

Protection Command Reference

This chapter describes the commands to protect the ODUk controllers.

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controller odu-group-mp

To create an ODU group controller, use the **controller odu-group-mp** command in the config mode. To delete an ODU group controller, use the **no** form of this command.

controller odu-group-mp *Group-ID* {**signal**} [**otn** | **sonet** | **ethernet**] {**odu-type**} *type-of-the-odu* [**protecting-controller** | **protection-attributes** | **protection-switching** | **working-controller**] [**connection-mode** | **protection-mode** | **protection-type** | **timers**] *mode-of-the-connection*

no controller odu-group-mp *Group-ID* {**signal type**} *type-of-the-odu*

Syntax Description

Group ID	Identifier of the ODU group controller. The valid range is from 1 to 65535.
signal	Configures the type of the client signal to be added in the ODU group controller.
odu-type	Configures the odu-type of the signal selected for the ODU group controller.
Type of the ODU	Displays the odu-type of the signal selected for the ODU group 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.

ODU group is always created on head node.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to create an ODU group controller:

```
RP/0/RP0:hostname(config)# controller odu-group-mp 4 signal sonet odu-type odu1
RP/0/RP0:hostname(config-odu-group-mp4)# protecting-controller odu1 0/0/0/1
RP/0/RP0:hostname(config-odu-group-mp4)# working-controller odu1 0/0/0/1
```

odu-group

To configure protection switch on an ODU group controller use the **odu-group** command in the exec or config mode. To delete an ODU group controller, use the **no** form of this command.

odu-group [**mp** | **te**] *Group ID* [**clear odu-dest** | **exercise** | **forced odu-dest** | **manual odu-dest**] *ODUk R/S/I/P*

Syntax Description

mp	Configures the protection switch on an ODU group controller pertaining to the management plane.
te	Configures the protection switch on an ODU group controller pertaining to the control plane.
Group ID	Identifier of the ODU group controller. The valid range is from 1 to 65535.
clear	Clears the protection switch.
odu-dest	Configures the protection switch on the specified controller.
exercise	Checks if an ODU group controller is ready for the protection switch.
forced odu-dest	Performs forced switch.
manual odu-dest	Performs manual switch.
ODUk	Name of the controller.
R/S/I/P	Displays the Rack/Slot/Instance/Port of the controller

Command Default

None

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.

ODU group is always created on head node.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure a forced switch:

```
RP/0/RP0:hostname(config)# odu-group mp 1 forced odu-dest odu2 0/2/0/1/22
```

working-controller

To configure an ODUk controller as the working controller in the ODU group controller, use the **working-controller** command in the config mode. To delete an ODUk controller as the working controller in the ODU group controller, use the **no** form of this command.

working-controller [*ODUk R/S/I/P*]
no working-controller [*ODUk R/S/I/P*]

Syntax Description

ODUk	Name of the ODUk controller.
R/S/I/P	Displays the Rack/Slot/Instance/Port of the 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.

ODU group is always created on head node.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure an ODU1 controller as the working controller in the ODU group 1 controller:

```
RP/0/RP0:hostname(config)# controller odu-group-mp 1 signal otn odu-type odu1
RP/0/RP0:hostname(config-odu-group-mp 1)# working-controller odu1 0/0/0/0
```

protecting-controller

To configure an ODUk controller as the protecting controller in the ODU group controller, use the **protecting-controller** command in the config mode. To delete an ODUk controller as the protecting controller in the ODU group controller, use the **no** form of this command.

protecting-controller [*ODUk R/S/I/P*]

no protecting-controller [*ODUk*]

Syntax Description

ODUk	Name of the ODUk controller.
Rack/Slot/Instance/Port	Interface instance of the 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.

ODU group is always created on head node.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure an ODU1 controller as the protecting controller in the ODU group 1 controller:

```
RP/0/RP0:hostname(config)# controller odu-group-mp 1 signal otn odu-type odu1
RP/0/RP0:hostname(config-odu-group-mp 1)# protecting-controller odu1 0/0/0/1
```

protection-attributes connection-mode

To configure connection mode of all the protecting controllers in the ODU Group controller, use the **protection-attributes connection mode** command in the config mode. To delete a connection mode of all the protecting controllers in the ODU Group controller, use the **no** form of this command.

SNC _I indicates that the protection is provided in the case of a fabric cut and signal degrade.

SNC _N indicates that the protection is provided in the case of a fiber cut.

SNC_S indicates that the protection is provided in the case of server layer failures.

protection-attributes connection mode [{**snc-i** | **snc-n** | **snc-s**}{ **tcm-id**}] *ID*

no protection-attributes connection mode [{**snc-i** | **snc-n** | **snc-s**}{ **tcm-id**}] *ID*

Syntax Description

snc-i	Configures the inherent subnetwork connection.
snc-n	Configures the subnetwork connection.
snc-s	Configures the subnetwork connection.
tcm-id	Configures the tandem connection monitoring. This option is valid for SNC-s mode.
ID	Identifier of the TCM connection. The valid range is from 1 to 6.

Command Default

SNC-N

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.

ODU group is always created on head node.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure the connection mode of an ODU group controller as inherent subnetwork connection:

```
RP/0/RP0:hostname(config)# controller odu-group-mp 1 signal otn odu-type odu1
RP/0/RP0:hostname(config-odu-group-mp 1)# protection-attributes connection-mode snc-i
```

protection-attributes protection-mode

To configure protection mode of all the protecting controllers in the ODU Group controller, use the **protection-attributes protection-mode** command in the config mode. To delete a protection mode of all the protecting controllers in the ODU Group controller, use the **no** form of this command.

protection-attributes protection-mode [**nonrevertive** | **revertive** | **wait-to-restore-time**] *timer*
no protection-attributes protection-mode [**nonrevertive** | **revertive** | **wait-to-restore-time**] *timer*

Syntax Description

nonrevertive	Configures the non-revertive protection mode.
revertive	Configures the revertive protection mode.
wait-to-restore	Configures the wait-to-restore timer in the revertive mode.
Timer	Configures the range of wait-to-restore timer. The valid range is from 300 to 720 seconds.

Command Default

0

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.

ODU group is always created on head node.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure the protection mode of an ODU group controller as revertive and nonrevertive:

```
RP/0/RP0:hostname(config)# controller odu-group-mp 1 signal otn odu-type odu1
RP/0/RP0:hostname(config-odu-group-mp1)# protection-attributes protection-mode revertive
wait-to-restore-time 315
RP/0/RP0:hostname(config-odu-group-mp1)# protection-attributes protection-mode nonrevertive
```

protection-attributes protection-type

To configure protection type of all the protecting controllers in the ODU Group controller, use the **protection-attributes protection-type** command in the config mode. To delete a protection type of all the protecting controllers in the ODU Group controller, use the **no** form of this command.

protection-attributes protection-type [**APSbidi** | **APSuni** | **noAPSuni**]
no protection-attributes protection-type [**APSbidi** | **APSuni** | **noAPSuni**]

Syntax Description

APSbidi	Configures the 1+1 bi-directional automatic protection switching.
APSuni	Configures the 1+1 unidirectional automatic protection switching.
noAPSuni	Configures the no APS protocol in unidirectional protection switch.

Command Default

OTM_PROT_TYPE_ONE_PLUS_ONE_APS_BIDI

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.

ODU group is always created on head node.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure the protection type of an ODU group controller as 1+1 unidirectional automatic protection switching:

```
RP/0/RP0:hostname(config)# controller odu-group-mp 1 signal otn odu-type odu1
RP/0/RP0:hostname(config-odu-group-mp 1)# protection-attributes protection-type APSuni
```

protection-attributes timers

To configure hold-off timer for the ODU Group controller, use the **protection-attributes timers** command in the config mode. To delete a hold-off timer for the ODU Group controller, use the **no** form of this command.

protection-attributes timers {**hold-off-time**} *timer*
no protection-attributes timers protection-attributes timers {**hold-off-time**} *timer*

Syntax Description

hold-off-time	Configures the hold-off timer.
timer	Configures the range of hold-off time in multiple of hundred mili seconds. The valid range is from 100 to 10000.

Command Default

0

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.

ODU group is always created on head node.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure the hold-off timer for the ODU group controller:

```
RP/0/RP0:hostname(config)# controller odu-group-mp 1 signal otn odu-type odu1
RP/0/RP0:hostname(config-odu-group-mp 1)# protection-attributes timers hold-off-time 100
```

protection-switching

To configure a controller as a locked out resource in an ODU Group controller, use the **protection-switching** command in the config mode. To delete a controller as a locked out resource in an ODU Group controller, use the **no** form of this command.

protection-switching { **operate lockout odu-dest** } [*ODUk R/S/I/P*]
no protection-switching { **operate lockout odu-dest** } [*ODUk R/S/I/P*]

Syntax Description

operate	Configures the protection switching.
lockout	Configure a controller as a locked out resource.
odu-dest	Specifies a controller to be locked out.
ODUk	Name of the ODUk controller.
R/S/I/P	Displays the Rack/Slot/Instance/Port of the 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.

ODU group is always created on head node.

Task ID

Task ID	Operation
otn	write

Example

This example shows how to configure a protecting controller as a locked out resource:

```
RP/0/RP0:hostname(config)# controller odu-group-mp 1 signal otn odu-type odu1
RP/0/RP0:hostname(config-odu-group-mp 1)# protection-switching operate lockout odu-dest
odu0 0/0/0/0
```

show controllers [odu-group-mp | odu-group-te]

To display details of an ODU group controller, use the **show controller [odu-group-mp | odu-group-te]** command in the exec mode.

show controllers [**odu-group-mp** | **odu-group-te**] *Group ID* [**protection-detail** | **xc**]

Syntax Description

odu-group-mp	Displays details of the ODU group controller pertaining to management plane.
odu-group-te	Displays details of the ODU group controller pertaining to control plane.
Group ID	Identifier of the ODU group controller.
protection-detail	Displays the hardware information of the ODU group controller.
xc	Displays the cross connect details of the ODU group 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 details of an ODU group controller pertaining to management plane:

```
RP/0/RP0:hostname # show controllers ODU-group-mp 1
```

```
ODU Group Information
----------------------------------------------------------------
ODU GROUP ID                                    : 1
Controller State                                : Up
```

```
 WORKING CONTROLLER

ODU NAME                                              : ODU1 0/0/0/1
ODU ROLE                                              :  WORKING
ODU STATE                                             :  Not present

 PROTECTED CONTROLLER

ODU NAME                                              :  NOT SET
ODU ROLE                                              :  NOT SET
ODU STATE                                             :  Not present

 RESTORED CONTROLLER

ODU NAME                                              :  NOT SET
ODU ROLE                                              :  NOT SET
ODU STATE                                             :  Not present

PROTECTION PARAMETERS :
Connection Mode                                       : SNC_N
Protection Type                                       : 1+1 Bidirectional Protection
Tcmid                                                 : 0
Protection Mode                                       : Non-Revertive
Hold off timer                                        : 0
Wait-to-restore timer                                 : 300

RESTORATION PARAMETERS :
Restoration Mode                                      : Non-Revertive

LOCKOUT                                               : NO
SWITCH OVER                                           : NO_SWITCHOVER
```

Example

This example shows how to display the details of an ODU group controller pertaining to management plane:

```
RP/0/RP0:hostname # show controllers ODU-group-te 12
```

```
Thu Jul 31 15:28:51.191 UTC

ODU Group Information
-------------------------------------------------------------
ODU GROUP ID : 12
Controller State : Down

WORKING CONTROLLER

ODU NAME : NOT SET
ODU ROLE : NOT SET
ODU STATE : Not present
GMPLS Request Context Data
Request Time :
Context Type : NONE
RM Type : NONE
Tunnel Info Type : NONE
GMPLS Request Context Data
Request Time :
Context Type : NONE
RM Type : NONE
Tunnel Info Type : NONE
```

```
PROTECTED CONTROLLER

ODU NAME : NOT SET
ODU ROLE : NOT SET
ODU STATE : Not present
GMPLS Request Context Data
Request Time :
Context Type : NONE
RM Type : NONE
Tunnel Info Type : NONE
GMPLS Request Context Data
Request Time :
Context Type : NONE
RM Type : NONE
Tunnel Info Type : NONE

RESTORED CONTROLLER

ODU NAME : NOT SET
ODU ROLE : NOT SET
ODU STATE : Not present
GMPLS Request Context Data
Request Time
-----------------------------------------------
31 15:31:47.967 IST
```

Example

This example shows how to display the details of an ODU group controller pertaining to management plane:

```
RP/0/RP0:hostname # show controllers ODU-group-mp 1
```

```
ODU Group Information
-------------------------------------------------------------------
ODU GROUP ID                                    : 1
Controller State                                : Up

 WORKING CONTROLLER

ODU NAME                                        : ODU1 0/0/0/1
ODU ROLE                                        :  WORKING
ODU STATE                                       :  Not present

 PROTECTED CONTROLLER

ODU NAME                                        :  NOT SET
ODU ROLE                                        :  NOT SET
ODU STATE                                       :  Not present

 RESTORED CONTROLLER

ODU NAME                                        :  NOT SET
ODU ROLE                                        :  NOT SET
ODU STATE                                       :  Not present

PROTECTION PARAMETERS :
Connection Mode                                 : SNC_N
Protection Type                                 : 1+1 Bidirectional Protection
Tcmid                                           : 0
```

```
Protection Mode                                  : Non-Revertive
Hold off timer                                   : 0
Wait-to-restore timer                            : 300

RESTORATION PARAMETERS :
Restoration Mode                                 : Non-Revertive

LOCKOUT                                          : NO
SWITCH OVER                                      : NO_SWITCHOVER
```

Example

This example shows how to display the details of an ODU group controller pertaining to management plane:

```
RP/0/RP0:hostname # show controllers ODU-group-mp1 xc
```

```
xconnect id                                      : 1
xconnect Name                                    :
FWD ref                                          : ODU1 0/0/0/3
FWD ref.ifhandle                                 : 4736
Owner                                            : MP
Resource State                                   : ODG Cross Connection
ODU STATE                                        : Not present
Local Failure                                    : No
Remote Failure                                   : No

Xconnect Status                                  : DP programmed
```