



# Avid NEXIS® ReadMe

Version 2020.5.0

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## Important Information

Avid recommends that you read all the information in this ReadMe file thoroughly before installing software or attempting to use the Avid NEXIS system. This ReadMe provides information that is not in the other Avid NEXIS documentation. This ReadMe applies to the v2020.x software releases of Avid NEXIS, which run on Avid NEXIS infrastructures.



*Search the Avid Knowledge Base for the most up-to-date ReadMe file, which contains the latest information that might have become available after the documentation was published. To view the online version, visit the Knowledge Base at [www.avid.com/support](http://www.avid.com/support).*

This ReadMe provides hardware and software requirements, an overview of the major features of this release, and limitations and known issues. See the appropriate *Avid NEXIS Setup Guide* for information on physical connection of the system and loading the system and client software. You can access the documentation from the [Avid NEXIS Knowledge Base](#).

For compatibility with other Avid products, see the Knowledge Base page for [Avid Audio and Video Compatibility Charts](#).



*Avid recommends that you purchase installation services with your Avid NEXIS system.*

## Revision History

Date	Release	Changes Made
05/27/2020	2020.5.0	See “ <a href="#">What’s New in Avid NEXIS 2020.5.0</a> ” on page 5
04/28/2020	2020.3.2	See “ <a href="#">What’s New in Avid NEXIS   Cloud Storage 2020.3.2</a> ” on page 6
03/31/2020	2020.3.1	See “ <a href="#">What’s New in Avid NEXIS   Cloud Storage 2020.3.1</a> ” on page 6
03/31/2020	2020.3.0	See “ <a href="#">What’s New in Avid NEXIS 2020.3.0 (Revised July, 2020)</a> ” on page 7

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# Accessing the Online Documentation

The Avid NEXIS documentation is accessible in PDF format from the [Avid NEXIS Knowledge Base](#).

## If You Need Help

If you are having trouble using your Avid product:

1. Retry the action, carefully following the instructions given for that task in this guide. It is especially important to check each step of your workflow.
2. Check the latest information that might have become available after the documentation was published.

New information is provided in the ReadMe file, available online.

**You should always check online for the most up-to-date release notes or ReadMe because the online version is updated whenever new information becomes available.** To view the online versions, visit the Knowledge Base at [www.avid.com/US/support](http://www.avid.com/US/support).

3. Check the documentation that came with your Avid application or your hardware for maintenance or hardware-related issues.
4. Visit the online Knowledge Base at [www.avid.com/US/support](http://www.avid.com/US/support). Online services are available 24 hours per day, 7 days per week. Search this online Knowledge Base to find answers, to view error messages, to access troubleshooting tips, to download updates, and to read or join online message-board discussions.

## Avid Training Services

Avid makes lifelong learning, career advancement, and personal development easy and convenient. Avid understands that the knowledge you need to differentiate yourself is always changing, and Avid continually updates course content and offers new training delivery methods that accommodate your pressured and competitive work environment.




*Avid NEXIS Enterprise customers can access online training from the following URL: [How to Activate Avid NEXIS Enterprise Training](#)*

For information on courses/schedules, training centers, certifications, courseware, and books, please visit [www.avid.com/support](http://www.avid.com/support) and follow the Training links, or call Avid Sales at 800-949-AVID (800-949-2843).

# Recommended and Required Releases

## Avid NEXIS System and Client Releases

The following Avid NEXIS | FS releases are either recommended or required in the cases listed below.

Avid NEXIS System	Avid NEXIS Client	Guidance
2020.5.0	2020.5.0	<b>Recommended for all Avid NEXIS systems</b> Introduced Avid NEXIS all-mirror system configuration; support for Windows Server 2019 as client OS; 40GbE Linux client support
2020.3.0	2020.3.0	Changes to default passwords for improved security. Fixes an LDAP issue in 2019.12.1. Introduces folder-level permissions APIs.
2019.12.1	2019.12.1	<i>Critical patch required for all systems first shipped as Avid ISIS   1000</i> Required for: macOS Catalina (10.15), improved slow disk handling, Avid NEXIS   Linux File Gateway  <i>Not recommended for LDAP environments. Instead use 2020.3.0.</i> <b>Last Release to support Windows 7 and Server 2008 R2</b>
2019.10.1	2019.10.1	Recommended for Avid NEXIS <b>Windows</b> clients
2019.10.0	2019.10.0	Recommended for Avid NEXIS Systems plus <b>macOS &amp; Linux</b> Clients <ul style="list-style-type: none"> <li>• Support for Tiered Storage Management API for Avid NEXIS   Cloud Storage</li> <li>• Enhanced performance, scalability, and security for Avid NEXIS   Cloud Storage</li> <li>• Workspace Delete Confirmation Dialog</li> </ul>
2019.8.0	2019.8.0	<b>Minimum Version for all Avid NEXIS</b> <ul style="list-style-type: none"> <li>• Avid NEXIS   Cloudspaces - Back up file system metadata</li> <li>• macOS Mojave Notarization support</li> <li>• Workspace default two-disk protection (Releases Avid NEXIS   FS 2019.4 - 2019.6 incorrectly set default protection for on-premises to Unprotected)</li> <li>• Improved handling of under-performing disks</li> </ul>

## Avid NEXIS Version Downgrades

On Avid NEXIS systems, installing an older version is not supported and can result in unforeseen consequences, up to and including data loss.

## USM Firmware Releases

The USM firmware package is a bundle of firmware for the hardware components in an Avid NEXIS, such as the power supply units, Controllers, and the BMC. Certain USM firmware versions are supported only with certain Avid NEXIS versions; see the following table for details.

USM upgrades are currently performed remotely by Avid. Contact Avid Global Customer Services for details.

USM Firmware		
Package Version <sup>a</sup>	BMC version <sup>b</sup>	Minimum Avid NEXIS Version Required
USM 1.37/1.37a	0.01.003c	Avid NEXIS 2019.2 and higher, on Avid NEXIS Enterprise, Avid NEXIS SDA, and Avid NEXIS   PRO 40TB with Controller 10)
4.1.16d or 4.1.16g	2.0.0002 (for 4.1.16d) 2.00.1093c (for 4.1.16g)	Avid NEXIS 2019.2 and higher, on Avid NEXIS   PRO 20TB and Avid NEXIS   PRO 40TB with purple fascia Controller
USM 1.32	0.01.0034	Avid NEXIS 7.9.1
USM 1.16	0.01.0013	Avid NEXIS 6.x

- a. The USM version is shown on the [Controllers page](#) and the [Engines page](#) in the Management Console, as of Avid NEXIS version 2020.3.0. See the *Avid NEXIS Administration Guide* for details.
- b. The BMC version is shown on the [Controllers page](#) in the Avid NEXIS Management Console.

## What's New in Avid NEXIS 2020.5.0

Avid NEXIS Version 2020.5.0 introduces the following new features and improvements.

- This release introduces Avid NEXIS | E2, Avid NEXIS | E4, and Avid NEXIS | E5 All-Mirror Engines that support a new All-Mirror workflow. A minimum of three identical All-Mirror Engines and a System Director Appliance are required to build an All-Mirror Storage Group.

All-Mirror Engines can be added to an existing Avid NEXIS shared-storage system that has a System Director Appliance, but must be part of a new, All-Mirror Storage Group. All-Mirror Engines have a unique part number and therefore cannot be modified or converted to the current flexible protection Engine type.

All-Mirror engines deliver the highest availability system at the most affordable price. Avid NEXIS Media Mirror protection allows all users to work without interruption through a wide range of failures including: simultaneous failure of up to any five Media Pack drives; controller failover; or complete engine loss. Avid NEXIS clients seamlessly fetch media from the mirror location without interruption while playing media on the time line.

See the *Avid NEXIS Administration Guide* for information on using All-Mirror Storage Groups and Workspaces.

- Support for Windows Server 2019 as a client operating system.
- Support for 40GbE connections for Linux CentOS 7.5 clients.
- This release no longer includes a link in the Management Console to run the Classic version, but you can still access it through the 3002 port, as follows:

`https://<Avid_NEXIS_IP_Address>:3002`

However, the Classic version does not include all the same functionality as the HTML-5 Management Console and its use is not recommended.

This release also includes the following fixes and improvements.

- [SSENG-23719] (**Server**) When a user left the Event History page (by going to a different Management Console page) and then returned to it, the content did not refresh.
- [SSENG-23913] (**Server**) Resolved a memory leak issue seen by a few customers when deleting Workspaces. Individual file deletion messages (instead of one message per Workspace) were sent to Editorial Management, which caused a memory leak. This manifested as failures of System Director or Storage Manager services, resulting in I/O failures or losing connection to the System Director until either the services restarted, or the services failed over.
- [SSENG-24795] (**Server**) Fixed an issue exposed during a system reboot that unexpectedly prevented system services from restarting.
- [SSENG-25190] (**Server**) Mismatched subnet masks between the two controllers caused client playback issues.
- [SSENG-25936] (**Server**) Fixed an issue where after an upgrade from a version older than 2019.12 the system falsely reported a database corruption where none had occurred.
- [SSENG-25947] (**Server**) Fixed a rarely occurring timing issue with the NTP service. When an Avid NEXIS restarted, the NTP service could start before the network interfaces were initialized, resulting in an NTP time sync error.
- [SSENG-25944] (**Client**) Avid NEXIS Linux Client intermittently disconnects from all workspaces and requires restart.
- [SSENG-25945] (**Client**) Fixed an issue that prevented opening files on an Avid NEXIS | Cloud Storage system after idle periods of 30 minutes or more.

## What's New in Avid NEXIS | Cloud Storage 2020.3.2

Avid NEXIS Version 2020.3.2 is a patch release that applies only to Avid NEXIS | Cloud Storage.

This patch fixes the following issues:

- [SSENG-25655] (**Client Fix**) Avid NEXIS Linux Client intermittently disconnects from all workspaces and must be restarted.

## What's New in Avid NEXIS | Cloud Storage 2020.3.1

Avid NEXIS Version 2020.3.1 is a patch release that applies only to Avid NEXIS | Cloud Storage.

This patch fixes the following issues:

- [SSENG-25442] Delayed write failures occurred after applying read-write access (using folder-level permission APIs) to the folder containing that file.
- [SSENG-25536] Occasional failures during export or media file modification for specific file sizes, when writing to Avid NEXIS | Cloud online.
- [SSENG-25480] Errors writing to an Avid NEXIS | Cloud Storage system if the system used capital letters in its name. The cloud storage back-end does not support capital (uppercase) letters in container names. The fix was to convert the system name to lowercase letters when creating the containers.

## What's New in Avid NEXIS 2020.3.0 (Revised July, 2020)

Avid NEXIS version 2020.3.0 introduces the following new features and support.

**[Update, July 2020]** This release adds support for two new drive capacities in Avid NEXIS Enterprise Engines:

- 14TB HDD drives for Avid NEXIS | E2, Avid NEXIS | E4, and Avid NEXIS | E5 Engines
- 16TB HDD drives for Avid NEXIS | E5 NL Engines
- This release introduces Folder Level Permissions for Avid NEXIS on-premises systems, extending control of read-only, read-write or no access to folders within an Avid NEXIS Workspace. Folder Level Permissions are configured and controlled via an API (Application Programming Interface) and honored by all Avid NEXIS clients. This allows fine grained control over users' access rights to directories to better optimize organization and security. The Avid NEXIS Administration Guide includes an overview of these APIs, how to access them, and some use-case scenarios.
- To comply with a new California state law (SB-327) regarding information security, the default root (Agent) password on new Controllers (and therefore Engines) manufactured after April 1, 2020 has changed to the last eight characters of the serial number of the Controller. (To see the serial number for an installed Controller, unlatch and partially remove the Controller from the Engine. The Serial Number is on a label on the Controller housing.)

The default BMC password is also the last eight characters of the serial number. For example, for a Controller with Serial Number RMS1003612G0X5H, the default root/Agent and BMC password is 612G0X5H, as shown in the following figure.



This change does not affect existing systems, and is not related to the Avid NEXIS version running on a system

If you add a redundant Controller to an existing system, or replace a failed Controller, the new Controller uses the root (Agent) password already configured on the system, regardless of its default password. However the BMC password is unique and specific to each Controller and does not change when added to a running system. Therefore, new Controllers (manufactured on or after April 1, 2020) use the last eight characters of the serial number for the BMC password, even after being added to an existing system.

**Avid strongly recommends changing the default root and BMC passwords to a password of your choice, to provide proper security and allow Avid Customer Care to access your system for troubleshooting if needed.**

- The Avid NEXIS Management Console now displays the USM (Unified System Management) version of the system components. The USM version is a short-hand way to refer to a specific set of firmware versions for the underlying system components. The *Avid NEXIS Administration Guide* describes how to see the USM version.
- The Avid NEXIS | Linux File Gateway supports offline license activation for customers who want their system isolated from the Internet. The *Avid NEXIS | Linux File Gateway Guide* describes how to perform offline license activation.
- Due to increasing notarization requirements for third-party applications to work with Apple macOS, and no support for 32-bit applications, this Avid NEXIS release removes support for the PathDiag 32-bit utility for macOS clients only. Instead, customers can use the Avid Benchmark Utility or third party tools such as Blackmagic Disk Speed Test or AJA System Test Lite. These are provided with Avid Artist I/O including Avid Artist | DNxIQ, DNxIV, DNxIP and DNxID.

Avid NEXIS version v2020.3.0 also includes the following Server and Client fixes, as indicated.

- [SSENG-25268] [Server] Fixed an issue with multi-threaded writes to the same file, seen in rare circumstances with Media Composer project bins.
- [SSENG-24688, 24306] [Server] Workspaces with an ampersand (&) character in names caused errors during unrelated operations. The ampersand character is allowed and supported.
- [SSENG-20719] [Server] Cloud workspaces were created and then deleted silently if there was no connection to Azure at the time of workspace creation.
- [SSENG-25388] [Server] Fixed an issue with Cloudspace operations failing due to a subscription that was incorrectly reporting as canceled.
- [SSENG-24791] [Server] In some cases, refresh tokens between Avid NEXIS and the Cloud service authentication server were being incorrectly cleared from memory cache, preventing future access from occurring.
- [SSENG-25027] [Server] Fixed an issue with LDAP logins when multiple LDAP servers configured for the same Avid NEXIS system.
- [SSENG-25407] [Server] When an LDAP user entered an incorrect password trying to log into an Avid NEXIS running 2019.12 with multiple LDAP servers configured, the Management Console became unresponsive and could not be restarted.
- [SSENG-24166] [Server] An invalid control character in a user name prevented connection to LDAP. For more information on LDAP user names with Avid NEXIS, see [“LDAP Requires ASCII User Names and Passwords” on page 23](#).
- [SSENG-23167] [Server] On Avid NEXIS | PRO 20TB systems, conflicting information was shown for the firmware version in different places in the Management Console.
- [SSENG-24683] [Server] Avid NEXIS E4, E5 or E5 NL with available spare media drives occasionally did not initiate automatic drive rebuilds after a disk failure.
- [SSENG-25314] [Server] Phantom drive was seen when adding another Avid NEXIS | E4 Engine to an existing shared-storage system.



- [SSENG-22116] **[Client]** Fixed an intermittent error that occurred when a user copied a file to a folder where a file with that name already existed. A “no permission” error was shown instead of a prompt to rename the file.
- [SSENG-23904] **[Client]** Fixed code erroneously applied to Windows 10 clients that disabled a Windows service designed to prevent Internet videos from being played on Windows 7 clients that did not have a relevant Service Pack installed. Windows 10 clients now work correctly.

## Supported Upgrade Paths

You can upgrade any Avid NEXIS E-Series Engine, System Director Appliance, or Avid NEXIS | PRO according to the upgrade path described next. For instructions on how to upgrade an Engine or System Director Appliance, see the *Avid NEXIS Setup and Maintenance Guide*, or the *Avid NEXIS Administration Guide*.

### Avid NEXIS Upgrade Paths

The Avid NEXIS Enterprise Engines, the System Director Appliance, and the Avid NEXIS | PRO can upgrade to the following versions.

Current Avid NEXIS Version	Can Upgrade Directly To
v6.x, v7.x, v2018.x <sup>a</sup> , v2019.x, v2020.3.x	v2020.5.0

- a. ISIS 1000 systems should NOT be upgraded to Avid NEXIS versions 2019.8.0, 2019.10.x, or 2019.12.0. Instead, all ISIS 1000 systems running a version older than 2019.8 should be upgraded to patch release 2019.12.1, or higher.

## System Director and Client Version Compatibility

The Avid NEXIS Client software works with the following versions:

Client	Shared-Storage System
Version v2018.x, v2019.x, V2020.x	Avid ISIS version 4.7.5 and higher (minimum v4.7.9 recommended)
Version v2018.x, v2019.x, V2020.x	Avid NEXIS version 2018.x, v2019.x <sup>a</sup> , 2020.x

- a. Since Avid NEXIS v2019.2, the Shared Storage system can have a higher version than the client to allow deployment of server-only fixes. Avid recommends upgrading all clients to the same version as soon as practical.



*The Avid NEXIS Toolbox and other utilities are tested and known to work only against a System Director of the same version. If you want to install two different versions of the Toolbox on the same system, install one of them into a directory other than the default.*

## System Configuration Limits

Different configuration limits apply to on-premises versus Avid NEXIS | Cloud Storage systems.



*Avid NEXIS | Cloudspaces, available in Avid NEXIS v2019.4.0 and higher, is considered part of an on-premises Avid NEXIS system. The On-premises limits table reflects updates for Avid NEXIS | Cloudspaces support.*

### On-premises Limits

The following table lists the system configuration limits for all Avid NEXIS on-premises platforms.

Item	Limit
Media Packs with embedded System Director (includes all Avid NEXIS   PRO configurations)	<ul style="list-style-type: none"> <li>• 4 with all Avid NEXIS   PRO (with any combination of 20TB and 40TB Media Packs)</li> <li>• 4 with any combination of Avid NEXIS   E2 or Avid NEXIS   E4 Engines and the Avid NEXIS   FS Foundation license</li> <li>• 4 with all Avid NEXIS   E2 SSD Engines, all running 2018.5 and higher</li> <li>• Any of the above plus 1 Cloud performance Media Pack (when Avid NEXIS   Cloudspaces is activated)</li> </ul>
Media Packs with System Director Appliance	<ul style="list-style-type: none"> <li>• 24 with the Avid NEXIS   FS Extended license and any combination of Avid NEXIS Enterprise Engines</li> <li>• 64 with the Avid NEXIS   FS Advanced license, Avid NEXIS v2018.3 or higher, and any combination of Avid NEXIS Enterprise Engines</li> <li>• Any of the above plus 1 Cloud performance Media Pack (when Avid NEXIS   Cloudspaces is activated)</li> </ul>
Media Packs per Engine (No Media Packs in a System Director Appliance)	<ul style="list-style-type: none"> <li>• 1–2 in Avid NEXIS   E4</li> <li>• 4–8 in Avid NEXIS   E5, Avid NEXIS   E5 NL</li> <li>• 1 in Avid NEXIS   PRO, Avid NEXIS   E2, Avid NEXIS   E2 SSD</li> </ul>
Storage Groups with embedded System Director <sup>a</sup>	<ul style="list-style-type: none"> <li>• 1–4 with any combination of Avid NEXIS Enterprise Engines</li> <li>• 1–4 with all Avid NEXIS   PRO</li> <li>• 1–4 with all Avid NEXIS   E2 SSD</li> </ul>
Storage Groups with System Director Appliance	<p>Up to 32 per shared storage system, in the following combinations:</p> <ul style="list-style-type: none"> <li>• All SSD performance</li> <li>• All Scale-Out performance</li> <li>• Combination of SSD and Scale-out</li> <li>• SSD and/or Scale Out with 1 High Performance (up to 8 Media Packs)</li> <li>• SSD and/or Scale Out with 1 Cloud Performance (1 Cloud Media Pack)</li> <li>• SSD and/or Scale Out with 1 High Performance and 1 Cloud performance</li> </ul>
Workspaces	<p>1024 with an embedded System Director</p> <p>3072 with a System Director Appliance</p>
Users	5640 (all configurations)
User Groups	1028 (all configurations; a user can be in 15 groups)

Item	Limit
Connected Clients	<ul style="list-style-type: none"> <li>40 active clients with the Avid NEXIS   FS Foundation license (embedded System Director)</li> <li>165 active clients with the Avid NEXIS   FS Extended license (and a System Director Appliance)</li> <li>330 active with the Avid NEXIS   FS Advanced license (and a System Director Appliance)</li> <li>24 active (30 connected) in Avid NEXIS   PRO</li> </ul>
Files and Folders	<ul style="list-style-type: none"> <li>8 million on Avid NEXIS   E2 and Avid NEXIS   E4</li> <li>3 million on Avid NEXIS   PRO</li> <li>20 million on any configuration with a System Director Appliance</li> </ul>

- a. All numbers can optionally include one Cloud Storage Group if Avid NEXIS | Cloudspaces is activated, and one High Performance Storage Group.

### Avid NEXIS | Cloud Storage Limits

The following table lists the system configuration limits for Avid NEXIS | Cloud Storage systems.

Item	Limit
Media Packs per shared-storage system	One Media Pack (virtualized) with 2PB capacity
Storage Groups	One Storage Group (virtualized)
Workspaces	3072
Users	5640
User Groups	1028 (a user can be in 15 groups)
Connected Clients	330
Files and Folders	20 million

## System Performance (On-Premises)

The nominal bandwidth rating for all-read workflows is 400MB/sec per Media Pack bound with the Scale-Out Performance setting regardless of protection type, and 600MB/sec per Media Pack bound with the High Performance setting. The actual write bandwidth depends on protection type. Aggregate bandwidth is therefore a function of protection type and proportion of reads to writes in the workflow.

The following table provides details on aggregate bandwidth by protection scheme and workflow proportion per Media Pack. To calculate the total performance of an Avid NEXIS system, multiply these figures by the number of Media Packs in the Storage Group. For design guidance a typical workflow is 80% reads and 20% writes.

**Aggregate Throughput per Media Pack with Scale-Out Performance Bind Setting (MBytes/Sec)**

Read %	Write %	Workspace Protection				
		No Protection	One Disk	Two Disk	One-Disk + Mirroring	Two Disk + Mirroring
100%	0%	400	400	400	400	400
90%	10%	400	396	392	378	376
80%	20%	400	392	384	356	352
70%	30%	400	388	376	334	328
60%	40%	400	384	368	312	304
50%	50%	400	380	360	290	280
Usable Storage		100%	89%	80%	44%	40%

**Aggregate Throughput per Media Pack with High Performance Bind Setting (MBytes/Sec)**

*Note: Media Mirroring is not supported in High Performance Storage Groups.*

Read %	Write %	Workspace Protection		
		No Protection	One Disk	Two Disk
100%	0%	600	600	600
90%	10%	600	594	588
80%	20%	600	588	576
70%	30%	600	582	564
60%	40%	600	576	552
50%	50%	600	570	540
Usable Storage		100%	89%	80%



*Linux 10GbE clients can experience lower throughput than Microsoft® Windows® and macOS X® clients against both Avid NEXIS | PRO and Avid NEXIS Enterprise Engines.*

**Aggregate Throughput per Media Pack with SSD Performance Bind Setting (MBytes/Sec)<sup>a</sup>**

Read%	Write%	Workspace Protection				
		No Protection	One Disk	Two Disk	One-Disk + Mirroring	Two-Disk + Mirroring
100%	0%	3000	3000	3000	3000	3000
90%	10%	2900	3000	2860	2790	2780

**Aggregate Throughput per Media Pack with SSD Performance Bind Setting (MBytes/Sec)<sup>a</sup>**

Read%	Write%	Workspace Protection				
		No Protection	One Disk	Two Disk	One-Disk + Mirroring	Two-Disk + Mirroring
80%	20%	2800	2760	2720	2580	2560
70%	30%	2700	2640	2580	2370	2340
60%	40%	2600	2520	2440	2160	2120
50%	50%	2500	2400	2300	1950	1900
40%	60%	2400	2280	2160	1740	1680
30%	70%	2300	2160	2020	1530	1460
20%	80%	2200	2040	1880	1320	1240
10%	90%	2100	1920	1740	1110	1020
0%	100%	2000	1800	1600	900	800
Usable Storage		100%	89%	80%	44%	40%

- a. One-Disk and Two-Disk with Mirroring performance is based on 19.2TB Media Packs with Avid Part Number 7020-71306-01 and higher, or 38.4TB Media Packs. 960GB Media Packs might have lower performance numbers in mirror configurations.

**Drive Rebuilds and System Performance**

When a drive in a Media Pack fails, the data from that drive is rebuilt from the other drives in that Media Pack, and involves only those drives. During a rebuild, the Media Pack's performance rating drops by the rating of one drive, or 40MB/sec (for Scale-Out Performance) or 60MB/sec (for High Performance).

With no I/O on the system, the fastest a drive can be rebuilt is 40MB/sec (for Scale-Out Performance) or 60MB/sec (for High Performance). On a Media Pack that is under full load (at complete bandwidth capacity), the minimum repair rate is 512KB/s. As the drive is rebuilt it begins contributing to the overall Media Pack performance rate for both reads and writes, so during the rebuild, the rate of 40MB/sec or 60MB/sec gradually decreases.

Performance Type	Media Pack Size (Drive Size)	Estimated Rebuild Time (one drive)
Scale-Out	160TB (16TB)	112 hours
	140TB (14TB)	98 hours
	100TB (10TB)	70 hours
	60TB (6TB)	42 hours
	20TB (2TB)	14 hours
High Performance	140TB (14TB)	70 hours
	120TB (12TB)	60 hours

Performance Type	Media Pack Size (Drive Size)	Estimated Rebuild Time (one drive)
SSD Performance	100TB (10TB)	50 hours
	60TB (6TB)	30 hours
	20TB (2TB)	10 hours
	38.4TB (3.84TB)	12 hours
	19.2TB (1.92TB)	6 hours
	9.6TB (960GB)	3 hours

The rebuild time increases with client load, and decreases as less data remains to be rebuilt.

Workspaces with One-Disk Protection are rebuilt before Workspaces with Two-Disk Protection, due to their higher vulnerability to a second drive failure.

### Media Mirroring and System Performance

For mirrored Workspaces, Avid NEXIS clients can continue working through an Engine failure without interruption or needing to reconnect. To ensure all clients can work seamlessly through an Engine failure, provision the shared-storage system with enough bandwidth to account for an Engine being offline.

## Hardware and Software Requirements

To meet the stringent needs of media applications the Avid NEXIS family of storage solutions is built using patented intellectual property in Avid NEXIS software running on Avid NEXIS hardware. Avid tests and qualifies configurations of Avid NEXIS software deployed on Avid NEXIS hardware. The Avid NEXIS System Director is designed to allow the binding of Avid NEXIS *only*. Avid has not published its file system specifications, protocols, or file system APIs used among the components of the file system (Avid NEXIS System Director, Avid NEXIS client, Avid NEXIS expansion engines) and these are subject to change without notice. Therefore, any connection of third party storage as part of an Avid NEXIS file system is not a licensed, approved or supported configuration.



*Avid NEXIS | Cloud Storage does not support third-party editing clients.*

The full compatibility matrix of Avid editors and hardware is available on the Avid support site at the following URL: [http://avid.force.com/pkb/articles/en\\_US/compatibility/Avid-Video-Compatibility-Charts](http://avid.force.com/pkb/articles/en_US/compatibility/Avid-Video-Compatibility-Charts)

The following table lists the compatibility between Avid NEXIS and editors from vendors other than Avid:

### Qualified Third-Party Editing Clients on On-Premises Avid NEXIS Workspaces

Software	Version
Apple Final Cut Pro X (see “ <a href="#">Final Cut Pro X Software</a> ” on <a href="#">page 24</a> )	10.4.2 and higher
	<i>As of Final Cut Pro X 10.4, you can store library files on Avid NEXIS instead of on local drives.</i>

### Qualified Third-Party Editing Clients on On-Premises Avid NEXIS Workspaces

Software	Version
Adobe Premiere Creative Cloud	Premiere Pro 2018 (v12.1.1) and higher
Blackmagic Design DaVinci Resolve	14.3 and higher
Grass Valley EDIUS Pro	9 and higher

## Supported Client Operating Systems

The following table lists the currently supported client operating systems with on-premises Avid NEXIS. All of the listed client operating systems support single or dual 10 Gb Ethernet network interface cards.



*Avid NEXIS | Cloud Storage supports only Windows and Linux clients.*

### Supported Client Operating Systems and Updates

Operating System	Version and Notes
macOS	10.15 (Catalina ) with latest updates; see also “ <a href="#">Known Issues with macOS 10.15 (Catalina)</a> ” on page 16 and the following Knowledge Base page: <a href="#">Avid Products and macOS Catalina Support</a> 10.14.x (Mojave) 64-bit with latest updates; see “ <a href="#">macOS 10.14.5 and 10.14.6 Limited Support with Previous Avid NEXIS Client Versions</a> ” on page 16 10.13 (High Sierra, 64-bit kernel) with latest updates
CentOS Linux	7.7, kernel version 3.10.0-1062.1.1.el7.x86_64 7.5, kernel version 4.4.174-1.el7 7.5, kernel version 3.10.0-862.el7.x86_64 7.4, kernel version 3.10.0-693.17
Red Hat Linux	6.5, kernel version 2.6.32-431 6.5, kernel version 2.6.32-696
Windows (desktop)	10 with latest updates <i>Defer automatic driver updates; see “<a href="#">Preventing Windows 10 Automatic Driver Updates</a>” on page 17</i> 8.1 with latest updates
Windows Server	2019 with latest Service Pack 2016 with latest Service Pack 2012 R1 and R2 with latest Service Pack

## Known Issues with macOS 10.15 (Catalina)

With the macOS 10.15 (Catalina) release, Avid has noted the following issues.

- Starting with macOS 10.15.4, when you install a new Avid NEXIS Client kit on a system running this OS version, a Legacy System Extension warning is displayed when the Avid NEXIS Client kit loads and again periodically advising you to “contact the developer for support” for future releases of the client kit. Avid is working to keep our system extensions current with advancing requirements from Apple.
- (The following issue has been observed and is under investigation by Avid & Apple) USB-C to 1Gb RJ45 Ethernet adapters cannot be used to connect using the Avid NEXIS Client because Catalina reports the interface speed as zero Mbps.

**Workaround:** Use Thunderbolt 3-to-Thunderbolt 2 and Thunderbolt 2-to-1Gb Ethernet adapters. Thunderbolt 3 to 10Gbps and 40Gbps adapters are supported with Catalina and Avid NEXIS Client.

- SSENG-23735 A performance decrease has been observed for small transfer sizes (small I/O of 64k/128k Bytes) on existing Mac devices that upgrade to macOS 10.15 Catalina.
- [SSENG-23026] Avid Benchmark Utility does not work on Avid NEXIS clients running macOS 10.15 (Catalina).

On the macOS 10.15 client, click System Preferences > Security & Privacy > Privacy > Full Disk Access and check the box for `avidbenchmarkd`. You might need to provide Administrator credentials to unlock this function (Padlock icon).

## macOS 10.14.5 and 10.14.6 Limited Support with Previous Avid NEXIS Client Versions

As of macOS 10.14.5, Apple has instituted a new notarization requirement that makes it and 10.14.6 incompatible with some Avid NEXIS client versions, as follows:

Avid NEXIS Client Version <sup>a</sup>	macOS Version			
	10.13.x	10.14.0-10.14.4	10.14.5	10.14.6
2019.2.0, 2019.2.2, 2019.4.0	Y	Y	Y	Y
2019.4.1, 2019.4.2, 2019.5, 2019.6	Y	Y	N	N
2019.8.0 and higher	Y	Y	Y	Y

a. Avid NEXIS Client versions 2019.2.0 through 2019.4.0 are “grandfathered” for use with macOS 10.14.5 and 10.14.6.

## Upgrading Avid NEXIS Client Software on Linux

For information on upgrading Avid NEXIS Client software on a Linux client, see the Avid NEXIS Client Guide and this link: [Upgrading Linux Clients from a bin File on a MediaCentral Server](#).



## Supported Browsers in an Avid NEXIS On-Premises Environment

The following are the minimum browser versions qualified for the current Avid NEXIS release stream. These browsers were qualified with the client operating systems supported in the current release.

### Supported Client Browser per Operating System

Operating System	Supported Browsers
Windows	Microsoft Edge <sup>a</sup> Mozilla Firefox Google Chrome
macOS	Apple Safari Mozilla Firefox Google Chrome <sup>b</sup>
Red Hat Enterprise Linux (RHEL), CentOS Linux	Mozilla Firefox (see <a href="#">“Known Issues” on page 19</a> )

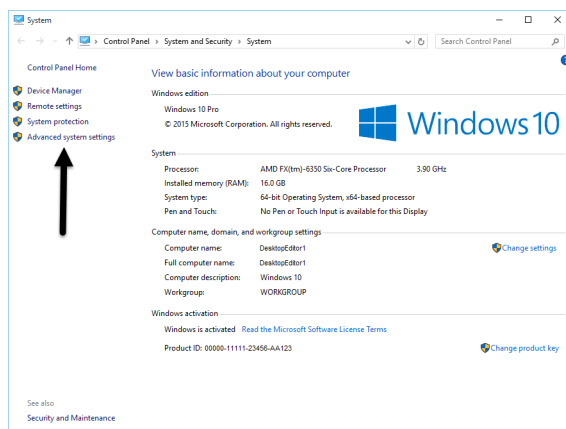
a. Not recommended for initial installations or system upgrades.

b. On macOS v10.15 (Catalina), do not use Chrome for initial system setup or to access the Agent. Use Safari instead.

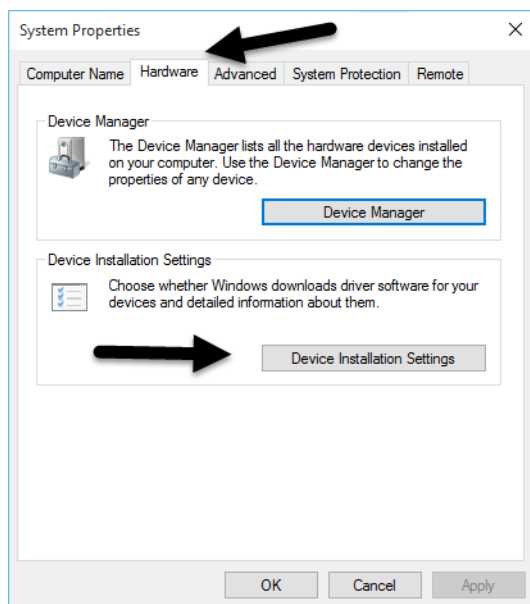
## Preventing Windows 10 Automatic Driver Updates

On client systems running Windows 10, automatic Windows driver updates can remove critical NIC driver settings needed for the correct functioning of the Avid Client. To prevent disruption of clients running Windows 10 (Professional and Enterprise), you can defer automatic driver updates as follows:

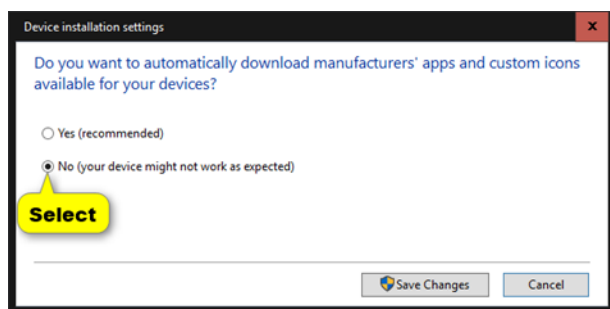
1. Right-click the “This PC” icon (formerly called “This Computer”).
2. Select Properties.
3. Select Advanced System Settings.



4. Click the Hardware tab, then click Device Installation Settings.



5. Select the option “No” to prevent downloading apps and icons automatically.



6. Click Save Changes.

## Support for Symantec™ Endpoint Protection

Symantec Endpoint Protection v14 has been qualified on ISIS and Avid NEXIS (version 7.2 and higher) clients in an Interplay environment.




**Do not install Symantec on the Avid NEXIS system, and do not scan network drives from an ISIS or Avid NEXIS client. For more information, see [Using Antivirus Software in an Interplay and MediaCentral Environment](#).**

## ATTO® ThunderLink™ 10 GbE and 40 GbE Adapters for Mac

Avid NEXIS v2018.5 and higher supports using several ATTO ThunderLink adapters for Mac clients. See the *Avid NEXIS Network and Switch Guide* for details.

Get the latest ATTO driver from their website. Install the appropriate driver for your operating system. Use all the default values and settings.

 *On macOS 10.13 (High Sierra) or higher clients, you might need to unblock ATTO from the Security & Privacy preferences in the System Preferences menu.*

For Windows clients using ATTO 10GbE adapters, see [“Intel® Adapters and Drivers” on page 19](#).


## Myricom® Drivers for Mac OS

The Avid NEXIS kit includes the following Myricom drivers to enable 10Gb client connections:

- myri10ge-1.3.5avid-1500-macosx.dmg for macOS 10.13
- myri10GE-1.3.6-MTU1500-Installer.dmg for macOS 10.14 and 10.15

Install the appropriate driver from the Drivers\Avid NEXIS Client\Myricom folder in the Avid NEXIS software kit.

 *If using VMWare on Windows clients, use the 10GbE drivers that come with the Windows OS, not the Myricom driver.*

 *On macOS 10.13 (High Sierra) clients, you might need to unblock Myricom from the Security & Privacy preferences in the System Preferences menu.*

## Intel® Adapters and Drivers

See the Avid NEXIS Network and Switch Guide for supported Intel (and Intel-based ATTO) NICs.

## VMWare ESXi™

The Avid NEXIS v2018.5 Client and higher is supported with VMWare ESXi v6.0.0 (Update 1) using a VMXNET3 adapter with the Mellanox ConnectX-3 adapter and the Mellanox ESX OFED Driver version 1.9.10.2 or later.

## VMWare on Windows

To use VMWare on Windows clients, use the 10GbE drivers that come with the Windows OS, not the Myricom drivers. The Avid NEXIS Client software no longer changes the speed of the VMWare virtual NIC to 1 Gb.

## Qualified and Approved Avid NEXIS Switches

For a list of the current qualified and approved switches for use in the Avid NEXIS Production Network (APN), see the *Avid NEXIS Network and Switch Guide* on the [Avid NEXIS Documentation KB page](#).

## Known Issues

The following are known issues with Avid NEXIS software or third-party vendors.

### Avid NEXIS On-Premises System Issues

The following issues relate to the Avid NEXIS system (including hardware) and Management Console.

- The System Director can become unresponsive if you move multiple Workspaces to different Storage Groups at the same time.

**Workaround:** Move Workspaces one at a time, and wait until the previous move has completed before starting the next one.

- New HP® workstations (for Media Composer) are shipped with HP Velocity preinstalled. However, the LiveQoS® filter driver installed by HP Velocity causes Media Composer errors such as delayed write failures and unsaved project settings.

**Workaround:** On HP workstations with HP Velocity, disable the LiveQoS filter driver on the NICs used for Avid NEXIS connections.

- On client systems running Red Hat 6.5, Firefox browser version 17.0.10 cannot connect to the Management Console. Firefox version 17.0.10 is the highest version supported on Red Hat 6.5. Try using an older Firefox version.
- When looking at switch statistics for the Dell N2024, Dell N3024, and NETGEAR XS712T, you might see the OutDiscard counter (on Dell switches) or the Transmit Packets Discarded counter (on the NETGEAR switch) incrementing. This is acceptable as long as the rate of discards is no more than 1% of the total packets transmitted, or as long as workflows are not experiencing any dropped frames.

## Avid NEXIS | Cloudspaces Issues

The following are known issues with the Avid NEXIS | Cloudspaces, introduced in Avid NEXIS version 2019.4.

- If an Avid NEXIS system with Cloudspaces activated does not have NTP time synchronization enabled and its local time in UTC is behind (earlier than) the Azure time by 15 or more minutes, no communication to Azure can be made and all requests fail with the following authentication error: “Server failed to authenticate the request. Make sure the value of Authorization header is formed correctly including the signature.”

**Workaround:** Configure NTP Server time synchronization on the Avid NEXIS system or manually adjust the local system time to less than 15 minutes different from the Azure time.

## Avid NEXIS | Cloud Storage Issues

The following are known issues with Avid NEXIS | Cloud Storage, which was introduced in Avid NEXIS version 2018.6.

- You might run into issues running clients with multiple NICs, each of which is able to connect to an Avid NEXIS | Cloud Storage system.

**Workaround:** In clients that are specifically connecting to Avid NEXIS | Cloud Storage, enable only one NIC.

- Windows Defender might cause “permission denied” errors in some workflows on a Windows VM in Microsoft Azure.

## Data Migration Utility Issues

The following are known issues with the Avid NEXIS Data Migration Utility, which was introduced in Avid NEXIS version 2018.9.

- During a migration, if either the source or destination system is disconnected from within the Client manager interface, the migration is interrupted and fails.

**Workaround:** Do not disconnect from systems in the Client Manager while a migration is occurring.

## Client Issues

The following are known issues with the Avid NEXIS client software. When a workaround exists, it appears in the paragraph directly following the issue description.

- After upgrading the operating system on a Linux client, you might need to uninstall and reinstall the Avid NEXIS Client software. Upgrading the Linux OS sometimes causes the FUSE libraries to declare a version mismatch and stop working.
- The Avid NEXIS Log Utility may occasionally fail to generate logs with the error message “Couldn’t find OAM logs”.

**Workaround:** Close the error message and generate the logs again.

- CentOS Linux clients using the Linux GUI can experience a delay in seeing all files when browsing contents of Cloudspaces with more than a few thousand files. Browsing Cloudspaces files using the terminal avoids the delay.
- When attempting to install tools downloaded from the Management Console (LDAP Sync Tool, File Gateway, and the Avid NEXIS Toolbox) onto a Windows system, you might see a message that the file is considered unsafe because Windows cannot read the publisher certificate from Avid.

**Workaround:** You can safely click “Run anyway” to install the tool or utility.

- If the Client Manager is connected to an Avid NEXIS system with dual controllers and the System Director service has failed over to the second controller, the Management Console launch button in the Client Manager does not redirect to the new System Director and cannot successfully open the Management Console.

**Workaround:** To launch the Management Console for an Avid NEXIS system, either open a browser and enter its IP address, or add the IP address of the redundant controller to the Remote Hosts list in the Client Manager.

- macOS 10.13 and higher has enhanced security. By default, third-party kernel extensions that were not previously installed are denied. If you are installing the Avid NEXIS client on a macOS 10.13 or higher system for the first time, during the installation process, watch for the System Extension Blocked alert, and click OK to allow the Avid NEXIS client installer to complete. See the Apple Technical Note [TN2459](#).

**Workaround:** To see if anything was denied during installation and allow it, do the following:

1. As Administrator, open System Preferences.
2. Click Security and Privacy.
3. Click the General tab.
4. Click the lock button to make changes.
5. See if any applications or drivers are listed in the dialog box as having been denied. If so, click Allow apps downloaded from the App Store and identified developers.
6. Close the System Preferences window.

- On a client with multiple NICs, all network paths from the client to a particular Avid ISIS or Avid NEXIS must be via NICs with the same speed.
- Do not use a computer running macOS Sierra to install Avid NEXIS software on a new Engine or System Director Appliance.
- If the Avid NEXIS Client software is installed accidentally on OS X 8.5 (or any other unsupported OS X version), running the uninstaller does not work.

**Workaround:** Use AppCleaner (a free download) to uninstall the Avid NEXIS v6.0 Client software.

1. Download AppCleaner from: <http://www.freemacsoft.net/appcleaner/>
2. Follow the instructions for removing an application (in this case, Avid NEXIS v6.0 Client).
3. Restart the Mac.

- On Mac Pro 5,1 using a 2 x 1Gb connection to the Avid NEXIS system, you might not receive expected data rates.
- During Media Pack rebuilds the Engine performance might not reach the full Engine rating.
- If one workspace in Client Manager is mounted by Mapping a Network drive in Windows, when you unmount the workspace and then mount a different workspace in Client Manager manually using the same drive letter, Windows Explorer displays the previous workspace name instead of the new workspace name.
- The estimated amount of space available (usually measured in an amount of time at a particular resolution) might differ between what Avid NEXIS calculates and what the Avid editing system calculates. Avid NEXIS accurately reports the amount of space available for file storage. The Avid editing application accounts for overhead in formatting of the media and is more conservative in reporting how much space is available.
- The Macintosh Finder might display the Avid ISIS or Avid NEXIS folder contents incorrectly, such as the contents of folders containing items whose name includes a pound sign (#) followed by numeric characters. For example, “project # 12” might be erroneously displayed with some items duplicated and some items missing.

**Workaround:** Avid recommends avoiding the use of names that include a pound sign (#) followed by numeric characters.

## Avid NEXIS | Linux File Gateway Issues

The following are known issues with the Avid NEXIS | Linux File Gateway software that runs on a virtual machine, introduced with Avid NEXIS version 2019.12.0.

- The keyboard actions to select multiple items (using the Shift or Control keys) do not work.

## Special Notes

This section contains important information about the Avid NEXIS environment.

### User Permissions

A user account with Administrator privileges is required to install the Avid NEXIS client software on your workstations.

### LDAP Requires ASCII User Names and Passwords

The Avid implementation of LDAP (Lightweight Directory Access Protocol) requires that you restrict LDAP user names and passwords to ASCII. The LDAP/Avid NEXIS Account Synchronizer searches for groups and their users on an LDAP server and synchronizes (reconciles) user and group accounts by adding or removing users and/or groups from Avid NEXIS.

### Fast User Switching Not Supported

Fast User Switching is a Windows feature that allows multiple user accounts to log on to a computer simultaneously. Fast User Switching is enabled by default in Windows computers. The Fast User Switching feature and multiple concurrent logged on user modes are not supported in the Avid NEXIS environment. The Avid NEXIS software does not distinguish the different drive letters mapped to the same workspaces on the same computer. Conflicts appear in the following two scenarios:

- When one user maps a drive letter to one workspace and another user maps the same drive letter to a different workspace
- When one user maps a workspace to one drive letter, and another user maps a different drive letter for the same workspace.

### Macintosh Resource Files and Windows Clients

If Macintosh files are copied to a Windows system with the Macintosh resource fork files, the resource fork files cannot be copied to mounted workspaces from a Windows client. Avid NEXIS does not accept Macintosh resource fork files from Windows clients. Appropriate “properties” error messages are displayed if this is attempted.

### Adobe Premiere Pro

Avid has tested Adobe Premiere Pro as a client in Avid NEXIS environments.

Adobe Premiere clients follow the same guidelines for Client Manager Preference settings as Avid editors. The default Client Type setting is set to Medium Resolution (limited to resolutions that draw 16 MB/s or less). Use the High Resolution setting when working with High Definition media

(resolutions that draw higher than 16 MB/s). There are some HD resolutions that draw less than 16 MB/s for a single stream, but you should still use the High Resolution setting (for example, XDCAMHD 50). For more information, see the Knowledge Base at [www.avid.com/support](http://www.avid.com/support).

## Final Cut Pro X Software

Avid has tested Final Cut Pro X as a client in the Avid NEXIS environments. There is no Avid restriction on the QuickTime version. Use the QuickTime version recommended in the Final Cut Pro application. Avid NEXIS supports Final Cut Pro X Macintosh clients in Switched Media Network (Layer 2), Routed Media Network (Layer 3), and Non-media Optimized Network (Mixed Layer 2 and 3) environments.



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