IBM PowerHA SystemMirror for AIX

Standard Edition

Version 7.2.3

Release Notes

IBM

Note

Before using this information and the product it supports, read the information in "Notices" on page 15.

Contents

About this document

The Release Notes topics include late technical information that is not included in other topics, and they highlights new functions for the PowerHA® SystemMirror® Version 7.2.3 for AIX® licensed program.

Highlighting

The following highlighting conventions are used in this document:

Bold	Identifies commands, subroutines, keywords, files, structures, directories, and other items whose names are predefined by the system. Bold highlighting also identifies graphical objects, such as buttons, labels, and icons that the you select.
Italics	Identifies parameters for actual names or values that you supply.
`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 text that you must type.

Case sensitivity in AIX

Everything in the AIX operating system is case sensitive, which means that it distinguishes between uppercase and lowercase letters. For example, you can use the `ls` command to list files. If you type LS, the system responds that the command `is not found`. Likewise, **FILEA**, **FiLea**, and **filea** are three distinct file names, even if they reside in the same directory. To avoid causing undesirable actions to be performed, always ensure that you use the correct case.

ISO 9000

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

PowerHA SystemMirror Version 7.2.3 for AIX Standard Edition Release Notes

What's new

April 2019

For more information, see "Hardware requirement" on page 9.

New functions for PowerHA SystemMirror Version 7.2.3 for AIX Standard Edition

PowerHA SystemMirror Version 7.2.3 for AIX has the following new functions and updates:

PowerHA SystemMirror graphical user interface (GUI)
The following updates are new in PowerHA SystemMirror GUI:

- A visual representation of availability metrics.
- Improved snapshot management. You can clone a new cluster from a snapshot.
- Download or print a graphical cluster report.
- Add new clusters as a non-root user. For more information, see the Discovering a cluster as a non-root user topic.
- Built-in role-based access control (RBAC) that is independent from the AIX operating system RBAC. For more information, see the Roles and role-based access control topic.

Availability metrics
You can use PowerHA SystemMirror Version 7.2.3 to capture the performance data of PowerHA SystemMirror and AIX operating systems data during cluster recovery operations. After you analyze the captured data, you can improve the cluster recovery operations. For more information, see the cl_availability command.

Cloud backup management
You can backup application data to IBM Cloud or Amazon Web Services(AWS) by using the PowerHA SystemMirror backup solution. With PowerHA SystemMirror 7.2.3, you can use IBM SAN Volume Controller (SVC) storage for backing up application data to the cloud. For more information, see the Backing up data in PowerHA SystemMirror by using cloud storage topic.

Oracle database shut down option
In previous releases of PowerHA SystemMirror, Smart Assist for Oracle internally used the **shutdown immediate** option to shut down the Oracle database. This option might potentially affect transactions with the database. In PowerHA SystemMirror Version 7.2.3, you can specify **transactional**, **normal**, or **abort** as shutdown options for Smart Assist for Oracle. For more information, see the Configuring the Oracle database instance topic.

Reliable Syslog facility (rsyslog) support
You can use the `/etc/rsyslog.conf` file instead of the `/etc/syslog.conf` file. After you install and configure the `rsyslog` file on all nodes in the cluster, PowerHA SystemMirror Version 7.2.3 automatically detects and manages the `rsyslog` file. For more information, see the /etc/syslog.conf and /etc/rsyslog.conf files topic.

Logical Volume Manager (LVM) read option
The AIX Logical Volume Manager (LVM) function provides storage management for the AIX operating system and application data. When reading data, LVM can specify the storage that is accessed before LVM attempts to read from other instances of data. In PowerHA SystemMirror Version 7.2.3, you can configure the LVM **preferred read** option at the cluster level or at the individual volume group level. You can use the **preferred read** option to configure LVM for optimal performance. For more information, see the Changing or displaying the characteristics of a volume group topic.

Log analyzer improvements
PowerHA SystemMirror Version 7.2.3 has new log analysis capabilities and a progress indicator for tasks that take more time to complete. For more information, see the clanalyze command.

Support for standalone enqueue server 2
The standalone enqueue server 2 is the successor of the standalone enqueue server, which is a component of the SAP lock concept and manages the lock table. This component ensures the consistency of data in an SAP Advanced Business Application Programming (ABAP) system. In

PowerHA SystemMirror Version 7.2.3, Smart Assist for SAP discovers and supports both standalone enqueue server and standalone enqueue server 2.

Software requirements

Before you install PowerHA SystemMirror Version 7.2.3 for AIX, you must install all available service packs for AIX and PowerHA SystemMirror from the IBM® Fix Central website.

PowerHA SystemMirror Version 7.2.3 for AIX is supported on the following version of the AIX operating system:

- IBM AIX 7.1.4 with Service Pack 6, or later
- IBM AIX 7.1.5 with Service Pack 2, or later
- IBM AIX 7.2.0 with Service Pack 6, or later
- IBM AIX 7.2.1 with Service Pack 4, or later
- IBM AIX 7.2.2 with Service Pack 2, or later
- IBM AIX 7.2.3 with Service Pack 1, or later
- IBM AIX 7.2.4 with Service Pack 1, or later

PowerHA SystemMirror graphical user interface (GUI)
PowerHA SystemMirror GUI is supported only on the following web browsers:

- Google Chrome Version 57, or later
- Firefox Version 54, or later

The PowerHA SystemMirror GUI requires that OpenSSL is installed on the GUI server to generate a unique set of security files (keys and certificate). You must have an installation of Secure Shell (SSH) on the GUI server and on all nodes in the cluster. SSH is used to add clusters to the GUI server, to restore snapshots, and to create new clusters.

CAA auto start on DR site
CAA auto start on Disaster Recovery (DR) site is supported only on the following versions of the AIX operating system:

- IBM AIX 7.1 with Technology Level 5, or later
- IBM AIX 7.2 with Technology Level 2, or later

Cloud backup management options
To use the PowerHA SystemMirror cloud backup management options, can use any one of the following versions of Python:

- Python version 2.7.x
- Python version 3.x.x

Availability metrics options
To use the PowerHA SystemMirror availability metrics options, can use any one of the following versions of Python:

- Python version 2.7.x
- Python version 3.x.x

Hardware requirement

PowerHA SystemMirror graphical user interface (GUI) requires IBM POWER6® or later technology-based servers.

Installation and migration

You cannot migrate from PowerHA SystemMirror Version 6.1 to PowerHA SystemMirror Version 7.2.3 for AIX. You must first migrate from PowerHA SystemMirror Version 6.1 to PowerHA SystemMirror Version 7.2.0. For more information about migrating, see the Migrating from PowerHA SystemMirror 6.1 to PowerHA SystemMirror 7.1, or later topic.

For more information about upgrading PowerHA SystemMirror Version 7.2.3 for AIX by using a snapshot, see the Upgrading PowerHA SystemMirror by using a snapshot topic.

For more information about upgrading an offline cluster, see the Upgrading an offline cluster for PowerHA SystemMirror topic.

For more information about rolling migration, see the Performing a rolling migration topic.

You do not have to install the PowerHA SystemMirror GUI server in a PowerHA SystemMirror cluster, but the GUI agent must be installed in a cluster. When you are migrating a PowerHA SystemMirror GUI server or agent, an attempt is made to maintain the original state of the service. For example, if the server was active when the migration operation began, an effort is made to ensure it is running again after the migration operation completes.

Additional information

PowerHA SystemMirror graphical user interface (GUI)

Review the following information about PowerHA SystemMirror GUI Version 7.2.3:

- If you configured a cluster to change the host name when an application moves, issues can occur with the PowerHA SystemMirror GUI. You must update the `/etc/hosts` file for the PowerHA SystemMirror GUI to automatically identify the changed host name. The PowerHA SystemMirror GUI cannot identify temporary host name changes.
- When you add a cluster to the PowerHA SystemMirror GUI, verify that SSH is not prompting for any unexpected input other than the password or passphrase. To verify that SSH is working correctly, run the `ssh` *REMOTE_NODE* `hostname` command, where *REMOTE_NODE* is the node you are using to add the cluster to the PowerHA SystemMirror GUI. When you run this command, only the password prompt is displayed.
- To display the current status in the PowerHA SystemMirror GUI, the cluster must notify the PowerHA SystemMirror GUI. All core PowerHA SystemMirror events are sent to the PowerHA SystemMirror GUI. When the `clmgr` changes the configuration the PowerHA SystemMirror GUI is notified. However, not all of the SMIT changes, C-SPOC changes, or other commands notify the PowerHA SystemMirror GUI when changes occur.
- To restore a cluster with a snapshot file, you must log in to the PowerHA SystemMirror GUI as a root user.
- Node modifications are supported only on the AIX operating system.
- You cannot remove nodes from sites by using the PowerHA SystemMirror GUI.
- The default port for PowerHA SystemMirror GUI server is 8080. The default port for the PowerHA SystemMirror GUI agent is 8081. You must ensure that your network allows traffic on these ports. For more information about changing the values for the ports, see the Changing ports in PowerHA SystemMirror GUI topic.
- You can use only one PowerHA SystemMirror GUI server to manage your clusters.
- If you install the PowerHA SystemMirror GUI server within a cluster, you must install it on only one of the nodes in the cluster unless you are configuring the PowerHA SystemMirror GUI for high availability. For more information, see the Configuring the GUI to be highly available topic.
- By default the PowerHA SystemMirror GUI server uses the IP address that is associated with the default host name. The PowerHA SystemMirror GUI agents use IP address to communicate cluster status to the PowerHA SystemMirror GUI. If you want to use an alternative IP address for the PowerHA SystemMirror GUI communication, specify the IP address in the **serverAddress** property in the `/usr/es/sbin/cluster/ui/server/configuration-server.json` file. The specified IP address is only used for clusters that are added to the PowerHA SystemMirror GUI after you add the IP address in the **serverAddress** property. If your PowerHA SystemMirror GUI is already managing clusters and if you want the clusters to switch to the new IP address, you can rediscover the clusters or manually edit the IP address in the **serverURI** property. You must restart the PowerHA SystemMirror GUI server or the PowerHA SystemMirror GUI agent by running the **stopsrc** and **startsrc** commands.

Support matrix for PowerHA SystemMirror Smart Assists

The following table describes the version of middleware that can be configured and managed with PowerHA SystemMirror Smart Assists. For information about supported PowerHA SystemMirror versions, see PowerHA SystemMirror for AIX Reference Information.

Table 1. Support matrix for PowerHA SystemMirror Smart Assists. The table describes the middleware application versions that are supported on PowerHA SystemMirror with different versions of the AIX operating system.		
Middleware application	**AIX 7.1 with Technology Level 4, or later**	**AIX Version 7.2 with Technology Level 2, or later**
AIX print subsystem	7.1	7.2
Oracle Database Server	12CR2 or 12CR1	12CR2 or 12CR1
SAP Netwearver	7.5.3	7.5.3
DB2®	11.1	11.1
WebSphere® MQSeries®	9	9
IBM Tivoli® Directory Server	6.3	Not supported
IBM Lotus® Domino® Server	9.0.1	9.0.1
SAP liveCache Hot Standby	7.9.08	7.9.08
MaxDB	7.9	7.9
DHCP	Depends on AIX level	Depends on AIX level
DNS	Depends on AIX level	Depends on AIX level

Documentation

To view the latest updates to the documentation, see the What's new in PowerHA SystemMirror topic.

To view the latest version of the release notes, see the PowerHA SystemMirror for AIX release notes topic.

To view the documentation in PDF files, see the PowerHA SystemMirror for AIX PDFs topic.

Man pages

The man pages for the PowerHA SystemMirror commands are provided in the cluster.man.en_US.es.data fileset. The fileset is installed in the /usr/share/man/cat1 directory. To view the man pages, from the command line, enter man *command_name* (where *command_name* is the name of the command).

You can use the **clmgr** command to perform most of the PowerHA SystemMirror operations. For more information about the operations that you can perform by using the **clmgr** command, see the clmgr command: Quick reference topic.

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.

Licensees 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_.

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.

Trademarks

IBM, the IBM logo, and 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.