CISCO P-LTE-450 Cellular Pluggable Interface Module Configuration

CISCO P-LTE-450 Cellular Pluggable Interface Module Configuration User Guide

Contents

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New Features for Cisco IOS XE 17.13.1

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IOx Access to USB Storage

Customers have requested the ability to mount the host a USB thumb drive within the Docker container running on IOx. The boot flash has a limited number of read/write cycles, and a container continuously writing on the eMMC would prematurely wear out the unit. Using the USB thumb drive will allow Docker containers to write continuously without compromising the integrity of the boot flash.

Feature Requirements and Limitations

The following apply to this feature:

- The filesystem types supported for USB thumb drives on the IR1101 are VFAT, EXT2, and EXT3. However, IOx only supports mounting USB thumb drives with EXT2 and EXT3 filesystems. Cisco recommends EXT3 for the following reasons:
- EXT3 is a journaling filesystem, which means there are no fragmentation issues.
- Read/Writes are significantly faster with EXT3 filesystems
- VFAT has a 4 GB maximum file-size limitation, which is a problem with containers continuously writing large files.
- If the USB thumb drive is removed while a write operation by IOx appears in progress, all the files included in the copy operation will be lost.
- If the USB thumb drive is removed while IOX and the app are using it, IOX will still be running. The functionality of the app using a USB thumb drive as storage will be severely impacted since it will not be able to read and/or write on the USB thumb drive.

Making the USB Thumb Drive Available to the IOx App
In order to make the USB thumb drive available to the IOx app, you need to issue a run option. See the following example:

```
Router(config-app-hosting-docker)#run-opts 1 "-v /mnt/usb0:/usbflash0"
```

This command will mount the USB thumb drive file system within the IOx application filesystem, and it will be available in the /usbflash0 folder, as showed by the following log from an IOx application:

```
/ # ls -al usbflash0/
total 705424
drwxrwxrwx    4 root     root          4096 Nov 10 22:42 .
drwxr-xr-x    1 root     root          4096 Nov 15 17:22 ..
-rw-r--r--    1 65534    65534    720025859 Nov 10 22:46 ir1101-universalk9.SSA.bin
drwx------    2 65534    65534        16384 Nov  8 16:32 lost+found
#
```

P-LTE-450 Support on Autonomous Mode

This release introduces two modes of setting the required credentials to communicate with the module. The username and password that should be used in these CLIs can be found on the sticker label that comes with the P-LTE-450 module.

Important You MUST set the username and password before performing any P-LTE-450 parameter configuration.

Configuration

The recommended configuration is through the Config mode: interface GigabitEthernet 0/1/0 lte450 credential username username password password

Using the Exec mode: hw-module subplot 0/1 lte450 set-info username username password password [encrypt]

Note Execution of this command will create a file called bootflash:lte450.info and should not be deleted.

P-LTE-450 Support Over SDWAN/vManage

TheP-LTE-450 is a 450MHz Category-4 LTE PIM, which addresses LTE use cases primarily targeting utility, public safety, and critical infrastructure maintained by public organizations in Europe and other world regions. The module supports only Band 31 and 72 for LTE 450MHz networks. Support for the P-LTE-450 was introduced in IOS XE 17.12.1a. This release introduces support for the P-LTE-450 over SDWAN /vManage.

Guidelines and Limitations

The following are the limitations of the P-LTE-450 with SDWAN/vManage:

- No PNP support on P-LTE-450 as a primary link.
- P-LTE-450 parameter configuration is only supported with CLI templates.
- P-LTE-450 credential configuration via vManage is not supported on this release. Will be supported in the vManage 20.16 release.

Additional Documentation

Additional documentation for SDWAN/vManage is available at the following links:

- User Documentation for Cisco IOS XE Catalyst SD-WAN Release 17
- Cisco Catalyst SD-WAN
- Cisco SD-WAN Support Information
- Cisco vManage Monitor Overview
- Managing the SD-Routing Device Using Cisco SD-WAN Manager

Additional Modem Support for Cellular Pluggable Modules

This release offers support for additional modems on the IR1101 and the IR1800. The LTE Cat6 Pluggable Interface Modules (PIMs) will be updated with Cat7 modems. The following table shows the product transition:

Table 1: Cat6 to Cat7 Transition

Cat6 (Current)/Cat7 (Refreshed)

- Sierra Wireless EM7455/7430 Sierra Wireless EM7411/7421/7431
- Cat6 LTE Advanced Cat7 LTE Advanced

The following are the new PIDs that will be available:

- P-LTEA7-NA
- P-LTEA7-EAL
- P-LTEA7-JP

Important

For the new PIDs mentioned above, the following cellular functions have not been tested, and are not supported with IOS XE release 17.13.1 although the CLI commands may permit:

- GNSS/NMEA
- Cellular Dying-Gasp
- eSIM/eUICC support

Note There is no new or changed command line interface with these new modems.

SD-WAN Remote Access (SD-WAN RA)

SD-WAN RA is now supported on the IoT routers with IOS XE 17.13.1. SD-WAN RA is a combination of two features:

- IOS-XE SD-WAN
- IOS-XE FlexVPN Remote Access Server

Note All IoT devices only support the SD-WAN RA Client.

Information on SD-WAN Remote Access can be found in the following guide: Cisco Catalyst SD-WAN Remote Access

Additional Documentation
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- Cisco Catalyst SD-WAN
- Cisco SD-WAN Support Information
- Cisco vManage Monitor Overview

- Managing the SD-Routing Device Using Cisco SD-WAN Manager

Change in CLI Output for the FN980 5G Modem

This release has a different output to the show cellular 0/x/0 radio band command. The module will no longer display the 5G-SA band information by default. However, once the 5G-SA has been enabled, the band information will then be displayed.

See the following command examples using an IR1101 running IOS XE 17.13.1 with an FN980 modem

See the following command examples using an IR1101 running IOS XE 17.13.1 with an FN980 modem:

```
IR1101#show cellular 0/1/0 radio band

LTE bands supported by modem:
- Bands 2 4 5 12 14 26 29 30 46 48 66.
LTE band Preference settings for the active sim(slot 1):
- Bands 2 4 5 12 14 26 29 30 46 48 66.

NR5G NSA bands supported by modem:
- Bands 2 5 12 66 77.
NR5G NSA band Preference settings for the active sim(slot 1):
- Bands 2 5 12 66 77.

3G bands supported by modem:
Index: <none>
3G band Preference settings for the active sim(slot 1):
Index: <none>
Band index reference list:

For LTE and 5G, indices 1-128 correspond to bands 1-128.

For 3G, indices 1-64 maps to the 3G bands mentioned against each above.

IR1101#

IR1101#show cellular 0/1/0 hard

*Nov  8 12:13:31.969: Graphit 5G RSRP/RSRQ LTE modem:[1]
Modem Firmware Version = M0H.030202
Host Firmware Version = A0H.000302
Device Model ID =  FN980
International Mobile Subscriber Identity (IMSI) = 001010123456789
International Mobile Equipment Identity (IMEI) = 359661100035795
Integrated Circuit Card ID (ICCID) = 89860000502000180722
Mobile Subscriber Integrated Services
Digital Network-Number (MSISDN) =
Modem Status = Modem Online
Current Modem Temperature = 40 deg C
PRI version = 1080-114, Carrier = Generic GCF
OEM PRI version = 1080-114
IR1101#

IR1101#show cellular 0/1/0 radio band
```

```
LTE bands supported by modem:
- Bands 1 2 3 4 5 7 8 12 13 14 17 18 19 20 25 26 28 29 30 32 34 38 39 40 41 42 43 46 48 66
 71.
LTE band Preference settings for the active sim(slot 0):
- Bands 1 2 3 4 5 7 8 12 13 14 17 18 19 20 25 26 28 29 30 32 34 38 39 40 41 42 43 46 48 66
 71.

NR5G NSA bands supported by modem:
- Bands 1 2 3 5 7 8 12 20 25 28 38 40 41 48 66 71 77 78 79.
NR5G NSA band Preference settings for the active sim(slot 0):
- Bands 1 2 3 5 7 8 12 20 25 28 38 40 41 48 66 71 77 78 79.

NR5G SA bands supported by modem:
- Bands <none>
NR5G SA band Preference settings for the active sim(slot 0):
- Bands <none>

3G bands supported by modem:


 Index:
   23 - UMTS Band 1: 2100 MHz (IMT)
   24 - UMTS Band 2: 1900 MHz (PCS A-F)
   26 - UMTS Band 4: 1700 MHz (AWS A-F)
   27 - UMTS Band 5: US 850 MHz  (CLR)
   50 - UMTS Band 8: 900 MHz  (E-GSM)
   51 - UMTS Band 9: Japan 1700 MHz
   61 - UMTS Band 19: 800 MHz (800 Japan)
 3G band Preference settings for the active sim(slot 0):
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   23 - UMTS Band 1: 2100 MHz (IMT)
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 ==========================================

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 IR1101#
```

Documents / Resources

	**CISCO P-LTE-450 Cellular Pluggable Interface Module Configuration** [pdf] User Guide P-LTE-450 Cellular Pluggable Interface Module Configuration, P-LTE-450, Cellular Pluggable Interface Module Configuration, Pluggable Interface Module Configuration, Interface Module Configuration, Module Configuration, Configuration

References

- Cisco SD-WAN - Cisco
- Cisco Catalyst 8000V Edge Software Installation And Configuration Guide - Managing the SD-Routing Device Using Cisco SD-WAN Manager [Cisco Catalyst 8000V Edge Software] - Cisco
- Cisco SD-WAN User Documentation - Cisco
- Cisco Catalyst SD-WAN Monitor and Maintain Configuration Guide - Cisco vManage Monitor Overview [Cisco SD-WAN] - Cisco
- Cisco SD-WAN Remote Access - Cisco
- Cisco Catalyst SD-WAN (Software-Defined WAN) - Cisco
- User Manual