

Connecting the Router

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Preparing to Connect the Router

This chapter describes how to connect the IR1101 to Ethernet devices and a network.

Before you connect the router to the devices, install the router according to the instructions in Installing the Router .

Preventing Damage to the Router

To prevent damage 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.
2. 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.
3. (Optional) Connect additional servers, PCs, or workstations to the other Ethernet switch ports.

Connecting a PC to the Console Port

Connect a 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:

Note On earlier models of the device, the console port speed was set at 115200. Later models had the console port speed switched to 9600.

Procedure

Step 1 Connect the mini-USB console cable to the console port on the router.

Step 2 Connect the opposite end of the mini-USB cable to the USB port on your laptop or PC.

Step 3 To communicate with the router, wait for your laptop or PC to discover the new device.

Step 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

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 60 VDC minimum, 5A maximum. **Statement 1005**

Warning Connect the unit only to DC power source that complies with the safety extra-low voltage (SELV) requirements in IEC 60950 based safety standards. **Statement 1033**

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 IR1101 ships with a DC power accessory kit.

The power entry receptacle is on the IR1101. The pin-outs are shown in the following figure.

Figure 1: Power Connector Pin-outs

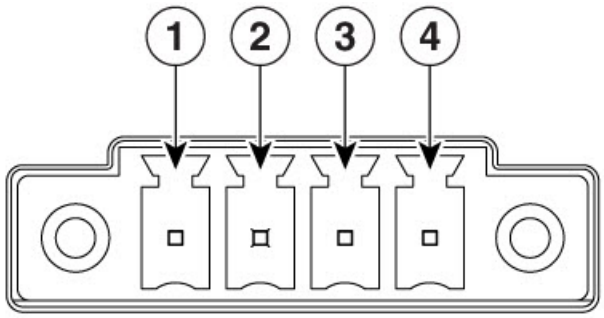
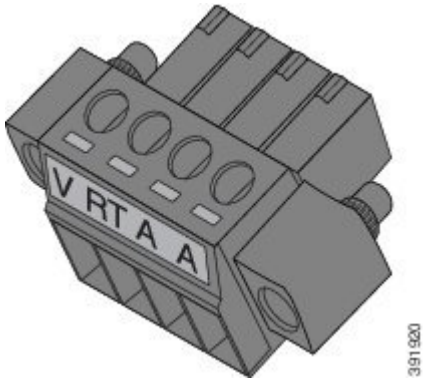


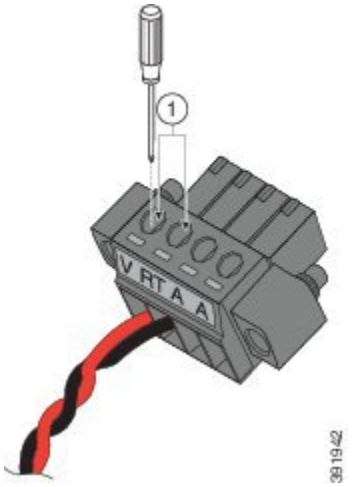
Table 1: Power connector Descriptions

Pin Number	Name	Description
1	DC In +	DC Power Positive Input
2	DC In -	DC Power Return (GND-)
3	AC	Alarm Common
4	AI	Alarm Input

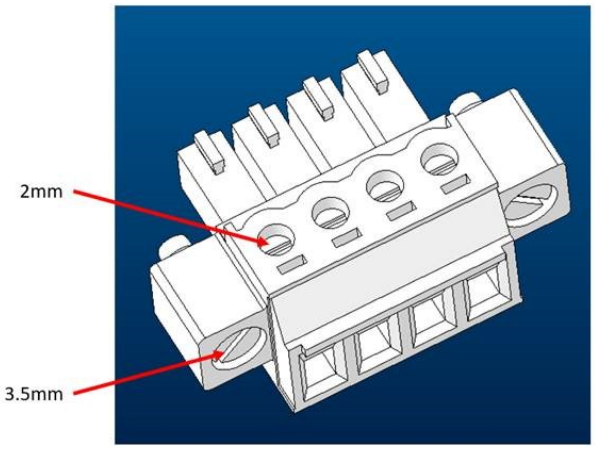
Wiring the DC Power

To connect the DC power on your Cisco IR1101, follow these steps:

1.	Locate the power and alarm connector on the router front panel. **Note** Your connector may not have the labels V RT A A. In the labeled connector, the pins are: V—Positive DC power connection RT— Return DC power connection A— Alarm Common A— Alarm Input	

2.	Identify the connector positive and return DC power connections. The connections left to right are: **1.** Positive DC power connection **2.** Return DC power connection **3.** Alarm Common **4.** Alarm Input	
3.	Measure two strands of twisted-pair copper wire (18-to-20 AWG) long enough to connect to the DC power source.	
4.	Using an 18-gauge wire-stripping tool, strip each of the two twisted pair wires coming from each DC-input power source to 0.25 inch (6.3 mm) ± 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.	
5.	Remove the two captive screws that attach the power and alarm connector to the router, and remove the connector.	
6.	On the power and alarm connector, insert the exposed part of the positive wire into the connection labeled "V" and the exposed part of the return wire into the connection labeled "RT". Make sure that you cannot see any wire lead. Only wire with insulation should extend from the connector. **Note** Use the same method for wiring the alarm connections.	 1—Power connector captive screws
7.	Use a ratcheting torque flathead screwdriver to tighten the power connector captive screws (above the installed wire leads) to their proper torque. See the figure and details below.	
8.	Connect the other end of the positive wire to the positive terminal on the DC power source, and connect the other end of the return wire to the return terminal on the DC power source. Connect the other end of the Alarm wires to your alarm source.	

Refer to the following graphic for details on blade size and torque:



Torque to the following values:

- Flathead 2mm screwdriver for top power supply screws to 2 inch LBF
- Flathead 3.5mm screwdriver for power supply mating screws to 1 - 1.6 inch LBF

Serial Port Cable

One of the more common causes for tech support calls to Cisco is improper pinouts for serial port cables. This section will describe the different components that make up the serial cabling for the IoT routers.

Note The most common type of serial connector found is the DB9. That will be the focus for this section.

One of the popular ways to build a serial cable is through the use of a RJ-45 to DB9 adapter. These adapters can be ordered from numerous sources Online, or purchased in electronics stores. They typically come as a fixed RJ-45 female connector with loose wires, which can be inserted into a DB9 connector to match the pinouts that you need. See the following graphic.

Figure 2: RJ-45 to DB9 Adapter



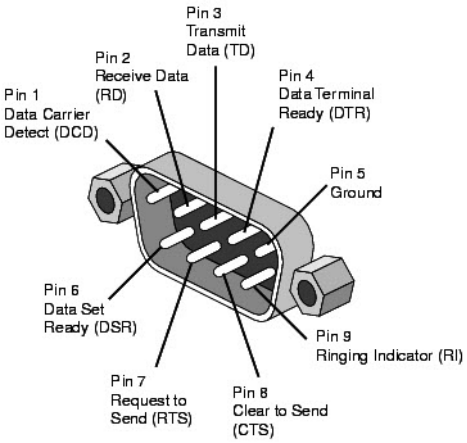
Make note of the front side versus the back side of the connector. This is important when pinning the wires into the connector. In the graphic above, the front of the DB9 connector is present. When it is pinned, it becomes the male side of the connector.

DB9 Adapter Side

The loose side of the adapter is the DB9 side.

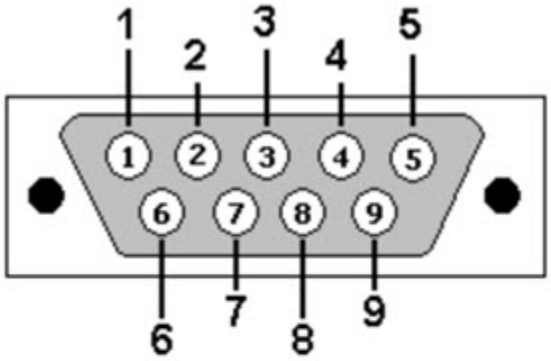
See the following graphic for an example of a typical DB9 connector with the signal names.

Figure 3: RS-232 DB9 Male connector Male View

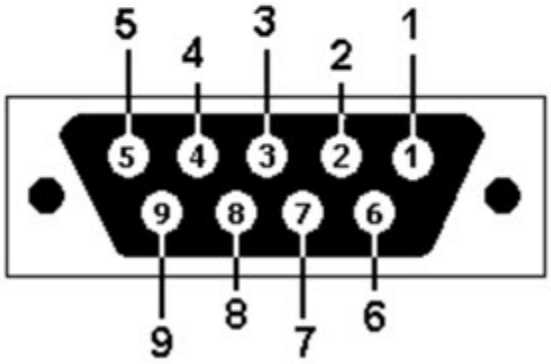


A common cause of confusion when building a connector is the perspective of how you are viewing the pinouts. The pinouts are different from the male versus female views when building the connector. See the following graphic.

Figure 4: DB9 Pinout Views



DB9: View looking into male connector



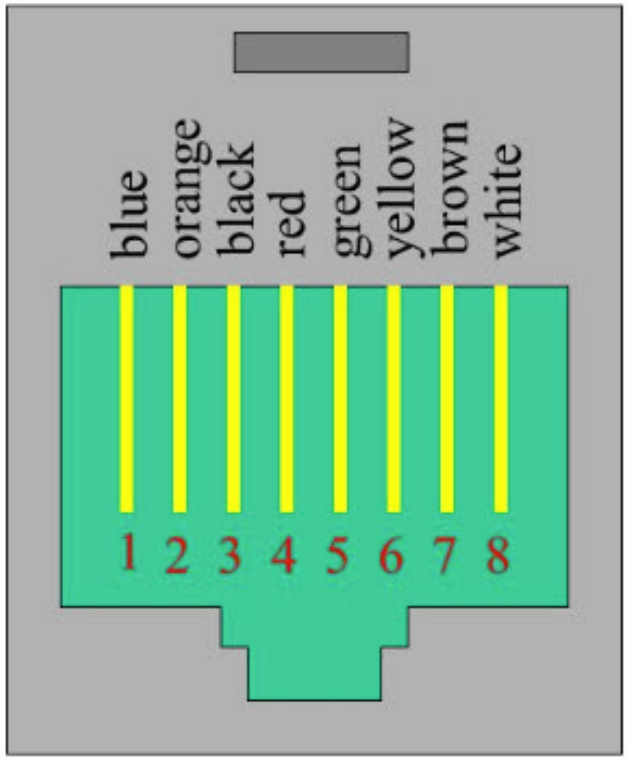
DB9: View looking into female connector

RJ-45 Adapter Side

The RJ-45 female side of the connector, as previously mentioned, has fixed wires on the connector. Refer to the following graphic for the pinouts, as well as the wire colors.

Note White can also be Gray, depending on the adapter manufacturer.

Figure 5: RJ-45 Female Pinouts



Now that both sides of the adapter have been explained, the next step is to place the pins into the proper holes of the DB9 side of the connector. This is done with the use of a pinning tool. An example of a common pinning tool is found in the following graphic.

Figure 6: Pinning Tool



There is a very good video on the use of a pinning tool that is found here .

The proper pinouts for a serial port are found in the following two tables.

Table 2: RJ45 to DB9 Male Adapter

RJ-45 Pins	Wire Color	DB9 Pins
1	Blue	6
2	Orange	1
3	Black	4
4	Red	5
5	Green	2
6	Yellow	3
7	Brown	8
8	White or Gray	7

Note The above table describes the pinouts for a RJ45 to DB9 (male) Adapter. This allows connection from a local RJ45 DTE port to a far-end DCE DB9 port.

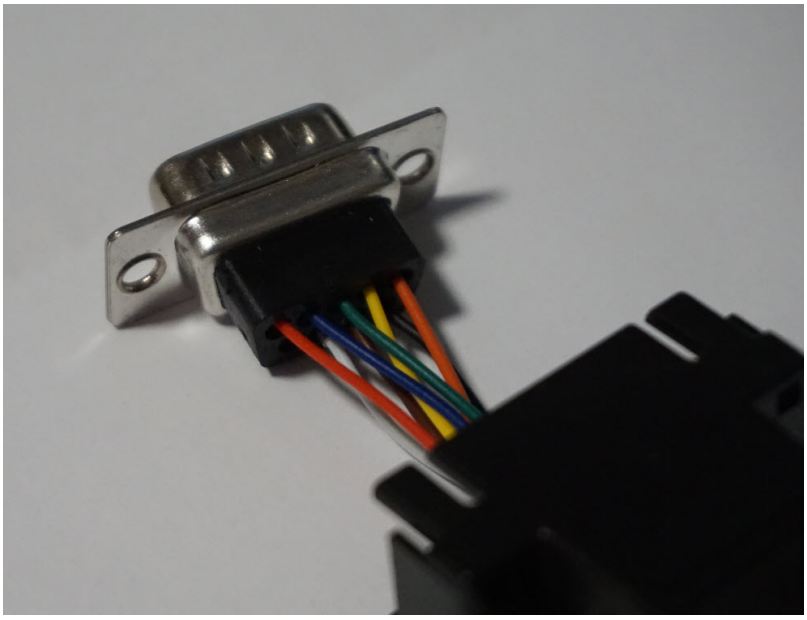
Table 3: RJ45 to DB9 Female Null Modem Adapter

RJ-45 Pins	Wire Color	DB9 Pins
1	Blue	4
2	Orange	1
3	Black	6
4	Red	5
5	Green	3
6	Yellow	2
7	Brown	7
8	White or Gray	8

Note the above table describes the pinouts for a RJ45 to DB9 (female) Null Modem Adapter. This allows connection from a local RJ45 DTE port to a far-end DTE DB9 port.

Place the pins into their proper sockets using the pinning tool, and when that is complete you should have a connector that looks similar to the following picture.

Figure 7: Completed Pinning



Snap the DB9 side of the adapter into place on the plastic connector holding the RJ-45 side of the connector. When this is complete, your connector is ready to use.

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 the Front Panel Icons and LEDs.