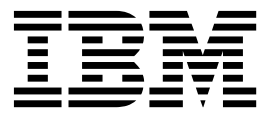IBM PowerHA SystemMirror for AIX

Standard Edition

Version 7.2.2

PowerHA SystemMirror Graphical User Interface

IBM

IBM PowerHA SystemMirror for AIX

Standard Edition

Version 7.2.2

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IBM

This edition applies to IBM PowerHA SystemMirror 7.2.2 Standard Edition for AIX and to all subsequent releases and modifications until otherwise indicated in new editions.

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 7.2.2 for AIX PDF documents are available in the PowerHA SystemMirror 7.2.2 PDFs topic.
- The PowerHA SystemMirror Version 7.2.2 for AIX release notes are available in the PowerHA SystemMirror 7.2.2 release notes topic.

PowerHA SystemMirror graphical user interface (GUI)

In PowerHA SystemMirror Version 7.2.2 for AIX, 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.

December 2017

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

- Added the following new topic:
  – PowerHA SystemMirror Version 7.2.2 for AIX supports the concept of "Cluster zones" on page 8.
- Updated the following topics:
  – PowerHA SystemMirror graphical user interface (GUI)
  – Planning for PowerHA SystemMirror
  – Installing PowerHA SystemMirror
  – Logging in to the PowerHA SystemMirror GUI
  – Navigating the PowerHA SystemMirror GUI
  – "Log files" on page 7

Planning for PowerHA SystemMirror GUI

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

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:

- AIX Version 7.1 Service Pack 6, or later
- AIX Version 7.2 Service Pack 1, or later

Notes:

- Before using the PowerHA SystemMirror GUI, you must install and configure secure shell (SSH) on each node.
- OpenSSL and OpenSSH must be installed on the system that is used as the PowerHA SystemMirror GUI server.
- You can install the latest available fixes for the AIX operating system from the Fix Central website.

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 in every cluster that you want to be managed with the PowerHA SystemMirror GUI. This fileset can be installed on different versions of PowerHA SystemMirror. For more information, see "Managing previous versions of PowerHA SystemMirror."

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 7.2.2 for AIX, or later, or on an AIX LPAR that does not have clusters that are configured.

Managing previous versions of PowerHA SystemMirror

With PowerHA SystemMirror 7.2.2, 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
- PowerHA SystemMirror 7.2.1

The full management capabilities that are provided in PowerHA SystemMirror 7.2.2 can be only used for clusters that are running PowerHA SystemMirror 7.2.2, or PowerHA SystemMirror 7.2.1 SP 2, or later. For earlier versions of PowerHA SystemMirror, only the monitoring features are supported.

You must install the `cluster.es.smui.common` and `cluster.es.smui.agent` filesets on all nodes that you want to manage with the PowerHA SystemMirror GUI. To install these filesets for the first time, run the **smit install_all** command. If the filesets are already installed, then run the **smit update_all** command to apply new service packs.

Adding clusters

You must add clusters to the PowerHA SystemMirror 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.

OpenSSL and OpenSSH must be installed on the system that is used at the PowerHA SystemMirror GUI server. OpenSSL is used to create 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 7.2.2 for AIX, 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.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 7.2.2 for AIX, or later. The agent is configured and started when the cluster is added to the PowerHA SystemMirror GUI.
>
> **Note:** You cannot install the `cluster.es.smui.agent` file set 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 7.2.2 for AIX, or later.
>
> **Note:** You cannot install the `cluster.es.smui.common` file set 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 file set 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, nor on every cluster that is to be managed. You can install this file set on a single node to manage multiple clusters.

To install this file set, complete the following steps:

1. From the command line, run **smit install_latest**.
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 from the **Health Summary** menu in the

navigation pane, click the ●●● icon and select **Create Cluster** option.

Related reference:

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` file set.
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 or create new clusters.

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

1. In the navigation pane, click the ••• icon.
2. Select **Add cluster**.
3. Complete all required information.
4. Click **Discover clusters**.

To create new clusters for the PowerHA SystemMirror GUI, complete the following steps:

1. In the navigation pane, click the ••• icon.
2. Select **Create cluster**.
3. Complete all required information.
4. Click **Complete**.

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.

Health summary

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 and status.

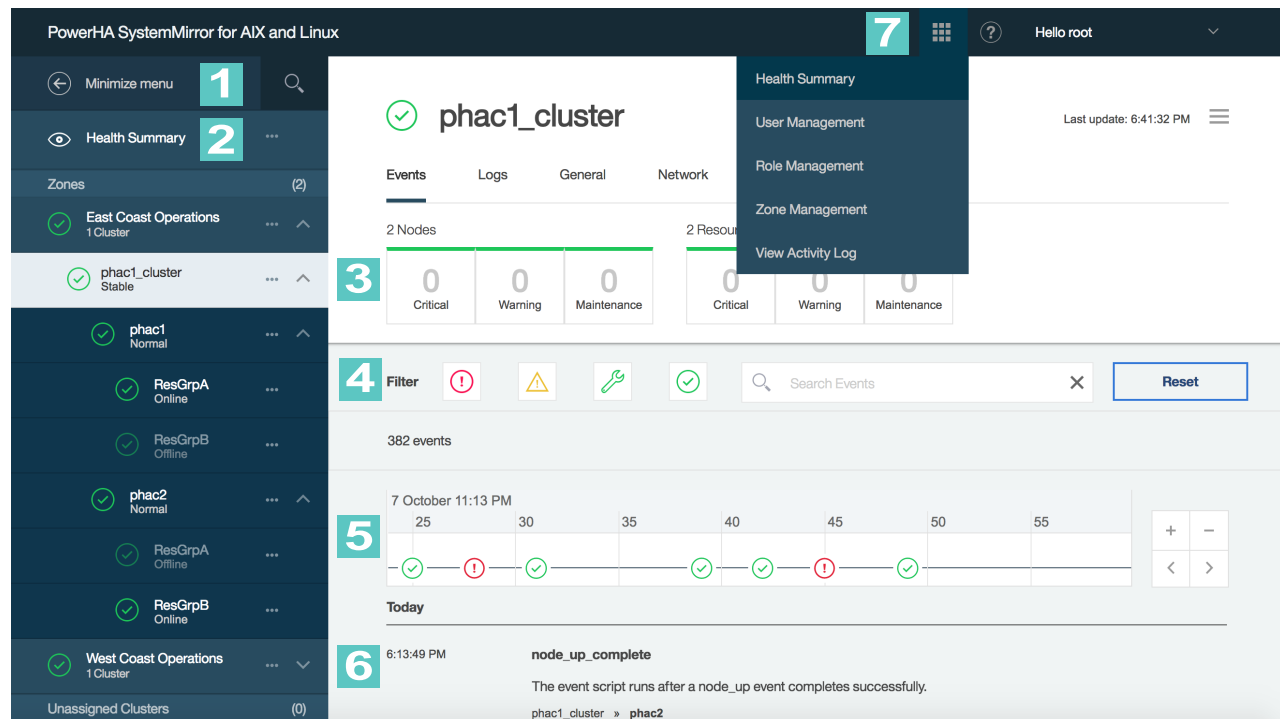*Figure 1. Health summary*

1 **Navigation pane**

This area displays all the zones, 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 Health Summary

This menu provides cluster administrative features for the selected item. You can select **Add Cluster**, **Create Zone**, **Remove Cluster**, or **Create Cluster** from the ⚫⚫⚫ **Health Summary** menu.

3 Scoreboard

This area displays the number of zones, 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 5 resource groups identified. If the warning icon was highlighted and you clicked the warning icon, all messages (critical, warning, and normal) for the 5 resource groups would be displayed.

4 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.

5 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.

6 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.

7 Action Menu

This area displays the following menus options:

User Management

PowerHA SystemMirror GUI allows an admin to create and manage users by using **User Management** menu. The admin can assign built-in roles to new users.

Note: You can only add user names that are defined in the host to the PowerHA SystemMirror GUI.

Role Management

The **Role Management** tab displays information about available roles for each user. An admin can create custom roles and provide permission to different users. PowerHA SystemMirror GUI provides the following roles:

- **ha_root**
- **ha_mon**
- **ha_op**
- **ha_admin**

Zone Management

You can create zones, which are group of clusters. An admin can create zones and assign any number of clusters to a zone. You can also add new zones or edit existing zones.

View Activity Log

You can view all information about user management and zone management by using **View Activity Log** tab. This view provides various filters to search the exact events for the cluster, roles, scope, or user management changes.

Log files

PowerHA SystemMirror GUI provides the option to view log information about all files in a cluster.

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 following 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:
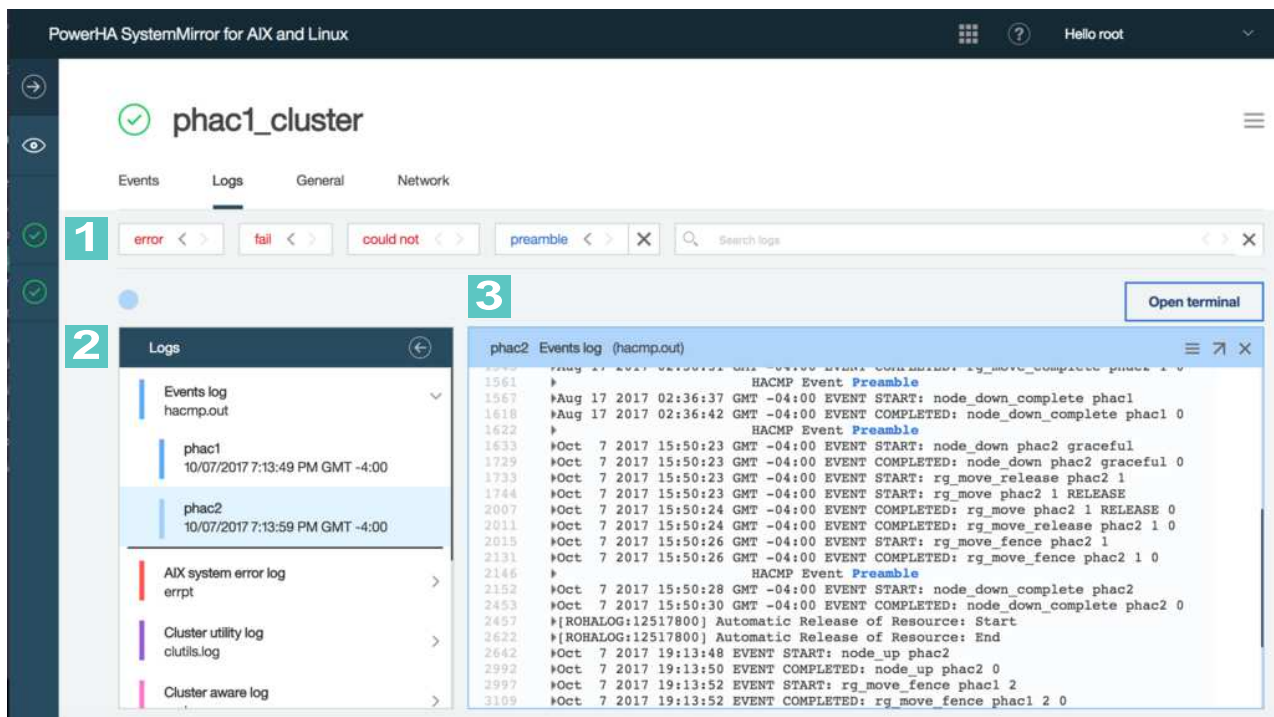

Figure 2. Log files

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
- errpt
- clutils.log
- clverify.log
- autoverify.log
- clstrmgr.debug
- cluster.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.

To view log files of a specific cluster, complete the following steps:

1. From the navigation menu, select the cluster and click **View Cluster**.
2. Click the **Logs** tab for that specific cluster.

Activity log

The PowerHA SystemMirror GUI records all change-related information in the GUI database. The **Activity Log** tab provides a quick and easy way to view that information. Various filtering options are provided to help find specific historical information about changes that are made to clusters, resource groups, roles, zones, and user accounts. An option to download the **Activity Log** is provided. You can also export the downloaded **Activity Log** into a comma-separated values (CSV) file.

Cluster zones

PowerHA SystemMirror Version 7.2.2 for AIX supports the concepts of cluster zones. Cluster zones can be used to organize clusters in a variety of ways. For example, you might create a zone for all your production clusters, another zone for development clusters, and another zone for test clusters. You can also organize zones based on the geographical location of the clusters, such as clusters located in New York City and clusters located in Boston. Cluster zones can be organized by various application such as DB2 Clusters, WebSphere Clusters, or cluster zones can also be organized by customer name.

Zone management

A group of clusters form a zone. An administrator can create different zones and assign any number of clusters to a zone. However, one cluster cannot be member of multiple zones. By creating a zone, an administrator can restrict the user from accessing a specific group of clusters.

You can also provide access to users for specific zones. If you do not add a user to a zone, that user cannot view clusters that are associated with the zone.

Note: If a cluster is not assigned to any zone, it will be displayed as **Unassigned Cluster** and it will be accessible to all PowerHA SystemMirror GUI users.

To create a zone by using the PowerHA SystemMirror GUI, complete the following steps:

1. Click the ▦ icon.
2. Select **Zone Management**.
3. Click **Add zone** and complete all the required information.
4. Click **Continue**.
5. Select **Clusters** from the **Zone Management** list and click **Continue**.
6. Select **Users** from the **Zone Management** list and click **Save**.

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` file set.
   ```
   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 7.2.2 for AIX, or later, media.

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