



Connecting the Router

This chapter describes how to connect Cisco IR829 Integrated Services Router (ISRs) to Ethernet devices and a network. The chapter contains the following sections:

- [Connecting the Router, on page 1](#)

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Preparing to Connect the Router

Before you connect the router to the devices, install the router according to the instructions in [Chapter 1, “Installing the Router”](#).

Preventing Damage to the Router

To prevent damage to your router, follow these guidelines when connecting devices to your router:

- Turn off power to the devices and to the router until all connections are completed.

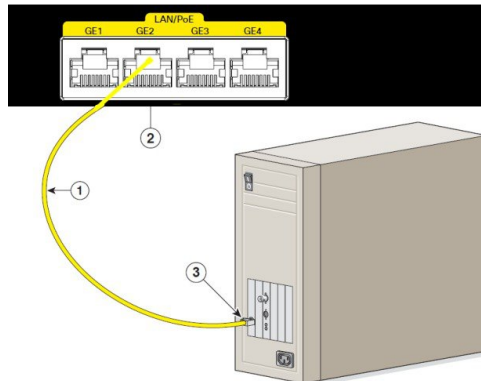
CAUTION: Do not turn on the devices until after you have completed all connections to the router.

Connecting a PC, Server, or Workstation

To connect a PC (or other Ethernet devices) to an Ethernet switch port, follow these steps:

1. Connect one end of the Ethernet cable to an Ethernet switch port on the router. In this example a PC is being connected to GE LAN Port 2. See [Figure 1: Connecting a Server, PC, or Workstation, on page 2](#).

Figure 1: Connecting a Server, PC, or Workstation



1	Ethernet cable	3	RJ-45 port on the PC, Server, or Workstation
2	Ethernet switch port on the router		

1. Connect the other end of the cable to the RJ-45 port on the network interface card (NIC) that is installed in the PC, server, or workstation.
2. (Optional) Connect additional servers, PCs, or workstations to the other Ethernet switch ports.

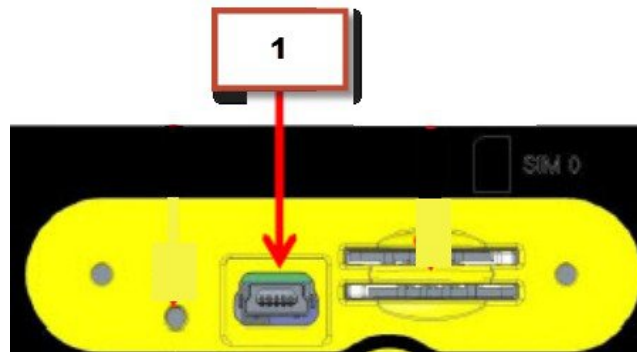
Connecting a Terminal or PC to the Console Port

Connect a terminal or PC to the Console port either to configure the software by using the CLI or to troubleshoot problems with the router.

To connect a terminal or PC to the console port on the router and access the CLI, follow these steps:

1. Connect the mini-USB side of a cable to the USB Console port on the router. Figure 2 shows the mini-USB location (1) for the Console port on the router.
2. Connect the opposite end of the mini-USB cable to the USB port on your laptop or PC.
3. To communicate with the router, wait for your laptop or PC to discover the new device.
4. If your laptop or PC warns you that you do not have the proper drivers to communicate with the router, you can obtain them from your computers manufacturer, or go here: <https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers>
5. Run a Terminal Emulation Application (such as Tera Term) from the PC. Select the "standard" serial Com Port (from the standard or enhanced options), and configure it for 9600 Baud rate with no flow control.

Figure 2: Connecting a Terminal or PC to the Console Port



Connecting to DC Power

WARNING: This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than 36 VDC, 6A Statement 1005

WARNING: This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations. Statement 1045

Plugs and Pin-Outs

The IR829 ships with a DC power accessory kit that contains a 4-pin locking connector and pins to use for the power connections. Four contacts are supplied, but only three are used. One is a spare. The Molex power connector is Cisco part number 29-2562-01.

The power entry receptacle is on the IR829. The pin-outs are shown in [Figure 3: Power Connector Pin-outs, on page 3](#).

Figure 3: Power Connector Pin-outs

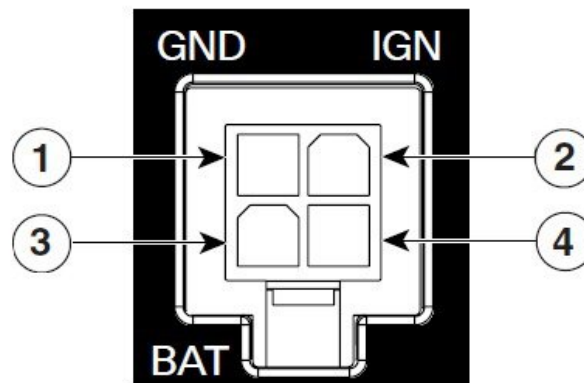


Table 1: Power connector Descriptions

Pin Number	Name	Description	Color
1	DC In -	DC Power Return (GND-)	Black
2	Ignition	Ignition Input (IGN)	Blue
3	DC In +	DC Power In (BAT+)	Red
4	N/A	N/A	N/A

Constructing a Power cable

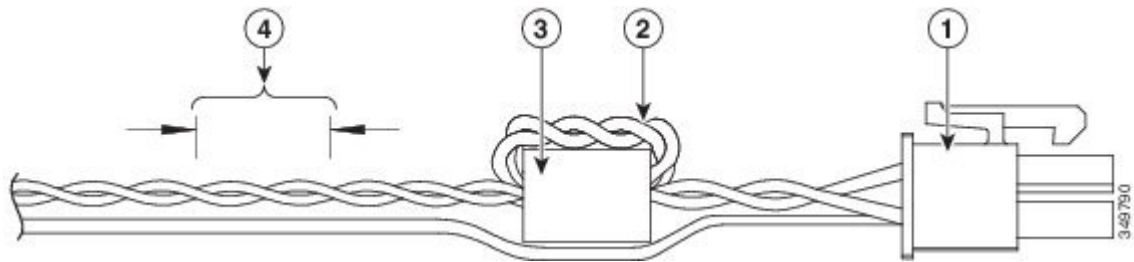
Cisco provides a power cable that can be ordered under part number IR829-DC-PWRCORD. If you choose to construct your own power cable, use special care when making the connections for DC power. It is easy to make a mistake when crimping connections, and there is a very good tutorial available at Molex: <http://www.molex.com/tnotes/crimp.html>

The specifications for the wiring are as follows:

- 16 AWG (1.02-to-1.29mm)
- UL1015 Rated
- Wires will be wound at 1 twist per inch

The example in [Figure 4: Power cable, on page 4](#) shows a cable constructed with a ferrite for a different certification. You can build your cable without the ferrite eliminating items 2 and 3 in the diagram.

Figure 4: Power cable


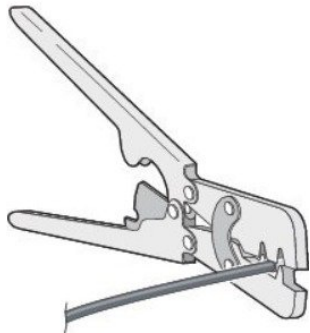


Details listed in the power cable example are:

1	4-pin locking connector	
2	2 loops of DC power and power return wires only. Other wires that may be used should run outside the Ferrite.	Note: Ferrite bead and the loops of wire are not needed at this time.
3	Ferrite Bead	Note: Ferrite bead and the loops of wire are not needed at this time.
4	Wires wound at 1 twist per inch	

Wiring the DC Power

To connect the DC power on your Cisco IR829, follow these steps:

1.	Identify the DC power source and measure 4 strands of copper wire 16 AWG (1.29mm) long enough to connect to the DC power source. NOTE: The maximum length of the cable before twisting is 15 feet (4.6 meters).	
2.	Using an 16-gauge wire-stripping tool, strip each of the wires coming from each DC-input power source to 0.25 inch (6.3 mm) \pm 0.02 inch (0.5 mm). Do not strip more than 0.27 inch (6.8 mm) of insulation from the wire. Stripping more than the recommended amount of wire can leave exposed wire from the power connector after installation.	
3.	Using the pins included in the kit, crimp each pin onto a wire.	
4.	Insert the pins into the power connector, referring to previous figures for guidance.	
5.	Plug the connector into the power entry receptacle.	
6.	When connecting the IR829 to a DC power source, a suitable disconnect device shall be provided at the point of connection to the DC power source.	

Vehicle Connections

When connecting to automotive power, it is expected that the ignition output will be +12 VDC, or +24 VDC (following the battery voltage). Connect the Ignition Input (IGN) of the router to the ignition output of the

automobile. The DC In + and DC In - leads can be directly connected to the battery, but it is recommended that they be connected after a fuse.



Important

For vehicle installations, it is required to connect the Ignition Input (IGN), and use the Ignition Power Management feature of the router. This will eliminate unnecessary power cycling of the router whenever the vehicle is turned off and then turned back on.



Note

For details about the Ignition Power Management Software and setting it up, see the [Cisco IR800 Integrated Services Router Software Configuration Guide](#).

Connecting to AC Power

The IR829 can be connected to AC power through an AC to DC power adapter. The Cisco part number is IR829-PWR125W-AC, and it meets ITE standards and operating temperature range of -20C to 60C but not suited for industrial environment.

To disconnect the device from power when using the adapter, simply unplug the adapter from the AC power source.

Verifying Connections

To verify that all devices are properly connected to the router, first turn on all the connected devices, then check the LEDs. To verify router operation, refer to [Table 2: Verifying the Router Operation](#), on page 6.

For full LED description, see [Chapter 1, “LEDs”](#)

Table 2: Verifying the Router Operation

Power and Link	LEDs to Check	Normal Patterns
PWR	Green steady On	Normal operation
	Green (flashing)	Initializing interface ports
	Amber	Solid after powerup - HW failure state Solid after 60 seconds - In ROM Monitor mode Solid after 60 seconds - Router is unreachable
GE0 WAN	Steady On	Link is up
	Flashing	Transmitting and Receiving data
	Off	No network activity.
Ethernet LAN Switch Ports	Single LED per port	Off — No link Green Steady on — Link is up Green Flash — Transmitting and Receiving data Amber — POE Fault, implies no link

Power and Link	LEDs to Check	Normal Patterns
Sim cards	SIM0/SIM1	Off — No USIM Green — USIM installed and active
Cellular Modems	CELLULAR0/CELLULAR1	Off — Module not powered on On — Module is powered on and connected but not transmitting or receiving Slow Flash — Module is powered on and searching for connection Fast Flash — Module is transmitting or receiving.

NOTE: There are single LTE and dual LTE SKUs available with the IR829. See [Figure 8 on page -17](#) for details.

