map for this cross connect.                                                                                                      | Text string (up to 64 characters)                      |                |
| <b>Secondary SONET PPorts Association</b>                                                                                                                                                 |                                                        |                |
| <b>Z2 Endpoint</b>                                                                                                                                                                        |                                                        |                |
| <b>Node [rsz2_tp.srnode.srname]</b>                                                                                                                                                       | Text string (up to 32 characters)                      |                |

Table A-10 Interworking Cross Connect

| Attributes                                                                                                                                          | Acceptable Values                 | Default Values |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>PPort [rsz2_tp.srname]</b><br>Pointer to the attached SONET port acting as the Z2 endpoint for this cross connect. Used for UPSR cross connects. | Text string (up to 32 characters) |                |
| <b>Z2 Start Channel [rsz2_startchan]</b><br>The Z2 side start channel for this cross connect.                                                       | Integer                           | 1              |
| <b>Z2 Channel Map [rsz2_chanmap]</b><br>The Z2 side channel map for this cross connect.                                                             | Text string (up to 64 characters) |                |
| <b>Attributes</b>                                                                                                                                   |                                   |                |
| <b>srza bandwidth [srza_bandwidth]</b><br>The bandwidth consumed by this sub network connection in the Z to A direction.<br>M                       | Integer                           | 0              |

## SONET Protection Group

**Object Name:** C5prProtGroup

**OAF:** C5prProtGroup.oaf

The SONET protection group represents optical protection on an ONS 15454 NE.

If a protection group is created outside of this Equipment Module and is discovered after an upload, a name will be autogenerated using the following format:

<network>-<node>-<card>-<protection port>

Table A-11 Protection Group

| Attributes                                                                                              | Acceptable Values                 | Default Values |
|---------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>Name [srname]</b><br>Specify a protection group name. This name must be unique within the node.<br>M | Text string (up to 64 characters) |                |
| <b>Customer [vpn]</b><br>This is the customer name.<br>W                                                | Text string (up to 16 characters) |                |
| <b>Domain [domain]</b><br>This is the domain name<br>W                                                  | Text string (up to 16 characters) |                |
| <b>Contained By</b>                                                                                     |                                   |                |

Table A-11 Protection Group

| Attributes                                                                                                                                                             | Acceptable Values                 | Default Values |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|
| <b>Network [srnode.srnetwork.srname]</b><br>This is the network that contains this protection group.                                                                   | Text string (up to 32 characters) |                |
| <b>Node [srnode.srname]</b><br>This is the node that contains this protection group.                                                                                   | Text string (up to 32 characters) |                |
| <b>Common Attributes</b>                                                                                                                                               |                                   |                |
| <b>Protection mode [rsmode]</b><br>This is the protection mode used.                                                                                                   | 1plus1 1toN                       | 1plus1         |
| <b>Revertive [rsrevertive]</b><br>TRUE enables traffic to revert back to the working fiber. FALSE disables this behavior.                                              | TRUE, FALSE                       | TRUE           |
| <b>Revertive time [rsrevertivetime]</b><br>Time in seconds after reverting back to the working fiber.                                                                  | Integer                           | 0              |
| <b>Card Attributes</b>                                                                                                                                                 |                                   |                |
| <b>Revertive Mode [c5revertmode]</b><br>This is the revertive mode for this protection group. If the Revertive value is FALSE, this attribute is set to NotApplicable. | uni-dir bi-dir<br>NotApplicable   | NotApplicable  |
| <b>Attributes</b>                                                                                                                                                      |                                   |                |
| <b>c5protgroupkey [c5protgroupkey]</b>                                                                                                                                 | Text string (up to 64 characters) |                |

