

Configure the NCS4K-2H-W Card

This chapter explains the NCS4K-2H-W card and its key features. This chapter also provides the CTC procedures to configure the card.

- NCS4K-2H-W Card, on page 1
- Key Features of NCS4K-2H-W Card, on page 1
- Automatic Power Consumption, on page 3
- Monitor Environmental Parameters Using CTC, on page 3
- Provision an Operating Mode Using CTC, on page 4
- Administrative and Service States, on page 5
- Provision the NCS-4K-2H-W Ports Using CTC, on page 6
- Provision the NCS-4K-2H-W Alarm Thresholds, on page 13
- Provision the NCS-4K-2H-W Card PM Parameter Thresholds, on page 17
- Provision SRLG on the Ports, on page 34
- Provision Pluggable Port Modules, on page 35

NCS4K-2H-W Card

The DWDM cards is a tunable DWDM trunk card, which simplifies the integration and transport of two 100 Gigabit Ethernet or OTU-4 signals into enterprises or service provider networks. The card is ITU-T G.709 compliant and supports 96 wavelengths, spaced at 50-GHz over the entire C band. The card is supported on Cisco NCS 4000 series.

The card has two pluggable client interfaces that can be used to provide transponder capabilities. The client port supports pluggable interface that is compliant with 100G-BASESR10 LAN PHY or OTU4 and 100G-BaseLR-4 or OTU4 interfaces. The trunk port supports only the OTU4 interface. The trunk ports support Baud rate between 27.952 Gbaud and 31.241 Gbaud, depending on FEC selection and G.709v3 OTU4 digital wrapper. The card can be installed in any line card slot in the Cisco NCS 4000 chassis.

Key Features of NCS4K-2H-W Card

The NCS4K-2H-W card supports the following key features:

- Operating Modes—The card can be configured in different operating modes: The cards can be equipped with pluggables for client and trunk options, and offer a large variety of configurations.

- Transponder—This mode is enabled by default. The card acts as a transponder in this mode. Each client is mapped to one of the two 100 Gigabit Ethernet NCS4k-2H-W interfaces providing up to thirty-two 100 Gigabit NCS4k-2H-W transponders. In transponder mode, the allowed port pairs are 0-2 and 1-3.
- Regeneration—The two 100 Gigabit NCS4k-2H-W interfaces are connected back-to-back in the card to provide 3R regeneration of 100 Gigabit NCS4k-2H-W signals. In regeneration mode, an IP-over-NCS4k-2H-W configuration can be enabled to support proactive protection messaging between IP-over-NCS4k-2H-W router interfaces. If failure occurs on one side of the regenerator, ODUk Alarm Indication Signal (ODUk-AIS) is generated and propagated on the other side, while an OTUk Backwards Defect Indicator (OTUk-BDI) is sent back on the same side as defined by the ITU G.709 standard. In Regeneration mode, the allowed port pair is 2-3.

When you configure the card in different operating modes, ensure NCS4k-2H-W that the following tasks are completed:

- Depending on the card mode selected, the supported payload for that particular card mode must be provisioned on the PPMs.
- The payloads can be provisioned after configuring the operating mode on the card.

The following table describes how each mode can be configured, the supported payloads, and the valid port pair for a specific operating mode.

Operating Mode	Port Number	Peer Card (connected through backplane)	Port Mode	Mapping	Framing Type	Supported Client Payloads
Transponder	0 and 1	—	OTN	—	OPU4	OTU4
Transponder	0 and 1	—	Ethernet	GMP	OPU4	100GE over ODU4
Transponder and Regeneration	2 and 3	NCS4K-20T-O-S, NCS4K-2H-O-K	OTN	—	OPU4	OTU4

See the Provision an Operating Mode Using CTC, on page 4 procedure to provision the operating mode.

- Forward Error Correction (FEC)—The trunk ports support three different FEC coding options:
  - GFEC: Standard G.975 Reed-Solomon algorithm with 7-percent overhead.
  - Ultra FEC (UFEC): Standard G.975.1 (Sub-clause I.7) with 20-percent overhead.
  - High-gain FEC (HG-FEC): HG-EFEC with 7-percent and 20-percent overhead provides better performance than standard G.975.1 7-percent overhead enhanced FEC. This EFEC is suitable for applications where 100 Gigabit wavelengths pass through a large number of ROADM nodes with limited performance.

- Generalized Multiprotocol Label Switching—The Generalized Multiprotocol Label Switching (GMPLS) OCH Trail circuit can be created on the NCS4K-2H-W card. The OCH Trail circuit can created between source and destination NCS 4000 series nodes that are connected to the ONS 15454 nodes. The OCH Trail circuit creates an optical connection from the source trunk port to the destination trunk port. The

interface on the NCS 4000 node is the UNI-C interface and the interface on the ONS 15454 node is the UNI-N interface.

- Performance Monitoring—The 100-Gbps NCS4k-2H-W trunk provides support for both transparent and non-transparent signal transport performance monitoring. The Digital Wrapper channel is monitored according to G.709 (OTN) and G.8021 standards. Performance Monitoring of optical parameters on the client and NCS4k-2H-W line interface include Loss Of Signal (LOS), Laser Bias Current, Transmit Optical Power, and Receive Optical Power. The calculation and accumulation of the performance monitoring data are supported in 15-minute and 24-hour intervals as per G.7710. The system parameters measured at the wavelength level like Mean PMD, accumulated Chromatic Dispersion, or Received OSNR are also included in the set of performance monitoring parameters. These can greatly simplify troubleshooting operations and enhance the set of data which can be collected directly from the equipment.

For more information on the NCS4K-2H-W card, see the data sheet.

Automatic Power Consumption

CTC dynamically displays the power consumption of each card inserted in the chassis. CTC also dynamically displays the power budget for the entire system and for each slot. The maximum power is always allocated for each route processor, fabric card, and fan tray. A minimum power budget is allocated for each line card. The minimum power budget for each line card is the maximum of the minimum power allocated to any type of line card. For example, if the NCS4K-2H-O-K card has 35 W and NCS4K-2H-W card has 50 W, then minimum power budget allocated for each line card slot is 50 W. When a line card is inserted or removed, the minimum power budget for each line card is dynamically re-calculated and displayed in CTC.

When a line card is inserted, the maximum power budget is allocated if enough power is available; otherwise, the card is shut down and a major alarm is raised in the Alarms tab. A minor alarm is raised when the power allocation is more than the available power.

Monitor Environmental Parameters Using CTC

Purpose	This procedure monitors the environmental parameters of the NCS4K-2H-W card such as temperature, voltage, and power.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to monitor the environmental parameters. The card view appears.

Step 2 Click the **Provisioning** > **General** tabs.

Step 3 Click **Temperature** sub-tab to display the input temperature of the card.

- Module Sensor—Displays the module sensor name of the card.
- Value (Celsius)—Displays the module sensor values (in Celsius) of the card.

Step 4 Click **Voltage** sub-tab to display the input voltage of the card.

- Module Sensor—Displays the module sensor name of the card.
- Value (MilliVolts)—Displays the module sensor values (in MilliVolts) of the card.

Step 5 Click **Power Monitor** sub-tab to dynamically display the power consumption of the card.

- Module Sensor—Displays the module sensor name of the card.
- Value (MilliAmperes)—Displays the module sensor values (in MilliAmperes) of the card.

Stop. You have completed this procedure.

Provision an Operating Mode Using CTC

Purpose	This procedure enables you to provision an operating mode on the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision an operating mode. The card view appears.

Step 2 Click the **Provisioning** > **Card** tabs.

Step 3 In the **Card Mode** area, choose the required operating mode: **TXP** or **Regeneration**.

The **Backplane** mode is not supported.

Step 4 Choose **TXP** to provision the card in Transponder (TXP) mode and click **Apply**.

Step 5 If you want to provision the card in Regeneration mode, follow these steps.

a) Choose **Regeneration**.

The regeneration is applicable only for NCS4K-2H-W.

b) Choose the port number from the Port1 drop-down list. The available option is 2 or 3.

c) Click **Apply**.

Stop. You have completed this procedure.

Administrative and Service States

Administrative State	Definition
IS	Puts the entity in service.
OOS,DSBLD	Removes the entity from service and disables it.
OOS,MT	Removes the entity from service for maintenance.

Service State	Definition
OOS-MA,DSBLD	The entity was manually removed from service and does not provide its provisioned functions. All the services are disrupted and unable to carry traffic.
OOS-MA,MT	The entity has been manually removed from service for a maintenance activity but still performs its provisioned functions.
OOS-AUMA,FLT&MT	The entity is not operational because of an autonomous event and has also been manually removed from service for a maintenance activity.
OOS-MA,LPBK&MT	The entity has been manually removed from service for a maintenance activity but still performs its provisioned functions. A loopback is present on the resource.
OOS-AUMA, FLT & LPBK & amp; MT	The entity is unlocked with loopback configured. However, the service is not operational due to some failure. All the defects are raised and cleared but the end user is not notified.
OOS-AU,AINS	The entity is not operational because of an autonomous event. The entity is delayed before moving to the IS-NR state.
OOS-AU,AINS&FLT	The entity is unlocked. However, the service is not operational due to some failure. All the defects are raised and cleared but the end user is not notified. When all the defects are cleared and the resource returns operational, the AINS window is restarted.
IS-NR	The entity is fully operational and will perform as provisioned.

Service State	Definition
OOS-AU,FLT	The entity is unlocked and not operational due to a failure. This happens when the secondary state is normal and there are defects.

Provision the NCS-4K-2H-W Ports Using CTC

Purpose	This procedure provisions the ports on the NCS-4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Perform any of the following tasks as needed:

- Provision NCS4K-2H-W Optics Controllers Using CTC, on page 6
- Provision NCS4K-2H-W 100GE Payload Using CTC , on page 8
- Provision NCS4K-2H-W OTU4 Payload Using CTC, on page 9
- Provision NCS4K-2H-W ODU4 Using CTC, on page 10
- Provision NCS4K-2H-W TCM Using CTC, on page 11

Stop. You have completed this procedure.

Provision NCS4K-2H-W Optics Controllers Using CTC

Purpose	This procedure enables you to provision the optics controllers on the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed

Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the optics controllers. The card view appears.

Step 2 Click the **Provisioning** > **Controllers** > **Optics** tabs.

Step 3 Modify any of the settings described in the following table as needed.

Parameter	Description
Controller	Displays type and address of the controllers in the Rack/Slot/Instance/Port format.
Admin State	Sets the administrative state of the port. Choose an administrative state from the drop-down list to change the administrative state unless network conditions prevent the change. For more information, see Administrative and Service States, on page 5.
Service State	Displays the autonomously generated state that provides the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State.
Optics Type	Displays the type of optics connected to this port. It can be Grey optics or NCS4k-2H-W optics.
Wavelength	If the optics type is Grey, the wavelength is 0.0 nm. If the optics type is NCS4k-2H-W, the wavelength can be one of the wavelengths chosen in the grid.
Laser Bias Current (%)	Displays the laser bias current in % between 0.0 and 100.0
Rx Power (dBm)	Displays the received power for the corresponding ports in dBm.
Tx Power (dBm)	Displays the transmitted power for the corresponding ports in dBm.
Laser State	Displays the state of the associated laser. The state can be On or Off.
VOATX Power	Sets the value for the desired TX power in the of range +0.2 / -19.0 dBm. The card sets the transmit VOA to match the required power. Applicable on trunk ports 2 and 3, in the OOS mode.
Optical Signal to Node	Displays the current value of received OSNR (Optical Signal to Noise Ratio) at the receiver port (only on trunk 2 and 3).
Polarization Dependency	Displays the loss that depends on the wave polarization in the fiber transmission.
Polarization Changes	Displays the rate of optical wave polarization changes in the fiber transmission.
Phase Noise	Displays the noise on the phase of the optical signal received on the fiber.
CD	Displays the Chromatic Dispersion of the received signal.
Different	Displays the variation of propagation delay in the fiber transmission.

Parameter	Description
Enable PM	Select the check-box to enable performance monitoring.

Step 4 Click **Apply**.

Step 5 Return to your originating procedure.

Provision NCS4K-2H-W 100GE Payload Using CTC

Purpose	This procedure enables you to provision the client ports with 100GE payload on the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the 100GE Payload. The card view appears.

Step 2 Click the **Provisioning** > **Controllers** > **Optics** tabs to provision 100GE payload on a client port (port 0 or port 1).

Step 3 Select a client port and choose OOS,DSBLD from the Admin State drop-down list and click **Apply**.

Step 4 Click the **Provisioning** > **Port Modules** tabs.

Step 5 Change Port Mode to Ethernet, Framing Type to OPU4, and Mapping to Gmp.

Step 6 Click the **Provisioning** > **Controllers** > **Ethernet** tabs to modify any of the settings as described in the following table.

Parameter	Description
Client Port	Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.
Admin State	Sets the administrative state of the port. Choose an administrative state from the drop-down list to change the administrative state unless network conditions prevent the change. For more information, see Administrative and Service States, on page 5.
Service State	Displays the autonomously generated state that provides the overall condition of the port.

Parameter	Description
Operational State	Displays the state of link. The values are Up or Down.
LED State	Displays the state of LED. The values are On or Off.
Autonegotiation	Enable or disable autonegotiation by selecting the check-box. Autonegotiation negotiates flow control, duplex mode and remote fault information. Enable or disable link negotiation on both the ends of the link.
Speed	Displays the speed at which Ethernet port is operating. The available value is HundredGbps and cannot be modified.
Duplex	Enable or disable duplex mode by selecting the check-box. Enabling duplex means , both the ends of the communication channel can send and receive signals at the same time.
Flow Control	Displays the negotiated flow control mode. The available value is ingress when configured.

Step 7 Click **Apply**.

Step 8 Return to your originating procedure.

Provision NCS4K-2H-W OTU4 Payload Using CTC

Purpose	This procedure enables you to provision the client and trunk ports with OTU4 payload on the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the OTU4 payload. The card view appears.

Step 2 Click the **Provisioning** > **Controllers** > **Optics** tabs to provision the OTU4 payload on a client or trunk port (ports 0, 1, 2, or 3).

Step 3 Select a client or trunk port and choose OOS,DSBLD from the Admin State drop-down list and click **Apply**.

Step 4 Click the **Provisioning** > **Port Modules** tabs.

Step 5 Change Port Mode to OTN and Framing Type to OPU4.

Step 6 Click the **Provisioning** > **Controllers** > **OTU** tabs to modify any of the settings as described in the following table.

Parameter	Description
Controller	Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.
Admin State	Sets the administrative state of the port. Choose an administrative state from the drop-down list to change the administrative state unless network conditions prevent the change. For more information, see Administrative and Service States, on page 5.
FEC	Sets the mode of forward error correction. The available values are Standard, EnhancedHG7, and EnhancedHG20 for trunk ports (ports 2 and 3); the values are Standard and None for client ports (ports 0 and 1).
GCC0	Enables the general communication channel.
Service State	Displays the autonomously generated state that provides the overall condition of the port. For more information, see Administrative and Service States, on page 5.
Enable PM	Enables performance monitoring.

Step 7 Click **Apply**.

Step 8 Return to your originating procedure.

Provision NCS4K-2H-W ODU4 Using CTC

Purpose	This procedure enables you to provision ODU4 on the NCS4K-2H-W card. This procedure applies only to the 0, 1, 2, or 3 ports where OTU4 payload has been provisioned.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision or retrieve the ODU4 parameters. The card view appears.

Step 2 Click the **Provisioning** > **Controllers** > **ODU** tabs.

Step 3 Modify any of the settings described in the following table as needed.

Parameter	Description
Controller	Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.
Admin State	Sets the administrative state of the port. Choose an administrative state from the drop-down list to change the administrative state unless network conditions prevent the change. For more information, see Administrative and Service States, on page 5.
Service State	Displays the autonomously generated state that provides the overall condition of the port.
Resource State	Displays the state of resources that are connected.
GCC1	Enables the general communication channel.
Payload Type	Sets the payload type of the selected port.
Flex Type	Displays the flex type.
Flex BW	Displays the flex bandwidth.
Flex Tolerance	Displays the flex tolerance.
TPN	Sets the tributary port number (TPN) for the ODU4 port. The valid range of TPN is from 1 to 80.
TSG	Sets the tributary slot granularity (TSG) level on the ODU4 port. The valid values are 1.25G and 2.5G.
OWNER	Displays the number of owners.
No of TS	Sets the number of tributary slots (TS) for the ODU4 port.
Allocated TS	Displays the number of tributary slots that are assigned.
Enable PM	Enables performance monitoring for the corresponding port.

Step 4 Click **Apply**.

Step 5 Return to your originating procedure.

Provision NCS4K-2H-W TCM Using CTC

Purpose	This procedure enables you to perform lockout.

Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the TCM. The card view appears.

Step 2 Click the **Provisioning** > **Controllers** > **TCM** tabs.

Step 3 Select the **Controller Name**, for which you want to configure TCM, from the drop-down list.

Step 4 Modify any of the settings described in the TCM Threshold Table as needed.

Parameter	Description
TCM	Displays the TCMs ID from 1 to 6.
Enable TCM State	Enables the selected TCM.
Enable PM	Enables performance monitoring for the selected TCM.
TCM mode	Select the mode from the drop down menu. The available options are: • Transparent - TCM data is passed through without any change, fault management and performance monitoring parameters are not enabled. • Operational - fault management and performance monitoring parameters can be enabled. • NIM (Non-Intrusive Monitoring) - fault management and performance monitoring parameters are enabled but are read-only
LTC	Check the LTC box to enable this alarm. This check-box can be selected only when the TCM mode is Operational.
TIM	Check the TIM box to enable this alarm. This check-box can be selected only when the TCM mode is Operational.

Step 5 Click **Apply**.

Step 6 Return to your originating procedure.

Provision the NCS-4K-2H-W Alarm Thresholds

Purpose	This procedure provisions the alarm thresholds of the NCS-4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Perform any of the following tasks as needed:

- Provision NCS4K-2H-W Optics Alarm Thresholds Using CTC, on page 13
- Provision NCS4K-2H-W OTU Alarm Thresholds Using CTC, on page 14
- Provision NCS4K-2H-W ODU Alarm Thresholds Using CTC, on page 15
- Provision NCS4K-2H-W TCM Alarm Thresholds Using CTC, on page 16

Stop. You have completed this procedure.

Provision NCS4K-2H-W Optics Alarm Thresholds Using CTC

Purpose	This procedure enables you to provision the optics alarm thresholds of the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the optics alarm thresholds. The card view appears.

Step 2 Click the **Provisioning** > **Alarm Thresholds** > **Optics** tabs.

Step 3 Modify any of the settings described in the following table as needed.

Parameter	Description
Controller	Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.
Rx Power High (dBm)	Sets the threshold for minimum receive power for the corresponding ports.
Rx Power Low (dBm)	Sets the threshold for maximum receive power for the corresponding ports.
LBC High (%)	Sets the LBC High. The high laser bias current (LBC-HIGH) threshold is the percentage of the normal laser bias current when the corresponding alarm is raised.
Tx Power High (dBm)	Sets the threshold for maximum transmit power for the corresponding ports.
Tx Power Low (dBm)	Sets the threshold for minimum transmit power for the corresponding ports.
CD Max (ps/nm)	Sets the threshold for maximum chromatic dispersion.
CD Min (ps/nm)	Sets the threshold for minimum chromatic dispersion.

Step 4 Click **Apply**.

Step 5 Return to your originating procedure.

Provision NCS4K-2H-W OTU Alarm Thresholds Using CTC

Purpose	This procedure enables you to provision the OTU alarm thresholds of the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the OTU alarm thresholds. The card view appears.

Step 2 Click the **Provisioning** > **Alarm Thresholds** > **OTU** tabs.

Step 3 Modify any of the settings described in the following table as needed.

Parameter	Description
Controller	Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.
SF BER	Sets the signal fail bit error rate. The allowed values are 1E-5,1E-6,1E-7,1E-8, and 1E-9.
SD BER	Sets the signal degrade bit error rate. The allowed values are 1E-5,1E-6,1E-7,1E-8, and 1E-9.

Step 4 Click **Apply**.

Step 5 Return to your originating procedure.

Provision NCS4K-2H-W ODU Alarm Thresholds Using CTC

Purpose	This procedure enables you to provision the ODU alarm thresholds of the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the ODU alarm thresholds. The card view appears.

Step 2 Click the **Provisioning** > **Alarm Thresholds** > **ODU** tabs.

Step 3 Modify any of the settings described in the following table as needed.

Parameter	Description
Controller	Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.
SF BER	Sets the signal fail bit error rate. The allowed values are 1E-5,1E-6,1E-7,1E-8, and 1E-9.
SD BER	Sets the signal degrade bit error rate. The allowed values are 1E-5,1E-6,1E-7,1E-8, and 1E-9.

Step 4 Click **Apply**.

Step 5 Return to your originating procedure.

Provision NCS4K-2H-W TCM Alarm Thresholds Using CTC

Purpose	This procedure enables you to set SFSD values for TCM (Tandem Connection Monitoring) corresponding to an ODU alarm thresholds of the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to set SFSD values for TCM. The card view appears.

Step 2 Click the **Provisioning** > **Alarm Thresholds** > **TCM** tabs.

Step 3 Select the **Controller Name** from the drop-down list.

Step 4 Modify any of the settings described in the TCM Threshold table as needed.

Parameter	Description
TCM	Displays the TCMs (1-6) for the selected port.
SF BER	Sets the signal fail bit error rate. The allowed values are 1E-5,1E-6,1E-7,1E-8, and 1E-9.
SD BER	Sets the signal degrade bit error rate. The allowed values are 1E-5,1E-6,1E-7,1E-8, and 1E-9.

Note
SF BER value can should not be greater than SD BER.

Step 5 Click **Apply**.

Step 6 Return to your originating procedure.

Provision the NCS-4K-2H-W Card PM Parameter Thresholds

Purpose	This procedure provisions the PM parameter thresholds of the NCS-4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Perform any of the following tasks as needed:

- Provision NCS4K-2H-W Optics PM Thresholds, on page 17
- Provision NCS4K-2H-W Ethernet PM Thresholds, on page 19
- Provision NCS4K-2H-W HD FEC PM Thresholds, on page 22
- Provision NCS4K-2H-W OTU PM Thresholds, on page 24
- Provision NCS4K-2H-W ODU PM Thresholds, on page 28
- Provision NCS4K-2H-W TCM PM Thresholds, on page 30

Stop. You have completed this procedure.

Provision NCS4K-2H-W Optics PM Thresholds

Purpose	This procedure enables you to provision the optics PM thresholds of the NCS4K-2H-W card.
Tools/Equipment	None

Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the optics PM thresholds. The card view appears.

Step 2 Click the **Provisioning** > **PM Thresholds** > **Optics** tabs.

Step 3 Select the **TCA** (Threshold Crossing Alert) option from the drop-down menu.

The available options are -

- Customize - This option is not supported.
- Disable All - Select this option to disable TCA for all the parameters of a controller. The row colour is (turns) white to indicate that TCA is disabled.
- Enable All - Select this option to enable TCA for all the parameters of a controller. The row colour turns green to indicate that TCA is enabled.

Step 4 The displayed **Warning Thresholds** value is defined in the **Intervals** area.

Step 5 Select the or 1 Day radio-button to set the TCA interval. ClickModify the TCA settings for a controller port described in the following table as needed.

Parameter	Description
Controller	(Display only) Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.
Laser Bias (high)	Sets the maximum laser bias.
Laser Bias (low)	Sets the minimum laser bias.
Input Power High (dBm)	Sets the high threshold for the input power TCA.
Input Power Low (dBm)	Sets the low threshold for the input power TCA .
Output Power High (dBm)	Sets the high threshold for the output power TCA.
Output Power Low (dBm)	Sets the low threshold for the output power TCA.
Chromatic Dispersion High (cd)	Sets the lchromatic dispersion (CD) value for the received signal.
Chromatic Dispersion Low (cd)	Sets the chromatic dispersion (CD) value for the received signal.

Parameter	Description
Second Order Polarization Mode Dispersion High (sopmd)	Displays the variation of the wave polarization in fiber transmission.
Second Order Polarization Mode Dispersion Low (sopmd)	Displays the variation of the wave polarization in fiber transmission.
Differential Group Delay Low	Displays the lower threshold value of the variation of propagation delay in the fiber transmission.
Differential Group Delay High	Displays the higher threshold value of the variation of propagation delay in the fiber transmission.
Optical Signal to Noise Ratio High	Sets the higher threshold value for the Optical Signal to Noise Ratio (OSNR). It is the ratio between the signal power level and the noise power level.
Polarization Dependent Loss High	Displays the loss that depends on the wave polarization in the fiber transmission .
Polarization Change Rate High	Displays the rate of optical wave polarization changes in the fiber transmission.
Phase Noise High	Displays the noise on the phase of the optical signal received on the fiber.

Step 6 Click **Apply**.

Step 7 In the Intervals area, select 15 Min or 1 Day, then click **Refresh** to view the updated threshold values.

Step 8 Return to your originating procedure.

Provision NCS4K-2H-W Ethernet PM Thresholds

Purpose	This procedure enables you to provision the Ethernet PM thresholds of the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the optics Ethernet thresholds. The card view appears.

Step 2 Click the **Provisioning** > **PM Thresholds** > **Ethernet** tabs.

Step 3 Select the **TCA** (Threshold Crossing Alert) option from the drop-down menu.

The available options are -

- Customize - This option is not supported.
- Disable All - Select this option to disable TCA for all the parameters of a controller. The row colour is (turns) white to indicate that TCA is disabled.
- Enable All - Select this option to enable TCA for all the parameters of a controller. The row colour turns green to indicate that TCA is enabled.

Step 4 The displayed **Warning Thresholds** value is defined in the **Intervals** area.

Step 5 Modify any of the settings described in the following table as needed.

Parameter	Description
Controller	(Display only) Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.
rxTotalpkts	The number of received packets.
etherStatsOctets	The total number of octets of data received in the network.
etherStatsOversizePkts	The total number of packets received that were longer than 1518 octets (excluding framing bits, but including Frame Check Sequence (FCS) octets) and were otherwise well formed.
dot3StatsFcsErrors	The number of frames with frame check errors.
dot3StatsFrameTooLong	The number of packets that are at least 64 octets long, without a bad FCS, where the 802.3 length/type field did not match the computed DATA field length.
etherStatsjabbers	The total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets), and had either a bad FCS with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error)
etherStatsPkt64Octets	The total number of packets (including bad packets) received that were 64 octets in length (excluding framing bits but including FCS octets).
etherStatsPkt65to127Octets	The total number of packets (including bad packets) received that were between 65 and 127 octets in length inclusive (excluding framing bits but including FCS octets).
etherStatsPkt128to255Octets	The total number of packets (including bad packets) received that were between 128 and 255 octets in length inclusive (excluding framing bits but including FCS octets).

Parameter	Description
etherStatsPkt256to511Octets	The total number of packets (including bad packets) received that were between 256 and 511 octets in length inclusive (excluding framing bits but including FCS octets).
etherStatsPkt512to1023Octets	The total number of packets (including bad packets) received that were between 512 and 1023 octets in length inclusive (excluding framing bits but including FCS octets).
etherStatsPkt1024to1518Octets	The total number of packets (including bad packets) received that were between 1024 and 1518 octets in length inclusive (excluding framing bits but including FCS octets).
ifInUcastPkts	The number of packets, delivered by this sub-layer to a higher sub-layer, which were not addressed to a multicast or broadcast address at this sub-layer.
ifInMulticastPkts	The total number of multicast frames received error-free.
ifInBroadcastPkts	The number of packets delivered to a higher sub-layer and addressed to a broadcast address at this sub-layer.
ifOutUcastPkts	The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sub-layer, including those that were discarded or not sent.
ifOutMulticastPkts	The number of multicast frames transmitted error-free.
ifOutBroadcastPkts	The number of packets requested by higher-level protocols and addressed to a broadcast address at this sub-layer, including those not transmitted.
TxTotalPkts	The number of transmitted packets.
ifOutOctets	The total number of octets transmitted out of the interface, including framing characters.
etherStatsPkts	The total number of received packets.
ifInOctets	Total number of octets received on the interface, including framing characters.
ifInErrors	Number of inbound packets that contained errors preventing them from being delivered to a higher-layer protocol.
etherstats (Broadcast / Multicast / Undersize packets)	Total number of packets received. • Broadcast - Total number of good packets received that were directed to the broadcast address. • Multicast - Total number of good packets received that were directed to the multicast address. • Undersize - Total number of good packets received that were less than 64 octets long.

Step 6 Click **Apply**.

Step 7 In the Intervals area, select 15 Min or 1 Day, then click **Refresh** to view the updated threshold values.

Step 8 Return to your originating procedure.

Provision NCS4K-2H-W HD FEC PM Thresholds

Purpose	This procedure enables you to provision the Hard Decision (HD) FEC PM thresholds of the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the FEC PM thresholds. The card view appears.

Step 2 Click the **Provisioning** > **PM Thresholds** > **FEC** tabs.

Step 3 Select the **TCA** (Threshold Crossing Alert) option from the drop-down menu.

The available options are -

- Customize - This option is not supported.
- Disable All - Select this option to disable TCA for all the parameters of a controller. The row colour is (turns) white to indicate that TCA is disabled.
- Enable All - Select this option to enable TCA for all the parameters of a controller. The row colour turns green to indicate that TCA is enabled.

Step 4 The displayed **Warning Thresholds** value is defined in the **Intervals** area.

Step 5 Modify any of the settings described in the following table as needed.

Parameter	Description	Options
Controller	(Display only) Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.	—

Parameter	Description	Options
EC-bits	The number of bit errors that are corrected by the system.	The valid range for the 15 min interval is from 0 to 9033621811200 (Default value is 903330). The valid range for the 1 day interval is from 0 to 867227693875200 (Default value is 8671968).
UC Words	The number of words that are not corrected by the system.	The valid range for the 15 min interval is from 0 to 4724697600 and 0 to 453570969600 for the 1 day interval.

Step 6 Click **Apply**.

Step 7 In the **Intervals** area, select 15 Min or 1 Day, then click **Refresh** to view the updated threshold values.

Step 8 Return to your originating procedure.

Provision NCS4K-2H-W SD FEC PM Thresholds

Purpose	This procedure enables you to provision the Soft Decision (SD) FEC PM thresholds of the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the FEC PM thresholds. The card view appears.

Step 2 Click the **Provisioning** > **PM Thresholds** > **FEC** tabs.

Step 3 Select the **TCA** (Threshold Crossing Alert) option from the drop-down menu.

The available options are:

- Customize - This option is not supported.

- Disable All - Select this option to disable TCA for all the parameters of a controller. The row colour is (turns) white to indicate that TCA is disabled.
- Enable All - Select this option to enable TCA for all the parameters of a controller. The row colour turns green to indicate that TCA is enabled.

Step 4 The displayed **Warning Thresholds** value is defined in the **Intervals** area.

Step 5 Modify any of the settings described in the following table as needed.

Parameter	Description	Options
Controller	(Display only) Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.	—
EC-bits	The number of bit errors that are corrected by the system.	The valid range for the 15 min interval is from 0 to 9033621811200 (Default value is 903330). The valid range for the 1 day interval is from 0 to 867227693875200 (Default value is 8671968).
UC Words	The number of words that are not corrected by the system.	The valid range for the 15 min interval is from 0 to 4724697600 and 0 to 453570969600 for the 1 day interval.

Step 6 Click **Apply**.

Step 7 In the **Intervals** area, select 15 Min or 1 Day, then click **Refresh** to view the updated threshold values.

Step 8 Return to your originating procedure.

Provision NCS4K-2H-W OTU PM Thresholds

Purpose	This procedure enables you to provision the OTU PM thresholds of the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the OTU PM thresholds. The card view appears.

Step 2 Click the **Provisioning** > **PM Thresholds** > **OTU** tabs.

Step 3 Select the **TCA** (Threshold Crossing Alert) option from the drop-down menu.

The available options are:

- Customize - This option is not supported.
- Disable All - Select this option to disable TCA for all the parameters of a controller. The row colour is (turns) white to indicate that TCA is disabled.
- Enable All - Select this option to enable TCA for all the parameters of a controller. The row colour turns green to indicate that TCA is enabled.

Step 4 The displayed **Warning Thresholds** value is defined in the **Intervals** area.

Step 5 Modify any of the settings described in the following table as needed.

Parameter	Description	Options
Port	(Display only) Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.	
BBE-S-NE	The number of section monitor background block errors on the near-end node.	The valid range for the 15 minute interval is from 0 to 8850600 (Default value is 10000). The valid range for the 1 day interval is from 0 to 8850600 (Default value is 10000).
BBE-S-FE	The number of section monitor background block errors on the far-end node.	The valid range for the 15 minute interval is from 0 to 8850600 (Default value is 10000). The valid range for the 1 day interval is from 0 to 8850600 (Default value is 10000).
BBER-S-NE	The number of section monitor background block error ratio on the near-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0). The user needs to enter the value in integer and the value is displayed in decimal till five positions. For example, if the user enters 999, then .00999 is displayed.

Parameter	Description	Options
BBER-S-FE	The number of section monitor background block error ratio on the far-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0). The user needs to enter the value in integer and the value is displayed in decimal till five positions. For example, if the user enters 999, then .00999 is displayed.
ES-S-NE	The number of section monitor errored seconds on the near-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 500). The valid range for the 1day interval is from 0 to 86400 (Default value is 5000).
ES-S-FE	The number of section monitor errored seconds on the far-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 500). The valid range for the 1day interval is from 0 to 86400 (Default value is 5000).
ESR-S-NE	The number of section monitor errored seconds ratio on the near-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0). The user needs to enter the value in integer and the value is displayed in decimal till five positions. For example, if the user enters 999, then .00999 is displayed.
ESR-S-FE	The number of section monitor errored seconds ratio on the far-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0). The user needs to enter the value in integer and the value is displayed in decimal till five positions. For example, if the user enters 999, then .00999 is displayed.
FC-S-NE	The number of section monitor failure count on the near-end node.	The valid range for the 15 minute interval is from 0 to 72 (Default value is 10). The valid range for the 1day interval is from 0 to 6912 (Default value is 40).
FC-S-FE	The number of section monitor failure count on the far-end node.	The valid range for the 15 minute interval is from 0 to 72 (Default value is 10). The valid range for the 1day interval is from 0 to 6912 (Default value is 40).

Parameter	Description	Options
SES-S-NE	The number of section monitor severely errored seconds on the near-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 500). The valid range for the 1day interval is from 0 to 86400 (Default value is 5000).
SES-S-FE	The number of section monitor severely errored seconds on the far-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 500). The valid range for the 1day interval is from 0 to 86400 (Default value is 5000).
SESR-S-NE	The number of section monitor severely errored seconds ratio on the near-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0). The user needs to enter the value in integer and the value is displayed in decimal till five positions. For example, if the user enters 999, then .00999 is displayed.
SESR-S-FE	The number of section monitor severely errored seconds ratio on the far-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0). The user needs to enter the value in integer and the value is displayed in decimal till five positions. For example, if the user enters 999, then .00999 is displayed.
UAS-S-NE	The number of section monitor unavailable seconds on the near-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 500). The valid range for the 1day interval is from 0 to 86400 (Default value is 5000).
UAS-S-FE	The number of section monitor unavailable seconds on the far-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 500). The valid range for the 1day interval is from 0 to 86400 (Default value is 5000).

Step 6 Click **Apply**.

Step 7 In the Intervals area, select 15 Min or 1 Day, then click **Refresh** to view the updated threshold values.

Step 8 Return to your originating procedure.

Provision NCS4K-2H-W ODU PM Thresholds

Purpose	This procedure enables you to provision the ODU PM thresholds of the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the ODU PM thresholds. The card view appears.

Step 2 Click the **Provisioning** > **PM Thresholds** > **ODU** tabs.

Step 3 Select the **TCA** (Threshold Crossing Alert) option from the drop-down menu.

The available options are:

- Customize - This option is not supported.
- Disable All - Select this option to disable TCA for all the parameters of a controller. The row colour is (turns) white to indicate that TCA is disabled.
- Enable All - Select this option to enable TCA for all the parameters of a controller. The row colour turns green to indicate that TCA is enabled.

Step 4 The displayed **Warning Thresholds** value is defined in the **Intervals** area.

Step 5 Modify any of the settings described in the following table as needed.

Parameter	Description	Options
Layer Name	Select a layer name based on which ports and their PM thresholds are displayed.	• path • GFP
Port	(Display only) Displays the ODUk port name for which PM thresholds are displayed in the adjacent columns. **Note** ODU ports are displayed for which PM is enabled using **Provisioning** > **Thresholds** > **ODU** tabs.	

Parameter	Description	Options
BBE-P-NE	The number of path monitor background block errors on the near-end node.	The valid range for the 15 minute interval is from 0 to 8850600 (Default value is 85040). The valid range for the 1day interval is from 0 to 849657600 (Default value is 850400).
BBE-P-FE	The number of path monitor background block errors on the far-end node.	The valid range for the 15 minute interval is from 0 to 8850600 (Default value is 85040). The valid range for the 1day interval is from 0 to 849657600 (Default value is 850400).
BBER-P-NE	The number of path monitor background block errors ratio on the near-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).
BBER-P-FE	The number of path monitor background block errors ratio on the far-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).
ES-P-NE	The number of path monitor errored seconds on the near-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 87). The valid range for the 1day interval is from 0 to 86400 (Default value is 864).
ES-P-FE	The number of path monitor errored seconds on the far-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 87). The valid range for the 1day interval is from 0 to 86400 (Default value is 864).
ESR-P-NE	The number of path monitor errored seconds ratio on the near-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).
ESR-P-FE	The number of path monitor errored seconds ratio on the far-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).
FC-P-NE	The number of path monitor failure count on the near-end node.	The valid range for the 15 minute interval is from 0 to 72 (Default value is 10). The valid range for the 1day interval is from 0 to 6912 (Default value is 40).

Parameter	Description	Options
FC-P-FE	The number of path monitor failure count on the far-end node.	The valid range for the 15 minute interval is from 0 to 72 (Default value is 10). The valid range for the 1day interval is from 0 to 6912 (Default value is 40).
SES-P-NE	The number of path monitor severely errored seconds on the near-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 1). The valid range for the 1day interval is from 0 to 86400 (Default value is 4).
SES-P-FE	The number of path monitor severely errored seconds on the far-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 1). The valid range for the 1day interval is from 0 to 86400 (Default value is 4).
SESR-P-NE	The number of path monitor severely errored seconds ratio on the near-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).
SESR-P-FE	The number of path monitor severely errored seconds ratio on the far-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).
UAS-P-NE	The number of path monitor unavailable seconds on the near-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 3). The valid range for the 1day interval is from 0 to 86400 (Default value is 10).
UAS-P-FE	The number of path monitor unavailable seconds on the far-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 3). The valid range for the 1day interval is from 0 to 86400 (Default value is 10).

Step 6 Click **Apply**.

Step 7 In the Intervals area, select 15 Min or 1 Day, then click **Refresh** to view the updated threshold values.

Step 8 Return to your originating procedure.

Provision NCS4K-2H-W TCM PM Thresholds

Purpose	This procedure enables you to provision the TCM PM thresholds of the NCS4K-2H-W card.
Tools/Equipment	None

Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the TCM PM thresholds. The card view appears.

Step 2 Click the **Provisioning** > **PM Thresholds** > **TCM** tabs.

You must modify 15 Min and 1 Day independently. To do so, choose the appropriate radio button and click **Refresh**.

Step 3 Modify any of the settings described in the following table as needed.

Parameter	Description	Options
TCM	Displays the TCMs configured for the selected ODUk port. **Note** TCMs are displayed for which PM is enabled using **Provisioning** > **Alarm Thresholds** > **TCM** tabs. User can **Enable** or **Disable** the TCA Alerts. User can change the Threshold value.	
BBE-P-NE	The number of path monitor background block errors on the near-end node.	The valid range for the 15 minute interval is from 0 to 8850600 (Default value is 85040). The valid range for the 1 day interval is from 0 to 849657600 (Default value is 850400).
BBE-P-FE	The number of path monitor background block errors on the far-end node.	The valid range for the 15 minute interval is from 0 to 8850600 (Default value is 85040). The valid range for the 1 day interval is from 0 to 849657600 (Default value is 850400).
BBER-P-NE	The number of path monitor background block errors ratio on the near-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).

Parameter	Description	Options
BBER-P-FE	The number of path monitor background block errors ratio on the far-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).
ES-P-NE	The number of path monitor errored seconds on the near-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 87). The valid range for the 1 day interval is from 0 to 86400 (Default value is 864).
ES-P-FE	The number of path monitor errored seconds on the far-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 87). The valid range for the 1 day interval is from 0 to 86400 (Default value is 864).
ESR-P-NE	The number of path monitor errored seconds ratio on the near-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).
ESR-P-FE	The number of path monitor errored seconds ratio on the far-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).
FC-P-NE	The number of path monitor failure count on the near-end node.	The valid range for the 15 minute interval is from 0 to 72 (Default value is 10). The valid range for the 1 day interval is from 0 to 6912 (Default value is 40).
FC-P-FE	The number of path monitor failure count on the far-end node.	The valid range for the 15 minute interval is from 0 to 72 (Default value is 10). The valid range for the 1 day interval is from 0 to 6912 (Default value is 40).
SES-P-NE	The number of path monitor severely errored seconds on the near-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 1). The valid range for the 1 day interval is from 0 to 86400 (Default value is 4).
SES-P-FE	The number of path monitor severely errored seconds on the far-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 1). The valid range for the 1 day interval is from 0 to 86400 (Default value is 4).
SESR-P-NE	The number of path monitor severely errored seconds ratio on the near-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).
SESR-P-FE	The number of path monitor severely errored seconds ratio on the far-end node.	The valid range for the 15 minute and 1 day interval is from 0 to 100000 (Default value is 0).

Parameter	Description	Options
UAS-P-NE	The number of path monitor unavailable seconds on the near-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 3). The valid range for the 1 day interval is from 0 to 86400 (Default value is 10).
UAS-P-FE	The number of path monitor unavailable seconds on the far-end node.	The valid range for the 15 minute interval is from 0 to 900 (Default value is 3). The valid range for the 1 day interval is from 0 to 86400 (Default value is 10).

Step 4 Click **Apply**.

Step 5 In the Intervals area, select 15 Min or 1 Day, then click **Refresh** to view the updated threshold values.

Step 6 Return to your originating procedure.

Provision NCS4K-2H-W TCA PM Thresholds

Purpose	This procedure enables you to provision the Threshold Crossing Alert (TCA) PM thresholds of the NCS4K-2H-W card.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision the TCA PM thresholds. The card view appears.

Step 2 Click the **Provisioning** > **PM Thresholds** > **TCA** tabs.

Step 3 Modify any of the settings described in the following table as needed.

Parameter	Description	Options
Port Number	(Display only) Displays the type and address of the controllers in the Rack/Slot/Instance/Port format.	

Parameter	Description	Options
15 mins	Choose the option from the drop-down menu to set the TCA interval.	The available options are: • Enable All - All the interfaces are set to a TCA interval of 15 minutes. • Disable All - All the set TCA intervals are disabled.
1 Day	Choose the option from the drop-down menu to set the TCA interval.	The available options are: • Enable All - All the interfaces are set to a TCA interval of one day. • Disable All - All the set TCA intervals are disabled.

Step 4 Click **Apply**.

Step 5 Return to your originating procedure.

Provision SRLG on the Ports

Purpose	This procedure provisions Shared Risk Link Groups (SRLGs) on the optics or OTU ports.
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision SRLG. The card view appears.

Step 2 Click the **Provisioning** > **Network SRLG** tabs.

Step 3 Provision SRLG on the Optics or OTU ports as needed.

a) Click the **Optics** or **OTU** sub-tab as needed.

b) Select the Controller Name from the drop-down list for which you want to provision SRLG.

c) Double-click the Set field and enter a numeric value to create the number of set(s) under which SRLGs are created. The range is from 1 to 17.
d) Double-click the SRLG fields to enter a numeric value to create SRLGs for the selected port. The SRLG range is from 0 to 4294967294.

   The number of available SRLG fields are from 1 to 6.

e) Click **Apply**.

Stop. You have completed this procedure.

Provision Pluggable Port Modules

Purpose	This procedure provisions pluggable port modules (PPMs).
Tools/Equipment	None
Prerequisite Procedures	"Login to CTC" in *System Setup and Software Installation Guide for Cisco NCS 4000 Series*
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher

Procedure

Step 1 In the node view, double-click the NCS4K-2H-W card where you want to provision port modules. The card view appears.

Step 2 Click the **Provisioning** > **Port Modules** tabs.

Step 3 In the Port Modules area, modify any of the settings described in the following table as needed. See Key Features of NCS4K-2H-W Card, on page 1 for information on port mode, mapping, and framing type.

Parameter	Description
Port	Displays the PPM port number.
Service State	Displays the service state of the PPM.
Actual Equipment Type	Displays the actual equipment type of the PPM.
Port Mode	Choose the port mode from the Port Mode drop-down list.
Framing Type	Choose the framing type from the Framing Type drop-down list.
Mapping	Choose the mapping from the Mapping drop-down list.
Rate	Choose the rate from the Rate drop-down list. The available rates are: 10GE, 40GE and 100GE.

Step 4 Click **Apply**.

Stop. You have completed this procedure.