Cellular Pluggable Interface Module Configuration Guide

The Cisco 4G LTE-Advanced Configuration chapter has been replaced by a new standalone guide called Cellular Pluggable Interface Module Configuration Guide. This guide contains updated information on all aspects of using the Cisco Cellular PIM.

Important The Pluggable Module is not hot swappable. The router must be reloaded after a new module is installed.

Support for the P-5GS6-GL Pluggable Module on the ESR6300

Support for the P-5GS6-GL Pluggable Module works the same on the ESR6300 as it does on the other IoT Routers. For details, see 5G Sub-6 GHz Pluggable Interface Module and Cellular Pluggable Interface Module Configuration Guide.

Galileo Support on the LTE Pluggable Modules

With Cisco IOS XE 17.11.1a and earlier, the only GNSS constellation supported was GPS. This release introduces support for Galileo.

Note Only ONE constellation can be enabled at a time.

There are new CLI options available to support the new constellation:

Configuration Commands

```
config# controller cellular <slot/port>
(config-controller)# <no> lte gps constellation <gps | galileo | gnss >
```

Example:

```
(config-controller)#lte gps constellation ?
  galileo  select Galileo as active constellation
  gps      select GPS as active constellation
  gnss      select multiple GNSS as active constellation
```

Note The default setting is gps mode.

The new galileo and gnss options in the above CLI are used to configure Galileo and Multiple/Simultaneous GNSS (GPS + Galileo etc) respectively.

If you disable the GPS configuration, ensure there is no constellation configured, consistent with GPS mode configuration. For example:

```
config# controller Cellular 0/1/0
(config-controller)# no lte gps constellation gps
```

Show Commands

The following example shows the current GNSS constellation as Galileo:

```
#show cellular 0/1/0 gps detail
GPS Feature =  enabled
GPS Mode Configured =  standalone
Current Constellation Configured =  galileo | gps | gnss
GPS Port Selected =  Dedicated GPS port
GPS Status =  GPS acquiring
```

Any changes made to the configuration will require the router to be rebooted.

More information is available in the Cellular Pluggable Interface Module Configuration Guide.

Monitoring Radio Signal Parameters and GPS Coordinates of Cellular Telemetry using Syslog Messages

Cellular Telemetry Overview

Cellular telemetry allows real-time monitoring and analysis of cellular connection performance through system logs. It helps with troubleshooting, optimizing network performance, and ensuring reliable connectivity. The cellular telemetry feature collects the Radio Frequency (RF) parameters and Global Positioning System (GPS) coordinates from the cellular network and displays them at a fixed interval of 60 seconds.

The cellular telemetry parameters that can be monitored include:

- Received Signal Strength Indicator (RSSI)
- Reference Signal Received Power (RSRP)
- Reference Signal Received Quality (RSRQ)

- Physical Cell Identity (PCI)
- Signal to Noise Ratio (SNR)
- Global Positioning System (GPS) coordinates

Limitation

The Cisco Catalyst WAN Manager does not support cellular telemetry.

Enable Cellular Telemetry

To enable the cellular telemetry feature in the contoller cellular interface 0/x/0 using the CLI.

Before you begin

- Insert the cellular Pluggable Interface Module (PIM) into the IR device.
- Enable GPS in the controller for GPS coordinates to be displayed in syslogs.

Procedure

Step 1 Enter the global configuration mode.

Example:

```
Router#configure terminal
```

Step 2 Enter the cellular configuration mode.

Example:

```
Router (config)#controller cellular 0/1/0
```

Step 3 Enable the RF parameters and GPS coordinates.

Example:

```
Router (config-controller)#lte modem serviceability signal-parameters
Router (config-controller)#end
```

Disable Cellular Telemetry

To disable the cellular telemetry feature, use the no form of the **lte modem serviceability signal-parameters** command, as shown in the example:

```
Router#Configure terminal
Router(config)#controller cellular 0/1/0
Router(config-controller)#no lte modem serviceability signal-parameters
Router(config-controller)#end
```

Monitor Cellular Telemetry

To view the RF parameters and GPS coordinates for the cellular interfaces, you can either use the **show logging** command or check the console output.

The following example displays RF parameters and GPS coordinates at every one minute interval:

```
Router#show logging
*Sep  3 17:08:42.081: %CELLWAN-2-MODEM_SIGNAL_PARAM: Cellular0/1/0: 4G: RSSI = -54 dBm RSRP
 = -76 dBm RSRQ = -9 dB PCI = 1 SNR = 27.4 dB
Latitude =  12 Deg 56 Min 8.9260 Sec North
Longitude =  77 Deg 41 Min 44.1641 Sec East

*Sep  3 17:09:42.080: %CELLWAN-2-MODEM_SIGNAL_PARAM: Cellular0/1/0: 4G: RSSI = -54 dBm RSRP
 = -76 dBm RSRQ = -9 dB PCI = 1 SNR = 29.0 dB
Latitude =  12 Deg 56 Min 8.8989 Sec North
Longitude =  77 Deg 41 Min 44.1570 Sec East
```

The following example displays only RF parameters and not GPS coordinates since GPS is not enabled in the controller:

```
Router#show logging
*Sep  3 17:08:42.081: %CELLWAN-2-MODEM_SIGNAL_PARAM: Cellular0/1/0: 4G: RSSI = -54 dBm RSRP
 = -76 dBm RSRQ = -9 dB PCI = 1 SNR = 27.4 dB

*Sep  3 17:09:42.080: %CELLWAN-2-MODEM_SIGNAL_PARAM: Cellular0/1/0: 4G: RSSI = -54 dBm RSRP
 = -76 dBm RSRQ = -9 dB PCI = 1 SNR = 29.0 dB
```