**Table 3-24: Modules for which Logging can be Enabled**

| | |
|---|---|
| `FaultMgr` | Fault management procedures |
| `ShelfMgr` | Shelf management procedures |
| `SIGASN` | WiMAX signaling protocols |
| `UserIF` | User-initiated procedures |
| `AUMgr` | Internal processes used for managing AU |
| `PerfMgr` | Performance management procedures |

Specify the module name if you want to configure the severity level separately for this module. If you do not specify the name of the module, the severity level that you configure in this command is applied to all modules.

For example, run the following command if you want logs to be created for WiMAX signaling protocols when the severity level is Error or higher:

```
npu(config)# log level SIGASN ERROR
```

Or run the following command to set the severity level to Error for all modules:

```
npu(config)# log level ERROR
```

**NOTE**

You can display the currently configured severity levels for each module. For details, refer Section 3.4.13.2.2.

Command Syntax

```
npu(config)# log level
[{StartupMgr|SWDownload|FaultMgr|PerfMgr|ShelfMgr|SIGASN|UserIF|AUMgr}]
{ALERT|ERROR|INFO}
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| `[{StartupMgr\|SWDownload\|FaultMgr\|PerfMgr\|ShelfMgr\|SIGASN\|UserIF\|AUMgr}]` | Indicates the name of the module for which the severity level is to be specified.<br>If you do not specify any value for this parameter, the severity level that you specify is applied for all modules. For more information about these parameters, refer Table 3-24. | Optional | N/A | ■ StartupMgr<br>■ SWDownload<br>■ FaultMgr<br>■ PerfMgr<br>■ ShelfMgr<br>■ SIGASN<br>■ UserIF<br>■ AUMgr |
| `{ALERT\|ERROR\|INFO}` | Indicates the severity level to be applied to a particular or all modules. | Mandatory | Error | ■ ALERT<br>■ ERROR<br>■ INFO |

Command Modes

Global configuration mode

### 3.4.13.2.2 Displaying Configuration Information for Module-level Logging

To display the log level configured for one or all modules, run the following command.

**`npu(config)# show log level [{StartupMgr|SWDownload|FaultMgr|PerfMgr|ShelfMgr|SIGASN|UserIF|AUMgr}]`**

Specify the module for which you want to view the configured severity level. If you do not specify the name of the module, the log level configured for all modules is displayed.

Command Syntax

```
npu(config)# show log level
[{StartupMgr|SWDownload|FaultMgr|PerfMgr|ShelfMgr|SIGASN|UserIF|AUMgr}]
```

Privilege Level: 1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| `[{StartupMgr\|SWDownload\|FaultMgr\|PerfMgr\|ShelfMgr\|SIGASN\|UserIF\|AUMgr}]` | Indicates the name of the module for which you want to view the configured severity level. For more information about these parameters, refer Table 3-24.<br>If you do not specify any value for this parameter, the severity level is displayed for all modules. | Optional | N/A | ■ StartupMgr<br>■ SWDownload<br>■ FaultMgr<br>■ PerfMgr<br>■ ShelfMgr<br>■ SIGASN<br>■ UserIF<br>■ AUMgr |

Display Format:
Module Name : Log level
<Module Name> : <Log Level>

Command Modes: Global configuration mode

### 3.4.13.2.3 Disabling Module-level Logging

To disable logging for one or all system modules, run the following command:

**`npu(config)# no log level [{StartupMgr|SWDownload|FaultMgr|PerfMgr|ShelfMgr|SIGASN|UserIF|AUMgr}]`**

Specify the name of the module if you want to disable logging for a specific module. If you do not specify the module name, logging is disabled for all modules.

Command Syntax:
```
npu(config)# no log level
[{StartupMgr|SWDownload|FaultMgr|PerfMgr|ShelfMgr|SIGASN|UserIF|AUMgr}]
```

Privilege Level: 10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| `[{StartupMgr\|SWDownload\|FaultMgr\|PerfMgr\|ShelfMgr\|SIGASN\|UserIF\|AUMgr}]` | Indicates the name of the module for which logging is to be disabled.<br>If you do not specify any value for this parameter, logging is disabled for all parameters. For more information about these modules, refer Table 3-24. | Optional | N/A | ■ StartupMgr<br>■ SWDownload<br>■ FaultMgr<br>■ PerfMgr<br>■ ShelfMgr<br>■ SIGASN<br>■ UserIF<br>■ AUMgr |

Command Modes: Global configuration mode

## 3.4.14 Configuring Performance Data Collection

You can configure 4Motion to periodically collect and store performance counters.For details on the counters groups and the performance data counters collected for each group refer to the relevant 4Motion Performance Management document.

You can specify the group for which performance data is to be stored and collected.

The data is stored in an XML file called, prf_<SiteID>_yyyymmddhhmm.xml.gz in the path,/tftpboot/management/performance. The system maintains this data for a maximum of 24 hours after which it is deleted. It is recommended that you periodically make a backup of these files on an external server.

You can enable/disable collection of performance data for each group separately. This section describes:

■ “Enabling Collection and Storage of Historical Performance Data” on page 403

- "Disabling Collection and Storage of Performance Data" on page 404
- "Displaying the Status of Performance Data Collection" on page 405


### 3.4.14.1 Enabling Collection and Storage of Historical Performance Data

4Motion collects and stores performance data for the a number of system groups (refer to Section 3.4.14). To enable collection and storage of performance data for a group, run the following command:

To enable collection and storage of performance data for an NPU counters group:

```
npu(config)# pm-group enable npu {BckhlPort | CascPort | IntMgmtIf
| ExtMgmtIf | BearerIf | R6InterfaceTotal | R6InterfaceBs |
ProvisionedQOS | R3Interface | LoadBalancing | InitialNe}
```

To enable collection and storage of performance data for an AU counters group:

```
npu(config)# pm-group enable au { BsIntegrity | BsTrafficTable |
BsUtilizationTable | BsTxR1TotalTrafficTable |
BsRxR1TotalTrafficTable | BsGeneral | BsAllMsBasicMode}
```

**NOTE**

Using this command, you can enable collection of performance data for only one NPU counters group at a time. For example, run the following command if you want to enable performance data collection and storage for the Load Balancing counters:

```
npu(config)# pm-group enable npu LoadBalancing
```

For AU counters, if at lease one group is enabled performance data will be collected for all groups.

You can display whether performance data collection is currently enabled or disabled for a particular group. For details, refer Section 3.4.14.3.

**NOTE**

When you enable collection of performance data collection, the data is stored in a file called, **prf_<SiteID>_yyyymmddhhmm.xml.gz** in the path, **/tftpboot/management/performance**. It is recommended that you periodically make a backup of these files on an external server.

After you have enabled collection and storage of performance data is fetched every quarter of an hour.

| | |
|---|---|
| Command Syntax | `npu(config)# pm-group enable npu {BckhlPort \| CascPort \| IntMgmtIf \| ExtMgmtIf \| BearerIf \| R6InterfaceTotal \| R6InterfaceBs \| ProvisionedQOS \| R3Interface \| LoadBalancing \| InitialNe}`<br>npu(config)# pm-group enable au { BsIntegrity \| BsTrafficTable \| BsUtilizationTable \| BsTxR1TotalTrafficTable \| BsRxR1TotalTrafficTable \| BsGeneral \| BsAllMsBasicMode} |
| Privilege Level | 10 |
| Command Modes | Global configuration mode |

### 3.4.14.2 Disabling Collection and Storage of Performance Data

To disable collection and storage of performance data for one group, run the following command:

To disable collection and storage of performance data for an NPU counters group:

**`npu(config)# no pm-group enable npu {BckhlPort | CascPort | IntMgmtIf | ExtMgmtIf | BearerIf | R6InterfaceTotal | R6InterfaceBs | ProvisionedQOS | R3Interface | LoadBalancing | InitialNe}`**

To disable collection and storage of performance data for an AU counters group:

**`npu(config)# no pm-group enable au { BsIntegrity | BsTrafficTable | BsUtilizationTable | BsTxR1TotalTrafficTable | BsRxR1TotalTrafficTable | BsGeneral | BsAllMsBasicMode}`**

**NOTE**

Using this command, you can disable collection of performance data for only one group at a time. For AU, all groups must be disabled to disable collection. If at least one group is enabled, collection will be enabled for all groups.

For example, run the following command if you want to disable performance data collection and storage for the Load Balancing function:

**`npu(config)# no pm-group enable npu LoadBalancing`**

| | |
|---|---|
| Command Syntax | `npu(config)# no pm-group enable npu {BckhlPort \| CascPort \| IntMgmtIf \| ExtMgmtIf \| BearerIf \| R6InterfaceTotal \| R6InterfaceBs \| ProvisionedQOS \| R3Interface \| LoadBalancing \| InitialNe}`<br>`npu(config)# no pm-group enable au` { BsIntegrity \| BsTrafficTable \| BsUtilizationTable \| BsTxR1TotalTrafficTable \| BsRxR1TotalTrafficTable \| BsGeneral \| BsAllMsBasicMode} |
| Privilege Level | 10 |
| Command Modes | Global configuration mode |

### 3.4.14.3 Displaying the Status of Performance Data Collection

To display whether collection and storage of performance data is enabled/disabled for a group, run the following command:

To display the status for an NPU counters group:

**`npu# show npu pm-group status {BckhlPort | CascPort | IntMgmtIf | ExtMgmtIf | BearerIf | R6InterfaceTotal | R6InterfaceBs | ProvisionedQOS | R3Interface | LoadBalancing | InitialNe}`**

To display the status for an AU counters group:

**`npu# show au pm-group status { BsIntegrity | BsTrafficTable | BsUtilizationTable | BsTxR1TotalTrafficTable | BsRxR1TotalTrafficTable | BsGeneral | BsAllMsBasicMode}`**

| | |
|---|---|
| Command Syntax | npu# show npu pm-group status {BckhlPort \| CascPort \| IntMgmtIf \| ExtMgmtIf \| BearerIf \| R6InterfaceTotal \| R6InterfaceBs \| ProvisionedQOS \| R3Interface \| LoadBalancing \| InitialNe}<br>npu# show au pm-group status { BsIntegrity \| BsTrafficTable \| BsUtilizationTable \| BsTxR1TotalTrafficTable \| BsRxR1TotalTrafficTable \| BsGeneral \| BsAllMsBasicMode} |
| Privilege Level | 1 |
| Display Format | <Group Name> <Status> |

| Command Modes | Global command mode |
|---|---|

## 3.4.15 Configuring the SNMP/Trap Manager

This section describes the commands for:

- “Configuring the SNMP Manager” on page 406
- “Configuring the Trap Manager” on page 409

### 3.4.15.1 Configuring the SNMP Manager

To enable 4Motion configuration over SNMP, you are required to first configure the SNMP Manager. You can configure up to five SNMP Manager entries for the 4Motion system, where each entry is uniquely identified by the pair of values for the Read Community and Write Community. This section describes the commands to be executed for:

- “Adding an SNMP Manager” on page 406
- “Deleting an Entry for the SNMP Manager” on page 407
- “Displaying Configuration Information for SNMP Managers” on page 408

**NOTE**

An existing SNMP Manager entry cannot be modify. To modify the parameters of an SNMP Manager, delete the entry and add a new entry with the required parameters.

#### 3.4.15.1.1 Adding an SNMP Manager

You can configure upto five SNMP Managers. To add an SNMP Manager, run the following command:

```
npu(config)# snmp-mgr [ReadCommunity <string>] [ReadWriteCommunity <string>]
```

You can display configuration information for existing SNMP Managers. For details, refer Section 3.4.15.1.3.

**IMPORTANT**

An error may occur if you have specified:

- More than five entries for the SNMP Manager
- Duplicate entries (an snmp-mgr entry is uniquely identified by values for "ReadCommunity" and "WriteCommunity")

Command Syntax

npu(config)# snmp-mgr [ReadCommunity <string>] [ReadWriteCommunity <string>]

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [ReadCommunity <string>] | The SNMP Read Community string allowing execution of SNMP Get operations. | Optional | public | String (up to 10 characters and case-sensitive) |
| [ReadWriteCommunity <string>] | The SNMP Read/Write Community string allowing execution of SNMP Set and Get operations. | Optional | private | String (up to 10 characters and case-sensitive) |

Command Modes

Global configuration mode

### 3.4.15.1.2 Deleting an Entry for the SNMP Manager

To delete an SNMP Manager entry, run the following command:

**npu(config)# no snmp-mgr index** <integer>

**IMPORTANT**

An error may occur if you provide an incorrect index number for the SNMP Manager to be deleted. To display the index numbers for configured SNMP Managers, refer Section 3.4.15.1.3.

Command Syntax

npu(config)# no snmp-mgr index <integer>

| | |
|---|---|
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| `<integer>` | Indicates the index number of the SNMP Manager to be deleted. Should be an index of an existing SNMP Manager. | Mandatory | N/A | 1-5 |

| | |
|---|---|
| Command Modes | Global configuration mode |

### 3.4.15.1.3 Displaying Configuration Information for SNMP Managers

To display configuration information for all SNMP Managers, run the following command:

**`npu# show snmp-mgr`**

**IMPORTANT**

An error may occur if there is no existing SMNP Manager entry.

| | |
|---|---|
| Command Syntax | `npu#` show snmp-mgr |
| Privilege Level | 10 |

Display Format

```
                Snmp Manager Table
---------------------------------
```

Manager Index:(1) Read Only Community:(<value>) Read WriteCommunity: (<value>)

| | |
|---|---|
| Command Modes | Global command mode |

## 3.4.15.2 Configuring the Trap Manager

The SNMP Agent can send traps to multiple Trap Managers, for which an entry exists in the 4Motion system. After you have created an entry for a Trap Manager, you are required to enable the Trap Manager. You can, at any time, disable a Trap Manager for the 4Motion system.

This section describes the commands for:


- "Adding/Modifying a Trap Manager entry" on page 409
- "Deleting an Entry for the Trap Manager" on page 410
- "Enabling/Disabling the Trap Manager" on page 411
- "Displaying Configuration Information for Trap Managers" on page 412
- "Displaying the Trap Rate Limit" on page 413


### 3.4.15.2.1 Adding/Modifying a Trap Manager entry

You can configure up to five Trap Manager entries for the 4Motion system. To add a Trap Manager entry, or to modify an existing entry, run the following command:

```
npu(config)# trap-mgr ip-source <ip_addr> [Port <(0-65535)>]
[TrapCommunity <string>] [EnableFlag <integer(1 for enable, 2 for
disable)>]
```

You can view configuration information for existing Trap Managers. For details, refer Section 3.4.15.2.4.

**IMPORTANT**

An error may occur if :

- You have specified invalid values for the IP address, Trap Community or port.
- The IP address is already configured for another Trap Manager.
- You are trying to create more than five Trap Managers. (You can configure up to five Trap Managers for the 4Motion system.

| | |
|---|---|
| Command Syntax | npu(config)# trap-mgr ip-source <ip_addr> [Port <(0-65535)>] [TrapCommunity <string>] [EnableFlag <integer(1 for enable, 2 for disable)>] |

| | |
|---|---|
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <ip_addr> | Indicates the IP address of the Trap Manager to be added or modified.<br>Must be unique (the same IP address cannot be assigned to more than one Manager) | Mandatory | N/A | Valid IP address |
| [Port <(0-65535)>] | Indicates the port number on which the Trap Manager will listen for messages from the Agent. | Optional | 162 | 0-65535 |
| [TrapCommunity <string>] | Indicates the name of the community of the Trap Manager. | Optional | public | String (up to 10 characters and case-sensitive) |
| [EnableFlag<integer(1 for enable, 2 for disable)>] | Indicates whether traps sending to the Trap Manager is to be enabled. or disabled | Optional | 1 | ■ 1: Indicates enable<br>■ 2 Indicates disable |

| | |
|---|---|
| Command Modes | Global configuration mode |

**IMPORTANT**

A route to forward traps to a configured Trap Manager IP address must exist. For details refer to “Configuring Static Routes” on page 192..

### 3.4.15.2.2 Deleting an Entry for the Trap Manager

To delete a Trap Manager, run the following command:

```
npu(config)# no trap-mgr ip-source <ip_addr>
```

**IMPORTANT**

An error may occur if the IP address you have specified does not exist.

Command Syntax

`npu(config)# no trap-mgr ip-source <ip_addr>`

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <ip_addr> | Indicates the IP address of the Trap Manager to be deleted. | Mandatory | N/A | Valid IP address |

Command Modes

Global configuration mode

### 3.4.15.2.3 Enabling/Disabling the Trap Manager

Traps are sent to a particular Trap Manager only if it is enabled. Run the following commands to enable/disable the Trap Manager that you have created.

**NOTE**

By default, all Trap Managers are enabled.

**`npu(config)# trap-mgr enable ip-source <ip_addr>`**

**`npu (config)# trap-mgr disable ip-source <ip_addr>`**

**NOTE**

These enable/disable commands have functionality that is identical to the EnableFlag parameter (see “Adding/Modifying a Trap Manager entry” on page 409).

**IMPORTANT**

An error may occur if the IP address that you ave specified does not exist in the Trap Manager index.

Command Syntax

**npu(config)# trap-mgr enable ip-source** <ip_addr>

**npu (config)# trap-mgr disable ip-source** <ip_addr>

Privilege Level: 10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <ip_addr> | Indicates the IP address of the Trap Manager to be enabled/disabled. | Mandatory | N/A | Valid IP Address |

Command Modes: Global configuration mode

### 3.4.15.2.4 Displaying Configuration Information for Trap Managers

To display configuration information for the configured Trap Managers, run the following command:

```
npu# show trap-mgr
```

**IMPORTANT**

An error may occur if no Trap Manager has been configured.

Command Syntax:

```
npu# show trap-mgr
```

Privilege Level: 10

Display Format:

```
                    Trap Manager Table
                ---------------------------------

Trap Manager Ip:(10.203.153.149) Port:(162) Community:(public)  Control
Register: (Enable)
```

Command Modes: Global command mode

### 3.4.15.2.5 Displaying the Trap Rate Limit

The Trap Rate Limit is the hard-coded maximum rate at which the device can send traps. To display the trap rate limit, run the following command:

**npu# show trap-rate-limit**

| | |
|---|---|
| Command Syntax | npu# show trap-rate-limit |
| Privilege Level | 1 |
| Display Format | Maximum number of traps sent is 20 traps per second. |
| Command Modes | Global command mode |

### 3.4.15.2.6 Displaying the Active Clear Timer and Event Rate Limit

The Active Clear Timer parameter indicates the hard-coded value for the suppression interval aimed at preventing too fast repetitions of alarm active-clear (alarm toggling). The Event Rate Limit is practically identical to the trap-rate-limit parameter (see previous section) indicating the hard-coded value for the maximum number of traps per second.

To display one of these parameters, run the following command:

**npu# show {activeClearTimer | eventRateLimit}**

| | |
|---|---|
| Command Syntax | npu# show {activeClearTimer \| eventRateLimit} |
| Privilege Level | 1 |
| Display Format | activeClearTimer: <value><br>or:<br>eventRateLimit: <value> |

| Command Modes | Global command mode |
|---|---|

## 3.4.16 Configuring the 4Motion Shelf

The 4Motion shelf comprises the following components:

- NPU card: Serves as the shelf controller that manages and monitors all the shelf components. In addition, it provides backbone Ethernet connectivity via The DATA port. The shelf is designed to contain one active and one redundant NPU card.

**IMPORTANT**

NPU redundancy is not supported in the current release.

- AU: Is responsible for wireless network connection establishment and for bandwidth management. The shelf can contain up to 7 AUs, with a maximum of 6 operational AUs.

- PSU: A Power Supply Unit that accepts power from the PIU(s) and provides +5V,+3.3V, +/-12V DC outputs. The shelf can contain up to four PSUs providing N+1 redundancy.

- PIU: The PIU filters and stabilizes the input power and protects the system from power problems such as over voltage, surge pulses, reverse polarity connection and short circuits. It also filters high frequency interference (radiated emissions) and low frequency interference (conducted emissions) to the external power source. Each shelf contains two slots for an optional 1+1 PIU redundancy. One PIU is sufficient to support a fully populated shelf. Two PIU modules provide redundant power feeding (two input sources) while avoiding current flow between the two input sources.

- GPS: An external GPS receiver is used to synchronizes the air link frames of Intra-site and Inter-site located sectors to ensure that in all sectors the air frame will start at the same time, and that all sectors will switch from transmit (downlink) to receive (uplink) at the same time. This synchronization is necessary to prevent Intra-site and Inter-site sectors interference and saturation (assuming that all sectors are operating with the same frame size and with the same DL/UL ratio).

- AVU: Includes a 1U high integral chamber for inlet airflow and a 1U high fan tray with an internal alarm module. The AVU comprises 10 brush-less fans, where 9 fans are sufficient for cooling a fully loaded chassis.

- Power Feeder: The PIU can support a maximum current of 58 A (@-40.5 VDC). In certain installations with a relatively high number of ODUs this current may not be sufficient to power the shelf and all the ODUs. In such installations the ODU Power Feeder is used as an additional power source providing power (-48V DC) to ODUs. It transfers transparently all signals between the AU and the ODU, while injecting DC power received from an external source. Each ODU Power Feeder unit can serve up to four ODUs.

This section describes the commands to be used for:


- "Configuring the PSU/PIU Modules" on page 415
- "Configuring the GPS" on page 418
- "Managing Power Feeders Configuration" on page 433
- "Managing Dry-contact Input Alarms" on page 435
- "Managing Dry-contact Output Alarms" on page 440
- "Displaying Configuration Information for Dry-contact Input/Output Alarms" on page 443
- "Managing the Site General Information for the 4Motion Shelf" on page 445
- "Managing the Unique Identifier for the 4Motion Shelf" on page 447
- "Displaying the Vendor Identifier" on page 449


### 3.4.16.1 Configuring the PSU/PIU Modules

This section describes the commands to be used for:


- "Enabling/Disabling the PSU, and PIU Modules" on page 416
- "Configuring the PIU Hardware Version" on page 417

### 3.4.16.1.1 Enabling/Disabling the PSU, and PIU Modules

You can use the CLI to configure the administrative status of the PSU/PIU modules to enable or disable.

**IMPORTANT**

An alarm is raised if you enable a PSU or PIU that is already powered down, or you disable a PSU or PIU that is already powered up.

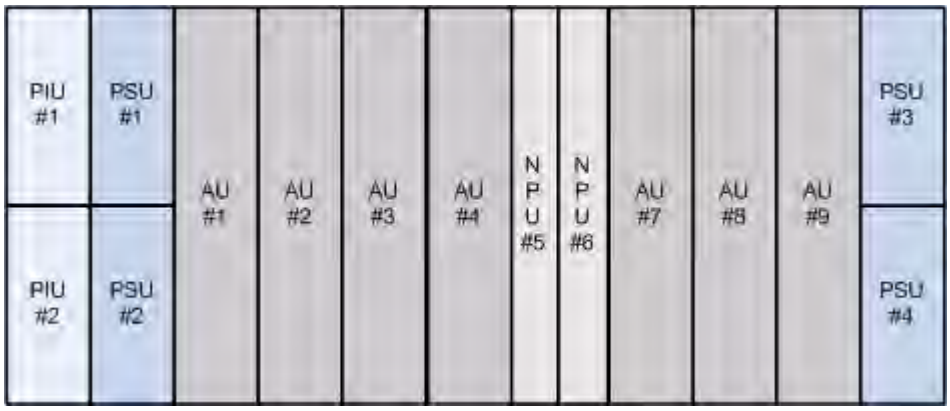
Run the following command to enable/disable the PSU/PIU modules:

```
npu(config)# enable {PSU | PIU} <slot id>
```

```
npu(config)# disable {PSU | PIU} <slot id>
```

Specify the slot ID of the PSU or PIU to be enabled. The following figure depicts the slot ID of the 4Motion shelf components:

**Figure 3-1: Slot IDs of Shelf Components**




For example, if you want to enable PSU, slot# 3, and disable the PIU, slot# 1, run the following command:

```
npu(config)# enable PSU 3
```

```
npu(config)# disable PIU 1
```

**IMPORTANT**

An error may occur if you specify a PSU slot ID that is not in the range, 1-4, or a PIU slot ID that is not in the range 1-2.

Remember that a minimum AU-to-PSU/PIU ratio should always be maintained. The following table lists the required active AU-to-PSU ratio. Before disabling the PSU module, ensure that this ratio is maintained.

**IMPORTANT**

Ensure that the NPU to PSU/PIU ratio is also maintained. At least one PSU and PIU should always be active to support the NPU.

**Table 3-25: Active AU-to-PSU Ratio**

| If the number of Active AUs is... | Number of active PSUs should be... | Number of Active PIU |
|---|---|---|
| 1-4 | 2 | 1 |
| 5-7 | 3 | 1 |

Command Syntax

npu(config)# enable {PSU | PIU} <slot id>

npu(config)# disable {PSU | PIU} <slot id>

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| {PSU \| PIU} | Indicates whether the PSU or PIU slot is to be enabled or disabled. | Mandatory | N/A | ■ PSU<br>■ PIU |
| <slot id> | Indicates the slot ID of the PSU/PIU that you want to enable or disable. Refer Figure 3-1 for more information about the slot ID assigned to each PIU/PSU module on the 4Motion chassis. | Mandatory | N/A | ■ 1-4 for PSU slot<br>■ 1-2 for PIU slot |

Command Modes

Global configuration mode

### 3.4.16.1.2 Configuring the PIU Hardware Version

You need to manually configure the PIU hardware version that should be currently in use. The system periodically checks whether the configured and

actual hardware versions are identical. If there is a difference in the configured and actual versions, an alarm is raised.

The hw_version parameter indicates the current supply capability of the PIU: 58A (high-power PIU) or 35A.

To configure the PIU hardware version, run the following command:

**npu(config)# PIU <slot id (1-2)> hw_version <version (5-6)>**

Command Syntax

npu(config)# PIU <slot id (1-2)> hw_version <version (5-6)>

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <slot id (1-2)> | Indicates the PIU slot ID for which the hardware version is to be configured. | Mandatory | N/A | 1-2 |
| hw_version <version (5-6)> | Indicates the hardware version to be configured for the PIU slot.<br>5 indicates a PIU that can support up to 58A.<br>6 indicates a PIU that can support up to 35A. | Mandatory | N/A | ■ 5 (58A)<br>■ 6 (35A) |

Command Modes

Global configuration mode

## 3.4.16.2 Configuring the GPS

The GPS is used to synchronize the air link frames of Intra-site and Inter-site located sectors to ensure that in all sectors the air frame will start at the same time, and that all sectors will switch from transmit (downlink) to receive (uplink) at the same time. This synchronization is necessary to prevent Intra-site and Inter-site sectors interference. In addition, the GPS synchronizes frame numbers that are transmitted by the AU.

**IMPORTANT**

Implementation of GPS synchronization is based on the assumption that all sectors are operating with the same frame size and with the same DL/UL ratio.

The GPS clock generates a 1PPS signal and is connected to the 4Motion shelf via the GPS SYNC IN connector on the front panel of the NPU. The GPS clock requirements can be reached by an outdoor installed GPS unit when it is synchronized to a minimum number of (user-configurable) satellites.

This section describes the commands to be used for:


- "Configuring the GPS Clocks" on page 419
- "Configuring General Configuration Parameters for the GPS" on page 422
- "Configuring the Date and Time" on page 424
- "Configuring the Daylight Saving Parameters" on page 425
- "Configuring the Position" on page 426
- "Configuring the Required Number of Satellites" on page 428
- "Displaying GPS Clocks Parameters" on page 429
- "Displaying GPS General Configuration Parameters" on page 430
- "Displaying the Date and Time Parameters" on page 431
- "Displaying the Daylight Saving Parameters" on page 431
- "Displaying the Position Parameters" on page 432
- "Displaying the Number of Satellite Parameters" on page 432


### 3.4.16.2.1 Configuring the GPS Clocks

The GPS clock parameters determines the source for the main clocks in the system. To configure the GPS clock, you are required to enable/disable:

- External 1PPS: Determines the air-frame start time. Assuming that all systems use the same air-frame size and DL/UL Ratio, then, when the 1PPS clock is received from a GPS system, this mechanism ensures inter-site and intra-site

synchronization among all sectors, preventing cross interference and saturation problems. When using the internal 1PPS clock (derived from the selected 16 MHz clock source), only intra-site synchronization among sectors can be achieved. You can either enable the external 1PPS clock source or use the internal 1PPS clock source derived from the selected 16 MHz clock. By default, the External IPPS clock is enabled. When using a GPS for synchronization, the 1PPS clock is received from the GPS receiver and must be enabled for proper operation.

**NOTE**

If the external 1PPS GPS clock is enabled:

- The concatenated slave NPU 16Mhz created from local 16MHz TCXO/OCXO at the NPU provides holdover when the GPS loses synchronization with its satellites.
- Configure the GPS parameters listed in section, Section 3.4.16.2.2.
- External 16MHz: Generates all the main clocking signals in the system, including the internal 1PPS clock. Using an external, accurate 16 MHz clock source will enable better hold-over of the 1PPS clock upon temporary loss (or reduced reliability when receiving less than 4 satellites) of the external 1PPS clock. This will allow a longer time of continued operation before appearance of interferences due to clock drifts among BSs. You can either enable the external 16 MHz clock source or use the internal 16 MHz clock source. By default, the external 16MHz clock is disabled. In the current release external 16MHz clock must be disabled.

**IMPORTANT**

Reset the system for changes in the GPS clock configuration to be applied to the entire system.

To configure the GPS clock, run the following command:

```
npu(config)# set clock ([ External1PPS {Enable | Disable} ] [
External16MHz {Enable | Disable} ])
```

For example, to configure the internal 1PPS clock at the NPU to synchronize the air frames for inter-site and intra-site sectors:

```
npu(config)# set clock External1PPS Disable
```

| | |
|---|---|
| Command Syntax | npu(config)# set clock ([External1PPS {Enable \| Disable}] [External16MHz {Enable \| Disable}]) |

Privilege Level: 10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| External1PPS {Enable \| Disable} | Indicates whether the external 1PPS clock is enabled or disabled.<br><br>If the External 1PPs clock is enabled, synchronization of air frames for inter-site and intra-site sectors should be managed by the external 1PPS GPS clock. If the External 1PPS clock is disabled, it indicates that the internal 1PPS at the NPU is used to synchronize air frames for inter-site and intra-site sectors.<br><br>When using a GPS, External 1PPS clock must be enabled for proper operation of the system. | Optional | Enable | ■ Enable<br>■ Disable |
| External16MHz {Enable \| Disable} | Indicates whether the External 16Mhz clock is enabled or disabled.<br><br>If the external 16 MHz is enabled, the NPU should receive 16Mhz signal from the master NPU. This parameter should be enabled only if the NPU clock mode is slave. If the NPU clock mode is master, the MPU drives the 16Mhz signal towards the slave NPUs.<br><br>In the current release External 16MHz clock must be disabled. | Optional | Disable | ■ Enable<br>■ Disable |

| | |
|---|---|
| Command Modes | Global configuration mode |

### 3.4.16.2.2 Configuring General Configuration Parameters for the GPS

**IMPORTANT**

Skip this section if you have selected the internal 1PPS clock. For more information about configuring the GPS clock, refer Section 3.4.16.2.1.

The GPS general configuration parameters determine how the GPS should function with respect to the 4Motion system. Depending upon the values defined for these parameters, you can configure the GPS clock (external 1PPS and 16MHz), and the UTC time. Run the following command to configure the global configuration parameters for the GPS:

```
npu(config)# gps config ( [Type {Trimble | Lassen |
None}][HoldoverPassedTout <expiry_interval(0-2880)>]
[HoldoverPassTxOperationStop {Enable | Disable}][AlmanacUsableTime
<expiry_interval(0-4320)>] [EphemerisUsableTime
<expiry_interval(0-168)>] [IntervalToReadGPSTime{Hourly | Daily |
Monthly | Yearly}] [TimeToReadGPSTime <HH:MM:SS,DD/MM>]))
```

**IMPORTANT**

An error may occur if:

Time to read GPS time is not in valid format. Correct format is hh:mm:ss, dd/mm: Minute and Second should be within range of 0 to 60, Hour should be within the range of 0 to 23, days should be in the range 1 to 31 and Month should be within the range of 1 to 12, also day should be valid in accordance with month.

| | |
|---|---|
| Command Syntax | `npu(config)# gps config ( [Type {Trimble | Lassen| None}] [HoldoverPassedTout <expiry_interval(0-2880)>] [HoldoverPassTxOperationStop {Enable | Disable}][AlmanacUsableTime <expiry_interval(0-4320)>] [EphemerisUsableTime <expiry_interval(0-168)>] [IntervalToReadGPSTime{Hourly | Daily | Monthly | Yearly}] [TimeToReadGPSTime <HH:MM:SS,DD/MM>]))` |
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| `Type {Trimble \| Lassen \| None}]` | Indicates the type of GPS connected to 4Motion:<br>Trimble: Use for BMAX-Timing GPS-OGR model.<br>Lassen: Use for BMAX-4M-GPS model<br>None: Use when no GPS is connected. | Optional | Trimble | ■ Trimble<br>■ Lassen<br>■ None |
| [HoldoverTimeout <expiry_interval (0-2880)>] | Indicates the period, in minutes, for which the NPU provides holdover when the GPS loses synchronization with its satellites. | Optional | 480 | 0 - 2880 |
| [HoldoverPassTxOperationStop{Enable \| Disable}] | Indicates whether the AU modules should stop data transmission if the GPS loses synchronization with its satellites and the holdover timeout has occurred. | Optional | Enable | ■ Enable<br>■ Disable |
| [AlmanacUsableTime <expiry-interval(0-4320)>] | Indicates the maximum period, in hours, for which the Almanac time is valid when the GPS is reset. | Optional | 720 | 0-4320 |
| [EphemerisUsableTime <expiry-interval(0-168)>] | Indicates the maximum period, in hours, for which the Ephemeris time is valid when the GPS is reset. | Optional | 4 | 0-168 |
| [IntervalToReadGPSTime {Hourly \| Daily \| Monthly \| Yearly}] | Indicates the interval after which the NPU should obtain the GPS time for frame synchronization, and send it to the AU. | Optional | Daily | ■ Hourly<br>■ Daily<br>■ Monthly<br>■ Yearly |

| | | | | | |
|---|---|---|---|---|---|
| | [TimeToReadGPS Time <HH:MM:SS,DD/MM>] | Indicates the time when the NPU should obtain the GPS time for frame synchronization.. | Optional | 04:05 | HH:MM:SS,DD/MM |

| | |
|---|---|
| Command Modes | Global configuration mode |

### 3.4.16.2.3 Configuring the Date and Time

The UTC time is used to configure the following:

- Local time: Differs from the UTC time with respect to the value you have specified for the `localUTCDiff` and DST parameters. The local time is equal to the sum of the UTC time, the value of the `localUTCDiff` parameter (local offset from UTC time) and DST (daylight saving time offset). For more information about configuring this parameter, “Configuring the GPS Clocks” on page 419. You can use the CLI to display the current local time. For details, refer the section, “Displaying the Date and Time Parameters” on page 431.

- System time: Refers to the operating system (kernel) time that is identical to the UTC time when the system boots up. The system time is updated every hour with the time received from the GPS receiver.

- Real Time Clock (RTC) time: Refers to the time maintained by the board’s hardware clock. By default, the RTC time is set to 1st January, 1970. The RTC time is updated every hour with the UTC time that is received from the GPS receiver or that you have configured from the CLI. The RTC time is used for creating the timestamp for log and trace messages, performance data collection files, and for managing the interval after which a backup of the configuration file should be maintained and performance data should be collected.

Execute the following command to configure the date and time parameters. If the GPS is synchronized to its satellites and is connected to 4Motion, the UTC time is provided by the GPS. Otherwise the UTC time that you configure is used instead.

To configure the date and time parameters, run the following command:

```
npu(config)# set date [UTC <HH:MM:SS,DD/MM/YYYY>] [LocalUTCDiff
<+/-HH:MM>] [DST <(0-2)>]
```

**IMPORTANT**

An error may occur if :

1) UTC time is not in the valid format i.e. hh: mm: ss, dd/mm/yyyy.

2) Local UTCDiff is not valid format i.e. +/-hh:mm

3) Local UTC Diff is out of the range between -12 to +13 or it is not in steps of 30 minutes.

4) DST is out of range i.e between 0 to 2

Command Syntax: npu(config)# set date [UTC <HH:MM:SS,DD/MM/YYYY>] [LocalUTCDiff <+/-HH:MM>] [DST <(0-2)>]

Privilege Level: 10

Syntax Description:

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| UTC <HH:MM:SS,DD/MM/YYYY> | Indicates the UTC time to be used for 4Motion if not available from GPS. | Optional | N/A | Use the format:<br>HH:MM: SS, DD/MM/YYYY |
| LocalUTCDiff <+/-HH:MM> | The local offset from UTC | Optional | +00:00 | +/-HH:MM<br>HH: -12 to +13<br>MM: 00 or 30 |
| DST <(0-2)> | Applicable only of daylightSavingMode is set to Enable. Daylight Saving Time offset of the local clock | Optional | 0 | 0-2 |

Command Modes: Global configuration mode

### 3.4.16.2.4 Configuring the Daylight Saving Parameters

To configure the daylight saving parameters, run the following command:

```
npu(config)# set daylight saving ([mode {Enable | Disable}]
[start-date <DD.MM>] [stop-date <DD.MM>])
```

**IMPORTANT**

An error may occur if any of the configured value is not in a valid format:

Command Syntax: npu(config)# set daylight saving ([mode {Enable | Disable}] [start-date <DD.MM>] [stop-date <DD.MM>])

Privilege Level: 10

Syntax Description:

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| mode {Enable \| Disable} | Enables/disables the daylight saving feature. When enabled, the feature will be activated using the parameters defined below. | Optional | Disable | ■ Enable<br>■ Disable |
| start-date <DD.MM> | Applicable only of Mode is set to Enable. The date for starting the daylight saving feature: At the beginning of this date (midnight), the clock will be advanced by the amount of hours specified by the Advance Factor parameter. | Optional | 27.3 | DD.MM<br>DD: .day in month, 1-31.<br>MM .month in year, 1-12. |
| stop-date <DD.MM> | Applicable only of Mode is set to Enable. The date for stopping the daylight saving feature: At the end of this date (midnight plus the amount of hours specified by the Advance Factor parameter), the clock will be set back to midnight (00:00). | Optional | 28.11 | DD.MM<br>DD: .day in month, 1-31.<br>MM .month in year, 1-12. |

Command Modes: Global configuration mode

### 3.4.16.2.5 Configuring the Position

The position configuration enables setting the location's parameters when GPS is not used (Type=None).

To configure the position parameters, run the following command:

```
npu(config)# set position ([Latitude <xx.xxx,N/S>] [Longitude
<xxx.xxx,E/W>] [Altitude (-300 - 9000)])
```

**IMPORTANT**

An error may occur if :

1) Latitude, longitude and altitude are configured while GPS type is not "None".

2) Latitude is not in valid format i.e. ll.mmm,a where a is either N or S

3) Longitude is not in valid format i.e. lll.mmm,a where a is either E or W.

4) Altitude is not in valid range i.e. +-300 to 9000.

Command Syntax

npu(config)# set position ([Latitude <xx.xxx,N/S>] [Longitude <xxx.xxx,E/W>] [Altitude (-300 - 9000)])

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| Latitude <xx.xxx,N/S> | Indicates the latitude where the 4Motion shelf is currently positioned. Configure only if GPS Type is None. | Optional | 00.000,N | Use the format, ll.mmm.a (where ll.mmm is in degrees and the value of a is either N or S).<br>ll is between 00 to 89, mmm is between 000 to 999. |

| | | | | | |
|---|---|---|---|---|---|
| | Longitude <xxx.xxx,E/W> | Indicates the longitude where the 4Motion shelf is currently positioned. Configure only if GPS Type is None. | Optional | 000.000,E | Use the format, lll.mmm.a (where ll.mmm is in degrees and the value of a is either E or W).<br>lll is between 000 to 179, mmm is between 000 to 999. |
| | Altitude (-300 - 9000)]) | Indicates the altitude (in meters) where the 4Motion shelf is currently positioned. Configure only if GPS Type is None. | Optional | 0 | -300 to 9000 |

| | |
|---|---|
| Command Modes | Global configuration mode |

### 3.4.16.2.6 Configuring the Required Number of Satellites

The satellite parameter enables configured the minimum number of satellites required for maintaining synchronization and for renewing synchronization after synchronization loss.

To configure the satellite parameters, run the following command:

```
npu(config)# set satellite ([MinNumOfSatForHoldoverReturn <range (1-12)>] [MaxNumOfSatBeforeSyncLoss <range (0-11)>])
```

**IMPORTANT**

1) An error can occur while configuring MinNumOfSatForHoldoverReturn if Minimum number of satellite for holdover return is less than Maximum number of satellite before synchronization loss.

2) An error can occur while configuring MaxNumOfSatBeforeSyncLoss if Maximum number of satellite before synchronization is more than Minimum number of satellite for holdover return.

| | |
|---|---|
| Command Syntax | npu(config)# set satellite ([MinNumOfSatForHoldoverReturn <range (1-12)>] [MaxNumOfSatBeforeSyncLoss <range (0-11)>] |

| | |
|---|---|
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| MinNumOfSatForHoldoverReturn <range (1-12)> | Indicates the minimum number of satellites that should be received for resuming synchronization (exiting holdover status) after loss of synchronization. | Optional | 2 | 1-12 |
| MaxNumOfSatBeforeSyncLoss <range (0-11)> | Indicates the minimum number of satellites required for maintaining synchronization. | Optional | 1 | 0-11 |

Command Modes

Global configuration mode

### 3.4.16.2.7 Displaying GPS Clocks Parameters

To display the GPS clock configuration parameters, run the following command:

```
npu# show clock status [{CurrentExternal1PPS |
ConfiguredExternal1PPS | CurrentExtrnal16MHz |
ConfiguredExternal16MHz}]
```

Command Syntax

```
npu# show clock status [{CurrentExternal1PPS |
ConfiguredExternal1PPS | CurrentExtrnal16MHz |
ConfiguredExternal16MHz}
```

Privilege Level

1

Syntax Description

For a detailed description of each parameter in this command, refer the section, “Configuring the GPS Clocks” on page 419.

Both Current and Configured values for each clock are provided (the parameters are applied after reset)

| | |
|---|---|
| Display Format | Configured External 1PPS Status :Enable/ Disable<br>Current External 1PPS Status :Enable/ Disable<br>Configured External 16MHz Status :Enable/ Disable<br>Current External 16MHz Status :Enable/ Disable |
| Command Modes | Global command mode |

### 3.4.16.2.8 Displaying GPS General Configuration Parameters

To display the GPS general configuration parameters, run the following command:

**npu# show gps config [{ Type | SoftwareVersion [{ Navigation | Signal }] | HoldoverPassedTout | HoldoverPassTxOperationStop | AlmanacUsableTime | EphemerisUsableTime | IntervalToReadGPSTime | TimeToReadGPSTime} ]**

| | |
|---|---|
| Command Syntax | npu# show gps config [{ Type \| SoftwareVersion [{ Navigation \| Signal }] \| HoldoverPassedTout \| HoldoverPassTxOperationStop \| AlmanacUsableTime \| EphemerisUsableTime \| IntervalToReadGPSTime \| TimeToReadGPSTime} ] |
| Privilege Level | 1 |
| Syntax Description | For a detailed description of each parameter in this command, refer the section, “Configuring General Configuration Parameters for the GPS” on page 422. |
| Display Format | Configured GPS Type :<br>GPS Navigation Processor SW Version :<br>GPS Signal Processor SW version :<br>Holdover Timeout :<br>HoldoverPassedTxOperationStop :<br>Almanac Usable Time :<br>Ephemeris Usable Time :<br>Interval To Read Gps Time :<br>Time To Read Gps Time : |

| | |
|---|---|
| Command Modes | Global command mode |

In addition to the configuration parameters, the SW Versions of the GPS Navigation and Signal Processors are also displayed (if available).

### 3.4.16.2.9 Displaying the Date and Time Parameters

To display the current date parameters, run the following command:

```
npu# show date [{Local | UTC | LocalUTCDiff | DST}]
```

| | |
|---|---|
| Command Syntax | npu# show date [{Local \| UTC \| LocalUTCDiff \| DST}] |
| Privilege Level | 1 |
| Syntax Description | For a detailed description of each parameter in this command, refer the section, “Configuring the Date and Time” on page 424. |
| Display Format | `Local Time :`<br>`UTC Time :`<br>`Local UTC Offset :`<br>`Daylight Saving Time :` |
| Command Modes | Global command mode |

In addition to the configurable parameters, the calculated Local Time is also displayed.

### 3.4.16.2.10 Displaying the Daylight Saving Parameters

To display the current daylight saving parameters, run the following command:

```
npu# show daylight saving
```

| | |
|---|---|
| Command Syntax | npu# show daylight saving |

| | |
|---|---|
| Privilege Level | 1 |

| | |
|---|---|
| Display Format | `Saving mode :<enabled/disabled>`<br>`Start date :<value or not configured>`<br>`Stop date :<value or not configured>` |

| | |
|---|---|
| Command Modes | Global command mode |

### 3.4.16.2.11 Displaying the Position Parameters

To display the current position parameters, run the following command:

**`npu# show position [{Latitude | Longitude | Altitude}]`**

| | |
|---|---|
| Command Syntax | npu# show position [{Latitude \| Longitude \| Altitude}] |

| | |
|---|---|
| Privilege Level | 1 |

| | |
|---|---|
| Syntax Description | For a detailed description of each parameter in this command, refer the section, “Configuring the Position” on page 426. |

| | |
|---|---|
| Display Format | `Latitude :`<br>`Longitude :`<br>`Altitude :` |

| | |
|---|---|
| Command Modes | Global command mode |

### 3.4.16.2.12 Displaying the Number of Satellite Parameters

To display the current satellite parameters, run the following command:

**npu# show satellite [{MinNumOfSatForHoldoverReturn | MaxNumOfSatBeforeSyncLoss | NumOfSatelliteAvailable}]**

| | |
|---|---|
| Command Syntax | npu# show satellite [{MinNumOfSatForHoldoverReturn \| MaxNumOfSatBeforeSyncLoss \| NumOfSatelliteAvailable}] |
| Privilege Level | 1 |
| Syntax Description | For a detailed description of each parameter in this command, refer the section, "Configuring the Required Number of Satellites" on page 428. |
| Display Format | `Max Satellites Before Sync Loss :`<br>`Min Satellites For Holdover Return :`<br>`Number of Satellites Acquired :` |
| Command Modes | Global command mode |

In addition to the configurable parameters, the current number of satellites acquired by the GPS receiver is also displayed.

## 3.4.16.3 Managing Power Feeders Configuration

The Power Feeder configuration enables specifying the AU port connected to each Power Feeder port.

### 3.4.16.3.1 Configuring Power Feeders

To configure the AU ports connected to the ports of a specific Power Feeder, run the following command:

**npu(config)# config pfUnitNo <pfunit no (1-4)> pfPortNo <pfport no (1-4)> AuSlotNo <AuslotNo (-1,1-4,7-9)> AuPortNo <AuPortNo (-1,1-4)>**

**IMPORTANT**

An error can occur if the configured combination of AuPortNo and AuSlotNo already exists.

| | |
|---|---|
| Command Syntax | npu(config)# config pfUnitNo <pfunit no (1-4)> pfPortNo <pfport no (1-4)> AuSlotNo <AuslotNo (-1,1-4,7-9)> AuPort <AuPortNo (-1,1-4)> |

Privilege Level: 10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| pfUnitNo <pfunit no (1-4)> | The Power Feeder unit number. | Mandatory | N/A | 1-4 |
| pfPortNo <pfport no (1-4)><br>Each combination of Power Feeder Unit Number and Port Number can appear in a maximum of one Power Feeder instance | The Power Feeder port number | Mandatory | N/A | 1-4 |
| AuSlotNo <AuslotNo (-1,1-4,7-9)> | The AU Slot number.<br>-1 means none. | Optional | -1 (none) | -1 (none), 1-4, 7-9 |
| AuPortNo <AuPortNo (-1,1-4)><br>Each combination of AU Slot Number and Port Number can appear in a maximum of one Power Feeder instance (excluding combinations with a none value). | The AU Port number.<br>-1 means none. | Optional | -1 (none) | -1 (none), 1-4 |

Command Modes: Global configuration mode

### 3.4.16.3.2 Displaying Configuration Information for Power Feeders

To display configuration information for all defined Power Feeders, run the following command:

```
npu# show power-feeder configuration
```

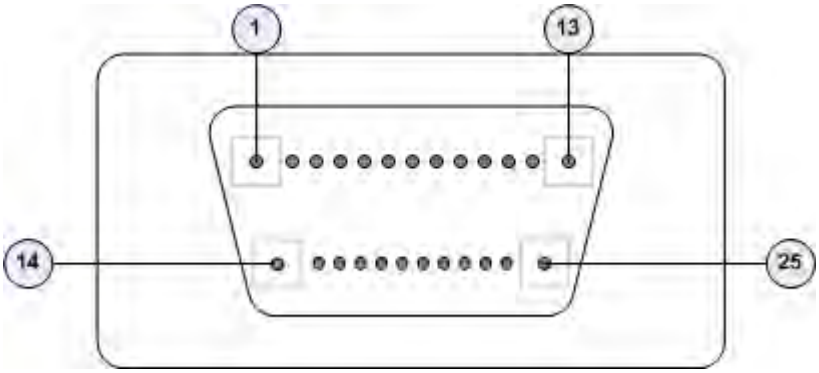
| | |
|---|---|
| Command Syntax | npu# show power-feeder configuration |
| Privilege Level | 1 |
| Display Format (for each configured instance) | PfUnitNo : <value>, PfPortNo : <value>, AuPortNo : <value>, AuSlotNo : <value><br>..... |
| Command Modes | Global command mode |

### 3.4.16.4 Managing Dry-contact Input Alarms

Dry-contact input alarms are external devices that are connected to the 4Motion unit, and notify the system when there is a change in external conditions. When the system receives this notification, an SNMP trap is sent to the EMS. For example, a device such as a temperature sensor that is connected to the 4Motion unit, and configured to function as a dry-contact input alarm, can raise an alarm to the system when there is a sudden change in the room temperature. The system then sends an SNMP trap to the EMS, notifying the administrator of the change indicated by the external device.

Dry contact input alarms are connected to the 4Motion system via a 25-pin micro D-Type ALRM-IN/OUT connector on the NPU front panel. The following figure depicts the ALRM-IN/OUT connector, and the pin numbers assigned to each pin:

**Figure 3-2: 25-pin Micro D-Type ALRM-IN/OUT Connector**




You can configure upto eight dry contact input alarms, each mapping to a different pin number. This section describes the commands to be executed for:

- “Mapping a Dry-contact Input Alarm to an Alarm Condition” on page 436
- “Disabling Dry-contact Input Alarms” on page 439

### 3.4.16.4.1 Mapping a Dry-contact Input Alarm to an Alarm Condition

Dry contact alarms are connected to the 4Motion unit via the 25-pin micro D-Type ALRM-IN/OUT connector on the front panel of the NPU. You can configure upto eight dry contact input alarms, each connected to a different pin on the ALRM-IN/OUT connector. Each alarm can then map to any of the following alarm conditions. If the external dry-contact alarm detects that any of these conditions is fulfilled, an alarm is raised, and a corresponding trap is sent to the EMS.

**IMPORTANT**

Dry-contact input alarms are a means to raise a trap to the EMS when a change in conditions is notified by the external device. However, the trap may not reach the EMS because of trap rate limiting, network congestion or for reasons relating to the external equipment. Alvarion does not assume responsibility for traps that are lost.

- Commercial power failure
- Fire
- Enclosure door open
- High temperature

- Flood
- Low fuel
- Low battery threshold
- Generator failure
- Intrusion detection
- External equipment failure

To map the a dry contact alarm to an alarm condition, run the following command:

**npu(config)# dry-contact IN** <alarm_num (1-8)> **alarm** {**CommercialPowerFailure** | **Fire** | **EnclosueDoorOpen** | **HighTemperature** | **Flood** | **LowFuel** | **LowBatteryThreshold** | **GeneratorFailure** | **IntrusionDetection** | **ExternalEquipmentFailure**} **[alarmPolarity {RaiseOnClose | RaiseOnOpen }]**

In this command, the `alarm_num` parameter maps to a pin on the ALRM IN-OUT connector.

The following table lists the pin numbers of the 25-pin micro D-Type ALRM-IN/OUT connector corresponding to the alarm number you are configuring:

**Table 3-26: Pin Numbers Corresponding to Dry Contact Input Alarm Numbers**

| Pin Number | Alarm Number |
|---|---|
| 3 and 15 | 1 |
| 4 and 16 | 2 |
| 5 and 17 | 3 |
| 6 and 18 | 4 |
| 7 and 19 | 5 |
| 8 and 20 | 6 |
| 9 and 21 | 7 |
| 10 and 22 | 8 |

Refer Figure 3-2 for a diagrammatic representation of the 25-pin micro D-Type ALRM-IN/OUT connector and the numbers assigned to each pin.

**NOTE**

For more information about displaying the alarm conditions currently mapped to the micro D-Type ALRM-IN/OUT connector pins, refer Section 3.4.16.6.

**Command Syntax**

npu(config)# dry-contact IN <alarm_num (1-8)> alarm {CommercialPowerFailure | Fire | EnclosueDoorOpen | HighTemperature | Flood | LowFuel | LowBatteryThreshold | GeneratorFailure | IntrusionDetection | ExternalEquipmentFailure} [alarmPolarity {RaiseOnClose | RaiseOnOpen }]

**Privilege Level**

10

**Syntax Description**

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <alarm_num (1-8)> | Indicates the alarm number of the dry contact input alarm that is to be mapped to an alarm condition. This alarm number corresponds to a pin on the 25-pin micro D-Type jack.<br><br>For more information about the pin numbers that correspond to the alarm number, refer Table 3-26. | Mandatory | N/A | 1-8 |

| | | | | | |
|---|---|---|---|---|---|
| | alarm {CommercialPowerFailure \| Fire \| EnclosueDoorOpen \| HighTemperature \| Flood \| LowFuel \| LowBatteryThreshold \| GeneratorFailure \| IntrusionDetection \| ExternalEquipmentFailure | Indicates the alarm condition to be mapped to a pin number. | Mandatory | N/A | ■ CommercialPowerFailure<br>■ Fire<br>■ EnclosueDoorOpen<br>■ HighTemperature<br>■ Flood<br>■ LowFuel<br>■ LowBatteryThreshold<br>■ GeneratorFailure<br>■ IntrusionDetection External<br>■ ExternalEquipmentFailure (can be used for defining a condition other than the ones specified by the other parameters in this command) |
| | [alarmPolarity {RaiseOnClose \| RaiseOnOpen }] | Indicates whether alarm will be raised on closed or open circuit condition. | Optional | RaiseOnClose | ■ RaiseOnClose<br>■ RaiseOnOpen |

| | |
|---|---|
| Command Modes | Global configuration mode |

### 3.4.16.4.2 Disabling Dry-contact Input Alarms

To disable (block) a dry contact input alarm mapped to a specific alarm condition, run the following command:

```
npu(config)# no dry-contact IN <alarm_num (1-8)>
```

**NOTE**

For more information about mapping dry contact alarms to an alarm condition, refer to “Mapping a Dry-contact Input Alarm to an Alarm Condition” on page 436. For more information about displaying the alarm condition currently mapped to an alarm, refer to “Displaying Configuration Information for Dry-contact Input/Output Alarms” on page 443.

Command Syntax: npu(config)# no dry-contact IN <alarm_num (1-8)>

Privilege Level: 10

Syntax Description:

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <alarm_num (1-8)> | Indicates the alarm number of the dry contact input alarm alarm that is to be disabled. The value of this parameter should be between 1 and 8.<br>For more information about the pin numbers that correspond to the alarm number, refer Table 3-26. | Mandatory | N/A | 1-8 |

Command Modes: Global configuration mode

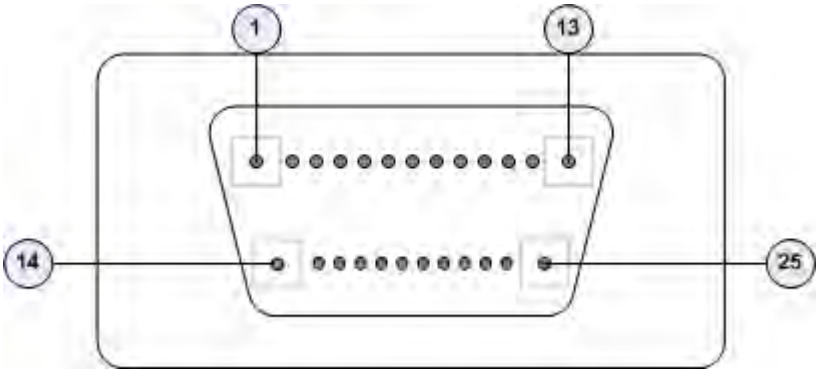
### 3.4.16.5 Managing Dry-contact Output Alarms

Dry-contact output alarms are raised by the system to notify an external device connected to the 4Motion unit about a change in the system state. The external monitoring entity may take the appropriate action after receiving the notification from the 4Motion system.

You can use the CLI to raise an alarm to the external entity that is connected to the dry contact output pin. After the system returns to its normal state, you can clear the dry contact output alarm that you had raised.

Dry contact output alarms are connected to the 4Motion system via a 25-pin micro D-Type ALRM-IN/OUT connector on the NPU front panel. The following figure depicts the ALRM-IN/OUT connector, and the pin numbers assigned to each pin:

**Figure 3-3: 25-pin Micro D-Type ALRM-IN/OUT Connector**




You can configure upto three dry contact output alarms, each mapping to a different pin number. This section describes the commands used for:

- "Raising Dry-contact Output Alarms" on page 441
- "Clearing Dry-contact Output Alarms" on page 442

### 3.4.16.5.1 Raising Dry-contact Output Alarms

You can raise a dry contact output alarm to any external entity that is connected to the 4Motion unit via the 25-pin micro D-Type jack on the NPU front panel. To raise a dry contact output alarm, run the following command:

```
npu(config)# dry-contact OUT <alarm_num (1-3)> alarm <alarm name >
```

In this command, the alarm_num parameter maps to a specific pin of the micro D-Type ALRM-IN/OUT connector. The following table lists the pin numbers of the 25-pin micro D-Type ALRM-IN/OUT connector corresponding to the alarm number you are configuring:

**Table 3-27: Pin Numbers Corresponding to Dry Contact Output Alarm Numbers**

| Pin Number | Corresponding Alarm Number |
|---|---|
| 1(FIX) - 2(N.C) - 14(N.O) | 1 |
| 11(FIX)- 12(N.C) - 13(N.O) | 2 |
| 23(FIX) - 24(N.C) - 25(N.O) | 3 |

In this table, N.C denotes Normally Closed, and N.O denotes Normally Open.

Refer Figure 3-3 for a diagrammatic representation of the 25-pin micro D-Type ALRM-IN/OUT connector and the numbers assigned to each pin.

**NOTE**

After you have raised an alarm, clear this alarm when the system state returns to its normal condition. For information, refer to, “Clearing Dry-contact Output Alarms” on page 442. For more information about displaying configuration information about a dry contact output alarm, refer to “Displaying Configuration Information for Dry-contact Input/Output Alarms” on page 443.

**Command Syntax**

npu(config)# dry-contact OUT <alarm_num (1-3)> alarm <alarm name >

**Privilege Level**

10

**Syntax Description**

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <alarm_num (1-3)> | Indicates the alarm number of the dry contact output alarm that is to be configured. This alarm number corresponds to a pin on the 25-pin micro D-Type jack.<br>For more information about pin numbers that correspond to the alarm number, refer Table 3-27. | Mandatory | N/A | 1-3 |
| alarm <alarm name> | Indicates the name of the dry-contact alarm to be raised. | Mandatory | N/A | Up to 256 characters |

**Command Modes**

Global configuration mode

### 3.4.16.5.2 Clearing Dry-contact Output Alarms

After the system returns to its normal state, run the following command to clear the dry-contact output alarm that you had raised:

```
npu(config)# no dry-contact OUT <alarm_num (1-3)>
```

After you run this command, the alarm that you had raised is cleared.

**NOTENOTE**

For more information about raising a dry contact output alarm, refer to "Raising Dry-contact Output Alarms" on page 441.

**Command Syntax**

npu(config)# no dry-contact OUT <alarm_num (1-3)>

**Privilege Level**

10

**Syntax Description**

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <alarm_num (1-3)> | Indicates the alarm number of the dry contact output alarm alarm that is to be disabled.<br>For more information about the pin numbers that correspond to the alarm number, refer Table 3-27. | Mandatory | N/A | 1-3 |

**Command Modes**

Global configuration mode

## 3.4.16.6 Displaying Configuration Information for Dry-contact Input/Output Alarms

To display configuration information for dry-contact input/output alarms, run the following command:

```
npu# show dry-contact {IN | OUT} [<alarm_num>]
```

If you want to display configuration information for input or output alarms, specify **IN** or **OUT**. You can also specify the pin number if you want to view configuration information for particular pin used for connecting an external device to the 4Motion unit.

For example, run the following command if you want to display configuration information for the dry contact input alarm connected to the 4Motion unit via pin# 8 on the NPU panel:

```
npu# show dry-contact IN 8
```

If you want to display configuration information for all dry contact IN alarms, run the following command:

```
npu# show dry-contact IN
```

**NOTE**

An error may occur if you have specified an incorrect pin number for a particular input/output alarm. For more information about the correct pin-to-alarm number mapping, refer Table 3-26 and Table 3-27.

Command Syntax

npu# show dry-contact {IN | OUT} [<alarm_num>]

Privilege Level

1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| {IN\|OUT} | Indicates whether configuration information is to be displayed for input or output alarms. | Optional | N/A | ■ IN<br>■ OUT |
| [<alarm_num>] | Denotes the alarm number of the input or output alarm for which configuration information is to be displayed.<br>If you do not specify this value, configuration information is displayed for all input or output alarms.<br>Refer Figure 3-2 and Figure 3-3 for more information about the numbers assigned to the pins used for connecting dry contact alarms. | Optional | N/A | ■ 1-8 for input alarms<br>■ 1-3 for output alarms |

| | |
|---|---|
| Display Format | Dry-Contact Input Alarm:<br>AlarmNumber AlarmName InputBlocking AlarmPolarity<br><alarm num> <alarm name> <Yes or No> Raise On Close/Open<br><br>Dry-Contact Output Alarm:<br>AlarmNumber AlarmStatus AlarmName<br><alarm num> <On or Off> <name> |
| Command Modes | Global command mode |

## 3.4.16.7 Managing the Site General Information for the 4Motion Shelf

The site general parameters provide general information on the site.

This section describes the commands used for:

- "Configuring the Site General Information for the 4Motion Shelf" on page 445
- "Displaying the Site General Information Parameters" on page 446

### 3.4.16.7.1 Configuring the Site General Information for the 4Motion Shelf

Run the following command to configure the 4Motion shelf location information, such as the rack number and location:

```
npu(config)# site {Name <name (32)> | Address <address(70)> |
RackLocation <rack no. + position in rack (32)> | ContactPerson
<name (32)>}
```

For example, run the following command if you want to specify the site name:

```
npu(config)# site name Site 12
```

**IMPORTANT**

An error may occur if the length of any of these parameters exceeds the specified range. Refer the syntax description for more information about the appropriate values and format for configuring these parameters.

| | |
|---|---|
| Command Syntax | npu(config)# site (Name <name (32)> \| Address <address(70)> \| RackLocation <rack no. + position in rack (32)> \| ContactPerson <name (32)>) |
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| Name <name (256)>} | Indicates the name of the 4Motion shelf. | Optional | N/A | String (up to 32 characters) |
| Address <address (256)>} | Indicates the address of the 4Motion site. | Optional | N/A | String (up to 70 characters) |
| RackLocation <rack no. + position in rack (256)>} | Indicates the rack number and location of the 4Motion shelf. | Optional | N/A | String (up to 32 characters) |
| ContactPerson <name (256)> | Indicates the name of person who is administering the 4Motion shelf. | Optional | | String (up to 32 characters) |

| | |
|---|---|
| Command Modes | Global configuration mode |

### 3.4.16.7.2 Displaying the Site General Information Parameters

To display configuration information for the site general information parameters, run the following command:

```
npu# show site [{Name | Address | RackLocation | ContactPerson
|ProductType}]
```

In addition to the configurable parameter (see Section 3.4.16.7.1), you can also display the Product Type.

If you want to display configuration information for one parameter, specify only the required parameter. If you want to display configuration information for all dry contact alarms, run the following command:

```
npu# show site
```

| | |
|---|---|
| Command Syntax | npu# show site [{Name \| Address \| RackLocation \| ContactPerson \|ProductType }] |
| Privilege Level | 1 |
| Display Format (for all parameters) | Name :<br>Address :<br>Rack Location :<br>Contact Person :<br>Product Type : |
| Command Modes | Global command mode |

## 3.4.16.8 Managing the Unique Identifier for the 4Motion Shelf

The Site Identifier (Site ID) is used by the management system as identifier of the site and must be unique in the managed network.

The default value 0 is not a valid Site Identifier: it indicates that the Site Identifier was not configured and a valid Site Identifier must be configured. A BTS with Site Identifier 0 will not be discovered by AlvariSTAR.

Since the Site Identifier is used by AlvariSTAR to identify the device, it is highly recommended not to modify it. If necessary, you must follow the Site Number Change process described in the AlvariSTAR Device Manager User Manual.

This section describes the commands used for:

“Configuring the Unique Identifier for the 4Motion Shelf” on page 447

“Displaying the Unique Identifier for the 4Motion Shelf” on page 448

### 3.4.16.8.1 Configuring the Unique Identifier for the 4Motion Shelf

To configure a unique identifier for the 4Motion shelf, run the following command:

```
npu(config)# site identifier <site id <1-999999>>
```

**IMPORTANT**

You must save the configuration (run the command npu# write) for a change in site identifier to take effect after next reset.

Since the site identifier (Site Number) is used by AlvariSTAR management system to identify the device, it is highly recommended not to modify it. If necessary, you must follow the Site Number Change process described in the Device Driver Manual.

**NOTE**

To display the 4Motion shelf identifier, refer to "Displaying the Unique Identifier for the 4Motion Shelf" on page 448.

Command Syntax: npu(config)# site identifier <site id <1-999999>>

Privilege Level: 10

Syntax Description:

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <site id <1-999999>> | Indicates the ID of the 4Motion shelf. | Mandatory | N/A | 1-999999 |

Command Modes: Global configuration mode

### 3.4.16.8.2 Displaying the Unique Identifier for the 4Motion Shelf

To display the unique identifier for the 4Motion shelf, run the following command:

```
npu# show site identifier
```

Command Syntax: npu# show site identifier

Privilege Level: 1

| | |
|---|---|
| Display Format | Site Id : |
| Command Modes | Global command mode |

### 3.4.16.9 Displaying the Vendor Identifier

The Vendor Identifier, used as a unique identifier of the equipment vendor, can be configured only by the vendor. To display the vendor identifier, run the following command:

```
npu# show vendor identifier
```

| | |
|---|---|
| Command Syntax | npu# show vendor identifier |
| Privilege Level | 1 |
| Display Format | Vendor Id : |
| Command Modes | Global command mode |

# 3.5 Managing MS in ASN-GW

This section describes the MS level commands.

- "Manual MS De-registration"
- "Displaying MS Information"

## 3.5.1 Manual MS De-registration

Run the following command to initiate the de-registration process of the MS with a specified NAI or MSID (MAC address) value, all MSs served by a specific BS or all the MSs served by the unit.

npu(config)# de-reg ms {nai <nai-string> | bs <(1 to 16777215 StepSize 1)> | msid <msid-string> | all}

**IMPORTANT**

An error may occur if NAI or MSID value is not specified. Refer to the syntax description for more information about the appropriate values and format for configuring this parameter.

An error may occur also for "MS not found", in case no MS with the specified NAI or MSID is registered at ASNGW.

| | |
|---|---|
| Command Syntax | npu(config)# de-reg ms {nai <nai-string> \| bs <(1 to 16777215 StepSize 1)> \| msid <msid-string> \| all} |
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| {nai <nai-string> \|bs <(1 to 16777215 StepSize 1)> \| msid <msid-string> \| all} | Initiates the de-registration of one or several MSs:<br>nai <nai-string>: de-register the MS with the specified NAI value.<br>bs <(1 to 16777215 StepSize 1)>: de-register all MSs served by the specified BS.<br>msid <msid-string>: de-register the MS with the specified MSID (MAC address) value. The format is xx:xx:xx:xx:xx:xx.<br>all: de-register all MSs served by the unit. | Mandatory | N/A | String |

Command Modes

Global configuration mode

## 3.5.2 Displaying MS Information

Run the following command to view the MS context information of all MSs or a single MS:

npu# show ms info [detailed [{nai|msid}<string>]] [hotlined]

**IMPORTANT**

An error may occur if invalid NAI or invalid MSID is provided. Refer to the syntax description for more information about the appropriate values and format for configuring this parameter.

Command Syntax

npu# show ms info [detailed [{nai|msid}<string>]] [hotlined]

Privilege Level

1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [detailed [{nai\|msid}<string> ]] [hotlined] | Defines the type of information to be displayed:<br>Null (the command show ms info): Displays brief info for all MSs.<br>detailed (the command show ms info detailed): Displays detailed info for all MSs.<br>detailed nai <string> (the command show ms info detailed nai <string>): Displays detailed info for the MS with the specified NAI.<br>detailed msid <string> (the command show ms info detailed msid <string>): Displays detailed info for the MS with the specified MSID (MAC address). The MSID format is xx:xx:xx:xx:xx:xx.<br>hotlined (the command show ms info hotlined): Displays brief info for all hotlined MSs. | Optional | Null | ■ Null<br>■ detailed<br>■ detailed nai <string><br>■ detailed msid <string><br>■ hotlined |

| | |
|---|---|
| Display Format, Detailed<br><br>(for each registered MS if requested for all MSs) | MS context Info:<br>NAI = <value><br>MS ID = <value><br>Serving BS ID = <value><br><br>(for each Service Flow:)<br>Serving Flow ID<#> = <value><br>Serving Flow GRE key = <value><br>Serving Flow Direction = <Uplink \| Downlink><br>MS Flow Service Group IP = <value>><br>Service Group Name = <value><br>Service Group Type = <value><br><br>.... |
| Display Format, Brief | MS ID Serving BS ID Auth Mode UL Flows DL Flows<br>(a table for each registered MS) |

| | |
|---|---|
| Command Modes | Global command mode |

# 3.6 Managing AUs

Up to seven AU objects can be created and configured, corresponding to the AU cards that can be installed in slots 1-4, 7-9 of the shelf.

**To configure an AU:**

1. Enable the AU configuration mode for the selected AU (refer to Section 3.6.1)
2. You can now execute any of the following tasks:
   - » Configure one or more of the parameters tables of the AU (refer to Section 3.6.2)
   - » Restore the default values of parameters in one or more of the parameters tables of the AU (refer to Section 3.6.3)
3. Terminate the AU configuration mode (refer to Section 3.6.4)

In addition, you can, at any time, display configuration and status information for each of the parameters tables of the AU (refer to Section 3.6.6) or delete an existing AU object (refer to Section 3.4.12.7.5).

**NOTE**

The AU reserved parameters table enables configuring up to 9 parameters that are reserved for possible future use. In the current release none of the reserved parameters is being used. Therefore, the following commands are not applicable:

- Configure reserved parameters: npu(config-au-<N>)# au-reserved [reserved-1 <string (32)>] [reserved-2 <string (32)>] [reserved-3 <string (32)>] [reserved-4 <string (32)>] [reserved-5 <string (32)>] [reserved-6 <string (32)>] [reserved-7 <string (32)>] [reserved-8 <string (32)>] [reserved-9 <string (32)>]
- Restore default values of reserved parameters: npu(config-au-<N>)# no au-reserved [reserved-1] [reserved-2] [reserved-3] [reserved-4] [reserved-5] [reserved-6] [reserved-7] [reserved-8] [reserved-9].
- Display configured values of reserved parameters: npu# show au-reserved au [<(1 to 4 StepSize 1) | (7 to 9 StepSize 1)>].

## 3.6.1 Enabling the AU Configuration Mode\Creating an AU Object

To configure the parameters of an AU, first enable the AU configuration mode for the specific AU. Run the following command to enable the AU configuration mode. You can also use this command to create a new AU object. A new AU object is created with default values for all parameters.

**npu (config)# au** <(1 to 4 StepSize 1) | (7 to 9 StepSize 1)>

Specify the slot ID of the AU to be configured/created. See Figure 3-1 for slot assignment in the shelf.

For example, to configure the AU in slot# 1, run the following command:

**npu (config)# au 1**

**IMPORTANT**

An error occurs if you specify an AU slot ID that is not in the range, 1-4, or 7-9.

If you use this command to create a new AU, the configuration mode for this AU is automatically enabled, after which you can execute any of the following tasks:

- Configure one or more of the parameters tables of the AU (refer to Section 3.6.2)
- Restore the default values of parameters in one or more of the parameters tables of the AU (refer to Section 3.6.3)

After executing the above tasks, you can terminate the AU configuration mode (refer to Section 3.6.4) and return to the global configuration mode.

Command Syntax

**npu (config)# au** <(1 to 4 StepSize 1) | (7 to 9 StepSize 1)>

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| | <(1 to 4 StepSize 1) \| (7 to 9 StepSize 1)> | The slot ID of the AU to be configured | Mandatory | N/A | ■ 1-4<br>■ 7-9 |

| | |
|---|---|
| Command Modes | Global configuration mode |

**NOTE**

The following examples are for au configuration mode for au-1.

## 3.6.2 Configuring AU Parameters

After enabling the AU configuration mode you can configure the following parameters tables:

- Properties (refer to Section 3.6.2.1)
- Control (refer to Section 3.6.2.2)
- Connectivity (refer to Section 3.6.2.3)

### 3.6.2.1 Configuring Properties

The properties table enables configuring the main properties of the required AU card and controlling the power on each of the AU's ODU ports.

To configure the properties parameters, run the following command:

**npu(config-au-1)# properties** [required-type <au4x4Modem |au2x2>] [port-1-power {shutDown | noShutDown}] [port-2-power {shutDown | noShutDown}] [port-3-power {shutDown | noShutDown}] [port-4-power {shutDown | noShutDown}]

**NOTE**

You can display configuration information for the AU properties. For details, refer to Section 3.6.6.1.

**IMPORTANT**

An error may occur if you provide an invalid value for any of these parameters. Refer the syntax description for more information about the appropriate values and format for configuring these parameters.

Command Syntax

```
npu(config-au-1)# properties [required-type <au4x4Modem | au2x2> ]
[port-1-power {shutDown | noShutDown} ] [port-2-power {shutDown |
noShutDown} ] [port-3-power {shutDown | noShutDown} ]
[port-4-power {shutDown | noShutDown} ]
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [required-type <au4x4Modem \|au2x2> | Defines the AU card configuration required: 4-ports or 2-ports. 2-ports AU is applicable only for Macro Outdoor. | Optional | au4x4Modem | ■ au4x4Modem<br>■ au2x2 |
| [port-1-power {shutDown \| noShutDown} ] | Controls power from AU card port 1 to ODU | Optional | No Shutdown | ■ shutDown<br>■ noShutDown |
| [port-2-power {shutDown \| noShutDown} ] | Controls power from AU card port 2 to ODU. | Optional | No Shutdown | ■ shutDown<br>■ noShutDown |
| [port-3-power {shutDown \| noShutDown \|} ] | Controls power from AU card port 3 to ODU. Not applicable for a 2-ports AU. | Optional | No Shutdown | ■ shutDown<br>■ noShutDown |
| [port-4-power {shutDown \| noShutDown} ] | Controls power from AU card port 4 to ODU. Not applicable for a 2-ports AU. | Optional | No Shutdown | ■ shutDown<br>■ noShutDown |

Command Modes

au configuration mode

### 3.6.2.2 Configuring the Control Parameter

The control parameters enables controlling the operation of the AU.

To configure the control parameter, run the following command:

**npu(config-au-1)#** control shutdown-operation {normalOperation | reset | shutdown}

Command Syntax

```
npu(config-au-1)# control shutdown-operation {normalOperation |
reset | shutdown}
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| shutdown-operation {normalOperation \| reset \| shutdown} | Controls the operation of the AU card: Normal Operation, Shutdown (disable power to card) or Reset. | Mandatory | normal Operation | ■ normalOperation<br>■ reset<br>■ shutdown |

Command Modes

au configuration mode

### 3.6.2.3 Configuring AU Connectivity

The connectivity tables enables configuring the connectivity parameters for the Ethernet interface of the AU. In the current release the interface operates in 802.1q mode: In this mode, the interface accepts only VLAN-tagged packets. All packets received without VLAN tags are dropped.

The connectivity tables enable also configuring the parameters of the service interface (excluding the VLAN ID) used by the AU for uploading maintenance information to an external server (the same VLAN ID is used by all service interfaces - for details see Section 3.4.3).

To configure the connectivity parameters, run the following command:

```
npu(config-au-1)# connectivity [maxframesize <(1518 to 9000
StepSize 1)>] [bearervlanid <(9 to 9 StepSize 1) | (11 to 100
StepSize 1) |(110 to 4094 StepSize 1)>] [service-ip <ip address> ]
[service-mask <ip address> ] [service-next-hop <ip address> ]
```

Command Syntax

```
npu (config-au-1)# connectivity [maxframesize <(1518 to 9000
StepSize 1)>] [bearervlanid <(9 to 9 StepSize 1) | (11 to 100
StepSize 1) |(110 to 4094 StepSize 1)>] [service-ip <ip address> ]
[service-mask <ip address> ] [service-next-hop <ip address> ]
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [maxframesize <(1518 to 9000 StepSize 1)>] | The maximum frame size (in Bytes) that can be accepted on the Ethernet interface of the AU. Larger packets will be dropped.<br>In 802.1q encapsulation mode the actual minimal frame size (including VLAN tag) is 1522 bytes, which is also the default.<br>Must be configured to the same value as the mtu parameter for this interface in the NPU. | Optional | 1522 | 1518 to 9000 |
| [bearervlanid <(9 to 9 StepSize 1) \| (11 to 100 StepSize 1) \|(110 to 4094 StepSize 1)>] | The VLAN ID of packets on the Ethernet interface of the AU. It must be configured to the same value as the if_vlan parameter of the bearer interface in the NPU.<br>Note that VLAN 10 is used for internal management and cannot be used the bearer VLAN. | Optional | 11 | 9, 11-100, 110-4094 |
| [service-ip <ip address> ] | The IP address of the service interface. Must be unique in the network. | Optional | 192.168.0.1 | IP address |
| [service-mask <ip address> ] | The subnet mask of the service interface. | Optional | 255.255.255.0 | subnet mask |

| | | | | | |
|---|---|---|---|---|---|
| | [service-next-hop <ip address> ] | The default gateway IP address of the service interface. | Optional | 0.0.0.0 (none) | IP address |

Command Modes: au-1 configuration mode

## 3.6.3 Restoring Default Values for AU Configuration Parameters

After enabling the AU configuration mode you can restore the default values for parameters in the following parameters tables:

- Properties (refer to Section 3.6.3.1)
- Control (refer to Section 3.6.3.2)
- Connectivity (refer to Section 3.6.3.3)

### 3.6.3.1 Restoring the Default Values of Properties Parameters

To restore the some or all of the Properties parameters to their default value, run the following command:

```
npu(config-au-1)# no properties [required-type] [port-1-power]
[port-2-power] [port-3-power] [port-4-power]
```

You can restore only selected parameters to their default value by specifying only those parameter. For example, to restore only the port-1-power to the default value, run the following command:

```
npu(config-au-1)# no properties port-1-power
```

The parameter will be restored to its default value, while the other parameters will remain unchanged.

To restore all properties parameters to their default value, run the following command:

```
npu(config-au-1)# no properties
```

**NOTE**

Refer to Section 3.6.2.1 for a description and default values of these parameters.

| | |
|---|---|
| Command Syntax | **npu(config-au-1)# no properties** [required-type] [port-1-power] [port-2-power] [port-3-power] [port-4-power] |
| Privilege Level | 10 |
| Command Modes | au configuration mode |

### 3.6.3.2 Restoring the Default Value of the Control Parameter

To restore the Control parameter to the default value (normalOperation), run the following command:

**npu(config-au-1)# no control**

| | |
|---|---|
| Command Syntax | npu(config-au-1)# no control |
| Privilege Level | 10 |
| Command Modes | Global configuration mode |

### 3.6.3.3 Restoring the Default Values of Connectivity Parameters

To restore Connectivity parameters do their default value, run the following command:

**npu(config-au-1)# no connectivity** [maxframesize] [bearervlanid] [service-ip] [service-mask] [service-next-hop]

You can restore only one of the parameters to its default value by specifying only that parameter. For example, to restore only the maximum frame size to the default (1522), run the following command:

**npu(config-au-1)# no connectivity maxframesize**

The maximum frame size will be restored to its default value, while the other parameters will remain unchanged.

To restore both parameters to their default value, run the following command:

```
npu(config-au-1)# no connectivity
```

**NOTE**

Refer to Section 3.6.2.3 for a description and default values of these parameters.

| | |
|---|---|
| Command Syntax | **npu(config-au-1)# no connectivity** `[maxframesize] [bearervlanid] [service-ip] [service-mask] [service-next-hop]` |
| Privilege Level | 10 |
| Command Modes | au configuration mode |

## 3.6.4 Terminating the AU Configuration Mode

Run the following command to terminate the au configuration mode:

```
npu(config-au-1)# exit
```

| | |
|---|---|
| Command Syntax | npu(config-au-1)# exit |
| Privilege Level | 10 |
| Command Modes | au-1 configuration mode |

## 3.6.5 Deleting an AU Object

Run the following command to delete an AU object:

```
npu(config)# no au <(1 to 4 StepSize 1) | (7 to 9 StepSize 1)>
```

**IMPORTANT**

An associated AU (specified in a Sector Association) cannot be deleted.

| | |
|---|---|
| Command Syntax | **npu(config)# no au** <(1 to 4 StepSize 1) \| (7 to 9 StepSize 1)> |
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 4 StepSize 1) \| (7 to 9 StepSize 1)> | The slot ID of the AU card | Mandatory | N/A | 1-4, 7-9 |

| | |
|---|---|
| Command Modes | Global configuration mode |

## 3.6.6 Displaying Configuration and Status Information for AU Parameters

You can display the current configuration and (where applicable) additional status information for the following parameters tables:

- Properties (refer to Section 3.6.6.1)
- Control (refer to Section 3.6.6.2)
- Connectivity (refer to Section 3.6.6.3)

### 3.6.6.1 Displaying Configuration and Status Information for AU Properties

To display configuration and status information for the properties of a specific or all AU objects, run the following command:

**npu# show properties au** [<(1 to 4 StepSize 1) | (7 to 9 StepSize 1)>]

Specify the au slot ID (1-4, 7-9) if you want to display configuration and status information for a particular AU. Do not specify a value for this parameter if you want to view configuration and status information for all existing AU objects.

Command Syntax

**npu# show properties au** [<(1 to 4 StepSize 1) | (7 to 9 StepSize 1)>]

Privilege Level

1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [<(1 to 4 StepSize 1) \| (7 to 9 StepSize 1)>] | The slot ID of the AU<br>Specify a value for this parameter if you want to display the properties of a specific AU. Do not specify a value for this parameter if you want to display the properties of all AUs. | Optional | N/A | 1-4, 7-9 |

Display Format

(for each existing AU object if requested for all AUs)

SlotNo. :<value>

RequiredType :<value>

InstalledStatus :<value>

InstalledType :<value> (0 for notinstalled AU)

HWVersion :<value> (null for notinstalled AU)

HWRevision :<value> (null for notinstalled AU)

SerialNo. :<value> (null for notinstalled AU)

BootVersion :<value> (null for notinstalled AU)

IFVersion :<value> (null for notinstalled AU)

IFRevision :<value> (null for notinstalled AU)

Port1PowertoODU :<value>

Port2PowertoODU :<value>

Port3PowertoODU :<value>

Port4PowertoODU :<value>

Command Modes

Global command mode

In addition to the configurable parameters, the following status parameters are also displayed:

| Parameter | Description | Possible Values |
|---|---|---|
| InstalledStatus | Indicates whether an AU card is installed in the slot.<br>Following parameters are applicable only for installed AU. | ■ installed (1)<br>■ notinstalled (0) |
| InstalledType | The AU Type. | ■ auNotDetected (0)<br>■ au4x4Modem (4)<br>■ au2x2 (6) |
| HWVersion | AU HW Version number | <number> |
| HWRevision | AU HW Revision number | <number> |
| SerialNo. | AU Serial number | <number> |
| BootVersion | AU Boot SW Version number | <string> |
| IFVersion | AU IF Version number | <number> |
| IFRevision | AU HW Revision number | <number> |

### 3.6.6.2 Displaying Configuration for AU Control

To display configuration for the Control parameter of a specific or all AU objects, run the following command:

**npu# show control au** [<(1 to 4 StepSize 1) | (7 to 9 StepSize 1)>]

Specify the au slot ID (1-4, 7-9) if you want to display configuration information for a particular AU. Do not specify a value for this parameter if you want to view configuration information for all existing AU objects.

| | |
|---|---|
| Command Syntax | **npu# show control au** [<(1 to 4 StepSize 1) \| (7 to 9 StepSize 1)>] |
| Privilege Level | 1 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [<(1 to 4 StepSize 1) \| (7 to 9 StepSize 1)>] | The slot ID of the AU<br><br>Specify a value for this parameter if you want to display the control parameter of a specific AU. Do not specify a value for this parameter if you want to display the control parameters of all AUs. | Optional | N/A | 1-4, 7-9 |

Display Format

(for each existing AU object if requested for all AUs)

SlotNo. :<value>

AUPowerControl :<value>

Command Modes

Global command mode

### 3.6.6.3 Displaying Configuration Information for AU Connectivity Parameters

To display configuration information for the connectivity parameters of a specific or all AU objects, run the following command:

**npu# show connectivity au** [<(1 to 4 StepSize 1) | (7 to 9 StepSize 1)>]

Specify the au slot ID (1-4, 7-9) if you want to display configuration for a particular AU. Do not specify a value for this parameter if you want to view configuration for all existing AU objects.

The displayed information includes also configured values for relevant parameters that are configured for the internal management interface of the NPU.

Command Syntax

**npu# show connectivity au** [<(1 to 4 StepSize 1) | (7 to 9 StepSize 1)>]

**Privilege Level**

1

**Syntax Description**

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [<(1 to 4 StepSize 1) \| (7 to 9 StepSize 1)>] | The slot ID of the AU<br><br>Specify a value for this parameter if you want to display the connectivity parameters of a specific AU. Do not specify a value for this parameter if you want to display the connectivity parameters of all AUs. | Optional | N/A | 1-4, 7-9 |

**Display Format**

(for each existing AU object if requested for all AUs)

SlotNo. :<value>

EncapsulationMode :vlanAwareBridging(0)

MaxFrameSize(Bytes) :<value>

InternalManagementVLANID :<value>

BearerVLANID :<value>

InternalManagementIPAddress :<value>

InternalManagementIPSubnetMask :<value>

ServiceInterfaceIPAddress :<value>

ServiceInterfaceIPSubnetMask :<value>

ServiceInterfaceIpnexthop :<value>

**Command Modes**

Global command mode

In addition to the configurable parameters, the following status parameters are also displayed:

| Parameter | Description | Possible Values |
|---|---|---|
| EncapsulationMode | The Ethernet encapsulation mode of the card's Ethernet port (hard coded in production). | vlanAwareBridging(0) |
| InternalManagementVLANID | The VLAN ID Management of the shelf.(hard coded in production) | 1-9, 11-100, 110-4094 |
| InternalManagementIPAddress | IP Address of the internal interface of the AU. Acquired via DHCP. | IP address |
| InternalManagementIPSubnetMask | Subnet Mask of the internal interface of the AU. Acquired via DHCP. | Subnet mask |

# 3.7 Managing ODUs

Up to 28 ODU objects can be created and configured, corresponding to up to 28 ODUs that can be installed. Up to four ODU Ports, numbered 1 to 4, can be created and configured for each ODU. However, for a 1by1 ODU only port number 1 is meaningful. For a 2by1 ODU only ports 1 and 2 are meaningful.

This section include:

- "Configuring ODUs", Section 3.7.1
- "Configuring ODU Ports", Section 3.7.2

## 3.7.1 Configuring ODUs

**To configure an ODU:**

1. Enable the ODU configuration mode for the selected ODU (refer to Section 3.7.1.1)
2. You can now execute any of the following tasks:
   - » Configure one or more of the parameters tables of the ODU (refer to Section 3.7.1.2)
   - » Restore the default values of parameters in one or more of the parameters tables of the ODU (refer to Section 3.7.1.3)
3. Terminate the ODU configuration mode (refer to Section 3.7.1.4)

In addition, you can, at any time, display configuration and status information for each of the parameters tables of the ODU (refer to Section 3.7.1.6) or delete an existing ODU object (refer to Section 3.7.1.5).

**NOTE**

The ODU reserved parameters table enables configuring up to 9 parameters that are reserved for possible future use. In the current release none of the reserved parameters is being used. Therefore, the following commands are not applicable:

- Configure reserved parameters: npu(config-odu-params-<N>)# odu-reserved [reserved-1 <string (32)>] [reserved-2 <string (32)>] [reserved-3 <string (32)>] [reserved-4 <string (32)>] [reserved-5 <string (32)>] [reserved-6 <string (32)>] [reserved-7 <string (32)>] [reserved-8 <string (32)>] [reserved-9 <string (32)>].
- Restore default values of reserved parameters: npu(config-odu-params-<N>)# no odu-reserved [reserved-1] [reserved-2] [reserved-3] [reserved-4] [reserved-5] [reserved-6] [reserved-7] [reserved-8] [reserved-9].
- Display configured values of reserved parameters: npu# show odu-reserved [odu-no <(1 to 28 StepSize 1)>].

### 3.7.1.1 Enabling the ODU Parameters Configuration Mode\Creating an ODU Object

To configure the parameters of an ODU, first enable the ODU parameters configuration mode for the specific ODU. Run the following command to enable the ODU parameters configuration mode for an existing ODU object:

**npu (config)# odu-params** <(1 to 28 StepSize 1)>

To create a new ODU object, the mandatory required-odu-type parameter must be specified. Run the following command to create a new ODU object and enable the parameters configuration mode for this ODU:

npu (config)# odu-params <(1 to 28 StepSize 1)> required-odu-type {<a list of ODU types>)}

A new ODU object is created with default values for all parameters except to the mandatory required-odu-type parameter.

**IMPORTANT**

An error may occur if you provide an invalid value for any of these parameters. Refer the syntax description for more information about the appropriate values and format for configuring these parameters.

For example, to create an ODU 1 object and enable the parameters configuration mode for this ODU, where the required odu type is oDU23002360000N361by1N0, run the following command:

**npu (config)# odu-params 1 required-odu-type oDU23002360000N361by1N0**

After enabling the parameters configuration mode for an ODU you can execute any of the following tasks:

- Configure one or more of the parameters tables of the ODU (refer to Section 3.7.1.2)
- Restore the default values of parameters in one or more of the parameters tables of the ODU (refer to Section 3.7.1.3)

After executing the above tasks, you can terminate the ODU parameters configuration mode (refer to Section 3.7.1.4) and return to the global configuration mode.

**Command Syntax**

**npu (config)# odu-params** <(1 to 28 StepSize 1)> [**required-odu-type** {<a list of ODU types>}

**Privilege Level**

10

**Syntax Description**

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 28 StepSize 1)> | The ODU number | Mandatory | N/A | 1-28 |
| required-odu-type {<a list of ODU types>} | The required ODU type (see details below). | Mandatory for a new ODU object | N/A | Any of the listed ODU types. See details below. |

**Command Modes**

Global configuration mode

ODU Type = oDUAAAABBBBZZZWPPRbyTCS, where:
AAAA = Lower bound of frequency band in MHz, rounded up to the nearest integer.
BBBB = Upper bound of frequency band in MHz, rounded down.
ZZZ = 000 in TDD systems.
W = N in TDD systems.
PP = maximum transmit power in dBm, rounded down.
R = number of receive channels.
T = number of transmit channels.

C = Y if cavity filter is present, N if not.
S = Reserved (0).

**NOTE**

1 The list includes ODUs that are not available yet.

2 For oDU23052360000N361by1Y0 that includes a WCS filter, the actually supported frequency band is 2305 - 2317, 2348 - 2360 MHz.

3 For the oDU24852690000N384by2NO the maximum supported transmit power in the 2485-2495 MHz band is 37 dBm.

**NOTE**

The following examples are for odu-1 parameters configuration mode.

### 3.7.1.2 Configuring ODU Parameters

After enabling the ODU parameters configuration mode you can configure the General ODU parameters.

The general ODU parameters table enables configuring the main properties of the required ODU.

To configure the general ODU parameters, run the following command:

**`npu(config-odu-params-1)# odu-general`** [external-cavity-filter-existence {TRUE | FALSE} ] [required-odu-type {`<a list of ODU types>`} ]

**NOTE**

You can display configuration information for the ODU general parameters. For details, refer to Section 3.7.1.6.

**IMPORTANT**

An error may occur if you provide an invalid value for any of these parameters. Refer the syntax description for more information about the appropriate values and format for configuring these parameters.

Command Syntax

```
npu(config-odu-params-1)# odu-general
[external-cavity-filter-existence {TRUE | FALSE} ]
[required-odu-type {<a list of ODU types} ]
```

Privilege Level: 10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [external-cavity-filter-existence {TRUE \| FALSE}] | Informational parameter indicating whether an external cavity filter for the ODU exists. | Optional | FALSE | ■ TRUE<br>■ FALSE |
| [required-odu-type {...} ] | The required ODU type.<br>For more details refer to Section 3.7.1.1 | Optional | The previously configured value | For details refer to Section 3.7.1.1 |

Command Modes: odu-params configuration mode

### 3.7.1.3 Restoring Default Values for ODU Configuration Parameters

After enabling the ODU parameters configuration mode you can restore the default values for the external-cavity-filter-existence parameter.

To restore the general external-cavity-filter-existence parameter to the default value, run the following command:

```
npu(config-odu-params-1)# no odu-general
[external-cavity-filter-existence]
```

The parameter will be restored to its default value, while the other parameters will remain unchanged.

**NOTE**

Refer to Section 3.7.1.2 for a description and default value of this parameter.

Command Syntax

```
npu(config-odu-params-1)# no odu-general
[external-cavity-filter-existence]
```

Privilege Level: 10

| | |
|---|---|
| Command Modes | odu-params configuration mode |

### 3.7.1.4 Terminating the ODU Parameters Configuration Mode

Run the following command to terminate the ODU Parameters configuration mode:

**npu(config-odu-params-1)# exit**

| | |
|---|---|
| Command Syntax | npu(config-odu-params-1)# exit |
| Privilege Level | 10 |
| Command Modes | odu-params configuration mode |

### 3.7.1.5 Deleting an ODU Object

Run the following command to delete an ODU object:

**npu(config)# no odu-params** <(1 to 28 StepSize 1)>

**IMPORTANT**

An associated ODU (specified in a Sector Association) cannot be deleted.

| | |
|---|---|
| Command Syntax | **npu(config)# no odu-params** <(1 to 28 StepSize 1)> |
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 28 StepSize 1)> | The ODU number | Mandatory | N/A | 1-28 |

| | |
|---|---|
| Command Modes | Global configuration mode |

### 3.7.1.6 Displaying Configuration and Status Information for ODU Parameters

You can display the current configuration and (where applicable) additional status information for the ODU general parameters.

To display configuration and status information for the general parameters of a specific or all ODU objects, run the following command:

**npu# show odu-general** [odu-no <(1 to 28 StepSize 1)>]

Specify the ODU number (1-28) if you want to display configuration and status information for a particular ODU. Do not specify a value for this parameter if you want to view configuration and status information for all existing ODU objects.

| | |
|---|---|
| Command Syntax | **npu# show odu-general** [odu-no <(1 to 28 StepSize 1)> ] |
| Privilege Level | 1 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [odu-no <(1 to 28 StepSize 1)> ] | The number of the ODU<br>Specify a value for this parameter if you want to display the general parameters of a specific ODU. Do not specify a value for this parameter if you want to display the general parameters of all ODUs. | Optional | N/A | 1-28 |

| | |
|---|---|
| Display Format<br><br>(for each existing ODU object if requested for all ODUs) | ODUNo. :<value><br>ExternalCavityFilterExistence :<value> or (0) if object does not exist<br>RequiredODUType :<value> or (0) if object does not exist<br>InstalledODUType :<value> or (0) if ODU is not installed<br>SerialNumber :<value> or null if ODU is not installed |
| Command Modes | Global command mode |

In addition to the configurable parameters, the following status parameters are also displayed:

| Parameter | Description | Possible Values |
|---|---|---|
| InstalledODUType | The installed ODU Type. | ■ A valid ODU type<br>■ odunotDetected (97)<br>■ odutypeUnknown (98)<br>■ odunotAssociated to sector (0) |
| SerialNumber | The ODU serial number | <number> |

## 3.7.2 Configuring ODU Ports

Up to four ODU Ports, numbered 1 to 4, can be created and configured for each ODU. However, for a 1by1 ODU only port number 1 is meaningful.

**To configure an ODU Port:**

1 Enable the ODU Port configuration mode for the selected ODU Port (refer to Section 3.7.2.1)

2 You can now execute any of the following tasks:

» Configure one or more of the ODU Port parameters (refer to Section 3.7.2.2)

» Restore the default value of the txpower-onoff parameter (refer to Section 3.7.2.3)

3 Terminate the ODU Port configuration mode (refer to Section 3.7.2.4)

In addition, you can, at any time, display configuration and status information for each or all of the ODU Ports (refer to Section 3.7.2.6) or delete an existing ODU Port (refer to Section 3.7.2.5).

### 3.7.2.1 Enabling the ODU Port Configuration Mode\Creating an ODU Port

To configure the parameters of an ODU Port, first enable the ODU Port configuration mode for the specific ODU Port. Run the following command to enable the ODU Port configuration mode for an existing ODU Port:

**npu (config)# odu-port** <(1 to 28 StepSize 1)> <(1 to 4 StepSize 1)>

To create a new ODU Port, the mandatory txpower parameter must be specified. Run the following command to create a new ODU Port and enable the configuration mode for this ODU Port:

**npu (config)# odu-port** <(1 to 28 StepSize 1)> <(1 to 4 StepSize 1)> **txpower** <(0 to 46 StepSize 1)>

A new ODU Port is created with default values for the txpower-onoff parameter. For example, to create Port 1 in ODU 1 with a configured Tx Power of 34 dBm, and enable the parameters configuration mode for this ODU Port run the following command:

**npu (config)# odu-port 1 1 txpower 34**

After enabling the configuration mode for an ODU Port you can execute any of the following tasks:

- Configure one or more of the parameters of the ODU Port (refer to Section 3.7.2.2)
- Restore the default value of the txpower-onoff parameter (refer to Section 3.7.2.3)

After executing the above tasks, you can terminate the ODU Port configuration mode (refer to Section 3.7.2.4) and return to the global configuration mode.

Command Syntax

**npu (config)# odu-port** <(1 to 28 StepSize 1)> <(1 to 4 StepSize 1)> [**txpower** <(0 to 46 StepSize 1)>]

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 28 StepSize 1)> | The ODU number | Mandatory | N/A | 1-28 |
| <(1 to 4 StepSize 1)> | The Port number. | Mandatory | N/A | 1-4 |
| [txpower <(0 to 46 StepSize 1)>] | The required tx power at the specified ODU Port, in dBm.<br>The actually available range depends on ODU Type: The upper limit is set by the Maximum Tx Power supported by the ODU. The control range for all ODUs is 10dBm. The AU will reject a value that is outside this range. | Mandatory for a new ODU Port | N/A | 0 to 46 in increments of 1 |

Command Modes

Global configuration mode

**NOTE**

The following examples are for odu-1, port-1 configuration mode.

## 3.7.2.2 Configuring ODU Port Parameters

After enabling the ODU Port configuration mode you can configure the transmit power parameters of the port.

To configure the ODU Port parameters, run the following command:

**`npu(config-odu-port-1-1)# params`** [txpower <(0 to 46 StepSize 1)> ] [txpower-onoff {on | off} ]

**NOTE**

You can display configuration information for the ODU Port parameters. For details, refer to Section 3.7.2.6.

**IMPORTANT**

An error may occur if you provide an invalid value for any of these parameters. Refer the syntax description for more information about the appropriate values and format for configuring these parameters.

Command Syntax

```
npu(config-odu-port-1-1)# params [txpower <(0 to 46 StepSize 1)>]
[txpower-onoff {on | off} ]
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [txpower <(0 to 46 StepSize 1)>] | The transmit power at the ODU Port, in dBm. | Optional | As configured previously | 0 to 46 in increments of 1<br>Actual range depends on ODU type. |
| [txpower-onoff {on \| off} ] | Enables or disables transmissions on this port. | Optional | on | ■ on<br>■ off |

Command Modes

odu-port configuration mode

**IMPORTANT**

Do not disable transmission on any of the ODU ports. If needed, transmission can be disabled by shutting down the applicable AU port (see Section 3.6.2.1).

## 3.7.2.3 Restoring Default Values for ODU Port Parameters

After enabling the ODU Port configuration mode you can restore the default values for the txpower-onoff parameter:

To restore the default values for the txpower-onoff parameter, run the following command:

**npu(config-odu-port-1-1)# no params**

The txpower-onoff parameter will be restored to its default value (on), while the mandatory txpower parameter will remain unchanged.

| | |
|---|---|
| Command Syntax | `npu(config-odu-port-1-1)# no params` |
| Privilege Level | 10 |
| Command Modes | odu-port configuration mode |

### 3.7.2.4 Terminating the ODU Port Configuration Mode

Run the following command to terminate the ODU Port configuration mode:

**npu(config-odu-port-1-1)# exit**

| | |
|---|---|
| Command Syntax | npu(config-odu-port-1-1)# exit |
| Privilege Level | 10 |
| Command Modes | odu-port configuration mode |

### 3.7.2.5 Deleting an ODU Port

Run the following command to delete an ODU Port:

**npu(config)# no odu-port** <(1 to 28 StepSize 1)> <(1 to 4 StepSize 1)>

**IMPORTANT**

An associated ODU Port (specified in a Sector Association) cannot be deleted.

Command Syntax: **npu(config)# no odu-params** <(1 to 28 StepSize 1)> <(1 to 4 StepSize 1)>

Privilege Level: 10

Syntax Description:

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 28 StepSize 1)> | The ODU number | Mandatory | N/A | 1-28 |
| <(1 to 4 StepSize 1)> | The Port number | Mandatory | N/A | 1-4 |

Command Modes: Global configuration mode

### 3.7.2.6 Displaying Configuration and Status Information for ODU Ports

To display configuration and status information of a specific or all ODU Ports, run the following command:

**npu# show odu-port** [odu-no <(1 to 28 StepSize 1)> port-no <(1 to 4 StepSize 1)>]

Specify the ODU number (1-28) and Port number (1-4) if you want to display configuration and status information for a particular ODU Port. Do not specify values for these parameters if you want to view configuration and status information for all existing ODU Ports.

Command Syntax: **npu# show odu-port** [odu-no <(1 to 28 StepSize 1)> port-no <(1 to 4 StepSize 1)> ]

Privilege Level: 1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [odu-no <(1 to 28 StepSize 1)> ] | The number of the ODU<br>Specify a value for this parameter if you want to display the parameters of a specific ODU Port. Do not specify a value for this parameter if you want to display the general parameters of all ODU Ports. | Optional | N/A | 1-28 |
| [port-no <(1 to 4 StepSize 1)> ] | The number of the Port<br>Specify a value for this parameter if you want to display the parameters of a specific ODU Port. Do not specify a value for this parameter if you want to display the general parameters of all ODU Ports. | Optional | N/A | 1-4 |

Display Format

(for each existing ODU Port if requested for all ODU Ports)

ODUNo. :<value>
ODUPortNo :<value>
TxPower(dBm) :<value>
TxEnable :<value>
HWVersion :<value>
HWRevision :<value>
HPACard :<value>
HPAHWVersion :<value>
HC08SWVersion :<value>
CPLDSWVersion :<value>
SerialNumber :<value>
txpower-status :<value>
odu-status-mask :<value>
RSSI :<value>

Command Modes: Global command mode

In addition to the configurable parameters, the following status parameters are also displayed:

| Parameter | Description | Possible Values |
|---|---|---|
| HWVersion | HW version no. of ODU basic card connected to this port | <number> |
| HWRevision | HW revision no. of ODU basic card connected to this port | <number> |
| HPACard | Indicates whether the port is connected to an HPA card | ■ installed (1)<br>■ notInstalled (0) |
| HPAHWVersion | HW version no. of HPA connected to this port (relevant only if HPACard is installed) | <number> |
| HC08SWVersion | SW version of HC08 controlling card connected to this port | <string> |
| CPLDSWVersion | SW version of CPLD controlling card connected to this port | <string> |
| SerialNumber | Serial number of ODU basic card connected to this port | <number> |
| txpower-status | The operation status of the port | <enabled/disabled> |
| odu-status-mask | Status indication (see below) | <number> |
| RSSI | Average uplink RSSI in dBm of all bursts of all connected MSs. | <number> |

ODU Status Mask is a decimal number representing the value of a 32-bits mask indicating possible failures, as follows:

| bit set to 1 | Failure |
|---|---|
| None | No Failure |
| 1 | AU Communication with ODU was lost |
| 2 | An error was detected while downloading a table to the ODU |
| 3 | The ODU temperature is high |
| 4 | Not used |
| 5 | Not used |

| | |
|---|---|
| 6 | Power amplifier failure |
| 7 | The ODU has detected an internal hardware problem |
| 8-32 | Not used |

# 3.8 Managing Antennas

Up to 28 Antenna objects, identified by the Antenna number (1-28), can be created and configured.

**To configure an Antenna:**

1. Enable the Antenna configuration mode for the selected Antenna (refer to Section 3.8.1)
2. You can now execute any of the following tasks:
   - » Configure one or more of the Antenna parameters (Section 3.8.2)
   - » Restore the default value of some or all of the Antenna parameters (refer to Section 3.8.3)
3. Terminate the Antenna configuration mode (refer to Section 3.8.4)

In addition, you can, at any time, display configuration information for one or all of the Antennas (refer to Section 3.8.6) or delete an existing Antenna (refer to Section 3.8.5).

## 3.8.1 Enabling the Antenna Configuration Mode\Creating an Antenna

To configure the parameters of an Antenna, first enable the Antenna configuration mode for the specific Antenna. Run the following command to enable the Antenna configuration mode for an Antenna:

**npu (config)# antenna** <(1 to 28 StepSize 1)>

When using this command to create a new Antenna, a new Antenna object is created with default values for all parameters.

**IMPORTANT**

An error may occur if you provide an invalid value for any of these parameters. Refer the syntax description for more information about the appropriate values and format for configuring these parameters.

After enabling the configuration mode for an Antenna you can execute any of the following tasks:

- Configure one or more of the parameters of the Antenna (refer to Section 3.8.2)
- Restore the default value of the non-mandatory parameters parameter (refer to Section 3.8.3)

After executing the above tasks, you can terminate the Antenna configuration mode (refer to Section 3.8.4) and return to the global configuration mode.

Command Syntax

**npu (config)# antenna** <(1 to 28 StepSize 1)>

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 28 StepSize 1)> | The Antenna number | Mandatory | N/A | 1-28 |

Command Modes

Global configuration mode

**NOTE**

The following examples are for antenna-1 configuration mode.

## 3.8.2 Configuring Antenna Parameters

After enabling the Antenna configuration mode you can configure the Antenna parameters.

To configure the Antenna parameters, run the following command:

**npu(config-antenna-1)# params** [antenna-type <string (32)>] [no-of-ports <(1 to 8 StepSize 1)>] [mechanical-downtilt <(-90 to 90 StepSize 0.1)>] [electrical-downtilt <(-90 to 90 StepSize 0.1)>] [longitude <longitude>] [latitude <latitude>] [tower-height <(0 to 500 StepSize 1)>] [heading <(0 to 359 StepSize 1)>] [cable-loss <(0 to 20 StepSize 0.1)>] [antenna-product-id {<a list of default and standard antennas> } ]

**NOTE**

The no-of-ports parameter is not relevant since the number of ports is derived from the antenna-type.

Command Syntax

```
npu(config-antenna-1)# params [antenna-type <string (32)> ]
[no-of-ports <(1 to 8 StepSize 1)> ] [mechanical-downtilt <(-90 to
90 StepSize 0.1)> ] [electrical-downtil <(-90 to 90 StepSize 0.1)>
] [longitude <longitude> ] [latitude <latitude> ] [tower-height
<(0 to 500 StepSize 1)> ] [heading <(0 to 359 StepSize 1)> ]
[cable-loss <(0 to 20StepSize 0.1)> ] [antenna-product-id {<a list
of default and standard antennas>} ]
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [antenna-type <string (32)> ] | Antenna type to be populated manually for inventory information only | Optional | N/A | String (up to 32 printable characters) |
| [no-of-ports <(1 to 8 StepSize 1)> ] | The number of antenna ports. Not relevant since the number of ports is derived from the antenna-type. | Optional | 1 | 1-8 |
| [mechanical-downtilt <(-90 to 90 StepSize 0.1)> ] | Downwards mechanical tilt of the antenna (in degrees) as opposed to the electrical tilt already integrated in the antenna (and thus taken as reference; instead of the horizontal plane) | Optional | 0 | -90.0 to 90.0 in steps of 0.1 |
| [electrical-downtil <(-90 to 90 StepSize 0.1)> ] | Downwards electrical tilt of the antenna, in degrees | Optional | 0 | -90.0 to 90.0 in steps of 0.1 |

| | | | | | |
|---|---|---|---|---|---|
| | [longitude <longitude> ] | The longitude of the antenna.<br><br>The recommended format is lll.mmm.a where lll.mmm is the longitude in degrees (lll - between 000 and 179, mmm - between 000 and 999), a is E (East) or W (West). | Optional | 000.000; E | String |
| | [latitude <latitude> ] | The latitude of the antenna.<br><br>The recommended format is lll.mmm.a where lll.mmm is the longitude in degrees (lll - between 000 and 89, mmm - between 000 and 999), a is N (North) or S (South). | Optional | 000.000; N | String |
| | [tower-height <(0 to 500 StepSize 1)> ] | Defines the height of the antenna above the ground in meters. | Optional | 0 | 0-500 |
| | [heading <(0 to 359 StepSize 1)> ] | Indicates the azimuth angle (in degrees) between the center of the horizontal antenna beamwidth and the true north; counting clockwise. | Optional | | 0-359 |
| | [cable-loss <(0 to 20 StepSize 0.1)> ] | The attenuation (in dB) of the cable between the ODU port and antenna port (informative only) | Optional | 0.5 | 0-20 in steps of 0.1 |
| | [antenna-product-id {<a list of default and standard antennas>} ] | The product id of the antenna. All parameters required by the system are taken from a file that includes the parameters for all supported antennas. | Optional | Default2 PortDS | one of the options in the list of default and standard antennas |

| | |
|---|---|
| Command Modes | antenna configuration mode |

**NOTE**

You can display configuration information for the Antenna parameters. For details, refer to Section 3.8.6.

**IMPORTANT**

An error may occur if you provide an invalid value for any of these parameters. Refer the syntax description for more information about the appropriate values and format for configuring these parameters.

## 3.8.3 Restoring Default Values for Antenna Parameters

After enabling the Antenna configuration mode you can restore the default values for some or all of the parameters (excluding the mandatory heading parameter).

To restore one or several Antenna parameters do their default value, run the following command:

```
npu(config-antenna-1)# no params [antenna-type] [no-of-ports]
[mechanical-downtilt] [electrical-downtil] [longitude] [latitude]
[tower-height] [heading] [cable-loss] [antenna-product-id]
```

You can restore one or several parameters to the default value(s) by specifying only those parameter. For example, to restore only the mechanical-downtilt and electrical-downtilt to their default values, run the following command:

```
npu(config-antenna-1)# no params mechanical-downtilt
electrical-downtil
```

The mechanical-downtilt and electrical-downtilt will be restored to their default values, while all other parameters will remain unchanged.

To restore all parameters to their default value, run the following command:

```
npu(config-antenna-1)# no params
```

**NOTE**

Refer to Section 3.8.2 for a description and default values of these parameters.

Command Syntax

```
npu(config-antenna-1)# no params [antenna-type] [no-of-ports]
[mechanical-downtilt] [electrical-downtil] [longitude] [latitude]
[tower-height] [heading] [cable-loss] [antenna-product-id]
```

| | |
|---|---|
| Privilege Level | 10 |
| Command Modes | antenna configuration mode |

## 3.8.4 Terminating the Antenna Configuration Mode

Run the following command to terminate the Antenna configuration mode:

**npu(config-antenna-1)# exit**

| | |
|---|---|
| Command Syntax | npu(config-antenna-1)# exit |
| Privilege Level | 10 |
| Command Modes | antenna configuration mode |

## 3.8.5 Deleting an Antenna

Run the following command to delete an Antenna:

**npu(config)# no antenna** <(1 to 28 StepSize 1)>

**IMPORTANT**

An associated Antenna (specified in a Sector Association) cannot be deleted.

| | |
|---|---|
| Command Syntax | **npu(config)# no antenna** <(1 to 28 StepSize 1)> |
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 28 StepSize 1)> | The Antenna number | Mandatory | N/A | 1-28 |

Command Modes

Global configuration mode

## 3.8.6 Displaying Configuration Information for Antennas

To display configuration information of a specific or all Antennas, run the following command:

**npu# show antenna** [antenna-no <(1 to 28 StepSize 1)>]

Specify the Antenna number (1-28) if you want to display configuration information for a particular Antenna. Do not specify values for this parameter if you want to view configuration information for all existing Antennas.

Command Syntax

**npu# show antenna** [antenna-no <(1 to 28 StepSize 1)>]

Privilege Level

1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [antenna-no <(1 to 28 StepSize 1)> ] | The number of the Antenna<br><br>Specify a value for this parameter if you want to display the parameters of a specific Antenna. Do not specify a value for this parameter if you want to display the parameters of all Antennas. | Optional | N/A | 1-28 |

| | |
|---|---|
| Display Format<br><br>(for each existing Antenna if requested for all Antennas) | AntennaNo. :<value><br>AntennaType :<value><br>No.ofPorts :<value><br>MechanicalDownTilt(degrees) :<value><br>ElectricalDownTilt(degrees) :<value><br>Longtitude :<value><br>Latitude :<value><br>TowerHeight(meters) :<value><br>AntennaHeading(degrees) :<value><br>CableLoss(dB) :<value><br>ProductId :<value> |
| Command Modes | Global command mode |

# 3.9 Managing BSs

Up to 28 different BSs can be defined.

The full configuration of each BS includes multiple components (tables). Many of these tables include one or more mandatory parameters (parameters with no default value). The creation of a new BS is not completed until all mandatory parameters have been configured.

Due to the complicated structure of the BS object and the high number of mandatory parameters in different tables, a special **apply** command must be executed for properly completing the configuration of certain tables. The **apply** command must be executed before exiting the applicable configuration mode. Failure to execute the **apply** command will result in loss of the newly configured parameters. Wherever required, the need to use the **apply** command will be indicated in the manual.

The following table lists the tasks for configuring a BS, indicating the applicable mandatory parameters and the need to execute the **apply** command where applicable. When configuring a new BS, verify that all mandatory parameters have been configured (otherwise a trial to associate the BS to a Sector will fail):

**Table 3-28: Tasks for Configuring a BS**

| Task | Mandatory Parameters | apply required |
|---|---|---|
| “Enabling the BS Configuration Mode\Creating a BS Object” on page 496 | bs id | No |
| “Managing BS General Parameters” on page 498 | | No |
| “Managing Power Control Levels” on page 506 | | No* |
| “Managing BS Feedback Allocation Parameter” on page 519 | | No |
| “Managing Neighbor Advertisement Parameters” on page 521 | | No |
| “Managing Triggers Parameters” on page 524 | | No |
| “Managing Scan Negotiation Parameters” on page 528 | | No |

**Table 3-28: Tasks for Configuring a BS**

| Task | Mandatory Parameters | apply required |
|---|---|---|
| “Managing Neighbor BSs” on page 531 | General Parameters:<br>■ eirp<br>■ bw<br>■ feedbackzone-permbase<br>■ ucd-configchangecount<br>■ dcd-configchangecount<br>■ frequency<br>■ preamble-idx | Yes |
| “Managing the RF Frequency Parameter” on page 556 | frequency | No |
| “Managing the Baseband Bandwidth Parameter” on page 558 | bandwidth | No |
| “Managing Airframe Structure Parameters” on page 561 | General Parameters:<br>■ cell-id<br>■ segment<br>■ frame-offset<br>■ ul-dl-allocation<br>Map Zone Parameters:<br>■ majorgrps<br>Uplink Feedback Zone Parameters:<br>■ permbase<br>Downlink Data Zone:<br>■ permbase<br>Uplink Data Zone:<br>■ permbase | Yes |

**Table 3-28: Tasks for Configuring a BS**

| Task | Mandatory Parameters | apply required |
|---|---|---|
| "Managing BS Bearer Interface Parameters" on page 589 | ip-address<br>ip-subnetmask<br>dflt-gw | No |
| "Managing Authentication Relay Parameters" on page 592 | dflt-auth-ip-address | No |
| "Managing Bearer Traffic QoS Marking Rules" on page 598 | enable-srvcflow-mediaflowtype<br>srvcflow-mediaflowtype (if enable-srvcflow-mediaflowtype is set to True) | Yes |
| "Managing Control Traffic QoS Marking Rules" on page 606 | | No* |
| "Managing ID-IP Mapping Parameters" on page 615 | nw-node-id (Next Hop BS ID)<br>nw-node-ip | No |
| "Managing Ranging Parameters" on page 619 | | No* |
| "Managing Alarm Threshold Parameters" on page 623 | | No |
| "Managing BS Reserved Parameters" on page 628 | | No |
| "Managing the BS Keep-Alive Functionality" on page 628 | | No |
| "Managing the BS Idle Mode Parameters" on page 632 | | No |
| "Managing Scheduler Parameters" on page 634 | | No |
| "Managing the BS ASN-GW Load Balancing Parameters" on page 639 | | No |
| "Managing Beam Forming Parameter" on page 642 | | No |

* After configuring at least one general BS parameter (see "Managing BS General Parameters" on page 498), even when configured to its default value, all tables with no mandatory parameters are created automatically, with all parameters set to their default value. Otherwise, for each of the following tables you must enter the configuration mode and execute the Apply command before exiting the configuration mode:

- Power Control Levels and Policies
- Control Traffic QoS Marking Rules
- Ranging Parameters

## 3.9.1 Enabling the BS Configuration Mode\Creating a BS Object

To configure the parameters of a BU, first enable the BS configuration mode for the specific BS. Run the following command to enable the BS configuration mode. You can also use this command to create a new BS object. Note that for a new object this command only defines the BS ID, and that the BS is not fully created until completing configuration of all mandatory parameters.

The BS ID is the unique identifier of the BS in the access network. The BS ID used in the system is in the format A.B.C where A, B, C are from 0 to 255. The BS ID used in the CLI is an integer that is calculated by the formula A*65536+B*256+C. For example, a BS ID of 1.2.5 is translated to 1*65536+2*256+5=66053.

```
npu(config)# bs <(1 to 16777215 StepSize 1)>
```

For example, to configure BS 66053, run the following command:

```
npu (config)# bs 66053
```

**IMPORTANT**

An error occurs if you specify BS ID that is not in the range, 1-16777215.

If you use this command to create a new BS, the configuration mode for this BS is automatically enabled, after which you can execute any of the following tasks:

- Configure one or more of the parameters tables of the BS
- Restore the default values for the non-mandatory parameters of one or more of the parameters tables of the BS

After executing the above tasks, you can terminate the BS configuration mode (refer to Section 3.6.4) and return to the global configuration mode. From the global configuration mode you can delete an existing BS (refer to). You can display configuration information for selected tables from the global command mode.

| | |
|---|---|
| Command Syntax | **npu(config)# bs** <(1 to 16777215 StepSize 1)> |
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The unique ID (BSIDLSB) of the BS. Must be unique in the radio access network. A number in the range from 1 to 16,777,215 (a 24-bit value that can be represented as A.B.C where A, B, C are from 0 to 255). | Mandatory | N/A | 1 to 16777215 |

| | |
|---|---|
| Command Modes | Global configuration mode |

**NOTE**

The following examples are for bs configuration mode for bs-66053.

## 3.9.2 Deleting a BS

Run the following command to delete a BS:

**npu(config)# no bs** <(1 to 16777215 StepSize 1)>

**IMPORTANT**

An associated bs (specified in an associated sector) cannot be deleted.

| | |
|---|---|
| Command Syntax | npu(config)# no bs <(1 to 16777215 StepSize 1)> |
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The unique ID (BSIDLSB) of the BS. | Mandatory | N/A | 1 to 16777215 |

Command Modes

Global configuration mode

## 3.9.3 Managing BS General Parameters

The general parameters of a BS include the Operator ID and the BS Name.

After enabling the BS configuration mode, you can execute the following tasks:

- Configure one or more of the general parameters (refer to Section 3.9.3.1).
- Restore the default values of one or all of the general parameters (refer to Section 3.9.3.2).

You can display configuration information for the general parameters of a selected or all existing BSs (refer to Section 3.9.3.3).

### 3.9.3.1 Configuring BS General Parameters

**To configure the BS General Parameters:**

From the BS configuration mode, run the following command:

**npu(config-bs-66053)# general** [operator-id <(1 to 16777215 StepSize 1)>] [bs-name <string (32)>] [ul-def-rate {ctcQpskOneOverTwoTimesSix | ctcQpskOneOverTwoTimesFour | ctcQpskOneOverTwoTimesTwo | ctcQpskOneOverTwo | ctcQpskThreeOverFour | ctcQamSixteenOneOverTwo | ctcQamSixteenThreeOverFour | ctcQamSixtyFourOneOverTwo | ctcQamSixtyFourTwoOverThree | ctcQamSixtyFourThreeOverFour | ctcQamSixtyFourFiveOverSix} ] [dl-def-rate-for-management {ctcQpskOneOverTwoTimesSix | ctcQpskOneOverTwoTimesFour | ctcQpskOneOverTwoTimesTwo | ctcQpskOneOverTwo | ctcQpskThreeOverFour | ctcQamSixteenOneOverTwo | ctcQamSixteenThreeOverFour | ctcQamSixtyFourOneOverTwo | ctcQamSixtyFourTwoOverThree | ctcQamSixtyFourThreeOverFour |

```
ctcQamSixtyFourFiveOverSix} ] [dl-def-rate-for-data
{ctcQpskOneOverTwoTimesSix | ctcQpskOneOverTwoTimesFour |
ctcQpskOneOverTwoTimesTwo | ctcQpskOneOverTwo |
ctcQpskThreeOverFour | ctcQamSixteenOneOverTwo |
ctcQamSixteenThreeOverFour | ctcQamSixtyFourOneOverTwo |
ctcQamSixtyFourTwoOverThree | ctcQamSixtyFourThreeOverFour |
ctcQamSixtyFourFiveOverSix} ] [deployment {fix | mobile} ]
```

**NOTE**

After configuring at least one general BS parameter (see “Managing BS General Parameters” on page 555), even when configured to its default value, all tables with no mandatory parameters are created automatically, with all parameters set to their default value. Otherwise, for each of the following tables you must enter the configuration mode and execute the Apply command before exiting the configuration mode:

- Power Control Levels and Policies
- Control Traffic QoS Marking Rules
- Ranging Parameters

Command Syntax

```
npu(config-bs-66053)# general [operator-id <(1 to 16777215
StepSize 1)> ] [bs-name <string (32)> ] [ul-def-rate
{ctcQpskOneOverTwoTimesSix | ctcQpskOneOverTwoTimesFour |
ctcQpskOneOverTwoTimesTwo | ctcQpskOneOverTwo |
ctcQpskThreeOverFour | ctcQamSixteenOneOverTwo |
ctcQamSixteenThreeOverFour | ctcQamSixtyFourOneOverTwo |
ctcQamSixtyFourTwoOverThree | ctcQamSixtyFourThreeOverFour |
ctcQamSixtyFourFiveOverSix} ] [dl-def-rate-for-management
{ctcQpskOneOverTwoTimesSix | ctcQpskOneOverTwoTimesFour |
ctcQpskOneOverTwoTimesTwo | ctcQpskOneOverTwo |
ctcQpskThreeOverFour | ctcQamSixteenOneOverTwo |
ctcQamSixteenThreeOverFour | ctcQamSixtyFourOneOverTwo |
ctcQamSixtyFourTwoOverThree | ctcQamSixtyFourThreeOverFour |
ctcQamSixtyFourFiveOverSix} ] [dl-def-rate-for-data
{ctcQpskOneOverTwoTimesSix | ctcQpskOneOverTwoTimesFour |
ctcQpskOneOverTwoTimesTwo | ctcQpskOneOverTwo |
ctcQpskThreeOverFour | ctcQamSixteenOneOverTwo |
ctcQamSixteenThreeOverFour | ctcQamSixtyFourOneOverTwo |
ctcQamSixtyFourTwoOverThree | ctcQamSixtyFourThreeOverFour |
ctcQamSixtyFourFiveOverSix} ] [deployment {fix | mobile} ]
```

Privilege Level 10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [operator-id <(1 to 16777215 StepSize 1)>] | A unique operator identifier. The same Operator ID must be used throughout the radio access network. (a 24-bit value that can be represented as A.B.C where A, B, C are from 0 to 255) | Optional | 16773929 | 1 to 16777215 |
| [bs-name <string (32)>] | BS name | Optional | empty string | A string of up to 32 printable characters. |

| | | | | | |
|---|---|---|---|---|---|
| | [ul-def-rate {ctcQpskOneOverTwoTimesSix \| ctcQpskOneOverTwoTimesFour \| ctcQpskOneOverTwoTimesTwo \| ctcQpskOneOverTwo \| ctcQpskThreeOverFour \| ctcQamSixteenOneOverTwo \| ctcQamSixteenThreeOverFour \| ctcQamSixtyFourOneOverTwo \| ctcQamSixtyFourTwoOverThree \| ctcQamSixtyFourThreeOverFour \| ctcQamSixtyFourFiveOverSix} ] | The uplink basic rate. | Optional | ctcQpskOneOverTwo | ■ ctcQpskOneOverTwoTimesSix<br>■ ctcQpskOneOverTwoTimesFour<br>■ ctcQpskOneOverTwoTimesTwo<br>■ ctcQpskOneOverTwo<br>■ ctcQpskThreeOverFour<br>■ ctcQamSixteenOneOverTwo<br>■ ctcQamSixteenThreeOverFour<br>■ ctcQamSixtyFourOneOverTwo<br>■ ctcQamSixtyFourTwoOverThree<br>■ ctcQamSixtyFourThreeOverFour<br>■ ctcQamSixtyFourFiveOverSix} |

| | | | | | |
|---|---|---|---|---|---|
| | [dl-def-rate-for-management {ctcQpskOneOverTwoTimesSix \| ctcQpskOneOverTwoTimesFour \| ctcQpskOneOverTwoTimesTwo \| ctcQpskOneOverTwo \| ctcQpskThreeOverFour \| ctcQamSixteenOneOverTwo \| ctcQamSixteenThreeOverFour \| ctcQamSixtyFourOneOverTwo \| ctcQamSixtyFourTwoOverThree \| ctcQamSixtyFourThreeOverFour \| ctcQamSixtyFourFiveOverSix} ] | The downlink basic rate for unicast and broadcast management. | Optional | ctcQpskOneOverTwo | ■ ctcQpskOneOverTwoTimesSix<br>■ ctcQpskOneOverTwoTimesFour<br>■ ctcQpskOneOverTwoTimesTwo<br>■ ctcQpskOneOverTwo<br>■ ctcQpskThreeOverFour<br>■ ctcQamSixteenOneOverTwo<br>■ ctcQamSixteenThreeOverFour<br>■ ctcQamSixtyFourOneOverTwo<br>■ ctcQamSixtyFourTwoOverThree<br>■ ctcQamSixtyFourThreeOverFour<br>■ ctcQamSixtyFourFiveOverSix} |

| | | | | | |
|---|---|---|---|---|---|
| | [dl-def-rate-for-data {ctcQpskOneOverTwoTimesSix \| ctcQpskOneOverTwoTimesFour \| ctcQpskOneOverTwoTimesTwo \| ctcQpskOneOverTwo \| ctcQpskThreeOverFour \| ctcQamSixteenOneOverTwo \| ctcQamSixteenThreeOverFour \| ctcQamSixtyFourOneOverTwo \| ctcQamSixtyFourTwoOverThree \| ctcQamSixtyFourThreeOverFour \| ctcQamSixtyFourFiveOverSix} ] | The downlink basic rate for data. | Optional | ctcQpskOneOverTwo | ■ ctcQpskOneOverTwoTimesSix<br>■ ctcQpskOneOverTwoTimesFour<br>■ ctcQpskOneOverTwoTimesTwo<br>■ ctcQpskOneOverTwo<br>■ ctcQpskThreeOverFour<br>■ ctcQamSixteenOneOverTwo<br>■ ctcQamSixteenThreeOverFour<br>■ ctcQamSixtyFourOneOverTwo<br>■ ctcQamSixtyFourTwoOverThree<br>■ ctcQamSixtyFourThreeOverFour<br>■ ctcQamSixtyFourFiveOverSix} |
| | `[deployment {fix \| mobile} ]` | The type of deployment in the area served by the BS. To support proper handover, should be set to fix only if mobile MSs are not expected. | Optional | fix | ■ fix<br>■ mobile |

| | |
|---|---|
| Command Modes | bs configuration mode |

### 3.9.3.2 Restoring Default Values for BS General Parameters

After enabling the BS configuration mode you can restore the default values for one or all of the general BS parameters.

To restore one or all general BS parameters do their default value, run the following command:

```
npu(config-bs-66053)# no general [operator-id] [bs-name]
[ul-def-rate-for-management] [dl-def-rate] [dl-def-rate-for-data]
[deployment]
```

You can restore one parameter to its default value by specifying only that parameter. For example, to restore only the operator-id to its default value, run the following command:

```
npu(config-bs-66053)# no general operator-id
```

The operator-id will be restored to its default value, while the other parameters will remain unchanged.

To restore all parameters to their default value, run the following command:

```
npu(config-bs-66053)# no general
```

**NOTE**

Refer to Section 3.9.3.1 for a description and default values of these parameters.

| | |
|---|---|
| Command Syntax | `npu(config-bs-66053)# no general [operator-id] [bs-name] [ul-def-rate] [dl-def-rate-for-management] [dl-def-rate-for-data] [deployment]` |
| Privilege Level | 10 |
| Command Modes | bs configuration mode |

### 3.9.3.3 Displaying Configuration Information for BS General Parameters

To display configuration information of the general parameters of a specific or all BSs, run the following command:

**npu# show general bs** [<(1 to 16777215 StepSize 1)>]

Specify the BS ID (1-16777215) of an existing BS if you want to display configuration information for a particular BS. Do not specify values for this parameter if you want to view configuration information for all existing BSs.

Command Syntax

**npu# show general bs** [<(1 to 16777215 StepSize 1)> ]

Privilege Level

1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [<(1 to 16777215 StepSize 1)> ] | The BS ID<br>Specify a value for this parameter if you want to display the general parameters of a specific BS. Do not specify a value for this parameter if you want to display the general parameters of all BSs. | Optional | N/A | 1-16777215 |

Display Format

(for each existing BS if requested for all BSs)

BSIDLSB :<value>

OperatorID :<value>

BSName :<value>

Defaultuplinkbasicrate :<value>

Defaultdownlinkbasicrateformanagement :<value>

Defaultdownlinkbasicratefordata :<value>

Deployment :<value>

Command Modes

Global command mode

## 3.9.4 Managing Power Control Levels

**To configure the Power Control Levels:**

1. Enable the Power Control configuration mode (refer to Section 3.9.4.1)
2. You can now execute any of the following tasks:
   - » Configure one or more of the Power Control parameters tables (refer to Section 3.9.4.2)
   - » Restore the default values of parameters in one or more of the Power Control parameters tables (refer to Section 3.9.4.3)
   - » Terminate the Power Control configuration mode (refer to Section 3.9.4.4)

In addition, you can, at any time, display configuration information for each of the parameters tables (refer to Section 3.9.4.5).

### 3.9.4.1 Enabling the Power Control Configuration Mode

To configure the Power Control parameters, first enable the Power Control configuration mode. Run the following command to enable the Power Control configuration mode.

```
npu(config-bs-66053)# pwrctrl
```

The Power Control configuration mode is enabled, after which you can execute any of the following tasks:

- Configure one or more of the Power Control parameters tables (refer to Section 3.9.4.2)
- Restore the default values of parameters in one or more of the parameters tables (refer to Section 3.9.4.3)

After executing the above tasks, you can terminate the Power Control configuration mode (refer to Section 3.9.4.4) and return to the BS configuration mode.

| | |
|---|---|
| Command Syntax | `npu(config-bs-66053)# pwrctrl` |

| | |
|---|---|
| Privilege Level | 10 |

| | |
|---|---|
| Command Modes | bs configuration mode |

## 3.9.4.2 Configuring Power Control Parameters

After enabling the Power Control configuration mode you can configure the following parameters tables:

- Target Noise and Interference Level (refer to Section 3.9.4.2.1)
- Required C/N Level (refer to Section 3.9.4.2.2)

**NOTE**

In the current release, the command for configuring Maximum EIRxP parameter, npu(config-bs-66053-pwrctrl)# maxeirxp, is not applicable and should not be used. An attempt to configure a value using this command will be ignored (value is taken from vendor file).

### 3.9.4.2.1 Configuring Power Control Target Noise and Interference Level Parameters

The Target Noise and Interference Level table enables defining the target limits for various noise and interference levels.

To configure the Target Noise and Interference Levels, run the following command:

**npu(config-bs-66053-pwrctrl)# nilevels** [target-ni <(-130 to -110 StepSize 1)>] [allowed-if-level {veryHigh | high | medium | low} ]

**NOTE**

An attempt to configure the cqi-ack-ranging parameter will be ignored. The value of this parameter is set by internal logic.

| | |
|---|---|
| Command Syntax | **npu(config-bs-66053-pwrctrl)# nilevels** [target-ni <(-130 to -110 StepSize 1)> ] [allowed-if-level {veryHigh \| high \| medium \| low} ] |

| | |
|---|---|
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| `[target-ni <(-130 to -110 StepSize 1)> ]` | Target Noise and interference level for the PUSC zone, in dBm. | Optional | -127 | -130 to -110 in steps of 1 |
| [allowed-if-level {veryHigh \| high \| medium \| low} ] | Allowed Interference Level: Correction of maximum allowed UL MCS based on measured DL CINR. | Optional | high | ■ veryHigh<br>■ high<br>■ medium<br>■ low |

Command Modes

bs power control configuration mode

### 3.9.4.2.2 Configuring the Power Control Required C/N Level Parameters

The Required C/N Levels table enables defining the Carrier to Noise Ratios required for various types of transmissions.

To configure the Required C/N Levels, run the following command:

**npu(config-bs-66053-pwrctrl)# requiredcnr** [ack <(-20 to 50 StepSize 1)>] [cqi <(-20 to 50 StepSize 1)>] [cdma <(-20 to 50 StepSize 1)>] [qpsk-1by2 <(-20 to 50 StepSize 1)>] [qpsk-3by4 <(-20 to 50 StepSize 1)>] [qam16-1by2 <(-20 to 50 StepSize 1)>] [qam16-3by4 <(-20 to 50 StepSize 1)>] [qam64-1by2 <(-20 to 50 StepSize 1)>] [qam64-2by3 <(-20 to 50 StepSize 1)>] [qam64-3by4 <(-20 to 50 StepSize 1)>] [qam64-5by6 <(-20 to 50 StepSize 1)>]

Command Syntax

```
npu(config-bs-66053-pwrctrl)# requiredcnr [ack <(-20 to 50
StepSize 1)> ] [cqi <(-20 to 50 StepSize 1)> ] [cdma <(-20 to 50
StepSize 1)> ] [qpsk-1by2 <(-20 to 50 StepSize 1)> ] [qpsk-3by4
<(-20 to 50 StepSize 1)> ] [qam16-1by2 <(-20 to 50 StepSize 1)> ]
[qam16-3by4 <(-20 to 50 StepSize 1)> ] [qam64-1by2 <(-20 to 50
StepSize 1)> ] [qam64-2by3 <(-20 to 50 StepSize 1)> ] [qam64-3by4
<(-20 to 50 StepSize 1)> ] [qam64-5by6 <(-20 to 50 StepSize 1)> ]
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [ack <(-20 to 50 StepSize 1)> ] | The C/N in dB required for sending ACK, reported to the MS for power control purposes. | Optional | 7 | -20 to 50 |
| [cqi <(-20 to 50 StepSize 1)> ] | The C/N in dB required for sending CQI, reported to the MS for power control purposes.<br>Must be in the range from requiredcnr-ack - 8 to requiredcnr-ack + 7 (see ack parameter above) | Optional | 12 | -20 to 50 |
| [cdma <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting CDMA, reported to the MS for power control purposes.<br>Must be in the range from requiredcnr-cqi - 8 to requiredcnr-cqi + 7 (see cqi parameter above) | Optional | 9 | -20 to 50 |
| [qpsk-1by2 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using QPSK 1/2, reported to the MS for power control purposes.<br>Must be in the range from requiredcnr-cdma - 16 to requiredcnr-cdma + 14 (see cdma parameter above) | Optional | 13 | -20 to 50 |
| [qpsk-3by4<(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using QPSK 3/4, reported to the MS for power control purposes.<br>Must be in the range from requiredcnr-qpsk-1by2 - 16 to requiredcnr-qpsk-1by2 + 14 (see qpsk-1by2 parameter above) | Optional | 16 | -20 to 50 |

| | | | | | |
|---|---|---|---|---|---|
| | [qam16-1by2 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using 16QAM 1/2, reported to the MS for power control purposes.<br><br>Must be in the range from requiredcnr-qpsk-3by4 - 8 to requiredcnr-qpsk-3by4 + 7 (see qpsk-3by4 parameter above) | Optional | 19 | -20 to 50 |
| | [qam16-3by4 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using 16QAM 3/4, reported to the MS for power control purposes.<br><br>Must be in the range from requiredcnr-qam16-1by2 - 16 to requiredcnr-qam16-1by2 + 14 (see qam16-1by2 parameter above) | Optional | 22 | -20 to 50 |
| | [qam64-1by2 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using 64QAM 1/2, reported to the MS for power control purposes.<br><br>Must be in the range from requiredcnr-qam16-3by4 - 16 to requiredcnr-qam16-3by4 + 14 (see qam16-3by4 parameter above) | Optional | 23 | -20 to 50 |
| | [qam64-2by3 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using 64QAM 2/3, reported to the MS for power control purposes.<br><br>Must be in the range from requiredcnr-qam64-1by2 - 8 to requiredcnr-qam64-1by2 + 7 (see qam64-1by2 parameter above) | Optional | 25 | -20 to 50 |
| | [qam64-3by4 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using 64QAM 3/4, reported to the MS for power control purposes.<br><br>Must be in the range from requiredcnr-qam64-2by3 - 8 to requiredcnr-qam54-2by3 + 7 (see qam54-2by3 parameter above) | Optional | 26 | -20 to 50 |

| | | | | | |
|---|---|---|---|---|---|
| | [qam64-5by6 <(-20 to 50 StepSize 1)> ] | he C/N in dB required for transmitting using 64QAM 5/6, reported to the MS for power control purposes.<br>Must be in the range from requiredcnr-qam64-3by4 - 8 to requiredcnr-qam64-3by4 + 7 (see qam64-3by4 parameter above) | Optional | 28 | -20 to 50 |

| | |
|---|---|
| Command Modes | bs power control configuration mode |

## 3.9.4.3 Restoring Default Values for Power Control Configuration Parameters

After enabling the Power Control configuration mode you can restore the default values for parameters in the following parameters tables:

- Noise and Interference Level (refer to Section 3.9.4.3.1)
- Required C/N Level (refer to Section 3.9.4.3.2)

**NOTE**

In the current release, the command for restoring the default value for the Maximum EIRxP parameter, npu(config-bs-66053-pwrctrl)# no maxeirxp, is not applicable and should not be used. An attempt to restore the value to a default value using this command will be ignored (value is taken from vendor file).

### 3.9.4.3.1 Restoring the Default Values of Power Control Target Noise and Interference Level Parameters

To restore one or all of the Target Noise and Interference Level parameters to their default values, run the following command:

**npu(config-bs-66053-pwrctrl)# no nilevels** [target-ni] [allowed-if-level]

You can restore only one parameter to its default values by specifying only that parameter. For example, to restore only the target-ni to the default value, run the following command:

**npu(config-bs-66053-pwrctrl)# no nilevels target-ni**

The parameter will be restored to its default value, while the other parameter will remain unchanged.

To restore all Target Noise and Interference Level parameters to their default value, run the following command:

**npu(config-bs-66053-pwrctrl)# no nilevels**

**NOTE**

Refer to Section 3.9.4.2.1 for a description and default values of these parameters.

| | |
|---|---|
| Command Syntax | **npu(config-bs-66053-pwrctrl)# no nilevels** [target-ni] [allowed-if-level] |
| Privilege Level | 10 |
| Command Modes | bs power control configuration mode |

### 3.9.4.3.2 Restoring the Default Values of Power Control Required C/N Level Parameters

To restore some or all of the Required C/N Levels parameters to their default values, run the following command:

**npu(config-bs-66053-pwrctrl)# no requiredcnr** [ack] [cqi] [cdma] [qpsk-1by2] [qpsk-3by4] [qam16-1by2] [qam16-3by4] [qam64-1by2] [qam64-2by3] [qam64-3by4] [qam64-5by6]

You can restore only some parameters to their default values by specifying only those parameter. For example, to restore only the ack and cqi parameters to the default values, run the following command:

**npu(config-bs-66053-pwrctrl)# no requiredcnr ack cqi**

These parameters will be restored to their default value, while the other parameters will remain unchanged.

To restore all Required C/N Levels parameters to their default value, run the following command:

**npu(config-bs-66053-pwrctrl)# no requiredcnr**

**NOTE**

Refer to Section 3.9.4.2.2 for a description and default values of these parameters.

| | |
|---|---|
| Command Syntax | **npu(config-bs-66053-pwrctrl)# no requiredcnr** [ack ] [cqi ] [cdma ] [qpsk-1by2 ] [qpsk-3by4 ] [qam16-1by2 ] [qam16-3by4 ] [qam64-1by2 ] [qam64-2by3 ] [qam64-3by4 ] [qam64-5by6 ] |
| Privilege Level | 10 |
| Command Modes | bs power control configuration mode |

### 3.9.4.4 Terminating the Power Control Configuration Mode

Run the following command to terminate the Power Control configuration mode:

**npu(config-bs-66053-pwrctrl)# exit**

| | |
|---|---|
| Command Syntax | npu(config-bs-66053-pwrctrl)# exit |
| Privilege Level | 10 |
| Command Modes | bs power control configuration mode |

### 3.9.4.5 Displaying Configuration Information for Power Control Parameters

You can display the current configuration information for the following parameters tables:

- Noise and Interference Level (refer to Section 3.9.4.5.1)
- Maximum EIRxP (refer to Section 3.9.4.5.2)
- Required C/N Level (refer to Section 3.9.4.5.3)
- All (refer to Section 3.9.4.5.4)

### 3.9.4.5.1 Displaying Configuration Information for Power Control Target Noise and Interference Level Parameters

To display configuration for the Power Control Target Noise and Interference Level parameters, run the following command:

**npu# show pwrctrl-nilevels bs** [<(1 to 16777215 StepSize 1)

Specify the BS ID if you want to display configuration for a particular BS. For example, to display the Power Control Target Noise and Interference Level parameters of BS 66053, run the following command:

**npu# show pwrctrl-nilevels bs 66053**

Do not specify this parameter if you want to view configuration information for all existing BSs. To display information for all BSs, run the following command:

**npu# show pwrctrl-nilevels bs**

Command Syntax

**npu# show pwrctrl-nilevels bs** [<(1 to 16777215 StepSize 1)

Privilege Level

1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The BS ID<br><br>Specify a value for this parameter if you want to display the Target Noise and Interference Level parameters of a specific BS. Do not specify a value for this parameter if you want to display the Target Noise and Interference Level parameters of all BSs. | Optional | N/A | 1-16777215 |

| | |
|---|---|
| Display Format<br><br>(for each existing BS if requested for all BSs) | BSIDLSB :<value><br>TargetNi :<value><br>AllowedIfLevel :<value> |
| Command Modes | Global command mode |

### 3.9.4.5.2 Displaying Configuration Information for Power Control Maximum EIRxP

The Maximum EIRxP parameter defines the maximum effective isotropic received power at the BS for Initial ranging.

In the current release this parameter cannot be configured and is set by the value in the vendor parameters file.

To display configuration for the Power Control Maximum EIRxP parameter, run the following command:

**npu# show pwrctrl-maxeirxp bs** [<(1 to 16777215 StepSize 1)

Specify the BS ID if you want to display configuration for a particular BS. For example, to display the Power Control Maximum EIRxP parameter of BS 66053, run the following command:

**npu# show pwrctrl-maxeirxp bs 66053**

Do not specify this parameter if you want to view configuration information for all existing BSs. To display information for all BSs, run the following command:

**npu# show pwrctrl-maxeirxp bs**

| | |
|---|---|
| Command Syntax | **npu# show pwrctrl-maxeirxp bs** [<(1 to 16777215 StepSize 1) |
| Privilege Level | 1 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The BS ID<br><br>Specify a value for this parameter if you want to display the Maximum EIRxP parameter of a specific BS. Do not specify a value for this parameter if you want to display the Maximum EIRxP parameter of all BSs. | Optional | N/A | 1-16777215 |

Display Format

(for each existing BS if requested for all BSs)

BSIDLSB :<value>

MaxEIRxP :<value>

Command Modes

Global command mode

### 3.9.4.5.3 Displaying Configuration Information for Power Control Required C/N Level Parameters

To display configuration for the Power Control Required C/N Level parameters, run the following command:

**npu# show pwrctrl-requiredcnr bs** [<(1 to 16777215 StepSize 1)

Specify the BS ID if you want to display configuration for a particular BS. For example, to display the Power Control Required C/N Level parameters of BS 66053, run the following command:

**npu# show pwrctrl-requiredcnr bs 66053**

Do not specify this parameter if you want to view configuration information for all existing BSs. To display information for all BSs, run the following command:

**npu# show pwrctrl-requiredcnr bs**

Command Syntax

**npu# show pwrctrl-requiredcnr bs** [<(1 to 16777215 StepSize 1)

Privilege Level

1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The BS ID<br>Specify a value for this parameter if you want to display the Required C/N Level parameters of a specific BS. Do not specify a value for this parameter if you want to display the Required C/N Level parameters of all BSs. | Optional | N/A | 1-16777215 |

Display Format

(for each existing BS if requested for all BSs)

BSIDLSB :<value>

RequiredCNRforACK :<value>

RequiredCNRforCQI :<value>

RequiredCNRforCDMA :<value>

RequiredCNRforQPSK1/2 :<value>

RequiredCNRforQPSK3/4 :<value>

RequiredCNRfor16QAM1/2 :<value>

RequiredCNRfor16QAM3/4 :<value>

RequiredCNRfor64QAM1/2 :<value>

RequiredCNRfor64QAM2/3 :<value>

RequiredCNRfor64QAM3/4 :<value>

RequiredCNRfor64QAM5/6 :<value>

Command Modes

Global command mode

### 3.9.4.5.4 Displaying Configuration Information for All Power Control Parameters

To display configuration for all Power Control parameters, run the following command:

**npu# show pwrctrl-all bs** [<(1 to 16777215 StepSize 1)

Specify the BS ID if you want to display configuration for a particular BS. For example, to display all Power Control parameters of BS 66053, run the following command:

**npu# show pwrctrl-all bs 66053**

Do not specify this parameter if you want to view configuration information for all existing BSs. To display information for all BSs, run the following command:

**npu# show pwrctrl-all bs**

Command Syntax

**npu# show pwrctrl-all bs** [<(1 to 16777215 StepSize 1)

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The BS ID<br>Specify a value for this parameter if you want to display all Power Control parameters of a specific BS. Do not specify a value for this parameter if you want to display all Power Control parameters of all BSs. | Optional | N/A | 1-16777215 |

Command Modes

Global command mode

## 3.9.5 Managing BS Feedback Allocation Parameter

After enabling the BS configuration mode, you can execute the following tasks:

- Configure the Feedback Allocation parameter (refer to Section 3.9.5.1).
- Restore the default values of the Feedback Allocation parameter (refer to Section 3.9.5.2).

You can display configuration information for the Feedback Allocation parameter of a selected or all existing BSs (refer to Section 3.9.5.3).

### 3.9.5.1 Configuring Feedback Allocation Parameter

**To configure the Feedback Allocation Parameter:**

From the BS configuration mode, run the following command:

```
npu(config-bs-66053)# feedbackalloc [ir-cdma <(1 to 1 StepSize 1) | (2 to 2 StepSize 1) | (4 to 4 StepSize 1) | (6 to 6 StepSize 1) | (8 to 8 StepSize 1) | (10 to 10 StepSize 1)> ]
```

Command Syntax

```
npu(config-bs-66053)# feedbackalloc [ir-cdma <(1 to 1 StepSize 1) | (2 to 2 StepSize 1) | (4 to 4 StepSize 1) | (6 to 6 StepSize 1) | (8 to 8 StepSize 1) | (10 to 10 StepSize 1)> ]
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [ir-cdma <<(1 to 1 StepSize 1) \| (2 to 2 StepSize 1) \| (4 to 4 StepSize 1) \| (6 to 6 StepSize 1) \| (8 to 8 StepSize 1) \| (10 to 10 StepSize 1)>> ] | The period of IR CDMA allocations, in frames.<br>In the current release the actual value is always 2, regardless of the configured value. | Optional | 2 | 1, 2, 4, 6, 8, 10. |

| | |
|---|---|
| Command Modes | bs configuration mode |

### 3.9.5.2 Restoring the Default Values of the Feedback Allocation Parameter

To restore the ir-cdma non-mandatory parameter to the default values, run the following command:

**npu(config-bs-66053)# no feedbackalloc** [ir-cdma]

To restore the ir-cdma parameter to the default value, run any of the following commands:

**npu(config-bs-66053)# no feedbackalloc ir-cdma**

**npu(config-bs-66053)# no feedbackalloc**

**NOTE**

Refer to Section 3.9.5.1 for a description and default values of this parameter.

| | |
|---|---|
| Command Syntax | **npu(config-bs-66053)# no feedbackalloc** [ir-cdma ] |
| Privilege Level | 10 |
| Command Modes | bs configuration mode |

### 3.9.5.3 Displaying Configuration Information for the Feedback Allocation Parameter

To display configuration information for Feedback Allocation parameter, run the following command:

**npu# show feedbackalloc bs** [<(1 to 16777215 StepSize 1)

Specify the BS ID if you want to display configuration for a particular BS. For example, to display the Feedback Allocation parameter of BS 66053, run the following command:

**npu# show feedbackalloc bs 66053**

Do not specify this parameter if you want to view configuration information for all existing BSs. To display information for all BSs, run the following command:

**npu# show feedbackalloc bs**

Command Syntax

**npu# show feedbackalloc bs** [<(1 to 16777215 StepSize 1)

Privilege Level

1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The BS ID<br><br>Specify a value for this parameter if you want to display Feedback Allocation parameter of a specific BS. Do not specify a value for this parameter if you want to display Feedback Allocation parameter of all BSs. | Optional | N/A | 1-16777215 |

Display Format

(for each existing BS if requested for all BSs)

BSIDLSB :<value>

IRCDMAAllocationsPeriod(frames) :<value>

Command Modes

Global command mode

## 3.9.6 Managing Neighbor Advertisement Parameters

After enabling the BS configuration mode, you can execute the following tasks:

- Configure one or more of the Neighbor Advertisement parameters (refer to Section 3.9.6.1).
- Restore the default values of one or all of the Neighbor Advertisement parameters (refer to Section 3.9.6.2).

You can display configuration information for the Neighbor Advertisement parameters of a selected or all existing BSs (refer to Section 3.9.6.3).

### 3.9.6.1 Configuring Neighbor Advertisement Parameters

**To configure the Neighbor Advertisement Parameters:**

From the BS configuration mode, run the following command:

**npu(config-bs-66053)# nbradvertise** [triggersetup <(0 to 100 StepSize 0.1)>]

Command Syntax

```
npu(config-bs-66053)# nbradvertise [triggersetup <(0 to 100
StepSize 0.1)> ]
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [triggersetup <(0 to 100 StepSize 0.1)> ] | The periodic NBRADV transmission interval, in seconds | Optional | 10 | 0 - 100 in steps of 0.1 |

Command Modes

bs configuration mode

### 3.9.6.2 Restoring the Default Values of Neighbor Advertisement Parameter

Since there is only one Neighbor Advertisement parameter, run any of the following commands to restore it to the default value:

**npu(config-bs-66053)# no nbradvertise**

**npu(config-bs-66053)# no nbradvertise triggersetup**

**NOTE**

Refer to Section 3.9.6.1 for a description and default values of these parameters.

| | |
|---|---|
| Command Syntax | **npu(config-bs-66053)# no nbradvertise** `[triggersetup]` |
| Privilege Level | 10 |
| Command Modes | bs configuration mode |

### 3.9.6.3 Displaying Configuration Information for Neighbor Advertisement Parameters

To display configuration information for the Neighbor Advertisement parameter, run the following command:

**npu# show nbradvertise bs** [<(1 to 16777215 StepSize 1)

Specify the BS ID if you want to display configuration for a particular BS. For example, to display the Neighbor Advertisement parameters of BS 66053, run the following command:

**npu# show nbradvertise bs 66053**

Do not specify this parameter if you want to view configuration information for all existing BSs. To display information for all BSs, run the following command:

**npu# show nbradvertise bs**

| | |
|---|---|
| Command Syntax | **npu# show nbradvertise bs** [<(1 to 16777215 StepSize 1) |
| Privilege Level | 1 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The BS ID<br><br>Specify a value for this parameter if you want to display Neighbor Advertisement parameters of a specific BS. Do not specify a value for this parameter if you want to display Neighbor Advertisement parameters of all BSs. | Optional | N/A | 1-16777215 |

Display Format

(for each existing BS if requested for all BSs)

BSIDLSB :<value>

PeriodicInterval :<value>

Command Modes

Global command mode

## 3.9.7 Managing Triggers Parameters

After enabling the BS configuration mode, you can configure one or more of the Triggers parameters (refer to Section 3.9.7.1).

You can display configuration information for the Triggers parameters of a selected or all existing BSs (refer to Section 3.9.7.2).

### 3.9.7.1 Configuring Triggers Parameters

**To configure the Triggers Parameters:**

From the BS configuration mode, run the following command:

**npu(config-bs-66053)# triggers-**<trigger-name> <trigger-range>

Each Trigger is configured separately. This is the general structure of the command.

Command Syntax

**npu(config-bs-66053)# triggers-**`<trigger-name> <trigger-range>`

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <trigger-name> | The Trigger name. | Mandatory | N/A | See Table 3-29 below |
| <trigger-value> | Defines the threshold value for the Trigger. | Mandatory | N/A | See Table 3-29 below |

Command Modes

bs configuration mode

**Table 3-29: Trigger Names and Possible Value Ranges**

| Trigger Name | Trigger Condition | Action | Possible Values |
|---|---|---|---|
| triggers-scnreq-cinr-min | The C/N at the Serving BS is below the Trigger threshold (in dB) | Scan Request | -64 to 63.5 in steps of 0.5 |
| triggers-scnreq-rssi-min | The RSSI at the Serving BS is below the Trigger threshold (in Bm) | | -103.75 to -40 in steps of 0.25 |
| triggers-scnreq-rtd-max | The Serving BS distance from the MS (calculated by measuring the round trip delay) is above the Trigger threshold (in meter) | | 0-3400 in steps of 50 if BS BW is 10 MHz, 0-6800 in steps of 50 if BS BW is 5 MHz, 0-4800 in steps of 50 if BS BW is 7 MHz |

**Table 3-29: Trigger Names and Possible Value Ranges**

| Trigger Name | Trigger Condition | Action | Possible Values |
|---|---|---|---|
| triggers-horeq-cinr-margin | The C/N at the Neighbor BS minus the C/N at the Serving BS is above the Trigger threshold (in dB) | Handover Request | -64 to 63.5 in steps of 0.5 |
| triggers-horeq-cinr-max | The C/N at the Neighbor BS is above the Trigger threshold (in dB) | | -64 to 63.5 in steps of 0.5 |
| triggers-horeq-cinr-min | The C/N at the Serving BS is below the Trigger threshold (in dB) | | -64 to 63.5 in steps of 0.5 |
| triggers-horeq-rssi-margin | The RSSI at the Neighbor BS minus the RSSI at the Serving BS is above the Trigger threshold (in dBm) | | -32 to 31.75 in steps of 0.25 |
| triggers-horeq-rssi-max | The RSSI at the Neighbor BS is above the Trigger threshold (in dBm) | | -103.75 to -40 in steps of 0.25 |
| triggers-horeq-rssi-min | The RSSI at the Serving BS is below the Trigger threshold (in dBm) | | -103.75 to -40 in steps of 0.25 |
| triggers-horeq-rtd-max | The Serving BS distance from the MS (calculated by measuring the round trip delay) is above the Trigger threshold (in meter) | | 0-3400 in steps of 50 if BS BW is 10 MHz, 0-6800 in steps of 50 if BS BW is 5 MHz, 0-4800 in steps of 50 if BS BW is 7 MHz |

### 3.9.7.2 Displaying Configuration Information for Triggers Parameters

To display configuration information for Triggers parameters, run the following command:

**npu# show triggers bs** [<(1 to 16777215 StepSize 1)> TrigName {scnReqCinrMin | scnReqRssiMin | scnReqRtdMax | hoReqCinrMaxNbs | hoReqRssiMaxNbs | hoReqCinrMargin | hoReqRssiMargin | hoReqRtdMax | hoReqCinrMinSbs | hoReqRssiMinSbs}]

Specify the BS ID and Trigger name if you want to display configuration for a particular Trigger. For example, to display the scnReqCinrMin parameters of BS 66053, run the following command:

**npu# show triggers bs 66053 TrigName scnReqCinrMin**

Do not specify these parameters if you want to view configuration information for all existing BSs. To display information for all BSs, run the following command:

**npu# show triggers bs**

Command Syntax

**npu# show triggers bs** [<(1 to 16777215 StepSize 1)> TrigName {scnReqCinrMin | scnReqRssiMin | scnReqRtdMax | hoReqCinrMaxNbs | hoReqRssiMaxNbs | hoReqCinrMargin | hoReqRssiMargin | hoReqRtdMax | hoReqCinrMinSbs | hoReqRssiMinSbs} ]

Privilege Level

1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The BS ID<br>Specify a value for this parameter if you want to display a specific Trigger of a specific BS. Do not specify a value for this parameter if you want to display all Triggers parameters of all BSs. | Optional | N/A | 1-16777215 |
| TrigName {scnReqCinrMin \| scnReqRssiMin \| scnReqRtdMax \| hoReqCinrMaxNbs \| hoReqRssiMaxNbs \| hoReqCinrMargin \| hoReqRssiMargin \| hoReqRtdMax \| hoReqCinrMinSbs \| hoReqRssiMinSbs} ] | The Trigger name<br>Specify only if you want to display a specific Trigger of a specific BS. Do not specify if you want to display all Triggers parameters of all BSs | | | ■ scnReqCinrMin<br>■ scnReqRssiMin<br>■ scnReqRtdMax<br>■ hoReqCinrMaxNbs<br>■ hoReqRssiMaxNbs<br>■ hoReqCinrMargin<br>■ hoReqRssiMargin<br>■ hoReqRtdMax<br>■ hoReqCinrMinSbs<br>■ hoReqRssiMinSbs} |

| | |
|---|---|
| Display Format (for a selected Trigger) | BSIDLSB :<value><br>scnReqRssiMin :<value> |
| Command Modes | Global command mode |

## 3.9.8 Managing Scan Negotiation Parameters

After enabling the BS configuration mode, you can execute the following tasks:

- Configure one or more of the Scan Negotiation parameters (refer to Section 3.9.8.1).
- Restore the default values of some or all of the Scan Negotiation parameters (refer to Section 3.9.8.2).

You can display configuration information for the Scan Negotiation parameters of a selected or all existing BSs (refer to Section 3.9.8.3).

### 3.9.8.1 Configuring Scan Negotiation Parameters

**To configure the Scan Negotiation Parameters:**

From the BS configuration mode, run the following command:

**npu(config-bs-66053)# scanning** [enable-modify {true | false}]

| | |
|---|---|
| Command Syntax | **npu(config-bs-66053)# scanning** [enable-modify {true \| false} ] |
| Privilege Level | 10 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [enable-modify {TRUE \| FALSE} ] | Determines whether the BS will modify unfeasible scan profiles requested by MSs.<br>**Note:** If TRUE the BS will modify unfeasible scan profile requests and if FALSE the BS will deny the requests. | Optional | true | ■ true<br>■ false |

Command Modes

bs configuration mode

### 3.9.8.2 Restoring the Default Value of Scan Negotiation Parameters

To restore the Scan Negotiation enable-modify parameter to the default value, run the following command:

**npu(config-bs-66053)# no scanning** [enable-modify]

**NOTE**

Refer to Section 3.9.8.1 for a description and default value of this parameter.

Command Syntax

**npu(config-bs-66053)# no scanning** `[enable-modify ][`

Privilege Level

10

Command Modes

bs configuration mode

### 3.9.8.3 Displaying Configuration Information for Scan Negotiation Parameters

To display configuration information for Scan Negotiation parameters, run the following command:

**npu# show scanning bs** [<(1 to 16777215 StepSize 1)

Specify the BS ID if you want to display configuration for a particular BS. For example, to display the Scan Negotiation parameters of BS 66053, run the following command:

**npu# show scanning bs 66053**

Do not specify this parameter if you want to view configuration information for all existing BSs. To display information for all BSs, run the following command:

**npu# show scanning bs**

Command Syntax

**npu# show scanning bs** [<(1 to 16777215 StepSize 1)

Privilege Level

1

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The BS ID<br>Specify a value for this parameter if you want to display Scan Negotiation parameters of a specific BS. Do not specify a value for this parameter if you want to display Scan Negotiation parameters of all BSs. | Optional | N/A | 1-16777215 |

Display Format

(for each existing BS if requested for all BSs)

BSIDLSB :<value>

EnableModifyProfile :<true/false>

Command Modes

Global command mode

## 3.9.9 Managing Neighbor BSs

**To configure a Neighbor BS:**

1. Enable the Neighbor BS configuration mode for the selected Neighbor BS (refer to Section 3.9.9.1)
2. You can now execute any of the following tasks:
   - Configure one or more of the parameters tables of the Neighbor BS (refer to Section 3.9.9.2)
   - Restore the default values of parameters in one or more of the parameters tables of the Neighbor BS (refer to Section 3.9.9.3)
   - Terminate the Neighbor BS configuration mode (refer to Section 3.9.9.5)

In addition, you can, at any time, display configuration information for each of the parameters tables of the Neighbor BS (refer to Section 3.9.9.7) or delete an existing Neighbor BS (refer to Section 3.9.9.6).

### 3.9.9.1 Enabling the Neighbor BS Configuration Mode\Creating a Neighbor BS

To configure the parameters of a Neighbor BS, first enable the Neighbor BS configuration mode for the specific Neighbor BS. Run the following command to enable the Neighbor BS configuration mode. You can also use this command to create a new Neighbor BS.

```
npu(config-bs-66053)# nbr <(1 to 16777215 StepSize 1)>
```

Note that for a new Neighbor BS this command only defines the Neighbor BS ID, and that the Neighbor BS is not fully created until completing configuration of all mandatory parameters and executing the **apply** command (must be executed before exiting the Neighbor BS configuration mode). Also when updating an existing Neighbor BS, the **apply** command must be executing prior to termination the Neighbor BS configuration mode.

For example, to define a new Neighbor BS with a BS ID 66055, or to enable the configuration mode for Neighbor BS 66055, run the following command:

```
npu(config-bs-66053)# nbr 66055
```

If you use this command to create a new Neighbor BS, the configuration mode for this Neighbor BS is automatically enabled, after which you can execute any of the following tasks:

- Configure one or more of the parameters tables of the Neighbor BS (refer to Section 3.9.9.2)
- Restore the default values of parameters in one or more of the parameters tables of the Neighbor BS (refer to Section 3.9.9.3)

After executing the above tasks, you can terminate the Neighbor BS configuration mode (refer to Section 3.9.9.5) and return to the BS configuration mode.

Note that for properly completing the configuration of a Neighbor BS the **apply** command must be executed prior to exiting the Neighbor BS configuration mode.

Command Syntax

```
npu(config-bs-66053)# nbr <(1 to 16777215 StepSize 1)>
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| nbr <(1 to 16777215 StepSize 1)> | The BS ID (BSIDLSB) of the Neighbor BS | Mandatory | | 1 - 16777215 |

Command Modes

bs configuration mode

For example, to define Neighbor BS 66055 for bs-68000, run the following command:

```
npu(config-bs-66053)# nbr 68000
```

**NOTE**

The following examples are for Neighbor BS configuration mode for bs-66053, neighbor bs (nbr) 68000.

### 3.9.9.2 Configuring Neighbor BS Parameters

After enabling the Neighbor BS configuration mode you can configure the following parameters tables:

- General (refer to Section 3.9.9.2.1)
- Required C/N Level (refer to Section 3.9.9.2.2)
- Triggers (refer to Section 3.9.9.2.3)
- Specific BS Triggers (refer to Section 3.9.9.2.4

**IMPORTANT**

After completing the Neighbor BS configuration, do not forget to execute the apply command before exiting the Neighbor BS configuration mode:

**npu(config-bs-66053-nbr-68000)# apply**

#### 3.9.9.2.1 Configuring General Neighbor BS Parameters

The General Neighbor BS Parameters table enables defining the general parameters of the Neighbor BS.

To configure the General Neighbor BS parameters, run the following command:

**npu(config-bs-66053-nbr-68000)# general** [syncind {unsynchronized | timeSynchronized | timeAndFrequencySynchronized}] [eirp <(-128 to 127 StepSize 1)>] [bw {fiveMHz | tenMHz | sevenMHz}] [feedbackzone-permbase <(0 to 69 StepSize 1)>] [ucd-configchangecount <(0 to 255 StepSize 1)>] [dcd-configchangecount <(0 to 255 StepSize 1)>] [eirx-pir-max <(-140 to -40 StepSize 1)>] [frequency <(2022.5 to 2217.5 StepSize 0.125) | (2302.5 to 2397.5 StepSize 0.125) | (2487.5 to 2687.5 StepSize 0.125) | (3302.5 to 3397.5 StepSize 0.125) | (3402.5 to 3597.5 StepSize 0.125) | (3602.5 to 3797.5 StepSize 0.125)>] [preamble-idx <(0 to 255 StepSize 1)>] [paging-grp-id <(0 to 65535 StepSize 1)> ] [nbr-strt-rng-codes <(0 to 255 StepSize 1)> ] [bsNeighborBsDlDataMIMOMode {matrixAorB | beamforming} ]

**IMPORTANT**

When creating a new Neighbor BS, all mandatory Neighbor BS General parameters must be configured.

Command Syntax

```
npu(config-bs-66053-nbr-68000)# general [syncind {unsynchronized | timeSynchronized | timeAndFrequencySynchronized} ] [eirp <(-128 to 127 StepSize 1)> ] [bw {fiveMHz | tenMHz | sevenMHz} ] [feedbackzone-permbase <(0 to 69 StepSize 1)> ] [ucd-configchangecount <(0 to 255 StepSize 1)>] [dcd-configchangecount <(0 to 255 StepSize 1)> ] [eirx-pir-max <(-140 to -40 StepSize 1)> ] [frequency <(2022.5 to 2217.5 StepSize 0.125) | (2302.5 to 2397.5 StepSize 0.125) | (2487.5 to 2687.5 StepSize 0.125) | (3302.5 to 3397.5 StepSize 0.125) | (3402.5 to 3597.5 StepSize 0.125) | (3602.5 to 3797.5 StepSize 0.125)> ] [preamble-idx <(0 to 255 StepSize 1)> ] [paging-grp-id <(0 to 65535 StepSize 1)> ] [nbr-strt-rng-codes <(0 to 255 StepSize 1)> ] [bsNeighborBsDlDataMIMOMode {matrixAorB | beamforming} ]
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [syncind {unsynchronized \| timeSynchronized \| timeAndFrequency Synchronized} ] | Time/Frequency synchronization indicator.<br>In the current release should always be set to timeAndFrequencySyn chronized. | Optional | timeAndFr equencySy nchronized | ■ unsynchronized<br>■ timeSynchronized<br>■ timeAndFrequency Synchronized |
| [eirp <(-128 to 127 StepSize 1)> ] | Neighbor BS EIRP | Mandatory When creating a new Neighbor BS. | N/A | -128 to 127 |

| | | | | |
|---|---|---|---|---|
| [bw {fiveMHz \| tenMHz \| sevenMHz} ] | The bandwidth of neighbor BS.<br>Should be taken from Baseband bandwidth parameter of the relevant BS (see Section 3.9.11.2) | Mandatory When creating a new Neighbor BS. | N/A | ■ fiveMHz<br>■ tenMHz<br>■ sevenMHz |
| [feedbackzone-permbase <(0 to 69 StepSize 1)> ] | The first uplink zone permutation base of the neighbor BS.<br>In current release this equals the feedback zone permutation base (see Section 3.9.12.5.4) | Mandatory When creating a new Neighbor BS. | N/A | 0 - 69 |
| [ucd-configchangecount <(0 to 255 StepSize 1)>] | UCD configuration change count of neighbor BS<br>In the current release must be set to 0. | Mandatory When creating a new Neighbor BS. | N/A | 0 - 255<br>must be set to 0 |
| [dcd-configchangecount <(0 to 255 StepSize 1)> ] | DCD configuration change count of neighbor BS<br>In the current release must be set to 0. | Mandatory When creating a new Neighbor BS. | N/A | 0 - 255<br>must be set to 0 |
| eirx-pir-max <(-140 to -40 StepSize 1)> | The required effective isotropic received power at the Neighbor BS for Initial ranging, in dBm.<br>Should be taken from Power Control maxeirxp (see Section 3.9.4.5.2) | Optional | -124 | -140 to -40 |

| | | | | |
|---|---|---|---|---|
| [frequency <(2022.5 to 2217.5 StepSize 0.125) \| (2302.5 to 2397.5 StepSize 0.125) \| (2487.5 to 2687.5 StepSize 0.125) \| (3302.5 to 3397.5 StepSize 0.125) \| (3402.5 to 3597.5 StepSize 0.125) \| (3602.5 to 3797.5 StepSize 0.125)> ] | Downlink center frequency of neighbor BS.<br><br>Should be taken from RF frequency parameter of the relevant BS (see Section 3.9.10.2) | Mandatory When creating a new Neighbor BS. | N/A | ■ 2022.5 to 2217.5 in steps of 0.125<br>■ 2302.5 to 2397.5 in steps of 0.125<br>■ 2487.5 to 2687.5 in steps of 0.125<br>■ 3302.5 to 3397.5 in steps of 0.125<br>■ 3402.5 to 3597.5 in steps of 0.125<br>■ 3602.5 to 3797.5 in steps of 0.125 |
| [preamble-idx <(0 to 113 StepSize 1)> ] | Neighbor BS Preamble Index.<br><br>When translated to an 8 bits binary string, bits 0-6 of this parameter are used to indicate the neighbor BS preamble index. Bit 7 is used to indicate the neighbor BS reuse type for CINR measurement for handover purposes Bits 0-6 should be the same as preamble-idx in displayed information of Airframe General parameters of the relevant BS (see Section 3.9.12.5.1 | Mandatory When creating a new Neighbor BS. | N/A | 0 - 255 |
| [paging-grp-id <(0 to 65535 StepSize 1)> ] | The neighbor BS Paging Group Id Should be taken from Idle Mode paging-group-id parameter of the relevant BS (see Section 3.9.23) | Optional | 0 | 0 - 65535 |

| | | | | | |
|---|---|---|---|---|---|
| | [nbr-strt-rng-codes <(0 to 255 StepSize 1)> ] | The neighbor BS starting number; S; of the group of codes used for this uplink.<br>Should be taken from Ranging General, start-of-rng-codes parameters of the relevant BS (see Section 3.9.19.2) | Optional | 0 | 0 -255 |
| | [bsNeighborBsDlDataMIMOMode {matrixAorB \| beamforming} ] | The diversity mode used by the neighbor BS. Should be taken from Airframe dldiversity mode parameter of the relevant BS (see Section 3.9.12.2.3) | Optional | matrixA0rB | ■ matrixAorB<br>■ beamforming |

| | |
|---|---|
| Command Modes | bs neighbor bs configuration mode |

### 3.9.9.2.2 Configuring the Neighbor BS Required C/N Level Parameters

The Neighbor BS Required C/N Levels table enables defining the Carrier to Noise Ratios required for various types of transmissions.

The configured values should be the same as those defined for the applicable Power Control Required C/N Level parameters (see Section 3.9.4.5.3) in the neighbor BS.

To configure the Neighbor BS Required C/N Levels, run the following command:

**npu(config-bs-66053-nbr-68000)# requiredcnr** [ack <(-20 to 50 StepSize 1)>] [cqi <(-20 to 50 StepSize 1)>] [cdma <(-20 to 50 StepSize 1)>] [qpsk-1by2 <(-20 to 50 StepSize 1)>] [qpsk-3by4 <(-20 to 50 StepSize 1)>] [qam16-1by2 <(-20 to 50 StepSize 1)>] [qam16-3by4 <(-20 to 50 StepSize 1)>] [qam64-1by2 <(-20 to 50 StepSize 1)>] [qam64-2by3 <(-20 to 50 StepSize 1)>] [qam64-3by4 <(-20 to 50 StepSize 1)>] [qam64-5by6 <(-20 to 50 StepSize 1)>]

Command Syntax

```
npu(config-bs-66053-nbr-68000)# requiredcnr [ack <(-20 to 50 StepSize 1)> ] [cqi <(-20 to 50 StepSize 1)> ] [cdma <(-20 to 50 StepSize 1)> ] [qpsk-1by2 <(-20 to 50 StepSize 1)> ] [qpsk-3by4 <(-20 to 50 StepSize 1)> ] [qam16-1by2 <(-20 to 50 StepSize 1)> ] [qam16-3by4 <(-20 to 50 StepSize 1)> ] [qam64-1by2 <(-20 to 50 StepSize 1)> ] [qam64-2by3 <(-20 to 50 StepSize 1)> ] [qam64-3by4 <(-20 to 50 StepSize 1)> ] [qam64-5by6 <(-20 to 50 StepSize 1)> ]
```

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| [ack <(-20 to 50 StepSize 1)> ] | The C/N in dB required for sending ACK, reported by the Neighbor BS to the MS for power control purposes. | Optional | 7 | -20 to 50 |
| [cqi <(-20 to 50 StepSize 1)> ] | The C/N in dB required for sending CQI, reported by the Neighbor BS to the MS for power control purposes. | Optional | 0 | -20 to 50 |
| [cdma <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting CDMA, reported by the Neighbor BS to the MS for power control purposes. | Optional | 0 | -20 to 50 |
| [qpsk-1by2 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using QPSK 1/2, reported by the Neighbor BS to the MS for power control purposes. | Optional | 14 | -20 to 50 |
| [qpsk-3by4<(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using QPSK 3/4, reported by the Neighbor BS to the MS for power control purposes. | Optional | 16 | -20 to 50 |

| | | | | | |
|---|---|---|---|---|---|
| | [qam16-1by2 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using 16QAM 1/2, reported by the Neighbor BS to the MS for power control purposes. | Optional | 18 | -20 to 50 |
| | [qam16-3by4 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using 16QAM 3/4, reported by the Neighbor BS to the MS for power control purposes. | Optional | 22 | -20 to 50 |
| | qam64-1by2 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using 64QAM 1/2, reported by the Neighbor BS to the MS for power control purposes. | Optional | 23 | -20 to 50 |
| | [qam64-2by3 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using 64QAM 2/3, reported by the Neighbor BS to the MS for power control purposes. | Optional | 23 | -20 to 50 |
| | [qam64-3by4 <(-20 to 50 StepSize 1)> ] | The C/N in dB required for transmitting using 64QAM 3/4, reported by the Neighbor BS to the MS for power control purposes. | Optional | 23 | -20 to 50 |
| | [qam64-5by6 <(-20 to 50 StepSize 1)> ] | he C/N in dB required for transmitting using 64QAM 5/6, reported by the Neighbor BS to the MS for power control purposes. | Optional | 23 | -20 to 50 |

| | |
|---|---|
| Command Modes | bs neighbor bs configuration mode |

### 3.9.9.2.3 Configuring Neighbor BS Triggers Parameters

To configure the Neighbor BS Triggers parameters, run the following command:

**npu(config-bs-66053-nbr-68000)# triggers-<trigger-name> <trigger-range>**

Each Trigger is configured separately. This is the general structure of the command.

The configured trigger names and values should be the same as those defined for the applicable Triggers parameters (see Section 3.9.7.2) in the neighbor BS.

**IMPORTANT**

When creating a new Neighbor BS, at least one of the Neighbor BS Trigger parameters must be configured.

Command Syntax

**npu(config-bs-66053-nbr-68000)# triggers-<trigger-name> <trigger-range>**

Privilege Level

10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <trigger-name> | The Trigger name. | Mandatory | N/A | See Table 3-29 |
| <trigger-value> | Defines the threshold value for the Trigger. | Mandatory | N/A | See Table 3-29 |

Command Modes

bs neighbor bs configuration mode

### 3.9.9.2.4 Configuring Neighbor BS Specific BS Triggers Parameters

The Specific BS Triggers can be configured to define the conditions for initiating an handover request action to the specific neighbor BS (in addition to the general Triggers defined for the BS).

To configure the Neighbor BS Specific BS Triggers parameters, run the following command:

**npu(config-bs-66053-nbr-68000)# -<specific-trigger-name> <trigger-range>**

Each Trigger is configured separately. This is the general structure of the command.

Command Syntax

**npu(config-bs-66053-nbr-68000)# <specific-trigger-name> <trigger-range>**

Privilege Level: 10

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <specific-trigger-name> | The Specific Trigger name. | Mandatory | N/A | See Table 3-30 |
| <trigger-value> | Defines the threshold value for the Trigger. | Mandatory | N/A | See Table 3-30 |

Command Modes: bs neighbor bs configuration mode

**Table 3-30: Neighbor Specific Trigger Names and Possible Value Ranges**

| Trigger Name | Trigger Condition | Action | Possible Values |
|---|---|---|---|
| nbrspecific-horeq-cinr-max-nbs | The C/N at the Serving BS is below the Trigger threshold (in dB) | Handover Request | -64 to 63.5 in steps of 0.5 |
| nbrspecific-horeq-rssi-max-nbs | The RSSI at the Serving BS is below the Trigger threshold (in Bm) | | -103.75 to -40 in steps of 0.25 |
| nbrspecific-horeq-cinr-margin | The C/N at the Neighbor BS minus the C/N at the Serving BS is above the Trigger threshold (in dB) | | -64 to 63.5 in steps of 0.5 |
| nbrspecific-horeq-rssi-margin | The RSSI at the Neighbor BS minus the RSSI at the Serving BS is above the Trigger threshold (in dB) | | --32 to 31.75 in steps of 0.25 |

### 3.9.9.3 Restoring Default Values for Neighbor BS Configuration Parameters

After enabling the Neighbor BS configuration mode you can restore the default values for non-mandatory parameters in the following parameters tables:

- General (refer to Section 3.9.9.3.1)
- Required C/N Level (refer to Section 3.9.9.3.2)

### 3.9.9.3.1 Restoring the Default Values of Neighbor BS General Parameters

To restore one or all of the Neighbor BS non-mandatory General parameters to their default values, run the following command:

**npu(config-bs-66053-nbr-68000)# no general** [syncind] [eirx-pir-max] [paging-grp-id ] [nbr-strt-rng-codes ] [bsNeighborBsDlDataMIMOMode ]

You can restore only some parameters to the default values by specifying only those parameters. For example, to restore only the syncind to the default value, run the following command:

**npu(config-bs-66053-nbr-68000)# no general syncind**

The parameter will be restored to its default value, while the other parameters will remain unchanged.

To restore all non-mandatory parameters to their default value, run the following command:

**npu(config-bs-66053-nbr-68000)# no general**

**NOTE**

Refer to Section 3.9.9.2.1 for a description and default values of these parameters.

| | |
|---|---|
| Command Syntax | **npu(config-bs-66053-nbr-68000)# no general** `[syncind ] [eirx-pir-max ][paging-grp-id ][nbr-strt-rng-codes][bsNeighborBsDlDataMIMOMode ]` |
| Privilege Level | 10 |
| Command Modes | bs neighbor bs configuration mode |

### 3.9.9.3.2 Restoring the Default Values of Neighbor BS Required C/N Level Parameters

To restore some or all of the Neighbor BS Required C/N Levels parameters to their default values, run the following command:

**npu(config-bs-66053-bs-68000)# no requiredcnr** [ack] [cqi] [cdma] [qpsk-1by2] [qpsk-3by4] [qam16-1by2] [qam16-3by4] [qam64-1by2] [qam64-2by3] [qam64-3by4] [qam64-5by6]

You can restore only some parameters to their default values by specifying only those parameter. For example, to restore only the ack and cqi parameters to the default values, run the following command:

**npu(config-bs-66053-nbr-68000)# no requiredcnr ack cqi**

These parameters will be restored to their default value, while the other parameters will remain unchanged.

To restore all Neighbor BS Required C/N Levels parameters to their default value, run the following command:

**npu(config-bs-66053-nbr-68000)# no requiredcnr**

**NOTE**

Refer to Section 3.9.9.2.2 for a description and default values of these parameters.

| | |
|---|---|
| Command Syntax | **npu(config-bs-66053-nbr-68000)# no requiredcnr** [ack ] [cqi ] [cdma ] [qpsk-1by2 ] [qpsk-3by4 ] [qam16-1by2 ] [qam16-3by4 ] [qam64-1by2 ] [qam64-2by3 ] [qam64-3by4 ] [qam64-5by6 ] |
| Privilege Level | 10 |
| Command Modes | bs neighbor bs configuration mode |

## 3.9.9.4 Deleting Neighbor BS Triggers/Specific BS Triggers

After enabling the Neighbor BS configuration mode you can delete previously configured triggers or specific BS triggers:

### 3.9.9.4.1 Deleting Neighbor BS Triggers

To delete an entry from the neighbor BS triggers table run the following command:

**npu(config-bs-66053-nbr-68000)# no <trigger-name>**

**NOTE**

Refer to Table 3-29 for a description and possible values of the triggers.

| | |
|---|---|
| Command Syntax | **npu(config-bs-66053-nbr-68000)# no <trigger-name>** |
| Privilege Level | 10 |
| Command Modes | bs neighbor bs configuration mode |

#### 3.9.9.4.2 Deleting Neighbor BS Specific BS Triggers

To delete an entry from the neighbor BS specific BS triggers table run the following command:

**npu(config-bs-66053-nbr-68000)# no <specific-trigger-name>**

**NOTE**

Refer to Table 3-30 for a description and possible values of the triggers.

| | |
|---|---|
| Command Syntax | **npu(config-bs-66053-nbr-68000)# no <specific-trigger-name>** |
| Privilege Level | 10 |
| Command Modes | bs neighbor bs configuration mode |

### 3.9.9.5 Terminating the Neighbor BS Configuration Mode

Run the following command to terminate the Neighbor BS configuration mode:

**npu(config-bs-66053-nbr-68000)# exit**

**IMPORTANT**

Do not forget to execute the apply command before terminating the Neighbor BS configuration mode: **npu(config-bs-66053-nbr-68000)# apply**

Command Syntax: npu(config-bs-66053-nbr-68000)# exit

Privilege Level: 10

Command Modes: bs neighbor bs configuration mode

### 3.9.9.6 Deleting a Neighbor BS

Run the following command from the BS configuration mode to delete a Neighbor BS:

**npu(config-bs 66053)# no nbr** <(1 to 16777215 StepSize 1)>

Command Syntax: **npu(config-bs 66053)# no nbr** <(1 to 16777215 StepSize 1)>

Privilege Level: 10

Syntax Description:

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The Neighbor BS ID (bs-id-lsb) | Mandatory | N/A | 1-16777215 |

Command Modes: bs configuration mode

## 3.9.9.7 Displaying Configuration Information for Neighbor BS Parameters

You can display the current configuration information for the following Neighbor BS parameters tables:

- General (refer to Section 3.9.9.7.1)
- Required C/N Level (refer to Section 3.9.9.7.2)
- Triggers (refer to Section 3.9.9.7.3)
- All (refer to Section 3.9.9.7.5)

### 3.9.9.7.1 Displaying Configuration Information for Neighbor BS General Parameters

To display configuration for the Neighbor BS General parameters, run the following command:

**npu# show nbr-general bs** [<(1 to 16777215 StepSize 1)> bs-id-lsb <(1 to 16777215 StepSize 1)>]

Specify the BS ID and the Neighbor BS ID (bs-id-lsb) if you want to display configuration for a particular Neighbor BS in a particular BS. For example, to display the General parameters of Neighbor BS 68000 in BS 66503, run the following command:

**npu# show nbr-general bs 66053 bs-id-lsb 68000**

Do not specify these parameters if you want to view configuration information for all existing Neighbor BSs in all existing BSs. To display information for all Neighbor BSs in all BSs, run the following command:

**npu# show nbr-general bs**

| | |
|---|---|
| Command Syntax | **npu# show nbr-general bs** [<(1 to 16777215 StepSize 1)> bs-id-lsb <(1 to 16777215 StepSize 1)> ] |
| Privilege Level | 1 |

Syntax Description

| Parameter | Description | Presence | Default Value | Possible Values |
|---|---|---|---|---|
| <(1 to 16777215 StepSize 1)> | The BS ID<br><br>Specify a value for this parameter if you want to display the General parameters of a specific Neighbor BS in a specific BS. Do not specify a value for this parameter if you want to display the General parameters of all Neighbor BSs in all BSs. | Optional | N/A | 1-16777215 |
| bs-id-lsb <(1 to 16777215 StepSize 1)> | The Neighbor BS ID.<br><br>Specify a value for this parameter if you want to display the General parameters of a specific Neighbor BS in a specific BS. Do not specify a value for this parameter if you want to display the General parameters of all Neighbor BSs in all BSs. | Optional | N/A | 1-16777215 |