

Release Notes for Cisco Catalyst IR1101 Rugged Series Router - (Cisco IOS XE 17.1.1)

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Introduction

The Cisco Catalyst IR1101 Rugged Series Router is a next generation modular industrial router which has a base module with additional Pluggable Modules that can be added. The Pluggable Module provides the flexibility of adding different interfaces to the IR1101 platform, for example, a cellular module.

The IR1101 also has an Expansion Module that adds key capabilities to the IR1101, such as mSATA SSD FRU, Ethernet SFP port, and Digital GPIO connections. It also makes the IR1101 dual LTE capable, with one module in the base and the other in the expansion module.



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.



Note The IR-1100-SP Expansion Module is the same as the IR-1100-SPMI module, without the Digital I/O and mSATA components.

Interface Naming Conventions

Port	Naming Convention
Gigabit Ethernet combo port	Gigabitethernet 0/0/0
Gigabit Ethernet SFP port on Expansion Module	Gigabitethernet 0/0/5
Fast Ethernet ports	Fastethernet 0/0/1-0/0/4
Cellular Interface on IR1101 Base	Cellular 0/1/0 and Cellular 0/1/1
Cellular Interface on Expansion Module	Cellular 0/3/0 and Cellular 0/3/1
Asynchronous Serial Interface	Async 0/2/0

Port	Naming Convention
USB	usbflash0:
mSATA	msata
IR1101 Base Unit Alarm input	alarm contact 0
GPIO on Expansion Module	alarm contact 1-4

Software Images for IoT Routers



Note You must have a Cisco.com account to download the software.

Table 1: Software Images 17.1.1

Image Type	Filename
Universal	ir1101-universalk9.17.01.01.SPA.bin
NPE	ir1101-universal9_npe.17.01.01.SPA.bin
SDWAN version of the OS	ir1101-ucmk9-XX

The latest software downloads for the Routers can be found at:

<https://software.cisco.com/download/home/286319772/type>

Click on the IR1101 link to take you to the specific software you are looking for.

New Features in Cisco IOS XE 17.1.1

These are the new features for the IR1101.

Support for the X25 over TCP (XOT)

X.25 is an ITU standard for packet switching Wide Area Network (WAN). This is used in the Telecommunication industry over serial interfaces that are replaced by IP Network. An X25 connection can be established by using a PAD connection similar to Telnet/SSH. The IR1101 router has only one asynchronous serial interface where features of X25 are not supported. However, we can communicate to the X25 edge devices using by using feature TCP over X25 (XOT). With XOT, we can directly establish a PAD connection to X25 edge devices. Also, we can assign default or customized profiles to the access-groups by changing various parameters of X25 packets.

For additional information about XOT for IOS-XE, see the following:

[Wide-Area Networking Configuration Guide: X.25 and LAPB, Cisco IOS XE](#)

Support for YANG Data Models (Call-home)

The YANG models supported for the call-home feature are similar to the earlier releases of Cisco-IOS-XE, and the same is supported on 17.1 release of IOS-XE on IR1101. The following references are available for earlier YANG models:

<https://github.com/YangModels/yang/tree/master/vendor/cisco/xe/1651>

For additional information about call-home for IOS-XE, see the following:

[Software Activation Configuration Guide, Cisco IOS XE Release 3S](#)

Support for Model Driven support for GNMI Telemetry Dial-In

Similar to YANG models, there is support on IOS-XE for open source models defined by Google and is referred as Google Network Management Interface (GNMI). Configurations of GNMI can be verified either with Secure or Insecure Mode.

Secure Mode

Secure Mode establishes secure connection using OpenSSL certificates between client and server. It sends GNMI telemetry updates using open source `gnmi_cli` tool.

Insecure Mode

Insecure Mode sends GNMI telemetry updates between client and server using open source `pygnmi` tool.

For additional information about GNMI Telemetry see the following reference:

[Programmability Configuration Guide, Cisco IOS XE](#)

Yang Data Model Support for Scada

The Cisco IOS XE 17.1.1 introduces support for the Cisco IOS XE YANG model for the Scada System. Previous releases already provided Yang models in other areas.

<https://github.com/YangModels/yang/tree/master/vendor/cisco/xe/17111>.

Option to Enable or Disable USB Access

USB flash drives offer inexpensive and easy storage space for the routers to store the images, configuration files and other files.



Note The IR1101 supports ext2 and vfat file systems for USB flash drives.

The IR1101 supports hot plug/unplug of USB flash drives. To access the USB flash drive, insert the device into Router's USB interface. Once the USB is recognized, an alert message is seen on the console:

```
Aug 1 11:08:53.198 PDT: %IOSD_INFRA-6-IFS_DEVICE_OIR: Device usbflash0 added
```

After this message is seen, the USB flash drive is accessible. Users can access the USB contents using the **dir usbflash0:** command:

```
Device#dir usbflash0:  
Directory of usbflash0:/
```

```
5 drwx 512 Aug 23 2019 10:42:18 -07:00 System Volume Information  
6 -rwx 35 Aug 27 2019 17:40:38 -07:00 test.txt
```

```
206472192 bytes total (206470144 bytes free)
Device#
```

Contents can be copied to and from the USB flash drive using the copy command. Once the copy is complete, a log message showing number of bytes copied is displayed.

```
Device#copy flash:test.txt usbflash0:
Destination filename [test.txt]? <Enter>
Copy in progress...C
35 bytes copied in 0.020 secs (1750 bytes/sec)
Device#
```

While hot plug/unplug of a USB flash drive is supported, the functionality comes with security vulnerabilities. To prevent users from copying sensitive information to the USB flash drive, USB enable/disable functionality has been added.

By default, the USB flash drive is enabled. If a user wishes to disable USB, they can do so using the disable command:

```
Device# config terminal
Device(config)#platform usb disable
Device(config)#end
```

Once the USB flash drive has been disabled, the file system is not shown on the Device and syslog messages will not be displayed when the USB is inserted. Users will not be able to access the contents of the USB.

For example:

```
Device#dir usbflash0:
dir usbflash0:
^
% Invalid input detected at '^' marker.

Device#
```

The USB is enabled by issuing a **no** with the disable command:

```
Device#config terminal
Device(config)#no platform usb disable
Device(config)#end
```

The USB status can be displayed using the following command:

```
Device#show platform usb status
USB enabled
Device#
```

Day 0 Web User Interface



Note A Day 0 configuration is defined as a device that is fresh out of the box with no startup-configuration.

Effective with IOS-XE Release 17.1.1, the Day 0 Web User Interface (WebUI) will be supported on the IR1101. Day 0 WebUI is supported only on LAN ports. These are FastEthernet ports 0/0/1 – 0/0/4 on the IR1101. Connect either a Windows, Linux or Mac PC/Laptop to one of the LAN ports of the IR1101 and boot the router on Day 0. The PC/Laptop should be configured to obtain an IP address through DHCP.

Once the router boots up in Day 0, the PC/Laptop will acquire IP address in 192.168.1.x network and can access WebUI using the IP address of 192.168.1.1 with any browser. After the configuration is applied through the WebUI, the router will display the message "Day 0 config done. Stopping autoinstall"

Related Documentation

Cisco Catalyst IR1101 Rugged Series Router

[IR1101 documentation landing page.](#)

Product Independent Documentation

[Cisco IOS XE 17.x](#)

[Cisco SD-WAN](#)

Known Limitations

This release has the following limitations or deviations for expected behavior:

Downgrading from 16.12.1 to 16.11.1x

Symptoms: If an IR1101 with RJ45 Gig0/0/0 WAN is downgraded from 16.12.1 to 16.11.1 x or earlier, it will cause the Gig0/0/0 to fail to come up because its media-type is set to **media-type sfp**. The problem occurs because 16.12.1 or later automatically selects the correct media-type of the Gig0/0/0 interface, while 16.11.1x and earlier does not have that capability.

Workaround: Specifically set the correct media-type for the Gig0/0/0 interface (e.g. media-type rj45) prior to any downgrade.

An IR1101 operating in SDWAN Controller-mode must not downgrade to Cisco IOS XE Release 17.1.1. This is not supported for SDWAN. Instead, use Cisco IOS XE Release 16.12.1.



Note Cisco IOS XE Release 16.12.1 supports separate Autonomous (non-SDWAN) and SDWAN Controller-mode images.

P-LTEA-EA/P-LTEA-LA pluggable module

When operating on release 17.1.1, if you install a P-LTEA-EA/P-LTEA-LA pluggable module into the Expansion Module (IRM-1100-SP or IRM-1100-SPMI), it will not function correctly. Upgrading to release 17.2.x will correct this issue.

Caveats

Caveats describe unexpected behavior in Cisco IOS XE releases. Caveats listed as open in a prior release are carried forward to the next release as either open or resolved.

The Cisco [Bug Search Tool](#) (BST) is a gateway to the Cisco bug-tracking system, which maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. The BST provides you with detailed defect information about your products and software.

To view the details of a caveat, click on the identifier.

Open Caveats in Cisco IOS XE 17.1.1

Caveats describe unexpected behavior in Cisco IOS XE releases. Caveats listed as open in a prior release are carried forward to the next release as either open or resolved.

To view the details of a caveat, click on the identifier.

Identifier	Description
CSCvu75971	Benign bootup warning messages appear on the console.
CSCvp18328	The speed range should only show 10 or 100 for FE ports in the IR1101 switchport template.
CSCvq13666	On the IR1100 with the cEdge image, the upgrade fails due to insufficient disk space.
CSCvp48383	vManage: GPS enabling feature from vManage template fails.
CSCvp36305	vManage: CPU util shown by CLI doesn't match reported by vManage realtime.
CSCvp48578	vManage: Allow cellular modem firmware image upload and upgrade via vManage.
CSCvr41801	WP7610 should support band 66, but support is missing in IOS.
CSCvq64167	Whenever firmware switches from GEN to ATT on a WP7610 modem, a QMI channels initialization message is seen.

Resolved Caveats in Cisco IOS XE 17.1.1

There are none in this release.

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- To obtain general networking, training, and certification titles, visit [Cisco Press](#).
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