



# Installing the Grounding Lug on Cisco 2600 Series and Cisco 3600 Series Routers

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For some types of network connections, a grounding lug must be installed on Cisco 2600 series and Cisco 3600 series routers to ensure proper electrical protection. The grounding lug must be installed before certain network modules are used.



**Note**

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Grounding lugs are necessary for Cisco 2600 series and Cisco 3600 series routers using the NM-1V, NM-2V, NM-8AM, NM-16 and NM-16AM network modules.

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**Note**

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Use this document with the appropriate hardware installation guide and Regulatory Compliance and Safety Information document.

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# Safety Recommendations

Follow these guidelines to ensure general safety:

- Keep the chassis area clear and dust-free during and after installation.
- Do not wear loose clothing that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- Wear safety glasses when working under any conditions that might be hazardous to your eyes.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.

## Warning Definition



Warning

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. To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.

**Waarschuwing** 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 standaard maatregelen om ongelukken te voorkomen. Voor vertalingen van de waarschuwingen die in deze publicatie verschijnen, kunt u het document *Regulatory Compliance and Safety Information* (Informatie over naleving van veiligheids- en andere voorschriften) raadplegen dat bij dit toestel is ingesloten.

**Varoitus** Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista. Tässä julkaisussa esiintyvien varoitusten käännökset löydät laitteen mukana olevasta *Regulatory Compliance and Safety Information* -kirjasesta (määräysten noudattaminen ja tietoa turvallisuudesta).

**Attention** Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions d'avertissements figurant dans cette publication, consultez le document *Regulatory Compliance and Safety Information* (Conformité aux règlements et consignes de sécurité) qui accompagne cet appareil.

**Warnung** Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewußt. Übersetzungen der in dieser Veröffentlichung enthaltenen Warnhinweise finden Sie im Dokument *Regulatory Compliance and Safety Information* (Informationen zu behördlichen Vorschriften und Sicherheit), das zusammen mit diesem Gerät geliefert wurde.

**Avvertenza** Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti. La traduzione delle avvertenze riportate in questa pubblicazione si trova nel documento *Regulatory Compliance and Safety Information* (Conformità alle norme e informazioni sulla sicurezza) che accompagna questo dispositivo.

**Advarsel** Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskade. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker. Hvis du vil se oversettelser av de advarslene som finnes i denne publikasjonen, kan du se i dokumentet *Regulatory Compliance and Safety Information* (Overholdelse av forskrifter og sikkerhetsinformasjon) som ble levert med denne enheten.

**Aviso** Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes. Para ver as traduções dos avisos que constam desta publicação, consulte o documento *Regulatory Compliance and Safety Information* (Informação de Segurança e Disposições Reguladoras) que acompanha este dispositivo.

**¡Advertencia!** Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes. Para ver una traducción de las advertencias que aparecen en esta publicación, consultar el documento titulado *Regulatory Compliance and Safety Information* (Información sobre seguridad y conformidad con las disposiciones reglamentarias) que se acompaña con este dispositivo.

**Warning!** Denna varningssymbol 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 vanligt förfarande för att förebygga skador. Se förklaringar av de varningar som förekommer i denna publikation i dokumentet *Regulatory Compliance and Safety Information* (Efterrättelse av föreskrifter och säkerhetsinformation), vilket medföljer denna anordning.

## Required Tools and Equipment



Warning

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**Only trained and qualified personnel should be allowed to install or replace this equipment.**

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Installation might require some tools and equipment that are not provided as standard equipment with the router. Following are the tools and parts required for a typical router installation:

- Flat-blade screwdrivers: small, 3/16-in. (0.476 cm) and medium, 1/4-in. (0.625 cm)
- No. 2 Phillips screwdriver
- ESD-preventive wrist strap
- Tape
- Number 6 gauge grounding wire
- Pliers to connect grounding wire to connector

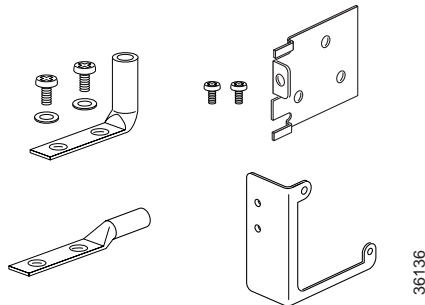
The grounding lugs kit consists of:

- Cisco 3620 grounding lug bracket
- Cisco 3640 grounding lug bracket
- Angled grounding lug (for Cisco 2600 series and Cisco 3660 routers)
- Straight grounding lug (for Cisco 3620 and Cisco 3640 routers)

- 2 bracket screws (to attach the bracket to the chassis)
- 2 grounding lug screws (to attach the grounding lug to the bracket or chassis)

The contents of the grounding lug kit are shown in Figure 1.

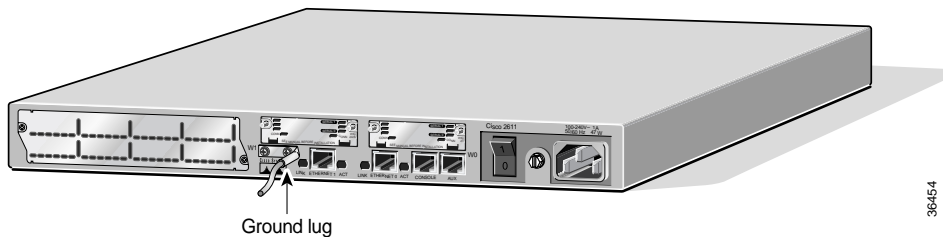
*Figure 1 Cisco Grounding Lug Kit Contents*



## Installing the Grounding Lug on a Cisco 2600 Series Router

This section describes the procedure to connect the grounding lug to a Cisco 2600 series router. Figure 2 shows the typical location for placing the grounding lug on the router.

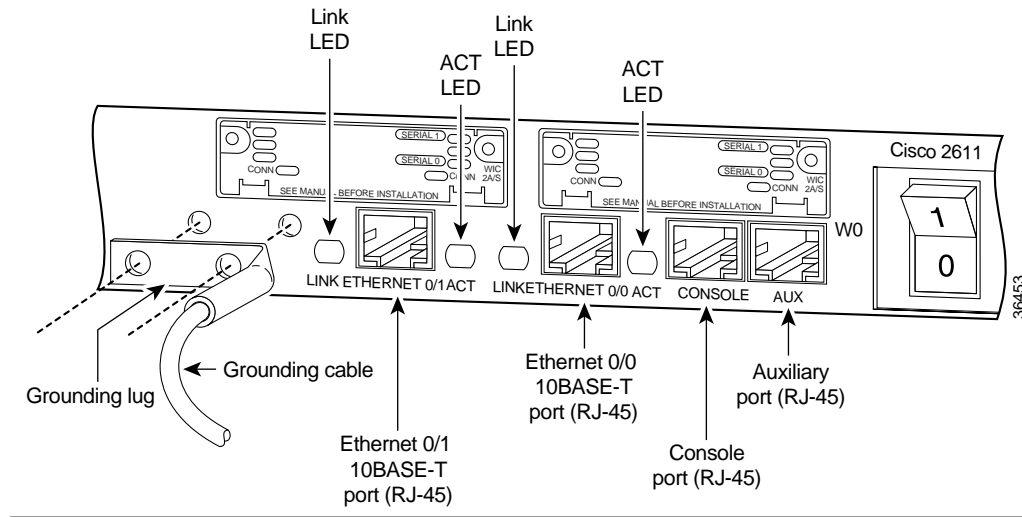
*Figure 2 Cisco 2600 Series Grounding Lug Location*



To connect a grounding wire to the grounding lug on a Cisco 2600 series router, complete the following tasks:

- 
- Step 1** Place a number 6 gauge grounding wire in the grounding lug connector.
  - Step 2** Squeeze the grounding lug connector until the grounding wire is firmly in place.
  - Step 3** Mount the grounding lug to the Cisco 2600 series chassis using the supplied screws as shown in Figure 3.

Figure 3 Cisco 2600 Series Grounding Lug Installation



## Installing the Grounding Lug on a Cisco 3620 or Cisco 3640 Router

To attach the grounding lug to your router chassis, complete the following tasks:

- Step 1** Turn OFF power to the router. However, to channel ESD voltages to ground, do not unplug the power cable. Remove all network interface cables, including telephone cables, from the rear panel.

The following warning applies to routers that use a DC power supply:



**Warning**

**Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.**

- Step 2** Use a no. 2 Phillips screwdriver to remove either of the following:
- 1 mounting screw from the power supply on the right side of the Cisco 3620 router rear panel
  - 2 mounting screws from the power supply on the right side of the Cisco 3640 router rear panel

Figure 4 and Figure 5 show Cisco 3620 DC and AC power supplies; Figure 6 and Figure 7 show Cisco 3640 DC and AC power supplies. The DC and AC power supplies for these router models differ in appearance, but the number and position of the mounting screws are the same for each platform.

Figure 4 Cisco 3620 DC Power Supply Mounting Screw

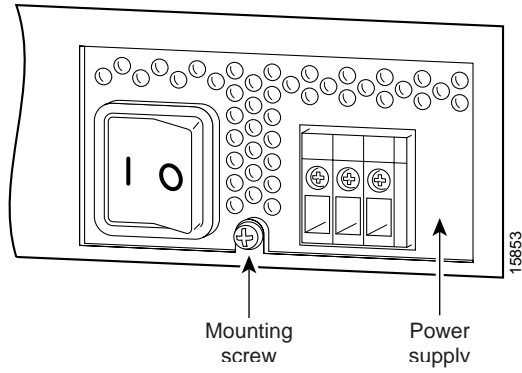


Figure 5 Cisco 3620 AC Power Supply Mounting Screw

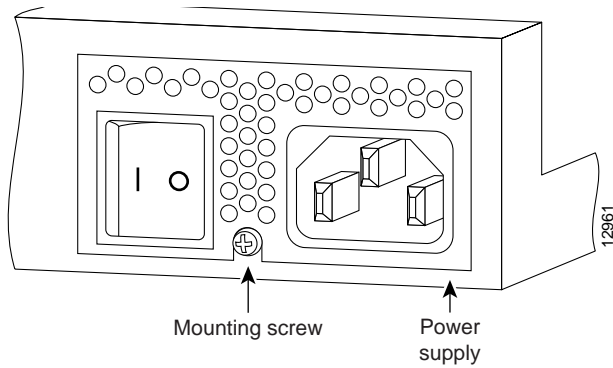
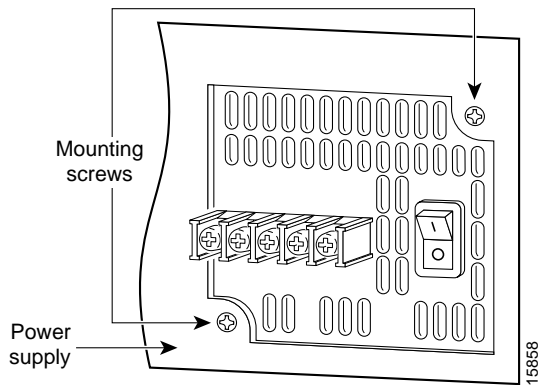
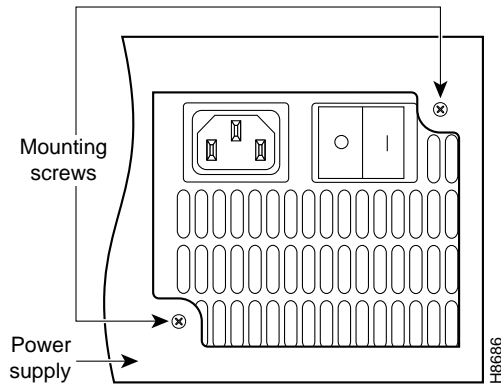


Figure 6 Cisco 3640 DC Power Supply Mounting Screws

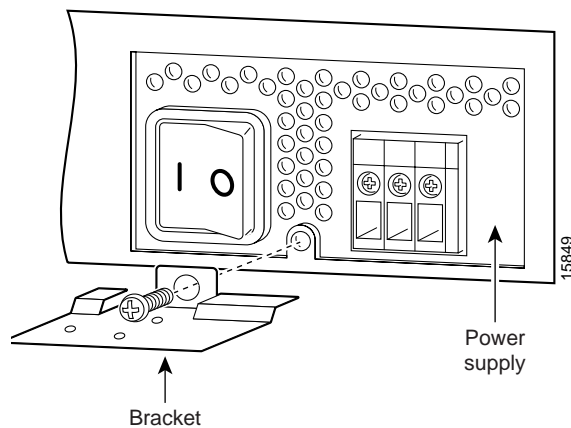


**Figure 7** Cisco 3640 AC Power Supply Mounting Screws

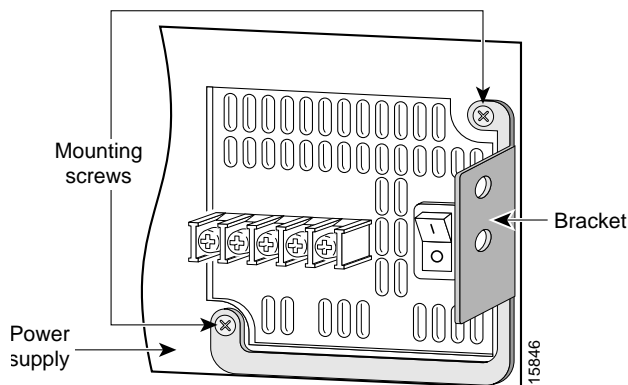


**Step 3** Attach the bracket over the power supply using the screw(s) that you removed in Step 2. (See Figure 8 and Figure 9.)

**Figure 8** Attaching the Bracket over the Cisco 3620 Power Supply



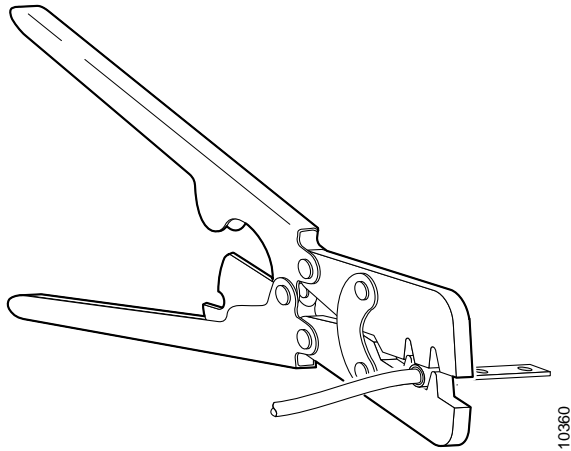
**Figure 9** Attaching the Bracket over the Cisco 3640 Power Supply



**Step 4** Strip one end of the 6-AWG wire to expose approximately 0.75 in. (20 mm).

**Step 5** Crimp the grounding lug around the wire. (See Figure 10.)

**Figure 10** Crimping the Lug Around the Wire

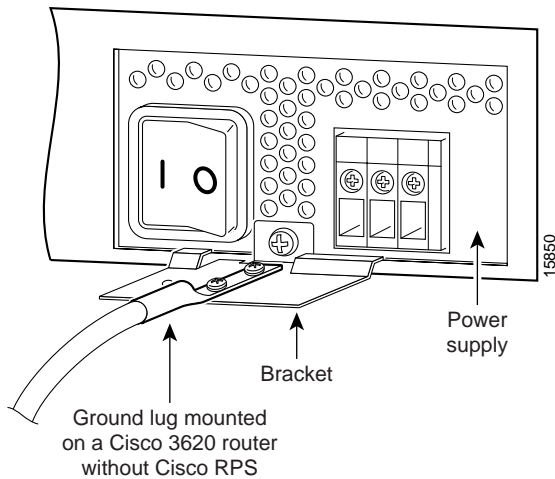


**Step 6** Use the no. 2 Phillips screwdriver to fasten the grounding lug to the bracket on Cisco 3620 and Cisco 3640 routers. (See Figure 11, Figure 12, and Figure 13.)



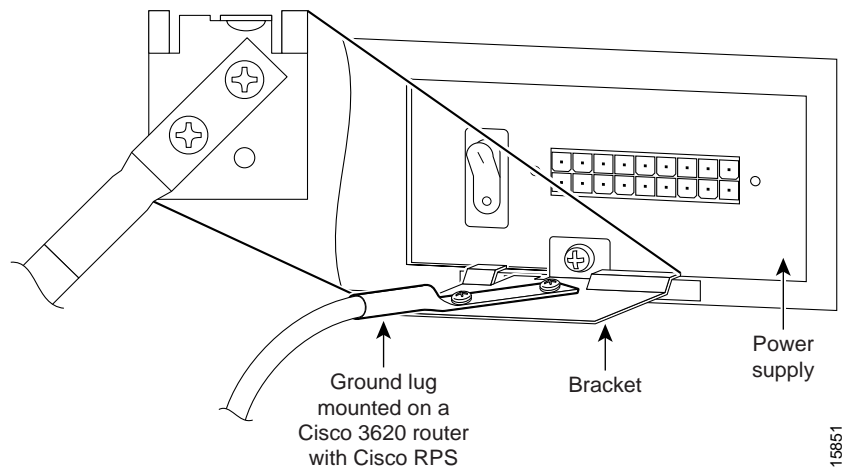
**Note** If your Cisco 3620 router is connected to an redundant power supply (RPS) unit, fasten the grounding lug to its bracket diagonally as shown in Figure 12. This modified installation allows clearance for the RPS cable.

**Figure 11** Grounding Lug Fastened to Bracket on Cisco 3620 Power Supply

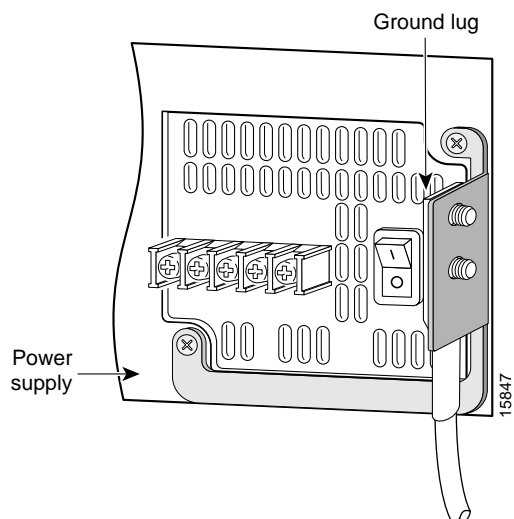




**Figure 12** Grounding Lug Fastened to Bracket on Cisco 3620 Power Supply with RPS



**Figure 13** Grounding Lug Fastened to Bracket on Cisco 3640 Power Supply



- Step 7** Connect the other end of the grounding lug wire to a grounding point at your site.
- Step 8** If you have a Cisco 3620 router, apply the “Disconnect All Connections Before Opening the Cover” label to the upper part of the power supply. (See Figure 14.)

If you have a Cisco 3640 router, apply the “Disconnect All Connections Before Opening the Cover” label to the upper part of the power supply, and apply the supplied voltage rating label for your power supply to the lower part of the bracket. (See Figure 15.)

Figure 14 Cisco 3620 Power Supply Label

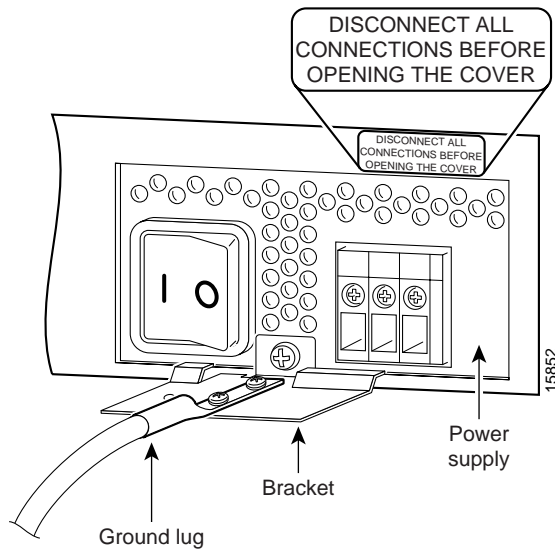
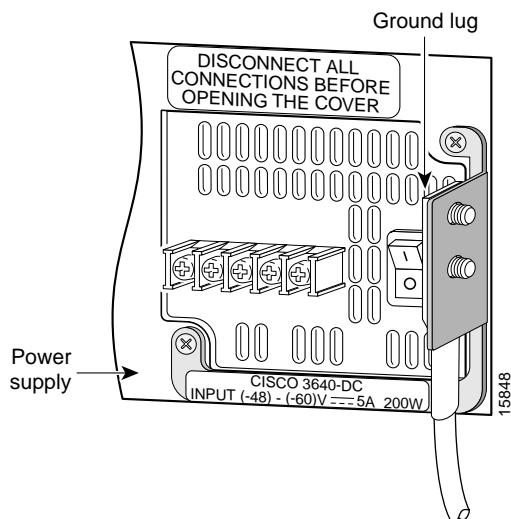


Figure 15 Cisco 3640 Power Supply Labels



**Step 9** Reinstall network cables, and turn ON power to the router.

  
Caution

**NEBS/ETSI Intra-building Lightning Requirement**

This equipment is suitable for connection to intra-building or nonexposed wiring or cabling only. This cabling must be shielded.

The following warning applies to routers that use a DC power supply:



Warning

After wiring the DC power supply, remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position.

## Installing the Grounding Lug on a Cisco 3660 Router

To attach the grounding lug to your router chassis, complete the following tasks:

- Step 1** Turn OFF power to the router. However, to channel ESD voltages to ground, do not unplug the power cable. Remove all network interface cables, including telephone cables, from the rear panel.

The following warning applies to routers that use a DC power supply:

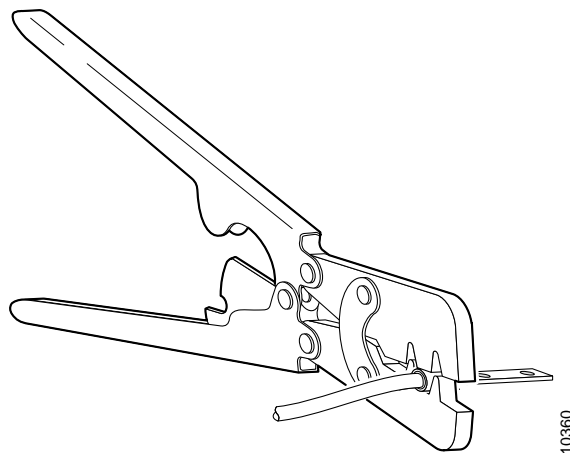


Warning

Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.

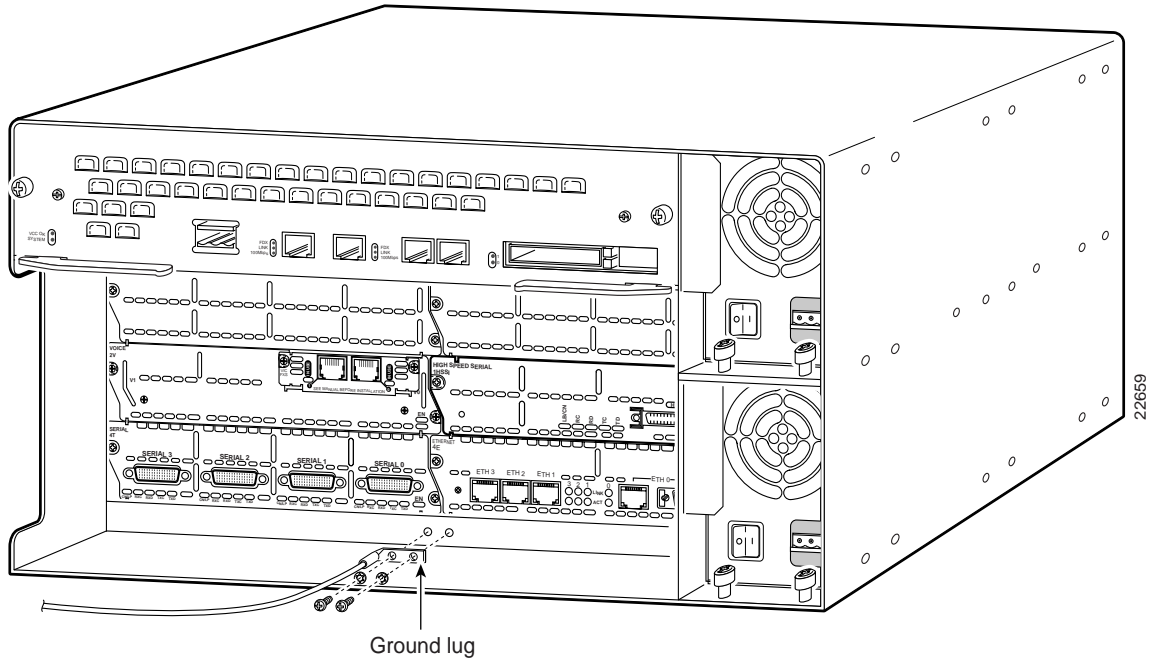
- Step 2** Strip one end of the 6-AWG wire to expose approximately 0.75 in. (20 mm).  
**Step 3** Crimp the grounding lug around the wire. (See Figure 16.)

*Figure 16 Crimping the Lug Around the Wire*



- Step 4** Use the no. 2 Phillips screwdriver to fasten the grounding lug to the Cisco 3660 router chassis. (See Figure 17.)

Figure 17 Grounding Lug Fastened to Cisco 3660 Chassis



**Step 5** Connect the other end of the grounding lug wire to a grounding point at your site.

  
Caution

**NEBS/ETSI Intrabuilding Lightning Requirement**

This equipment is suitable for connection to intrabuilding or nonexposed wiring or cabling only. This cabling must be shielded.

**Step 6** Turn ON power to the router.

The following warning applies to routers that use a DC power supply:

  
Warning

After wiring the DC power supply, remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position.

## For More Information

For more information about Cisco 2600 series routers, Cisco 3600 series routers, and associated network modules and WAN interface cards, refer to the following documents:

- *Cisco 2600 Series Hardware Installation Guide*
- *Cisco 3600 Series Hardware Installation Guide*
- *Cisco Network Module Hardware Installation Guide*

For technical assistance, contact the Technical Assistance Center. In North America, TAC can be reached at 800 553-2447 or 408 526-7209. For other telephone numbers and TAC e-mail addresses worldwide, consult the following web site:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>.

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