IBM UPS Power Protector

Installation and Configuration Guide for KVM Virtualization Architecture

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Note: Before using this information and the product it supports, read the general information in Appendix B, “Notices,” on page 13.

First Edition (October 2013)

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Chapter 1. Introduction

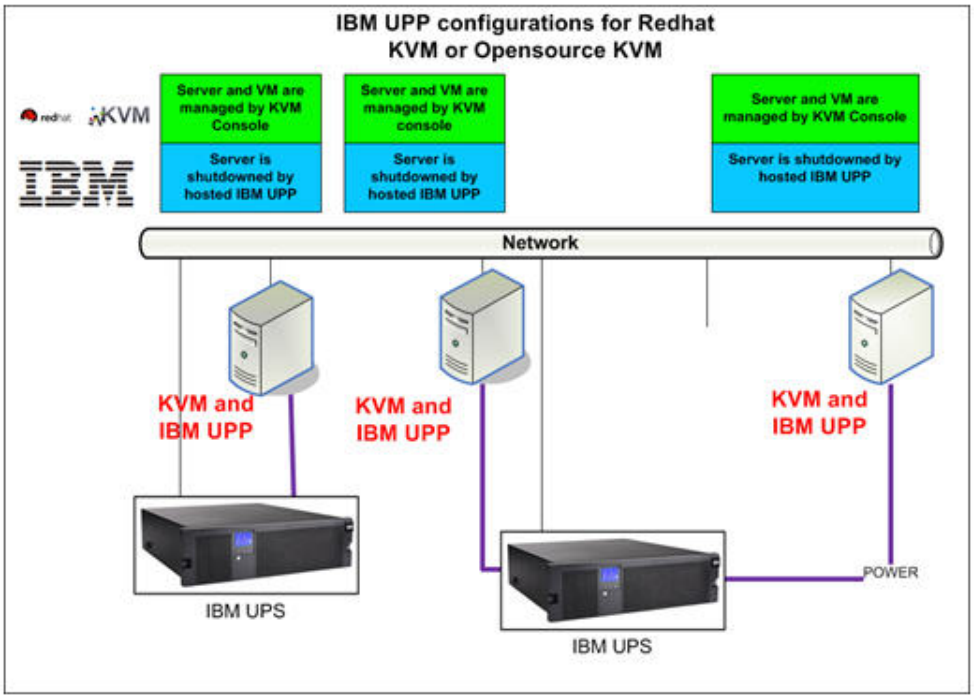
This document provides installation and configuration information for installing IBM® UPS Power Protector on the following Kernel-based Virtual Machine (KVM) virtualization environments:

- KVM 0.12.1.2 on Red Hat Enterprise Linux 6
- KVM 0.12.1.2 on Debian GNU/Linux version 5.0 (Lenny)

Kernel-based Virtual Machine (KVM) is an open source technology that provides a full solution for virtualization on Linux. (For more information about KVM, see http://www.linux-kvm.org.)

UPS Power Protector discovers and monitors IBM UPSs that are connected to a network either by a network management card or by a proxy. It also provides local computer graceful shutdown. The UPS Power Protector interface can be accessed remotely using a web browser.

UPS Power Protector provides a graceful shutdown for Red Hat KVM and Open source KVM, which is illustrated in the following architecture diagram. UPS Power Protector is installed on each KVM system.



For more information about installing and using UPS Power Protector, see the *IBM UPS Power Protector User's Guide* at http://www.ibm.com/support/entry/portal/docdisplay?Indocid=EATN-UPPWIN.

Notices and statements in this document

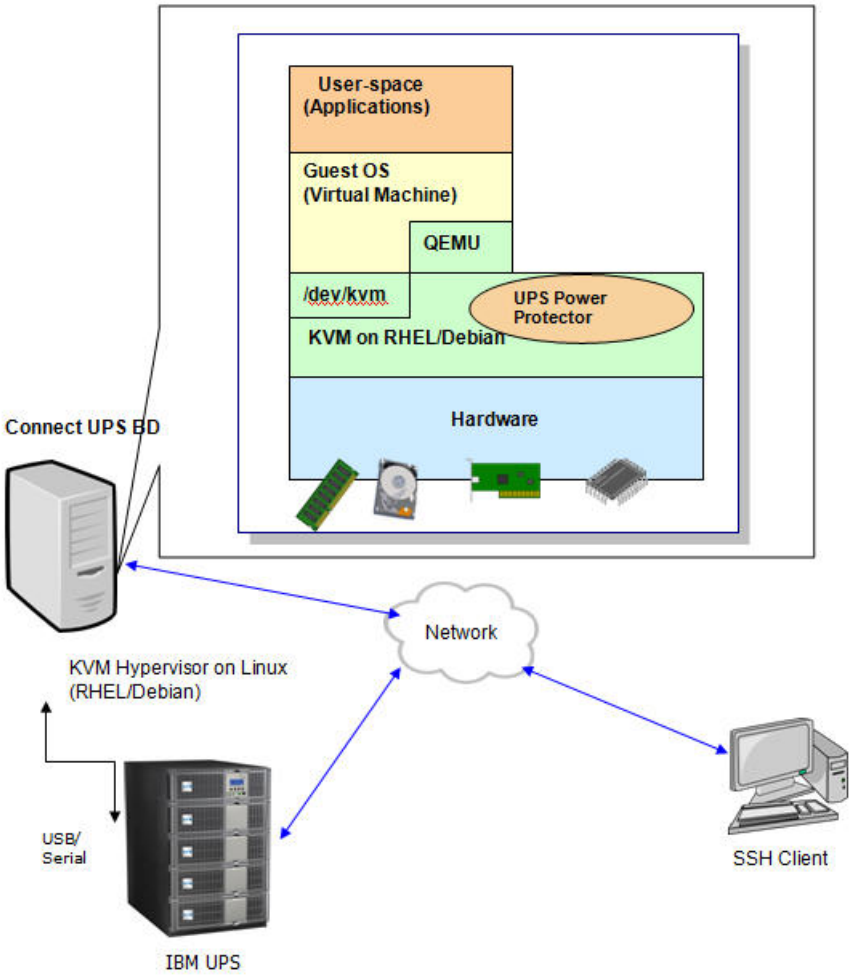
The following notices and statements are used in this document:

- **Note:** These notices provide important tips, guidance, or advice.
- **Important:** These notices provide information or advice that might help you avoid inconvenient or problem situations.

- **Attention:** These notices indicate potential damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage might occur.

Chapter 2. KVM on RHEL 6 and Debian 5.0 (Lenny)

The following illustration shows the UPS Power Protector configuration for Kernel-based Virtual Machine (KVM).



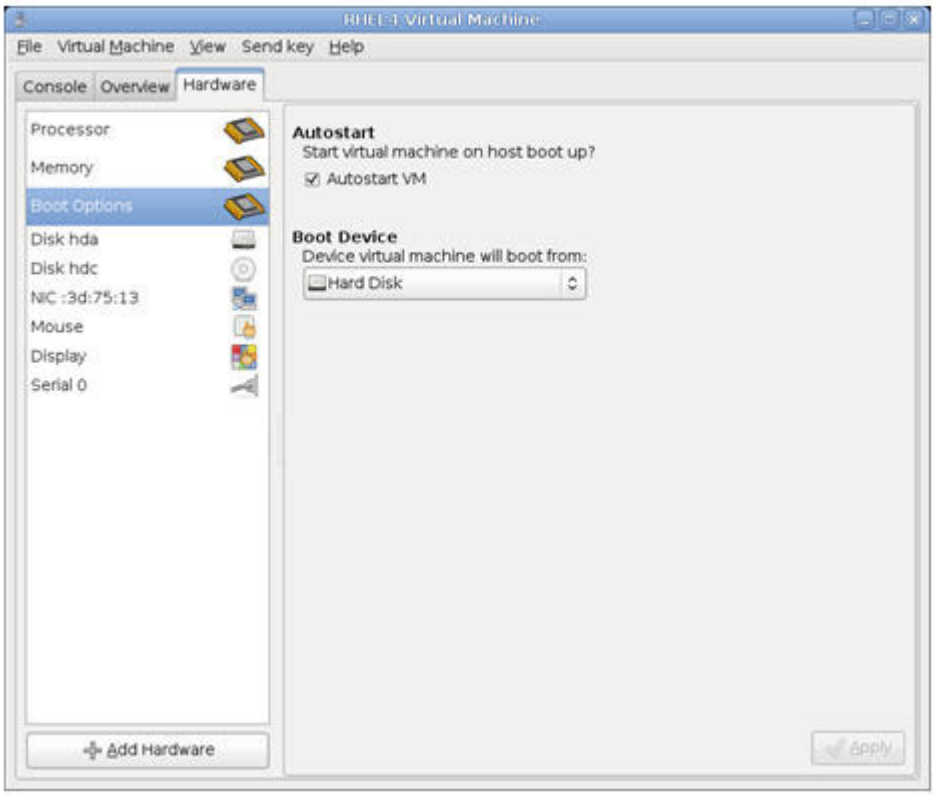
KVM configuration

Before installing UPS Power Protector on Red Hat Enterprise Linux or Debian Lenny where KVM is enabled, the following configurations have to be made:

- Hardware support for virtualization must be enabled on the host. This is an option in the BIOS. It is possible your BIOS might have virtualization support disabled. For more information, see the BIOS documentation.
- For automatic operating system boot on startup, you must configure the physical machine to do the same. This setting is in the BIOS. For more information, see the specific technical hardware documentation.
- Virtio Paravirtualized drivers can be installed for better performance, but they are optional.

Auto start of a guest machine after a host boot

Virtual Machine Monitor is an administrative console that monitors and manages guest machines. To set each virtual machine to start automatically, select the **Autostart VM** check box as shown in the following illustration. It is located in Virtual Machine Monitor by selecting **Hardware → Boot** on every virtual machine.



Prerequisites for installation

The following are the prerequisites for installing UPS Power Protector on KVM enabled on RHEL 6 or Debian 5.0 (Lenny):

- KVM hypervisor (on RHEL or Debian) with a 5 MB free space minimum
- IBM UPS Power Protector installation packages on RHEL or Debian
- Libvirt packages on RHEL or Debian

Hardware architecture

The prerequisites for UPS Power Protector installation are described in the *IBM UPS Power Protector User's Guide*, which you can download at http://www.ibm.com/support/entry/portal/docdisplay?Indocid=EATN-UPPWIN. For UPS system compatibility, see the “Compatibility list” section.

Network architecture

All hardware elements must have an operational network configuration that enables them to communicate with each other. Make sure that the following TCP/UDP ports are enabled on KVM hypervisor firewall:

- Connections on TCP ports 4679 and 4680 to enable remote access for monitoring and configuration through a web browser. These ports are reserved at IANA http://www.iana.org.

- Connections through TCP port 80. TCP port 80 must be opened as a destination port (for output) on the machine that is hosting UPS Power Protector.

To enable communication between IBM UPS Power Protector and the network management card, type the following commands:

```
iptables -I OUTPUT -p tcp --dport  80 -j ACCEPT
iptables -I INPUT -p tcp --dport 4679 -j ACCEPT
iptables -I INPUT -p tcp --dport 4680 -j ACCEPT
iptables -I INPUT -p tcp --dport 4679 -j ACCEPT
iptables -I INPUT -p tcp --dport 4680 -j ACCEPT
iptables -I OUTPUT -p tcp --dport 4679 -j ACCEPT
iptables -I OUTPUT -p tcp --dport 4679 -j ACCEPT
service iptables save
iptables-save
```

Installing UPS Power Protector

To install UPS Power Protector for Linux,

1. Go to http://www.ibm.com/support/entry/portal/docdisplay?lndocid=EATN-UPPLNX and download the software package for your operating system.
2. Upload the package on your KVM environment.
3. To install the UPS Power Protector package, type the applicable command:
   - **For Red Hat Enterprise Linux 6**, type:

     ```
     rpm -i upp-linux-xx.xx.xxxx-1.x86_64.rpm
     ```
   - **For Debian GNU/Linux version 5.0 (Lenny)**, type:

     ```
     dpkg -i upp-linux_xx.xx.xxxx-1_x86_64.deb
     ```

For the silent installation process, see the *IBM UPS Power Protector User's Guide*.

After you have finished with the installation, connect to UPS Power Protector by typing one of the following addresses in your web browser:

```
http://<@IP-or-name-of-RHEL>:4679 (For HTTP access)
https://<@ IP-or-name-of- RHEL>:4680 (For HTTPS access)
```

Chapter 3. Using UPS Power Protector with VMware

After the UPS Power Protector installation, complete the following three steps to use UPS Power® Protector. For more information about UPS Power Protector, see the *IBM UPS Power Protector User's Guide*.

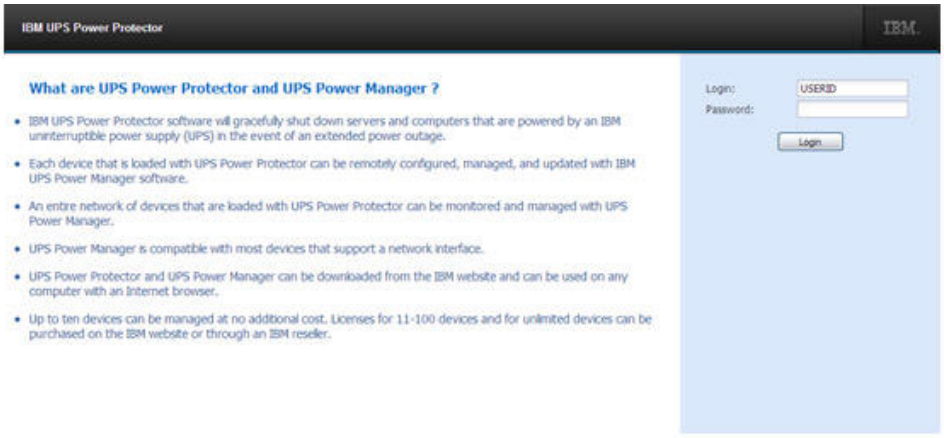
Step 1 (access)

For remote access, complete the following steps:

1. Type one of the following URLs in a web browser:

   `https://<name or IP address of Server hosting IBM UPP>:4680/`
   `http://<name or IP address of Server hosting IBM UPP>:4679/`

2. In SSL mode, accept the certificate by clicking **Yes**.
3. Enter `USERID` as **Login** and `passw0rd` as the **Password** and click **Login**.



Step 2 (configuration)

The following are the two types of scans that can be performed:

- Using the Quick scan operation, you will discover the following:
  - Serial line connected UPSs (RS232 or USB) - The discovered UPS connected through RS232 or USB is automatically assigned as the power source. (The Status icon is green .)

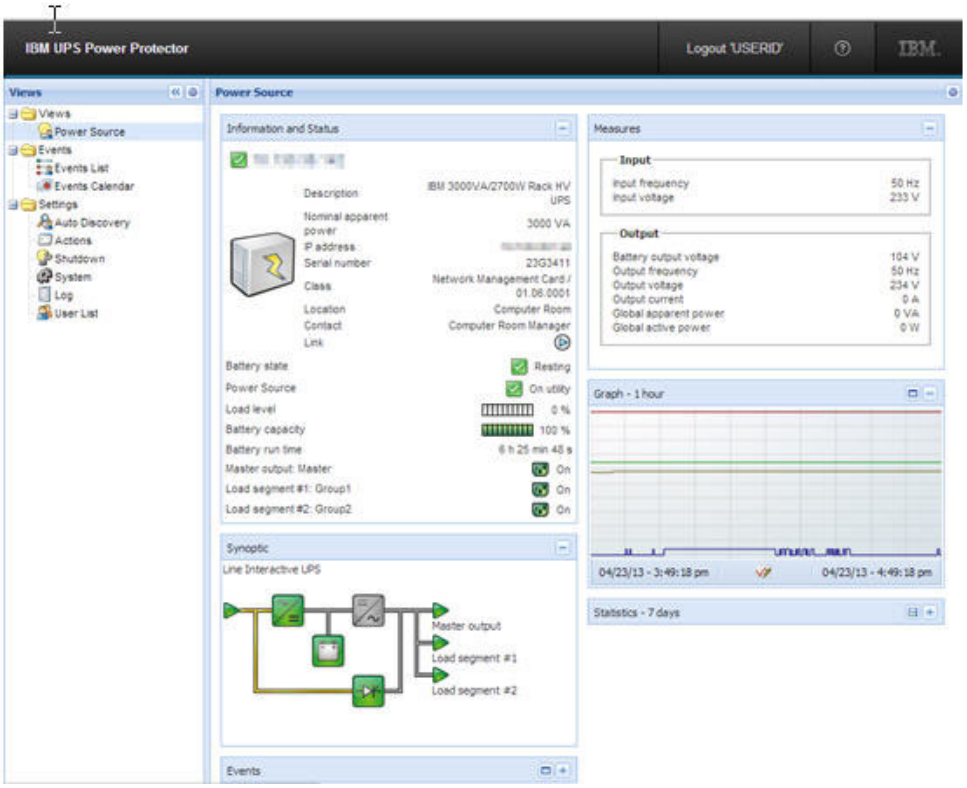
    Note: When started, the application automatically performs a Quick scan.
  - Networked UPSs through broadcast within a few seconds (IBM Network Management Cards) - The discovered UPSs connected through the network are not automatically assigned as the power source. (You have to select the node and click **Set as Power Source**. The icon becomes green .)

  The discovered nodes are displayed by selecting **Settings → Auto Discovery**.
- Range scan: The Range scan operation discovers the nodes that are outside of the network segment and nodes that are not compatible with the Quick scan feature. In the **Settings → Shutdown** page, assign the IP address of the UPS that powers the local computer. On the **Settings → User List** page, assign the access authority through the login and password.

Step 3 (operation)

Click **Views → Power Source** to monitor the current state of the UPS that powers the server that is running UPS Power Protector.

Click **Events → Event List** to view the device events.



Appendix A. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. Use this information to obtain additional information about IBM and IBM products, determine what to do if you experience a problem with your IBM system or optional device, and determine whom to call for service, if it is necessary.

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Check for updated firmware and operating-system device drivers for your IBM product. The IBM Warranty terms and conditions state that you, the owner of the IBM product, are responsible for maintaining and updating all software and firmware for the product (unless it is covered by an additional maintenance contract). Your IBM service technician will request that you upgrade your software and firmware if the problem has a documented solution within a software upgrade.
- If you have installed new hardware or software in your environment, check http://www.ibm.com/systems/info/x86servers/serverproven/compat/us/ to make sure that the hardware and software is supported by your IBM product.
- Go to http://www.ibm.com/supportportal/ to check for information to help you solve the problem.
- Gather the following information to provide to IBM Support. This data will help IBM Support quickly provide a solution to your problem and ensure that you receive the level of service for which you might have contracted.
  - Hardware and Software Maintenance agreement contract numbers, if applicable
  - Machine type number (IBM 4-digit machine identifier)
  - Model number
  - Serial number
  - Current system UEFI and firmware levels
  - Other pertinent information such as error messages and logs
- Go to http://www.ibm.com/support/entry/portal/Open_service_request/ to submit an Electronic Service Request. Submitting an Electronic Service Request will start the process of determining a solution to your problem by making the pertinent information available to IBM Support quickly and efficiently. IBM service technicians can start working on your solution as soon as you have completed and submitted an Electronic Service Request.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the documentation that is provided with your IBM product. The documentation that comes with IBM systems also describes the diagnostic tests that you can perform. Most systems, operating systems, and programs come with documentation that

contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

Using the documentation

Information about your IBM system and preinstalled software, if any, or optional device is available in the documentation that comes with the product. That documentation can include printed documents, online documents, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to http://www.ibm.com/supportportal/. Also, some documents are available through the IBM Publications Center at http://www.ibm.com/shop/publications/order/.

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How to send Dynamic System Analysis data to IBM

Use the IBM Enhanced Customer Data Repository to send diagnostic data to IBM. Before you send diagnostic data to IBM, read the terms of use at http://www.ibm.com/de/support/ecurep/terms.html.

You can use any of the following methods to send diagnostic data to IBM:

- **Standard upload:** http://www.ibm.com/de/support/ecurep/send_http.html
- **Standard upload with the system serial number:** http://www.ecurep.ibm.com/app/upload_hw
- **Secure upload:** http://www.ibm.com/de/support/ecurep/send_http.html#secure
- **Secure upload with the system serial number:** https://www.ecurep.ibm.com/app/upload_hw

Creating a personalized support web page

At http://www.ibm.com/support/mynotifications/, you can create a personalized support web page by identifying IBM products that are of interest to you. From this personalized page, you can subscribe to weekly email notifications about new technical documents, search for information and downloads, and access various administrative services.

Software service and support

Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems with your IBM products. For information about which products are supported by Support Line in your country or region, see http://www.ibm.com/services/supline/products/.

For more information about Support Line and other IBM services, see http://www.ibm.com/services/, or see http://www.ibm.com/planetwide/ for support telephone numbers. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

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CD drive speeds list the variable read rate. Actual speeds vary and are often less than the maximum possible.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for approximately 1000 bytes, MB stands for approximately 1 000 000 bytes, and GB stands for approximately 1 000 000 000 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity may vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives available from IBM.

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Some software may differ from its retail version (if available), and may not include user manuals or all program functionality.

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