



Comms Logger User Guide

Revision C
Version 1
March 2023
Document DOC-UC-CL-UG-C-1

Advanced Simulation Technology inc.
500A Huntmar Park Drive ■ Herndon, Virginia 20170 USA
(703) 471-2104 ■ asti-usa.com

Product Name: Comms Logger

Comms Logger User Guide

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ASTi
500A Huntmar Park Drive
Herndon, Virginia 20170 USA

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Revision history

Date	Revision	Version	Comments
6/5/2017	A	0	Initial version of the <i>Comms Logger User Guide</i> .
12/2/2020	B	0	Updated screenshots of the Comms Logger web interface.
12/4/2020	B	1	Documented Center on Cursor and fixed minor display errors.
1/12/2022	C	0	Added "(Optional) Capture client audio in the Audio Interface."
3/8/2023	C	1	Added Red Hat Enterprise Linux subscription and export statement to the front matter.

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1.0 Introduction

ASTi's Communications Logger (i.e., Comms Logger) records, retrieves, and reviews communications conducted through ASTi's Voisus server. These communication types include Radio over Internet Protocol, network intercoms, and phone calls that occur between operators and over public telephone networks. Two robust redundant array of independent disks drives also provide reliable uptime for mission critical and/or simulation communications archiving and retrieval.

The Comms Logger operates in conjunction with the Voisus server. These servers publish uniquely identified communication streams using Variable Transmitter Parameters available with Distributed Interactive Simulation (DIS), version 7. The Comms Logger receives, stores, and then processes this traffic for display, review, and archival. The Comms Logger only shows what the Voisus server publishes.

To access recorded audio, log into the Comms Logger web interface using a web browser on a computer sharing the same network. Use this platform to accomplish the following:

- Set up and manage the recording parameters
- Filter and review recorded audio
- Export audio to an external storage device or DVD in waveform (i.e., .wav) audio file format

The *Comms Logger User Guide* describes how to set up the Comms Logger, monitor its status, operate **Audio**, and troubleshoot common problems. It does not explain how to set up Voisus servers. To make these configurations, go to the [Voisus Client User Guide](#).

This guide is intended for technicians or exercise staff who want to set up, record, review, or export captured audio from the Voisus server. To set up the Comms Logger, you should be familiar with Voisus client operation. Additionally, you should understand basic networking concepts allowing the Comms Logger and its associated servers to communicate.

1.1 Required equipment

To set up the Comms Logger, you will need the following items:

- Hardware
 - Comms Logger 4U platform with removable hard drive
 - Voisus 2U platform with removable hard drive
 - CAT5e Ethernet cable or better
 - Network switch
 - Computer with a local area network connection to the Comms Logger and Voisus server
 - Monitor
 - Keyboard
- Software
 - *(Optional)* Software application that plays files in waveform (.wav) audio file format (e.g., iTunes)
- Network data
 - Comms Logger's IPv4 address
 - Comms Logger's subnet mask
 - User Datagram Protocol (UDP) ports where the Comms Logger will receive Distributed Interactive Simulation (DIS) traffic
 - DIS exercises containing audio that the Comms Logger will record
 - Comms Logger's broadcast or multicast group address

2.0 (Optional) Capture client audio in the Audio Interface

By default, the Comms Logger records net audio and displays it as radio audio streams in the **Audio** interface. However, the Comms Logger can also record and display the audio of individual clients. This capability might make it easier to find students' audio clips in a classroom environment.

To set up this functionality, you must first enable client(s) connected to the Voisus server to publish audio in a manner the Comms Logger can record. You only need to make this configuration once per Voisus server as long as you back up and restore your settings during the cold-start procedure. To learn more about backup and restore, go to the [Voisus Cold Start Guide](#).

To enable a software client to publish audio, follow these steps:

1. Open a web browser on a computer or tablet sharing a network with the Voisus server.
2. In the address bar, enter the Voisus server's IP address.
3. Log into the Voisus web interface using the following default credentials:

Username	Password
admin	astirules

4. From the top right, go to **Manage** () > **Features**.

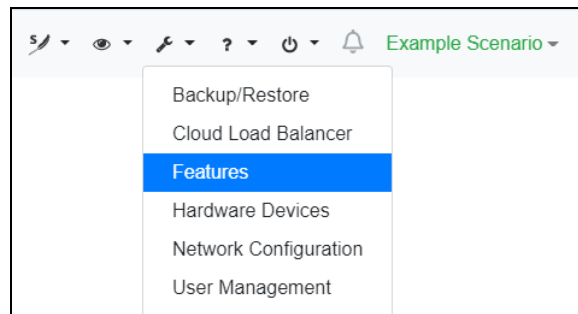


Figure 1: Features navigation

5. On **System Features**, turn **Software Client - Comms Logger** .

System Features	
Feature	Description
<input type="radio"/> OFF ACENet	Supports ACENet devices (e.g., ACU2, RIU)
<input type="radio"/> OFF Chat	Text chat for software clients
<input type="radio"/> OFF Crew Intercom	Custom intercom behaviors in the Voisus Client for Desktops & Tablets
<input checked="" type="radio"/> ON HLA	Supports High-Level Architecture (HLA) protocol
<input checked="" type="radio"/> ON Hot Spare Failover	Forces all processing onto a single server in the cloud, and provides failover to hot spares
<input checked="" type="radio"/> ON Multi-Server (Cloud)	Synchronizes configurations among multiple servers with matching cloud IDs
<input checked="" type="radio"/> ON PRC-117F Panel	Supports the PRC-117F hardware panel
<input checked="" type="radio"/> ON Radio Monitor Remote Access	Allows clients to view radios on the network
<input type="radio"/> OFF Simglobe DIS Replay	Sends Distributed Interactive Simulation (DIS) packets during playback
<input type="radio"/> OFF Simglobe VBS	Allows Virtual Battlespace (VBS) administrators to control Simglobe
<input type="radio"/> OFF SINGARS Panel	Supports the SINGARS hardware panel
<input checked="" type="radio"/> ON Software Client - Comms Logger	Enables clients to publish audio (received and transmitted) for Comms Logger
<input type="radio"/> OFF Software Client - Load Balancing	Allows software clients connecting to this server to be load balanced to other servers in the same cloud

Figure 2: Turn on Software Client - Comms Logger

6. To activate changes, select .

3.0 Install the Comms Logger server

Next, you must install the hardware, and if necessary, set up initial network options. To install the Comms Logger server, follow these steps:

1. Plug the Comms Logger server into a power outlet. Allow two inches of space to the rear of the server for connections.
2. Connect the Comms Logger server to a monitor and keyboard, which are only necessary for initial software configuration.
3. Connect the Comms Logger server's Ethernet interface to your local area network with a CAT5e cable or better.
4. Turn on Comms Logger server, and wait for it to boot.
5. Log into the system using the following default credentials:

Username	Password
root	abcd1234

6. To obtain the server's default IP address from Dynamic Host Configuration Protocol (DHCP), enter `/sbin/ifconfig ethX`, where *X* represents the Ethernet interface port number (e.g., Eth0). Press Enter. Use the displayed IP address to access the Comms Logger web interface, or set up a custom IP address in the next step.
7. *(Optional)* To set the IP address and subnet mask, enter **ace-net-config -a xxx.xxx.xxx.xxx -n yyy.yyy.yyy.yyy**, where *xxx.xxx.xxx.xxx* is the IP address and *yyy.yyy.yyy.yyy* is the netmask.

This configuration sets the IP address and netmask for Eth0, which you can use to access the Comms Logger web interface via a browser to complete the network setup.

4.0 Set up the Comms Logger

Modify the Comms Logger's network settings to meet your program's requirements using **Comms Logger Configuration**. Settings on this page include the following:

- Recording File Period
- Ethernet Interface
- Capture Filters for protocol data unit (PDU) packets
- Multicast Groups

To set up the Comms Logger, follow these steps:

1. Open a web browser on a computer or tablet sharing a network with the Comms Logger server.
2. In the address bar, enter the Comms Logger server's IP address.
3. Log into the Comms Logger web interface using the following default credentials:

Username	Password
admin	astirules

4. From the top navigation bar, go to **Configuration**.

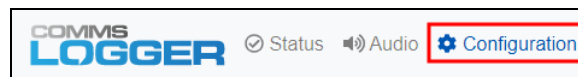


Figure 3: Comms Logger Configuration navigation

5. The Comms Logger continuously records audio, dividing network traffic and its associated metadata into sub-files. **Recording File Period** defines how many hours of audio a sub-file contains. When a sub-file reaches the specified number of hours, the Comms Logger automatically creates a new recording file. If the hard disk runs out of space, new files overwrite the oldest files in the archive.

Ensure **Recording File Period** displays its default value of **1**.



Important: For best results, leave the **Recording File Period** as the default. Before changing this setting, contact ASTi for more information.

6. If needed, select **Ethernet Interface**, and choose the Ethernet port the Comms Logger will use to record.

Logger Configuration Edit	
Recording File Period	1 Hour
Ethernet Interface	eth0
Ports	View ▼
Exercises	All
Multicast Groups	None

Figure 4: Comms Logger Configuration

Available ports depend on the active, available network interfaces. The default value is Eth0.

7. **Capture Filters** determines which packets the Comms Logger should record based on the packet's port and Distributed Interactive Simulation (DIS) exercise. Define the following filter parameters:
 - a. To filter based on port, in **Ports**, enter the port number the Comms Logger will record (e.g., 3000), and select the plus sign (+). The specified port appears to the right, under **Current Parameters**.
 - b. (Optional) To delete a parameter, select the red trash can (🗑️).
 - c. To filter based on DIS exercise, in **Exercises**, enter a DIS exercise, and select (+).

Capture Filters		
Define which PDU packets the Comms Logger should record based on the packet's port and exercise.		
Note: If no parameters are defined, all values for that filter are accepted.		
	Add Parameter	Current Parameters
Ports	<input type="text" value="Port"/> +	3013 🗑️ 3457 🗑️
Exercises	<input type="text" value="Exercise"/> +	All

Figure 5: Capture Filters

For example, if you define ports 12001 and 12002 but no exercise ID, then the Comms Logger captures every DIS PDU entering those ports. The same concept applies for DIS exercises. If you define exercise IDs 1 and 2 but no ports, then the Comms Logger captures every DIS PDU matching IDs 1 and 2, regardless of its associated port. However, if you define port 12001, port 12002, and exercise ID 1, the Comms Logger captures DIS PDUs with ID 1 arriving via ports 12001 and 12002.

For best results, always define one or more ports and/or exercises. If you leave these settings blank, the Comms Logger captures all DIS traffic coming through all ports, causing your hard drive to fill faster than expected.

The Comms Logger's port and DIS exercise values must match those in the Voisus web interface. These settings reside on **DIS**, under **UDP Ports** and **DIS Exercises**.

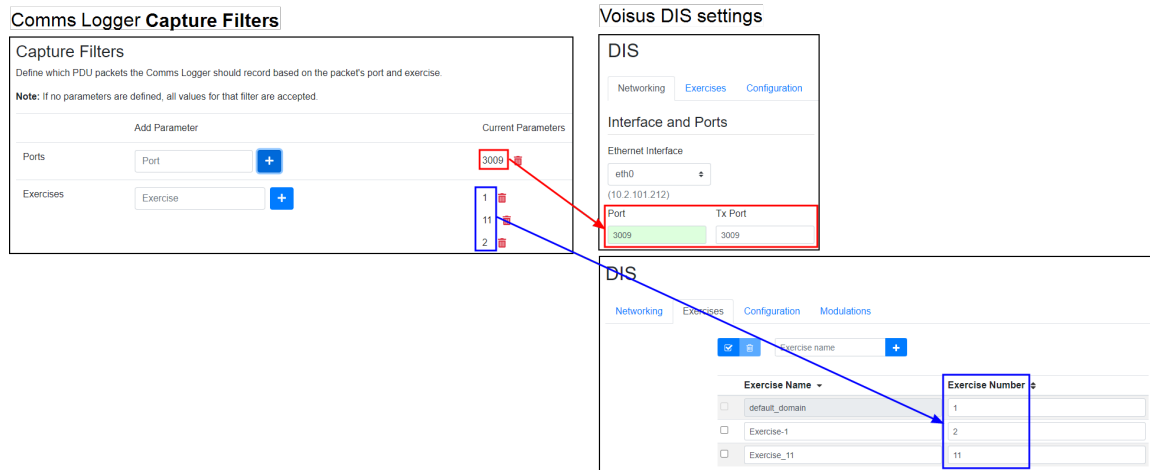


Figure 6: Matching DIS exercise and port settings

For more information about DIS settings in the Voisus web interface, go to "DIS" in the [Voisus Client User Guide](#).

8. (Optional) If the Comms Logger is not receiving multicast traffic, define specific multicast groups to join. As a result, the Comms Logger sends Internet Group Management Protocol (IGMP) join messages to network routers.

Under **Multicast Groups**, in **Add Groups**, enter a multicast address (e.g., 224.11.22.33), and select **+**.

To delete an address, under **Current Groups**, select the red trash can (🗑).

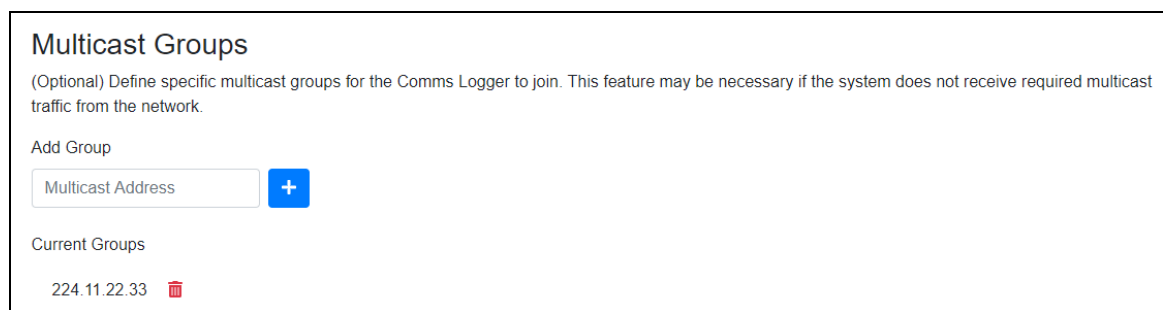


Figure 7: Multicast Groups

The Comms Logger multicast address must match the Voisus multicast address. In the Voisus web interface, this setting resides on **DIS > Networking**, under **Options**:

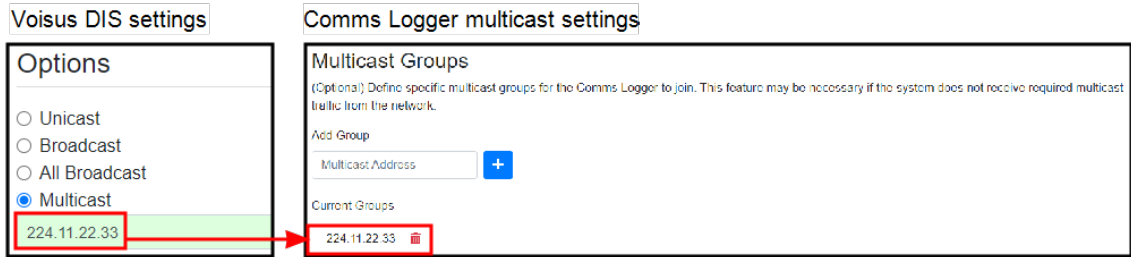


Figure 8: Matching multicast settings

9. When finished, select  .

5.0 Audio interface

From the top navigation bar, go to **Audio**.

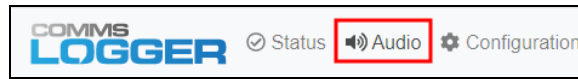


Figure 9: Audio navigation

Audio displays recorded transmissions on a timeline with color-coded periods representing transmissions. Figure 10, "Audio diagram" below identifies each interface element:



Figure 10: Audio diagram

Table 1, "Audio elements" below lists and describes interface elements on **Audio**:










Number	Icon	Name	Description
1	N/A	Audio Streams	Recorded channels grouped by communication type (i.e., radio, call, or client). Channel identifiers are established in the Voisus system(s): <ul style="list-style-type: none"> • <i>Radio</i>: identified by their net names in the Comm Plan. • <i>Calls</i>: identified by the line names of a gateway. • <i>Clients</i>: set on Client Mapping in the Voisus web interface. For more information about radio, call, and client net channel identifiers, go to "Comm Plan" in the Voisus Client User Guide .
2		Calendar	Lets you select recordings by date.
3		Play	Plays the recording.
4		Pause	Pauses the recording.
5	N/A	Audio Selection	Displays audio selected in the Overview . Selections are shaded gray and display in the Detailed View .
6	N/A	Time Display	Displays the <i>hour:minute:second</i> of the marker's position in the recording.
7	N/A	Overview	Shows all audio streams recorded that day, zoomed all the way out. This timeline show when transmissions have occurred and audio data is available.
8		Export	Exports audio selections in waveform (i.e., .wav) audio file format.
9	N/A	Marker	Marks the current playback position in the Overview or Detailed View .
10	N/A	Detailed View	Displays a closer view of audio selections in the Overview .
11	N/A	Shift	Shifts the audio selection to the right or left based on a percentage of the selection's size.
12		Zoom In	Doubles the Detailed View's current zoom level.
		Zoom Out	Cuts the Detailed View's current zoom level in half.
		Center on Cursor	Centers the Audio Selection on the cursor.
13		Unmute All	Unmutes all audio streams in the Detailed View .
		Mute All	Mutes all audio streams in the Detailed View .

Table 1: Audio elements

5.1 Open and preview recorded audio

To open and preview an audio stream, follow these steps:

1. On the **Audio** page, select **Calendar** (📅), and find a date. Alternatively, select the left arrow (⏪) or right arrow (⏩). Dates with no recorded audio are shaded gray. By default, the calendar displays the current date.

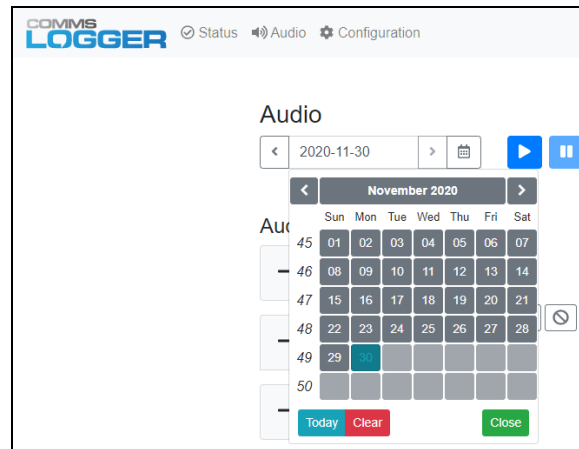


Figure 11: Recording calendar

2. Under **Audio Streams**, select the plus sign to expand the recording's channel type (i.e., radio, call, or client), and then select the channel identifier (i.e., radio net, call name, or client name). If a (0) displays next to the channel type, the Comms Logger didn't record any traffic that day.

The **Detailed View** shows individual audio streams in the audio selection. If nothing is selected, the **Detailed View** is empty. The ruler shows the time of the recording measured in hours, minutes, or seconds, depending on your zoom level.



Figure 12: Audio streams

3. To bring the selector into focus, select a desired point in the **Overview** timeline.

- To play the recording, select play (▶).



Note: The browser's audio capability and network conditions may impact playback quality.

- To pause the recording, select pause (⏸). This button only stops your preview of recorded audio; it does not stop the Comms Logger from recording in real time.
- To mute or unmute a specific audio stream, next to the channel identifier (e.g., UMH-04), select mute (🔇) or unmute (🔊).

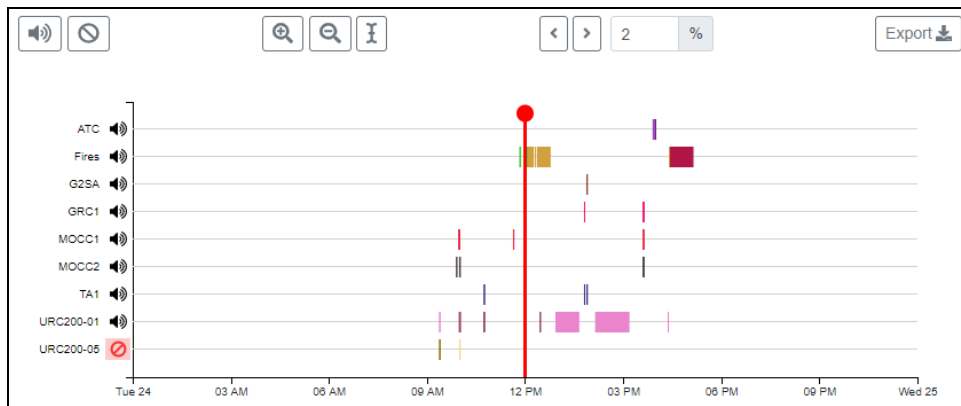


Figure 13: Mute specific audio streams

- To mute or unmute all audio streams, next to **All**, select **Mute All** (🔇) or **Unmute All** (🔊).

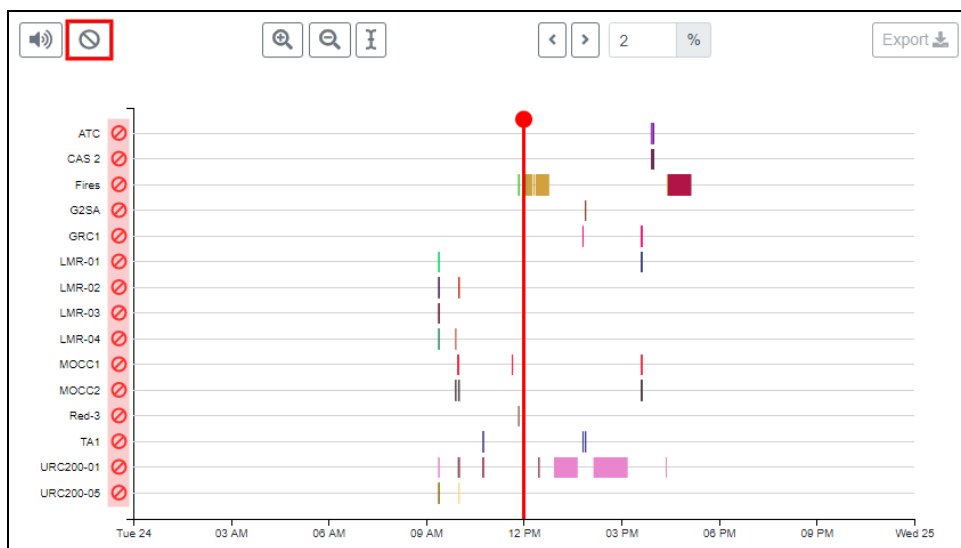


Figure 14: Mute all audio streams

5.2 Select and export audio

With the selection tool, you can position the cursor or select a range of audio. Playback always begins at the cursor's position. To make a selection, follow these steps:

1. Position your mouse on the **Overview** track. The selector turns into a plus sign (+).
2. Select and drag the selector to highlight a portion of the audio. To stop selecting, release the mouse.

A red line marks the beginning of the clip, and the selected portion is shaded gray. In the **Detailed View** track, selected audio streams display.

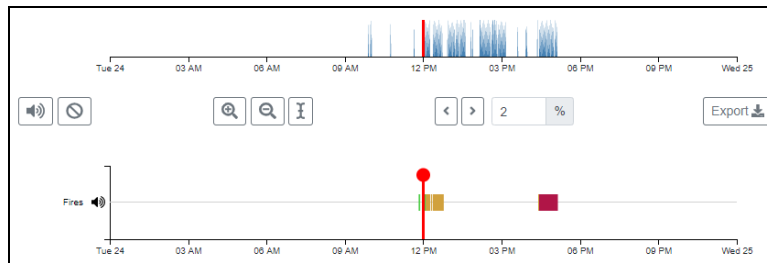


Figure 15: Select audio

3. To adjust the playback starting point, move the red line in the **Overview** or **Detailed View** tracks.
4. To adjust the audio selection, hover your mouse over the selection's edge. When the selector turns into a bidirectional arrow (\leftrightarrow), move to the desired location.

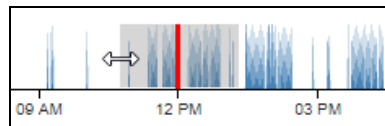






Figure 16: Adjust selection

5. To double the selection's zoom level, select **Zoom In** ()
6. To half the selection's zoom level, select **Zoom Out** ()
7. To shift the selection to the left or right, in **Shift**, enter a percentage value, and select the left arrow () or right arrow ()

8. On the right, select .



Figure 17: Export button

9. In **Export audio to wav file**, review the recording's starting and ending times and listed audio streams. If you select audio from multiple radios, calls, or clients, then the file includes combined audio from all sources.

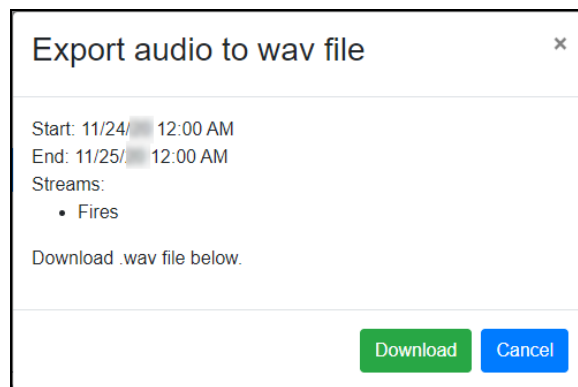



Figure 18: Export audio to wav file

10. When you're finished reviewing, select .
11. When the download completes, save the audio file in the desired location.

6.0 System status and troubleshooting

This section explains common status indicators on **Comms Logger Status** and provides troubleshooting procedures if the Comms Logger is not recording audio.

6.1 Comms Logger Status page

The **Comms Logger Status** page shows the status of the Comms Logger server and the redundant array of independent disks (RAID) drives. This page also provides system feedback of settings on **Comms Logger Configuration**.

From the top navigation bar, go to **Status**.

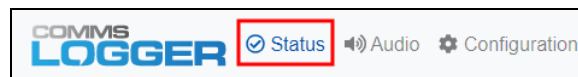


Figure 19: Status navigation

Logger Status shows the following indicators:

- **Current Time:** displays the current date and time based on the server's geographic location.
- **Newest Recording:** shows the amount of time since the last recording in seconds, minutes, hours, or days.
- **Oldest Recording:** shows how many days of audio you can review and archive.
- **NTP Status:** shows the Network Time Protocol (NTP) synchronization status.
- **Disk Space Used:** shows the percentage of disk space used. When the disk is 80 percent full, the Comms Logger overwrites the oldest recording.

Logger Status	
Current Time	Mon Nov 30 13:44:05
Newest Recording	3 hours ago
Oldest Recording	13 months ago
NTP Status	Synchronized to 10.10.1.10
Disk Space Used*	14%

* Oldest recording will be overwritten when disk is 80% full.

Figure 20: Logger Status area

The **RAID Status** area shows the status of the Comms Logger's two RAID drives (i.e., Drive A and Drive B).

RAID Status	
Drive A	Up
Drive B	Up

Figure 21: RAID Status area



Important: If one or both of the RAID drives displays "Down," go to Section 6.4, "RAID server(s) are disconnected" on page 21.

The **Logger Configuration** area shows the following settings:

- **Recording File Period:** displays the recording subfile's size.
- **Ethernet Interface:** shows the Ethernet port associated with the Comms Logger.
- **Ports:** displays the port filter parameters set on the **Comms Logger Configuration** page.
- **Exercises:** displays the Distributed Interactive Simulation (DIS) exercise filter parameters set on the **Comms Logger Configuration** page.
- **Multicast Groups:** displays multicast addresses set on the **Comms Logger Configuration** page.

Logger Configuration ✎ Edit	
Recording File Period	1 Hour
Ethernet Interface	eth0
Ports	View ▼
Exercises	All
Multicast Groups	None

Figure 22: Logger Configuration settings

To edit the Comms Logger's settings, select **Edit**.

6.2 Server fails to turn on

If the Comms Logger server fails to turn on, troubleshoot the following:

Cause	Remedy
The Comms Logger is disconnected from a power source.	Make sure the Comms Logger is securely plugged into a power outlet.
The power outlet is faulty.	To test the power outlet, plug in another electronic device. If it doesn't work, plug the Comms Logger into a different outlet.
The power cable is faulty.	Switch the Comms Logger's power cable with the Voisus server's cable. If the cable is faulty, contact ASTi to order a replacement.
The AC power adapter is faulty.	Switch the Comms Logger's adapter with the Voisus server's adapter. If the adapter is faulty, contact ASTi to order a replacement.
The Comms Logger server has suffered a hardware failure.	Contact ASTi to diagnose and/or replace the server.

Table 2: Troubleshooting power connections

6.3 Comms Logger stops recording network traffic

If the Comms Logger is not recording network traffic from the Voisus server, no activity displays in the **Overview** timeline. A network issue may exist between the Comms Logger and servers generating the traffic.

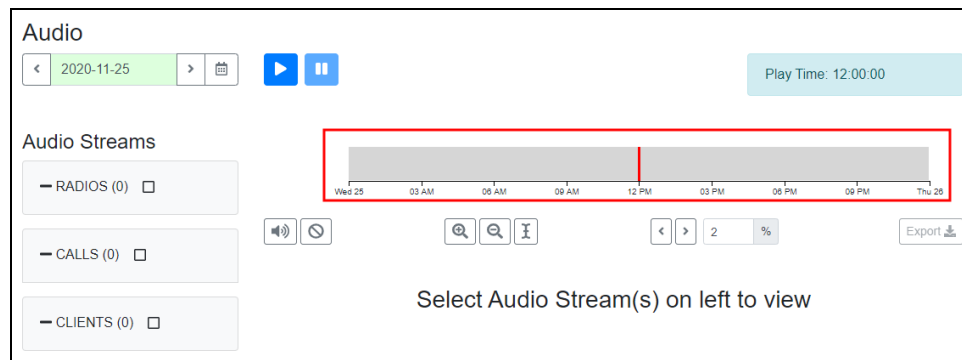


Figure 23: Missing network traffic

6.3.1 Confirm the Voisus scenario is running

First, confirm that the scenario in the Voisus web interface is running correctly. To check the scenario, follow these steps:

1. Open a web browser on a computer or tablet sharing a network with the Voisus server.
2. In the address bar, enter the Voisus server's IP address.
3. Log into the Voisus web interface using the following default credentials:

Username	Password
admin	astirules

4. In the top-right corner, confirm that the scenario is running. If the scenario is not running, restart the scenario.

In the top right, go to **Scenario > Restart**.

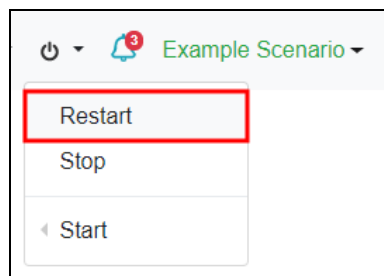


Figure 24: Restart scenario

6.3.2 Check Ethernet Interface settings

To verify the Comms Logger's Ethernet interface settings in the Comms Logger web interface, follow these steps:

1. From the top navigation bar, go to **Configuration**.

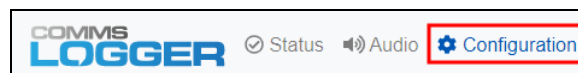
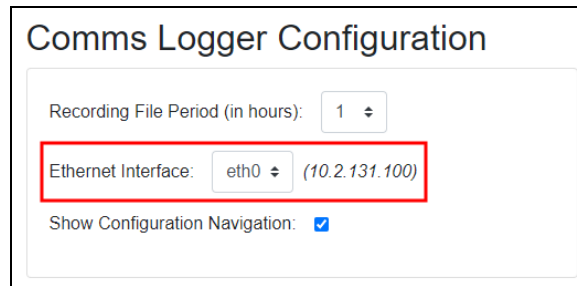


Figure 25: Comms Logger Configuration navigation

2. On **Comms Logger Configuration**, ensure **Ethernet Interface** displays the correct Ethernet port. This setting should match the port number that you set in Section 3.0, "Install the Comms Logger server" on page 5.

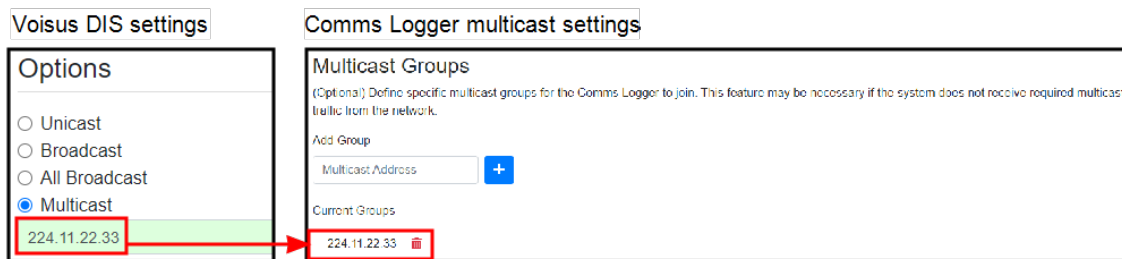


The screenshot shows the 'Comms Logger Configuration' window. It has a title bar and a main content area. The content area contains three settings: 'Recording File Period (in hours):' with a dropdown menu set to '1'; 'Ethernet Interface:' with a dropdown menu set to 'eth0' and a text field containing '(10.2.131.100)'; and 'Show Configuration Navigation:' with a checked checkbox. A red rectangular box highlights the 'Ethernet Interface' section.

Figure 26: Ethernet Interface setting

6.3.3 Check multicast address

Under **Multicast Groups**, in **Current Groups**, ensure that the multicast address matches the value set in the Voisus web interface. This setting resides on **DIS > Networking**, under **Options**:



The image shows two side-by-side screenshots. The left screenshot is titled 'Voisus DIS settings' and shows a section 'Options' with radio buttons for 'Unicast', 'Broadcast', 'All Broadcast', and 'Multicast'. The 'Multicast' option is selected. Below it, the IP address '224.11.22.33' is displayed and highlighted with a red box. The right screenshot is titled 'Comms Logger multicast settings' and shows a section 'Multicast Groups'. It has a description: '(Optional) Define specific multicast groups for the Comms Logger to join. This feature may be necessary if the system does not receive required multicast traffic from the network.' Below this is an 'Add Group' section with a 'Multicast Address' input field and a blue '+' button. Underneath is a 'Current Groups' section with a single entry: '224.11.22.33' with a red trash icon to its right. A red arrow points from the '224.11.22.33' in the left screenshot to the '224.11.22.33' in the right screenshot.

Figure 27: Matching multicast settings

6.3.4 Check port and DIS exercise settings

Under **Capture Filters**, in the **Current Parameters** column, ensure the identified port values and DIS exercises match those set in the Voisus web interface. These settings reside on the **DIS** page, on the **Networking** and **Exercises** tabs:

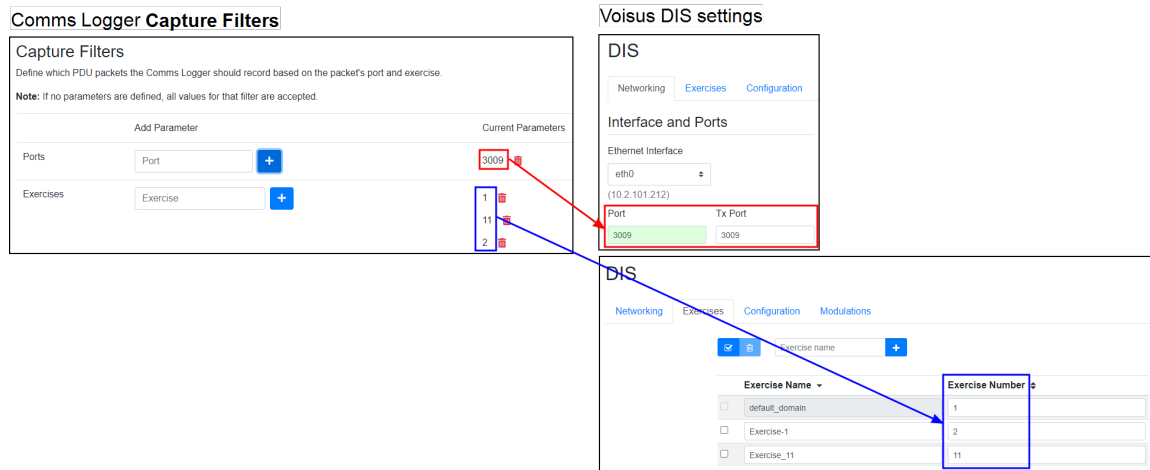


Figure 28: Matching DIS exercise and port settings

For more information about DIS settings in the Voisus web interface, go to "DIS" in the [Voisus Client User Guide](#).

6.4 RAID server(s) are disconnected

On **Comms Logger Status**, if one or both redundant array of independent disks (RAID) servers display "Down," the hard drive(s) may have failed, or the drive(s) may be disconnected from the drive carrier.

RAID Status	
Drive A	✘ Down
Drive B	✘ Down

Figure 29: RAID Status "Down"

In the case of drive failure, send ASTi a diagnostic report for the Comms Logger server. To generate a report, follow these steps:

1. From the top-right navigation bar, go to **Help** (?) > **ASTi Server Diagnostics Report**.

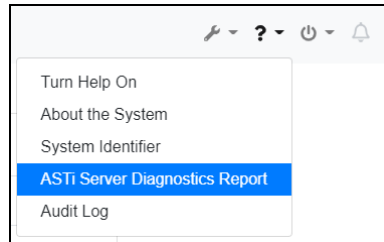


Figure 30: ASTi Server Diagnostics Report navigation

2. On **ASTi Server Diagnostics Report**, select **Create Report** (+). A new archive (.tgz) file generates at the top of the list.
3. Under **Action**, select **Download Report** (📄).

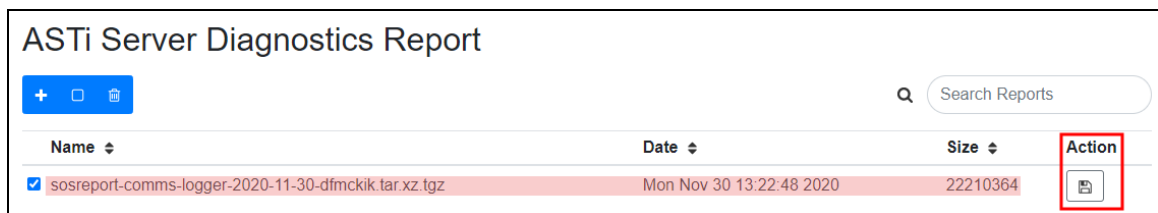


Figure 31: Generate and download diagnostic report

4. Email the report to support@asti-usa.com for evaluation.