

# HP UPS R5000

## Installation Instructions



## Important Safety Information

Before installation, read *Important Safety Information* on the Documentation CD.

Documentation CD قبل التثبيت، اقرأ معلومات هامة حول السلامة على القرص المضغوط.

Před instalací si přečtěte příručku *Důležitá bezpečnostní informace* na disku CD.

安裝之前，請閱讀文檔 CD 上的重要安全信息。

安裝前，請閱讀說明文件光碟上的「重要的安全性資訊」。

Læs dokumentet *Vigtige sikkerhedsoplysninger* på dokumentations-cd'en, før produktet installeres.

Lesen Sie vor der Installation die *Sicherheitshinweise* auf der Documentation CD.

Enne installimist vt dokumentatsiooni CD-lt peatükki „Tähtis ohutusteave“.

Antes de la instalación, lea la sección *Información de seguridad importante* del CD Documentación.

Avant l'installation, lisez les *informations importantes relatives à la sécurité* CD Documentation.

Πριν την εγκατάσταση, διαβάστε *Σημαντικές πληροφορίες ασφαλείας* στο CD Documentation.

לפני ההתקנה, קרא את המידע הבטיחותי החשוב שב-Documentation CD.

Prije ugradnje, pročitaite *Važne sigurnosne informacije* na dokumentacijskom CD-u.

Prima dell'installazione, leggere sul CD le *Informazioni importanti sulla sicurezza*.

インストール前に、Documentation CDの「安全に使用していただくために」をお読みください。

설치하기 전에 Documentation CD의 주요 안전 수칙을 읽으십시오.

Pirms instalācijas, izlasiet drošības informāciju dokumentācijas CD.

Prieš diegdami perskaitykite *Svarbią saugos informaciją* dokumentacijos CD.

Telepítés előtt olvassa el a dokumentációs CD *Fontos biztonsági tudnivalók* dokumentumát.

Lees de *Belangrijke veiligheidsinformatie* op de documentatie-cd voordat u de installatie uitvoert.

Les "Viktig sikkerhetsinformasjon" på dokumentasjons-CDen før du installerer dette produktet.

Przed instalacją przeczytaj *Ważne informacje dotyczące bezpieczeństwa* na dysku CD Documentation.

Antes da instalação, leia as *Informações importantes sobre Segurança* no CD da Documentação.

Перед установкой ознакомьтесь с разделом *Указания по технике безопасности*

на компакт-диске «Документация».

Pred inštaláciou si prečítajte časť *Dôležité bezpečnostné informácie* na disku Documentation CD.

Pred namestitvijo preberite *Pomembne varnostne informacije* na CD-ju Documentation.

Tärkeisiin turvatietoihin" Documentation CD -levyllä ennen tuotteen asentamista.

Läs dokumentet *Viktig säkerhetsinformation* på dokumentations-cd:n innan du installerar denna produkt.

Yüklemeden önce, Documentation CD'sindeki *Önemli Güvenlik Bilgileri*'ni okuyun.

Перед установкою прочитайте *Важливі відомості з безпеки* на CD документації.

## Translated instructions

For translated instructions, see the documentation provided on the HP website ([http://www.hp.com/support/UPSR5000\\_Manuals](http://www.hp.com/support/UPSR5000_Manuals)).

## Traductions des présentes instructions

Les versions traduites des présentes instructions sont disponibles dans un des documents fournis sur la page d'assistance technique spécifique au produit sur le site Web HP ([http://www.hp.com/support/UPSR5000\\_Manuals](http://www.hp.com/support/UPSR5000_Manuals)).

## Übersetzungen dieser Anweisungen

Übersetzte Versionen dieser Anweisungen sind in einem der Dokumente verfügbar, die auf der produktspezifischen Support-Seite der HP Website ([http://www.hp.com/support/UPSR5000\\_Manuals](http://www.hp.com/support/UPSR5000_Manuals)) angeboten werden.

## Traduzioni di queste istruzioni

Le versioni tradotte di queste istruzioni sono disponibili in uno dei documenti forniti nella pagina di supporto specifica del prodotto del sito Web HP ([http://www.hp.com/support/UPSR5000\\_Manuals](http://www.hp.com/support/UPSR5000_Manuals)).

## Traducción de estas instrucciones

Existen versiones traducidas de estas instrucciones disponibles en la documentación proporcionada en la página de soporte del producto específico del sitio web de HP ([http://www.hp.com/support/UPSR5000\\_Manuals](http://www.hp.com/support/UPSR5000_Manuals)).

## 翻訳されたインストール手順

本製品の翻訳されたインストール手順については、HPのWebサイトで提供されているドキュメントを参照してください。

([http://www.hp.com/support/UPSR5000\\_Manuals](http://www.hp.com/support/UPSR5000_Manuals))

## Overview

The HP UPS R5000 features a 3U rack-mount design and offers power protection for loads up to 5000 VA/4500 W (NA/JPN) or 5000 VA/4500 W (INTL).

To benefit from the latest product enhancements, update to the latest versions of UPS firmware and software.

**NOTE:** To download the latest versions of UPS firmware and software, see the HP website (<http://www.hp.com/go/rackandpower>).

For more information about any of the topics covered in this document, and for safety information and regulatory notices, see the *HP UPS R5000 User Guide* on the HP website ([http://www.hp.com/support/UPSR5000\\_Manuals](http://www.hp.com/support/UPSR5000_Manuals)).

## Precautions

Save these instructions. This document contains important safety instructions that should be followed during installation, operation, and maintenance of the UPS and batteries.

**WARNING:** A risk of personal injury from electric shock and hazardous energy levels exists. The installation of options and routine maintenance and service of this product must be performed by individuals who are knowledgeable about the procedures, precautions, and hazards associated with AC power products.

**WARNING:** To prevent personal injury from earth conductor leakage current:

- Do not operate the UPS while disconnected from the utility power source.
- Disconnect load devices before disconnecting the UPS from the utility power source.



57 kg

126 lb

This symbol indicates that the UPS exceeds the recommended weight for one individual to handle safely.

**WARNING:** To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

# UPS kit contents

- This document
- Documentation CD
- HP Infrastructure Management Pack CD

To download the latest software version, see the HP website (<http://www.hp.com/go/rackandpower>).



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**IMPORTANT:** Do not install the existing HP Management Module software. Only install the HP Power Protector software required for this unit.

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- Warranty information
- Rails, with mounting hardware for square- and round-holed racks
- UPS
- Battery modules, preinstalled
- Front bezel
- HP UPS Network Module, preinstalled
- REPO port and connector block
- Cord retention clips
- DB-9 to RJ-45 configuration cable
- Computer interface cable
- Jumper cords for load equipment power
- Rear mounting brackets, plates, and associated hardware
- Front mounting ears and associated hardware

## Tools and materials

The following tools are required for installation:

- Phillips screwdriver
- 10-mm hex-nut driver

The following items are supplied with the rack:

- Screws
- Hex nuts
- Clip nuts

## Selecting a site



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**WARNING:** To prevent fire or electric shock, install the unit in a temperature- and humidity-controlled indoor environment, free of conductive contaminants.

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When selecting a site, consider the following factors:

- Elevated operating ambient temperature—If the equipment is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment might be greater than room ambient temperature. Install the equipment in an environment compatible with the operating temperature.
- Reduced air flow—In the rack, the rate of air flow required for safe operation of the equipment must not be compromised.
- Circuit overloading—Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of

equipment nameplate ratings should be used when addressing this concern.

- Reliable earthing—Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit, such as the use of power strips.
- Electrical requirements—All models require a dedicated (unshared) branch circuit, suitably rated for the specific UPS as stated in "Input specifications" in the user guide.

## Readying the equipment

1. Check the battery recharge date specified on the label that is affixed to the shipping carton.



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**IMPORTANT:** Do not use the battery if the recharge date has passed. If the date on the battery recharge date label has passed without the battery being recharged, contact an HP authorized service representative for directions.

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2. Transport the packaged unit to its installation location.
3. Unpack the equipment near the rack where the unit will be assembled.



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**CAUTION:** Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and continue to populate the rack from the bottom to the top.

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## Installing the mounting rails



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**WARNING:** To reduce the risk of personal injury or damage to the equipment, be sure that:

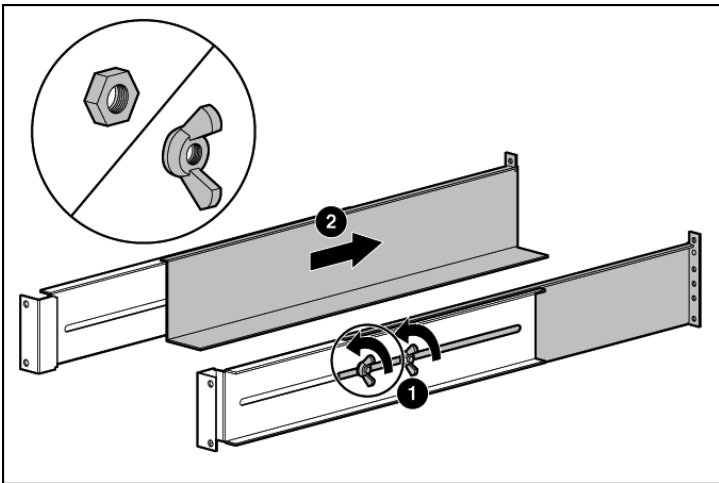
- The leveling feet are extended to the floor.
  - The full weight of the rack rests on the leveling feet.
  - The stabilizing feet are attached to the rack if it is a single-rack installation.
  - The racks are coupled together in multiple-rack installations.
  - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.
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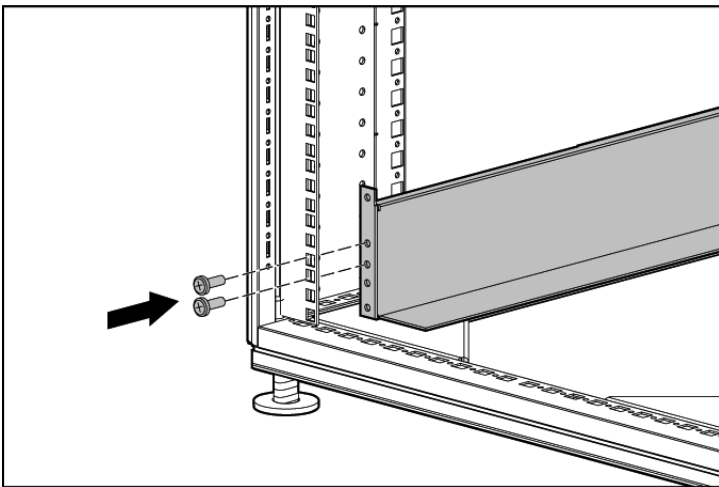
**NOTE:** Mounting hardware for square- and round-holed racks is included in the UPS kit.

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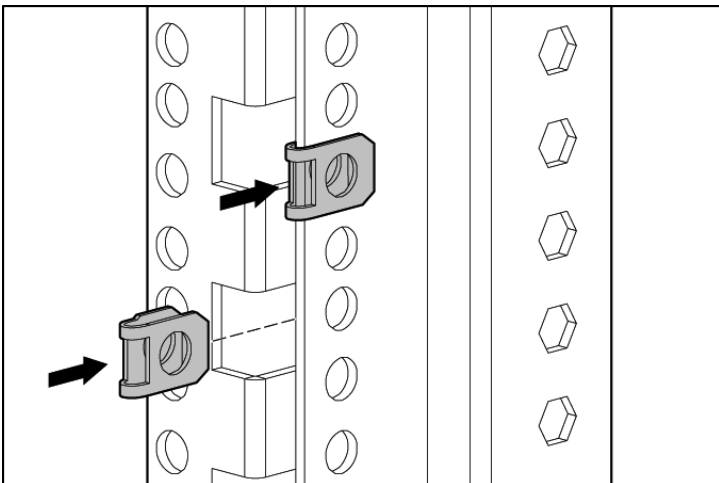
1. Loosen the wing nuts or hex nuts, and then extend the brackets to the appropriate length.



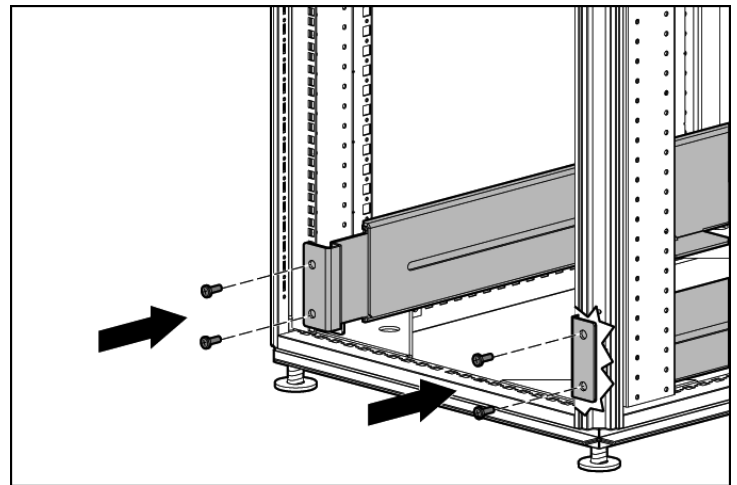
2. Insert screws through the rack into the mounting rail and the front of each mounting bracket.



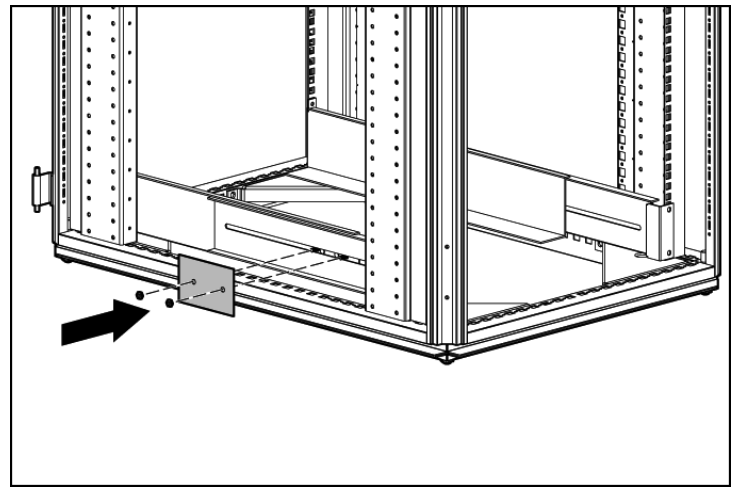
3. Install clip nuts into the rear of the rack.



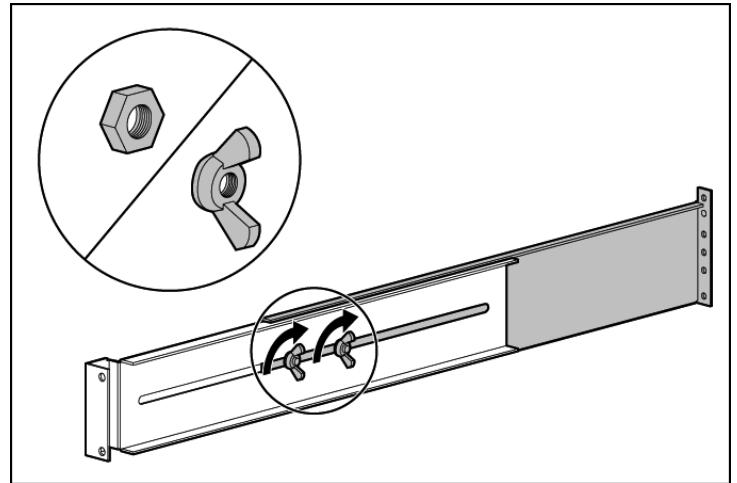
4. Insert screws through the mounting rail into the clip nuts.



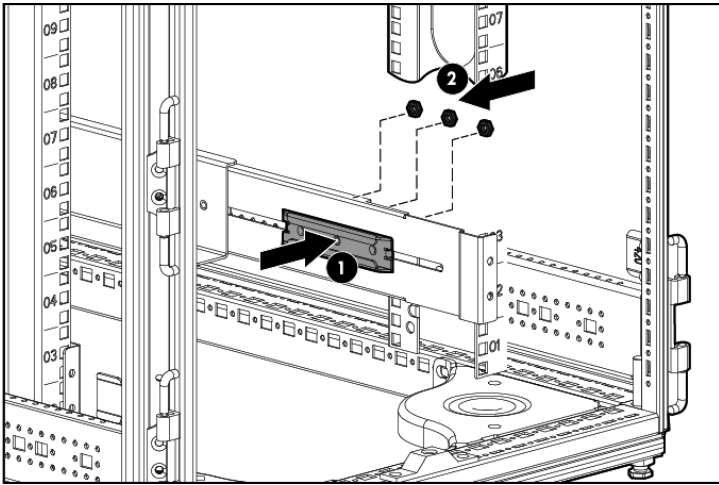
5. Install the rail reinforcement plates and tighten using hex nuts with captive washers included in the kit, instead of the nuts included with the rail.



6. Tighten the wing nuts or hex nuts.



7. Install the rear mounting brackets using hex nuts. Wait until the unit is installed and the brackets are adjusted before tightening the nuts.

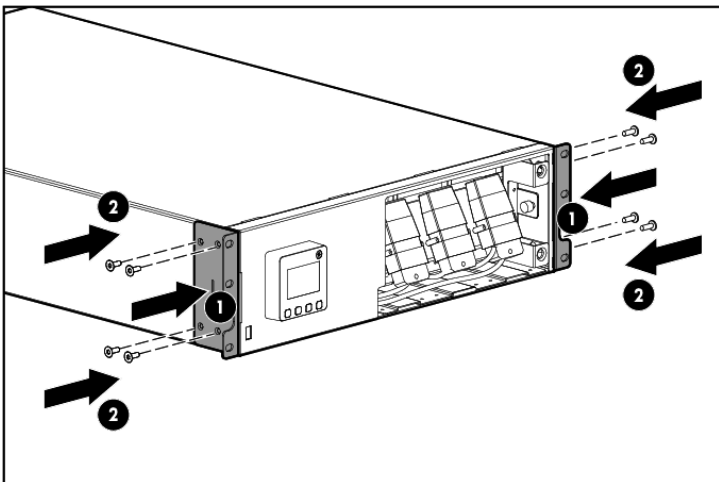


## Installing the UPS

Before installing the UPS, review and observe all warnings in "Precautions (on page 2)."

**⚠ WARNING:** A risk of personal injury or damage to the equipment exists. Uneven loading of equipment in the rack might cause the rack to become unstable. Install the heavier components first, and then continue to populate the rack from the bottom to the top.

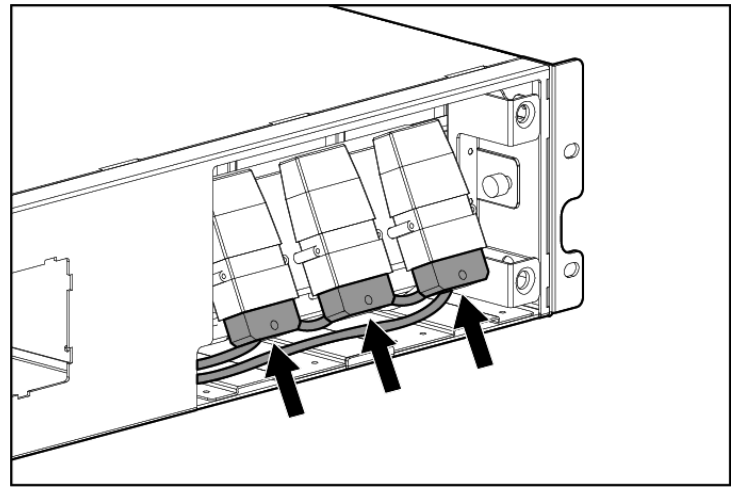
1. Install the mounting rails ("Installing the mounting rails" on page 3).
2. With one person on each side of the carton, lift the chassis and lower it to the floor in front of the rack.
3. Install the mounting ears on the chassis using the screws provided.



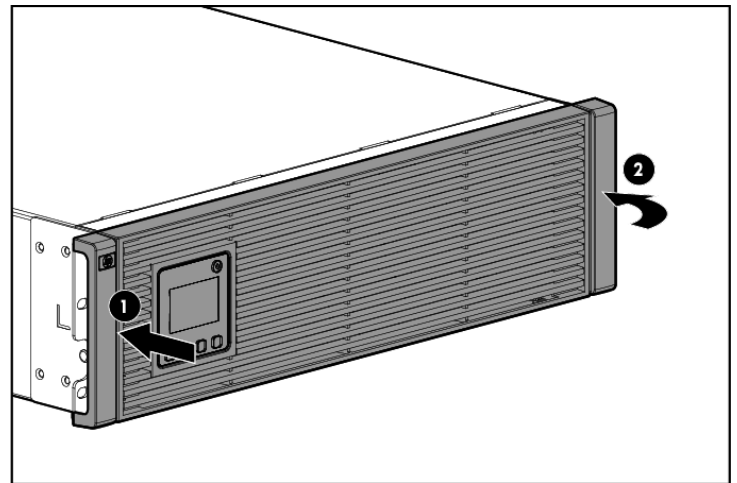
4. With one person on each side, lift the chassis to rail level and slide the chassis on the mounting rails. Be sure that the cleat brackets slide into the channels on the rear stabilization brackets.
5. Attach the chassis to the rack using the supplied screws.

## Connecting the battery leads

**⚠ WARNING:** To prevent personal injury from electric shock or damage to the equipment, remove the battery lead labels before connecting the battery leads.



Attaching the UPS front bezel

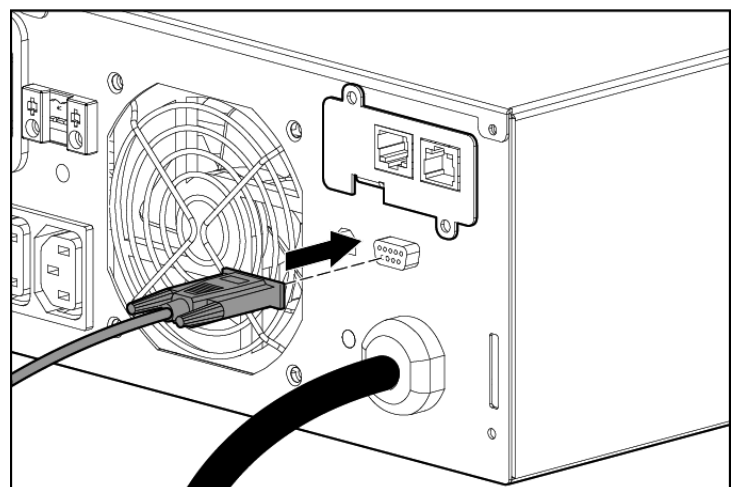


## Connecting the serial communications port

**⚠ CAUTION:** Use only the computer interface cable supplied with the UPS to connect the communications port to the host computer.

**📄 IMPORTANT:** Power protector software requires the communications port to be appropriately cabled to the host computer.

**NOTE:** This port is only used for firmware upgrades. For additional information, see the *HP UPS R5000 User Guide*.



## Configuring a USB to serial converter

**NOTE:** This procedure was tested on the Windows® XP Professional, Windows Server® 2003, and Windows® Vista Enterprise operating systems using the HP USB to serial converter (part number 304098-001). Depending on your system configuration, a driver download might be required to successfully install the converter. The driver can be downloaded from the USB-Drivers website (<http://www.usb-drivers.com/drivers/123/123294.htm>).

To configure a USB port to the COM 1 port on systems that do not have available serial ports:

1. Connect the USB to serial converter to the USB port on your system.
2. For Windows Vista, click **Start**, select **Control Panel**, double-click **System and Maintenance**, and then skip to step 4.

-or-

For Windows XP, click **Start**, select **Control Panel**, click **Performance and Maintenance**, and then click **System**.

-or-

For Windows Server, click **Start**, select **Control Panel**, and then double-click **System**.

3. Click the **Hardware** tab.
4. Click **Device Manager**. The Device Manager screen appears.
5. In the tree displayed in the left panel, click the **Ports (COM & LPT)** branch to expand.
6. Double-click the port that is assigned to your USB to serial converter device. This port is usually named with the device manufacturer's name followed by one of the following:
  - o USB to Serial Bridge (COM 4)
  - o USB Serial port
  - o Communications Port (COM1)The Port Properties screen appears.
7. Click the **Port Settings** tab. The Port Settings screen appears.
8. Click **Restore Defaults**. The following default settings appear:
  - o Bits per second: 9600
  - o Data Bits: 8
  - o Parity: None
  - o Stop bits: 1
  - o Flow control: None

9. Click **Advanced**. The Advanced Settings screen appears.
10. From the COM Port Number drop down menu, select **Com 1** for the USB port number, and then click **OK**.

If COM 1 is being used by another USB port, the following message appears:

This COM name is being used by another device. Using duplicate names can lead to inaccessible devices and changed settings. Do you want to continue?

If this message appears, click **YES**. It might be necessary to disable the program accessing COM 1.

- a. Click **OK**.
- b. For Windows Vista, skip to step 13.

11. For Windows Server, reduce the Receive Buffer and Transmit Buffer to the low setting by scrolling down to select **low (1)**.
12. Be sure that the **Use FIFO buffers (requires 16550 compatible UART)** checkbox is selected.  
  
For Windows XP, the USB settings might be different. Choose the lowest, most dependable Receive and Transmit buffers by using the list menus, radio buttons, or other selection methods.
13. Click **OK** to close the Advanced screen.
14. Click **OK** to close the Device Manager screen.
15. Run the firmware Flash batch file program. Follow the instructions provided with the program.

## Reassigning the USB COM ports

To reassign a device from COM 1 to another port:

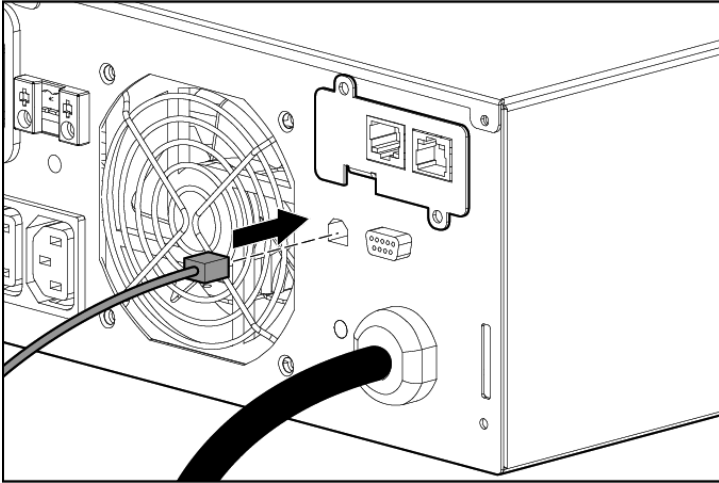
1. From the open Device Manager screen, locate the USB device that is assigned to COM 1.
2. Double-click the port name.  
The Port Properties screen appears.
3. Click the **Port Settings** tab.  
The Port Settings screen appears.
4. Click **Advanced**.  
The Advanced Settings screen appears.
5. Select an available USB port number from the **COM Port Number** drop down menu.
6. Click **OK** to close the Advanced screen.
7. Click **OK** to close the Port Settings screen.
8. Verify that the Device Manager screen shows that the USB to serial converter is assigned to COM 1, and that the other USB device is assigned to a different port.

If the Device Manager screen does not automatically refresh to show the change:

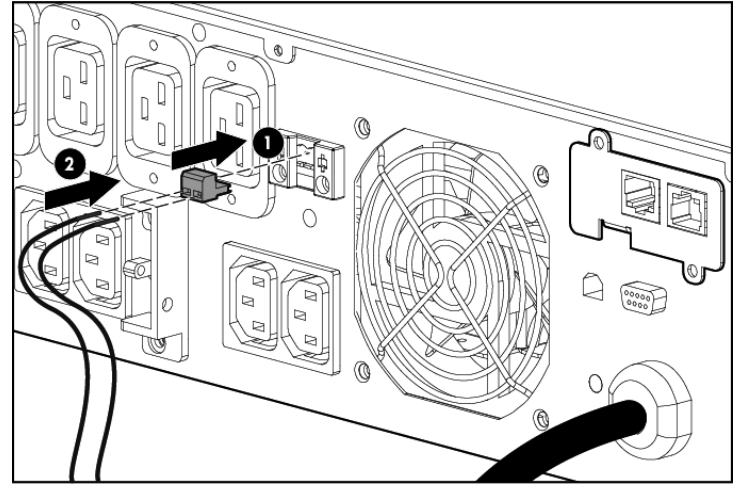
- a. Click **Action**.  
The Action Menu appears.
- b. Click **Scan for hardware changes** to refresh the screen and display the changes.

## Connecting the USB communications port

**NOTE:** This port is only used for firmware upgrades. For additional information, see the *HP UPS R5000 User Guide*.



- Use tie wraps and tie wrap blocks to secure the wires tightly to the rack and the rear of the UPS.



For more information about the REPO port, see "REPO port" in the user guide.

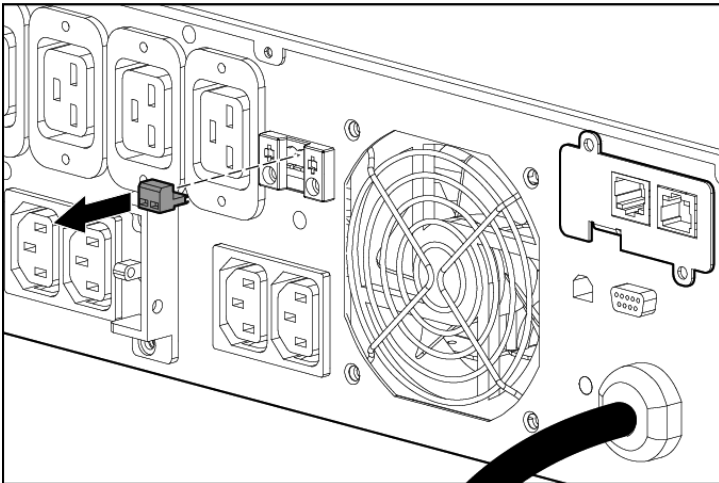
For information about verifying the REPO connection, see "Verifying the REPO port connection" in the user guide.

## Connecting the REPO port

**⚠ WARNING:** The pins on the REPO port are polarity sensitive. Be sure to verify polarity while connecting the REPO port.

**⚠ WARNING:** To meet the requirements stated in NEC (NFPA 70) Articles 645-10 and 645-11, a UPS installed in a computer equipment room must be connected to a REPO circuit.

**🔧 IMPORTANT:** The remote switch must be in the Off (open) position to enable power to the output receptacles.



**NOTE:** Wire the connector block using stranded, nonshielded wire (AWG #22 - #18, or equivalent).

Separate wire pairs are attached to a single, normally-open contact in a parallel connection. HP recommends using different colors for the positive and negative wires.

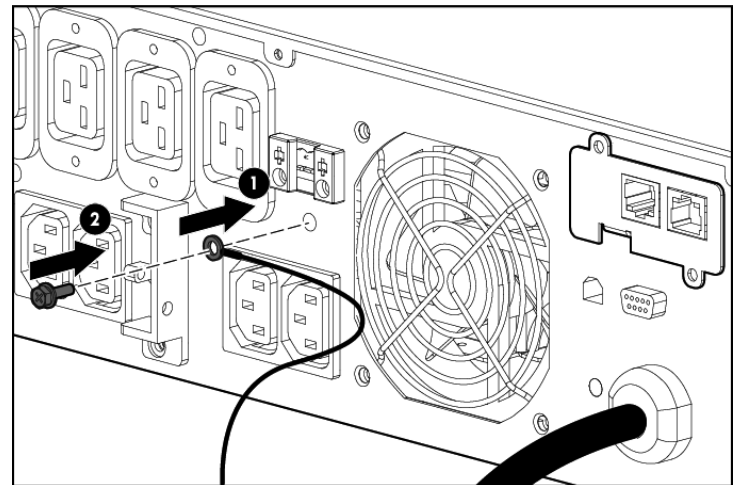
If a connector becomes disconnected and is reconnected with reversed polarity, a REPO is initiated. To avoid REPO port disconnect:

- Minimize wire strain while connecting the REPO port.
- Avoid allowing the wires to hang in the rear of the UPS.

## Connecting the ground bonding cable

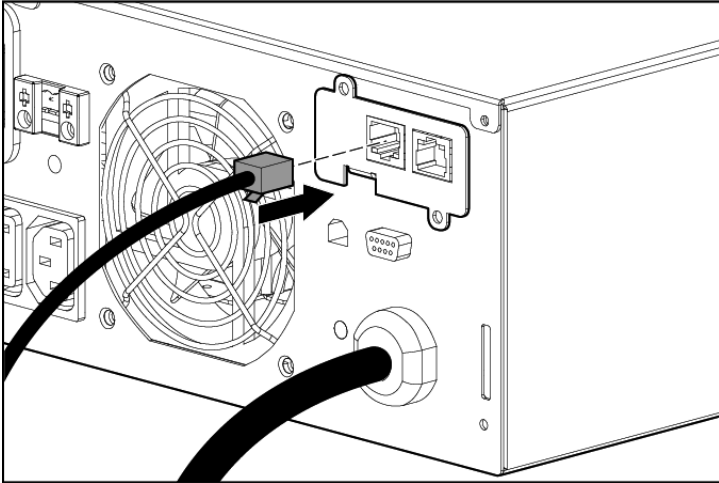
The ground bonding screw is provided as an attachment point for conductors. Use a ground bonding cable if the rack contains any conductors for the purpose of functional grounding or bonding of ungrounded metal parts.

The ground bonding cable is not included.



## Connecting the network cable

Connect a standard Ethernet cable between the network connector on the UPS Network Module and a network jack.



This connection is used to access the UPS Network Module remotely through the web interface. The UPS Network Module also uses the network connection to communicate to the configured HP Power Protector — Clients and to facilitate SNMP-based monitoring.

To configure the UPS Network Module, see "Configuring the UPS Network Module (on page 8)."

## Connecting the UPS to utility power

**⚠ WARNING:** To prevent injury from electric shock or damage to the equipment:

- Plug the input line cord into a grounded (earthed) electrical outlet that is installed near the equipment and is easily accessible.
- Do not disable the grounding plug on the input line cord. The grounding plug is an important safety feature.
- Do not use extension cords.

Connect the UPS to a grounded utility power outlet. When the UPS is plugged in, it automatically enters Standby mode and begins charging the batteries.

## Connecting devices to the UPS

**⚠ CAUTION:** Do not plug laser printers into the UPS output receptacles. The instantaneous current drawn by this type of printer can overload the UPS.

Before connecting devices:

- Verify that the UPS will not overload by checking that the ratings of the devices do not exceed the UPS capacity.
- Evenly distribute connected devices to both circuit breakers. See "UPS output specifications" in the user guide for the maximum current rating for each receptacle.

After verifying that the UPS will not overload:

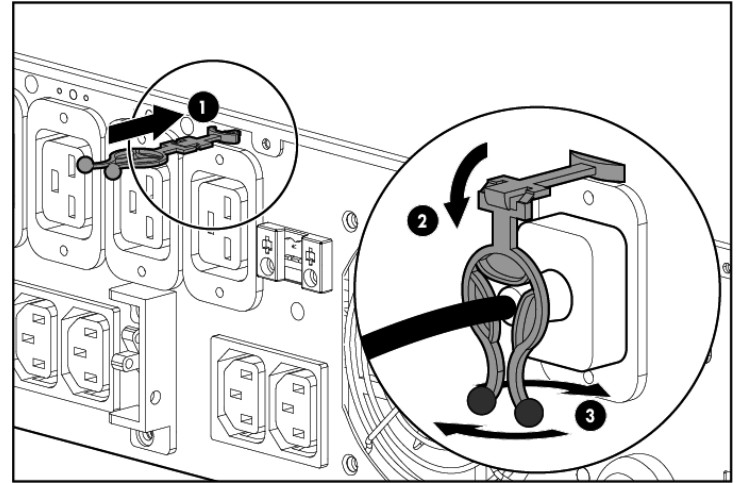
1. Turn on the circuit breakers for load segments 1 and 2.

**NOTE:** The circuit breaker for load segment 1 protects the C19 and C13 outlets but not the large output receptacle.

2. Connect the device power cords to the appropriate output receptacles on the rear panel of the UPS.

To provide additional receptacles, plug a PDU or other device into the high current, large output receptacle. The large output receptacle is part of load segment 1 and can be turned off and on using power management software.

## Connecting the UPS cord retention clips



## Charging the UPS batteries

With the UPS in Standby mode, allow the batteries to charge before putting the UPS into service.



**IMPORTANT:** Charge the batteries for at least 24 hours before supplying backup power to devices. The batteries charge to:

- 80 percent of their capacity within 3 hours
- 100 percent of their capacity within 48 hours

## Starting power to the load

Start power to the load by placing the UPS in Operate mode.



**IMPORTANT:** AC power must be available the first time the UPS is started.

## Configuring the UPS Network Module

**NOTE:** For more information about the UPS Network Module, see the HP Infrastructure Management Pack software CD and documentation for complete details.

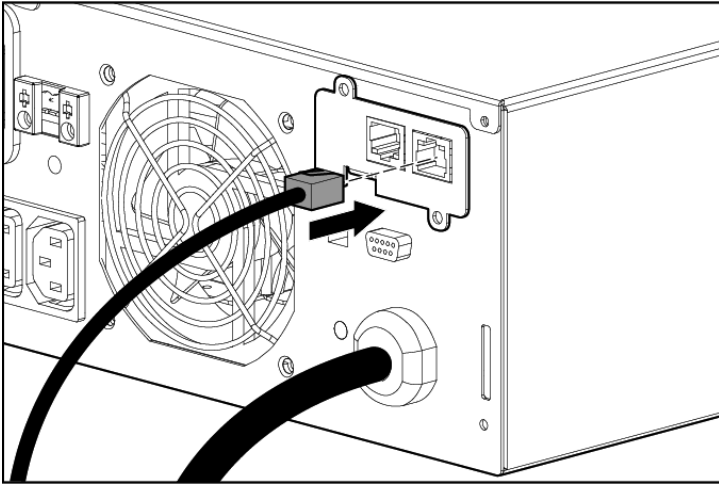
Before configuring the UPS Network Module, be sure that the network cable is connected ("Connecting the network cable" on page 8).

## Connecting the configuration cable

1. Connect the DB-9 connector on the DB-9 to RJ-45 cable to a serial connector on the host computer.



2. Connect the RJ-45 connector on the DB-9 to RJ-45 cable to the Settings/AUX connector on the UPS Network Module.



This connection is used to access and configure the UPS Network Module network settings locally through a terminal emulation program.

## Launching a terminal emulation program

**NOTE:** HyperTerminal is the serial communication program provided with Microsoft® Windows® and is used in this section as an example for setting up a terminal emulation session. If you are using another utility, the steps might be different.

1. Be sure that the UPS is powered on.
2. On the host computer, click **Start**, and select **Programs>Accessories>Communications>HyperTerminal**. The Connection Description window appears.
3. Enter a description, select an icon for the connection, and then click **OK**. The Connect To window appears.
4. Select the serial connector on the host computer to which the DB-9 to RJ-45 adapter is attached, and then click **OK**. The COM Properties window appears.
5. Select the following parameter values, and then click **OK**.
  - o Bits per second—9600
  - o Data bits—8
  - o Parity—None
  - o Stop bits—1
  - o Flow control—None

## Configuring the UPS Network Module network settings

**IMPORTANT:** Do not install the existing HP Management Module software. Only install the HP Power Protector software required for this unit.

On the terminal emulation session screen running on the host computer:

1. Press any key. The initialization process completes, and you are prompted enter the password.
2. At the prompt, enter `admin`. The HP UPS Network Module Configuration Menu appears.

Use the HP UPS Network Module Configuration Menu to configure the minimum settings required to access the UPS Network Module remotely.

**IMPORTANT:** The IP address assigned to the UPS Network Module must be fixed. If the IP address changes:

- The HP Power Protector — Client loses communication with the UPS Network Module.
- You can lose track of the UPS Network Module URL.

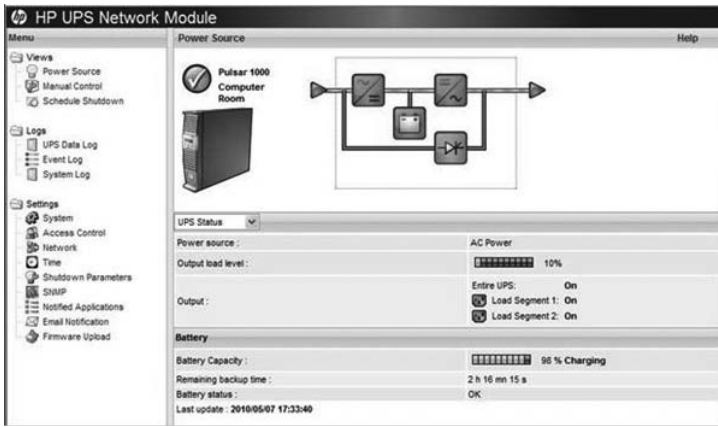
3. If your network is configured with a DHCP server, the network settings are automatically assigned. To view the settings:
  - a. On the Main menu, enter 2 to display the Network Configuration submenu.
  - b. Enter 1 to read the network settings.
  - c. Record the IP address.
  - d. Enter 0 to return to the Main menu.
  - e. Enter 0 to exit the Configuration Menu. The UPS Network Module is operational.
4. If your network is not configured with a DHCP server:
  - a. On the Main menu, enter 2 to display the Network Configuration submenu.
  - b. Enter 2 to modify the network settings.
  - c. Follow the on-screen instructions to enter the static IP parameters. A `Done` message appears when the parameters are saved.
  - d. Enter 0 to return to the Main menu.
  - e. Enter 1 to reset, and then enter 2 to restart the UPS Network Module with the new IP settings.

## Accessing the web interface

**CAUTION:** It is highly recommended that browser access to the UPS Network Module is isolated from outside access using a firewall or isolated network.

1. On a network computer, launch a supported browser. The browser window appears.
2. In the Address field (Microsoft Internet Explorer) or the Location field (Mozilla and Firefox), enter:  
`http://xxx.xxx.xxx.xxx`  
-or-  
`https://xxx.xxx.xxx.xxx`  
where `xxx.xxx.xxx.xxx` is the static IP address of the UPS Network Module. The log in screen appears.
3. Enter the user name in the User Name field. The default user name is `admin`.
4. Enter the password in the Password field. The default password is `admin`.

5. Click **Sign In**. The HP UPS Network Module web interface appears.



## Configuring the UPS Network Module settings

Use the Settings screens of the HP UPS Network Module web interface to configure the UPS Network Module. For more information, see the *HP UPS Network Module User Guide* on the HP website ([http://www.hp.com/support/HPNM\\_Manuals](http://www.hp.com/support/HPNM_Manuals)).

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