

ODU Controller Command Reference

This chapter describes the commands to configure the ODUk controller.

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controller oduk

To configure an ODUk controller, use the **controller oduk** command in the config mode. To delete the controller oduk, use the **no** form of this command.

controller oduk *R/S/I/P*
oduj [**tpn** *value*] [**ts** *value*]
no oduj [**tpn** *value*]

Syntax Description

oduk	Name of the controller. The valid range of k is from 0 to 4 (0, 1, 2, 1e , 2e, 3, 3-1, 3-2, 4 ,0, 1, 2e, 3, 3-1, 3-2).
oduj	Name of the controller. The valid range of j is from 0 to 4 (0, 1, 2, 1e , 2e, 3, 3-1, 3-2, 4 ,0, 1, 2e, 3, 3-1, 3-2).
R/S/I/P	Displays the Rack/Slot/Instance/Port of the controller.
tpn	TPN value ranges from 1 to 80. Tributary port number as allowed in G.70
value	Displays the tpn value.
ts	tributary slot string separated by (:) or (-) from 1 to no of ts \ in parent controller. (:) indicates individual tributary slot and (-) represent range.
value	Displays the ts value.

Command Modes

Config mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Before configuring the parameters of an ODUk controller, ensure that the ODUk controller is created.

Task ID

Task ID	Operation
otn	write

This example shows how to access an interface instance of an ODU1 controller on port 1.

```
RP/0/RP0:hostname (config)# controller odu1 0/0/0/1
RP/0/RP0:hostname (config-odu1)# odu0 tpn 1 ts 1
```

gcc1

To configure general communication channel (GCC) on an ODUk controller, use the **gcc1** command in the config mode. To delete the gcc1, use the **no** form of this command.

gcc1
no gcc1

Command Default

Disable

Command Modes

Config mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure GCC on the ODU1 controller.

```
RP/0/RP0:hostname (config)# controller odu1 0/0/0/2
RP/0/RP0:hostname (config-odu1)# gcc1
```

loopback

To configure loopback on an ODUk controller, use the **loopback** command in the config mode. To delete this feature, use the **no** form of this command.

loopback [**internal** | **line**]
no loopback [**internal** | **line**]

Syntax Description

internal	Configures a terminal loopback on an ODUk controller.
line	Configures a line loopback on an ODUk controller.

Command Default

None

Command Modes

Config mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
otn	write

Example

The following example shows how to configure a terminal loopback on the ODU1 controller.

```
RP/0/RP0:hostname (config)# controller ODU1 0/0/0/1
RP/0/RP0:hostname (config-odu1)# loopback internal
```

The following example shows how to configure a line loopback on the ODU1 controller.

```
RP/0/RP0:hostname (config)# controller ODU1 0/0/0/1
RP/0/RP0:hostname (config-odu1)# loopback line
```

secondary-admin-state

To configure the secondary administrative state of an ODUk controller, use the **secondary-admin-state** command in the config mode. To remove the secondary administrative state of an ODUk controller, use the **no** form of this command.

secondary-admin-state [**maintenance** | **normal**]
no secondary-admin-state [**maintenance** | **normal**]

Syntax Description

maintenance	Configures the administrative state indicating that the controller is under maintenance.
normal	Configures the administrative state indicating that the controller is normal.

Command Default

Normal

Command Modes

Config mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The primary administrative state of an ODUk controller must be no shutdown if you want to configure a second administrative state of the controller. The secondary administrative state of ODUk controllers inherits from the corresponding optics controllers. You cannot modify the secondary administrative state of an ODUk controller if a loopback is already configured on it.

Task ID

Task ID	Operation
otn	write

Example

The following example shows how to configure the secondary administrative state of the ODU1 controller.

```
RP/0/RP0:hostname (config)# controller odu1 0/0/0/1
RP/0/RP0:hostname (config-odu1)# secondary-admin-state normal
```

show card state

To display a card state, use the **show platform** command in the exec or administration exec mode.

show platform

Command Modes

Exec mode

Administration Exec mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
sysmgr	read
root-lr	read

The following example shows how to display the card state in IOS XR mode:

```
RP/0/RP0:hostname# show platform
```

```
Wed Apr 15 21:28:10.626 UTC
Node name      Node type        Node state    Admin state   Config state
-----------------------------------------------------------------------------
0/0          NCS4K-24LR-O-S     OPERATIONAL      UP           NSHUT
0/1          NCS4K-20T-O-S      OPERATIONAL      UP           NSHUT
0/RP0        NCS4K-RP           OPERATIONAL      UP           NSHUT
0/RP1        NCS4K-RP           OPERATIONAL      UP           NSHUT
0/FC0        NCS4016-FC-M       OPERATIONAL      UP           NSHUT
0/FC1        NCS4016-FC-M       OPERATIONAL      UP           NSHUT
0/FC2        NCS4016-FC-M       OPERATIONAL      UP           NSHUT
0/FC3        NCS4016-FC-M       OPERATIONAL      UP           NSHUT
0/FT0        NCS4K-FTA          OPERATIONAL      UP           NSHUT
0/FT1        NCS4K-FTA          OPERATIONAL      UP           NSHUT
0/EC0        NCS4K-ECU          OPERATIONAL      UP           NSHUT
```

The following example shows how to display the card state in system admin mode:

```
sysadmin-vm: 0_RP1 # show platform
```

```
Wed Apr  15 21:27:40.651 UTC
Location  Card Type                HW State      SW State      Config State
-----------------------------------------------------------------------------
0/1       NCS4K-20T-O-S            OPERATIONAL   N/A           NSHUT
0/RP0     NCS4K-RP                 OPERATIONAL   OPERATIONAL   NSHUT
```

```
0/RP1     NCS4K-RP                OPERATIONAL   OPERATIONAL   NSHUT
0/FC0     NCS4016-FC-M            OPERATIONAL   N/A           NSHUT
0/FC2     NCS4016-FC-M            OPERATIONAL   N/A           NSHUT
0/FC3     NCS4016-FC-M            OPERATIONAL   N/A           NSHUT
0/FT0     NCS4K-FTA               OPERATIONAL   N/A           NSHUT
0/FT1     NCS4K-FTA               OPERATIONAL   N/A           NSHUT
0/EC0     NCS4K-ECU               OPERATIONAL   N/A           NSHUT
```

show controllers

To display all the details of an ODUk/OTUk controller, use the **show controllers** command in the exec mode.

show controllers oduk/otuk *R/S/I/P* [**te** | **xc** | **odtu-details** | **prbs-details**]

Syntax Description

oduk/otuk	Displays the name of the ODUk/OTUk controller.
R/S/I/P	Displays the Rack/Slot/Instance/Port of the controller.
te	Displays all the transport engineering details of the ODUk/OTU controller.
xc	Displays all the cross connection information of the ODUk/OTU controller.
odtu-details	Displays all the odtu information of the ODUk/OTU controller.
prbs-details	Displays all the prbs information of the ODUk/OTU controller.

Command Modes

Exec mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
otn	read

Example

This example shows how to display the proactive protection details of the ODU1 controller:

```
RP/0/RP0:hostname # show controllers odu1 0/3/0/12
```

```
Wed Aug 13 12:29:40.652 IST

Port                                                : ODU1 0/3/0/12
Controller State                                    : Up
Secondary state                                     : Normal
Derived State                                       : In Service
```

```
Loopback mode                                     : None
BER Thresholds                                    : SF = 1.0E-3  SD = 1.0E-6

Performance Monitoring                            : Disable

Alarm Information:
AIS = 0 IAE = 0 BIAE = 0
SF_BER = 0      SD_BER = 0      BDI = 0
OCI = 0 LCK = 0 PTIM = 0
TIM = 0 CSF = 0 GFP LFD = 0
GFP LOCS = 0    GFP LOCCS = 0   GFP UPM = 0

Detected Alarms                                   : None

ODU TTI Sent

ODU TTI Received

ODU TTI Expected

Owner                                             : All
Resource State                                    : ODU Cross Connection
RP/0/0/CPU0:ios(config)#
```

```
RP/0/RP0:hostname # show controllers odu1 0/0/0/1 te
```

```


Thu Jul 31 15:05:39.954 IST

LOCAL_INFO

        router_id                                 :0.0.0.0
        ifindex                                   : 0
REMOTE_INFO

        router_id                                 :0.0.0.0
        ifindex                                   : 0

GMPLS TTI MODE  : Not Set
GMPLS TCM ID    : 0
```

```
RP/0/RP0:hostname # show controllers odu1 0/0/0/1 xc
```

```


Thu Jul 31 15:06:30.752 IST
Xconnect ID                                       : 0
FWD ref                                           :
FWD ref ifhandle                                  : 0

Owner                                             : All
Resource State                                    : ODU Open Connection
Xconnect status                                   : XCONNECT_NOT_SET
Xconnect Add RequestGMPLS Request Context Data
     Request Time                                 :
     Context Type                                 : NONE
     RM Type                                      : NONE
     Tunnel Info Type                             : NONE
Xconnect Delete RequestGMPLS Request Context Data
     Request Time                                 :
     Context Type                                 : NONE
     RM Type                                      : NONE
     Tunnel Info Type                             : NONE
```

```
RP/0/RP0:hostname # show controllers odu1 0/0/0/1 odtu-details


Mon Oct 12 15:58:20.812 IST

Port                                            : ODU1 0/0/0/0
ODU TS Granularity                              : 1.25G

Number Of Tributary Slots                       : 1-2
Used Tributary Slot                             : 1
Payload Type                                    : 20 (ODU multiplex structure
supporting ODTUjk)

TPN Value                                       : 0
Allocated Tributary Slot                        : 1
Allocated Parent Tributary Slot                 :

Tributary Slots Allocation
_____________________________________________________________
Tributary Slots          Name            TPN
1               ODU00_0_0_0_10          1
```

show hw-module fpd

To display field-programmable device (FPD) compatibility for all modules or a specific module, use the **show hw-module fpd** command in the exec or administration exec mode.

show hw-module fpd {**location**} [*node-id* | *all*]

Syntax Description

location	Specifies the location of the module.
Node-ID	Specifies the node-id of the module. The node-id argument is expressed in the rack/slot/module notation.
all	Specifies the all nodes of the module. Use the all keyword to indicate all nodes.

Command Modes

Exec mode

Administration Exec mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
sysmgr	read
root-lr	read

The following example shows how to display FPD compatibility for all modules in the router:

```
RP/0/RP0:hostname# show hw-module fpd location all
```

```
Wed Apr 15 21:29:40.934 UTC
                                                FPD Versions
                                               =================
Location   Card type    HWver  FPD device   ATR Status   Running  Programd
-------------------------------------------------------------------------
0/1      NCS4K-20T-O-S   0.1    ZYNQ         CURRENT      1.51     1.51
0/1      NCS4K-20T-O-S   0.1    GENNUM       CURRENT      3.01     3.01
0/1      NCS4K-20T-O-S   0.1    DIGI2        CURRENT      2.03     2.03
0/1      NCS4K-20T-O-S   0.1    DIGI1        CURRENT      2.03     2.03
0/6      NCS4K-24LR-O-S  0.1    ZYNQ         NEED UPGD    4.04     4.04
0/7      NCS4K-24LR-O-S  0.1    ZYNQ         NEED UPGD    4.04     4.04
```

The following example shows how to display FPD compatibility for a specific module in the router:

```
RP/0/RP0:hostname# show hw-module location 0/0 fpd
```

```
Mon Jan 19 02:23:40.752 UTC
                                                FPD Versions
                                               =================
Location   Card type    HWver  FPD device   ATR Status  Running Programd
-----------------------------------------------------------------------------
0/0      NCS4K-20T-O-S   N/A   Backup-ZYNQ   NOT READY   N/A     N/A
0/0      NCS4K-20T-O-S   N/A   DIGI1         NOT READY   N/A     N/A
0/0      NCS4K-20T-O-S   N/A   DIGI2         NOT READY   N/A     N/A
0/0      NCS4K-20T-O-S   N/A   GENNUM        NOT READY   N/A     N/A
0/0      NCS4K-20T-O-S   N/A   Primary-ZYNQ  NOT READY   N/A     N/A
```

shutdown

To disable the configuration of ODUk/OTUk controller, use the **shutdown** command in the config mode. To delete the shutdown, use the **no** form of this command.

shutdown
no shutdown

Syntax Description

This command has no keywords or arguments.

Command Default

Down

Command Modes

Config mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
otn	write

Example

The following example shows how to disable the configuration of the ODU/OTU1 controller:

```
RP/0/RP0:hostname (config)# controller odu1 0/0/0/1
RP/0/RP0:hostname (config-odu1)# shutdown
```

tcm

To configure tandem connection monitoring (TCM) on an ODUk controller, use the **tcm** command in the config mode. To delete the TCM of the ODUk controller, use the **no** form of this command.

tcm {**id** *value*} {**permon-enable** | **threshold** [**pm-tca** | **sd** | **sf**] *value* | **tti** [**expected** | **send**] [**ascii** | **dapi** | **hex** | **operator-specific** | **sapi**] *string* }

Syntax Description

id	Configures the TCM ID on an ODUk controller.
value	Configures the tandem connection monitoring ID value. The valid range of TCM ID is from 1 to 6.
permon enable	Enables the performance monitoring on an ODUk controller.
threshold	Configures threshold for signal failure and signal degrade.
pm-tca	Configures threshold crossing alert (TCA) on an ODUk controller.
value	Configures the threshold crossing alert value. The valid range is from 3 to 9 and default value is 3.
sd	Configures signal degrade (SD) threshold on an ODUk controller.
value	Configures the signal degrade threshold value. The valid range is from 3 to 9 and default value is 6.
sf	Configures signal failure (SF) threshold on an ODUk controller.
value	Configures the signal failure threshold value. The valid range is from 1 to 9 and default value is 3.
tti	Configures the trail trace identifier (TTI) on an ODUk controller.
expected	Configures the expected TTI of the ODUk controller.
send	Configures the transmitted TTI of the ODUk controller.
ascii	Configures the ASCII string of the TTI.
dapi	Configures the destination access point identifier of the TTI.
hex	Configures the hexadecimal string of the TTI.
operator-specific	Configures the operator specific string of the TTI.
sapi	Configures the source access point identifier of the TTI.

string	Configures a hexadecimal string that must be an even number and a maximum of 64 characters is allowed in this string.

Command Default

Disable

Command Modes

Config mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Before configuring TCM on an ODUk controller, ensure that the ODUk controller is created.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure the TCM ID on an ODU1 controller:

```
RP/0/RP0:hostname(config)# controller odu1 0/0/0/1
RP/0/RP0:hostname(config-odu1)# tcm id 3
```

threshold

To configure threshold for signal failure and signal degrade on an ODUk controller and tcm, use the **threshold** command in the config mode. To delete the threshold, use the **no** form of this command.

threshold [**sf** *value*]
no threshold [**sf** *value*]

threshold sd *value*
no threshold sd *value*

Syntax Description

sf	Configures threshold for the signal failure on the ODUk controller.
value	Signal failure threshold. The valid range of signal failure is from 1 to 9. The default value is 3.
sd	Configures threshold for the signal degrade on the ODUk controller.
value	Signal degrade threshold. The valid range of signal degrade is from 3 to 9. The default value is 6.

Command Default

By default, threshold for signal failure is 3 and signal degrade is 6 for a given ODUk controller.

Command Modes

Config mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
otn	write

Example

The following example shows how to configure threshold for signal failure and signal degrade on the ODU1 controller:

```
RP/0/RP0:hostname (config)# controller odu1 0/0/0/1
RP/0/RP0:hostname (config-odu1)# threshold sf 4
RP/0/RP0:hostname (config-odu1)# threshold sd 6
```

Example

The following example shows how to configure threshold for signal failure and signal degrade on the TCM3 of ODU1 controller:

```
RP/0/RP0:hostname (config)# controller odu1 0/0/0/1
RP/0/RP0:hostname (config-odu1)# tcm id 3
RP/0/RP0:hostname (config-odu1-tcm3)# threshold sf 5
RP/0/RP0:hostname (config-odu1-tcm3)# threshold sd 7
```

tsg

To configure tributary slot granularity (TSG) level on an ODUk controller, use the **tsg** command in the config mode. To delete the tsg, use the **no** form of this command.

tsg *value*
no tsg *value*

Syntax Description

tsg	Configures the TSG level on an ODU controller. **Note** You need to commit tsg configuration, and shut commands separately.
value	Tributary slot granularity. The default value is 1.25G and it can be changed to 2.5G.

Command Default

By default, TSG level is 1.25G on a given ODUk controller.

Command Modes

Config mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

You can configure TSG on an ODUk controller only if the system is in the shut mode. The default value for TSG is 1.25G and it can be changed to 2.5G for ODU1, ODU2 , ODU3 and ODU4 controllers only.

Task ID

Task ID	Operation
otn	write

Example

The following example shows how to configure tsg on an ODU1 controller:

```
RP/0/RP0:hostname (config)# controller odu1 0/0/0/1
RP/0/RP0:hostname (config-odu1)# tsg 1.25G

RP/0/RP0:hostname (config-odu1)# shut
```

tti

To configure trail trace identifier (TTI) of an ODUk controller, use the **tti** command in the config mode. To delete the TTI of the ODUk controller, use the **no** form of this command.

tti {**expected** | **send**} [**ascii** | **dapi** | **hex** | **operator-specific** | **sapi**] *value*
no tti {**expected** | **send**} [**ascii** | **dapi** | **hex** | **operator-specific** | **sapi**] *value*

Syntax Description

expected	Configures the expected TTI of the ODUk controller.
send	Configures the transmitted TTI of the ODUk controller.
ascii	Configures the ASCII string of the TTI.
dapi	Configures the destination access point identifier of the TTI.
hex	Configures the hexadecimal string of the TTI.
operator-specific	Configures the operator specific string of the TTI.
sapi	Configures the source access point identifier of the TTI.
string	Configures a hexadecimal string that must be an even number and a maximum of 64 characters is allowed in this string.

Command Default

By default, TTI value is 0 for an ODUk controller.

Command Modes

Config mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Before configuring the TTI on an ODUk controller, ensure that the ODUk controller is created.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure the send TTI of the ODU1 controller in hexadecimal format:

```
RP/0/RP0:hostname(config)# controller odu1 0/0/0/1
RP/0/RP0:hostname(config-odu1)# tti sent hex abcd
```

This example shows how to configure the expected TTI on the TCM3 of the ODU1 controller in ascii format:

```
RP/0/RP0:hostname(config)# controller odu1 0/0/0/1
RP/0/RP0:hostname(config-odu1)# tcm id 3
RP/0/RP0:hostname(config-odu1)# tti expected ascii abc
```

upgrade hw-module fpd

To manually upgrade the current field-programmable device (FPD) image package on a module, use the **upgrade hw-module fpd** command in administration exec mode.

upgrade hw-module {**location**} [*node-id* | **all**] {**fpd**} {**all** | **Primary-ZYNQ** | **Backup-ZYNQ**}

Syntax Description

location	Specifies the location to upgrade the FPD image.
Node-ID	Specifies the node-id to upgrade the FPD image. The node-id argument is expressed in the rack/slot/module notation.
all	Specifies all the nodes to upgrade the FPD image.
all	Upgrades all the FPD images on the selected module.
Primary-ZYNQ	Upgrades Primary-ZYNQ FPD image on the selected module.
Backup-ZYNQ	Upgrades Backup-ZYNQ FPD image on the selected module.

Command Default

None

Command Modes

Administration Exec mode

Command History

Release	Modification
Release 5.2.4	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Note The use of the force option when doing a fpd upgrade is not recommended except under explicit direction from Cisco engineering or TAC.

During the upgrade procedure, the module must be offline (shut down but powered).

Task ID

Task ID	Operation
system	read, write
sysmgr	read, write

The following example shows how to upgrade all the FPD's on all the locations:

```
RP/0/RP0:hostname# admin
RP/0/RP0:hostname(admin)# upgrade hw-module location all fpd all
```

The following example shows how to upgrade the Primary-ZYNQ FPD's on a specific location:

```
RP/0/RP0:hostname# admin
RP/0/RP0:hostname(admin)# upgrade hw-module location 0/1 fpd Primary-ZYNQ
```