Release Notes for Cisco Catalyst IR1101, IR1800, IR8140, and IR8340 Routers - Cisco IOS XE 17.16.x

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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, and Cisco Catalyst IR8340 Rugged Series Routers running Cisco IOS XE 17.16.x .

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

Product References

For more information about Cisco Catalyst IR1101, IR1800, IR8140, and IR8340 Routers, see:

- Cisco Catalyst IR1101 Rugged Series Router Data Sheet
- Cisco Catalyst IR1800 Rugged Series Routers Data Sheet
- Cisco Catalyst IR8140 Heavy Duty Series Router
- Cisco Catalyst IR8340 Rugged Series Router Data Sheet

New Features in Cisco IOS XE 17.16.x

This table lists the new features in this release and the devices they are introduced on in this release.

Table 1: New Features in Cisco IOS XE 17.16.1a

Feature Name	License Level	Description	Supported Devices	Related Document
802.1x authentication on IR1800 Wi-Fi module	Network Essentials	From this release, the Wi-Fi Interface Module (WIM) module supports 802.1x authentication on the concurrent Root radio using an RADIUS server, forwarding EAP packets to the IR1800 router via a service VLAN on the AP. Based on the active connection, the router directs traffic to either the WGB uplink, the cellular backhaul, or the Ethernet link. The RADIUS server authenticates a wireless client and assigns it an IP address, enabling seamless traffic flow.	IR1800	802.1x authentication on IR1800 Wi-Fi module
Access MEMS sensor data	Network Essentials	With this feature, you can now stream the accelerometer and gyroscope sensor data to the IOx through the TTY interfaces on the two platforms: • IR1833 • IR1835 This feature is enabled by default once *dead reckoning* is enabled and does not require additional configuration.	IR1800	Access MEMS sensor data
Cellular Universal Interface Module (UIM) Support	Network Essentials	The following hardware and corresponding UIMs are now supported on the IR8140: • IRMH-LTE7-NA-900 with P-LTEA7-NA	IR8140	Cellular Pluggable Interface Module Configuration Guide
Configure DR Module using Cisco Catalyst SD-WAN Manager	Network Essentials	The IR1833 and IR1835 routers incorporate a Dead Reckoning (DR) module that calibrates data to estimate a vehicle's location when the GPS signal is weak or unavailable. The Cisco Catalyst SD-WAN Manager facilitates the use of DR CLI commands through the CLI template to estimate GPS coordinates.	IR1833 and IR1835	Configure DR Module using Cisco Catalyst SD-WAN Manager

Feature Name	License Level	Description	Supported Devices	Related Document
Enhancing P-LTE-450 Network Management Through SNMP MIB Objects	Network Advantage	In P-LTE-450 networks, routers can provide crucial quality metrics through Simple Network Management Protocol (SNMP) Management Information Base (MIB) objects. Specifically, Cisco IR1101 and IR1800 routers equipped with the P-LTE-450 Pluggable Interface Module (PIM) allows you to integrate seamlessly with existing SNMP-based management tools to report their status and quality metrics.	IR1101 and IR1800	IR1101 IR1800
Managed Cellular Activation Support for Cisco Catalyst Heavy Duty Routers	Network Essentials	Specific universal interface modules of Cisco Catalyst IR8140 Heavy Duty Routers support the Managed Cellular Activation solution.The following PIDs are now supported: • IRMH-LTE7-NA-900	IR8140	Managed Cellular Activation Support for Cisco Catalyst Heavy Duty Routers
Monitoring Radio Signal Parameters and GPS Coordinates of Cellular Telemetry using Syslog Messages	Network Essentials	The cellular telemetry feature collects the Radio Frequency (RF) parameters and Global Positioning System (GPS) coordinates from the cellular network and displays them at a fixed interval of 60 seconds. To view the RF parameters and GPS coordinates for the cellular interfaces, you can either use the **show logging**command or check the console output.	IR1100, IR1800, IR8140 and IR8340	IR1100 IR1800 IR8140 IR8340
mSATA LED Toggling	Network Essentials and Network Advantage	With this feature, you can toggle the mSATA LED to turn it on or off while the mSATA storage is being used on the router.	IR1100 and IR1800	mSATA Overview

Feature Name	License Level	Description	Supported Devices	Related Document
Raw Socket Multi Host Capability	Network Essentials	Serial packets can now be routed to multiple IP hosts through Raw Socket Transport in controller and autonomous mode. When a raw socket TCP server is enabled on an async line, it is connected to a programmable logic controller (PLC) or remote terminal unit (RTU) and establishes sessions with multiple TCP clients. Traffic from these PLCs/RTUs are sent by the raw TCP server to all the connected TCP clients. When a TCP client polls for data from a PLC/RTU, the response is sent to all connected TCP clients supporting redundancy between the clients in the control centers to ensure all clients update their database. There is no new command introduced to enable this feature.	IR1100 and IR8340	Raw Socket Transport
Support WiFi6 in CAPWAP/WGB concurrent Wi-Fi modes - IPv6 support for the CLI's	Network Essentials	From this release, Cisco Catalyst SD-WAN Manager and the YANG model support both static and dynamic IPv6 configuration in Workgroup Bridge (WGB) mode. This enhancement allows the configuration of IPv6 on the Wi-Fi Interface Module (WIM) in WGB mode from the router which enables routers to obtain IPv6 addresses, collect metrics, and view configuration details seamlessly.	IR1800	Support WiFi6 in CAPWAP/WGB concurrent Wi-Fi modes - IPv6 support for the CLI's
Support for MTU of up to 9216 bytes (Jumbo Frames) on IRM-1100-4A2T	Network Essentials	With this enhancement, Maximum Transmission Unit (MTU) of up to 9216 bytes (Jumbo Frames) are supported on the Ethernet Interfaces of the IRM-1100-4A2T.	IR1101	NA
EVPN VXLAN VLAN-Aware Service	Network Essentials	A VLAN-Aware EVPN instance (EVI) can be configured to map multiple subnets (L2VNI) to a single EVI. In this setup, a MAC-VRF is identified using a combination of the route-target and the ethernet-tag. To identify a specific bridge-table within a MAC-VRF, EVPN routes will advertise with the Ethernet Tag field set to a value that facilitates this identification. This functionality improves the router's interoperability.	IR1101, IR8340 and IR1800	IR1800

Software Images for Cisco IOS XE Release 17.16.x

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

Cisco IOS XE Release 17.16.1a includes the following Cisco images.

Table 2: Software Images for Cisco IOS-XE, Release 17.16.1a

Router	Image Type	Filename
IR1101	Universal	ir1101-universalk9.17.16.01a.SPA.bin
	NPE	ir1101-universalk9_npe.17.16.01a.SPA.bin
IR1800	Universal	ir1800-universalk9.17.16.01a.SPA.bin
	NPE	ir1800-universalk9_npe.17.16.01a.SPA.bin
	UTD Engine for Cisco IR1835	utd.17.16.01a.1.0.7_SV3.1.55.0_XE17.16.x86_arch64.tar
IR8100	Universal	ir8100-universalk9.17.16.01a.SPA.bin
	NPE	ir8100-universalk9_npe.17.16.01a.SPA.bin
IR8340	Universal	ir8340-universalk9.17.16.01a.SPA.bin
	NPE	ir8340-universalk9_npe.17.16.01a.SPA.bin
	UTD Engine for Cisco IR8340	utd.17.16.01a.1.0.7_SV3.1.55.0_XE17.16.x86_64.tar

The latest software downloads for the routers can be found at the Software Downloads page. Click the link corresponding to your device to take you to the specific software you are looking for.

Interface Naming Conventions

This section shows the names of the interfaces on Cisco Catalyst IR1101, IR1800, IR8140, and IR8340 routers on each port.

Cisco Catalyst IR1101 Rugged Series Router

Port	Naming Convention
Gigabit Ethernet combo port	GigabitEthernet0/0/0
Gigabit Ethernet SFP port on IRM-1100	GigabitEthernet0/0/5

Port	Naming Convention
Gigabit Ethernet on IRM-1100-4A2T mounted on the Expansion side	Gigabitetherenet 0/0/5 Gigabitetherenet 0/0/6
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
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
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	Gigabitetherenet 0/1/0 Gigabitetherenet 0/1/0.x for multiPDN operation

Port	Naming Convention
Gigabit Ethernet interface for LTE 450MHz module mounted on the bottom (CM) side	GI0/4/0

Cisco Catalyst IR1800 Rugged Series Router

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

Port	Naming Convention
Gigabit Ethernet ports	GigabitEthernet0/0/0 GigabitEthernet0/0/1
Cellular Interface	Cellular 0/2/0 Cellular 0/2/1 Cellular 0/3/0 Cellular 0/3/1
SSD	Virtual port Group0

Port	Naming Convention
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

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

Port	Naming Convention
USB Port	usb0:
Console Port	Line console 0

Cellular Module Modem Firmware, OEM/PRI

This section contains the latest modem firmware available for each of the modems used by the Cisco IoT routers. See the Cisco Firmware Upgrade Guide for 4G LTE and 5G Cellular Modems for upgrade instructions.

Note Cisco IOS XE updates do not automatically update the modem firmware. The user should check and update all modems to the latest firmware and any associated PRI and/or OEMPRI. See the following table for the latest information:

Table 3: Cellular Module Modem Firmware

Cellular Module	Modem	Firmware Version	Software Download Link
P-5GS6-GL	FN980	38.03.0202	https://software.cisco.com/download/home/286329300/type/
P-LTEAP18-GL IRMH-LTEAP18-GL	LM960	32.00.1x9	https://software.cisco.com/download/home/286311455/type https://software.cisco.com/download/home/286311455/type
P-LTEA-EA IRMH-LTEA-EA	EM7455	02.39.00.00	Generic: https://software.cisco.com/download/home/286308426/type Europe: https://software.cisco.com/download/home/286308426/type Canada: https://software.cisco.com/download/home/286319713/type North America ATT: https://software.cisco.com/download/home/286311442/type North American Sprint: https://software.cisco.com/download/home/286311455/type North America Verizon: https://software.cisco.com/download/home/286311429/type

Cellular Module	Modem	Firmware Version	Software Download Link
P-LTEA-LA IRMH-LTEA-LA	EM7430	02.38.00.00	Generic: https://software.cisco.com/download/home/286308413/type Australia Telstra: https://software.cisco.com/download/home/286311403/type Japan: https://software.cisco.com/download/home/286311416/type
P-LTE-VZW	WP7601	02.37.0x.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	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	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	02.37.0x.0x	https://software.cisco.com/download/home/286324942/type
P-LTEA7-NA	EM7411	01.14.22.00	https://software.cisco.com/download/home/286333933/type
P-LTEA7-EAL	EM7421	01.14.22.00	https://software.cisco.com/download/home/286333937/type
P-LTEA7-JP	EM7431	01.14.22.00	https://software.cisco.com/download/home/286333939/type
P-5GS6-R16SA-GL	EM9293	02.17.08.00	https://software.cisco.com/download/home/286334597/type
P-LTE-450	Not Applicable	v1.3.0	Contact Intelliport for the software download link (info@intelliport.hu)

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).

VLAN-Aware Interoperability Limitations on IR1101

Cisco does not support VLAN-aware interoperability with other vendors on the IR1101 platform.

Standalone MAC Authentication Bypass 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 Cisco Catalyst IR1101 Rugged Series Routers due to a hardware limitation. dACL is supported on the Cisco Catalyst IR1800 Rugged Series Routers 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.

Cisco Bug Search Tool (BST)

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 17.16.1a

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

Identifier	Description	Platform
CSCwn11290	Input errors on G0/0/0 interface	IR8340
CSCwn31694	Memory Leak cause by PTP process in linux_ios-imag	IR8340

Resolved Caveats in Cisco IOS XE 17.16.1a

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

Identifier	Description	Platform
CSCwm57517	Not able to see the description of serial interfaces after power cycle	IR8340
CSCwm67835	Seeing High Offset value when two ntp servers are configured and GNSS as refclock	IR8340
CSCwj81049	Unexpected power-on behavior when using ignition detection and/or voltage sense	IR1800
CSCwm40611	Serial interface snmp query is failing after enabled \u201cphysical-layer async"	IR8340
CSCwm67323	Intermittent failure to acquire GPS coordinates	IR8140
CSCwj83781	Switchport configs not configuring in Wlan-GigabitEthernet0/1/4 via Vmanage in SDWAN mode	IR1800

Identifier	Description	Platform
CSCwn16197	Fails to boot when cellular modules are inserted/Unable to ping through cellular interface	IR1101
CSCwk59606	Platform USB disable is not working after reseat USB	IR1101

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

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

Cisco Industrial IoT Licensing

For more information on Smart Licensing Using Policy, refer to the guide Smart Licensing Using Policy on the Cisco Catalyst IR1101, IR1800, IR8140, and IR8340 Routers or the Cisco Industrail IoT Licensing page.

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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.

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