

IBM PowerHA SystemMirror for AIX

Standard Edition

Version 7.2.7

Release Notes



Note

Before using this information and the product it supports, read the information in [“Notices” on page 15.](#)

First edition (December 2022)

This edition applies to PowerHA SystemMirror Version 7.2.7 for AIX and to all subsequent release and modifications until otherwise indicated in new editions.

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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 7.2.7 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.
<i>Italics</i>	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.

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- [New functions and features](#)
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New functions and features

ROHA in Cloud support for Power Systems Virtual Servers

Starting with PowerHA SystemMirror Version 7.2.7, or later, Resource Optimization High availability (ROHA) in Cloud supports IBM Power Systems Virtual Servers. In PowerHA SystemMirror Version 7.2.7, or later, you can configure hardware resources such as processing units and memory and you can dynamically acquire or release hardware resources based on the availability of an application. To know more, see [Resource Optimized High Availability in Cloud](#).

Cloud Backup Restoration (CBR) with SVC storage

In PowerHA SystemMirror 7.2.7, or later, the Cloud Backup Management (CBM) feature restores data that is stored in SAN Volume Controller (SVC) storage onto a volume group by using Cloud backup files. You can also restore the backup data on any type of storage disks. For more information, see [Restoring backup profiles](#).

Cloud Backup Restoration (CBR) with DS8000® storage

Starting with PowerHA SystemMirror 7.2.7, or later, you can back up volume group data that is stored on IBM® System Storage® DS8000 (DS8K) disks. You can upload backed up volume group data onto IBM or Amazon cloud services and you can restore that data to any type of storage disks. For more information, see [Planning for backing up data by using cloud storage in PowerHA SystemMirror](#).

GLVM disaster recovery (DR) Sizing tool

In PowerHA SystemMirror Version 7.2.7, or later, Geographical Logical Volume Manager (GLVM) DR Sizing tool monitors network bandwidth and provides suitable recommendations in an asynchronous GLVM environment. For more information, see [GLVM DR Sizing tool](#).

CAA PVM Watchdog Timer support

Cluster Aware AIX (CAA) supports a new tunable, PowerVM® Watchdog Timer in IBM AIX 7.3 with the Technology Level 1, or later. The PowerVM Watchdog Timer tunable is supported in PowerHA SystemMirror Version 7.2.7, or later. CAA PVM tunable is used to detect unresponsive logical partitions (LPARs) and to repair unresponsive LPARs based on the configured values. For more information, see [Configuring cluster heartbeat settings](#).

Support for French message catalog

In addition to English and Japanese languages, PowerHA SystemMirror Version 7.2.7, or later, translated message files are available in French language. For more information, see [English, Japanese, and French message catalogs](#).

ROHA support with HMC Version 10

ROHA in On-Premises environment is tested and validated with Hardware Management Console (HMC) Version 10 R1 M1010 with system firmware level FW950.00 (VH950_045) by using Secure Socket Shell (SSH) and Representational State Transfer (REST) connections.

Updates to the c1_extendvg utility

In PowerHA SystemMirror Version 7.2.7, or later, the **c1_extendvg** utility validates new disks for any leftover Volume Group Descriptor Area (VGDA) information before adding it to a volume group, resulting in prevention of data corruption in the PowerHA SystemMirror environment.

PowerHA SystemMirror GUI

The following updates are new in the PowerHA SystemMirror GUI:

GLVM sizing tool

Geographic Logical Volume Manager (GLVM) sizing tool provides suitable recommendations based on the network bandwidth and cache requirements for the asynchronous GLVM network that supports GLVM traffic. The GLVM sizing tool monitors disks and network usage for the specified duration and provides suggestions.

Fix Central

The latest GUI updates are available on the Fix Central website. You can view and download service packs for different PowerHA SystemMirror versions. These service packs can be applied to the discovered cluster. To download filesets for PowerHA SystemMirror service packs, you must

have IBM ID login credentials. To copy the downloaded filesets, you must specify an IP address of a node other than the server node. For the copy operation between the server and the respective node, use a communication method that does not need password authentication.

GLVM Tunables in Multiple Cross-Cluster Verification

GLVM Tunables in Multiple Cross-Cluster Verification feature provides GLVM policy information for cluster comparison.

Cloud Backup Management (CBM) with DS8000 Support

The CBM feature allows users to create, view, edit, and delete backup volume group profiles of IBM DS8000 storage disks in IBM Cloud. You can back up the volume group data and store it on IBM or Amazon cloud services.

Cloud Backup Management Restoration

The Cloud Backup Management Restoration feature allows users to restore backup profiles of a resource group from IBM Cloud or Amazon Web Services (AWS) Cloud. You can back up the volume group data and store it on IBM or Amazon cloud services. You can restore the backed up data by using the disaster recovery operation to prevent data loss or data corruption.

Send Email Notification

The Send Email Notification feature allows users to set an email notification for various types of events. An email notification about a cluster-based event is sent to the email ID that is set by the user. In PowerHA SystemMirror GUI, a user can modify and delete the email notification configuration that is set. A user can also delete the email notification configuration. To use the Send Email Notification feature, you must use the Simple Mail Transport Protocol (SMTP) configuration on the server node.

Automatic Expiration of Events

The Automatic Expiration of Events feature closes all notification in the PowerHA SystemMirror GUI dashboard page after one minute (default time).

Translation Support for French language

In addition to English and Japanese languages, PowerHA SystemMirror GUI is enhanced to support French language translation starting with PowerHA SystemMirror Version 7.2.7, or later.

Software requirements

Before you install PowerHA SystemMirror Version 7.2.7, you must install all available service packs for AIX and PowerHA SystemMirror from the [IBM Fix Central](#) website.

PowerHA SystemMirror Version 7.2.7 is supported on the following versions of the AIX operating system:

- IBM AIX 7.3 with Technology Level 0 with Service Pack 2, or later
- IBM AIX 7.2 with Technology Level 5 with Service Pack 5, or later
- IBM AIX 7.2 with Technology Level 4 with Service Pack 6, or later
- IBM AIX 7.2 with Technology Level 3 with Service Pack 7, or later
- IBM AIX 7.2 with Technology Level 2 with Service Pack 6, or later
- IBM AIX 7.2 with Technology Level 1 with Service Pack 6, or later
- IBM AIX 7.1 with Technology Level 5 with Service Pack 10, or later

PowerHA SystemMirror 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 PowerHA SystemMirror GUI server to generate a unique set of security files (keys and certificate). Secure Shell (SSH) must be configured on the PowerHA SystemMirror GUI server and on all nodes in the cluster. SSH is used to add clusters to the PowerHA SystemMirror GUI to restore snapshots, create new clusters from the PowerHA SystemMirror GUI, and to restore cluster snapshots. To perform these tasks from the PowerHA SystemMirror GUI as a non-root user, you must configure the **sudo** command on cluster nodes. For more information, see [Logging in as a non-root user](#). After a cluster is successfully added to the PowerHA SystemMirror GUI, the root access or **sudo** access is no longer required to manage the cluster through the PowerHA SystemMirror GUI.

PowerHA SystemMirror GUI can also manage clusters that are running earlier versions of PowerHA SystemMirror. When you manage older clusters in the PowerHA SystemMirror GUI, you can use only the capabilities that are associated with the PowerHA SystemMirror version of the cluster. For example, with PowerHA SystemMirror Version 7.2.7 GUI server, if you select a cluster in the PowerHA SystemMirror GUI and that cluster is running PowerHA SystemMirror Version 7.2.3, some of the PowerHA SystemMirror Version 7.2.7 capabilities might not be available for the selected cluster.

Hardware requirements

PowerHA SystemMirror graphical user interface (GUI) requires IBM POWER7® or later technology-based servers.

Installation and migration

For more information about migration, see the [Upgrading a PowerHA SystemMirror cluster](#) topic.

For more information, see [Supported upgrade PowerHA SystemMirror versions](#).

Support matrix for PowerHA SystemMirror Smart Assists

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

<i>Table 1. Support matrix for PowerHA SystemMirror Smart Assists.</i> The table describes the middleware application versions that are supported on PowerHA SystemMirror with different versions of the AIX operating system.		
Middleware application	AIX 7.2	AIX Version 7.3
AIX print subsystem, DHCP, and DNS	7.2	7.3
Oracle Database Server	19C	19C
SAP Netweaver	7.52	7.52
Db2 [®]	11.5	11.5
WebSphere [®] MQSeries [®]	9.3	9.3
IBM Tivoli [®] Directory Server	6.4	6.4
IBM Lotus [®] Domino [®] Server Note: Support is withdrawn for this product from PowerHA SystemMirror 7.2.8 or later.	NA	NA
SAP liveCache Hot Standby Note: Support is withdrawn for this product from PowerHA SystemMirror 7.2.8 or later.	NA	NA
MaxDB	7.9.08	7.9.08
IBM Tivoli Storage Manager Note: The product is now known as IBM Spectrum [®] Protect [™] .	8.1.8	8.1.8

Additional information

PowerHA SystemMirror GUI

- If you cannot add a cluster to the PowerHA SystemMirror GUI, or create a new cluster from the PowerHA SystemMirror GUI, consider the following points:
 - Verify that the nodes in the cluster have a boot IP or persistent IP that can be routed to the PowerHA SystemMirror GUI server. You cannot use a service IP to manage a cluster.
 - If you have trouble adding a cluster to the PowerHA SystemMirror GUI, verify the SSH connection from the PowerHA SystemMirror GUI server to the remote system that you are trying to connect is working. For example:

```
# ssh 172.19.67.49 /bin/hostname
The authenticity of host '172.19.67.49 (172.19.67.49)' can't be established.
ECDSA key fingerprint is 41:19:ea:f6:4f:46:91:29:f5:a0:fd:89:91:f7:28:97.
Are you sure you want to continue connecting (yes/no)?
```

In the current version of PowerHA SystemMirror GUI, you must also respond to the prompt to establish the SSH connection. You must respond by entering yes to add the host to the `~/.ssh/known_hosts` file of the PowerHA SystemMirror GUI server. After adding the host name to the hosts files the prompt is not displayed again.

- Only a **root** user can create or add a cluster. After the cluster is added in the PowerHA SystemMirror GUI, a non-root user can also manage clusters through the PowerHA SystemMirror GUI. If you do not have root credentials, a **root** user must configure the **sudo** command such that it can be run on one of the nodes in the cluster. For more information, see [Logging in as a non-root user](#). If you have root credentials, Secure Shell (SSH) service must be configured on the cluster to allow root access. The value of the **PermitRootLogin** parameter must be set to yes in the `/etc/ssh/sshd_config` file. You must restart the SSH service after you modify the `sshd_config` file.
 - The SSH service can be used with a key or with a password. For a key, the key must not have a passphrase. The **configPasswordAuthentication** parameter must be set to yes in the `/etc/ssh/sshd_config` file. You must restart the SSH service after you modify the `sshd_config` file.
 - If the status of a cluster is incorrect in the PowerHA SystemMirror GUI, consider the following points:
 - The PowerHA SystemMirror GUI server does not poll the cluster nodes for status. The PowerHA SystemMirror GUI listens for status change notifications from each node as indicated in the following actions:
 - Core PowerHA SystemMirror GUI events are sent to the PowerHA SystemMirror GUI server immediately after they occur.
 - When the **clmgr** command is used to modify the configuration of a cluster, a notification is sent to the PowerHA SystemMirror GUI server.
 - Verify that the network and firewall settings are allowing traffic between the PowerHA SystemMirror GUI server and PowerHA SystemMirror GUI agents by checking the following items:
 - The default port for the PowerHA SystemMirror GUI server is 8080. You can specify a different value for the port in the `/usr/es/sbin/cluster/ui/server/configuration-server.json` file.
 - The default port for the PowerHA SystemMirror GUI agent is 8081. You can specify a different value for the port in the `/usr/es/sbin/cluster/ui/agent/configuration-agent.json` file.
- For more information about changing the values for the ports, see the [Changing ports](#).
- Synchronize the cluster by running the following command:

```
clmgr synchronize cluster
```

After you synchronize the cluster, if the **sync PASSED** event does not appear in the event viewer for that cluster or if the cluster status in the PowerHA SystemMirror GUI is not correct, the problem might require IBM Support assistance.

See [Troubleshooting the PowerHA SystemMirror GUI](#) for more assistance.

- The option to authenticate by specifying an SSH key is not available from the open terminal feature. SSH authentication is supported only through a password.
- You do not need to install the PowerHA SystemMirror GUI server in a PowerHA SystemMirror cluster, but the PowerHA SystemMirror GUI agent must be installed in a cluster. If the PowerHA SystemMirror GUI server is installed within a PowerHA SystemMirror cluster, the PowerHA SystemMirror GUI can be used to keep the PowerHA SystemMirror GUI server highly available.
- The PowerHA SystemMirror GUI can manage AIX clusters concurrently, and with full multi-tenancy support. For more information, see [Cluster zones](#).
- 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 [Configuring the GUI to be highly available](#).
- By default, the PowerHA SystemMirror GUI server uses the IP address that is associated with the default host name of the system on which it is running. The PowerHA SystemMirror GUI agents use the IP address of the server's host name to communicate the cluster status to the PowerHA SystemMirror GUI server. 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. For more information, see [Configuring the PowerHA SystemMirror GUI](#).

You do not need to install the PowerHA SystemMirror GUI server in a PowerHA SystemMirror cluster, but the PowerHA SystemMirror GUI agent must be installed in a cluster. When you migrate a PowerHA SystemMirror GUI agent, an attempt is made to restart the agent service when the migration completes. When you migrate a PowerHA SystemMirror GUI server, an attempt is made to maintain the original state of the agent service. If the PowerHA SystemMirror GUI server is active when the migration begins, an attempt is made to restart the PowerHA SystemMirror GUI server when the migration completes.

After you install filesets that are available on the PowerHA SystemMirror Version 7.2.7 for AIX media, or migrate to PowerHA SystemMirror Version 7.2.7 from PowerHA SystemMirror Version 7.2.3, or earlier, you must run the `/usr/es/sbin/cluster/ui/server/bin/smuiinst.ksh` command to complete the installation process. The **smuiinst.ksh** command automatically downloads and installs the remaining files that are required to complete the PowerHA SystemMirror GUI installation process. These downloaded files are not included in the PowerHA SystemMirror filesets because the files are licensed under the General Public License (GPL).

You must migrate the PowerHA SystemMirror GUI server before you migrate any cluster that is managed by the PowerHA SystemMirror GUI server. New clusters cannot be managed by an earlier version of the PowerHA SystemMirror GUI server. If the PowerHA SystemMirror GUI server is configured for high availability, you must disable high availability of the PowerHA SystemMirror GUI server before you migrate the PowerHA SystemMirror GUI server. You can enable the PowerHA SystemMirror GUI server for high availability after the migration process is complete. For more information, see [Configuring the PowerHA SystemMirror GUI server to be highly available](#).

Due to expiration of the Bulls freeware, you must use the IBM AIX Toolbox to download dependencies of the PowerHA SystemMirror GUI server. If the PowerHA SystemMirror cluster and the PowerHA SystemMirror GUI server are on PowerHA SystemMirror Version 7.2.3, dependencies remain same. For more information, see [Installing PowerHA SystemMirror GUI](#).

The PowerHA SystemMirror GUI Version 7.2.7 supports an Email Notification feature for cluster base events. To use the Email Notification feature, you must configure Simple Mail Transport Protocol (SMTP) settings in your environment

Documentation

To view the latest updates to the documentation, see the [What's new in PowerHA SystemMirror Version 7.2.7 for AIX](#) 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. To view the man pages, from the command line, enter `man command_name` (where *command_name* is the name of the command). You can also view the man pages in the IBM Documentation, [PowerHA SystemMirror commands](#).

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.

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