



4-Channel Network Logging Module

Users Guide



MIL-4000N Digital Logger Features

The MIL-4000N digital audio logger is a modular network logger used to record audio with convenient network access. The logger offers these features:

Universal Interface

The universal line interface allows connection to phone lines, voice mail systems, telephone handsets, radio systems and remote microphones.

Digital Performance

Audio recordings are perfect. Multiple copies of recordings can be made without degradation. Digital recordings eliminate the loss of signal quality. Digital loggers offer higher reliability than tape units.

Modular Configuration

Loggers expand to hundreds of channels and thousands of hours. Digital quality gives you crystal clear audio.

Secure Network Based Playback from any PC

Find calls instantly without searching through tapes. Calls can be played in any Windows PC using just a web browser. Digital files can be copied, emailed, encrypted, and backed up on any computer on the network. Passwords restrict file access to authorized users.

Built-in Monitoring System

A built-in speaker and headphone jack verify audio quality in real-time.

Internal Hard Disk Storage



Tape loggers require frequent tape replacement to prevent lost calls. The internal 120GB hard disk stores thousands of recordings.

Call Analysis Software

Analysis software indexes and sorts call files for easy retrieval by phone number, company name, customer number, etc. With a live Internet connection, you can reverse index caller-ID to determine the address and names of callers. Custom networked installations and database integration services are available.

Warning Tone System

A recording warning tone generator is installed in your unit. This system reminds callers that they are being recorded. The tone can be disabled for discrete use in applications where parties have consented to recording or where there is no legal expectation of privacy, such as in voice mail recording and government applications.



Standard Package Contents

1. MIL-4000N modular chassis
2. Power cord – US IEC style
3. Handset cords – RJ-11 to small handset connector
4. Outside Phone Line Cords – two RJ-11 connectors
5. Handset “Y” connectors – two small connectors
6. Ethernet cable – straight through RJ-45

Quick Setup

Use these shortcuts if you are an experienced installer. If you are unfamiliar with the installation of digital logging systems, please read the entire manual before proceeding.

1. Remove the logger from its shipping carton. Save the carton and protective foam, in case the logger ever requires service.
2. Make sure that the front-panel power switch is in the OFF position.
3. Attach the power cord.
4. Ensure that nothing blocks either the ventilation holes on the sides of the chassis or the fan on the rear panel of the chassis.
5. Verify that the input levels are within range (up to +3dBm), and then connect RJ-12 jacks at the rear of the unit to compatible audio sources. Top and bottom jacks connect together to “loop through” to attach additional loggers or telephone equipment. Select the proper cord for your application. Use “straight through” cords and “Y” adapters for



connection to handsets. Handset cords and adapters are included.

6. Connect Pins 1 and 6 of the RJ-12 jacks to power remote microphones. Leave these pins disconnected if the unit will not power external devices. Wire the audio sources to the center pins (red and green wires) of each connector. Note that pins 1 and 6 are not connected in the four wire cables provided with the unit.
7. Connect the Ethernet jack on the back of the unit to your network hub. The speed will automatically adjust to either 10MB/s or 100MB/sec networks.
8. Start the logger by switching the power on. You may need to wait for approximately 60 seconds while the logger checks for DHCP servers on your network.
9. If your network does not use DHCP, Press the ENTER/EXIT SETUP MENU button and select the NETWORK SETUP menu. Then enter an IP address for the unit. DHCP will then be automatically disabled. Contact your network administrator if you are not familiar with this terminology. Only certain values will function on your network.
10. Install the MIL4000UTIL program onto a PC which is attached to the network. It is located on the accompanying CD or can be downloaded from the Digital Loggers web site. Note; You must be an administrator on Windows 2000/XP to run this utility.
11. Run MIL4000UTIL. Scan for the logger(s) by pressing the Binoculars button. The logger(s) should be located with the scan. If the logger is not seen, verify the network settings and try again or seek assistance from a network administrator.
12. Click on the URL hyperlink to go to the logger Main Page.



13. Select "Configuration Pages". The default administrator name is **dlogadmin**. The default password is **dlogadmin**. Check "Remember my password". Click OK.
14. Make any changes to the line names that you wish.
15. Set "AutoStart Logging" to Yes
16. Set the Timeout. 7-10 seconds is recommended for Radio and 20-30 seconds for phone lines.
17. Press the "Commit Logger Changes" button.
18. Select the Time zone – and press the "Set TimeZone" button.
19. Verify or set the Time/Date.
20. If the logger is inactive, Press the "Activate4 Logging" button.
21. Make any changes to the Network setting needed on Network Config page.
22. If you plan to back up the logger files or use the Evidence Builder software, add the User Names and Passwords on the Passwords page. We recommend using the same names and passwords as used on the Windows system accessing the logger. We also recommend using lower case letter. You can use the MIL4000UTIL to help you map the drive letters. It is also advisable to change the default password.

For more tips visit:

<http://www.digital-loggers.com/faqs>

Basic Operation



After applying power and switching the unit on, the logger performs a sequence of self-tests to ensure the reliability of the system. If any errors occur, you will be prompted with additional information.

After testing is completed, a status display will appear, displaying the current state of the logging system. After power-up, the logger defaults to active mode (if this has been set), and the display indicates ACTIVE when the logger is ready to record.

The logger can be set to automatically start logging after a power failure. This is useful in situations where logging must be continuously active, but no operator is present to restart the unit after a power failure. To activate the AUTOSTART feature, set the START LOGGING ON



POWER UP option in the GLOBAL OPTIONS menu.
Before setting this option, we recommend you assign line
names as described below.



Basic Menu Operation

The logger uses a setup menu for basic configuration. After initial setup, configuration changes can be made through the Web interface. Please read the manual before adjusting parameters in the OPTIONS menu. Feel free to call DLI for technical support and installation advice.

To configure the logger, press the ENTER/EXIT SETUP MENU button.

Setup functions are grouped into five menu sections:

OPTIONS

The OPTIONS section is used by installers to adjust the operating parameters of the logging system. Use of this section is not normally required by the end-user, with the exception of the TIMEOUT, SET LINE DIRECTORY NAME, and SET LINE MODE options. The options menu is divided into two submenus, GLOBAL OPTIONS and LINE OPTIONS.

GLOBAL OPTIONS

Global options include START LOGGING ON POWER UP and RECORD NOTIFICATION TONE.

Enable START LOGGING ON POWER UP if you want the logger to be ready to record when power is first switched on, or after a power failure. Disable START LOGGING ON POWER UP if you want to manually start the logger using the red button on the front panel.



Enable RECORD NOTIFICATION TONE if you want the logger to provide a periodic beep to inform callers that they are being recorded. This beep tone is not transmitted through a handset connection or radio speaker connection. The logger must be connected to an outside analog phone line to use this feature.

LINE OPTIONS

Line options include SET LINE TIMEOUT, ASSIGN LINE DIRECTORY NAME, and SET LINE MODE.

When a line is set to VOX mode, recording is controlled by a voice activated switch. This switch stops recording and closes the file after a specified period of silence is detected. The length of this period is set using the SET LINE TIMEOUT option. This value can be adjusted between 7 and 99 seconds. A typical value for radio communications recording is 7-10 seconds, and a typical value for telephone recording is 25 seconds. If you are using microphones for conference recording, a longer value like 90 seconds may be in order. If this value is too short, calls will be broken into separate files during periods of silence. If it is adjusted too long, sequential calls may be stored in a single file.

Each of the four lines attached to the logger may be connected to a different audio source. To make it easier to locate recordings, each of these sources is stored in a separate directory. Each of the lines may be assigned a numeric name, such as LINE99 using the keypad on the logger, or an alphanumeric name such as PSAP DISPATCH using the web interface. To assign a numeric line number, use the ASSIGN LINE DIRECTORY NAME option. To assign an alphanumeric name use the web-based logger



configuration page described below. Line names are case sensitive, and each name must be unique. Once an alphanumeric line name is assigned, it can only be changed using a web browser.

Use the SET LINE MODE menu to assign a unique recording mode to each line. Three modes are supported, VOX, MANUAL, and DISABLED. VOX mode is used for automatic recording when audio is detected on a line. Use VOX mode on phone or radio lines. When MANUAL mode is selected, recording is started and stopped using the red button. MANUAL mode is useful for conference recording, when an operator wants to manually start and stop recording. Set any unused lines to DISABLED to avoid recording noise.

NETWORK SETUP

The NETWORK SETUP section allows the user to set fixed IP addresses, enable DHCP for automatic IP address selection, and allows the user to change the Gateway and Net Mask values.

Although we recommend using a fixed IP address for security reasons, DHCP is supported for network compatibility. DHCP is a system used to automatically assign IP addresses. The IP address is used to uniquely identify each computer on your network. The Gateway is used to restrict communications with outside computers, and the Net Mask Value is used to filter traffic on the network. If you are unfamiliar with any of these terms, please contact your network administrator for clarification, or call DLI directly for technical support at (408) 330-5599.



SET DATE/TIME

The SET TIME/DATE menu allows the user to adjust the clock within the logger. Use this option when the logger is initially installed, and if the clock drifts significantly over time. The clock and time zone are used to add time and date stamps to recorded files. Selecting the proper time zone allows the logger to automatically handle time changes. Resetting the clock will not affect the time and date stamps of previous recordings.

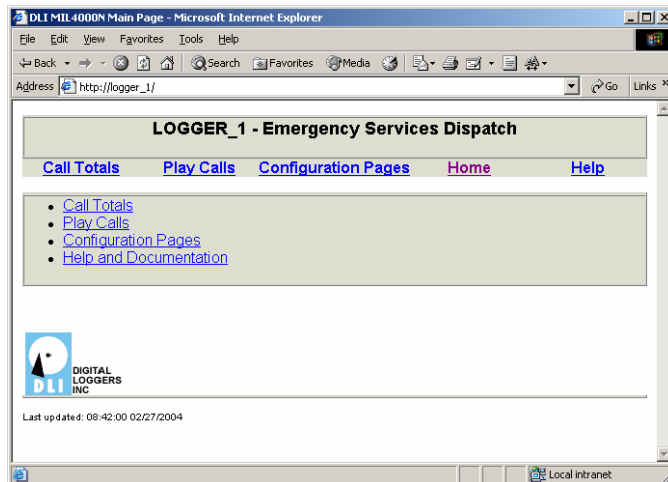
As of version 1.3.0, if the MIL4000N has a valid route to the Internet, the time will be synchronized automatically every morning with an Internet timeserver. The primary timeserver is utcnist.colorado.edu at 128.138.140.44. If the update fails, the secondary timeserver time-nw.nist.gov at 131.107.1.10 will be used.



Remote Web Access

The logger is easily accessed using a web browser. The browser may be connected to a LAN, or remotely over a WAN or the Internet. If the logger is attached to the Internet, a user-supplied firewall system should be used to prevent unauthorized access to the logger.

To access the logger, enter the IP address, such as 192.168.1.240 (factory default) in the address field of the browser. A logger home page below will be displayed:



The home page is available to all users. Passwords are required for playing calls and configuring the logger. You may be asked to log in a second time when entering the configuration menu. You may need to update the Hosts file in your system to access the configuration section.

Web Security

The logger has two default user names with different security permissions. The administrator name is **dlogadmin**. The administrator password is **dlogadmin**. The administrator can access all lines and alter settings and security permissions. The administrator user name cannot be deleted, but the password may be changed.

The user login name is **dliuser**. The password for this user is **4000n**. This user can access recordings on all four lines. This user can be deleted, and the password can be changed.

Please note that all passwords are “case sensitive.” This means that upper and lower case letters are different. For example, Fire, fire, and FIRE are all considered different by the logger. Enter your user name and password carefully.

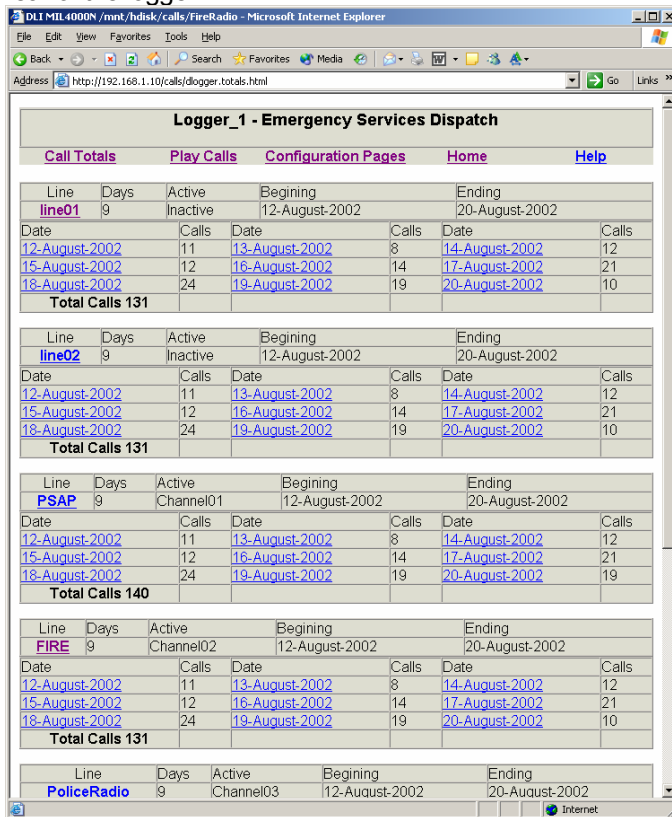




Enter your user name and password. You may wish to have your browser remember your password and user name.

Call Totals

Clicking “call totals” from the home page displays all call folders. If a folder is actively in use, it is marked “Active”. Channel01 contains recordings from the Line 1 jacks on the rear of the logger.



Logger_1 - Emergency Services Dispatch						
Call Totals Play Calls Configuration Pages Home Help						
Line	Days	Active	Beginning		Ending	
line01	9	Inactive	12-August-2002		20-August-2002	
Date	Calls	Date	Calls	Date	Calls	
12-August-2002	11	13-August-2002	8	14-August-2002	12	
15-August-2002	12	16-August-2002	14	17-August-2002	21	
18-August-2002	24	19-August-2002	19	20-August-2002	10	
Total Calls 131						
Line	Days	Active	Beginning		Ending	
line02	9	Inactive	12-August-2002		20-August-2002	
Date	Calls	Date	Calls	Date	Calls	
12-August-2002	11	13-August-2002	8	14-August-2002	12	
15-August-2002	12	16-August-2002	14	17-August-2002	21	
18-August-2002	24	19-August-2002	19	20-August-2002	10	
Total Calls 131						
Line	Days	Active	Beginning		Ending	
PSAP	9	Channel01	12-August-2002		20-August-2002	
Date	Calls	Date	Calls	Date	Calls	
12-August-2002	11	13-August-2002	8	14-August-2002	12	
15-August-2002	12	16-August-2002	14	17-August-2002	21	
18-August-2002	24	19-August-2002	19	20-August-2002	19	
Total Calls 140						
Line	Days	Active	Beginning		Ending	
FIRE	9	Channel02	12-August-2002		20-August-2002	
Date	Calls	Date	Calls	Date	Calls	
12-August-2002	11	13-August-2002	8	14-August-2002	12	
15-August-2002	12	16-August-2002	14	17-August-2002	21	
18-August-2002	24	19-August-2002	19	20-August-2002	10	
Total Calls 131						
Line	Days	Active	Beginning		Ending	
PoliceRadio	9	Channel03	12-August-2002		20-August-2002	

When a folder name changes, the old folder is marked “Inactive”. Old recordings are kept in the inactive folder.



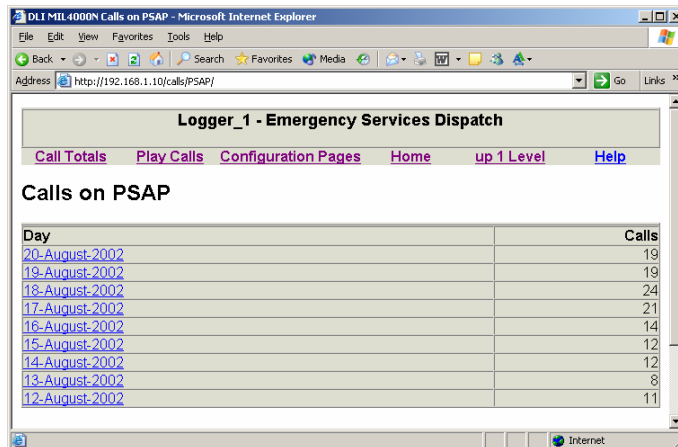
Directory of Lines

The screenshot shows a web browser window titled 'DLI MIL-4000N Directory of Lines - Microsoft Internet Explorer'. The address bar shows 'http://192.168.1.10/calls/'. The page has a navigation bar with links: 'Call Totals', 'Play Calls', 'Configuration Pages', 'Home', and 'Help'. Below the navigation bar is the title 'Logger_1 - Emergency Services Dispatch' and a sub-header 'Directory of Lines'. The main content is a table with columns: 'Line', 'Active', 'Number of days with calls', 'from:', and 'to:'. The table lists several folders: 'FIRE', 'FireRadio', 'PSAP', 'PoliceRadio', 'line01', and 'line02'. Each folder has a corresponding 'Line' number and an 'Active' status. The 'Number of days with calls' column shows '9' for all folders. The 'from:' and 'to:' columns show the date range '12-August-2002' to '20-August-2002'.

Line	Active	Number of days with calls	from:	to:
FIRE	Line02	9	12-August-2002	20-August-2002
FireRadio	Line04	9	12-August-2002	20-August-2002
PSAP	Line01	9	12-August-2002	20-August-2002
PoliceRadio	Line03	9	12-August-2002	20-August-2002
line01	NotActive	9	12-August-2002	20-August-2002
line02	NotActive	9	12-August-2002	20-August-2002

Clicking “Play Calls” from the home page displays a directory of all folders with a summary of the number of recording days in each folder. Click on a folder name to access recordings in that folder.

Line Folders



Day	Calls
20-August-2002	19
19-August-2002	19
18-August-2002	24
17-August-2002	21
16-August-2002	14
15-August-2002	12
14-August-2002	12
13-August-2002	8
12-August-2002	11

After selecting an individual line folder, each day of recordings is displayed. The most recent calls are listed first.

Click on a date folder name to access recordings made on that day.

The logger will keep as many calls as space permits on hard disk. When disk space runs low, the oldest recordings on each line will be automatically deleted, one day at a time.

Directory of Lines

DLI MIL4000N 19-August-2002 Calls on PSAP - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media

Address <http://192.168.1.10/calls/PSAP/20020819/> Go Links

Logger_1 - Emergency Services Dispatch

[Call Totals](#) [Play Calls](#) [Configuration Pages](#) [Home](#) [up 1 Level](#) [Help](#)

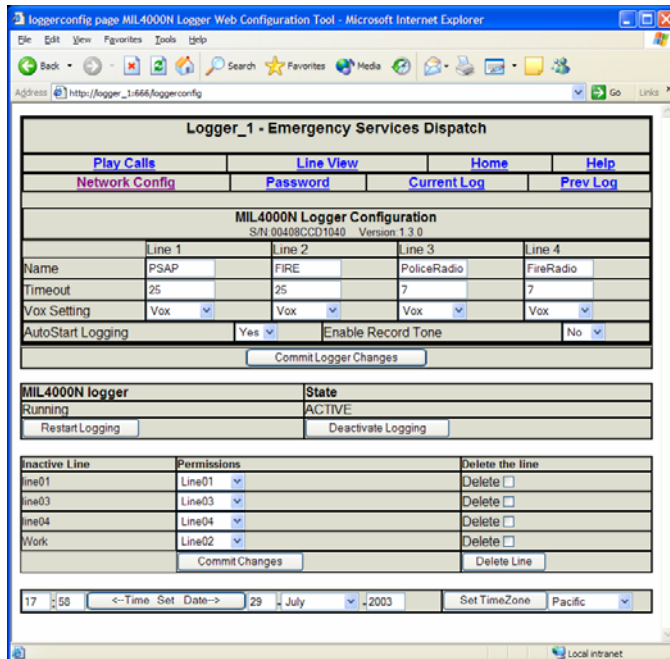
19-August-2002 Calls on PSAP

Time of Call	Length h:m:s	Bytes
23:05:13	00:01:07	556645
23:01:15	00:00:52	427164
22:06:35	00:00:32	264903
21:32:39	00:11:25	5612960
21:31:24	00:01:11	587590
21:15:11	00:02:46	1367950
21:11:58	00:00:32	264903
21:08:26	00:02:48	1377784
20:59:11	00:00:41	338658
20:49:09	00:09:34	4708232
19:36:07	01:11:19	35055956
18:57:53	00:02:12	1089320
17:26:53	00:45:52	22552025
16:51:31	00:02:07	1043428
06:14:50	00:05:57	2926639
05:40:21	00:00:31	260214
05:34:09	00:05:19	2620146
02:30:35	00:17:22	8536936
00:17:38	00:01:22	673014

Internet

After selecting the day, the time, length and size of each call are displayed. To play a call, click on the time of call. To copy a call to your local hard drive, right-click on the time of call and select "save file as..."

Logger Configuration Page



Logger_1 - Emergency Services Dispatch

[Play Calls](#) [Line View](#) [Home](#) [Help](#)
[Network Config](#) [Password](#) [Current Log](#) [Prev Log](#)

MIL4000N Logger Configuration
 S/N 00408CCD1040 Version 1.3.0

	Line 1	Line 2	Line 3	Line 4
Name	PSAP	FIRE	PoliceRadio	FireRadio
Timeout	25	25	7	7
Vox Setting	Vox	Vox	Vox	Vox
AutoStart Logging	Yes	Enable Record Tone		No

[Commit Logger Changes](#)

MIL4000N logger **State**

Running ACTIVE

[Restart Logging](#) [Deactivate Logging](#)

Inactive Line	Permissions	Delete the line
line01	Line01	Delete <input type="checkbox"/>
line03	Line03	Delete <input type="checkbox"/>
line04	Line04	Delete <input type="checkbox"/>
Work	Line02	Delete <input type="checkbox"/>

[Commit Changes](#) [Delete Line](#)

17:58 <-Time Set Date-> 29 July 2003 Set TimeZone Pacific

This page is used to configure and control the logger.

It's important to remember that these settings are case sensitive. This means that Fire, FIRE and fire are all considered different. This is very important since the line names are used for the directory names when recording calls.

Care must be taken before committing the changes. Click the "Deactivate Logging" button to stop recording before changing folder names. This prevents a call from being



recorded into an incorrectly named folder. After all changes are complete, click "Commit Logger Changes" and click the "Activate Logging" button.

When a folder name is changed, the previous folder is marked as "inactive". These inactive folders can have the permissions changed or they can be deleted. Any inactive empty folders will be deleted upon start-up.

The Date and Time may be set on this page. If a valid route to the Internet is provided, the logger will update the time every night.



Network Configuration Page

Logger_1 - Emergency Services Dispatch		
Play Calls	Line View	Home
MIL4000N Config	Password	Current Log
Help	Prev Log	
Network Configuration for Logger_1 S/N: 00408CCD1040 Version: 1.3.0		
Help	Host IP	192.168.1.11
Help	DHCP (DISABLED)	No
Help	Netmask	255.255.255.0
Help	Gateway	192.168.1.1
Help	Host Name	Logger_1
Help	Workgroup	DLI
Help	Customer Site Description	Emergency Services Dispatch
<input type="button" value="Commit Changes"/>		

The Host IP is the IP address used by the logger if DHCP is not enabled or a DHCP server is unavailable.

If DHCP is enabled and a DHCP server is detected, the IP address is displayed on the second line.

In most cases, we recommend disabling DHCP and using a static IP address.

If you are unfamiliar with this terminology, or unsure about settings on this page, please contact your network administrator.

To avoid name conflicts, the Host Name should be unique on the domain, workgroup, or network. The Host Name you

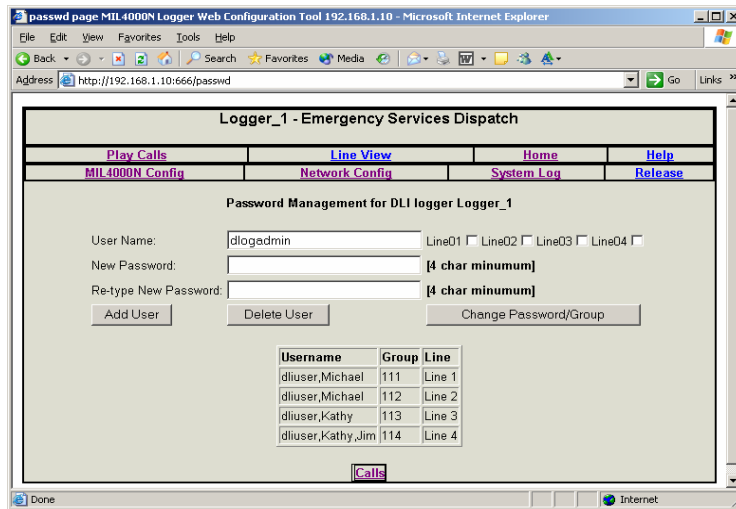


select will appear in your Windows "Network Neighborhood".

Set the workgroup as desired for your application. If you do not want the logger easily seen by the other users, you can put it in a different workgroup. This will not, however, prevent users from seeing the logger if they search the entire network.

The Customer Site Description is displayed at the top of each page and will show up as the remark or comment when the logger is browsed on the network.

Password Configuration Page



Logger_1 - Emergency Services Dispatch

[Play Calls](#)
[Line View](#)
[Home](#)
[Help](#)
[MIL4000N Config](#)
[Network Config](#)
[System Log](#)
[Release](#)

Password Management for DLI logger Logger_1

User Name:
 Line01 ☐ Line02 ☐ Line03 ☐ Line04 ☐

New Password: [4 char minimumum]

Re-type New Password: [4 char minimumum]

Username	Group	Line
dliuser,Michael	111	Line 1
dliuser,Michael	112	Line 2
dliuser,Kathy	113	Line 3
dliuser,Kathy,Jim	114	Line 4

[Calls](#)

This page controls security. User names and passwords can be added, deleted, and changed.

Users can be given access to any or all of the active lines. The security permissions for the folder remain after the line names change.

For example, if the original folder name for "line01" was changed to "PSAP", the security permissions for PSAP and line01 are the same.

To add a new user:

1. Type their name in the User Name space.
2. Select the line(s) that they will have access to.



3. Type in the password (case sensitive) in each spot.
4. Press the "Add User" button.

To delete a user:

1. Type their name in the User Name space (case sensitive)
2. Press the Delete button.

To change a user's access or password:

1. Type their name in the User Name space
2. Select the line(s) they will have access to
3. Type in the password (case sensitive) in each spot.
4. Press the Change Password/Group button

If a user has a Windows password and user name matching their logger password and user name, they will be automatically logged-in when connecting to the logger using "Network Neighborhood". Authentication is automatically passed from the Windows system to the logger for disk access.

We recommend using the same passwords and names as the Windows system. Enter the user name here in lower case.

Note:

A user can map a drive to the [\\MIL4000N\calls](#) directory. They can then see all line names, but only have access to calls within the lines that they have correct permissions to.

In other words, they can see the names and list them, but any attempt to read or access the call will be met with an access denied error, unless you have granted access to those lines.



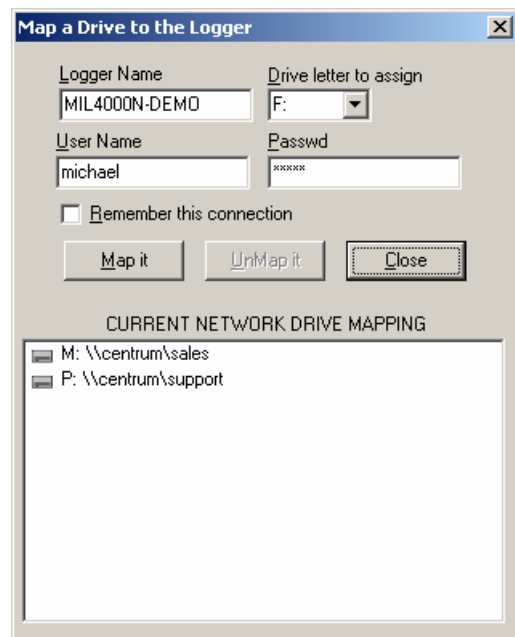
Mapping a Drive

Mapping a Network Drive with MIL4000UTIL

We recommend using the MIL4000N Remote Utility to map a network drive. The Utility can be downloaded from:
<ftp://ftp.digital-loggers.com/MIL4000setup.exe>

To map a network drive:

1. Search for the loggers
2. Select the “Map a drive to the logger” option.
3. Enter the name with permissions to the logger.
4. Enter the password.
5. Press the “Map It” button.



Map a Drive to the Logger

Logger Name: MIL4000N-DEMO Drive letter to assign: F:

User Name: michael Passwd: *****

☐ Remember this connection

Map it UnMap it Close

CURRENT NETWORK DRIVE MAPPING

- M: \\centrum\sales
- P: \\centrum\support



Mapping a Network Drive under 95/98/ME

If you do not use the remote utility, users of Windows 95, 98 and Windows ME must map via the Network Neighborhood GUI if their user names and passwords do not match those in the logger.

To map a network drive, bring up a command prompt and type:

net use X: \\LOGGER_NAMEcalls

Where X is the drive letter to use and *LOGGER_NAME* is the Host Name of the logger.

Mapping under Windows NT/ 2000/XP

If you do not use the remote utility, you can map the drive through the Network neighborhood or command prompt. If your user name and/or passwords do not match, you can override the default with the following:

net use X: \\LOGGER_NAMEcalls *password* /user: *username*

Where X is the drive letter to use and *LOGGER_NAME* is the Host Name of the MIL4000N logger, *password* is the password to authenticate and *username* is the user name to authenticate.

NETWORK ACCESS NOTES: dlogadmin cannot access the logger from the network.

If you have already attempted to view the logger before mapping a drive letter or adding your name and password to the logger, the logger may remember your connection with the invalid name and/or password and may not allow the connection to succeed. This is known as "Conflicting



Credentials". In this case, you may need to restart the logger network to be able to complete the connection. To restart the logger network, go to the Network Administration web page on the logger and press the submit button. No changes are necessary.

System Status Display

The system status display is shown on the LCD panel when the logger is in use. The status display shows whether the logger is active, the number of logged calls for each line, the current time and the time of the oldest call logged.

The status display also shows the percent of hard disk usage. During normal operation, you may see additional status and prompt information on the status display. Additional information on the status of the system can be obtained by pressing the SYSTEM INFO button and scrolling through additional pages.

A sample status display is shown below:

LINE1	LINE2	LINE3	LINE4
WAITING	WAITING	WAITING	WAITING
ACTIVE	DISK FREE 12%		
12/02/03 10:36:23	12/02/03 15:42:38		



Oldest phone call start time

This time is displayed in the lower left-hand corner of the screen. This is the start time of the oldest recording on the hard disk.

Current time

This time is displayed in the lower right hand corner of the screen. You can adjust the current time from the SET DATE/TIME MENU. The time is updated each second.

Note: If the logger is configured with a valid route to the Internet, the time will be updated nightly via a timeserver.

Line status and the number of logged calls

The status and number of calls for each line are indicated on the top line of the display. Examples are listed below:

1234 WAITING	Indicates that line 1 is idle, and 1234 calls are stored on the hard disk for that line.
-----------------	--

1000 RECORDING	Indicates that 1000 calls are stored and this line is currently recording a call.
-------------------	---

10 WAITING	Indicates that this line is in VOX mode waiting for audio with 10 recordings.
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10 MANUAL	Indicates that this line is in MANUAL mode. Recording will start only when the logger is set ACTIVE by pressing the red button.
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0 DISABLED	Indicates that this line is DISABLED. Unconnected lines should be disabled.
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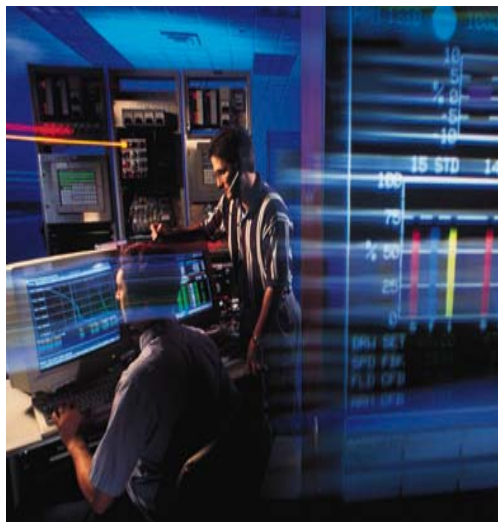
Hard disk usage

Displays the percentage of the hard disk file system used to store the phone calls. When the disk fills to 95% of capacity, the oldest files on the disk will automatically be deleted to free disk space. Making archival backups on a regular basis is recommended.

Logger recording mode

The recording mode is displayed on the third line as either ACTIVE or INACTIVE. To change the mode, press the START/STOP LOGGING button.

Power Down Procedure



To turn off power to the logger, simply flip the black power switch located on the front panel. The logger will automatically shut down after all files are saved to the hard disk.

Do not shut the unit off by disconnecting power. This may cause loss of data, and require reformatting of the internal hard drive. If the logger detects a power failure, an internal disk check process will automatically start on power-up. This process may take up to 45 minutes. During this period, recordings will be stored to internal memory. The web browser interface will not be available until after the disk check process is completed.



Front Panel Function Buttons

The front panel has five buttons to control logger operation and navigate menus: SYSTEM INFO, START/STOP LOGGING, ENTER/EXIT SETUP MENU, NEXT OPTION, and SELECT OPTION.

SYSTEM INFO

This button displays several pages of system information including version, operating system, memory, network, and line status information.

START/STOP LOGGING

When the logger is inactive, pressing this button starts recording phone calls. If the logger is active, this button stops recording.

ENTER/EXIT SETUP MENU

This button enters the SETUP MENU. To navigate within this menu and change settings, use the NEXT OPTION and SELECT OPTION keys.

NEXT OPTION AND SELECT OPTION

These buttons are used to change options inside the SETUP MENU.

See Basic Menu Operation for more information.



Advanced Menu

The advanced menu is used to reset the logger to factory defaults, clear passwords and to delete all calls from the hard disk. Do not enter this menu unless you are sure you wish to do this. Once deleted from the hard disk, all calls will be unrecoverable.

The advanced menu is hidden from normal view. To enter it, press the two right buttons (NEXT OPTION and SELECT) simultaneously, and holding them down for about eight seconds. The advanced menu can only be accessed from the main status display. The following options will appear:

```
*** ADVANCED MENU ***  
SYSTEM RESET OPTIONS  
CLEAR ALL CALLS FROM HARD DRIVE  
EXIT
```

Choosing SYSTEM RESET OPTIONS will bring up the following:

```
*** SYSTEM RESET OPTIONS ***  
RESET PASSWORDS TO FACTORY DEFAULTS  
RESET SYSTEM TO FACTORY DEFAULTS  
EXIT
```

If you forget your passwords, you can reset them to defaults by choosing the first option. This will NOT remove any calls from the drive.

Choosing the second option, RESET SYSTEM TO FACTORY DEFAULTS, will overwrite all system settings



and passwords. This will NOT remove any calls from the drive.

Choosing CLEAR ALL CALLS FROM HARD DRIVE from the advanced menu, will remove all calls from the MIL-4000N hard drive, but will NOT change any other settings.

After choosing any option from the advanced menu (other than EXIT) the MIL4000N will perform the necessary functions, then reboot.

Audio File Format

Audio files are recorded using the industry standard μ -law (pronounced "mew-law") format. Audio files are grouped in directories, with each channel and date corresponding to a single directory. The line name for each directory may be changed using a web browser. Files are sorted by start time in ascending order. All time values are standard 24-hour military time. A separate subdirectory is created for each day.

Channel Directory	Day Subdirectory	File Name
LINE01	19990403	212450.au

In this example, a call arriving on line one, on April 3rd, 1999 was recorded starting at 21 hours, 24 minutes, and 50 seconds (9:24:50PM). μ -law files are recorded at a 64kbps=8KBps data rate to ensure that complete fidelity is preserved. Conversion to other file formats such as .WAV can be easily made on any PC. The length of each file is directly proportional to the length of the call. Windows Media Player displays the exact elapsed recording time.

To play a call on any Windows PC, simply point your web browser at the IP address of the logger, and select the line and day you are interested in. Click the file name to play.

The Windows Media player will open, and the call will play through your sound card. Calls may be easily attached to emails, copied, or encrypted, since they are standard files. If you have an older version of Windows, or if the μ -law



codec is not installed on your machine, please contact DLI for technical support.

To save a call from your web browser, right click on the file name, and enter a directory and name for the call. You can also drag the call from your web browser to a target directory.



MIL-4000N Remote Utility Utility

Updates to the logger are performed via a remote update utility. To receive an update, contact DLI technical support or check the website at:

<http://www.digital-loggers.com/techtips/loggerfaqs.html>

and click on the [Four Channel Network Loggers](#) link. After downloading the update, you are nearly ready to update the logger. To use this utility you must:

1. Be running TCP/IP protocol.
2. Have administrative rights if you are using a Windows NT, 2000, or XP system.

The Remote Update Utility will offer to download the latest version of the firmware. Before an update may be initiated, the logger must have update mode enabled. For security purposes, you must have physical access to the unit. Press and hold the *NEXT OPTION* button (the fourth button from the left) for about eight seconds. A message will appear:

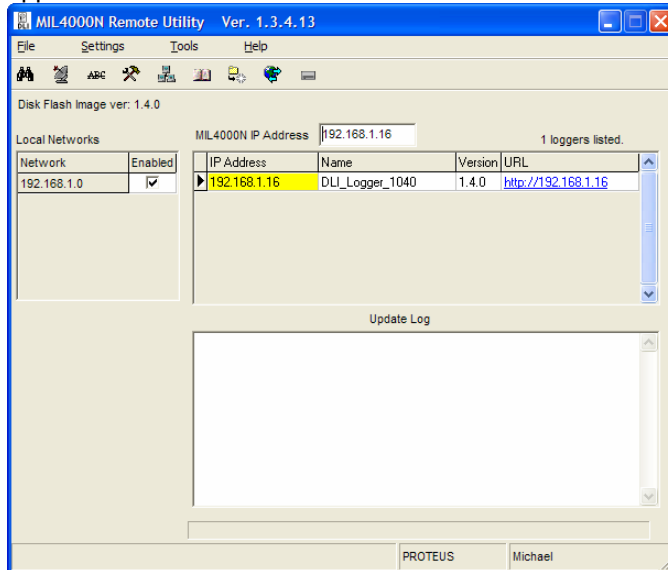
THE LOGGER IS NOW READY TO BE UPDATED.
LOGGER WILL ACCEPT UPDATES UNTIL REBOOT.
THE LOGGER WILL REBOOT UPON COMPLETION.
ANY UPDATE ERROR CAUSES ABORT AND REBOOT.

This message will disappear in about fifteen seconds, but the logger will remain in update mode and continue recording until the update is started.

Next, start the update utility on a workstation attached directly to the logger or through your network.



Press the *Locate Button* (Binoculars) to search your network for MIL4000N Digital Loggers. This screen will appear:



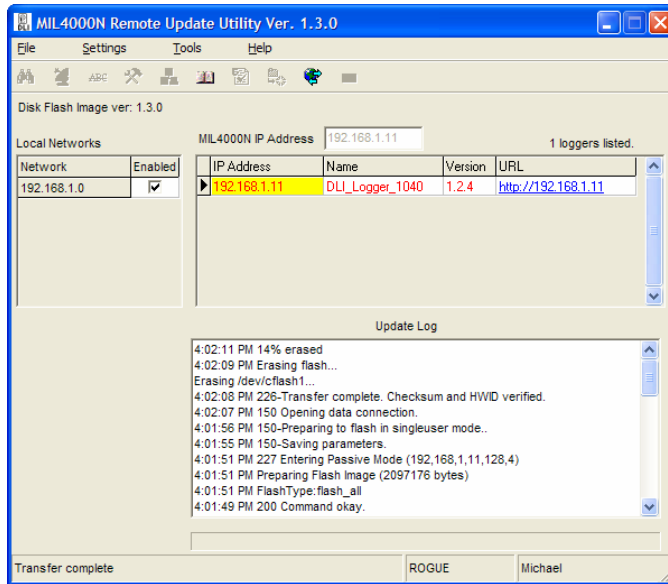
If you have more than one logger on the same network, select the unit you wish to update.

Loggers shown in red have a lower firmware version than the Update Utility and can be updated.

Loggers shown in black have the current firmware version.

Loggers shown in Gray have a higher firmware version than the Update Utility and cannot be updated.

Press the *Update Logger* button to begin the update procedure.



The screen will change, and a status display with the most recent activity on top is shown. When the update is complete, a message should pop up indicating a successful update. After update, the logger will automatically restart.

If a timeout error box appears, wait thirty seconds and press the *Locate Logger* button to search again for the logger. This can occur if the logger takes an unusually long time to recover. A timeout can also occur if you use DHCP, choose "Overwrite Settings" or the IP Address of the logger changes after it restarts.



The update utility also allows you to search for loggers on your network, update your Windows host file, and map a drive letter to the logger. It offers these menu selections:

File

Search for loggers:

Scans the network for MIL4000N loggers.

Upgrade Logger

Begins the update process.

Settings

Intensify Search:

Adds additional response time to searches.

Add a network to the scan:

If your network has multiple subnets, additional networks to scan can be added here.

Forget this network:

Added networks can be removed from the scan.

Check for updates weekly:

If checked, checks for update to the MIL4000UTIL and logger firmware automatically when this utility is run if it has not been checked within the past seven days."

Check NetBIOS over TCP/IP settings:

If checked, verifies the network settings for mapping a drive to the logger."

Tools

Map a drive:

Map a drive letter to the selected Logger.

Send Config to DLI:

Sends the Configuration Files and Log Files of the currently selected Logger to Digital Loggers, Inc.

Check for update:

MIL4000UTIL will check for a newer version of the utility and firmware files from the Digital Logger web site.

Help

Display Revision History:



Displays the revision history for the MIL-4000N (via a link to the DLI web site).

MIL-4000N FAQs:

Displays all DLI Logger FAQs at the DLI web site. This may have helpful information which applies to Logger issues in general.

Display Revision History:

Displays a history of the features added to each revision of the MIL-4000N.

Help:

Displays this command summary.

Backing Up Your Data

Only the audio files may be copied (*.au) files, therefore the windows "drag and drop" feature will not work.

You may use Windows Backup to back up the files. It will skip files that it cannot copy.

You may also use the command line xcopy utility.

This is an example:

```
XCOPY L:\*.au /d:01-01-2004 /S /C /I D:\LoggerBackup
```

This will copy files from the logger (drive L) to the D:\LoggerBackup directory on your computer. It will only copy files made after 1/1/2004. Change these options as needed for your configuration.



Evidence Builder Utility

Evidence Builder is an optional, easy-to-use Windows application that allows you to catalog, play, and sort the calls from your CD or network logger.

With a mouse click, you can send the catalog file, or even an entire call, to someone else (or to multiple people) via email.

This software is not needed for normal logger operation, but it provides a convenient way of accessing calls from Windows-based PCs. To install this software, simply insert the distribution CD in any Windows 95, 98, NT, 2000 or XP machine. Your network logger must be fully installed and mapped to a local drive letter before proceeding.

Using the Utility

- 1) Your network logger will appear in Windows "Network Neighborhood" on your desktop when your network is configured to accept a Samba server.
- 2) Select File | Catalog Folder, or press Ctrl + N, or Select the 'Catalog' button from the toolbar . Point the application at the logger you are interested in.
- 3) Enter the time and date range of the calls you are interested in.
- 4) As the program analyzes recordings, file names are displayed. To cancel the scan, press the "Esc" key.



5) The call Information pane displays the number of phone lines, the total number of calls found during the search, and the date/time of the last call.

Sorting by Columns

Calls scanned by the cataloging utility are sorted in several columns. The default columns are listed below:

Direction: The direction is shown in the 'In/Out' column. Incoming calls are 'In', Outgoing calls are 'Out', and calls whose direction cannot be determined are labeled 'Unknown'. This column is accurate only if a dial-tone is detected in the first 20 seconds of the recording.

Line: The logger line name is shown in the 'Line' column.

Phone #: This column contains the outbound phone number if DTMF decoding is selected, or the inbound Caller-ID (ANI) if available. An outside line connection is required to decode DTMF, and Caller-ID service from your phone company is required to decode ANI.

Date, Time: The time and date this call started (in 24-hour time).

Length: This is how long the call lasted (displayed as hours:minutes:seconds).

Location: If you highlight a call and press the 'Demographics' button, this column displays the geographic location of the caller. This is determined by the area code and prefix of the call.



You can change the width of a column by placing the mouse over the line between columns, holding down the left mouse button, and dragging the mouse.

If you have a live internet connection, you can also reverse-index the name and address of the caller and display it using the address icon at the bottom of the screen. To do this, you must have caller-ID, or DTMF decoding selected, and the number must be listed in a public directory.

Settings Saved after Use

The application will remember where you last placed the application's window and the column widths.



Copying calls to a hard drive

You may also use Evidence Builder to copy calls to your local hard drive for faster cataloging. You will need to copy calls from the MIL-4000N before editing call notes.

After copying, you can use the 'Catalog Folder' command to quickly catalog an entire folder of calls. To do this, follow these steps:

- 1) Use the "Copy read-only files to a folder on your hard drive" button.
- 2) Use the "Catalog a Folder" option to analyze the calls from a directory on your local hard drive. This will operate quickly, since no network overhead is involved.
- 3) Try expanding or narrowing your search if too many or too few calls are displayed.

Playing Calls from within the Utility

To play from within the utility, first select the call you want to play from the play list by clicking on it. You can select multiple calls by holding down the shift or control keys. The time display (below the player buttons) will show how many seconds are in the call. Next, press the play button. There will be a short pause as the call is processed for playing.

As the call starts to play, control buttons appear and a position slider bar shows the playback position. These buttons become active during playback:

'Pause' - pauses playing of the call



'Stop' - stops the playing of the call

'Jump to start of call' - jumps to the start of the call and continues playing (the |<< button)

'Step back' - steps back 1/20 of the length of the call with each press (the << button)

'Step forward' - steps forward 1/20 of the length of the call with each press (the >> button)

You can jump to any position in the call by clicking on the slider handle (the rectangle that keeps moving) and dragging it left or right while the call is playing. When you release the mouse button, the call will play from that position.

Sorting Calls

You can sort calls in ascending or descending order of the values in a particular column. To sort the calls, press the header button above the column you want to sort.

After sorting, the header you have sorted will have an asterisk (*) next to the name. The first time you sort a column, the values will be in ascending order (A to Z, 0 to 9), then the next time you press the header button, the values will be sorted descending (Z to A, 9 to 0). Several sorting options are available:

Sorting the 'In/Out' column will sort by direction (Unknown calls before Incoming calls), then by Line #, Date and Time.

Sorting by 'Line' will organize calls by Line #, then by Date and Time.



Sorting by 'Phone #' sorts by number first, then by Date and Time.

Sort by 'Date' sorts by Date and Time.

Sort by 'Time' sorts by Time and Date

Sort by 'Length' sorts by Length and Date.

Sort by 'CD ID' sorts by 'CD ID', and Date.

Sort by 'Location' sorts alphabetically by Location and Date.

Filtering Calls

A filter box is automatically displayed when cataloging calls. This allows selection of calls that occurred during a specific time or date range, or on only a particular line.

The application will filter based on ALL values you enter. If you select 'Filter by time' between 12:00:00 AM and 12:15:00 AM on LINE 01, only those calls that were received or placed between those times AND were placed on LINE 01 will be displayed.

Filter values are inclusive. For example, entering 12:00:00 AM and 12:15:00 AM for filtering includes calls with a start time greater than OR EQUAL to 12:00:00 AM and less than OR EQUAL to 12:15:00 AM.

A Sorting Example:

Your 911 operator remembers the call you're interested in came in on Line 2 between 12:00 AM and 12:15 AM on



January 12th, 2003 and remembers the call was from a person in San Jose, California. To locate this call:

1. Catalog calls by date, selecting January 12th in both the "From" and "To" date boxes. Enter "12:00:00" in the "From this time" box, and "12:15:00" in the "To this time box". Highlight "Line 2", and press "OK".
2. Click on 'Call Direction' to place incoming calls at the top of the list.
3. Select the 'Filter by Phone Number' check box and enter "408" (without the quotes) in the text box.

Sending Calls and Catalog Files via Email

Another Evidence Builder feature is the ability to send both catalog files (.MIL files) and call files to other people via email right out of the application. To do this, you must have a MAPI-based email program like Microsoft's Outlook or Outlook Express, or Netscape Communicator installed.

Setting up your e-mail program:

- 1) Select "Start Menu | Settings... | Control Panel" from the Start Menu.
- 2) Double click on the "Internet Options" selection. The following dialog box pops up... Click on the "Programs" tab at the top.
- 3) The "E-mail" list box should have something selected in it. If it doesn't, press the little down arrow and select one



of the options from the list. This is the program that Evidence Builder will use to email files.

- 4) Click the "OK" button to finish.

Using Evidence Builder to Send Calls via E-Mail

- 1) Catalog a list of calls and select one. Make sure you're not playing the call when you try to send it. Windows won't let you play AND send a file simultaneously.
- 2) Select "File | Send WAV file...". This causes the MIL-4000 application to convert the call file on the CD to a standard WAV sound file, which can be played on almost any computer version of Windows. Then the application will start your email client program and attach that file to an email message which you can send to multiple people.

Using Evidence Builder to Send Catalog Files via E-Mail

- 1) Catalog a list of calls or open a .MIL file from a previous catalog.
- 2) Select 'File | Send MIL file...'. Evidence Builder will start your email client program and attach that file to an email message which you can send to multiple people. Recipients will be able to open the file with their own copy of Evidence Builder, but won't be able to play calls without access to the CD or hard drive with the original recordings.

Setting Program Preferences

To do its job correctly, Evidence Builder must know where you are and how you dial phone numbers (whether you



need to dial 10 digits for local calls, what your local area code is, whether you need to dial '9' to get an outside line, etc).

There are other personal settings, like what to print at the top of a report and what fonts you'd like to use. Follow these steps to set these options:

- 1) Select the "Edit | Preferences..." menu option.
- 2) Type in your local area code (if your phone company uses them), the numbers you must dial for local and long distance calls, the numbers you use to disable call waiting, and check the box if you need to dial 10 digits to make local calls in your area. NOTE: If you do not have to dial anything to get an outside line, or don't have call waiting, don't enter anything in the corresponding text box.
- 3) When you call list reports, you will probably want information like your company name printed at the top of each page. The "Header to place on reports" section allows you to select if you want the text justified to the left, right, or center, and the font to use for that header. If you select the "Choose..." button, a font selection box will appear to allow you to choose the font to use. If you select 'OK', the text box will change to show you the font you have selected.
- 4) Select a new "Font for the body of the reports" in the bottom section.

Saving Audio and Catalog Files

To save a .MIL file:



Press the 'Save' button on the toolbar, or select 'File | Save'. If you have not selected a name for the file, a dialog box will pop up that allows you to type in a name and location for the file. The file name defaults to the CD ID of the CD, but you can change this name

To save a .WAV file:

You can also save a call file to a file in .WAV format, which allows them to be played on any Windows computer. To do this:

- 1) Catalog calls from a local hard drive or directly from the logger.
- 2) Select the call you wish to save from the call list
- 3) Select 'File | Save WAV file...' A dialog box will appear that allows you to select the name of the file and its location.

Previewing Printed Lists

To preview a list, first catalog the calls, then select the Print Preview toolbar button or select the "File | Print Preview..." *Only the calls that are displayed on the call list (after filtering) will be printed.* The header at the top of each page, and all the call information, is printed with the fonts selected in the Preferences dialog. If the columns run over onto one another, adjust font sizes in the Preferences menu under the "Printing" tab. You can switch to 'Landscape' mode by selecting 'File | Page Setup...' for wider columns.

Printing a Catalog of Calls (Call Listing)



To print a catalog of calls, first catalog calls. Then select the Print toolbar button or select the 'File | Print...' menu choice. A dialog box allows you to select the printer, number of copies, and other preferences.

As with Previewing, only the calls that are filtered and displayed in the call list are printed. The header at the top of each page, and all the call information, is printed with the fonts selected in the Preferences dialog. Column widths and landscape mode can be used for more room.

Searching for Calls by Address

The cataloging application can determine what phone number was dialed on an outgoing call. You may couple this with a database of phone numbers and addresses to allow you to find the address of a called number.

To use this feature, press the 'Address' button. A dialog box will pop up showing the phone number and address of the selected call, if the phone number is in the database. You can select other calls from the call list to find out the address of other calls.

The address database is a standard Microsoft Access database. Feel free to add your own records to the 'MIL-4000.mdb' file installed in the same directory as the application. Use the database that most suits your application. For example, corporations may use a customer, prospect, or vendor file. Law enforcement users may use a criminal database.

We have added customizable fields to the database structure, so that you will be able to add your own data to the address database and have it displayed in this dialog



box. Contact Digital Loggers, Inc. for information on custom programming services.

Technical Support



To save time and effort, please read this manual completely before calling for tech support. You may FAX questions to (408) 541-8459. To contact tech support, dial (408) 330-5595 and please have the following ready so we can better serve you:

- A copy of your invoice and customer number.
- The firmware revision level installed in the system. This information can be found using the SYSTEM INFO button.
- A description of the type of lines connected to your unit, for example, 600 Ohm Radio, dry line voice mail, etc.



Technical Specifications

Recording Electronics

ALC range	22dB
Input levels	-50dBm to +3dBm
Input DAA	balanced and isolated
Audio encoding format	u-Law standard 64Kps
Signal to noise ratio	better than 45dB
Input protection / isolation	5kV peak
Distortion	<.2% THD
Selectable warning tone	CCIT E180 standard

Standard Line Interface

Input Impedance	10K standard
R Equivalence	0.2
VOX time constant	<0.25s

Controls / Display

Monitoring system	volume, headphone jack, channel select
Status display	calls recorded, VOX, recording status, storage
Controls	system info display logging on/off, config menu
Metering	10 segment bar graph

Disk Storage / Web Server

Server Disk Format	Samba NTFS Compatible
Time clock accuracy	drift less than 2 secs / week, internet optional
Time clock backup	10 year lithium battery
Time stamp accuracy	64ms internally, 1 sec to disc



Capacity	80GB standard 160GB optional
Typical playback software	Microsoft Windows™ Media Player
Browser Compatibility	Windows Explorer Netscape Navigator

Environmental / Power

Operating temperature	0 to +50 degrees C
Input electrical safety	UL, CSA approved power supply
Power requirements	110/220VAC switchable, 40-400Hz, 35W typical
Physical dimensions	3.5"x19"x16 2U Height, 19" RETMA rack standard

Technical specifications are subject to change without notice as we continuously improve our products. Power supply UL and CSA ratings are current, FCC and European Telephone approvals are pending. Call DLI with your custom requirements.

Legal Warnings



Most states require the consent of at least one party before telephone recordings may legally be made. Federal wiretap regulations prohibit recording without informing the parties being recorded, except under specific circumstances, where there is “no legal expectation of privacy.” Federal law 90-351 Title 18, Section 2511, Sub Section 2D requires that at least one participant in a recorded conversation be informed of the recording.

Police stations, 911 call centers, prisons, and public safety facilities may be exempt from the need to notify parties that they are being recorded. A recording or warning tone may provide appropriate notification. Most states allow the recording of voice mail calls without a monitoring tone. Some states require that both parties of a recorded conversation be informed prior to recording. The user assumes all risks as to legal operation of this unit. If you are unclear as to the legality of recording, inform all recorded parties before starting to record. Use of logging products may be unlawful on party or pay-phone lines.

Contact your legal counsel to review state and federal laws before recording. Digital Loggers, Inc. can accept no liability in this regard, and provides the above for informational purposes only.

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Connecting to Phone and Radio Lines

This section briefly covers the types of phone lines typically encountered when connecting logging equipment. If you are unfamiliar with these terms, you may choose to refer installation to a qualified installer, contact DLI for free technical support, or request that a DLI installer schedule a site visit on a time and materials basis.

DECIBEL TERMINOLOGY AND INPUT LEVELS

Telecommunications line levels are measured in decibels (dB). Decibels are a power ratio measurement. Voltage, sound intensity, and electrical power may be expressed in decibels. Telecommunications levels are typically expressed as a ratio of power in either dBm or dBv. The most common measurement is the dBm, which refers to a decibel level measured with respect to a one milliwatt signal (typically on a 600 ohm line). A change of three decibels is approximately double the power. A change of 60 decibels refers to a power ratio of 1,000,000 to 1. Typical phone line levels are -3dBm peak for bridging outside lines, and -13dBm for bridging handsets. The MIL-4000N logger will operate reliably with peak input levels in the range of -40dBm to $+3\text{dBm}$. Higher levels need to be attenuated. A transmission impairment measurement (TIMS) set or true RMS voltmeter with differential input is useful for checking input levels prior to installation, and for troubleshooting logger connections.

NOISE FLOOR

Phone line noise floors may range between -84dBm for a very quiet line to -35dBm for a noisy line. Noise is typically worst on wet lines when all phones are on-hook and the line is unterminated. Local telephone companies have



noise specifications based on the line distance to the central office. Noise may be measured using a TIMS, and line distance is measured using a time domain reflectometer (TDR). The VOX circuitry in the MIL-4000N automatically compensates for varying noise floors. Additional circuitry in the logger is designed to eliminate on-hook noise when wet lines are detected. Noise floors can be significantly increased when analog pairs are located near digital pairs. One example is a long run handset back-haul from a digital phone. If noise floors exceed acceptable levels, a separate cable with a tighter wire twist should be considered.

IMPEDANCE

Most phone lines are 600 Ohm impedance, although 135 and 120 ohm lines are also common. The MIL-4000N logger will directly connect to lines in this impedance range, as well as to high impedance sources, such as handsets.

HEADSETS

Most headset connections are in the range of 600 Ohm to 10K Ohm. These connections may be directly bridged using a "Y" connector, which ties to the logger. In call center applications, the connection to the headset may be made inside the telephone itself, and the audio may be back-hauled through an unused pair on the cable, or through a separate recording cable.

RADIOS

Most radio audio sources intended for connection to speakers are very low impedance (typically 4 to 8 ohms). If you are connecting to a radio receiver output that is intended for a speaker, bridge the line directly at the speaker connection. If you choose to disconnect the speaker, a load resistor placed across the line may be necessary for the radio amplifier to function properly.



If the output level at the bridging point is over +3dBm, you should add a series resistor to bring it within the logger's input range of -40 to +3dBm. An example of a high level audio source is a 70-volt public address speaker system. Connecting a 470K ohm resistor in series with a 70-volt system will bring levels within the recording range of the logger. A transformer may also help to match impedance if the logger is located a long distance from the radios.

Keep in mind that the input impedance of the logger is over 10K ohm. The logger is "AC coupled", and "DC Blocked" with self-healing capacitors at the input stage, so you cannot measure the logger impedance directly with a DC meter.

WET LINES

Wet lines are phone lines that draw power from the central office, or from a PBX. Audio is superimposed upon the DC power. Power to the station set is direct current (DC), and is typically 48 volts. To determine if you have a wet line, you can connect a DC voltmeter across the line. A typical voltage range for a 48-volt wet line in on-hook state is 44-50VDC. A typical voltage range for a 48-volt wet line in the off-hook state is 5-15VDC. The MIL-4000N may be connected directly to either wet or dry lines due to the DC blocking within the logger.

ON HOOK NOISE

The MIL-4000N includes circuitry designed to eliminate on-hook noise on 48-volt wet lines. This minimizes noise input to the VOX circuitry. Line voltages over 41VDC cause the logger to reduce input sensitivity, minimizing false VOX trips when the line is on-hook. An additional circuit detects rings and allows caller-ID



recording. This on-hook control feature is automatically disabled when the logger is connected to a dry line.

DRY LINES

Dry lines are phone lines, which transmit audio, but not power. Dry lines measure 0VDC at all times when checked with a DC voltmeter. Dry lines may be connected directly to the logger. To connect a dry line, first verify that it is within the levels mentioned above, then bridge it directly to the logger input.

BALANCED AND UNBALANCED LINES

The inputs to the MIL-4000N are balanced lines. These inputs may be connected directly to unbalanced (ie. Coaxial) lines, and the ground may be connected to either side of the logger input.

2-WIRE vs. 4-WIRE (E&M) LINES

Four wire lines employ a separate path for both heard (ear) and spoken (mouth) audio. These lines are also called E&M or Ear and Mouth lines. An external transformer combiner is required to convert a four-wire E&M system into a two-wire output for the logger. Please contact DLI for technical support if you are recording from four-wire E&M lines. Four wire E&M lines should not be confused with single-pair lines in which a four-wire cable is used, but only the center pair carries audio.

DIGITAL SUBSCRIBER LINES (DSL)

The logger may be connected to DSL lines with an analog filter. These filters are usually provided by your local carrier when the ISDN line is installed.

CODE OVER VOICE LINES (COV)

Most code-over-voice (COV) lines use in-band signaling, typically DTMF to remotely control an attached set. The most common COV device is an analog voice-mail



system. The logger will directly bridge this type of line and record DTMF. Call analysis software may be used to decode mail box numbers and other codes sent in DTMF format.

LOOP START CONTROL

Loop start lines use line current to control dial-tone and call progress. Loop start lines may be connected directly to the logger. Some loop start lines, commonly off-premise-extension, or OPX lines *may* use in-band signaling. In-band signaling is audio signaling such as DTMF which is sent in the voice band when the line is on-hook. To check if a line is using in-band signaling, listen to the line with a butt-set or TIMs while the line is on-hook. If lines with in-band audio signaling are connected, the logger will VOX start and record the signaling tones. If this is not desirable, contact DLI for an external loop start controller which will completely disconnect the logger from the line when loop current is not present. These controllers are available in four channel modules.

VOX NOISE CANCELLATION

The MIL-4000N employs an automatic voice operated switch (VOX) system that starts recording when sounds are detected and stops after a specified period of silence. This patented system automatically integrates the noise level on the line, and only starts recording when the audio level on the line shifts away from the baseline noise level. For this reason, the VOX will stop recording if a continuous tone (for example a dial tone) is detected. With the exception of the timeout value, this system is non-adjustable. It has been proven to be the most universally compatible VOX method in voice applications. If you have a non-standard application that requires different VOX characteristics, please contact DLI technical support with your specific requirements.



LIGHTNING PROTECTION

In areas subject to extensive lightning activity, an additional lightning protector may be helpful. If you are connecting a logger to outside lines, choose a bridging location as close as possible to the carbon lightning arrestors provided by your local carrier. If you need additional lightning protection, please contact DLI. If you are connecting the logger to inside lines, providing a good ground source for the unit should be sufficient.

RECORDING FREQUENCY SPECTRUM

The MIL-4000N logger records audio in the frequency range of 50 to 4,000 Hz. Telephone audio is normally limited to the 300Hz-3KHz range. Noise above 4,000Hz may adversely affect the performance of the logger.



Governmental Approvals

FCC PART 15 – UNITED STATES

This equipment has been tested and found to comply with the limits of a class A digital device pursuant to part 15 of the FCC rules and regulations. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user may be required to correct the interference at his own expense.

FCC PART 68B AND ACTA – UNITED STATES

This equipment complies with Part 68 of the FCC Rules and the requirements adopted by ACTA. On the bottom of this equipment is a label that contains a product identifier in the format US:AAEQ##TXXX. If requested this information must be provided to your telephone company. A plug and jack used to connect this equipment to the premises wiring must comply to the applicable FCC Part 68 rules and requirements as adopted by ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a jack that is also compliant. The REN is used to determine the number of devices that may connect to a telephone line. Excessive RENS on the telephone line may result in the devices not ringing in response to an incoming call. The sums of the RENS should not exceed 5.0. To be certain of the total REN specification in your area, contact your



local telephone company. For product approved after July 23, 2001, the REN equivalence is a part of the product identifier number.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. Please contact DLI for support in this instance. Complaints may also be filed with the FCC. The telephone company may make changes to its facilities, equipment, operations or procedures that affect the function of your equipment. If they do, you should be notified in advance in order to make necessary modifications to maintain uninterrupted service.

Federal and state laws may require that both parties on the line consent to and be informed of recording prior to attaching and starting any recording device.

If trouble is experienced with this unit, or for repair or warranty information, please contact DLI customer service at the address and phone number listed below. If the equipment causes harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved. **DO NOT DISASSEMBLE THIS EQUIPMENT.** It does not contain user serviceable components, and hazardous voltages exist inside. Telephone companies report that electrical surges, typically lightning transients, are very destructive to customer terminal equipment connected to AC power sources.

FCC ORDER DOCKET NO. 20940

In accordance with the Federal Communications Commission (FCC) Order in Docket No. 20940, consent of all parties is required when conversations are recorded. Usage of this device requires you to obtain such consent.



Please contact your own legal counsel for clarification of this docket. Emergency dispatch centers and law enforcement offices may be exempt from this requirement in certain circumstances. For other information on current recording laws and regulations, visit <http://www.digital-loggers.com/techtips/loggerfaq.html>. This web site is provided for informational purposes only, and should not be used as a substitute for appropriate legal advice.

UL, CSA, GRE, BG APPROVALS

This equipment uses a power supply component that is separately rated by UL, CSA and GRE per the labels affixed to that component. Some components are rated by Bauert Gepruft. If you are in need of a specific power supply rating for European applications, please contact Digital Loggers, Inc and specify the rating required prior to ordering.



Limited One Year Warranty

The terms of this warranty may be legally binding. If you do not agree to the terms listed below, return the product immediately in original unopened condition for a full refund. Multiple, redundant logging units must be used in critical applications. Loggers must be protected by Uninterruptable Power Supplies for maximum reliability. The software, firmware, and accompanying written materials are provided "AS-IS" without warranty of any kind. The purchaser assumes the entire risk as to the results and performance of the unit. DLI warrants this digital logger to be free from defects in materials and workmanship for a period of one year from the date of the DLI original invoice. DLI's entire liability and exclusive remedy as to defective hardware shall be, at DLI's option, either (a) return of the purchase price or (b) replacement or repair of the hardware that does not meet DLI's quality control standards and has been returned through proper RMA procedures. DLI's liability for repair or replacement is to DLI's customer ONLY. No warranty service will be provided without an original invoice from DLI and an RMA number provided by technical support. RMA material must be shipped prepaid to DLI. RMA numbers are valid for 15 days from date of issue. This warranty does not cover products modified, subjected to rough handling, or used in applications for which they were not originally intended. No oral advice or verbal warranties made by DLI's employees, dealers, or distributors shall in any way increase the scope of this warranty. DLI makes no warranty as to merchantability or fitness for any particular purpose. Due to the wide range of signal sources available, DLI cannot guarantee compatibility with all system configurations. DLI assumes no liability for incidental or consequential damages arising from the use or inability to use this product. This warranty gives you specific legal rights. You may also have other rights that vary from state to state. Since some states do not allow the exclusion of liability for consequential damages, some of the above limitations may not apply to you. DLI makes no representation as to the legality of recording conversations under any specific circumstances.



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© 2003 DLI This product is protected by US patents #5,777,811 and #5,680,555. Additional patents pending. Manual release MIL-4000N 1.3.0 Wednesday, August 06, 2003.