

# PRODUCT MANUAL

Installation, Configuration, and Operation Instructions



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Video Solutions

# LEIGHTRONIX

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Thank you for purchasing a LABvault-SD digital video player/recorder. With the LABvault-SD, anyone can easily create and display industry standard MPEG-2 files with very little training. The LABvault-SD includes a Web interface that can be used to operate the LABvault-SD's record, playback, and transfer features from any location while also providing administrative options for setting up file transfer destinations, changing recording quality presets, managing files on the LABvault's internal hard drive, and accessing the system's log files.

One of the most powerful features of the LABvault-SD is its ability to be controlled by a wide variety of external sources. The most popular control interfaces include Crestron® and AMX® touch screen technology, giving users an intuitive and simple way to record a video source, display the resulting digital file on a connected television monitor, and then transfer the file to one or more destinations.

The LABvault-SD accommodates a variety of playback and storage destinations. For instance, users may send files to an archive server and then later download the files to view on a PC, burn to a DVD, or drag into an editing system timeline. Further options include sending each digital file from the LABvault-SD to a LEIGHTRONIX NEXUS series server/controller (UltraNEXUS-SDI, UltraNEXUS, or NEXUS) for scheduled or immediate broadcasting. The LABvault-SD can also be integrated with a LEIGHTRONIX streaming video-on-demand application like the PEG Central Web service, with the option to host files on the PEG Central web servers or in-house on an LGX-SVOD server.

## ABOUT THIS MANUAL

This manual describes how to install your LABvault-SD as well as use the included LABvault-SD Web interface to set up and control the player/recorder. Instructions on using a touch screen or other external control system with the LABvault-SD should be obtained from the third party provider. Refer to the "CONTROL COMMANDS" on page 26 of this manual for a list of the commands needed to program your external control system.

## PACKING LIST

- (1) LABvault-SD Digital Player/Recorder
- (1) Product Resource Disc, Including *LABvault-SD Manual*
- (1) Part #10-0311, AC Power Cord, 6 ft.
- (1) Part #10-4856, CAT 5e Ethernet Cable, 7 ft.

## IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the grounding-type plug. A grounding-type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. When the apparatus is turned off, certain components in the power supply and system board remain energized. In order to remove all electrical power from the apparatus, unplug the power cord from the MAINS socket outlet.



**To reduce the risk of electric shock, do not expose this apparatus to rain or moisture.**



**This apparatus must be connected to a MAINS socket outlet with a protective earthing connection.**

## FRONT PANEL



### KEYPAD

The four LABvault-SD arrow keys are used to display status information as well as for the entry of TCP/IP network addresses. If you hold down an arrow key for more than one second, it begins to scroll through all of the available options. Release the key when the desired option is displayed.

The front panel keypad also turns the LABvault-SD on/off. Note that the LABvault-SD automatically turns on when the unit is plugged in. When held for four seconds, the red "X" button turns off the LABvault-SD. If the LABvault-SD has been turned off, press the green check push button for two seconds to turn the unit back on.



**BEFORE** unplugging or removing power from the LABvault-SD, shut down the unit from its front panel.

### LEDS

The LABvault-SD front panel has two status, light-emitting diodes (LEDs) for at-a-glance feedback. The red "Record" LED lights up when the LABvault-SD is encoding. The blue "Play" LED lights up when playback on the LABvault is activated.

### DISPLAY

The LABvault-SD display shows status and password-protected TCP/IP address entry screens. Once the LABvault-SD has been booted up, press the up or down arrows on the keypad to display the following status screens:

Serial Number & Firmware Version

11/03 12:00:00PM  
SN:B923D1 V01.00

Firmware Date

11/03 12:00:00PM  
FW Bit:10/31/08

Processor Temperature

11/03 12:00:00PM  
Temp: 42°C

MPEG Player Status

11/03 12:00:00PM  
MPEG Player Stop

IP Address

11/03 12:00:00PM  
IP:10.9.0.1

LABvault-SD Identification

11/03 12:00:00PM  
ID:LABvault-SD

MPEG Recorder Status

11/03 12:00:00PM  
Recorder Stopped

Transfer Status

Indicates file transfer destination and progress. If more than one destination is selected for a transfer, the screen only shows the first destination to which the LABvault-SD sends the file. Changes to "Send Idle" when there are no active file transfers.

11/03 12:00:00PM  
NX: 0.8591GB 2%

Bios Date

11/03 12:00:00PM  
Bios:02/14/08

PStat Firmware Version

Displays the firmware version for the front panel status LEDs.

11/03 12:00:00PM  
PStat Ver:66.03

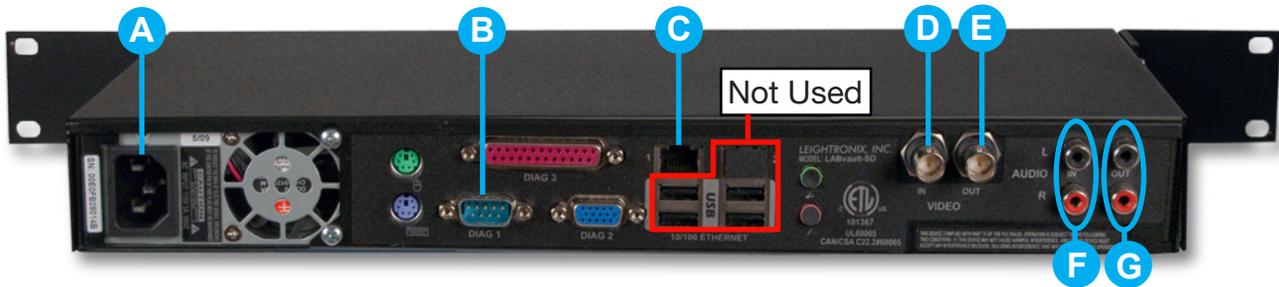
Build Number

11/03 12:00:00PM  
Bld Num:427

## BACK PANEL

There are two versions of the LABvault-SD, which have different back panels, supported network connectivity speeds, and internal hard drive sizes. The original LABvault-SD, no longer available, has a back panel matching the first of the pictures shown below, supports 10/100 BASE-T Ethernet, and has a 120 GB internal hard drive. The current LABvault-SD model, version 2, has a back panel matching the second picture below, supports 10/100/1000 or gigabit BASE-T Ethernet, and has a 250 GB internal hard drive.

### ORIGINAL LABVAULT-SD BACK PANEL



The LABvault-SD back panel, includes, from left to right, top to bottom:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><b>A:</b> Power cord connector</li> <li><b>B:</b> 1 RS-232 Serial Port for External Control System</li> <li><b>C:</b> 1 RJ-45, 10/100 BASE-T Ethernet port with corresponding LED indicators</li> </ul> | <ul style="list-style-type: none"> <li><b>D:</b> 1 BNC video input connector</li> <li><b>E:</b> 1 BNC video output connector</li> <li><b>F:</b> 2 RCA audio input connectors (left &amp; right)</li> <li><b>G:</b> 2 RCA audio output connectors (left &amp; right)</li> </ul> |
|--|--|

### VERSION 2 OF THE LABVAULT-SD BACK PANEL



The LABvault-SD back panel, includes, from left to right, top to bottom:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li><b>A:</b> Power cord connector</li> <li><b>B:</b> not used</li> <li><b>C:</b> 9-pin male RS-232 DTE connector for control by a compatible third party system, such as a AMX or Crestron touch screen</li> <li><b>D:</b> 1 RJ-45, 10/100/1000 BASE-T Ethernet port with corresponding LED indicators</li> </ul> | <ul style="list-style-type: none"> <li><b>E:</b> 1 BNC video input connector</li> <li><b>F:</b> 1 BNC video output connector</li> <li><b>G:</b> 2 RCA audio input connectors (left &amp; right)</li> <li><b>H:</b> 2 RCA audio output connectors (left &amp; right)</li> </ul> |
|---|--|

## SYSTEM INSTALLATION

### INSTALLING THE LABVAULT-SD

While installing the LABvault-SD, refer to the labeled back panel on page page 4 that matches your LABvault-SD's back panel. Perform the following installation steps:

- The LABvault-SD may be left as a standalone, tabletop unit or mounted into a rack as follows:



Leave empty rack spaces above and below the LABvault-SD. The LABvault-SD should not have anything stacked on top of it.

- Insert the LABvault-SD into the rack, aligning the holes of the unit's mounting bracket with those of the rack.
  - Secure the LABvault-SD to the rack with user-supplied rack screws.
- Connect the included power cable to the LABvault-SD's power cord connector and then plug the other end into an AC power source.



LEIGHTRONIX strongly recommends the use of an Uninterruptible Power Supply (UPS) with the LABvault-SD. Damage from power loss or spikes is not covered under warranty.

- Using a straight-through RJ-45 Ethernet cable, connect the LABvault-SD Ethernet port to a hub or switch on your TCP/IP network. The original LABvault-SD supports 10/100 BASE-T Ethernet, while version 2 of the LABvault-SD supports 10/100/1000 (gigabit Ethernet). To check your network connection, look at the Ethernet LEDs above the Ethernet port and compare to the table below that corresponds to your LABvault-SD's back panel.

**NOTE:** The LABvault requires the following network ports:

- 23 Telnet
- 21 FTP Control Connection
- 20 FTP Data (if using third party FTP client in passive mode)
- 80 for the LABvault-SD Web interfaces
- 2000 UDP for ePRO-BUS Control

Original LABvault-SD Ethernet LED Indicators		
LED Position	State	Description
Left	Off	Connection speed is 10Mb/s
	Green	Connection speed is 100Mb/s
Right	Off	Ethernet link not established
	Steady on yellow	Ethernet link established. PEGvault-SD is not transmitting on the network.
	Blinking yellow	Ethernet link established. PEGvault-SD is transmitting on the network.

Version 2 LABvault-SD Ethernet LED Indicators		
LED Position	State	Description
Right	Off	Connection speed is 10Mb/s
	Green	Connection speed is 100Mb/s
	Orange	Connection speed is 1000Mb/s
Left	Slow blinking yellow	Ethernet link not established
	Fast blinking yellow	Ethernet link established. LABvault-SD is transmitting on the network.

- Connect your video/audio signal wiring to the LABvault-SD as follows:
  - Video/Audio Source:** this is the resource or signal the LABvault-SD will record. Connect your video source wiring to the LABvault-SD's BNC video input and stereo RCA audio inputs.
  - Video/Audio Destination:** connect a television monitor to the LABvault-SD's BNC video output and stereo RCA audio outputs to review your recorded digital files. The LABvault-SD supports simultaneous playback and recording, allowing you to watch other files during recording.
- If your external control system has not been configured for network connectivity and supports RS-232 communication, connect the control system (such as AMX or Crestron touch screen) directly to the LABvault's RS-232 control port. For LABvault control protocol details, refer to the "CONTROL COMMANDS" on page 26.

## ENTERING NETWORK SETTINGS INTO LABVAULT-SD

**Default Front Panel Password:  
five right arrow keys**

- a. Power up the LABvault-SD by pressing the green check button on the front panel for at least two seconds.
- b. From the front panel, enter your password by pressing the right arrow button to display the password entry screen and then the right arrow key five times. If the password is entered correctly, the LABvault-SD's configuration menu will be displayed (see below).

CONFIG MENU  
Edit unit address

If the password is entered incorrectly, the front panel display returns to the status screens.

- c. Either enter your LABvault-SD network addresses manually or use DHCP to automatically configure the addresses according to the following steps:
  - Automatic Network Addressing: enable DHCP on your LABvault-SD according to the table below. When enabled, DHCP will configure your LABvault with an IP, subnet mask, and gateway network addresses.

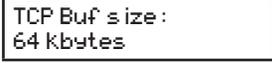
DHCP Configuration Steps	Corresponding Screen Displays
<ol style="list-style-type: none"> <li>i. From the "CONFIG MENU" screen, press "↑" or "↓" to proceed to the "Edit DHCP" screen.</li> <li>ii. Press "→" to select the screen.</li> </ol>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">CONFIG MENU Edit DHCP</p> </div>
<ol style="list-style-type: none"> <li>iii. Press "↑" or "↓" to toggle the field value from "DISABLED" to "ENABLED."</li> <li>iv. Press "→" to enter the next screen.</li> </ol>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">ENABLE DHCP : ENABLED</p> </div>
<ol style="list-style-type: none"> <li>v. Either press "→" again to save your changes or "←" to abort changes.</li> </ol>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">Press ↵ to confirm DHCP</p> </div>
<p><b>The LABvault-SD must be powered down and then powered back up to apply any DHCP changes (press the red "X" button for four seconds to turn the unit off and then press the green check button for two seconds to return power).</b></p>	

- Manual Network Address Entry  
Obtain an IP address, subnet mask, and a gateway for your LABvault-SD from your network administrator. Repeat the network configuration steps below to enter your IP, subnet, and gateway network addresses.

Network Address Configuration Steps	Corresponding Screen Displays
<ol style="list-style-type: none"> <li>i. From the "CONFIG MENU" screen, press "↑" or "↓" to proceed to the desired address screen.</li> <li>ii. Press "→" to select the screen.</li> </ol>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">CONFIG MENU Edit unit address</p> </div>
<ol style="list-style-type: none"> <li>iii. Press "→" or "←" to position the underscore beneath the editable fields and press "↑" or "↓" to edit the values.</li> <li>iv. Press "→" past all of the editable fields to enter the next screen.</li> </ol>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">Enter address 255.0.0.0.</p> </div>
<ol style="list-style-type: none"> <li>v. Either press "→" again to save your changes or "←" to abort changes.</li> </ol>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">Press ↵ to confirm address</p> </div>
<p><b>The LABvault-SD must be powered down and then powered back up to apply any network address changes (press the red "X" button for four seconds to turn the unit off and then press the green check button for two seconds to return power).</b></p>	

- d. **Optional:** the LABvault-SD FTP buffer size setting helps to control the rate at which data is transferred to and from the LABvault. The buffer size defaults to 16 kilobytes, but may be adjusted down to 4 KB or up to 64 KB. If your network equipment can handle a higher rate, edit the setting to 32 or 64 KB for faster transfer times.

To change the FTP buffer size, perform the following:

Network Address Configuration Steps	Corresponding Screen Displays
<p>i. From the "CONFIG MENU" screen, press "↑" or "↓" to proceed to the "Edit FTP TCP Buf" screen.</p> <p>ii. Press "→" to select the screen.</p>	
<p>iii. Press "→" or "←" to position the underscore beneath the editable fields and press "↑" or "↓" to edit the values.</p> <p>iv. Press "→" again to apply change and enter reboot message screen or "←" to abort changes.</p>	
<p><b>The LABvault-SD must be powered down and then powered back up to apply any FTP buffer size changes (press the red "X" button for four seconds to turn the unit off and then press the green check button for two seconds to return power).</b></p>	

## WEB INTERFACE

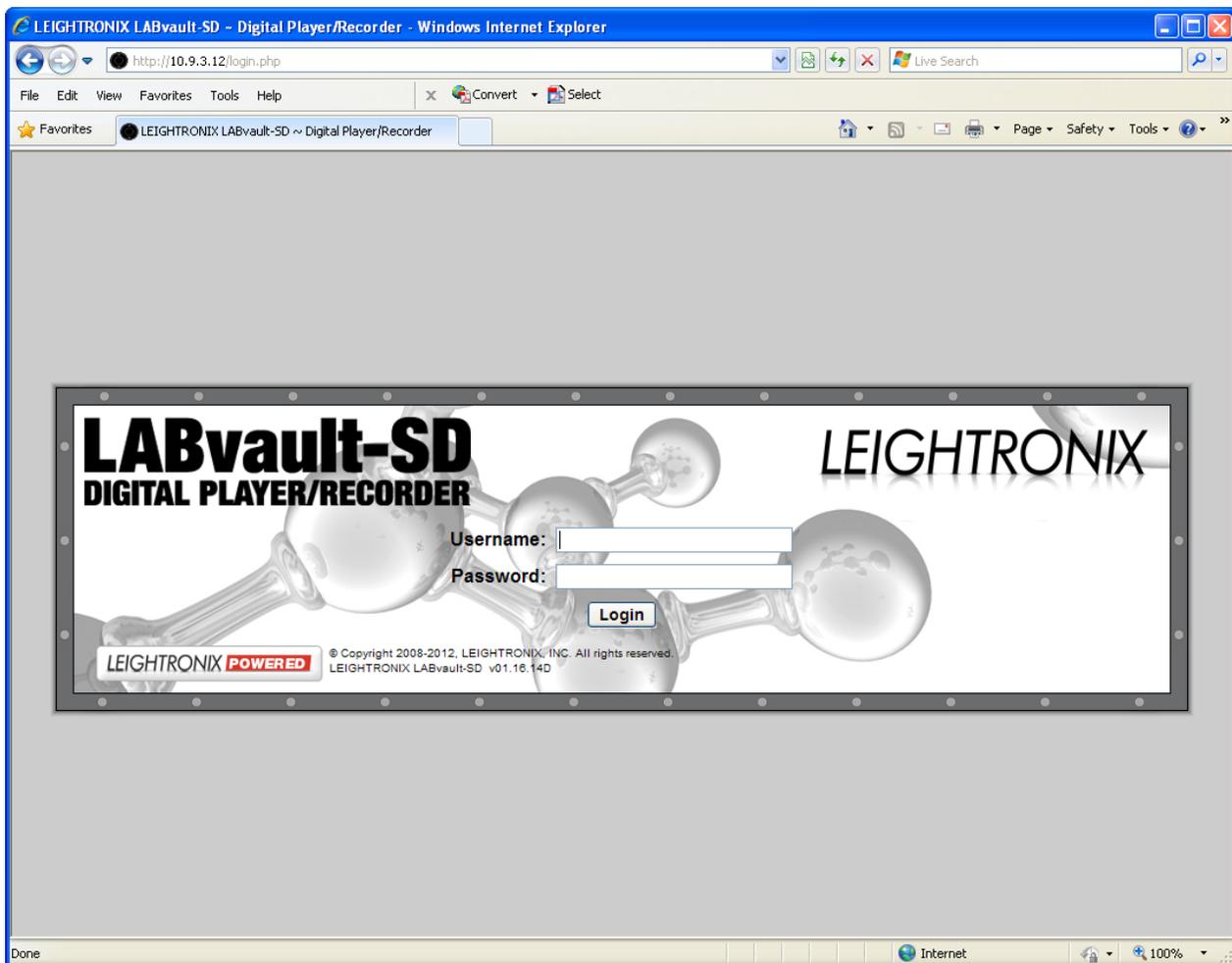
Your LABvault-SD includes a Web interface, allowing any authorized user to conveniently set up and check on your LABvault from a local area network connection or the Internet. The LABvault-SD Web interface is compatible with Internet Explorer, version 8 and higher, Firefox, Safari, and Google Chrome.

### OPENING AND LOGGING IN

Type your LABvault-SD's IP address into your Web browser's address bar (i.e., <http://10.255.14.175>). Enter the LABvault-SD "admin" username and password into the login prompt and click the "Login" button.

**NOTE:** The username is always "admin" and the factory-default password is the last six digits of your LABvault's serial number.

*Login Screen*



## UNDERSTANDING STATUS INDICATORS ON “SYSTEM DASHBOARD” SCREEN

Click the “Dashboard” button to display the “System Dashboard” screen. The Dashboard displays all of the currently configured settings for your LABvault-SD as well as the unit’s operational and storage status.

“System Dashboard” Web Interface Screen

The screenshot displays the LABvault-SD System Dashboard. The top header includes the product name 'LABvault-SD DIGITAL PLAYER/RECORDER' and the brand 'LEIGHTRONIX'. The date and time are shown as 'Tuesday, August 21, 2012 3:27:36 PM'. The dashboard is divided into several sections:
 

- Site Information:** Displays site name (LABvault-SD), location (Conference Room), serial number (09030C), and firmware version (01.17.15D).
- Storage:** Shows storage capacity and usage for 'System' and 'Internal' volumes. The 'System' volume has a total capacity of 32.01GB and 31.08GB free space. The 'Internal' volume has a total capacity of 200.88GB and 134.92GB free space.
- Network Settings:** Lists IP address (10.9.3.12), subnet mask (255.0.0.0), gateway (10.255.0.1), DNS server (255.255.255.255), and MAC address (00-E0-FB-09-03-0C).
- Destination Configuration:** Shows settings for NEXUS/UltraNEXUS, including IP address (10.255.0.101), username (admin), volume (VOL1), and transfer holdoff (Enabled).
- MPEG Engine Status:** Divided into 'Player' and 'Recorder' sections. The Player section shows the current file name and playback time. The Recorder section shows the recording file name, time, quality (Good), auto delete status (Enabled), and index points.
- File Transfers:** Shows the current file being transferred (lab\_section1120821-152701.mpg) and the transfer rate (8MB @ 4.94Mb/s).

**MPEG Player Status:** shows the filename and playback time of the video currently being displayed

**File Transfers:** shows which files are currently being transferred, the transfer destination(s), and the transfer rate.

**Destination Configuration:** indicates the file destination(s) set up for automatic/manual file transfers and network settings entered for all destinations.

**Network Settings:** shows the network settings entered into your LABvault-SD’s front panel.

**Storage:** indicates the total storage capacity of your LABvault-SD’s internal hard drive for the current file record quality preset, as well as how much storage has been used and is currently available on the internal hard drive. This field also shows how many recorded files are currently on the hard drive.

**MPEG Recorder Status:** shows the user-selected filename and recording quality preset for the current recording session as well as the record time in hours:minutes:seconds:frames. The “Auto Delete” field indicates whether or not your LABvault-SD has been set up to automatically delete transferred files from its internal hard drive. The “Index Pointers” box displays any video index points set for LEIGHTRONIX streaming video-on-demand applications during the current LABvault record session.

**Site Information:** customize the “Site Name” and “Site Location” information for your system from the “Site Information” tab on the “System Management” screen. Refer to the “Edit Site Name and Location from the ‘System Management’ Screen” subsection on the following page for further information.

## **ENTERING LABVAULT-SD SETTINGS**

Configure your LABvault-SD's site identification, system time and time zone, login username(s) and password(s), and more from the "System Management" screen as described in the following subsections:

### **Site Name and Location**

Customize the "Site Name" and "Site Location" on your "System Dashboard" screen for your system. Click the "SYSTEM" button to display the "System Management" screen and then click the "Site Information" tab. Enter a new identification name for your site into the "Site ID" field and a location description in the "Site Location" field. Click "Apply Changes" to change the information on your "System Dashboard" screen.

*"Site Information" Window on "System Dashboard" Screen*

Site Information
Site Name: LABvault-SD
Site Location: Conference Room
Serial Number: 09030C
Firmware Version: 01.16.14D

*"Site Information" Tab on "System Management" Web Interface Screen*

The screenshot displays the "System Management" web interface. On the left is a navigation sidebar with buttons for DASHBOARD, FILES, DESTINATIONS, SYSTEM, LOGS, and LOGOUT. Below these are sections for MPEG Player and MPEG Recorder, each with a play button and a 00:00:00 timer. The main content area is titled "System Management" and has several tabs: Site Information (selected), Security, Maintenance, ePRO-BUS, and Serial Port. The "Site Information" tab contains the following fields and controls:

- Site Name: LABvault-SD
- Site Location: Conference Room
- Time Zone: (GMT-05:00) Eastern Time (US & Canada) with a dropdown arrow
- Automatically adjust clock for daylight savings changes
- Apply Changes button
- LABvault-SD Time: August 21, 2012 9:51:00 AM
- Computer Time: August 21, 2012 9:51:04 AM with a Set button
- Manual: August 21, 2012 with up/down arrows for day, month, and year, and a dropdown for AM/PM, followed by a Set button

### **LABvault-SD System Time**

Click the "SYSTEM" button to display the "System Management" screen and then click the "Site Information" tab. "LABvault-SD Time" shows the date and time currently on your LABvault-SD system. To change the LABvault-SD's date/time, perform one of the following:

- Sync your LABvault-SD system's date and time to your computer's current date and time by clicking the "Set" button next to the "Computer Time" field.
- Manually change the LABvault-SD system date and time by editing the "Manual" fields as follows:
  1. Use the up/down arrows to adjust the time fields.
  2. Click on the date field and select a new date in the calendar that appears.
  3. Click the "Set" button to make the changes.

## Web Interface Usernames and Passwords

Control access to your LABvault-SD system settings and operation through the browser-based interface. Click the “SYSTEM” button to display the “System Management” screen and then click the “Security” tab. Perform the following:

### “Security” Tab on “System Management” Web Interface Screen

The screenshot displays the "System Management" web interface with the "Security" tab selected. The interface is divided into three main sections:

- System User (admin):** Contains fields for "New Password:" and "Confirm Password:", a "Change Password" button, and a warning box: "Warning: By modifying the admin user account password you will lock out all users until you manually provide the password to them. As the admin account password modifier, this is your responsibility to make sure all 'admin' users know the password."
- Front Panel Password:** Features a "Clear" button, a keypad of five arrow buttons (up, down, left, right, and center), a "Save" button, and a warning box: "Warning: The Front Panel password will restrict access to all front panel actions. Anyone wishing to modify settings there will be prompted for this key combination before changes can be made."
- Remote Users:** Includes a "Delete" button, a "New User" form with fields for "Username:", "Password:", and "Confirm Password:", a "Submit" button, and a warning box: "Warning: Remote Users will have full access to the remote control interface which is protected by basic HTTP authentication. LEIGHTRONIX recommends choosing a secure password that consists of mixed case letters and numbers."

The left sidebar contains navigation options: DASHBOARD, FILES, DESTINATIONS, SYSTEM, LOGS, LOGOUT, MPEG Player (00:00:00:00), MPEG Recorder (00:00:00:00), and a File Name field with "lab\_section1" and a "Save" button.

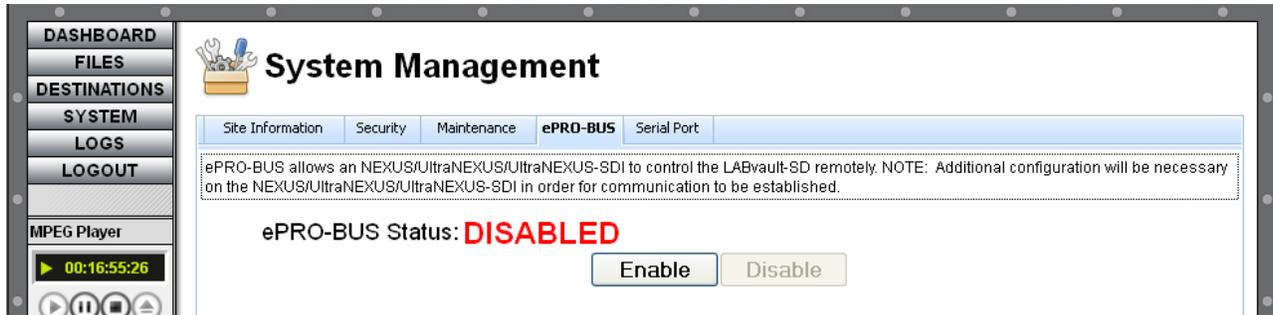
- **“System User (admin)” Password:** use these fields to change the password for the “admin” user account. The “admin” user is able to access the main LABvault-SD browser-based interface to change system configuration settings, activate the LABvault-SD recorder, add index points, modify file transfer settings, and view system log files. To change the “admin” password, enter up to eight alphanumeric characters in both fields and then click the “Change Password” button to save.
- **“Front Panel Password”:** protect access to the network settings entered into the front panel of your LABvault-SD by clicking a combination of five arrow buttons and then clicking the “Save” button to change the password or “Clear” to remove your entry from the field.
- **“Remote Users”:** remote user accounts allow users with supported third party systems to initiate, stop, and check the status of recording on your LABvault-SD. Enter a username and password into the corresponding fields and then click the “Submit” button to add the account. To delete a remote user account, single click on the user’s name and then click the “Delete” button.

## **ePRO-BUS Setting**

Click the “System” button to display the “System Management” screen and then click the “ePRO-BUS” tab. Click the “Enable” button to allow the LABvault-SD to receive PRO-BUS control commands over your Ethernet network from a NEXUS, UltraNEXUS, or UltraNEXUS-SDI server. Clicking “Disable” will prevent the LABvault-SD from receiving ePRO-BUS commands.

**NOTE:** Any LABvault-SD and NEXUS series server using the ePRO-BUS feature must be assigned a static IP address and made available for UDP on Port 2000.

*“ePRO-BUS” Tab on “System Management” Web Interface Screen*



## **Serial Port Setting**

The serial port mode setting, accessed by clicking the “Serial Port” tab on the “System Management” screen, applies to the bottom serial port on the back panel of the LABvault-SD chassis. “Host” mode allows the LABvault-SD to receive serial control commands from supported, external devices connected to the bottom serial port. “Camera” mode is not currently supported. Currently, the LABvault-SD is automatically configured in the “Host” mode.

*“Serial Port” Tab on “System Management” Web Interface Screen*



## SETTING UP FILE TRANSFER DESTINATION(S)

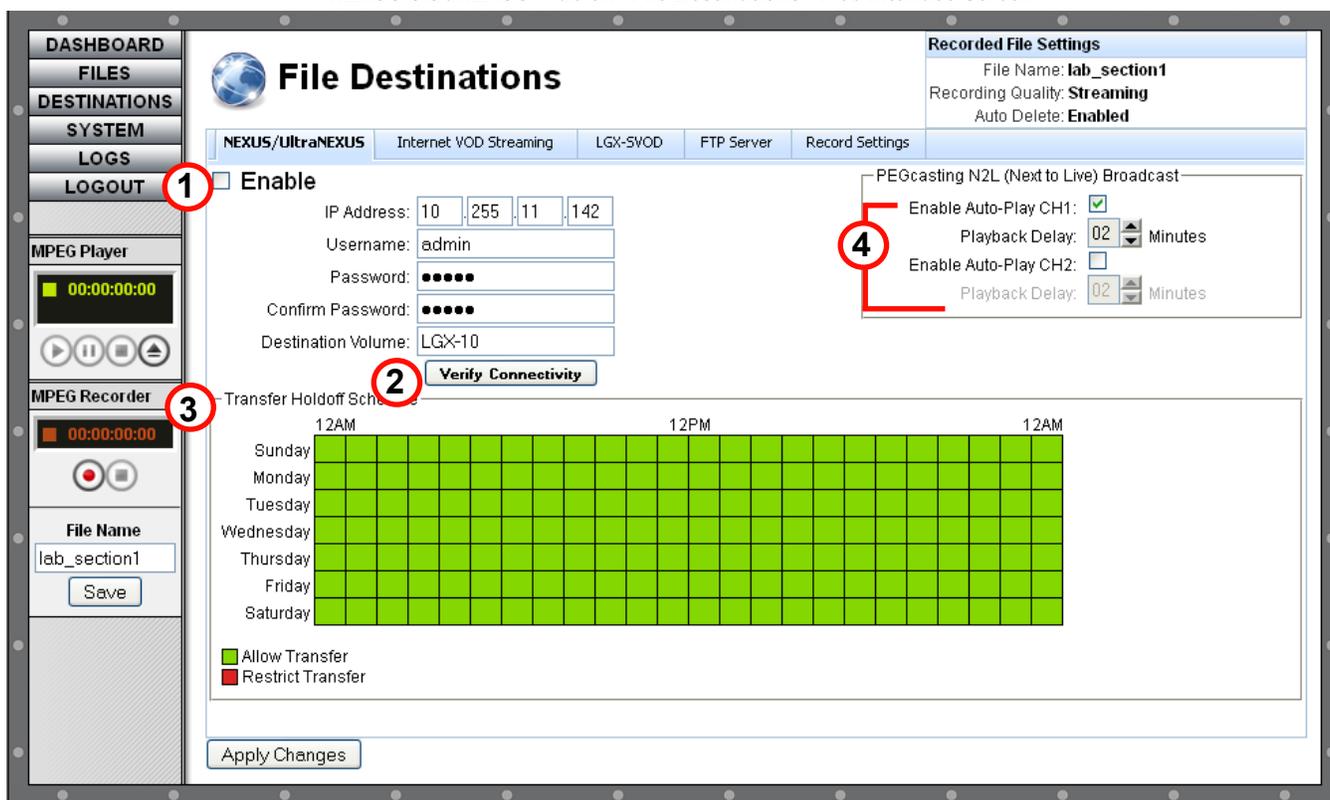
Easily control where your recorded files are sent by clicking the “Destinations” button and using the “File Destinations” screen tabs. Recorded files may be automatically or manually transferred to a NEXUS series server/controller, LEIGHTRONIX streaming VOD Web site, LGX-SVOD, and/or third party server with FTP capabilities, as outlined below. The settings apply to each recording session until you change them.

**NOTE:** If no destinations are enabled, the LABvault-SD will record and store your files on its internal hard drive. Refer to “Managing Files” on page 20 for instructions on transferring and deleting files off the internal hard drive.

### NEXUS Series Server (NEXUS/UltraNEXUS/UltraNEXUS-SDI)

Send your LABvault-SD files to any of the storage volumes attached to your NEXUS series server. Enter your NEXUS server’s IP address, username, and password along with the name of the volume that you want to store the files. The names of your storage volumes can be viewed in the WinLGX “Storage Manager” window. Complete the remaining settings according to the labeled illustration below and click the “Apply Changes” button when you have finished.

“NEXUS/UltraNEXUS” Tab on “File Destinations” Web Interface Screen



**1** “Enable”: check to select your NEXUS series system as an automatic file transfer destination for file recordings initiated from the LABvault-SD Web interface as well as the manual file transfer destination for files recorded from an external control system.

**2** “Verify Connectivity”: after entering your NEXUS series unit’s IP address, username, and password, click the “Verify Connectivity” button to ensure your LABvault-SD can connect to the server.

**3** “Transfer Holdoff Schedule”: 24-hour timeline allows you to decide which hours of the day your LABvault will transfer files to your NEXUS series system. Single click each hour segment on the timeline to toggle transfer capabilities on or off (green = on, red = off).

**4** “Enable Auto-Play CH”: if you have selected the “PEGcasting” option on the “Settings” tab, you may choose to have the transferring file stream automatically begin playing on your NEXUS series system’s MPEG Player 1 and/or 2. Select a “Playback Delay” of 2-60 minutes to specify how long after the file stream is transferred that it should begin playing on the selected channel(s).

## LEIGHTRONIX Streaming Video-on-Demand Web Site

The “Internet VOD Streaming” option transfers files to a LEIGHTRONIX streaming video-on-demand Web site such as PEG Central. Complete the settings according to the labeled illustration below and click the “Apply Changes” button when you have finished.

**NOTE: If you select “Internet VOD Streaming” as an automatic file transfer destination, your files will be recorded at a VBR of 1.5-2.5 Mb/s for all enabled file transfer destinations.**

“Internet VOD Streaming” Tab on “File Destinations” Web Interface Screen

**1**  **Enable**

**2** **Transfer Holdoff Schedule**

**1** “Enable”: check to select your LEIGHTRONIX streaming Web site as an automatic file transfer destination for file recordings initiated from the LABvault-SD Web interface as well as the manual file transfer destination for files recorded from an external control system.

**2** “Transfer Holdoff Schedule”: 24-hour timeline allows you to decide which hours of the day your LABvault will transfer files to your LEIGHTRONIX streaming Web site. Single click each hour segment on the timeline to toggle transfer capabilities on or off (green = on, red = off).

	12AM	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	12AM
Sunday	Red	Green																							
Monday	Green																								
Tuesday	Green																								
Wednesday	Green																								
Thursday	Green																								
Friday	Green																								
Saturday	Red																								

## LGX-SVOD Server

Enter your LGX-SVOD server's IP address, username, and password and then complete the remaining settings according to the labeled illustration below and click the "Apply Changes" button when you have finished.

"LGX-SVOD" Tab on "File Destinations" Web Interface Screen

**1** **Enable**: check to select your LGX-SVOD server as an automatic file transfer destination for file recordings initiated from the LABvault-SD Web interface as well as the manual file transfer destination for files recorded from an external control system.

**2** **Verify Connectivity**: after entering your LGX-SVOD server's IP address, username, and password, click the "Verify Connectivity" button to ensure your LABvault-SD can connect to the server.

**3** **Transfer Holdoff Schedule**: 24-hour timeline allows you to decide which hours of the day your LABvault will transfer files to your LGX-SVOD. Single click each hour segment on the timeline to toggle transfer capabilities on or off (green = on, red = off).

## Server with FTP Capabilities

Push your files to another LEIGHTRONIX or third party video server with FTP capabilities. Enter your server's IP address, username, and password along with the name of the destination path. Complete the remaining settings according to the labeled illustration below.

"FTP Server" Tab on "File Destinations" Web Interface Screen

**1** **Enable**: check to select your FTP server as an automatic file transfer destination for file recordings initiated from the LABvault-SD Web interface as well as the manual file transfer destination for files recorded from an external control system.

**2** **Verify Connectivity**: after entering your FTP server's IP address, username, password and destination path, click the "Verify Connectivity" button to ensure your LABvault-SD can connect to the server.  
**NOTE**: Obtain your destination path from your server's administrator.

**3** **Transfer Holdoff Schedule**: 24-hour timeline allows you to decide which hours of the day your LABvault will transfer files to your server. Single click each hour segment on the timeline to toggle transfer capabilities on or off (green = on, red = off).

## RECORDING

Set up your LABvault-SD system for recording with the administrative interface's record quality and automation settings and then learn how to use the interface to activate the LABvault-SD's record and index features through the following subsections:

**NOTE:** Record sessions initiated from the external control system will use the file quality setting currently selected in the Web interface.

### Record Settings

Click the "DESTINATIONS" button and then select the "Record Settings" tab. Enter the following record settings and then click the "Apply Changes" button to send the changes to your LABvault-SD or "Cancel" to abort. The settings will be applied to every recording session until they are changed.

"Record Settings" Tab on "File Destinations" Web Interface Screen

- **"File Name":** in the "File Name" field, enter up to 14 characters (letters, numbers, and underscores only—no spaces). If you use the same filename for more than one recording session, the record date and start time will be appended to the name of each additional recorded file as "yy/mm/dd-hh/mm/ss" (year/month/day-hours/minutes/seconds).

**NOTE:** Alternatively, you may enter the new filename into the "File Name" box in the lefthand column of the LABvault-SD Web interface. Click the "Save" button to make the change. The new name will appear in the "File Name" field on the "File Settings" tab.

- **"Create Unique Files":** when this option is selected, the record date and start time will be appended to the filename of every recorded file as "yy/mm/dd-hh/mm/ss" (year/month/day-hours/minutes/seconds).
- **"Automatic Delete":** if you want your recorded files deleted from the LABvault's internal hard drive after each transfer, select the "Enable" "Automatic Delete" option. The "Disable" option will cause your recorded files to stay on the hard drive until you manually delete them from the "File Management" screen (click the "Files" button).

**NOTES:**

- If no destinations are enabled, the LABvault-SD will record and store your files on its internal hard drive. Refer to "Managing Files" on page 20 for instructions on transferring and deleting files off the internal hard drive.

- Files manually transferred from an external control system will be automatically deleted off the LABvault-SD's hard drive, regardless of whether or not the "Automatic Delete" setting has been selected in the Web interface.
- "File Quality"**: select a "File Quality" recording preset for your files. Each recording quality preset represents the range of bit rates within which the file will be recorded.  
**NOTE: If you selected a LEIGHTRONIX streaming Web site ("Internet VOD Streaming") as an automatic file transfer destination, your files will be recorded at the "Streaming" setting for all selected file destinations. The "Good," "Better," and "Best" file record quality settings will be ignored.**
- "PEGcasting"**: if you want your LABvault-SD files transferred to your NEXUS series server 15 seconds after the files begin recording, select the "Enable" "PEGcasting" option. To use the PEGcasting Next to Live autoplay feature for simulated live broadcasting, you must still complete the "PEGcasting N2L" configuration settings on the "NEXUS/ UltraNEXUS" tab.
- "Closed Captions"**: Select the "Enable Closed Captions" option to capture any closed caption data from the source. Closed captions are hidden in the video signal and decoded for display on televisions with built-in decoders or televisions connected to external decoders.

## Recording from the Web Interface

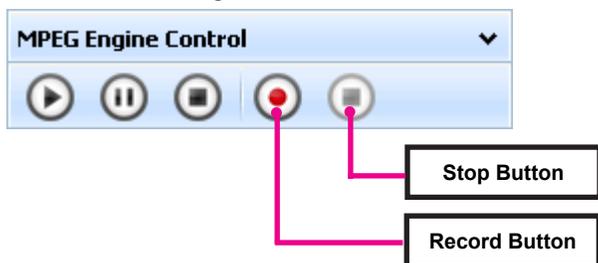
Left Column  
"MPEG Recorder" Controls



Start/Stop recording and add index points to your files through the LABvault-SD's Web interface as follows:

- From the "MPEG Recorder" panel under the menu buttons or from the "MPEG Engine Control" panel on the bottom of the "File Management" screen, click the record  button to begin recording.
- LEIGHTRONIX LGX-SVOD and Internet VOD Streaming Service Users Only: add video index points for use in PEG Central or other LEIGHTRONIX VOD streaming application. Index points appear as links next to the published video in the streaming application's player window, allowing viewers to quickly move to points of interest within the video.  
Either enter a custom name (20 characters maximum) for your index points into the name field below the "Stop" record button or leave it blank and the LABvault-SD will use the current date/time as the name. Each index point also indicates the hours:minutes:seconds into the video that it marks. When you have chosen your naming method, click the "Set Index" button to add an index point to the recording file. Create additional index points at key intervals in the recording with each click of the "Set Index" button. If a custom name was entered, each additional index point will be assigned the same custom name until the name field is reset. To add an index point with a new custom name, click the "Clear Index" button and then type a new name into the name field before clicking the "Set Index" button.
- To end the recording session, click the stop  recording button. If a file destination was configured and enabled in the Web interface, your recorded file will be automatically transferred to the destination.

"MPEG Engine Control" Panel



## PLAYING FILES

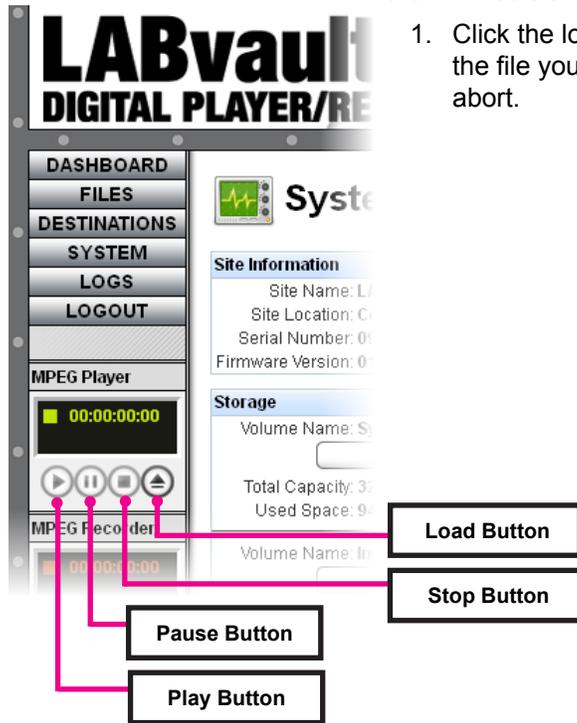
Playback of your recorded files on a connected preview monitor may be initiated from the LABvault-SD web interface as well as a third party touch screen. To initiate playback of a file from the web interface, use one of the following control options:

### “MPEG Player” Left Column Controls

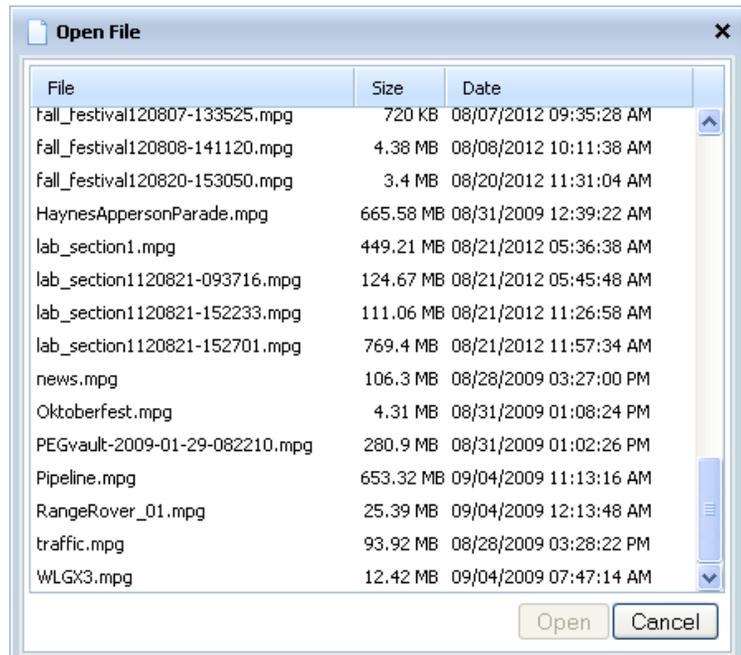
*Left Column  
“MPEG Player” Controls*

On the left sidebar of the LABvault-SD web interface, you will see the control buttons for the LABvault-SD’s MPEG player. Perform the following:

1. Click the load button to display the “Open File” popup window. Single click to select the file you wish to display and click “Open” to load the selection or “Cancel” to abort.



*“Open File” Popup Window*



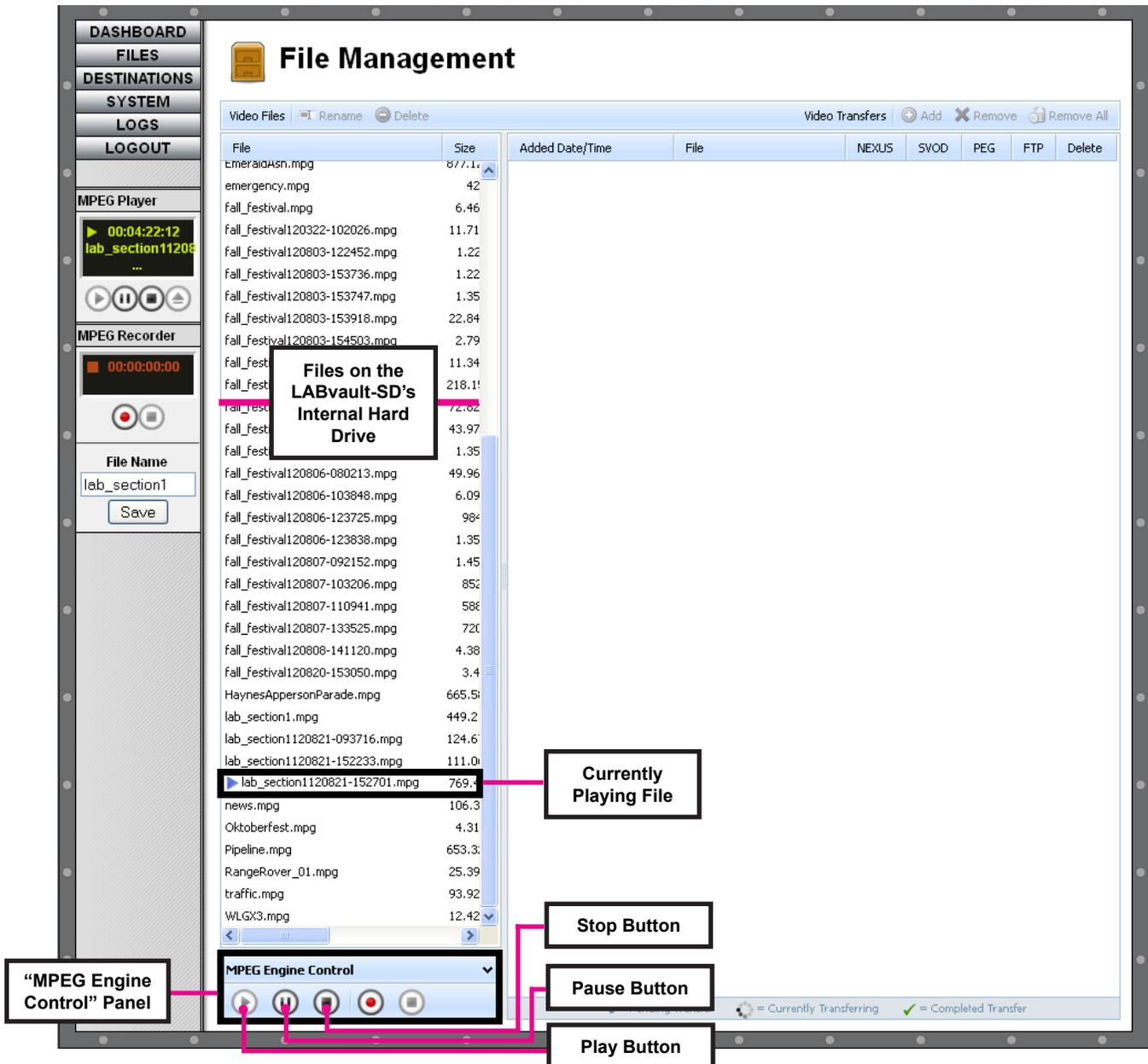
2. Start playing the file by clicking the play button.
3. You may pause playback by clicking the pause button or stop it completely with the button. The stop button also unloads the file from the MPEG player.

## “MPEG Engine Control” Panel

The LABvault-SD’s MPEG player controls are also available on the bottom of the “FILES”/“File Management” screen in the “MPEG Engine Control” panel. The “MPEG Engine Control” panel playback controls mirror the functionality of the “MPEG Player” left column controls, so that controls from either panel can be used interchangeably during each playback session. If a file is playing or paused, its filename will have the corresponding symbol next to it in the lefthand “File Management” listing. Perform the following:

1. Click the “FILES” menu button to display the “File Management” screen.

“MPEG Engine Control” Panel on “File Management” Screen

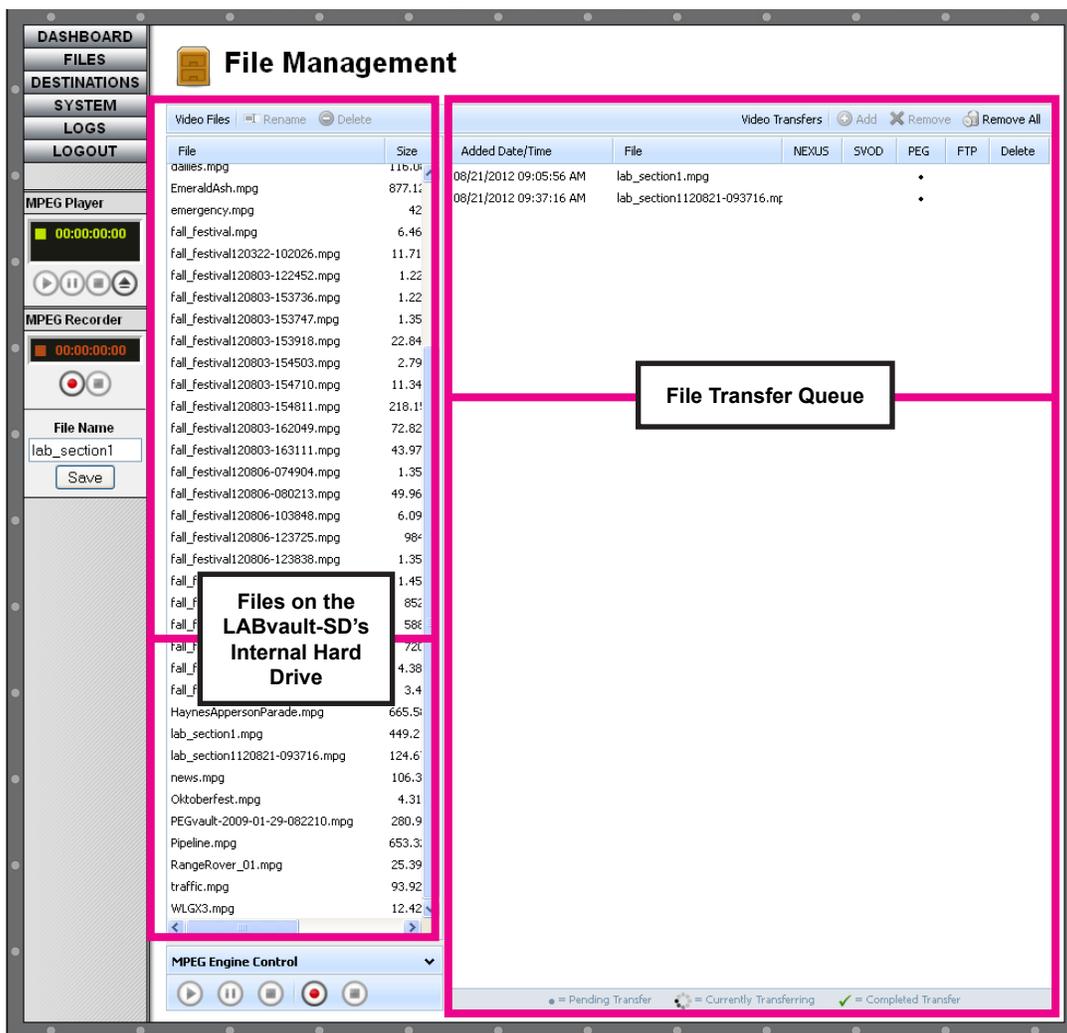


2. From the lefthand listing of files on the LABvault-SD’s internal hard drive, single click to select the file you wish to display.
3. From the “MPEG Engine Control” panel, start playing the file by clicking the play button.
4. You may pause playback by clicking the pause button or stop it completely with the stop button. The stop button also unloads the file from the MPEG player.

## MANAGING FILES

The “File Management” screen displays a recorded file listing and transfer queue, allowing you to manually transfer files, stop file transfers, and manage any files stored on the LABvault-SD’s internal hard drive. Recorded files are stored on the LABvault’s internal hard drive if the “Automatic Delete” record file setting has been disabled, giving you the option to rename, delete, and manually transfer files from the “File Management” screen. Click the “Files” menu button to display the screen and then perform any of the following steps, as needed:

“File Management” Web Interface Screen



### Rename Files on Internal Hard Drive

Under the “Video Files” listing, either single click on the file you would like to rename and then click the “Rename” button or just right click on the file and select “Rename” from the menu that appears. In the “Rename File” window that appears, enter a new filename of up to 27 alphanumeric characters, no spaces, and click “Ok” to accept the change or “Cancel” to abort.

### Delete Files from Internal Hard Drive/Transfer Queue

- **Hard Drive:** under the “Video Files” listing, either single click on the file you would like to delete and then click the “Delete” button or just right click on the file and select “Delete File” from the pop-up menu. Click “Yes” when prompted to delete the file or “No” to abort.
- **Transfer Queue:** to delete a single file under “Video Transfers,” either single click on the file you would like to delete and then click the “Remove” button or just right click on the file and select “Remove Transfer” from the pop-up menu. To remove all files from the transfer catalog, either single click on a file and then click the “Remove

All" button or just right click on the file and select "Remove All Transfers" from the pop-up menu. Click "Yes" when prompted to delete the file(s) or "No" to abort.

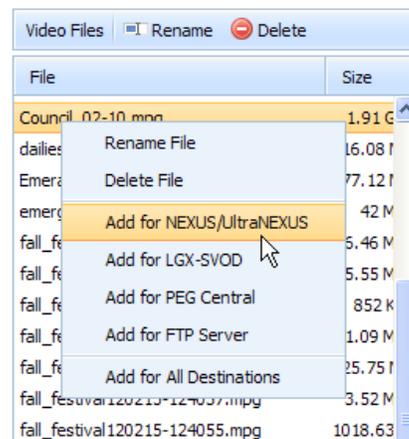
## **Manually Transfer Recorded Files**

Under the "Video Files" listing, either single click on the file you would like to transfer and click the "Add" button to transfer the file to your configured destination(s) or right click on the file and select a file transfer destination(s) from the pop-up menu. Ensure you have entered the configuration settings for the selected destination(s) on the "File Destinations" screen.

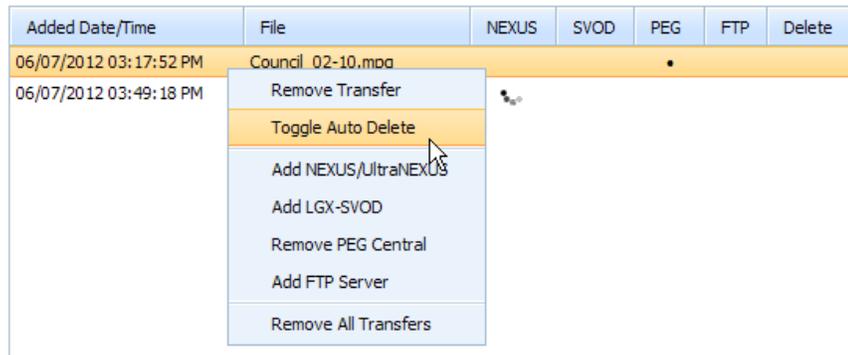
## **Change File Transfer Destinations**

Change the destination of any file in the "Video Transfers" queue by right clicking on the file and selecting one of the add/remove options in the popup menu. The remove options de-select current file transfer destinations, while the add options transfer the file to the corresponding destinations. Ensure you have entered the configuration settings for the selected destination(s) on the "File Destinations" screen.

*Popup Menu for "Video Files" Listing on the "File Management" Screen*



*Popup Menu for "Video Transfers" Listing on the "File Management" Screen*



## **Enable/Disable Auto Delete**

Use the "Toggle Auto Delete" option to turn "Delete" on and off for the selected file.

## CHECKING LOG FILES

The LABvault-SD keeps track of everything done to or by it in internal log files which are accessible from the Web interface. Click the “LOGS” menu button to display the list of current LABvault-SD logs on the “Log Files” screen. Perform any of the following:

“EVENTS.LOG” Selected on “Log Files” Web Interface Screen

**LABvault-SD**  
DIGITAL PLAYER/RECORDER

**LEIGHTRONIX**

**Log Files**

Name	Size	Date Created	Date Modified
<b>EVENTS.LOG</b>	1.01 MB	08/20/2012 01:51:06 AM	08/21/2012 06:44:48 AM
OLDEVENTS.LOG	6.68 MB	08/20/2012 01:51:06 AM	08/20/2012 01:51:06 AM
pkgsrch.log	269 B	09/04/2009 01:15:44 AM	08/17/2012 12:35:12 AM
pvs011614_db.log	162.65 KB	04/30/2012 11:49:22 AM	05/01/2012 04:42:36 AM
pvs011715_db.log	181.93 KB	08/17/2012 12:01:36 AM	08/17/2012 12:35:12 AM
pvs011514_db.log	54.86 KB	10/25/2011 05:48:24 AM	10/25/2011 06:15:40 AM

Find  Search Previous Next Save Delete

Date/Time	Severity	Source	Message
08/21/2012 9:59:02 AM	1	Streaming	PEGCentral subscription query FAILED
08/21/2012 9:59:10 AM	1	Streaming	PEGCentral subscription error: connect failed
08/21/2012 9:59:10 AM	1	Streaming	PEGCentral subscription query FAILED
08/21/2012 9:59:29 AM	1	Remote	Remote reboot executed by User: admin
08/21/2012 9:59:29 AM	0	Streaming	Begin Orderly Shutdown
08/21/2012 9:59:30 AM	1	Streaming	Gracefully shutdown streaming catalog services
08/21/2012 9:59:30 AM	0	Streaming	Orderly Shutdown Complete
08/21/2012 10:00:01 AM	0	Schedule	Detected RTC extension
08/21/2012 10:00:01 AM	0	MPEG	Found MPEG board 1 (Composite), VenID:4444, DevID:0803, SubVenID:FFFF, SubDevID:0C
08/21/2012 10:00:02 AM	0	MPEG	Player 1 video CCRF:Disabled
08/21/2012 10:00:02 AM	0	MPEG	Recorder 1 Firmware Version 02050041
08/21/2012 10:00:02 AM	0	MPEG	Player 1 Firmware Version 02030018
08/21/2012 10:00:02 AM	0	MPEG	Player 1 video values:7B AC 42
08/21/2012 10:00:02 AM	2	Diagnostic	Startup, Last Orderly Shutdown: 08/21/2012 9:59:32 AM, Number of Startups: 306
08/21/2012 10:00:02 AM	1	Streaming	Error connecting to master subscription server 67.227.136.122
08/21/2012 10:00:02 AM	1	Diagnostic	Error connecting to TI master subscription server 67.227.136.122
08/21/2012 10:00:02 AM	1	Streaming	Error connecting to master subscription server 67.227.136.122
08/21/2012 10:00:02 AM	1	Diagnostic	Error connecting to PC master subscription server 67.227.136.122
08/21/2012 10:00:02 AM	0	MPEG	MPEG Graphics 1 initialization completed
08/21/2012 10:00:11 AM	0	Diagnostic	Opened Event Log file c:\log\EVENTS.LOG, SN:09030C, Ver:01.17.15D, IP:10.9.3.12, SM:2
08/21/2012 10:00:22 AM	0	Diagnostic	MPGO Temp:40C
08/21/2012 10:00:43 AM	1	Streaming	PEGCentral subscription error: connect failed
08/21/2012 10:00:43 AM	1	Streaming	PEGCentral subscription query FAILED
08/21/2012 10:00:45 AM	1	Streaming	PEGCentral subscription error: connect failed
08/21/2012 10:00:45 AM	1	Streaming	PEGCentral subscription query FAILED
08/21/2012 10:01:13 AM	1	Streaming	PEGCentral subscription error: connect failed
08/21/2012 10:01:13 AM	1	Streaming	PEGCentral subscription query FAILED
08/21/2012 10:01:15 AM	1	Streaming	PEGCentral subscription error: connect failed
08/21/2012 10:01:15 AM	1	Streaming	PEGCentral subscription query FAILED
08/21/2012 10:01:43 AM	1	Streaming	PEGCentral subscription error: connect failed
08/21/2012 10:01:43 AM	1	Streaming	PEGCentral subscription query FAILED

### Open a Log File

From the top panel on the “Log Files” screen, single click on the desired log file to select it and then click the “Save” button to display an open/save file dialog box. Either open or save the selected log file on your computer or network as a .txt or Excel® file.

### Search a Log File

Search for specific entries within either of the event or firmware logs. From the top panel on the “Log Files” screen, single click the desired log file. Enter your search term into the “Find” box and click the “Search” button to filter out any entries not containing the search term. Use the “Previous” and “Next” buttons to move up and down between entries in the log file.

## Delete a Log File

From the top panel on the “Log Files” screen, single click the desired log file to select it and then click the “Delete” button. A popup box will appear, asking whether or not you wish to delete the file. Click “Yes” to delete or “No” to abort.

## The types of LABvault-SD log files are as follows:

- **Event Logs:** the event logs track LABvault-SD operations, including recording sessions, file transfers, and LABvault-SD status. Single click either “**EVENTS.LOG**” to select the most current file of LABvault-SD actions or “**OLDEVNTS.LOG**” to view archived LABvault actions. When selected, both event logs display the screen shown in the “EVENTS.LOG” illustration on the previous page. The event logs provide a description of each action under “Message,” along with the action’s date and time, severity, and type (“Source”).

The LABvault will continually write to the “EVENTS.LOG” file until it reaches 7 MB. Once “EVENTS.LOG” reaches 7 MB, the LABvault-SD will rename it to “OLDEVNTS.LOG” (deleting the previous “OLDEVNTS.LOG”) and then display a new “EVENTS.LOG” on the “Log Files” screen. This ongoing cycle ensures that recent events are always logged.

- **Firmware Logs:** the LABvault-SD creates log files that specifically track firmware installations. The “**pkgsrch.log**” file verifies whether the LABvault-SD firmware file has been uploaded onto your LABvault, while the “**pvsdxxxxx\_full.log**” records information about the actual installation of firmware on the LABvault. Separate “**pkgsrch.log**” and “**pvsdxxxxx\_full.log**” firmware log files are created each time you perform a LABvault-SD firmware update. Previous firmware log files are not overwritten when new firmware updates are performed.

“pkgsrch.log” Selected on “Log Files” Web Interface Screen

The screenshot shows the 'Log Files' web interface. On the left is a navigation sidebar with buttons for DASHBOARD, FILES, DESTINATIONS, SYSTEM, LOGS, and LOGOUT. Below these are controls for an MPEG Player and an MPEG Recorder, both showing 00:00:00. The main content area is titled 'Log Files' and contains a table of log files. The file 'pkgsrch.log' is highlighted in yellow. Below the table is a search bar and navigation controls. At the bottom, a log entry is visible:

Name	Size	Date Created	Date Modified
EVENTS.LOG	1.01 MB	08/20/2012 01:51:06 AM	08/21/2012 06:44:48 AM
OLDEVNTS.LOG	6.68 MB	08/20/2012 01:51:06 AM	08/20/2012 01:51:06 AM
pkgsrch.log	269 B	09/04/2009 01:15:44 AM	08/17/2012 12:35:12 AM
pvsa011614_db.log	162.65 KB	04/30/2012 11:49:22 AM	05/01/2012 04:42:36 AM
pvsa011715_db.log	181.93 KB	08/17/2012 12:01:36 AM	08/17/2012 12:35:12 AM
pvsd011514_db.log	54.86 KB	10/25/2011 05:48:24 AM	10/25/2011 06:15:40 AM

Date/Time	Source	Message
2012-07-17 16:34:29	PKG_INSTALLER	Searching for package file to install
2012-07-17 16:34:29	PKG_INSTALLER	Checking CRC on file: c:\pvsa011715_db.lpf

“pvsdxxxxx\_full.log” Selected on “Log Files” Web Interface Screen

The screenshot shows the 'Log Files' web interface with 'pvsd011514\_db.log' selected. The table of log files is as follows:

Name	Size	Date Created	Date Modified
pkgsrch.log	269 B	09/04/2009 01:15:44 AM	08/17/2012 12:35:12 AM
pvsa011614_db.log	162.65 KB	04/30/2012 11:49:22 AM	05/01/2012 04:42:36 AM
pvsa011715_db.log	181.93 KB	08/17/2012 12:01:36 AM	08/17/2012 12:35:12 AM
pvsd011514_db.log	54.86 KB	10/25/2011 05:48:24 AM	10/25/2011 06:15:40 AM
scan_C.log	736 B	09/17/2009 09:28:18 PM	08/13/2012 07:09:40 AM
scan_D.log	706 B	08/13/2012 07:10:16 AM	08/13/2012 07:10:16 AM

Date/Time	Source	Message
2011-10-25 10:15:18	PKG_INSTALLER	Unpackaging: c:\pvsd011514_db.lpf
2011-10-25 10:15:24	PKG_INSTALLER	Deleting package files
2011-10-25 10:15:24	PKG_INSTALLER	Options data not found in mask file
2011-10-25 10:15:24	PKG_INSTALLER	Successfully read module mask file

- **Disk Diagnostics Log:** the “scan\_C.log” file displays information from the most recent LABvault-SD hard drive scan performed with the “Disk Diagnostics” utility. The “scan\_C.log” file is automatically overwritten each time you run a drive scan.

“scan\_C.log” Selected on “Log Files” Web Interface Screen

**Log Files**

Name	Size	Date Created	Date Modified
pkgsrch.log	269 B	09/04/2009 01:15:44 AM	08/17/2012 12:35:12 AM
pvsd011614_db.log	162.65 KB	04/30/2012 11:49:22 AM	05/01/2012 04:42:36 AM
pvsd011715_db.log	181.93 KB	08/17/2012 12:01:36 AM	08/17/2012 12:35:12 AM
pvsd011514_db.log	54.86 KB	10/25/2011 05:48:24 AM	10/25/2011 06:15:40 AM
scan_C.log	736 B	09/17/2009 09:28:18 PM	08/13/2012 07:09:40 AM
scan_D.log	706 B	08/13/2012 07:10:16 AM	08/13/2012 07:10:16 AM

Find  Search ↑ Previous ↓ Next Save Delete

```

Dismounting file system (returned 1)
Reading boot sector...
Comparing redundant FATs
Checking directory and file structure

Checking FAT table...
Freed 5 total lost clusters
Calculating and checking free drive space...
Free space is being misreported, fixing...

Drive is FAT32
Volume
Volume Serial Number is EF42-32C7

34356756480 bytes total disk space
53444608 bytes in 22 hidden files
15663104 bytes in 478 directories
1008009216 bytes in 5843 user files
33333641216 bytes available on disk

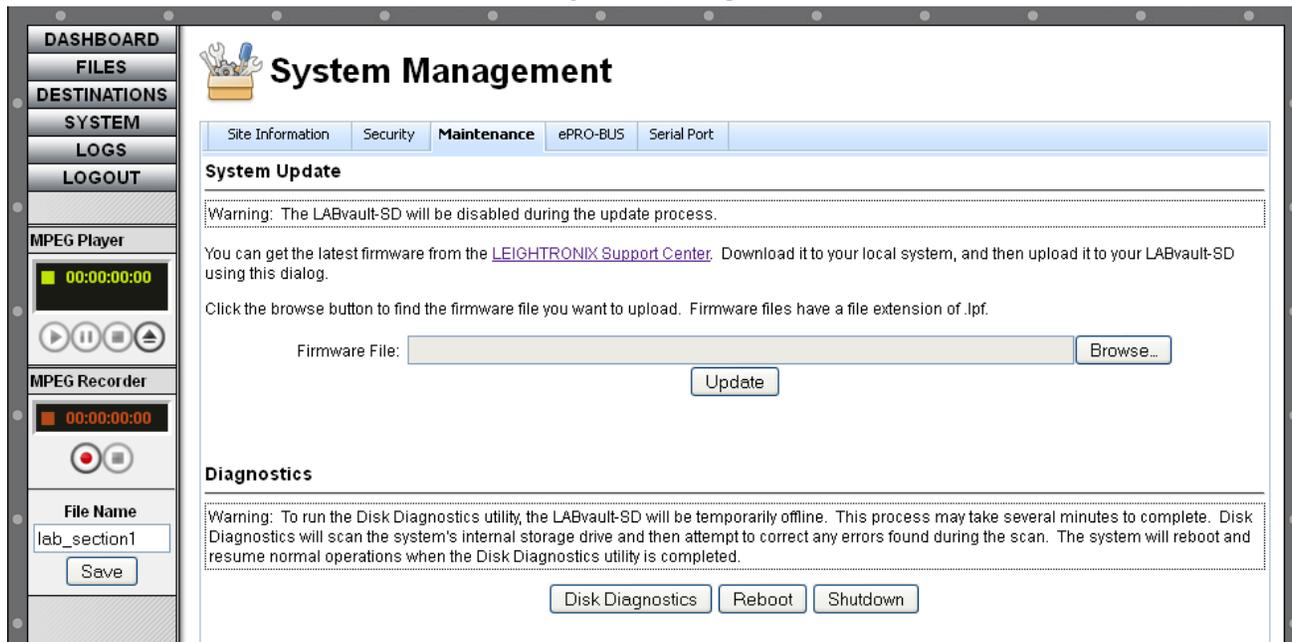
32768 bytes in each allocation unit
1048485 total allocation units on disk
1017262 available allocation units on disk

Mount File System returned 1
    
```

## **MAINTAINING THE LABVAULT-SD**

The administrative interface provides a “Maintenance” tab screen under “System Management” to help you easily keep your LABvault-SD at peak performance. Take advantage of the no-charge firmware file updates to ensure your LABvault-SD system has the latest features and enhancements. Also, safeguard any recorded files and data on your LABvault-SD’s internal hard drive by regularly running the disk diagnostics utility with the click of a button. Refer to the subsections below for more details.

### ***“Maintenance” Tab on “System Management” Web Interface Screen***



### **Update Firmware**

**LEIGHTRONIX places the most current LABvault-SD firmware files on the LEIGHTRONIX Support Center Web site. Save the update files to an accessible directory on your computer or network.**

Once you have downloaded the LABvault-SD firmware update file from the Support Center, open the LABvault’s Web interface and click the “SYSTEM” menu button. Select the “Maintenance” tab and use the “Browse” button to navigate to the saved location of the firmware file. Click the “Update” button to download and install the firmware file onto your LABvault-SD.

### **Check Internal Hard Drive**

The LABvault-SD disk diagnostics feature automatically fixes many common File Allocation Table (FAT) errors that may impair or cause data loss on your LABvault’s internal hard drive. LEIGHTRONIX recommends using the feature on a monthly basis to ensure optimal drive performance as well as any time you discover file/drive errors in your log files or notice drive performance issues due to improper system shutdown or firmware changes.

**NOTE:** The disk diagnostics process does not fix physical degradation of the hard drive. Contact LEIGHTRONIX Technical Support for further information on servicing your LABvault’s internal hard drive.

To run the disk diagnostics feature, click the “SYSTEM” button to display the “System Management” screen and then click the “Maintenance” tab. Click the “Disk Diagnostics” button and then select the popup menu’s “Yes” option to perform the disk check process. When the diagnosis has been completed, a log file describing any errors discovered and actions performed will be added to the “Log Files” page on your LABvault’s Web interface.

### **Reboot/Shut Down**

Click the “SYSTEM” button to display the “System Management” screen and then click the “Maintenance” tab. Click “Reboot” to power your LABvault-SD off and then back on or click the “Shutdown” button to only power off your LABvault.

## CONTROL COMMANDS

The LABvault-SD is meant to be locally operated from a compatible, third party control system connected either directly to the LABvault via an RS-232 serial cable or through your network. This section provides the control commands needed to program your touch screen to operate your LABvault-SD. For even greater versatility, your programmer can create a Web interface for Internet Explorer that duplicates your touch screen interface.

**Touch Screen Interface:** RS-232 SERIAL OR TELNET

- NOTES:**
- Serial communication is 115200, N, 8, 1.
  - The remote control port is standard RS-232 DTE (connection to a standard PC DB-9 would be via DB9F to DB9F NULL cable).
  - Telnet has a 5 minute session timeout after no activity. Serial connections do not have a timeout.
  - A LABvault-SD with a serially connected external control system will boot logged in. A LABvault-SD with an external control system connected via Telnet requires the user to log in again on a reboot.
  - The prompt when logged in is: "LABVAULT>." The prompt when not logged in is: ">."
  - Multiple Telnet sessions and a serial session are independent of each other.
  - All commands and responses are terminated with <CR><LF>.
  - The destination server for the FINALIZE command is configured via the LABvault-SD Web interface.

### *LABvault-SD Control Commands*

<b>FUNCTION</b>	<b>COMMAND</b>	<b>DETAILS</b>	<b>ASCII RESPONSE</b>
(Username) Login	USER <USERNAME>	Logs in username. Allows access to restricted function. Followed by PASS command to complete login. If followed by ANY argument, it will appear to be successful (as to not give away which user accounts are and are not valid).	331 User name ok, need password

FUNCTION	COMMAND	DETAILS	ASCII RESPONSE
(Password) Login	PASS <PASSWORD>	Specifies password after "USER" command has been completed.	<ul style="list-style-type: none"> <li>• If successful: 230 User Logged in, proceed</li> <li>• If already logged in: 335 Already logged in</li> <li>• If not preceded by successful USER attempt: 332 USER account not specified</li> <li>• If invalid password or user entered (user will be required to re-execute USER command): 507 Login attempt FAILED</li> </ul>
Logout	LOGOFF	Logs off the user and ends the session. Restores default user guest rights.	336 Session reset, rights reset to guest privileges
Show Prompt	PROMPTON	Turns on the "LABVAULT>" prompt.	200 Command OK
Hide Prompt	PROMPTOFF	Turns off the "LABVAULT>" prompt.	200 Command OK
Play	PLAYFILE <FILENAME>	FILENAME is full filename/ext of file to be played. Filename is case insensitive. \ Internal\mpeg\ directory is assumed.  Ex.: PLAYFILE BROOKS.MPG	200 Command OK
Record	RECFILE <FILENAME>	Time/Date stamp will be appended if same filename is used for multiple records. Do not include ".mpg" file extension at the end of filename. \Internal\mpeg\ directory is assumed.  (Alphanumeric, '-', '_' allowed)  Ex.: RECFILE BROOKS	200 Command OK
Pause Play	PAUSE	Pauses channel if it is in play, unpauses it if it is in pause (toggle).	200 Command OK
Stop	STOP	Stops the current playback or record function.	200 Command OK

FUNCTION	COMMAND	DETAILS	ASCII RESPONSE
Send File	FINALIZE <FILENAME>	<p>FILENAME is full filename/ext of file to be finalized. Filename is case insensitive.</p> <p>\Internal\mpeg\ directory is assumed. File will no longer be available for playback.</p> <p>NOTE: For finalize to succeed, at least one destination must be configured and enabled via the LABvault-SD Web interface, otherwise the result will be fail.</p> <p>Ex.: FINALIZE BROOKS.MPG</p>	<ul style="list-style-type: none"> <li>• If successful: 200 Command OK</li> <li>• If unsuccessful: 663 Cannot finalize file, no destinations are enabled</li> </ul>
Get File Dir	GETMPEGDIR	<p>Gets the directory of the \Internal\mpeg\ dir.</p> <p>Ex.: 399 * 20683495 06-16-2009 14:32:30 00:00:30:07 BROOKS. mpg</p> <p>375 * 00003 MPEG Files Returned</p>	<p><b>For each entry:</b> 399 * &lt;FILESIZE&gt; &lt;MM-DD-YYYY&gt; &lt;HH:MM:SS&gt; &lt;LH:LM:LS:LF&gt; &lt;FILENAME&gt;</p> <ul style="list-style-type: none"> <li>• &lt;FILESIZE&gt;: raw length of file in bytes</li> <li>• &lt;MM-DD-YYYY&gt;: last write time date</li> <li>• &lt;HH:MM:SS&gt;: last write time</li> <li>• &lt;LH:LM:LS:LF&gt;: MPEG length in hours: minutes: seconds: frames</li> <li>• &lt;FILENAME&gt;: filename of file</li> </ul> <p><b>After last entry:</b> 375 * nnnnn MPEG Files Returned</p>

FUNCTION	COMMAND	DETAILS	ASCII RESPONSE
Get Status	GETSTAT	<p>Gets the current player and recorder status and timecode.</p> <p><u>Record Ex.:</u> GETSTAT recording file BROOKS.MPG, current record time is 7m, 19s, 29 frames (388 0 NONE 00:00:00:00 00:00:00:00 7 BROOKS.MPG 00:07:19:29)</p> <p><u>Playback Ex.:</u> GETSTAT playing file BROOKS.mpg, current playback position is 4m, 21s, 10 frames. Total file length is 22m, 10s, 8 frames. (388 1 BROOKS.MPG 00:04:21:10 00:22:10:08 0 NONE 00:00:00:00)</p>	<p>388 P &lt;PLAYERFILE&gt; &lt;PH:PM:PS:PF&gt; &lt;LH:LM:LS:LF&gt; R &lt;RECFILE&gt; &lt;RH:RM:RS:RF&gt;</p> <ul style="list-style-type: none"> <li>• P: Player mode (0 = STOP, 1 = PLAY, 2 = PAUSE)</li> <li>• &lt;PLAYERFILE&gt;: filename of file currently playing (NONE if none)</li> <li>• &lt;PH:PM:PS:PF&gt;: current playback timecode position in HH:MM:SS:FF</li> <li>• &lt;LH:LM:LS:LF&gt;: total length of file currently being played back</li> <li>• R: recorder mode (0 = STOP, 7 = RECORD)</li> <li>• &lt;RECFILE&gt;: filename of file currently being recorded (NONE if none)</li> <li>• &lt;RH:RM:RS:RF&gt;: current record file length in HH:MM:SS:FF</li> </ul>
Bump FWD	MPGBUMPFWD	“Bumps” the current playback position 10 seconds forward (to the nearest applicable I-Frame).	200 Command OK
Bump REV	MPGBUMPREV	“Bumps” the current playback position backwards 10 seconds or to the beginning of the file if within the first 10 seconds (to the nearest applicable I-Frame).	200 Command OK
Jump TC	MPGJUMPTC <HH:MM:SS:FF>	Sets the current playback position to the nearest applicable I-Frame to the timecode specified.	200 Command OK
Get Free Space	GETDISKFREE <ROOT PATH>	Gets the free space from the specified drive.  Ex.: getdiskfree c:\ 232 * 120031477760 102305726464 bytes free	232 <VOLSIZE> <FREE SPACE> bytes free
Delete File	XREMOVE <PATH\ FILENAME>	Delete a file from the hard drive (most applicable to the C:\MPEG directory).  Ex.: XREMOVE c:\mpeg\ KOWALSKI.mpg	<ul style="list-style-type: none"> <li>• If successful: 200 Command OK</li> <li>• If unsuccessful: 531 Could not remove requested file</li> </ul>

FUNCTION	COMMAND	DETAILS	ASCII RESPONSE
Rename File	XRENAME <ORIG PATH\ FILENAME> <NEW PATH\ FILENAME>	Rename a file on the hard drive. Ex.: XRENAME c:\mpeg\ origname.mpg c:\mpeg\ newname.mpg	<ul style="list-style-type: none"><li>• If successful: 200 Command OK</li><li>• If unsuccessful: 534 Rename failed, (Error: nn)</li></ul>

## SPECIFICATIONS

In no event shall LEIGHTRONIX be liable for any damages whatsoever resulting from loss of use, data, or profits, whether or not advised of the possibility of damage, and on any theory of liability, arising out of or in connection with the use or performance of the LABvault-SD.

Dimensions	1.75"H x 19"W x 9"D
Weight, without carton or cables	5 lbs.
Front Panel Display	2x16 character liquid crystal display
Keypad	<p>Six push button keypad</p> <ul style="list-style-type: none"> <li>• Four arrow push buttons provide password-protected front panel status and network configuration</li> <li>• Green check button powers on the unit</li> <li>• Red "X" button powers off the unit</li> </ul>
Power Input	Three-position IEC power input with removable power cord
Power Supply	Internal 200W power supply with active P.F.C., which accepts 90-264VAC @ 47-63Hz
Compliance/Certifications	<p>Certified and listed as:</p> <ul style="list-style-type: none"> <li>• Audio, Video, and Similar Electronic Apparatus Safety Requirements ANSI/UL 60065, 7th edition</li> <li>• Audio, Video, and Similar Electronic Apparatus Safety Requirements CAN/CSA C22.2 No. 60065:03, 1st edition</li> </ul>
Internal Real Time Clock	<p>Type: microprocessor interfaced Reference: crystal controlled, temperature compensated Accuracy: +/- 5 seconds per month</p>
Configuration Storage	<ul style="list-style-type: none"> <li>• Internal battery-backed memory</li> <li>• Data integrity verified</li> <li>• Elements: <ul style="list-style-type: none"> <li>▶ IP address</li> <li>▶ Subnet mask</li> <li>▶ Gateway</li> <li>▶ User Information</li> </ul> </li> </ul>
Audio I/O	-10dBV unbalanced line level, dual RCA inputs/outputs
Video I/O	NTSC composite video, BNC inputs/outputs
Ethernet Network Host Management	<ul style="list-style-type: none"> <li>• Remote Support: Dial-Up Networking</li> <li>• Network Support Interface: <ul style="list-style-type: none"> <li>▶ Eight-position, eight-conductor RJ-45 modular jack, 10/100 BASE-T (original LABvault-SD) or 10/100/1000 BASE-T (version 2 LABvault-SD), unshielded twisted pair, Ethernet</li> <li>▶ Ethernet_II frame type</li> <li>▶ Protocol: TCP/IP</li> <li>▶ Services: Telnet, FTP, Web</li> </ul> </li> </ul>
Firmware	<ul style="list-style-type: none"> <li>• Updateable via Ethernet</li> <li>• Cyclical redundancy check (CRC) verified at time of reprogram</li> </ul>
Web Interface	<ul style="list-style-type: none"> <li>• Password-protected</li> <li>• Provides setup for automatic file transfers to one of the following destinations: <ul style="list-style-type: none"> <li>▶ LEIGHTRONIX UltraNEXUS-SDI/UltraNEXUS/NEXUS</li> <li>▶ Third Party Video Servers</li> <li>▶ LEIGHTRONIX streaming video-on-demand applications</li> <li>▶ Any destination with FTP capabilities</li> </ul> </li> </ul>

Internal Storage	<ul style="list-style-type: none"> <li>• Original LABvault-SD: 120 GB internal hard drive</li> <li>• Version 2 LABvault-SD: 250 GB internal hard drive provides 200 GB of digital media storage</li> </ul>
Internal MPEG Recorder (Encoder)	<p>The LABvault-SD creates industry-standard, MPEG-2 video files. The maximum recorded file length allowed by the LABvault-SD is 23 hours, 59 minutes, and 50 seconds.</p> <p>Digital video recording results are based on a combination of the selected recording quality default and the quality of the input source. Video being fed to the encoder must have stable sync. Input signals with copy protection are not recordable.</p> <p>The LABvault-SD encoder can capture video at one of the following recording qualities:</p> <ul style="list-style-type: none"> <li>• Good: VBR of 3.00-5.00 Mb/s, half video resolution (352x480), 192 kb/s audio bit rate, 44.1 kHz audiosample rate</li> <li>• Better: VBR of 4.00-7.00 Mb/s, full video resolution (720x480), 192 kb/s audio bit rate, 44.1 kHz audiosample rate</li> <li>• Best: VBR of 7.00-9.00 Mb/s, full video resolution (720x480), 224 kb/s audio bit rate, 44.1 kHz audiosample rate</li> <li>• Streaming: VBR of 1.50-2.50 Mb/s, half video resolution (352x480), 160 kb/s audio bit rate, 44.1 kHz audio sample rate</li> </ul> <p><b>NOTE: If you select “Internet VOD Streaming” as an automatic file transfer destination, your files will be recorded at “Streaming” quality for all enabled file transfer destinations.</b></p>
Internal MPEG Player (Decoder)	<ul style="list-style-type: none"> <li>• Full D1 MPEG-2 resolution</li> <li>• 10Mb/s maximum video bit rate</li> </ul>

## PRODUCT WARRANTY

LEIGHTRONIX, INC. warrants this digital video LABvault-SD player/recorder against defective workmanship or materials for a period of five (5) years from the original date of purchase.

During this warranty period, any parts found to be defective will be replaced at no charge. Labor to repair or replace defective parts will also be performed at no charge during the warranty period.

This warranty does not cover abuse, shipping damage, neglect, tampering by unauthorized personnel, acts of God, damage inadvertently caused by the user, preventive maintenance, or any product whose serial number is removed or defaced.

The sole responsibility of LEIGHTRONIX shall be to repair or replace in accordance with this warranty. The seller's and manufacturer's only obligation shall be to repair or replace such quantity of the product proved to be defective.

The customer shall bear the cost of shipping products returned to LEIGHTRONIX for warranty repair. The cost for return shipment to the customer will be assumed by LEIGHTRONIX and shipped via an equal priority service shipper prepaid and insured.

Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use of, or the inability to use the product. Before using, the user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith.

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