Pillar AxiomONE™ Path Manager 2.0

Installation Guide and Release Notes

for HP-UX 11i v3
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Chapter 1 Introduction to AxiomONE Path Manager

Supported HP-UX Distributions

AxiomONE Path Manager (APM) 2.0 is supported on 64-bit HP-UX platforms.

This release of APM 2.0 supports HP-UX 11i v3 (HP-UX 11.31) Update 3 (September 2008 release) or later distributions for the following architectures:

- 64-bit on PA-RISC 2.0
- 64-bit Itanium

Important! This release of APM does not support HP-UX versions previous to HP-UX 11i v3 Update 3. Do not install APM for other versions of HP-UX on HP-UX 11i v3.
AxiomONE Path Manager Architecture

The AxiomONE Path Manager (APM) software uses HP-UX native multipathing to communicate with Pillar Axiom servers along different pathways.


APM communicates with Pillar Axiom servers along two separate paths: the control path and the data path. The APM daemon uses the control path to manage path communication, and APM works with the HP-UX native multipathing framework to manage the LUN data access paths.

APM Interaction with a Pillar Axiom Server illustrates how the APM software installed on a SAN host interacts with a Pillar Axiom storage system. Dashed lines represent the control path, and solid lines represent the data path. Green indicates Pillar-supplied hardware and software components, light green background indicates the Pillar Axiom storage system, light gray background indicates the user space on the SAN host, and light blue background indicates the kernel space on the SAN host.
Figure 1 APM Interaction with a Pillar Axiom server

Legend

1. User
2. User application
3. SAN host
4. APM daemon
5. Control paths (all dashed lines)
6. Pillar Axiom administrator
7. Pillar Axiom command line interface (CLI) or graphical user interface (GUI)
8. Encrypted XML over TCP/IP
9. Network card
10. SCSI disk software
11. HP-UX native multipathing
12. HBA driver
13. HBA
14. SCSI over Fibre Channel
15. Data path (all solid lines)
16. Pillar Axiom server
17. Brick storage pool
About the AxiomONE Path Manager Control Path

The AxiomONE Path Manager (APM) control path provides a path to manage multipathing and communication.

The APM daemon uses the control path to:

- Get path information from the HBA drivers.
- Monitor and update the HP-UX native multipathing framework.
- Send information such as host attributes and statistics to the Pilot, and collect logs from the host on request.

The APM daemon sends a description of the host to the Pilots on connected Pillar Axiom storage systems. This creates a definition for the host in the AxiomONE Storage Services Manager. The definition includes any Fibre Channel ports in the host. The GUI and CLI list the port WWNs of the Fibre Channel ports in the host that are used to make connections to the Pillar Axiom system.

About the AxiomONE Path Manager Data Path

AxiomONE Path Manager (APM) uses the HP-UX 11i v3 multipathing driver to provide paths for reading and writing data to LUNs on the Pillar Axiom server.

The multipathing driver:

- Groups multiple paths to a Pillar Axiom LUN and presents this group to the operating system as a single LUN or disk drive.
- Identifies and uses optimized paths when possible. An optimized path provides the best performance and is the preferred path for data transfer.
- Determines which path to use.
- Handles path failover.
- Manages data path errors.
AxiomONE Path Manager 2.0 Features

AxiomONE Path Manager (APM) 2.0 has many features to facilitate LUN access from a SAN host.

**Important!** APM 2.0 can manage LUN access for the following Pillar Axiom systems:
- Pillar Axiom 300 systems, release 1.5 or higher
- Pillar Axiom 500 systems, release 2.7 or higher
- Pillar Axiom 600 systems, release 3.1 or higher

APM is defined as:

Optional software installed on a storage area network (SAN) host to manage multiple paths to the Pillar Axiom storage system. APM performs the following primary functions:

- Routes I/O to Pillar Axiom LUNs using only the best available paths.
- Shares traffic among the available paths and ensures that access to the LUNs is not interrupted if some paths fail.
- Automatically configures the host into the AxiomONE Storage Services Manager and updates the configuration if it changes.

The latter function enables the AxiomONE Storage Services Manager to report information about APM running on the host, such as the number of working paths, and, in some environments, to configure features such as load balancing. Each APM release provides different features, and the features provided for each platform may vary. Refer to the documentation of the APM release you are using for the specific features provided.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic data path</td>
<td>Re-routes block I/O to an alternate path in the event of one or more path connectivity failures.</td>
</tr>
<tr>
<td>Feature</td>
<td>Benefit</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Automatic recognition of SAN hosts by the AxiomONE Storage Services</td>
<td>Sends a description of the host to each Pilot on connected Pillar Axiom systems, allowing the AxiomONE Storage Services Manager and command line interface (CLI) tools to create a definition for the host. This definition includes such information as the WWNs for each of the host's Fibre Channel ports, and the version of APM running on the host.</td>
</tr>
<tr>
<td>Call-Home log collection</td>
<td>Sends information specific to critical APM events to each Pilot on connected Pillar Axiom systems in response to a request from the Pillar Axiom system. The Pillar Axiom system can in turn download this information to the Pillar World Wide Customer Support Center. No customer data is transmitted.</td>
</tr>
<tr>
<td>Support for Fibre Channel (FC) connection to FC Slammers</td>
<td>Makes connections to Pillar Axiom storage arrays over high-speed FC network infrastructure.</td>
</tr>
<tr>
<td>APM monitoring from the Pillar Axiom GUI</td>
<td>Monitors host multipathing from the Pillar AxiomONE Storage Services Manager.</td>
</tr>
<tr>
<td>Native multipathing</td>
<td>Multipathing is implemented by the HP-UX 11i v3 native multipathing framework.</td>
</tr>
</tbody>
</table>
Operating Limits

AxiomONE Path Manager (APM) provides access over multiple data paths to LUNs defined on a Pillar Axiom storage system. APM, HP-UX, and the Pillar Axiom software limit the following aspects of this access.

Table 2 APM operating limits

<table>
<thead>
<tr>
<th>APM capabilities</th>
<th>Maximum value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Pillar Axiom systems</td>
<td>Eight for each SAN host</td>
</tr>
<tr>
<td>Connect to SAN Slammers</td>
<td>Four for each Pillar Axiom system (one for each Pillar Axiom system running a software release earlier than 3.3)</td>
</tr>
<tr>
<td>Connect to LUNs</td>
<td>256 visible from each Pillar Axiom system</td>
</tr>
<tr>
<td>Handle data paths</td>
<td>32 to each LUN</td>
</tr>
<tr>
<td>Handle FC HBA ports</td>
<td>32 for each SAN host</td>
</tr>
</tbody>
</table>

Important! Not all combinations of the limits shown have been tested. Use care when operating a system that has been configured to run at or near these limits. The system may exhibit anomalies when all limits are exercised concurrently.
# Contact Information

## Table 3 Contacts at Pillar Data Systems

<table>
<thead>
<tr>
<th>For help with...</th>
<th>Contact...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error messages, usage questions, and other support issues</td>
<td>US and Canada: 877-4PILLAR (1-877-474-5527)</td>
</tr>
<tr>
<td></td>
<td>Europe: +800 PILLAR FS (+800 74 44 27 37)</td>
</tr>
<tr>
<td></td>
<td>Asia Pacific: +1-408-518-4515</td>
</tr>
<tr>
<td></td>
<td>South Africa: +0 800 980 400</td>
</tr>
<tr>
<td></td>
<td>Have your system serial number ready.</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:support@pillardata.com">support@pillardata.com</a></td>
</tr>
<tr>
<td></td>
<td>Customer support portal (<a href="https://support.pillardata.com/login.do">https://support.pillardata.com/login.do</a>)</td>
</tr>
<tr>
<td>Sales and general contact information</td>
<td>Company contacts (<a href="http://www.pillardata.com/company/contact">http://www.pillardata.com/company/contact</a>)</td>
</tr>
<tr>
<td>Documentation improvements and resources</td>
<td><a href="mailto:docs@pillardata.com">docs@pillardata.com</a></td>
</tr>
<tr>
<td></td>
<td>Technical documents (<a href="http://www.pillardata.com/techdocs">http://www.pillardata.com/techdocs</a>) (Log in with your username and password, and select Documents.)</td>
</tr>
</tbody>
</table>
Related Documentation

Use the following resources to understand the Pillar Axiom storage system features and functions.

**Table 4 Additional resources**

<table>
<thead>
<tr>
<th>For information about…</th>
<th>Refer to…</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functions available in the AxiomONE Storage Services Manager graphical user interface (GUI)</td>
<td><em>Pillar Axiom Administrator’s Guide</em></td>
</tr>
<tr>
<td>The internal hardware and software architecture of Pillar Axiom systems</td>
<td><em>Pillar Axiom System Architecture Overview</em></td>
</tr>
<tr>
<td>Items related to a particular release of the Pillar Axiom storage system, such as:</td>
<td><em>Pillar Axiom Release Notes for your Pillar Axiom storage system.</em></td>
</tr>
<tr>
<td>• New features</td>
<td></td>
</tr>
<tr>
<td>• Capacities</td>
<td></td>
</tr>
<tr>
<td>• Configuration requirements</td>
<td></td>
</tr>
<tr>
<td>• Operating constraints</td>
<td></td>
</tr>
<tr>
<td>• Known issues and their workarounds</td>
<td></td>
</tr>
</tbody>
</table>
Prepare to Install the AxiomONE Path Manager

To ensure a successful installation of AxiomONE Path Manager (APM), perform the following tasks in sequence:

Prerequisite:

APM for HP-UX is distributed as a Software Distributor-HP-UX (SD-UX) package. The commands in this document are examples of typical HP-UX commands. You may need to change these commands depending on your system configuration. Before you install APM, we recommend that you become familiar with SD-UX command variations.

Note: If you are installing a boot-from-SAN configuration, see Install a Boot from SAN LUN.

1 Read AxiomONE Path Manager Release Notes.

2 Ensure that the Pillar Axiom server is running the correct level of software:
   
   • Pillar Axiom 300 systems, release 1.5 or higher
   • Pillar Axiom 500 systems, release 2.7 or higher
   • Pillar Axiom 600 systems, release 3.1 or higher

3 Ensure that the host is running HP-UX 11i v3 Update 3 (September 2008 release) or later.

4 Verify that your Fibre Channel SAN components are supported. See Supported Fibre Channel SAN Hardware Components.

5 Pre-Configure the SAN for Pillar Axiom Integration.
**Note:** For an HP-UX 11i v3 host to access LUNs on a Pillar Axiom storage system running a software release earlier than 3.3, the following are required:

- The host must be configured with HP-UX Compatibility Mode disabled.
- A LUN on the Pillar Axiom system must be visible to the host as LUN 0.
- All LUNs to be visible to the host must be assigned to the Pillar Axiom Slammer where LUN 0 resides.

See [Pre-Configure the SAN for Pillar Axiom Integration](#) for details.
Supported Fibre Channel SAN Hardware Components

AxiomONE Path Manager (APM) supports a variety of Fibre Channel host bus adapters (FC HBAs) and SAN routers and switches.

Approved HBAs and switches that are compatible with the Pillar Axiom system are listed in these sections:

- Install HP Host Bus Adapters
- Supported Fibre Channel Switches

Supported FC Topologies

APM for HP-UX 11i v3 supports the Switched Fabric (FC-SW) topology. APM for HP-UX 11i v3 does not support Point-to-Point (FC-P2P) or Arbitrated Loop (FC-AL).

Maximum Queue Depth

The recommended maximum queue depth for all SAN hosts attached to a Pillar Axiom system is 64. This value is the maximum number of outstanding I/O requests to the Pillar Axiom system. Exceeding the maximum I/O queue depth may cause errors.

This value is typically set in the BIOS or similar firmware configuration of the HBA on the SAN host. Consult your HBA documentation for the setting that controls the maximum I/O queue depth for your HBA and for configuration instructions.

Install HP Host Bus Adapters

AxiomONE Path Manager (APM) 2.0 for HP-UX supports the following HP Fibre Channel host bus adapters (HBAs):

- A6826A
- A6795A
- AB379A
- AB379B

Drivers for these HBAs are included in the HP-UX distribution, or you can download them from the HP support download page.
1 Install HP HBAs according to the instructions at the HP support download page.

2 If necessary, download the driver kit appropriate for your HBA and operating system from the HP support download page, and follow the HP installation instructions.

All relevant Fibre Channel drivers and associated software must be version B.11.31.0809 or later. The FC-COMMON.FC-SNIA fileset (part of the CommonIO bundle) must be installed. This fileset should be installed before the driver package to ensure that associated parts of the driver package are also installed. Before you install drivers, use the following command to verify installation of the required filesets:

```
swlist -R CommonIO FibrChanl-00 FibrChanl-01
```

Extracts from sample output of the `swlist` command follow. The versions shown are the minimum required.

In all cases, the following filesets must be installed:

<table>
<thead>
<tr>
<th>Fileset</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td># CommonIO</td>
<td>B.11.31.0809</td>
</tr>
<tr>
<td>Common IO Drivers</td>
<td></td>
</tr>
<tr>
<td># CommonIO.FC-COMMON</td>
<td>B.11.31.0809 FC</td>
</tr>
<tr>
<td>Common User space files</td>
<td></td>
</tr>
<tr>
<td>CommonIO.FC-COMMON.FC-SNIA</td>
<td>B.11.31.0809 FC</td>
</tr>
<tr>
<td>SNIA Common User Space files and libraries</td>
<td></td>
</tr>
</tbody>
</table>

If you are using A6795A HBAs, the following filesets must be installed:

<table>
<thead>
<tr>
<th>Fileset</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td># FibrChanl-00</td>
<td>B.11.31.0809</td>
</tr>
<tr>
<td>FibreChannel;HW=A6795A,A5158A</td>
<td></td>
</tr>
<tr>
<td># FibrChanl-00.FC-TACHYON-TL</td>
<td>B.11.31.0809</td>
</tr>
<tr>
<td>FibreChannel (TD) Driver</td>
<td></td>
</tr>
<tr>
<td>FibrChanl-00.FC-TACHYON-TL.FC-TL-KRN</td>
<td>B.11.31.0809</td>
</tr>
<tr>
<td>Fibre Channel Tachyon TL/XL2 Kernel Module</td>
<td></td>
</tr>
<tr>
<td>FibrChanl-00.FC-TACHYON-TL.FC-TL-RUN</td>
<td>B.11.31.0809</td>
</tr>
<tr>
<td>Fibre Channel Tachyon TL/XL2 User Space Files</td>
<td></td>
</tr>
</tbody>
</table>

If you are using A6826A or AB379 HBAs, the following filesets must be installed:

<table>
<thead>
<tr>
<th>Fileset</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td># FibrChanl-01</td>
<td>B.11.31.0809</td>
</tr>
<tr>
<td># FibrChanl-01.FC-FCD</td>
<td>B.11.31.0809</td>
</tr>
<tr>
<td>FibreChannel (FCD) Driver</td>
<td></td>
</tr>
<tr>
<td>FibrChanl-01.FC-FCD.FC-FCD-KRN</td>
<td>B.11.31.0809</td>
</tr>
<tr>
<td>Fibre Channel Driver (FCD) Kernel Module</td>
<td></td>
</tr>
<tr>
<td>FibrChanl-01.FC-FCD.FC-FCD-RUN</td>
<td>B.11.31.0809</td>
</tr>
<tr>
<td>Fibre Channel Driver (FCD) User Space files</td>
<td></td>
</tr>
</tbody>
</table>

Supported Fibre Channel SAN Hardware Components

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Supported Fibre Channel Switches

For a list of supported Fibre Channel switches, choose one of:

- Call the Pillar World Wide Customer Support Center at the number listed in Contact Information.

- Refer to the Pillar Axiom Support and Interoperability Guide, which can be found on the Documents web page (http://www.pillardata.com/techdocs).

Note: Refer to the switch vendor’s web site for the most recent installation instructions, patches, and firmware.
Pre-Configure the SAN for Pillar Axiom Integration

Before you install the AxiomONE Path Manager (APM) software, you need to prepare your SAN host connections with the Pillar Axiom storage system.

Before you begin, verify that your system has:

- At least one SAN Slammer that has Fibre Channel ports.

  **Note:** If a Pillar Axiom storage system is running a software release earlier than 3.3, the host will only be able to access LUNs assigned to a single Slammer in the system. If a Pillar Axiom storage system is running release 3.3 or later, the host will be able to access LUNs on up to four Slammers in the system.

- A Fibre Channel protocol license.

- Ethernet connections to the management ports on the Pilot controller.

The network configuration must allow an application on the SAN host to connect to TCP port 26004 on the Pilot.

**Tip:** To check network connectivity, issue a simple `pdscli` or `axiomcli` request from the host to the Pillar Axiom storage system. Both `pdscli` and `axiomcli` use the same port and protocols as those used by APM.

To function properly, the APM software requires:

- A network connection.

- HBA API libraries.

- HBA drivers.

- Configured LUNs.

1. Verify that all Fibre Channel components and software are installed on the SAN host according to the instructions in this Installation Guide.

2. Set up the physical connectivity and any required switch zoning for the SAN.

   These connections must be set up properly for all required host HBA ports to be able to access the Slammer ports on the Pillar Axiom server.

3. Launch the AxiomONE Storage Services Manager, go to the **Storage > SAN > Hosts** page, and verify that there is a connection to the SAN host.

   The connection you can use depends on available host entries:
• If a host entry already exists, either from a previous APM installation or a host entry that was configured manually, you can use that entry as your connection.

• If there is no existing host entry, you will need to create a temporary one. To create a temporary host entry, see Create a Temporary Host Entry (Optional).

4 Configure the host entry.

The configuration depends on the Pillar Axiom storage system release:

• **Release 3.3 or later:** Either disable HP-UX Compatibility Mode and map a LUN 0 as described below, or enable HP-UX Compatibility Mode and map a LUN to the host on any LUN number (1-255) except LUN 0. With HP-UX Compatibility Mode enabled, the host can access LUNs on all Slammers. You have completed the pre-configuration procedure for your release 3.3 or later Pillar Axiom storage system.

• **Release 3.2 or earlier:** Disable HP-UX Compatibility Mode and map a LUN 0.

To disable HP-UX Compatibility Mode:

a In the AxiomONE Storage Services Manager, select Storage > SAN > Hosts.

b Select the Host Name of the host entry in the Hosts table.

c In the Settings tab, check the status of the HP-UX Compatibility Mode check box:

If the check box is:

• Not selected, HP-UX Compatibility Mode is disabled. No further action is necessary for this host entry.

• Selected, and your Pillar Axiom storage system is running Pillar Axiom release 3.3 or later, go on to step e.

• Selected, and your Pillar Axiom storage system is running Pillar Axiom release 3.2 or earlier, open the LUN Connections tab and go on to Step d.

d If any LUNs are mapped to this host entry, select Storage > SAN > LUNs, select the LUN name in the LUNs table, and unmapp the LUN by clicking Remove Map in the Mapping tab.

Repeat this step until no more LUNs are mapped to this host entry.
e Clear the HP-UX Compatibility Mode check box in the Settings tab, and click OK.

f Remap the LUNs to the host, if required.

**Note:** When HP-UX Compatibility Mode is disabled, Fibre Channel ports may appear as Not Connected in the Hosts table until the host has seen a LUN 0 on the port.

To map a LUN 0 to the host:

a Ensure that HP-UX Compatibility Mode is disabled for the host.

b Disable HP-UX Compatibility Mode for any additional host entries with port WWNs from the host.

c Map a LUN to the host entry as LUN 0.

Choose one of:

- Map a new or existing LUN to the host entry as LUN 0.
- Make a new or existing LUN globally visible (unmapped) as LUN 0.

Result:
You have completed the pre-configuration procedure for your release 3.2 or earlier Pillar Axiom storage system.

**Create a Temporary Host Entry (Optional)**

When no host entry for the SAN host is available in the AxiomONE Storage Services Manager, create a temporary host entry. This host entry will be replaced when you install APM.

1 Find the Fibre Channel Port WWN of one of the host ports that you have connected to the Slammers.

   The port WWNs can be found on the host by running the following command:

   `scsimgr get_info all_ctlr`

   The output of this command will show information for all SCSI controllers in the host. For FC controllers, the port WWN is in a line similar to the following:

   | Port name                        | 0x50060b0001cf8c2 |

2 In the AxiomONE Storage Services Manager, select Storage > SAN > Hosts, and select the Associate a Host action.
Tip: You can also use the `PerformAssociateInitiatorsToHost` `pdscli` command or the `sanhost axiomcli` command for this purpose.

3 Enter a unique temporary Host Name for the entry (this Host Name will be superseded when APM is installed).

4 Select **Add WWN or iSCSI Name** and enter one of the discovered host port WWNs.

To enter the port WWN into the AxiomONE Storage Services Manager, take the sequence after the "0x" and split it into eight sets of two characters separated by colons. For example, for the Port name in the sample output shown above, you would enter the following:

```
50:06:0b:00:00:1c:f8:c2
```

Tip: If there are fewer than 16 characters after the "0x", fill on the left with zeroes.

5 Click OK to create the host entry.

6 Select the new entry to configure it.
Download and Install the AxiomONE Path Manager Software

To install the AxiomONE Path Manager (APM) software, you must download the software, install it on your host, and configure your Pillar Axiom storage system for LUN access using APM.

1. Download the AxiomONE Path Manager Software.
2. Install the AxiomONE Path Manager Software.
3. Configure the Pillar Axiom System for LUN Access.

Download the AxiomONE Path Manager Software

The AxiomONE Path Manager (APM) 2.0 installation package includes everything you will need to install the APM software.

1. Go to the Pillar Support website (http://www.pillardata.com/support) and log in.
2. In the left navigation pane, click the Software Downloads > AxiomONE Path Manager link.
3. In the content pane, click the HP-UX link.
4. Click the APM 2.0 link for your hardware platform (Itanium or PA-RISC).
5. Under Software Download Details, click the green arrow to begin the download.
6. Choose the Save option to download and save or copy the depot file to the temporary (/tmp) directory on your SAN host.

Install the AxiomONE Path Manager Software

After you download the AxiomONE Path Manager (APM) installation package, you can install the software on your SAN host.

Prerequisite:

Pre-Configure the SAN for Pillar Axiom Integration

1. Install the APM depot file using the following command:

```bash
swinstall -s `hostname`:~/tmp/axiompm-`version`.platform.depot
AXIOMPM
```
Note: In the command above, /tmp is the temporary directory where you saved the downloaded depot file, and version and platform are the names of the release version and the hardware platform on the installation package you downloaded.

After you install the software, follow the instructions in Configure the Pillar Axiom System for LUN Access. You must complete that task for the software to function correctly.

Configure the Pillar Axiom System for LUN Access

The LUN configuration procedure provides the SAN host with access to Pillar Axiom LUNs.

Prerequisites:

- Pre-Configure the SAN for Pillar Axiom Integration
- Install the AxiomONE Path Manager Software

1. In the AxiomONE Storage Services Manager, go to the Storage > SAN > Hosts page.

2. Verify that an entry under the host name has been created or updated and is shown as Communicating. Any HBA ports in the host that were associated with other host entries should have been transferred to the new entry, along with any associated LUN mappings. These LUN mappings include any temporary host entry created during the Pre-Configure the SAN for Pillar Axiom Integration process. If the associations have been transferred correctly, delete the empty temporary host entry.

Example:

Figure 2 Example host ports after APM installation
Note: The Hosts page may display differently in your version of the AxiomONE Storage Services Manager.

You will see one or more of the following Host Port Status and AxiomONE Path Manager Status messages on the Hosts page:

**APM Status:**
- **Communicating:** The host control path is currently logged into the Pilot.
- **Not Registered:** A control path from an APM host with this name has never logged into the Pilot.
- **Not Communicating:** The APM host control path has previously logged into the Pilot, but it is not currently logged in.

**Host Port Status:**
- **Connected:** The host SAN connection is logged in to the SAN Slammer.
- **Not connected:** The host SAN connection is not logged in to the SAN Slammer.

See the online help for information about the remaining fields on the Hosts page.

3. As needed, create new LUNs on the Pillar Axiom server for the SAN hosts.

4. As needed, set up mappings of the LUNs to the new host entries.

5. In the AxiomONE Storage Services Manager, go to the Storage > SAN > Hosts page.

6. Click the name of the new host and, on the Host Information page, verify the APM software version.

7. Click the LUN Connections tab and verify that the host and LUN connections are as expected.

The column titled LUN Name on Host should show the HP-UX agile view disk names that HP-UX allocates to each LUN. Pillar Data Systems recommends that you use the agile view when managing Pillar Axiom LUNs on HP-UX 11i v3. See the HP Device Naming white paper (http://docs.hp.com/en/msDeviceNaming/Mass_Storage_Device_Naming.pdf) for more information about agile view.
Note: After you map a LUN to the host, it may take two or three minutes for APM to make the LUN accessible at the host and report its name and other information to the AxiomONE Storage Services Manager. You may need to refresh the AxiomONE Storage Services Manager screen to see the information when it is reported.
About Load Balancing Configuration

Load balancing is implemented by the HP-UX multipathing driver.

Load balancing is configured and managed using the `scsimgr` command on the host. Refer to the HP Native Multi-Pathing for Mass Storage white paper (http://docs.hp.com/en/native-multi-pathing/native_multipathing_wp_AR0803.pdf) for more information on configuring load balancing.

The load balancing settings in the host entry in the AxiomONE Storage Services Manager do not report the current settings at the host. Changing these settings through the Pillar Axiom graphical user interface (GUI) or command line interface (CLI) will not affect the settings on the host.
Update the AxiomONE Path Manager Software (Optional)

To update your host from a previous version of AxiomONE Path Manager (APM), remove the previous version of APM and update to HP-UX 11i v3 before you install APM for HP-UX 11i v3.

1. Remove APM using the instructions provided in the AxiomONE Path Manager Installation Guide and Release Notes for that version of APM.

2. Update the host to Update 3 or later of HP-UX 11i v3.

3. Install this version of APM.

See Pre-Configure the SAN for Pillar Axiom Integration and Download and Install the AxiomONE Path Manager Software.
Install a Boot from SAN LUN

AxiomONE Path Manager (APM) for HP-UX 11i v3 supports booting from a SAN LUN. Follow the normal HP-UX procedures for setting up a SAN boot LUN, and then install APM. Here are some tips:

Prerequisite:

- Refer to the installation guides for your HBAs to check that they and your system support booting from the SAN.
- Verify that the HBA firmware ROM and EFI are up to date. If necessary, download the latest update from the HP support site and install it on your HBAs. Be sure to update all board functions on multi-port HBAs.

1. Follow the steps in Pre-Configure the SAN for Pillar Axiom Integration to enable the host to see a single path to the Pillar Axiom storage system.

2. Create a LUN for the installation, and map it to the host entry that includes the host HBA port.

   **Note:** HP-UX 11i v3 does not require installation on LUN 0.

3. Boot the HP-UX 11i v3 installation DVD, select the newly created LUN for installation, and follow the normal procedure for installing and configuring a LUN.

4. Boot the system from the newly installed LUN.

5. Install APM.

   See Download and Install the AxiomONE Path Manager Software.

6. Connect all SAN paths.

7. Run the following command:

   ```
   ioscan -fn
   ```

8. (Optional) Run the following command to configure alternate paths to the boot LUN:

   ```
   setboot(1m)
   ```

   See the **setboot(1M)** in HP-UX 11i v3 white paper (http://docs.hp.com/en/setbootv3/setboot.pdf) for more information.
Remove the AxiomONE Path Manager Software (Optional)

1. Log in as root.
2. Run the following command:
   ```bash
   swremove AXIOMPM
   ```
CHAPTER 3

AxiomONE Path Manager Release Notes

Known Issues

The AxiomONE Path Manager (APM) issues listed in the following table were known at the time of this release. Pillar Data Systems will resolve these issues in upcoming releases and provide updated software or hardware when available. Contact your Pillar Data Systems authorized representative for additional information or help on any of the issues listed here.

Table 5 Known issues

<table>
<thead>
<tr>
<th>Issue</th>
<th>Workaround or planned fix</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>
Resolved Issues

The issues listed in the following table have been resolved in the current release of AxiomONE Path Manager.

Table 6 Resolved issues

<table>
<thead>
<tr>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable because this is the first release of the AxiomONE Path Manager for HP-UX 11i v3 software.</td>
</tr>
</tbody>
</table>
Additional Notes

[48985a] Disabling HP-UX mode

If any LUNs are mapped to a host entry at the time you use the CLI or GUI to disable HP-UX mode for the entry, the request to disable HP-UX mode will appear to succeed but HP-UX mode will remain enabled internally for the host.

Workaround: In the situation described, HP-UX mode will become disabled for the host entry after the Pillar Axiom storage system is next restarted. To successfully disable HP-UX mode for a host entry without restarting the Pillar Axiom storage system, do the following:

1. Unmap all LUNs from the host entry.
2. Disable HP-UX mode.
3. Remap LUNs to the entry as necessary.

This problem will be fixed in Pillar Axiom release 3.3.

[48985b] Using HP-UX mode with HP-UX 11i v3

If HP-UX mode is enabled for a host entry and the host is running HP-UX 11i v3, the host will be unable to see any LUNs on the Pillar Axiom storage system.

Workaround: Disable HP-UX mode for the host, and make a LUN visible to the host as LUN 0. The host will then be able to see up to 256 LUNs, but only LUNs assigned to the same Slammer as the LUN 0 will be visible. LUNs assigned to other SAN Slammers on the same Pillar Axiom storage system will not be visible to the host.

This problem will be fixed in Pillar Axiom release 3.3.
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