# Multi-Channel Audio Logger



## User's Guide



## **Logger Features**

- Digitally records up to 8 US military radios, intercoms, or analog phone lines.
- Signatures with the time, date, and recording details are included in audio files.
- Plug and Play USB simplifies installation.
- Long recordings can be automatically split into easily manipulated sections.
- Disk usage can be controlled on a line-by-line basis to conserve disk space.
- Recordings can be searched by time, date, or notes.
- Level settings equalize transmit and receive audio volume.
- Windows utilities produce call lists and recordings rapidly.

## Host PC Requirements

- A dedicated PC with a minimum of 4GB RAM is recommended.
- Windows 2003, XP, Server 2008/2010, W7, W8 or later are supported. Windows 9x/ME aren't supported.
- A free USB 3.0 or 2.0 480Mbps port. Slower 11Mbps USB 1.1 ports aren't recommended.
- A dedicated local Solid State drive is highly recommended for call storage. Many NAS, USB, and remote shared drives don't offer the performance required for real-time audio streaming. Using a dedicated flash based SSD drive for call recordings improves performance.
- U-229 audio cables are user-provided.

## **Quick Installation**

- 1. Run windows update from windowsupdate.microsoft.com to ensure you have the latest USB drivers and security patches available from Microsoft.
- 2. Cable radios and handsets to the logger using U-229 cables. Up to 8 radios or intercoms may be connected.
- 3. Attach the USB cable to a dedicated PC. Connect directly to a primary 480Mbps USB 2.0 port, not to a hub. Once attached, the USB configuration on this PC should not be changed. Windows will load drivers and the application will need to be restarted if the logger is moved to a different USB port. *Note:* A 480Mbps port is required. Long cables and USB extenders are not recommended.
- 4. Switch power on to the PC. Don't connect the USB cable quite yet.
- 5. After boot, insert the distribution CD to start the logging application installation. Administrator permissions will be required.
- 6. Apply power to the logger. Note the voltage requirement label on the back of the logger.
- 7. Complete the installation. Reboot and start the logging application.
- 8. Set the recording mode for each line to VOX mode and make test recordings on each line.
- 9. Remove the two screws and cover plate over the level adjustments. Rotate the gain controls to adjust the recording levels for each line. After confirming recording quality, replace the cover plate and screws.
- 10. Set the VOX trigger level on each line for correct recording trigger.

- 11. Check disk space. If needed, map a network drive to the workstations used for playback. Use Windows security to limit access to authorized individuals.
- 12. Install accessory software as desired. Load "Call Investigator" or "Evidence Builder" utilities as required on playback workstations. These programs scan recordings and catalog calls by DTMF and Caller-ID. Install "Real Time Player" for remote monitoring. Install "Call Detail Recorder" if needed to record SMDR, ANI, or ALI from RS-232 sources.

#### **Included Hardware**

Supplied hardware includes:

- Qty 1 8M-xx USB Capture Unit
- Qty 1 High Speed USB "A" to USB "B" cable.
- Qty 1 Power Cord

## **Power and USB Connections**

#### Power

Verify the input voltage matches the label on the logger. The logger is available in 110/120VAC, 220/240VAC, or 48VDC. Follow the power-up sequence described above in "quick start installation".

#### USB to PC connection

The USB cable provided has a rectangular host PC "Type A" plug on one end and a round IP rated "Type B" connector on the other. Connect the USB cable between the PC and the logger. Rotate to lock.

#### Radio / Intercom / Phone Line Connections

Each line can record from:

- 1. Military radios using loop-through connections. Connect a radio to the upper jack, and a handset to the lower jack.
- 2. Military intercoms using either loop-through wiring to capture both headset and mike audio, or using a speaker jack with a single cable.
- 3. Analog phone lines, analog extensions or from an analog port on a PBX. Contact the factory for phone cables.

After you've completed wiring, select the VOX recording trigger for each line. Set the recording volume level first, then set the trigger level. Set the VOX trigger threshold to a level slightly above the noise floor (background noise level) of each line.

Label the input by clicking on the line name to the left of the VU meter bar to rename it. For example, "LINE 01" might be renamed to "TAC Radio 1"

#### **VOX Trigger Level and Timeout with Radios**

To use VOX mode, first adjust the recording level to avoid clipping as described above. Once the recording level is set correctly, hang up the line and adjust the VOX trigger level about 6-10dB above the noise floor. The VOX trigger level is the threshold at which recording will begin. In other words, when the logger "hears" a sound louder than the VOX trigger level, it will start to record. Recording will continue until silence is detected for a period of time. This period of time is called the VOX timeout. Start with a timeout of 10 seconds for radios. Listen to the recordings, and then adjust the timeout value to your liking. An excessively long timeout setting will combine multiple calls into a single file. An excessively short setting will cause calls to break apart into multiple recording files during periods of silence.

If you change the radio or intercom volume level substantially, you may need to readjust the VOX trigger level in the recording application.

#### **Unused Lines**

Logger inputs are sensitive. Unused lines may record noise coupled from adjacent wiring. Set unused lines OFF in the recording application.

#### Software Setup and Installation

If you haven't updated Windows recently, we recommend a visit to windowsupdate.microsoft.com to obtain the latest USB drivers before installing the software.

After updating, insert the logger installation CD into your CD-ROM drive.

Do not connect the logger USB cable until you have completed installing the software drivers.



Start by installing the recording software.

- Click "Install Recording Software.
- Click on the photo of the logger and choose "Install Selected".
- Select the installation directory and shortcut name.
- Install Microsoft .NET Framework and security updates if prompted.

The components "MIL-F8 Channel USB Logger" and "Common Files" should be checked.

Uncheck	"MIL-	VoiceIP"
Cheffeen	11111	, OICCII

Click "Next".

🕼 Setup - DLI Audio Logger	– 🗆 X
Select Components Which components should be installed?	
Select the components you want to install; clear the constant install. Click Next when you are ready to continue.	omponents you do not want to
Custom installation	~
Client software	1.8 MB 🔨
Server software	85.7 MB
MIL-F16W 16 Channel USB 2.0 Logger	25.1 MB
MIL-T1 24/48 Channel T1 USB Logger	38.0 MB
MIL-F8 8 Channel USB Logger	19.5 MB
MIL-F16 16 Channel USB Logger	19.5 MB
MIL-F24 24 Channel USB Logger	20.6 MB
MIL-VoiceIP Audio Logger	1.4 MB
MIL-TEST Test Audio Logger	22.0 MR
Current selection requires at least 133.6 MB of disk spa	ace.
< <u>B</u> a	ick <u>N</u> ext > Cancel

🚏 Setup - DLI Audio Logger	
Select Start Menu Folder Where should Setup place the program's shortcuts?	
Select the Start Menu folder in which you would like Setup to create the program's shortcuts, then click Next.	_
DLI Audio Logger	
Accessories Adobe FedEx Ship Manager Firmware Downloader PrintMe Internet Printing Samsung ML-1740 Series Spybot - Search & Destroy	
< <u>B</u> ack <u>N</u> ext> Car	ncel

Next, select a folder for the program shortcuts.

Setup - DLI Audio Logger	×
Select Additional Tasks Which additional tasks should be performed?	3
Select the additional tasks you would like Setup to perform while installing DLI Audio Logger, then click Next.	
Additional icons:	
Create a desktop icon	
Autorun tasks	
Start Audio Logger automatically	
	1

To record automatically after login, check 'Start Logging Automatically''. If a machine is left unattended, this ensures uninterrupted operation in the event of a power failure and subsequent reboot.

Click "Next" and setup will complete automatically. Click "Finish" after completion. Now connect the USB cable and start the setup application.

## **Channel Configuration - Logger Config Utility**

🛛 Logger Config Ver. 3.2.6				
Line Settin	gs	System Settings	DLI F-16 USB 1.1 Audio Logger	
Line01 Line02 Line03 Line04 Line05 Line05 Line06 Line07 Line07 Line09 Line10 Line11 Line12 Line13	Airport ATCT 120 5     Airport ATIS 118 25     Airport ATIS 118 26     Airport Ground 121.8     NCT Woodside 135 65     NCT Richmond 120.9     NCT Noto 135.1     Airport Clearance 118.2     NCT Foster 120.35     Airport Clearance 124.25     NCT Niles 134.5     NCT Niles 134.5     NCT Neuder 133 95     San Carlos ATCT 119.0     Dokkand ATCT South 127.2		ULI Io USE 1.1 Audio Logger When the "Minimum Disk Free Space" is reached (in the system settings) a purge is triggered. When purging occurs, if the size of the calls in this line exceed the number entered here, it will be pruned pack to the size set here. Right-Click on the caption for more options.	
Line14 Line15 Line16	Airport Tower 2 - 128.65     Energency Dispatch phone     Police Hot Line		Disk Space Allocation         Drive Y: 76,316 MB           67%         17%         6%	
			Allocated for recording Actual recording usage Space allocated for recording is very close to maximum Space allocated for recording too high. Other files on the drive Minimum disk free space (purge trigger level)	
Ca	Icylate capacity based on past mo	nth 💌	Save Settings Exit Reload Settings	

To start the configuration utility, click:

#### Start / Programs / DLI Audio Logger / DLI Logger Config

Each channel corresponds to one recording directory. Within each channel directory, the logger creates a subdirectory for each day.

To change settings for a particular channel, click the small + symbol to the left of the line name. The settings for that channel are displayed.

The most important settings are:

#### **Record Trigger Mode**

Set this to **VOX** for normal operation. Set unused channels **OFF**.

#### Line Name

Choose "Radio Net 1" or a similar name to identify the radio being recorded. All recordings for this radio will be stored in a folder with a matching name. Since this Line Name will be used as a recording directory, be careful not to include disallowed characters, such as "/" "," or "\".

#### **Maximum Megabytes**

The logger can automatically delete old calls to conserve the amount of disk space used by each channel. This setting controls the maximum amount of disk space used by each channel. When disk space is low and this threshold setting is reached, oldest calls are automatically deleted to free disk space. To turn this feature off, set this field to "0". If you specify a maximum, the logger will check disk space periodically. If recording size exceeds your setting, the logger will automatically delete files starting with the oldest day. The logger will continue deleting calls until disk usage reaches the setting. It's important to set this so that the total space used does not exceed the available disk space. You may want to run the logger for a few days, and then evaluate the usage on a line-by-line basis before setting this threshold.

#### **USB Serial Driver Installation**

Found New Hardware				
	USB <-> Serial			
Installing				

If you installed the drivers first before connecting the logger, skip this section.

If you connected the USB logger *before* installing the drivers, Windows will guide you through a USB serial driver installation process. We suggest you cancel this process, disconnect the logger and install the driver CD.



If you have already started the process, you'll need an internet connection to load the driver. Choose the Search option first.

Found New Hardware Wizard					
Locate Driver Files Where do you want Windows to search for driver files?					
Search for driver files for the following hardware device:					
USB <> Serial					
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.					
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.					
Optional search locations:					
Floppy disk drives					
CD-ROM drives					
Specify a location					
Microsoft Windows Update					
< <u>B</u> ack <u>N</u> ext > Cancel					

Next, choose "Windows Update" to download the latest driver.

Click "Next" to finish.

Install the logging application as described above.

#### Using the Logger

Click on the DLI Audio Logger icon to start the application. The main screen appears:

	DLI F-16 USB 2.0 Audio Lo	ogger	
Dri	ve L:\: 17.3% Used		
Ch	Mode Name	dBm	
U1	VOX 911 Dispatch	+01.5	
UZ	CNI Emergency Servi	+01.5	
03	VOX Fire Dispatch	+01.5	
04	VOX Jail Pay Phone	+01.5	
05	VOX 911Dispatch1	+01.5	
06	VOX 911	+01.5	
07	VOX SecondLine	+01.5	
08	VOX Line08	+01.5	
09	VOX Line09	+01.5	
10	VOX Line10	+01.5	
11	VOX Line11	+01.5	
12	VOX Line12	+01.5	
13	VOX Line13	+01.5	
14	VOX Line14	+01.5	
15	VOX Line15	+01.5	
16	VOX Line16	+01.5	

The recording mode for each line (for example VOX, LOOPSTART or OFF) is displayed to the left of the line name. The recording level for each line appears in color when that line is recording.

Adjust the gain controls so that the highest levels (ie. With radio volume controls set high) peak at around 0dBm. Setting the level too high will cause distortion. Low levels may be amplified during playback.

Click on the line name to explore the recordings for that line.

The top of the screen shows the percentage used on the target disk. Errors appear on the bottom of the screen.

#### The 'Explore Calls' Function

Click on the line name to explore the recording directory for that line. Each line is stored in a separate folder, and each day is stored in a subfolder. The file names correspond to the recording start time. From here, you can edit, copy, or transfer files using Windows Explorer by clicking the right mouse button.

#### Evidence Builder Recording Analysis Software

DLI Evidence Builder File Edit View Help					
<b>, 100 100 100 100</b>	8 🔁	🛐 🎒 🔇	2		
Recordings 0.0 / 41.77 sec					
Recording 0	Dir 🖉 Line 🛛 🖌	Length (	Phone # 0	Location 🔺	
E 02/14/2002 (12)					
16:25:46	LINE06	00:00:41			
<b>16:25:46</b>	LINE05	00:00:41			1
<b>16:25:46</b>	LINE04	00:00:41			
<b>16:25:46</b>	LINE03	00:00:41			
<b>16:25:46</b>	LINE02	00:00:41			
16:25:46	TNE01	00:00:41		▼ ►	1
Num Recordings: 12	First: 16:25	:46, 02/14/2002	Last: 16:4	14:36, 02/14/2002	
Notes					5
D:\A\LoggerPROOF\Yuma\LC	GGERFILES\LINE	06\20020214\162	546-LINE06.A	U	
Search Fields					-
for Help, press F1					Ľ

Evidence Builder Software is a powerful program used to locate and analyze recordings. It is provided on the workstation CD. Load this on a workstation and point it at the recording directories to analyze incoming radio calls, create call lists, sort calls, and search by notes. DTMF and Caller-ID are supported on phone lines only.

To catalog files on a remote server, first create a path to the shared recording directory. Be sure to use proper security. Map this to a drive letter on your workstation.

Next, choose the "Catalog Files From Hard Drive" button and select the recording directory. The screen display can be customized by in the "preferences" menu.

## **Remote Monitoring of Live Audio**

RealTime Player v5.5.5.11					
🗖 Last Records	s 🛛 📀 Option	is 🚺	E <u>x</u> it		
LINE01				•	
Date	Start time	End time	Length		
4/25/2004	11:40:03 PM	11:45:49 PM	00:05:46		
4/25/2004	11:36:56 PM	11:38:27 PM	00:01:31	<u> </u>	
4/25/2004	11:32:22 PM	11:33:51 PM	00:01:29		
4/25/2004	11:16:19 PM	11:17:41 PM	00:01:22		
4/25/2004	11:05:32 PM	11:07:55 PM	00:02:23		
		4			
🕨 Play	Pause	🗉 Stop 📃 💶	Begin 📃 🕨	Live	
00:00:00 Date: 4/25/2004 Time: 11:40:03 PM					

Remote users with access privileges may monitor calls in real time via LAN or WAN connections.

A Real Time Player application is provided on the workstation CD. It's downloadable at: <u>digital-loggers.com/RTP.exe</u>

To remotely monitor calls, load the Real Time Player application on a workstation. Click on "options". Use the browse

button to select a source directory with archived or incoming calls. Live calls are highlighted. Select a call and press "play", or press "live" to continuously monitor calls. Windows security may be used to selectively control access to specific lines.

## Support

If we haven't answered your questions here, please call (408) 330-5599 or send an email to <u>engineering@digital-loggers.com</u>. We'll be glad to help.

