Avid NEXIS®

Network and Switch Guide

March 2020

**Revision History**

| Date | Changes |
| --- | --- |
| March 2020 | Added long-range optics information |
| January 2020 | Added more OS detail to NIC tables. Added more Sonnet NICs. Removed NETGEAR X728 (not tested in Avid). |
| September 2019 | Removed some ATTO switches and NICs (duplications or never released) |
| July 2019 | Dell switches rebranded to PowerSwitch |
| May 2019 | Improved the Supported NIC table in "Supported Network Components and Cables" on page 18 |

# Contents

# Using This Guide

This document describes switch setup information for the Avid NEXIS® shared storage networks. Your network might not contain certain topologies that are covered in the documentation. The Avid network and switches are tuned for high-speed and high-capacity shared storage primarily for Avid editing workstations and servers that manage media.

## Symbols and Conventions

Avid documentation uses the following symbols and conventions:

| Symbol or Convention | Meaning or Action |
| --- | --- |
| 📇 | A note provides important related information, reminders, recommendations, and strong suggestions. |
| ⚠ | A caution means that a specific action you take could cause harm to your computer or cause you to lose data. |
| ⚡ | A warning describes an action that could cause you physical harm. Follow the guidelines in this document or on the unit itself when handling electrical equipment. |
| > | This symbol indicates menu commands (and subcommands) in the order you select them. For example, File > Import means to open the File menu and then select the Import command. |
| ▸ | This symbol indicates a single-step procedure. Multiple arrows in a list indicate that you perform one of the actions listed. |
| (Windows) or (Macintosh) | This text indicates that the information applies only to the specified operating system, either Windows or Macintosh OS X. |
| **Bold font** | Bold font is primarily used in task instructions to identify user interface items and keyboard sequences. |
| *Italic font* | Italic font is used to emphasize certain words and to indicate variables. |
| `Courier Bold font` | Courier Bold font identifies text that you type. |
| Ctrl+key or mouse action | Press and hold the first key while you press the last key or perform the mouse action. For example, Command+Option+C or Ctrl+drag. |

## 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.

**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/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. 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.

## Accessing the Online Documentation

The Avid online documentation contains all the product documentation in PDF format. You can access the documentation from the Knowledge Base site specific to your release. Download and install Acrobat Reader before you access the PDF documentation.

## 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.

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

# 1 Qualified and Approved Switches for Avid NEXIS

This document provides Avid NEXIS Administrators with a single reference regarding the implementation, configuration and troubleshooting of Avid® qualified, approved, and architecturally capable Ethernet switches for use as the Avid Production Network (APN) switch for the following Avid platforms:

• Avid NEXIS | PRO (1 x 10GbE)

• Avid NEXIS | E2 (2 x 10GbE per Controller)

• Avid NEXIS | E2 SSD (2 x 40GbE per Controller)

• Avid NEXIS | E4 (2 x 10GbE per Controller)

• Avid NEXIS | E5 (2 x 40GbE per Controller)

• Avid NEXIS | E5 NL (2 x 10GbE per Controller)

• Avid NEXIS | SDA (2 x 10GbE per Controller)

*You cannot mix an Avid NEXIS | PRO in the same shared storage system as an Avid NEXIS E-Series Engine or an Avid NEXIS | SDA.*

Avid has the following designations for Ethernet switches that can provide suitable performance for Avid NEXIS storage:

• Qualified

Fully qualified for a broad range of applications. Qualified switches are typically part of the Avid engineering and test labs and part of ongoing testing.

• Approved

Approved for deployment as detailed in the Avid ISIS / NEXIS & Media Central Network Requirements Document. (Approved switches are typically tested at a customer site as part of a specific commissioning engagement.)

All of the listed switches support using the 802.3ad Link Aggregation Control Protocol (802.1ax), which is supported on any Avid NEXIS E-Series Engine and the Avid NEXIS | SDA running Avid NEXIS v7.0 or higher. The Avid NEXIS | PRO does not support using LACP.

Refer to the switch vendor's documentation for specifics.

The switches in each table are listed in alphabetical order. If a switch cannot connect directly to an Avid NEXIS system it can still be used as a down-linked (subordinate) edge switch.

# Qualified Switches and Options

| Switch Model and Avid Part Number if applicable | Avid NEXIS Models | Minimum Firmware or Network OS[a] | Description and Approved Blades, and Avid Part Number if applicable |
|---|---|---|---|
| Cisco Catalyst 4500-X<br><br>(Layers 2 and 3)<br><br>Cisco 32-port switch:<br>Avid P/N: 9935-65891-xx<br><br>Cisco 16-port switch:<br>Avid P/N: 9935-71898-xx | E2, E4, E5 NL, PRO | ROM: 15.0(1R)SG6 (and later[a])<br><br>IOS: 03.04.02.SG (and later[a]) | 16 or 32 dual-speed 1Gb (SFP) or 10Gb (SFP+) ports |
| Cisco Nexus 9372-PX and PXE (SFP+ based) | E2, E4, E5, E2 SSD, E5 NL, PRO | 7.0 (3) I1 (3) | All 9372 switches have 6 x 40GbE QSFP+ ports plus 48 x 1/10GbE ports<br><br>For 40Gb use, see "40Gb Switch Operation" on page 15. |
| Cisco Nexus 9372-TX and TXE (RJ-45 based) | All | | For 40Gb use, see "40Gb Switch Operation" on page 15. |
| Cisco Nexus 9372 PX and PXE, and TX and TXE (40GbE), with the Cisco 40GBASE-CR4 Passive Copper cable (QSFP-H40G-CU5M) | E5, E2 SSD | | For 40Gb use, see "40Gb Switch Operation" on page 15. |
| Cisco Nexus 93180YC-EX,<br><br>Cisco Nexus 93180YC-FX | All | BIOS: 07.59<br><br>NXOS: 7.0(3)14(2) | 48 x 1/10/25-Gbps fiber ports and 6 x 40/100-Gbps Quad Small Form-Factor Pluggable 28 (QSFP28) ports<br><br>For 40Gb use, see "40Gb Switch Operation" on page 15. |
| Cisco Nexus 93180LC-EX | All | BIOS: 05.19<br><br>NXOS: 7.0(3)16(1) | Up to 32 x 40/50-Gbps QSFP+ ports OR 18 x 100-Gbps QSFP28 ports<br><br>For 40Gb use, see "40Gb Switch Operation" on page 15. |
| Cisco Nexus 93108TC-EX,<br><br>Cisco Nexus 93108TC-FX | All | | 48 x 100M/1/10GBASE-T ports and 6 x 40/100-Gbps QSFP28 ports<br><br>For 40Gb use, see "40Gb Switch Operation" on page 15. |
| Cisco Nexus 9348GC-FXP | All | | 48 x 1G RJ45<br><br>4 x 1/10/25G SFP<br><br>2 x 40/100G QSFP28 |
| Dell EMC PowerSwitch N2024<br><br>Avid P/N: 7080-30085-00 | E2, E4, PRO | 6.3.0.18 and later | 24 x 1Gb (RJ45)<br><br>2 x 10Gb SFP+ ports<br><br>Avid-supplied switch includes 2-port 10Gb SFP+ module |

| Switch Model and Avid Part Number if applicable | Avid NEXIS Models | Minimum Firmware or Network OS[a] | Description and Approved Blades, and Avid Part Number if applicable |
|---|---|---|---|
| Dell EMC PowerSwitch N3024<br><br>Avid P/N: 9935-65890-xx<br><br><br>Dell EMC PowerSwitch N3024E | E2, E4, E5 NL, PRO | 6.3.0.18 and later | 24 x 1Gb (RJ45)<br><br>2 x 1Gb SFP ports<br><br>2 x 10Gb SFP+ ports<br><br>1 slot for 2-port 10Gb SFP+ or 10GBASE-T module |
| Dell EMC PowerSwitch N3048<br><br>Avid P/N: 9935-65892-xx<br><br><br>Dell EMC PowerSwitch N3048E | E2, E4, E5 NL, PRO | 6.3.0.18 and later | 48 x 1Gb (RJ45), 2 x 1Gb SFP ports, 2 x 10Gb SFP+ ports<br><br>1 slot for 2-port 10Gb SFP+ or 10GBASE-T module<br><br>Avid-supplied switch includes 2-port 10Gb SFP+ module |
| Dell EMC PowerSwitch S4048-ON<br><br>Avid P/N: 7080-35019-00 | All | 9.8 or later | 48 dual-speed 1/10GbE (SFP+) ports and six 40GbE (QSFP+) uplinks (totaling 72 10GbE ports with breakout cables) with OS support<br><br>📖 *The Dell EMC PowerSwitch S4048 switch supports a mix of 10Gb SFP+ (optical) and 10GBASE-T (copper) connection types. However there are minimum firmware requirements and restrictions on how many 10GBASE-T devices are supported, and in which locations. Consult your Dell documentation for more information.* |
| Dell EMC PowerSwitch S4048T-ON, with one of the components listed for the Dell EMC PowerSwitch S4048-ON | E2, E4, PRO<br><br>E5, E2 SSD | 9.8(0.0P5) | 48 x 10Gb/1Gb/100Mb (RJ45)<br><br>6 x 40Gb QSFP+ |

a. Later firmware/operating system versions should be acceptable but are not tested by Avid.

# Approved Switches and Options

In addition to the approved switches listed here, you can also use any switch considered architecturally capable, meaning they have been stress tested by the switch vendor in coordination with Avid and subject to an Avid specific test plan (see Avid NEXIS Switch Infrastructure for details).

| Switch Model and Avid Part Number if applicable | Avid NEXIS Models | Minimum Firmware or Network OS[a] | Description and Approved Blades, and Avid Part Number if applicable |
|---|---|---|---|
| Arista Networks 7150S-24 (10GbE only) | E2, E4, E5 NL, PRO | | 24-Port SFP+ |
| Arista Networks 7150S-52 (10GbE only) | E2, E4, E5 NL | | 52-Port SFP+ |
| Arista Networks 7280SE-64 | All | 4.14.7M or 4.16.7M | 48x1/10GbE and 4 x 10/40GbE |
| Arista Networks 7280SR | E2, E4, E5 NL, PRO | | 48-port SFP+ and 6-port QSFP100 |
| Cisco Nexus 7000 series[b] (Layers 2 and 3) | E2, E4, E5 NL, PRO | BIOS 3.19.0 (and later[a]) | 48 port 10Gb/1Gb module (optical) N7K-F248XP-25E |
| | | Kickstart 4.2(4) (and later[a]) | 24 port 10Gb module (optical) N7K-M224XP-23L |
| | | System 4.2(4) (and later[a]) | 48 port 1Gb copper N25-C2248TP-E-1GE |
| | | CMP BIOS 02.01.05 (and later[a]) | |
| | | CMP Image 4.2(1) (and later[a]) | |
| Cisco Nexus 9336 FX2 (variation of the qualified Cisco Nexus switches 93180* and 93108* in previous table) (Layers 2 and 3) | E2, E4, E5 NL, PRO | | 36 100G ports (100/50/40/25/10/4x10/4x25) QSFP28 presentation |
| Dell EMC PowerSwitch N4032 | E2, E4, E5 NL, PRO | | 24 x 10GbE RJ45 auto-sensing (10Gb/1Gb/100Mb) fixed ports <br> 1 x hot swap expansion module bay |
| Dell EMC PowerSwitch N4032F | E2, E4, E5 NL, PRO | | 24 x 10GbE SFP+ (10Gb/1Gb) fixed ports <br> 1x hot swap expansion module bay |
| NETGEAR XS716T | E2, E4, PRO | 6.6.1.7 | 16 x 10GBase-T + 2 x shared 10 Gigabit SFP+ |

a. Later firmware/operating system versions should be acceptable but are not tested by Avid.
b. The Cisco Nexus 7000 series can be configured to meet a wide variety of combinations of 1, 10, and 40Gb Ethernet connections. Depending on the base unit, there are from 4 to 18 slots that allow for supervisor modules and up to 16 I/O modules offering a variety of ports (including SFP+ with XL option).

# Legacy Switches and Options

The switches listed here are either end-of-life or no longer commercially available. However, if you have one, you can still use it with the indicated Avid NEXIS models.

| Switch Model and Avid Part Number if applicable | Avid NEXIS Models | Minimum Firmware or Network OS[a] | Description and Approved Blades, and Avid Part Number if applicable |
|---|---|---|---|
| Arista Networks 7048 | E2, E4, PRO | 4.8.6 | NA |
| Cisco Catalyst 4900M (Layers 2 and 3) Avid P/N: 7010-30323-xx | E2, E4, E5 NL, PRO | Rommon 12.2(44r)SG (and later[a]) IOS: 12.2 (46)SG (and later[a]) | 20 x 1Gb (RJ-45), WS-X4920-GB-RJ45 and/or • 4 x 10Gb (X2/SC)WS-X4904-10GE • 8 x 10Gb (X2/SC) |
| Cisco Catalyst 4948E (Layers 2 and 3) Avid P/N: 7010-30322-xx | E2, E4, E5 NL, PRO | Rommon: 12.2(44r)SG8 (and later[a]) IOS: 12.2 (54)SG (and later[a]) | 48 x 1Gb (RJ45) 4 x 10Gb (SFP+/LC) |
| Cisco Catalyst 4948-10GE (Layers 2 and 3) | E2, E4, E5 NL, PRO | Rommon: 12.2(31r)SGA (and later[a]) IOS: 12.2 (25) EWA8 (and later[a]) | 48 x 1Gb (RJ45) 2 x 10Gb (X2/SC) |
| Cisco Nexus 7000 (switch is Approved but the listed options are legacy) | | | 48 x 1Gb module (copper) N7K-M148GT-11 32 x 10Gb module (optical) N7K-M132XP-12 (only 8 supported running simultaneously due to 4 to 1 over-subscription) N7K-M108x2 |
| Dell EMC PowerSwitch S4810 | E2, E4, E5 NL, PRO | FTOS 8.3.7.0 (and later) | 48 x 1Gb SFP or 10Gb SFP+ |
| | E5, E2 SSD | | 4 x 40Gb |
| Dell EMC Networking 4820T | E2, E4, E5 NL, PRO | | 48 x 100Mbps/1Gbps/10Gbps (RJ45) |
| | E5, E2 SSD | | 4 x 40Gb |
| Dell EMC PowerSwitch S60 | E2, E4, E5 NL, SDA, PRO | FTOS 8.3.3.4 (and later) | 48 x 1Gb (RJ-45) Two slots for 10Gb SFP+ or 24Gb stacking modules Two 10Gb SFP+ ports per module (SFP+/LC) |
| NETGEAR XS712T | PRO | 6.1.0.34 or later | 12 x 1/10Gb RJ45 (Copper) or 2 x 10Gb SFP+ plus 10 x 1/10Gb RJ45 (ports 11 and 12 are dual-purpose; can be used either as SFP+ or RJ45) |

a. Later firmware/operating system versions should be acceptable but are not tested by Avid.

# Supported Switch Options

When purchased through Avid, many switches come with Avid-supported components such as NICs and transceivers. The following table lists the components preinstalled in switches purchased through Avid, and the options you can purchase separately for your switches.

| Vendor/Model | Model/Description/Avid-Supplied Options | Avid Part Number |
|---|---|---|
| Cisco C4500-X | 1000Base-T SFP+ | 7070-30589-00 |
| | 8 port 10GigE module | 7030-65533-00 |
| Cisco C4900M | 20 port 1GbE copper module, p/n WS-X4920-GB-RJ45 | N/A |
| | 4 X 10GbE port add-in module for 4900M base unit | |
| | 10GBASE-SR 850nm X2 Module/Single Transceiver, Cisco p/n X2-10GB-SR | |
| | 10GBASE-LR 1310nm X2 Module/Single Transceiver, Cisco p/n X2-10GB-LR | |
| | SC connector | |
| | X2 = Cisco X2-10GB-SR for MMF<br>X2 = Cisco X2-10GB-LR for SMF | |
| Cisco 4948E, C4500-X | 10GbE optical SFP+ 850 nm laser compatible with 50 micron MMF cable; 300 meters maximum distance. Cisco p/n SFP-10G-SR= | |
| | *The minimum cable length for -LR and -SR transceivers is 2 meters.* | |
| Dell EMC PowerSwitch S4048 | GP-SFP2-1T single 1GigE RJ45 Copper transceiver (407-BBTS) | 7070-35076-00 |
| Dell EMC PowerSwitch N2024, N3024, N3048, S4048-ON | 10GigE, SFP+, single, transceiver, SR, 850nm | 7070-30026-01 |
| Dell EMC PowerSwitch N2024, N3024, N3048, S4048-ON | 10GigE, SFP+. single transceiver, LR, 1310nm | 7070-30331-01 |
| Dell EMC PowerSwitch N3024/3048 | SFP 1000Base-Sx 850nm. 1GbE optical transceiver | 7070-30584-00 |
| | SFP+ (SR) 850 nm | 7070-30582-00 |
| | SFP+ (LR) 1300 nm | 7070-30583-00 |
| Dell EMC PowerSwitch S4048-ON | QSFP+ SR Optic, 40GbE (100-150m) | 7070-35041-00 |
| Dell EMC PowerSwitch N3000 | Spare SFP+ 2-port 10GbE module (spare, no optics, no cables) | 7030-65530-00 |

| Vendor/Model | Model/Description/Avid-Supplied Options | Avid Part Number |
|---|---|---|
| NETGEAR XS712T, XS716T | AXM761-10000S: 10GBase-SR short-range SFP+ LC transceiver module | |
| | AXC761-10000S: 10GSFP+ Cu (passive) cable with SFP+ connectors on both ends, 1m (3.3 ft) | |
| | AXC763-10000S: 10GSFP+ Cu (passive) cable with SFP+ connectors on both ends, 3m (9.8 ft) | |

# Long-Range Optics

LR-4 optics are supported for connecting the Avid NEXIS | E5 or Avid NEXIS E2 | SSD Engines at 40 Gb using long range, 1310 nm optics, to a switch. Use the Mellanox MC2210511-LR4 Optical Module, with a minimum firmware version of 2.42.5000, in the Engine's Mellanox 40 Gb NIC. New Avid NEXIS | E5 Engines ship with this version.

To convert an existing engine to LR-4 optics, confirm it has the minimum firmware revision, as follows:

1. Connect to the Engine Agent (https://<engine name or IP>:5015).

2. Click the Advanced tab.

3. In the Issue Shell Command field, enter the following: `ethtool -i gt0`

   If the response says `firmware-version: 2.42.5000` or higher, you can use LR-4. If the version is lower than that, contact Avid Customer Care if you want to use LR-4.

# Connecting the Engine to a Switch

To connect the Avid NEXIS to a switch, you will need one or two transceivers or direct attach (Twinax) cables per Controller (if using redundant Controllers), depending on whether you are using link aggregation.

**To connect the Storage Controller(s) to one or more switches:**

1. Insert a supported transceiver module or cable into the left port on each Controller if not using LACP, or both ports, if using LACP.



Connect to Switch (No LACP)
Connect Both to Switch(es)

2. Insert the appropriate cables into the modules.

3. Connect the other end of the cables to the appropriate ports on your switch or switches.

# Flow Control in Avid Production Networks

If you are experiencing poor read performance even when using tools like Avid PathDiag or Avid Benchmark Utility, check the switch port to see if the client is sending a large number of Pause frames. These are usually reported as "Throttles" in the input statistics for the interface on most switches, but can also be reported as "802.3x Pause Frames."

If this occurs, check whether the switch port is configured to honor Rx Flow Control (make sure FlowControl Rx is enabled). If not, enable Rx Flow Control and reset the port or client to see if the issues persist. If they do, contact Avid.

Flow control is enabled by default on all the currently supported switches (except Dell EMC PowerSwitch S4048-ON).

# Enabling Flow Control on the Dell EMC PowerSwitch S4048-ON

By default, Flow Control is disabled on the Dell EMC PowerSwitch S4048-ON. To use this switch in an Avid NEXIS environment, you must enable Flow Control. Consult the Dell EMC PowerSwitch switch documentation for information on how to log into the switch, then enter these commands:

**To enable Flow Control on the Dell EMC PowerSwitch S4048-ON:**

1. S4048#**configure**

2. S4048(conf)#**int range tengigabitethernet 1/1 - 1/48**

3. S4048(conf-if-range-te-1/1-1/48)#**flowcontrol rx on tx off**

4. S4048(conf-if-range-te-1/1-1/48)#**exit**

5. S4048(conf)#**int range fortyGigE 1/49 - 1/54**

6. S4048(conf-if-range-fo-1/49-1/54)#**flowcontrol rx on tx off**

7. S4048(conf-if-range-fo-1/49-1/54)#**exit**

8. S4048(conf)#**exit**

9. S4048#**exit**

# Configuring Switches for LACP

In Avid NEXIS v7.0 and higher, the Engines and Avid NEXIS | SDA support enabling LACP on the Ethernet ports on the Controllers. See the *Avid NEXIS Administration Guide* for more information on enabling LACP on the Controllers.

⚠ **Before enabling LACP on the Engines or Avid NEXIS | SDA, make sure both Ethernet ports on the Controllers are connected to one or more switches that support using link aggregation groups (LAGs).**

Switch vendors refer to this feature using different terminology:

| Vendor | Terminology |
|---|---|
| Arista, Dell EMC PowerSwitch N-Series | Multi-chassis link aggregation (MLAG) |
| Dell EMC PowerSwitch S-Series | Virtual Link Trunking (VLT) |
| Cisco Nexus | Virtual PortChannel (vPC) |
| Cisco Catalyst | Virtual Switching System (VSS) |
| NETGEAR | *Not supported* |

Consult your switch vendor documentation for steps on how to enable or configure link aggregation on your switches.

## Configuring LACP (MLAG) on an Arista Switch

The following instructions apply to an Arista switch that has no other link aggregation or VLAN settings configured, and is provided for reference only. For more detailed information, consult your Arista documentation.

**To configure LACP (MLAG) on an Arista switch:**

1. Create a port channel:

   ```
   <switchhostname>(config)# int port-Channel <port-Channel number>
   ```

2. Add the port channel to the correct VLAN:

   ```
   <switchhostname>(config)#switchport access <vlan number>
   ```

3. Add the ports for the port channel to the correct VLAN:

   ```
   <switchhostname>(config)#int Ethernet <port number>
   <switchhostname>(config)#switchport access <vlan number>
   ```

4. Assign the ports that belong to the port channel:

   ```
   <switchhostname>(config)#int Ethernet <port number>
   <switchhostname>(config)#channel-group <port-Channel #> mode active
   ```

5. Set LACP to fast rate:

   ```
   <switchhostname>(config)#int Ethernet <port number>
   <switchhostname>(config)# lacp rate fast
   ```

## Configuring LACP (vPC) on a Cisco Switch

The following instructions apply to a Cisco switch that has no other link aggregation or VLAN settings configured, and is provided for reference only. For more detailed information, consult your Cisco documentation.

**To configure LACP (vPC) on a Cisco switch:**

1. Create a port channel:

   ```
   <switchhostname>(config)# int port-Channel <port-Channel number>
   ```

2. Add the port channel to the correct VLAN:

   ```
   <switchhostname>(config)#switchport access <vlan number>
   ```

3. Add the ports for the port channel to the correct VLAN:

   ```
   <switchhostname>(config)#int Ethernet 1/<port number>
   ```

   ```
   <switchhostname>(config)#switchport access <vlan number>
   ```

4. Assign the ports that belong to the port channel:

   ```
   <switchhostname>(config)#int Ethernet 1/<port number>
   ```

   ```
   <switchhostname>(config)#channel-group <port-Channel #> mode active
   ```

5. Set LACP to fast rate:

   ```
   <switchhostname>(config)#int Ethernet 1/<port number>
   ```

   ```
   <switchhostname>(config)# lacp rate fast
   ```

## Configuring LACP (MLAG) on a Dell EMC PowerSwitch S4810 Switch

This procedure describes how to group links into port channels and use the port channel interface to send and receive traffic from the Avid NEXIS. If the Engine or Avid NEXIS | SDA has two Controllers, the ports on each Controller must be in a separate port channel.

In this example, ports 0/28 and 0/34 are connected to the 10GbE ports on the Controller in the Avid NEXIS Engine.

**To configure LACP (MLAG) on a Dell EMC PowerSwitch S4810:**

1. Identify an unused port channel. (The Dell EMC PowerSwitch S4810 supports up to 128 port channels).

   ```
   S4810>show interfaces port-channel brief
   Codes: L - LACP Port-channel

       LAG  Mode  Status        Uptime       Ports

       1    L3    down          00:00:00

       2    L3    down          00:00:00

   L   103  L2L3  up            1d14h34m     Te 0/43   (Up)
   ```

   Port channels 1, 2, and 103 are being used, but 102 is available.

2. Enter the switch's global configuration mode and check whether the port has a VLAN configured:

```
S4810>enable
S4810#show vlan
Codes: * - Default VLAN, G - GVRP VLANs, R - Remote Port Mirroring VLANs, P
- Primary, C - Community, I - Isolated O - Openflow
Q: U - Untagged, T - Tagged

    x - Dot1x untagged, X - Dot1x tagged

    o - OpenFlow untagged, O - OpenFlow tagged

    G - GVRP tagged, M - Vlan-stack, H - VSN tagged

    i - Internal untagged, I - Internal tagged, v - VLT untagged, V - VLT
tagged

 NUM    Status    Description                     Q Ports
*   1      Inactive                               U Fo 0/60
    10     Active                                 U Po11(Te 0/42,44)
                                                  U Te 0/19,21,26
    11     Active                                 U Po22()
                                                  U Te 0/46
    20     Active                                 U Po21(Te 0/43,45)
    21     Active                                 U Te 0/47
    42     Active                                 U Te 0/0-6,8-9,12-
18,20,22-25,27-41
                                                  U Fo 0/48,52
    43     Inactive                               U Te 0/10-11
                                                  U Fo 0/56
    3647   Active                                 U Te 0/7
S4810#configure
S4810(conf)#
```

3. Determine whether the port has a VLAN configuration, and if so, remove it:

```
S4810(conf)#interface vlan 169

S4810(conf-if-vl-169)#no untagged tengigabitethernet 0/28

S4810(conf-if-vl-169)#exit

S4810(conf)#
```

4. If the port is in another LAG, unconfigure it:

```
S4810(conf)#interface tengigabitethernet 0/28

S4810(conf-if-te-0/28)#port-channel-protocol lacp

S4810(conf-if-te-0/28-lacp)#no port-channel

S4810(conf-if-te-0/28-lacp)#exit

S4810(conf-if-te-0/28)#exit

S4810(conf)#
```

5. Unconfigure the port and enable LACP on it:

```
S4810(conf)#interface tengigabitethernet 0/28
S4810(conf-if-te-0/28)#no shutdown
S4810(conf-if-te-0/28)#no spanning-tree 0 portfast
S4810(conf-if-te-0/28)#no spanning-tree
S4810(conf-if-te-0/28)#no switchport
S4810(conf-if-te-0/28)#show config
S4810(conf-if-te-0/28)#port-channel-protocol lacp
S4810(conf-if-te-0/28-lacp)#port-channel 102 mode active
S4810(conf-if-te-0/28-lacp)#exit
S4810(conf-if-te-0/28)#exit
```

6. Repeat steps 3 through 5 for the second port.

7. Configure the port channel:

```
S4810(conf)#interface port-channel 102
S4810(conf-if-po-102)#switchport
S4810 (conf-if-po-102)#lacp long-timeout
S4810(conf-if-po-102)#exit
```

8. If there was a VLAN previously, add the port channel to the VLAN:

```
S4810(conf)#interface vlan 169
S4810(conf-if-vl-169)#untagged port-channel 169
S4810(conf-if-vl-169)#exit
```

9. To configure LACP for another Controller, create a new port channel.

10. Verify that links 0/28 and 0/34 are now part of a port channel with LACP enabled (note the L in the first column of output):

```
S4810>show interfaces port-channel brief
Codes: L - LACP Port-channel

     LAG  Mode  Status      Uptime      Ports

     1    L3    down        00:00:00

     2    L3    down        00:00:00

L    102  L2L3  up          1d16h27m    Te 0/28    (Up)

                                        Te 0/34    (Up)

L    103  L2L3  up          1d16h27m    Te 0/43    (Up)
```

11. Verify that the VLAN now has PO102:

```
S4810>show vlan id 1
Codes: * - Default VLAN, G - GVRP VLANs, R - Remote Port Mirroring VLANs,
P - Primary, C - Community, I - Isolated
        O - Openflow
Q: U - Untagged, T - Tagged
   x - Dot1x untagged, X - Dot1x tagged
   o - OpenFlow untagged, O - OpenFlow tagged
   G - GVRP tagged, M - Vlan-stack
   i - Internal untagged, I - Internal tagged, v - VLT untagged,
       V - VLT tagged
  NUM    Status    Description                      Q Ports
*  1     Active                                     U Po10()
                                                    U Po43()
                                                    U Po48()
                                                    U Po66(Te 1/1-1/2)
                                                    U Po77()
```

# 40Gb Switch Operation

For Avid NEXIS Engines that connect to Cisco 9372 and 93180 series switches at 40Gb (Avid NEXIS | E5 and Avid NEXIS | E2 SSD), you might need to force 40Gb operation using the following port level commands:

```
speed 40000
no negotiate auto
```

# Network Considerations

Carefully plan for space, environmental, and power requirements for your Avid hardware. This section contains topics related to setting up your Avid network environment.

### Computer Names

A hostname must comply with RFC 952 and RFC 1123 standards. For example, you cannot use an underscore in a hostname. For more information, see the Microsoft Knowledge Base article "Naming Conventions in Active Directory for Computers, Domains, Sites, and OUs."

### Verify Entries on the DNS Server

Make sure that you correct any errors in DNS entries for name to IP resolution. The Avid network can become sluggish and unstable if there are incorrect entries in the DNS server for any of the computers in the Interplay environment. Symptoms include excessive CPU usage by the Interplay Framework Lookup service and Interplay Diagnostics. The tree view in the Interplay Service Configuration or Health Monitor may also fail to populate if there are incorrect DNS entries.

### Configure the DNS Server to Support Reverse Lookup

Make sure that the DNS server is configured to support Reverse Lookups. If not, Interplay Framework cannot resolve IP addresses to host names. Symptoms include; tree views fail to populate in the Interplay Service Configuration, Interplay Diagnostics, and Health Monitor.

### Non-DNS Environments

In a non-DNS environment you must configure a host file on all systems, including Avid Low Res Encode systems. This is necessary so that the Interplay Framework can list the systems in its client applications such as the Interplay Service Configuration or Health Monitor.

### Computers with Multiple Network Interfaces

Computers that have multiple network interfaces in use must be entered in DNS so that all IP addresses have the same hostname.

If you have multiple network interfaces on a computer and one is not used, use the Device Manager to disable the interface. Otherwise, the computer might have problems communicating with the Interplay Framework. If multiple network interfaces are used, adjust the binding order and local specific routes to ensure the intended operation. Use the Advance setting in the Network adapter properties to change the priority order on the network interfaces.

### Configuring an Avid Shared Storage System

On an Avid Production Network, to support clients that are not routed, you must configure a Layer 3 switch to route between subnetworks.

### Know Where Your Subnets Are on the Network

Create a system diagram that identifies the subnets on your Avid network environment. Avid recommends you use Classless Inter-Domain Routing (CIDR) IP ranges of contiguous addresses instead of non-contiguous ranges VLAN 16, 17, 18, 19.

## Time Synchronization

If you already have a system in place to maintain Time Sync on your network, you can continue to use that system. Avid Interplay provides the Interplay Framework Time Synchronization service to perform the same task. Avid has created a detailed guide on synchronizing many Avid products. Search for "A Guide to Time Synchronisation for Avid Interplay Systems" posted on the Avid Knowledge Base at www.avid.com/US/support.

The Avid Time Synchronization Service enables time synchronization between different machines in a workgroup. The Time Synchronization Service can operate in either Master mode or Slave mode. In Master mode, the service retrieves a reference time from a configured time source and redistributes it to the Slave services within the workgroup. The time source can be the local PC clock, an NTP server, or a timecode card installed in a server, such as the CaptureManager server. In Slave mode, the Time Synchronization Service listens for time notifications from the workgroup and (optionally) sets the local PC clock to match.

It is important to use only one time synchronism mechanism to set the local PC clocks in the Interplay environment. If a Time Synchronization Slave service is configured to set the local PC clock and it detects that some other mechanism (such as Windows 32 Time Services) changes the local clock, then the Time Sync Slave service will disable itself to prevent the local clock from jumping back and forth. The Time Sync slave will also post a Warning in the Health Monitor.

# 2 Supported Network Components and Cables

The cables and components described in this section pertain to Avid Engines and switches used in the Avid workgroup environments. Use these guidelines when connecting your clients and workstations to the workgroup.

## Supported Network Interface Cards

Avid sells or supports the following network interface cards (NICs) for use in client systems that will connect to an Avid NEXIS system.

For NICs suitable for VM deployments, also see Interplay Virtualization Best Practices.

*If an operating system version or Avid NEXIS version is not listed for a particular NIC, it is not supported, due to lack of driver support or some other incompatibility.*

| Vendor/Model | Supported OS Versions | Supported Avid NEXIS Versions[a] | Interface[b] | Bus Type | Notes |
|---|---|---|---|---|---|
| Apple/Aquantia **Not supported with Avid ISIS.** | macOS 10.13.x, 10.14.x, 10.15 | v2018.x, v2019.x | 1x10Gb 10GBaseT | | Default on-board 10/1Gb NIC in iMac Pro 1,1 and mac mini 8,1 for 1 or 10Gb connections to Avid NEXIS for use with Media Composer. For more detailed information, see the Mac Current CPU Specifications Guidelines on the Avid Knowledge Base |
| ATTO FFRM-NQ41/42 | Windows 10, Server 2016 | v2018.x, v2019.x | 1 or 2xQSFP+ | PCIe x8 | Use latest driver from www.attotech.com |
| ATTO FFRM-NS 11/12 | Windows 7, 10, Server 2008 R2, Server 2016 RedHat 6.5 CentOS 7.x | v2018.x, v2019.x | 1 or 2x10Gb SFP+ | PCIe x8 | Use latest driver from www.attotech.com |

| Vendor/Model | Supported OS Versions | Supported Avid NEXIS Versions[a] | Interface[b] | Bus Type | Notes |
|---|---|---|---|---|---|
| ATTO FFRM-NT 11/12 | Windows 7, 10, Server 2008 R2, Storage Server 2008 R2<br><br>RedHat 6.5<br><br>CentOS 7.x | v2018.x, v2019.x | 1 or 2x10Gb 10GBaseT | PCIe x8 | Use latest driver from www.attotech.com |
| ATTO TLNQ 3402 | macOS 10.13.x, 10.14.x, 10.15 | v2018.9 or higher, v2019.x | 2 x QSFP+ | Thunderbolt 3 | Bandwidth limited by TB3 bus. Use latest driver from www.attotech.com |
| ATTO TLNS 2102 | macOS 10.13.x, 10.14.x, 10.15 | v2018.x, v2019.x | 1 or 2x10Gb SFP+ | Thunderbolt 2 | Use latest driver from www.attotech.com<br>Avid P/N: 7030-72023-00 |
| ATTO TLNS 3102 | macOS 10.13.x, 10.14.x, 10.15 | 2018.x, 2019.x | 1 or 2x10Gb SFP+ | Thunderbolt 3 | |
| ATTO TLNS 3252 | macOS 10.13.x, 10.14.x, 10.15 | 2018.x, 2019.x | 1 or 2x10Gb SFP+ | Thunderbolt 3 | Device is capable of 2x25Gb but Avid supports only 2x10GB |
| ATTO TLNT 2102 | macOS 10.13.x, 10.14.x, 10.15 | v2018.x, v2019.x | 1 or 2x10Gb 10GBaseT | Thunderbolt 2 | Use latest driver from www.attotech.com<br>Avid P/N: 7030-72024-00 |
| ATTO TLN3 3102 | macOS 10.13.x, 10.14.x, 10.15 | 2018.x, 2019.x | 1 or 2x10Gb SFP+ | Thunderbolt 3 | |
| Intel Converged Ethernet X540-T2 | Windows 7, 10, Server 2008 R2, Storage Server 2008 R2<br><br>RedHat 6.5<br><br>CentOS 7.x | v2018.x, v2019.x | 2x1Gb RJ-45, 2x10Gb RJ-45 | PCIe x8 | |
| Intel Converged Ethernet X710 | Windows 10, Server 2016<br><br>CentOS7.x | v2018.x, v2019.x | 2x10Gb SFP+ | PCIe x8 | Use OS-specific driver for Windows or CentOS. |
| Intel Converged Ethernet X710DA2 | Windows 10, Server 2016 | v2018.x, v2019.x | 2x10Gb SFP+ | PCIe x8 | Driver available from HP website in support under Z840 & Z8 G4 platforms. |

| Vendor/Model | Supported OS Versions | Supported Avid NEXIS Versions[a] | Interface[b] | Bus Type | Notes |
|---|---|---|---|---|---|
| Intel i350, v1 and v2 | Windows 7, 10, Server 2008 R2, Storage Server 2008 R2, Server 2016 <br><br> RedHat 6.5 <br><br> CentOS 7.x | v2018.x, v2019.x | 1, 2, or 4x1Gb RJ-45 or SFP | PCIe x4 | |
| Intel QUAD PORT Ethernet i340 | | Avid ISIS 4.7.x | | | For ISIS 5500 direct attach clients <br> Avid P/N: 7030-30346-01 |
| Intel X722 | Windows 10, Server 2016 | v2018.x, v2019.x | 1 or 2x1Gb, 1 or 2x10Gb add-in option for HP Z6 and Z8 G4 | PCIe x8 | Driver available from HP website in support under Z8 G4 platforms. Add-in card only available for HP Z6 & Z8 platforms |
| Myricom <br> 10G-PCIE2-8C2-2T <br> 10G-PCIE2-8C-T | Windows 7, 10, Server 2008 R2, Storage Server 2008 R2, Server 2016 <br><br> macOS 10.13.x, 10.14.x, 10.15 <br><br> Redhat 6.5 <br><br> CentOS 7.x | v2018.x, v2019.x | 1 or 2x10Gb 10GBaseT | PCIe x8 | |
| Myricom <br> 10G-PCIE-8B-S | Windows 7, 10, Server 2008 R2, Storage Server 2008 R2, Server 2016 <br><br> macOS 10.13.x, 10.14.x <br><br> Redhat 6.5 <br><br> CentOS 7.x | v2018.x, v2019.x | 1x10Gb SFP+ | PCIe x8 | |

| Vendor/Model | Supported OS Versions | Supported Avid NEXIS Versions[a] | Interface[b] | Bus Type | Notes |
|---|---|---|---|---|---|
| Myricom<br><br>10G-PCIE-8B-S<br><br>10G-PCIE2-8C-S | Windows 7, 10, Server 2008 R2, Storage Server 2008 R2, Server 2016<br><br>macOS 10.13.x, 10.14.x, 10.15<br><br>Redhat 6.5<br><br>CentOS 7.x | v2018.x, v2019.x | 2x10Gb SFP+ | PCIe x8 | Avid P/N: 7010-30241-01 |
| Sonnet 10G Solo | macOS 10.13.x, 10.14.x, 10.15 | v2018.6 or higher, v2019.x | 1x10Gb 10GBaseT | Thunderbolt 2 | Download driver from www.sonnettech.com and latest Thunderbolt software for Windows from Intel.<br><br>⚠ **Not supported with Avid ISIS** |
| Sonnet 10G Solo | Windows 10, Server 2016<br><br>macOS 10.13.x, 10.14.x, 10.15 | v2018.6 or higher, v2019.x | 1x10Gb 10GBaseT | Thunderbolt 3 | Download driver from www.sonnettech.com and latest Thunderbolt software for Windows from Intel.<br><br>⚠ **Not supported with Avid ISIS** |
| Sonnet 10G Solo SFP+ | Windows 10, Server 2016<br><br>macOS 10.13.x, 10.14.x, 10.15 | v2018.6 or higher, v2019.x | 1x10Gb SFP+ | Thunderbolt 3 | Download driver from www.sonnettech.com and latest Thunderbolt software for Windows from Intel.<br><br>⚠ **Not supported with Avid ISIS** |
| Sonnet Twin10G | macOS 10.13.x, 10.14.x, 10.15 | v2018.6 or higher, v2019.x | 2x10Gb 10GBaseT | Thunderbolt 2 | Download driver from www.sonnettech.com and latest Thunderbolt software for Windows from Intel.<br><br>⚠ **Not supported with Avid ISIS** |
| Sonnet Twin10G | Windows 10, Server 2016<br><br>macOS 10.13.x, 10.14.x, 10.15 | v2018.6 or higher, v2019.x | 2x10Gb 10GBaseT | Thunderbolt 3 | Download driver from www.sonnettech.com and latest Thunderbolt software for Windows from Intel.<br><br>⚠ **Not supported with Avid ISIS** |

| Vendor/Model | Supported OS Versions | Supported Avid NEXIS Versions[a] | Interface[b] | Bus Type | Notes |
|---|---|---|---|---|---|
| Sonnet Twin10G SFP+ | macOS 10.13.x, 10.14.x, 10.15 | v2018.6 or higher, v2019.x | 2x10Gb SFP+ | Thunderbolt 2 | Download driver from www.sonnettech.com and latest Thunderbolt software for Windows from Intel. ⚠ **Not supported with Avid ISIS** |
| Sonnet Twin10G SFP+ | Windows 10, Server 2016 macOS 10.13.x, 10.14.x, 10.15 | v2018.6 or higher, v2019.x | 2x10Gb SFP+ | Thunderbolt 3 | Download driver from www.sonnettech.com and latest Thunderbolt software for Windows from Intel. ⚠ **Not supported with Avid ISIS** |

a. Avid NEXIS 2019.2.2 is the MINIMUM recommended version.

b. Any vendor-branded NIC using the same chipset as that listed here is considered a suitable substitute.

# 1G, 10G, 40G Transceivers and Direct Attach Cables

Avid sells the following cables and transceivers.

| Avid Part Number | Description |
|---|---|
| **10GbE SFP+ Optical Transceivers** | |
| 9900-65632-00 | Optical 10Gbps transceiver. 10GbE Ethernet SFP+ LC 300m range, SR 850nm wavelength (Default for 10G optical short range) |
| 9900-65652-00 | Optical 10Gbps transceiver. 10GbE Ethernet SFP+ LC 10km range, LR 1310nm wavelength |
| 7070-30026-01 | Dell EMC: 10GigE, SFP+, single, transceiver, SR, 850nm (for Dell EMC PowerSwitch N2024, N3024, N3048, S4048-ON) |
| 7070-30331-01 | Dell EMC: 10GigE, SFP+. single transceiver, LR, 1310nm (for Dell EMC PowerSwitch N2024, N3024, N3048, S4048-ON) |
| 7070-30583-00 | Dell EMC PowerSwitch N2000/N3000 SFP+ 10G transceiver LR (1310 nm) |
| 7070-30329-01 | 10GbE optical SFP+ for Cisco 4948E & C4500-X switches. 850 nm laser compatible with 50 micron MMF cable; 300 meters maximum distance. Cisco Product Number SFP-10G-SR= |
| **10GbE SFP+ Direct Attach Cables (Twinax)** | |
| 7070-30615-01 | Dell Direct Attach 10G Cable. Copper 10GbE SFP+ twinax cable, 1 meter |
| 7070-30615-03 | Dell Direct Attach 10G Cable. Copper 10GbE SFP+ twinax cable, 3 meter |
| 7070-30358-01 | Cisco 10G SFP+ direct attach cable (twinax) 1 meter |
| 7070-30358-03 | Cisco 10G SFP+ direct attach cable (twinax) 3 meter |
| 7070-30358-05 | Cisco 10G SFP+ direct attach cable (twinax) 5 meter |

| Avid Part Number | Description |
|---|---|
| **40GbE SFP+ Direct Attach Cables (Twinax)** | |
| 7070-35071-03 | Avid NEXIS 40GbE QSFP passive copper cable, 3m (Mellanox MC2210128-003) |
| 7070-35071-05 | Avid NEXIS 40GbE QSFP passive copper cable, 5m (Mellanox MC2210126-005) |
| 7070-35040-03 | Dell 40G QSFP+ Direct Attach Cable 3m |
| 7070-35040-05 | Dell 40G QSFP+ Direct Attach Cable 5m |
| **1GbE SFP Copper & Optical Transceivers** | |
| 7070-35076-00 | Dell EMC GP-SFP2-1T single 1GigE RJ45 Copper transceiver (407-BBTS) for Dell EMC PowerSwitch S4048 |
| 7070-30584-00 | Dell EMC PowerSwitch N3000 SFP 1000Base-Sx 850nm. 1GbE optical transceiver for Dell EMC PowerSwitch N3024/3048 |
| 7070-30589-00 | Cisco C4500-X 1000Base-T SFP+ |
| **Miscellaneous** | |
| 9900-65653-00 | Spare QSFP to SFP+ adapter (QSA) for Avid NEXIS \| PRO and E5 NL controller 10 Gigabit Ethernet interface |

# Patch Cables

When planning your cable routes, make sure your cables cannot be damaged by traffic or moving objects. The network interface ports in Avid NEXIS systems work with any cable supported by the vendor for their switches. For convenience, Avid sells the following cables.

*If you need run your cables greater distances, call Avid Customer Support for supported cable and accessory information. For cable connections, see the Avid Setup Guide for your product.*

| Avid Part Number | Connection Type | Description | Purpose |
|---|---|---|---|
| 7070-03056-01 | Gigabit Ethernet (Cat5-E) RJ45 connector Up to 100 Meters maximum, subject to EIA/TIA recommendations and limitations. The minimum 1Gb cable length for Avid network products is 6 feet or 2 meters. | 3 meter copper Cat5-E Gigabit Ethernet cable, RJ-45 connectors | Connects: • Avid NEXIS management port to a laptop • Clients to 1 or 10 Gb ports • Avid Interplay servers to shared storage networks • Avid AirSpeed capture and playback servers to shared storage networks |
| 7070-03056-15 | | 5 meter copper Cat5-E Gigabit Ethernet cable, RJ-45 connectors | |
| 7070-03056-25 | | 8 meter copper Cat5-E Gigabit Ethernet cable, RJ-45 connectors | |

| Avid Part Number | Connection Type | Description | Purpose |
|---|---|---|---|
| 3m, LC/LC: 7070-03117-01<br><br>5m, LC/LC: 7070-03117-05<br><br>10m, LC/LC: 7070-03117-10<br><br>3m, SC/LC: 7070-03104-01<br><br>5m, SC/LC: 7070-03104-05<br><br>10m, SC/LC: 7070-03104-10<br><br>3m, SC/SC: 7070-03055-01 | Optical for 10GbE | Optical multi-mode cable for 10 Gigabit Ethernet, LC connectors<br><br>• OM1 (62.5/125) —<br>  - 1Gb Ethernet, 275 meters (SX)<br>  - 10Gb Ethernet, 33 meters (SR)<br><br>• OM2 (50/125) —<br>  - 1Gb Ethernet, 550 meters (SX)<br>  - 10Gb Ethernet, 82 meters (SR)<br><br>• OM3 (50/125) —<br>  - 1Gb Ethernet, 550 meters (SX)<br>  - 10Gb Ethernet, 300 meters (SR)<br><br>• OM4 (50/125) —<br>  - 1Gb Ethernet, 1000 meters (SX)<br>  - 10Gb Ethernet, 400 meters (SR) | Connects:<br><br>• 1Gb switch port to 1Gb client<br>  - Windows – Intel Pro 1000 PF<br>  - Macintosh – Small Tree PEG2F<br><br>• 10Gb port of switch to optical 10Gb port on the Avid NEXIS Engine.<br><br>• 10Gb Client to 10Gb Switch port<br><br>• 10Gb Ethernet switch to 10Gb Ethernet Switch |
| | | The maximum length for optical Ethernet cables is limited by the core diameter (measured in microns) and modal bandwidth (in units of MHz*km). | |
| | | Avid supports multi-mode fiber (MMF) cable using 850 nm transceivers (1000BASE-SX short distances). For specifications see the ISO 11801 structured cabling document.<br><br>**Avid supports single-mode fiber cable using 1310 nm transceivers** (long distances) | |
| | | ⚠ **When connecting to the 10Gb port, make sure that:**<br>**– The cable has the required modal bandwidth for the distance of the run.**<br>**– All multimode cables between a switch port and the other end of the cable run are of the same diameter (for example, 50/125 um or 62.5/125 um).** | |
| | | ⚡ **Single mode transceivers are a Class 1 laser product per IEC 60825-1 Amendment 2(2001) and IEC 60825-2 1997. Operating this product in a manner inconsistent with intended usage and specification may result in hazardous radiation exposure.** | |
| N/A | | Cisco 93xx: QSFP-4SFP10G-CU (0.5m, 1m, 2m, 3m, 4m, 5m) | |
| 7070-30581-00 | Interswitch connection (stacking) | Dell EMC PowerSwitch N3000 Stacking cable 0.5m | |

# 3 Client Network Adapter Reference

This chapter describes the default settings for Windows clients that are set automatically by the Avid NEXIS Client software, and the values set by the OS or the Myricom driver for Mac clients.

This chapter also includes the procedure to change the settings if necessary.

The Avid Client installer and Client Manager do not check for or change any network adapter settings on Linux systems.

## 1Gb Network Adapter Settings for Windows

When you install the client software and each time you start the Client Manager, especially on Windows clients, some network adapter settings are checked and changed automatically if necessary. The following settings for Windows clients are provided for reference.

**1Gb Network Adapters**

| Option | Setting |
| --- | --- |
| Receive Buffers | 1024 |
| Transmit Buffers | 1024 |

## 10Gb Network Adapter Settings for Windows (Myricom)

The Avid NEXIS Client software for Windows clients sets the Myricom driver settings automatically. The following table provides the Myricom 10Gb network adapter settings as a reference.

**Myricom 10Gb Network Settings**

| Option | Setting |
| --- | --- |
| Flow Control | On |
| Interrupt Coalescing Delay | 2 |
| Receive Buffers | 2048 |
| MTU | 1500 |
| Receive Side Scaling (RSS) | Disabled |

Under normal circumstances, you do not have to change the network adapter settings. The Client installer checks for specific hardware platforms (Intel and Myricom) and makes changes only to those.

For other adapters, you can change the settings manually. The following procedure is provided for reference.

**To configure the 10Gb Myricom network adapter in Windows clients:**

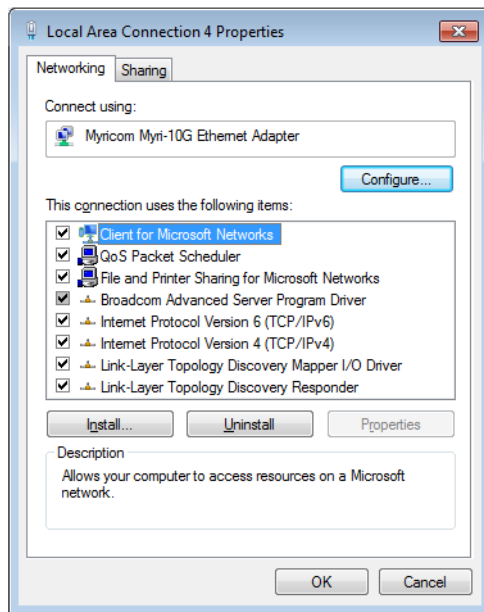1. Click Start and type `ncpa.cpl` in the Search text box.
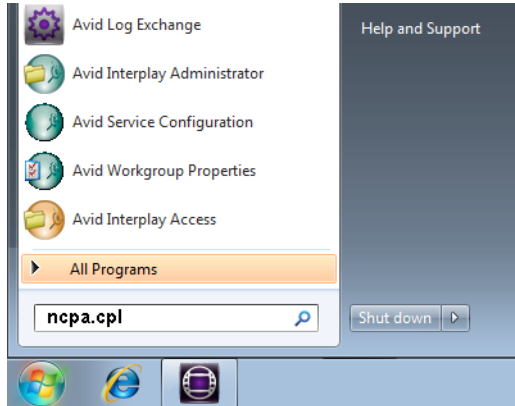


(On Windows 8, open the Search text box by pressing the Windows key on your keyboard and start typing on the Windows 8 desktop.)
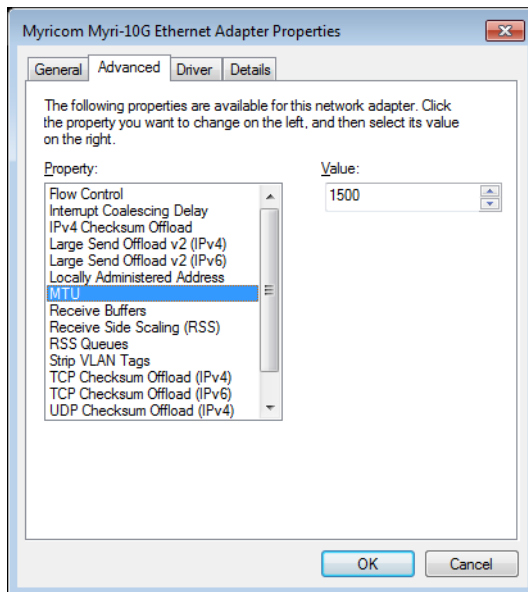
2. Right-click on the Myricom adapter and select Properties.
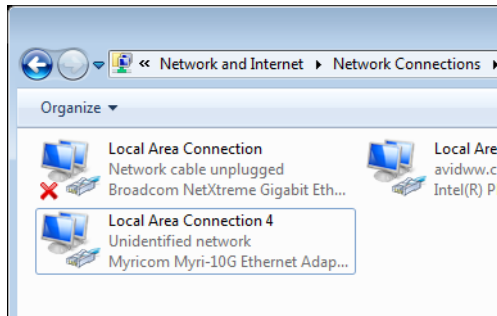


3. Click Configure.

4. Click the Advanced tab.



5. Click OK.

After changing the Myricom adapter settings, restart your client system.

# Network Settings for Mac (Myricom)

On 1 Gb Mac clients, the OS sets the MTU value appropriately. On 10Gb Mac clients, the Myricom driver supplied by Avid sets the MTU value appropriately. For reference, the network settings are provided in the following table.

*If you download and install the driver directly from Myricom (CSPi), turn off Jumbo Frames for 10Gb clients.*

**Myricom 10Gb Network Settings**

| Option | Setting |
| --- | --- |
| Configure | Manually |
| Speed | Autoselect |
| Duplex | Full - Duplex, Flow-Control |
| MTU | Standard (1500) |

# 40Gb Network Settings for Windows (ATTO)

For the ATTO FFRM-NQ 41/42 NIC for 40G Windows clients, the Receive Buffer parameter is changed from 512 (default) to 2048.

# 4 Requirements

The Avid hardware components are fully rack-mountable. They are compatible with any standard 19-inch video racks using either NEMA or EIA mounting-hole layouts.

## Electrical Requirements

Consider installing a separately derived power system for your Avid shared storage hardware. This ensures that you can control the hardware grounding, with all grounds brought to a single point, and that uncontrolled equipment, such as coffee makers or floor polishers, cannot be plugged into the same power source as the Avid shared storage hardware.

If you do not create a separately derived power system, make sure the power outlets are from the same distribution panel. This helps prevent the occurrence of ground loops that can be caused by plugging equipment into power sources with different ground potentials.

If you run more than one power line because you have more than one UPS, make sure the power lines come from the same distribution panel.

**Have all the electrical work at your site done by a licensed electrician. All the electrical changes must meet country, state, and local electrical codes.**

As you choose the location for your Avid shared storage hardware, keep these electrical requirements in mind:

- Make sure there is adequate, dedicated power for the UPSs that are part of your Avid shared storage workgroup.

*Avid recommends the use of UPSs, appropriately sized for your Avid shared storage workgroup, or conditioned power in your computer room environment. This provides protection against sudden power surges or losses that could cause you to lose files or experience data corruption.*

- Make sure your location is away from major electrical equipment such as motors, air conditioners, or elevators.
- Make sure the location is not subject to electrostatic buildup.
- Plug only your Avid hardware into the power strips. Do not plug in coffee makers, radios, lights, or other non-Avid devices.

The following table shows the electrical specifications for the Avid qualified and approved switches. Make sure your site meets these specifications.

# Environmental Requirements

The Avid NEXIS and Interplay hardware and switches are intended for use computer-room environments. They are not intended for use on top of desks or in open office environments. When you select a location, make sure that the location meets the following requirements:

- A sturdy, level floor, not subject to vibration.

- Away from high-traffic areas.

- Clean and free from dust, smoke, or other airborne contaminants.

- No significant temperature changes. Choose a location where the temperature does not vary more than 18°F (7.78°C) per hour.

- No significant humidity changes. A location with approximately 40 percent humidity can prevent problems stemming from electrostatic discharge.

- Adequate space in front of and behind the rack. You must be able to connect cables and service parts of your hardware. It also needs adequate airflow for cooling.