Release Notes for Cisco Catalyst IR1101, IR1800, IR8140, IR8340, and Cisco ESR 6300 Routers - (Cisco IOS XE Dublin 17.12.7a)

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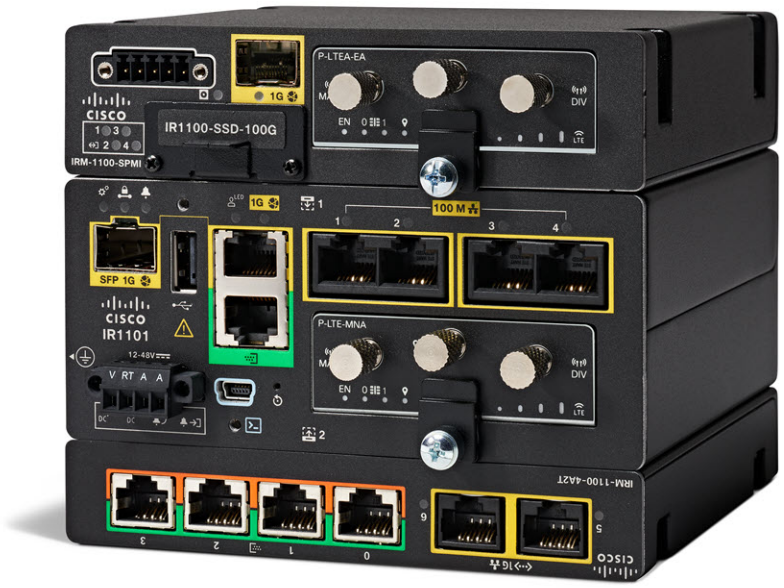
Introduction to this Document

This Release Notes document provides information about the Cisco Catalyst IR1101 Rugged Series Routers, Cisco Catalyst IR1800 Rugged Series Routers, Cisco Catalyst IR8140 Heavy Duty Series Routers, Cisco Catalyst IR8340 Rugged Series Routers, and Cisco ESR6300 Embedded Series Routers running Cisco IOS XE 17.12.6.

This document describes the new features, limitations, troubleshooting, besides providing recommended configurations, caveats, and information on how to obtain support and documentation.

Cisco Catalyst IR1101 Rugged Series Router



The Cisco Catalyst IR1101 Rugged Series Router is a next-generation modular industrial router, which has a base platform with additional pluggable modules that can be added. The pluggable modules provide the flexibility of adding different interfaces to the IR1101 platform, for example, a cellular module, which provides 5G and Fourth-Generation Long-Term Evolution (4G LTE) cellular networks.

The IR1101 also has expansion modules that add key capabilities to the IR1101. The expansion modules are:

Table 1: Expansion Modules of Cisco Catalyst IR1101 Rugged Series Router

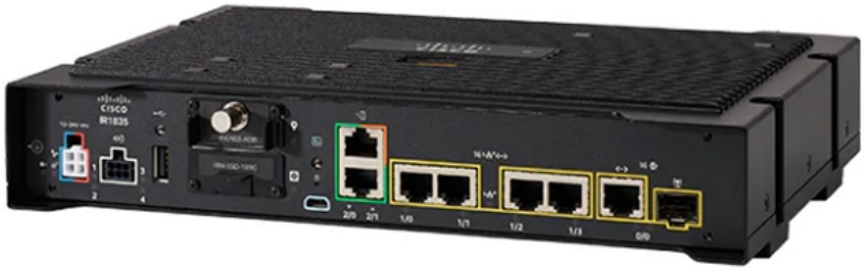
SKU ID	Description
IRM-1100-SPMI	Expansion Module with 1 GE SFP, 1 Pluggable Module, 4 GPIO ports on 1 Digital I/O Connector, and 1 mSATA SSD Slot.
IRM-1100-SP	Expansion Module with 1 GE SFP and1 Pluggable Module.
IRM-1100-4A2T	Expansion Module with an additional four asynchronous serial ports and two Ethernet RJ45 LAN interfaces.
Cellular pluggable modules	A number of pluggable modules are available for cellular connectivity.
IRM-SSD-100G	100 GB pluggable industrial SSD.
P-LPWA-XXX	• 900 MHz ISM band: subset of 902 – 928 MHz, depending on country/region • 800 MHz ISM band: subset of 863 – 870 MHz, depending on country/region • 8 uplink channels
P-LTE-450	Cisco 450MHz Category-4 LTE Pluggable Interface Module.

Table 2: Interface Naming Convention for Cisco Catalyst IR1101 Rugged Series Routers

Port	Naming Convention
Gigabit Ethernet combo port	GigabitEthernet0/0/0
Gigabit Ethernet SFP port on IRM-1100	GigabitEthernet0/0/5
Gigabit Ethernet on IRM-1100-4A2T mounted on the Expansion side	GigabitEthernet0/0/5 GigabitEthernet0/0/6
Fast Ethernet ports	FastEthernet0/0/1 FastEthernet0/0/2 FastEthernet0/0/3 FastEthernet0/0/4
Cellular Interface on IR1101 Base	Cellular 0/1/0 Cellular 0/1/1

Port	Naming Convention
Cellular Interface on IRM-1100 mounted on the top (EM) side	Cellular 0/3/0 Cellular 0/3/1
Cellular Interface on IRM-1100 mounted on the bottom (CM) side	Cellular 0/4/0 Cellular 0/4/1
Asynchronous Serial Interface Base	Async0/2/0 Async0/2/1 (when the base platform supports two asynchronous serial interfaces)
IRM-1100-4A2T is mounted on the top (EM) side	async 0/3/0 async 0/3/1 async 0/3/2 async 0/3/3
IRM-1100-4A2T is mounted on the bottom (CM) side	async 0/4/0 async 0/4/1 async 0/4/2 async 0/4/3
USB	usbflash0:
mSATA	msata:
IR1101 Base Unit Alarm input	alarm contact 0
GPIO on IRM-1100	alarm contact 1-4
LoRaWAN interface on IR1101 Base	LORAWAN0/1/0
LoRaWAN interface on the top (EM) side	LORAWAN0/3/0
Gigabit Ethernet interface for LTE 450MHz module on IR1101 Base	GI0/1/0 GI0/1/0.x for multiPDN operation
Gigabit Ethernet interface for LTE 450MHz module mounted on the bottom (CM) side	GI0/4/0

Cisco Catalyst IR1800 Rugged Series Router



The Cisco Catalyst IR1800 Rugged Series Router is a modular industrial router. The IR1800 series has four base platforms with additional pluggable modules that can be added. The pluggable modules provide the flexibility of adding different interfaces to the base platform.

The four base platforms of IR1800 are :

- IR1821
- IR1831
- IR1833
- IR1835

The IR1800 series is built on a modular base platform, which includes:

Table 3: Cisco Catalyst IR1800 Rugged Series Router Modules

SKU ID	Description
IRM-GNSS-ADR	GPS Module with Automotive Dead Reckoning.
WP-WIFI6-x	Wi-Fi 6 Network Interface Module (NIM).
Cellular pluggable modules	A number of pluggable modules are available for cellular connectivity.
IRM-SSD-100G	100 GB pluggable industrial SSD.

Table 4: Feature Differences in Cisco Catalyst IR1800 Rugged Series Routers

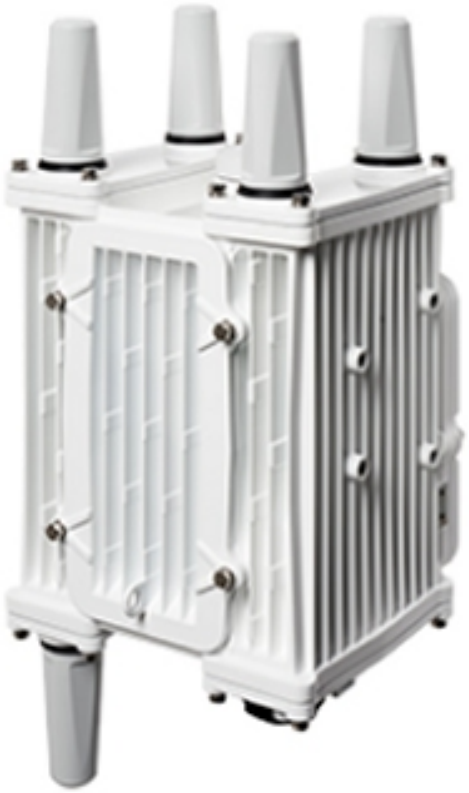
Feature	IR1821	IR1831	IR1833	IR1835
Processor Frequency	600 MHz	600 MHz	600 MHz	1200 MHz
DDR Memory	4 GB	4 GB	4 GB	8 GB
Flash Storage	4 GB	4 GB	4 GB	8 GB
PIM Slot	1	2	2	2

Feature	IR1821	IR1831	IR1833	IR1835
Wi-Fi-6 NIM Module Slot	1	1	1	1
PoE	No	No	Yes	Yes
SSD Module Slot	No	No	Yes	Yes
GPS FRU Module Slot	No	No	Yes	Yes
Digital I/O	No	No	No	Yes
Asynchronous Serial Interface	(1) RS232 DTE	(1) RS232 DTE (1) RS232 DCE	(1) RS232 DTE (1) RS232 DCE	(1) RS232 DTE (1) RS232 DCE/RS485

Table 5: Interface Naming Convention for Cisco Catalyst IR1800 Rugged Series Routers

Port	Naming Convention
Gigabit Ethernet combo port	GigabitEthernet0/0/0
Gigabit Ethernet ports	GigabitEthernet0/1/0 GigabitEthernet0/1/1 GigabitEthernet0/1/2 GigabitEthernet0/1/3
Cellular Interface	Cellular 0/4/0 Cellular 0/4/1 Cellular 0/5/0 Cellular 0/5/1
Asynchronous Serial Interface	Async0/2/0 Async0/2/1 (when the base platform supports two asynchronous serial interfaces)
Wi-Fi Interface	Wl0/1/4
USB	usbflash0:
mSATA	msata:
GPIO	alarm contact 1-4

Cisco Catalyst IR8140 Heavy Duty Series Router



The Cisco Catalyst IR8140 Heavy Duty Series Router (IR8140H), is a next-generation modular IP67 Industrial Router for outdoor use.

These are the two IR8140H models:

- IR8140H-P-K9 (with PoE PSE)
- IR8140H-K9 (without PoE PSE)

The IR8140H series features contains four external module slots plus two onboard WAN ports, and supports the following:

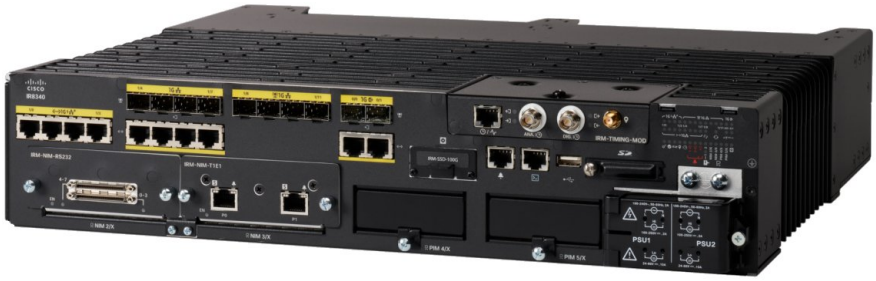
- 60-W PSU
- CPU 1.2 GHz
- 8GB RAM
- 8GB Flash Storage
- GPS onboard receiver

- 900-MHz WPAN – OFDM/FSK Module
- mSATA module
- 1x 1-Gigabit Ethernet SFP WAN
- 1x 1-Gigabit Ethernet Cu WAN
- PoE (15 W) supported only in the IR8140H-P-K9 PID
- 12VDC_OUT port (only available when PoE is not in use)
- Battery Backup Units (BBUs): Up to three
- 2x Alarm ports (Digital I/O)
- IRMH modules for CAT 4 LTE, CAT 6 LTE, CAT 18 LTE, and 5G

Table 6: Interface Naming Convention for Cisco Catalyst IR8140 Heavy Duty Series Router

Port	Naming Convention
Gigabit Ethernet ports	GigabitEthernet0/0/0 GigabitEthernet0/0/1
Cellular Interface	Cellular 0/2/0 Cellular0/2/1 Cellular 0/3/0 Cellular0/3/1
SSD	Virtual port Group0
WPAN	Wpan 0/1/0 Wpan 0/2/0 Wpan 0/3/0
Digital IO	alarm contact 1-2

Cisco Catalyst IR8340 Rugged Series Router



The Cisco Catalyst IR8340 Rugged Series Router, is the first all-in-one industrial-grade, integrated routing, switching, and security platform.

The IR8340 router features two Pluggable Interface Module (PIM) slots, two single-wide IRM-NIM slots, plus 12 onboard LAN ports, and two WAN ports, and supports the following:

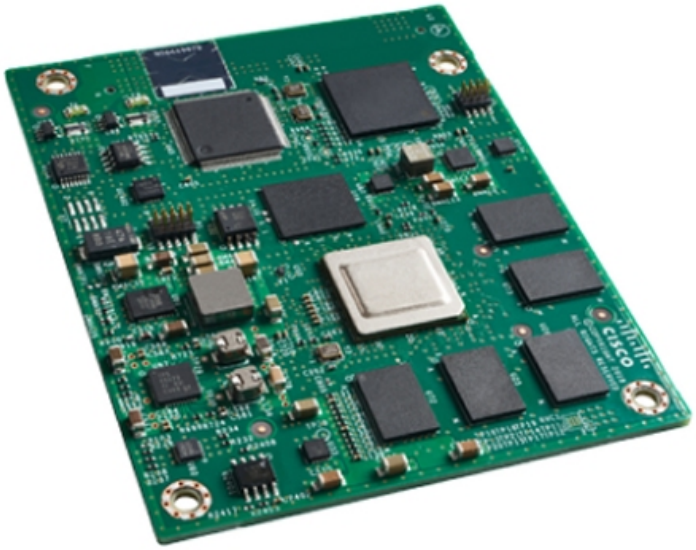
- 150W or 250W PSU, low-voltage DC and high-voltage AC/DC options
- PTP on LAN ports - Default, power and Dot1as profiles
- Telecom PTP on WAN ports (G.8265.1 and G.8275.1)
- Dual slots for 5G and 4G LTE PIM
- T1/E1 Network Interface Modules (NIM)
- 8-port Asynchronous/Synchronous Network Interface Module (NIM) IRM-NIM-RS232
- mSATA module
- 2 x 1-G Combo WAN ports
- 4 x 1-G Copper LAN ports
- 4 x 1-G Combo LAN ports
- 4 x 1-G SFP LAN ports
- PoE PoE+ UPoE (up to 60 W) support on LAN ports 1-4
- Alarms - 2 IN and 1 OUT (RJ45 Port)

Table 7: Interface Naming Convention for Cisco Catalyst IR8340 Rugged Series Routers

Port	Naming Convention
Gigabit Ethernet WAN ports	GigabitEthernet0/0/0 GigabitEthernet0/0/1

Port	Naming Convention
Gigabit Ethernet LAN ports	GigabitEthernet0/1/0 GigabitEthernet0/1/1 GigabitEthernet0/1/2 GigabitEthernet0/1/3 GigabitEthernet0/1/4 GigabitEthernet0/1/5 GigabitEthernet0/1/6 GigabitEthernet0/1/7 GigabitEthernet0/1/8 GigabitEthernet0/1/9 GigabitEthernet0/1/10 GigabitEthernet0/1/11
Cellular Interface	Cellular 0/4/0 Cellular 0/4/1 Cellular 0/5/0 Cellular 0/5/1
NIM Interface (Asynchronous/Synchronous Serial Ports or E1/T1 ports)	0/2/0 0/2/1 0/3/0 0/3/1
mSATA SSD	msata:
GPIO	alarm contact 0-2
USB Port	usb0:
Console Port	Line console 0
SD Card	sdcard:

Cisco ESR6300 Embedded Series Router



The ESR6300 is a small form factor embedded router module with a board size of 3.0 in. x 3.775 in. (76.2 mm x 95.885 mm).

The more compact design simplifies integration and offers system integrators the ability to use the Cisco ESR6300 in a wide variety of embedded applications. The ESR module is available with a Cisco-designed cooling plate customized to the ESR, as well as without the cooling plate for system integrators who want to design their own custom thermal solution.

There are two ESR6300 SKUs:

- ESR-6300-NCP-K9: Embedded Router Board without a cooling plate
- ESR-6300-CON-K9: Embedded Router Board with a cooling plate

Both SKUs offer the following port and module interfaces:

- Four GE LAN ports
- Two combo GE WAN ports
- One USB 3.0 port

Table 8: Interface Naming Convention for Cisco ESR6300 Embedded Series Routers

Port	Naming Convention
Gigabit Ethernet combo port WAN Layer3	GigabitEthernet0/0/0 GigabitEthernet0/0/1

Port	Naming Convention
Gigabit Ethernet LAN Layer 2 ports	GigabitEthernet0/1/0 GigabitEthernet0/1/1 GigabitEthernet0/1/2 GigabitEthernet0/1/3
Cellular Interface	Cellular 0/3/0
USB Port	usbflash0: (IOS and rommon)
Console Port	Line console 0
Serial Port	Async0/2/0

Software Images for Cisco IOS XE Release 17.12.7a

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

Cisco IOS XE Release 17.12.7a includes the following Cisco images.

Table 9: Software Images for Cisco IOS-XE, Release 17.12.7a

Router	Image Type	Filename
IR1101	Universal	ir1101-universalk9.17.12.07a.SPA.bin
	NPE	ir1101-universal9_npe.17.12.07a.SPA.bin
IR1800	Universal	IR1800-universalk9.17.12.07a.SPA.bin
	NPE	IR1800-universal9_npe.17.12.07a.SPA.bin
IR8140	Universal	IR8100-universalk9.17.12.07a.SPA.bin
	NPE	IR8100-universal9_npe.17.12.07a.SPA.bin
IR8340	Universal	IR8340-universalk9.17.12.07a.SPA.bin
	NPE	IR8340-universalk9_npe.17.12.07a.SPA.bin
ESR6300	Universal	c6300-universalk9.17.12.07a.SPA.bin

Table 10: Software Images for Cisco IOS-XE, Release 17.12.6

Router	Image Type	Filename
IR1101	Universal	ir1101-universalk9.17.12.6.SPA.bin
	NPE	ir1101-universal9_npe.17.12.6.SPA.bin
IR1800	Universal	IR1800-universalk9.17.12.6.SPA.bin
	NPE	IR1800-universal9_npe.17.12.6.SPA.bin
IR8140	Universal	IR8100-universalk9.17.12.6.SPA.bin
	NPE	IR8100-universal9_npe.17.12.6a.SPA.bin
IR8340	Universal	IR8340-universalk9.17.12.6.SPA.bin
	NPE	IR8340-universalk9_npe.17.12.6.SPA.bin
ESR6300	Universal	c6300-universalk9.17.12.6.SPA.bin

The most recent software updates for routers are available on the Software Downloads page. Choose the product associated with your specific device to access the corresponding software.

Cellular Module Modem Firmware, OEM/PRI for Cisco IOS XE Platforms

This section contains the latest modem firmware available for each of the modems used by the Cisco IoT Industrial routers.

Note Cisco IOS XE updates do not automatically update the modem firmware. The user should check and update to the latest firmware. See the following table for the latest information:

See the Cisco Firmware Upgrade Guide for 4G LTE and 5G Cellular Modems for upgrade instructions.

Table 11: Cellular Module Modem Firmware

Cellular Module	Modem	Firmware Version	Software Download Link
P-LTEAP18-GL IRMH-LTEAP18-GL	LM960	32.00.1x8/9	https://software.cisco.com/download/home/286324947/type
P-5GS6-GL	FN980	38.03.0202	https://software.cisco.com/download/home/286329300/type/

Cellular Module	Modem	Firmware Version	Software Download Link
P-LTE-450	IPS-701	—	Firmware upgrades are only available through the manufacturer Intelliport. See the 450MHz Category-4 LTE PIM chapter of the Cellular Pluggable Interface Module Configuration Guide. Contact Intelliport for the software download link (info@intelliport.hu)
P-LTEA-EA IRMH-LTEA-EA	EM7455	02.39.00.00	https://software.cisco.com/download/home/286308426/type
P-LTEA-LA IRMH-LTEA-LA	EM7430	02.38.00.00	https://software.cisco.com/download/home/286308413/type
P-LTE-VZW	WP7601	02.37.06.00	https://software.cisco.com/download/home/286322139/type
P-LTE-US	WP7603	02.37.0x.00	https://software.cisco.com/download/home/286322143/type
P-LTE-JN	WP7605	02.28.03.05	https://software.cisco.com/download/home/286322156/type
P-LTE-GB	WP7607	02.37.03.05	https://software.cisco.com/download/home/286322147/type
P-LTE-IN	WP7608	02.28.03.03	https://software.cisco.com/download/home/286322152/type
P-LTE-AU	WP7609	02.28.03	https://software.cisco.com/download/home/286323720/type
P-LTE-MNA	WP7610	02.37.03.05	https://software.cisco.com/download/home/286324942/type

New Features in Cisco IOS XE 17.12.7a

There are no new features in this release. It is a maintenance only release.

Related Documentation

Cisco Catalyst IR1101 Rugged Series Router

IR1101 documentation landing page

Cisco Catalyst IR1800 Rugged Series Router

IR1800 documentation landing page

Cisco Catalyst IR8140 Heavy Duty Series Router

IR8100 documentation landing page

Cisco Catalyst IR8340 Rugged Series Router

IR8340 documentation landing page

Cisco ESR6300 Embedded Series Router

ESR6300 documentation landing page

Product Independent Documentation

Cisco Industrial Routers and Industrial Wireless Access Points Antenna Guide

Cisco IOS XE 17.x

Cisco SD-WAN

Cisco IoT Field Network Director

Cisco Industrial Network Director

Cisco IoT Operations Dashboard

Known Limitations

Smart Licensing Using Policy

Starting with Cisco IOS XE 17.6.1, 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).

IOx on the ESR6300

Note IOx development is not supported on the ESR6300. While this is platform independent code, it is unsupported and untested on this device.

Expansion Module on the IR1101

The expansion module IR1101 does not support more than 1500 MTU size on LAN interfaces. See this Caveat for details.

Standalone MAC Authentication Bypass (MAB) Limitation

Standalone MAC Authentication Bypass (MAB) is an authentication method that grants network access to specific MAC addresses regardless of 802.1X capability or credentials. The IR1100 crashes with concurrent IPSec traffic and macsec traffic (device to client).

Refer to the following table for details:

Details	Release Affected	Release Fixed
MAB/Dot1x may not work if the global type-6 encryption setting is enabled. If users still want to use MAB/Dot1x, they should disable the type-6 encryption and enable type-7 encryption.	17.4.X 17.5.X 17.6.1 17.6.2 17.7.1	17.3.5 Fixed in these future releases: 17.6.3 17.7.2 17.8.1 and later.
dACL and device-tracking features are not supported on the IR1101 due to a hardware limitation. dACL is supported on the IR1800 series. Therefore, features such as MAB and Dot1x should not be used with the optional dACL/device-tracking enabled.	**Note** Occurs in all releases.	Hardware limitation, no software fix available.

SSH Algorithms for Common Criteria Certification Limitation

Starting from Cisco IOS XE Release 17.10, the following Key Exchange and MAC algorithms are removed from the default list:

- Key Exchange algorithm:
  - diffie-hellman-group14-sha1

- MAC algorithms:
  - hmac-sha1
  - hmac-sha2-256
  - hmac-sha2-512

Note You can use the **ip ssh server algorithm kex** command to configure the Key Exchange algorithm and the **ip ssh server algorithm mac** command to configure the MAC algorithms.

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.

Open Caveats in Cisco IOS XE 17.12.7a

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

Identifier	Description	Platform
CSCwk45528	ESR6300 enters to ROMMON with any key	ESR6300
CSCwi39241	EA Modem/OD Inaccurate GPS Coordinates	IR1800
CSCwj81049	Unexpected power-on behavior when using ignition detection and/or voltage sense	IR1800
CSCwt01182	IR8340: PTP from UTC to TAI on an IR8340 is not working	IR8340

Resolved Caveats in Cisco IOS XE 17.12.7a

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

Identifier	Description	Platform
CSCwq60670	NVRAM Header Corruption on Power Cycle	IR1800
CSCwr18988	SMU: Disappearance of band selection configuration from cellular controller after a router reload	IR1100 IR8100 IR8300 ESR6300

Identifier	Description	Platform
CSCwp90680	IR1101 not completing ARP for Emerson FB-3000.	IR1101
CSCwt05984	Sensor shows error 'Sensor Fault' when temperature reading is negative	IR1101

Open Caveats in Cisco IOS XE 17.12.6

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

Identifier	Description	Platform
CSCwk45528	Router enters to ROMMON with any key	ESR6300
CSCwi39241	EA Modem/OD Inaccurate GPS Coordinates	IR1800
CSCwj81049	Unexpected power-on behavior when using ignition detection and/or voltage sense	IR8140
CSCwt01182	IR8340: PTP from UTC to TAI on an IR8340 is not working	IR8340

Resolved Caveats in Cisco IOS XE 17.12.6

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

Identifier	Description	Platform
CSCwo31561	"Error in showing license Information" when "show license rum id all" is executed	IR1101
CSCwo91346	WANMON failing to reach level 2 recovery	IR1101 IR1800 IR8140 IR8340 ESR6300
CSCwp00808	IRM-NIM-RS232 module Serial interface stops transmitting TCP raw socket traffic	IR8340
CSCwm92704	Forwarding multiple primary announce messages to SAN	IR8340
CSCwn31061	GIG 0/0/5 interface on the expansion module goes in err-disabled mode when traffic exceeds 480 Mbps	IR1101
CSCwn60186	Onboard G0/0/0 RJ45 WAN port flaps when removing "media-type rj45" config	IR8340

Identifier	Description	Platform
CSCwo73978	Disappearance of band selection configuration from cellular controller after a router reload	IR1800
CSCwp13058	Unintended BBU fw upgrade when miscommunication occurs between IOS and BBU fw	IR8140
CSCwn52402	May lose the configuration after removing the SLA trustpoint	ESR6300

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- To obtain general networking, training, and certification titles, visit Cisco Press.
- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

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Cisco Feature Navigator (CFN)

The Cisco Feature Navigator provides links to browse Cisco products and find relevant features and licenses. It also allows you to compare platforms, determine common features between products, and identify unique product features.

The CFN also has a tab that provides a MIB Locator.