

Harmonic MediaGrid File System Driver

Release 4.0

User Guide

Manual Part No. N/A

July 2018

Copyright © 2016–2018 Harmonic Inc. All rights reserved. Harmonic, the Harmonic logo, Omneon, the Omneon logo, [all other Harmonic products mentioned] are trademarks, registered trademarks or service marks of Harmonic Inc. in the United States and other countries. Dolby, Dolby Digital, Dolby Digital Plus and Dolby E are registered trademarks of Dolby Laboratories. Implementations of AAC and HE-AAC by Fraunhofer IIS. Other company, product and service names mentioned herein may be trademarks or service marks of their respective owners. All product and application features and specifications are subject to change at Harmonic's sole discretion at any time and without notice.

Disclaimer

Harmonic® reserves the right to alter the product specifications and descriptions in this publication without prior notice. No part of this publication shall be deemed to be part of any contract or warranty unless specifically incorporated by reference into such contract or warranty. The information contained herein is merely descriptive in nature, and does not constitute a binding offer for sale of the product described herein. Harmonic assumes no responsibility or liability arising from the use of the products described herein, except as expressly agreed to in writing by Harmonic. The use and purchase of this product does not convey a license under any patent rights, copyrights, trademark rights, or any intellectual property rights of Harmonic. Nothing hereunder constitutes a representation or warranty that using any product in the manner described herein will not infringe any patents of third parties.

Third-party product trademarks

Adobe® After Effects®, Photoshop®, Flash® Professional, Premiere®
Avid® Media Composer®
Jünger Audio™
Apple® QuickTime®
Microsoft® Mediaroom®
Microsoft PlayReady®
DOCSIS® 3.0
Start Over® TV

Dolby is a registered trademark of Dolby Laboratories.

Dolby Digital, Dolby Digital Plus, Dolby Pulse, aacPlus, AC-3, and Dolby® E are trademarks of Dolby Laboratories.

Level Magic and Jünger are trademarks of Jünger Audio Studioteknik GmbH.

MPEG Audio technology licensed from Fraunhofer IIS <http://www.iis.fraunhofer.de/amm/>.

PitchBlue® is a registered trademark of Vigor Systems.

QuickTime and the QuickTime logo are trademarks or registered trademarks of Apple Computer, Inc., used under license therefrom.

Third-party copyright notes

Harmonic software uses version 3.15.4 of the FreeImage open source image library under FreeImage Public License (FIPL). See <http://freeimage.sourceforge.net> for details. The product may include implementations of AAC and HE-AAC by Fraunhofer IIS; and MPEG Audio technology licensed from Fraunhofer IIS.

The software described in this publication may use version 2.8 of FFmpeg open source package under Lesser General Public License (LGPL).



The software described in this publication is furnished under a nondisclosure agreement, or the License Agreement and Limited Warranty stated below, and the end user license agreement (which is furnished with the software), which may have additional terms. The software may be used or copied only in accordance with the terms of those agreements. By using the software, you acknowledge you have read the end user license agreement and the License Agreement and Limited Warranty provision.

The product described in this publication maybe covered by one or more of U.S. Patents, their foreign counterparts and pending patent applications.

The product is distributed with certain other software that may require disclosure or distribution of licenses, copyright notices, conditions of use, disclaimers and/or other matter. Use of this product or otherwise fulfilling their conditions constitutes your acceptance of it, as necessary. Copies of such licenses, notices, conditions, disclaimers and/or other matter are available in any one of the following locations: the LEGAL NOTICES AND LICENSES section of the documentation directory of the product, user guide, or by contacting us at support@harmonicinc.com.

Notice

Information contained in this publication is subject to change without notice or obligation. While every effort has been made to ensure that the information is accurate as of the publication date, Harmonic Inc. assumes no liability for errors or omissions. In addition, Harmonic Inc. assumes no responsibility for damages resulting from the use of this guide.

License agreement and limited warranty

1. AGREEMENT: This is a legal agreement ("Agreement") between you ("you" or "your") and Harmonic, or its appropriate local affiliate ("Harmonic", "we", "us" or "our"). Use of our product(s) and any updates thereto purchased or validly obtained by you (the "Products"), and/or the Software (as defined below) (collectively, the "System"), constitutes your acceptance of this Agreement. "Use" includes opening or breaking the seal on the packet containing this Agreement, installing or downloading the Software as defined below or using the Software preloaded or embedded in your System. As used herein, the term "Software" means the Harmonic owned software and/or firmware used in or with the Products and embedded

-
- into, provided with or loaded onto the Products in object code format, but does not include, and this Agreement does not address, any third-party or free or open source software separately licensed to you ("Third Party Software"). If you do not agree to this Agreement, you shall promptly return the System with a dated receipt to the seller for a full refund.
2. LICENSE: Subject to the terms and conditions of this Agreement (including payment), we hereby grant you a nonexclusive, nontransferable license to use the object code version of the Software embedded into, provided solely for use with or loaded onto the Product, and the accompanying documentation ("Documentation") for your internal business purposes. The Software and any authorized copies are owned by us or our suppliers, and are protected by law, including without limitation the copyright laws and treaties of the U.S.A. and other countries. Evaluation versions of the Software may be subject to a time-limited license key.
 3. RESTRICTIONS: You (and your employees and contractors) shall not attempt to reverse engineer, disassemble, modify, translate, create derivative works of, rent, lease (including use on a timesharing, applications service provider, service bureau or similar basis), loan, distribute, sublicense or otherwise transfer the System, in whole or part except to the extent otherwise permitted by law. The Software may be operated on a network only if and as permitted by its Documentation. You may make one (1) back up copy of the object code of the Software for archival purposes only. Evaluation Software will be run in a lab, nonproductive environment. Results of any benchmark or other performance tests may not be disclosed to any third party without our prior written consent. Title to and ownership of the Software and Documentation, and all copyright, patent, trade secret, trademark, and other intellectual property rights in the System, shall remain our or our licensors' property. You shall not remove or alter any copyright or other proprietary rights notice on the System. We reserve all rights not expressly granted.
 4. LIMITED WARRANTY: (a) Limited Warranty. We warrant to you that, commencing on your receipt of a Product and terminating 1 year thereafter, the System will perform substantially in accordance with its then-current appropriate Documentation. The Product (including replacements) may consist of new, used or previously-installed components. (b) Remedies. If the System fails to comply with such warranty during such period, as your sole remedy, you must return the same in compliance with our product return policy, and we shall, at our option, repair or replace the System, provide a workaround, or refund the fees you paid. Replacement Systems are warranted for the original System's remaining warranty period. (c) Exclusions. EVALUATION SOFTWARE IS LICENSED ON AS-IS BASIS AND SUBJECT TO 4(d). We will have no obligation under this limited warranty due to: (i) negligence, misuse or abuse of the System, such as unusual physical or electrical stress, misuse or accidents; (ii) use of the System other than in accordance with the Documentation; (iii) modifications, alterations or repairs to the System made by a party other than us or our representative; (iv) the combination, operation or use of the System with equipment, devices, software or data not supplied by us; (v) any third party hardware or Third Party Software, whether or not provided by us; (vi) any failure other than by us to comply with handling, operating, environmental, storage or maintenance requirements for the System in the Documentation, including, without limitation, temperature or humidity ranges. (d) Disclaimers. We are not responsible for your software, firmware, information, or data contained in, stored on, or integrated with any Product returned to us for repair or replacement. SUCH LIMITED WARRANTY IS IN LIEU OF, AND WE SPECIFICALLY DISCLAIM, ANY AND ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF SATISFACTORY QUALITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. WE DO NOT WARRANT THAT THE SYSTEM WILL MEET YOUR REQUIREMENTS OR BE UNINTERRUPTED OR ERROR-FREE. NO ADVICE OR INFORMATION, WHETHER ORAL OR WRITTEN, OBTAINED FROM US OR ELSEWHERE, WILL CREATE ANY WARRANTY NOT EXPRESSLY STATED IN THIS AGREEMENT. Some jurisdictions do not allow the exclusion of implied warranties or limitations on how long an implied warranty may last, so such exclusions may not apply to you. In that event, such implied warranties or limitations are limited to 60 days from the date you purchased the System or the shortest period permitted by applicable law, if longer. This warranty gives you specific legal rights and you may have other rights which vary from state to state or country to country.
 5. LIMITATION OF LIABILITY: WE AND OUR AFFILIATES, SUPPLIERS, LICENSORS, OR SALES CHANNELS ("REPRESENTATIVES") SHALL NOT BE LIABLE TO YOU FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR EXEMPLARY DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO LOST REVENUES, PROFITS OR SAVINGS, OR THE COST OF SUBSTITUTE GOODS, HOWEVER CAUSED, UNDER CONTRACT, TORT, BREACH OF WARRANTY, NEGLIGENCE, OR OTHERWISE, EVEN IF WE WERE ADVISED OF THE POSSIBILITY OF SUCH LOSS OR DAMAGES. NOTWITHSTANDING ANY OTHER PROVISIONS OF THIS AGREEMENT, WE AND OUR REPRESENTATIVES' TOTAL LIABILITY TO YOU ARISING FROM OR RELATING TO THIS AGREEMENT OR THE SYSTEM SHALL BE LIMITED TO THE TOTAL PAYMENTS TO US UNDER THIS AGREEMENT FOR THE SYSTEM. THE FOREGOING LIMITATIONS SHALL NOT APPLY TO DEATH OR PERSONAL INJURY TO PERSONS OR TANGIBLE PROPERTY IN ANY JURISDICTION WHERE APPLICABLE LAW PROHIBITS SUCH LIMITATION. YOU ARE SOLELY RESPONSIBLE FOR BACKING UP YOUR DATA AND FILES, AND HEREBY RELEASE US AND OUR REPRESENTATIVES FROM ANY LIABILITY OR DAMAGES DUE TO THE LOSS OF ANY SUCH DATA OR FILES. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO SUCH EXCLUSIONS MAY NOT APPLY TO YOU.
 6. CONFIDENTIALITY: Information in the System and the associated media, as well as the structure, organization and code of the Software, are proprietary to us and contain valuable trade secrets developed or acquired at great expense to us or our suppliers. You shall not disclose to others or utilize any such information except as expressly provided herein, except for information (i) lawfully received by the user from a third party which is not subject to confidentiality obligations; (ii) generally available to the public without breach of this Agreement; (iii) lawfully known to the user prior to its receipt of the System; or (iv) required by law to be disclosed.
 7. SUPPORT: Updates, upgrades, fixes, maintenance or support for the System (an "Upgrade") after the limited warranty period may be available at separate terms and fees from us. Any Upgrades shall be subject to this Agreement, except for additional or inconsistent terms we specify. Upgrades do not extend the limited warranty period.
 8. TERM; TERMINATION: The term of this Agreement shall continue unless terminated in accordance with this Section. We may terminate this Agreement at any time upon default by you of the license provisions of this Agreement, or any other material default by you of this Agreement not cured with thirty (30) days after written notice thereof. You may terminate this Agreement any time by terminating use of the System. Except for the first sentence of Section 2 ("License") and for Section 4(a) ("Limited Warranty"), all provisions of this Agreement shall survive termination of this Agreement. Upon any such termination, you shall certify in writing such termination and non-use to us.
 9. EXPORT CONTROL: You agree that the Products and Software will not be shipped, transferred, or exported into any country or used in any manner prohibited by the United States Export Administration Act or any other export laws, restrictions, or regulations (the "Export Laws"). You will indemnify, defend and hold us harmless from any and all claims arising therefrom or relating thereto. In addition, if the Products or Software are identified as export controlled items under the Export Laws, you represent and warrant that you are not a citizen, or otherwise located within, an embargoed nation (including without limitation Iran, Iraq, Syria, Sudan, Libya, Cuba, North Korea, and Serbia) and that you are not otherwise prohibited under the Export Laws from receiving the Software. All rights to the Products and Software are granted on condition that such rights are forfeited if you fail to comply with the terms of this Agreement.
 10. U.S. GOVERNMENT RIGHTS: The Software and the documentation which accompanies the Software are "Commercial Items," as that term is defined at 48 C.F.R. §2.101, consisting of "Commercial Computer Software" and "Commercial Computer Software Documentation," as such terms are used in 48 C.F.R. §12.212 or 48 C.F.R. §227.7202, as applicable. Consistent with 48 C.F.R. §12.212 or 48 C.F.R. §§227.7202-1 through

227.7202-4, as applicable, the Commercial Computer Software and Commercial Computer Software Documentation are being licensed to U.S. Government as end users (a) only as Commercial Items and (b) with only those rights as are granted to all other end users pursuant to the terms and conditions herein. Harmonic, 4300 North First Street, San Jose, CA 95134, U.S.A.

11. **GENERAL:** You shall not assign, delegate or sublicense your rights or obligations under this Agreement, by operation of law or otherwise, without our prior written consent, and any attempt without such consent shall be void. Subject to the preceding sentence, this Agreement binds and benefits permitted successors and assigns. This Agreement is governed by California law, without regard to its conflicts of law principles. The U.N. Convention on Contracts for the International Sale of Goods is disclaimed. If any claim arises out of this Agreement, the parties hereby submit to the exclusive jurisdiction and venue of the federal and state courts located in Santa Clara County, California. In addition to any other rights or remedies, we shall be entitled to injunctive and other equitable relief, without posting bond or other security, to prevent any material breach of this Agreement. We may change the terms, conditions and pricing relating to the future licensing of our Systems and other intellectual property rights, including this Agreement, from time to time. No waiver will be implied from conduct or failure to enforce rights nor effective unless in a writing signed on behalf of the party against whom the waiver is asserted. If any part of this Agreement is found unenforceable, the remaining parts will be enforced to the maximum extent permitted. There are no third-party beneficiaries to this Agreement. We are not bound by additional and/or conflicting provisions in any order, acceptance, or other correspondence unless we expressly agree in writing. This Agreement is the complete and exclusive statement of agreement between the parties as to its subject matter and supersedes all proposals or prior agreements, verbal or written, advertising, representations or communications concerning the System.

Every reasonable attempt has been made to comply with all licensing requirements for all components used in the system. Any oversight is unintentional and will be remedied if brought to the attention of Harmonic at support@harmonicinc.com.

Documentation conventions

In Harmonic documents, special symbols and fonts call your attention to important information.

-  **DANGER:** The Danger symbol indicates information that, if ignored, can cause physical harm to you.
-  **CAUTION:** The Caution symbol indicates information that, if ignored, can adversely affect the performance of your Harmonic product, or that can make a procedure needlessly difficult.
-  **NOTE:** The Note symbol indicates especially important information you need, or it may provide additional information that applies in only some carefully delineated circumstances.
-  **IMPORTANT:** The Important symbol indicates information that should stand out when you are reading product details and procedural information.
-  **TIP:** The Tip symbol indicates parenthetical information that is not necessary for performing a given procedure, but which, if followed, makes the procedure easier, smoother, or more efficient.

In addition to these symbols, this guide may use the following text conventions:

Convention	Explanation
Typed Command	Indicates the text that you type in at the keyboard prompt.
Ctrl, Ctrl + Shift	A key or key sequence to press.
<i>http://www.harmonicinc.com</i>	The italics in blue text to indicate Cross-references, and hyperlinked cross-references in online documents.
Bold	Indicates a button to click, or a menu item to select.
Screen Output	The text that is displayed on a computer screen.
<i>Emphasis</i>	The italics text used for emphasis and document references.

Table of Contents

Chapter 1: Introduction.....	7
Chapter 2: Mounting the Harmonic MediaGrid file system.....	8
Mounting the file system on a Windows client.....	8
Configuring Windows FSD parameters.....	9
Avoiding username and password prompt.....	15
Configuring unattended connections.....	15
Mounting the Harmonic MediaGrid from the ProMedia X Origin server.....	16
Mounting the file system on a Macintosh client.....	16
Creating a user-level mount.....	16
Creating a system-level mount.....	21
Additional mount options for Macintosh clients.....	23
Displaying connected Harmonic MediaGrid systems on the desktop.....	26
Accessing the file system using Final Cut Pro.....	26
Unmounting the Harmonic MediaGrid file system.....	26
Mounting the file system on a Linux client.....	27
Mount options for Linux clients.....	27
Mount options for post-production workflows.....	29
Chapter 3: Managing credentials and permissions.....	30
Administrator credentials.....	30
Adding Windows FSD user credentials using the GUI.....	31
Removing Windows FSD user credentials using the GUI.....	32
Windows CLI commands for managing Windows FSD users.....	32
About Access Control Lists.....	32
Viewing file and directory permissions on Windows.....	33
Changing security permissions on Windows.....	33
Linux and Macintosh file permissions.....	34
Viewing and changing file and directory permissions on Linux.....	34
Chapter 4: Managing network interfaces for communication with the Harmonic MediaGrid.....	36
Network interface requirements.....	36
Enabling multi-NIC usage on Linux.....	37
Opening network ports to enable client access.....	37
Chapter 5: Managing memory usage by the File System Driver.....	38
Memory usage parameters.....	38
Additional memory usage parameters for Linux clients.....	39
Calculating maximum cache size.....	40

Setting memory usage parameters on Linux clients.....	40
Configuring an SSD Media Cache.....	41
About SSD Media Cache.....	41
Configuring an SSD Media Cache for Windows FSD.....	42
Configuring an SSD Media Cache for Macintosh FSD.....	44
 Chapter 6: Using mgcopy to copy files between file systems.....	 46
Starting mgcopy.....	46
mgcopy options.....	46
 Chapter 7: Using mgquota on a Macintosh FSD client.....	 48
 Chapter 8: Setting up soft links.....	 49
 Appendix A: Contacting Harmonic technical support.....	 50
Harmonic Technical Assistance Center contact information.....	50
Harmonic corporate contact information.....	51

Chapter 1

Introduction

The File System Driver provides access to the Harmonic MediaGrid file system from your Windows, Macintosh, or Linux client computer.

This guide provides instructions for mounting the file system to the client computer and customizing the available mount options according to the requirements of your workflow.

For installation instructions and important operational notes, refer to the latest version of the *Harmonic MediaGrid FSD Release Notes*.

Mounting the Harmonic MediaGrid file system

Find instructions for mounting the file system to your client computer and modifying the mount options that are available for your particular client.

- [Mounting the file system on a Windows client](#)
- [Mounting the file system on a Macintosh client](#)
- [Mounting the file system on a Linux client](#)

Mounting the file system on a Windows client

Before you can access files in the Harmonic MediaGrid file system, you must mount the file system to your client computer and then authenticate.

1. Select **Start > Computer > Map Network Drive**.
2. In the **Folder** field, enter the Harmonic MediaGrid server and file system name as a standard UNC pathname.

Example: `\\10.4.48.201\testfs`



NOTE: This information is case-sensitive.

3. If you wish to automatically connect to the file system every time you login, select **Reconnect at logon**.
4. Click **Finish**.

Result:

A dialog appears, prompting you to enter the credentials you will use to access the Harmonic MediaGrid. The credentials you enter will be used for access checks when accessing files and for the ownership of new files you create.

The screenshot shows a standard Windows authentication dialog box. At the top, the path '\\10.4.48.201\testfs' is displayed. On the left side, there is a small icon of a server rack. The main area contains three text input fields labeled 'UserName', 'Password', and 'Domain'. Below these fields are two checkboxes: 'Remember Password for this Computer' and 'Remember Password for this User'. At the bottom of the dialog are two buttons: 'OK' and 'Cancel'.

Figure 2-1: Harmonic MediaGrid authentication

5. Enter a valid, case-sensitive **UserName** and **Password**.
6. Optionally, enter a **Domain**.
7. If you would like all users of this client system to automatically use the entered credentials when connecting to this file system, select **Remember Password for this Computer**.
8. If you would like just this logged in user to automatically use the entered credentials when connecting to this file system, select **Remember Password for this User**.
9. Click **OK**.

Result: You may now access the folders and files in the connected file system.

 **NOTE:** If, after connecting to the file system, you wish to switch to a different user credential, you must first log off the Windows session.

Configuring Windows FSD parameters

Adjust the File System Driver parameters according to the requirements of your workflow. If you are unsure of what values to enter, please contact Harmonic technical support for assistance.

Launch the Windows FSD as follows:

1. Open the **Control Panel**.
2. Under **View by**, click either **Large icons** or **Small icons** to view a list of all Control Panel items.
3. Double-click Harmonic MediaGrid to open the applet.

Configuring performance parameters

The **Performance** tab allows you to control the physical RAM usage by the File System Driver.

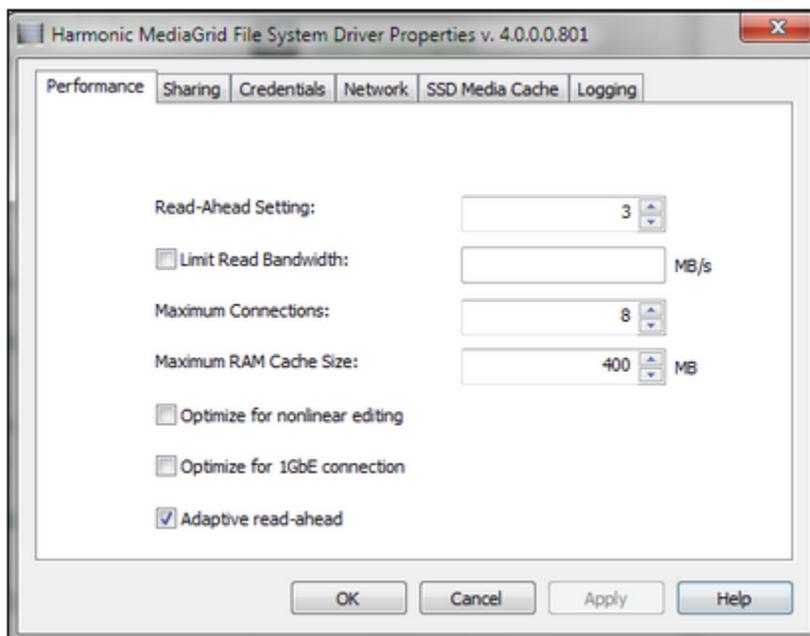


Figure 2-2: Performance tab

NOTE: The default values are sufficient for most workflows. If you are unsure of whether you should change these values, please contact Harmonic technical support for assistance.

1. From the **Performance** tab, modify the parameters as required for your workflow.

Read-Ahead Setting This setting specifies the amount of ReadAhead data (in slices) to be pre-fetched for each open/active file.

Min/Max/Default: 0/50/3 slices

Limit Read Bandwidth

You can limit the rate of data read traffic associated with the Harmonic MediaGrid on this client. Increase the read bandwidth limit if applications experience unacceptably poor performance. Decrease the MB/s if you wish to further reduce read bandwidth on this client.

NOTE: This setting applies to all mounts on the File System Driver client, including any existing mounts.

Min/Max/Default: 1/12500/0 (Off) MB/s

Maximum Connections

This is the maximum number of connections the FSD will make to the ContentDirector. These connections are used for meta data operations, not for file data transfers.

NOTE: Harmonic recommends that you leave the default value of 8 unless directed by Harmonic technical support, or by the documentation associated with your application.

Min/Max/Default: 4/64/8 connections

Maximum Cache Size This setting limits the amount of physical memory used for caching file data in the FSD. The configured cache space is shared by all connections to the Harmonic MediaGrid. If your workflow requires many files to be read simultaneously, or if you have increased the **Read-ahead** setting, you might also need to increase the maximum cache size.



NOTE: The maximum cache size should not exceed 25% of the physical memory.

Min/Max/Default: 100/25% total RAM/400 MB

Optimize for nonlinear editing

This option can improve performance for specific workflows by altering the behavior of file reading in the FSD, and is particularly useful to non-linear editing applications. To lessen additional load on the network and on the Harmonic MediaGrid, do not select this option for workflows other than video editing. Turn this option off when other FSD clients in non-linear editing workflows require high read priority.

Default: Off

Adaptive read-ahead Detects read pattern and schedule read ahead for desired data. Turn this option off for workloads other than video processing to lessen additional load on the network and on your Harmonic MediaGridserver.

Default: On

2. Click **Apply**.

Result: Changes take effect immediately.

Related information

[Memory usage parameters](#)

Configuring sharing parameters

The File System Driver provides two parameters to help you manage shared files.

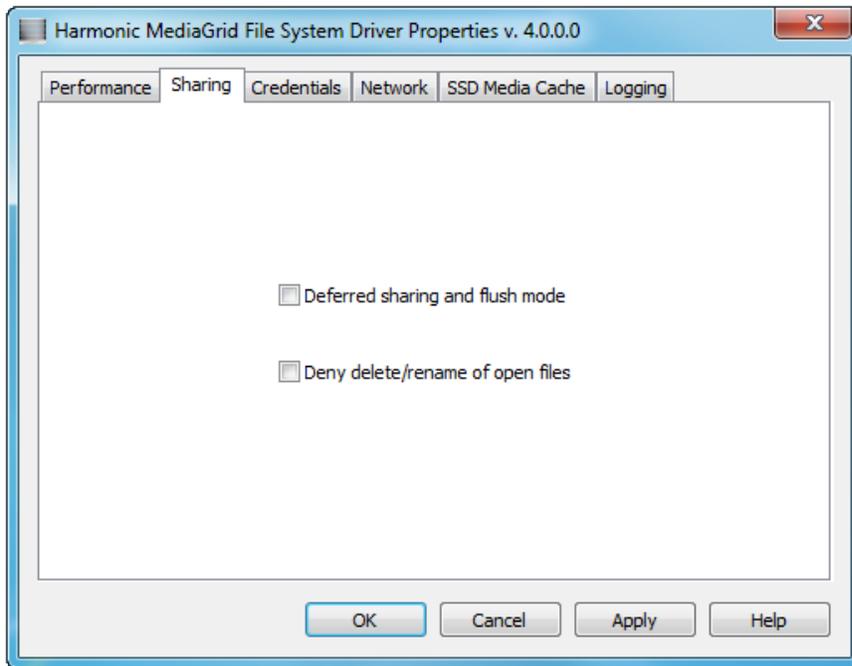


Figure 2-3: Sharing tab

1. From the **Sharing** tab, modify the options as required by your workflow:

Deferred sharing and flush mode

Select this option when you wish to prioritize the file close operation and delay the transfer of modified data to the Harmonic MediaGrid.



NOTE: Turning this option on will increase the latency experienced by other clients attempting to access the same files being written by this client.

Default: Off

Deny delete/rename of open files

Select this option to prevent files which are in active use by this client (in the application "open" state) from being deleted or renamed by another client.



NOTE: In order for this setting to be effective, the Windows FILE_SHARE_DELETE flag must be turned off.

Default: Off

2. Click **Apply**.

Result: Changes take effect immediately.

Configuring the network interface for communication with the Harmonic MediaGrid

If your computer has multiple Ethernet ports, the File System Driver allows you to configure which Ethernet port(s) to use for transferring file data to and from the Harmonic MediaGrid.

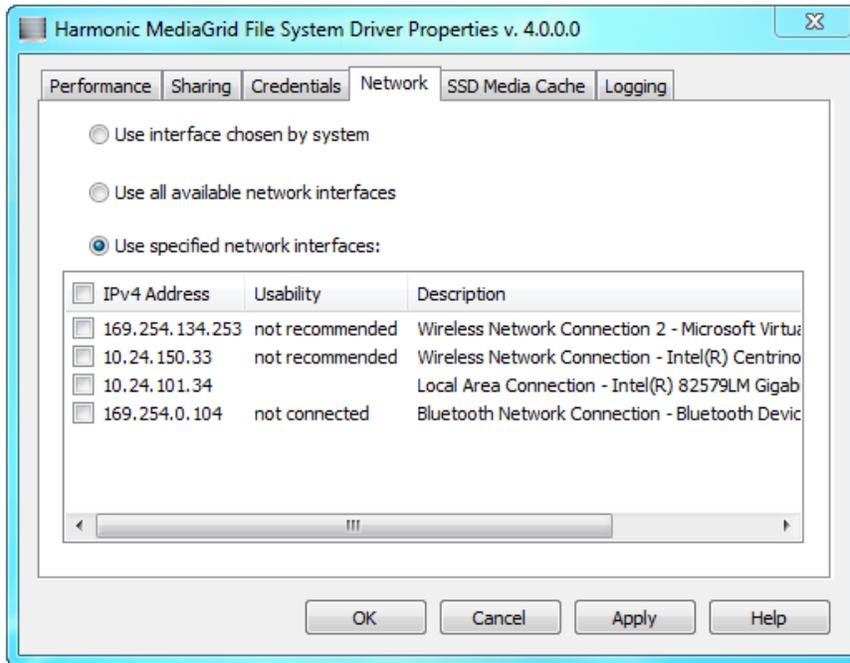


Figure 2-4: Network tab

NOTE: You must restart your computer in order for a change to this setting to take effect.

1. From the **Network** tab, select the option that is required by your workflow:

Use interface chosen by system This is the default setting and must remain selected if the client computer has only one Ethernet port.

Use all available network interfaces If your system has multiple Ethernet ports with equal bandwidth capabilities, you may select this setting to enable all ports to communicate with the Harmonic MediaGrid.

Use specified network interfaces Select this option when there may be an advantage over allowing the operating system to select the interface. For example, if your computer has both a 1GbE NIC and a 10 GbE NIC, you might wish to specify the 10 GbE NIC for communication with the Harmonic MediaGrid.

2. Click **Apply**.
3. Click **OK** to exit the applet.
4. Restart your computer in order for the change to take effect.

Related information

[Network interface requirements](#)

Configuring logging preferences

The default logging settings are sufficient in most cases; however, Harmonic technical support might ask you to change logging parameters for troubleshooting purposes.

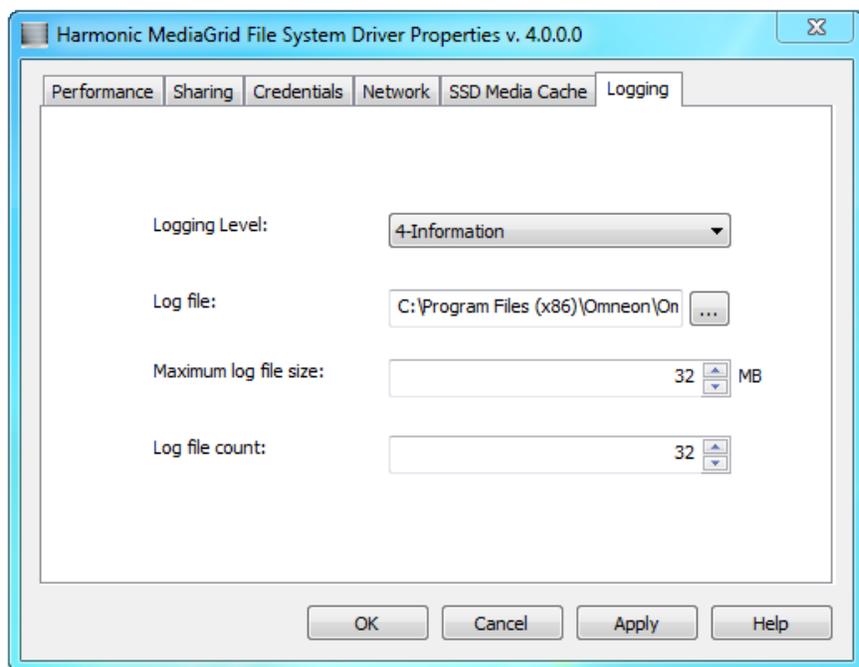


Figure 2-5: Logging tab

NOTE: If you must increase the maximum log file size or log file count, please make sure there is enough local disk space to accommodate the setting, otherwise it will affect system performance.

1. From the **Logging** tab, configure the following parameters:

Logging Level

Allows you to configure the severity level of the messages that are logged.

NOTE: Harmonic recommends that you do not set the logging level to 0-None, as no logging will occur.

Default: 4-Information

Log file

Directs the output of the logs to a user-selected file.

Default: C:\Program Files (x86)\Omneon\Omneon MediaGrid\Log\ommrx.log

Maximum log file size

Allows you to configure the log file size (in MB). Once the log file reaches the specified value, a new log will be started, and the previous log file will be saved with a sequential number appended to the log file name.

Default: 32 MB

Log file count

Allows you to specify the number of log files kept at one time in the system. Once the maximum log file count is reached, the oldest log file will be deleted when a new log file is created.

 **CAUTION:** Do not set the log file count to 0. This will prohibit logging on the client computer.

Max/Default: 500/32 files

2. Click **Apply**.

Result: Changes take effect immediately.

What to do next

When troubleshooting is complete, Harmonic recommends that you return the logging parameters to their default values.

Avoiding username and password prompt

If running an application as a Windows Service, it may be desirable to mount the Harmonic MediaGrid file system without being prompted to enter a username and password.

If Windows is told to re-connect a share after restart, the username and password prompt will always be displayed. To avoid this, Harmonic recommends that you create a batch file that contains the "net use" command to map a drive on Harmonic MediaGrid.

- Use the flag `/persistent:no` to ensure that the username/password prompt does not appear. Place a call to the batch file in one of the Windows startup locations, or from the application to mount the Harmonic MediaGrid file system at boot time.

Example:

A sample command line would look like the following: `net use Z:\mediagrid\filesystem password /user:username /persistent:no`

 **NOTE:** If your File System Driver client has already saved the user name and password, you do not need to enter them in the `net use` command.

Configuring unattended connections

There are two methods to have the Windows client automatically connect and authenticate to the Harmonic MediaGrid.

You can have the application use the Windows API to map the Harmonic MediaGrid file system to a Windows drive letter, or you can create a batch file that maps a network drive to run at startup time using the Windows Group Policy Editor.

To set a batch file:

1. Create a batch file that incorporates the "net use" command.

Example: `net use Z: \\mediagrid\filesystem password /user:username /persistent:no`

2. Test the batch file to ensure it maps a network drive without triggering the login dialog.

3. Run the Group Policy Editor as follows:
 - a. Click **Start > Run**.
 - b. Type the following into the dialog box: `gpedit.msc`.
4. Navigate to the startup scripts in the Group Policy Editor: **Computer Configuration > Windows Settings > Scripts > Startup**.
5. Click **Add**.
6. Enter the path to the batch file.

Result: The batch file will now be run at startup. You can test this by restarting your computer and verifying that the drive is mapped after restart.

Mounting the Harmonic MediaGrid from the ProMedia X Origin server

For instructions on configuring storage and mounting the Harmonic MediaGrid file system from the ProMedia X Origin server, refer to the *ProMedia X Origin Installation Guide*.

Note that the File System Driver parameters on the ProMedia X Origin are already optimized for performance and do not require modification.

Mounting the file system on a Macintosh client

There are two methods for connecting to the file system: user-level mounts and system-level mounts.

Creating a user-level mount

User-level mounts are the preferred method to connect to the Harmonic MediaGrid, as they have better security than system-level mounts.

1. Configure user mount options. See [Configuring user mount options](#).
Optionally, import user mount options. See [Importing user mount options](#).
2. Connect to the file system. See [Connecting to the file system](#).

Configuring user mount options

Adjust the File System Driver parameters according to the requirements of your workflow. If you are unsure of what values to enter, please contact Harmonic technical support for assistance.

Changes to most settings become effective on the subsequent mount.

1. Open the **System Preferences** window and click the **Harmonic MediaGrid** icon.

Result: The following dialog appears.

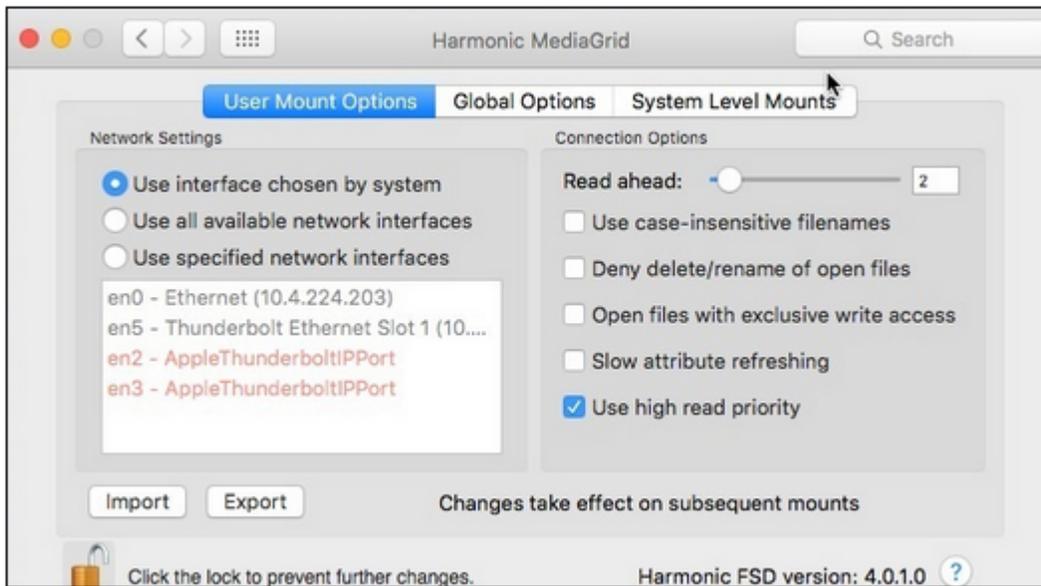


Figure 2-6: Macintosh FSD User Mount Options

2. Click the **Lock** icon and enter your credentials to authenticate.
3. Under **User Mount Options**, edit the **Network Settings** according to your requirements:

Use interface chosen by system This is the default setting and must remain selected if the client computer has only one Ethernet port.

Use all available network interfaces If your system has multiple Ethernet ports with equal bandwidth capabilities, you may select this setting to enable all ports to communicate with the Harmonic MediaGrid.

Use specified network interfaces Select this option when there may be an advantage over allowing the operating system to select the interface. For example, if your computer has both a 1GbE NIC and a 10 GbE NIC, you might wish to specify the 10 GbE NIC for communication with the Harmonic MediaGrid.

4. Edit the **Connection Options** as required by your workflow:

Read ahead This setting specifies the amount of ReadAhead data (in slices) to be pre-fetched for each open/active file.

Min/Max/Default: 0/50/2 slices

Use case-insensitive filenames By default, the Harmonic MediaGrid file system is case sensitive. If you must activate this setting for your workflow, be sure to turn it off once your workflow no longer requires it.

Default: Off

Deny delete/rename of open files Select this option to prevent files which are in active use by this client (in the application "open" state) from being deleted or renamed by another client.

- Default: Off
- Open files with exclusive write access** This option provides exclusive write access for applications on the client. This means files cannot be opened for writing on another client system at the same time. They can, however, be opened on other clients in read mode.
Default: Off
- Slow attribute refreshing** Select this option to change how frequently the Harmonic MediaGrid is queried for file attributes. This option can sometimes improve browser scan time for very large directories (2000 entries or more).
 **NOTE:** When this setting is selected, updates regarding file attribute changes made by other clients will be delayed.
Default: Off
- Use high read priority** This option can improve performance for specific workflows by altering the behavior of file reading in the FSD, and is particularly useful to non-linear editing applications. To lessen additional load on the network and on the Harmonic MediaGrid, do not select this option for workflows other than video editing. Turn this option off when other FSD clients in non-linear editing workflows require high read priority.
Default: On

5. Under the **Global Options** pane, edit the **Miscellaneous** settings according to your requirements:

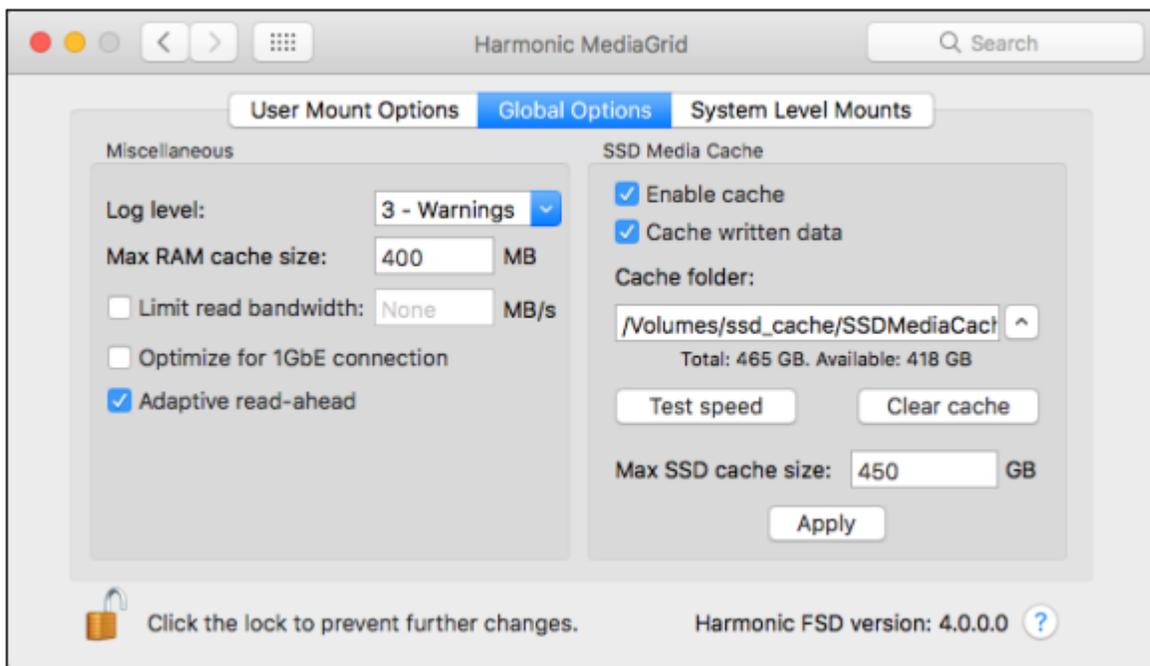


Figure 2-7: Macintosh FSD Global Options

- Log Level** Allows you to configure the severity level of the messages that are logged.

 **NOTE:** Harmonic recommends that you do not set the logging level to 0-None, as no logging will occur.

Default: 3-Warnings

Max RAM cache size This setting limits the amount of physical memory used for caching file data in the FSD. The configured cache space is shared by all connections to the Harmonic MediaGrid. If your workflow requires many files to be read simultaneously, or if you have increased the **Read-ahead** setting, you might also need to increase the maximum cache size.

 **NOTE:** The maximum cache size should not exceed 25% of the physical memory.

Min/Max/Default: 100/25% total RAM/400 MB

Limit Read Bandwidth

You can limit the rate of data read traffic associated with the Harmonic MediaGrid on this client. Increase the read bandwidth limit if applications experience unacceptably poor performance. Decrease the MB/s if you wish to further reduce read bandwidth on this client.

 **NOTE:** The "limit read bandwidth" setting applies to *all* mounts on the Macintosh FSD client, including any existing mounts, user-level as well as system-level mounts.

Min/Max/Default: 0/12500/0 (Off) MB/s

Optimize for 1GbE connection

When enabled, this option changes the amount of data prefetched by the Macintosh FSD to optimize 1 GbE connections. Consider total bandwidth for all interfaces used to access Harmonic MediaGrid.

Default: Off

Adaptive read-ahead This setting uses an internal algorithm to better detect different Harmonic MediaGrid access patterns and adjust read-ahead accordingly. With this feature enabled, performance of Macintosh FSD can increase significantly in some scenarios.

Default: On

- When you have finished making changes, click the **Lock** icon to prevent further changes from being made, and then follow the instructions for connecting to the file system.

Related information

[Memory usage parameters](#)

[Network interface requirements](#)

Connecting to the file system

Before you connect to the file system, be sure that the user mount options are configured according to the requirements of your workflow.

Note that connections to any server made in this manner, including Harmonic MediaGrid, are disconnected when the user logs out.

1. Launch a new Finder window and open the **Go** menu.
2. Click **Connect to Server...**

Result: The following dialog opens:

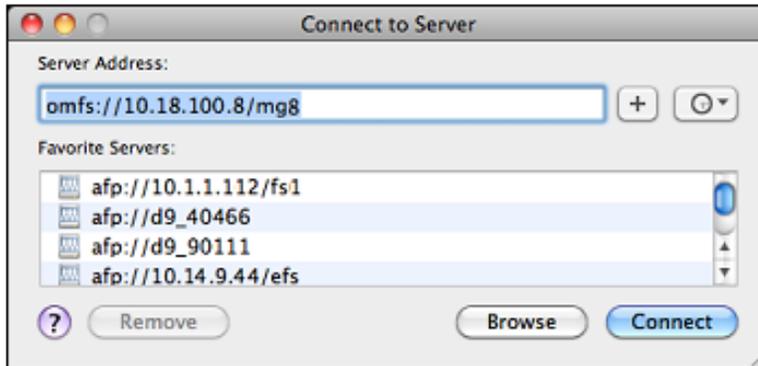


Figure 2-8: Connect to Server dialog

3. In the **Server Address** field, type `omfs://server_name_or_address/fsname`.

TIP: Create a shortcut for future connections by adding this server to your list of **Favorite Servers**.

4. Click **Connect**.

Result: An authentication dialog appears.

5. Enter the name and password for your Harmonic MediaGrid file system.

The domain information can be entered as `username/domain`.

The user name is used to check all access to folders and files through this connection to the Harmonic MediaGrid, and will be the "owner" of any files created through this connection.

6. (Optional) Select **Remember this password in my keychain**.

You must add this password to your keychain if you wish to configure automatic connections for this File System Driver client.

7. Click **Connect**.

Result: You may now access the folders and files in the Harmonic MediaGrid file system. The icon that appears on the desktop will have the same name as the file system.

Importing user mount options

With version 3.5 and later, you can import user mount options from another File System Driver client.

IMPORTANT: Do not edit the exported file, as it will cause a later import operation to fail.

NOTE: If the settings you are importing specify which network interfaces to use for communication with the Harmonic MediaGrid, be sure to verify these settings after the import, as the names of interfaces may not be consistent among client systems.

1. Click the **Lock** icon and enter your credentials to authenticate.
2. On the **User Mount Options** pane, click **Import**.
3. Browse to the file you wish to import and select it.

Result: The **User Mount Options** pane is updated with the imported settings.

4. Verify that the settings are correct.
5. Click the **Lock** icon to prevent further changes from being made.

Configuring automatic connections for user-level mounts

If you have added your Harmonic MediaGrid password to your keychain, you may configure automatic connections.

1. Open the **System Preferences** window and click **Users & Groups**.
2. From the **Login Items** pane, click the **plus (+)** symbol.
3. Browse to the Harmonic MediaGrid system and click **Add**.

Result: The Harmonic MediaGrid system appears in the **Login Items** pane.

Disabling automatic connections

Disable automatic connections to the Harmonic MediaGrid from the **Users & Groups** dialog.

1. From the **System Preferences** window, select **Users & Groups**.
2. Click **Login Items**.
3. From the list, select the Harmonic MediaGrid connection you wish to disable.
4. Click the **minus (-)** button.

Removing keychain entries

Remove a keychain entry when you do not want the system to automatically use a previously saved password from your keychain.

1. From the Finder window, navigate to **Applications > Utilities**.
2. Select **Keychain Access**.
3. In the **Name** column, right-click the name of the Harmonic MediaGrid server and select **Delete**.

Result: A confirmation dialog appears.

4. Click **Delete**.

Creating a system-level mount

Harmonic recommends that you connect with a user-level mount, which is more secure. Use system-level mounts only when necessary for your workflow.

A system-level mount refers to a mount that is accessible by all users. One user (for example, "UserA") creates a system-level mount using their credentials. When UserA logs out, the connection to the file system remains in tact. When UserB logs in, they have access to the file system using the credentials that UserA provided.

1. Open the **System Preferences** window and click the **Harmonic MediaGrid** icon.
2. Click the **System Level Mounts** tab, and then click the **plus (+)** button to add a new mount.

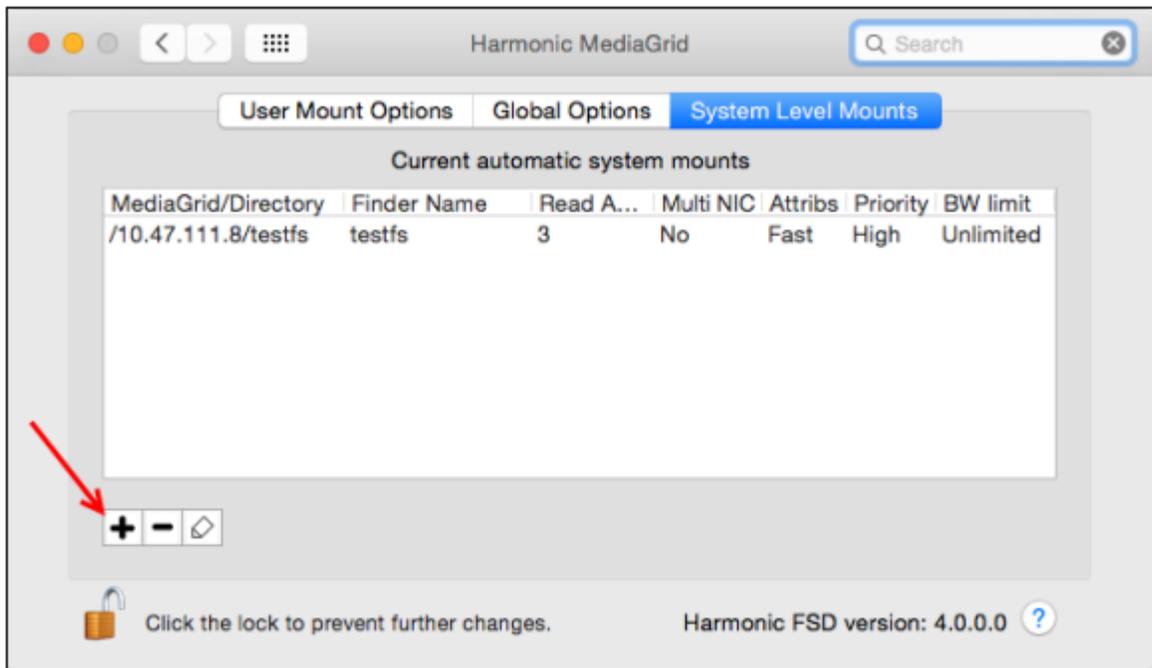


Figure 2-9: Add system level mount

Result: The following dialog appears:

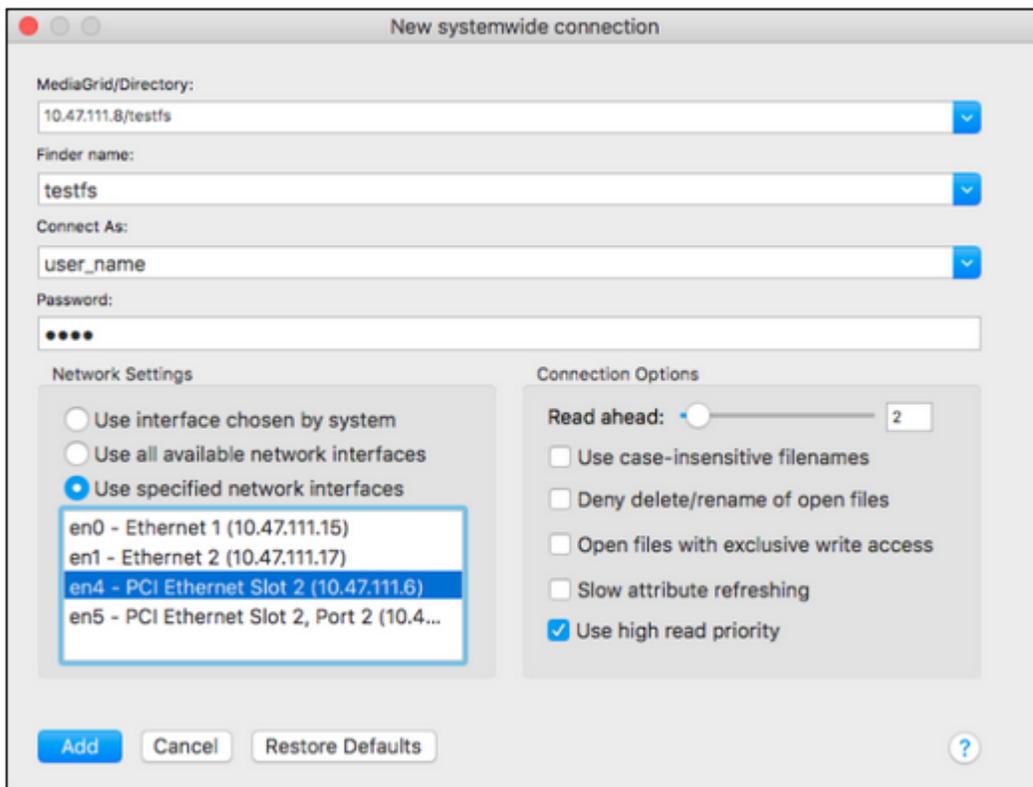


Figure 2-10: **New systemwide connection** dialog

- Enter the following case-sensitive information in the appropriate fields:

Field	Description
MediaGrid/Directory	The name or network address of the Harmonic MediaGrid system and the name of the file system directory. Separate the two names with a forward slash.
Finder Name	The Finder name of the connected Harmonic MediaGrid. This name defaults to the directory entered above, but can be changed to whatever you choose.
Connect As	The user name for connecting to the Harmonic MediaGrid system.
Password	The password for connecting to the Harmonic MediaGrid system.

- Configure **Network Settings** and **Connection Options**. Refer to [Configuring user mount options](#) for more information.

- Click **Add**.

Result: If the mount is successful, the mount details will appear in the **Current automatic system mounts** window.

- If you would like the system-level mount to remain after logging off, you must restart the client.

Editing a system-level mount

Note that, after editing mount settings, a restart is required for the changes to take effect.

- From the **System Level Mounts** pane, select the mount you wish to edit.
- Click the **Edit** icon.
- Modify the mount settings as desired.
If you wish to restore **Network Settings** and **Connection Options** to their default values, you can click **Restore Defaults**.

Removing a system-level mount

Follow this procedure to disable future connections to the file system.

- From the **System Level Mounts** pane, select the mount you wish to remove, and then click the **minus (-)** button.

Result: The current connection will remain until you log off.

Additional mount options for Macintosh clients

The current value for each mount option is logged in the Macintosh `system.log`, which can be viewed in the Console app or in `/var/log/system.log` at the time of the Harmonic MediaGrid volume mount.

To learn optimal settings for post-production workflows, please refer to the latest version of the *Harmonic MediaGrid Macintosh FSD Release Notes*.

-  **IMPORTANT:** Do not modify any of the values in this table without first contacting Harmonic technical support.

Option	Description
<code>username=abc</code>	Specifies the required user name. You are prompted for a user name if it is not specified.
<code>password=abc</code>	Specifies the required password. You are prompted for a password if it is not specified.
<code>domain=abc</code>	Specifies the Windows domain name (optional).
<code>readahead=n</code>	Specifies the amount of ReadAhead data (in slices) to be pre-fetched for each open/active file. Supported values are 0 through 50. The default is 2.  NOTE: This option is associated with ReadAhead setting in the Macintosh FSD GUI.
<code>allnic/multinic</code>	Specifies the use of all interfaces in the client computer.  NOTE: This option is associated with the Use all available network interfaces setting in the Macintosh FSD GUI.
<code>iflist=nic:nic</code>	Specifies a list of network interfaces, separated by a colon, ":". For example, <code>iflist=en0:en1</code> .  NOTE: Note: This option is associated with the Use specified network interfaces setting in the Macintosh FSD GUI.
<code>attrcache=0</code> or <code>attrcache=1</code>	Specifies the maximum timeout for attribute cache in milliseconds. <ul style="list-style-type: none"> • A value of 0 (default) sets the timeout limit to 5000ms (5 seconds) • A value of 1 sets the timeout limit to 60000ms (60 sec). In addition, it increases the number of the application closed file handles that are cached in the Harmonic MediaGrid.
<code>readDataPriority=abc</code>	This option sets the priority for read operations on the Harmonic MediaGrid file system. Supported values are listed below in increasing priority level: <ul style="list-style-type: none"> • <code>omTagPriorityBackground</code> • <code>omTagPriorityLow</code> • <code>omTagPriorityNormal</code> • <code>omTagPriorityRealtime</code> (default) • <code>omTagPrioritySystem</code>  NOTE: Note: This option is associated with the Use High Read Priority setting in the Macintosh FSD GUI.  CAUTION: Changing these settings from the default can have adverse effects cluster-wide.

Option	Description
<code>writeDataPriority=abc</code>	<p>Specifies write data priority. Supported values are listed below in increasing priority level:</p> <ul style="list-style-type: none"> • <code>omTagPriorityBackground</code> • <code>omTagPriorityLow</code> • <code>omTagPriorityNormal</code> (default) • <code>omTagPriorityRealtime</code> • <code>omTagPrioritySystem</code> <p> CAUTION: Changing these settings from the default can have adverse effects cluster-wide.</p>
<code>casesensitive</code>	<p>Enables support for case insensitive namespace operations for client applications.</p> <p> NOTE: Note: This option is associated with the Use caseinsensitive file names setting in the Macintosh FSD GUI.</p>
<code>handletimeout=n</code>	<p>Specifies the timeout in seconds for recycling cached read handles. The default is 300 seconds (5 minutes).</p>
<code>noopendelete</code>	<p>This option prevents other clients from deleting or renaming files which are in active use (in the application “open” state) by this client. When listing this option in the mount command, it will affect all files open on the volume mount and no other client may remove or rename any of those files. By default, this option is turned off.</p> <p> NOTE: This option is associated with the Deny delete/rename of open files setting in the Macintosh FSD GUI.</p>
<code>singlewriter</code>	<p>Provides exclusive write access for applications on the client. This means that files cannot be opened for writing on another client system at the same time. They can, however, be opened on other clients in read mode. By default, this option is turned off.</p> <p> NOTE: This option is associated with the Open files with exclusive write access setting in the Macintosh FSD GUI.</p>
<code>maxdeferredclose=n</code>	<p>Specifies the maximum number of handles on a per mount basis. The default value is 64. Setting this to zero will result in the close system call blocking until data is flushed to the Harmonic MediaGrid. Setting this to zero will also increase latency times when working with a large number of files.</p>
<code>maxsmallfilesize=n</code>	<p>Hint to pre-open prediction code. The default value is 1048576.</p>
<code>smallfilewindow=n</code>	<p>Hint to pre-open prediction code. The default value is 500.</p>
<code>smallfilethreshold=n</code>	<p>Hint to pre-open prediction code. The default value is 3.</p>

Option	Description
<code>cachefilesize=n</code>	Hint to pre-open prediction code. Specifies the maximum number of bytes to pre-read for a file. The default value is 20971520.
<code>maxpendingbulkclose=n</code>	Specifies the maximum number of handles for deferred close on a per driver basis. The default value is 128. Setting to zero may result in the close system call blocking until the handle is closed in the Harmonic MediaGrid. Setting this to zero will increase latency times when working with a large number of files.
<code>numberpreopen=n</code>	Specifies the number of files to open in advance based on prediction logic. The default value is 8.

Displaying connected Harmonic MediaGrid systems on the desktop

By default, systems with Macintosh OS X 10.5 and later do not display connected network servers on the desktop.

1. From the **System Preferences** window, select the **General** tab.
2. Under **Show these items on the desktop**, check the box next to **Connected servers**.

Accessing the file system using Final Cut Pro

These instructions apply to Macintosh OS X 10.5 and later.

1. Start Final Cut Pro.
2. Select **File > Open**.
Result: The **Choose a file** screen appears.
3. From the sidebar, select **Documents**.
4. Click the **Documents** drop down menu and then select the computer that is mounted to the Harmonic MediaGrid system.
5. Select the file system that contains the files you wish to access.

Unmounting the Harmonic MediaGrid file system

This procedure removes the active mount, for both user-level and system-level mounts.

1. From the Finder window, click the icon for the Harmonic MediaGrid volume.
2. Select **File > Eject**.

 **TIP:** Alternatively, press **Command + E**.

Result: The icon for the Harmonic MediaGrid file system disappears from the desktop.

Mounting the file system on a Linux client

After you mount the Harmonic MediaGrid file system, the Linux FSD should automatically load.

1. Use the type "omfs" in the mount command to access the file system.

Example: `mount -t omfs /mediagrid/filesys /mnt -o username=username,password=password`



NOTE: This information is case-sensitive.

2. If the Linux FSD does not automatically load, type the following: `modprobe omfs`.

Mount options for Linux clients

Review mount options supported on Linux clients.

! **IMPORTANT:** With the exception of the first four options listed below (`username`, `password`, `domain`, and `readahead`), do not modify any of the values in this table without first contacting Harmonic technical support.

Option	Description
<code>username=abc</code>	Specifies the required user name. You are prompted for a user name if it is not specified.
<code>password=abc</code>	Specifies the required password. You are prompted for a password if it is not specified
<code>domain=abc</code>	Specifies the Windows domain name (optional).
<code>readahead=n</code>	Specifies the amount of ReadAhead data (in slices) to be pre-fetched for each open/active file. Supported values are 0 through 50. The default value is 3.
<code>filelimit=m</code>	Specifies the maximum number of concurrently open files. Used to prevent the system from running out of memory. The default is 1024. <code>m=0</code> yields no limit.
<code>exportfs</code>	Allows a mounted file system to be shared using NFS.
<code>lock=abc</code>	Specifies the lock type. The following types are supported: <ul style="list-style-type: none"> • <code>none</code> = locking is off • <code>adv</code> = advisory locking (default) • <code>mand</code> = mandatory locking

Option	Description
<code>readpri=abc</code>	<p>Specifies read data priority. The following types are supported:</p> <ul style="list-style-type: none"> • <code>bg</code> = background (lowest priority) • <code>low</code> = low • <code>nr</code> = normal • <code>rt</code> = real • <code>sys</code> = system (highest priority) <p> CAUTION: Changing these settings from the default can have adverse effects cluster-wide.</p>
<code>writepri=abc</code>	<p>Specifies write data priority. The following types are supported:</p> <ul style="list-style-type: none"> • <code>bg</code> = background (lowest priority) • <code>low</code> = low • <code>nr</code> = normal • <code>rt</code> = real • <code>sys</code> = system (highest priority) <p> CAUTION: Changing these settings from the default can have adverse effects cluster-wide.</p>
<code>iflist=a:b</code>	<p>Specifies which interfaces to use, where <i>a</i> is one interface, such as <code>eth0</code>, and <i>b</i> is a second interface, such as <code>eth1</code>. Use a colon (<code>:</code>) to separate the list of interfaces.</p>
<code>allnic</code>	<p>Specifies use of all system network interfaces.</p>
<code>noopendelete</code>	<p>Prevents the deleting or renaming of files which are in active use (in the application “open” state) by this client. When listing this option in the mount command, it will affect all files open on the volume mount and no other client may remove or rename any of those files.</p>
<code>noflushonclose</code>	<p>Prioritizes the file close operation and delays the transfer of modified data to the server (the transfer of data typically, but not always, occurs within a few seconds). This may be useful when you are writing to a large number of files, and other clients do not need immediate access to the files after you have closed them.</p>
<code>mdsconn=n</code>	<p>Specifies the maximum number of ContentDirector connections. Supported numbers are $8 \leq n \leq 32$. The default is 8. Increasing the number may improve the performance of large numbers of metadata operations.</p>
<code>throughput</code>	<p>Improves Linux FSD throughput and sets the following values:</p> <ul style="list-style-type: none"> • <code>readahead</code> is 16 • <code>mdsconn</code> is equal to 16 • number of cache write thread is 16

Option	Description
<code>singlewriter</code>	Provides exclusive write access for applications on the client. This means files cannot be opened for writing on another client system at the same time. They can, however, be opened on other clients in read mode. By default, this option is turned off.
<code>maxdeferredclose=<i>n</i></code>	Specifies the maximum number of handles on a per mount basis. The default value is 64. Setting this to zero results in the close system call blocking until data is flushed to the Harmonic MediaGrid. Setting this to zero also increases latency times when working with a large number of files.
<code>maxsmallfilesize=<i>n</i></code>	Hint to pre-open prediction code. The default value is 1048576.
<code>smallfilewindow=<i>n</i></code>	Hint to pre-open prediction code. The default value is 500.
<code>smallfilethreshold=<i>n</i></code>	Hint to pre-open prediction code. The default value is 3.
<code>cachefilesize=<i>n</i></code>	Hint to pre-open prediction code. Specifies the maximum number of bytes to pre-read for a file. The default value is 20971520.
<code>maxpendingbulkclose=<i>n</i></code>	Specifies the maximum number of handles for deferred close on a per driver basis. The default value is 128. Setting to zero may result in the close system call blocking until the handle is closed in the Harmonic MediaGrid. Setting this to zero also increases latency times when working with a large number of files.
<code>numberpreopen=<i>n</i></code>	Specifies the number of files to open in advance based on prediction logic. The default value is 8.

Related information

[Setting memory usage parameters on Linux clients](#)

[Enabling multi-NIC usage on Linux](#)

Mount options for post-production workflows

With release 3.1 and later, Harmonic MediaGrid provides improved performance in post-production workflows.

To take advantage of these improvements, use the following mount options:

```
noflushonclose,smallfilewindow=5000,maxsmallfilesize=50000000, readahead=12
```

For assistance with using these mount options, contact Harmonic technical support.

Managing credentials and permissions

The Windows FSD and Linux FSD support reading and changing file permissions on the Harmonic MediaGrid file system.

Windows and Linux have different file permission models. It is recommended that only one operating system be used to manage file permissions to avoid confusing settings.

File permissions can also be set using the ContentManager application. See the *ContentManager User Guide* for more information.

See the documentation accompanying your operating system for more specific information on managing file permissions.

- [Administrator credentials](#)
- [Adding Windows FSD user credentials using the GUI](#)
- [Windows CLI commands for managing Windows FSD users](#)
- [About Access Control Lists](#)
- [Viewing file and directory permissions on Windows](#)
- [Changing security permissions on Windows](#)
- [Linux and Macintosh file permissions](#)
- [Viewing and changing file and directory permissions on Linux](#)

Administrator credentials

Use the required username and password when creating and mounting file systems and directories, setting up Access Control Lists (ACLs), and performing other administrative tasks.

```
username = mgadmin  
password = 1234
```

Harmonic MediaGrid recommends that the “mgadmin” user own all top-level directories, including the root directory (named after the file system). Also, Harmonic recommends that specific domain users own the directories and files.

Adding Windows FSD user credentials using the GUI

The File System Driver stores a list of up to five user credentials for accessing one or more Harmonic MediaGrid file systems.

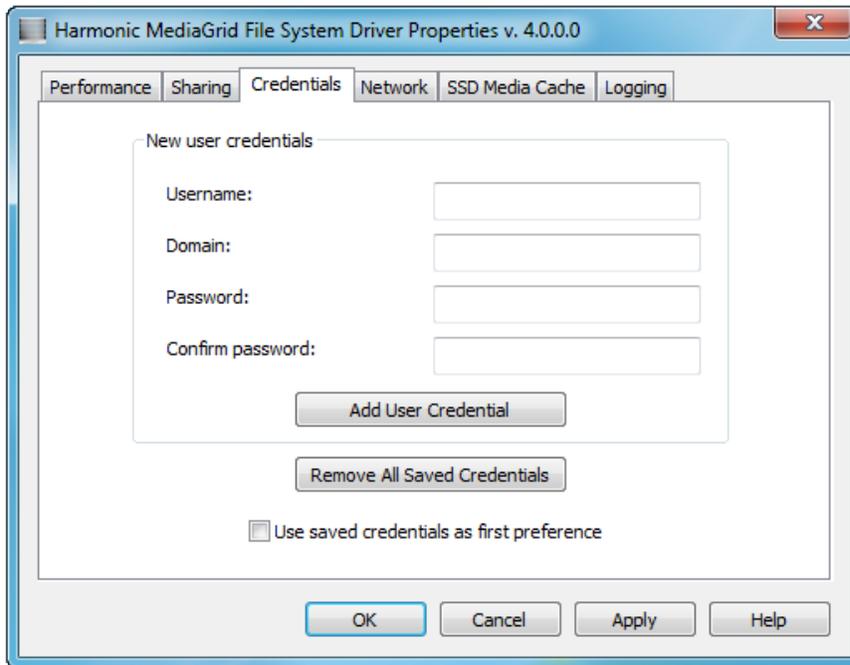


Figure 3-1: Credentials tab

The purpose in saving one or more credentials is to ease connections to the file system when the client is in an Active Directory domain (or other authentication system) different than that of the Harmonic MediaGrid, or when you prefer to not use your domain logon credential to access the server. If one set of credentials fails when connecting, another connection attempt is made using the next set of credentials on the list. If the File System Driver is not able to connect after trying all saved credentials, then you will be prompted to log in.

-  **NOTE:** Make sure to enter the correct information, including a valid domain (if entered), because this utility is unable to confirm your credentials.
-  **NOTE:** If five credentials already exist, a newly entered credential replaces the oldest entry.

1. From the **Credentials** tab, enter the following information:
 - **Username**
 - (Optional) **Domain**
 - **Password**
 - **Confirm password**
2. Select **Use saved credentials as first preference** if you would like to use the credentials saved in the File System Driver, rather than your domain (logon) credentials, when connecting to the Harmonic MediaGrid.
3. Click **Apply**.

Result: Changes take effect for subsequent connections to the file system.

Related information

[Windows CLI commands for managing Windows FSD users](#)

Removing Windows FSD user credentials using the GUI

Using the GUI, you can remove all saved credentials at one time.

 **NOTE:** If five user credentials are already stored and you simply wish to add another, the oldest credentials will be replaced when you add another set of credentials.

- From the **Credentials** tab, click the **Remove all saved credentials** button.

Result: Changes take effect immediately.

Windows CLI commands for managing Windows FSD users

Windows FSD supports adding and removing user credentials using `omservice` command options.

The File System Driver stores a list of up to five user credentials for accessing one or more Harmonic MediaGrid file systems.

 **NOTE:** If five credentials already exist, a newly entered credential replaces the oldest entry.

Options

-add *username password domain*

Add a new user.

-update *username password domain*

Change the password for an existing user.

-expel

Remove the entire list of stored credentials. To delete an individual user, pass the *username* and *domain* as arguments.

-show

List all stored credentials.

About Access Control Lists

Both the Harmonic ContentManager and the Windows FSD allow you to create Access Control Lists (ACLs) to set user- and group-level security for the various Harmonic files and directories.

These ACLs are stored on the ContentDirector. Once ACLs are created, when users attempt to access files, Harmonic MediaGrid checks access against the ACL for each file. ACLs provide security preferences for each individual Access Control Entry (ACE).

The Harmonic MediaGrid system receives user and group information from the Active Directory or LDAP server. It also uses the domain controller to authenticate the users. The ContentManager and the Windows FSD access this user and group information when you use either of them to create ACLs. ContentManager and Windows FSD also receive the ACLs when either mounts the file system, and then they contact the ContentDirector to resolve user names.

Note the following ACL rules:

- Permissions cannot be changed for inherited ACL entries.
- Duplicate ACL entries are not allowed within an ACL. A duplicate is an entry that has the same user or group with the same operation mode, such as Allow (or Inherit) or Deny.
- The same user/group can have one Allow (or Inherit) entry and one Deny entry.

Viewing file and directory permissions on Windows

View file and directory permissions for the Harmonic MediaGrid file system.

1. Right-click **My Computer** and then select **Explore**.
2. Right-click the Harmonic MediaGrid file system or directory within the file system and then select **Properties**.
3. From the **Properties** dialog, click the **MediaGrid** tab.
The following information is displayed (depending on what is selected):
 - The version of the File System Driver installed.
 - The **Path** of the selected file or directory.
 - The **ReadAhead** value.
 - The current **Replication** factor. Type a new number and then click the Change button to apply a new number.
 - The **Quota** setting (if a directory is selected).
 - The **Reservation** setting (if a directory is selected).

Changing security permissions on Windows

Harmonic MediaGrid allows you to set user- and group-level security for the files and directories by using Access Control Lists (ACLs).



NOTE: The client computer must be logged in to the Harmonic MediaGrid file system to manage file permissions.

1. From the Harmonic MediaGrid **Properties** dialog box, click **Security Permissions** to display the ACL editor screen.
The full path of the selected file or directory is shown at the top of the dialog box, followed by the file/directory owner and user.
2. Edit the **Group or User names** section as needed:

Option	Description
Change Owner	Select a new owner from a list of users. You must have permission to change the owner.

Option	Description
Add	Add a new user or group to the list of entries. The maximum number of entries is 64.
Remove	Remove a user or group from the list of entries. Once an entry is removed, its default settings (inherited from its parent directory) are applied.
Up or Down	Change the order of entries within the list.

3. Edit the **Allowed/Denied Permissions for Everyone** for the selected ACE as follows:
 - a. Select **Allow** or **Deny** from the drop-down list on the right.
 - Allow** provides the user control of the checked permissions; **Deny** prohibits the user control of the checked permissions.
 - b. Select the permissions by clicking the corresponding check boxes.
 - c. Click **Apply** and then **OK** to confirm your changes.

Linux and Macintosh file permissions

The Linux and Macintosh file permissions are a subset of the Harmonic MediaGrid ACL interpretation. Three ACEs are used: owner user, owner group and other user.

One ACE is mapped for the owner permission. If the owner belongs to more than one group, the group at the top of the list is picked up and converted to owner group permission. The other user permission is mapped to the everyone group including the owner. The default Harmonic MediaGrid ACL is all access allowed. A newly created file or directory inherits the ACL from its parent directory.

There can be multiple mounts to the file system. The owner of the file/directory is the user who specified the mount command. This user is not necessarily the user who logged on to the Linux workstation. The user is the local mount's user if the FSD is used. If CIFS, NFS, or FTP is used, the user is the user who mounted the ContentBridge.

Harmonic MediaGrid handles permission enforcement. File/directory permission can be changed using the standard Linux `chmod` command. A changed permission affects three Harmonic MediaGrid entries: owner, first group to which the owner belongs, and the everyone group.



NOTE: The user and group name are incorrect when using the `ls -l` command because the user and group IDs are not set by the FSD.

Viewing and changing file and directory permissions on Linux

File and directory permissions are visible using the `ls` command and can be modified using the `chmod` command.

The standard commands apply for managing file permissions. As an example, however, you can remove read permissions for all users from a file or directory by issuing the following command:

```
chmod a-r filename
```

By default, the Linux FSD does not reflect the Harmonic MediaGrid ACL security permissions for a file or directory on the file system. To have the Linux FSD translate between Harmonic MediaGrid ACLs and Linux mode permission bits on files, use the `-o` mode option in the mount command. For example:

```
mount -t omfs /mediagrid/filesys /mnt -o  
username=username,password=password,mode
```

With this capability enabled, file permission bits may be tested and manipulated through the normal Linux interfaces.



NOTE: Turning this capability on reduces performance related to directory access operations, such as directory listing.

Managing network interfaces for communication with the Harmonic MediaGrid

Users have the ability to manage which network interfaces are used for communication with the Harmonic MediaGrid.

- [Network interface requirements](#)
- [Enabling multi-NIC usage on Linux](#)
- [Opening network ports to enable client access](#)

Network interface requirements

If you are configuring the FSD to use all available network interfaces or specific interfaces, ensure that they meet these requirements.

Using specific network interfaces

 **NOTE:** Before specifying a network interface, verify that it is functioning properly.

A network interface is acceptable if:

- it is connected to the network
- it has an IP address
- it can send and receive data
- it is not listed as an unsupported NIC

Network interfaces that cannot be used by Windows FSD are marked as "not recommended". Network interfaces that cannot be used by Macintosh FSD appear in red. Do not select these interfaces.

Network interfaces that were acceptable in a previous setup and became invalid after restarting are marked as "not available" on Windows FSD, and appear in orange on Macintosh FSD.

Using multiple network interfaces

Computers with multiple Ethernet ports or NICs (Network Interface Card) can utilize all or specified ports to access data on Harmonic MediaGrid. This increases bandwidth and reduces latency.

In order to utilize multi-NIC support, all of the computer's Ethernet ports must be connected to the same Ethernet switch and must be allocated to the same IP subnet. Trunking or bonding must not be enabled. Do not enable the feature unless the above requirements are met, or inconsistent operation may result.

For Macintosh and Windows clients, the File System Driver automatically detects available network interfaces and displays a list for you to select from. For Linux clients, you must configure multi-NIC usage via the CLI.

Related information

[Configuring the network interface for communication with the Harmonic MediaGrid](#)

[Configuring user mount options](#)

Enabling multi-NIC usage on Linux

To increase bandwidth, computers with multiple Ethernet ports can utilize all ports to access data on Harmonic MediaGrid. The file system must be mounted in order to enable multi-NIC usage.

1. Use one of the following mount options:

Option	Description
<code>iflist=a:b</code>	Specifies which interfaces to use, where <i>a</i> is one interface, such as eth0, and <i>b</i> is a second interface, such as eth1. Use a colon (:) to separate the list of interfaces.
<code>allnic</code>	Uses all of the system's Ethernet interfaces. The Linux FSD performs connection load balancing by adding routing table entries for each ContentServer connection. Most Linux kernels ignore routing table entries when NICs are connected to the same subnet.

2. Add the following lines to `/etc/sysctl.conf` to prevent this behavior from defeating connection balancing:

```
net.ipv4.conf.default.arp_ignore = 1
net.ipv4.conf.default.arp_announce = 1
```

3. Restart the computer.

Opening network ports to enable client access

Specific network ports must be open to enable client access to Harmonic MediaGrid. This is particularly important if any security measures, including firewalls, are in place.

Harmonic MediaGrid clients must connect to and communicate on TCP ports 10600-10604. UDP port 111 must be open as well. Note that these ports must be open for the entire subnet in which Harmonic MediaGrid is contained.

Contact the customer network administrator for assistance.

Managing memory usage by the File System Driver

In general, the memory usage of the File System Driver should be minimized unless an application requires a large number of simultaneous files to be open.



NOTE: Windows FSD and Macintosh FSD users should manage memory usage via the File System Driver GUI.

- [Memory usage parameters](#)
- [Calculating maximum cache size](#)
- [Setting memory usage parameters on Linux clients](#)
- [Configuring an SSD Media Cache](#)

Memory usage parameters

Understand the parameters that are available and how changes to the default values can affect performance.

The following parameters are available to control memory usage:

- Read-Ahead

This setting specifies the amount of read-ahead data (in slices) to be pre-fetched for each open/active file. Each slice can be 512KB, 1MB, 2MB, 4MB, or 8MB in size. The default read-ahead value is 2 slices (Macintosh FSD) or 3 slices (Windows FSD or Linux FSD). When writing to a file, this parameter determines how many modified slices are allowed to be retained in cache before being flushed to the Harmonic MediaGrid server.

Increasing the read-ahead value can increase performance for some workflows as long as the Cache Memory Limit is also appropriately increased. Decreasing the read-ahead value below the default can allow for more open files in a smaller cache, but may reduce the bandwidth performance for both read and write operations. Decrease the value when you are not running applications which require a raised value, or when all or most file access patterns are random. During video clip "scrubbing", for example, a setting of 1 or 0 might be helpful.

- Cache Memory Limit

The FSD allocates memory for buffering cache from a single pool, the cache memory limit. When the FSD exceeds this limit, it begins to free memory until its usage is below this number. The default value is sufficient in most cases. If your workload requires many files to be read simultaneously, you may wish to increase this number. Advanced users, depending on the workflow and the client's bandwidth capabilities, might consider increasing this value. If you are unsure of whether you should increase or decrease it, please contact Harmonic technical support for assistance.

 **NOTE:** The maximum cache size should not exceed 25% of the physical memory.

The following table provides information on how changes to the read-ahead parameter affect performance.

 **NOTE:** The default values are sufficient for most workflows. If you are unsure of whether you should change these values, please contact Harmonic technical support for assistance.

Increasing the read-ahead value	Decreasing the read-ahead value
Pros: <ul style="list-style-type: none"> Increases read throughput Increases write throughput 	Pros: <ul style="list-style-type: none"> Decreases memory usage Decreases latency on random read
Cons: <ul style="list-style-type: none"> Increases latency on random read Increases memory usage 	Cons: <ul style="list-style-type: none"> Decreases read throughput Decreases write throughput

Additional memory usage parameters for Linux clients

The Linux FSD includes three additional parameters for managing memory usage: Open File Limit, Pre-Allocation Limit, and Allocation Limit.

Open File Limit

This parameter controls the maximum number of simultaneously open files the Linux FSD supports. The default value is 1024. Increase this value as necessary to support an application's requirements. Note that increasing this value can increase the amount of memory used by the Linux FSD. Increasing it too much may prevent an application from running due to memory starvation.

Pre-allocation Limit

This parameter tells the Linux FSD to allocate all the buffer memory it will use at module load time. The default value is 1024 cache memory units (equivalent to 256 MB). The allocation is done over a short period of time following startup. During operation, the FSD will not need to request any additional large allocations. This prevents sudden demands for memory, which occasionally cause the Linux kernel to panic. The gradual increase in memory usage at startup is expected and normal.

The Harmonic MediaGrid server cannot be mounted until the pre-allocations are completed. If a mount command is issued immediately after loading the omfs module, the command may fail with an error message indicating, `Some resources could not be allocated, try again later.` This message indicates that the omfs module has not completed allocation of memory after loading. Reissue the mount command later.

Reducing the pre-allocation value after memory has been allocated has no effect, as the Linux FSD will not release any memory it has acquired. Since the Linux FSD begins allocating memory as soon as the omfs module is loaded by the Linux kernel, trying to limit the amount of memory allocated to a value below 256 MB using this method produces inconsistent results.

Allocation Limit

On occasion, the Linux FSD may need more cache memory than that which is specified in the Cache Memory Limit. For these instances, the Allocation Limit parameter is available. The default value, 5764 cache memory units (slightly more than 1 GB), is usually enough to accommodate these short-term needs.

Calculating maximum cache size

Figure out your total cache memory demand using the given formula.

In order to calculate the total RAM cache memory demand, you will need to know the **ReadAhead** value and the number of anticipated files open at one time.

 **NOTE:** The following formula applies only to physical RAM. It does not apply to an external SSD Media Cache.

- Calculate the total cache memory demand as follows:

$(1 + \text{read-ahead}) * \text{SliceSize} * \text{Number of files open at once}$

Example: If the read-ahead value is 3 slices, the SliceSize is 2MB, and the expected number of open files at once is 50, the cache memory demand is 400MB $([1+3] * 2 * 50)$.

What to do next

If the total cache memory demand is greater than the default value, increase the **Maximum Cache Size** using the File System Driver

 **NOTE:** The default values are sufficient for most workflows. If you are unsure of whether you should change these values, please contact Harmonic technical support for assistance.

Setting memory usage parameters on Linux clients

Please contact Harmonic technical support for assistance if you wish to change the memory usage parameters from their default values.

You can check current settings by entering the following command: `sysctl omfs_cache_max_mem_MB omfs_cache_pre_allocate omfs_cache_allocate_limit`

- Specify the maximum File Open Limit by entering the following command: `mount -t omfs /mediagrid/filesys /mnt -o username=username,password=password,readahead=2,filelimit=N`, where N is equal to the maximum number of simultaneously open files.
- Specify the ReadAhead value by typing the following command: `mount -t omfs /mediagrid/filesys /mnt -o username=username,password=password,readahead=N`, where N is equal to the number of slices.
- If necessary, modify the Cache Memory Limit by typing the following command: `echo NNN > /proc/sys/omfs_cache_max_mem_MB`, where NNN is the amount of memory specified in megabytes.

 **NOTE:** The default Cache Memory Limit is 400 MB.

- If necessary, modify the Pre-allocation Limit by entering the following command: `sysctl omfs_cache_pre_allocate=NNN`, where NNN is the number of memory cache units (increments of 256KB).
- If necessary, modify the Allocation Limit by entering the following command:

`sudo sysctl -w omfs_cache_allocate_limit=NNN`, where NNN is the maximum number of cache memory units (increments of 256KB).

- To enable the new settings to persist after future reboots, Harmonic recommends that you edit the same parameters in `/etc/sysctl.conf`:
 - `omfs_cache_max_mem_MB = NNN`
 - `omfs_cache_pre_allocate = NNN`
 - `omfs_cache_allocate_limit = NNN`

Result:

Increased memory allocations should take effect immediately. If the demand from other allocations is significant, however, a reboot may be needed.

Configuring an SSD Media Cache

Configure the SSD Media Cache using the Macintosh FSD GUI or Windows FSD GUI. Ensure that the SSD has already been installed.

About SSD Media Cache

An SSD Media Cache provides the Windows FSD and Macintosh FSD with additional cache for media data and can improve performance for certain Harmonic MediaGrid workflows.

SSD Media Cache offers performance improvements in workloads which read and re-read the same media files multiple times, such as non-linear editing, UHD video editing, and multi-track scrubbing. After data has been read once from the Harmonic MediaGrid, subsequent reads are at the same speed as for local files on the SSD.

- ! **IMPORTANT:** For optimal performance, the allocated SSD Media Cache size must be large enough to accommodate the working set of files that the NLE will be accessing at a given time. For example, if the editor is working with a 30-minute segment of a 2-hour video clip, the SSD Media Cache size should be large enough to accommodate the files referenced within the 30-minute segment.

When determining the SSD Media Cache demand, note the following factors:

- SSD Media Cache offers the same performance improvement for file-per-frame formats. However, any uncompressed UHD file-per-frame formats will require significantly more cache to accommodate all of the referenced files.
- If the rendered media file will be written to the SSD Media Cache, the allocated cache size must be large enough to accommodate the original clips referenced in the timeline as well as the final exported media file. Note that the SSD Media Cache does not improve performance if the rendered media file is written to the local drive.
- Harmonic recommends allocating an additional 25% to the total SSD Media Cache size in order to account for File System Driver operations.

- 📄 **NOTE:** At this time, the Linux FSD does not support SSD Media Cache.

You can improve the performance of SSD Media Cache by enabling TRIM on the client computer. TRIM is the command that allows an operating system to inform a solid-state drive (SSD) which blocks of data are no longer considered in use. When enabled, TRIM prolongs the service life of flash memory (wear leveling) and increases the speed of write operations.

Configuring an SSD Media Cache for Windows FSD

After you apply the SSD Media Cache settings, changes take effect immediately.

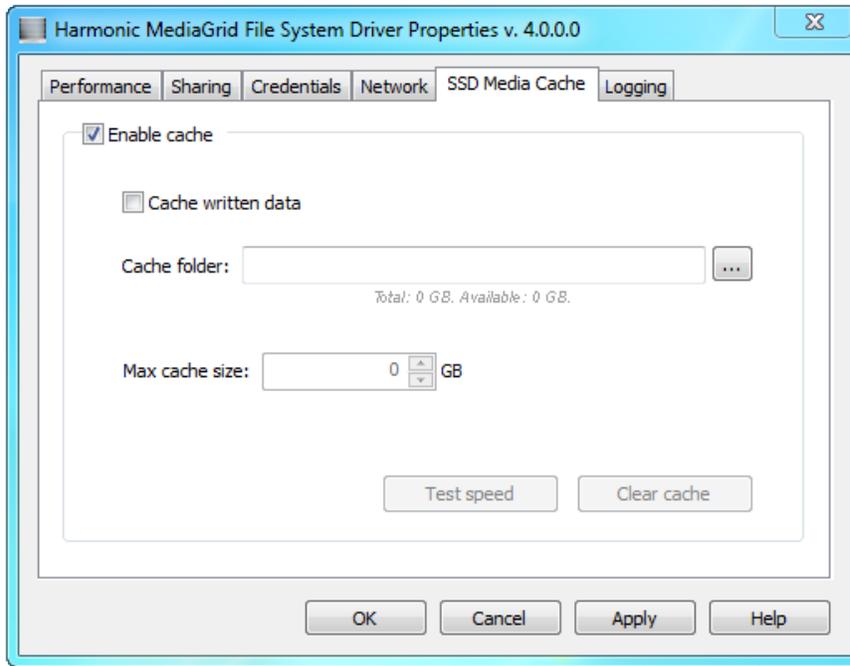


Figure 5-1: SSD Media Cache tab

1. From the **SSD Media Cache** tab, modify the following settings:

Option	Description
Enable cache	Select this option to enable caching data that is read from the Harmonic MediaGrid to an SSD. The SSD should already be installed prior to selecting this option. Default: Off
Cache written data	Select this option if the final, rendered media file will be written to the SSD Media Cache. Any last-minute scrubbing will not result in additional reads.  NOTE: The Max Cache Size size must be configured to accommodate the original clips referenced in the timeline as well as the final exported media file. Default: Off
Cache folder	Specify the folder where the SSD Media Cache stores cached data.  NOTE: The SSD Media Cache cannot use the same local SSD that is used by the operating system.
Max Cache Size	Enter the maximum cache size for the SSD Media Cache in GB.

Option	Description
	 IMPORTANT: For optimal performance, the allocated SSD Media Cache size must be large enough to accommodate the working set of files that the NLE will be accessing at a given time. For example, if the editor is working with a 30-minute segment of a 2-hour video clip, the SSD Media Cache size should be large enough to accommodate the files referenced within the 30-minute segment.
Test speed	Click to test the read/write speed of the specified Cache folder .
Clear cache	Click this button when you wish to clear data from the SSD Media Cache.

2. Click **Apply**.
3. Click **OK** to exit the applet.

Enabling TRIM support on Windows

You may wish to enable TRIM support if an SSD Media Cache is in use. This procedure requires administrator permissions.

1. Launch the Command Prompt and run the following command: `fsutil behavior set DisableDeleteNotify 0`.
2. Verify that TRIM has been enabled by running the following command: `fsutil behavior query DisableDeleteNotify`.
A response of "0" indicates that TRIM is enabled, and a response of "1" indicates that TRIM is disabled.

Example:

```
DisableDeleteNotify = 0
```

```
DisableDeleteNotify = 1
```

Configuring an SSD Media Cache for Macintosh FSD

After you apply the SSD Media Cache settings, changes take effect immediately.

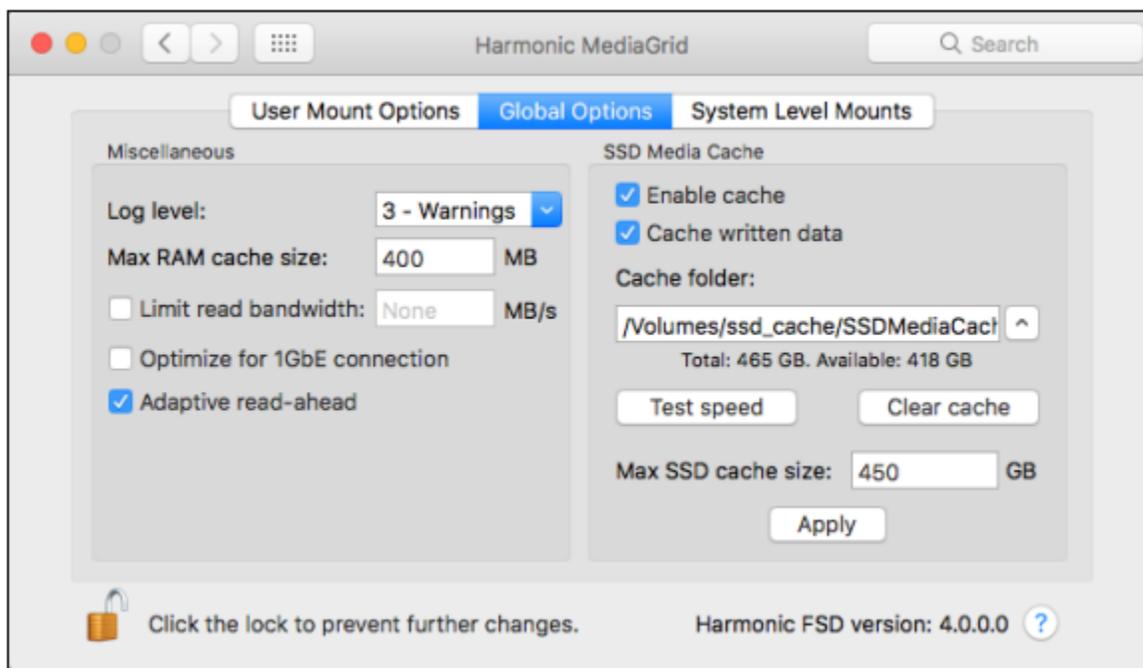


Figure 5-2: SSD Media Cache configuration

Before you begin

If you have not done so already, you must enable ownership of the external SSD in order to prevent security errors.

1. Edit the following **SSD Media Cache** settings:

Option	Description
Enable cache	Select this option to enable caching data that is read from the Harmonic MediaGrid to an SSD. The SSD should already be installed prior to selecting this option. Default: Off
Cache written data	Select this option if the final, rendered media file will be written to the SSD Media Cache. Any last-minute scrubbing will not result in additional reads.  NOTE: The Max Cache Size size must be configured to accommodate the original clips referenced in the timeline as well as the final exported media file. Default: Off
Cache folder	Specify the folder where the SSD Media Cache stores cached data.  NOTE: The SSD Media Cache cannot use the same local SSD that is used by the operating system.

Option	Description
Test speed	Click to test the read/write speed of the specified Cache folder .
Clear cache	Click this button when you wish to clear data from the SSD Media Cache.
Max Cache Size	<p>Enter the maximum cache size for the SSD Media Cache in GB.</p> <p> IMPORTANT: For optimal performance, the allocated SSD Media Cache size must be large enough to accommodate the working set of files that the NLE will be accessing at a given time. For example, if the editor is working with a 30-minute segment of a 2-hour video clip, the SSD Media Cache size should be large enough to accommodate the files referenced within the 30-minute segment.</p>

2. Click **Apply**.

Enabling TRIM support on MacOS

You may wish to enable TRIM support if an SSD Media Cache is in use. This procedure requires administrator permissions.

1. Open a new Terminal window and run the following command: `sudo trimforce enable`.
2. Enter the administrator password.
3. Type `Y` to proceed.
4. Type `Y` to restart the system.
5. To verify that TRIM is enabled, do the following:
 - a. Hold down the **Option** key and, from the **Apple** menu, select **System Information**.
 - b. From the sidebar, click **SATA/SATA Express**.
 - c. Confirm that **TRIM Support** is set to "yes".

Using mgcopy to copy files between file systems

The mgcopy utility allows you to copy data quickly between Harmonic MediaGrid systems. This utility can be used any time you wish to back up data quickly.

- [Starting mgcopy](#)
- [mgcopy options](#)

Starting mgcopy

When opened, mgcopy presents a command line interface. You can run mgcopy from the ContentDirector, or the Windows FSD or Macintosh FSD.

- 📄 **NOTE:** mgcopy does not work with systems running 3.0. It can perform copies only between systems running a 2.X version and 3.1 or later.
- 📄 **NOTE:** If you are using mgcopy to copy files that include hardlinks, and the files already exist in the destination path, make sure to use the overwrite option (-o).

- To start mgcopy from the ContentDirector, log on to the ContentDirector and then type the following command: `/opt/omcld/bin/mgcopy`.
- On the Macintosh FSD client, mgcopy is in the following location:
 - `/usr/bin/mgcopy` (version 3.5 or earlier)
 - `/opt/omfs/bin/mgcopy` (version 3.5.1 or later)
- On the Windows FSD client, mgcopy is located at `C:\Program Files (x86)\Omneon\Omneon MediaGrid\mgcopy`

mgcopy options

The mgcopy utility supports the following options.

Option	Description
-s	Specify the ContentDirector name or IP address
-u	Specify the user name for the ContentDirector
-p	Specify the password for the ContentDirector
-srcfile	Specify the location of the source file to be copied

Option	Description
-dstfile	Specify the location of the file to copy the source file to
-logfile	Specify the location of the file that lists the name of files/directories copied using the mgcopy utility
-errorfile	Specify the location of the file that lists the name of the files/directories for which ACLs were not copied
-o	Overwrite
-c	Status of copy
-copyOwner	Preserve the owner at destination
-copyAcl	Preserve the ACLs at destination
-noDataTransfer	Used with other options, like copyAcl and copyOwner, but does not copy data at destination
-testRun	Do a test run of the command to see if the version of source and destination Harmonic MediaGrid systems are compatible with each other
-d	Specify the debug level (default: 0)
-R	Copy recursively all the sub directories and files
-help	Display this help and exit
-copy	Specify the type of copy to perform. The following types are supported: <ul style="list-style-type: none"> • deep: Deep copy within a cluster • soft: Shallow copy within a cluster • across: Deep copy across clusters. With this option, you must provide the following credentials: -u2, -p2, -s2

Examples of the mgcopy command:

```
mgcopy -s server ip-addr -u john -p password -copy deep -srcfile /fs/
dir1/file1 -dstfile /fs/dir2/file2
```

```
mgcopy -s server1 ip-addr -u john -p password -copy across -s2 server2
ip-addr -u2 john2 -p2 password2 -srcfile /fs/ dir1/f1 -dstfile /fs2/
dir1/f2
```

Using mgquota on a Macintosh FSD client

The mgquota utility is installed and run on a Macintosh FSD client and displays quota information for a given Harmonic MediaGrid directory.

The mgquota utility does not allow you to set a quota; it merely reports the quota for the specified directory. For information on setting a quota, refer to the *Harmonic ContentManager User Guide*. The mgquota utility is compatible with the following releases:

- Harmonic MediaGrid Server 3.1 and later
- Harmonic MediaGrid Macintosh FSD 3.1 and later

1. From the Macintosh desktop, under Applications, launch the Terminal application.

2. Query a directory by typing one of the following commands:

- Pre-Macintosh FSD 3.5.1 versions: `/usr/bin/mgquota /Harmonic MediaGrid directory path`
- Macintosh FSD version 3.5.1 and later: `/opt/omfs/bin/mgquota /Harmonic MediaGrid directory path`

Example: `/opt/omfs/bin/mgquota /Volumes/mg-eng3/testfolder`

3. When prompted, enter your domain, user name, and password.

Result: Upon successful authentication, mgquota will display the assigned quota and space used by the specified directory.

Chapter 8

Setting up soft links

A soft link is a symbolic link to another file or directory. They are visible using the ContentManager application.

1. Mount the file system.
2. At the command prompt, change to the directory for which you want to create a link, or provide the filepath in the command.
3. Create the soft link using the following command: `ln -s existing file name new file name`
Example: To create a soft link to `directory_abc` from `directory_xyz`, enter the following: `ln -s directory_abc directory_xyz`

Appendix A

Contacting Harmonic technical support

- [Harmonic Technical Assistance Center contact information](#)
- [Harmonic corporate contact information](#)

Harmonic Technical Assistance Center contact information

A list of phone numbers, e-mail addresses, and important links for the Harmonic Technical Assistance Center (TAC).

Table A-1: Harmonic Technical Assistance Center phone numbers and email addresses

Region	Telephone Technical Support	Email
Americas	888.673.4896 (888.MPEG.TWO) 408.490.6477	support@harmonicinc.com
Europe, the Middle East and Africa (EMEA)	+44.1252.555.450	emeasupport@harmonicinc.com
India	+91.120.498.3199	apacsupport@harmonicinc.com
Russia	+7.495.926.4608	rusupport@harmonicinc.com
China	+86.10.6569.5580	chinasupport@harmonicinc.com
Japan	+81.3.5614.0524	japansupport@harmonicinc.com
Asia Pacific (APAC) – Other Territories	+852.3184.0045 +65.6542.0050	apacsupport@harmonicinc.com

Report an issue online

<https://www.harmonicinc.com/service-support/support/>

Harmonic support website

<http://www.harmonicinc.com/content/technical-support>

Software download location for Cable Edge products

<ftp://ftp.harmonicinc.com>

Contact Harmonic Technical Publications

techdocs@harmonicinc.com

Harmonic corporate contact information

Phone numbers and addresses for the corporate office.

Harmonic corporate address

4300 North First Street
San Jose, CA 95134
U.S.A.

Harmonic corporate telephone numbers

Tel. 1.800.788.1330 (from the U.S. and Canada)
Tel. +1.408.542.2500 (outside the U.S. and Canada)
Fax. +1.408.542.2511

