

Release Notes for the Cisco LoRaWAN Interface Modules, Release 1.0

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These release notes include important information about Cisco LoRaWAN Interface Module Software Release 1.0 and the limitations, restrictions, and caveats, if any, that apply to this release.



Note The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

Introduction

The Cisco LoRaWAN Interface Module is a module from Cisco Internet of Things (IoT) extension module series connected the Cisco 809 and 829 Industrial Integrated Services Routers (ISR) to include low-power wide-area (LPWA) access and are positioned as the carrier-grade gateways for the outdoor deployment, including the harsh environments. It adds a ruggedized remote LoRaWAN radio modem interface to create a gateway between the Cisco Field Network Director and a partner's LoRa network server.

System Requirements

Hardware Supported

Model No.	Description
IXM-LPWA-800-16-K9	Cisco LoRaWAN Gateway, IoT extension module series, radio spectrum from 863–870 MHz, 16 LoRa channels, IP67
IXM-LPWA-900-16-K9	Cisco LoRaWAN Gateway, IoT extension module series, radio spectrum from 902–928 MHz, 16 LoRa channels, IP67

Software Images

Filename	Description
ixm_mdm_i_k9-1.0.20.tar.gz	Cisco LoRaWAN Interface Module OS Image Version 1.0.20 with Semtech Release Version 2.1.0, FPGA Version 58, and HAL Version 4.0.1
ixm_mdm_i_k9-1.0.06.tar.gz	Cisco LoRaWAN Interface Module OS Image Version 1.0.06 with Semtech Release Version 1.2.0, FPGA Version 48, and HAL Version 3.5.0
ixm_mdm_i_k9-1.0.05.tar.gz	Cisco LoRaWAN Interface Module OS Image Version 1.0.05 with Semtech Release Version 1.2.0, FPGA Version 48, and HAL Version 3.5.0
ixm_mdm_i_k9-1.0.04.tar.gz	Cisco LoRaWAN Interface Module OS Image Version 1.0.04 with Semtech Release Version 1.1.1, FPGA Version 48, and HAL Version 3.4.1
u-boot-1.0.04.bin	Cisco LoRaWAN Interface Module OS bootloader

Installation of a New Software Release



Note Make sure that FPGA v58 has been upgraded correctly before moving to the next step. FPGA upgrade will be triggered once the IXM boots up with the image version 1.0.20. After 10 - 15 minutes, you can use the following command to check the FPGA version.

```
IR829#show virtual-lpwa 1 modem info
Name : Virtual-LPWA 1
ModemImageVer : 1.0.20
BootloaderVer : 20160830_cisco
ModemAgentVer : 1.02
SerialNumber : FOC21028RBH
PID : IXM-LPWA-900-16-K9
UTCtime : 19:14:14.465 UTC Tue Aug 29 2017
IPv4Address : 192.168.1.2
IPv6Address : none
FPGAVersion : 58
TimeZone : UTC
LocalTime : Tue Aug 29 19:14:14 UTC 2017
ACT2 Authentication : PASS
ModemVersionID : V01
ProtocolVersion : 2
ChipID : LSB = 0x28750305 MSB = 0x00f1400e
LoRaSerialNumber : FOC21028R05
LoRaCalc :
<NA,NA,NA,55,37,110,101,93,84,76,68,58,49,39,30,21-NA,NA,NA,50,31,106,97,88
,80,71,63,53,44,34,25,16>
CalTempCelsius : 35
CalTempCodeAD9361 : 92
RSSIOffset : -204.00,-204.00
-203.00,-203.00
AESKey : Unknown
```

Follow these steps to install a new software image:

Procedure

- Step 1** Log in to the IR809 or IR829 system with terminal through SSH or Console.
- Step 2** Copy the image file into IR809 or IR829 from your host. Use **scp** to copy the image file into IR809 or IR829 and the image will be stored in flash.

Example:

```
IR809#copy scp: flash:
Address or name of remote host []? 10.140.29.33
Source username [cisco]? Root
Source filename []? /root/ixm_mdm_i_k9-1.0.04.tar.gz
Destination filename [ixm_mdm_i_k9-1.0.04.tar.gz]?
Password:
Sending file modes: C0644 63819958 ixm_mdm_i_k9-1.0.04.tar.gz
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
63819958 bytes copied in 160.376 secs (397940 bytes/sec)
IR809#
IR809#dir | include ixm
22 -rw- 63819958 Sep 12 2016 07:40:48 +00:00 ixm_mdm_i_k9-1.0.04.tar.gz
IR809#
```

- Step 3** From the CLI on IR809 or IR829 to install the image. Using factory mode to install will take more than 4 minutes.

Example:

```
IR809#virtual-lpwa 1 modem install firmware factory flash:ixm_mdm_i_k9-1.0.04.tar.gz
Name : Virtual-LPWA 1
Modem image installed successfully
The modem will reboot in 10 s.
IR809#
```

- Step 4** After the image is installed successfully, check the status with the following command:

Example:

```
IR809#show virtual-lpwa 1 modem info
Name : Virtual-LPWA 1
ModemImageVer : 1.0.04
BootloaderVer : 20160830_cisco
ModemAgentVer : 1.02
SerialNumber : FOC20133FL2
PID : IXM-LPWA-900-16-K9
UTCtime : 08:25:08.224 UTC Mon Sep 12 2016
IPv4Address : 10.0.1.2
IPv6Address : none
FPGAVersion : 48
TimeZone : CST
LocalTime : Mon Sep 12 16:25:08 CST 2016
ACT2 Authentication : PASS
IR809#
```

Major Enhancements

This release includes the following enhancements to the Cisco LoRaWAN Interface Module:

- Supports firmware upgrade by external TFTP server.
- Supports IPsec: PSK (IKEv1) and RSA (IKEv2).
- Supports Simple Certificate Enrollment Protocol (SCEP).



Note For more information on configuring IPsec and SCEP, see the Configuring Virtual-LPWA chapter of the [Cisco IR800 Integrated Services Router Software Configuration Guide](#).

- Introduced new modem management command: **virtual-lpwa <id> modem cacert clean**
- Introduced new modem monitor commands:
 - **show virtual-lpwa <id> modem gps**
 - **show virtual-lpwa <id> ipsec status**

Caveats

This section contains the caveats for this release.

- **CSCvi92370**

Symptom: Upgrading IXM image via USB and having the USB connected to the unit while upgrading can cause problem and block the upgrade.

Workaround: Copy the IXM image to flash and perform archive download via FLASH. Unplug USB while the boot is happening. If the IXM is in error state, simply unplug the USB. The device will recover from the error state after several minutes.

- **CSCvi70922**

Symptom: The **virtual-lpwa packet forwarder install/uninstall** exec commands have no effect.

Workaround: In IOS, the packet forwarder installation exec commands are not supported and have been removed.

- **CSCvh06187**

Symptom: In virtual mode, the XPKI CA server is not supported when SCEP is configured from file instead of profile.

Workaround: Configure the XPKI CA server using the **lpwa modem scep profile** command, and make sure that every parameter is configured properly.

- **CSCvh00511**

Symptom: FTP server does not accept passwords with special characters like ! or #.

Workaround: Avoid using these special characters.

Resolved Caveats

Resolved Caveats in Release 1.0.06

- CSCvc38373 - Fix ACT2 Timing Issue.

Resolved Caveats in Release 1.0.05

- CSCvb50912 - Upgrade to Semtech Release Version 1.2.0 and HAL Version 3.5.0.
- CSCva39925 - The system will hang when the GPS sensor is connected to the modem after running for one day.
- CSCvb70859 - Container timezone is not synced with the host properly.

Known Limitations

The following commands are not supported in this release:

- **ipwa modem console disable**
- **ipwa modem clock gpstime**

Related Documentation

These documents provide detailed information about the Cisco LoRaWAN Gateway and are available at: www.cisco.com/go/lorawanmodule

- [Getting Started and Product Document of Compliance for the Cisco LoRaWAN Interface Module](#)
- [Cisco LoRaWAN Gateway Hardware Installation Guide](#)
- [Cisco LoRaWAN Gateway Software Configuration Guide](#)
- [Release Notes for IoT Field Network Director](#)
- [Release Notes for Cisco IR800 Industrial Integrated Services Routers and Cisco 1000 Series Connected Grid Routers](#)
- [Cisco IR800 Integrated Services Router Software Configuration Guide](#)
- [Cisco IoT Field Network Director User Guide](#)

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see [What's New in Cisco Product Documentation](#).

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