Nexsan Unity Release Notes, FW 7.0

Firmware Release for Unity Storage Systems

Release Date: December 2021

Contents

Notes

• We recommend that firmware updates be done during periods of light activity.

• Certain changes of a proprietary or cosmetic nature are not necessarily listed.

• Customers upgrading to Unity version 6.x from a release prior to Unity 5.0, or customers who do not have the new HTML5 UI enabled in a Unity 5.x release, will NOT have the new HTML5 user interface enabled by default; for more information, see The move to HTML5.
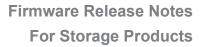
Unity 7.0

Features and enhancements in 7.0

The following features and enhancements are included in this release:

Features and enhancements	Description
NEW Unity products: NV10000	The Unity NV10000 product introduces all-flash NVMe capabilities to the Unity platform, offering optimal performance, capacity and flexibility. The NV10000 includes multi-protocol support (File, Block and Object) with enhanced security features. Enhanced performance includes throughput of 20+ GB/s. Improved connectivity options include 100GbE support.
Object Storage (S3) and object locking	This release introduces the object storage, based on the S3 protocol as well as object locking support, enabling bucket or object level protection for a specified retention period to create immutable copies of data. This allows enterprises to address compliance, regulatory, and other data protection requirements.
Immutable snapshots	This release introduces support for an immutable file system and LUN snapshots for data protection. This provides lock-down point-in-time copies of data for recovery to a previously saved copy of the data.
Support for 25GbE HBAs	To support 25Gb Ethernet connectivity on Unity, the Intel® XXV710 dual-port Ethernet Network adapter was tested and qualified, in addition to 1	10	40 GbE HBAs.
Support for QLogic® Gen 6 Fibre Channel HBAs	This release includes support for the QLogic QLE2672/ QLE2742 Series FC cards, as a replacement to Nexsan's current 16Gb/32Gb FC HBA offerings.
Persistent L2ARC	The persistent L2ARC feature allows the system to persist its metadata structure to be able to recover the L2ARC content after a reboot or cache device remove or add operation. This significantly eases the impact a reboot has on read performance on a system with large caches.
UNMAP and TRIM for SSD storage	This feature allows the system to support TRIM and UNMAP commands to the underlying storage when files are deleted. This can be configured at the storage pool level as either on-demand or auto. **Note**: This feature will work on storage pools that contain SSDs which support UNMAP and TRIM.

Features and enhancements	Description
User Interface Improvements	Further support of the HTML5 interface has been added as improvements: • IP-based restrictions for file systems • Self-Encrypting Drive (SED) support for E-Series behind Unity • Asynchronous replication: Site and Pool Promotion and Demotion • Several performance monitor improvements
Assureon Client on Unity (ACoU) performance and scalability improvements	This release includes enhancements and fixes for ACoU, including (but not limited to): • Increased read performance, by adding minimum read ahead support • Improved the shortcutting mechanism to shortcut files faster • Improved the archiving mechanism in error conditions • Improved handling of heavy loads Also, a potential race condition that could happen in some circumstances while files were being archived, has been resolved.
Asynchronous Replication improvements	The asynchronous replication mechanism has been improved to replicate a large number of datasets at a higher speed (it can go up to 10x faster). This is achieved by improved thread management and more optimized allocation of resources. Also, the dataset will be sent across the wire compressed if it has the compression feature enabled.

Features and enhancements	Description
Server Management Block (SMB) improvements	The SMB module has been enhanced to support a new protocol version and new features, including: • New protocol version: SMB 3.1.1 • SMB 3.1.1 Encryption and signing support: When this is enabled, it will force the user requests to be encrypted and signed. • New protocol version for the SMB client running on Unity: SMB 3.02 • SMB 3 persistent handles support enables clients to reclaim the open handles when a connection is re-established (due to network outages or the SMB server being restarted) • Trusted domain environment: Enables various components within the Unity system to be configured to use a specific set of domain controllers or ignore domain controllers in a trusted domain. • OPLock enhancements • Support for Enhanced Unicode
Performance and stability improvements	This release brings multiple changes to increase the overall performance and stability of the system, including: • Memory and resource management improvements to allocate the resources in an optimized way to enable the system to respond more quickly to various operations. • Compressed data in ARC: When reading a compressed block from disk, the ARC compresses it and then decompress it only when the consumers access the block. The uncompressed data is short-lived, enabling the ARC to cache a larger amount of data. • Enhanced the rebuild and scrub mechanisms to improve the speed of these operations. • Compressed the ZFS send and receive mechanism enables the system with compressed ARC to send data in its compressed form straight out of ARC, as well as to receive data in its compressed form directly into ARC. This enhancement allows an increase in the asynchronous replication of compressed datasets.

Resolved issues in 7.0

The following notable issues have been resolved in Unity 7.0:

Defect	Description
Potential memory leak when the Unity system compares snapshots on large datasets	This release fixes a potential memory leak that can be generated while comparing snapshot changes for large datasets.
Unity system joined to an Active Directory subdomain	Fixed several issues reported while the Unity system is joined to a subdomain within an Active Directory environment.
Potential deadlock caused by zvol devices	This release fixes a potential deadlock that can be triggered when using zvol devices in a pool.
SMB/IDMAP may not resume when system is connected to an unstable AD environment	An issue that may cause the SMB/IDMAP modules to not resume functionality in an unstable AD environment has been resolved.
SMB server unable to serve more requests due to a high number of sessions	A potential issue that can cause the SMB server to stop serving requests due to a high number of sessions has been resolved.
NFS server can stop working when querying for a group membership	Resolved an issue when an NFS server stops working while fetching the group membership, in the event that a group member user for a user does not have a group ID number.
High CPU usage when clients query for DFS information	This release resolves the high CPU usage when clients are continuously query the system for DFS information.
Resilvering operation may not complete	An issue that caused the resilver process to keep restarting has now been resolved.

Unity 6.1.2

Enhancements in 6.1.2

The following enhancements are included in this release:

Enhancement	Description
Support for the Nexsan BEAST Elite	The Unity system can now be expanded with the BEAST Elite and BEAST Elite F storage platforms.
	The BEAST Elite and Elite F storage platforms support up to 60 drives in 4U. The BEAST Elite supports up to 16TB drives, and the BEAST Elite F supports QLC NAND technology.
Asynchronous Replication: Space validation enhancements	This release includes the following enhancements to the Asynchronous Replication's space validation:
	• For incremental replication streams only, the Unity system now provides an option to ignore notification errors for insufficient disk space on the secondary (or remote) Unity system when replicating. This option is disabled by default, but it can be enabled for each storage pool or dataset. For more information, please contact Nexsan Technical Support.
	• For full replication streams, the Unity system now considers the size of the replicated data on the remote site, if it exists, as well as available disk space. If the sum of the size of the data and available disk space in the remote storage pool is greater than the data to be replicated, the Unity system will allow the replication stream to proceed.
Updates to the U2G460 storage expansion	These updates were made to the U2G460 storage expansion:
	• We qualified a new Seagate 1.6TB SSD for both Read and Write FASTier cache on the U2G460.
	• We qualified the latest system firmware for the U2G460. The firmware includes several fixes that improve overall stability.
Nested share names can start with a numerical character	The Unity HTML5 UI now allows you to start (nested) share names with a number—for example, "23_emp". This setting is disabled by default; to enable it, please contact Nexsan Technical Support.
Automatic Emulex® driver selection for Emulex Gen 6 Fibre Channel and ATTO 16/32G FC HBAs	The Unity system now automatically applies the appropriate Emulex driver depending on the HBA installed.

Enhancement	Description
Support for Netlogon with secure channel when connecting to a Microsoft Active Directory domain controller	The Unity 6.1.2 release includes support for Netlogon with secure channel when connecting to a Microsoft Active Directory domain controller.
	Note that due to a vulnerability in the Netlogon Remote Protocol (see https://msrc.microsoft.com/update-guide/en-US/vulnerability/CVE-2020-1472), Microsoft will enforce Netlogon with secure channel between member computers and Active Directory domain controllers beginning in February 2021.
Support for allowing bypass directory traverse checking for users/groups	You can now enable bypass directory traverse checking for CIFS shares in situations where a (nested) share has file system and share permissions for a certain user, but the parent folder of the nested share does not have the relevant user permissions.
	When bypass directory traverse checking is enabled for a user/group, the user can access a nested share, regardless of the user permissions configured at the parent-level. With this feature disabled, the only way for a user to access the share is to manually apply file system permissions, which may also give the user access to the parent folder.
	The `smbserver` nxadmin CLI command includes options and settings to enable and configure bypass directory traverse checking. For more information on how to use the new options, please contact Nexsan Technical Support.

Resolved issues in 6.1.2

The following notable issues have been resolved in Unity 6.1.2:

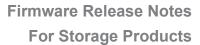| Defect	Description
ACoU archiving may not resume under specific circumstances	Archiving may not resume when ingestion is paused on the Assureon server while the archive queue is full. This has been resolved.
MacOS Big Sur and read hang issues with CIFS shares	Reading a CIFS share on the Unity using the Finder application in MacOS Big Sur may result in a hang issue. This is due to the way MacOS Big Sur sends read requests to SMB servers; this has been resolved.
Failing drive may cause Clustering issues	Under specific circumstances, a failed or failing disk drive may cause the Unity's clustering mechanism to go into *Broken (unsafe)* mode. This has been resolved.
Asynchronous Replication fixes	The Unity 6.1.2 release includes these fixes to the Asynchronous Replication mechanism: • When a user initiates a Site Failover, the Unity system may not pause (stop) scheduled replications while the site failover mechanism is in process. This may result in the final data replication process, which occurs at the end of site failover, to fail due to data being out of sync between the primary and secondary sites. • When replication is interrupted for any reason while nearing completion, the Unity system may attempt to resume the replication with an empty stream; this may result in the secondary Unity system rejecting the replication stream, and the primary system attempting to resend it at 60 second intervals.
Log package may fail to collect system fault logs	Under specific circumstances, the Unity system's log packaging mechanism may fail to collect system fault logs. This issue has been resolved.

Unity 6.1.1

Enhancements in 6.1.1

The following enhancements are included in this release:

Enhancement	Description
ACoU enhancements	This release includes enhancements and fixes to the *restore* feature in the Assureon Client on Unity (ACoU), including (but not limited to):
	• Added the ability to restore to a point in time.
	• Added the ability to skip, overwrite, or rename files that already exist.
	• Added new restore flags including: /verbose, /FileSystemNames, and /prefix. (Note that these flags are available in the Assureon Windows Client).
	• Several ACoU restore flags/commands were renamed to match equivalent options/settings in the Assureon Windows Client.

Enhancement	Description
Support for Emulex Gen 6 Fibre Channel HBAs	This release includes support for the Emulex LPe31000/LPe32000-Series FC cards, as an alternate option to Nexsan's current FC HBA offerings.
	In addition, we successfully tested and qualified the Emulex Gen 6 firmware with the ATTO 16/32G FC HBAs currently offered on the Unity platform. The Emulex Gen 6 firmware improves the performance and stability of the ATTO 16/32G FC cards. For more information, please contact Nexsan Technical Support .
Usability enhancements to the HTML5 UI	These enhancements were added to the HTML5 UI in this release:
	• The Unity HTML5 UI now allows you to include an underscore (_) in (nested) share names. By default, the ability to specify share names with an underscore is disabled; to enable this functionality, please contact Nexsan Technical Support .
	• The Unity HTML5 UI now allows you to specify file system and (nested) share names with up to 50 characters; the previous limit was16.

Resolved issues in 6.1.1

The following notable issues have been resolved in Unity 6.1.1:

Defect	Description
ACoU fixes	The Unity 6.1.1 release includes these fixes to the Assureon Client on Unity (ACoU):
	• If a folder is deleted during ingestion, ACoU will no longer terminate the archive job.
	• A Java exception causing some archive jobs to fail has been resolved.
Windows Computer Management and Unity file systems	Managing a Unity file system using Windows Computer Management adds miscellaneous entries to the properties of the file system, which causes the file system to no longer be displayed in the Unity UI. This may also prevent some Unity services from restarting after a system reboot. This has now been resolved.
Upgrading to a 6.x FW release may cause issues with pool scrub schedules	A time synchronization issue with pool scrub schedules was noted after upgrading to a Unity 6.x release on some Unity systems. This has been resolved.
NVDIMM power management unit timeout issue	An issue with the timeout functionality of the NVDIMM power management unit resulted in Unity removing the NVDIMM from the corresponding pool(s). This has been resolved.
Locked files not displaying in Microsoft Management Console	Some *locked* files on the Unity may not appear in MMC; this has been resolved.
Error modifying file system properties in the Unity UI	Modifying specific file system properties in the Unity HTML5 UI may result in an error; this has been resolved.
Issues with *syslog* logging mechanism for firewall traffic	An issue with the *syslog* configuration for logging firewall traffic was noted. This has been resolved.

Unity 6.1

Enhancements in 6.1

The following enhancements are included in this release:

Enhancement	Description
NEW Unity platforms: Unity7900 Unity3300	This release introduces the new Unity7900 and Unity3300, the next generation of the trusted Unity series with more capacity and over 3x improvement in IOPs and 1.5x increase in throughput. Other architectural enhancements include optimizations for all-flash configurations and high speed connectivity access with 32G FC and 40GbE. The Unity7900 also includes a new 16GB NVDIMM (and power management unit) that supports higher-speed DRAM access in the same form fit and function as existing NVDIMM units.
Second generation of the US460 Expansion: the U2G460	This release introduces the second generation of the US460 Expansion, the U2G460. Highlights of the U2G460 platform include: • Support for up to 60 drives - available in packs of 20, 40 or 60 HDDs, with corresponding number of FASTier cache SSDs populated in the front bay of the new Unity7900 or Unity3300 • Up to 840TB raw capacity in 4U • Dual-port SAS for high availability • Enterprise grade redundant and hot-swappable PSUs, I/O modules and fans
Performance optimizations for all-flash configurations	This release includes OS-level tunings that provide performance increases on all-flash systems (using SSD media).

Enhancement	Description
ACoU performance and scalability improvements	Both the performance and scalability of the Assureon Client on Unity (ACoU) have been improved in this release with several enhancements and fixes, including (but not limited to): • Improved and faster handling of file delete operations to avoid missed requests when a batch delete is initiated. • Reduction in CPU usage by Shortcut jobs, which allows for more CPU cycles for accessing shortcuts, archiving, and other operations. • Improved handling of cache files in memory and on disk, including keeping the last used cache files in memory to improve overall performance. • Support for monthly scheduled jobs.
Removal of 16-character limitation on passwords for local users	Password for local user accounts can now contain more than 16 characters.
Support for LDAP Channel Binding and LDAP Signing on AD	This release includes support for LDAP Channel Binding and LDAP Signing on Active Directory. Microsoft will enforce these security changes on AD in March 2020, per the Microsoft Security Advisor - ADV190023; for more information, see https://portal.msrc.microsoft.com/en-us/security-guidance/advisory/ADV190023.

Resolved issues in 6.1

The following notable issues have been resolved in Unity 6.1:

Defect	Description
Potential kernel crash on high I/O workloads in All Ports All LUNs configurations	This release resolves a potential kernel crash during high I/O workloads in APAL configurations.
NFS service properties overwritten on FW upgrades	Specific properties on the NFS service were overwritten during a FW upgrade. This issue has been resolved.

Defect	Description
NIS service in maintenance mode after FW upgrade	Under specific circumstances, the Network Information Service on Unity went into maintenance mode following a FW upgrade. This has been resolved.
SMB server unable to authorize new sessions when multiple incomplete logon requests exist	This release fixes a potential issue where the SMB server on Unity is unable to authorize additional sessions when multiple SMB logon requests remain incomplete.

The move to HTML5

Unity 5.0 introduced our new HTML5 graphical user interface for managing your Unity deployment.

The new interface significantly reduces the number of steps typically required to complete day-to-day tasks. The transition to the new interface also eliminates dependence on Adobe Flash, which is nearing obsolescence, and takes advantage of the performance and security benefits of HTML5.

The move to HTML5 required significant redesign to simplify ease of use and to recreate the powerful features of the Flash UI. These initial releases in HTML5 include all of Unity's most popular functionality, while seldom-used features, such as Synchronous Replication, are currently NOT available, except in the NestOS CLI. See Accessing features not yet in the new interface.

To access functionality that's not available in the Unity HTML5 interface, you can also use the Unity classic interface concurrently with the new interface (see the command to enable the new interface below). If you already have our new HTML5 UI, you can open the Flash UI in a separate browser tab or window by selecting the OPEN UNITY CLASSIC UI option from the HELP menu. This enables you to run both our classic, Flash-based and our new HTML5 user interfaces at the same time. The powerful NestOS CLI is available with either version of Unity.

► **To enable the new Unity HTML5 interface after upgrading:**

From the nxadmin CLI, enter the following command:

```
ui -c set_new
```

Accessing features not yet in the new interface

This table lists infrequently used features not yet available directly in the new Unity HTML5 interface and how to access them using the Unity classic interface or from the Unity command line.

Feature	Where to find it
n-Way Sync	► **To access the feature:** - Using the Unity classic interface, under the **Site** node, click the **n-Way Sync** node. - Using the nxcmd command-line interface, for command information enter `nxcmd sync` For detailed instructions, see - "Synchronous data replication," in the Unity classic online help and user guide. - "Sync" in the *nxcmd Command-Line Interface Reference Guide*.
Reports	► **To access the feature:** In the Unity classic interface, select **System Monitoring > Generate Reports** from the Unity toolbar. See "Reports" in the Unity classic online help and user guide.

Feature	Where to find it
Role-based user administration	► **To access the feature:** - In the Unity classic interface, expand the **Unity Storage System** node, and select **User Authentication** from the properties panel. For detailed instructions, see - "User authentication modes" in the Unity classic online help and user guide. - the "Site" and "Pool" sections in the *nxcmd Command-Line Interface Reference Guide*.
Synchronous replication (mirroring)	► **To access the feature:** - Using the Unity classic interface, click the **Site node**, then the **Synchronous** tab. - Using the nxcmd command-line interface, for command information enter `nxcmd syncreplication` For detailed instructions, see - "Synchronous Replication" in the Unity classic online help and user guide. - "SyncReplication" in the *nxcmd Command-Line Interface Reference Guide*. Synchronous replication is available for systems configured with the appropriate hardware.

Contact information

1289 Anvilwood Avenue | Sunnyvale, CA 94089 USA | Web: www.nexsan.com | E-mail: https://helper.nexsansupport.com/unt_support