Overview of Cisco 1100 Series Integrated Services Routers

Overview

Cisco 1100 Series Integrated Services Routers (ISRs) with Cisco IOS XE Software combine Internet access, comprehensive security, and wireless services (LTE Advanced 3.0, Wireless WAN and Wireless LAN), are high-performance devices that are easy to deploy and manage. They are well suited for deployment as customer premises equipment (CPE) in enterprise branch offices, and in service provider managed-service environments.

These ISRs are the industry leader in bringing enterprise-grade wired-line-like functionality such as quality of service (QoS) for cellular, Multi-VRF, advanced VPN, and unified communications solutions over LTE.

The 1100 Series also provides the ability to extend Cisco product-based networks to remote offices with a relatively low incremental investment, as well as to enable managed services offerings based on end-to-end Cisco system architecture.

About Cisco 1100 Series Integrated Service Routers

The Cisco 1100 Series ISRs are fixed branch routers based on the Cisco IOS XE Everest 16.6.2 operating system, with a multi-core Data Plane.

The two types of platforms supported on Cisco 1100 Series ISRs are 8-port and 4-port platforms.

8-port platforms are high-performance, managed service provider and enterprise platforms having:

- 8-port integrated front panel switch ports

- Optional PoE on LAN daughter card with support up to 4PoE/2PoE+ports

- Optional WLAN support - 802.11ac WAVE 2

- 4G LTE-Advanced support with carrier aggregation

4-port platforms are midrange performance, managed service provider platforms and enterprise platforms having:

- 4-port integrated front panel switch ports

- VDSL2 and ADSL2/2+ support

- Optional POE on LAN daughter card supporting 2PoE/1PoE+ ports

- Optional WLAN support - 802.11ac WAVE 2

- 4G LTE-Advanced support with carrier aggregation

Chassis Views

This section contains views of the front and back panels of the Cisco 1100 Series ISR, showing locations of the power and signal interfaces, interface slots, status indicators, and chassis identification labels.
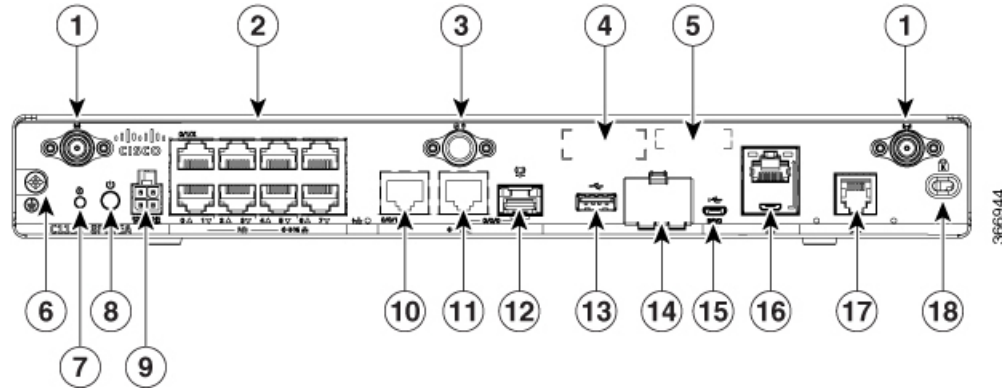
Bezel View

Figure 1: Cisco 1100 Series ISR - Bezel View
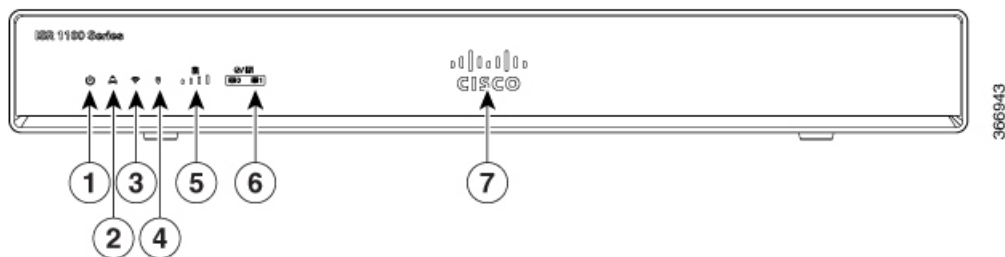
1	Status	2	VPN
3	WiFi	4	GPS
5	LTE Signal Intensity	6	LTE Data/SIM
7	Illuminated Cisco Logo		

I/O View

Figure 2: Cisco 1100 Series ISR - I/O Views

1	LTE Antennas – Main and Diversity	2	LAN
3	GPS Connection	4	CLEI Label
5	Serial Number	6	Grounding
7	Reset Button	8	Power Switch
9	4-pin Power Connector	10	GE 0/0/1
11	GE 0/0/0 - RJ45	12	GE 0/0/0 - SFP
13	USB3.0	14	uSIM*2
15	LTE Provisioning Port	16	RJ45 / Micro USB Console
17	DSL	18	Kensington Lock Slot

Labels on the Router

To obtain a software license, you need a product authorization key (PAK) and the unique device identifier (UDI) of the device where the license will be installed.

Figure shows the location of the labels on the Cisco 1100 Series ISRs:

Figure 3: Labels on the Routers
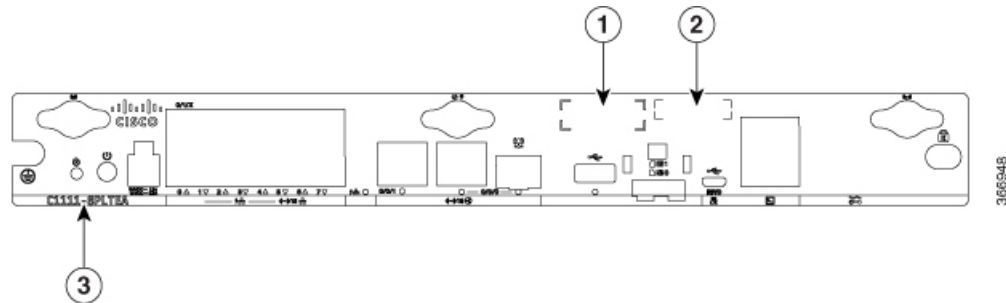
Sl. No	Name	Description
1	CLEI Number	Common Language Equipment Identifier (CLEI) number
2	Serial Number	
3	PID Family Name	Product Identification Number

For Additional Help Locating Labels on the Router

Use the Cisco Product Identification (CPI) tool to find labels on the router. The tool provides detailed illustrations and descriptions of where the labels are located on Cisco products. It includes the following features:

- A search option that allows browsing for models by using a tree-structured product hierarchy

- A search field on the final results page that makes it easier to look up multiple products

- End-of-sale products clearly identified in results lists

The tool streamlines the process of locating serial number labels and identifying products. Serial number information expedites the entitlement process and is important for access to support services.

Hardware Features

This section describes the hardware features in the routers.

Interface Ports

The Cisco ISR C1100-8P series comes with 8-Gigabit Ethernet LAN ports, and two WAN ports, with options for one LTE modem and one WLAN interface.

The Cisco ISR C1100-4P series comes with 4-Gigabit Ethernet LAN ports, and two WAN ports, with options for one LTE modem and one WLAN interface.

Power-over-Ethernet (PoE)

The C1100-8P series has 8 Ethernet LAN ports. Four of the Ethernet LAN ports are PoE-capable, LAN ports 0-3. A total of 80W of PoE power is available across the four PoE-capable ports on the C1100-8P series.

The C1100-4P series has 4 Ethernet LAN ports. Two of the Ethernet LAN ports are PoE-capable, LAN ports 0-1. A total of 60W of PoE power is available across the two PoE-capable ports on the C1100-4P series.

Each individual PoE-capable Ethernet LAN port is capable of PoE 802.3af or PoE+ 802.3at functionality. The total number of PoE and/or PoE+ devices that can be enabled on the PoE ports at any one time is a function of the PoE power available from the external power supply. Software will allocate PoE power based on the PoE power requested by the device on each port; and manage the total available power so as not to allocate more power than what is available.
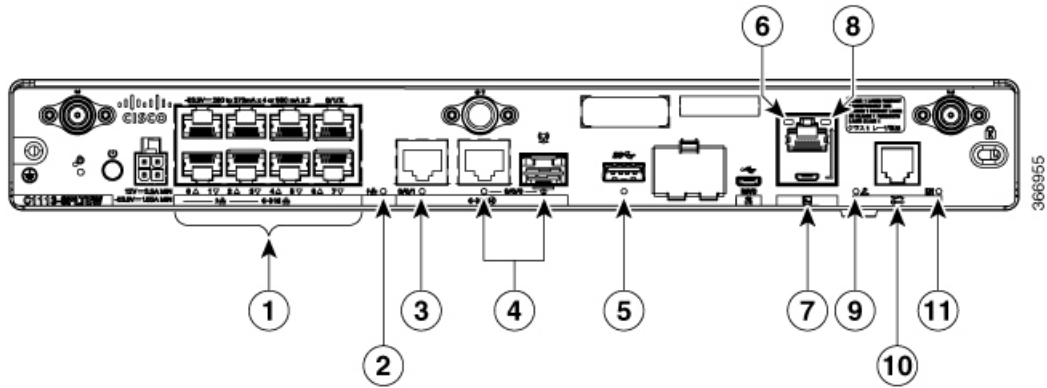
LED Indicators

The following figures and table summarizes the LED indicators that are located in the router bezel or chassis, but not on the interface cards and modules.

Figure 4: LED Indicators - Bezel Side
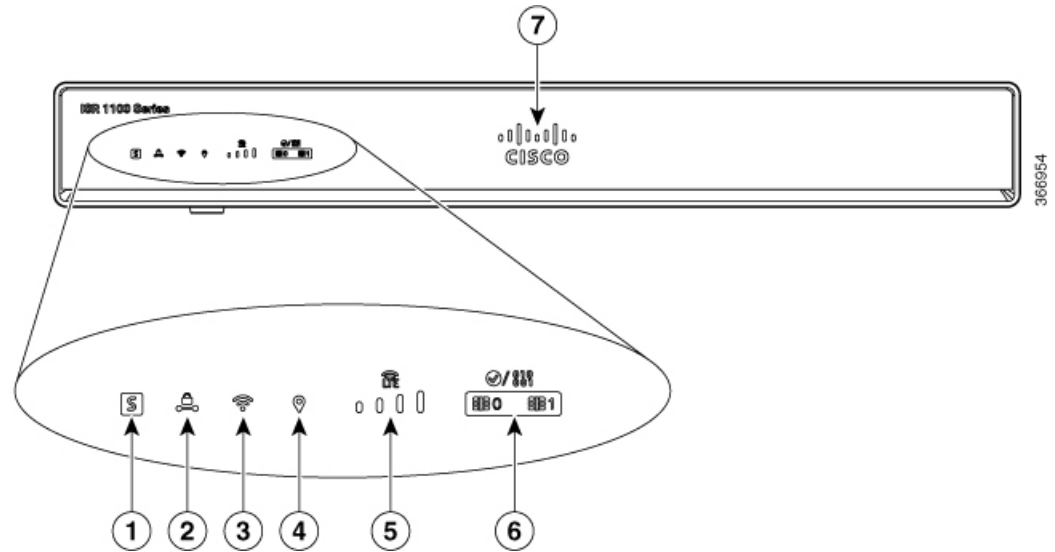
1	Status	2	VPN
3	WLAN	4	GPS
5	LTE RSSI/Mode	6	LTE DATA/SIM
7	Cisco Logo		

Figure 5: LED Indicators - I/O Side

1	GE WAN Ports: 0-7 (0,2,4,6 at the top and 1,3,5,7 at the bottom)	2	PoE LED
3	GE1 LED	4	GE0 LED
5	USB LED	6	RJ-45 Console LED
7	USB Console	8	Micro USB Console LED
9	CD LED	10	DSL
11	DATA LED		

Table 1: LED Indicators - Description

Port	LED Color	Description	Location
Cisco Logo	Blue	Bezel illuminated Cisco logo. Indicates router power is good.	Bezel side

Port	LED Color	Description	Location
STATUS (System Status)	Green and Amber	Steady Green - System operates normally	Bezel side. All models.
		Off—System is not out of reset; or BIOS image is not loadable.	
		Blinking Amber — BIOS/Rommon is booting.	
		Steady Amber — BIOS/Rommon has completed booting, and the system is at the Rommon prompt or booting the platform software.	
VPN OK	Green	Off—No tunnel.	Bezel side
		Steady On— at least one tunnel is up	
LTE RSSI/Mode	Green and Amber	No LEDs On—No Service	Bezel Side
		1 LED On— RSSI is under -100dBm	
		2 LEDs On— Low RSSI, -99dbm <> -90dBm	
		3 LEDs On— Medium RSSI -89dBm <> -70dBm	
		4 LEDs On— High RSSI, > -69dBm	
		Green— LTE	
		Amber— 3G	

Port	LED Color	Description	Location
GPS	Green and Amber	Amber— Assisted GPS (Reserved for Future Use)	Bezel Side
		Green— Standalone GPS	
		Off— GPS not configured	
		On— GPS configured	
		Blink— GPS Acquiring	
LTE DATA/SIM	Green and Amber	Single LTE Modem (one modem with SIM switch-over capability)	Bezel Side
		Off— Modem not up or modem up and no SIM	
		Amber Steady On— Modem up, SIM installed but not active.	
		Green Steady On— Modem up, SIM installed and active.	
		Green Blink— LTE data activity.	
WLAN	Green, Red, and Amber	Green— Normal operating condition with at least one wireless client association.	Bezel side
		Red—Ethernet link is not operational or Ethernet failure.	
		Amber—Software upgrade is in progress.	
Ethernet Switch GE LAN Ports, Non-PoE	Green	Off— No link	I/O side
		Steady On— link	
		Blink— TXD/RXD data	

Port	LED Color	Description	Location
Ethernet Switch GE LAN Ports, with PoE	Green and Amber	Off— No link, no device powered, PD denied power, power delivery fault PoE administratively disabled.	I/O side
		Green Steady On— link; if PoE device, power is enabled.	
		Green Blink— TXD/RXD data	
		Amber - PoE Fault	
GE WAN Ports	Green	Off— No link	I/O side
		Steady On— link	
		Blink— TXD/RXD data	
DSL CD	Green	Off— Shut	I/O Side
		Green Blink— Training, or no shut and cable disconnected.	
		Green Steady On— Trained	
PoE OK	Green	Green Steady On— -53.5V PoE power supply connected and all powered port operating normally.	I/O Side
		Off — No -53.5V PoE power supply connected to router.	
DSL Data	Green	Off— No Data Activity	I/O Side
		Green Blink— TX/RX Data	

Port	LED Color	Description	Location
Console/AUX	Green and Amber	Green On— Console enabled.	I/O side
		Amber On— AUX enabled.	
USB Console	Green	Off— No USB device discovered.	I/O side
		On— USB device discovered.	
USB	Green	Off: No USB device discovered.	I/O Side
		On: USB device discovered.	

Reset Button

The actuation of the Reset button is only recognized during Rommon boot, that is, as the router comes to the Rommon prompt.

The Reset button does not require much force to be actuated. The Reset button should be actuated only with a small implement such as the tip of a pen or a paper clip. When the Reset button is pressed at startup, the system LED will turn green.

For more information, see the "Reset Overview" section of the Cisco 1100 Series Software Configuration Guide.

Slots and Interfaces

About Slots, Subslots, and Port Numbering

Cisco 1100 Series ISRs do not support physical and removable modules. It has only one slot, that is, slot 0. Slot 0 is the motherboard and not removable. It is reserved for integrated ports. The front panel GE ports (or native interface ports) always reside in slot 0 and bay 0. The ports are called Gigabitethernet 0/0/0 and Gigabitethernet 0/0/1.

Each interface type has its own 'bay', and port is a unique port of an interface type.

In most cases, the router designates its interfaces using a 3-tuple notation that lists the slot, bay, and port. The 3-tuple value is zero based. An example of a 3-tuple is 0/1/2. This refers to slot 0, the second bay in slot 0 (the first bay is 0 so the second bay is 1), and the third port in bay 1. See this section for more examples.

Table 2: Slot, Bay, and Port Numbering

3- Tuple Example	Slot	Bay	Port
0/1/2	0	2nd	3rd
0/0/1	0	1st	2nd

Subslot/Bay Numbering

All interfaces are integrated interfaces. There is only one Bay, and the interface 'Type' is defined by a slot number. In this example there is only one slot, 0, and each interface is a bay:

```
Bay 0 Ethernet WAN
Bay 1 Ethernet LAN (Switch)
Bay 2 LTE
Bay 3 DSL
Bay 4 WiFi

Chassis type: C1117-4PLTEEAWE

Slot Type State Insert time (ago)
--------- ------------------ --------------------- -----------------
0 C1117-4PLTEEAWE ok 00:05:58
0/0 C1117-1x1GE ok 00:03:03
0/1 C1117-ES-4 ok 00:03:01
0/2 C1117-LTE ok 00:02:52
0/3 C1117-VADSL-A ok 00:01:56
0/4 ISR-AP1100AC-E ok 00:03:13
```

Specification

The following table provide Cisco 1100 ISR specification:

Table 3: Cisco 1100 Series ISR Specification

Description	Specification
Physical Properties	
Dimensions (H x W x D)	Non-LTE models: H x W X D = 1.75 x 12.7 x 9.03 in. (42 x 323 x 230mm) (includes rubber feet)
	LTE models: H x W X D = 1.75 x 12.7 x 9.6 in. (44 x 323 x 244 mm) (includes rubber feet)
Weight with AC PS (w/o modules)	5.5 Lbs. (2.5 kg) maximum
AC Input Power	

Description	Specification
Input voltage	Universal 100 to 240 VAC
Frequency	50-60 Hz
Input current	PoE not enabled: 0.82A maximum PoE enabled: 1.55A Maximum
Surge current	90 A peak and less than 8 Arms per half cycle
Ports	
Micro USB Port	One RJ-45: Separate console port
USB port	USB 3.0 Type A host port USB devices supported: • USB flash memory
Console port	One USB 5-pin micro Type B: Console management connectivity
10/100/1000 Gigabit Ethernet	Two GE ports allocated among RJ45 and SFP as: One combo port with 10/100/1000RJ-45 Ethernet port or SFP Ethernet port (labeled GE0/0/0) One dedicated 10/100/1000RJ-45 Ethernet port (labeled GE0/0/1)
Wireless VLANs	32 (encrypted and non-encrypted VLANs)
Wireless specifications	2x2 .11ac Wave 2
Default and maximum DRAM	4GB
Default and maximum flash	4GB
Inline PoE	4 ports for -8P PIDs, 2 ports for -4P PIDs 802.3af-compliant PoE or 802.3at-compliant PoE+
Acoustic for Cisco 1100 Series ISRs	Not Applicable - Fanless design

Description	Specification

Approvals and compliance	• Emission
	
	• 47 CFR Part 15
	
	• ◦ CISPR 32 Edition 2
	   ◦ EN 300 386 V1.6.1
	   ◦ EN 55032:2012/ AC:2013
	   ◦ EN 55032:2015
	   ◦ EN61000-3-2 2014
	   ◦ EN61000-3-3: 2013
	   ◦ ICES-003 ISSUE 6:2016
	   ◦ KN 32: 2015
	   ◦ V-2/2015.04
	   ◦ V-3/2015.04
	   ◦ TCVN 7189: 2009
	   ◦ CNS13438: 2006
	   ◦ IEC 60950-1
	   ◦ EN 60950-1
	   ◦ UL 60950-1
	   ◦ CSA C22.2 No. 60950-1
	
	• Immunity
	   ◦ CISPR24: 2010 + A1: 2015
	   ◦ EN 300 386 V1.6.1
	   ◦ EN55024: 2010 + A1: 2015
	   ◦ KN35: 2015
	   ◦ TCVN 7317: 2003

Table 4: Environmental Specification

Description	Specification
Environmental	
Operating humidity	5 to 85% relative humidity

Description	Specification
Operating temperature	32 to 104°F (0 to 40°C) Sea Level; 32 to 77°F (0°C to 25°C) at 10,000 ft 1.5°C derating per 1000 ft
Altitude in China	0-6560 ft (0-2000 m)
Altitude in all other countries	0-10,000 ft (0-3050 m)
Transportation and Storage	
Nonoperating temperature	-40 to 158°F (-40 to 70°C)
Nonoperating humidity	5 to 95% relative humidity (noncondensing)
Nonoperating altitude	0 to 15,000 ft (0 to 4570m)

Periodic Inspection and Cleaning

Periodic inspection and cleaning of the external surface of the router is recommended to minimize the negative impact of environmental dust or debris. The frequency of inspection and cleaning is dependent upon the severity of the environmental conditions, but a minimum of every six months is recommended. Cleaning involves vacuuming of router air intake and exhaust vents.

Note   Sites with ambient temperatures consistently above 25°C or 77°F and with potentially high levels of dust or debris might require periodic preventative maintenance cleaning.