Pillar Axiom MaxRep Replication

Hardware Installation Guide

for SAN

ORACLE

PILLAR AXIOM

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Related Documentation

- *Pillar Axiom Glossary*
- *Pillar Axiom System Architecture Overview*
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- *Pillar Axiom 600 Service Guide*
- *Pillar Axiom Customer Release Notes*
- *Pillar Axiom MaxRep Replication for SAN User's Guide*
- *Pillar Axiom MaxRep Replication for SAN Hardware Guide*

Typographical Conventions

Table 1 Typography to mark certain content

Convention	Meaning
italics	Within normal text, words in italics indicate: • A reference to a book title. • New terms and emphasized words. • Command variables.
`monospace`	Indicates one of the following, depending on the context: • The name of a file or the path to the file. • *Output* displayed by the system on the command line.
`monospace` (bold)	*Input* provided by an administrator on the command line.

Table 1 Typography to mark certain content (continued)

Convention	Meaning
>	Indicates a menu item or a navigation path in a graphical user interface (GUI). For example, “Click **Storage > Clone LUNs**” means to click the **Clone LUNs** link on the **Storage** page in the graphical user interface (GUI).
...	Used within an expression of a navigation path or within a cascading menu structure. The ellipsis indicates that one or more steps have been omitted from the path or menu structure. For example, in the **Groups > Volume Groups > Actions > ... > Data Protection > Create** menu structure, the **...** implies that one or more menu items have been omitted.

Oracle Contacts

Table 2 Oracle resources

For help with...	Contact...
Support	https://support.oracle.com
Training	https://education.oracle.com
Documentation	• Oracle Technical Network: http://www.oracle.com/technetwork/indexes/documentation/index.html#storage • From the Pillar Axiom Storage Services Manager (GUI): **Support > Documentation** • From Pillar Axiom HTTP access: http://*system-name-ip*/documentation.php where *system-name-ip* is the name or the public IP address of your system.
Documentation feedback	http://www.oracle.com/goto/docfeedback

Table 2 Oracle resources (continued)

For help with...	Contact...
Contact Oracle	http://www.oracle.com/us/corporate/contact/index.html

CHAPTER 1

Before You Begin

About Supported Hardware Components

Only Oracle-supplied parts are supported on Oracle's Pillar Axiom storage system and the Pillar Axiom Replication Engine.

Caution Hardware that does not conform to Oracle specifications or is not an Oracle-supplied part voids the warranty of Oracle's Pillar Axiom storage system and may compromise data integrity.

Required Tools

Table 3 lists the tool required to service or install the Pillar Axiom MaxRep Replication for SAN hardware.

Table 3 Required tool

Tool	Purpose	Illustration
#1 and #2 Phillips-head screwdriver	Remove and secure Pillar Axiom MaxRep hardware components.	

Note: Tools for service operations are not provided when service is performed by non-Oracle personnel.

Safety Notice Conventions

Hazard signal words conform to the American National Standards Institute (ANSI) Z535.4-2002 meanings. This guide uses the following conventions for safety notices:

Caution	Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.
Warning	Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.
Danger	Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

Important! To emphasize a point, to remind you of something, or to indicate potential problems in the outcome of the in-process task.

A set of important safety notices apply throughout this guide. Read them before working on a Pillar Axiom system or MaxRep hardware.

Electrostatic Discharge Precautions

Caution Before you handle a component, make sure that you have taken electrostatic discharge (ESD) precautions:

- The minimum requirement is an anti-static wrist strap connected to a hard ground. We recommend that you remove components from their packaging and place them on an ESD-qualified table that is equipped with ground points for wrist straps.
- Static charges can build up rapidly on rolling carts. If you transport a hardware component by cart, ground the cart with a drag chain on an ESD floor. If there is no ESD cart available or ESD floor, ground yourself before you touch a component that has been transported on a cart.

CHAPTER 2

Introduction to the Pillar Axiom Replication Engine

About Pillar Axiom MaxRep Configuration Options

Pillar Axiom MaxRep Replication for SAN supports the following configuration options:

- Synchronous replication: Supports local replication from the Pillar Axiom system to another Pillar Axiom system within the same storage area network (SAN) fabric. Synchronous replication can either be local replication or metro replication. Synchronous replication involves saving data simultaneously in primary storage and in secondary storage, usually at the same location, within a 100 kilometer radius in the same metropolitan area, or within a limited radius.

  Note: We recommend that the target volume is not located in the same Pillar Axiom system as the source LUN. If the target LUN with the replicated data and the source LUN with the original data are on the same Pillar Axiom system while a disaster occurs, both the source and replication data might be lost.

- Asynchronous replication: Supports replication between source and target LUNs over wide area network (WAN) connections to another Pillar Axiom system. Asynchronous replication can be local or remote replication, although the remote replication is more commonly used.

- Multi-hop replication: A hybrid of local synchronous replication and remote asynchronous replication, where the target of the synchronous replication pair is the source of the asynchronous replication pair. Multi-hop replication can have a 1 to N configuration or an N to 1 configuration. In the 1 to N replication configuration, a single source is replicated to multiple targets using a combination of synchronous and asynchronous replication pairs. In the N to 1 configuration, multiple sources are replicated to a single target using a combination of synchronous and asynchronous replication pairs.

Pillar Axiom MaxRep Replication for SAN supports the following configuration options in a high-availability (HA) environment:

- Non-clustered: In this configuration, the Pillar Axiom Replication Engine is not configured for HA.
- Clustered: In this configuration, the Replication Engine is configured as part of an HA cluster.

  Note: For asynchronous and multi-hop replication, the Pillar Axiom system in the remote location can be deployed in a non-clustered configuration even when the local Replication Engine is part of an HA cluster.

Pillar Axiom MaxRep Replication for SAN also supports bi-directional replication and redundant Ethernet configurations or port bonding in Fiber Channel (FC) only implementations.

Related concepts

- *About Licensing Optional Premium Features*

Related references

- *Pillar Axiom Replication Engine Wiring Diagrams*

About Licensing Optional Premium Features

All features on the Pillar Axiom 600 storage system are enabled out of the factory. Administrators should ensure they are in compliance with their End User License Agreements and have purchased the necessary licenses for Optional Premium features.

The following features are currently licensed on the Pillar Axiom Replication Engine:

- Pillar Axiom MaxRep Asynchronous Replication - Terabyte Perpetual
- Pillar Axiom MaxRep Asynchronous Replication with Application Protection - Terabyte Perpetual
- Pillar Axiom MaxRep Synchronous Replication - Terabyte Perpetual
- Pillar Axiom MaxRep Synchronous Replication with Application Protection - Terabyte Perpetual

Related concepts

- *About Pillar Axiom MaxRep Configuration Options*

About the Pillar Axiom Replication Engine

Pillar Axiom MaxRep Replication for SAN uses one or more Pillar Axiom Replication Engines to replicate and restore Pillar Axiom system data in a storage area network (SAN) environment.

A single Replication Engine can be used for local replication. Two Replication Engines are required for local area network (LAN) and wide area network (WAN) replication. Two Replication Engines can form a high availability (HA) cluster.

Each Replication Engine has 32 GB memory. This memory acts as a cache for the write requests that are received by the Replication Engine. The 4 Gb/s Fibre Channel (FC) ports are used to connect to the SAN fabric(s) to access source or target Pillar Axiom systems. The four 1 Gb/s Ethernet ports are used for management, heartbeat, and wide area network (WAN) connectivity for asynchronous replication.

The Replication Engines in an HA configuration work in an active-passive mode. The active Replication Engine captures the write requests and replicates them immediately while the other Replication Engine is in passive or standby mode. If the active Replication Engine fails, the passive Replication Engine will be used to resume replication.

Related concepts

- *About the Ports on the Replication Engine*

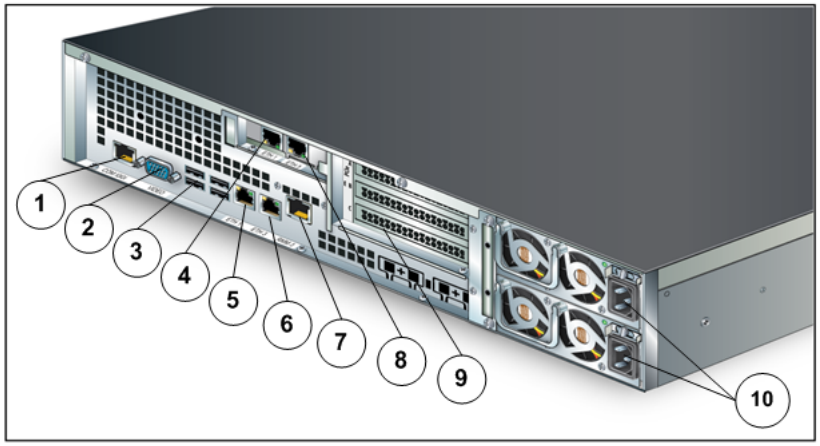
CHAPTER 3

Cable the Pillar Axiom Replication Engine

About the Ports on the Replication Engine

The Pillar Axiom Replication Engine contains several types of ports: Ethernet ports, the Remote Management Module (RMM3) port, and the Fiber Channel (FC) ports.

Figure 1 Replication Engine (back view)



Legend

1 Console port	6 Ethernet port: ETH-3
2 Video port	7 Remote management module (RMM3) port
3 USB ports	8 Ethernet port: ETH-2
4 Ethernet port: ETH-0	9 HBA slots A, B, and C
5 Ethernet port: ETH-1	10 AC power feed 1 and 2

Note: With dual Replication Engines, the top HBA is HBA1 and the bottom HBA is HBA2.

Related concepts

- *About Fiber Channel (FC) Ports*
- *About Ethernet Ports*
- *About the Remote Management Module (RMM3) Port*
- *About the Pillar Axiom Replication Engine*

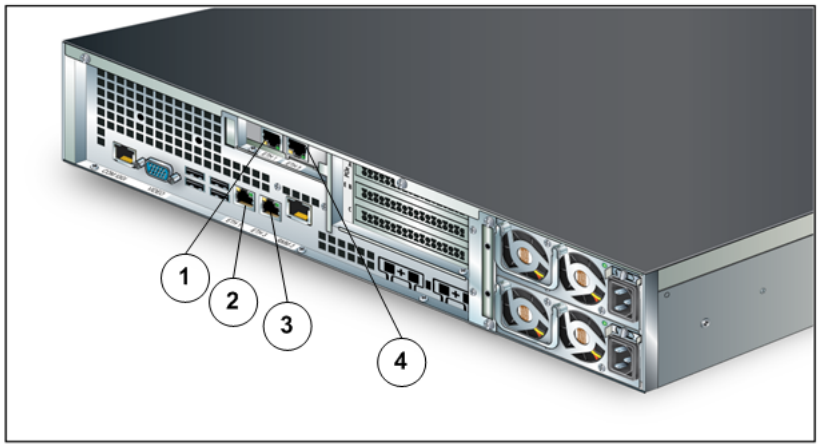
Related references

- *Pillar Axiom Replication Engine Wiring Diagrams*
- *Default Network Port Settings*

About Ethernet Ports

There are four Ethernet ports located on the Pillar Axiom Replication Engine: (ETH-0, ETH-1, ETH-2, and ETH-3).

Figure 2 Ethernet ports on the Replication Engine



Legend		
	1 Ethernet port: ETH-0	3 Ethernet port: ETH-3
	2 Ethernet port: ETH-1	4 Ethernet port: ETH-2

The Ethernet ports on the Replication Engine are used for the following maintenance and management purposes:

- Administrator access to the Pillar Axiom MaxRep graphical user interface (GUI)
- Software installation and upgrades
- Management communication with other Replication Engines
- In an asynchronous configuration, replicated data transfer between a source volume to a target volume

- Communication between Replication Engines and Pillar Axiom systems
- Communication between Replication Engines and application servers

In an FC-only replication solution, two options are available for connecting the Ethernet ports on the Pillar Axiom Replication Engine:

- Standard network connectivity: Involves connecting only the ETH-0 port to provide a 1 Gb/s Ethernet connection for management access such as user interface (UI) access and alerts.

  Note: While the standard ETH-0 connectivity can provide adequate IO capability for both management and replication, the standard connection provides no redundancy or resilience in case of a loss of the ETH-0 connection to the customer network.

- Redundant network connectivity: Involves port bonding between ETH-0 and ETH-1. ETH-1 and ETH2 are not used in FC-only replication..

For a wide area network (WAN) based iSCSI solution, only one option is available for connecting the Ethernet ports on the Pillar Axiom Replication Engines. This is the iSCSI replication using standard network connectivity. All four Ethernet ports are connected to the Ethernet network. The Ethernet port (ETH-0) provides a 1 Gb/s Ethernet connection for management access. The Ethernet ports (ETH-1, ETH-2, and ETH-3) each provide 1 Gb/s Ethernet connectivity for iSCSI communications to the source and target Pillar Axiom systems.

Note: Redundant network connectivity is not available in iSCSI replication environments.

Table 4 Ethernet port connections and functionality

Port name	Port connections	Port functionality
ETH-0	Connected to the management network switch.	Used for network management and remote replication.
ETH-1 through ETH-3	Connected to a network switch port (optional).	Not used for local FC fabric-based replication. Might be paired with any of the other Ethernet ports for remote replication.

Table 4 Ethernet port connections and functionality (continued)

Port name	Port connections	Port functionality
		Note: The Ethernet port (ETH-1) can be used for network management, if bonded with Ethernet port (ETH-0).

Related concepts

- *About the Ports on the Replication Engine*

Related references

- *Default Network Port Settings*

About Fiber Channel (FC) Ports

The Fiber Channel (FC) ports on the host bus adapter (HBA) of the Pillar Axiom Replication Engine are marked FC–1 through FC1–4 and FC2–1 through FC2–4.

Use the FC ports on a Pillar Axiom Replication Engine to access the primary and secondary logical units (LUNs) on the Pillar Axiom systems over the storage area network (SAN) fabric.

During a synchronous replication, the FC ports allow access to both the source and target LUNs. During an asynchronous replication, the FC ports on the Pillar AxiomReplication Engine at the primary site allow access to the LUNs.

There are three types of FC ports on a Replication Engine:

- Appliance Initiator Source (AIS) ports or initiator ports for source LUNs: Used for read-only access to the source LUN during the initial synchronization. These ports are also used on a target Pillar Axiom system during data recovery. The initiator port for source LUNs must be zoned only to the Slammer ports on the source and target Pillar Axiom systems.
- Appliance Initiator Target (AIT) Ports or initiator ports for target LUNs: Used for write access to the target LUN during the initial synchronization. The AIT ports are used for access to any LUNs that are mounted for use on the Replication Engine. The AIT ports are also used to write data to the source Pillar Axiom system during data recovery. The initiator for the target LUN mapping port must be zoned only to the Slammer ports on the source and target Pillar Axiom systems.
- Appliance Target (AT) ports or target ports for the write splitter and the write mirror: Used to accept IOs from the splitter driver on the source Pillar Axiom

system. The port on the Pillar Axiom Slammer behaves like an initiator port when it is used by the splitter driver. The AT ports are also used by hosts that access virtual snapshots on the Replication Engine. Target ports must be zoned to the source and target Pillar Axiom Slammer ports.

Tip: Connect all the FC ports from each HBA to a separate SAN fabric to minimize points of failure and to ensure redundancy. There should be one zone for each HBA, and not one zone for each port.

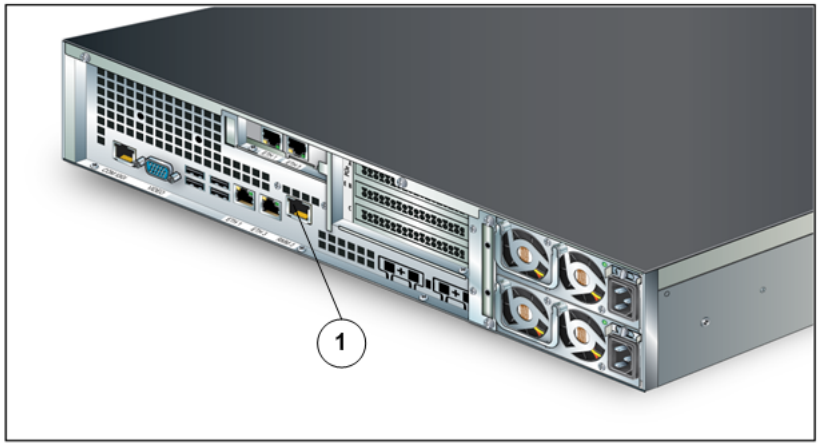
Related concepts

- *About the Ports on the Replication Engine*

About the Remote Management Module (RMM3) Port

The Remote Management Module (RMM3) port on the Pillar Axiom Replication Engine is connected to the customer management network.

Figure 3 Remote Management Module (RMM3) port on the Replication Engine



Legend	
1	RMM3 port

The RMM3 port, a 100 Base-T Ethernet port, is used by Oracle Pillar Customer Support for remote management over TCP/IP to allow console access to the Replication Engine. The RMM3 port is used for remote recovery after a field replacement unit (FRU) replacement within the Replication Engine or after other system recovery operations. The RMM3 port is also used for maintenance and software installation and upgrades.

Related concepts

- *About the Ports on the Replication Engine*

Related references

- *Default Network Port Settings*

Default Network Port Settings

The following table lists the default Ethernet and Remote Management Module (RMM3) port settings:

Table 5 Default network port settings

Network port	Settings	Default value
ETH-0	IP	10.0.0.11
	Subnet mask	255.255.255.0
	Default gateway	10.0.0.1
RMM3	IP	10.0.0.12
	Subnet mask	255.255.255.0
	Default gateway	10.0.0.1

Note: Ensure that the RMM3 port configuration information is available before contacting the Oracle Pillar Customer Support for assistance.

Related concepts

- *About the Ports on the Replication Engine*
- *About Ethernet Ports*
- *About the Remote Management Module (RMM3) Port*

Cabling Guidelines

Follow these guidelines when cabling a Pillar Axiom Replication Engine.

- Make sure that the cable is not too taut to avoid strain on the connectors.
- Run the cables along the side of the rack that is opposite from the power cables. Placing the Ethernet cables next to the power cables can result in signal interference.
- Use velcro straps to secure the bundles of cables to the rack.
- Do not use tie wraps, hard plastic, or metal for securing or routing cables.

Note: Ethernet and optical cables are not shipped with the Replication Engines. Cables must be ordered separately.

Note: We recommend 50/125 multi-mode optical cable for data paths. However, we also support a 62.5/125 core diameter for the multi-mode optical cables, if the cable distance limitations are followed. For more information on cable length limitations, refer to the *Pillar Axiom Hardware Installation Guide*.

Related tasks

- *Cable the Pillar Axiom Replication Engine*

Cable the Pillar Axiom Replication Engine

Connect the ports as indicated below to cable the Pillar Axiom Replication Engine.

Prerequisites:

- Refer to the site preparation plan to identify the Pillar Axiom MaxRep Replication for SAN configuration to deploy before installing or cabling the Pillar Axiom Replication Engine.
- Identify the Ethernet ports that are to be used on the Replication Engine.
- Obtain from your network administrator a range of IP addresses for the Replication Engine Ethernet ports.
- Ensure that network firewalls are configured to allow access to the remote management module (RMM3) interface on the ports that are listed in the following table:

Port	Access type
Port 80	Ordinary web access
Port 443	Secure HTTPS web access
Ports 7578, 5120, and 5123	Remote console and utility functions

1. Connect the Ethernet ports to the management network switches.

   Needed connections:

   - Ethernet port ETH-0 of the Replication Engine must be connected to the management network switches using Cat 5e Ethernet cables.
   - Ethernet ports (ETH-1 through ETH-3) must be connected to the iSCSI network switches using Cat 5e Ethernet cables.

2. Connect the RMM3 port to the management network to allow remote serviceability.

   The RMM3 port might be left disconnected and used strictly as a service console. However, connecting the RMM3 port is the preferred option.

3. Connect all four ports of HBA1 on the Replication Engine to the Fiber Channel (FC) fabric.

In a dual fabric environment, connect all the FC ports of HBA2 to the alternate FC fabric.

Note: To ensure that the Replication Engine can recover from a failure, two HBAs are required on each Replication Engine.

Related references

- *Pillar Axiom Replication Engine Wiring Diagrams*
- *Cabling Guidelines*

Pillar Axiom Replication Engine Wiring Diagrams

Use the appropriate wiring diagram for your replication configuration to cable the Pillar Axiom Replication Engine.

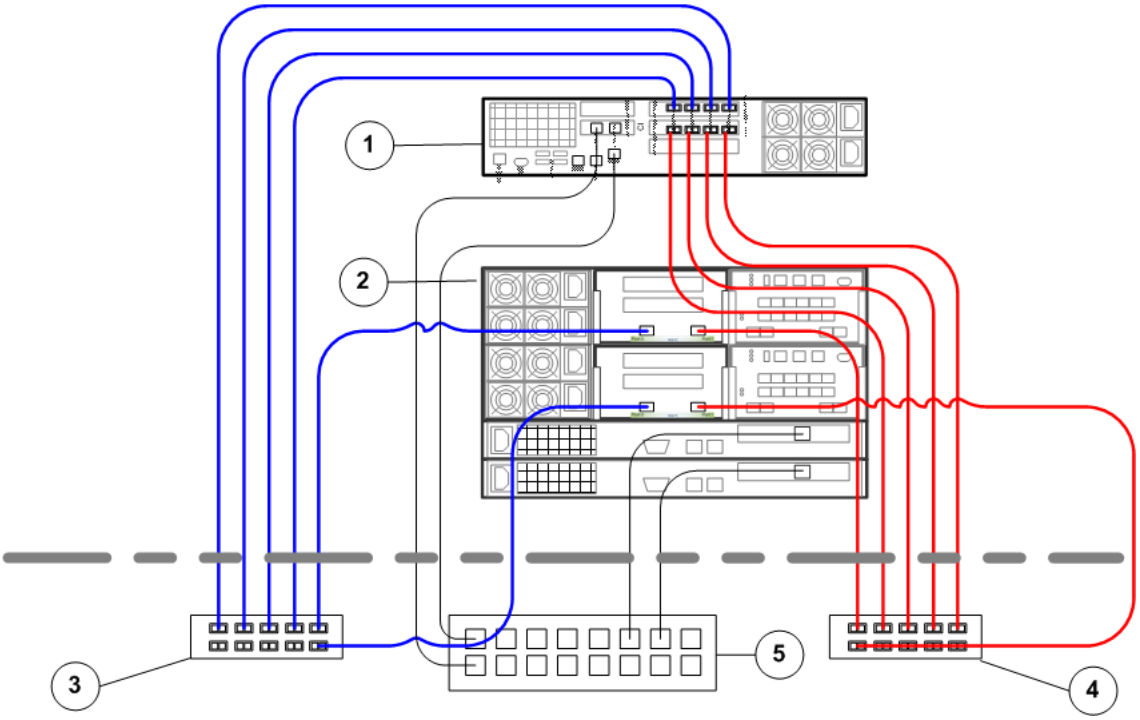
The wiring diagrams below represent the following Pillar Axiom MaxRep Replication for SAN configurations:

- FC-only standard Ethernet configuration
- FC-only redundant Ethernet configuration
- iSCSI-only configuration
- iSCSI-FC configuration

Figure 4 provides information on the cable connections with standard Ethernet connectivity for a Fiber Channel (FC)-only configuration.

Note: The dotted line in the following illustrations separate the Pillar Axiom hardware from the customer environment.

Figure 4 FC-only standard Ethernet configuration

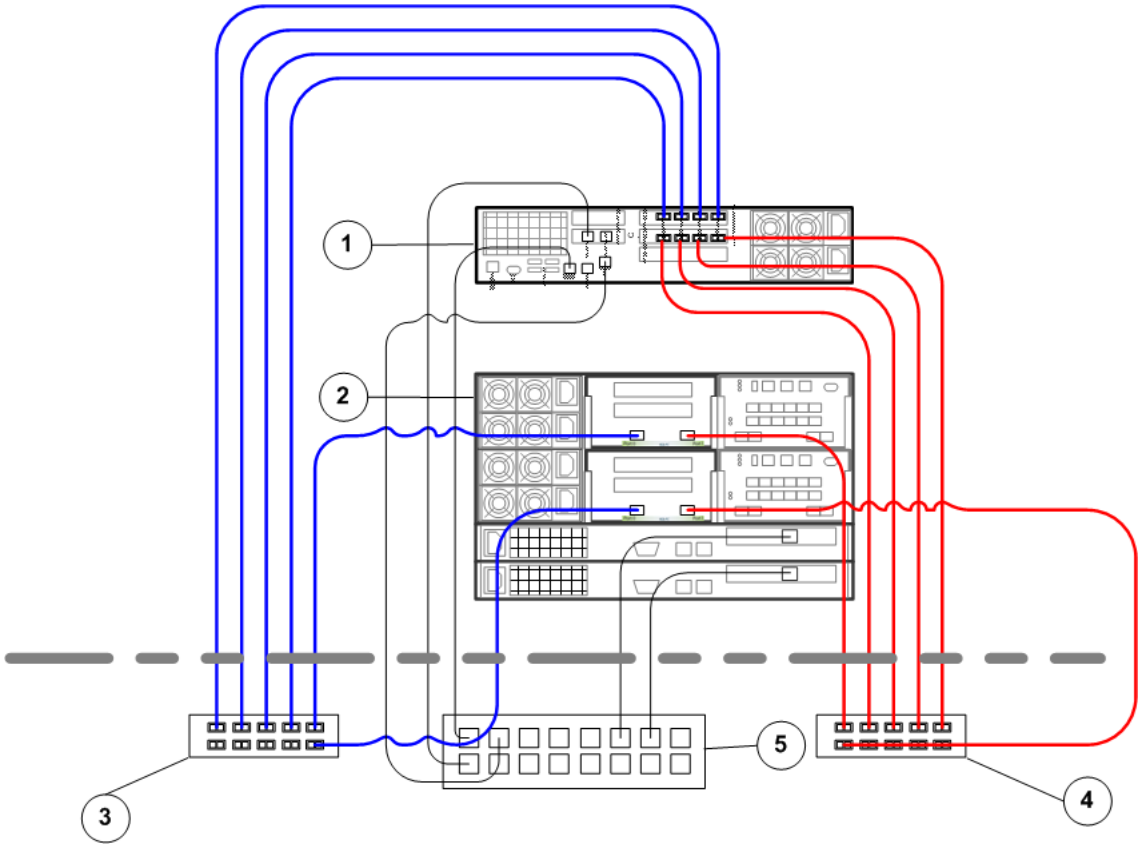


Legend

1 Pillar Axiom MaxRep Replication Engine	4 SAN fabric switch B
2 Axiom 600 Slammer and Pilot (Bricks not shown)	5 Ethernet switch
3 SAN fabric switch A	

Figure 5 provides information on the cable connections with redundant Ethernet connectivity for a FC-only configuration .

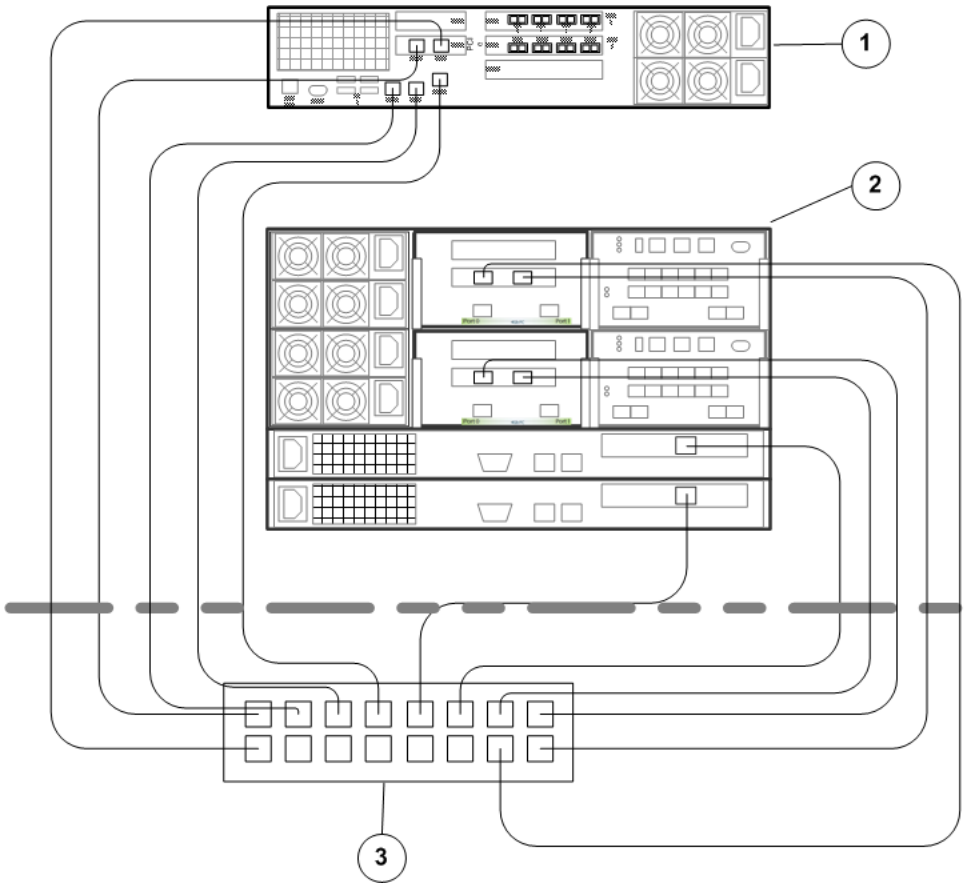
Figure 5 FC-only redundant Ethernet configuration



Legend		
	1 Pillar Axiom MaxRep Replication Engine	4 SAN fabric switch B
	2 Axiom 600 Slammer and Pilot (Bricks not shown)	5 Ethernet switch
	3 SAN fabric switch A	

Figure 6 provides information on the cable connections for an iSCSI-only configuration.

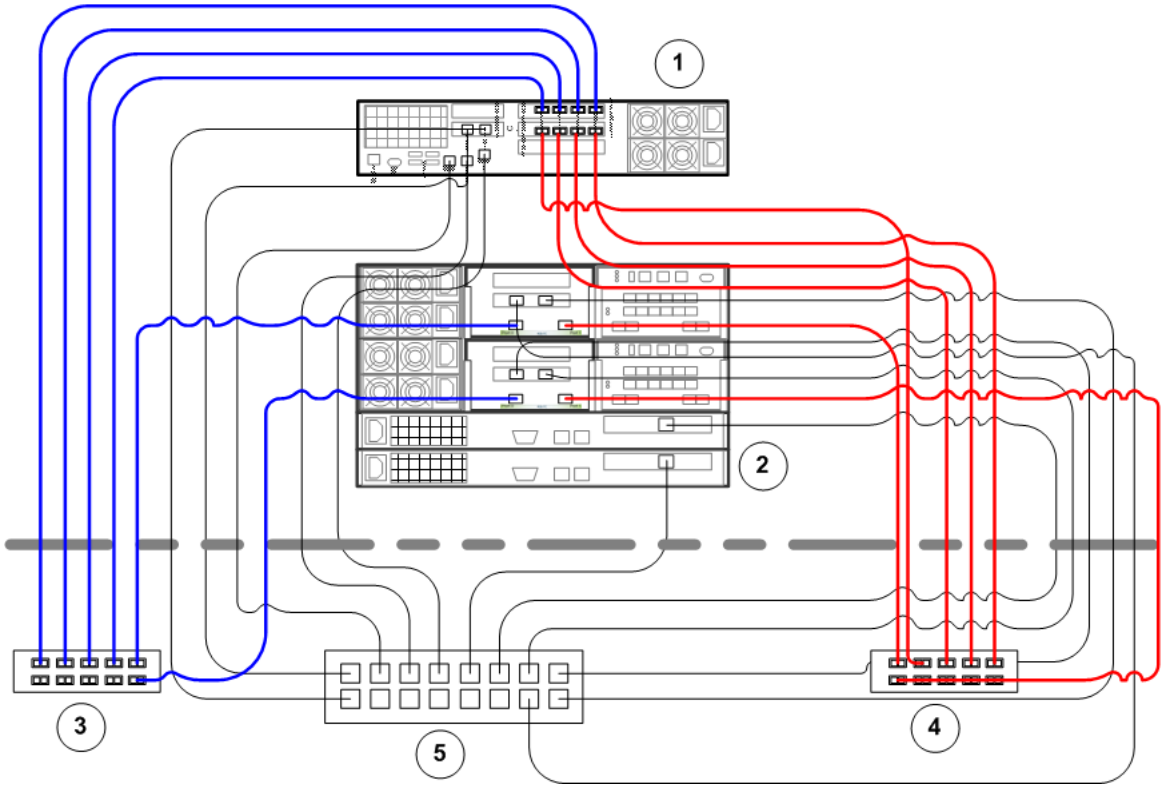
Figure 6 iSCSI-only configuration



Legend		
	1 Pillar Axiom MaxRep Replication Engine	3 Ethernet switch
	2 Axiom 600 Slammer and Pilot (Bricks not shown)	

Figure 7 provides information on the cable connections for an iSCSI-FC configuration.

Figure 7 iSCSI-FC configuration



Legend		
	1 Pillar Axiom MaxRep Replication Engine	4 SAN fabric switch B
	2 Axiom 600 Slammer and Pilot (Bricks not shown)	5 Ethernet switch
	3 SAN fabric switch A	

Related concepts

- *About the Ports on the Replication Engine*
- *About Pillar Axiom MaxRep Configuration Options*

Related tasks

- *Cable the Pillar Axiom Replication Engine*

CHAPTER 4

Power On the Pillar Axiom Replication Engine

About Power Cabling

No power switches exist on the rear panel of the Pillar Axiom Replication Engine. The Replication Engine has redundant power cords plugged into different power distribution units (PDUs) on separate circuits. AC power is thus drawn from two separate AC power sources, similar to the Pillar Axiom system.

A power switch, which is located on the front of the Replication Engine and behind the bezel, turns on the DC power, which starts the operating system and the applications. The Replication Engine powers on automatically when AC power is applied to either one of the power supplies.

When AC power is lost to one of the redundant power supplies, an audible beep is produced and the fan fault LED (located on the front panel behind the bezel) lights.

Redundant power supplies are located on the back of the Replication Engine. With redundant power supplies, the amperage draw for each power cord is rated to allow for the failure of one circuit. A circuit failure increases the amperage draw on the other cord.

Related tasks

- *Connect Power Cables*

Connect Power Cables

Caution Be sure to maintain reliable grounding of rack-mounted equipment. Give particular attention to supply connections other than direct connections to the branch circuit, such as connections to power strips.

1. Review the Pillar Axiom Replication Engine power characteristics.
2. Verify that your power distribution units (PDUs) meet the Replication Engine power characteristics.
3. Plug the two power cables into the Replication Engine so that no PDU amperage limits are exceeded.

   Each power cable must be connected to a separate PDU, which draws power from separate, external AC power sources.
4. Secure the power cables to the rack.

   Important! We recommend that you dress the power cables to the left side (when you face the back of the rack) so that they do not restrict the removal of any other component.

The front bezel of the Replication Engine has a CU-0 LED. This LED lights green when the Replication Engine is powered on.

Related concepts

- *About Power Cabling*

Related references

- *Pillar Axiom Replication Engine Power Characteristics*

Related tasks

- *Power On The Pillar Axiom Replication Engine*

Power On The Pillar Axiom Replication Engine

As part of your site planning, set up a separate circuit and power outlet for each power distribution unit (PDU). These outlets should be located within reach of the 15 ft (4.57 m) PDU power input cables.

1. Power on the Pillar Axiom Replication Engine.
2. Check the CU-0 LED and the LED behind the bezel for DC power and drive activity.

   The LEDs turns green when the Replication Engine is powered on.
3. Check the power supply LEDs that are located to the left of the Replication Engine power supplies.
4. If the power supply LEDs are green but the front bezel LED is not green, push the DC power button on the front panel of the Replication Engine.
5. Contact Oracle Pillar Customer Support if the DC power indicator LED on the Replication Engine front panel is not green.

   The DC power indicator LED not being green indicates that there is no hard drive activity.

APPENDIX A

Pillar Axiom Replication Engine Hardware Specifications

About Pillar Axiom Replication Engine Hardware Specifications

Hardware specifications include information on the operating environment, the physical attributes, and the power requirements of the Pillar Axiom Replication Engine.

Related references

- *Pillar Axiom Replication Engine Power Characteristics*
- *Pillar Axiom Replication Engine Dimensions and Weight*
- *Pillar Axiom Replication Engine Regulatory Compliances*

Pillar Axiom Replication Engine Power Characteristics

Table 6 Replication Engine power characteristics

Power characteristic	Specification
Frequency	50 to 60Hz
AC voltage	100 to 240V
Current draw	3.5A at 120V 2.1A at 208V 1.92A at 230V
Maximum power consumption	450VA
Maximum heat dissipation	1444 BTU/hr
AC plug type	Two IEC C13 320 connections

Note: Contact Oracle Pillar Customer Support before adding new loads to existing Pillar Axiom system power distribution units (PDUs) to ensure that amperage limits are not exceeded.

Related references

- *Oracle Contacts*

Pillar Axiom Replication Engine Dimensions and Weight

Table 7 Pillar Axiom Replication Engine dimensions and weight

Attribute	Value
Height	3.4 inches (8.81 centimeters); 2U
Width	19 .06 inches (48.42 centimeters)
Length	25 inches (63.5 centimeters) without the bezel; 26 inches (66.04 centimeters) with the bezel
Weight	45.85 pounds (20.80 kilograms)

Note: The Pillar Axiom Replication Engine requires some clearance space in front of the Replication Engine post-installation for service access. This enables field personnel to slide out the Replication Engine and open the top lid for field replacement service procedures.

Pillar Axiom Replication Engine Regulatory Compliances

The Pillar Axiom Replication Engine complies with the following regulatory agency requirements.

Table 8 Safety, quality, and environmental standards

Logo	Standard
	FCC (United States). This device complies with FCC Rules Part 15. Operation is subject to the following two conditions: 1 This device may not cause harmful interference. 2 This device must accept any interference that may be received, including interference that may cause undesired operation.
	KCC-SPA1: Korea certification.
	The CCC Mark (China Compulsory Certification mark) is required for products sold in the Peoples Republic of China.
	Japan's VCCI Mark (Voluntary Control Council for Interference by Information Technology Equipment) is administered by VCCI for information technology equipment (ITE) sold in Japan.
	The GOST-R mark is a mandatory certification mark for all electrical products to be shipped into Russia. The laws of the Russian Federation prescribe conformity of products to the Russian safety standards (GOST-R). The GOST-R certificate is issued following technical evaluation of the company's products to ensure compliance to Russian safety regulations. The

Table 8 Safety, quality, and environmental standards (continued)

Logo	Standard
	GOST-R Certificate is valid for three years and a license to use the GOST-R mark is valid for one year and renewed with an annual factory inspection.
	UL and CSA under UL (cUL) and UL60950-1-2.
	Conformite Europeenne /DoC: The CE Mark is a mandatory conformity symbol required for products sold in the European Economic Area. The CE mark indicates conformity to the legal requirements of the European Union (EU) Directive with respect to safety, health, environment, and consumer protection.
	Most electronic products sold in Taiwan must be approved in accordance with the regulations as set forth by the Taiwanese Bureau of Standards, Metrology and Inspection (BSMI) and must comply with Chinese National Standards (CNS) that are similar, but not identical, to the corresponding CISPR standards.
	Argentina: Electrical & electronic equipment that meet Argentina's compliance requirements are certified by Instituto Argentino de Normalizacion) (IRAM) and must carry the S-Mark, a mandatory Argentinean safety mark.
	Underwriters Laboratories (UL) mark for Argentina.
	RoHS China: Electronic end products sold in China after March 1, 2007 must have the China RoHS Symbol.

Table 8 Safety, quality, and environmental standards (continued)

Logo	Standard
	The Australian Communications Authority (ACA) and the Radio Spectrum Management Group (RSM) of New Zealand have agreed upon a harmonized scheme in producing the C-Tick Mark that regulates product compliance. All electrical and electronic products to be sold in the Australian and New Zealand markets must comply with the required applicable standards. For a product to be placed on the market, it must be tested to the appropriate standard for conformity verification by a registered testing laboratory.

APPENDIX B

Pillar Axiom MaxRep Replication for SAN Checklists

Pillar Axiom Replication Engine Pre-Installation Checklist

Installation of a Pillar Axiom Replication Engine is performed by Oracle Pillar Customer Support. However, to prepare for the installation, various checks and actions need to be performed for each Replication Engine.

Note: Print this pre-installation checklist and check off each task after you complete it.

Table 9 Pre-installation checklist

Pre-installation tasks	
❑	Verify that you have all the components for assembly in the Replication Engine rail kit by matching the components with the parts list inside the package.
❑	Verify that you have all the required tools available for installation. Refer to the required tools listed in this guide.
❑	Verify that the anti-static wrist strap and the electro-static discharge (ESD) cart are available.
❑	Ensure that you have assistance in lifting the Replication Engine.
❑	Check that you have two power cables with IEC 320 C13 connectors. Verify that the source of the power supplies has the available capacity to carry the maximum load for the circuit.
❑	Verify that the circuit contains 120, 208, or 230 V power distribution units (PDUs).
❑	Check that you have four Fiber Channel (FC) connections to each of two storage area network (SAN) fabric switches.

Table 9 Pre-installation checklist (continued)

Pre-installation tasks	
❑	Check that you have access to the SAN fabric switches so that you can gather World Wide Port Name (WWPN) information and perform aliasing and zoning. **Note:** An alias is a descriptive name for a WWPN or port number, which makes the zone configuration much easier to read. Zoning is used as a method of access control for a SAN fabric to keep ports from communicating with one another. Refer to your SAN switch manufacturer's administrator guide for additional information on aliases and zoning.
❑	Check that you have two to five Ethernet connections to the local area network (LAN) switches.
❑	Check that you have the Replication Engine hostname.
❑	Check that you have the IP address, netmask, and the default gateway address for the Ethernet (ETH-0) port.
❑	Check that you have the IP address, netmask, and the default gateway address for the Remote Management Module (RMM3) port.
❑	Check that you have the IP address of the domain name server (DNS) and the DNS domain name.
❑	Check that you have the IP address of the Network Time Protocol (NTP) server.
❑	If more than one Replication Engine must be installed for a high availability (HA) configuration, check that you have the IP address for the active and passive Replication Engine as well as an additional IP address for the high availability (HA) cluster.
❑	Ensure that you have a copy of thePillar Axiom Replication Engine software for upload during installation.
❑	If the Replication Engine will be installed in a non-Oracle rack, verify that the non-Oracle rack will be compatible with the Replication Engine.
❑	Verify that the shipment for the Replication Engine has arrived at the site.

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