Troubleshooting Guide

HGST Active Archive System SA-7000

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1 About this Guide

Topics:

This guide provides help for issues you might encounter with the HGST Active Archive System.

1.1 Conventions

Element	Sample Notation
OS shell or Q-Shell commands (user input)	`rm -rf /tmp`
OS shell or Q-Shell system output	`Installation successful!`
Commands longer than one line are split with "\"	`q.dss.manage.setPermissions('/manage', \ [....])`
User-supplied values	*`ManagementNodeVirtualIPAddress`* or `<ManagementNodeVirtualIPAddress>`
File and directory names	The file `aFile.txt` is stored in `/home/user`.
Any graphical user interface label	Click **OK**.
Keyboard keys and sequences	To cancel the operation, press `Ctrl+c`.
Menu navigation in a GUI	Navigate to **Dashboard** > **Administration** > **Hardware** > **Servers**.

1.2 Storage Notations

Convention	Prefix	Size (bytes)
KB	kilobyte	1,000
KiB	kibibyte	1,024
MB	megabyte	1,000,000
MiB	mebibyte	1,048,567
GB	gigabyte	1,00,000,000
GiB	gibibyte	1,073,741,824
TB	terabyte	1,000,000,000,000
TiB	tibibyte	1,099,511,627,776

- Sizes of disks are expressed with *SI prefixes* (kilo, mega, tera, peta, exa)
- Space, size of partitions and file systems are expressed with the *binary prefixes* (kibi, mebi, tebi, pebi, exbi)
- A comma (",") is used for digit grouping, for example 1,000 is 1 thousand.
- A period (".") is used as decimal mark, for example 12.5 %.

1.3 Admonitions

Type	Usage
Note:	Indicates extra information that has no specific hazardous or damaging consequences.
Tip:	Indicates a faster or more efficient way to do something.
Caution:	Indicates an action that, if taken or avoided, may result in hazardous or damaging consequences.
Warning:	Indicates an action that, if taken or avoided, may result in data loss or unavailability.

1.4 Related Documents

For more information about the Active Archive System, please consult the following documents:

- The *HGST Active Archive System Administration Guide* explains how to use the Active Archive System interfaces for executing system management, monitoring, and analytics tasks.
- The *HGST Active Archive System API Guide* provides a reference for the Active Archive System S3 API.
- The *HGST Active Archive System FRU Replacement Guide* provides procedures for replacing hardware components of the Active Archive System.
- The *HGST Active Archive System Installation Guide* provides instructions for the installation of the Active Archive System in the data center, and its initial bringup.
- The *HGST Active Archive System Release Notes* provide important information about changes, new features, and known limitations.
- The *HGST Active Archive System Site Requirements Document* contains data center requirements for the Active Archive System.
- The *HGST Active Archive System Troubleshooting Guide* provides help for issues you might encounter.
- The *HGST Active Archive System Upgrade Guide* provides instructions for software and firmware updates, and system expansion.

For the latest or online version of any of these documents, visit http://www.hgst.com/support.

2 Administrator Interfaces

Topics:

This section contains recommendations for troubleshooting issues with the Active Archive System administrator interfaces.

2.1 General

Problem	Recommended Action
Cannot determine the virtual IP address of the Management Node.	1. Open an SSH session to any Controller Node. 2. Use the following command to determine the virtual IP address of the Management Node. `grep dmachine.amplistor.com /etc/hosts | grep -v 127.0.0.1 | awk '{print $1}'` The output of this command is the virtual IP address of the Management Node. For example, `172.16.63.154`
Cannot determine the hostname and physical IP addresses of the Management Node.	1. Open an SSH session to any Controller Node. 2. Use the following command to determine the virtual IP address of the Management Node. `grep dmachine.amplistor.com /etc/hosts | grep -v 127.0.0.1 | awk '{print $1}'` The output of this command is the virtual IP address of the Management Node. For example, `172.16.63.154` 3. Open an SSH session to the virtual IP address of the Management Node, obtained in the previous step. 4. Exit the OSMI menu. 5. Note the hostname in the Linux command prompt. 6. Use `ifconfig` to gather all unique IP addresses for the Management Node.
Cannot access the CMC.	The CMC runs on the Management Node. If the Management Node has failed over to another Controller Node, you must access the CMC using: • the IP address of the new Management Node, or • the virtual IP address of the Management Node, which remains the same despite a failover.
Cannot access the OSMI menu.	To start OSMI manually, use the following command at the Linux prompt: `/opt/qbase3/apps/osmi/osmi`
Cannot log into CMC with correct credentials.	Check to see if there is a defective SSD on your Management Node. See *Managing Hardware* in the *HGST Active Archive System Administration Guide*.

Problem	Recommended Action
Cannot print failed drive map from CMC.	If **Export Details as PDF** does not respond, you may be using an incompatible version of Adobe Flash Player. Use Adobe Flash Player 13.0.0.214 or lower.
Cannot identify the Management Node.	There are two ways to determine which node is the Management Node: **1.** Through OSMI: **A.** Log into any Controller Node. **B.** In the OSMI menu select option 3, then option 1, then option 1: `3) Machine and Services -> 1) Machines -> 1) List Machines` A list of machines is displayed. The Management Node is the one that has the Management Framework running. For example, `------------` `- Machines -` `------------` `1) Machine HGST-S3-DC01-R01-CN01 (type: CPUNODE, status: RUNNING)` `Components: 1 management framework(s), 4 client daemon(s)` `...` **2.** Through the base OS of the Management Node. **A.** Open an SSH session to the Management Node using the virtual IP address. **B.** Exit the OSMI menu by pressing `0` twice. **C.** The Linux prompt is the hostname of the Management Node. Part of the hostname is Controller Node (`CN01`, `CN02`, or `CN03`)
Upon rebooting or shutting down a Controller Node through the CMC, the connection to the CMC is lost.	If you reboot or shut down a Controller Node, without realizing that the CMC is running on the same physical node, the CMC session is lost. Workaround: Ensure that the node you wish to reboot or shut down is not the Management Node: determine the physical IP addresses of the Management Node by following the steps in this guide to identify the Management Node.

3 Startup and Shutdown

Topics:

This section contains recommendations for troubleshooting issues with startup or shutdown of the Active Archive System.

3.1 General

Problem	Recommended Action
There is an unknown problem at startup.	The following are a list of logs and commands that will assist in troubleshooting procedures. • Log: `/var/log/boot.log` - The contents of this log are identical to what is printed on the system console during the boot sequence. This provides a useful alternative to attaching a monitor and keyboard to the system to see the console output. • Log: `/var/log/kern.log` - The contents of this log may indicate if there are any hardware faults on start up. • Q-Shell command: `q.manage.servers.all.start()` - This Q-Shell command starts all services on a system in the correct order. This command is useful in quickly identifying what services are failing to start on bootup, if any. This command can be run multiple times without impacting already running services, so it is also useful to resume the remaining services on a node if any one service failed to start. • Q-Shell command: `q.manage.servers.all.stop()` - This command, combined with the previous command, allows services to be brought up in a clean fashion. This may be required if services need to be restarted after a network change upon booting. • Q-Shell command: `q.amplistor.healthCheck()` - This command runs a health check on the Active Archive System to see if services are running and MetaStores have masters elected. • Q-Shell command: `print q.dss.manage.showLocationHierarchy()` - This command prints a list of the state of all blockstores.
There is an unknown problem at startup.	The following are a list of logs and commands that will assist in troubleshooting procedures. • Log: `/var/log/boot.log` - The contents of this log are identical to what is printed on the system console during the boot sequence. This provides a useful alternative to attaching a monitor and keyboard to the system to see the console output. • Log: `/var/log/kern.log` - The contents of this log may indicate if there are any hardware faults on start up. • Q-Shell command: `q.manage.servers.all.start()` - This Q-Shell command starts all services on a system in the correct order. This command is useful in quickly identifying what services are failing to start on bootup, if any. This command can be run multiple times without impacting already running services, so it is also useful to resume the remaining services on a node if any one service failed to start. • Q-Shell command: `q.manage.servers.all.stop()` - This command, combined with the previous command, allows services to be brought up in a clean fashion. This may be required if services need to be restarted after a network change upon booting. • Q-Shell command: `q.amplistor.healthCheck()` - This command runs a health check on the Active Archive System to see if services are running and MetaStores have masters elected. • Q-Shell command: `print q.dss.manage.showLocationHierarchy()` - This command prints a list of the state of all blockstores.

Problem	Recommended Action
A service failed to start.	Active Archive System services are started in a specific order. The startup sequence stops if one service fails to start. This means that if one service is not running, it may not be because there is a problem with that service. Instead, it may indicate that some other service in the start order failed to start. Active Archive System services may be dependent upon other services to be functioning to start correctly, such as the `framework` (management and monitoring) and `env_metastore` (DSS) *system MetaStores*: • The application server requires the `framework` MetaStore to have a master. • The monitoring agent requires the `framework` MetaStore to have a master. • DSS processes (client daemons, Storage Nodes, and maintenance agents) require the env_metastore MetaStore to have a master. The best place to see if services are starting correctly is on the console, in `/var/log/boot.log` of the machine being started, or in `/opt/qbase3/var/log/pylabslogs/autostart.log`.
There are many events immediately after startup.	When you start the Active Archive System, you will encounter the following side effects: • Many events are raised, indicating that: ◆ There are failed jobs, caused by MetaStores which are not fully operational ◆ The disk safety is lowered, because not enough MetaStore nodes are available • There are failed data operations, due to MetaStores that are not yet available Once the MetaStores are available again, the number of events lowers, but for large environments, it may take a couple of hours before the *data MetaStores* are fully operational. The recovery of the *system MetaStores* (`env_metastore` and `framework`) takes less time.
The CMC indicates that a node is down.	Run the Aggregate Storagepool Info policy. This system policy runs only if all services are running correctly on the Management Node. In addition to this policy's role in aggregating monitoring data from all nodes in an environment, it is also responsible for checking the UP/DOWN status and restarting the agent service and monitoring agent all nodes. A node that is powered on may not show as UP in the CMC until this policy runs once. The policy runs by default every 30 minutes, but can be triggered to run immediately through the OSMI.
The Arakoon cluster is corrupted.	Depending upon whether the Controller Nodes that host the Arakoon cluster were shut down gracefully or not, the Arakoon cluster may be impacted by some sort of corruption. The KB article ARA002 describes in detail how to recover from Arakoon corruption. When powering up any node, you may see messages in the system console or `/var/log/boot.log` similar to the following. `WARNING:root:Unable to connect to 192.168.108.2:9002 (error: '[Errno 113] No route to host')` `WARNING:root:Unable to connect to 192.168.109.2:9002 (error: '[Errno 113] No route to host')` `WARNING:root:Attempt 0 to exchange message with node node_1_9001 failed with error` `(ArakoonNotConnected: 'No connection available to node at ['192.168.108.2', '192.168.109.2'] on port 9002').` `WARNING:root:Could not query node 'node_1_9001' to see who is master` `WARNING:root:Unable to connect to 192.168.108.3:9002 (error: '[Errno 113] No route to host')` `WARNING:root:Unable to connect to 192.168.109.3:9002 (error: '[Errno 113] No route to host')`

Problem	Recommended Action
	`WARNING:root:Attempt 0 to exchange message with node node_3_9001 failed with error (ArakoonNotConnected: 'No connection available to node at ['192.168.108.3', '192.168.109.3'] on port 9002'). WARNING:root:Could not query node 'node_3_9001' to see who is master WARNING:root:Node 'node_0_9001' does not know who the master is WARNING:root:Node 'node_0_9001' does not know who the master is ERROR:root:Could not determine master.`  As part of the power up, a connection is made to the `framework` Arakoon instance. This is to test the health of the Arakoon services. The timing in which Arakoon services come online and elect a master may cause some of these messages to appear in the console or boot log temporarily. The connection will retry for as many as 30 minutes before it times out. The following indicates that the powering system is not able to contact an arakoon service to see who the master is. No route to host means that system is not pingable. This may indicate that the system that is being contacted does not yet have network services started or that the network settings on that node are not correct. `WARNING:root:Unable to connect to 192.168.108.2:9002 (error: '[Errno 113] No route to host') WARNING:root:Unable to connect to 192.168.109.2:9002 (error: '[Errno 113] No route to host') WARNING:root:Attempt 0 to exchange message with node node_1_9001 failed with error (ArakoonNotConnected: 'No connection available to node at ['192.168.108.2', '192.168.109.2'] on port 9002'). WARNING:root:Could not query node 'node_1_9001' to see who is master`  The following indicates that the powering system can contact an arakoon service but that service does not know who the master is. This generally means that two out of the three framework arakoons have not elected a master yet.  `WARNING:root:Node 'node_0_9001' does not know who the master is WARNING:root:Node 'node_0_9001' does not know who the master is ERROR:root:Could not determine master.`
There is a problem with DSS.	If the client daemons on the Controller Nodes fail to start due to the `env_metastore` system MetaStore not having a master, you will see the following two error signatures. `boot.log` output: `***ERROR*** <type 'exceptions.Exception'> <type 'exceptions.Exception'> Client Daemon \\ /opt/qbase3/cfg/dss/clientdaemons/e359600e-e773-44c1-bd53-21bf4a957f87.cfg could not be started: utils.execute: execution failed: command: ['/opt/qbase3/bin/dss', '-d', '--clientdaemon', '/opt/qbase3/cfg/dss/clientdaemons/e359600e-e773-44c1-bd53-21bf4a957f87.cfg'] exit code: 1`  DSS client daemon log:  `Jun 4 16:32:03.1648 warning [None] could not determine arakoon master via node node_3_9003 at 192.168.108.3:9004: Unix.Unix_error(Connection refused,connect,)`

Problem	Recommended Action
	`` ... Jun 4 16:32:48.1710 error [None] node server: failed: syncstore arakoon::env_metastore:: node_0_9003:192.168.108.1:9004;192.168.109.1:9004, node_1_9003:192.168.109.2:9004;192.168.108.2:9004, node_3_9003:192.168.109.3:9004;192.168.108.3:9004: could not get deployment id: Failure: arakoon command timed out Fatal error: syncstore arakoon::env_metastore:: node_0_9003:192.168.108.1:9004;192.168.109.1:9004, node_1_9003:192.168.109.2:9004;192.168.108.2:9004, node_3_9003:192.168.109.3:9004;192.168.108.3:9004: could not get deployment id: Failure: arakoon command timed out ``` If you see these types of signatures, first troubleshoot the `env_metastore` system MetaStore. Once `env_metastore` has been corrected, restart processes on that node using the Q-Shell commands to stop and start all services.
The entire Active Archive System needs to be shut down gracefully.	To shut down the entire Active Archive System, proceed as follows. **1.** Log into the Management Node. **2.** Exit the OSMI menu. **3.** At the Linux prompt, do a test run of the `shutdown_environment.py` script to verify the order of nodes to be shut down: **Note:** This script does not run on a node that is not the Management Node. ``` /opt/qbase3/bin/python /opt/qbase3/utils/HGST/ shutdown_environment.py ``` **4.** Run the `shutdown_environment.py` script with the `--shutdown` option: ``` /opt/qbase3/bin/python /opt/qbase3/utils/HGST/ shutdown_environment.py ```
The application server failed to start.	After a power cycle, the Active Archive System does not automatically resume operations because pid files are lingering around. This is observed when there has been an improper shutdown (such as power failures). When a Controller Node (and more specifically the Management Node) is power cycled (in other words, rebooted in an uncontrolled fashion), upon restart, some of the pid files (used to prevent starting multiple instances of the same process) are not cleaned up, preventing the restart. Workaround: Identify the process that failed to start and to remove its pid file. In the case of the application server, restart it manually: ``` q.manage.applicationserver.restart() ```

4 Storage / S3

Topics:

This section contains recommendations for troubleshooting issues with the Active Archive System client interfaces.

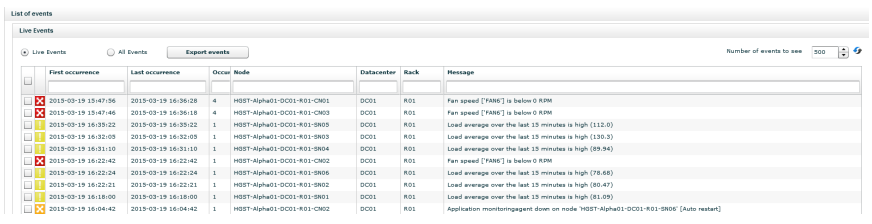
4.1 s3cmd Errors

Error	Recommended Action
401	This error indicates a problem with the file, username, or password given to the `s3cmd` tool. Verify that the filename, username, and password given to `s3cmd` is correct, and re-run the command.
405	This error indicates that S3 bucket operations are disabled. On the CMC, navigate to **Dashboard** > **Administration** > **HGST Object Storage Management** > **Interfaces** > **S3**. Enable the **Enable S3 bucket operations** check box. Click **Save** in the right pane.

4.2 Cyberduck Errors

Error	Recommended Action
Cannot make a bucket. Cyberduck returns "Interoperability error."	If you are using version 4.5+ of Cyberduck, the workaround is to set `s3.upload.expect-continue` to `false`. For more information, see https://trac.cyberduck.io/wiki/help/en/howto/preferences.

4.3 General

Error	Recommended Action
System reports heavy load although no client traffic is running.	After deleting a significant amount of data, you may see events in the CMC stating that servers are experiencing a high load average. These events persist until the delete operations have completed. **Figure 1: Populated Active Archive System** 
The Active Archive System S3 interface supports v2 signatures only.	The Active Archive System S3 interface only works with the older V2 signature for GETs and PUTs. This means that you cannot use S3 clients such as s3cmd version 1.5, which uses a V4 signature. Attempts to use a signature newer than V2 result in exceptions that are logged in the client daemon log, such as:

Error	Recommended Action
	S3 GET `Apr 27 17:09:38.6116 info [11307] connection from inet:192.168.201.51:55576 to inet:192.168.3.11:7071, fd 567: accepted` `Apr 27 17:09:38.6117 info [11307] starting protocol` `Apr 27 17:09:38.6146 info [11307] [a235ebeefad944f0be8e91d8bdf7892a] Authentication succeeded for user 'hive'` `Apr 27 17:09:38.6147 info [11307] [a235ebeefad944f0be8e91d8bdf7892a] user 'hive' successfully authenticated` `Apr 27 17:09:38.6148 error [11307] [a235ebeefad944f0be8e91d8bdf7892a] action: 'GET' is disabled or not allowed on the service` `Apr 27 17:09:38.6151 info [11307] connection from inet:192.168.201.51:55576 to inet:192.168.3.11:7071, fd 567: closed` `Apr 27 17:09:38.6152 error [11307] exception 'S3Errors.S3Failure(_)' ends session` S3 PUT `Apr 27 17:10:03.6841 error [11312] [c862c2326653406eb78abe1bc17d98d9] Invalid x-amz-date header: 20150428T001003Z` `Apr 27 17:10:03.6845 info [11312] connection from inet:192.168.201.51:55580 to inet:192.168.3.11:7071, fd 567: closed` `Apr 27 17:10:03.6845 error [11312] exception 'S3Errors.S3Failure(_)' ends session`

5 Networks

Topics:

This section contains recommendations for troubleshooting issues with Active Archive System network connectivity.

5.1 General

Problem	Recommended Action
The CMC displays a truncated view of the public and private IP addresses associated with any Controller or Storage Node. You cannot view the complete list of IP addresses from the **Controller Nodes** pane or from the any individual **Controller Node** panes.	To work around this problem, do the following: 1. Open the Controller Nodes pane and click on the desired Controller Node icon. 2. In the **Controller Node: <Node_Name>** screen, click the **Network Statistics** tab. The IP addresses for all NICs on this Controller Node are displayed.
Shutting down a Controller Node from the CMC fails when the primary private network is down, with a `no route to host` error.	When the primary private network (*private network #1* or *private network left*) is down, management actions, like those taken through the CMC, do not fail over to the secondary private network. Workaround: to shut down the node, log into the node using its private network #2 IP address, and run the following command from the Linux prompt: `shutdown -hy 0`
You cannot communicate with the Active Archive System. Instead, you see a network error (`No route to host`) in your client application.	You may have recently installed an unsupported SFP+ 1G module on a Controller Node, or recently replaced an SFP+ 1G module but connected it to the wrong port on the Controller Node. To fix this problem, obtain a replacement SFP+ 1G module from HGST Support, and follow the replacement procedure in the *HGST Active Archive System FRU Replacement Guide*.
A status 403 response was received on an S3 API call.	A status 403 response on an S3 API call may indicate that there is a time skew between the client system and the Controller Node that is larger than 15 minutes. To fix this problem, ensure that both systems are synchronized to a valid NTP server and try the request again. For more information, see http://docs.amazonwebservices.com/AmazonS3/latest/dev/RESTAuthentication.html.
Opening an SSH session to the new Management Node (after a failover) and then attempting to	The error message from the `ssh` command looks like this: `root@HGST-Alpha02-DC01-R02-CN01:~# ssh root@10.1.12.154` `@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@` `@ WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED! @` `@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@`

<table>
<tr><th>Problem</th><th>Recommended Action</th></tr>
<tr><td>open an SSH session to a Storage Node, using its virtual IP address, fails.</td><td>

```
IT IS POSSIBLE THAT SOMEONE IS DOING SOMETHING NASTY!
Someone could be eavesdropping on you right now (man-in-the-middle
 attack)!
It is also possible that a host key has just been changed.
The fingerprint for the ECDSA key sent by the remote host is
8d:ad:d9:92:b2:11:18:b5:d9:1b:fc:82:94:6a:1f:35.
Please contact your system administrator.
Add correct host key in /root/.ssh/known_hosts to get rid of this
 message.
Offending ECDSA key in /root/.ssh/known_hosts:18
  remove with: ssh-keygen -f "/root/.ssh/known_hosts" -R 10.1.12.154
ECDSA host key for 10.1.12.154 has changed and you have requested
 strict checking.
Host key verification failed.
```

This error indicates that you need to remove the old ECDSA keys.

To remove old ECDSA keys, copy the exact command shown in the error message, and paste it at the Linux prompt. For example, in the sample error message above, you would paste the following command at the Linux prompt:

```
ssh-keygen -f "/root/.ssh/known_hosts" -R 10.1.12.154
```

</td></tr>
<tr><td>There are many unnecessary services listening either on public interfaces.</td><td>

To disable unnecessary services from listening on public interfaces, proceed as follows. The following steps are intended only to be executed on Controller Nodes since they are the only public facing nodes.

First, create the following bash script:

Note: This script may cause performance issues when you have a combination of:

- a high number of threads (>= 228)
- existence of small objects (<= 4KB)
- no connection reuse by the client software in its interaction with the Active Archive System

If you run this script under this scenario, your client software may get HTTP 503 errors.

```
#!/bin/bash
s3_axr_ports="7070,7071,7072,7073,7080,7081,7082,7083"
allow_tcp_ports="${s3_axr_ports},80,443,22"
allow_udp_ports="123"
# replace the following public interfaces/ips with the one from the
 actual system
public_interfaces=(eth0 172.31.24.120 eth5 10.0.0.120)
function firewall_interface {
interface=$1
ip=$2
echo iptables -A INPUT -m conntrack --ctstate ESTABLISHED,RELATED -j
 ACCEPT
-i $interface
echo iptables -A INPUT -m multiport -p tcp -d $ip --dport
 $allow_tcp_ports
-j ACCEPT -i $interface
echo iptables -A INPUT -m multiport -p udp -d $ip --dport
 $allow_udp_ports
```

</td></tr>
</table>

Problem	Recommended Action
	`` -j ACCEPT -i $interface # allow everything for outgoing traffic echo iptables -A OUTPUT -j ACCEPT } for ((c=0; c<${#public_interfaces[@]}; c+=2)) do interface=${public_interfaces[$c]}; ip=${public_interfaces[$c+1]}; echo "Firewalling ${interface} with ${ip}" firewall_interface $interface $ip echo iptables -A INPUT -j REJECT -i $interface done ``` 1. Save the above script as `update_fw_rules.sh` on all Controller Nodes. 2. On each Controller Node, update the variables in the script: A. Set `s3_axr_ports` to all S3 and AXR TCP ports that are in use on the Controller Node. B. Set `public_interfaces` to the public NIC names and IP addresses. C. Make the script executable: ``` chmod +x update_fw_rules.sh ``` 3. Increase the maximum number of entries in the `conntrack` table on all Controller Nodes: A. Create the file `nf-contrack.conf` in `/etc/modprobe.d`. B. Add the following line to this new file: ``` options nf_conntrack hashsize=524288 ``` C. Increase the number of entries manually also, by executing the following command at the Linux prompt: ``` echo 524288 > /proc/sys/net/netfilter/nf_contrack_max ``` 4. Execute the script on all Controller Nodes. 5. Save the firewall rules on all Controller Nodes: ``` iptables-save -c > /etc/iptables.rules ``` 6. Make sure that the firewall rules are persistent through reboots. On all Controller Nodes, do the following: A. Create `/etc/network/if-post-down.d/iptablesload` with the following content: ``` #!/bin/sh if [-f /etc/iptables.rules]; then iptables-restore < /etc/iptables.rules fi exit 0 ``` B. Create `/etc/network/if-pre-up.d/iptablessave` with the following content: ``` #!/bin/sh iptables-save -c > /etc/iptables.rules if [-f /etc/iptables.downrules]; then iptables-restore < /etc/iptables.downrules fi

Problem	Recommended Action
	`` exit 0 ``` **C.** Make both scripts executable: ``` chmod +x /etc/network/if-post-down.d/iptablessave chmod +x /etc/network/if-pre-up.d/iptablesload ``` --- **Important:** If the Management Node fails over: **1.** Update the public virtual IP address. **2.** Clean the firewall rules by running the following command on all Controller Nodes (including the Management Node): ``` iptables -F ``` **3.** Execute the 6 steps above again. ---

6 Hardware

Topics:

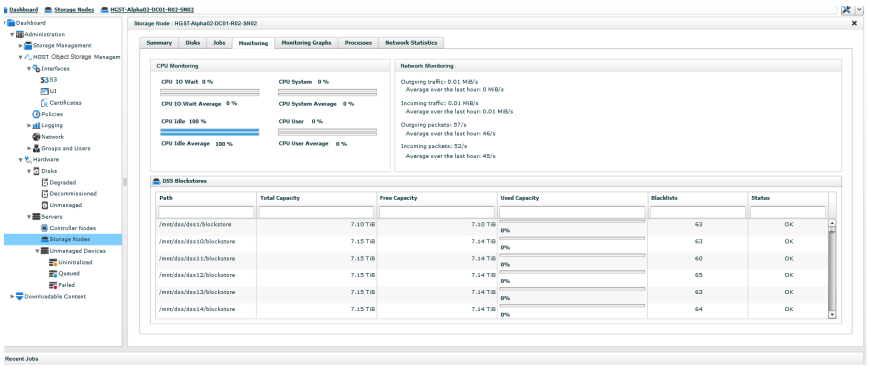
This section contains recommendations for troubleshooting issues with Active Archive System hardware.

6.1 General

Problem	Recommended Action
A node is halted or hung, or unreachable after a reboot.	Do a cold reset on the node from IPMI as follows: **Note:** If the Management Node is the node that is hung, perform a failover before executing the procedure below For more information on failing over the Management Node, see *Managing Hardware* in the *HGST Active Archive System Administration Guide*. 1. In the CMC, browse to **Dashboard** > **Administration** > **Hardware** > **Servers** > **Storage Nodes** or **Dashboard** > **Administration** > **Hardware** > **Servers** > **Controller Nodes**, depending on the type of halted node. 2. Select the halted node (identified as having the status **HALTED**). 3. Under the **Summary** tab, in the **General** box, record the IPMI IP address. 4. Open an SSH session to the Management Node. 5. Issue the following IPMI command at the Linux prompt, replacing *IPMI_IP_Address* with the IPMI IP address recorded above. `ipmitool -I lanplus -H IPMI_IP_Address -U ADMIN-P ADMIN chassis power reset`
Cannot refresh machine status when the Management Node is shut down.	When shutting down a metadata store (in other words, an Arakoon cluster) from the CMC interface, you may not see the current machine status on the last Controller Node to be shut down. This is because an Arakoon cluster requires a minimum of two Controller Nodes in which one is selected as master and reports its status to the CMC. You can use either OSMI or the CMC to work around this problem: If you are using the OSMI interface, first determine which Controller Node is master for the Arakoon cluster before shutting them down. To determine which Controller Node is master, look for the metadata store's master node using option `1` of the OSMI interface: `/opt/qbase3/apps/osmi/osmi` `Select 3 for Machines and services` `Select 2 for Metastores` `Select 1 for list MetaStores` `--------------` `- MetaStores -` `--------------` `1) Name: env_metastore (READ/WRITE)` `Master node: node_0_9003`

Problem	Recommended Action
	<pre> Node status: {node_0_9003: running} (DEGRADED) Number of keys: 59 2) Name: framework (READ/WRITE) Master node: node_0_9001 Node status: {node_0_9001: running} (DEGRADED) Number of keys: 1740 3) Name: userdata (READ/WRITE) Master node: node_0_9005 Node status: {node_0_9005: running} Number of keys: 6</pre> To avoid this problem when using the CMC, shut down all the Storage Nodes first, then shut down the three Controller Nodes at the same time.
A disk is missing.	Under certain circumstances for a very short window of time, you may notice that a disk is marked as AUTODECOMMISSIONING but does not appear in the list of degraded or decommissioned disks in the CMC. To find a disk that seems to be missing, do the following: **1.** Check the **Live Events** table in the CMC. **2.** Check the **Degraded Disks** page in the CMC. For more information, see *Configuring Maintenance Policies* in the *HGST Active Archive System Administration Guide*.
A disk shows errors.	Run diagnostics on the disk and the Storage Enclosure Basic. For more information, see the *HGST Active Archive System Customer Support Tools*.
SMART data on a decommissioned drive is needed.	To collect SMART data on a decommissioned drive, proceed as follows. **Warning:** Collect this information prior rebooting the Storage Node, as rebooting the Storage Node erases the SMART data for the degraded disks. **1.** Determine the drive's serial number and system IP: **A.** In the CMC, navigate to **Dashboard** > **Administration** > **Hardware** > **Disks** > **Decommissioned**. **B.** Select the drive path for which the SMART data is required. **C.** Write down the serial number presented in the main window. For example, `2EG3RU6J`. **D.** In the same window, click the node's hostname link. **E.** Write down either of the node's private IP address. **2.** Determine the drive's SMART data. **A.** Open an SSH session to the Management Node. **B.** Exit the OSMI menu. **C.** At the Linux prompt, open an SSH session to the node that contains the decommissioned disk using the IP address obtained above. **D.** Execute the following command to determine the correct SMART data file for decommissioned disk. `grep serial_number /tmp/smartinfo/*` For example, `root@HGST-S3-DC01-R01-SN05:~# grep 2EG3RU6J /tmp/smartinfo/*`

Problem	Recommended Action
	``/tmp/smartinfo/smartctl_scsi-35000cca23b06cb00.txt:Serial number: 2EG3RU6J``` **E.** Look at the file to get additional SMART details. ```cat filename``` For example, ```root@HGST-S3-DC01-R01-SN05:~# cat /tmp/smartinfo/ smartctl_scsi-35000cca23b06cb00.txt smartctl 5.41 2011-06-09 r3365 [x86_64-linux-3.11.0-26-generic] (local build) Copyright (C) 2002-11 by Bruce Allen, http:// smartmontools.sourceforge.net Vendor: HGST Product: HUH728080AL4200 Revision: a703 User Capacity: 8,001,563,222,016 bytes [8.00 TB] Logical block size: 4096 bytes Logical Unit id: 0x5000cca23b06cb00 Serial number: 2EG3RU6J Device type: disk Transport protocol: SAS Local Time is: Wed May 13 13:43:24 2015 PDT Device supports SMART and is Enabled Temperature Warning Enabled SMART Health Status: OK```
The hot-swapped disks are being ignored.	You can replace multiple disks at once, but then you have to install the disks in the same order as you have removed them. For example, if you remove the disks of slot 4, 5, and 8 in that order, you have to install the new disks in the same order, so first slot 4, then 5, and eventually slot 8. If you install the disks in a different order, you have to restart the node.
There are blacklists.	First check for disk problems, then check for network problems. For more information, see *Managing Hardware* in the *HGST Active Archive System Administration Guide*.
Many blacklists appear when a Storage Node is rebooted.	When a Storage Node is rebooted, the blockstores are not set to **OFFLINE** status. Therefore, any attempts to write while the system is rebooting result in blacklist operations. Alone, this should not be enough to cause any sort of failure from the perspective of your s3 applications. However, it does manifest in the CMC dashboard's blacklist graph and in the Storage Node's monitoring tab.

Problem	Recommended Action
	Best practice is to reboot the Storage Node using the CMC (**Dashboard** > **Administration** > **Hardware** > **Servers** > **Storage Nodes**, select a node, and in the **Commands** pane, click **Reboot**), which sets it to **HALTED**. **Figure 2: Network Connectivity** 
There are degraded disks.	First check for disk problems, then check for network problems. For more information, see *Managing Hardware* in the *HGST Active Archive System Administration Guide*.
The PostgreSQL mount point is read-only.	Check to see if there is a defective SSD on your Management Node. See *Managing Hardware* in the *HGST Active Archive System Administration Guide*.
Blockstores show different total capacities.	The DSS1 and DSS2 blockstores have an extra 50GB partition named `sandboxtmp`. This partition is used to store logs.
There are memory errors.	If you see an event or receive a notification through SNMP about an ECC memory error, you must replace the DIMM in the node that has the error. For more information about replacing the DIMMs, see the *HGST Active Archive System FRU Replacement Guide*.
There are fan or temperature warnings.	If you see an event or receive a notification through SNMP about a fan or temperature warning, you might need to replace the fan in the node that has the error. For more information about replacing a fan, see the *HGST Active Archive System FRU Replacement Guide*.

6.2 System Expansion

Problem	Recommended Action
There is no documentation for how to add drives to an existing Storage Enclosure Basic array.	Do not attempt this. The Active Archive System does not currently support adding more drives to an existing Storage Enclosure Basic array.

6.3 Configuration Wizard

Problem	Recommended Action
The configuration wizard did not run;	Check for the two most probable causes: • You are connected to a node that is not the Management Node.

Problem	Recommended Action
you ended up in the OSMI menu instead.	1. Connect your laptop to the Management Node. 2. Re-run the configuration wizard. • There was an error in the configuration wizard. Re-run the configuration wizard by following the instructions in the *HGST Active Archive System Installation Guide*.
You want to restart the wizard in order to redo a section.	Press `Ctrl+c` to start any section of the configuration wizard over again.
The configuration wizard failed to save changes.	Check the log file, `/mnt/sandboxtmp/logging/configuration_wizard_`*`date`*`.log`, for details.
The configuration wizard returns an "authentication error."	If you re-run the configuration wizard but do not re-enter the username and password for the `admin` and `root` accounts, it does not save your changes. Re-enter your credentials each time you run the script.
The configuration wizard failed to configure networking.	If the configuration wizard displayed an error such as: `* Networking... Could not apply changes for section networking, check logs.` `...` `Exception: IP address '172.16.1.1' already exists` you have specified an IP address, already in use, for the Management Node virtual IP address. You must now manually configure your networks through the Q-Shell. For more information, contact HGST support.
The configuration wizard failed when initializing the network, with 502 proxy error.	The configuration wizard may fail with the signature `502 Proxy Error` while applying network changes. A condition could exist that causes all cloudAPI calls to timeout. Verify the problem exists with the following code before proceeding to the workaround. (Set machine_name to the hostname of the Management Node): `api = i.config.cloudApiConnection.find('main')` `machine_name = 'HGST-S3-DC01-R01-CN01'` `mguid = api.machine.find(name=machine_name)['result'][0]` `api.machine.get_ports_in_use(mguid, 22, 23)` If the problem exists, the code above fails with a timeout message. For example, `In [21]: api = i.config.cloudApiConnection.find('main')` `In [22]: machine_name = 'HGST-S3-DC01-R01-CN01'` `In [23]: mguid = api.machine.find(name=machine_name)['result'][0]` `In [24]: api.machine.get_ports_in_use(mguid, 22, 23)` `***ERRORTRACEBACK***` `Traceback (most recent call last):` `~ File "/opt/qbase3/lib/python2.6/site-packages/IPython/iplib.py", line 2257, in runcode` `exec code_obj in self.user_global_ns, self.user_ns` `~ File "<ipython console>", line 1, in <module>` `~ File "/opt/qbase3/lib/pymonkey/extensions/cloud_api_client/client_machine.py", line 2068, in get_ports_in_use` `raise CloudApiException(ex)` `~ CloudApiException: <Fault 8002: 'Exception: workflowengine.Exceptions.TimeOutException` `Message: Script '/opt/qbase3/apps/workflowengine/tasklets/actor/pmachine/get_ports_in_use/scripts/check_ports.rscript'` `on agent 'a1111111-30f7-4b99-a478-853a11583d99' for job 'a2e8154c-6b7f-47cf-b33b-979afd5b1efa' timed out. Script took`

Problem	Recommended Action
	longer than 60 seconds. Stacktrace: Traceback (most recent call last): File "/opt/qbase3/lib/python/site-packages/workflowengine/WFLAgentController.py", line 125, in __execute self.__agentController.killScript(agentguid, jobguid, 10) File "/opt/qbase3/lib/python/site-packages/workflowengine/AgentController.py", line 128, in killScript return self.__waitForScript(agentguid, jobguid, timeout) File "/opt/qbase3/lib/python/site-packages/workflowengine/AgentController.py", line 148, in __waitForScript self.__jobQueue.waitForJobToFinish(jobguid, timeout) File "/opt/qbase3/lib/python/site-packages/workflowengine/AgentController.py", line 260, in waitForJobToFinish raise TimeOutException(jobguid=jobguid, agentguid=job.agentguid, scriptpath=job.scriptpath, timeout=timeout) TimeOutException: Script '/opt/qbase3/apps/workflowengine/tasklets/actor/pmachine/get_ports_in_use/scripts/check_ports.rscript' on agent 'a1111111-30f7-4b99-a478-853a11583d99' for job 'a2e8154c-6b7f-47cf-b33b-979afd5b1efa' timed out. Script took longer than 10 seconds. '> ******************** ***ERROR*** <class 'cloud_api_client.Exceptions.CloudApiException'> <class 'cloud_api_client.Exceptions.CloudApiException'> <Fault 8002: 'Exception: workflowengine.Exceptions.TimeOutException Message: Script '/opt/qbase3/apps/workflowengine/tasklets/actor/pmachine/get_ports_in_use/scripts/check_ports.rscript' on agent 'a1111111-30f7-4b99-a478-853a11583d99' for job 'a2e8154c-6b7f-47cf-b33b-979afd5b1efa' timed out. Script took longer than 60 seconds. Stacktrace: Traceback (most recent call last): File "/opt/qbase3/lib/python/site-packages/workflowengine/WFLAgentController.py", line 125, in __execute self.__agentController.killScript(agentguid, jobguid, 10) File "/opt/qbase3/lib/python/site-packages/workflowengine/AgentController.py", line 128, in killScript return self.__waitForScript(agentguid, jobguid, timeout) File "/opt/qbase3/lib/python/site-packages/workflowengine/AgentController.py", line 148, in __waitForScript self.__jobQueue.waitForJobToFinish(jobguid, timeout) File "/opt/qbase3/lib/python/site-packages/workflowengine/AgentController.py", line 260, in waitForJobToFinish raise TimeOutException(jobguid=jobguid, agentguid=job.agentguid, scriptpath=job.scriptpath, timeout=timeout) TimeOutException: Script '/opt/qbase3/apps/workflowengine/tasklets/actor/pmachine/get_ports_in_use/scripts/check_ports.rscript' on agent 'a1111111-30f7-4b99-a478-853a11583d99' for job 'a2e8154c-6b7f-47cf-b33b-979afd5b1efa' timed out. Script took longer than 10 seconds. '> <traceback object at 0x2a5a878> Detailed logs, stacktrace & locals can be found at /opt/qbase3/var/log/errors/qshell/backtrace_01_Jun_2015_21_11_58.log ERROR HAPPENED, do you want the application to stop or continue (s=stop) (t=getTrace): **Workaround**

Problem	Recommended Action
	1. Open an SSH session to the Management Node, and exit the OSMI menu. **2.** At the Linux prompt, start the Q-Shell: `/opt/qbase3/qshell` **3.** Run the following Q-Shell commands to restart the application server and Apache on the Management Node. This clears the error condition. `q.manage.applicationserver.restart() ; q.manage.apache.restart()` **4.** Run the following command and analyze the output to check that each system has the correct number of IP addresses. `api  = i.config.cloudApiConnection.find('main')` `for mguid in api.machine.find(machinerole='CPUNODE')['result']:` `  mobj = api.machine.getObject(mguid)` `  mobj.name` `  api.machine.listIpaddresses(mobj.guid)` `## Example` `In [2]: for mguid in api.machine.find(machinerole='CPUNODE')` `['result']:` `  ....:  mobj = api.machine.getObject(mguid)` `  ....:  mobj.name` `  ....:  api.machine.listIpaddresses(mobj.guid)` `  ....:` `  ....:` `Out[2]: 'HGST-S3-DC01-R01-CN03'` `Out[2]:` `{'jobguid': None,` `'result': [{'address': '172.16.101.3',` `  'description': 'PM-90:E2:BA:7C:35:29',` `  'ipaddressguid':` `'3a1e5a71-52f2-4978-80f3-4d341ae8fb8e',` `  'languid': '144b381f-ec6f-4468-acd8-0677067fa951',` `  'machineguid':` `'5a6f035c-6149-4c2f-869c-73fa34aa0ad8',` `  'machinename': 'HGST-S3-DC01-R01-CN03',` `  'publicflag': 'f',` `  'virtual': 'f'},` `  {'address': '192.168.78.13',` `  'description': 'PM-90:E2:BA:7C:35:29',` `  'ipaddressguid':` `'f73ffb7e-54d6-4428-81f2-06f2a3fdbd23',` `  'languid': '11f81802-e922-4bd1-9e85-65e146757d6f',` `  'machineguid':` `'5a6f035c-6149-4c2f-869c-73fa34aa0ad8',` `  'machinename': 'HGST-S3-DC01-R01-CN03',` `  'publicflag': 't',` `  'virtual': 'f'},` `  {'address': '172.16.1.3',` `  'description': 'PM-90:E2:BA:7C:35:29',` `  'ipaddressguid': '1af35bd3-a7bc-45a1-b266-` `ed77c75c529d',` `  'languid': '61a39965-25cd-4a08-8324-1b8855f09722',` `  'machineguid':` `'5a6f035c-6149-4c2f-869c-73fa34aa0ad8',` `  'machinename': 'HGST-S3-DC01-R01-CN03',` `  'publicflag': 'f',` `  'virtual': 'f'},`

Problem	Recommended Action

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Problem	Recommended Action

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```

Problem	Recommended Action
	<pre>'languid': '61a39965-25cd-4a08-8324-1b8855f09722', 'machineguid': '564ae355-f516-4f6e- b41b-3d7959ecb7f5', 'machinename': 'HGST-S3-DC01-R01-CN02', 'publicflag': 'f', 'virtual': 'f'}, {'address': '192.168.14.12', 'description': 'PM-90:E2:BA:7C:42:8D', 'ipaddressguid': 'a91ce749-ca37-49b1-9157- e32874a9c1ba', 'languid': '1d4970b5-700c-4855-bdcc-716a6a1faea2', 'machineguid': '564ae355-f516-4f6e- b41b-3d7959ecb7f5', 'machinename': 'HGST-S3-DC01-R01-CN02', 'publicflag': 't', 'virtual': 'f'}]}</pre> **5.** If there are missing IP addresses, run the following commands to add them back. (Set the values of `machine_name`, `new_ip`, `mac`, `lan_name`, and `virtual` as needed. The parameter `virtual` must be either `True` or `False` and is case sensitive): <pre>api = i.config.cloudApiConnection.find('main') # Variables machine_name = 'HGST-S3-DC01-R01-CN03' new_ip = '192.168.2.13' mac = '90:e2:ba:7d:97:94' lan_name = 'Public2' virtual = False # Apply the details lan_guid = api.lan.find(name=lan_name)['result'][0] mguid = api.machine.find(name=machine_name)['result'][0] mac = mac.upper() api.ipaddress.create(name=new_ip, iptype='STATIC', ipversion='IPV4', languid=lan_guid, \ address=new_ip, virtual=virtual, executionparams={'description': 'Creating IP address %s' % new_ip}) api.machine.addIpaddress(machineguid=mguid, macaddress=mac, languid=lan_guid, \ ipaddress=new_ip, initialize_network=False, \ executionparams={'description': 'Adding IP address %s to machine %s' % (new_ip, mguid)})</pre> **6.** Rerun the configuration wizard as normal.

6.4 Field Replaceable Units

Problem	Recommended Action
The PostgreSQL partition has failed, or a NIC has failed on the Management Node.	Fail over the CMC. **Warning:** When you are upgrading your setup, do not execute a failover. First complete the upgrade before you start the failover.

Problem	Recommended Action
	To execute a failover, follow the instructions in *Managing Hardware* in the *HGST Active Archive System Administration Guide*.
The wrong disk was replaced.	If you accidentally replace the wrong disk, it shows up in the CMC as an unmanaged disk. An unmanaged disk is a newly installed disk that the Active Archive System cannot determine a purpose for (in other words, whether it is a replacement disk or really a new disk). **Warning:** Adding disks to the Active Archive System or changing the configuration of any hardware in the Active Archive System is not supported. Please contact HGST Support for more information. Correct this problem as follows: **1.** Physically remove the new disk, and replace it with the disk that was accidentally removed. **2.** In the CMC, navigate to **Dashboard** > **Administration** > **Hardware** > **Disks** > **Unmanaged**. **3.** Select the new disk, and in the **Commands** pane, click **Delete**. When you first remove the disk through the CMC, the disk will most likely be added again by the monitoring agent before you can actually remove the disk from the node. If this happens, repeat the steps above to delete the disk again.
You shut down a node in order to replace it or something in it, but when you powered on the new/fixed node, it did not boot or was not detected by the CMC.	Connect a monitor to the node's VGA port, and a keyboard to its USB port. Restart the node. Observe any error messages that it outputs.

6.5 Cleaning Up a Failed Device

To clean up a device that failed installation/initialization, do the following.

Warning: If you do not clean up the failed device, you cannot reuse the device.

To locate the device that the installation failed on,

1. Log into the CMC.
2. Locate the device that the installation failed on:
   a) Navigate to **Dashboard** > **Administration** > **Hardware** > **Servers** > **Unmanaged Devices** > **Failed**.
3. Click **Cleanup Devices** in the Commands field.
   The cleanup takes all necessary actions to remove all data from the database, so that you can restart the installation of the device.

7 Logging

Topics:

This section contains recommendations for troubleshooting issues with Active Archive System logging.

7.1 General

Problem	Recommended Action
The log collector tool fails.	When the output of the log collector tool is similar to: `Mon Mar 23 14:03:54 2015` `HGST-Alpha02-DC01-R02-CN03 -----> Stopped with errors or warnings` `HGST-Alpha02-DC01-R02-CN02 -----> Stopped with errors or warnings` `HGST-Alpha02-DC01-R02-CN01 -----> Stopped with errors or warnings` `HGST-Alpha02-DC01-R02-SN06 -----> Stopped with errors or warnings` `HGST-Alpha02-DC01-R02-SN05 -----> Stopped with errors or warnings` `HGST-Alpha02-DC01-R02-SN04 -----> Stopped with errors or warnings` `HGST-Alpha02-DC01-R02-SN03 -----> Stopped with errors or warnings` `HGST-Alpha02-DC01-R02-SN02 -----> Stopped with errors or warnings` `HGST-Alpha02-DC01-R02-SN01 -----> Stopped with errors or warnings` `Log collection task completed` this indicates that the tool was run from a Controller Node that is not, or no longer, the Management Node (perhaps due to failover). The log collector tool must be run from the Management Node only. Rerun the tool from the Management Node.
The log files are missing even though the log collector ran with no errors.	When the partition that stores log files is full, the system uploads new logs to an internal name space, named `_logging_backup`, instead. To retrieve log files from `_logging_backup`, proceed as follows: **1.** Open `http://public_IP:8080/namespace/_logging_backup`, where *`public_IP`* is an accessible IP address of any Controller Node. **2.** Determine the machine GUID of this particular Controller Node: **A.** Enter the Q-Shell on the Management Mode: `/opt/qbase3/qshell` **B.** Execute the following three Q-Shell commands, replacing *`node_name`* with the hostname of the machine for which you want to determine the GUID. `nodename = 'node_name'` `api = i.config.cloudApiConnection.find('main')` `api.machine.find(name=nodename)['result'][0]` The system displays the GUID of *`node_name`*. **3.** Navigate to the subfolder whose name matches the machine GUID you found in the previous step. **4.** Browse to the desired log type and click to download. No authentication is required. **Tip:** Log file names include two epoch timestamps. For example, `clientx.log.2015_07_09_1436469301.gz.1436472682`. The first timestamp corresponds to the ending time in the log file. The

Problem	Recommended Action
	second timestamp corresponds to when the file was uploaded to the `_logging_backup` namespace.

8 Monitoring

Topics:

This section contains recommendations for troubleshooting issues with monitoring the Active Archive System.

8.1 General

Problem	Recommended Action
Health checker output indicates that there are jobs in error.	Resolve any issues that are found. 1. Check the output of the health checker for a summary of all historical jobs by status. 2. If there are failed jobs, navigate to **Dashboard** > **Administration** > **HGST Object Storage Management** > **Logging** > **Jobs** in the CMC. 3. In the **Status** column filter, type `ERROR` and press `Enter`. 4. Click the individual jobs and failed job steps to see additional details that can be used to further diagnose the root cause.

9 Tuning

Topics:

This section contains recommendations for troubleshooting issues with tuning the Active Archive System. For more tips on tuning, see the *HGST Active Archive System Best Practices Guide*.

9.1 Software Updates

Problem	Recommended Action
Cannot find log files related to Active Archive System updates.	Look in `/opt/qbase3/var/log/` . You might need to run the log collector tool to populate this file. For more information on running the log collector tool, see *Logging* in the *HGST Active Archive System Administration Guide*.
PostgreSQL related exceptions are observed when logging into the CMC and when browsing to new events	After the Management Node has been updated, the CMC will become available again, but you may receive PostgreSQL related exceptions when logging into the CMC and when browsing to new events. You can ignore these messages until the update is completed. The start of the update is identified by following event: `Upgrade started for Patch_Name` The end of the update is identified by following event: `Upgrade completed for Patch_Name`
A software update failed.	In case the update was unable to complete on a certain node, the update script, `apply_package.py`, will automatically stop upgrading. If this happens, proceed as follows: **1.** Check the logs and confirm which nodes have been updated and which have not. **2.** Spot the node where the failure happened and ensure the problem is resolved. **3.** Execute the update tool again on the Management Node: `/opt/qbase3/bin/python /opt/qbase3/utils/apply_package.py -p AmpliStor_3.6.0`
A software update on a system with offline nodes failed.	To perform an update on an environment with offline Storage Nodes, keep the following in mind: • The update will fail on the offline node. • Either resolve the issue or decommission the node. To perform an update on an environment with offline Controller Nodes, keep the following in mind: • The update script, `apply_package.py`, checks if the MetaStore clusters are complete (complete means having three members). • If the Controller Node is part of a MetaStore cluster, the update will fail. • Resolve the issue with the Controller Node or replace the Controller Node.

10 Events

Topics:

You must pay attention to all CRITICAL event messages. For more information about a particular event and its recommended action, see the *HGST Active Archive System Administration Guide*.

10.1 General

Problem	Recommended Action
You received a WARNING or CRITICAL event message.	Proceed with the action needed for this event as described in *Events* in the *HGST Active Archive System Administration Guide*.

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