

VIOS Version 3.1.1

*Release Notes*



**Note**

Before using this information and the product it supports, read the information in [“Notices” on page 5.](#)

This edition applies to IBM® Virtual I/O Server Version 3.1.2, and to all subsequent releases and modifications until otherwise indicated in new editions.

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## About this document

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The release notes include late technical information that is not included in other topics, and the release notes highlight new functions for the Virtual I/O Server release.

## Highlighting

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The following highlighting conventions are used in this document:

<b>Bold</b>	Identifies commands, subroutines, keywords, files, structures, directories, and other items whose names are predefined by the system. Also identifies graphical objects such as buttons, labels, and icons that the user selects.
<i>Italics</i>	Identifies parameters whose actual names or values are to be supplied by the user.
<code>Monospace</code>	Identifies examples of specific data values, examples of text similar to what you might see displayed, examples of portions of program code similar to what you might write as a programmer, messages from the system, or information you should actually type.

## ISO 9000

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ISO 9000 registered quality systems were used in the development and manufacturing of this product.



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# Virtual I/O Server release notes

The Virtual I/O Server (VIOS) release notes are available.

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## VIOS best practice recommendations

To ensure the reliability, availability, and serviceability of a computing environment by using the Virtual I/O Server (VIOS), update the VIOS software to the most recent fix level for that particular release. The most recent level contains the latest fixes for the specified VIOS release. You can download the most recent updates for VIOS from the [IBM Fix Central](http://www.ibm.com/support/fixcentral/) website (<http://www.ibm.com/support/fixcentral/>).

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## VIOS package terminology

To view the most current version of the VIOS package terminology and maintenance strategy, see the [VIOS Maintenance Strategy](http://www-304.ibm.com/webapp/set2/sas/f/vios/svcstrategy.html) website (<http://www-304.ibm.com/webapp/set2/sas/f/vios/svcstrategy.html>).

**Note:** With VIOS Versions 3.1.1.21 and Version 3.1.1.25, for the VM recovery Manager DR to work you must apply a fix for the VIOS database. To apply the fix for the VIOS, you must follow the steps mentioned in the **Local fix** section of the APAR before installing the VM Recovery Manager DR for IBM Power Systems server. For more information, see the [IBM Support](#) website.

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## Read this information before installing VIOS

To view the most current version of the VIOS release notes, see the online version of the [VIOS release notes](http://www.ibm.com/support/knowledgecenter/POWER9/p9eeo/p9eeo_kickoff.htm) ([www.ibm.com/support/knowledgecenter/POWER9/p9eeo/p9eeo\\_kickoff.htm](http://www.ibm.com/support/knowledgecenter/POWER9/p9eeo/p9eeo_kickoff.htm)).

To stay up to date on VIOS news and critical product updates, subscribe to the VIOS notification service.

To subscribe to the VIOS notification service, go to [My notifications](#) on the IBM Support Portal website ([www.ibm.com/systems/support/myview/subscription/css.wss/](http://www.ibm.com/systems/support/myview/subscription/css.wss/)) and sign in by using your IBM ID. Enter PowerVM® Virtual I/O Server into **Product lookup**, and click **Subscribe**.

To manage your IBM customer numbers and your company's user access to IBM machines, see [IBM Support](#) and select **Entitled Software Support**. Sign in by using your IBM ID.

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## VIOS version 3.1 installation

The VIOS software is distributed on two DVDs. When you start the VIOS software setup from DVD 1, you'll be prompted to insert DVD 2 after the DVD 1 data is processed.

VIOS can also now be installed by using a USB flash drive. For more information, see ["USB Flash Drive installation enhancements"](#) on page 2.

To install another language file set after the initial installation is complete, insert the second DVD into the DVD drive and use the **chlang** command.

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## Memory requirements

The minimum memory requirement for the VIOS Version 3.1 varies based on the configuration.

A general rule for the minimum memory requirement for the VIOS Version 3.1 is 4 GB. A minimum current memory requirement might support a configuration with a minimum number of devices or a small maximum memory configuration. However, to support shared storage pools, the minimum memory requirement is 4 GB.

The VIOS Version 3.1 requires the minimum current memory requirement to increase when either the maximum memory configuration or the number of devices increases, or when they both increase. Larger

maximum memory configurations or more devices increase the minimum current memory requirement. If the minimum memory requirement isn't increased along with the maximum memory configuration, the partition stops during the initial program load (IPL).

## ROOTVG requirements

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The VIOS Version 3.1 requires a minimum of 30 GB of disk space for installation. Ensure that the disk that is allocated for the VIOS installation contains at least 30 GB of available space before you attempt to install VIOS.

## VIOS Version 3.1 enhancements

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This release of VIOS contains several enhancements in the POWER® virtualization area.

### USB Flash Drive installation enhancements

VIOS 3.1 supports installation by using a USB flash drive on POWER8® processor-based systems, or later. A USB flash drive containing a VIOS installation image can be created by first downloading the VIOS installation image from the IBM Entitled System Support website. A single volume installation image of VIOS 3.1 is made available on the Entitled System Support website for writing to a USB flash drive. After you have downloaded the image, the VIOS installation image can be written to a USB flash drive. Use a recently manufactured USB flash drive. You must have a minimum of 16 GB available on your USB flash drive for VIOS installation. The ISO image name is

**Virtual\_IO\_Server\_Base\_Install\_3.1.0.10\_Flash\_112018.iso**. On an AIX® or a Linux® based system, the image can be written to a USB flash drive using the **dd** command:

```
$ dd if=/tmp/Virtual_IO_Server_Base_Install_3.1.0.10_Flash_112018.iso of=/dev/usbms0 bs=4k
```

You can also create an installable USB flash drive. Copy the image directly from VIOS DVD installation media by using the **dd** command:

```
$ dd if=/dev/cd0 of=/dev/usbms0 bs=4k
```

Comparable commands exist on windows-based systems for writing the installation image to a USB flash memory stick. After you create the USB flash drive VIOS installation media, the media can be used on POWER8 and later systems in the same manner as VIOS DVD install media.

**Note:** On POWER8 and later systems, the SMS menus can always be used to assign the USB flash drive as the boot source. IBM Power Systems USB implementation is compliant with relevant USB standards. In the unlikely event a USB flash drive isn't properly recognized on an IBM POWER8 or later systems, it is suggested a different brand of device be tried.

### Internet Small Computer Systems Interface (iSCSI) enhancements

Internet Small Computer Systems Interface (iSCSI) provides block-level access to storage devices by carrying SCSI commands over a Internet Protocol network. iSCSI is used to facilitate data transfers over internet using TCP, a reliable transport mechanism using either IPV6 or IPV4 protocols. TCP is used to manage storage over long distances.

The iSCSI support in VIOS allows iSCSI disks to be exported to client logical partitions as virtual disks (vSCSI disks). The iSCSI support is available with the VIOS version 3.1 and later, on both POWER8 and POWER9 systems. If you are using a POWER8 system, the firmware level must be at FW860.20 or later. There are no minimum firmware level requirements for POWER9 systems. POWER9 systems can run on various firmware levels like FW910, FW920, FW930, or later. VIOS 3.1 also enables MPIO support for the iSCSI initiator. MPIO support allows you to configure and create multiple paths to an iSCSI disk, similar to what is available and supported for other protocols. Booting from an iSCSI disk is not supported on VIOS 3.1.0. SSP is not supported on iSCSI devices. The client LPAR can run either the AIX or Linux operating systems.



To view information about iSCSI commands, see the **lsiscsi**, **mkiscsi**, **chiscsi**, **cpiscsi**, and **rmiscsi** commands in the online version of the [Commands](https://www.ibm.com/support/knowledgecenter/en/ssw_aix_72/com.ibm.aix.cmds.navigation/alphabeticallistofcommands.htm) ([https://www.ibm.com/support/knowledgecenter/en/ssw\\_aix\\_72/com.ibm.aix.cmds.navigation/alphabeticallistofcommands.htm](https://www.ibm.com/support/knowledgecenter/en/ssw_aix_72/com.ibm.aix.cmds.navigation/alphabeticallistofcommands.htm)).

To view information about the iSCSI software initiator and software target, see the online version of the [iSCSI software initiator and software target](https://www.ibm.com/support/knowledgecenter/en/ssw_aix_72/com.ibm.aix.networkcomm/iscsi_intro.htm) ([https://www.ibm.com/support/knowledgecenter/en/ssw\\_aix\\_72/com.ibm.aix.networkcomm/iscsi\\_intro.htm](https://www.ibm.com/support/knowledgecenter/en/ssw_aix_72/com.ibm.aix.networkcomm/iscsi_intro.htm)).

## Shared Storage Pool Management data enhancements

Shared Storage Pool Management data has been migrated from SolidDB to PostgreSQL database.

## VIOS migration using the viosupgrade command enhancements

Virtual I/O Servers moving from VIOS version 2.2.x.x to VIOS version 3.1 can be upgraded by using the viosupgrade command using the NIM master.

To learn more about migrating VIOS by using the viosupgrade command, see [Upgrading the Virtual I/O Server - non-SSP cluster](http://www.ibm.com/support/knowledgecenter/POWER9/p9hb1/p9hb1_vios_migrate_nonssp_cluster.htm) ([http://www.ibm.com/support/knowledgecenter/POWER9/p9hb1/p9hb1\\_vios\\_migrate\\_nonssp\\_cluster.htm](http://www.ibm.com/support/knowledgecenter/POWER9/p9hb1/p9hb1_vios_migrate_nonssp_cluster.htm)).

## VIOS migration enhancements for Java

The filesets that have dependencies on Java™ 7 have been migrated to Java 8 in both IBM Virtual I/O Server Version 2.2.6.40 and IBM Virtual I/O Server Version 3.1.0.20.

**Note:** Java 7 will not be automatically removed from the existing VIOS installations during the update process of the VIOS.

## Software license agreements

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If the software license agreements aren't displayed correctly, they can be viewed in all languages at the [Software license agreements](http://www.ibm.com/software/sla/sladb.nsf) website ([www.ibm.com/software/sla/sladb.nsf](http://www.ibm.com/software/sla/sladb.nsf)).

## Online documentation for VIOS software

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For online documentation, see the [Virtual I/O Server](#) topic collection.



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## Accessibility features for IBM Power Systems servers

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Accessibility features assist users who have a disability, such as restricted mobility or limited vision, to use information technology content successfully.

### Overview

The IBM Power Systems servers include the following major accessibility features:

- Keyboard-only operation
- Operations that use a screen reader

The IBM Power Systems servers use the latest W3C Standard, WAI-ARIA 1.0 ([www.w3.org/TR/wai-aria/](http://www.w3.org/TR/wai-aria/)), to ensure compliance with US Section 508 ([www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards](http://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards)) and [Web Content](#)

Accessibility Guidelines (WCAG) 2.0 ([www.w3.org/TR/WCAG20/](http://www.w3.org/TR/WCAG20/)). To take advantage of accessibility features, use the latest release of your screen reader and the latest web browser that is supported by the IBM Power Systems servers.

The IBM Power Systems servers online product documentation in IBM Knowledge Center is enabled for accessibility. The accessibility features of IBM Knowledge Center are described in the [Accessibility section of the IBM Knowledge Center help \(www.ibm.com/support/knowledgecenter/doc/kc\\_help.html#accessibility\)](http://www.ibm.com/support/knowledgecenter/doc/kc_help.html#accessibility).

## Keyboard navigation

This product uses standard navigation keys.

## Interface information

The IBM Power Systems servers user interfaces do not have content that flashes 2 - 55 times per second.

The IBM Power Systems servers web user interface relies on cascading style sheets to render content properly and to provide a usable experience. The application provides an equivalent way for low-vision users to use system display settings, including high-contrast mode. You can control font size by using the device or web browser settings.

The IBM Power Systems servers web user interface includes WAI-ARIA navigational landmarks that you can use to quickly navigate to functional areas in the application.

## Vendor software

The IBM Power Systems servers include certain vendor software that is not covered under the IBM license agreement. IBM makes no representation about the accessibility features of these products. Contact the vendor for accessibility information about its products.

## Related accessibility information

In addition to standard IBM help desk and support websites, IBM has a TTY telephone service for use by deaf or hard of hearing customers to access sales and support services:

TTY service  
800-IBM-3383 (800-426-3383)  
(within North America)

For more information about the commitment that IBM has to accessibility, see [IBM Accessibility \(www.ibm.com/able\)](http://www.ibm.com/able).

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## Programming interface information

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This Virtual I/O Server (VIOS) release notes publication documents intended Programming Interfaces that allow the customer to write programs to obtain the services of IBM Virtual I/O Server Version 3.1.1.

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