

## **CDP Logger Manual**

## 1 Overview

The CDP Logger is a tool for the Ciholas Ultra-Wideband (CUWB) Real-Time Location System (RTLS). It provides a method to record all the streams of data from the CUWB Manager. Recordings can then be played back with the CDP Player with the same timing as the data was logged. This allows a user to record and play back data from the system for testing and debugging the CUWB RTLS.

#### 1.1 Features

The CDP Logger allows a user to setup log rotation. By default, the CDP logger will log all CUWB CDP data in a single file indefinitely. The rotation feature allows users to split datasets into smaller files.

The Logs that are captured by the CDP Logger can be played back with the CDP player. The player will emit logged CDP packets over the selected network settings with the same timing with which the data was logged.

## 2 Installation

## 2.1 Host PC Requirements

- OS: Ubuntu 22.04 Jammy or Ubuntu 24.04 Noble
- CPU: 64-bit, 2.5GHz, dual-core or better
- WAN: Must be able to reach ppa.cuwb.io via port 4431
- Network: Two NICs or VLANs one for the User Network and one for the isolated Anchor Network
- RAM: 8 GB or more
   HD: 32 GB or more<sup>2</sup>
- 1. Only required for online installation.
- 2. Additional space may be required for CDP logging depending on the size of the CUWBNet and desired amount of history being kept in logs.

The CDP Logger may be installed on the same Host PC running the rest of the CUWB Software Package.

## 2.2 Online Installation

Follow the instructions below for CDP Logger installation. When prompted in the "CUWB Applications Selection", ensure that **CDP Logger** is selected for installation.

Note: The CDP Player is bundled with the CDP Logger, both tools will be installed as a part of the CDP Logger package.

- 1. Follow best practices and review the install.sh script.
- 2. bash <(wget -qO- https://cuwb.io/docs/v5.0/assets/install.sh)
- 3. Paste into an Ubuntu 22.04/24.04 terminal and press Enter



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## 2.3 Offline Installation

The CDP Logger can be installed on Host PCs that do not have PPA access.

For instructions on how to obtain the DEB package, see Current Downloads Available for Software Packages. After downloading the package, transfer the DEB to a USB drive or other transfer method to the Host PC. After transferring the file, navigate to the file location, and type the command below into a terminal window to install the package:

sudo apt install ./cdp-logger\_<version>\_amd64.deb

Note: The CDP Player is bundled with the CDP Logger, both tools will be installed as a part of the CDP Logger package.

## 3 CDP Logger

Once the CDP Logger has been installed, launch the application by typing cdp-logger into a terminal window with any options below.

## 3.1 CDP Logger Command Line Options

The command line options supported by the system are as follows:

Option	Parameters	Arguments	Description
Debug	-d,debug	none	Activates debug mode.
File	-f,file	name_of_file	File where the CDP packets will be logged. If this option is not provided, it will default to <a href="mailto:cdp-log-\&lt;date\&gt;.00">cdp-log-\<date\>.00</date\></a> .
Help	-h,help	none	Prints the help message.
Interface Address	-i,iface	iface_addr	Log will be recorded on network interface with the specified IP address.
Max File Size	-mmax_size	max_size	The max size, in megabytes, a log can be before splitting and logging to a new file.
Rotating Files	-r,rotate	number_of_files	The logger will rotate through the specified number of log files, moving to the next after each split.
Split Hours	splithours	number_of_hours	How often, in hours, to split and log to a new file. Value can be entered as decimal.
UDP Stream	<mark>-u</mark>	udp_stream	Packets will be recorded from the specified UDP stream (ip:port). Default value is 239.255.76.67:7667.
Version	version	none	Print the version.
Zip	-zzip	none	Used in conjunction with other arguments that split logs. Whenever logging begins on a new file, the previous one is compressed.



## 3.2 Network Configuration

By default, the CDP logger will log all incoming CDP data on the following network settings:

Parameter	Value
IP	239.255.76.67
port	7667
interface	0.0.0.0

To change network settings, use the *UDP Stream* command line option (-u) to set the IP and port, and use the *Interface Address* command line option (-i) to set the network interface. For example, the following command will set up the CDP logger to log data on IP=239.255.76.66, port=7665, and interface=127.0.0.1 (localhost):

cdp-logger -u 239.255.76.66:7665 -i 127.0.0.1

## 3.3 Controlling the Logger

## 3.3.1 Stop / Start

Whenever the application is started it will print the Interface Address it is listening on, the UDP stream it is listening for, and the file it is logging to. When attempting to take a CDP log of one of the data streams of the CUWBNet the Interface Address should match the Interface specified for that stream inside the CUWB Manager and the UDP stream should match the IP:Port specified for that stream inside the CUWB Manager.

The CDP Logger can be stopped by pressing Ctrl+C inside the terminal running the logger.

## 3.3.2 Log Naming

## 3.3.3 Log Rotation

By default, log rotation is disabled in the CDP logger, so the CDP logger will log all incoming CDP data in a single file that will grow indefinitely. In order to change the log rotation settings, use the *Rotating Files* command line option (-r) to set the number of files to rotate through, and use the *Split Hours* command line option (-splithours) to set the amount of time to log data in each file. For example, the following command will set up the CDP logger to rotate through 100 files with each file containing 15 minutes worth of data:

cdp-logger -r 100 --splithours 0.25

Log rotation can also be paired with the *Max File Size* option. The following command will set up the CDP logger such that the total size of the logs does not exceed 10GB, while each individual log is not greater than 1GB:

cdp-logger -r 10 -m 1024



Note: With log rotation enabled, old log files will start being overwrote by new log files when the number of files specified in the Rotating Files command line option has been reached. In the first example of 100 log files each storing 15 minutes of data, the oldest log file will start being replaced after 25 hours of logging. In the second example of 10 log files each storing no more than 1GB of data, the oldest log file will start being replaced after 10GB of data has been logged.

## 3.3.4 Advanced Logging

Using the Linux command nohup a cdp-logger process can be started in the background. This can allow for the creation of a more complex logging system that captures more of the data of the CUWB System. For example, given the following Ethernet Settings for a CUWBNet:

Stream Name	UDP Stream	Interface Address
Config	239.255.76.67:7671	169.254.100.100
Anchor	239.255.76.66:5858	169.254.100.100
User	239.255.76.66:9000	127.0.0.1

The following commands will capture logs of both their Anchor stream and User stream at the same time storing the data inside of anchor.log.00 and user.log.00 respectively:

nohup cdp-logger -u 239.255.76.66:5858 -i 169.254.100.100 -f anchor.log & nohup cdp-logger -u 239.255.76.66:9000 -i 127.0.0.1 -f user.log &

Once logging has been completed the command killall cdp-logger can be used to stop all the cdp-loggers at the same time.

Note: If performing an advanced logging task it is highly encouraged to use the -f flag to help with organizing the resulting logs.



## **4 CDP Player**

Once a log file has been captured using the CDP Logger, the CDP Player can be used to play the log back. The player will emit the logged CDP packets over the selected network settings with the same timing with which the data was logged. The CDP Player can be launched by typing cdp-player into the command line with any options below.

## 4.1 CDP Player Command Line Options

The command line options supported by the system are as follows:

Option	Parameters	Arguments	Description
Debug	-d,debug	none	Activates debug mode.
End Time	end	end_time	The cdp-player will end playback at end_time seconds.
File	-f,file	name_of_file	Log file containing CDP data that will be played back. If this option is not provided, it will default to default.log
Help	-h,help	none	Prints the help message.
Interface Address	-i,iface	iface_addr	Log will be played on network interface with the specified IP address.
Loop	-l,loop	none	Replay continuously in a loop until the player is terminated.
Speed	-s,speed	speed_multiplier	Speed to play back the log (default is $1x$ ). Can be a decimal number.
Start Time	start	start_time	The cdp-player will start playback at start_time seconds through the log.
UDP Stream	-u	udp_stream	Packets will be played from the specified UDP stream (ip:port) Default value is - 239.255.76.67:7667
Version	version	none	Print the version.

## 4.2 Network Configuration

By default, the CDP player will playback all incoming CDP data from the following network settings:

Parameter	Value
IP	239.255.76.67
port	7667
interface	0.0.0.0

To change network settings, use the *UDP Stream* command line option (-u) to set the IP and port, and use the *Interface Address* command line option (-i) to set the network interface. For example, the following command will set up the CDP player to play data on IP=239.255.76.66, port=7665, and interface=127.0.0.1 (localhost):

cdp-player -u 239.255.76.66:7665 -i 127.0.0.1



## 4.3 Controlling the Player

## 4.3.1 Stop / Start

Whenever the application is started it will print the UDP stream it is listening for and the name of the file it is playing. When attempting to play the log to another program the UDP stream should match the UDP stream the other program is listening for. You may also need to use the -i flag to set the interface the player will use.

The CDP Player will stop automatically once it reaches the end of the log file. It can also be stopped at any time by pressing Ctrl+C in the terminal running the player. When using the option, Ctrl+C is the only way to stop the player.

## 4.3.2 Choosing a Log to Play

By default, the CDP Player attempts to play the log default.log. With the -f option a specific log can be played instead. This option includes the ability to specify the filepath the desired log is stored at for example, ~/Documents/my-log.00.

## 4.3.3 Playing a Portion of a Log

Using the --start and --end options, playback of only a portion of a log is possible. If for example, the default log contained an hour worth of data, but the only interesting portion occurs between the 20 minute and 35 minute mark then the following example would play only that 15 minute span of time.

cdp-player --start 1200 --end 2100

### 4.4 Use with CUWB Viewer

CDP Log playback is compatible with the CUWB Viewer. The CUWB Viewer should be configured to listen to the CDP Player IP and port through the Viewer's Network Settings. Once that is complete, playback the stream from the CDP Player and the CUWB Viewer will display the data just like a live network.



## **5 Revision**

Version	Date	Change Description
v5.0.1	2025-11-14	Updating Host PC Requirements
v5.0.0	2025-10-31	Initial Preliminary Release

# 6 APPENDIX A: License Terms and Conditions

#### 2 General Terms and Conditions of Purchase/Service

These General Terms of Purchase/Service are a legal Agreement between you and Ciholas, Inc. ("Ciholas"), and govern your use of all Ciholas services and products, which include, but are not limited to, CUWB.io, Ciholas.com, and all Ciholas Products, Software, and Hardware. If you are accessing and/or using any of the Ciholas services and products on behalf of your employer or as an agent of a third party, your employer or third party is bound to these terms.

Please read these General Terms carefully. Your use of these services and products indicates that you have read, understand, and agree to be bound by the terms herein. Any attempt to set up, use, or install these products constitutes your assent to all the terms of this Agreement. If you disagree with this or any of our other policies, please do not install or use our services and products, and see our return policies for instructions regarding our 60-day Money-Back Guarantee. Written approval is not a prerequisite to the validity and enforceability of this Agreement. Ciholas reserves the right to amend and/or update these terms from time to time. Such modifications to this Agreement will be posted to the website and bundled with software revisions.

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Any customized services and products will be governed under a separate Customization Agreement.

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"Buyer" means a person or entity that purchases or contracts to purchase products, services, or property from Ciholas.

"Ciholas" means Ciholas, Inc. including any entity controlled by Ciholas, Inc.

"End-User" means the person or entity that receives and uses Ciholas services and/or products.

"Firmware" means a code segment compiled into binary machine code that is embedded inside a device.

"Hardware" means the physical components of the Ciholas UWB Systems, such as anchors, tags, and supporting equipment.

"Indemnitee" includes, but is not limited to, all End-Users, Buyers, and/or Licensees.

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"Our" means Ciholas, Inc. including any entity controlled by Ciholas, Inc.

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"Products" means any goods and/or services provided by Ciholas that are covered under this Agreement.

"Services" means services ancillary to the support and operation of Ciholas Products, Software, Firmware, or Hardware.

"Software" means programs or sets of instructions, including associated source code, object code, documentation, and data, which enable End-Users to perform specific operations or series of operations.

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You must never use Ciholas services and products in any way where the failure of said services and products could cause possible harm, injury, or death to you or others.

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Under this Agreement, Ciholas is under no obligation to provide support for any product or service (such as, but not limited to, technical support, maintenance, upgrades, modifications, or new releases) unless otherwise specified by an additional Agreement.

#### 6 Indemnification



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#### 7 Force Majeure

Ciholas shall not be liable or responsible to you for any failure or delay in fulfilling or performing any term of this Agreement, when and to the extent that, such failure or delay is caused by or results from acts beyond Ciholas' reasonable control, including, but not limited to, acts of nature, natural disasters, war, terrorism, labor disputes, supply chain disruptions, power outages, or governmental restrictions.

#### 8 Government Regulation, Jurisdiction, and Export Control

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In addition to export regulations, the United States and other countries have laws and regulations governing the use of radio frequency (RF) devices. In the United States, such regulation is under Title III of the Communications Act of 1934, as amended, and regulated by the Federal Communications Commission (FCC). The FCC oversees all non-Federal uses of the radio frequency spectrum, while other regulatory bodies oversee RF devices in other countries' jurisdictions. You agree that you will only use Ciholas products in the jurisdiction for which they were certified and will not exceed the products' operational and use limitations as stated in the product manual. All Ciholas products are labeled as to their specific jurisdictional certification in accordance with the laws of that jurisdiction.

#### 8.1 Governing Law

This Agreement will be governed by the laws of the State of Indiana, USA. Parties agree to attempt, in good faith, to resolve and settle any dispute arising out of this Agreement through negotiation between officially authorized representatives of each party. If the dispute is not resolved through negotiation, any litigation arising from the use of Ciholas services and/or products must be brought and resolved in the State of Indiana, USA.

#### 9 60-Day Money-Back Guarantee

All standard Ciholas products not covered by another agreement have a 60-day Money-Back Guarantee. If for any reason the performance of any product is not acceptable, the product may be returned to Ciholas for a refund. Please note: bulk orders are not eligible for the money-back guarantee and cannot be canceled once the order is processed.

Shipping costs and any taxes and/or duties are not refundable and there is a 20% restocking fee for all returns under this policy. To be eligible for a refund, a customer must include an RMA# (see our return process) and dated proof of purchase with the item for return. The cost of the return shipment, including all taxes and duties, is at the buyer's expense. Any product returned not in resalable condition will not be refunded.

## 10 Limited Warranty



Ciholas warrants that all Ciholas manufactured products, excluding software, will be free from any defect in materials or workmanship for a period of one year. Warranty begins on the date that an item is shipped from Ciholas to the buyer. The warranty is non-transferable and is extended only to the original buyers of this product when the product is used for the purpose for which it was intended. The one-year warranty covers only defects arising under normal use and does not include malfunctions or failures resulting from misuse, abuse, neglect, alteration, improper installation, acts of nature, tampering, or any repairs attempted by anyone other than Ciholas. During the one-year warranty period, the customer's sole and exclusive remedy will be, at Ciholas' sole discretion, the repair or replacement of the defective product, or refund of the purchase amount of the product. Ciholas reserves the right to substitute functionally equivalent new or serviceable used parts.

To be entitled to the rights provided by the one-year warranty, the customer must do the following:

- 1. Contact Ciholas Technical Support at returns@ciholas.com or 1-844-595-TECH (8324).
- 2. Provide in email/phone call, all model number(s), serial number(s), and proof of purchase for all items affected.
- 3. If return/exchange is necessary, customer will be given a Returned Material Authorization (RMA) # to include with their return.
- 4. The customer must then ship the item(s), at their expense (including all duties and taxes), to the address provided in the RMA authorization.
- 5. Once a product arrives at Ciholas, return shipment of repaired or replaced product(s) or a refund will be sent to the customer. The method of return shipment is at Ciholas' discretion and expense, except for applicable duties and taxes, which are the responsibility of the buyer.

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- 3. Consumable goods used with, or required by, Ciholas products.
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The following is to inform you of our policies for collecting, using, and disclosing your Personal Identifiable Information (PII) made available to Ciholas when you browse our sites, create accounts on our sites, purchase and use our services and products, and/or contact us through our support email. By using any of our services and products, you agree to the collection and use of your PII in accordance with this and other policies contained in this Agreement.

#### 11.1 Personal Identifiable Information Collected

In the CUWB.IO Shop, we collect personal information that you voluntarily provide to Ciholas when creating an account, posting messages, or otherwise contacting us. The PII that we collect depends on the context of your interactions with Ciholas and the choices you make regarding the information you provide. The PII you share is up to you and is not required for browsing any of our sites. However, if you want to create an account, purchase an item in our shop, and/or call/email our support staff, you may be asked for PII. The PII collected is encrypted using secure socket layer technology (SSL).

The PII we collect could include the following:

Name and Contact Data – First and last name, email address, postal address, phone number, and other similar contact data.

Credentials - Passwords and similar security information used for authentication and account access.

Payment Data – All payment data collected through the website is by a third-party payment processor (TPPP). Ciholas DOES NOT have access to any of the payment information that you provide to the TPPP. None of the TPPPs use any of your data for anything other than processing your payment and have their own privacy policies, which are as strict as or stricter than, those contained in this privacy policy. Ciholas and all Ciholas TPPPs use SSL/TLS encryption for securing data. All Ciholas TPPPs are PCI DSS compliant for payment processing standards.

#### 11.2 Information Usage

We use your PII for the purposes listed above and to keep our site safe and secure (for example fraud monitoring and prevention) and to enforce our terms, conditions, and policies for our legitimate business purposes.

We may disclose your information where we are legally required to do so to comply with applicable law, judicial proceedings, court order, or legal process, such as in response to a court order or a subpoena.

We will not share, sell, rent, or trade any of your PII with any third parties.



#### 11.3 Duration of PII Storage

We keep your information for only as long as necessary to fulfill the purposes outlined in this privacy policy unless otherwise required by law.

#### 11.4 Keeping PII Safe

We have implemented appropriate technical and organizational security measures designed to protect the security of any personal information we process. However, given that the internet is not 100% secure, transmission of personal information to and from our sites is at your own risk. Only access our services, products, and sites within a secure environment.

#### 11.5 Unique Privacy Rights

Based on the laws of some countries and states, you may have the right to request access to the PII we collect from you, change that information, or delete it in some circumstances. For more information on how to do that, please contact Ciholas at info@ciholas.com.

If you are visiting our sites from outside of the United States, please be aware that you are sending information (including PII) to the United States where our servers are located. That information may then be transferred within the United States or back out of the United States to other countries outside of your country of residence, depending on the type of information and how it is stored by us. These countries, including the United States, may not have data protection law as comprehensive or protective as those in your country of residence; however, our collection, storage, and use of your PII will at all times continue to be governed by this Privacy Policy.

#### 11.6 Non-PII Information Automatically Collected

We automatically collect certain information through web analytics when you visit, use, or navigate any of our sites. This information does not reveal your specific identity, but may include device and usage information, such as your computer's Internet Protocol (IP) address, browser type, browser version, operating system, referring URLs, country, location, the pages of our sites that you visit, the time and date of your visit, the time spent on those pages, and other similar statistics. This information is primarily needed to maintain the security and operation of our sites and for our internal analytics and reporting purposes.

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If you prefer, you may choose to set your browser to remove and reject cookies. This could affect the availability of certain features, services, or products on our sites. Most browsers allow you to turn off cookie collection in their Tools/Settings button under a Privacy tab.

These Terms of Service were last modified on 2025-11-11.

[End of Agreement]



# 7 APPENDIX B : Software License Attributions

This appendix documents the legal attributions for third party software and components included in the CDP Logger and Plaver.

#### 12 bzip2

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