MAK TECHNOLOGIES

MAK Data Logger
First Experience Guide

Version 5.7

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1. MAK Data Logger First Experience

Thank you for deciding to try the MAK Data Logger. This first experience with the Logger demonstrates how easy it is to record simulations, play them back, and edit recordings.

Before you begin, install the software. Please see *Install the Logger* for instructions.

Prerequisites

To use the Logger, you need the following applications:

- A simulation source. The Logger records network traffic. To try out its recording feature, you need something to record. If you have VR-Link, you can use the talk or f18 applications. You could also use VR-Forces, MAK's CGF application. Or you could use any other simulation source that you have that supports DIS or HLA.
- A viewing application, such as an IG or stealth. If you have VR-Link, you can use the listen application or netdump to display the update messages sent from the Logger. You could also use VR-Vantage, MAK's 2D/3D viewer. Or you can use some other application that you have that can display simulation messages that it receives over the network.
- If you want to use HLA, you need an RTI.

When you are ready, this guide will help you:

- *Start the Logger*.
- *Record a Simulation*.
- *Play a Recording*.
- *Annotate a Recording*.
- *Edit a Recording*.

1.1. Start the Logger

The Logger supports DIS and HLA. Once you start the Logger, there is no difference in how it works between the two protocols. In this guide we use DIS and also assume that you are running the Logger on Windows. If you are using Linux, please refer to *Logger Users Guide* for the startup command.

➤ To start the Logger, on the Windows 10 Start menu, choose **MAK Technologies** → **Logger DIS (64 bit)**. The Logger window opens (Figure 1-1).

The Logger window has menus for all features. It also has a toolbar with icons for the common control operations. The icons mimic the icons on typical recording and playback devices.

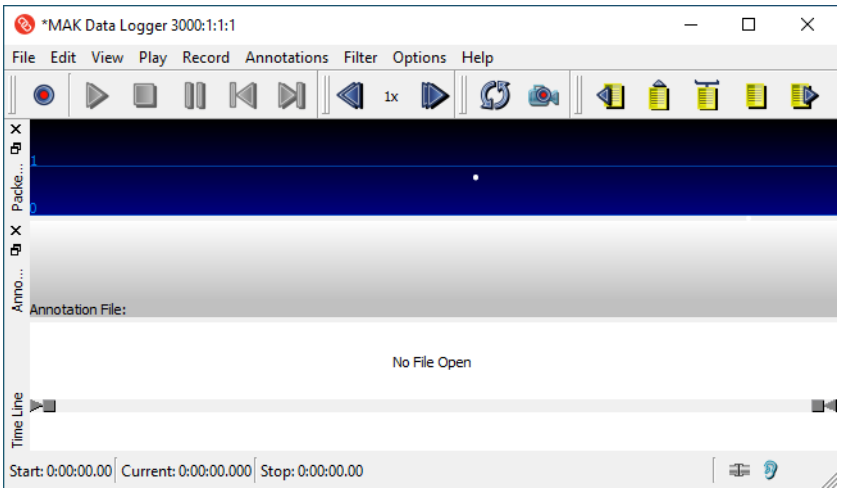

Figure 1-1. Logger window

1.1.1. The Logger Window

To fully understand the Logger window, it will help to open a recording.

1. Choose **File** → **Open**. The Open File dialog box opens.
2. Select *FollowSuspect-2019-DIS.lgr*.
3. Click Open. The Logger loads the file (Figure 1-2).

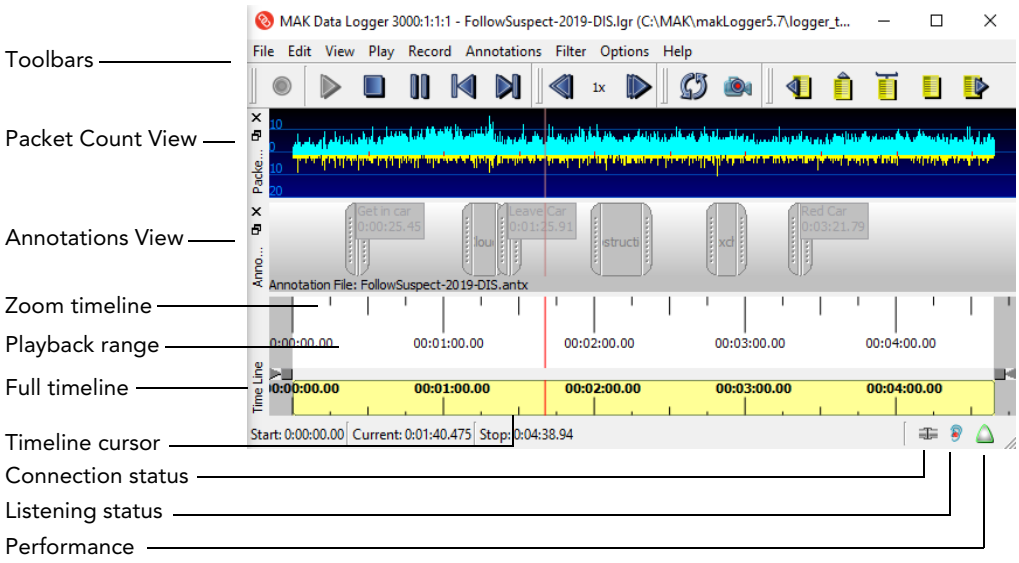

Figure 1-2. Logger window with a Logger file loaded

The Logger window has a set of control icons, a timeline, and a status bar. The Packet Count View and Packet Size View visually represent the data in the file. The Annotations View lets you annotate a recording and quickly jump to annotated locations. If there is a video associated with the recording, you can view it in the Video Stream View, which opens in an adjacent window.

The Logger window toolbar has these buttons:

- Record.
- Play.
- Stop.
- Pause.
- Jump to Start. Move the timepoint (playback cursor) to the start of the playback range.
- Jump to End. Move the timepoint to the end of the playback range.
- Decrease the playback speed (by 50%).
- Current speed.
- Increase the playback speed (double the speed).
- Set the end of playback action (stop or wrap).
- Enable video recording.
- Jump to the previous annotation.
- Insert a point annotation.
- Insert a range annotation.
- Extend the selected annotation.
- Jump to the next annotation.

1.2. Record a Simulation

When you record a simulation, the Logger reads packets off the network and stores them in memory. When you are done recording, you save the data to a file.

To record a simulation:

1. Start the Logger.
2. If it is not already running, start the simulation application that you want to record. If you are using VR-Forces, start it with the DIS (7) connection configuration (not DIS (7) localhost). DIS (7) uses the same default IP address the Logger uses.

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i By default, the Logger uses port 3000. If your simulation is using a different port, you must either change the Logger's port or the simulation's port. To change the Logger's port, choose **File** → **Connection** and enter a new value in the Port field. For more on changing connection parameters, please see Chapter 4, *Configuring the Logger Connection*, in *MAK Data Logger Users Guide*.

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3. Choose **Record** → **Record** or click the Record icon (●) at the left end of the Logger toolbar. The Logger starts recording network traffic. As it does so it displays a graph in the Packet Count View. The blue lines show entity state updates. The yellow lines show interactions.

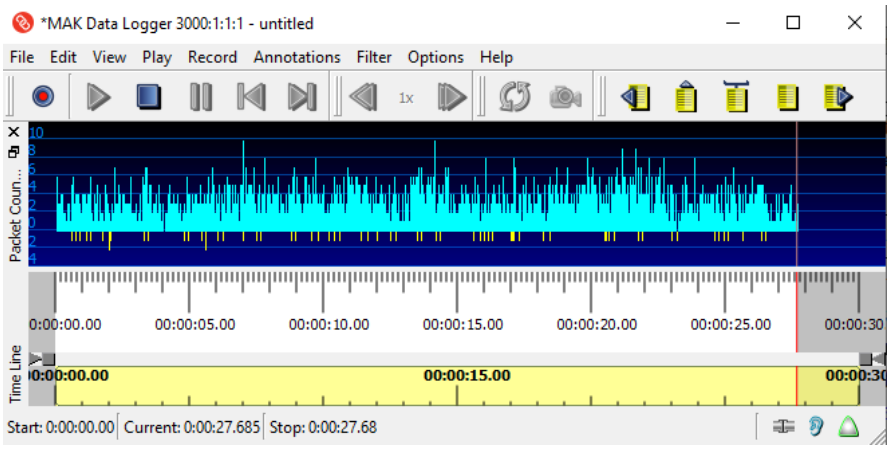

Figure 1-3. New recording

4. When you are finished recording, choose **Record** → **Stop**, or click the Stop icon (■) on the toolbar.
5. Choose **File** → **Save**. A Save dialog box opens.
6. Give the recording a name and click Save.

The saved recording will look similar to Figure 1-4. You can now play the recording or edit it.

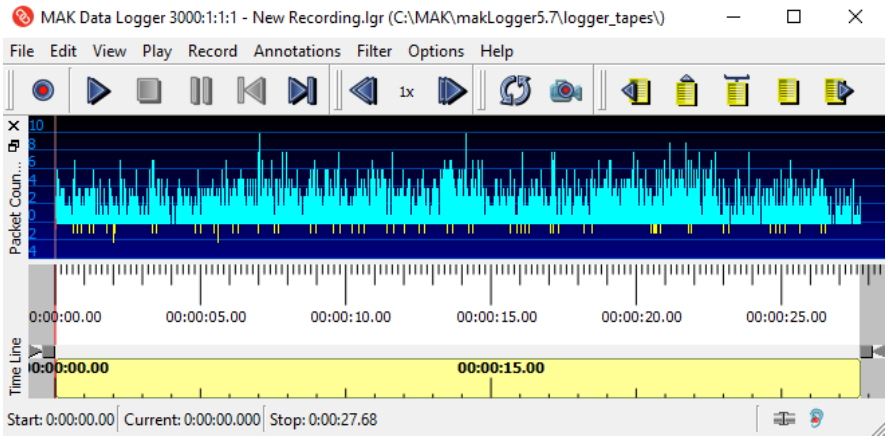

Figure 1-4. Saved recording

1.3. Play a Recording

When you play a recording, you can simply play it from start to finish or you can play it continuously. You can also choose to play only a portion of the file.

1. If it is not still open, open the file you created in the previous section or load one of the files included with the Logger.
2. Choose **Play** → **Play/Pause**, or click the Play icon ( ).

The Logger starts sending packets to the network. You can view the simulation in your IG or stealth application. You will need to load the appropriate terrain in your viewer. If you are using the VR-Link talk utility or netdump to view traffic, you will see a display of packet information in the console window.

1.3.1. Looping Playback

When the Logger plays a file to the end or the end of a playback range, it can stop or it can loop back to the beginning of the file or range and start playing it again.

➤ To set the looping behavior, choose **Play** → **Toggle Loop at End**, or click the Toggle Loop At End icon ( ).

1.3.2. Play a Segment of a File

You can configure the Logger to play any arbitrary segment of a file. If you have the Logger configured to loop, it loops within the segment you have specified. You can specify exact start and stop times in a dialog box or you can specify the start and end times with the time sliders. In this guide we will show the time sliders.

1. On the Logger timeline, drag the start time slider (Figure 1-5) to the time at which you want to start playback. The Start time display in the Status Bar shows the exact time that you select.

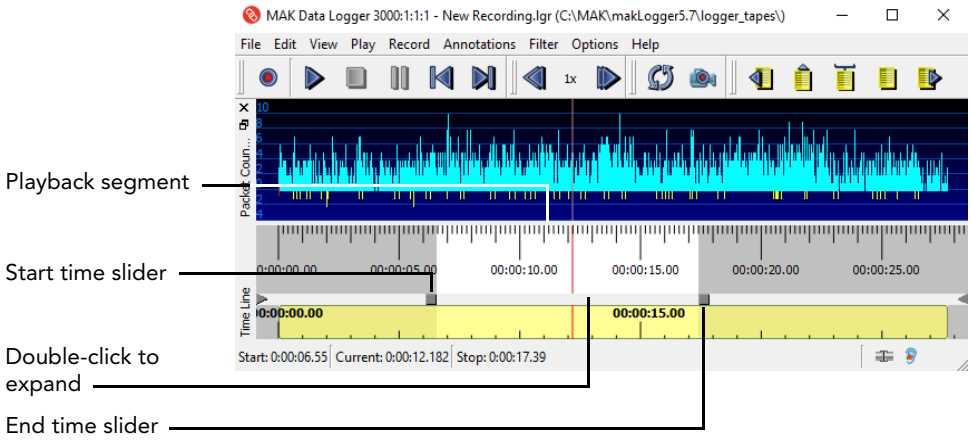

Figure 1-5. Timeline sliders

2. Drag the end time slider to the point on the timeline at which you want to end playback. The Stop time display in the Status Bar shows the exact time that you select.
3. Play the file. The timeline cursor moves between the start and end times.

Expand the Playback Segment to Full Length

➤ To expand the playback segment to the full length of the file, drag the sliders back to the edge of the window or double-click the timeline between the start and end time sliders (Figure 1-5).

1.4. Annotate a Recording

Logger files can be lengthy and if you want to be able to jump to particular locations in a file, you can make a list of the important events and the times at which they occur – or you can annotate the file. An annotation is associated with a particular time or time range in a Logger file. Each annotation has a name, and you can associate text with it. Annotations store information about the events in a Logger file and also let you to quickly bind playback to a segment of the file.

The Logger has two kinds of annotations. Point annotations mark one point on the timeline. Range annotations mark a range on the timeline.

1.4.1. Add a Point Annotation

1. Open the Logger file you recorded earlier.
2. Choose **View** → **Annotations**. The Annotations View is added to the Logger window (Figure 1-6).

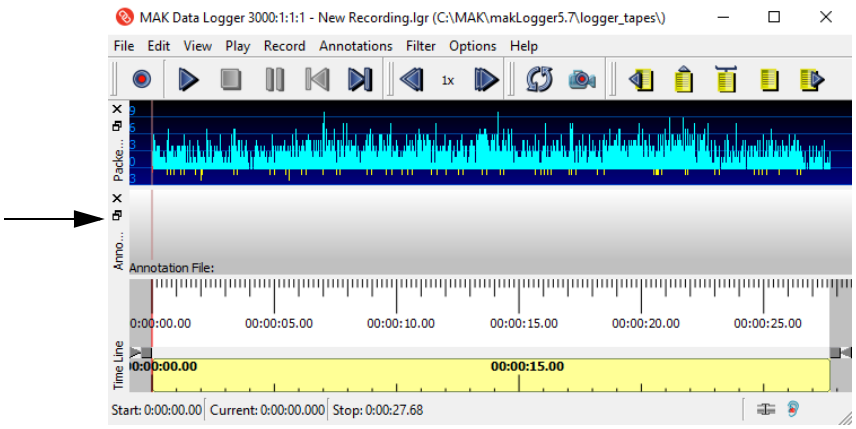

Figure 1-6. Annotations display

3. Click on the zoom timeline at the 10 second mark.
4. Choose **Annotations** → **Create** → **Point Annotation**. The Point Annotation dialog box opens (Figure 1-7). The Time value in the dialog box matches the time-point you selected in the zoom timeline.

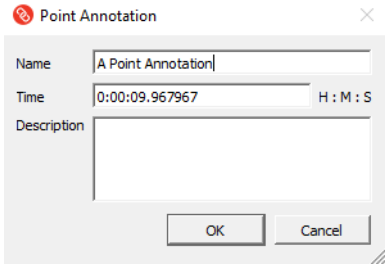

Figure 1-7. Range Annotation dialog box

5. In the Name text box, type a name for the annotation. The name is displayed in the annotation view.
6. Optionally, in the Description box, enter any text that you want to accompany the annotation.
7. Click OK. The annotation is added to the display area (Figure 1-8).

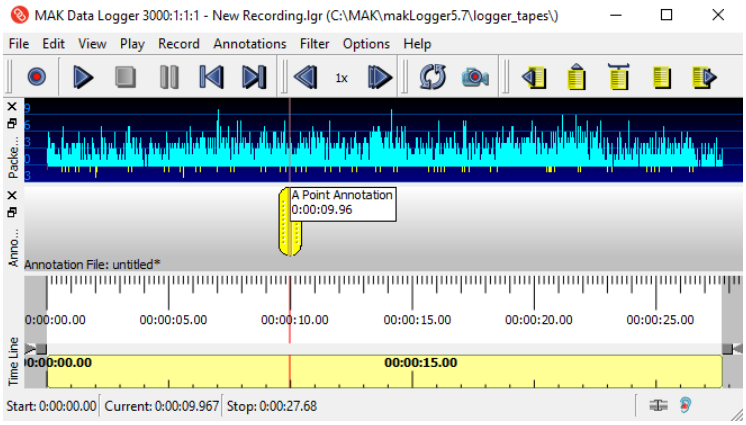

Figure 1-8. New point annotation

8. Double-click the annotation marker. The Point Annotation dialog box opens. You can read the description or edit the annotation.

1.4.2. Add a Range Annotation

For this exercise, use the same Logger file you used when you added a point annotation.

1. Click on the zoom timeline someplace to the right of the point annotation.
2. Choose **Annotations** → **Create** → **Range Annotation**. The Range Annotation dialog box opens (Figure 1-7). The Start Time value in the dialog box matches the timepoint you selected in the timeline. Clicking in the timeline is not very exact, so you can edit the time values in the dialog box if you want the start to be exactly at a certain time.

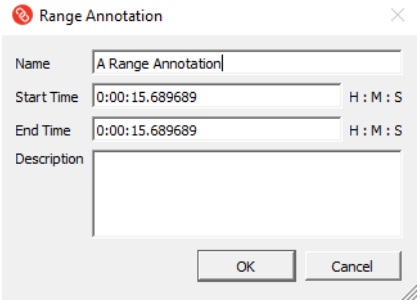

Figure 1-9. Range Annotation dialog box

3. In the Name text box, type a name for the annotation.
4. The start point and end point for the range are currently the same. You can set the end point in the dialog box, but there is an easier way to do it, so wait a bit.
5. Click OK. The annotation is added to the display area (Figure 1-10).

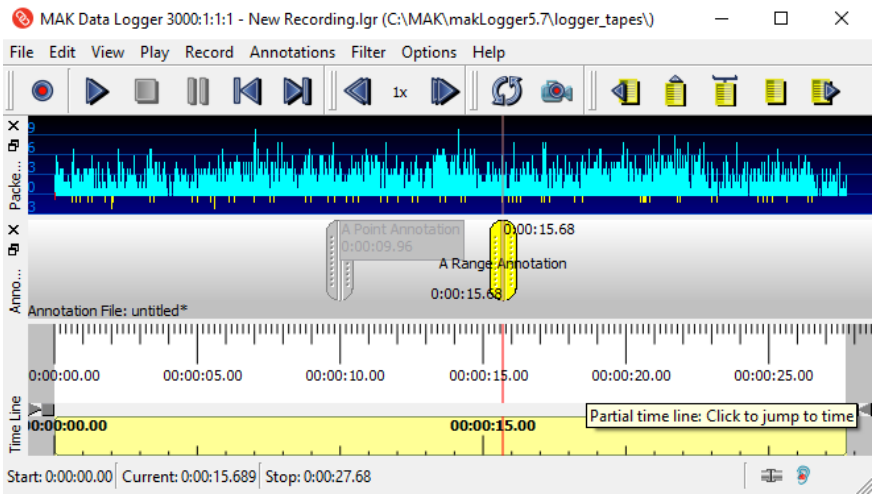

Figure 1-10. New range annotation

6. Using your mouse, drag the right half of the range annotation marker to the right. Now it looks like Figure 1-11.

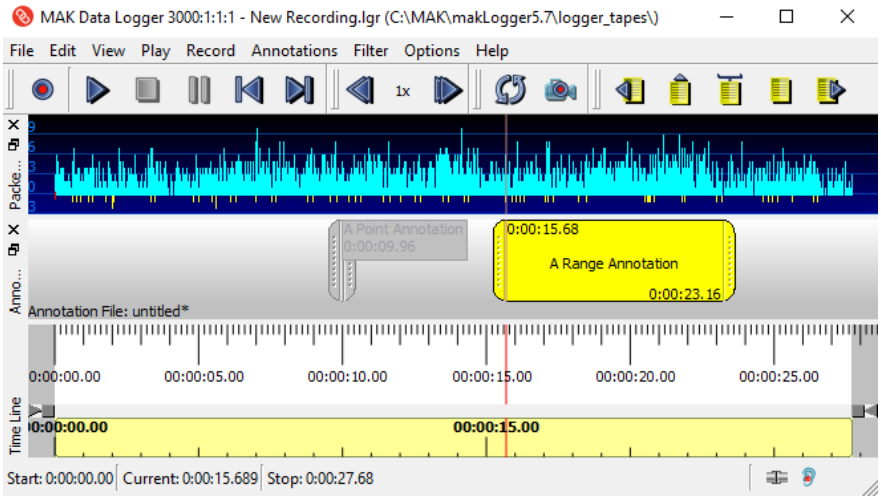

Figure 1-11. Finished range annotation

1.4.3. Save the Annotations

To save the annotations:

1. Choose **Annotations** → **Save**. The Save Annotation File dialog box opens.
2. Type a name for the annotation file.
3. Click Save. The next time you load the recording, the annotations will also be loaded.

1.4.4. Use the Annotations

Now let's use the annotations to navigate through the recording and control playback.

1. Click the Jump to Start icon ( ) to move the time point to the beginning of the file.
2. Click the Next Annotation icon ( ). The time point jumps to the point annotation.
3. Click Next Annotation again. The time point jumps to the start of the range annotation.
4. Choose **Annotations** → **Select**. The pull right menu lists all of the annotations by name. Click A Point Annotation (or whatever you named it) to jump back to the first annotation.

You can control playback by binding to a range annotation. This is like playing a segment of a file, as you did earlier, except the Logger automatically sets the bounds of the playback based on the range.

1. Select the range annotation.
2. Choose **Annotations** → **Bound to Annotation**. The Logger adjusts the timeline to just play the range (Figure 1-12).

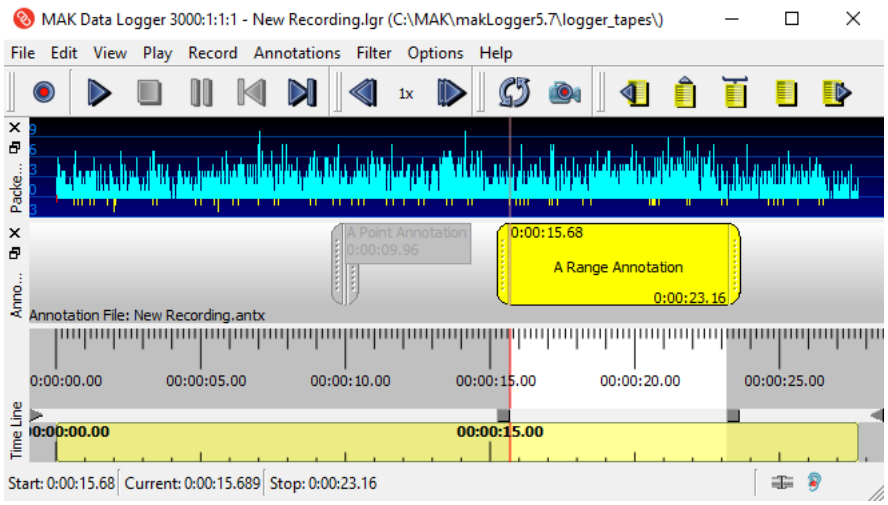

Figure 1-12. Bind to annotation

For more about using annotations, please see Chapter 9, *Annotating Files*, in *MAK Data Logger Users Guide*.

1.5. Edit a Recording

You may want to edit Logger files to use for demonstrations, training, or other purposes. The Logger lets you:

- Merge two files.
- Add a file to the beginning or end of another file.
- Clear a portion of a file of data and leave empty space.
- Delete a portion of a file.
- Trim dead space at the beginning of a file.
- Offset the timestamps of packets.

1.5.1. Append a File

For our first editing task, we will add one file to the end of another file.

1. Open the file you recorded at the start of this guide. Our example file is called *New Recording.lgr*. (Substitute the names of your files in the following steps.)
2. Choose **File** → **Save As**. Save the file with a different name, like *New Recording Two.lgr*.
3. Close *New Recording Two.lgr* and open *New Recording.lgr*.
4. Choose **Edit** → **Append File To End**. The Append File To End dialog box opens.
5. Select *New Recording Two.lgr*.
6. Click Open. *New Recording Two.lgr* is added to the end of *New Recording.lgr*. Figure 1-13 shows the concatenated files. The appended file starts between the 27 and 28 second marks. If you examine the Packet Count View, you can see where packets in the second half of the file duplicate those in the first half.

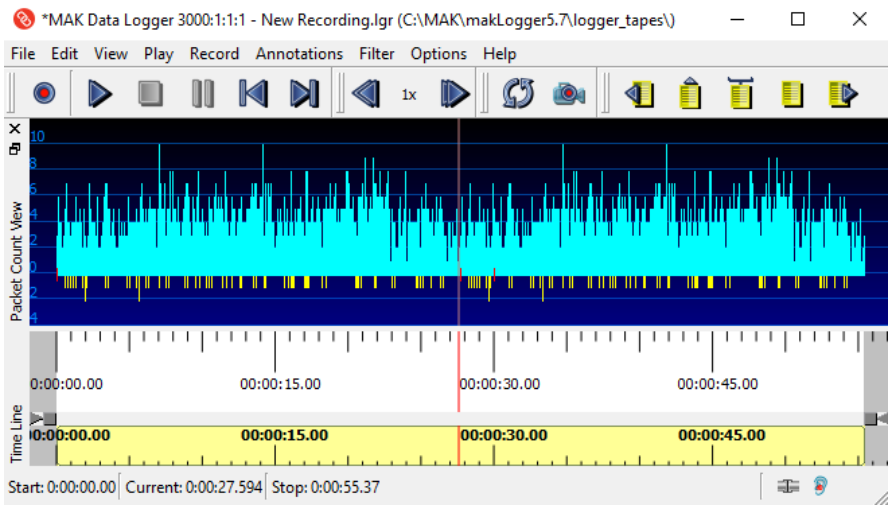

Figure 1-13. Concatenated files

7. Save the file with a new name. Use Save As so that you do not overwrite the original file.

1.5.2. Clear Packets

In this second editing exercise, we will remove packets without changing the length of the file. Use the concatenated file you created in the last section.

1. Drag the left timeline slider to the 20 second mark.
2. Drag the right timeline slider to the 35 second mark. The window should look like Figure 1-14. The gray areas are masked. They will not be touched. The white section will be cleared.

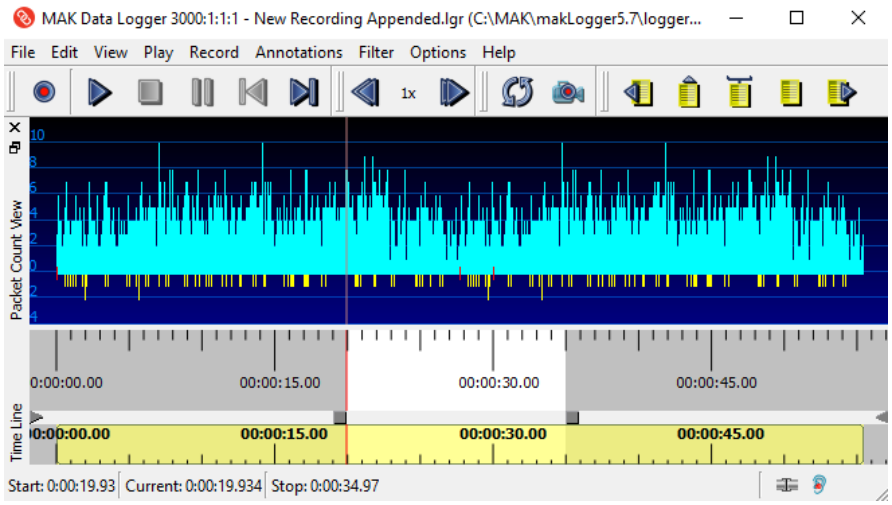

Figure 1-14. Section to clear

3. Choose **Edit** → **Clear Section**. The packets between 00:20 and 00:35 are removed (Figure 1-15). The other packets are not affected. The ones after the cleared section maintain their original offset from the start of the recording. If you play this file, there will be fifteen seconds of dead space.

   (When you clear the segment, the Logger zooms in. Use the mouse scroll wheel over the timeline to zoom out. Then drag the left side of the yellow section of the timeline all the way to the left to see the entire packet view.

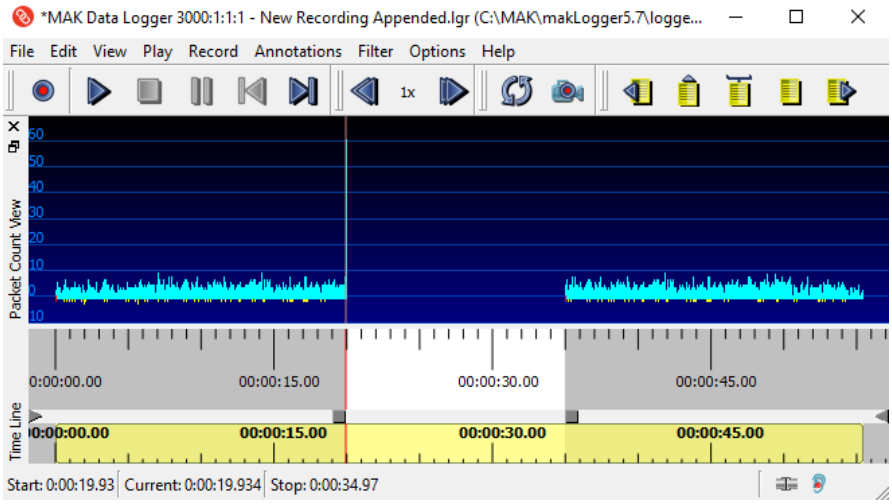

Figure 1-15. Packets cleared

4. Choose **File** → **Revert** to undo the changes you made.

1.5.3. Delete Packets

In this editing exercise, we will delete packets. When you delete packets, they are removed and all packets in the file after them are offset to fill the space. There are no gaps in the recording.

1. Drag the timeline sliders to the 00:20 and 00:35 marks as you did in the previous exercise.

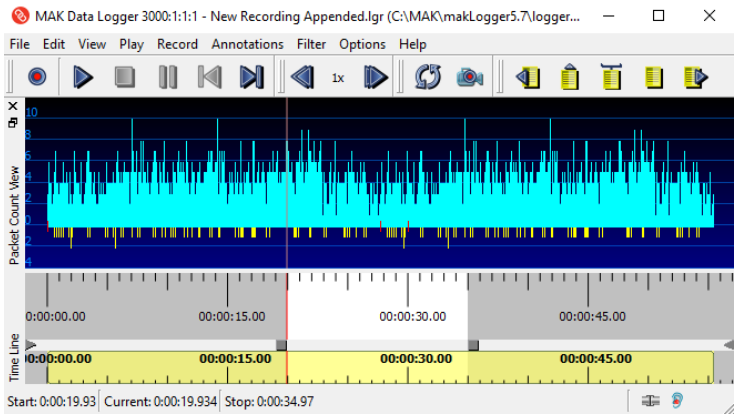

Figure 1-16. Section to delete

2. Choose **Edit** → **Delete Section**. The packets between 00:20 and 00:35 are removed (Figure 1-17). The Logger changes the time stamps of the packets beyond 00:35 and offsets them to fill in the missing time. Notice that the file is now about 15 seconds shorter than it was before the deletion.

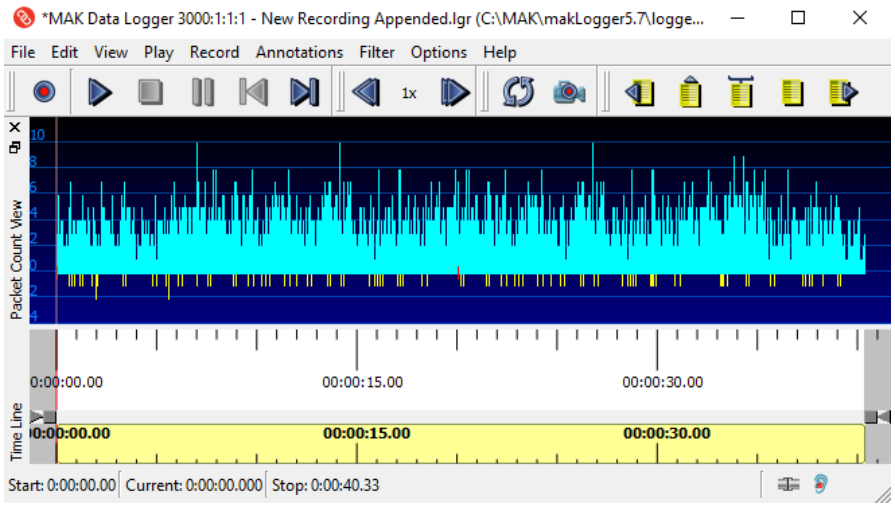

Figure 1-17. Packets deleted

For more on editing Logger files, please see Chapter 12, *Editing Logger Files*, in *MAK Data Logger Users Guide*.

A. Install the Logger

Your MAK salesperson has given you links to the Logger installer and the MAK License Manager installer. Download the files. These instructions assume you are familiar with installing Windows applications that use a wizard-style installer.

A.1. Install the Logger

➤ To install the Logger, run the installer.

A.2. Setting Up the License Manager

To use a MAK product, you must install the MAK License Manager and get a license for your product. Before you can use a MAK product, you must obtain a valid license file and specify the license server.

➤ To install the MAK License Manager, run the installer.

The general procedure for configuring license management is as follows:

1. Identify the name and ID of the license server and request a license file.
2. Put the license file in the *MAK/MAKLicenseManager* directory on the license server.
3. Run the license server.
4. Specify the license server location.

A.2.1. Identify the Host ID and License Server Name

For simplicity, use the computer on which you installed Logger as the license server. To find out the host ID and license server name:

1. On the Start menu, choose **MAK Technologies** → **MAK License Manager**. The MAK License Manager utility opens (Figure A-1).

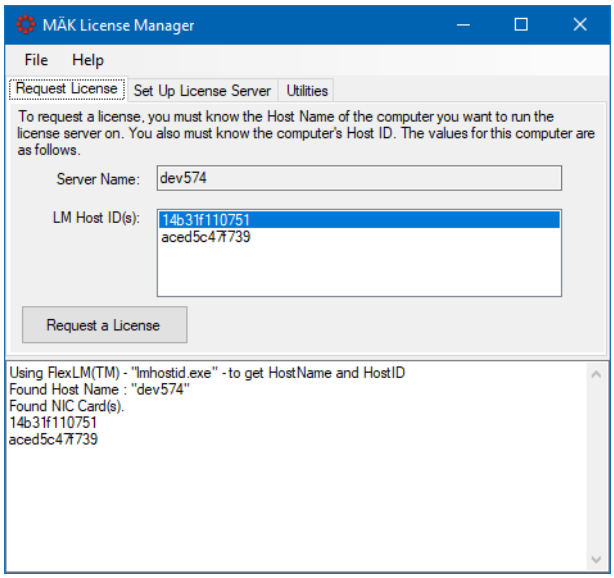

Figure A-1. License Manager

2. Select the Request License tab. It displays the server name and the IDs for your network cards.
3. If you have more than one network card, select the one that you want to use as Host ID.
4. Send the host ID and hostname to your MAK salesperson. MAK will e-mail you a license file.

A.2.2. Put the License File in the *MAKLicenseManager* Directory

When you receive your license file, put it in the *MAKLicenseManager* directory on the license server. The file should have the extension *.lic*. If it does not, please contact keys@mak.com to clarify why it did not follow this convention.

A.2.3. Run the License Server

➤ To start the license server daemon, on the server machine only, execute `runLm` from the *MAKLicenseManager* directory.

Shutting Down the License Server

➤ To force all applications to check in their licenses and shut down the license server daemon, run `lmdown`.

A.2.4. Specify the License Server

The first time you run a MAK application on a computer, the License Setup dialog box opens (Figure A-2). It prompts you to enter the hostname of the license server and optionally, a port number.

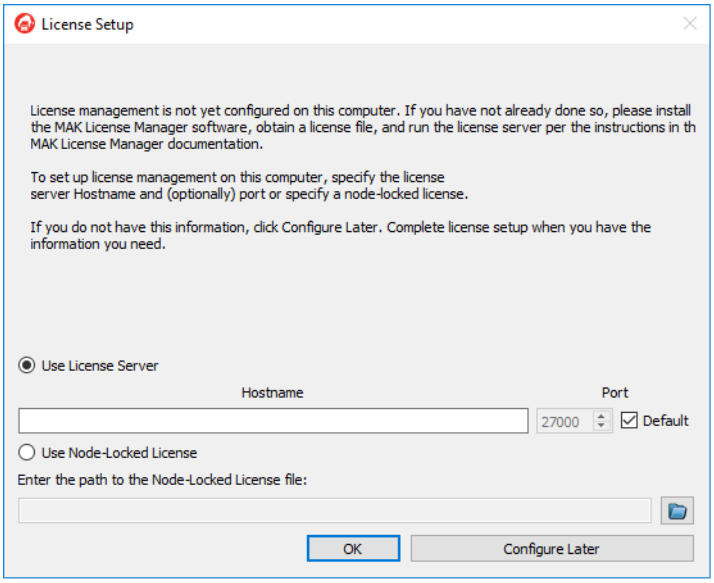

Figure A-2. License Setup dialog box

1. Type the hostname in the Hostname box.
2. Click Add License Server. The application will start.

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