Release Notes for Cisco Catalyst IR1101 Rugged Series Router - (Cisco IOS XE Bengaluru 17.6.1x)

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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 such as dual LTE Pluggables, mSATA SSD FRU, SFP, and Digital GPIO connections.

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.

Cisco Catalyst IR1101 Rugged Series Router

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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 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
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.

Cisco IOS XE Release 17.6.1x includes the following Cisco images:

Table 1: Software Images 17.6.1

Router	Image Type	Filename
IR1101	Universal	ir1101-universalk9.17.06.01.SPA.bin
	NPE	ir1101-universal9_npe.17.06.01.SPA.bin

Note This release introduces a single image for both autonomous and SDWAN.

Table 2: Software Images 17.6.1a

Router	Image Type	Filename
IR1101	Universal	ir1101-universalk9.17.06.01a.SPA.bin
	NPE	ir1101-universal9_npe.17.06.01a.SPA.bin

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 17.6.1

These are the new features for the IR1101.

Per Port DHCP Address Allocation

No new CLI has been added. The device on interface FA0/0/1 should get 192.0.2.90.

The minimum configuration looks like the following example:

```
conf t
ip dhcp excluded-address 192.0.2.1 192.0.2.80
ip dhcp excluded-address 192.0.2.100 192.0.2.255
ip dhcp use subscriber-id client-id
end

conf t
ip dhcp pool 16
network 192.0.2.0 255.255.255.0
address 192.0.2.90 client-id Fa0/0/1 ascii
end
```

The show output CLI appears like the following:

```
Router#show ip dhcp binding
Bindings from all pools not associated with VRF:
IP address Client-ID/ Lease expiration Type State Interface
Hardware address/
User name
192.0.2.90 0046.6130.2f30.2f31 Infinite Manual Active Unknown
```

Note The client-id has to be the short-name of the interface. Use "Fa" for FastEthernet interface. Use "Gi" for GigabitEthernet interface.

Custom Controlled LED

The IR-1101 has a non-blinking tri-color custom LED, which can be controlled with the following executive privilege CLI.

```
router# set platform hardware custom-led color <0-7>
```

The numbers 0-7 are as follows:

- 0: Off
- 1: Blue
- 2: Green
- 3: Red
- 4: Blue/Green
- 5: Blue/Red
- 6: Green Red
- 7: Blue/Green/Red

Support DSL SFP Firmware signing and signature validation

An optional IOS filepath has been added to the end of the existing upgrade command. The file must be signed with SFP-VADSL2-I key. The file could be in bootflash:/flash:, usbflash0 or msata:. It cannot be from any remote file system.

The command line interface for upgrading the module follows:

```
router# upgrade hw-module subslot 0/0 sfp 0 <IOS filepath>
```

Options to the command are:

```
Router#upgrade hw-module subslot 0/0 sfp 0 ?
bootflash: Firmware filename on local driver
crashinfo: Firmware filename on local driver
flash: Firmware filename on local driver
usbflash0: Firmware filename on local driver
```

The following is an example of the command usage:

```
Router#upgrade hw-module subslot 0/0 sfp 0 bootflash:sfp8455_rel.bin
Digital signature successfully verified in file bootflash:sfp8455_rel.bin
Upgrade SFP firmware on interface GigabitEthernet0/0/0 from 1_62_8463 to 1_62_8455
Connection will be disrupted, Continue(Y/N)?y
Start ebm upgrade!!
................................................................................
................................................................................
................................................................................
................................................................................
firmware update success!!
```

DSL SFP Annex M support

Support is the same as it was for Annex-J in 17.5.1

Support Four ADSL MIB Objects

MIB support has been added to get the DSL line speed and attainable rate on the IR1101.

The new MIBS are shown below:

```
1.3.6.1.2.1.10.94.1.1.4.1.2 ADSL-LINE MIB:adslAtucChanCurrTxRate
1.3.6.1.2.1.10.94.1.1.5.1.2 ADSL-LINE MIB:adslAturChanCurrTxRate
1.3.6.1.2.1.10.94.1.1.2.1.8 ADSL-LINE MIB:adslAtucCurrAttainableRate
1.3.6.1.2.1.10.94.1.1.3.1.8 ADSL-LINE MIB:adslAturCurrAttainableRate
```

On the IR1101 with a DSL SFP connected to ADSL DSLAM, the following existing SNMP CLIs can be used to verify support the for the above OIDs:

```
!configure SNMP Server
!---------------------
snmp-server community public RO
snmp-server manager
!
!verify MIB OIDs
!---------------
snmp get-next v2c 33.33.33.102 public oid 1.3.6.1.2.1.10.94.1.1.4.1.2
!
```

The following command can also be used to gather the MIB values from another SNMP Client (i.e linux machine):

```
$ snmpwalk -v 2c -c public 33.33.33.102 1.3.6.1.2.1.10.94.1.1.4.1.2
```

Digital IO Enhancement

Support has been added to allow some digital I/O ports to be managed by IOSd, and some other digital IO ports to be managed by IOx container apps. An updated CLI has been added and the YANG model for Digital IO Enhancement has been updated.

The 17.5.1 version of the CLI is:

```
Router(config)# alarm contact attach-to-iox
```

Note With release 17.5.1, **alarm contact attach-to-iox** gave IOX control for ALL digital IO ports (1 thru 4).

The 17.6.1 version of the CLI is:

```
Router(config)#alarm contact 1 ?
application Set the alarm application
attach-port-to-iox Enable selected Digital IO Ports access from IOX
description Set alarm description
enable Enable the alarm/digital IO port
output Set mode as output
severity Set the severity level reported
threshold Set the digital IO threshold
trigger Set the alarm trigger

Router(config)#alarm contact 1 attach-port-to-iox
Router#show alarm
Alarm contact 0:
Not enabled.

Digital I/O 1:
Attached to IOX.

Digital I/O 2:
Not enabled.

Digital I/O 3:
Not enabled.

Digital I/O 4:
Not enabled.
```

Note In the updated CLI, <1-4> are the number of digital I/O ports to assign to IOx for container apps. With release 17.6.1, each digital IO port can be assigned to IOX individually.

NTP Clock Sync with GPS

This feature enables GPS time as the reference clock source for NTP from cellular interface (except for the P-LTEAP18-GL modem) on the IR1800/IR1101 routers.

Configuration information is found in NTP Clock Sync with GPS in the Cellular Pluggable Interface Module Configuration Guide.

New Features in Cisco IOS XE 17.6.1a

This release does not contain any new features. It is maintenance only.

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

Starting with Cisco IOS XE Amsterdam 17.3.2, with the introduction of Smart Licensing Using Policy, even if you configure a hostname for a product instance or device, only the Unique Device Identifier (UDI) is displayed. This change in the display can be observed in all licensing utilities and user interfaces where the hostname was displayed in earlier releases. It does not affect any licensing functionality. There is no workaround for this limitation.

The licensing utilities and user interfaces that are affected by this limitation include only the following: Cisco Smart Software Manager (CSSM), Cisco Smart License Utility (CSLU), and Smart Software Manager On-Prem (SSM On-Prem).

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.

Open Caveats in Cisco IOS XE 17.6.1

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Cisco Bug Search Tool

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.

Open Caveats in Cisco IOS XE Bengaluru 17.6.1

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

Identifier	Description
CSCvy97766	When deploying the SEA app from IoT Operations Dashboard to IR1101 routers for secure equipment access management purpose, lots of these SELINUX denial log messages may show up in console.
CSCvz15121	When GI0/0/0 is configured as an L3 interface, and uses xconnect, l2tpv3 doesn't work.
CSCvx52273	Smart license registration through proxy server fails

Resolved Caveats in Cisco IOS XE Bengaluru 17.6.1

There are no resolved caveats with this release.

Open Caveats in Cisco IOS XE 17.6.1a

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Resolved Caveats in Cisco IOS XE Bengaluru 17.6.1a

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Identifier	Description
CSCvz00883	Modem-power-cycle intermittently brings down the LTE module with HC Died.

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