

# Release Notes for Cisco Catalyst IR1101, IR1800, IR8140, IR8340, and Cisco ESR 6300 Routers - (Cisco IOS XE Cupertino 17.9.4)

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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 17.9.4.

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

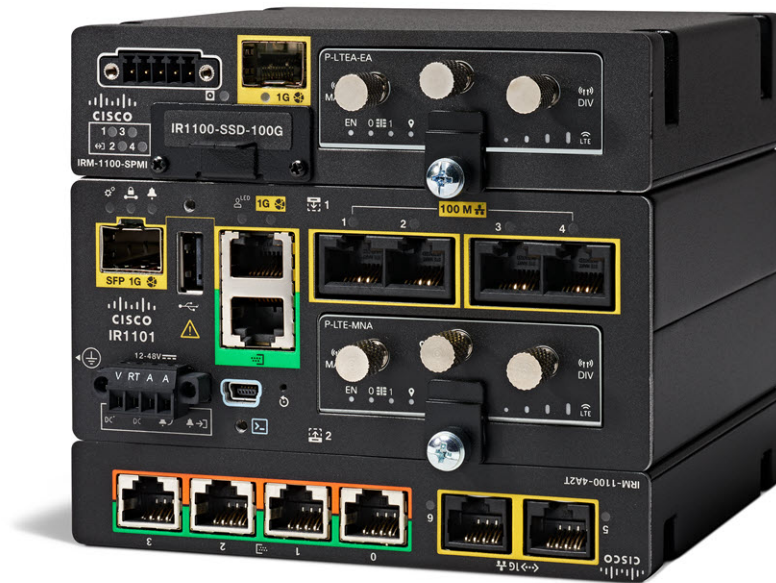


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**Note** The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic 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.

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# 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 and 1 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.   |

# 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, that 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 NIM Module Slot | 1       | 1       | 1       | 1        |

| Feature                       | IR1821        | IR1831                         | IR1833                         | IR1835                               |
|-------------------------------|---------------|--------------------------------|--------------------------------|--------------------------------------|
| 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<br>(1) RS232 DCE | (1) RS232 DTE<br>(1) RS232 DCE | (1) RS232 DTE<br>(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 IP 67 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
- 4G/LTE and 5G IRMH modules
- 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)

## 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
- 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
- 2 x IN and 1 x OUT Alarm ports (RJ45)

## 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 of the SKUs offer the following port and module interfaces:

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

## 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 | gigabitethernet 0/0/5<br>gigabitethernet 0/0/6           |
| Fast Ethernet ports   | FastEthernet0/0/1-0/0/4                                  |
| Cellular Interface on IR1101 Base                               | Cellular 0/1/0 and Cellular 0/1/1                        |
| Cellular Interface on IRM-1100 mounted on the top (EM) side.    | Cellular 0/3/0 and Cellular 0/3/1                        |
| Cellular Interface on IRM-1100 mounted on the bottom (CM) side. | Cellular 0/4/0 and 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<br>async 0/3/1<br>async 0/3/2<br>async 0/3/3 |

| Port   | Naming Convention  |
|--|--|
| IRM-1100-4A2T is mounted on the bottom (CM) side | async 0/4/0<br>async 0/4/1<br>async 0/4/2<br>async 0/4/3 |
| USB  | usbflash0:   |
| mSATA  | msata  |
| IR1101 Base Unit Alarm input                     | alarm contact 0  |
| GPIO on IRM-1100                                 | alarm contact 1-4  |

### Cisco Catalyst IR1800 Rugged Series Router

| Port                          | Naming Convention   |
|-------------------------------|---|
| Gigabit Ethernet combo port   | GigabitEthernet0/0/0  |
| Gigabit Ethernet ports        | GigabitEthernet0/1/0<br>GigabitEthernet0/1/1<br>GigabitEthernet0/1/2<br>GigabitEthernet0/1/3  |
| Cellular Interface            | Cellular 0/4/0<br>Cellular 0/4/1<br>Cellular 0/5/0<br>Cellular 0/5/1                          |
| Asynchronous Serial Interface | Async0/2/0<br>Async0/2/1 (when the base platform supports two asynchronous serial interfaces) |
| Wi-Fi Interface               | WI0/1/4   |
| USB                           | usbflash0:  |
| mSATA                         | msata   |
| GPIO                          | alarm contact 1-4   |



**Cisco Catalyst IR8140 Heavy Duty Series Router**

| <b>Port</b>            | <b>Naming Convention</b>                     |
|------------------------|--|
| Gigabit Ethernet ports | GigabitEthernet0/0/0<br>GigabitEthernet0/0/1 |
| Cellular Interface     | Cellular 0/2/0<br>OR<br>Cellular 0/3/0       |
| SSD                    | Virtual port Group0                          |
| WPAN                   | Wpan 0/1/0<br>Wpan 0/2/0<br>Wpan 0/3/0       |
| Digital IO             | alarm contact 1-2                            |

**Cisco Catalyst IR8340 Rugged Series Router**

| <b>Port</b>                | <b>Naming Convention</b>   |
|----------------------------|--|
| Gigabit Ethernet WAN ports | GigabitEthernet0/0/0<br>GigabitEthernet0/0/1   |
| Gigabit Ethernet LAN ports | GigabitEthernet0/1/0<br>GigabitEthernet0/1/1<br>GigabitEthernet0/1/2<br>GigabitEthernet0/1/3<br>GigabitEthernet0/1/4<br>GigabitEthernet0/1/5<br>GigabitEthernet0/1/6<br>GigabitEthernet0/1/7<br>GigabitEthernet0/1/8<br>GigabitEthernet0/1/9<br>GigabitEthernet0/1/10<br>GigabitEthernet0/1/11 |
| Cellular Interface         | Cellular 0/4/0<br>Cellular 0/4/1<br>Cellular 0/5/0<br>Cellular 0/5/1   |

| Port  | Naming Convention                |
|---|----------------------------------|
| NIM Interface<br>(Asynchronous/Synchronous Serial Ports or E1/T1 ports) | 0/2/0<br>0/2/1<br>0/3/0<br>0/3/1 |
| mSATA SSD   | msata                            |
| GPIO  | alarm contact 1-2                |
| USB Port  | usb0:                            |
| Console Port  | Line console 0                   |

### Cisco ESR6300 Embedded Series Router

| Port                                   | Naming Convention  |
|--|--|
| Gigabit Ethernet combo port WAN Layer3 | GigabitEthernet0/0/0<br>GigabitEthernet0/0/1   |
| Gigabit Ethernet LAN Layer 2 ports     | GigabitEthernet0/1/0<br>GigabitEthernet0/1/1<br>GigabitEthernet0/1/2<br>GigabitEthernet0/1/3 |
| Cellular Interface                     | Cellular 0/3/0   |
| USB Port                               | usbflash0: (IOS and rommon)  |
| Console Port                           | Line console 0   |

## Software Images for Cisco IOS XE Release 17.9.4



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

Cisco IOS XE Release 17.9.4 includes the following Cisco images.

**Table 2: Software Images for Cisco IOS-XE, Release 17.9.4**

| Router | Image Type | Filename                               |
|--------|------------|--|
| IR1101 | Universal  | ir1101-universalk9.17.09.04.SPA.bin    |
|        | NPE        | ir1101-universal9_npe.17.09.04.SPA.bin |

| Router  | Image Type | Filename                                |
|---------|------------|---|
| IR1800  | Universal  | IR1800-universalk9.17.09.04.SPA.bin     |
|         | NPE        | IR1800-universal9_npe.17.09.04.SPA.bin  |
| IR8140  | Universal  | IR8100-universalk9.17.09.04.SPA.bin     |
|         | NPE        | IR8100-universal9_npe.17.09.04.SPA.bin  |
| IR8340  | Universal  | IR8340-universalk9.17.09.04.SPA.bin     |
|         | NPE        | IR8340-universalk9_npe.17.09.04.SPA.bin |
| ESR6300 | Universal  | c6300-universalk9.17.09.04.SPA.bin      |

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.

## New Features in Cisco IOS XE 17.9.4

The following sections describe the major enhancements available in Cisco IOS XE 17.9.4 on each of the routers.




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**Note** There are no new features for this software release.

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## 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](#)

## 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



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

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### Config register change issue with service password recovery update

When service password recovery is disabled, then the config register cannot be changed and will be stuck at 0x01. This issue was found on the IR1101 Router. For additional information see the tech note [Understand Configuration Register Usage on all Routers](#).

### 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 (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.

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.<br><br>If users still want to use MAB/Dot1x, they should disable the type-6 encryption and enable type-7 encryption.   | 17.4.X<br>17.5.X<br>17.6.1<br>17.6.2<br>17.7.1 | 17.3.5<br><br>Fixed in these future releases:<br>17.6.3<br>17.7.2<br>17.8.1 and later. |
| dACL and device-tracking features are not supported on the IR1101 and ESR6300 due to a hardware limitation. dACL is supported on the IR1800 series.<br><br>Therefore, features such as MAB and Dot1x should not be used with the optional dACL/device-tracking enabled. | <b>Note</b> 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.

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 17.9.4

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

| Identifier                 | Description  | Platform |
|----------------------------|--|----------|
| <a href="#">CSCwf43158</a> | Console access slow, truncated outputs.                        | IR1101   |
| <a href="#">CSCwe12652</a> | Incorrect return MIB for ciscoWanCellExtMIB and ciscoWan3gMIB. | IR1101   |

### Resolved Caveats in Cisco IOS XE 17.9.4

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

| Identifier                 | Description  | Platform |
|----------------------------|--|----------|
| <a href="#">CSCwc76265</a> | IR1101 crashes when scada_gw is in use, at Process = scada monitoring. | IR1101   |

| Identifier                 | Description  | Platform        |
|----------------------------|--|-----------------|
| <a href="#">CSCwe46800</a> | IR1101 loses connectivity after upgrade from 17.3.1 and template push.             | IR1101          |
| <a href="#">CSCwe66264</a> | dACL fails installation from ISE on the IR1800.                                    | IR1800          |
| <a href="#">CSCwf22381</a> | IR1800: WAN SFP link goes down after reloading Peer.                               | IR1800          |
| <a href="#">CSCwe11637</a> | Traceback with error "Bad refcount in datagram_done" seen on IoT and ISR routers.  | All IoT Routers |
| <a href="#">CSCwe12989</a> | IR1101 - shutdown of one subinterface breaking remaining subinterfaces.            | IR1101          |
| <a href="#">CSCwe60379</a> | 5G Modem does not recover from a hard Powercycle of Router.                        | P-5GS6-GL       |
| <a href="#">CSCwe70473</a> | IR1101: IGMP messages dropped on sub interface with vlan tag.                      | IR1101          |
| <a href="#">CSCwd86680</a> | Async interface used for SCADA went down after upgrading IOS from 17.8.1 to 17.9.1 | IR1101          |

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