

Pillar Axiom



Glossary



PILLAR AXIOM

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Glossary

A

access control list (ACL)

A set of access control entries (ACEs) that is associated with a file or directory that defines the access rights that each user or group has to that object. Oracle Pillar Axiom systems use ACL permissions as the basis of the security for an object and derive UNIX permission modes from the collection of ACEs. A discretionary access control list (DACL) is one of two types of ACL.

Active Directory

A Microsoft technology that enables applications to find, use, and manage directory resources (such as user names, network printers, and permissions). The Pillar Axiom Common Internet File System (CIFS) server authenticates Kerberos clients against an Active Directory™ server in both mixed and native mode.

When the Pillar Axiom system provides a CIFS server, the CIFS client gets the ticket from Kerberos and presents it to the system. When the Pillar Axiom system is a CIFS client, the system gets the ticket from Kerberos and presents it to a customer-supplied domain controller.

See also [Kerberos](#).

addressable logical capacity

A Quality of Service (QoS) attribute that defines the amount of storage provisioned for a logical volume. For original volumes, the system might provision and display a value that is greater than what was requested, guaranteeing that the amount of storage requested is available. For clones and copies, the addressable logical capacity is the same as the source volume, unless a greater amount is requested.

For thinly provisioned volumes, the addressable capacity is unlimited. For all other volumes, the addressable capacity is the same as or slightly less than the allocated capacity.

Compare [allocated logical capacity](#).

See also [capacity](#).

See also [logical volume](#).

	<p><i>See also</i> Quality of Service (QoS).</p>
Administrator 1	<p>A login account that has the authority to perform all administration, configuration, and recovery tasks.</p> <p><i>Compare</i> Administrator 2.</p> <p><i>Compare</i> Monitor (administrator).</p> <p><i>Compare</i> Primary system administrator.</p> <p><i>Compare</i> Support administrator.</p>
Administrator 2	<p>A login account that has the authority to perform all administrative and configuration tasks, except:</p> <ul style="list-style-type: none"> ○ Create, modify, or delete administrator accounts and File Servers. ○ Modify system-wide settings such as Simple Network Management Protocol (SNMP). ○ Modify software or hardware configurations. ○ Shut down the system. <p><i>Compare</i> Administrator 1.</p> <p><i>Compare</i> Monitor (administrator).</p> <p><i>Compare</i> Primary system administrator.</p> <p><i>Compare</i> Support administrator.</p> <p><i>See also</i> File Server.</p> <p><i>See also</i> Simple Network Management Protocol (SNMP).</p>
alert	<p>A message generated by a Pillar Axiom system to notify an administrator of a situation or condition that the administrator needs to resolve. These messages are accessible through the Pillar Axiom user interfaces. (Formerly called an <i>administrator action</i> or <i>AA</i>.)</p>
allocated logical capacity	<p>A Quality of Service (QoS) attribute that defines the actual amount of storage that is assigned to a logical volume. An allocated capacity can grow to, and possibly exceed by a small amount, the addressable logical capacity.</p> <p><i>Compare</i> addressable logical capacity.</p> <p><i>See also</i> capacity.</p> <p><i>See also</i> logical volume.</p>

	<i>See also</i> Quality of Service (QoS) .
availability	<p>A feature of a Pillar Axiom system that makes the system fault-tolerant. The system's availability features make customer data highly accessible, even during hardware replacements and non-disruptive software updates.</p> <p><i>See also</i> fault tolerance.</p> <p><i>See also</i> reliability.</p> <p><i>See also</i> Reliability, Availability, Serviceability (RAS).</p> <p><i>See also</i> serviceability.</p>
B	
bandwidth	<p>The amount of data that can be transmitted in a fixed amount of time. For a filesystem, bandwidth is expressed in MB/sec (megabytes per second).</p> <p><i>See also</i> filesystem.</p>
beacon	<p>A feature within the control units (CUs) of Pilots, Slammers, and Bricks that identifies the CU or a particular field replaceable unit (FRU). When initiated, the system blinks the associated light-emitting diode (LED) or set of LEDs. A <i>reverse beacon</i> blinks everything except the LEDs on the FRU of interest.</p> <p><i>See also</i> Brick.</p> <p><i>See also</i> control unit (CU).</p> <p><i>See also</i> field replaceable unit (FRU).</p> <p><i>See also</i> light-emitting diode (LED).</p> <p><i>See also</i> Pilot.</p> <p><i>See also</i> Slammer.</p>
block-level snapshot	<p><i>See</i> Filesystem Copy.</p> <p><i>See</i> LUN Copy.</p>
Brick	<p>A 2U storage enclosure in a Pillar Axiom system. A Brick connects to one or more Slammers or to an upstream Brick in a string of Bricks. Taken together, all Brick connections form what is called the <i>Storage System Fabric</i> or more simply <i>SSF</i>. Bricks can be categorized as Fibre Channel (FC), serial ATA (SATA), or solid state drive (SSD).</p> <p><i>Compare</i> Pilot.</p>

Compare [Slammer](#).

See also [FC Expansion Brick](#).

See also [FC RAID Brick](#).

See also [redundant array of independent disks \(RAID\)](#).

See also [SATA Brick](#).

See also [SSD Brick](#).

See also [Storage System Fabric \(SSF\)](#).

C

Call-Home

A feature of a Pillar Axiom system that, when enabled, allows the system to notify Pillar World Wide Customer Support Center of critical issues specific to a Pillar Axiom system. No customer data is transmitted. Call-Home transfers files over the Internet using one of the following user-selected methods:

- SCP: Uses the secure copy (SCP) method with 1024-bit encryption and secure keys.
- HTTPS: Uses the Hypertext Transfer Protocol Secure method by sending files directly to Pillar or through a proxy server for security purposes. This method can also be used when the Pillar Axiom system does not have direct access to the Internet.

capacity

The amount of data that a logical volume can store. It is expressed as one of the Quality of Service (QoS) attributes *allocated logical capacity* and *addressable logical capacity*.

See [allocated logical capacity](#).

See [addressable logical capacity](#).

See also [logical volume](#).

See also [Quality of Service \(QoS\)](#).

Clone FS

A point-in-time, read-write, partial-block snapshot of a filesystem that you intend to split from the original filesystem for immediate access. A Clone FS retains the same QoS parameters as the source filesystem and consumes storage capacity from the Clone FS repository that was allocated for the source filesystem. A Clone FS cannot be scheduled from the Pillar Axiom Storage

	<p>Services Manager; it is an immediate operation. Clone FSs provide a convenient method to branch from the source data without the need to do a full-block copy operation.</p> <p><i>Compare</i> Pillar Axiom MaxRep.</p> <p><i>Compare</i> Clone LUN.</p> <p><i>Compare</i> Snap FS.</p> <p><i>Compare</i> Volume Copy.</p> <p><i>See also</i> filesystem.</p>
Clone LUN	<p>A point-in-time, read-write, partial-block snapshot of a LUN that can be accessed immediately. A Clone LUN retains the same QoS parameters as the source LUN and consumes storage capacity from the Clone LUN repository that was allocated for the source LUN. Formerly called a <i>Snap LUN</i>.</p> <p><i>Compare</i> Pillar Axiom MaxRep.</p> <p><i>Compare</i> Clone FS.</p> <p><i>Compare</i> Volume Copy.</p> <p><i>See also</i> LUN.</p>
command line interface (CLI)	<p>A client-based application that administrators can use to run administrative commands from a shell or a script. Through the CLI, administrators can perform administrative tasks. Administrators start a session, submit one or more requests to the Pillar Axiom system, and end the session.</p> <p><i>Compare</i> graphical user interface (GUI).</p> <p><i>See also</i> Pillar Axiom CLI.</p> <p><i>See also</i> session.</p>
Common Internet File System (CIFS)	<p>A protocol that allows network users in a Windows environment to share and access files that are stored on a Pillar Axiom system. The Pillar Axiom implementation of CIFS adheres to the Storage Networking Industry Association (SNIA) CIFS Technical Reference 1.0.</p> <p><i>Compare</i> Network File System (NFS).</p>
community string	<p>A text string, which can be up to 255 printable characters in length, that acts like a password to control access to Management Information Base (MIB) fields within a Simple Network Management Protocol (SNMP) device.</p> <p><i>See also</i> Management Information Base (MIB).</p>

control unit (CU) *See also* [Simple Network Management Protocol \(SNMP\)](#).
One of the two processing units (CU 0 or CU 1) in Pilot management controllers, Slammer storage controllers, and Brick storage enclosures.
See also [Brick](#).
See also [Pilot](#).
See also [Slammer](#).

D

disruptive software update An installation of the Pillar Axiom operating systems, applications, and Brick firmware in a way that requires the Pillar Axiom system to be quiesced and all user data paths taken offline. Pillar Axiom systems implement disruptive software updates by restarting the entire Pillar Axiom system to bring up the new software. User applications lose access to the Pillar Axiom storage arrays during the software update.

Compare [non-disruptive software update](#).

See also [update](#).

Distributed RAID A nested RAID structure that enhances performance for random write operations. The performance enhancement is achieved by replacing two modify or write operations with a parallel mirrored-write operation. Formerly called *Pooled RAID 10*.

See also [redundant array of independent disks \(RAID\)](#).

domain

- 1 On the Internet, a set of network addresses that are organized in levels of specificity, as in [pillardata.com](#). For example, the top level of an address identifies the most general part of the address, such as [.com](#) (commercial) or [.de](#) (Germany).
- 2 For Windows, a set of network resources for a group of users. Pillar Axiom Common Internet File System (CIFS) servers require a domain name to authenticate CIFS users.
- 3 For NIS (Network Information System), a collection of computers each of which has knowledge of the entire system of computers.

See also [Common Internet File System \(CIFS\)](#).

See also [Kerberos](#).

See also [Network Information Service \(NIS\)](#).

Domain Controller (DC) A networked computer that manages authentication and access to network resources. Common Internet File System (CIFS) users on Windows clients authenticate through a DC. Used also in expressions such as *Primary Domain Controller (PDC)* and *Backup Domain Controller (BDC)*.

Compare [Network Information Service \(NIS\)](#).

See also [Common Internet File System \(CIFS\)](#).

See also [domain](#), definition 2.

Domain Name System (DNS) A service used on the Internet to translate host or domain names into Internet Protocol (IP) addresses. In a Pillar Axiom system, an administrator identifies the IP addresses of one or more DNS servers that a File Server can use. Also, Pilot management controllers use DNS for sending Call-Home logs.

See also [Call-Home](#), definition 1.

See also [domain](#), definition 1.

See also [File Server](#).

E

Enclosure Services (ES) A Brick field replaceable unit (FRU) that provides fan status, power supply status, and temperature information. The thumbwheel on the FRU enables you to distinguish between Fibre Channel (FC) Expansion and RAID Bricks. For information on how to set the thumbwheel, refer to the appropriate *Pillar Axiom Service Guide*.

See also [Brick](#).

See also [FC Expansion Brick](#).

See also [FC RAID Brick](#).

See also [field replaceable unit \(FRU\)](#).

Ethernet An IEEE 802.3 standard for network transmission. Pillar Axiom systems support Fast and Gigabit Ethernet public connections. These connections can be copper or optical.

-
- event notification** A Simple Mail Transfer Protocol (SMTP) email message that notifies recipients of specified system events. System events include informational, warning, or critical events such as the creation of a logical volume or the occurrence of a hardware or software problem. Event notifications are optional and supplement normal event logging and Call-Home notification. (Formerly called an *alert*).
- See also* [Call-Home](#).
- See also* [event severity](#).
- event severity** The importance of events that have occurred within the system. The level of severity ranges from Informational (no action is required) to Critical (immediate action is required). The administrator can set up alerts (email notifications) that notify users when preselected events are triggered.
- See also* [event notification](#).
- export** A named Network File System (NFS) resource in a filesystem that remote systems can mount. In Pillar Axiom systems, Common Internet File System (CIFS) users can access an NFS export if the path name definition for the CIFS share point is the same as that for the export.
- Compare* [share](#).
- See also* [Common Internet File System \(CIFS\)](#).
- See also* [filesystem](#).
- See also* [Network File System \(NFS\)](#).
- exports file** A text file that contains export and host definitions, which is used as an alternative to Network Information Service (NIS) user authentication.
- See also* [export](#).
- See also* [Network Information Service \(NIS\)](#).

F

- failback** The process of restoring a set of control unit (CU) services and resources (which had been failed over) to the location of the original CU.
- Compare* [failover](#).
- See also* [control unit \(CU\)](#).

failover	<p>The process of transferring a set of control unit (CU) services and resources from a failed CU to its partner CU.</p> <p><i>Compare</i> failback.</p> <p><i>See also</i> control unit (CU).</p>
fault tolerance	<p>The ability of a Pillar Axiom system to respond gracefully to an unexpected hardware or software failure.</p> <p><i>See also</i> availability.</p>
Fibre Channel (FC)	<p>A high-speed interconnect technology that is used in Pillar Axiom system for data transport among Bricks and Slammers. This technology is used in SAN Slammers to provide a public interface to a storage area network (SAN). It is also used in FC Bricks to provide high performance.</p> <p><i>Compare</i> iSCSI.</p> <p><i>See also</i> Brick.</p> <p><i>See also</i> SAN Slammer.</p>
FC Expansion Brick	<p>A 2U storage enclosure that provides additional storage for a Version 1 Fibre Channel (FC) RAID Brick. FC Expansion Bricks have Expansion (but not RAID) controllers and therefore must be connected upstream to a Version 1 FC RAID Brick. FC Expansion Bricks are available only for Version 1 FC RAID Bricks.</p> <p>FC Expansion Bricks contain 12 FC drives. The Brick firmware marks one of these drives as a spare, sometimes called a <i>floating spare</i>. If one of the other drives fail, a rebuild occurs to the marked hot spare. When the failed drive is replaced, the replacement becomes the new hot spare.</p> <p><i>Compare</i> FC RAID Brick.</p> <p><i>See also</i> Brick.</p>
FC RAID Brick	<p>A 2U storage enclosure that manages a collection of Fibre Channel (FC) drives. A Version 1 FC RAID Brick serves as a head-of-string controller for one or more FC Expansion Bricks. A Version 2 FC RAID Brick does not support FC Expansion Bricks.</p> <p>FC RAID Bricks contain 12 FC drives. The Brick firmware marks one of these drives as a spare, sometimes called a <i>floating spare</i>. If one of the other drives fail, a rebuild occurs to the marked hot spare. When the failed drive is replaced, the replacement becomes the new hot spare.</p>

	<p><i>Compare</i> FC Expansion Brick.</p> <p><i>Compare</i> SATA Brick.</p> <p><i>Compare</i> SSD Brick.</p> <p><i>See also</i> Brick.</p>
field replaceable unit (FRU)	<p>A replaceable hardware component in a Pillar Axiom system. The Pillar Axiom Storage Services Manager software facilitates hardware maintenance and upgrades and provides step-by-step instructions for the replacement.</p>
file access	<p>A Quality of Service (QoS) attribute that translates to an optimization bias:</p> <ul style="list-style-type: none"> ○ Mixed or Random: The system reads and writes relatively small chunks and caches data for a longer period. ○ Sequential: The system reads and writes relatively large chunks and caches data for a shorter period. <p><i>See also</i> Quality of Service (QoS).</p>
File Server	<p>A network attached storage (NAS) object that is assigned security, network, and protocol access attributes. The attributes apply to all filesystems that are associated with that specific File Server. A Pillar Axiom NAS system requires at least one File Server. Sometimes referred to as a <i>CIFS server</i> or <i>virtual server</i>.</p> <p><i>See also</i> filesystem.</p> <p><i>See also</i> virtual network interface (VIF).</p>
file size	<p>A Quality of Service (QoS) attribute that identifies the typical size of files that are stored in the filesystem:</p> <ul style="list-style-type: none"> ○ Small, if files are smaller than 20 KB. ○ Medium, if files are between 20 KB and 4 MB. ○ Large, if files are larger than 4 MB. <p><i>See also</i> filesystem.</p> <p><i>See also</i> Quality of Service (QoS).</p>
filesystem	<p>A logical volume that organizes and catalogs files and assigns resources to a given collection of directories and files in a network attached storage (NAS) system. Administrators can assign different Quality of Service (QoS)</p>

attributes to each filesystem. A filesystem must be associated with a File Server.

Compare [LUN](#).

Compare [virtual LUN \(VLUN\)](#).

See also [File Server](#).

See also [logical volume](#).

See also [Quality of Service \(QoS\)](#).

Filesystem Copy

A block-level, full-image copy of a filesystem or Clone FS. This copy can be read from and written to immediately. Quality of Service (QoS) parameters for a Filesystem Copy can differ from the original. Copies use the available storage in the system. Called *Copy Filesystem* in the Pillar Axiom Storage Services Manager.

A duplicate copy requires greater system and storage resources than a Snap FS. To create an archival copy, use an inactive Clone FS.

Compare [Snap FS](#).

See also [Clone FS](#).

See also [filesystem](#).

See also [inactive clone](#).

Forwarding Filesystem (FFS)

A feature that allows access to filesystems on a remote NAS Slammer control unit (CU). If a request is received on a virtual interface (VIF) for a filesystem that physically resides on a Slammer CU other than the one containing the port for that VIF, the system forwards the request to the remote CU for processing. When the processing is complete, the system returns the results of the request to the original CU. The original VIF then returns the results to the client.

See also [virtual network interface \(VIF\)](#).

G

gateway

A device that enables traffic to flow from the network to which the Pillar Axiom system is connected to other networks. For Slammer storage controllers, Pillar Axiom administrators identify this gateway by its Internet Protocol (IP) address as a File Server parameter. Pilot management

	<p>controllers and Slammer storage controllers use different gateways for their respective management and data paths.</p> <p><i>See also</i> File Server.</p> <p><i>See also</i> route.</p>
geomap	<p>A description of the physical layout on the Brick storage enclosures for a given filesystem or LUN. It is maintained internally within a Slammer and is available for inspection through the <code>axiomcli</code> interface.</p> <p><i>See also</i> virtual LUN (VLUN).</p>
Gigabit Ethernet (GbE)	<p>A version of Ethernet that supports data transfer rates of one billion bits per second. NAS Slammers have two or four Gigabit Ethernet (GbE) ports (all copper or all optical) in each control unit for connecting to customer equipment.</p> <p><i>See also</i> NAS Slammer.</p>
graphical user interface (GUI)	<p>The Java-based application that administrators use to configure and manage a Pillar Axiom system. Pillar Axiom Storage Services Manager is the name of the Pillar Axiom GUI.</p> <p><i>Compare</i> command line interface (CLI).</p> <p><i>Compare</i> Pillar Axiom MaxMan.</p>
growth increment	<p>The capacity by which a thinly provisioned (sparse) LUN or filesystem is expanded as usage increases. The value of this increment is between 1 GB and 2 GB and is equal to the product of the following factors:</p> <ul style="list-style-type: none"> ○ The striping factor in the geomap ○ Storage redundancy ○ RAID type (Fibre Channel or serial ATA) ○ MAU <p>The minimum growth increment cannot be directly configured.</p> <p><i>See also</i> geomap.</p> <p><i>See also</i> minimum allocation unit (MAU).</p> <p><i>See also</i> redundancy.</p> <p><i>See also</i> stripe.</p> <p><i>See also</i> thin provisioning.</p>

H

halt point

A particular step that is associated with a Pillar Axiom software component at which the system startup process is suspended. System halt points are enabled and disabled by a Pillar Support administrator.

Halt points are used for recovery purposes only. When the startup process is suspended, the administrator can gather information or clear conditions that cannot otherwise be accomplished. Halt points should never be set or cleared without assistance from the Pillar World Wide Customer Support Center.

See also [initialization](#).

See also [power on with data recovery \(PODR\)](#).

See also [restart](#).

See also [Support administrator](#).

history

A collection of storage blocks associated with a filesystem that is used by the Pillar Axiom MaxRep Replication for NAS utility to track and otherwise manage the replication process. Each volume participating in a replication pair contains such a history.

See also [Pillar Axiom MaxRep](#).

See also [filesystem](#).

See also [replication pair](#).

I

inactive clone

A point-in-time snapshot of a filesystem or LUN that is hidden from the view of users and, so, cannot be accessed. An inactive clone is generally used for archival purposes and can be used as the source in restore operations. An inactive clone is created when the “Inactive” option is selected at the time the clone is created. For the clone to become *active* (accessible to users), the administrator must explicitly activate the clone.

For information on how to activate a clone, refer to the *Pillar Axiom Administrator's Guide* or to the *Pillar Axiom CLI Reference Guide*.

See also [Clone FS](#).

	<p><i>See also</i> Clone LUN.</p> <p><i>See also</i> filesystem.</p> <p><i>See also</i> LUN.</p>
initialization	<ol style="list-style-type: none"> 1 The start-up process in a Pillar Axiom system. This process includes discovery of hardware components and synchronization of configuration data among the software processes in the system. Sometimes called <i>boot-up</i>. 2 The process of making unused storage capacity available. For example, when a Brick is added to a Pillar Axiom system, the system initializes (zeroes) the space provided by the Brick.
Input/Output Operations per Second (IOPS)	<p>A filesystem performance measurement for input (read) and output (write) operations. Adding Bricks can increase the IOPS capability of a Pillar Axiom system.</p> <p><i>See also</i> Brick.</p> <p><i>See also</i> filesystem.</p>
I/O bias	<p>A Quality of Service (QoS) attribute that identifies the typical file read-write ratio, which translates to an optimization bias for the filesystem:</p> <ul style="list-style-type: none"> ○ Mixed, if the read-write ratio varies. ○ Read, if read activity exceeds write activity. ○ Write, if write activity exceeds read activity. <p><i>See also</i> filesystem.</p> <p><i>See also</i> Quality of Service (QoS).</p>
iSCSI	<p>Internet SCSI (Small Computer System Interface) protocol, an Internet Protocol (IP) based standard for linking data storage devices over a network and for transferring data by carrying SCSI commands over IP networks. An iSCSI storage area network (SAN) may be composed of native iSCSI initiators (such as File Servers) and iSCSI targets (such as disk arrays and tape subsystems). Each iSCSI target is identified by a unique iSCSI qualified name (IQN), and each port on the Slammer is identified by one or more IP addresses.</p> <p><i>Compare</i> Fibre Channel (FC).</p>

See also [File Server](#).

See also [Slammer](#).

J

journal

A sequential record of committed transactions (set of modified blocks) that are guaranteed to be written to the underlying Brick storage. The Pillar Axiom system maintains one journal for each filesystem. In the background, the system continuously flushes these journals to permanent storage on the appropriate Bricks.

The system maintains two copies of a journal in battery-backed memory (BBM). The primary copy exists on the same Slammer control unit (CU) on which the filesystem resides. The secondary copy (a mirror) exists in the BBM in the partner CU to allow recovery in the event of a failure of the owner CU.

See also [Brick](#).

See also [pinned data](#).

See also [power on with data recovery \(PODR\)](#).

See also [Slammer](#).

K

Kerberos

A secure method for authenticating a request for a service. Kerberos lets a user request an encrypted ticket from an authentication process that is a part of the Key Distribution Centre (KDC), which can then be used to request a particular service from a server. The user's password does not have to pass through the network.

Pillar Axiom administrators can choose to authenticate users by requiring them to request a KDC ticket.

L

light-emitting diode (LED)

A device that lights when it receives an electrical signal. Pillar Axiom systems use LEDs on the hardware to indicate component statuses, activities, and faults. For example, an amber LED often indicates a failed device. For a complete

description of LED status, refer to the *Pillar Axiom Service Guide* appendix.

See also [beacon](#).

link aggregation

A process that groups two or more network connections into a single channel, creating a higher-bandwidth logical link. Link aggregation provides load balancing and fault tolerance for multiple Ethernet links. When link aggregation is enabled for a Pillar Axiom system, the aggregated Gigabit Ethernet (GbE) ports on each Slammer control unit (CU) become redundant. Conforms to the IEEE 803.2ad standard Link Aggregation Control Protocol (LACP) standard.

In addition, Pillar Axiom systems can detect link interruptions due to switch port, CU port, or cable failure. This feature permits link loss recovery by allowing a virtual interface (VIF) to migrate (in the case of a switch or cable failure) to another port on the same CU or (in the case of a CU failure) to the partner CU.

See also [control unit \(CU\)](#).

See also [Gigabit Ethernet \(GbE\)](#).

See also [Slammer](#).

local area network (LAN)

Computers and other devices that span a geographic area of up to a few thousand meters and interact through a common communications link. Pillar Axiom systems provide interfaces to two types of LAN:

- Private management network, which the Pillar Axiom system uses for internal communication.
- Public LAN, which administrators and clients use to access the system.

Compare [virtual local area network \(VLAN\)](#).

See also [private management interface \(PMI\)](#).

logical volume

A named segment of storage in a Storage Domain. Volumes can be expanded in capacity up to or that exceeds the available physical capacity of the Storage Domain in which the volume is located.

This umbrella term is a logical concept that represents network attached storage (NAS) filesystems and storage area network (SAN) LUNs. These two objects can act as

source volumes for clone, snapshot, and copy operations. The results of those operations are logical volumes as well.

See also [Clone FS](#).

See also [Clone LUN](#).

See also [filesystem](#).

See also [LUN](#).

See also [Snap FS](#).

See also [Storage Domain](#).

See also [thin provisioning](#).

See also [Volume Copy](#).

See also [volume group](#).

lost data

A condition in which data may not be accessible or available. When this condition exists, the logical volume reports a *lost data* status, which means that the Pillar Axiom system cannot *guarantee* that some data has not been lost. This status can occur, for example, when:

- An extended power outage occurs without the opportunity to shut down the Pillar Axiom system before the Slammer battery dies.
- A Brick failure occurs and the redundant copy of a logical volume on that Brick is marked invalid. On recovery, while copying data from the remaining copy to the recovering copy, a read error occurs.

A lost data status causes the system to take the logical volume offline and to generate a system event.

See also [availability](#).

LUN

A logical volume within a storage area network (SAN). Administrators assign storage resources and Quality of Service (QoS) attributes to each logical unit (LUN).

Compare [filesystem](#).

Compare [virtual LUN \(VLUN\)](#).

See also [logical volume](#).

See also [Quality of Service \(QoS\)](#).

LUN Copy

A block-level, full-image copy of a LUN or Clone LUN. This copy can be read from and written to immediately. Quality

of Service (QoS) parameters for a LUN Copy can differ from the original. Copies use the available storage in the system. Called *Copy LUN* in the Pillar Axiom Storage Services Manager.

A duplicate copy requires greater system and storage resources than the Clone LUN feature. To create an archival copy, use an inactive clone.

Compare [Clone LUN](#).

See also [inactive clone](#).

See also [LUN](#).

M

Management Information Base (MIB)

An information store that provides the current state of a collection of managed network objects and is accessed by means of the Simple Network Management Protocol (SNMP). Access to MIB state information is controlled through the use of a community string.

Pillar Axiom systems expose an MIB that corresponds to the physical state of the system, including system status, statistics, and notification information.

See also [community string](#).

See also [Simple Network Management Protocol \(SNMP\)](#).

management IP

The Internet Protocol (IP) address that administrators use to access the Pillar Axiom management interface. This address is often set to a customer-defined address when the Pillar Axiom system is first installed.

minimum allocation unit (MAU)

The minimum amount of storage that can be allocated from the Pillar Axiom storage pool. The type of storage determines the physical size of a MAU:

- For serial ATA (SATA) Bricks, a MAU is 315 MB.
- For Fibre Channel Bricks, a MAU is 288.75 MB.

Monitor (administrator)

A login account that has the authority to perform read-only management tasks in a Pillar Axiom system and the ability to modify their own account attributes.

Compare [Administrator 1](#).

Compare [Administrator 2](#).

Compare [Primary system administrator](#).

Compare [Support administrator](#).

N

Name Service Switch (NSS)

A service that provides ordered access to databases to resolve users, groups, and hosts. An administrator can identify the search order that a File Server uses among these databases and files:

- Network Information Service (NIS) database for host and password resolution.
- Domain Name System (DNS) database for host resolution in non-NIS environments.
- Files (`/etc/passwd`, `/etc/group`, and `/etc/netgroup`) for password resolution in non-NIS environments.

See also [Domain Name System \(DNS\)](#).

See also [File Server](#).

See also [Network Information Service \(NIS\)](#).

NAS network interface module (NIM)

A field replaceable unit (FRU) in a Slammer that is dedicated to network attached storage (NAS). A NIM has two or four Gigabit Ethernet ports for local area network (LAN) connectivity. A NAS Slammer holds two such FRUs (one per control unit). A NAS NIM may optionally contain a Fibre Channel (FC) host bus adapter to support FC tape devices and NDMP (Network Data Management Protocol) backup operations.

Compare [SAN network interface module \(NIM\)](#).

See also [Slammer](#).

NAS Slammer

A Slammer that provides file-based storage services. It connects to host servers by means of a Gigabit Ethernet connection into a local area network (LAN). NAS Slammers serve filesystems using Common Internet File System (CIFS) and Network File System (NFS) protocols.

Compare [SAN Slammer](#).

See also [Common Internet File System \(CIFS\)](#).

See also [Network File System \(NFS\)](#).

	<i>See also</i> Slammer .
NAS/SAN	<p>The unification of network attached storage (NAS) and storage area network (SAN) environments in a Pillar Axiom system, which uses a single storage pool and is controlled by flexible, Quality of Service (QoS)-driven policies. NAS Slammers and SAN Slammers coexist and interoperate to provide NAS and SAN protocol support and access to that storage pool.</p> <p><i>Compare</i> SAN Slammer.</p> <p><i>See also</i> NAS Slammer.</p>
netmask	<p>A pattern that shows how an Internet address is to be divided into network, subnet, and host parts. As a File Server network parameter, it identifies the mask that is assigned to the virtual network interfaces of the File Server.</p> <p><i>Compare</i> virtual network interface (VIF).</p> <p><i>See also</i> File Server.</p>
Network Data Management Protocol (NDMP)	<p>An industry-standard protocol that allows for the use of third-party backup applications to manage the backup and recovery of customer data. An NDMP user account, password, and access port are configured through the Pilot management controller. Pillar Axiom systems support NDMP version 4. Refer to http://www.ndmp.org/info/faq.shtml and to the <i>Pillar Axiom NDMP Integration Guide</i>.</p>
Network File System (NFS)	<p>A file-sharing protocol that allows users who have Network File System (NFS) client software installed on their workstations to access data that is stored on a Pillar Axiom system. Users can manipulate these files as though they were stored locally on their own drive.</p> <p>Pillar Axiom systems support NFS versions 2 and 3 commands over Transmission Control Protocol (TCP) and User Datagram Protocol (UDP).</p> <p><i>Compare</i> Common Internet File System (CIFS).</p>
Network Information Service (NIS)	<p>A network naming and administration service. Administrators can choose to authenticate UNIX, Linux, and Windows Network File System (NFS) clients by means of an NIS database.</p> <p><i>Compare</i> Domain Controller (DC).</p> <p><i>See also</i> Network File System (NFS).</p>

Network Time Protocol (NTP)

A standard that is used to synchronize computer clock times in a network of computers. The Pilot management controller synchronizes its time with an NTP server outside of the Pillar Axiom system. Slammers synchronize their clocks with the Pilot. You can also set the time manually.

See also [Pilot](#).

See also [Slammer](#).

NIS netgroup

A named list of members that are given similar network access. Any member of a netgroup can mount a Network File System (NFS) export point of a File Server, if an administrator has:

- Specified that netgroup as an allowed host.
- Defined Network Information Service (NIS) as one of the Name Service Switch (NSS) search settings for hosts.
- Specified an NIS server that contains an entry for that netgroup.

Administrators can also list netgroups in an exports file as an alternative to NIS user authentication.

See also [export](#).

See also [exports file](#).

See also [File Server](#).

See also [Name Service Switch \(NSS\)](#).

See also [Network Information Service \(NIS\)](#).

non-disruptive software update

An installation of the Pillar Axiom operating systems, applications, and Brick firmware in a way that does not require the Pillar Axiom system to be quiesced and all data paths taken offline. Instead, user applications can continue accessing the Pillar Axiom storage arrays without interruption.

Pillar Axiom systems implement non-disruptive software updates by warm starting the Slammer control units (CUs) and restarting the Pilot CUs to bring up the new software. As each Slammer CU warmstarts, there is a temporary protocol service disruption of a few seconds on each CU. This disruption is typically non-disruptive to most applications and protocols.

	<p>Sometimes called <i>NDU</i> (non-disruptive update). <i>Compare</i> disruptive software update. <i>See also</i> Pilot. <i>See also</i> Slammer. <i>See also</i> update.</p>
non-optimized access (NOA)	<p>A less efficient access path that is created when a LUN is mounted on the partner Slammer control unit (CU) rather than on the CU that actually owns the LUN. <i>Compare</i> Forwarding Filesystem (FFS).</p>
notification	<p>See event notification.</p>
O	
opportunistic lock (oplock)	<p>In Common Internet File System (CIFS), a specialized form of file lock that allows the CIFS client to cache data. Oplocks are an optional feature when an administrator creates a File Server. Without oplocks, CIFS clients access data files directly. <i>See also</i> Common Internet File System (CIFS). <i>See also</i> File Server.</p>
P	
path	<p>The physical route along which the protocol or data for a logical connection travels. A path connecting a customer hardware device to a Pillar Axiom system is dedicated to transporting either user data or management information. <i>See also</i> route. <i>See also</i> Storage System Fabric (SSF).</p>
Persistence	<p>The internal name of the volume that contains the system configuration database. The Persistence volume resides on a virtual drive in the storage array. This virtual drive is called the <i>Persistence VLUN</i>. <i>See also</i> system configuration database. <i>See also</i> system root configuration.</p>
Pillar Axiom CLI	<p>A client-based application that enables administrative actions by means of commands from a shell. Through this</p>

	<p>interface, system administrators can configure and manage a Pillar Axiom system. This application follows conventions used by other command line interfaces and supports automation through scripting using standard shells such as Perl and Python.</p> <p><i>Compare command line interface (CLI).</i></p> <p><i>Compare graphical user interface (GUI).</i></p>
Pillar Axiom MaxMan	<p>The Java-based application that administrators use to configure and manage multiple Pillar Axiom systems.</p> <p><i>Compare graphical user interface (GUI).</i></p>
Pillar Axiom MaxRep	<p>Optional software that allows administrators to replicate logical volumes onto one or more Pillar Axiom systems for disaster recovery purposes. This software can keep the content of the replicas synchronized with that of their parent volumes.</p> <p><i>Pillar Axiom MaxRep Replication for SAN</i> is available for storage area network (SAN) environments.</p> <p><i>Compare Volume Copy.</i></p> <p><i>See also replica.</i></p>
Pillar Axiom Path Manager (APM)	<p>Optional software installed on a storage area network (SAN) host to manage multiple paths to the Pillar Axiom system.</p>
Pillar Axiom Pre-Emptive Copy	<p>A feature of the Pillar Axiom RAID firmware that copies the data on a drive (which has been predicted to fail) to the spare drive before the suspect drive fails and is subsequently taken offline for replacement. This RAS feature avoids performance degradation and potential exposure to data loss when the drive does fail.</p> <p><i>See also Reliability, Availability, Serviceability (RAS).</i></p>
Pillar Axiom SecureWORMfs	<p>A type of filesystem used to enforce data retention. Data is stored on a Pillar Axiom SecureWORMfs in a protected (non-rewritable) manner.</p> <p><i>See also filesystem.</i></p>
Pilot	<p>A Pillar Axiom component that is dedicated to administrative and management operations. Administrators connect to Pilot management controllers over the Ethernet. Administrators access the administrative interface through the graphical user interface (GUI) or the command line interface (CLI).</p>

Compare [Brick](#).

Compare [Slammer](#).

See also [command line interface \(CLI\)](#).

See also [graphical user interface \(GUI\)](#).

Pilot restart

Reinitiation of the Pilot management controller while the rest of the Pillar Axiom system continues to function. The management system restarts the Pilot when the system:

- Has detected an internal issue.
- Is performing a non-disruptive software update (data resources remain online).

Pilot restarts do not affect or impact the data path in any way.

Compare [restart](#).

See also [non-disruptive software update](#).

pinned data

Any modified data that the system cannot flush from memory to physical storage due to a system or power failure. The Pillar Axiom system protects this in-memory data until it can flush the data to physical storage.

Administrators can:

- Fix the issue to let the system flush the pinned data.
- Discard the pinned data.

See also [journal](#).

policy-based management

A Pillar Axiom administrative mechanism that simplifies resource management. This mechanism allows the creation of policies to deal with situations that are likely to occur. System administrators define Quality of Service (QoS) policies for filesystems and LUNs that define:

- Capacity limits
- Performance targets
- Data protection

Administrators can define other policies to handle:

- Event notifications
- Data replication
- Hardware component failures

port group	<p>A collection of Fibre Channel ports within the Storage System Fabric (SSF) that is used to access the storage arrays.</p> <p><i>See also</i> Storage System Fabric (SSF).</p>
power on with data recovery (PODR)	<p>A power cycle that maintains data intact within the battery-backed memory in the Slammer storage controllers. This term applies most often in the context of a Slammer control unit that has been power cycled without a clean shutdown. It could apply to the entire Pillar Axiom system as well.</p> <p><i>See also</i> journal.</p> <p><i>See also</i> shutdown.</p> <p><i>See also</i> Slammer.</p>
Pre-Emptive Copy	<p>See Pillar Axiom Pre-Emptive Copy.</p>
Primary system administrator	<p>A unique login account that has the authority to perform all administration and configuration tasks. This account cannot be deleted or disabled.</p> <p><i>Compare</i> Administrator 1.</p> <p><i>Compare</i> Administrator 2.</p> <p><i>Compare</i> Monitor (administrator).</p> <p><i>Compare</i> Support administrator.</p>
priority level	<p>A Quality of Service (QoS) attribute that determines the amount of system resources that are devoted to a logical volume. These resources include the processing priority and the location of data for the volume on a drive.</p> <p><i>See also</i> Quality of Service (QoS).</p>
private interconnect (PI)	<p>The internal switched Fibre Channel fabric that connects the Slammer storage controllers to each other and to the Brick storage enclosures.</p> <p><i>See also</i> Storage System Fabric (SSF).</p>
private interconnect module (PIM)	<p>The Slammer hardware unit that provides the private interconnect (PI) interface to the Brick storage array. Formerly referred to as an <i>FCIM (Fibre Channel interface module)</i>.</p>
private management interface (PMI)	<p>The internal switched Ethernet local area network that connects the Pilot control units to the Slammer control units.</p>

Q

Quality of Service (QoS)

The set of capacity and performance attributes, including redundancy, that administrators assign to logical volumes. Administrators can assign different QoS attributes to each logical volume and allocate system resources that are based on user requirements. Capacity and performance settings can be modified at any time.

See also [capacity](#).

See also [file access](#).

See also [file size](#).

See also [filesystem](#).

See also [I/O bias](#).

See also [LUN](#).

See also [priority level](#).

See also [redundancy](#).

See also [service level agreement \(SLA\)](#).

See also [Storage Profile](#).

quarantine

The action the Pillar Axiom system takes to limit or deny access to individual resources within a filesystem, if those resources should become inconsistent. This condition causes the Pillar Axiom system to log a Call-Home event and to send an alert email notification. Only that portion of the filesystem containing the fault becomes inaccessible; the rest of the filesystem remains online. The Pillar World Wide Customer Support Center will advise appropriate actions to take to recover the failed resources.

See also [event notification](#).

See also [Call-Home](#).

See also [filesystem](#).

quota

Capacity limits for directories, users, or groups who store data in a filesystem.

See also [capacity](#).

See also [filesystem](#).

R

- RAID group** A collection of physical drives within a Brick that stores user data. Fibre Channel (FC) Bricks provide one RAID group, which consists of 11 drives. Serial ATA (SATA) and solid-state drive (SSD) Bricks provide two RAID groups, each of which consists of 6 drives. Sometimes called a *Brick LUN* or more rarely a *data LUN*.
- See also* [FC RAID Brick](#).
- See also* [SATA Brick](#).
- See also* [SSD Brick](#).
- See also* [stripe](#).
- redundancy** A Quality of Service (QoS) attribute that identifies how many mirror copies of the original data are stored online:
- Standard, which stores original data only.
 - Double, which stores original data and one mirror copy.
- All values stripe the data over multiple RAID groups.
- See also* [Quality of Service \(QoS\)](#).
- See also* [stripe](#).
- redundant array of independent disks (RAID)** A disk subsystem that consists of a set of drives and a controller that operate as a single logical drive. Pillar Axiom systems have multiple RAID controllers (two in each Brick) that provide hardware RAID 5 or Distributed RAID for logical volumes.
- See also* [fault tolerance](#).
- See also* [logical volume](#).
- See also* [Distributed RAID](#).
- reliability** A feature of a Pillar Axiom system in which dependable system hardware and software consistently serve customer data. The reliability of the system reduces maintenance costs and minimizes service disruptions.
- See also* [availability](#).
- See also* [Reliability, Availability, Serviceability \(RAS\)](#).
- See also* [serviceability](#).

**Reliability,
Availability,
Serviceability
(RAS)**

The ability to serve customer data, to respond to a failure, and to undergo maintenance without a complete system shutdown. Pillar Axiom systems were designed with these features in mind to produce a highly reliable, highly available system that is easy to service.

See also [availability](#).

See also [reliability](#).

See also [serviceability](#).

replica

A copy of a logical volume. Replicas are generally used for testing and for recovery from file corruption or catastrophic situations. Replicas include all forms of snapshots and clones.

All replicas, *except* those created by the Pillar Axiom MaxRep utilities, are:

- Created by an explicit one-time operation.
- Performed on the same Pillar Axiom system.
- Require no prior configuration.
- Disassociated from and not synchronized with changes to their parent volumes.

Pillar Axiom MaxRep operations produce copies of the data that, once created, continue to be associated with the parent volume. This type of replica requires pre-configuration and can be placed on a different system. A synchronization operation reflects in the replica all updates to the parent volume.

See also [Pillar Axiom MaxRep](#).

See also [Clone FS](#).

See also [Clone LUN](#).

See also [Snap FS](#).

See also [Volume Copy](#).

replication pair

For Pillar Axiom MaxRep Replication for NAS, a relationship established between two filesystems on the same or different Pillar Axiom systems. Through the use of a command, the administrator requests that the replication process transfer to the target volume all changes made to the source volume.

	<p><i>See also</i> Pillar Axiom MaxRep.</p> <p><i>See also</i> filesystem.</p>
restart	<p>A process that ensures the Pillar Axiom software components shut down and start back up in an orderly way. The Pilot management software controls this process. During a Pilot restart, all data paths are available. During a full system restart, the data paths are not available.</p> <p>During startup, the management software obtains heartbeats from the Slammers and verifies the configuration of the Pillar Axiom system. Disruptive software updates and explicit system administrator requests initiate restarts.</p> <p><i>Compare</i> non-disruptive software update.</p> <p><i>Compare</i> warmstart.</p> <p><i>See also</i> halt point.</p> <p><i>See also</i> Pilot restart.</p> <p><i>See also</i> shutdown.</p> <p><i>See also</i> Slammer.</p>
restart point	<p>A block of information that is periodically saved during Pillar Axiom MaxRep Replication for NAS synchronization operations that, if needed, can be used to continue the synchronization process after an interruption. The system records a restart point every minute.</p> <p><i>See also</i> Pillar Axiom MaxRep.</p> <p><i>See also</i> replication pair.</p>
route	<p>The sequence of hosts, routers, gateways, and other devices that network traffic can take. Pillar Axiom administrators identify at least one gateway for a File Server to use to route messages to other networks.</p> <p><i>See also</i> File Server.</p> <p><i>See also</i> gateway.</p> <p><i>See also</i> sendback routing.</p>

S

SAN network interface module (NIM)

A field replaceable unit (FRU) in a SAN Slammer that has two Fibre Channel ports for storage area network (SAN) connectivity. A SAN Slammer holds two such FRUs, one for each control unit.

Compare [NAS network interface module \(NIM\)](#).

See also [SAN Slammer](#).

SAN Slammer

A Slammer that provides block-based storage services to a storage area network (SAN). A SAN Slammer communicates with customer servers using Small Computer System Interface (SCSI) commands over the customer's SAN. SAN Slammers support both Fibre Channel and Internet SCSI (iSCSI) technologies.

Compare [NAS Slammer](#).

See also [iSCSI](#).

See also [Slammer](#).

SATA Brick

A 2U storage enclosure that manages a collection of serial ATA (SATA) hard disk drives (HDDs).

SATA Bricks contain 13 SATA drives. The 13th drive (in the back) is a hot spare. If one of the 12 regular drives fail, a rebuild occurs to the hot spare. When the failed drive is replaced, a copyback operation is performed from the hot spare to the replacement.

Compare [FC RAID Brick](#).

Compare [SSD Brick](#).

See also [Brick](#).

Self-Monitoring, Analysis, and Reporting Technology (SMART)

A feature of Enhanced Intelligent Drive Electronics (enhanced IDE or EIDE) technology that provides an interface between the basic input/output system (BIOS) of a computer and a drive. In a Pillar Axiom system, RAID controllers use SMART to predict whether a drive is in danger of failing, which allows administrators to prevent the failure in a proactive way.

See also [redundant array of independent disks \(RAID\)](#).

sendback routing

The path a Pillar Axiom system uses to reply to an incoming Transfer Control Protocol (TCP) request, the path being the same interface over which the request arrived.

Sendback routing is similar to *boomerang* or *reflect mode* routing for host implementations.

See also [route](#).

serial ATA (SATA) A standard for connecting drives into computer systems. Drives managed by SATA RAID controllers are based on serial instead of parallel signaling technology, which IDE (Intelligent Drive Electronics) drives use.

See also [Brick](#).

See also [SATA Brick](#).

See also [SSD Brick](#).

service level agreement (SLA) Contractually defined performance metrics in which Pillar Data Systems provides technical support, replacement parts, and on-site service to an entitled customer.

See also [Quality of Service \(QoS\)](#).

serviceability An attribute of a Pillar Axiom system that eases system maintenance cost and time through such features as self-diagnosing and self-repairing systems, hot-swappable field replaceable units (FRUs), and a guided-maintenance wizard.

See also [availability](#).

See also [field replaceable unit \(FRU\)](#).

See also [reliability](#).

See also [Reliability, Availability, Serviceability \(RAS\)](#).

session The period of time during which a client is logged in to a Pillar Axiom server with the credentials necessary to run commands against the Pillar Axiom system. A session begins when the server successfully authenticates the user. The session remains active until the user explicitly ends or quits the session or simply logs out. Often referred to as a *command session*, *login session*, or a *shell session*.

share A named Common Internet File System (CIFS) resource in a filesystem that remote systems can access. In Pillar Axiom systems, Network File System (NFS) users can access a CIFS share if the path name definition for the NFS export point is the same as that for the share.

Compare [export](#).

See also [Common Internet File System \(CIFS\)](#).

See also [filesystem](#).

	<i>See also</i> Network File System (NFS) .
shutdown	<p>A process that completes all processes and quiesces all components in the Pillar Axiom system. This process allows you to safely remove power and replace hardware components. This process disables all of the data interfaces on the Slammers and flushes all cached user data to permanent storage.</p> <p><i>Compare</i> warmstart.</p> <p><i>See also</i> restart.</p>
Simple Network Management Protocol (SNMP)	<p>A standard network protocol that is used to monitor Slammers, Bricks, and the drives within the Bricks. Through SNMP traps, administrators can monitor, for example, central processing unit (CPU) temperature and field replaceable unit (FRU) removal and insertion.</p> <p><i>See also</i> Brick.</p> <p><i>See also</i> community string.</p> <p><i>See also</i> field replaceable unit (FRU).</p> <p><i>See also</i> Management Information Base (MIB).</p> <p><i>See also</i> Slammer.</p> <p><i>See also</i> trap host.</p>
Slammer	<p>A 4U, clustered storage subsystem that is the front end to a Pillar Axiom system. Slammer storage controllers contain two control units that act in active-active mode to provide data and state mirroring.</p> <p><i>Compare</i> Brick.</p> <p><i>Compare</i> Pilot.</p> <p><i>See also</i> control unit (CU).</p> <p><i>See also</i> NAS Slammer.</p> <p><i>See also</i> SAN Slammer.</p>
Snap FS	<p>A point-in-time, read-only snapshot of a filesystem, which can be used later to restore the filesystem. A Snap FS has no Quality of Service (QoS) parameters. It consumes storage capacity from the filesystem itself. A Snap FS can be scheduled to occur at any time.</p>

	<p>Creating filesystem snapshots is recommended. You can use them to recover accidentally deleted files and for quick filesystem recovery.</p> <p><i>Compare Clone FS.</i></p> <p><i>See also capacity.</i></p> <p><i>See also filesystem.</i></p>
Snap LUN	<i>See Clone LUN.</i>
SSD Brick	<p>A 2U storage enclosure that manages a collection of solid state drives (SSDs). An SSD Brick, which displays as a SATA V2 type in the user interfaces, contains 13 SSD drives that are managed by serial ATA (SATA) RAID controllers. The 13th drive (in the back) is a hot spare. If one of the 12 regular drives fail, a rebuild occurs to the hot spare. When the failed drive is replaced, a copyback operation is performed from the hot spare to the replacement. An SSD Brick is an I/O intensive SATA alternative to Fibre Channel Bricks.</p> <p><i>Compare FC RAID Brick.</i></p> <p><i>Compare SATA Brick.</i></p>
statistics	<p>Collections of data about certain aspects of a Pillar Axiom system:</p> <ul style="list-style-type: none"> ○ Performance of backups, logical volumes, and network attached storage (NAS) and storage area network (SAN) protocols. ○ Capacity usage. ○ System health. <p>Statistics can be collected and viewed by using the Pillar Axiom Storage Services Manager (GUI). The statistics file collected in this manner can be analyzed with the Statistics Tools, a package that can be downloaded from the GUI.</p> <p><i>See also capacity.</i></p> <p><i>See also graphical user interface (GUI).</i></p>
Storage Class	<p>A categorization of physical storage, each category having distinct characteristics with regard to performance characteristics of data access. Example Storage Classes in a Pillar Axiom system are serial ATA (SATA), Fibre Channel (FC), and solid state drive (SSD). Pillar Axiom</p>

systems allow an administrator to explicitly manage volume placement within the overall system storage pool, first by Storage Domain, then by Storage Class, and finally by relative priority level within that Storage Class.

See also [FC RAID Brick](#).

See also [priority level](#).

See also [SATA Brick](#).

See also [SSD Brick](#).

Storage Domain

A subset of a virtual storage pool consisting of a defined group of Brick storage enclosures. This group can consist of any assortment of Bricks, regardless of Storage Class, capacity, or any other attribute. A Storage Domain is typically used to provide specific allocation or security features for a collection of logical volumes.

A *primary* Storage Domain contains the system overhead, including all system configuration data.

See also [Brick](#).

See also [Storage Class](#).

Storage Profile

A set of Quality of Service (QoS) attributes that can be used to configure a logical volume. Pillar Data Systems provides a collection of Storage Profiles that are optimized for specific uses within an application context.

Administrators can select one of the available profiles, create a new profile, or modify an existing profile.

See also [Quality of Service \(QoS\)](#).

Storage System Fabric (SSF)

The protected Fibre Channel fabric internal to Pillar Axiom systems that interconnects Bricks and Slammers. The SSF enables communication within the Pillar Axiom system so that all Slammers can connect to any of the Bricks. The SSF provides redundant paths for increasing reliability.

See also [Brick](#).

See also [Fibre Channel \(FC\)](#).

See also [private interconnect \(PI\)](#).

See also [Slammer](#).

strip

A contiguous block of storage (an extent) on a single drive. The size in bytes of a strip (referred to as its *depth*) depends generally on the Storage Class of the Brick. For Fibre Channel Bricks, the strip depth is 64 KB. For SATA

and SSD Bricks, the strip depth is 128 KB. However, when the Oracle Automatic Storage Management (ASM) performance profile is used to configure a logical volume, the strip depth is 1 MB.

See also [Wide Stripe](#).

stripe

For virtual LUNs (VLUNs), a collection of strips spread across a number of RAID groups. The preferred number of RAID groups (sometimes called the *striping factor*) depends on the Quality of Service (QoS) performance level selected for the logical volume.

See also [Brick](#).

See also [FC RAID Brick](#).

See also [priority level](#)

See also [RAID group](#).

See also [SATA Brick](#).

See also [SSD Brick](#).

See also [Storage Class](#).

See also [strip](#).

See also [virtual LUN \(VLUN\)](#).

Support administrator

The reserved account for use by Pillar Customer Service or authorized service providers. This account, which cannot be deleted, has special privileges strictly for the purposes of maintenance. This account cannot modify data resources, system alerts, or administrator accounts.

Compare [Administrator 1](#).

Compare [Administrator 2](#).

Compare [Monitor \(administrator\)](#).

Compare [Primary system administrator](#).

system configuration database

The database that contains the system metadata and resides in the Persistence volume. For example, this database contains the records for administrator accounts, email addresses, snapshot schedules, and all storage and hardware resource names and mappings.

See also [Persistence](#).

See also [system root configuration](#).

system root configuration

The records in the system configuration database that describe the basic hardware and software resources necessary to restart an Oracle Pillar Axiom system.

See also [Persistence](#).

See also [system configuration database](#).

system status

One of four possible states of the hardware in a Pillar Axiom system:

- Normal. System is in an expected state of operation; no user intervention required.
- Warning. An error condition cannot be corrected, but data is still accessible. User intervention is required.
- Critical. Some system element has been compromised. Data access has been lost to some degree. User intervention is required.
- Unknown. Component is unavailable or offline.

The status of a system has no direct relationship with and does not directly reflect the status of the logical volumes the system contains.

T**task**

A unit of work within a Pillar Axiom system. For example, the system converts every configuration request into one or more tasks. The system queues the tasks so that dependencies are satisfied and then performs the tasks.

thin provisioning

An approach to storage allocation in which a logical volume appears to be much larger than the storage actually allocated to it. Additional storage is dynamically allocated when necessary. Administrators interact with thinly provisioned volumes when configuring their capacity and growth increments. These types of volumes are sometimes referred to as *sparse filesystems* and *sparse LUNs*.

See also [filesystem](#).

See also [LUN](#).

Transmission Control Protocol (TCP)

The connection-oriented protocol built on top of Internet Protocol (IP). TCP allows two hosts to connect and exchange streams of data. IP deals with the packets of data. Administrators can elect to allow TCP connections for

a File Server in addition to User Datagram Protocol (UDP) connections.

See also [File Server](#).

trap host

A management device that receives Simple Network Management Protocol (SNMP) based network packets that contain device statistics or status.

See also [Simple Network Management Protocol \(SNMP\)](#).

U

Uninterruptible Power Supply (UPS)

A device that contains a battery that engages when the device senses a loss of power from the primary source. A Pillar Axiom system receives Simple Network Management Protocol (SNMP) traps from the UPS device and generates events.

See also [Simple Network Management Protocol \(SNMP\)](#).

update

A coordinated change in the version of Pillar Axiom software and Brick firmware. The system handles both disruptive and non-disruptive updates and verifies that the software and firmware versions across the system are compatible before allowing the change to proceed. The system also notifies the system administrator if an update will be disruptive to the data paths.

See also [disruptive software update](#).

See also [non-disruptive software update](#).

V

VIF

See [virtual network interface \(VIF\)](#).

virtual local area network (VLAN)

A logical grouping of devices that are on different physical segments of a local area network (LAN) but communicate as though they are connected on a single segment. Administrators can associate a File Server with a particular VLAN.

See also [File Server](#).

See also [VLAN tag](#).

virtual LUN (VLUN)

A logical unit of storage where customer data is striped and optionally mirrored across two or more Bricks. In a small system, such as a minimally configured Pillar Axiom 300

system, the mirroring may occur between two primary data segments within a single Brick.

VLUNs support filesystems, LUNs, clones, and snapshots and are internally managed, block-level structures. System administrators manage VLUNs only indirectly when they create or modify logical volumes.

See also [filesystem](#).

See also [LUN](#).

See also [stripe](#).

virtual network interface (VIF)

A logical interface for regulating network I/O across different processes that access the same physical interface. A virtual network interface:

- Has an Internet Protocol (IP) address that is unique for the File Server.
- Has a virtual local area network (VLAN) tag identifier that is unique for the File Server and is non-zero if tagging is enabled.
- Identifies a particular network port on a particular control unit (CU) of a Slammer.

The Pillar Axiom system creates Common Internet File System (CIFS) and Network File System (NFS) servers on both CUs of the associated Slammer.

See also [control unit \(CU\)](#).

See also [File Server](#).

See also [Slammer](#).

See also [VLAN tag](#).

virtual server

Sometimes referred to as *VServer*. *See* [File Server](#).

VLAN tag

Identifies the virtual local area network (VLAN) identifier (ID) that can be assigned to the virtual network interface (VIF) of a File Server. VLAN IDs 1 through 4094 can optionally be used to connect a VLAN-capable switch to the Pillar Axiom system.

See also [File Server](#).

See also [virtual local area network \(VLAN\)](#).

See also [virtual network interface \(VIF\)](#).

volume	<i>See</i> logical volume .
Volume Copy	<p>A logical volume that is created by a <i>copy LUN</i> or <i>copy filesystem</i> operation through use of the Pillar Axiom command line interface (CLI) or graphical user interface (GUI). A Volume Copy is a block-level, full-image, read-write copy of a logical volume. A Volume Copy is created by an explicit one-time operation, is performed on the same Pillar Axiom system, and requires no prior configuration. Volume copies are disassociated from and not synchronized with changes to their parent volumes.</p> <p>Volume Copy operations produce copies of the data that, once created, are no longer associated with the source volume. Updates to the source volume are not reflected in the replica.</p> <p><i>Compare</i> Pillar Axiom MaxRep.</p> <p><i>See also</i> Filesystem Copy.</p> <p><i>See also</i> LUN Copy.</p> <p><i>See also</i> replica.</p>
volume group	<p>An object that is used to organize filesystems and LUNs. Volume groups can be nested.</p> <p><i>See also</i> filesystem.</p> <p><i>See also</i> LUN.</p>
W	
warmstart	<p>A soft reset (not a reload) of the operating system in a Slammer control unit. During a warmstart, the operating system data structures are re-initialized and all customer data is kept intact. Transfer Control Protocol (TCP) connections for network attached storage (NAS) users are reset. A warmstart in a storage area network (SAN) appears as a target reset, which causes all outstanding commands to be retried by the host.</p> <p><i>Compare</i> restart.</p>
Wide Stripe	<p>A Pillar Axiom storage configuration option that provides a strip depth of 1 MB for a logical volume. A wide stripe minimizes the number of seeks required to service data requests in an Oracle Automatic Storage Management (ASM) environment by matching strip size to the application request size. This feature is provided on RAID 5 arrays.</p>

See also [redundant array of independent disks \(RAID\)](#).

See also [strip](#).

**Windows Internet
Naming Service
(WINS)**

Windows software that resolves computer names to Internet Protocol (IP) addresses across multiple subnets. When a Pillar Axiom administrator configures the Common Internet File System (CIFS) options for a File Server in NT-type file sharing environments, the administrator specifies the IP address of the WINS server for CIFS authentication.

See also [Common Internet File System \(CIFS\)](#).

See also [File Server](#).