

VIOS Version 2.2.5.00

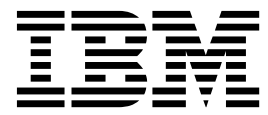
*Release Notes*





VIOS Version 2.2.5.00

*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 2.2.5.00, and to all subsequent releases and modifications until otherwise indicated in new editions.

© **Copyright IBM Corporation 2015, 2016.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

<b>About this document</b> . . . . .	<b>v</b>
Highlighting . . . . .	v
ISO 9000. . . . .	v
<b>Virtual I/O Server release notes</b> . . . . .	<b>1</b>
<b>Notices</b> . . . . .	<b>5</b>
Accessibility features for IBM Power Systems servers. . . . .	7
Privacy policy considerations. . . . .	8
Programming interface information. . . . .	8
Trademarks. . . . .	8
Terms and conditions . . . . .	8



---

## About this document

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

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.
Monospace	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

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





---

## Virtual I/O Server release notes

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

---

### VIOS problem resolution

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 latest fix level for that particular release. The latest level contains all fix packs for the specified VIOS release.

---

### VIOS package terminology

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

---

### Read this information before installation

Always ensure that you install all of the latest updates for VIOS. You can download the latest updates for VIOS from the IBM® Fix Central website (<http://www.ibm.com/support/fixcentral/>).

**Note:** The Virtual I/O Server (VIOS) software might contain errors that can result in critical business impact. Install the latest available fixes before you use this software.

To view the most current version of the VIOS release notes, see the online version of the VIOS release notes ([www.ibm.com/support/knowledgecenter/POWER8/p8eeo/p8eeo\\_kickoff.htm](http://www.ibm.com/support/knowledgecenter/POWER8/p8eeo/p8eeo_kickoff.htm)).

All users of VIOS software must subscribe to the VIOS notification service. Subscribe to this service to stay current on VIOS news and critical product updates.

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**.

---

### VIOS Version 2.2.5.00 installation

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

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.

---

### Memory requirements

The minimum memory requirement for the VIOS Version 2.2.5.00 varies based on the configuration.

A general rule for the minimum memory requirement for the VIOS Version 2.2.5.00 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 2.2.5.00 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 is not increased along with the maximum memory configuration, the partition stops during the initial program load (IPL).

---

## ROOTVG requirements

The VIOS Version 2.2.5.00 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 2.2.5.00 enhancements

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

### Live Partition Mobility reliability and performance enhancements

The VIOS version 2.2.5.00 or later, supports redundant Mover Service Partition (MSP) pairs for Live Partition Mobility (LPM) operations. When redundant MSP pairs are used, the migrating memory pages of the logical partition are transferred from the source system to the target system by using two MSP pairs simultaneously. If one of the MSP pair fails, the migration operation continues by using the other MSP pair. In some scenarios, where a common shared Ethernet adapter is not used, use redundant MSP pairs to improve performance and reliability.

**Note:** To use redundant MSP pairs, all VIOS MSPs must be at version 2.2.5.00 or later, the HMC at version 8.6.0 or later, and the firmware level FW860 or later.

### VIOS SSP Resiliency Enhancements

The VIOS version 2.2.5.00 or later, adds resiliency to the Shared Storage Pool (SSP) against specific failure conditions to prevent outages and to make it easier to service SSP clusters and to diagnose problems. This new feature includes a cluster-wide reliability, availability, and serviceability (RAS) First Failure Data Capture (FFDC) framework that you can access by using the `clffdc` command. The framework also includes triggers for the system to automatically capture snap data on all nodes in cases where a significant error is detected. This release adds logging capabilities and tools for analyzing log files and serviceability. The VIOS version 2.2.5.00 or later, supports the ability to change the time-of-day clock on a node while the SSP is active.

### VIOS Shared Storage Pool (SSP) Scaling Enhancements

The VIOS version 2.2.5.00 or later, has increased the Shared Storage Pool (SSP) scalability to 24 nodes. In order to scale beyond 16 nodes, you must have a system tier that is composed entirely of solid-state drive (SSD) storage.

### VIOS Rules Enhancements

The VIOS version 2.2.5.00 or later, provides the following VIOS rules enhancements:

- Ensures that VIOS has sufficient resources for a safe system boot when VIOS rules are deployed.
- Supports and deploys VIOS rules that contain AIX® unsupported device.
- Extends VIOS rules to support new I/O Fibre Channel (FC) adapters.

### VIOSBR enhancements

The VIOS version 2.2.5.00 or later, provides an enhanced `viosbr` functionality which automatically triggers the backup operation if there are any nodes or Shared Storage Pool (SSP) cluster configuration changes. The `viosbr` command runs every hour to check if there are any configuration changes and triggers a backup operation if any configuration changes are found. The `viosbr` function is enabled by

default. You can stop automatic backup trigger using the **autobackup** option of the **viosbr** command. This release also provides the capability to restore the SSP on a mirrored storage with different set of hosts by using the **dr** option of the **viosbr** command.

---

## **Software license agreements**

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

---

## **Online documentation for VIOS software**

For online documentation, see the Virtual I/O Server topic collection.



---

## Notices

This information was developed for products and services offered in the US.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

*IBM Director of Licensing  
IBM Corporation  
North Castle Drive, MD-NC119  
Armonk, NY 10504-1785  
US*

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

*Intellectual Property Licensing  
Legal and Intellectual Property Law  
IBM Japan Ltd.  
19-21, Nihonbashi-Hakozakicho, Chuo-ku  
Tokyo 103-8510, Japan*

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you provide in any way it believes appropriate without incurring any obligation to you.

Licenseses of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

*IBM Director of Licensing  
IBM Corporation  
North Castle Drive, MD-NC119  
Armonk, NY 10504-1785  
US*

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

The performance data and client examples cited are presented for illustrative purposes only. Actual performance results may vary depending on specific configurations and operating conditions.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to actual people or business enterprises is entirely coincidental.

#### COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Each copy or any portion of these sample programs or any derivative work must include a copyright notice as follows:

© (your company name) (year).

Portions of this code are derived from IBM Corp. Sample Programs.

© Copyright IBM Corp. \_enter the year or years\_.

If you are viewing this information in softcopy, the photographs and color illustrations may not appear.

---

## Accessibility features for IBM Power Systems servers

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)).

---

## Privacy policy considerations

IBM Software products, including software as a service solutions, (“Software Offerings”) may use cookies or other technologies to collect product usage information, to help improve the end user experience, to tailor interactions with the end user, or for other purposes. In many cases no personally identifiable information is collected by the Software Offerings. Some of our Software Offerings can help enable you to collect personally identifiable information. If this Software Offering uses cookies to collect personally identifiable information, specific information about this offering’s use of cookies is set forth below.

This Software Offering does not use cookies or other technologies to collect personally identifiable information.

If the configurations deployed for this Software Offering provide you as the customer the ability to collect personally identifiable information from end users via cookies and other technologies, you should seek your own legal advice about any laws applicable to such data collection, including any requirements for notice and consent.

For more information about the use of various technologies, including cookies, for these purposes, see IBM’s Privacy Policy at <http://www.ibm.com/privacy> and IBM’s Online Privacy Statement at <http://www.ibm.com/privacy/details> the section entitled “Cookies, Web Beacons and Other Technologies” and the “IBM Software Products and Software-as-a-Service Privacy Statement” at <http://www.ibm.com/software/info/product-privacy>.

---

## Programming interface information

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 2.2.5.00.

---

## Trademarks

IBM, the IBM logo, and [ibm.com](http://www.ibm.com) are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at Copyright and trademark information at [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml).

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

---

## Terms and conditions

Permissions for the use of these publications are granted subject to the following terms and conditions.

**Applicability:** These terms and conditions are in addition to any terms of use for the IBM website.

**Personal Use:** You may reproduce these publications for your personal, noncommercial use provided that all proprietary notices are preserved. You may not distribute, display or make derivative works of these publications, or any portion thereof, without the express consent of IBM.

**Commercial Use:** You may reproduce, distribute and display these publications solely within your enterprise provided that all proprietary notices are preserved. You may not make derivative works of these publications, or reproduce, distribute or display these publications or any portion thereof outside your enterprise, without the express consent of IBM.



**Rights:** Except as expressly granted in this permission, no other permissions, licenses or rights are granted, either express or implied, to the publications or any information, data, software or other intellectual property contained therein.

IBM reserves the right to withdraw the permissions granted herein whenever, in its discretion, the use of the publications is detrimental to its interest or, as determined by IBM, the above instructions are not being properly followed.

You may not download, export or re-export this information except in full compliance with all applicable laws and regulations, including all United States export laws and regulations.

IBM MAKES NO GUARANTEE ABOUT THE CONTENT OF THESE PUBLICATIONS. THE PUBLICATIONS ARE PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.







Printed in USA