NimbleOS 5.2.1.0 Release Notes

Version 5.2.1.0

Published June, 2020

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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: *https://infosight.hpe.com*

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

Contents

NimbleOS 5.2.1.0

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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 to NimbleOS 5.2.1.0.

NimbleOS 5.2.1.0 Special Notes

Note	Description
Note	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.
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 multi-pathing 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.

Note	Description
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.
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 5.2.1.0. 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*

Note	Description
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 Request-Status=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.
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.

Note	Description
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 *KB-000052: Windows Host Disk Timeout Values*.
	In the context of Microsoft Windows, the following article should also be considered:
	KB-000246 MPIO Timeout Parameters for MSDSM and NimbleDSM in Windows 2012 R2
	• For VMware, refer to the **Common Tasks and Best Practices > Host Timeout Values** section of the *VMware Integration Guide*.
	• For Linux, refer to *KB-000304: Linux Host Disk Timeout Values*.

New Features in 5.2.1.0

The following new features are introduced in NimbleOS 5.2.1.0.

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 Automatic 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-part 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**
5.1.4.200	5.2.1.0
5.1.4.100	5.2.1.0
5.1.4.0	5.2.1.0
5.1.3.100	5.2.1.0
5.1.3.0	5.2.1.0
5.1.2.100	5.2.1.0
5.1.2.0	5.2.1.0
5.1.1.0	5.2.1.0
5.0.9.100	5.2.1.0
5.0.9.0	5.2.1.0
5.0.8.100	5.2.1.0
5.0.8.0	5.2.1.0
5.0.7.300	5.2.1.0
5.0.7.200	5.2.1.0
5.0.7.100	5.2.1.0
5.0.7.0	5.2.1.0
5.0.6.0	5.2.1.0
5.0.5.300	5.2.1.0
5.0.5.200	5.2.1.0

From Versions 5.x	
From Version	**To Version**
5.0.5.0	5.2.1.0
5.0.4.0	5.2.1.0
5.0.3.100	5.0.9.100
5.0.3.0	5.0.9.100
5.0.2.0	5.0.9.100
5.0.1.100	5.0.9.100
5.0.1.0	5.0.9.100

Table 2: From Versions 4.x

From Versions 4.x	
From Version	**To Version**
4.5.6.0	5.1.4.200
4.5.5.0	5.1.4.200
4.5.4.0	5.1.4.200
4.5.3.0	5.0.9.100
4.5.2.0	5.0.9.100
4.5.1.0	5.0.9.100
4.5.0.0	5.0.9.100
4.4.1.0	5.0.9.100
4.4.0.0	5.0.9.100
4.3.1.0	5.0.9.100
4.3.0.0	5.0.9.100
4.2.1.0	5.0.9.100
4.2.0.0	5.0.9.100
4.1.0.0	5.0.9.100

Table 3: From Versions 3.x

From 3.x Versions	
From Version	**To Version**
3.9.3.0	5.0.9.100
3.9.2.0	5.0.9.100
3.9.1.0	5.0.9.100
3.9.0.0	5.0.9.100
3.8.1.0	5.0.9.100

From 3.x Versions	
From Version	To Version
3.8.0.0	5.0.9.100
3.7.0.0	5.0.9.100
3.6.2.0	5.0.9.100
3.6.1.0	5.0.9.100
3.6.0.0	5.0.9.100
3.5.4.0	5.0.9.100
3.5.3.0	5.0.9.100
3.5.2.0	5.0.9.100
3.5.0.0	5.0.9.100
3.4.1.0	5.0.9.100
3.4.0.0	5.0.9.100
3.3.0.0	5.0.9.100
3.2.1.0	5.0.9.100
3.1.0.0	5.0.9.100

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				

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
2.2.9.0	3.9.3.0				
2.2.7.*	3.9.3.0				
2.2.6.0	3.9.3.0				
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 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-105458	Data Service	Data Service may restart unexpectedly due to health check failure.	Under certain conditions, the Data service may restart during array internal index processing within a short time span. Transactions during the processing may take too long to complete within the defined time span, which causes the service to restart.	Not applicable

Known Critical Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
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-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-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-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 5.2.1.0				
ID	Component	Title	Description	Workaround
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-100561	Host Integration	Delay for first vVol datastore becoming accessible	On new array installations, when creating the first vVol datastore on the host, there is a possibility that the datastore is inaccessible initially. However, it will become accessible within 5 minutes.	Not applicable
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-103129	Platform	Data Service may restart while committing large internal transactions	In rare cases while committing large internal transactions, the process may timeout. As a result, the Data Service may restart to recover the condition.	Contact HPE Nimble Storage Support if there are multiple restarts to work around the issue.

Known Critical Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
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-104924	Prostack	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-103976	System Management	Group management service restarts during shelf activation	Group management service restarts during shelf activation on backup group leader. This happens when user tries to activate a shelf in Backup group leader which is not associated with any pool, group management service gets restarted because of an empty pool.	The workaround is to create a pool on backup group leader and retry the command.
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-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 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-93553	System Management	Automatic Failover of Group Services is not supported for Encrypted Volumes	If encrypted volumes are configured and Automatic Failover happens, encrypted volumes wont come online automatically after the other array takes over Group Management services. The user will need to enter the passphrase on new group leader array in order to bring the encrypted volumes back online.	Reenter passphrase after Automatic Failover.
AS-102859	System Management	Array Management Service restarts when attempting to write to the internal database	In rare cases, when an array is not able to transition to out-of-sync when the Backup Group Leader database is unresponsive, the Group / Array Management Service may restart unexpectedly. This occurs if the array experiences a health check timeout when the Management Service is attempting to write to the internal database.	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-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-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 5.2.1.0				
ID	**Component**	**Title**	**Description**	**Workaround**
AS-92465	System Management	Periodic login issues due to Active directory lookups failing	There is a possibility of active directory lookups failing during auditing of the login. This will result in failed logins even though authentication succeeds.	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

Resolved Critical Issues

Resolved Critical Issues in NimbleOS version 5.2.1.0				
ID	**Component**	**Title**	**Description**	**Workaround**
AS-103443	Data Service	Data service restarts unexpectedly when encountering a media error	In NimbleOS, if the garbage collection process encounters a media error, the Data Service may stop unexpectedly and restart repeatedly.	No workaround available.
AS-89324	Platform	False power supply, fan, and temperature readings on Controller B of AFXX and HFXX arrays	Missing IPMI sensors on Controller B of AFXX and HFXX arrays may lead to incorrect power supply, fan and temperature readings. This may result in false power supply, fan, and temperature alerts following a controller reboot or failover.	Please contact HPE Nimble Storage Support.
AS-103943	Platform	Data Service may not start due to multiple disk failures	The Data Service may not start or restart if three disks are in a failed state.	Not applicable
AS-103460	System Management	Group Management service may restart due to an ownership mismatch	In rare cases, a volume collection and volume ownership mismatch can be introduced. As a result, when the Group Management service detects the mismatch, it may restart multiple times.	Contact Nimble Storage Support.

Resolved Critical Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-104322	System Management	Group Management Service restarts after snapshot deletion	In rare instances, after the deletion of snapshots, the Group Management Service may restart unexpectedly. This is due to lock acquisition issues with the snapshot deletion handling where there is a race condition between snapshot deletion and updating the snapshot attributes.	Not applicable

Resolved Issues

Resolved Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-102847	Data Service	Data Service may restart unexpectedly due to health check failure.	Under certain conditions, the Data service may restart during array internal index processing within a short time span. Transactions during the processing may take too long to complete within the defined time span, which causes the service to restart.	Not applicable
AS-102578	Data Service	Data Service may restart during volume move operations	During a volume move, the Data Service may restart on the destination array if incoming writes reach their internal system limit.	Contact HPE Nimble Storage Support if the service restarts multiple times.
AS-103370	Data Service	Data Service restarts unexpectedly due to replication module	Due to a data structure overflow in the NimbleOS replication module, the Data Service may restart unexpectedly when there is a high throughput replication in progress.	Pause the replication temporarily, contact HPE Nimble Storage Support to apply a workaround, and then resume replication. Please do not pause replication partner if there are any active snapshots in replication progress.

Resolved Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-99177	Host Integration	Instead of vVol VM name, blank space is displayed in vCenter plugin	When you use the HPE Nimble Storage vCenter Plugin for the HTML 5 client, the NimbleOS array table header displays a blank instead of displaying the vVol virtual machine title. This does not affect how the client performs.	No workaround
AS-101642	Prostack	Update cannot proceed if all datastores are not mounted on all hosts.	During ESXi server software update, the ESXi server needs to be put in maintenance mode. This requires vmotioning the VM to another host in the cluster. If this VM is not mounted on other hosts in the cluster, the server cannot be placed in maintenance mode for the update.	Mount the datastore on all the hosts of the dHCI cluster.
AS-94539	SAN	Data Service or SCSI High Availability Service Restart when processing Fibre Channel connections	In NimbleOS, the Data Service and the SCSI High Availability Service use the same logic for processing Fibre Channel connections. Due to a software defect in the Fibre Channel connection termination logic, either of these services may stop unexpectedly with a corefile and restart. The software defect occurs when codepaths related to connection termination are simultaneously processed: - processing a Connection_Loss event from the FC driver, for connection A - performing an implicit logout of connection A, due to receipt of a New_Connection event for a conflicting connection B (between the same host/array ports). The restart of the affected service causes a brief interruption in the arrays ability to service incoming requests.	None

Resolved Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-89933	SAN	Data Service may restart unexpectedly during shutdown	When shutting down or rebooting the array in a planned or unplanned fashion, or working with HPE Nimble Storage Support to restart the service individually, the Data Service may crash unexpectedly during its normal shutdown sequence. The service will recover automatically. There should be no impact since the service is already in the shutdown sequence.	Not applicable
AS-77312	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 5000 at a time. This could cause the group management service to restart unexpectedly during processing of the cleanup.	Not applicable
AS-104440	System Management	Group Management service restarts when email length crosses the limit	The maximum length of the email addresses is 255 characters. The Group Management service restarts when a user tries to input email addresses that may cross the limit of 255 characters during group merge operation.	Reduce the total email addresses to be fewer than 255 characters in both groups. Then, retry the group merge operation.
AS-106249	System Management	Unsafe Automatic Switchover (ASO) in the event of connectivity loss.	In rare circumstances, especially in deployments without network redundancy, if the group leader array loses connectivity to both the backup group leader and the witness, this will result in Automatic Switchover (ASO). There is a small risk that not all writes will have been mirrored to the partner array making ASO an unsafe operation.	Disable Automatic Switchover using the steps below: 1. Login to the array GUI 2. Select Administration > Availability 3. Uncheck the Enable checkbox for Automatic Switchover 4. Click Save Use Manual Failover for Synchronous Replication Volumes in place of ASO.

Resolved Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-95648	System Management	ASD can crash when network connectivity at the site is flapping	When network connectivity at a site is flapping, it can cause back to to back auto-shutoffs of the ASD. These back to back auto-shutoffs of the ASD can sometimes cause a rare ASD crash under certain conditions. But ASD will come right back up after the crash and the system recovers automatically	Not applicable
AS-103877	System Management	Quad port to Dual port nic migration fails and leads to Group Management being unavailable	NIC migration is automatically triggered whenever there is a network change - addition or removal of NICs, NIC ports, missing NICs etc. Historically, NIC information is saved in the arrays internal database. Under certain conditions, the NIC migration may fail due to a conflict within the database. This may lead to the Group Management Service becoming unavailable.	
AS-93904	System Management	Group Management Service restart during system database load	The Group Management Service may become unavailable during a system database load. In certain instances, an unexpected takeover may occur when system is under load due to unavailability of the system service.	Not applicable

Resolved Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-98363	System Management	Group Management Service restarts when volume collection is deleted	On a downstream replication partner, the internal array attributes pertaining to volumes within a replicated volume collection may not be correctly initialized following a NimbleOS software update. If this volume collection is deleted from the upstream array while the downstream replication partner is paused, the incorrect attributes may cause Group Management Service to restart on the downstream replication partner.	When attempting to delete a volume collection that is replicated to the downstream, make sure the downstream replication partner is not paused.
AS-103887	System Management	Group Management Service restarts when deleting volume collection on the downstream array	When a volume collection is demoted, the internal array database entries for the associated volumes may not update correctly. If that volume collection is deleted from the upstream while the downstream replication partner is paused, these incorrect values may cause the Group Management Service to restart unexpectedly on the downstream array.	When deleting a volume collection that is being replicated, make sure the downstream replication partner is not paused.
AS-101941	System Management	Array Management Service restarts due to invalid REST API Requests	In rare instances the Array Management Service may restart unexpectedly after it receiving a large amount of invalid REST API requests. In this case, the REST API request is sent without an object set, so the segment in the REST request has an empty object set. When array attempts to access the same segment for the object set information, that causes a segmentation fault and leads to an Array Management Service restart. This service restart is non-disruptive.	Not applicable

Resolved Issues in NimbleOS version 5.2.1.0				
ID	**Component**	**Title**	**Description**	**Workaround**
AS-103947	System Management	Group Management Services restarts following snapshot deletion	Due to a race condition, the Group Management Service may restart unexpectedly when the array is running a snapshot status update operation while the snapshot is being deleted.	The Group Management Service will stabilize following the restart.
AS-102784	System Management	Group Management service may restart due to a race condition	In extremely rare instances, due to a race condition with volume deletion, the Group Management service can restart unexpectedly when listing snapshots.	The Group Management Service should self-stabilize following the restart.
AS-94307	System Management	Users and Groups actions have been moved	When updating Users and Groups the ENABLE, DISABLE, and UNLOCK actions now appear under the More Actions drop-down menu.	Not applicable

Known Issues

Known Issues in NimbleOS version 5.2.1.0				
ID	**Component**	**Title**	**Description**	**Workaround**
PRT-439	Host Intergration	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. DCPN Ticket: https://dcpn.force.com/TechnicalRequestCaseRedesign-Partner?Id=5000H00001JRKhf	Not applicable

Known Issues in NimbleOS version 5.2.1.0				
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-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-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-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-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.

Known Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
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-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-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
AS-90455	Platform	IPMI software may not handle command exchange correctly with BMC leading to unexpected reboots of AFx/HFx controllers	In rare cases, out of order commands being sent to the Baseboard Management Controller (BMC) may return out of order responses that are not handled in the correct order by Intelligent Platform Management Interface (IPMI) software. In this instance, the IPMI message queue loses track of message order. The IPMI message queue not being able to return IPMI Watchdog messages to the watchdog thread causes the watchdog thread to timeout leading to an automatic reboot. While this BMC Watchdog timeout issue is specific to the AFx/HFx systems, this is not a hardware issue. Therefore, hardware replacement is unnecessary.	After the controller reboots, BMC firmware is restarted and is functional again automatically.

Known Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-96053	Platform	NDER process may lead to host reconnects	The Nimble Drive Error Recovery (NDER) is activated for drives failing I/O in an attempt to recover the drive. In rare cases, the process surpass the typical SCSI timeout of 60 seconds, causing host I/O inaccessibility.	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-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-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.	Contact HPE Nimble Storage Support.
AS-99334	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.	Contact HPE Nimble Storage Support

Known Issues in NimbleOS version 5.2.1.0				
ID	**Component**	**Title**	**Description**	**Workaround**
AS-103247	Prostack	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-103769	Prostack	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	Prostack	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-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-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

Known Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
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-106124	System Management	Member array alarms are still visible after array is removed from group	Alarms raised by a member array are visible when issuing alarm --list even after the member array is removed from the group.	Run the following command via the array CLI: alarm --delete alarm_id
AS-68651	System Management	Flood of timeouts causing Event Management service restart	We create multiple threads to deliver emails, but we use a non-threadsafe libcurl call to dispatch them. Therefore, the lock needs to be around libcurl call. 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 suffering a timeout, we will starve the health checking for more than the 300-second health check timeout 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-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

Known Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-107980	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-104185	System Management	Avoid GMD crash while performing the validate autosupport.	To perform the autosupport configuration validation, NimOs creates one ATM op i.e., SmAsyncWsSendOp. This ATM op will be added in the cookie table(i.e., SmAsyncOpCookieTbl) so that the asup validate response request extract/remove the given ATM op from the cookie table and perform the asup response. The real problem is when the array intermediately reports unreachable, as per code the given AMT ops command(i.e., specific to AMT operation) marked as NULL and aborted. But the cookie table has this ATM op which is not clean up. So, when the asupValidateResp tries to process ATM op, since there is no valid AMT ops command information, causing a check condition which leads to GMD crash.	When the array is unreachable at the time of AMT Ops command marked as NULL and aborted, perform the extract/remove the given AMT Op from the cookie table. So that It should not cause the check condition failure.
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.

Known Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
AS-107367	System Management	Array resetup fails due to previous complications with Array Switchover Service	The Automatic Switchover Service may restart unexpectedly when the witness is removed or Automatic Switchover is disabled on an array group. In rare instances, this may lead to an issue with a database entry within the array is not cleared successfully. If this array resetup is attempted on this array, the operation will fail when the Array Management Service encounters this stale entry.	Please contact HPE Nimble Storage Support
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.
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-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

Known Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
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-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-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
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.
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 5.2.1.0				
ID	Component	Title	Description	Workaround
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-90633	System Management	Error No message received after issuing CLI command	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-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-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-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

Known Issues in NimbleOS version 5.2.1.0				
ID	**Component**	**Title**	**Description**	**Workaround**
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.
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-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-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-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

Known Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
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-100382	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-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-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.

Known Issues in NimbleOS version 5.2.1.0				
ID	Component	Title	Description	Workaround
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-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-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-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

Known Issues in NimbleOS version 5.2.1.0				
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-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 5.2.1.0				
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-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-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

Known Issues in NimbleOS version 5.2.1.0				
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 re-attempts 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.	
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-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-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.

Known Issues in NimbleOS version 5.2.1.0				
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.