IBM PowerHA SystemMirror for AIX

Standard Edition

Version 7.2.1

PowerHA SystemMirror Graphical User Interface

IBM

IBM PowerHA SystemMirror for AIX

Standard Edition

Version 7.2.1

PowerHA SystemMirror Graphical User Interface

IBM

Contents

About this document

This document provides information about viewing and monitoring clusters by using PowerHA® SystemMirror® for AIX®.

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. Also identifies graphical objects such as buttons, labels, and icons that the user selects.
Italics	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.

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.

Related information

- The PowerHA SystemMirror Version 7.2.1 PDF documents are available in the PowerHA SystemMirror 7.2.1 PDFs topic.
- The PowerHA SystemMirror Version 7.2.1 release notes are available in the PowerHA SystemMirror 7.2.1 release notes topic.

PowerHA SystemMirror graphical user interface (GUI)

In PowerHA SystemMirror Version 7.2.1, or later, you can use a graphical user interface (GUI) to monitor your cluster environment.

The PowerHA SystemMirror GUI provides the following advantages over the PowerHA SystemMirror command line:

- Monitor the status for all clusters, sites, nodes, and resource groups in your environment.
- Scan event summaries and read a detailed description for each event. If the event occurred because of an error or issue in your environment, you can read suggested solutions to fix the problem.
- Search and compare log files. Also, the format of the log file is easy to read and identify important information.
- View properties for a cluster such as the PowerHA SystemMirror version, name of sites and nodes, and repository disk information.

What's new in PowerHA SystemMirror Graphical User Interface

Read about new or significantly changed information for the PowerHA SystemMirror Graphical User Interface topic collection.

How to see what's new or changed

In this PDF file, you might see revision bars (|) in the left margin that identifies new and changed information.

June 2017

The following information is a summary of the updates that are made to this topic collection:

- Updated information about new Resource Optimized High Availability (ROHA) tunables in the following topics:
  - Installing PowerHA SystemMirror
  - Planning for PowerHA SystemMirror

Planning for PowerHA SystemMirror GUI

Before you can install PowerHA SystemMirror GUI, your environment must meet certain requirements.

You must install the following filesets to use PowerHA SystemMirror GUI:

cluster.es.smui.agent
> The `cluster.es.smui.agent` fileset is also known as the GUI agent file set. The GUI agent fileset communicates with the system that you used to install the GUI server fileset. This fileset must be installed on all the nodes that you want to be managed with PowerHA SystemMirror GUI. This fileset can be installed on different versions of PowerHA SystemMirror. For more information, see "Monitoring previous versions of PowerHA SystemMirror" on page 2.

cluster.es.smui.common
> This fileset must be installed with the `cluster.es.smui.server` (GUI server) fileset and with the `cluster.es.smui.agent` (GUI agent) fileset.

cluster.es.smui.server
> The `cluster.es.smui.server` fileset is also known as the GUI server fileset. The GUI server fileset is typically installed on only one system to manage clusters with the PowerHA SystemMirror

GUI. This fileset can be installed on a cluster that is running PowerHA SystemMirror Version 7.2.1, or later, or on an AIX LPAR that does not have clusters that are configured.

AIX operating system requirements

The nodes in the clusters on which you install the `cluster.es.smui.agent` fileset and the `cluster.es.smui.common` fileset must be running one of the following versions of the AIX operating system:

- IBM® AIX 6 with Technology Level 9 with Service Pack 15, or later
- IBM AIX 7 with Technology Level 3, or later
- AIX Version 7.2, or later

Note: You can install the latest available fixes for the AIX operating system from the Fix Central website.

Monitoring previous versions of PowerHA SystemMirror

With PowerHA SystemMirror 7.2.1 Service Pack 1, or later, you can use the PowerHA SystemMirror GUI to monitor clusters that are running the following version of PowerHA SystemMirror:

- PowerHA SystemMirror 7.1.3 SP 7, or later
- PowerHA SystemMirror 7.2.0 SP 3, or later

Note: You must install the PowerHA SystemMirror 7.1.3 SP 7, or later, or PowerHA SystemMirror 7.2.0 SP 3, or later, on the nodes in the cluster before you install PowerHA SystemMirror 7.2.1 Service Pack 1. Also, you must install the `cluster.es.smui.agent` fileset and the `cluster.es.smui.common` fileset on all nodes that you want to manage with the PowerHA SystemMirror GUI. To install the `cluster.es.smui.agent` fileset and the `cluster.es.smui.common` fileset from a PowerHA SystemMirror service pack, run the **smit install_all** command.

Note: You cannot install the `cluster.es.smui.agent` fileset and the `cluster.es.smui.common` fileset by using the **smit update_all** command. After you run the **smit update_all** command, you need to install the `cluster.es.smui.agent` fileset separately.

Adding clusters

You must add clusters to the PowerHA SystemMirror GUI.

Note: You cannot create a new cluster by using the PowerHA SystemMirror GUI, you can only add the existing clusters to the GUI.

When you add clusters to the PowerHA SystemMirror GUI, you must have Secure Shell (SSH) configured to facilitate authentication between the PowerHA SystemMirror GUI server and a single node in the cluster. After the cluster is added to the PowerHA SystemMirror GUI, SSH is no longer required.

OpenSSL and OpenSSH must be installed on the system that is used at the PowerHA SystemMirror GUI server. OpenSSL is used for secure communication between PowerHA SystemMirror GUI server and nodes in the cluster. For more information, see the OpenSSL website and the OpenSSH website.

The SSH File Transfer Protocol (SFTP) subsystem must be configured to work between the PowerHA SystemMirror GUI server and nodes in the cluster. You can verify that the SFTP subsystem is configured correctly in the /etc/ssh/sshd_config file and verify that following path is correct:

```
Subsystem       sftp    /usr/sbin/sftp-server
```

If the path is not correct, you must enter the correct path in the /etc/ssh/sshd_config file, and then restart the sshd subsystem.

Gather the following information about your cluster environment before you add clusters to the PowerHA SystemMirror GUI:

Note: You need to connect to only one node in the cluster. After the node is connected, the PowerHA SystemMirror GUI automatically adds all other nodes in the cluster.

* Host name or IP address
* User ID and corresponding password
* SSH password or SSH key location

Supported web browsers

PowerHA SystemMirror GUI is supported in the following web browsers:

* Google Chrome Version 50, or later
* Firefox Version 45, or later

Related information:

IBM Fix Central

Installing PowerHA SystemMirror GUI

The PowerHA SystemMirror GUI filesets are located on the PowerHA SystemMirror Version 7.2.1, or later, media. The PowerHA SystemMirror GUI server monitors clusters that are installed with the PowerHA SystemMirror 7.1.3 SP 7, or later and PowerHA SystemMirror 7.2.0 SP 3, or later releases.

Install the following file sets to use PowerHA SystemMirror GUI:

cluster.es.client.rte
> You must apply any available software updates to this fileset prior to installing the PowerHA SystemMirror GUIfilesets.

cluster.es.smui.agent
> This file set installs the agent files. Installing this fileset does not start the agent. This file set is automatically installed when you use the **smit install_all** command to install PowerHA SystemMirror Version 7.2.1, or later. This file set is automatically installed when you add clusters to the PowerHA SystemMirror GUI.
>
> **Note:** You cannot install the `cluster.es.smui.agent` fileset by using the **smit update_all** command. After running the **smit update_all** command, you need to install the `cluster.es.smui.agent` fileset separately.

cluster.es.smui.common
> This file set installs common files that are required by both the agent and the PowerHA SystemMirror GUI server. This file set is automatically installed when you use the **smit install_all** command to install PowerHA SystemMirror Version 7.2.1, or later.
>
> **Note:** You cannot install the `cluster.es.smui.common` fileset by using the **smit update_all** command. After running the **smit update_all** command, you need to install the `cluster.es.smui.common` fileset separately.

cluster.es.smui.server
> This fileset installs the PowerHA SystemMirror GUI server files. The node on which you install the `cluster.es.smui.server` file set is known as the PowerHA SystemMirror GUI server. Installing this file set does not start the server. You do not need to install this file set on every node in the cluster. You can install this file set on a single node to manage multiple clusters.
>
> To install this fileset, complete the following steps:
>
> 1. From the command line, run the **smit install_latest** command.

2. Specify the input device or directory that contains the `cluster.es.smui.server` file set.
3. Select the `cluster.es.smui.server` file set from the list.
4. Press Enter to install the file set.

After the `cluster.es.smui.server` file set is installed, 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 shipped in the file sets because the files are licensed under the General Public License (GPL).

The PowerHA SystemMirror GUI server must have internet access or an HTTP proxy that is configured to allow access to the internet to run the **smuiinst.ksh** command. If you are using an HTTP proxy, you must run the **smuiinst.ksh -p** command to specify the proxy information, or you must specify the proxy information by using the http_proxy environment variable. If the PowerHA SystemMirror GUI server does not have internet access, complete the following steps:

1. Copy the **smuiinst.ksh** file from the GUI server to a system that is running the AIX operating system that has internet access.
2. Run the **smuiinst.ksh -d /directory** command where **/directory** is the location where you want to the download the files. For example, **/smuiinst.ksh –d /tmp/smui_rpms**.
3. Copy the downloaded files (**/tmp/smui_rpms**) to a directory on the PowerHA SystemMirror GUI server.
4. From the PowerHA SystemMirror GUI server, run the **smuiinst.ksh -i /directory** command where **/directory** is the location where you copied the downloaded files (**/tmp/smui_rpms**).

After the **smuiinst.ksh** command is complete, a message displays a URL for the PowerHA SystemMirror GUI server. Enter the specified URL into a web browser and click the icon to add clusters to the PowerHA SystemMirror GUI.

The `cluster.es.smui.agent` fileset must be installed on these clusters to monitor clusters that are installed with the PowerHA SystemMirror 7.1.3 SP 7, or later and PowerHA SystemMirror 7.2.0 SP 3, or later releases.

Related reference:

"Troubleshooting PowerHA SystemMirror GUI" on page 7
You can view log files to help you troubleshoot PowerHA SystemMirror GUI.

Logging in to the PowerHA SystemMirror GUI

After you install the PowerHA SystemMirror GUI, you can log in to the PowerHA SystemMirror GUI from a web browser.

To log in to the PowerHA SystemMirror GUI, complete the following steps:

1. Open a supported web browser, and enter https://*HostName*:8080/#/login, where *HostName* is the system on which you installed the `cluster.es.smui.server` fileset.
2. On the login page, enter the user name and password and click **Log In**. You can use the existing user names and passwords that exist on the system to login.

Note: The first time you log in to the PowerHA SystemMirror GUI, you must add clusters to the GUI.

To add existing clusters to the PowerHA SystemMirror GUI, complete the following steps:

Note: You cannot create a new cluster by using the PowerHA SystemMirror GUI, you can only add the existing clusters to the GUI.

1. Click the ⊞ icon.
2. Select **Add clusters**.
3. Complete all required information.
4. Click **Discover clusters**.

Navigating the PowerHA SystemMirror GUI

The PowerHA SystemMirror graphical user interface (GUI) provides you with a web browser interface that can monitor your PowerHA SystemMirror environment.

Event summaries

In the PowerHA SystemMirror GUI, you can quickly view all events for a cluster in your environment. The following figure identifies the different areas of the PowerHA SystemMirror GUI that are used to view events:
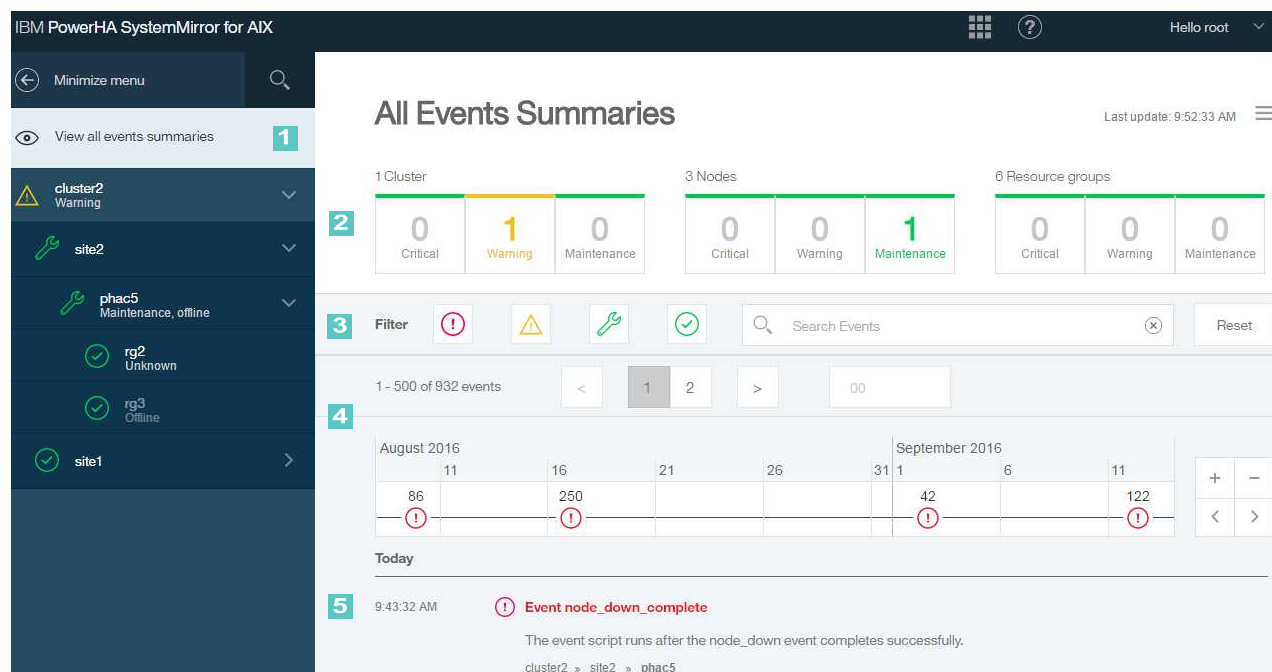
Figure 1. Event summaries

1 **Navigation pane**

This area displays all the clusters, sites, nodes, and resource groups in a hierarchy that was discovered by the PowerHA SystemMirror GUI. You can click to view resources for each cluster.

Note: The clusters are displayed in alphabetic order. However, any clusters that are in a **Critical** or **Warning** state are listed at the top of the list.

2 **Scoreboard**

This area displays the number of clusters, nodes, and resource groups that are in **Critical**, **Warning**, or **Maintenance** state. You can click **Critical**, **Warning**, or **Maintenance** to view all the messages for a specified resource. For example, in Figure 1, there are 6 resource groups identified. If the warning icon was highlighted and you clicked the warning icon, all messages (critical, warning, and normal) for the 6 resource groups would be displayed.

3 **Event filter**

In this area, you can click the icons to display all events in your environment that correspond to a specific state. You can also search for specific event names.

4 **Event timeline**

This area displays events across a timeline of when the event occurred. This area allows you to view the progression of events that lead to a problem. You can zoom in and out of the time range by using the + or – keys or by using the mouse scroll wheel.

5 **Event list**

This area displays the name of the event, the time when each event occurred, and a description of the event. The information that is displayed in this area corresponds to the events you selected from the event timeline area. The most recent event that occurred is displayed first. You can click this area to display more detailed information about the event such as possible causes and suggested actions.

Log files

To easily compare and identify log files that are displayed in the PowerHA SystemMirror GUI, the log files correspond to a particular color. For example, in the flowing figure all the log files for the hacmp.out file are displayed in a blue color and all the log files for the cluster.log file are displayed in a yellow color.

The following figure identifies the different areas of the PowerHA SystemMirror GUI that are used to view log files:
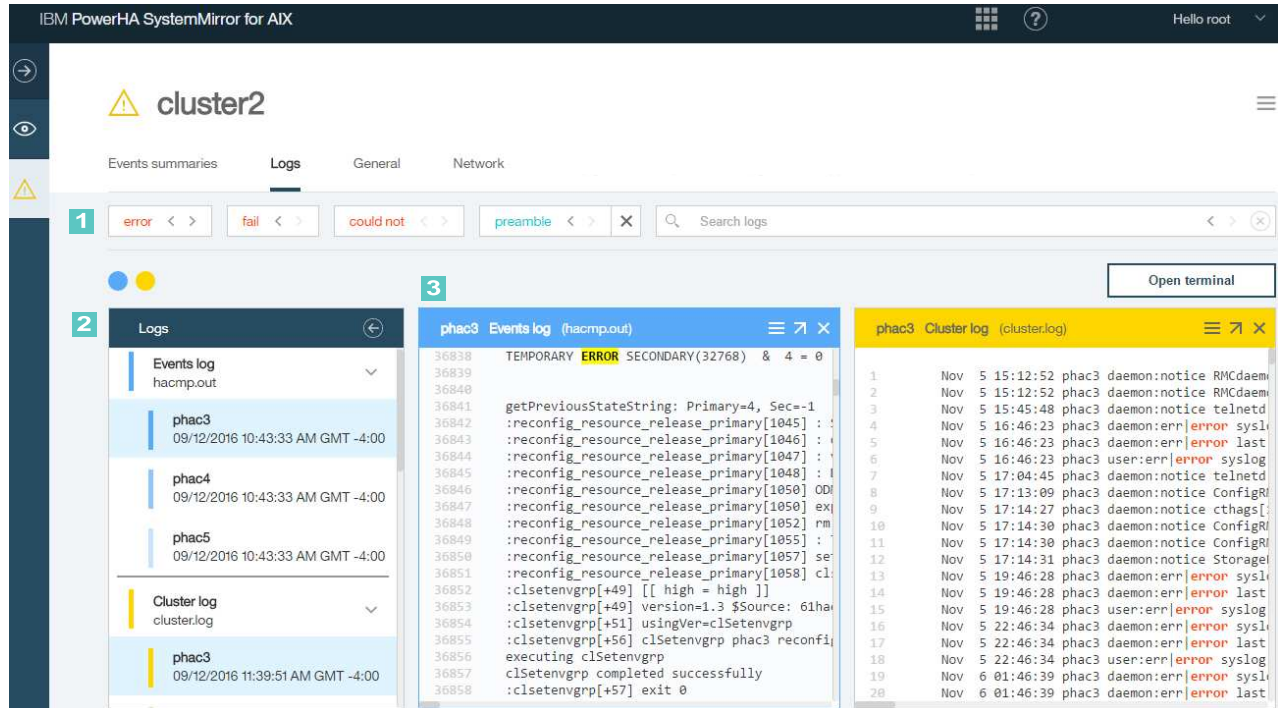

Figure 2. Log files

1 **Search terms**

You can click the following predefined search terms to locate the specified term in the log file:

- error
- fail
- could not

You can click the < and > arrows to move to the previous and next instance of the search term in the selected log file. You can also enter your own search term and create a user-defined search term. A user-defined search term functions similar to the predefined search terms. For example, in the preceding figure, **preamble** is a user-defined search term.

2 **Log file selection**
You can view the following log files from the PowerHA SystemMirror GUI:
- hacmp.out
- cluster.log
- clutils.log
- clstrmgr.debug
- syslog.caa
- clverify.log
- autoverify.log

Note: All of the log files, including the most current and the oldest, are merged together to create a single large log file. For example, when you view the hacmp.out log file you are able to view the hacmp.out.1, hacmp.out.2, and hacmp.out.3 log files as a single log file instead of three separate log files.

3 **Log file viewer**
In this area, you can view the log file information. To easily locate important information in the log files, the scripts are located within collapsed sections in the log files. You can expand sections within the log file to view more detailed scripts. You can also open the log file in a separate browser window by clicking the icon.

Troubleshooting PowerHA SystemMirror GUI

You can view log files to help you troubleshoot PowerHA SystemMirror GUI.

Log files

You can use the following log files to troubleshoot PowerHA SystemMirror GUI:

smui-server.log
This log file is located in the `/usr/es/sbin/cluster/ui/server/logs/` directory. The smui-server.log file contains information about the PowerHA SystemMirror GUI server.

smui-agent.log
This log file is located in the `/usr/es/sbin/cluster/ui/agent/logs/` directory. The smui-agent.log file contains information about the agent that is installed on each PowerHA SystemMirror node.

notify-event.log
This log file is located in the `/usr/es/sbin/cluster/ui/agent/logs/` directory. The notify-event.log file contains information about all PowerHA SystemMirror events that are sent from the agent to the PowerHA SystemMirror server.

Problems logging in to PowerHA SystemMirror GUI

If you are experiencing problems logging in to the PowerHA SystemMirror GUI, complete the following steps:

1. Check for issues in the /usr/es/sbin/cluster/ui/server/logs/smui-server.log file.
2. Verify that the **smuiauth** command is installed correctly. Also, verify that the **smuiauth** command has the correct permissions by running the **ls -l** command from the /usr/es/sbin/cluster/ui/server/node_modules/smui-server/lib/auth/smuiauth directory. An output that is similar to the following example is displayed when you run the **ls -l** command:

   ```
   -r-x------   1 root     system       21183 Aug 31     21:48
   ```
3. Verify that you can run the **smuiauth** command by running the **smuiauth -h** command.
4. Verify that the pluggable authentication module (PAM) framework is configured correctly by locating the following lines in the /etc/pam.conf file:

   Note: The PAM configuration occurs when you install the cluster.es.smui.server fileset.

   ```
   smuiauth        auth       required    pam_aix
   smuiauth        account    required    pam_aix
   ```

Problem adding clusters to the PowerHA SystemMirror GUI

If you are not able to add clusters to the PowerHA SystemMirror GUI, complete the following steps:

1. Check for issues in the /usr/es/sbin/cluster/ui/server/logs/smui-server.log file.
   a. If sftp-related signatures exist in the log file, such as Received exit code 127 while establishing SFTP session, a problem exists with the SSH communication between the PowerHA SystemMirror GUI server and the cluster you are trying to add.
   b. From the command line, verify that you can connect to the target system by using SSH File Transfer Protocol (SFTP). If you cannot connect, verify that the daemon is running on the PowerHA SystemMirror GUI server and the target node by running the **ps –ef | grep –w sshd | grep –v grep** command. You can also check the SFTP subsystem configuration in the /etc/ssh/sshd_config file and verify that following path is correct:

      ```
      Subsystem       sftp   /usr/sbin/sftp-server
      ```

      If the path is not correct, you must enter the correct path in the /etc/ssh/sshd_config file, and then restart the sshd subsystem.
2. Check for issues in the /usr/es/sbin/cluster/ui/agent/logs/agent_deploy.log file on the target cluster.
3. Check for issues in the /usr/es/sbin/cluster/ui/agent/logs/agent_distribution.log file on the target cluster.

The PowerHA SystemMirror GUI is not updating status

If the PowerHA SystemMirror GUI is not updating the cluster status or displaying new events, complete the following steps:

1. Check for issues in the /usr/es/sbin/cluster/ui/server/logs/smui-server.log file.
2. Check for issues in the /usr/es/sbin/cluster/ui/agent/logs/smui-agent.log file. If certificate-related problem exists in the log file, the certificate on the target cluster and the certificate on the server do not match. An example of a certificate error follows:

   ```
   WebSocket server - Agent authentication failed, remoteAddress:::ffff:10.40.20.186, Reason:SELF_SIGNED_CERT_IN_CHAIN
   ```

Related concepts:

"Installing PowerHA SystemMirror GUI" on page 3
The PowerHA SystemMirror GUI filesets are located on the PowerHA SystemMirror Version 7.2.1, or later, media. The PowerHA SystemMirror GUI server monitors clusters that are installed with the PowerHA SystemMirror 7.1.3 SP 7, or later and PowerHA SystemMirror 7.2.0 SP 3, or later releases.

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:

9

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.

Index

E

I

L

N

P

T

13

IBM ®

Printed in USA