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Enterprise

NimbleOS 5.2.1.600 Release Notes

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Version 5.2.1.600

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Support

All documentation and knowledge base articles are available on HPE InfoSight at https://infosight.hpe.com. To register for HPE InfoSight, click the *Create Account* link on the main page.

Email: support@nimblestorage.com

For all other general support contact information, go to https://www.hpe.com/us/en/services/nimble-storage.html.

Contents

NimbleOS 5.2.1.600

Version:	5.2.1.600
Revision:	Monday March 1, 2021 14:26:06

The release notes describe the major changes, fixes, and known issues for this release of the NimbleOS. They do not include all individual fixes and internal changes.

For technical support, contact HPE Nimble Storage Support at:

mailto:support@nimblestorage.com
877-3-NIMBLE (877-364-6253), option 2.

Important Update Note

Updating NimbleOS can involve an update to component firmware on the standby controller. This can cause an email alert and automated case indicating "Standby Controller Not Available" when the firmware update process takes longer than five minutes. This is expected behavior and does not affect data services. At the end of the software update, you can check status of both controllers in the Web UI under **Manage** > **Hardware**. One controller will be ACTIVE and the other STANDBY under normal operating conditions following a successful software update.

All third-party software notices can be found on HPE InfoSight (https://infosight.hpe.com) on the **Resources** > **Documentation** page:

https://infosight.hpe.com/resources/nimble/docs

The Documentation page also includes the *General Terms and Conditions* document. You can display this document by performing the following steps:

1. In the navigation pane on the HPE InfoSight Documentation page, scroll through the Document Type list and select Support Policy.
2. In the page that appears, select General Terms and Conditions. This document opens in a browser tab.

Special Notes

Note	Description
CRITICAL	HPE Nimble Storage continues to qualify configurations between releases. The Validated Configuration Matrix provides information about validated configurations and is updated frequently. It is a good practice to check your system configuration against this online tool. The Validated Configuration Matrix tool is available on HPE InfoSight: https://infosight.hpe.com/resources/nimble/validated-configuration-matrix
CRITICAL	Arrays must be running NimbleOS 5.0.4.0 or later to update directly to NimbleOS 5.2.1.600.
CRITICAL	An extended data services outage may occur with MS iSCSI initiator and Intel NICs using the built-in Windows driver e1q60x64.sys (version 11.0.5.21/11.0.5.22). If you encounter this problem, please update your system to use the latest Windows driver.

Note	Description
CRITICAL	A service outage may occur on Windows 2012 R2 hosts using Emulex or Broadcom Fibre Channel HBAs with firmware/driver prior to 11.2. Update the Emulex or Broadcom firmware/driver to 11.2 or later
CRITICAL	Due to a known Red Hat Enterprise Linux bug 1002727, while running virtualized in VMware ESX, manually rebooting the active controller in presence of heavy IOs using the **reboot --controller** command on a Fibre Channel array may trigger an incorrect retry initiated by RHEL guests running the following kernel versions: • 6.4 and earlier • 6.5 without the patch • 7.0 without the patch This incorrect retry logic may lead to unexpected application behavior. In these environments, we recommend the **failover** command instead.
CRITICAL	Due to a known Red Hat Enterprise Linux bug 3550561, unexpected application behavior may occur on RHEL 7.5 hosts with kernel-3.10.0-862.3.2.el7 or derivatives using Emulex FC FCoE HBAs (lpfc driver) and raw devices. To avoid this issue: • If running RHEL 7.6, update to kernel-3.10.0-957.el7 or later. • If running RHEL 7.5z, update to kernel-3.10.0-862.25.3.el7 or later.
CRITICAL	As outlined in the current Validated Configuration Matrix, HPE Nimble Storage fully supports Windows guest operating systems on Microsoft Hyper-V, including Virtual Fibre Channel (VFC) connectivity and multipathing with HPE Nimble Storage DSM and VSS support. However, Linux guest operating systems running in Hyper-V VFC configurations are not qualified. Running Red Hat Linux guest operating systems with the “Linux Integration Services” kit installed, or with hv_storvsc drivers in such configurations can lead to Red Hat bug 1364282, which can cause an unexpected service outage.
Important	Starting with NimbleOS 5.1.1.0, the size of the software package now exceeds 2 GB, which may lead to lengthier software download times. Previously, the sizes of the NimbleOS 5.0.x download packages were approximately 1.6 GB, and NimbleOS 4.x packages were approximately 900 MB.
Important	After completing the NimbleOS update for array groups configured for Synchronous Replication, download the corresponding version of the Synchronous Replication Witness software, and update the witness host.
Important	Microsoft Offload Data Transfer (ODX) is not supported if the destination volume has synchronous replication enabled.
Important	As of vSphere 7.0, VMware has discontinued the flex client. Consequently, the HPE Nimble Storage vCenter Plugin no longer supports the flex plugin for vCenter 7.0.

Note	Description
Important	You can enable deduplication for CS1000, CS3000, CS5000, CS7000, CS700, and CS500 arrays on a volume only if the corresponding storage pool has a Flash to Disk Ratio (FDR) greater than 4%. To calculate the FDR, obtain the "Total array capacity (MiB)" and "Total array cache capacity (MiB)" values by using the HPE Nimble Storage CLI command *pool_name*. This command returns the **Pool capacity (MiB)**, which is the "Total array capacity (MiB)", and the **Pool cache capacity (MiB)**, which is the "Total array cache capacity (MIB)". Then perform the following calculation: **FDR = "Total array cache capacity (MiB)"/"Total array capacity (MiB)" * 100** If the array has sufficient capability for deduplication, the **pool --info** command will also show a value for **dedupe capacity (MiB)**. **Note** On the HF20H, HF20, HF40, and HF60 platforms, **pool --info** displays "N/A" as the value for **dedupe capacity (MiB)**. This because you can enable deduplication for the entire array.
Important	For connections to the NimbleOS GUI, you must have port 5392 open for the Group Management IP address and both diagnostic IP addresses.
Important	Numerous host integration toolkits are supported in NimbleOS 5.2.1.600. It is strongly recommended that they be installed on all Windows, Linux, and VMware hosts. For more information about supported toolkits, refer to the Validated Configuration Matrix, which is available on HPE Nimble Storage InfoSight: https://infosight.hpe.com/resources/nimble/validated-configuration-matrix

Important	HPE Nimble Storage recommends that you update to HPE Nimble Storage Windows Toolkit (NWT) 7.0.1 or later if you are using Microsoft VSS Synchronization and NimbleOS 5.1.4.200 or later.
	
	Using application consistent snapshots with earlier versions of NWT and NimbleOS 5.1.4.100 may result in the following error messages:
	
	• In the host's VSS requestor log (C:\ProgramData\Nimble Storage\Logs\VssRequestor.log):
	
	`PID:1996 TID:5752 ERR reqcommon. cpp:683 RequestStatus=QueryStatus(), Function=pAsync->QueryStatus(), Error=VSS_E_PROVIDER_VETO, rc=SystemError, ca=ContactSupport`
	
	• In the Windows event viewer:
	
	`event id 4100: EndPrepareSnapshots method: failed to find LUN s/n <SERIAL_NUMBER> on connected arrays. Make sure that the Nimble array version is compatible with this version of Nimble Windows Toolkit.`
	
	`event id 4170: Nimble VSS provider is not compatible with the current version of the Nimble array software(). Install appropriate version of the Nimble VSS provider.`
	
	NWT 7.0.1 resolves this issue.

Note	Description
Important	HPE Nimble Storage Connection Manager (NCM) for VMware 7.0 is signed by VMware for ESXi 7.x. It can be installed through the VMware Update Manager or esxcli command without the **--no-sig-check** flag. See the NCM for VMware Release Notes 7.0 or later and the latest *VMware Integration Guide* for further details. To locate the latest version of the guide, log in to HPE InfoSight. Choose **Resources** > **Nimble Storage Documentation**. In the left pane, click **Integration Guide**, then click **Connection Manager (NCM) for VMware**. From the list displayed, choose the version of the guide that you want.
Important	Various timeout values affect HPE Nimble Storage targets from Windows/Linux hosts. Before you update the NimbleOS, install the HPE Nimble Storage Windows Toolkit (NWT) or HPE Nimble Storage Linux Toolkit (NLT) on the host or tune the timeout values. Timeout details for various operating systems can be found on HPE InfoSight under **Resources** > **Documentation**. From the HPE Nimble Storage Documentation page, locate the article you want. The following **Knowledge Base** articles and Integration Guides explain how to configure and verify host timeout settings for the major supported operating systems (OS): • For Windows, refer to https://infosight.hpe.com/InfoSight/media/cms/active/sup_KB-000052_Windows_Host_Disk_Timeout_Values.whz. In the context of Microsoft Windows, the following article should also be considered: https://infosight.hpe.com/InfoSight/media/cms/active/sup_KB-000246_MPIO_Timeout_Parameters_For_MSDSM_And_NimbleDSM_In_Windows_2012_R2doc_version_family.whz • For VMware, refer to the **Common Tasks and Best Practices > Host Timeout Values** section of the *VMware Integration Guide*. • For Linux, refer to https://infosight.hpe.com/InfoSight/media/cms/active/sup_KB-000304_Linux_Host_Disk_Timeout_Values.whz.
Important	vVol VMs cannot be claimed after deleted from the downstream array. A vVol VM can be protected and may be subsequently replicated to a downstream array (as configured in the storage policy). In the case where this vVol VM is deleted, a supported “claim” workflow allows us to claim this vVol VM on the downstream array. This workflow is not supported at present if performed on a setup where the vCenter version is 6.5 or above due to validation failures on the vCenter. VMware DCPN Ticket Reference: https://dcpn.force.com/TechnicalRequestCaseRedesignPartner?Id=5000H00001JRKhf

New Features in 5.2.1.600

No new features were introduced in NimbleOS 5.2.1.600.

Recent Release Features

The following features were released in NimbleOS 5.2.1.x:

Fan-Out Replication

You may now use volume snapshot replication to replicate to two destinations simultaneously.

HPE Cybersecurity – Signed Updates

NimbleOS Releases are now digitally signed by HPE. Code signing ensures the authenticity of the provider (it is HPE) and the integrity of the software download.

Fibre Channel Target Driven Zoning

HPE Nimble Storage arrays are now able to program the zones in the Fibre Channel (FC) fabric using information from the initiator groups that have been configured. This removes the requirement for the administrator to program the FC zones using separate fabric management tools.

Array Upgrade for AFxxxx/CSxxxx to AFxx/HFxx (Offline)

HPE Nimble Storage now supports data-in-place upgrades from the previous generation of arrays to the currently shipping arrays. This version of the upgrade process requires a brief down time while the existing array chassis is replace with the new one, and the media is moved from the older array to the new array.

Support for 10,000 Volumes on AF40 Arrays

The limit on the number of volumes supported by an HPE Nimble Storage AF40 model array is now 10,000, up from 1,000 volumes in previous NimbleOS releases.

Storage Class Memory

NimbleOS now supports new 1.5 TB storage class memory cards. Support is limited to HPE Nimble Storage AF60 and AF80 model arrays.

Synchronous Replication: Witness OVA

The Peer Persistence feature requires an external witness. The Witness is available for download from InfoSight as a virtual machine packaged as an OVA.

dHCI Unified Update

HPE Nimble Storage dHCI now provides an Update tab in the HPE Nimble Storage vCenter Plugin that allows you to perform an automatic update when there is a new version of NimbleOS, ESXi, or HPE Nimble Storage Connection Manager for VMware.

dHCI Server Configuration Limits

The limit on the number of servers supported in a dHCI cluster has increased to 32.

dHCI Support for Intel and AMD Processors

dHCI adds support for ProLiant servers using AMD processors. It continues to maintain support for Intel-based ProLiant servers. The Validated Configuration Matrix provides information about which server models are supported.

Note You can use either Intel-based ProLiant servers or AMD-based ProLiant servers in your dHCI configuration. You cannot use both in the same cluster.

Documentation

These Release Notes and other user documentation are available on HPE InfoSight:

https://infosight.hpe.com/resources/nimble/docs

You can manually reach the documentation page by logging onto HPE InfoSight and selecting **Resources** > **Nimble Storage** > **Documentation**.

Document Search Interface

There are several methods you can use to locate the documents you need.

The **Nimble Storage Documentation** page provides a search interface that allows you to search for information across all documentation, including support and knowledge base articles, best practices, solutions and integration guides, product documentation, and configuration matrices.

To go directly to a document, use the navigation pane on the left side of the **Nimble Storage Documentation** page. The navigation pane organizes documents into categories, including:

- Document Type
- Nimble Software and Solutions
- Software Version
- Integration
- Platform

You can use the page scroll bar to move up and down the navigation pane.

Third-Party Software Notices

All third-party software notices can be found in the Documentation Portal on HPE InfoSight.

Here are the steps to manually access the third-party software notices.

1. Log in to HPE InfoSight (https://infosight.hpe.com) .
2. From the menu, select Resources Nimble Documentation .
3. In the left navigation pane of the Documentation Portal, scroll through the Document Type section and select Support Policy.
4. From the list of documents, select General Terms and Conditions. The document opens in a new browser tab.

Core User Documentation

The following is the core user documentation for NimbleOS:

- *GUI Administration Guide*
- *CLI Administration Guide*
- *SNMP Reference*
- *Command Reference*
- *REST API Reference*

If you are using an HPE Nimble Storage dHCI-enabled array, you should also check the dHCI Deployment Guides and Getting Started Guide.

Workflow Documents

There are several workflow guides that contain procedures you can perform using either the CLI or the GUI. Each workflow guide covers a specific, frequently performed task related to HPE Nimble Storage products. Each task described by a workflow document is explained in detail in the *GUI Administration Guide* and the *CLI Administration Guide*.

Hardware

Documentation for all hardware components is available on HPE InfoSight. Click the Hardware Guide link in the **Document Type** category. Hardware documentation includes array and expansion shelf installation quick start guides, installation, upgrade, and replacement guides, and comprehensive hardware guides.

Host Integration Guides

Host Integration Guides are available from HPE InfoSight. To locate these documents on the HPE InfoSight **Documentation** page, scroll down the navigation pane to the section called **Integration Guide**.

Note A single Host Integration Guide supports multiple version of NimbleOS and the companion Integration Toolkit software packages. The version number listed on the guide might be different from the version numbers of the NimbleOS and Toolkit software packages that it supports.

Verified Update Paths

Table 1: From Versions 5.x

From Versions 5.x	
From Version	**To Version**
5.2.1.500	5.2.1.600
5.2.1.400	5.2.1.600
5.2.1.300	5.2.1.600
5.2.1.200	5.2.1.600
5.2.1.100	5.2.1.600
5.2.1.0	5.2.1.600
5.1.4.200	5.2.1.600
5.1.4.100	5.2.1.600
5.1.4.0	5.2.1.600
5.1.3.100	5.2.1.600
5.1.3.0	5.2.1.600
5.1.2.100	5.2.1.600
5.1.2.0	5.2.1.600
5.1.1.0	5.2.1.600
5.0.10.0	5.2.1.600
5.0.9.100	5.2.1.600
5.0.9.0	5.2.1.600
5.0.8.100	5.2.1.600
5.0.8.0	5.2.1.600
5.0.7.300	5.2.1.600
5.0.7.200	5.2.1.600
5.0.7.100	5.2.1.600
5.0.7.0	5.2.1.600
5.0.6.0	5.2.1.600
5.0.5.200	5.2.1.600
5.0.5.0	5.2.1.600
5.0.4.0	5.2.1.600
5.0.3.100	5.0.10.0

From Versions 5.x	
From Version	**To Version**
5.0.3.0	5.0.10.0
5.0.2.0	5.0.10.0
5.0.1.100	5.0.10.0
5.0.1.0	5.0.10.0

Table 2: From Versions 4.x

From Versions 4.x	
From Version	**To Version**
4.5.6.0	5.0.10.0
4.5.5.0	5.0.10.0
4.5.4.0	5.0.10.0
4.5.3.0	5.0.10.0
4.5.2.0	5.0.10.0
4.5.1.0	5.0.10.0
4.5.0.0	5.0.10.0
4.4.1.0	5.0.10.0
4.4.0.0	5.0.10.0
4.3.1.0	5.0.10.0
4.3.0.0	5.0.10.0
4.2.1.0	5.0.10.0
4.2.0.0	5.0.10.0
4.1.0.0	5.0.10.0

Table 3: From Versions 3.x

From 3.x Versions	
From Version	**To Version**
3.9.3.0	5.0.10.0
3.9.2.0	5.0.10.0
3.9.1.0	5.0.10.0
3.9.0.0	5.0.10.0
3.8.1.0	5.0.10.0
3.8.0.0	5.0.10.0
3.7.0.0	5.0.10.0
3.6.2.0	5.0.10.0

From 3.x Versions	
From Version	**To Version**
3.6.1.0	5.0.10.0
3.6.0.0	5.0.10.0
3.5.4.0	5.0.10.0
3.5.3.0	5.0.10.0
3.5.2.0	5.0.10.0
3.5.0.0	5.0.10.0
3.4.1.0	5.0.10.0
3.4.0.0	5.0.10.0
3.3.0.0	5.0.10.0
3.2.1.0	5.0.10.0
3.1.0.0	5.0.10.0

Table 4: From Versions 2.x

From 2.2.x, 2.3.x Versions		From 2.1.x Versions		From 2.0.x Versions	
From Version	**To Version**	**From Version**	**To Version**	**From Version**	**To Version**
2.3.18.0	4.5.6.0	2.1.9.1	2.3.18.0	2.0.8.0	2.1.9.1
2.3.16.0	4.5.6.0	2.1.9.0	2.3.18.0	2.0.7.0	2.1.9.1
2.3.15.0	4.5.6.0	2.1.8.0	2.3.18.0	2.0.6.*	2.1.9.1
2.3.14.0	4.5.6.0	2.1.7.0	2.2.9.0	2.0.5.0	2.1.9.1
2.3.12.*	4.5.6.0	2.1.6.0	2.2.9.0	2.0.4.0	2.1.9.1
2.3.9.*	4.5.6.0	2.1.5.0	2.2.9.0		
2.3.8.0	4.5.6.0	2.1.4.0	2.2.9.0		
2.3.7.0	4.5.6.0	2.1.3.0	2.2.9.0		
2.3.6.0	4.5.6.0	2.1.2.0	2.2.9.0		
2.3.4.0	4.5.6.0	2.1.1.0	2.1.9.1		
2.3.3.0	4.5.6.0	2.1.0.0	2.1.9.1		
2.3.2.1	4.5.6.0				
2.3.2.0	4.5.6.0				
2.3.1.0	4.5.6.0				
2.2.11.0	3.9.3.0				
2.2.10.0	3.9.3.0				
2.2.9.0	3.9.3.0				
2.2.7.*	3.9.3.0				
2.2.6.0	3.9.3.0				

From 2.2.x, 2.3.x Versions		From 2.1.x Versions		From 2.0.x Versions	
From Version	**To Version**	**From Version**	**To Version**	**From Version**	**To Version**
2.2.5.*	3.9.3.0				
2.2.3.*	2.2.11.0				
2.2.2.0	2.2.11.0				
2.2.1.0	2.2.11.0				
2.2.0.0	2.2.11.0				

Table 5: From Versions 1.x

From 1.4.x Versions		From 1.3, 1.2, 1.1 Versions		From 1.0.x Versions	
From Version	**To Version**	**From Version**	**To Version**	**From Version**	**To Version**
1.4.12.0	2.1.9.1	1.3.*.*	1.4.6.0	1.0.7.*	Contact Support
1.4.11.0	2.1.9.1	1.2.*.*	1.4.6.0	1.0.6.*	Contact Support
1.4.10.0	2.1.9.1	1.1.*.*	1.2.2.0		
1.4.9.0	2.1.9.1				
1.4.8.0	2.1.9.1				
1.4.7.0	2.1.9.1				
1.4.*.*	1.4.12.0				

Known Critical Issues

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-115397	Data Service	Data Service disabled on array due to NVRAM Checksum mismatch	On Data Service startup followed by a failover, during the recovery process, it is possible to hit a checksum mismatch. The Data Service restarts when the mismatch is encountered. The service will make three attempts to restart, before disabling the service.	Contact HPE Nimble Storage Support.
AS-117227	Data Service	Data Service may restart unexpectedly due to health check failure	During disk index processing the automated task manager reports status to the Data Service. If the task manager does not respond within the expected time of 30 seconds, the Data Service will restart to recover from the condition.	Not applicable

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-118864	Data Service	Data services daemon restart	On hybrid arrays, the flash cache checkpoint task is run periodically to reduce memory/nvram consumption by the cache buffers. This task is expected to completed within a specified amount of time. In certain rare scenarios, this task can be blocked and fail to complete in time. This can result in a restart of the data services daemon. A single restart of the data services daemon should not result in any interruptions on the client side.	If required, the timeout for the cache checkpoint task can be increased.
AS-116051	Data Service	Data Service may restart unexpectedly	In rare instances, the Data Service may restart unexpectedly while performing Volume Management checksum computations.	Contact HPE Nimble Storage Support
AS-77607	Data Service	Removing member array from multi-array group may cause IO disruption to scaled vVol environments	Scaled vVol environments with 500 vVol VDI VMs or more than 5000 Nimble vVol volumes may experience IO disruption when removing a member array from group. Symptom of problem would appear as vVol datastores being (inaccessible). Virtual Machine status would also appear as (inaccessible).	When planning to remove a member array from group, schedule a planned maintenance window and place all ESX hosts into maintenance mode to minimize impact to availability. ESX typically resumes connection to vVol datastores, and reconnects to VMs, after a period of 15-30 minutes automatically without a manual intervention.
AS-101976	Data Service	Volume move may result in latency if Nimble Connection Manager is not installed	Volume moves transfer data from one Nimble array to another. During this move, if the host sends I/O to the incorrect array, the I/O needs to be forwarded to the correct array owning the data. This results in higher than usual I/O latency. To avoid this issue in VMware environments, the Nimble Connection Manager for VMware needs to be installed on all hosts accessing the volume.	Not applicable
AS-114277	Data Service	Data service may restart unexpectedly	The Data service may restart unexpectedly when a checksum verification failure occurs.	Not applicable

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-90668	Data Service	Data Service restarts when detecting metadata inconsistency	When the Data Service detects a metadata inconsistency, the service may restart repeatedly and hosts could experience unexpected application behavior.	Contact HPE Nimble Storage Support
AS-106021	Data Service	Index verification fails if a 16 TiB volume is completely unmapped causing Data Service to go down	In rare cases during index creation, when a 16 TiB volume is fully unmapped, the resulting index structure fails verification and brings down the Data Service leading to an outage.	Contact HPE Nimble Storage Support.
AS-96371	Data Service	Data service may restart repeatedly due to faulty SSD	If the array encounters a faulty SSD with multiple bad segments, the Log-structured File System (LFS) attempts to resolve the errors. If the array is under high load and LFS has a high humber of block errors to resolve it may exhaust the IORW buffers causing the Data Service to restart repeatedly.	Contact HPE Nimble Storage Support to identify and replace the faulty SSD.
AS-80025	Data Service	Data service may restart due to a race condition	Data service may restart due a rare race condition between the operations of shutting down the data service and resync of the standby controller. When the race condition is detected the Data service restarts to recover from the condition.	Not applicable
AS-106093	Data Service	Data service may restart due to a race condition	While committing internal transactions, Data Service may hit a rare race condition. To recover from this Data Service might restart	Not applicable
AS-105607	Data Service	Snapshot replication of deduplication-enabled volumes may lead to File System restart	During snapshot replication of a dedupe-enabled volume, the downstream array file system may restart due to an out-of-memory condition.	Not applicable
AS-94834	Data Service	Data Service may unexpectedly restart	A disruption in network connections can cause Data Service to restart unexpectedly.	Not applicable

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-109826	Data Service	Data Service may restart unexpectedly	Data Services may unexpectedly restart due to out of memory condition while running snap replication on dedupe enabled volumes with high compression ratios.	Not applicable
AS-108094	Data Service	Replication interruptions and Data Service restarts may occur due to network errors	In environments with frequent network checksum errors, interruptions of Replication and Data Service restarts may occur.	Review network devices to identify and reduce network checksum errors.
AS-96300	Data Service	Data Service may restart due to volume manager health check failure	Generation delete operations and NVRAM to disk data flush operation can cause Data Service to restart due to health check failure, as it can hold checkpoint for a long time.	Not applicable, on restart Data Service would behave normally.
AS-108810	Data Service	Volume migration may stall due to Volume Manager reference count handling	The Volume Manager monitors volume migration progress. The process relies on reference counts to determine status. If the reference count is not cleared as expected during processing the migration may stall.	Contact HPE Nimble Storage Support
AS-95470	Data Service	Pool merge fails due to too many pending deletes	When attempting to perform a pool merge operation, if there are a large number of volumes that must be striped across the pool, and one of the arrays has a large number of pending deletes, then it is possible for the operation to fail due to the Data Service being overloaded. Symptoms of this behavior are if the pool merge operation hangs for several minutes and returns the following message: The request could not be understood by the server.	Not applicable

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-118115	Data Service	Data Service may restart repeatedly after performing multiple software updates in short succession	After performing a software update from 3.x.x.x (or earlier) to 4.x.x.x or 5.0.x.x and then updating onto 5.1.x.x+ immediately after the 4.x.x.x or 5.0.x.x update completes, there may not be enough time for an internal metadata operation to complete in the short amount of time the array is on 4.x.x.x or 5.0.x.x. As a result, the Data Service can go into a restart loop leading to an outage.	After updating to 4.x.x.x or 5.0.x.x, wait at least 1 hour before updating onto 5.1.x.x+ or contact HPE Nimble Storage Support.
AS-105639	Data Service	Rare race condition between Data service and Group Management service cause Data service restart	The Data service may restart when Bin Migration is going on. This can happen when following activities happen together: 1. Bin migration is occurring for a volume. 2. Group Management service restart (because of any reason). 3. Group Management service unable to re-sync with Data service after restart. This can lead to Data service restart but it will not impact bin migration as after Data service restart bin migration will resumed automatically.	Not applicable
AS-76236	Data Service	Data Service may restart unexpectedly during volume migration	Data Service may restart when operations of volume migration are stuck waiting for ownership transfer completion.	Not applicable
AS-106333	Data Service	Data Service restart during volume move may cause the service to restart again.	If the Data Service is restarted during a volume move, it would result in incorrect Bin Migration state to be recovered, causing another Data service restart. This is a rare event since it requires snapshots to be taken as well as a Data Service restart during a volume move.	Not applicable
AS-109050	Data Service	Writes may be denied due to counters in space accounting	Counters used for space accounting may cause validation to fail. The array may see a blip in space usage because of which writes may be denied and in worst case, volume may go offline.	Contact HPE Nimble Storage Support.

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-86764	Platform	Controller sensors missing for AFxx/HFxx arrays	During boot up due to a known Intel defect the controller sensors may report missing for a period of time in the array alerts. After about 15-20 minutes, it returns to a valid state and the sensors should report valid readings again.	If after 20 minutes the controller sensors do not report good state, please contact HPE Nimble Storage Support for assistance.
AS-94961	Platform	Performance affecting firmware defect in a subset of 6TB drives.	HPE Nimble Storage has identified a rare firmware defect in a subset of drives which can, under certain write intensive workloads, cause the array to under-perform.	Contact HPE Nimble Storage Support.
AS-97925	Platform	Data Service may restart unexpectedly when a disk returns bad data	The Data Service may restart unexpectedly when array encounters a disk returning bad data, and the disk has not been marked as failed.	Not applicable
AS-86099	Platform	Data service may restart during when file operation timeout is exceeded	During internal file operations, processes may be waiting for a lock to be released. If the wait time exceeds 30 seconds, a service health check may restart the Data service to recover.	Not applicable
AS-108793	Platform	Data Service may restart if the array has multiple bad drives	In rare instances, the Data Service may restart if the array has multiple bad drives which make IO handling very slow.	Contact HPE Nimble Storage Support to review disks for replacement.
AS-104517	Platform	Data Service may restart due to health check failure	The Data Service on the array may restart when timeout for internal communication between array controllers has been exceeded. The service restarts to restore the communication.	Not applicable
AS-94153	Platform	Array update precheck or Diagnostics for Nimble Array uploads may fail due to faulty boot device	If the array M.2 boot device is faulty, the array software update precheck and/or Diagnostics for Nimble Array uploads may fail.	Contact HPE Nimble Storage Support

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-96053	Platform	NDER process may lead to host reconnects	Nimble Drive Error Recovery (NDER) is activated for drives failing I/O in an attempt to recover the drive. In rare instances, the process may surpass iSCSI host timeout values, causing host I/O inaccessibility.	Not applicable
AS-107489	Platform	Limited thermal monitoring policy for PCIe components	The current thermal policy has a limitation where individual PCIe components are not monitored on card-by-card basis. As a result, the high level temperature policy that is current implemented, is sometimes incapable of regulating the temperatures of individual cards.	Not applicable
AS-51053	Platform	Array remains in solo/stale after controller reseat.	In rare instances the interconnect between controllers may be down following a controller reseat.	Contact HPE Nimble Support for assistance in restoring array to Active/Standby status.
AS-93456	Platform	Incorrect software update error message /tmp is out of space.	During software update from NimbleOS 3.x versions to later version, a failure to extract the software update package may incorrectly return the error message /tmp is out of space. even if there is still space in the directory.	Verify that the software update package has been downloaded to the system and then attempt the software update again using the software --resume_update command from the CLI.
AS-104924	dHCI	Plugin: Cannot add 4 or more servers in the dHCI deployment	Currently, if customer plans to add 4 or more Proliants servers in their dHCI deployment via the plugin, the operation fails.	In order to add more 4 or more Proliant Servers, the workaround is to add up to 3 servers at a time from the plugin.
AS-112859	SAN	Data service may restart unexpectedly	The Data Service on the array may restart if a Task Management Function request to abort a command is received while the command is still being completed. The service restarts to recover from the condition.	Not applicable
AS-93191	SAN	IO may timeout during Fibre Channel session login/logout	Normally Fibre Channel session login/logout happens very quickly. Under certain conditions, it may take long enough that SCSI commands will timeout leading and lead to brief data unavailable situations.	Not applicable

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-91812	SAN	Data Service may restart due to Fibre Channel command state inconsistency	In rare occasions during periods where a large number of Fibre Channel commands are aborted and sessions are terminating, the Data Service may occur because of inconsistent or duplicate reporting of command termination status. The initial trigger of this issue is typically lost frames on the fabric due to congestion or hardware failure.	Review the Fibre Channel fabric for any issues that may cause lost frames.
AS-95159	SAN	Initiator side Fibre Channel Fabric instability may result in a large number of aborted SCSI commands	Fibre Channel fabric issues (errors, congestion, etc.) can prevent the array from transferring data and status to the initiator. This can result in a large amount of aborted commands. In rare cases this may cause problems for the Fibre Channel driver and SCSI stack.	Addressing the fabric issues should resolve this issue.
AS-94636	SAN	Controller may reboot unexpectedly due to improper command cleanup during Fibre Channel session termination	In rare instances, the controller kernel may crash if the outstanding SCSI command arent properly cleaned up in the Fibre Channel driver during session termination. The kernel crash will cause the controller to reboot to recover from the condition.	Not applicable
AS-94746	SAN	Data Service may restart after implicit logout of Fibre Channel Session	When an implicit logout of a Fibre Channel session occurs SCSI commands from the previous session may not be terminated properly causing a restart of the data service. The service restarts to recover from the condition.	Not applicable
AS-117550	Security	Event service may restart unexpectedly	The Event service may restart unexpectedly when attempting to load a trusted certificate due to an issue which impacts certificate management. The service may not restart after encountering the issue.	Contact HPE Nimble Storage Support.

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-115780	Security	Event service may restart unexpectedly	The Event service may restart unexpectedly when attempting to load a trusted certificate due to an issue which impacts certificate management. The service may not restart after encountering the issue.	Contact HPE Nimble Storage Support
AS-110030	System Management	Group Management service may restart due to race condition	Group Management service may restart due to a race condition between threads when a volume access control list is removed. The service restarts to recover from the condition.	Not applicable
AS-68651	System Management	Flood of timeouts causing Event Management service restart	Multiple threads are created to deliver emails, however, a non-threadsafe libcurl call is used to dispatch them. If there is a misconfigured DNS or SMTP server, the curl call will timeout. If there are greater than 7 emails waiting to be delivered and all are experiencing timeout, the service health check timeout is exceeded, causing the Event Management service to restart.	Correct the DNS or SMTP configuration to a valid address by ensuring that a ping to the defined address succeeds.
AS-116981	System Management	Group Management Service may restart during audit log clean up	Audit log entries exceeding the limit of 24000, would initiate a cleanup of older entries 500 at a time. This could cause the group management service to restart unexpectedly during processing of the cleanup.	Not applicable
AS-94737	System Management	No Automatic Failover in the event the host loses all FC connectivity to an array	An Automatic Failover (AFO) of the Group Management Services will not be initiated if all Fibre Channel (FC) interfaces on the Group Leader array fail on both controllers.	A Manual Group Leader Failover will be required to restore Fibre Channel connectivity to the hosts.

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-89701	System Management	Automatic Switchover Service restarts due to thread limitations	The Automatic Switchover Service internally creates and closes threads each time during Automatic Failover (AFO) quorum setup and tear down. This may cause the service to eventually crash after reaching the maximum thread limit. The system recovers automatically when the Automatic Switchover Service restarts.	Not applicable
AS-65615	System Management	Group Management Service must be restarted to unlock additional volume limits after controller upgrade	When performing a controller upgrade to a high-end model, the object limits will still show the lower limits if the Group Management Service is not restarted.	A failover can be initiated in order to restart the Group Management Service. You may also contact HPE Nimble Storage Support to restart the service manually.
AS-116943	System Management	Array Management Service may be unavailable during Automatic Failover	The Array Management Service may be unavailable during or shortly after Automatic Group Leader Failover events. This may cause the CLI or GUI to be unavailable for a brief period of time until the service startup completes.	Not applicable
AS-94594	System Management	Group Management service may restart unexpectedly	Group Management service may restart when internal processing fails on arrays with high snapshot activity. This may cause snapshots to fail to be deleted.	Not applicable
AS-61614	System Management	Group Management service may restart during array shutdown	The Group Management service may restart during an array shutdown while processing REST request. No user operations are impacted because the array is already in the middle of a shutdown. The shutdown proceeds normally.	Not applicable

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-69136	System Management	Group merge fails if one of the groups violates the snapshot rate limit	The Snapshot rate limit - Number of snapshots that can be taken for a given minute - is introduced in 4.x for distributing snapshot load to the system. If a group surpasses this snapshot rate limit in previous NimbleOS releases, the software update to 4.x is still allowed. However, a group merge is prevented if the source or destination array surpasses the snapshot rate limit. The following error message can be seen during the group merge validation: INFO: Rate of snapshots in the merged group would be greater than supported snapshot rate. This could occur if even if the source array (the array being added to the existing group) has 0 volumes or volume collections.	Contact HPE Nimble Storage Support.
AS-94113	System Management	Group Management service may restart due to duplicate snapshot collection name	If an attempt is made to create a snapshot collection with same the name of an existing snapshot collection, an error indicating object already exists will be reported and the Group Management service may restart. The service will recover upon restart.	Use unique name when creating snapshot collection.
AS-100254	System Management	Group Management Service restarts under heavy load	A system management process can restart when the system is under heavy load. The system recovers automatically. The Data service is not affected.	Not applicable
AS-98124	System Management	Array Management service restart during service shutdown	The Array Management service may restart due to a race condition encountered during service shutdown. The service will recover after the restart.	Not applicable
AS-87736	System Management	Software precheck failures return generic error message	If a software update precheck fails, in some cases it will return only the failure status without providing additional information about the cause of the failure.	Contact HPE Nimble Storage Support for assistance in determining the cause of the failure.

Known Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-92465	System Management	Intermittent login failures due to Active directory lookups failures	There is a possibility of sporadic, transient, active directory authentication failures. In these cases, the system will recover on its own, requiring no user interaction.	Not applicable
AS-98194	System Management	Group Management Services unavailable temporarily when performing volume restore	Group Management may become unavailable temporarily when a large number of restores are performed on a volume.	Not applicable
AS-95169	System Management	Graceful shutdown takes longer than expected	In rare occurrences, a customer-initiated reboot may cause a kernel reboot on the active controller. This will cause a longer reboot cycle.	Not applicable
AS-84499	System Management	Controller may unexpectedly restart due to high memory utilization	Controller may reboot unexpectedly if there is high memory utilization for the java and/or jetty processes on the array.	Not applicable
AS-92379	System Management	Unable to Filter volumes using Synchronous Replication	There is currently no way to filter volumes using Synchronous Replication within the array GUI.	Use volume collections to check syncRep volumes, or use other filters to meet the needs
AS-97968	System Management	Page footer in GUI may fail to update after bulk update operation	After performing a bulk update operation from the Manage > Data Storage > Volumes > volumename > Data Protection tab in the GUI, the page footer may not update and previous button may be unavailable.	Refresh the page to restore button functionality.

Resolved Critical Issues

Resolved Critical Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-119232	Data Service	Multiple Data Service restarts during deduplication fingerprint operations	In rare cases, during fingerprint index lookup and merge operations involving large deduplication domains, index block references can be mishandled. As a result, the Data Service can go into a restart loop, which can lead to extended data unavailability.	Contact HPE Nimble Storage Support

Resolved Issues

There are no resolved issues in NimbleOS version 5.2.1.600

Known Issues

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-111378	Data Service	Data Service may restart due to health check failure	A lost wake-up to an operation may cause the operation blocking the checkpoint which results in Data Service restart.	Not applicable
AS-108086	Data Service	Data Service restart while converting internal data-structures in NimbleOS	After updating the array to NimbleOS 4.x.x.x or later, a process runs to convert an on-disk data-structure specific to NimbleOS by initiating an operation that walks the existing tree of this data-structure. In some cases, this operation keeps running even after the conversion has completed successfully, leading to health check timeout. This results in a Data Service restart.	Contact HPE Nimble Storage Support to increase the health check timeout on the array
AS-109218	Data Service	Data service may restart unexpectedly	The Data Service may restart unexpectedly during a read operation when decryption and decompression fails.	Not applicable
AS-74773	Data Service	Data Service may restart during branch point deletion	A volume that has a chain of at least three branches, common in replication or snapshot restore workflows, may trigger unexpected Data Service restarts upon branches being trimmed and deleted.	Not applicable
AS-102001	Data Service	Data Service may restart unexpectedly due to internal database communication	In rare instances, the Data Service may restart when internal database communication between services is not available. The service restarts to restore the communication between services.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-81863	Data Service	Data Service may restart unexpectedly when RAID is in degraded mode	When RAID is degraded, IO needs to be reconstructed by reading from multiple disks, and an internal buffer may exhaust its allocated resources. In rare cases when multiple disks are degraded, the Data Service may restart unexpectedly.	If RAID is degraded for an extended period and Data Service restarts occur, contact HPE Nimble Storage to assess adjusting allocated buffer resources.
AS-62942	Data Service	Data Service may restart unexpectedly for CS2XX and CS3XX arrays when under a heavy load	On CS2XX or CS3XX, the array may run out of data pages when under a heavy load. This will result in an unexpected Data Service restart.	Reducing the load on the array is the only known workaround for this issue.
AS-115328	Data Service	Data Service restarts unexpectedly while allocating data pages	When trying to allocate data pages for many large Fingerprint Index Hash Table indirect blocks, the process may fail due to insufficient memory. As a result, the Data Service may restart to recover the condition.	Contact HPE Nimble Storage Support
AS-120656	Data Service	Data Service restarts unexpectedly while allocating data pages	When trying to allocate data pages for many large Fingerprint Index Hash Table indirect blocks, the process may fail due to insufficient memory. As a result, the Data Service may restart to recover the condition.	Contact HPE Nimble Storage Support
AS-77117	Data Service	File system service may restart on upstream array during replication or resync of synchronous replication.	In rare instances during offset calculation, the File System service may restart when attempting to read data for replication. The service restarts to recover from the condition.	Not applicable
AS-115912	Data Service	Data service may restart unexpectedly	Software update to NimbleOS 5.2.1.0 and later triggers an update of on-disk data structures. Under certain rare conditions, this update could potentially take a long time and result in a restart of the Data Service. This may cause a momentary delay in IO but should not result in any significant disruption, as the data services daemon is designed to restart efficiently before any IO timeout can occur.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-102881	Data Service	Data Service Restart due to a race condition during metadata sync	During NimbleOS metadata sync, in rare instances, the data service may restart unexpectedly. The metadata sync operation itself wont be affected and the restart will reset the race condition; the data service will stabilize after the restart.	Data service will be available after restart.
AS-70861	Data Service	Data Service may restart due to volume manager health check failure	The Data Service may restart unexpectedly if the Volume Manager health check exceeds expected time out. The service restarts to clear the condition.	Contact HPE Nimble Storage Support
AS-85848	Data Service	Data Service may restart unexpectedly with health check failure when internal index data structures take too long to merge	As part of the file system checkpoint process, internal indexes are required to merge to disk. The health check process uses a heartbeat mechanism to determine if the merge is making progress. Under some circumstances, the process performing the merge of a batch of updates to the index fails to heartbeat within a deadline. When that happens, the Data Service may restart with a health check failure.	Not applicable
AS-87108	Data Service	Data Service may restart unexpectedly with VM health check failure due to lock contention.	Under certain conditions, the Data Service may restart when a large number of internal indexes merge within a short timespan and when some of these indexes need to merge multiple times in the same checkpoint. In this case, there can be lock contention between operations responsible for picking what to merge and operations processing the merge, leading to health check timeout.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-61877	Data Service	Deadlock in Data Service process may cause a restart	Under rare circumstances, internal threads in the Data Service can enter a deadlock when contending on the same set of resources. When the process health monitor detects this deadlock, it will force the Data Service process to restart in order to recover from this situation.	Not applicable
AS-115204	Data Service	Data service may restart unexpectedly	The data services daemon periodically synchronizes its persistent in-memory (NVRAM) structures with its other objects on flash. This process is required to complete within a reasonable amount of time. Under certain rare conditions, this process can get delayed and trigger a restart of the data services daemon. This can cause a momentary delay in IO which the daemon restarts. There should not be any disruption of IO, since the daemon is designed to restart within any IO timeout limits.	Not applicable
AS-112307	Data Service	File System Service may restart due to memory exhaustion	The File System Service may unexpectedly restart because it is not able to allocate memory. This can happen when the process in charge of evicting data out of cache cannot evict fast enough, so the filesystem is unable to allocate memory for new incoming data.	Not applicable
AS-111353	Data Service	Multi-array setup with replication might experience file system restarts when peer array is unreachable	In certain multi-array setup where replication is in progress might encounter a situation where peer array is going through a software upgrade and is actually unreachable by other array. The other array is however unaware of it because some network device has intervened the reachability status of the peer array. The other array needs to perform certain operations which has a timeout associated with it and undergoes a system restart to recover.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-71309	Data Service	Unexpected Data Service Restart	Under certain circumstances, an unexpected Data Service restart may be triggered with a generic Asynchronous Task Manager health check failure. The Data Service restarts and resumes operation normally, without causing loss of access from the connected hosts.	Not applicable
AS-77921	Data Service	Data Service may restart when gathering garbage collection telemetry	Data Service may restart when gathering garbage collection telemetry if cache subsystem is not fully initialized.	None
AS-84426	Data Service	Group Data Service may restart unexpectedly	The Group Data service may restart unexpectedly when out of memory condition is encountered. The service restarts to clear the condition.	Not applicable
AS-116064	Data Service	Data Service may restart due to health check failure	While the Data service is processing Update Entries in background, one of these background operations may exceed the expected timeout and the service will restart to recover.	Not applicable
AS-96703	Data Service	Data Service may restart due to volume manager health check failure during generation deletion	Generation delete loads a large number of ondisk metadata blocks which may prevent block index operation checkpoint from finishing. This causes the volume manager health check to fail which results in Data Service restart.	Not Applicable, the Data Service will resume normal operation after restart.
AS-96779	Data Service	Data Service may restart unexpectedly due to race condition	When a read op finds partial data in-core, it issues a media read to get remaining data. By the time, media read returns, the in-core data is synced, and tree is reopened for deletion. The read does not expect tree to be in delete state and causes the Data Service to restart.	Not applicable
AS-94473	Data Service	Data Service may restart when running out of buffers	When flash cache Garbage Collection copies forward live data of a fragmented segment, it could consume more buffers than provisioned and cause the Data Service to restart to recover.	Contact Nimble Storage Support.

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-108519	Data Service	File system restart to recover from stalled replication	Due to issues in communicating with the partner array during replication, there are few cases where the operation is not able to make progress. As a result, the file system may restart to correct this condition.	Not applicable.
AS-111347	Data Service	Data service may restart due to a race condition	While committing internal transactions, Data Service may hit a rare race condition. To recover from this Data Service may restart.	Not applicable
AS-98979	Data Service	Data service may restart due to a race condition	While committing internal transactions, Data Service may hit a rare race condition. To recover from this Data Service might restart	Not applicable
AS-81739	Data Service	Data Service restart due to slow disk IO or disk IO failure	If IO to disk are slow or fail, the Data Service may restart to try to recover the condition.	Not applicable
AS-92170	Data Service	Data Service can restart unexpectedly during shutdown process	Due to a race condition, the Data Service may restart during a graceful shutdown causing unexpected Data Services restart messages to be generated. This should not cause any I/O impact because the Data Service is already in the process of shutting down.	Not applicable
AS-50446	Data Service	Data Service may restart during internal task scheduling	During replication, a rare race condition between adding and deleting internal recurring tasks can cause a Data Service restart. Arrays that hit this condition typically experience a single service restart that automatically recovers the condition. However, if the network link used by replication is unstable, frequent replication disconnects dramatically increase the likelihood of encountering multiple Data Service restarts due to this condition.	Pause replication until the network link used for replication is stabilized.

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-106924	Data Service	Data Service may restart due to network errors	In rare cases, Data Service may restart during snapshot replication due to the failure of checksum algorithms to detect all network errors.	Not applicable
AS-113537	Data Service	Data Service may restart unexpectedly	The Data Service may restart unexpectedly if Fibre Channel session termination exceeds timeout to complete. The service restarts to recover from the condition.	Not applicable
AS-97038	Data Service	Disabling encryption may cause Synchronous Replicated volumes to remain out of sync	Disabling encryption might cause NVRAM data to fill up with data waiting for master passphrase, which can cause Synchronous Replicated volumes to go out of sync.	Enabling encryption will resolve the issue
AS-105551	Data Service	Arrays may experience increased latency during copy offload workload operations	Copy offload optimizations for deduplication were added in NimbleOS versions 5.1.x and later. The changes may lead to increased latency when copy offload workflows are added to the array. This is due to an increase in update entries requiring processing.	Perform one of the following options to avoid/mitigate the issue: 1. Reduce overall workload on the array. 2. Reduce copy offload workload on the array. Contact HPE Nimble Storage Support if further assistance is needed.
AS-98217	Data Service	Data service may restart during array shutdown	Volume manager does not reset internal callbacks during the shutdown phase causing the Data service to restart.	The array will continue to shutdown after the Data service restart.
AS-94196	Data Service	Data Service may restart during array shutdown	The Data Service may restart during array shutdown when jobs related to the Data Service are unable to be gracefully shutdown. The restart should not have any impact as the array is in shutdown process.	Not applicable
AS-79265	Data Service	Data Service may restart on downstream array due to race condition during volume deletion	The volume manager will decrement bin and child volume folder entries during volume deletion. In rare occurrences, another thread may decrement the child volume entry and not the bin entry, causing the Data service to restart.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-57016	Data Service	Aggressive assert may lead to unexpected restart of the Data Service	Under certain circumstances, an aggressive internal assert may lead to unexpected restart of the Data Service.	Not applicable
AS-110167	Data Service	Attribute synchronization may be delayed	The Group Management service synchronizes attributes with the Data Service on the array. If the Data Service does not send a response within 10 seconds, the Group Management service will generate an alert indicating the attribute synchronization may be delayed. The service will retry the synchronization, and it will complete a short time later when the response from the Data Service has been received.	No action is required, the alert should resolve a short time later.
AS-101386	Data Service	Data Service restart due to a race condition	A rare scenario can result into a race condition between clone creation and I/O operations on an encrypted volume; during this time while fetching the encryption keys Data Service may restart and resume normal I/O operations.	None. The Data Service Restart would resume normal I/O operations.
AS-94545	Data Service	Very rare race between Vol claim (with all snapshots marked for deletion) and space recalculation on replica downstream volume	The service may restart when removing the downstream replica using the steps below. 1. Deletion of all snapshots for the replica volume. 2. Claim the replica volume 3. Delete the replica volume	Remove downstream replica using the correct steps ordered below. 1. Claim the replica volume. 2. Delete all of the snapshots for the replica volume. 3. Delete the replica volume.
AS-86720	Data Service	Unassigning and reassigning array to a pool within 5 minutes will fail	Assigning an array to a pool immediately after unassigning it from the same pool will fail with the following error - Failed to assign arrays to the pool: A service is not running or is not reachable	Retry operation after a few minutes to reassign array to pool.
AS-85304	Data Service	Data Service may restart due to health check failure	The Data Service on the array communicates with the Group Management Service to handle array operations. If the communication between the two services exceeds timeout, the service will restart to recover.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-111454	Data Service	Aggressive Volume creation and deletion may result in Data Service restart	Aggressive volume creation and deletion may cause one of the tree data structures to hit maximum children it can have. This limit can occur on volume creation because volume deletion destroys the children asynchronously. The Data Service will restart when this limit has been reached.	Reduce the frequency of volume clone create and delete operations to minimize the likelihood of occurrence.
AS-113545	Host Integration	Group Management service may restart when attempting to create VSS snapshot	The Group Management service communicates with the VSS service when creating VSS snapshots. If this communication is not able to be completed within the expected timeframe, the service restarts to recover.	Not applicable
AS-108647	Host Integration	Cimserver stops when memory limit is exceeded.	In some instances the cimserver service will exceed its memory limit and no longer be able to start.	Contact HPE Nimble Storage Support to increase the memory limit for the service.
AS-50033	Platform	Log partition may fill up	Log files generated by processes in the Nimble Operating systems are rotated and archived using certain parameters. Under some conditions, if processes log more than normal, this can result in the log partitions being filled up, leading to other issues with critical processes.	Contact Nimble Storage Support to identify the reason for the partition filling up and to clean up the log partition.
AS-107299	Platform	Replacement controller fails to boot to NimbleOS	During controller boot, firmware update may fail to complete causing the controller to boot to maintenance mode.	Contact HPE Nimble Storage Support
AS-53621	Platform	Both power supplies showing up as missing	Under certain circumstances, internal commands may cause the integrated circuit to hang which causes both power supplies of the head shelf to appear as missing. The problem does not impact the power supplys ability to deliver power to the array.	1. Reseat one of the power supplies to clear the hang condition. 2. Or update NimbleOS to version 3.6.0.0 or later to minimize the number of internal commands that can trigger this issue.
AS-100088	Platform	Controller does not power on following a power cycle.	In rare incidents, controllers do not power on following power cycle.	Please contact HPE Nimble Storage Support

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-67242	Platform	Incorrect shelf cabling can cause a series of unexpected Data Service restarts	If a shelf is cabled incorrectly and added to an array, the raw capacity calculation could fail leading to multiple restarts of the Data Service.	Referencing the corresponding Expansion Shelf Quick Start Guide, correct the hardware cabling issue.
AS-33725	Platform	Unexpected controller takeover due to incorrect state of the SAS HBA	When the SAS HBA detects faulty states, to recover, the array needs to reset the SAS HBA's firmware. The SAS HBA firmware reset can block disk I/Os significantly longer than our High Availability monitoring timeouts allow. Instead, a controller reboot is triggered immediately if this state is detected, resulting in an unexpected takeover event.	The controller reboot should restore SAS HBA to normal state. HPE Nimble Support may contact customer to collect additional diagnostics if required.
AS-114564	Platform	File System service may be restart on truncated variable read	In certain conditions, I/Os tracked for certain operations may total zero, which triggers a check exception. The reason for the incorrect value is variable truncation. The service restarts to recover from the condition.	Not applicable
AS-90850	Platform	Data Service may unexpectedly restart	The Data Service may restart unexpectedly when it detects an internal check error. The restart of the service clears the condition.	Not applicable
AS-95294	Platform	Enclosure Management service may unexpectedly restart due to drive status race condition	The Enclosure Management service may unexpectedly restart due to a race condition which is resulting from drive status which has already been marked removed by the Data Service. The restart of the service clears the condition.	Not applicable
AS-110036	Platform	Data Service may restart if the array has an faulty drive with a high number of medium read errors	Data Service may become latent and restart when the array has a faulty drive with a lot of medium read and IO timeout errors.	Contact HPE Nimble Storage Support to identify the faulty drive for replacement.

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ID	Component	Title	Description	Workaround
AS-90096	Platform	Data Service restarts due to slow IO to one of the disks	In rare instances due to slow IO to one of the disks, the Data Service may hit a timeout and restart unexpectedly. This issue may occur during a NimbleOS software update.	Please contact HPE Nimble Storage Support so the problematic drive can be replaced.
AS-99567	Platform	Data Service may restart if a controller is low on memory	Data Service may restart in the rare case when a controller is low on memory.	The restart of the service will clear the low memory condition, no further action is needed.
AS-113002	Platform	Data Service may restart unexpectedly during internal striping operation	In rare circumstances, the arrays data service may restart unexpectedly when it encounters a race condition following internal data striping processing. The data service will stabilize following the restart.	Not applicable
AS-103802	Platform	Data Service restart due to resource allocation failure.	The Data Service may restart due to a transient resource allocation failure. This happens when the service cannot complete a disk IO due to transient memory allocation failure. This does not cause a service outage as Data service continues normally after a restart.	Not applicable
AS-116155	Platform	Kernel memory management defect may cause an unexpected takeover	In rare circumstances, a kernel memory management defect may manifest itself during memory unmapping operations and initiate a controller reboot. If this occurs on the active controller, it will result in an unexpected takeover.	Not applicable
AS-46629	Platform	Kernel panics while processing host bus adapter errors	On very rare occasions of HBA error handling, interrupts could be turned off long enough for the NVRAM driver to timeout while trying to complete direct memory access operations. The controller recovers after a reboot is initiated by the kernel.	Not applicable
AS-116189	Platform	Kernel file system defect may cause an unexpected takeover	In rare circumstances, a kernel file system defect may manifest itself and cause a controller reboot. If this occurs on the active controller, it will result in an unexpected takeover on the array.	Not applicable

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ID	Component	Title	Description	Workaround
AS-117809	Platform	Array Management service may restart unexpectedly	Due to an incorrect response from dual flash carrier (DFC) firmware the Array Management Service might restart intermittently.	Contact HPE Nimble Storage Support.
AS-105053	Platform	Enclosure Management Service may restart unexpectedly	The Enclosure Management service may unexpectedly restart when it detects an internal check error. The service restart clears the condition.	Not applicable
AS-101570	Platform	Delay with Data Service starting during shelf state change	On rare occasions, the array groups Data Service may fail to initialize if a shelf state change occurs simultaneously.	No workaround is required. The array will recover itself automatically by restarting the Data Service.
AS-93296	Platform	Data service may restart if maximum cache exceeded for CS215, CS235, CS300, CS500, CS700 arrays	ES2 and AFS2 expansion shelves contain additional slots for upgrading cache capacity of the array. Older array models have a maximum cache limit that can be handled by the array. If ES2 or AFS2 expansion shelves are added to an array and the cache exceeds the max cache limit for the array type, the data service may restart due to running out of data pages.	Review the array configuration matrix for the array model: https://infosight.hpe.com/InfoSight/media/local/active/34/CSxxx%20Config%20Matrix.pdf Remove any additional cache from the expansion shelf that exceeds the max cache limit based on array model.
AS-99428	Platform	Replacement disk reports foreign for disk state in GUI/CLI	Disk will report foreign for disk state in the GUI Hardware page or in the output of disk --list from the CLI. This typically occurs if diagnostic data may not have been removed after testing.	Add the disk from the CLI using the disk add command and output from disk list: 1. Run disk --list 2. Note the slot number, and shelf location for the disk labeled foreign. 3. Add the disk: disk --add <slot number> --array <arrayname> --shelf_location <shelf location> Note: the --force option may be required Contact HPE Nimble Storage Support if the disk does not move to resynchronizing state after completing the commands.

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ID	Component	Title	Description	Workaround
AS-91522	Platform	SSD has reached its endurance limit (wear leveling) but the disk is not marked failed.	In rare cases, an SSD may reach its endurance limit but continues to pass Nimble Drive Error Recovery algorithm. This causes a never-ending process of off-lining and on-lining the drive. This may occur for Intel and Toshiba SSDs.	Not applicable
AS-86100	Platform	Enclosure Management service occasionally restarts upon a drive failure	In a rare scenario, Enclosure Management service may occasionally restart upon a drive failure in system partitions. The restart of the service clears the condition.	Not applicable
AS-116339	Platform	4U Chassis disk slot LEDs illuminate erroneously	Due to a possible software defect, the red disk slot LED may illuminate even when there are no issues with the corresponding drive. This is a cosmetic issue that does not impact functionality.	Not applicable
AS-112701	Platform	Group Management service may restart unexpectedly	The Group Management service may restart if an error while opening interconnect-ips file occurs. The service restarts to recover from the condition.	Not applicable
AS-116111	Platform	File System Service restarted unexpectedly	The File System Service may restart during memory allocation if there is not enough memory available. The service restarts to recover from the condition.	Not applicable
AS-98885	Platform	Unexpected Group Management Service restart due to receive buffer exhaustion	The Group Management Service may restart unexpectedly due to receive buffer exhaustion on the management network interface. No visible impact has been reported because of this issue.	Not applicable
AS-92471	Platform	File System Service may restart unexpectedly	File System service may restart unexpectedly when a health check exceeds timeout for volume manager on the array. The service restarts to recover from the condition.	Not applicable

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ID	Component	Title	Description	Workaround
AS-114390	Platform	Array may fail to boot following a software update if previous chassis information is referenced	Under rare circumstances, if an array software update previously failed and reverted, and an array chassis swap is performed before the next software update, the array configuration files may contain invalid data. This will cause the controllers to reboot and the Array Management service to restart.	Contact HPE Nimble Storage Support
AS-76174	Platform	VM creation fails in VMWare VVol environment after update to NimbleOS 4.x.x.x	An attempt to create new VMs in a VMWare vVol environment fails after updating to NimbleOS 4.x.x.x. This occurs when a system partition within the array is running out of space.	Please contact HPE Nimble Storage Support to resolve this issue. This issue is resolved in NimbleOS version 5.0.2.0 and later.
AS-103315	dHCI	dHCI update workflow can fail if /var mountpoint on the host is full.	As part of the dHCI update workflow which involves the ESXi server update, some commands need to be run on the server. Running these commands fails with error Error: A general system error occurred: Internal error. if the /var is full. This is a known issue with 6.7 builds running with Emulex driver which has been fixed as part of ESX 6.7 U2. https://docs.vmware.com/en/VMware-vSphere/6.7/rn/vsphere-esxi-67u2-release-notes.html#resolvedissues	Free up /var disk space by deleting unwanted log files (/var/log/EMU/mili/mili2d.log) and rebooting the host.
AS-103247	dHCI	An in-progess dHCI update fails if the group leader fails over	When the dHCI unified update feature is used to update the dHCI stack, the update will fail if a Group Leader Failover occurs during the process.	The only way to resume the update would be to failover to the original group leader array and then resuming the update through the dHCI vCenter plugin.
AS-97685	dHCI	Nimble Add ProStack server task may hang if array failover occurs	If an array failover occurs while Nimble Add ProStack server task is running from vCenter, the process may hang and not complete.	After confirming the array has returned to Active/Standby status, stop the hung task and run the Nimble Add ProStack server task again.

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ID	Component	Title	Description	Workaround
AS-103769	dHCI	The update page on the dHCI plugin takes 4 hours to refresh	When an ESXi server is added to dHCI cluster, the update page does not get updated to include the newly added ESXi server. This refresh happens every 4 hours. After the next refresh, the new ESXi servers version will be included and accounted for on the update page.	Not applicable
AS-95054	dHCI	Addition of a server with expired ESXi license fails	When adding a server with an expired ESXi license to the dHCI cluster, through the vCenter plugin, you may see an error saying - Failed to submit a task to add server.	A valid ESXi license must be assigned to the server.
AS-101915	dHCI	dHCI update fails when Admission Control is enabled	For ESXi server update, DRS is used to migrate VMs running on the server. If admission control is enabled on the dHCI cluster, DRS is not able to migrate VMs off a server.	Admission Control should be disabled on a dHCI cluster for the update to proceed.
AS-108946	SAN	Data Service may restart when host does not issue abort to timed out command	The Data service will wait up to 300 seconds for host response to iSCSI commands. If host does not abort commands that take more than 300 seconds to complete, the Data service will restart.	Not applicable
AS-100197	SAN	Data Service restart during shutting down FC service on the standby controller	During a controller reboot, due to resource contention between new Fibre Channel (FC) connection attempts and shutdown of the FC module, the Data Service on the array may restart unexpectedly.	Not applicable.

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ID	Component	Title	Description	Workaround
AS-94229	SAN	Fibre Channel IO aborts and hangs may lead to DSD or kernel crash	The Fibre Channel driver state machine that handles IO aborts, IO timeouts on the fabric, session logout, and port ownership changes relies heavily on the port owner to properly manage state in a timely manner. This generally works, but there are situations where the port owner doesnt have enough context to do the job properly. This can lead to more IO timeouts, HBA resets, DSD restarts and occasionally kernel crashes. A future version of the driver will simplify this process by handling it entirely within the driver.	These issues appear to be triggered by events external to the controller such as host HBA, cable, SFP, zoning or switch issues. Port congestion may also play a role. Migrating volumes to other arrays or adding additional HBAs may alleviate the congestion.
AS-92368	SAN	Data Service, SCSI Failover/Forward Service, and/or controller may restart unexpectedly for Fibre Channel arrays	During port owner failover between the Data Service and the SCSI Failover/Forward Service, outstanding IOs may timeout and get aborted. This can lead to state machine issues in between the two services which may cause one or both services to restart. In rare instances, this may also cause the controller to reboot. The service restart and/or controller reboots to recover from the condition.	Not applicable
AS-109412	SAN	NimbleOS services may restart unexpectedly due to slow leak with CHAP logins	Logins to CHAP authentication enabled volumes could leak a small amount of memory the size of CHAP username. Over a period of days and weeks, this leak can result in one or more of the NimbleOS processes running out of memory. As a result, NimbleOS services may restart unexpectedly. The issue is exacerbated by repeated failed login attempts to offline volumes or stale targets.	Identify the offline volumes or stale targets and initiate a host side cleanup/rescan to avoid repeated login attempts and failure to the offline or stale targets.

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ID	Component	Title	Description	Workaround
AS-113037	SAN	NimbleOS services may restart unexpectedly due to memory leak in login path	Logins to CHAP authentication enabled volumes could leak a small amount of memory by repeated failed login attempts to offline volumes or stale targets. Over a period of days and weeks, this leak can result in one or more of the NimbleOS processes running out of memory. As a result, NimbleOS services may restart unexpectedly.	Identify the offline volumes or stale targets and initiate a host side cleanup/rescan to avoid repeated login attempts and failure to the offline or stale targets.
AS-111926	SAN	Poor iSCSI performance seen when minimum connection count is used	The NCM (Nimble Connection Manager) handles the iSCSI connection counts. Today, the NCM is designed to use a FULL MESH connection mechanism. However, when there are very few initiators and target ports, the total connection count will be minimal. The NCM will default to a minimum of 2 connections per volume. Increasing the number of connections to 4 or more may produce the maximum throughput.	Increase NCMs configuration for minimum number of connections per volume from 2 to 4 or higher.
AS-98042	SAN	The Data Service restarts unexpectedly during shutdown	When the active controller is being shutdown, the Data Service runs into an internal error condition that causes the service to restart unexpectedly. Since the process is already being shutdown, there is no impact to user data availability.	Not applicable
AS-64790	SAN	Data Service may restart due to race condition	When the Data Service is in process of shutdown, the service may restart due to race condition when shutdown threads do not wait or abort pending operation threads.	Not applicable
AS-89753	SAN	Service may restart due to race condition	The Data Service or SCSI High Availability Service may restart due to race condition encountered during process shutdown.	Not applicable

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ID	Component	Title	Description	Workaround
AS-101325	SAN	Data Service may restart unexpectedly while removing member array	Under certain conditions, the Data Service on the Group Leader array may restart unexpectedly while removing member array. This is due to a race condition when processing SCSI RTPG (REPORT TARGET PORT GROUPS) commands. The service should stabilize on its own shortly following the restart.	Not applicable
AS-94761	SAN	File System service may restart when an invalid write request is received	This scenario is rare to happen but presently not handled gracefully leading to a File System restart for recovery. The issue is triggered when a write request with valid length is received in SCSI Command Descriptor Block but invalid (zero) value in Data-Out Buffer.	Not Applicable
AS-116512	System Management	Cannot take a bound virtual volume snapshot offline	In certain scenarios, off-lining a vVol snapshot will not complete due to the existence of a ACL bound with it. The vVol snapshot cannot be off-lined until the bound ACL has been removed.	Contact HPE Nimble Storage Support
AS-110367	System Management	Group Management service may restart due to race condition	A race condition may occur while updating records in the Scale Out database when two threads attempt to update the same record.	Not applicable
AS-103766	System Management	Group Management Service may restart due to race condition	Group Management Service may restart unexpectedly as one thread has taken a ReadWrite lock which has another writer thread, which is waiting for Scale-Out Database (SODB) transaction to be completed. The service restarts due to the SODB transaction exceeding the expected timeout.	Not applicable
AS-105929	System Management	Group Management Service restart due to race condition	Group Management service may restart due to Volume Management thread and API thread for snapshot creation/deletion entered race condition. The service recovers after restart.	Not applicable

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ID	Component	Title	Description	Workaround
AS-54302	System Management	REST API Clone of volume does not support setting ACL at time of clone creation	When created with the REST API, by default the cloned volume inherits the ACL from the parent volume. There is no way to set or change the ACL for the clone at the time of creation through the REST API. Clients should make two REST calls, one to create the clone and then one to change the ACL to the desired value. In the future, we could change the REST API to not set the ACL by default and allow the client to set the ACL at the time of the clone creation to the desired value. This only applies to volumes that have agent_type set to none	Not applicable
AS-119873	System Management	Group Management service may restart while reading protocol endpoint information	The Group Management service communicates with the Data Service to add the Protocol Endpoint ACL to the Scale Out Database for vVols. If the process does not complete as expected the Group Management service will attempt to retry the operation. Under some circumstances, instead of retrying that operation, this ACL get erroneously deleted and any PE reads (REST or cli) following could result in GMD restart.	Contact HPE Nimble Storage Support
AS-83604	System Management	Event service may restart unexpectedly	API calls occur between the Event service and Group Management service when an alarm is cleared. The calls will lookup the alarm ID and onset event in the Scale Out Database (SODB). If the alarm is cleared before the onset event lookup completes and is not found during these calls, the service may restart unexpectedly.	Not applicable

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ID	Component	Title	Description	Workaround
AS-94398	System Management	Alarm may not clear as expected	Due to a race condition it is possible for an alarm to remain uncleared on the system even when the alarm condition it is reporting is no longer the case. This can happen if the onset alert and recovery alert were generated at close to the same time.	The problematic alarm can be manually deleted through the CLI command: alarm --delete <alarm_id>
AS-105431	System Management	Alarm IDs in alarm list may appear out of order.	Due to the multi-threaded nature of the Alerts and Alarms Service, it is possible for an event with a later id to be posted prior to an event with an earlier id. Therefore it will have an earlier timestamp even though its ID is higher. This can cause the IDs to appear out of order. However, the alarms in the list are ordered correctly by timestamp.	Not applicable
AS-99427	System Management	Alarms for Configuration Synchronization may remain after sync has completed	Alarms describing a delayed configuration synchronization to an array may not be cleared properly after an extended network outage and remain active in the GUI.	After confirming that the configuration sync has completed the alarms can be deleted or acknowledged through the GUI.
AS-87604	System Management	Configuration synchronization recovery alarm is not cleared	An alarm onset should be set prior to discovery request as part of alarm processing. In some cases the discovery request will appear first resulting in the alarm not being cleared.	Clear the alarm manually from the Command Line Interface: 1. Use alarm --list command to determine the alarm ID. 2. Use alarm --delete <ID> command to delete the alarm.
AS-103567	System Management	Eventd process may restart unexpectedly	The Eventd process may restart unexpectedly due to a rare deadlock condition between its threads. The restart of the process will clear the condition.	Not applicable
AS-84502	System Management	Event Service restarts due to memory	Event Service may restart when memory limit is reached. The service will restart to recover from the condition.	Not applicable
AS-101273	System Management	Event Management service restart when two folders in different pools have the same name	When an alert is raised on one of two folders having the same name but are located in two separate pools, the Event Management service may restart repeatedly.	Rename the folders to be unique. If the Event Management service continues to restart or remains unavailable, contact HPE Nimble Storage Support.

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ID	Component	Title	Description	Workaround
AS-85608	System Management	The Event service may restart unexpectedly	The Event service may restart unexpectedly due to a memory access issue. The restart will not impact data connections to the array and the process will recover after the restart.	Not applicable
AS-99679	System Management	Eventd process may restart due to exceeding memory limit	The eventd process may restart unexpectedly in systems with larger configurations due to exceeding memory limit. The service will recover after the restart.	Not applicable
AS-86837	System Management	Snapshot Attribute Synchronization Delay Alarm is not cleared	Alarm notifying about delay in snapshot attribute synchronization is not cleared automatically after successful synchronization. If the alarm is not manually deleted it will keep reminding the customer even after successful synchronization.	The alarm can be cleared from the CLI using the steps below. List the alarms with the following command to obtain the alarm ID: alarm --list Delete the alarm using the alarm ID obtained from the list. alarm --delete <alarmID>
AS-50821	System Management	Alerts and Alarms processing service may restart unexpectedly	Alerts and Alarms processing service may restart unexpectedly when certain operation surpass the designated health check timeout. The process will stabilize following the restart.	Not applicable
AS-46024	System Management	Eventd process may restart intermittently	The Eventd process may infrequently crash, due to a bug in an external library used by the DNS resolver. The restart will not impact data connections to the array and the process will recover after the restart.	Not applicable
AS-40238	System Management	Event Service may report SMTP failure to send alert when alert is sent successfully	The array will reuse the session to the SMTP server each time it attempts to send an email. If this session is no longer active, it will report a failure to send the alert, then open a new session, and successfully send the alert if the SMTP server configuration is valid.	Not applicable

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ID	Component	Title	Description	Workaround
AS-72902	System Management	Alerts sent via SMTP may be rejected	When the array sends an alert via SMTP, the message may be rejected by the server indicating 550 5.6.11 SMTPSEND.BareLineFeedsAreIllegal. This can occur if the receiving server does not support BDAT command for SMTP chunking	The recipient can create an inbound transport rule to append a disclaimer to the messages from the problematic sender. The disclaimer will append the expected CR-LF combination to the message so that it can be delivered. (This disclaimer may consist of a single character such as a period or a dash.)
AS-110436	System Management	Array Management service may restart unexpectedly	Internal database maintenance processing may exceed the expected health check timeout. When this occurs, the Array Management service may restart to recover from the condition.	Not applicable
AS-96966	System Management	Purge inactive encrypted keys appears in audit log.	Every night, when inactive keys for deleted encrypted volume are deleted by the array, it creates an audit log entry with root as the user performing the action.	Not applicable
AS-82919	System Management	Group Management Service restarts due to excessively long username	An excessively long username of over 255 characters will exceed a character limit within the array groups auditing framework. This would cause the Group Management service to restart unexpectedly.	The Group Management service will recover after the crash. The workaround would be to no longer use an excessively long username, and reduce the username to under 255 characters.
AS-71090	System Management	No Audit Log entry is created if user does not have the privilege to create user	If a user tries to create a new user account, but the user doesnt have the privilege to do so, the user creation will fail. However, an audit log entry is not created.	Not applicable
AS-116083	System Management	Array Management Service restart	The Array Management Service process may restart after running for a long time due to a memory leak issue. This can cause a short interruption to data service, but it will resume once the process has restarted.	Not applicable

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ID	Component	Title	Description	Workaround
AS-104640	System Management	Group Management Service restarts following volume creation timeout	The Group Management Service on the array may restart unexpectedly when a SOAP timeout is encountered after trying to create a volume. This occurs due to a race condition where the array attempts to delete the volume after the creation attempt fails.	Not applicable
AS-112416	System Management	GUI performance may be slow for Fibre Channel (FC) arrays with high session count	The GUI relies on REST queries to obtain FC session information. In environments where there are high number of sessions to the array, the queries can take a long time to complete. This will result in slower GUI response for the array.	Contact HPE Nimble Storage Support
AS-104185	System Management	Group Management service may restart when performing Autosupport Validation	When autosupport configuration validation is performed, internal process tracking may abort causing the Group Management Service to restart.	Perform the Autosupport validation process again.
AS-115935	System Management	Array removal will fail if Backup Group Leader setup is in progress	This issue is seen when the Group Leader role migration completes, and the previous leader is left unconfigured. In this scenario, the Group Leader may treat the previous leader as a member array and initiate the Backup Group Leader (BGL) setup. If a customer attempts to remove the array during this BGL setup, the removal fails.	Not applicable
AS-109127	System Management	Group Management service may restart when connections to Scale-Out Database exceeds threshold value	Connection to the Scale-Out Database can not be reinitialized when a transaction is in progress. The Group Management Service will restart to restore connection.	Not applicable

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ID	Component	Title	Description	Workaround
AS-105454	System Management	Group Management service may restart due to snapshot key value metadata handling	During key value metadata handling, the process may delete primary keys in one table of the Scale-Out Database (SODB) and then try to reference the deleted primary key as foreign key in another table in SODB. This causes foreign key violations in Postgres and eventually leads the Group Management service to restart.	Not applicable
AS-117328	System Management	System Management service may restart after Software Update	In rare scenarios a System Management Service may restart after Software Update. System Management Services such as array GUI information may be unavailable for a brief period of time after Software Update.	Not applicable
AS-115493	System Management	During a planned shutdown, the Array Management Service may restart	Under certain circumstances, the Array Management Service may detect operations that are still running during a planned shutdown. This may result in an unexpected service restart prior to the array completing shutdown.	Not applicable
AS-99704	System Management	group --status CLI output shows incorrect Failover Mode during network connectivity issues	If there is a network connectivity issue between the witness and Group Leader array, the group status CLI output will update the Failover Mode from Automatic to Manual until the connection is reestablished. It also displays the Witness Status as N/A as opposed to Unreachable.	Not applicable
AS-94683	System Management	Network isolation of the Group Leader and Backup Group Leader array may lead to Automatic Switchover service restarts	In Automatic Switchover environments, in rare instances, network isolation of the Group Leader and Backup Group Leader may cause the service that handles the automatic switchovers to restart unexpectedly.	No workaround is needed. The service recovers on its own.

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ID	Component	Title	Description	Workaround
AS-94649	System Management	Peer Persistence Automatic Switchover (ASO) is disabled during software update	During software update of array group with Peer Persistence configuration, Automatic Switchover (ASO) is disabled. If an array goes down (both controllers down) during the software update process, due to a power failure or other unexpected event, hosts could lose access to data until the failed array recovers, or a manual switchover of the affected volumes is done.	Not applicable
AS-98953	System Management	Array Management Service restarts during Backup Group Leader discovery	The arrays database system may become unavailable for a limited time when there is a failure in setting up the Backup Group Leader. When attempting to discover a new Backup Group Leader, the Array Management Service may restart due to a race condition.	This restart is non-disruptive to the data on the array, and the Array Management recovers after the restart occurs.
AS-106539	System Management	Array Management Service may restart during array shutdown	Due to a race condition, the Array Management service may restart when the array is in the process of shutting down all services as part of the array shutdown. An alert and a process core could be generated as a result but there is no impact to functionality. Once the array powers back on, all services start up normally.	None.
AS-101342	System Management	Group limits command lists internal identifiers	The array group CLI command with limits option (group --list-limits) displays numeric internal identifiers as part of the information listed for the volume information. These numeric identifiers are used by the array only and can be ignored.	Not applicable
AS-103275	System Management	Event Service may restart due to invalid database entry	The Event service may restart unexpectedly if an invalid network interface entry is found in the Scale Out Database (SODB).	Contact HPE Nimble Storage Support

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ID	Component	Title	Description	Workaround
AS-104812	System Management	Array Management service restarts due to memory allocation issue	The Array Management service may restart unexpectedly due to an a memory allocation failure when attempting to synchronize configuration with a member array. The restart of the Array Management service clears the situation.	Not applicable
AS-99702	System Management	Backup Group Leader is not assigned due to power outage	Following a power outage, it is possible that the Backup Group Leader is not assigned to the group. This may occur if the SODB database does not start due to an SSH key issue.	Please contact HPE Nimble Support.
AS-93469	System Management	Group Management service may restart while collecting member array statistics	The Group Management service may restart while collecting statistics from member array. This can occur when the request from the group leader to member array exceeds timeout, causing the service to restart to recover.	Not applicable
AS-73595	System Management	A lossy network causes Group Management service restart	Service threads within the group management API handler are restricted to run for no more than 5 minutes. In a very lossy network, TCP throughput can be throttled to almost nothing due to retransmission timeout back-off. In one observed case, where the API response was about 190 KB, the connection managed to send only about 90 KB before the 5 minute timeout occurred and caused the Group Management service restart.	The only workaround is to improve the quality of the network connection so that the loss of TCP packets is minimized.
AS-53458	System Management	Interface link alerts may fail due to race condition	The Controller Management Service monitors the controller interfaces for network connectivity. The Array Management Service monitors link status to determine if failover is required due to network connectivity. Due to a race condition the Array Management Service may initiate an array failover before the Controller Management Service alerts that interface links are down.	Not applicable

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ID	Component	Title	Description	Workaround
AS-98297	System Management	Array Management service restart due to memory allocation exception	There is a memory leak in the stat (statistics) component of the Array Management service. Magnitude of the memory leak is proportional to the frequency of stats query.	If array is queried for statistics, then its frequency should be reduced. This is specially relevant for the setup where script or some monitoring tool does stats query frequently in a loop.
AS-92515	System Management	Alarm not cleared after IP address moves to different interface	If an IP address is migrated from one interface port to another, the alarm that was generated indicating the original interface down may not be cleared.	Manually delete the alarm from the command line interface. 1. Login to CLI 2. Find the alarm ID using: alarm --list 3. Delete the alarm using the ID alarm --delete <ID>
AS-87749	System Management	Max limit of 120 nics in netconfig alarm does not get cleared	When alarm for number of nics in array net config reaching 120 is triggered, it doesnt get cleared even when the number of nics goes down.	The workaround would be to delete the alarm using the alarm --delete CLI.
AS-112702	System Management	During shutdown the Group Management service may unexpectedly restart	Due to an issue in POCO library, in certain cases, causing the Group Management service to restart. The service restarts to recover from the condition.	Not applicable
AS-74556	System Management	Array Management Service restarted while starting/stopping Group Management Services	Array Management Service may restart unexpectedly when trying to start or stop the Group Management Service. The system recovers automatically after the Array Management Service is restarted	Not applicable
AS-74242	System Management	Force deletion of user defined performance policy should not be supported	There is a --force switch available when deleting a performance policy via the HPE Nimble Storage Array CLI. This --force switch does not work and will fail with the following: ERROR: Failed to delete performance policy. Resource busy. The --force command is not supported since the specified performance policy should not be removed without first checking its volume or folder associations.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-101832	System Management	Volume Migration estimates may be inaccurate when multiple volumes are being migrated	Volume move operations copy both data and associated metadata from the source array to destination array. For groups with multi-array pools, copying the metadata can take a significant amount of time, and the estimate calculation may be inaccurate initially. These estimates will auto-correct themselves by using feedback mechanisms.	Not applicable
AS-117683	System Management	Array management service may restart under high load or network connectivity issues between group arrays	Backup Group Leader (BGL) may be promoted and/or System Management Service may restart. This occurs when there is high load on either the Group Leader array or the BGL array, or when there is network throughput issues between the arrays. The service restarts to recover from the condition.	Not applicable
AS-116625	System Management	Array management service may restart during periods of degraded network connectivity between high available Group Leader and Backup Group Leader arrays.	The Array Management service may restart on a group configured for high availability during various scenarios when Group Leader to Backup Group Leader communication is high or degraded. Scenarios which may cause an array management service restart include degraded network connectivity between GL and BGL arrays.	Not applicable
AS-94835	System Management	Array Management process may restart during automatic failover	Array Management services may be unavailable for a short time due to restart during automatic failover.	Not applicable
AS-101420	System Management	Array Management Service restarts unexpectedly under high load	The Array Management service may restart unexpectedly when the array is under high workload.	The service will stabilize on its own following the restarting.

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-105041	System Management	Array management service may restart on Group Leader or Backup Group Leader arrays	Array Management service may restart on a group configured for high availability during various scenarios such as when Group Leader to Backup Group Leader communication is at high load or degraded. Scenarios which may cause an array management service restart include degraded or broken network connectivity between GL and BGL arrays.	Not applicable
AS-97327	System Management	Group Management service may restart due to communication timeout exceeded	If communication between Group Management and Postgres services does not complete within expected timeout, the Group Management service may restart. The restart will resume the communication and try the transaction again.	Not applicable
AS-97697	System Management	Group Management Service may restart unexpectedly	Group Management service may restart due to health check timeout exceeded. The service will recover after the restart.	Not applicable
AS-66341	System Management	Group Management Service restarts unexpectedly following automatic Group Leader Failover	The Group Management Service may restart unexpectedly when the array is under heavy load, has many snapshots scheduled, has performed a group merge in the past, and has recently performed an automatic Group Leader Failover.	Not applicable
AS-65676	System Management	Group Management service may restart due to internal database timeout	The Group Management service may restart unexpectedly when internal database query does not complete within the expected time out. The service restarts to clear the condition.	Not applicable
AS-108145	System Management	Group Management Service may restart due to internal database handling	When a new internal database connection is established, a number of prepared_statements are executed at the beginning. If one of the prepared_statements fails the Group Management Service will restart.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-98434	System Management	After group leader migration, quorum is not removed after witness disconnection	After Group migration is performed, backup group leader becomes group leader. If witness is disconnected for more than five minutes, the new leader will not remove quorum.	Disable automatic failover and remove witness from configuration.
AS-106490	System Management	Group management service may restart due to race condition	While syncing the config changes on the downstream array, group management service may restart due to a race condition between protection policy deletion and adding the volume to the protection policy.	Not applicable
AS-113950	System Management	Group management service may restart due to assertion failure	Group management service may restart due to the race condition between branch creation for the replica volume and replica volume deletion. This race condition will cause an assertion failure and lead to Group Management service restart. This may impact management workflows.	Not applicable
AS-105064	System Management	Group management service may restart unexpectedly	Internal workflow processing related to the replication partner object may cause the process to deadlock, resulting in Group management service restart.	Not applicable
AS-115200	System Management	Unexpected delays in configuration sync between replication partners	In the data protection environments, replication partners need to sync their configuration. In certain situations, the partners will attempt to sync all volume collections as opposed to just the volume collections that were recently modified. This may lead to unexpected delays is replication partner sync.	Not applicable
AS-98650	System Management	Alert for aborted handover does not specify reason	In the case where the downstream array is reaching its snapshot rate limit and the user performs the volume collection handover, the handover will be abort if the limit is surpassed. An alert will be raised but the alert message may be missing the reason for aborting handover.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-99520	System Management	Both upstream and downstream may claim the volume collection ownership when excessive handovers are performed	If a user performs multiple volume collection handovers between two arrays during a short time span, this may cause a situation where both upstream and downstream array may claim volume collection ownership. This is due to a race condition in the workflow.	Not applicable
AS-98378	System Management	Error No message received after issuing CLI command to disassociate volume from collection	Under system busy conditions, when an excessive amount of operations are being issued in parallel or too many internal retries are occurring to perform tasks, you may receive a No message received error after issuing a CLI command.	Please reissue the command. If the operation was already performed by the earlier command, an appropriate message will be returned.
AS-81209	System Management	Group Management service may restart due to race condition	In rare occurrences, the Group Management may restart when a race occurs between threads that are disassociating a volume from a volume collection and modifying a schedule for the same collection. The service restarts to recover.	Not applicable
AS-73432	System Management	Snapshots display as replicated in GUI on array with no replication configured	Snapshots may display in GUI as replicated snapshots when they are not involved in replication.	Contact HPE Nimble Storage Support
AS-89124	System Management	Synchronous Replication Volume Count Limit	The group --list_limits CLI command does not list the Synchronous Replication volume count Limit. Synchronous Replication on 5.1.0.0 and later can protect up to 128 volumes.	Not applicable
AS-88308	System Management	Cloud Volumes replication does not support group merge	If two on-premise array groups configured with a Nimble Cloud Volumes (NCV) partner are merged, the Cloud Volume replication will stop working.	Not applicable

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ID	Component	Title	Description	Workaround
AS-59470	System Management	Group management process my restart due to a deadlock when replicating	A deadlock can occur between two management processes when updating the replication bandwidth throttle. The Management Process will restart and clear the condition. There is no disruption to data services and replication will continue automatically without intervention.	Not applicable
AS-57574	System Management	Replication of dedupe and encrypted volumes will stall between 3.4 and previous 3.x releases	Encrypted and deduped volumes cannot be replicated from 3.4.x and later to previous 3.x releases because they do not support encryption and dedupe at the same time. Note that this does not affect replication from 3.4.x and later to 2.3.x where the volumes will not be deduped on the downstream running 2.3.x.	Update the downstream array to NimbleOS 3.4.x or later.
AS-96143	System Management	Group management service may restart due to assertion failure	NimbleOS uses a defined state machine for the replication workflow. At the end of the execution of each step defined in the state machine, it moves to the next step. If it leads to any unexpected step throughout the workflow then it will lead to assertion failure which results in Group Management service restart.	Not applicable
AS-96241	System Management	Group Management service may restart due to high memory usage	When the system has a high number of objects, the Group Management service may restart while running REST query or CLI command.	Not applicable
AS-90649	System Management	Configuration of deduplication volumes for sync replication might fail	If the Default Deduplication setting differs for upstream and downstream pools, the configuration of deduplication volumes for replication might fail with the following error Deduplication not allowed since no application category is assigned to the performance policy	Update the downstream pools Deduplication setting to match the upstream pool.

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-90633	System Management	Error No message received after issuing CLI command to associate volume to volume collection	Under system busy conditions, when an excessive amount of operations are being issued in parallel or too many internal retries are occurring to perform tasks, you may receive a No message received error after issuing a CLI command.	Please reissue the command. If the operation was already performed by the earlier command, an appropriate message will be returned.
AS-90286	System Management	volcoll --info output lacks pool/folder qualifications for associated volumes	For the volcoll --info output for sync replication volume collections, the Associated volumes: and Associated pinned volumes: fields lack pool/folder qualification for the associated volumes.	vol --list can be used to determine pool/folder attributes of these volumes.
AS-49720	System Management	Group Management Service may restart due to race condition	The Group Management service may restart due to a race condition between threads when updating replication records in Scale Out Database (SODB). The service restarts to clear the condition.	Not applicable
AS-98155	System Management	Group management service may restart unexpectedly	Arrays with volumes that have large branch structures may cause internal command processing timeout to be exceeded. This will cause the Group Management service to restart due to health check failure.	Contact HPE Nimble Storage Support.
AS-108119	System Management	Group management service may restart due to race condition	The Group Management service may restart due to a race condition between replication commands and group management service restart. The service restarts to recover from the condition.	Not applicable
AS-114179	System Management	Group Management service may restart during process shutdown due to race condition	During shutdown of the group management process, the SSL library logging of the debug messages can cause a race condition, resulting in a segmentation violation error. The service restarts to recover from the condition.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-108765	System Management	Group Management service restarts during the array shutdown	During a planned array shutdown, the Group Management service may restart due a race condition. There is no data or management interruption since the service is already shutting down.	Not applicable
AS-95610	System Management	Group Management Service restarts during bulk volume update	Due to a rare race condition, the Group Management Service may restart unexpectedly during a bulk volume update operation.	Retry the command for the failed volumes.
AS-91638	System Management	Group Management Service restarts due to packet loss in network	If the network response to a REST request takes more than 5 minutes, a thread performing the REST request times out and as a result Group Management Service restarts. The service stabilizes itself and as long as the network is serving the requests faster. A single instance of the Group Management service restart should not cause any disruptions.	Please review the network and see if there is a consistent packet loss and fix any network glitches. If you need any assistance, please reach out to HPE Nimble Storage Support.
AS-108868	System Management	Group Management service may restart while collecting user information from Active Directory	In environments with an array integrated with Active Directory, the create/validate session code holds a lock on an underlying sessions table and then goes to Active Directory to collect more information about the user. If this operation takes too long, the Group Management service may timeout to free this lock.	Confirm all Domain Controllers in the Active Directory environment that is integrated with the array are reachable.
AS-66182	System Management	Discovering volumes after array resetup may cause Group Data service restart	If a user runs --resetup followed by setup on an array that was previously configured and setup does not complete successfully, data IPs may be unconfigured until the setup actually completes successfully. As a result, GDD may restart unexpectedly if any attempts are made to discover the volumes on those unconfigured data IPs.	Ensure setup completes successfully before attempting to discover volumes.

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-117078	System Management	Group Management service may restart due to race condition with snapshot retention on a downstream replication partner	Due to a race condition with snapshot retention on a downstream replication partner, the Group Management service may crash unexpectedly. The Process Management service automatically restarts the Group Management service after the crash and it should resolve the race condition.	Not applicable
AS-95868	System Management	Group Management service may restart due to internal database timeout	The Group Management performs queries on the information stored in the Scale Out Database (SODB) for the array. If the query does not complete within the expected timeframe, the service may restart to recover from the issue.	Not applicable
AS-68782	System Management	System limitation of writable snapshots is not reported by NimbleOS	The group --list_limits CLI command does not list system limitation for writable snapshots. Also, no alerts or alarms are generated as as the array group approaches the limit.	Please refer to the System Limits and Timeout Values section in the NimbleOS Administration Guide.
AS-94517	System Management	Group Management service may restart due to memory exhaustion	Group Management service may restart due to memory exhaustion in configurations that approach 10,000 volumes and 300,000 snapshots.	Not applicable
AS-105291	System Management	Group Management Service may restart due to a race condition	Due to a race condition, the Group Management Service on a downstream group may restart while updating volume collections from the upstream group.	Not applicable
AS-93113	System Management	Unmanaged snapshots remain after cleanup is enabled	If clones are created using an unmanaged snapshot, then this unmanaged snapshot will not be deleted even if cleanup is enabled.	Not applicable
AS-97899	System Management	Group Management service may restart due to communication timeout exceeded	If communication between Group Management and Postgres services does not complete within expected timeout, the Group Management service may restart. The restart will resume the communication and try the transaction again.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-65935	System Management	Frequent, multiple Snapshot Collection deletions causes GUI to hang	Multiple snapshot deletions can be deleted in a single request. Back-to-back deletions of multiple batches of ten or more snapshot collections may cause the HPE Nimble Storage array GUI interface to hang.	Refresh the HPE Nimble Storage array GUI .
AS-105944	System Management	Time to Live (TTL) expiry date on last replicated snapshots can be negative	NimbleOS protects the last replicated collection, in some cases, the TTL expiry date on those snapshots can become negative when the snapshots exist beyond TTL.	The TTL can be updated on the snapshots which have a negative value to a current value. The snapshot may also be removed if it has been confirmed it is no longer needed.
AS-105432	System Management	Deletion of a volume is not completed due to the presence of stale ACLs associated with it	In certain scenarios, a volume deletion will not complete due to the existence of a stale ACL associated with it. This stale ACL is associated with a snapshot of the volume that was previously deleted. These volumes will not show up in the CLI/GUI as they are in a hidden state.	Contact HPE Nimble Storage Support to identify ACLs in forced-delete/create-retry state, verify these ACLs are associated with snapshots that no longer exist, and delete these ACLs from the internal NimbleOS database.
AS-104965	System Management	Group Management service may restart during array shutdown	During planned service stop, such as array shutdown, the Group Management service may restart due to a race condition. There is no data or management interruption since the service is already shutting down.	Not applicable
AS-62192	System Management	Group Management service may restart unexpectedly due to a conflict with internal threads	When internal threads encounter a locking conflict, the Group Management service may restart to recover from the condition.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-113375	System Management	Automatic Failover Backup Group Leader demote may be delayed in rare circumstances	Automatic Failover demotion of a Backup Group Leader array may be delayed for multiple minutes when an internal database is performing weekly garbage collection. The Group Leader is not able to demote the Backup Group leader during a weekly window when an internal database is performing internal garbage collection. This may last for multiple minutes. Eventually Backup Group Leader demote succeeds, and a new Backup Group Leader is selected. The Group loses High Availability during this time and the Group Management service may restart to recover from the condition.	Not applicable
AS-105804	System Management	Group Management service may restart unexpectedly when performing high snapshot activity	Group Management service may restart on the array when there is a high amount of snapshot activity being performed. The service restart will recover from the condition and the snapshot operations will resume.	Scheduling snapshots to occur at different times instead of all at once may help alleviate this issue.
AS-103982	System Management	Group Management Service may restart unexpectedly due to network connectivity	In rare instances, the Group Management Service may restart unexpectedly when the Group Leader and Member array have lost connectivity due to network outage. The service restart recovers GUI and CLI access, data services are not impacted by the restart.	Not applicable
AS-115819	System Management	System Processes or Systems may start slowly after over temperature restart	After a controller restarts due to over temperature condition, System Management processes may restart and take longer to start up due to slow system performance.	Not applicable

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ID	Component	Title	Description	Workaround
AS-108378	System Management	Array management service may restart during periods of degraded network connectivity between Group Leader and Backup Group Leader arrays.	Array Management service may restart on a group configured for high availability during various scenarios when Group Leader to Backup Group Leader communication is high or degraded. Scenarios which may cause an array management service restart include degraded or lost network connectivity between GL and BGL arrays.	Not applicable
AS-98504	System Management	Group Management service may restart unexpectedly	If internal database processing for array statistics exceeds the expected timeout, the Group Management service will restart due to health check failure to recover.	Not applicable
AS-101392	System Management	Services may not start on the array after it is powered on and off several times	When the array is powered on and off excessively, services may fail to start on the array.	Please contact HPE Nimble Storage Support
AS-105453	System Management	Group Management service may restart unexpectedly	The Group Management service may restart when service communication for internal database processing is terminated. The service restarts to restore connections between the services.	Not applicable
AS-99615	System Management	Array Management Service restarts unexpectedly following automatic Group Leader Failover	The Array Management Service restarts unexpectedly following automatic Group Leader Failover (AFO). The restart is non-disruptive.	Not applicable
AS-95132	System Management	Process Management service may restart during software upgrade	In rare instances, the Process Management service restart may occur during software update. The system recovers after the restart of the service.	Not applicable

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ID	Component	Title	Description	Workaround
AS-110374	System Management	Group Data Service may restart when the array is under heavy load during software update	The underlying scale-out database competes with CASL and other system processes for IOPS. During software update, a migration script runs against the database. Under heavy file system load, the migration steps may not complete within the expected amount of time. As a result, the migration may timeout leading to a restart of the Group Data Service. After the restart, the migration should complete as normal without any user impact or intervention.	No workaround available. To avoid encountering this issue, reduce IO load when performing software update. Software Update will succeed after one or more System Management service restarts.
AS-98694	System Management	Snapshot limit warning alarms persist after update to 5.1.x.x or later	After the update to 5.1.x.x or later, the Snapshot limit warning alarm is no longer used. This presents a situation where stale alarms are present on the array and they will not be cleared even if the space situation is rectified. The alarm follows the following format: WARNING Mon DD YYYY HH:MM:SS Acknowledged - Volume <volume name> snapshot space usage is over the configured warning limit.	The alarms can be deleted manually either in the GUI or on the CLI.
AS-77045	System Management	Alarm not cleared after volume or pool drops below warning threshold	Alarms are generated on the array when volume or pools exceed thresholds. In some instances the recovery event to clear the alarm when the condition is cleared does not clear the alarm.	Confirm the usage level for volume or pool indicated by the alarm is below threshold. Once confirmed usage level is below threshold, clear the alarm from the Command Line Interface (CLI): 1. List the alarms to find the alert ID alarm --list 2. Delete the alarm that is no longer valid alarm --delete
AS-110123	System Management	Group Management service may become unavailable when shut down	Infrequently the Group Management service may encounter an error while shutting down. If the service is being restarted it may take a few more seconds to start. GUI and CLI will be unavailable for a few seconds.	Not applicable

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ID	Component	Title	Description	Workaround
AS-108432	System Management	Group management service may restart when there are many REST requests for volume statistics values	High concurrent REST volume reads with statistics may cause Group Management service to restart. Current REST requests will fail, GUI and CLI will be unavailable. The system will recover after the restart of the service.	Not applicable
AS-106848	System Management	Arrays with Automatic Switchover enabled fail software update with generic message	Software updates to 5.1.4.200 are not allowed when Automatic Switchover (ASO) is configured. If a software update to 5.1.4.200 fails for this reason, a generic software update failure message is returned in the GUI. The cause of the failure would need to be determined by looking at the system configuration and determining if ASO is configured.	The ASO checkbox is enabled by default, however ASO is not enabled until a witness has been configured. In the GUI, navigate to Administration > Availability. If witness is configured and the ASO check box is checked, disable ASO by unchecking the box and clicking save. Perform the array software update again. If the update continues to fail with generic messaging, contact HPE Nimble Support.
AS-66997	System Management	Health check timeout may cause software update failure	The timing is close enough that it is possible for the individual array precheck during software update to take long enough that the health check timeout is triggered, causing the group management process to restart and the software update to fail.	This is an intermittent issue, so if the software update fails in this manner it should pass if the software update is resumed.
AS-72559	System Management	Group management service may restart during software update	Group management service may restart during software update due to race condition involving unlocking the download lock file.	Not applicable
AS-54519	System Management	Software update inactivity timeout messaging	When a software update is initiated on the array and the prompt for EULA acceptance is not answered, the software update session will timeout after several hours with a message indicating Requires Authentication or Contact HPE Nimble Storage Support.	Initiate the software update again and answer the EULA prompt and the software update will proceed as expected.

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ID	Component	Title	Description	Workaround
AS-57173	System Management	Updating array groups from earlier NimbleOS 3.x releases to 3.3.x or later releases could timeout	Due to the number of firmware updates involved, software update going from pre-3.3.x versions to 3.3.x or later could take too long and eventually timeout. These update times may take longer in larger multi-array group configurations. Software update in smaller array groups should complete without intervention.	If a timeout occurs, the update can be completed using the software --resume_update command.
AS-40516	System Management	Timeouts during software update	Under rare conditions, a software update may report an error even though the actual update has completed successfully. This occurs when software update takes longer than 4 hours.	Running the software --resume_update command from the console will clear this condition.
AS-91962	System Management	Volume management operations may fail with unrelated error messages while handover is in-progress	While the volume ownership is being changed, any management operation involving that volume could fail. This is expected behavior. Depending on the progress of that handover operation, management operation is failing with different errors.	Ignore the error message and retry the management operation
AS-109805	System Management	Group Management service may restart due to health check timeout	The Group Management service may restart when internal database processing exceeds the expected timeout value. The service restarts to recover from the condition.	Not applicable
AS-113885	System Management	Group Management service may restart while collecting user information from Active Directory	In environments with an array integrated with Active Directory, the create/validate session code holds a lock on an underlying sessions table and then goes to Active Directory to collect more information about the user. If this operation takes too long, the Group Management service may timeout to free this lock.	Confirm all Domain Controllers in the Active Directory environment that is integrated with the array are reachable.
AS-115002	System Management	Group Management service may restart due to healthcheck timeout	The Group Management service may restart when user lookup is in process and the winbindd service does not respond within the expected timeframe. The service restarts to recover from the condition.	Not applicable

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ID	Component	Title	Description	Workaround
AS-107491	System Management	Active Directory authentication may fail with Read-Only Domain Controller (RODC)	Array authentication to an Active Directory Read-Only Domain Controller (RODC) may fail, resulting in failures to authenticate Active Directory users.	Add the computer account credentials for the array by adding it to the RODCs password replication policy (PRP) under the Allowed RODC Password Replication Group group.
AS-104512	System Management	Active Directory authentication in some cases, may lead to a Group Management service restart	Active Directory Authentication causes the arrays Group management service to wait for a response from the Active Directory. If this response is delayed, the Group Management Service may restart unexpectedly.	Not applicable
AS-111166	System Management	Active Directory connection failures	The expected configuration isnt loaded when the Active Directory integration service starts, leading to failed logins or inconsistent Active Directory connectivity in certain configurations.	As a local admin on the array, restart the Active Directory integration service by disabling and enabling the integration. Via the GUI: Navigate to Administration -> Security -> Microsoft Active Directory Click Disable Click Enable Via the CLI: userauth --disable <domain> userauth --enable <domain>
AS-72869	System Management	Group Management Service may restart due to internal database handling	The Group Management service validates session information in the Scale Out Database. If the validation exceeds the expected timeout, the service will restart to recover.	Not applicable
AS-69084	System Management	Group Management service may restart while collecting user information from Active Directory	If collection of user group information from Active Directory takes longer than expected, the Group Management service timeout may be exceeded. The service will restart to resume information collection.	Not applicable

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ID	Component	Title	Description	Workaround
AS-95212	System Management	HPE Nimble Storage array compatibility issues with MIT Kerberos trust types	When the HPE Nimble Storage array is configured to use Active Directory integration, the array is joined to one specific domain, as a domain member. Under normal circumstances, users in trusted domains will also be able to authenticate to the array. If one or more trusted domains are joined to the forest using an MIT Kerberos type trust relationship, users and groups in any trusted domain (e.g. not the domain the array is joined to) will be unable to authenticate to the array.	Not applicable
AS-105035	System Management	Group Management service may crash while trying to create users while array is under heavy load	In rare instances, if the array is under heavy load and Group Management service restarts while new user is being created, the service can fail to start.	Contact HPE Nimble Storage Support
AS-71137	System Management	Group Management Service restarts while authenticating AD users	The Group Management Service may restart unexpectedly if it takes longer than 300 seconds to authenticate an Active Directory (AD) user.	Not applicable
AS-66437	System Management	Command to join Active Directory (AD) may fail causing Group Management service Restart	Command to join AD may fail because of latency in getting back a response from AD server. This may cause a health check failure for Group Management causing the restart of the service to recover.	Not applicable
AS-74830	System Management	Group Management service may restart when joining array to Active Directory	When joining Active Directory via GUI or userauth command in CLI, the command is expected to complete within 300 seconds. If this timeout is exceeded during the process, the Group Management service will restart to recover.	Not applicable
AS-78946	System Management	Latency in communicating with Active directory during may cause Group Management service to restart	AD communication may be slow leading to a delay in responses that may cause Group Management service to crash. Leaving the AD domain requires interaction with AD wherein this delay can cause a restart.	Not applicable

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ID	Component	Title	Description	Workaround
AS-65654	System Management	Active Directory connectivity issue may result in Group Management service restart.	If there are connectivity issues between an array with Active Directory integration enabled and an Active Directory Domain Controller, then the responses may take more than 300 seconds and timeout. As a result, the Group Management service may restart.	Resolve any connectivity issues between the array and Active Directory Domain Controller(s) to avoid unexpected service restarts.
AS-114105	System Management	Group management services may restart	During extremely rare circumstances, a bug may cause Group Management Services to restart while deleting a user. The array will recover after Group Management completes its restart.	Not applicable
AS-109549	System Management	Group Management service may restart due to Active directory communication taking too long.	When logging in with a Active directory (AD) user, delayed responses from AD may lead to Group Management service restart.	Not applicable
AS-101535	System Management	Group Management Service is temporarily unavailable after deleting volumes	Enabling and disabling the dedupe setting on volumes and concurrently deleting volumes can cause the Group Management Services to become temporarily unavailable on the array.	The Group Management Service will eventually restart itself
AS-102893	System Management	Enabling synchronous replication fails upon reaching volume limit	Following operations will fail upon reaching the volume limit: -adding Synchronous replication schedule to a volume collection -associating a volume to a volume collection with Synchronous Replication enabled -editing a Volume Collection schedule to add Synchronous Replication partner	Delete unused clones or volumes to bring down the volume count.
AS-84276	System Management	Performance issues for volumes created when array was running NimbleOS versions 1.3.x and earlier	After updating to NimbleOS 4.x, volumes initially created when an array was running NimbleOS 1.3.x and earlier may experience a negative impact on performance. This is caused by software changes made to the compression algorithm used by these older volumes.	Please contact HPE Nimble Storage Support to update the compression algorithms of these older volumes.

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ID	Component	Title	Description	Workaround
AS-86545	System Management	Unable to create dedupe enabled volumes on a new install	After a CSx000 array is installed, it takes one minute for the array to determine its deduplication capability. If a volume is created prior to this, it will not have dedupe enabled even if the array is dedupe capable.	Once the array is able to determine its deduplication capability, all newly created volumes will have dedupe enabled, if specified. In order to enable dedupe on the previously created volumes, you may run the following command via the HPE Nimble Storage Array CLI: vol --edit <vol_name> --dedupe_enabled yes
AS-92157	System Management	No CLI support for changing the Witness Port	Currently, there is no CLI support for changing the witness port. The nimble-witnessd.service file needs to be edited manually.	Not applicable
AS-100067	System Management	Member array might not be displayed under Add Array to Group option	A member array might not be listed under the Add Array to Group option within the GUI if the member is configured with a different protocol (iSCSI vs Fibre Channel). Also when there are multiple arrays in the subnet, arrays which cant be discovered within the stipulated time may not be listed in Add Array to Group.	Not applicable
AS-107015	System Management	Group Data service may restart on startup	In rare instances, the Group Data service may restart during startup due to a misconfiguration in NimbleOS pertaining to a file descriptor limit.	Not applicable
AS-99431	System Management	Array Management Service restarts or Takeover occurs unexpectedly following automatic Group Leader Failover	In rare circumstances, following an Automatic Failover (AFO) a race condition may cause the Array Management Service to restart or an unexpected controller takeover.	Not applicable
AS-99343	System Management	Custom SSL certificate import not supported on older versions of Google Chrome	Within the HPE Nimble Storage array GUI, custom SSL certificate import is only supported on Google Chrome version 71 or later.	Not applicable

Known Issues in NimbleOS version 5.2.1.600

ID	Component	Title	Description	Workaround
AS-98177	System Management	Setting alarm reminder frequency to the same value from GUI does not change next reminder time	When updating an alarm from the Events > Alarms page in GUI, selecting an alarm and clicking CHANGE REMINDER button, without changing the reminder frequency time, and clicking SAVE button, does not change next reminder time. This behavior is different from CLI. Setting alarm reminder frequency to the same value from CLI resets the next reminder time based on the current time.	To keep the same reminder frequency and reset the next reminder time based on the current time, change the reminder frequency to a different value, save it, and change it back and save it, or use CLI to make the change.
AS-87701	System Management	Incorrect information on hardware page displayed when controller is down	When a controller is down, the user may see incorrect representation of physical ports within the Hardware Page of the array GUI. This is due to the lack of information from the missing controller.	When the controller is back up, all the information is displayed correctly on hardware page.
AS-102299	System Management	GUI Error when entering a valid folder overdraft limit value	The Array GUI incorrectly returns an error when a valid value for the folder overdraft limit has been entered. This happens only in Internet Explorer and Microsoft Edge browsers.	Use Google Chrome or Mozilla Firefox browser.
AS-87886	System Management	GUI may show Successful message when group merge fails	During group merge, the GUI might show Successful message even though the group merge backend processing fails.	Not applicable
AS-77372	System Management	Group Merge via GUI unable to process large amount of conflicts	Currently within the HPE Nimble Storage Array GUI, when performing a group merge, if there is a large amount of group merge conflicts (1000 or more), the GUI is unable to process and resolve all of them.	To work around this issue: 1. Log into the destination array to resolve the conflicts. 2. Attempt the group merge again.
AS-76896	System Management	Unable to assign group traffic to Fibre Channel array when joining array group	When adding a Fibre Channel (FC) array to an existing group, you are unable to change the mgmt subnet to Mgmt + Data. You will see the following error: Data subnet Management <SUBNET> must allow group traffic	Please contact HPE Nimble Storage Support.

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ID	Component	Title	Description	Workaround
AS-95591	System Management	Incorrect ordering of pool merge error messages when Synchronous Replication and Witness are configured	Pool merge is not allowed if Synchronous Replication is enabled and pool merge is not allowed when a witness configured. If an array group has a witness configured for Automatic Switchover and has Synchronous Replication configured, when a user tries to perform a pool merge, the following error is generated: “pool merge is not allowed when witness is configured”. In this case, if the user removes the witness and then reattempts the pool merge, the following error is then generated: “Pool merge is not allowed when involved in sync replication”. This error should supersede the previous error.	Not applicable
AS-94575	System Management	Unable to edit a storage pool and assign an array at the same time	When attempting to edit a storage pool and assign an array at the same time, you receive the following error: Cannot update array list and name or description simultaneously.	Edit the pool name and assign / un-assign the array a in separate steps.
AS-104099	System Management	Volume collection association for a volume can fail due to a name conflict on the downstream array	When associating multiple volumes to a volume collection from, the volume association for all volumes can fail due to a name conflict for one of the volumes on the downstream.	Fix the name conflict on the downstream array.
AS-93157	System Management	Array GUI does not specify which snapshots are unmanaged	The Array GUI does not specify which snapshots are unmanaged and no longer belong to a volume collection.	Run the following command via CLI: snap --list --all --unmanaged
AS-67289	System Management	In the Create Replication Partner wizard the inbound location is no longer automatically populated	In the Create Replication Partner wizard, the Inbound Location is no longer automatically populated.	Click the dropdown arrow and select a location from the pool and folder navigation tree.

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ID	Component	Title	Description	Workaround
AS-99024	System Management	Browser becomes unstable upon certificate change	After changing a certificate, the GUI may present an error such as follows: The web service is very slow or unreachable...	After a new custom certificate has been imported or existing certificate is deleted, please close the browser where the action was performed and reopen a new one to guarantee a new connection request to the NimbleOS web interface.
AS-92634	System Management	Volume performance numbers may report invalid values after software update	The volume performance numbers displayed in the GUI under Manage > Data Storage > Volumes > Performance Tab may display invalid values temporarily after an array software update.	The values should report correctly within 24 hours after the update has completed.
AS-104567	System Internals	Array Management Service restarts when Group Leader cannot reach Backup Group Leader	When the Group Leader attempts to complete the Backup Group Leader promotion, if there is not a healthy data path, the Backup Group Leader promotion fails. Despite, the network error, the Backup Group Leader promotion goes into a loop and ultimately leads to an unexpected restart of the Array Management Service.	Not applicable
AS-86901	System Internals	Group Data Service may restart when the array is under heavy load during software update	The underlying scale-out database competes with CASL and other system processes for IOPS. During software update, a migration script runs against the database. Under heavy file system load, the migration steps may not complete within the expected amount of time. As a result, the migration may timeout leading to a restart of the Group Data Service. After the restart, the migration should eventually complete as normal without any user impact or intervention.	There is no workaround. To avoid encountering this issue, reduce IO load when performing software update.
AS-80445	System Internals	File System service may restart during array shutdown	The File System service may restart during array shutdown if it exceeds expected time to shutdown. The service restarts to clear the condition.	Not applicable

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ID	Component	Title	Description	Workaround
AS-59517	System Internals	Data Service may crash during array shutdown	Due to a race condition, the Data Service may crash during array shutdown. Once the array starts again, all operations resume as normal.	Not applicable
AS-69561	System Internals	Data Service can restart unexpectedly during shutdown process	Due to a race condition, the Data Service can crash during a graceful shutdown causing unexpected Data Services restart messages to be generated. This should not cause any I/O impact because the Data Service is already in the process of shutting down.	Not applicable
AS-49046	System Internals	Data Service may restart when the array runs out of scratch pages	Under unique customer workloads, the index footprint may exhaust default scratch page allocation in memory. As a result, the Data Service may restart unexpectedly.	Please contact Nimble Storage Support to increase the scratch page pool size.