Release Notes for Cisco Catalyst IR1101, IR1800, IR8140, and IR8340 Routers - (Cisco IOS XE Dublin 17.14.x)

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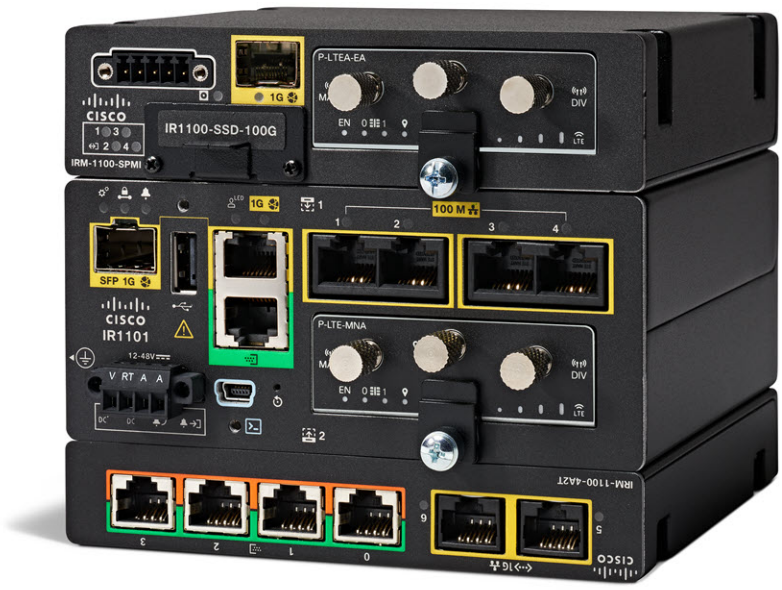
Introduction to this Document

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 17.14.x.

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



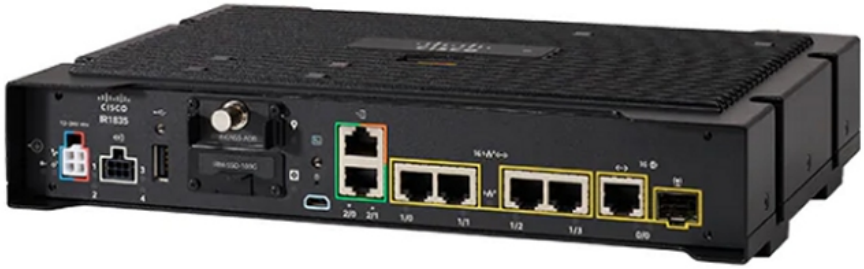
The Cisco Catalyst IR1101 Rugged Series Router is a next-generation modular industrial router, which has a base platform with additional pluggable modules that can be added. The pluggable modules provide the

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 adds key capabilities to the IR1101. The expansion modules are:

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-800 P-LPWA-900	Cisco LoRaWAN Pluggable Interface Module designed for RF regional profile US915, AS923 and AU915. Cisco LoRaWAN Pluggable Interface Module designed for the EU868, IND865 and RU864 RF regional profile.
P-LTE-450	Cisco 450MHz Category-4 LTE Pluggable Interface Module.

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 IR1800 series consists of four base platforms:

- IR1821
- IR1831
- IR1833

- IR1835

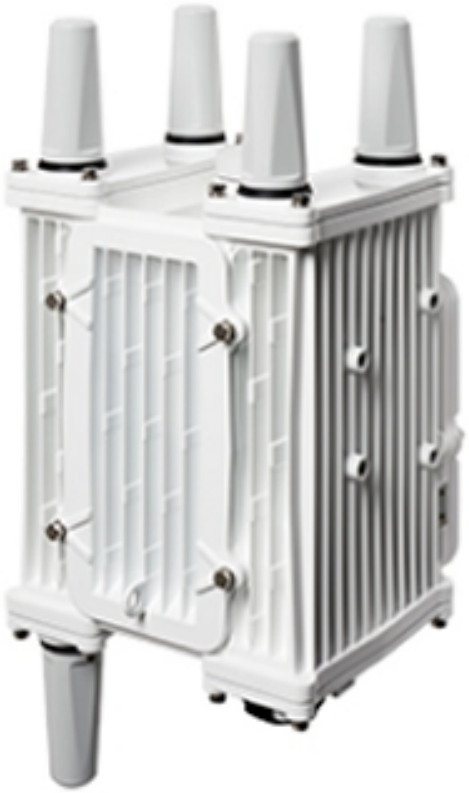
The IR1800 series features a base platform with modularity, which includes:

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 1: Differences Between the IR1800 Series Routers' Features

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
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

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:

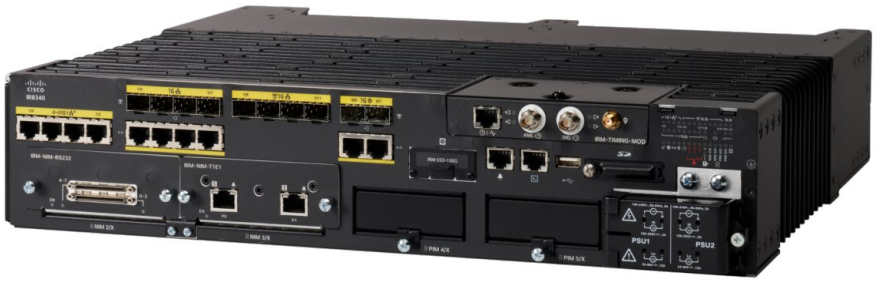
- IR8140H-P-K9 (with PoE PSE)
- IR8140H-K9 (without PoE PSE)

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

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

- 900-MHz WPAN – OFDM/FSK Module
- mSATA module
- 1x1-Gigabit Ethernet SFP WAN
- 1x1-Gigabit Ethernet Cu WAN
- PoE (15W) 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 units
- 2 Alarm ports (Digital I/O)
- IRMH modules for LTE CAT 4, LTE CAT 6, LTE CAT 18, and 5G

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, 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 802.1AS profiles
- 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
- 2x1-G Combo WAN ports
- 4x1-G Copper LAN ports
- 4x1-G Combo LAN ports
- 4x1-G SFP LAN ports

- PoE, PoE+, and UPoE (up to 60W) support on LAN ports 1-4
- Alarms - 2 IN and 1 OUT (RJ45 Port)

New Features in Cisco IOS XE 17.14.x

The features in the following table are new in this release for the supported devices.

Table 2: New Features in Cisco IOS XE 17.14.1a

Feature Name	License Level	Description	Supported Devices	Related Document
Support for Class B End Devices in the LoRaWAN Network	Network Essentials	The Cisco Catalyst IR1101 and IR1800 Routers now support Class B mode in LoRaWAN networks. This feature improves network efficiency and extends the battery life of end devices. It works by allowing the devices to open receive windows, known as ping slots, using time-synchronized beacons from the Cisco Wireless Gateway. These windows make it easier for the network server to send data to the end devices.	IR1101 and IR1800	Support for Class B End Devices in the LoRaWAN Network
LTE450MHz PIM support on IR1800	Network Essentials	The Cisco Catalyst IR1800 Rugged Series Router now supports the 450MHz Long-Term Evolution (LTE) Pluggable Interface Module (PIM), known as P-LTE-450. This module is specifically designed for LTE use cases in utility, public safety, and critical infrastructure sectors in Europe and other regions.	IR1800	Support for P-LTE-450 Pluggable Interface Module
Support for MACsec and IPsec Encryption	HSEC License	The Cisco Catalyst IR1101 Rugged Series Routers supports the configuration of MACsec on the LAN port and IPsec on the WAN port to secure sensitive traffic originating from distribution automation (DA) assets. The router acts as a gateway, enabling DA assets to utilize MACsec encryption at Layer 2 and establish IPsec tunnels through the LTE or WAN port.	IR1101	Support for MACsec and IPsec Encryption

Feature Name	License Level	Description	Supported Devices	Related Document
Support for CAPWAP and WGB Modes on the Cisco Wi-Fi Interface Module	Network Essentials and Network Advantage	The Cisco Catalyst IR1800 Rugged Series Routers now support CAPWAP and WGB Modes on the Cisco Wi-Fi Interface Module (WIM). From this release, you can: 1. Switch the operation mode between Control and Provisioning of Wireless Access Points (CAPWAP), and Workgroup Bridge (WGB). 2. Perform a factory reset and erase configuration. 3. Configure the radios for WGB uplink and concurrent Root AP mode operations.	IR1800	Support for CAPWAP and WGB Modes on the Cisco Wi-Fi Interface Module
Ethernet over MPLS Pseudowire	Network Essentials	The Cisco Catalyst IR8340 Rugged Series Router supports Ethernet over MPLS (EoMPLS) pseudowire to transport Ethernet frames across a Multiprotocol Label Switching (MPLS) network. This feature integrates Ethernet-based services into the MPLS infrastructure to deliver Layer 2 connectivity.	IR8340	

Deprecated Features

From Cisco IOS XE Release 17.14.1a, the support for weaker cryptographic algorithms is deprecated. Protocols such as IPsec, SSH, OSPF, and SNMP are modified to enhance network security, integrity, and confidentiality. The deprecated features for each protocol are as follows:

- **IPSec**: Keywords in the following commands are deprecated:
  - IKEv1 Policy
  - IKEv2 Proposal
  - IPsec Transform-set
  - IPSec Profile

  See the IPsec Field Notice for more information.
- **SSH**: RSA key sizes that are less than 2048 bits are not supported. See the SSH Field Notice for more information.
- **OSPF**: Some keywords are deprecated in the encryption and authentication commands. See the OSPF Field Notice for more information.
- **SNMP**: SNMP does not support certain algorithms in the user authentication commands. See the SNMP Field Notice for more information.

Interface Naming Conventions

Cisco Catalyst IR1101 Rugged Series Router

The following section shows the names of the interfaces on each of the IoT 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	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

Port	Naming Convention
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

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

Port	Naming Convention
Cellular Interface	Cellular 0/2/0 Cellular 0/2/1 Cellular 0/3/0 Cellular 0/3/1
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

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

Port	Naming Convention
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

Software Images for Cisco IOS XE Release 17.14.x

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

Cisco IOS XE Release 17.14.1a includes the following Cisco images.

Table 3: Software Images for Cisco IOS-XE, Release 17.14.1a

Router	Image Type	Filename
IR1101	Universal	ir1101-universalk9.17.14.01a.SPA.bin
	NPE	ir1101-universalk9_npe.17.14.01a.SPA.bin
IR1800	Universal	ir1800-universalk9.17.14.01a.SPA.bin
	NPE	ir1800-universalk9_npe.17.14.01a.SPA.bin
	UTD Engine for Cisco IR1835	utd.17.14.01a.1.0.7_SV3.1.55.0_XE17.14.x86_arch64.tar
IR8140	Universal	ir8100-universalk9.17.14.01.SPA.bin
	NPE	ir8100-universalk9_npe.17.14.01.SPA.bin
IR8340	Universal	ir8340-universalk9.17.14.01a.SPA.bin
	NPE	ir8340-universalk9_npe.17.14.01a.SPA.bin
	UTD Engine for Cisco ISR1100/ISR1100X and IOS XE	utd.17.14.01a.1.0.7_SV3.1.55.0_XE17.14.x86_64.tar

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

https://software.cisco.com/download/home/286323433

Click the link corresponding to your device to take you to the specific software you are looking for.

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.

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 4: Cellular Module Modem Firmware

Cellular Module	Modem	Firmware Version	Software Download Link
P-5GS6-GL	FN980	38.02.02x2	https://software.cisco.com/download/home/286329300/type/
P-LTEAP18-GL IRMH-LTEAP18-GL	LM960	32.00.1x7	https://software.cisco.com/download/home/286324947/type
P-LTEA-EA IRMH-LTEA-EA	EM7455	02.32.11.00	https://software.cisco.com/download/home/286308426/type
P-LTEA-LA IRMH-LTEA-LA	EM7430	02.33.03.00	https://software.cisco.com/download/home/286308413/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

Cellular Module	Modem	Firmware Version	Software Download Link
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.00	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	02.13.08.00	https://software.cisco.com/download/home/286334597/type

Note The Cat7 P-LTE7-NA/JP/EAL and 5G-Sub6 P-5GS6-R16SA-GL modules, do not support GPS and Dying-Gasp features in this release.

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).

Expansion Module on the IR1101

The expansion module IR1101 does not support +1500 MT size on LAN interfaces. See this Caveat for details.

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.

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 17.14.1a

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

Identifier	Description	Platform
CSCwi04881	Asynchronous Distributed Network Protocol 3 (DNP3) port keeps flapping	IR1101
CSCwj09554	P-LTE-450 Module ping over VRF fails after reload	IR1101
CSCwd38611	FN980 modem is not showing in the output of **show inventory** command after multiple modem-power cycle	IR1101
CSCvz30726	High CF/TE,Turnaround and Latency number after reload of router	IR8340
CSCwa92737	Router throws CPP/FMAN download errors on attaching ngsw class-map using etype classification	IR8340
CSCwi96187	P-5GS6-GL FN980 modem firmware upgrade failing when two modems on IR1800 IOS 17.12.1a	IR1800

Resolved Caveats in Cisco IOS XE 17.14.1a

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

Identifier	Description	Platform
CSCwh77749	Internal USB hub fails to enumerate resulting in Cellular 0/3/0 not functioning	IR1101
CSCwh37024	PnP gets stuck when cellular backhaul is used	IR1800
CSCwh78779	P-LTE-MNA I2C issues	IR1101
CSCwh31936	SCADA Monitoring Crash with DNP3 on multiple ports of IR1101	IR1101
CSCwi29218	Traffic is impacted when HSR link goes down with 100mbps speed.	IR8340
CSCwh29080	WP-WIFI6 out of service, error "IM authentication failed for slot/bay 0/3"	IR1800
CSCwi52138	Insufficient Power for PoE	IR1835
CSCwh90300	Cant establish a session with the 450Mhz modem due to password discrepancy	IR1101
CSCwi43664	WP-WIFI6 : Module Out of Service upon reload	IR1835
CSCwi02277	Router crashing because of TDL mem leaks	IR8340
CSCwi10057	SDWAN: **Raw tcp encapsulation** command is missing in sd-wan configuration	IR8340

Identifier	Description	Platform
CSCwi04881	Async DNP3 port keeps flapping	IR1101
CSCwi66681	Modem resets frequently on 17.12.02 with RSSI spikes upto -130 dBm	IR1101
CSCwh10876	Ping is not successful after reload the device with switchport config in gi0/0/0	IR1101
CSCwj54544	Power usage is at normal level - Events sent every 30 sec	IR8140

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

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