



Cisco 860 Series, Cisco 880 Series, and Cisco 890 Series Integrated Services Routers Hardware Installation Guide

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Preface

This preface describes the objectives, audience, organization, and conventions of this guide, and describes related documents that have additional information. It contains the following sections:

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- [Audience, page vii](#)
- [Organization, page viii](#)
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Objective

This guide provides an overview and explains how to install, connect, and perform initial configuration for the wireless and nonwireless Cisco 860 series, Cisco 880 series, and Cisco 890 series Integrated Services Routers (ISRs). Some information may not apply to your particular router model.

For warranty, service, and support information, see the “Cisco One-Year Limited Hardware Warranty Terms” section in *Readme First for the Cisco 800 Series Integrated Services Routers* that was shipped with your router.

Audience

This guide is intended for Cisco equipment providers who are technically knowledgeable and familiar with Cisco routers and Cisco IOS software and features.

Organization

This guide is organized into the following chapters and appendix.

Chapter	Name	Description
Chapter 1	Chapter 1, “Product Overview”	Describes the router models and the hardware features available.
Chapter 2	Chapter 2, “Installing the Router”	Lists the items shipped with the router, the equipment and tools necessary for installing the router, the safety warnings and guidelines, and the procedures for installing the router.
Chapter 3	Chapter 3, “Connecting the Router”	Describes typical connections for the router, procedures for connecting the router to various devices, and how to verify the connections.
Chapter 4	Chapter 4, “Initial Configuration”	Provides the procedures for initially configuring the router settings.
Appendix A	Appendix A, “Technical Specifications”	Provides the router, port, and cabling specifications.

Conventions

This section describes the conventions used in this guide.



Note

Means *reader take note*. Notes contain helpful suggestions or references to additional information and material.



Caution

This symbol means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



Tip

Means *the following information will help you solve a problem*. The tip information might not be troubleshooting or even an action, but could be useful information.



Warning

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Waarschuwing

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

BEWAAR DEZE INSTRUCTIES

Varoitus

TÄRKEITÄ TURVALLISUUSOHJEITA

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelyyn liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

SÄILYTÄ NÄMÄ OHJEET

Attention

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS

Warnung

WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

Avvertenza IMPORTANTI ISTRUZIONI SULLA SICUREZZA

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI**Advarsel VIKTIGE SIKKERHETSINSTRUKSJONER**

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE**Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES**¡Advertencia! INSTRUCCIONES IMPORTANTES DE SEGURIDAD**

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES**Varning! VIKTIGA SÄKERHETSANVISNINGAR**

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR

Figyelem

FONTOS BIZTONSÁGI ELOÍRÁSOK

Ez a figyelmeztető jel veszélyre utal. Sérülésveszélyt rejtő helyzetben van. Mielőtt bármely berendezésen munkát végezne, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplő figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján kereshető meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

Предупреждение

ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ

警告

重要的安全性说明

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告

安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

주의

중요 안전 지침

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이 지시 사항을 보관하십시오.

Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. Você se encontra em uma situação em que há risco de lesões corporais. Antes de trabalhar com qualquer equipamento, esteja ciente dos riscos que envolvem os circuitos elétricos e familiarize-se com as práticas padrão de prevenção de acidentes. Use o número da declaração fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham o dispositivo.

GUARDE ESTAS INSTRUÇÕES**Advarsel VIGTIGE SIKKERHEDSANVISNINGER**

Dette advarselssymbol betyder fare. Du befinder dig i en situation med risiko for legemeskade. Før du begynder arbejde på udstyr, skal du være opmærksom på de involverede risici, der er ved elektriske kredsløb, og du skal sætte dig ind i standardprocedurer til undgåelse af ulykker. Brug erklæringsnummeret efter hver advarsel for at finde oversættelsen i de oversatte advarsler, der fulgte med denne enhed.

GEM DISSE ANVISNINGER

تحذير

إرشادات الأمان الهامة

يوضح رمز التحذير هذا وجود خطر. وهذا يعني أنك متواجد في مكان قد ينتج عنه التعرض لإصابات. قبل بدء العمل، احذر مخاطر التعرض للصدمات الكهربائية وكن على علم بالإجراءات القياسية للحيلولة دون وقوع أي حوادث. استخدم رقم البيان الموجود في آخر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز. قم بحفظ هذه الإرشادات

Upozorenje VAŽNE SIGURNOSNE NAPOMENE

Ovaj simbol upozorenja predstavlja opasnost. Nalazite se u situaciji koja može prouzročiti tjelesne ozljede. Prije rada s bilo kojim uređajem, morate razumjeti opasnosti vezane uz električne sklopove, te biti upoznati sa standardnim načinima izbjegavanja nesreća. U prevedenim sigurnosnim upozorenjima, priloženima uz uređaj, možete prema broju koji se nalazi uz pojedino upozorenje pronaći i njegov prijevod.

SAČUVAJTE OVE UPUTE**Upozornění DŮLEŽITÉ BEZPEČNOSTNÍ POKYNY**

Tento upozorňující symbol označuje nebezpečí. Jste v situaci, která by mohla způsobit nebezpečí úrazu. Před prací na jakémkoliv vybavení si uvědomte nebezpečí související s elektrickými obvody a seznamte se se standardními opatřeními pro předcházení úrazům. Podle čísla na konci každého upozornění vyhledejte jeho překlad v přeložených bezpečnostních upozorněních, která jsou přiložena k zařízení.

USCHOVEJTE TYTO POKYNY

Προειδοποίηση ΣΗΜΑΝΤΙΚΕΣ ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ

Αυτό το προειδοποιητικό σύμβολο σημαίνει κίνδυνο. Βρίσκεστε σε κατάσταση που μπορεί να προκαλέσει τραυματισμό. Πριν εργαστείτε σε οποιοδήποτε εξοπλισμό, να έχετε υπόψη σας τους κινδύνους που σχετίζονται με τα ηλεκτρικά κυκλώματα και να έχετε εξοικειωθεί με τις συνήθειες πρακτικές για την αποφυγή ατυχημάτων. Χρησιμοποιήστε τον αριθμό δήλωσης που παρέχεται στο τέλος κάθε προειδοποίησης, για να εντοπίσετε τη μετάφρασή της στις μεταφρασμένες προειδοποιήσεις ασφαλείας που συνοδεύουν τη συσκευή.

ΦΥΛΑΞΤΕ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ

אזהרה

הוראות בטיחות חשובות

סימן אזהרה זה מסמל סכנה. אתה נמצא במצב העלול לגרום לפציעה. לפני שתעבוד עם ציוד כלשהו, עליך להיות מודע לסכנות הכרוכות במגעלים חשמליים ולהכיר את הנהלים המקובלים למניעת תאונות. השתמש במספר ההוראה המסופק בסופה של כל אזהרה כדי לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.

שמור הוראות אלה

предупреждение

ВАЖНИ БЕЗБЕДНОСНИ НАПАТСТВИЈА

Симболот за предупредување значи опасност. Се наоѓате во ситуација што може да предизвика телесни повреди. Пред да работите со опремата, бидете свесни за ризикот што постои кај електричните кола и треба да ги познавате стандардните постапки за спречување на несреќни случаи. Искористете го бројот на изјавата што се наоѓа на крајот на секое предупредување за да го најдете неговиот период во преведените безбедносни предупредувања што се испорачани со уредот.

ЧУВАЈТЕ ГИ ОБИЕ НАПАТСТВИЈА

Ostrzeżenie

WAŻNE INSTRUKCJE DOTYCZĄCE BEZPIECZEŃSTWA

Ten symbol ostrzeżenia oznacza niebezpieczeństwo. Zachodzi sytuacja, która może powodować obrażenia ciała. Przed przystąpieniem do prac przy urządzeniach należy zapoznać się z zagrożeniami związanymi z układami elektrycznymi oraz ze standardowymi środkami zapobiegania wypadkom. Na końcu każdego ostrzeżenia podano numer, na podstawie którego można odszukać tłumaczenie tego ostrzeżenia w dołączonym do urządzenia dokumencie z tłumaczeniami ostrzeżeń.

NINIEJSZE INSTRUKCJE NALEŻY ZACHOWAĆ

Upozornenie

DÔLEŽITÉ BEZPEČNOSTNÉ POKYNY

Tento varovný symbol označuje nebezpečenstvo. Nachádzate sa v situácii s nebezpečenstvom úrazu. Pred prácou na akomkoľvek vybavení si uvedomte nebezpečenstvo súvisiace s elektrickými obvodmi a oboznámte sa so štandardnými opatreniami na predchádzanie úrazom. Podľa čísla na konci každého upozornenia vyhľadajte jeho preklad v preložených bezpečnostných upozorneniach, ktoré sú priložené k zariadeniu.

USCHOVAJTE SI TENTO NÁVOD

Opozorilo POMEMBNI VARNOSTNI NAPOTKI

Ta opozorilni simbol pomeni nevarnost. Nahajate se v situaciji, kjer lahko pride do telesnih poškodb. Preden pričnete z delom na napravi, se morate zavedati nevarnosti udara električnega toka, ter tudi poznati preventivne ukrepe za preprečevanje takšnih nevarnosti. Uporabite obrazložitevno številko na koncu posameznega opozorila, da najdete opis nevarnosti v priloženem varnostnem priročniku.

SHRANITE TE NAPOTKE!

警告

重要安全性指示

此警告符號代表危險，表示可能造成人身傷害。使用任何設備前，請留心電路相關危險，並熟悉避免意外的標準作法。您可以使用每項警告後的聲明編號，查詢本裝置隨附之安全性警告譯文中的翻譯。請妥善保留此指示



Warning

When installing the product, please use the provided or designated connection cables/power cables/AC adaptors. Using any other cables/adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL-certified cables (that have the "UL" shown on the code) for any other electrical devices than products designated by CISCO. The use of cables that are certified by Electrical Appliance and Material Safety Law (that have "PSE" shown on the code) is not limited to CISCO-designated products. Statement 371



Warning

There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Statement 1015



Warning

Do not use this product near water; for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool. Statement 1035



Warning

Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations. Statement 1036



Warning

Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. Statement 1037



Warning

Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning. Statement 1038



Only trained and qualified personnel should be allowed to install, replace, or service this equipment.
Statement 1030



Read the installation instructions before connecting the system to the power source. Statement 1004



Ultimate disposal of this product should be handled according to all national laws and regulations.
Statement 1040

Related Documentation

In addition to the Cisco 860 series, Cisco 880 series, and Cisco 890 series *ISR Hardware Installation Guide* (this document), the Cisco 860 series, Cisco 880 series, and Cisco 890 series ISR documentation set includes the following documents:

- [Regulatory Compliance and Safety Information for Cisco 800 Series and SOHO Series Routers](#)
- [Cisco 860 Series, Cisco 880 Series, and Cisco 890 Series Integrated Services Routers Software Configuration Guide](#)
- [Software Activation on Cisco Integrated Services Routers and Cisco Integrated Service Routers G2](#)
- [Cisco IOS Software Activation Configuration Guide](#)
- [Declarations of Conformity and Regulatory Information for Cisco Access Products with 802.11a/b/g and 802.11b/g Radios](#)
- [Cisco IOS Release Notes](#)
- [Cisco IOS Quality of Service Solutions Command Reference, Release 12.4T](#)
- [Cisco IOS Security Configuration Guide, Release 12.4T](#)
- [Cisco IOS Security Command Reference, Release 12.4T](#)
- [Cisco IOS Command Reference for Cisco Aironet Access Points and Bridges, versions 12.4\(10b\) JA and 12.3\(8\) JEC](#)
- [Wireless LAN Controllers](#)
- [Unified Wireless LAN Access Points](#)
- [Cisco IOS Voice Port Configuration Guide](#)
- [SCCP Controlled Analog \(FXS\) Ports with Supplementary Features in Cisco IOS Gateways](#)
- [Cisco CP Express User's Guide](#)

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<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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CHAPTER 1

Product Overview

This chapter provides an overview of the features available for the Cisco 860 series, Cisco 880 series, and Cisco 890 series Integrated Services Routers (ISRs), and contains the following sections:

- [General Description, page 1-2](#)
- [Cisco 860 Series ISRs, page 1-2](#)
- [Cisco 860VAE Series ISRs, page 1-3](#)
- [Cisco 880 Series ISRs, page 1-6](#)
- [Cisco 890 Series ISRs, page 1-17](#)
- [Hardware Features, page 1-27](#)



Note

For compliance and safety information, see *Regulatory Compliance and Safety Information Roadmap* that ships with the router and *Regulatory Compliance and Safety Information for Cisco 800 Series and SOHO Series Routers*.



Note

Some illustrations in this document show a wireless router. Both wireless and nonwireless models are available in the Cisco 860 series, Cisco 880 series, and Cisco 890 series ISRs. Port and feature locations are similar for both wireless and nonwireless routers.



Note

Throughout this document the term VDSL refers to support for VDSL2 (ITU G.993.2) and ADSL refers to support for ADSL, ADSL2, & ADSL2+ (ITU G.992.1, G.992.3, & G.992.5).

General Description

The Cisco 860 series, Cisco 880 series, and Cisco 890 series ISRs provide data, voice, Wi-Fi CERTIFIED™ wireless access point (AP), integrated Virtual Private Network (VPN), and backup capabilities to corporate teleworkers and to remote and small offices with fewer than 20 users. These routers are capable of bridging and multiprotocol routing between LAN and WAN ports. The routers provide advanced features, such as high speed DSL (G.SHDSL, ADSL, or VDSL), 802.11n, quality of service (QoS), firewall, antivirus protection, and Secure Socket Layer (SSL). The Cisco 860VAE, 886VA and 887VA series routers have the additional capability of DSL Multi-mode (VDSL/ADSL).

The Cisco 860 series, Cisco 880 series, and Cisco 890 series ISRs have a desktop form factor with built-in wall-mount features. The Cisco 890 series ISRs also have optional rack-mount features. These ISRs are powered by an external power supply adapter. The various models differ in the WAN interface and features that they support.

Cisco 860 Series ISRs

The Cisco 860 series ISRs are fixed-configuration data routers that support the following features:

- An integrated 4-port 10/100 Ethernet switch for connecting to the LAN
- A 10/100 Fast Ethernet (FE) port for connecting to the WAN.
- Optional, embedded Wi-Fi CERTIFIED™, 802.11b/g/n-compliant wireless AP

Figure 1-1 shows the front panel details of the Cisco 860 wireless router.

Figure 1-1 Front Panel of the Cisco 860 Series Wireless ISR

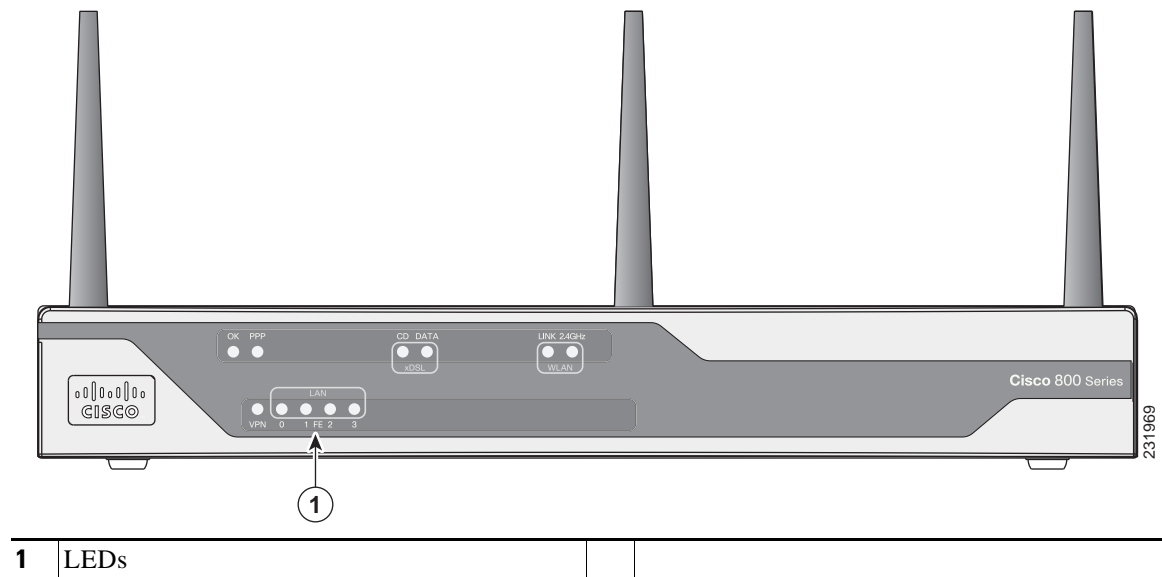
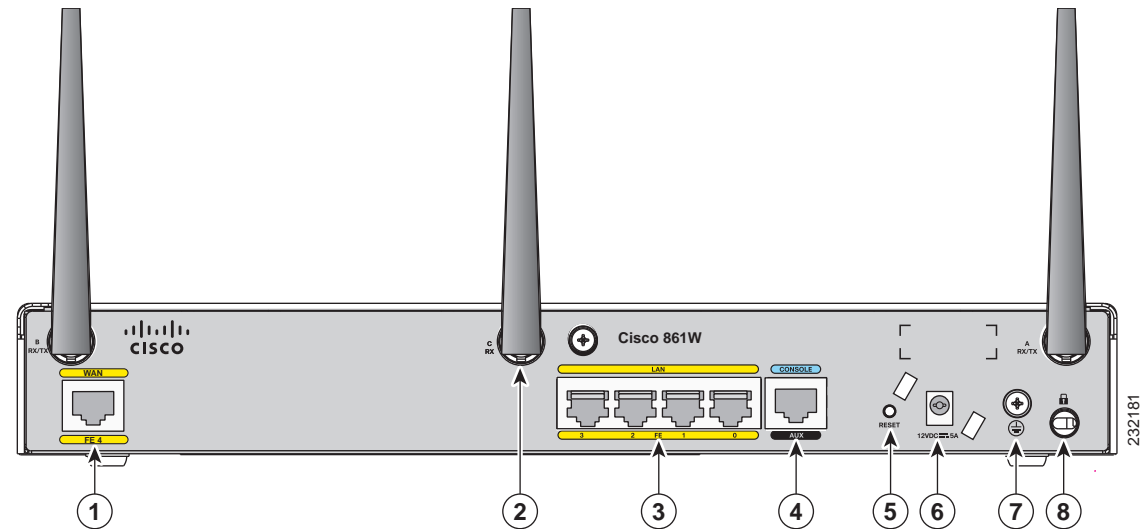


Figure 1-2 shows the back panel details of the Cisco 861 wireless (861W) ISR. Nonwireless routers do not have antennas on the back panel. However, the feature locations are similar for all Cisco 860 series routers.

Figure 1-2 Back Panel of the Cisco 861W ISR



1	Primary WAN port—10/100	5	Reset button
2	Antenna—captive omnidirectional dipole WLAN antenna (wireless models only)	6	Power connector
3	4-port 10/100 Ethernet switch	7	Earth ground connection
4	Serial port—console or auxiliary	8	Kensington security slot

Cisco 860VAE Series ISRs

The Cisco 860VAE series ISRs are fixed-configuration data routers. This section describes the features of the products in this series.

Interfaces

Table 1-1 describes the interfaces of the Cisco 860VAE series routers.

Table 1-1 Interfaces of the Cisco 860VAE Series ISRs

Interfaces	Model			
	866VAE	867VAE	866VAE-K9	867VAE-K9
4 FE ¹ switch ports	x	x	x	x
1 GE ² switch port	—	—	x	x
1 GE WAN port	x	x	x	x

Table 1-1 Interfaces of the Cisco 860VAE Series ISRs (continued)

Interfaces	Model			
	866VAE	867VAE	866VAE-K9	867VAE-K9
1 VDSL/ADSL over POTS port	—	x	—	x
1 VDSL/ADSL over ISDN port	x	—	x	—

1. FE = Fast Ethernet
2. GE = Gigabit Ethernet

**Note**

The Cisco 866VAE, 867VAE, 866VAE-K9, and 867VAE-K9 routers each have two WAN ports. Only one of the two ports can be active at any given time.

IOS Images

Table 1-2 describes the IOS images included in Cisco 860VAE series routers.

Table 1-2 IOS Images of the Cisco 860VAE Series ISRs

IOS Image	Model			
	866VAE	867VAE	866VAE-K9	867VAE-K9
c860vae-ipbasek9-mz	x	x	—	—
c860vae-advsecurityk9-mz	—	—	x	x
c860vae-advsecurityk9_npe-mz	—	—	x	x

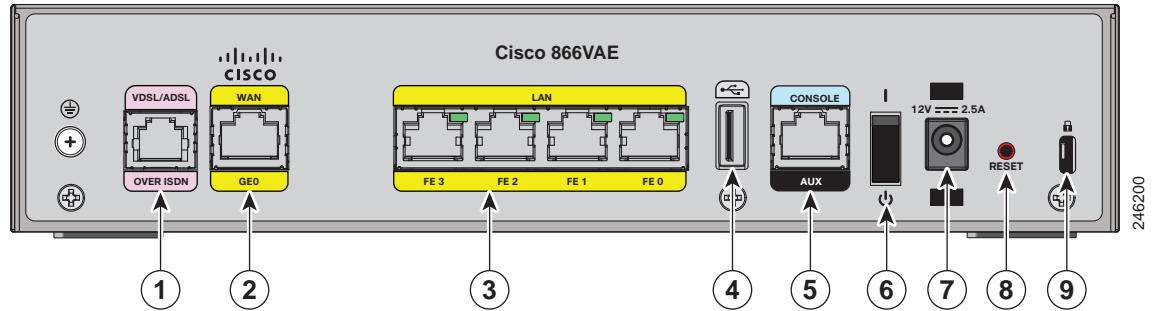
Figure 1-3 shows the front panel details of the Cisco 866VAE, Cisco 867VAE, Cisco 866VAE-K9, and Cisco 867VAE-K9 integrated services routers (ISRs).

Figure 1-3 Front Panel of the Cisco 860VAE series ISR

1	LEDs		
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Figure 1-4 shows the back panel details of the Cisco 866VAE ISR.

Figure 1-4 Back Panel of the Cisco 866VAE ISR

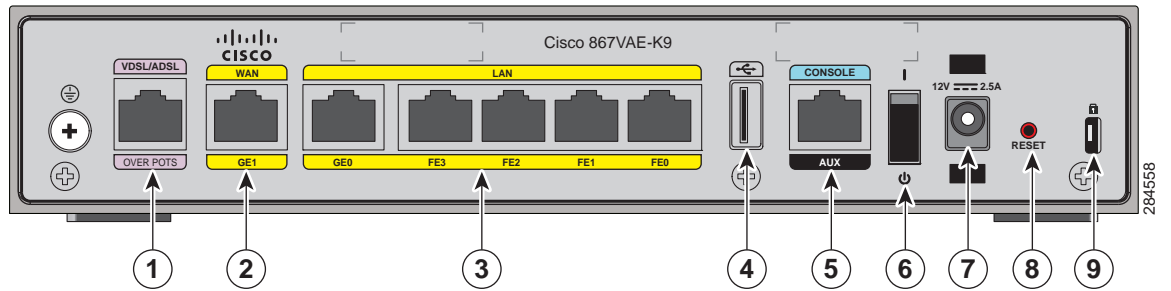


1	xDSL port ¹	6	On/Off switch
2	GE WAN interface	7	Power connector
3	Ethernet LAN FE interfaces (FE0 through FE3 interfaces)	8	Reset button
4	USB port	9	Kensington security slot
5	Serial port—console or auxiliary		

1. Using RJ-11.

Figure 1-5 shows the back panel details of the Cisco 867VAE-K9.

Figure 1-5 Back Panel of the Cisco 867VAE-K9 ISR



1	xDSL port	6	On/Off switch
2	GE WAN interface	7	Power connector
3	Ethernet LAN GE and FE interfaces (GE0 interface and FE0 through FE3 interfaces)	8	Reset button
4	USB port	9	Kensington security slot
5	Serial port—console or auxiliary		

Cisco 880 Series ISRs

The Cisco 880 series ISRs have data and voice capabilities. They have the following features:

- Integrated 4-port 10/100 Ethernet switch for connecting to the LAN
- 10/100 FE, VDSL_oPOTS, ADSL over POTS, ADSL over ISDN, DSL Multi-mode (VDSL/ADSL_oPOTS, VDSL/ADSL_oISDN Cisco VA models only), or G.SHDSL port for connecting to the WAN
- Optional embedded Wi-Fi CERTIFIED™, 802.11b/g/n-compliant wireless AP
- Optional 2-port Power over Ethernet (PoE)

**Note**

The Cisco 880 series ISRs can include an optional PoE module that provides power to 802.3af-compliant devices connected to ethernet ports 0 and 1. If this feature was not configured with the factory order, you must order and install it to enable the PoE function.

- DIMM expansion socket that can accept up to 512 MB of additional memory, for a total of 768 MB system memory

The following features are located on the front panel:

- USB 1.1 port
- Express card slot for third-generation (3G) cellular data WAN connectivity, available only on the Cisco 880G models

This section contains the following topics:

- [Cisco 880 Series Data Routers, page 1-6](#)
- [Cisco 880 Series Voice and Data Routers, page 1-9](#)
- [Cisco 880 Series with Embedded WLAN Antennas, page 1-15](#)

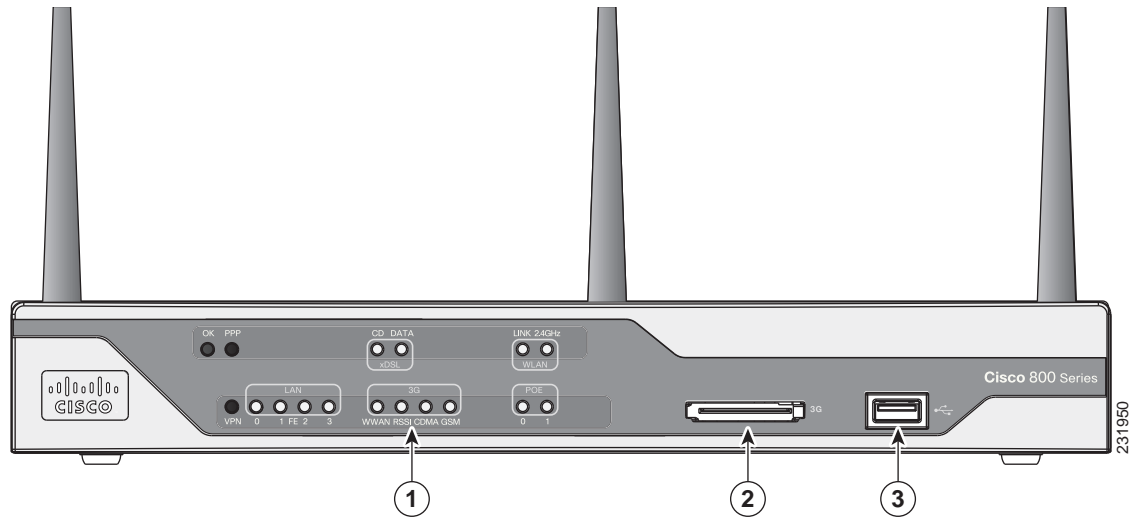
Cisco 880 Series Data Routers

The Cisco 880 series data routers provide integrated VPN, embedded Wi-Fi CERTIFIED™, 802.11b/g/n-compliant wireless AP, 3G, and backup capabilities. [Figure 1-6](#) through [Figure 1-9](#) show the features available on Cisco 880 series data routers. Some of the features shown may not be available on your router.

Depending on the router model, the primary WAN port can be G.SHDSL, VDSL_oPOTS, VDSL/ADSL over ISDN, VDSL/ADSL over POTS, or 10/100 FE. See the [Cisco 880 Series Integrated Services Routers](#) data sheet for the WAN interface that is supported on your router.

[Figure 1-6](#) shows the front panel details of the Cisco 880 wireless data router. The USB port and the 3G card slot are located on the front panel.

Figure 1-6 Front Panel of the Cisco 880 Series Wireless Data Router

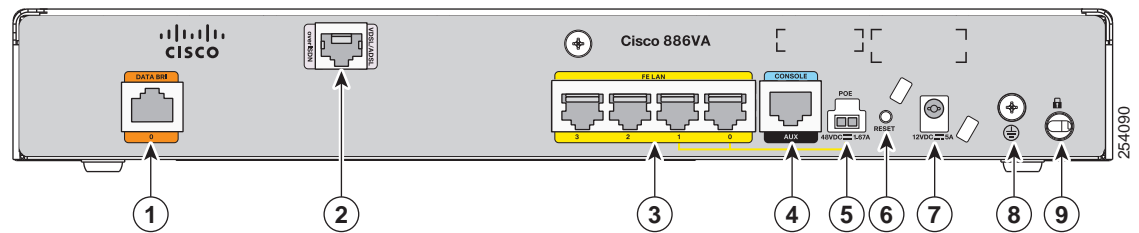


1	LEDs	3	USB port
2	3G express card slot—Supports third-party ¹ 3G card (Cisco 880G models only)		

1. See the [Cisco 880 Series Integrated Services Routers](#) data sheet for supported vendors.

Figure 1-7 shows the back panel details of the Cisco 886VA data router.

Figure 1-7 Back Panel of the Cisco 886VA Router



1	Data BRI ¹ 0	6	Reset button
2	Primary WAN port—VDSL/ADSL over ISDN	7	Power connector
3	4-port 10/100 Ethernet switch ²	8	Earth ground connection
4	Serial port—console or auxiliary	9	Kensington security slot
5	PoE power connector—optional		

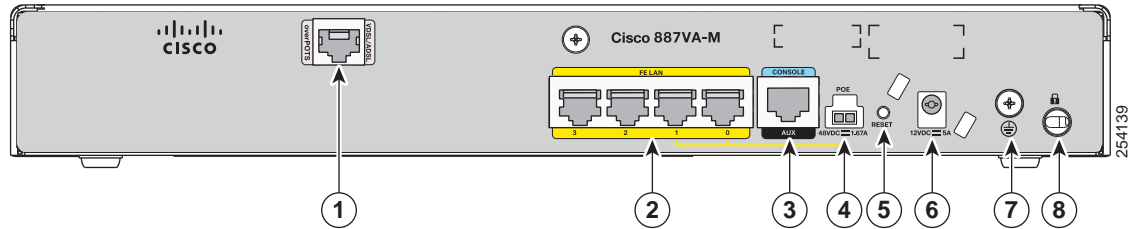
1. BRI = Basic rate interface.
 2. Ports 0 and 1 provide PoE with the optional PoE module installed.



Caution The primary WAN port is designed for an RJ-45 connector only. Damage to the primary WAN port may occur if a non-RJ-45 connector is inserted.

Figure 1-8 shows the back panel details of the Cisco 887VA and 886VA-M data router.

Figure 1-8 Back Panel of the Cisco 887VA and 887VA-M Router



1	Primary WAN port—VDSL/ADSL over POTS ¹	5	Reset button
2	4-port 10/100 Ethernet switch ²	6	Power connector
3	Serial port—console or auxiliary	7	Earth ground connection
4	PoE power connector—optional	8	Kensington security slot

1. 887VA-M has Annex M support.

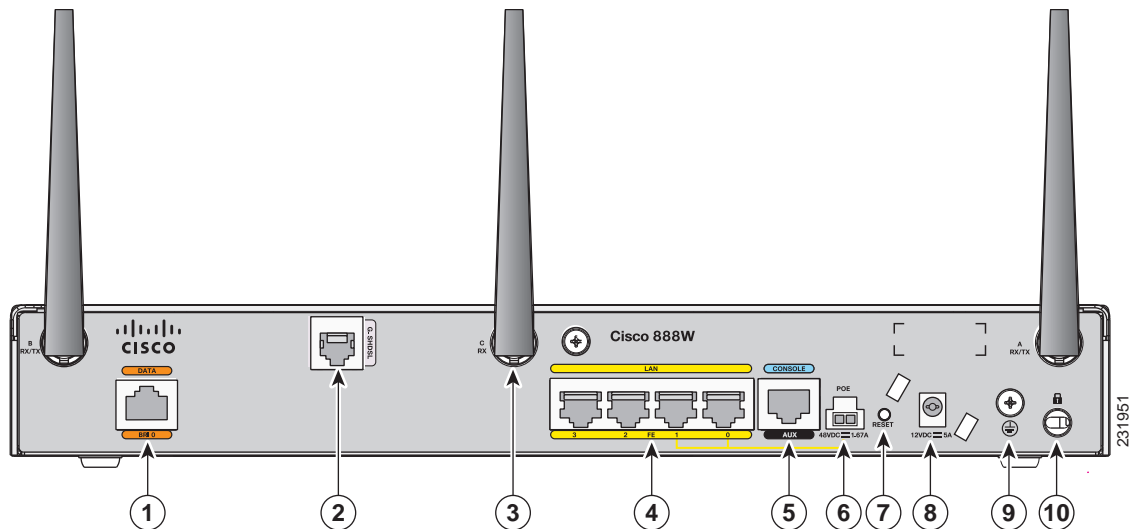
2. Ports 0 and 1 provide PoE with the optional PoE module installed.



Caution For the Cisco 887VA, the primary WAN port is designed for an RJ-45 connector only. Damage to the primary WAN port may occur if a non-RJ-45 connector is inserted.

Figure 1-9 shows the back panel details of the Cisco 888W data router. Nonwireless routers do not have antennas on the back panel. However, the feature locations are similar across all Cisco 880 series data routers.

Figure 1-9 Back Panel of the Cisco 888W Data Router



1	ISDN port—not available on 3G models	6	PoE power connector for optional PoE module ¹
2	Primary WAN port ² —G.SHDSL, VDSL _o POTS, ADSL _o POTS, ADSL _o ISDN, or 10/100 FE	7	Reset button
3	Antenna—captive omnidirectional dipole WLAN antenna (wireless models only)	8	Power connector
4	4-port 10/100 Ethernet switch	9	Earth ground connection
5	Serial port—console or auxiliary	10	Kensington security slot

1. The Cisco 880 series ISRs can include an optional PoE module that provides power to 802.3af-compliant devices connected to ethernet ports 0 and 1. If this feature was not configured with the factory order, you must order and install it to enable the PoE function.
2. Depending on the router model, the primary WAN port can be G.SHDSL, VDSL_oPOTS, or 10/100 FE. The VDSL_oPOTS port is in the same location as the G.SHDSL port. The 10/100 FE WAN port is located at the bottom left corner. See [Figure 1-2](#) for the location of the 10/100 FE WAN port.

Cisco 880 Series Voice and Data Routers

The Cisco 880 series voice and data routers provide both voice and data ports. The voice ports managed voice services that interface with Foreign Exchange Station (FXS), Foreign Exchange Office (FXO), or BRI connections.

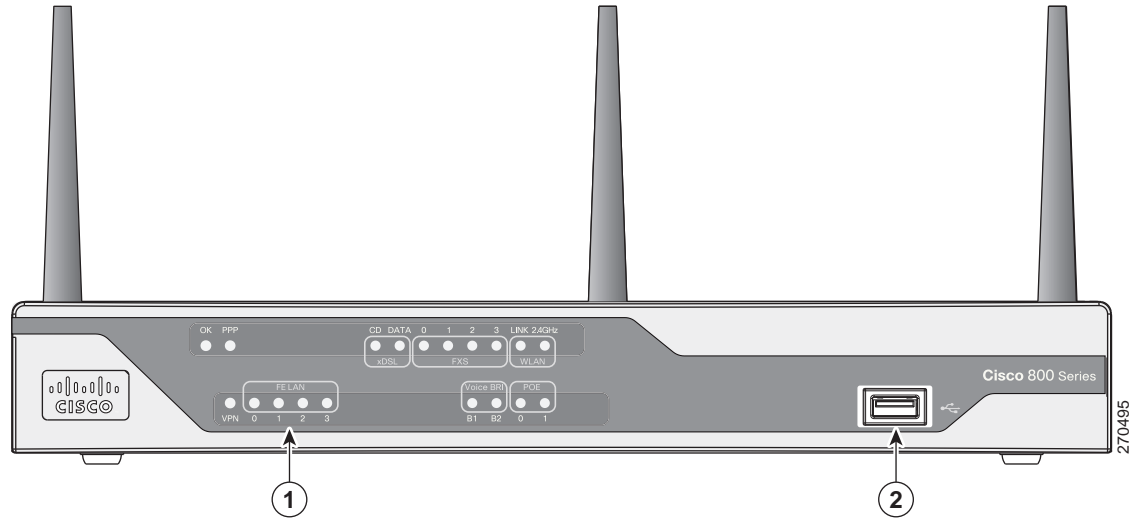
Cisco 881 SRST and Cisco 888 SRST

[Figure 1-10](#), [Figure 1-11](#), and [Figure 1-12](#) show the features available on the Cisco 881 SRST and Cisco 888 SRST routers. The features available vary, depending on the router model. Some features may not be available on your router.

Depending on the router model, the primary WAN port can be either G.SHDSL or 10/100 FE. See the [Cisco 880 Series Integrated Services Routers](#) data sheet for the WAN interface and voice ports that are supported on your router.

Figure 1-10 shows the front panel details of the Cisco 881 SRST and Cisco 888 SRST wireless voice router.

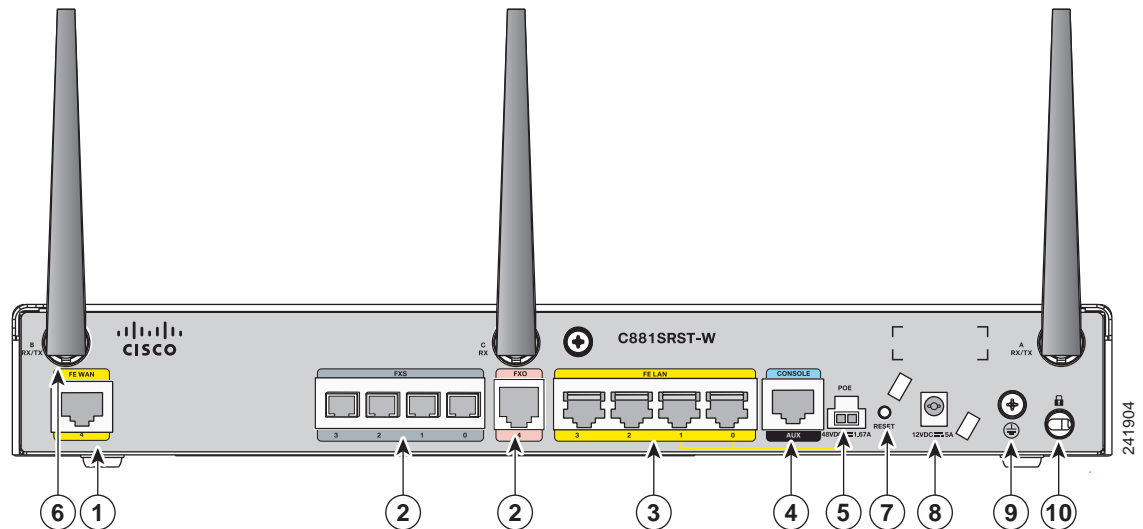
Figure 1-10 Front Panel of the Cisco 881 SRST and Cisco 888 SRST Wireless Voice Router



1	LEDs	2	USB port
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Figure 1-11 shows the back panel details of the Cisco 881SRST-W voice router.

Figure 1-11 Back Panel of the Cisco C881SRST-W Voice Router

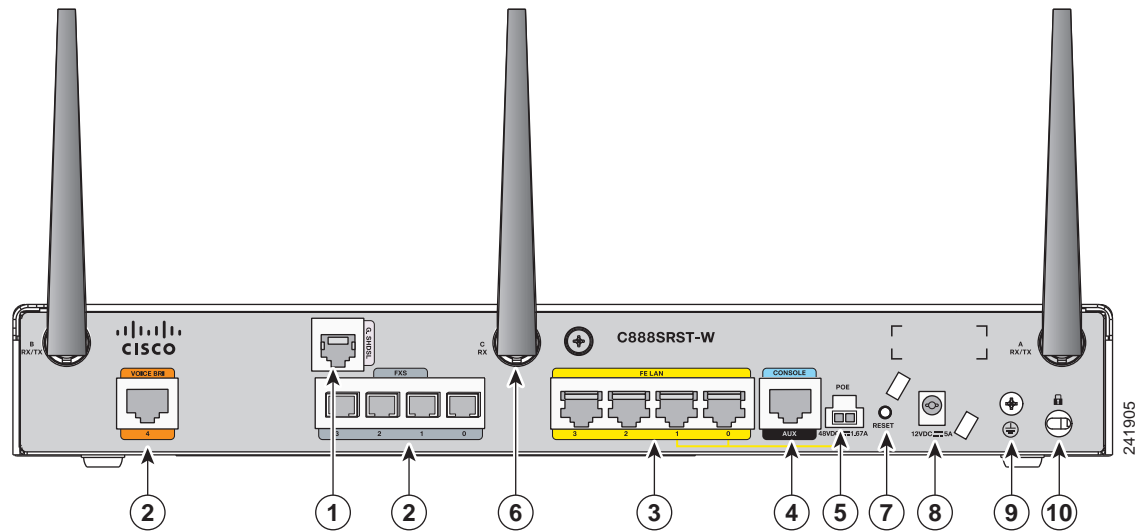


1	Primary WAN port ¹ —10/100 FE	6	Antenna—captive wireless omnidirectional dipole WLAN antenna (wireless models only)
2	Voice ports—four FXS ² /DID ³ ports, one FXO ⁴ port with TBP ⁵ power failover	7	Reset button
3	4-port 10/100 Ethernet switch ⁶	8	Power connector
4	Serial port—console or auxiliary	9	Earth ground connection
5	PoE power connector for optional PoE module ⁷	10	Kensington security slot

1. Depending on the router model, the primary WAN port can be either G.SHDL or 10/100 FE.
2. FXS = Foreign Exchange Station.
3. DID = Direct Inward Dialing.
4. FXO = Foreign Exchange Office.
5. TBP = trunk bypass.
6. Ports 0 and 1 provide PoE with the optional PoE module installed.
7. The Cisco 880 series ISRs can include an optional PoE module that provides power to 802.3af-compliant devices connected to ethernet ports 0 and 1. If this feature was not configured with the factory order, SKU 800-IL-PM-2, you must order and install it to enable the PoE function. The PoE power supply, SKU 800-ILPM-4, is also required.

Figure 1-12 shows the back panel details of the Cisco 888SRST-W voice router.

Figure 1-12 Back Panel of the Cisco C888SRST-W Voice Router



1	Primary WAN port ¹ —G.SHDSL	6	Antenna—captive wireless omnidirectional dipole WLAN antenna (wireless models only)
2	Voice ports—four FXS/DID ports and one voice BRI port	7	Reset button
3	4-port 10/100 Ethernet switch ²	8	Power connector
4	Serial port—console or auxiliary	9	Earth ground connection
5	PoE power connector for optional PoE module ³	10	Kensington security slot

1. Depending on the router model, the primary WAN port can be either G.SHDL or 10/100 FE.

2. Ports 0 and 1 provide PoE with the optional PoE module installed.

3. The Cisco 880 series ISRs can include an optional PoE module that provides power to 802.3af-compliant devices connected to ethernet ports 0 and 1. If this feature was not configured with the factory order, SKU 800-IL-PM-2, you must order and install it to enable the PoE function. The PoE power supply, SKU 800-ILPM-4, is also required.



Caution

The primary WAN port on all 888E models is designed for an RJ-45 connector only. Damage to the primary WAN port may occur if a non-RJ-45 connector is inserted.

Cisco 881-V, Cisco 887VA-V, and Cisco 887VA-V-W

Figure 1-13, Figure 1-14, and Figure 1-15 show the features available on the Cisco 881-V and Cisco 887VA-V routers. The features available vary, depending on the router model. Some features may not be available on your router.

The Cisco 881-V and Cisco 887VA-V voice and data series gives you the flexibility to use either FXS or BRI voice ports. However, the number of concurrent calls that can be supported by the router is limited by the codec complexity setting on the router. Table 1-3 lists the maximum number of calls that is supported when the **codec complexity** command is configured for Flexible, Medium or High complexity.



Note

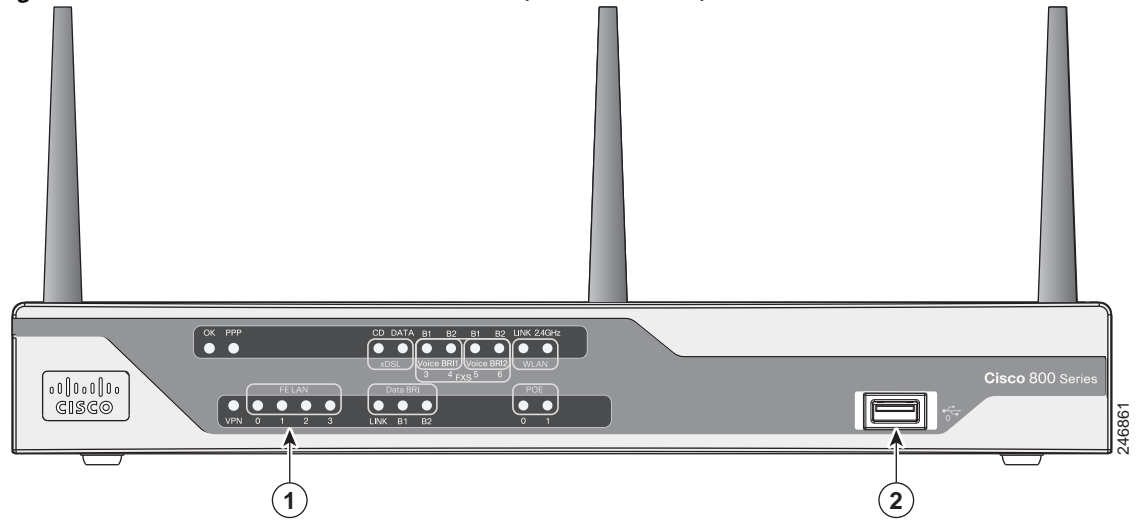
Configuring the codec complexity setting to support secure calls uses DSP resources, but does not affect the maximum number of supported calls.

Table 1-3 Maximum Number of Supported Calls

	Flexible Complexity	Medium Complexity	High Complexity
C881-V	9	8	6
C887VA-V	8	8	6
C887VA-V-W	8	8	6

Figure 1-13 shows the front panel details of the Cisco 881-V, Cisco 887VA-V, and Cisco 887VA-V-W.

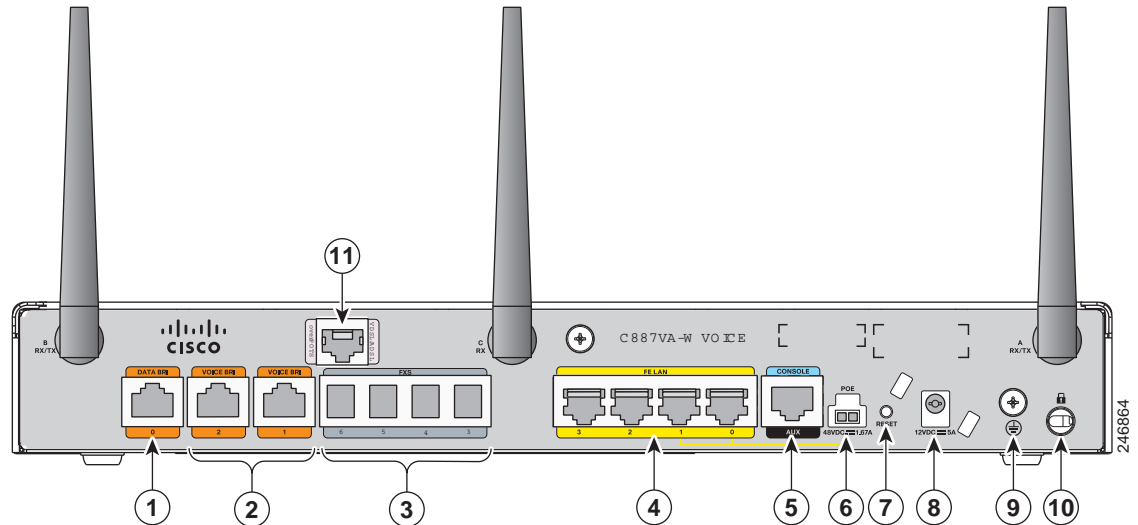
Figure 1-13 Front Panel of the Cisco 881-V, Cisco 887VA-V, and Cisco 887VA-V-W Routers



1	LEDs	2	USB port
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Figure 1-14 shows the back panel for the Cisco 887VA-V-W router. The Cisco 887VA-V (non-wireless) router does not have the antennas on the back panel.

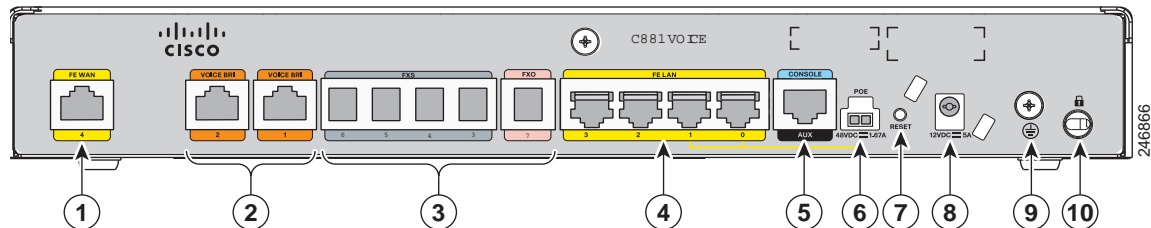
Figure 1-14 Back Panel of the Cisco 887 VA-V Router



1	Data BRI	7	Reset Button
2	Voice BRI	8	Power connector
3	Voice ports—four FXS/DID ports	9	Earth ground connection
4	Fast Ethernet LAN—four ports	10	Kensington security slot
5	Console Port	11	Primary WAN port—VDSL/ADSL over POTS
6	PoE power connector (optional)		

Figure 1-15 shows the back panel for the Cisco 881-V router.

Figure 1-15 Back Panel of the Cisco 881-V Router



1	Fast Ethernet WAN port	6	PoE power connector (optional)
2	Voice BRI ports	7	Reset button
3	Voice ports—four FXS/DID ports and one FXO port.	8	Power connector
4	Fast Ethernet LAN—four ports	9	Earth ground connection
5	Console Port	10	Kensington security slot

Cisco 880 Series with Embedded WLAN Antennas

Some Cisco 880W, 880WD, and 880-WD ISRs have three embedded WLAN antennas.

These ISRs are fixed-platform routers that:

- Provide integrated VPN, embedded Wi-Fi CERTIFIED™, 802.11b/g/n-compliant wireless AP, and backup capabilities.
- Use single-band (2.4 GHz) WLAN cards or dual-band (2.4 GHz and 5 GHz) WLAN cards.
- Require a single external power supply: a 30-W power supply for non-POE-enabled routers or a 60-W power supply for POE-enabled routers.
- Have a fixed 512 MB of system memory.

For information on configuring the Cisco 880 series ISRs, see [Cisco 880 Series Integrated Services Router Software Configuration Guide](#).

Cisco 887VA-WD

Figure 1-16 shows the front panel details of the C887VA-WD-A-K9 and C887VA-WD-E-K9 ISRs. The front panel has LEDs only. All the ports are in the back panel.

Figure 1-16 Front Panel of the C887VA-WD-A-K9 and C887VA-WD-E-K9 ISRs

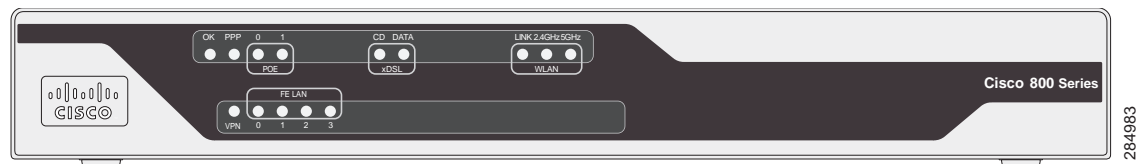
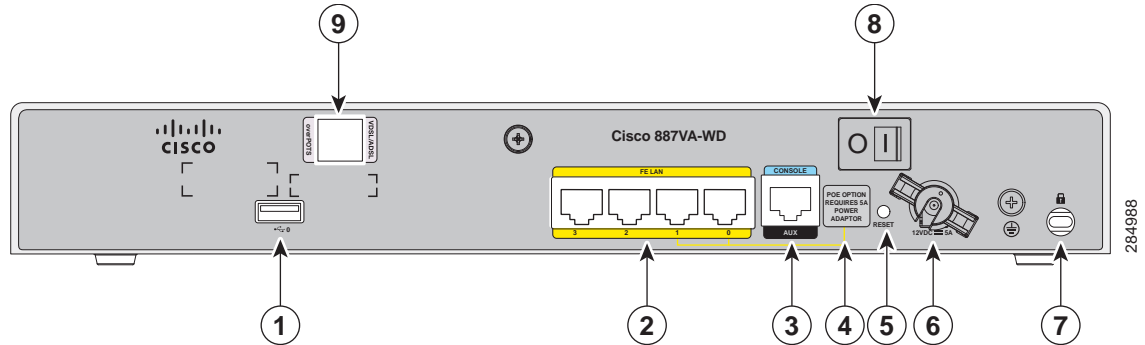


Figure 1-17 shows the back panel details of the C887VA-WD-A-K9 and C887VA-WD-E-K9 ISRs.

Figure 1-17 Back Panel of the C887VA-WD-A-K9 and C887VA-WD-E-K9 ISRs



1	USB port	6	Power connector
2	4-port 10/100 Ethernet switch	7	Kensington security slot
3	Serial port—console or auxiliary	8	Power switch
4	Note No separate PoE power supply is required for routers with embedded WLAN antennas. For information on system power supply requirements when PoE is enabled, see the “Power over Ethernet Module” section on page 1-38.	9	VDSL/ADSL port
5	Reset button		

C881WD

Figure 1-18 shows the front panel details of the C881WD-A-K9 and C881WD-E-K9 ISRs. The front panel has LEDs only. All the ports are in the back panel.

Figure 1-18 Front Panel of the C881WD-A-K9 and C881WD-E-K9 ISRs

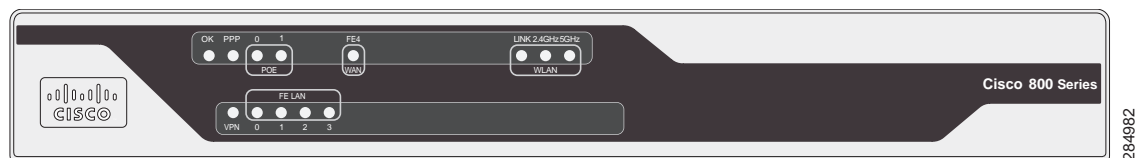
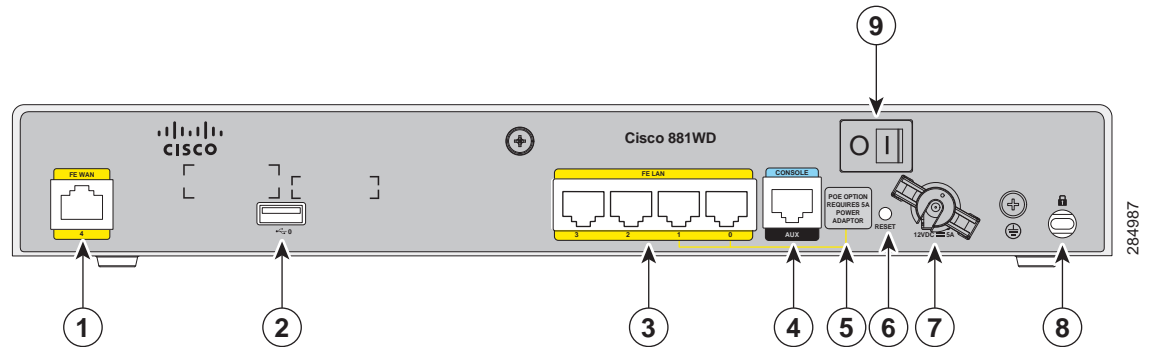


Figure 1-19 shows the back panel details of the C881WD-A-K9 and C881WD-E-K9 ISRs.

Figure 1-19 Back Panel of the C881WD-A-K9 and C881WD-E-K9 ISRs



1	Primary WAN port—10/100 FE	6	Reset button
2	USB port	7	Power connector
3	4-port 10/100 Ethernet switch	8	Kensington security slot
4	Serial port—console or auxiliary	9	Power switch
5	Note No separate PoE power supply is required for routers with embedded WLAN antennas. For information on system power supply requirements when PoE is enabled, see the “Power over Ethernet Module” section on page 1-38.		

Cisco 890 Series ISRs

Cisco 891, Cisco 892, and Cisco 892F

The Cisco 891, Cisco 892, and Cisco 892F ISRs have the following features:

- Integrated 8-port 10/100 Ethernet switch for connecting to the LAN
- 10/100 FE and 10/100/1000 Gigabit Ethernet (GE) port for connecting to the WAN
- Separate console and auxiliary ports
- Optional embedded Wi-Fi CERTIFIED™ dual radio 802.11a/b/g/n-compliant wireless AP
- Optional 4-port PoE



Note The Cisco 890 series ISRs can include an optional PoE module that provides power to 802.3af-compliant devices connected to ethernet ports 0 through 3. If this feature was not configured with the factory order, you must order and install it to enable the PoE function.

- Security feature card (SFC) socket

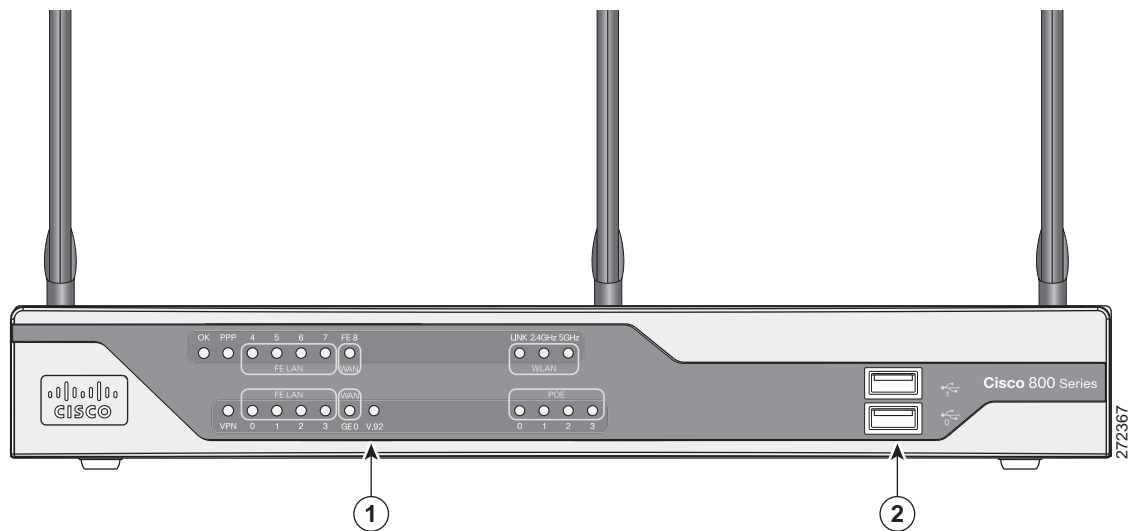
- DIMM expansion socket that can accept up to 512 MB of additional memory, for a total of 768 MB system memory in Cisco 891 and 892 series ISRs, and a total of 1 GB system memory in Cisco 892F series ISRs
- Three reverse-polarity threaded Neill-Concelman (RP-TNC) connectors on the back panel for non-captive dual-band WLAN antenna (wireless models only)
- Support for the AIM2-CUE-K9 and AIM2-APPRE-104-K9
- GE small-form-factor pluggable (SFP) port (Cisco 892F series ISRs only)

The following feature is located on the front panel:

- Two USB 2.0 ports

Figure 1-20 shows the front panel details of the Cisco 890 wireless router.

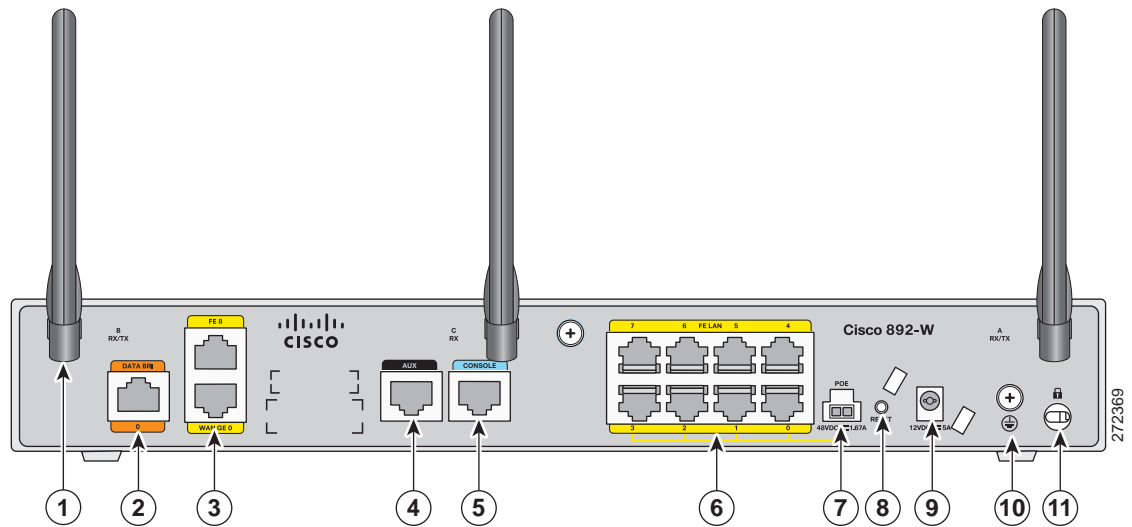
Figure 1-20 Front Panel of the Cisco 890 Series Wireless ISR



1	LEDs	2	USB ports
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Figure 1-21 shows the back panel details of the Cisco 892-W router. Nonwireless routers do not have RP-TNC antennas or connectors on the back panel. Some of the features that are shown may not be available on your router. However, the feature locations are similar across all Cisco 890 series routers.

Figure 1-21 Back Panel of the Cisco 892-W Router

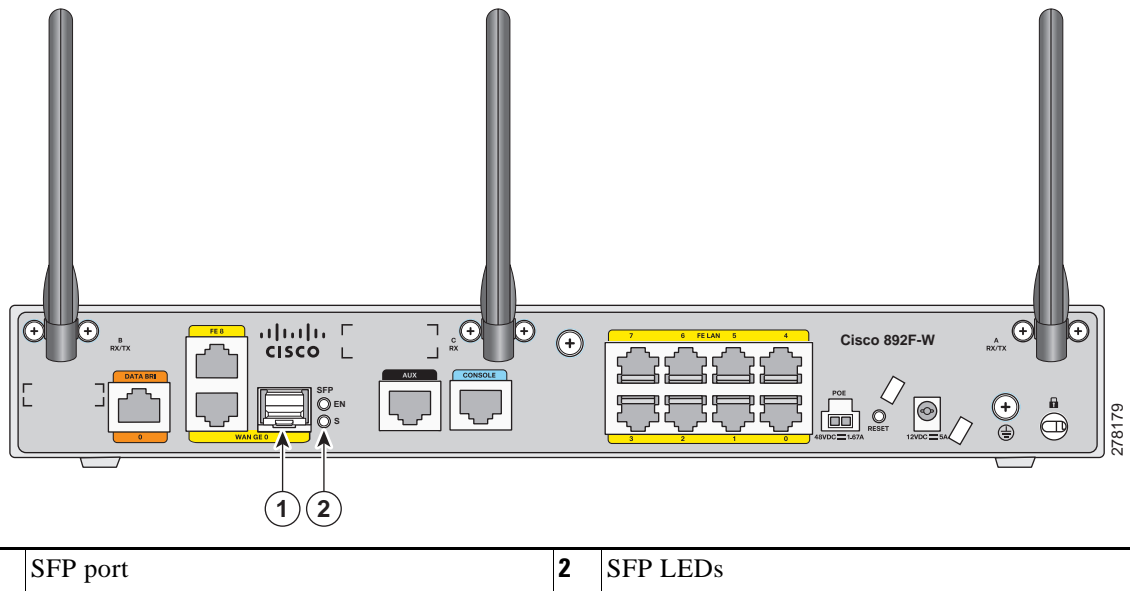


1	Antenna—dipole swivel antenna attached to RP-TNC connectors (wireless models only)	7	PoE power connector for optional PoE module ¹
2	Backup—Data BRI ² or V.92 ³ port	8	Reset button
3	Primary WAN port—FE and GE	9	Power connector
4	Auxiliary port	10	Earth ground connection
5	Console port	11	Kensington security slot
6	8-port 10/100 Ethernet switch		

1. The Cisco 890 series ISRs can include an optional PoE module that provides power to 802.3af-compliant devices connected to ethernet ports 0 through 3. If this feature was not configured with the factory order you must order and install it to enable the PoE function.
2. The Data BRI port is available only on the Cisco 892 router models.
3. The V.92 port (not shown) is available only on the Cisco 891 router models and is located between the console port and the Ethernet switch.

Figure 1-22 shows the location of the SFP port in a Cisco 892F-W router.

Figure 1-22 SFP Port Location in a Cisco 892F-W Router



Cisco 892FSP, Cisco 896VA, Cisco 897VA, and Cisco 898EA

The Cisco 892FSP, 896VA, 897VA (897VA, 897VAM, 897VAW, 897VAMW), and 898EA routers have the following features:

- Integrated 8-port 10/100/1000 Gigabit Ethernet(GE) switch for connecting to the LAN
- Two 10/100/1000 GE ports for the Cisco 892FSP
- One 10/100/1000 GE port for the Cisco 896VA, 897VA, and the Cisco 898EA. Either the SFP socket or the 10/100/1000 GE port can be active at a given time, but not both.
- Single console and auxiliary ports for configuration and management
- 512 MB of on-board memory (upgrade option to 1 GB)
- 256 MB flash memory for the Cisco 896VA, 897VA, and Cisco 898EA
- One USB 2.0 port
- Optional internal adapter for inline PoE on 4 switch ports for IP phones or external wireless access points for Cisco 896VA, 897VA, and 898EA models only. No PoE support on Cisco 892FSP.

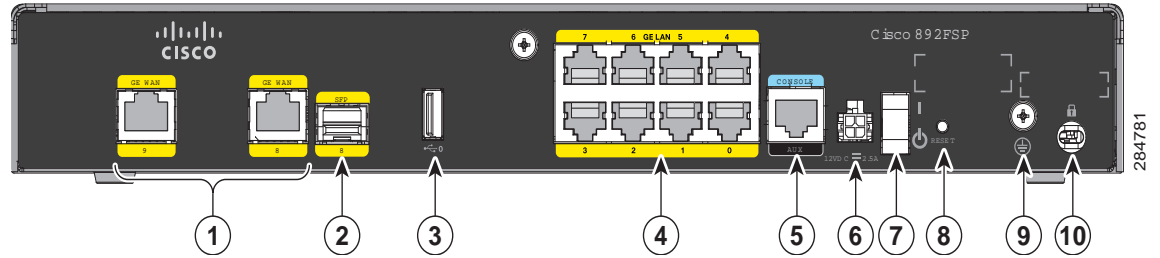


Note

The Cisco 892FSP does not support AIM2-CUE-K9 and AIM2-APPRE-104-K9 because it does not have an SFC socket.

Figure 1-23 shows the back panel of the Cisco 892FSP router.

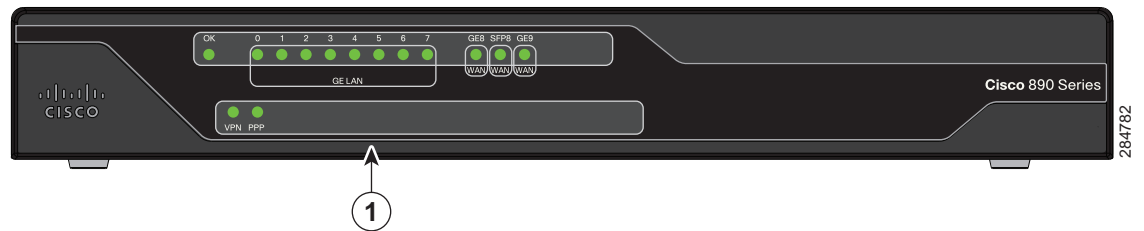
Figure 1-23 Back Panel of the Cisco 892FSP Router



1	GE WAN interface	6	Power connector
2	SFP port	7	On/Off switch
3	USB port	8	Reset button
4	8-port Gigabit Ethernet switch	9	Earth ground connection
5	Console / Auxiliary port	10	Kensington security slot

Figure 1-24 shows the front panel of the Cisco 892FSP router.

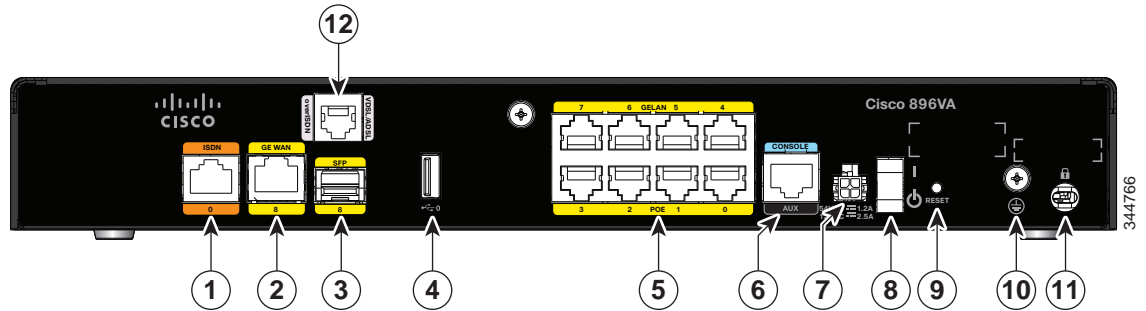
Figure 1-24 Front Panel of the Cisco 892FSP Router



1	LEDs
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Figure 1-25 shows the back panel of the Cisco 896VA router.

Figure 1-25 Back Panel of the Cisco 896VA Router

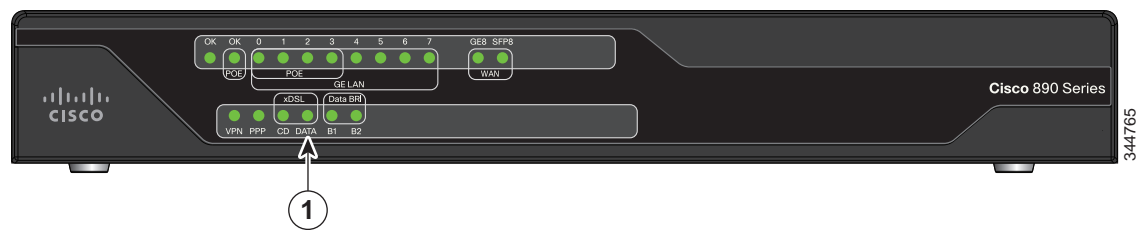


1	ISDN	7	Power connector
2	GE WAN interface	8	On/Off switch
3	SFP port	9	Reset button
4	USB port	10	Earth ground connection
5	8-port Gigabit Ethernet switch ¹	11	Kensington security slot
6	Console / Auxiliary port	12	VDSL / ADSL over ISDN

1. Port 0 through 3 can be configured as POE. POE is an optional feature for this model. If this feature was not configured with the factory order, you must order and install it to enable the PoE function.

Figure 1-26 shows the front panel of the Cisco 896VA and the Cisco 897VA router.

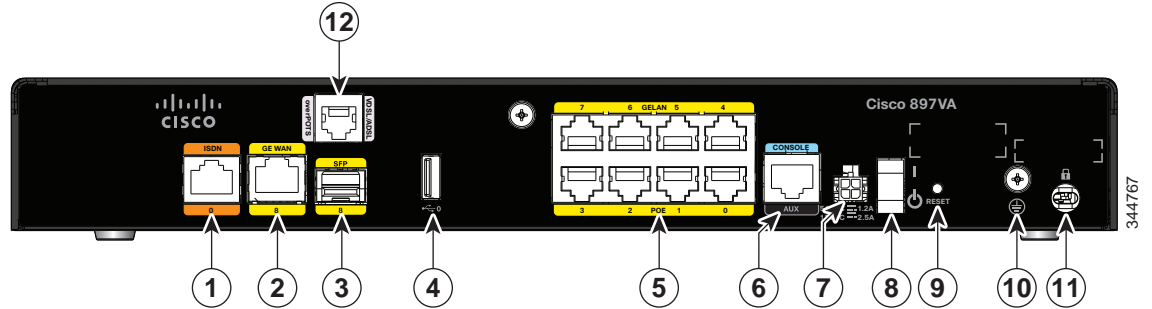
Figure 1-26 Front Panel of the Cisco 896VA and Cisco 897VA Router



1	LEDs
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Figure 1-27 shows the back panel of the Cisco 897VA router.

Figure 1-27 Back Panel of the Cisco 897VA Router

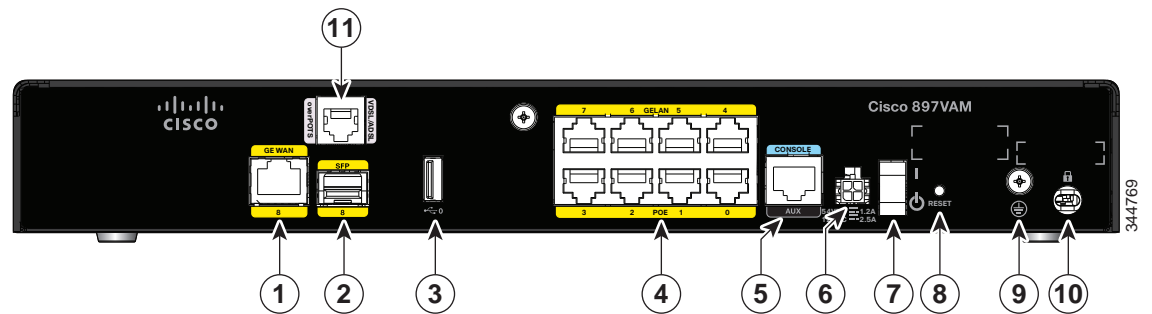


1	ISDN	7	Power connector
2	GE WAN interface	8	On/Off switch
3	SFP port	9	Reset button
4	USB port	10	Earth ground connection
5	8-port Gigabit Ethernet switch ¹	11	Kensington security slot
6	Console / Auxiliary port	12	VDSL / ADSL over POTS

1. Port 0 through 3 can be configured as POE. POE is an optional feature for this model. If this feature was not configured with the factory order, you must order and install it to enable the PoE function.

Figure 1-28 shows the back panel of the Cisco 897VAM router.

Figure 1-28 Back Panel of the Cisco 897VAM Router



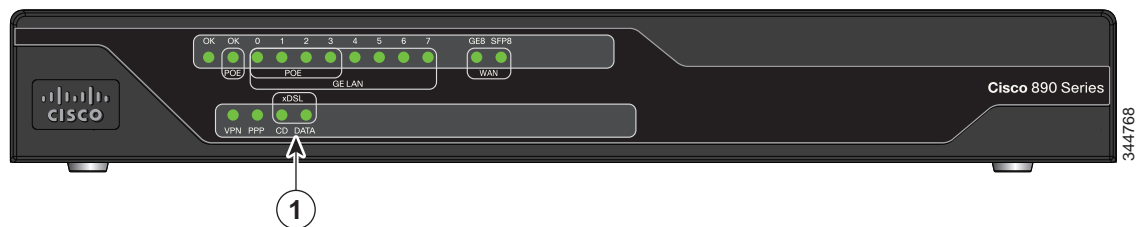
1	GE WAN interface	7	On/Off switch
2	SFP port	8	Reset button
3	USB port	9	Earth ground connection

4	8-port Gigabit Ethernet switch ¹	10	Kensington security slot
5	Console / Auxiliary port	11	VDSL / ADSL over POTS
6	Power connector		

1. Port 0 through 3 can be configured as POE. POE is an optional feature for this model. If this feature was not configured with the factory order, you must order and install it to enable the the PoE function.

Figure 1-29 shows the front panel of the Cisco 897VAM router.

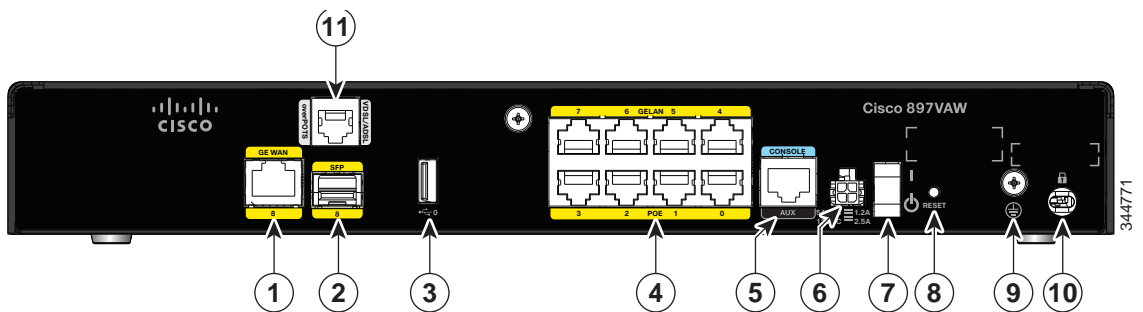
Figure 1-29 Front Panel of the Cisco 897VAM Router



1	LEDs
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Figure 1-30 shows the back panel of the Cisco 897VAW router.

Figure 1-30 Back Panel of the Cisco 897VAW Router

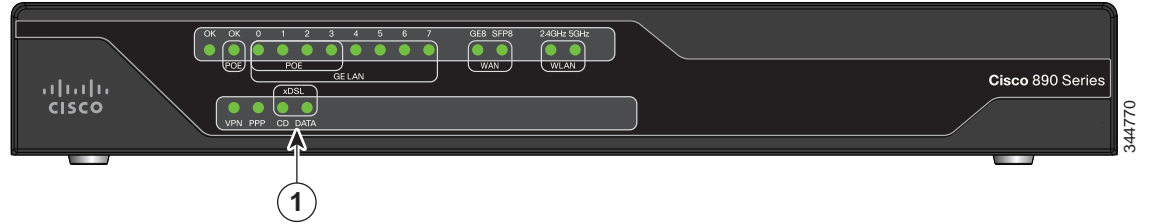


1	GE WAN interface	7	On/Off switch
2	SFP port	8	Reset button
3	USB port	9	Earth ground connection
4	8-port Gigabit Ethernet switch ¹	10	Kensington security slot
5	Console / Auxiliary port	11	VDSL / ADSL over POTS
6	Power connector		

1. Port 0 through 3 can be configured as POE. POE is an optional feature for this model. If this feature was not configured with the factory order, you must order and install it to enable the PoE function.

Figure 1-31 shows the front panel of the Cisco 897VAW and the Cisco 897VAMW router.

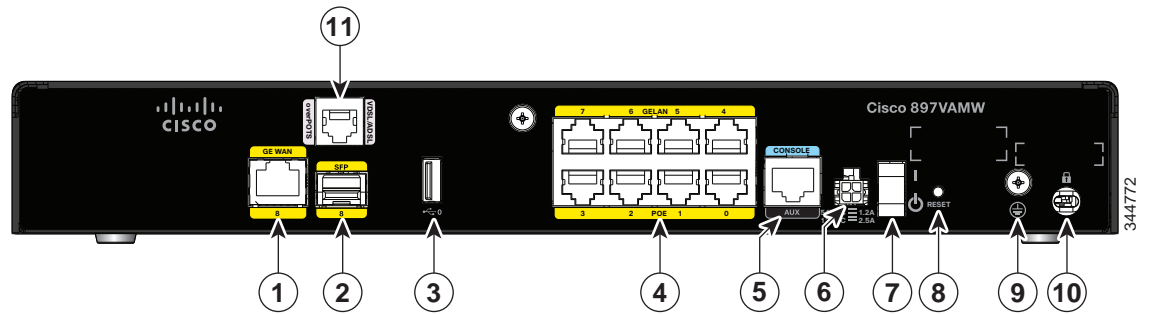
Figure 1-31 Front Panel of the Cisco 897VAW and the Cisco 897VAMW Router



1 LEDs

Figure 1-32 shows the back panel of the Cisco 897VAMW router.

Figure 1-32 Back Panel of the Cisco 897VAMW Router

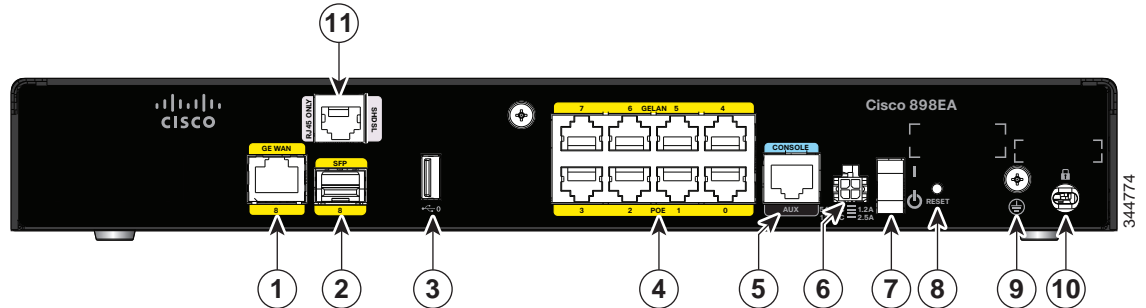


1	GE WAN interface	7	On/Off switch
2	SFP port	8	Reset button
3	USB port	9	Earth ground connection
4	8-port Gigabit Ethernet switch ¹	10	Kensington security slot
5	Console / Auxiliary port	11	VDSL / ADSL over POTS
6	Power connector		

1. Port 0 through 3 can be configured as POE. POE is an optional feature for this model. If this feature was not configured with the factory order, you must order and install it to enable the PoE function.

Figure 1-33 shows the back panel of the Cisco 898EA router.

Figure 1-33 Back Panel of the Cisco 898EA Router



1	GE WAN interface	7	On/Off switch
2	SFP port	8	Reset button
3	USB port	9	Earth ground connection
4	8-port Gigabit Ethernet switch ¹	10	Kensington security slot
5	Console / Auxiliary port	11	SHDSL (RJ45 Only)
6	Power connector		

1. Port 0 through 3 can be configured as POE. POE is an optional feature for this model. If this feature was not configured with the factory order, you must order and install it to enable the PoE function.


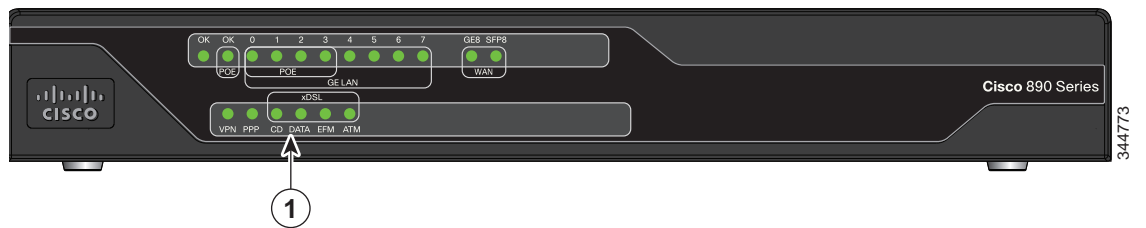
Caution  The primary WAN port is designed for an RJ-45 connector only. Damage to the primary WAN port may occur if a non-RJ-45 connector is inserted.

Figure 1-34 shows the front panel of the Cisco 898EA router.

Figure 1-34 Front Panel of the Cisco 898EA Router



1	LEDs
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Hardware Features

This section provides an overview of the following hardware features for the Cisco 860 series, 880 series, and 890 series ISRs. A feature summary is available at the end of this section.

- [Kensington Lock](#)
- [Reset Button](#)
- [LEDs](#)
- [Memory](#)
- [USB Port](#)
- [Fan](#)
- [Power over Ethernet Module](#)
- [3G Cellular Data WAN Connectivity](#)
- [Wireless LAN Connectivity](#)
- [Small Form-Factor Pluggable Port](#)
- [Feature Summary](#)

Kensington Lock

A Kensington security slot is located on the router back panel. To secure the router to a desktop or other surface, use the Kensington lockdown equipment.

Reset Button

The Reset button is used to restore the router to the factory default configuration or to load a custom configuration file.

There are two different ways to do this:

1. by pressing the Reset button within 5 seconds of powering up the router; or
2. by pressing the Reset button for 5 seconds while running IOS.

**Note**

If you execute a **CLI reboot** command while the embedded wireless AP is running Cisco Unified IOS software, the router reboots, but the AP continues running. Clients with Cisco Unified IOS software are controlled by a wireless LAN controller (WLC) and can be reset only by the controller.

Cisco 860VAE Routers—Custom Configuration File

On Cisco 860VAE routers, the reset button can be used to load a custom configuration file without having to use the CLI. The configuration file can be located on an external USB flash drive or on the router's compact flash.

The custom configuration file must be named one of the following:

- customer-config
- SN-customer-config

where “SN” is the unique hardware serial number.

When the system attempts to load a custom configuration file, configuration files on a USB flash drive have priority over configuration files on the router's flash drive and the “SN-customer-config” file name has priority over the “customer-config” file name. The priority for loading a configuration file is as follows:

1. USB flash0: SN-customer-config
2. USB flash0: customer-config
3. Router flash: SN-customer-config
4. Router flash: customer-config

If the router does not find a valid custom configuration file, the system aborts the process.

To reset the router to the factory default configuration, follow these steps:

-
- Step 1** Verify that IOS is running correctly by checking that the system status LED is on.
- Step 2** Press and hold the Reset button until the system status LED begins to flash. Typically, this occurs within 5 seconds.

The router reloads itself after the startup configuration has been replaced with the new customer configuration.

Custom Configuration File for Cisco 892FSP, 896VA, 897VA, and Cisco 898EA

For the first method, the configuration file can be located on the router's compact flash or on the router's nvram. The custom configuration file must use **cfg** as the filename extension.

When the system attempts to load a custom configuration file, configuration files on nvram have priority over configuration files on the router's compact flash.

The priority for loading a configuration file is as follows:

1. nvram: *.cfg
2. Router flash: *.cfg

If the router does not find a valid custom configuration file, the system aborts the process.

To reset the router to the factory default configuration or to load a custom configuration file, follow these steps:

-
- Step 1** Turn the power on.
- Step 2** Press and hold the Reset button until the system status LED begins to flash. Typically, this occurs within 5 seconds.
- The router reloads itself after the startup configuration has been replaced with the new customer configuration.
-

For the second method, the configuration file can be located on an external USB flash drive or on the router's compact flash.

The custom configuration file must be named one of the following:

- customer-config
- customer-config.SN ?

where "SN" is the unique hardware serial number.

When the system attempts to load a custom configuration file, configuration files on a USB flash drive have priority over configuration files on the router's flash drive and the "customer-config.SN" file name has priority over the **customer-config** file name.

The priority for loading a configuration file is as follows:

1. usbflash0:customer-config.SN
2. usbflash0:customer-config
3. Router flash:customer-config.SN
4. Router flash:customer-config

If the router does not find a valid custom configuration file, the system aborts the process.

To reset the router to the factory default configuration or to load a custom configuration file, follow these steps:

-
- Step 1** Verify that IOS is running correctly by checking that the system status LED is on.
- Step 2** Press and hold the Reset button until the system status LED begins to flash. Typically, this occurs within 5 seconds.
- The router reloads itself after the startup configuration has been replaced with the new customer configuration.
-

LEDs

The LEDs are located on the front panel of the router.

- [Table 1-4](#) describes the LEDs for the Cisco 860 series, 880 series, and 890 series ISRs.
- [Table 1-5](#) lists the LED descriptions for the Cisco 866VAE, Cisco 867VAE, Cisco 866VAE-K9, and Cisco 867VAE-K9 ISRs.
- [Table 1-6](#) lists the LED description for the Cisco 892FSP ISR, 896VA, 897VA, and 898EA.

Table 1-4 LED Descriptions for the Cisco 860 Series, Cisco 880 Series, and Cisco 890 Series ISRs

LED	Color	Description	860 Series	880 Series	890 Series
Power OK	Green	On—DC power is being supplied to the router and the Cisco IOS software is running. Blinking—Bootup is in process, or the router is in Rommon monitor mode. Off—Power is not supplied to the router.	All models	All models	All models
Link Status FE0	Green	On—Ethernet port is connected.	All models	All models	All models
Link Status FE1		Blinking—Data is either being received or being transmitted.			
Link Status FE2		Off—Ethernet port is not connected.			
Link Status FE3					
Link Status FE4	Green	On—Ethernet port is connected.	—	—	All models
Link Status FE5		Blinking—Data is either being received or being transmitted.			
Link Status FE6		Off—Ethernet port is not connected.			
Link Status FE7					
FE WAN Port Link Status	Green	On—Port is connected. Blinking—Data is either being received or being transmitted. Off—Port is not connected.	861 models	881 models	All models
GE WAN Port Link Status	Green	On—Port is connected. Blinking—Data is either being received or being transmitted. Off—Port is not connected.	—	—	All models
WLAN (2.4 GHz)	Green	On—Radio is connected, SSID ¹ is configured, and client is associated, but no data is being received or being transmitted. Slow blinking—Radio is connected, SSID is configured, and beacons are being transmitted. Fast blinking—Data is either being received or being transmitted. Off—Radio is shut down, and no SSID is configured.	Wireless models	Wireless models	Wireless models

Table 1-4 LED Descriptions for the Cisco 860 Series, Cisco 880 Series, and Cisco 890 Series ISRs (continued)

LED	Color	Description	860 Series	880 Series	890 Series
WLAN (5 GHz)	Green	On—Radio is connected, SSID is configured, and client is associated, but no data is being received or being transmitted. Slow blinking—Radio is connected, SSID is configured, and beacons are being transmitted. Fast blinking—Data is either being received or being transmitted. Off—Radio is shut down, and no SSID is configured.	—	Wireless models	Wireless models
WLAN LINK (Autonomous Mode)	Green	On—Wireless link is up. Blinking—Ethernet link is up, and data is either being received or being transmitted. Off—Wireless link is down.	Wireless models	Wireless models	Wireless models
WLAN LINK (Unified Mode)	Green	On—Ethernet link is up, and wireless access point (AP) is communicating with LWAPP ² controller. Blinking—Ethernet link is up, but wireless AP is not communicating with LWAPP controller. Off—Ethernet link is down.	—	Wireless models	Wireless models
PoE	Green	On—PoE is connected and powered. Off—PoE is not installed.	—	Models with PoE	Models with PoE
	Amber	On—Fault with the PoE.			
VPN	Green	On—VPN is connected.	—	All models	All models
PPP ³	Green	On—At least one PPP session is established.	—	All models	All models
xDSL ⁴ CD	Green	On—The xDSL interface is connected to the DSLAM ⁵ . Blinking—Training to the line. Off—Indicates that a connection has not been established or the port is shut down.	—	887, 887VA, 887VA-M8 888 models	896VA, 897VA, 898EA
xDSL Data	Green	Blinking—The xDSL interface is either receiving or transmitting data. Off—No data is being transmitted or being received.	—	887, 887VA, 887VA-M8 888 models	896VA, 897VA, 898EA
xDSL ATM	Green	On—The router is operating in ATM ⁶ mode. Off—Not operating in ATM mode.	—	888E	—
xDSL EFM	Green	Blink—The router is operating in EFM ⁷ mode. Off—Not operating in EFM mode.	—	—	898EA
Data BRI LINK	Green	On—ISDN D channel is connected.	—	887, 888 models	892 models
Data BRI B1	Green	Blinking—B1 channel is either receiving or sending data, or data is passing through ISDN channel 1.	—	887, 888 models	892 models

Table 1-4 LED Descriptions for the Cisco 860 Series, Cisco 880 Series, and Cisco 890 Series ISRs (continued)

LED	Color	Description	860 Series	880 Series	890 Series
Data BRI B2	Green	Blinking—B2 channel is receiving or sending data, or data is passing through ISDN channel 2.	—	887, 887V, 888 models	892 models
3G ⁸ WWAN ⁹	Green	On—Service is established. Slow Blinking—Searching for service. Fast Blinking—Data is either being received or being transmitted.	—	3G models	—
3G RSSI ¹⁰	Green	Off—Low signal strength (lower than -100 dBm). On—High RSSI (-69 dBm or higher). Slow Blinking—Low or medium RSSI (-99 to -90 dBm). Fast Blinking—Medium RSSI (-89 to -70 dBm).	—	3G models	—
	Amber	On—No service.	—	3G models	—
3G GSM ¹¹	Green	On—Service is established. Off—No service.	—	3G models	—
3G CDMA ¹²	Green	On—Service is established. Off—No service.	—	3G models	—
FXO Voice	Green	On—FXO port is connected. Blinking—FXO port is either receiving or transmitting data.	—	881 ¹³	—
BRI Voice LNK	Green	On—BRI interface is connected.	—	—	—
BRI Voice B1	Green	On—BRI B1 channel is connected. Blinking—BRI B1 channel is either receiving or transmitting data.	—	—	—
BRI Voice B2	Green	On—BRI B2 channel is connected. Blinking—BRI B2 channel is either receiving or transmitting data.	—	—	—
FXS/DID Voice	Green	On—FXS/DID port is connected. Blinking—FXS/DID port is either receiving or transmitting data.	—	SRST models	—
V.92 Modem	Green	On—Modem is connected. Blinking—V.92 port is either receiving or transmitting data.	—	—	891 models
SFP ¹⁴ EN	Off	Not present.	—	—	892F models
	Green	Present and enabled.	—	—	
	Amber	Present with failure.	—	—	
SFP S	Green	Blinking—Blinking frequency indicates port speed.	—	—	892F models

1. SSID = service set identifier.

2. LWAPP = Lightweight Access Point Protocol.
3. PPP = Point-to-Point Protocol.
4. xDSL = General term referring to various forms of DSL, including ADSL (asymmetric digital subscriber line) and VDSL (very-high-data-rate digital subscriber line).
5. DSLAM = digital subscriber line access multiplexer.
6. ATM = Asynchronous Transfer Mode.
7. EFM = Ethernet in the First Mile.
8. 3G = Third-Generation.
9. WWAN = wireless WAN.
10. RSSI = Received Signal Strength Indicator.
11. GSM = Global System for Mobile Communication.
12. CDMA = code division multiple access.
13. SRST = Survivable Remote Site Telephony.
14. SFP = small-form-factor pluggable.

Table 1-5 describes the LEDs for the Cisco 866VAE, Cisco 867VAE, Cisco 866VAE-K9, and Cisco 867VAE-K9 ISRs.

Table 1-5 LED Descriptions for the Cisco 866VAE, Cisco 867VAE, Cisco 866VAE-K9, and Cisco 867VAE-K9 ISRs

LED	Activity	Description
Power/System	Power/System LED: Solid GE_MODE LED: Off DSL_LINK LED: Off	Power is on and system running in the Rommon mode. Note During the early booting stage, both Power/System, GE_MODE and DSL_LINK LED will be turned on temporarily for the power on test. DSL_LINK and GE_MODE LED will be turned off later after booting into Rommon.
	Power/System LED: Solid GE_MODE LED: Solid DSL_LINK LED: Off	IOS functioning in GE WAN mode.
	Power/System LED: Solid GE_MODE LED: Off DSL_LINK LED: Solid or flashing	IOS functioning in DSL_WAN mode. Note In IOS DSL_WAN mode, DSL_LINK LED will be solid after DSL training complete or flashing during training.
xDSL ¹ ACT	Green	On—DSL interface is up. Blinking—DSL WAN activity (traffic in either direction). Faster blinking—Heavier traffic Off—Device is powered off or the DSL WAN interface is down.
xDSL Link	Green	On—DSL WAN Mode is selected and DSL training complete. Blinking—DSL WAN Mode is selected but incomplete DSL Link Up state, such as in-training, or controller “OFF,” or no cable attached to DSL connector. Off—Device is powered off or GE WAN mode is selected.

Table 1-5 LED Descriptions for the Cisco 866VAE, Cisco 867VAE, Cisco 866VAE-K9, and Cisco 867VAE-K9 ISRs

LED	Activity	Description
GE ACT	Green	On—GE WAN interface is up. Blinking—GE WAN activity (traffic in either direction). Off—Device is powered off or GE WAN interface is down.
GE Mode	Green	On—GE WAN Mode is selected. Off—Device is powered off or DSL WAN mode is selected.

1. xDSL = General term referring to various forms of DSL, including ADSL (asymmetric digital subscriber line) and VDSL (very-high-data-rate digital subscriber line).

Table 1-6 describes the LEDs for the Cisco 892FSP.

Table 1-6 LED description for Cisco 892FSP ISR, 896VA, 897VA, and 898EA Routers

LED	Color	Activity	Description
PWR_OK	Green	Power Status	Off—No power. Steady on—Normal operation. Blink—Boot up phase or in ROM Monitor mode.
GE0	Green/Amber	Link Status	Green On—Ethernet port is connected.
GE1			Amber On—Fault with PoE. There is a fault with the inline power supply.
GE2			Green/Amber Blinking—Data is either being received or being transmitted.
GE3			Green/Amber Off—Ethernet port is not connected.
GE4			
GE5	Green	Link Status	On—Ethernet port is connected.
GE6			Blinking—Data is either being received or being transmitted.
GE7			Off—Ethernet port is not connected.
GE WAN ports	Green	Link Status	On—Port is connected. Blinking—Data is either being received or being transmitted. Off—No link.
SFP WAN ports	Green	Link Status	On—Port is connected. Blinking—Data is either being received or being transmitted. Off—No link.
VPN_OK	Green	—	Off—No tunnel. Steady on—At least one tunnel is up.
PPP_OK	Green	—	Off—No PPP session. Steady on—At least one PPP established.

Shared LEDs on the Cisco 881-V and Cisco 887VA-V Voice and Data Routers

On the Cisco 881-V, Cisco 887VA-V, and Cisco 887VA-V-W routers, the BRI1, BRI2 and the FXS ports share LED indicators. The following ports share an LED indicator:

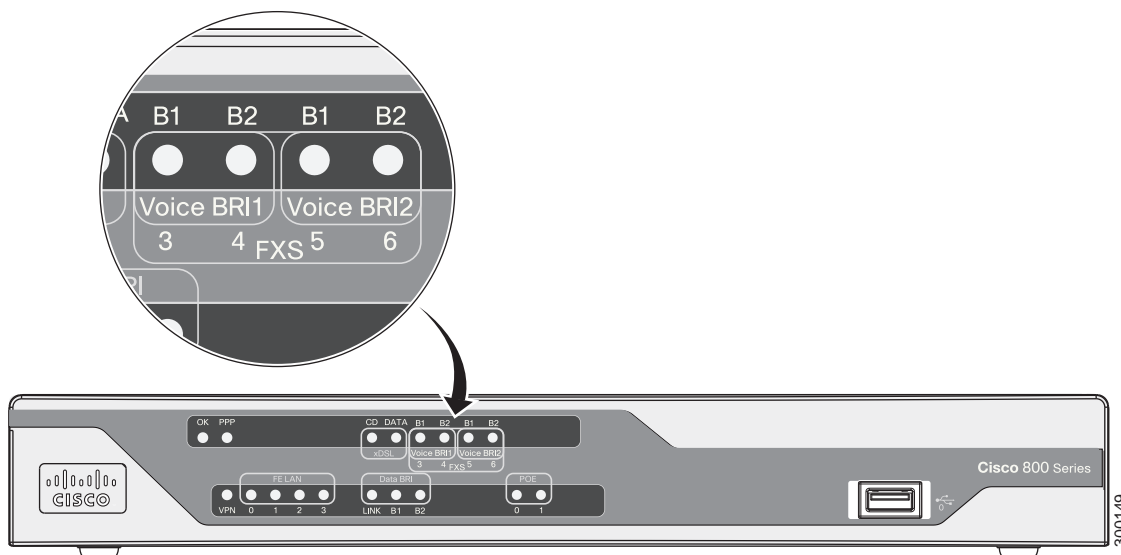
- BRI 1B1 channel and FXS 3
- BRI 1B2 channel and FSX 4
- BRI 2B1 channel and FXS 5
- BRI 2 B2 channel and FXS 6

Because the LED indicators are shared, the LED illuminates (green) when either port is active. For example, the LED indicator labeled BRI1 B1 illuminates when either the BRI1 B1 channel is active or when the FXS port is active. You can determine the activity status on each interface by using the following commands.

- For activity status on the FXS ports, use the **show port summary** command.
- For activity status on the BRI ISDN port, use the **show isdn status** command.

Figure 1-35 shows a close-up view of the LED indicators.

Figure 1-35 Close-up of the BRI and FXS LED Indicators



Memory

The Cisco 860 series, 880 series, and 890 series routers contain flash memory and main memory.

Flash Memory

The Cisco 860 series, 880 series, and 890 series ISRs use non-upgradable flash memory storage. The onboard flash memory contains the Cisco IOS software image, the boot flash contains the ROMMON boot code, and a separate non-volatile flash contains the cookie configuration.

Table 1-7 describes the default flash memory storage.

Table 1-7 Flash Memory Storage

Models	Flash Memory Storage
Cisco 860 series and 880 series routers	128 MB
Cisco 880 series voice routers and Cisco 890 series routers	256 MB
Cisco 880 series routers with embedded WLAN antennas	256 MB
Cisco 860VAE routers	8 MB boot flash, 128 MB for IOS
Cisco 860VAE-K9	64 MB boot flash and IOS

**Note**

Flash memory is not upgradable. An external USB flash memory module may be used if additional flash memory is needed.

Main Memory

Table 1-8 describes the main onboard memory storage for different router models.

Table 1-8 Main Onboard Memory Storage

Models	Onboard Memory Storage	Expandability
Cisco 860 series routers	256 MB	Not expandable.
Cisco 860VAE series routers	256 MB	Not expandable.
Cisco 880 series routers	256 MB (expandable to 768 MB)	A memory expansion slot accommodates a PC2-4200, 256-MB or 512-MB double data rate 2 (DDR2) SODIMM, for a maximum of 768 MB.
Cisco 880 series routers with embedded WLAN antennas	512 MB	Not expandable.
Cisco 892FSP, 896VA, 897VA, 898EA routers	512 MB	Expandable to 1 GB.

USB Port

Table 1-9 describes the USB ports for different router models.

Table 1-9 USB Ports

Models	USB
Cisco 860 series (non-VAE)	No USB ports.
Cisco 860VAE series	One USB 1.1-compliant port located on the back panel. The USB port does not support eToken.
Cisco 880 series	One USB 1.1-compliant port located on the front panel. The USB port provides connection for USB devices such as security tokens and flash memory.
Cisco 890 series ¹	Two USB 2.0-compliant ports located on the front panel.
Cisco 892FSP, Cisco 896VA, Cisco 897VA, Cisco 898EA	One USB 2.0-compliant port located on the back panel.

1. Except for Cisco 892FSP, Cisco 896VA, Cisco 897VA, and Cisco 898EA.

Fan

Some router models do not have a fan, while other models have either one or two fans.

The fans spin at full speed, as a diagnostic aid, immediately after the router is powered up. After the router has booted, the fans spin as fast as necessary to minimize fan noise while maintaining a safe internal operating temperature.

The following models have no fan:

- Cisco 892FSP
- Cisco 896VA
- Cisco 897VA
- Cisco 898EA

Power Supply

The Cisco 892FSP has a single +12V power supply input. The Cisco 892FSP power connector is different from the barrel-type connector on other 890 series models. The AC adapter cable connector has four pins and a built-in locking mechanism. [Figure 3-27](#) shows the power adapter connector.

The Cisco 896VA, 897VA, and Cisco 898EA use PoE (12 VDC 43 W, -54 VDC 80 W) and non-PoE (12 VDC 60 W) power supplies.

Power over Ethernet Module

The Cisco 880 series ISRs can include an optional Power over Ethernet (PoE) module that provides power to 802.3af-compliant devices connected to FE ports 0 and 1.

The Cisco 890 series ISRs can include an optional PoE module that provides power to 802.3af-compliant devices connected to FE ports 0, 1, 2, and 3.

The PoE module is an option available only for the Cisco 880 series and 890 series ISRs and requires a 48 V external power adapter.

This function can be added to an 880 or 890 series router by installing the PoE adapter card in the router and inserting the PoE 48 V external power adapter.



Note

The Cisco 880 series ISRs with embedded WLAN antennas require a single external power supply: a 30 W power supply for non-POE-enabled routers or a 60 W power supply for POE-enabled routers. For the back panels of some of these routers, see [Figure 1-17](#) and [Figure 1-19](#).

3G Cellular Data WAN Connectivity

The 3G (Evolution Data Only [EVDO], Universal Mobile Telecommunications Systems [UMTS]) cellular interface is intended for use as a backup data link, but it can also be used as a primary WAN data link. The 3G technology is third-generation wide-area cellular technology that is used in voice telephony and broadband wireless data in a mobile environment.

Some Cisco 880G models come with a 34-mm express card slot ready for use with a commercial 3G card radio. The 3G express card slot is located on the front panel. For a list of supported 3G cards, see the [Cisco 880 Series Integrated Services Routers Data Sheet](#).

Other Cisco 880G models come with embedded WAN modems for use over GSM or CDMA networks. These routers have antenna connectors on the back panel. GSM routers have two SIM card slots. For information on configuring Cisco 880 series ISRs for 3G, see [Configuring Cisco EHWIC and 880G for 3G \(EV-DO Rev A\)](#) and [Configuring Cisco EHWIC and 880G for 3.7G \(HSPA+\)/3.5G \(HSPA\)](#).

Wireless LAN Connectivity

The embedded Wi-Fi CERTIFIED™, 802.11a/b/g/n-compliant wireless AP is preinstalled in the router as an optional feature. The Cisco 860 series routers support autonomous features and network configurations. The Cisco 880 series and 890 series routers support both autonomous and unified features and network configurations.

The wireless AP does not have an external Console port. Use the router's Console port as described in [Chapter 3, “Connecting a Terminal or PC to the Console Port.”](#) To configure the wireless device, use the Cisco IOS command-line interface (CLI).

[Table 1-10](#) describes the radios and antennas for the Cisco 860 series, 880 series, and 890 series routers.


Note

Cisco 860VAE ISRs do not support wireless LAN connectivity.

The 5-GHz radio operates in the Unlicensed National Information Infrastructure (UNII) 1, 2, 3, 5-GHz frequency bands.

Table 1-10 Wireless Device Radios and Antennas

Radio Module	Platform	Radio Band	Maximum Data Throughput ¹	Mode	Antenna
Single-band 802.11b/g/n draft 2.0 radio module	Cisco 860 and 880 series routers Note Cisco 860VAE ISRs do not support wireless LAN connectivity.	2.4 GHz	Up to 100 Mb/s	Cisco 860 series: autonomous only Cisco 880 series: autonomous and unified	Three captive, omnidirectional dipole antennas: 2 dBi at 2.4 GHz
Single-band 802.11b/g/n radio module	Cisco 880 series routers with embedded WLAN antennas	2.4 GHz	100 Mb/s per radio, up to 200 Mb/s total	Autonomous and unified	Three embedded, omnidirectional antennas: 2 dBi at 2.4 GHz
Dual-band 802.11a/n and 802.11b/g/n radio modules		2.4 GHz and 5 GHz			Three embedded, dual-band, omnidirectional antennas: 2 dBi at 2.4 GHz and 5 dBi at 5 GHz
Dual-band simultaneous 802.11a/n and 802.11b/g/n radio modules	Cisco 890	2.4 GHz and 5 GHz	100 Mb/s per radio, up to 200 Mb/s total	Autonomous and unified	Three dual-band, removable, 2.4-GHz/5-GHz omnidirectional dipole RP-TNC antenna ²

1. Actual data rate is highly dependent on your wireless environment.

2. The antennas require some minor installation. They must be screwed onto the RP-TNC antenna connectors on the I/O side of the chassis. See the following document on Cisco.com for feature information: <http://www.cisco.com/en/US/docs/routers/access/wireless/hardware/notes/antdip.html>

Supported Cisco Radio Antennas

The Cisco 891, Cisco 892, and Cisco 892F come with three removable dipole antennas that can be replaced using the Cisco approved antenna extenders listed in [Table 1-11](#).


Note

Cisco supports only the antennas listed in [Table 1-11](#) with the Cisco 890 series dual-band radio module.

Table 1-11 Cisco Antennas Supported on the Cisco 890 Series ISRs

Cisco Part Number	Antenna Type	Maximum Gain	Description
AIR-ANTM2050D-R	Omnidirectional	2.0 dBi at 2.4 GHz 5.0 dBi at 5 GHz	This is the default antenna. It is a swivel-mount dipole dual-band blade antenna. For more information, see Cisco Multiband Swivel-Mount Dipole Antenna (AIR-ANTM2050D-R) .
AIR-ANTM4050V-R	Omnidirectional	4.0 dBi at 2.4 GHz 5.0 dBi at 5 GHz	Ceiling-mount dual-band antenna. This antenna has a clip that allows it to be mounted on a drop-ceiling cross member. For more information, see Cisco Multiband Diversity Omnidirectional Ceiling-Mount Antenna .
AIR_ANTM5560P-R	Patch	5.5 dBi at 2.4 GHz 6.0 dBi at 5 GHz	Wall-mount dual-band antenna. For more information, see Cisco Multiband Wall-Mount, Corner-Mount, or Mast-Mount Antenna .

Small Form-Factor Pluggable Port

The SFP port supports auto-media-detection, auto-failover, and remote fault indication (RFI), as described in the IEEE 802.3ah specification.

See the Cisco 892F data sheet for a list of supported SFPs.

Feature Summary

Table 1-12 summarizes the hardware features available in the Cisco 860 series, Cisco 880 series, and Cisco 890 series ISRs.

Table 1-12 Hardware Features Available in Cisco 860 Series, Cisco 880 Series, and Cisco 890 Series ISRs

Feature	Description	860 Series	880 Series	890 Series
Reset button	Resets the router configuration to the factory default.	All models	All models	All models
	Resets the router configuration to customer configuration.	866VAE, 867VAE, 866VAE-K9, 867VAE-K9	—	—
FE ¹ built-in switch ports	Provides connection to 10/100BASE-T (10/100-Mb/s) Fast Ethernet networks. The autosensing function in these routers eliminates the need for a crossover cable and enables the router to detect MDI ² or MDIX ³ in any other PC or hub with a straight-through cable or a crossover cable.	All models	All models	891, 892, 892F
GE ⁴ built-in switch port	Provides connection to 10/100/1000BASE-T (10/100/1000-Mb/s) Gigabit Ethernet networks. The autosensing function in these routers eliminates the need for a crossover cable and enables the router to detect MDI ⁵ or MDIX ⁶ in any other PC or hub with a straight-through cable or a crossover cable.	866VAE-K9, 867VAE-K9	—	892FSP, 896VA, 897VA, 897VAM, 897VAW, 897VAMW, 898EA
Console or AUX port	Provides a connection to the terminal or PC for software configuration or troubleshooting. The Console port may be configured as a virtual auxiliary port for dial backup and remote management. Cisco 891, Cisco 892, and Cisco 892F have separate console and auxiliary ports. Cisco 892FSP has combined console and auxiliary port.	All models	All models	All models
Security features	Provides support for VPNs ⁷ , Cisco IOS Firewall, and IPSec ⁸ . The Cisco 880 series routers also provide URL filtering.	861, 867, 866VAE-K9, 867VAE-K9	All models	All models
Embedded wireless AP	Provides Wi-Fi CERTIFIED™ 802.11a/b/g/n compliance. The Cisco 860 series routers contain a single 802.11b/g/n radio. Some Cisco 880 series routers contain a single 802.11b/g/n radio while others contain dual 802.11a/n and 802.11b/g/n radios. The Cisco 890 series routers contain dual 802.11b/g/n and 802.11a/n radios.	Wireless models 802.11b/g/n	Wireless models 802.11b/g/n ⁹ and 802.11a/n ¹⁰	Wireless models 802.11b/g/n and 802.11a/n
FE WAN port	Provides connection to 10/100BASE-T. Can be connected to other network devices, such as a cable modem, an xDSL ¹¹ modem, or router. The router is capable of bridging and multiprotocol routing between the LAN and WAN ports.	861	881	891, 892, 892F

Table 1-12 Hardware Features Available in Cisco 860 Series, Cisco 880 Series, and Cisco 890 Series ISRs (continued)

Feature	Description	860 Series	880 Series	890 Series
GE WAN port	10/100/1000 GE WAN Port.	866VAE, 867VAE, 866VAE-K9, 867VAE-K9	—	All models
VDSL _o POTS ¹² port	Provides connection to a VDSL network.	—	887V	—
ADSL _o POTS	Provides ADSL connection over basic telephone service with Annex A and Annex B ITU G. 992.1 (ADSL), G.992.3 (ADSL2), and G.992.5 (ADSL).	—	—	—
ADSL _o ISDN	Provides ADSL connection over ISDN.	—	—	—
DSL Multi-mode (VDSL and ADSL2/2+)	Provides ADSL2/2+ or VDSL connection over POTS or ISDN (ISDN on 886VA only).	866VAE, 867VAE, 866VAE-K9, 867VAE-K9	886VA, 887VA,887V A-M	892FSP, 896VA, 897VA, 897VAM, 897VAW, 897VAMW, 898EA
Real-time clock (RTC)	RTC provides nonvolatile date and time when the router is powered on. The RTC is used for verifying the validity of the Certification Authority stored on the router. It is backed up by a nonreplaceable lithium battery.	866VAE, 867VAE, 866VAE-K9, 867VAE-K9	All models	All models
USB port,	<p>Supports USB 1.1. Provides connection for USB devices such as security tokens and flash memory.</p> <p>The Cisco 880 series routers have a single USB port; the Cisco 890 series routers have two USB ports.</p> <p>Cisco 880 series routers with embedded WLAN antennas have one USB 2.0 port.</p> <p>Cisco 892FSP and Cisco 860VAE series routers have one USB 2.0 port on the rear panel for temporary installation of a Cisco-approved USB memory device for maintenance purposes only. The port supports only USB 2.0. Refer to the product datasheet for the list of supported USB flash memory devices.</p> <p>Note Cisco 860VAE series router USB port does not support eToken.</p>	866VAE, 867VAE, 866VAE-K9, 867VAE-K9	All models	All models
PoE ¹³	<p>(Optional) Provides power for 802.3af-compliant devices (such as phones) that are connected to the router.</p> <p>The Cisco 880 series routers support a 2-port PoE module; the Cisco 890 series routers support a 4-port PoE module.</p>	—	Models with PoE	Models with PoE
G.SHDSL ¹⁴ port	Provides 2-wire or 4-wire connection to a G.SHDSL network.	—	888	898EA
3G ¹⁵ card slot	Provides backup data link.	—	3G models	—

Table 1-12 Hardware Features Available in Cisco 860 Series, Cisco 880 Series, and Cisco 890 Series ISRs (continued)

Feature	Description	860 Series	880 Series	890 Series
Dying gasp	Detects when the router is losing power, and sends a power-fail signal to warn the DSLAM ¹⁶ about the impending line drop.	866VAE, 867VAE, 866VAE-K9, 867VAE-K9, xDSL models	888EA, xDSL models	892FSP, 896VA, 897VA, 897VAM, 897VAW, 897VAMW, 898EA
Data BRI port	Provides backup and remote management functions by connecting to the ISDN service provider if the main VDSL or G.SHDSL link fails.	—	xDSL models, except for the 3G and SRST ¹⁷ models	892
V.92 modem	Provides dial backup and remote management functions if the main WAN link fails.	—	—	891
FXO ¹⁸ port	An FXO interface connects local calls to a central office or PBX. This is the interface a standard telephone provides.	—	881 SRST	—
FXS ¹⁹ /DID ²⁰ port	An FXS interface connects directly to a standard telephone, fax machine, or similar device. This interface supplies ringing voltage and dial tone to the station.	—	SRST models	—
BRI voice port	The ISDN BRI S/T voice interface provides a client-side (TE) ISDN S/T physical interface for connection to an NT1 device that terminates an ISDN telephone network.	—	887V	—
SFP ²¹ port	Supports auto-media-detection, auto-failover, and remote fault indication (RFI), as described in the IEEE 802.3ah specification. See the Cisco 892F data sheet for a list of supported SFPs.	—	—	892F models, 892FSP, 896VA, 897VA, 897VAM, 897VAW, 897VAMW, 898EA

1. FE = Fast Ethernet.
2. MDI = media-dependent interface in normal mode.
3. MDIX = media-dependent interface in crossover mode.
4. GE = Gigabit Ethernet.
5. MDI = media-dependent interface in normal mode.
6. MDIX = media-dependent interface in crossover mode.
7. VPN = Virtual Private Network.
8. IPsec = IP security.
9. This applies to most models of the Cisco 880 series routers.
10. This applies to Cisco 880 series routers with embedded, wireless antennas.
11. xDSL = General term referring to various forms of DSL, including ADSL (asymmetric digital subscriber line), VDSL (very-high-data-rate digital subscriber line), and G.SHDSL.
12. VDSL0POTS = very-high-data-rate digital subscriber line 2 over plain old telephone service.
13. PoE = Power over Ethernet. This function can be added to an 880 or 890 series router by installing the PoE adapter card in the router and inserting the PoE 48-V external power adapter.

14. G.SHDSL = (global industry standard) symmetrical high-speed DSL.
15. 3G = Third-Generation.
16. DSLAM = digital subscriber line access multiplexer.
17. SRST = Survivable Remote Site Telephony.
18. FXO = Foreign Exchange Office.
19. FXS = Foreign Exchange Station.
20. DID = Direct Inward Dialing.
21. SFP = small-form-factor pluggable.