

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 data streams from the CUWB Manager. Recordings can then be played back using the CDP Player with the same timing as when the data was logged. This allows users to record and replay system data 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 logs all CUWB CDP data in a single file indefinitely. The log rotation feature allows users to split datasets into smaller files.

The logs that are captured by the CDP Logger can be played back using the CDP player. The player emits logged CDP packets over the selected network settings with the same timing at which the data was logged.

2 Installation

2.1 Host PC Requirements

- **OS:** Ubuntu 22.04 Jammy or Ubuntu 24.04 Noble or Ubuntu 26.04 Resolute
- **CPU:** Intel or AMD 64-bit architecture, 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 more²

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 are 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/latest/assets/software-packages/install.sh")
```
3. Paste into an Ubuntu 22.04/24.04/26.04 terminal and press Enter.

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 [Download Debian Packages](#) for Software Packages. After downloading the package, transfer the DEB to a USB drive or another transfer method to the Host PC. Once the file has been transferred, navigate to its location and enter the following command in 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 are 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	<code>-d, --debug</code>	none	Activates debug mode.
File	<code>-f, --file</code>	name_of_file	File where the CDP packets will be logged. If this option is not provided, it will default to <code>cdp-log-\<date\>.00< code="">.</date\>.00<></code>
Help	<code>-h, --help</code>	none	Prints the help message.
Interface Address	<code>-i, --iface</code>	iface_addr	Log will be recorded on network interface with the specified IP address.
Max File Size	<code>-m --max_size</code>	max_size	The max size, in megabytes, a log can be before splitting and logging to a new file.
Rotating Files	<code>-r, --rotate</code>	number_of_files	The logger will rotate through the specified number of log files, moving to the next after each split.
Split Hours	<code>--splithours</code>	number_of_hours	How often, in hours, to split and log to a new file. Value can be entered as decimal.
UDP Stream	<code>-u</code>	udp_stream	Packets will be recorded from the specified UDP stream (ip:port). Default value is 239.255.76.67:7667.
Version	<code>--version</code>	none	Print the version.
Zip	<code>-z --zip</code>	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 address and port; use the *Interface Address* command-line option (-i) to set the network interface. For example, the following command sets 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

Upon start up, the application prints the Interface Address, the UDP stream it is monitoring, and the designated log file path. To successfully capture a CDP log from a CUWBNet data stream, the Interface Address must align with the interface configured in the CUWB Manager. Similarly, the UDP stream settings must exactly match the IP:Port configuration specified within the Manager for that particular stream.

To conclude a logging session and ensure data is properly saved, stop the CDP Logger by pressing **CTRL + C** within the terminal.

3.3.2 Log Naming

By default, the CDP Logger saves data to a file named **cdp-log-\\<date\\>.00** . You can define a custom filename or specific directory file path using the **-f** option (e.g., ~/Documents/my-log.00). The Logger automatically appends a minimum two-digit numeric suffix to the filename; this ensures that even if the same filename is reused, the application will generate a unique file rather than overwriting previous data.

3.3.3 Log Rotation

By default, log rotation is disabled, causing the CDP Logger to record all incoming data into a single file that grows indefinitely. To manage file sizes, you can configure rotation using the Rotating Files option (-r) to set the maximum number of files to maintain, and the Split Hours option (-splithours) to define the duration of each log segment. For example, the following command configures the Logger to rotate through a pool of 100 files, with each file capturing 15 minutes 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: When log rotation is enabled, the system will begin overwriting the oldest log files once the limit specified by the Rotating Files option is reached. For instance, if you configure 100 log files at 15 minutes each, the oldest data will be replaced after 25 hours of continuous logging. Similarly, if the Logger is set to rotate through 10 files with a 1 GB size limit, the oldest file will be overwritten once the total logged data exceeds 10 GB.

3.3.4 Advanced Logging

Using the Linux command `nohup`, the cdp-logger process can be executed in the background. This approach facilitates the creation of a more complex logging system capable of capturing extensive data across the CUWBNet simultaneously. For example, consider a CUWBNet configured with the following Ethernet settings:

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 replay the data. The player emits the recorded CDP packets over the selected network settings, strictly maintaining the original timing captured during the logging process. To launch the application, enter `cdp-player` into the command line followed by any of the configuration options listed below.

4.1 CDP Player Command Line Options

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

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

4.2 Network Configuration

By default, the CDP player replays all recorded CDP data using the following network settings:

Parameter	Value
IP	239.255.76.67
port	7667
interface	0.0.0.0

To modify the network settings, use the *UDP Stream* command-line option (-u) to define the IP address and port, and the *Interface Address* option (-i) to specify the network interface. For example, the following command configures the CDP Player to broadcast data to 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

Upon startup, the application prints the UDP stream target and the name of the log file being played. When replaying data for another program, ensure the player's UDP stream aligns with the destination's listening settings. You may also need the `-i` flag to specify the correct network interface for transmission. The CDP Player terminates automatically upon reaching the end of the log file. It can be manually stopped at any time by pressing `CTRL+C` in the terminal. Note that when using the loop option (`-l`), the player will repeat indefinitely, making `CTRL+C` the only method to end the process.

4.3.2 Choosing a Log to Play

By default, the CDP Player searches for a file named `default.log`. To play a specific file, use the `-f` option followed by the filename or full directory path (e.g, `~/Documents/my-log.00`).

4.3.3 Playing a Portion of a Log

You can isolate specific segments of a log using the `--start` and `--end` options, which accept values in seconds. For example, if a one-hour log contains relevant data only between the 20-minute and 35-minute marks, the following command will play only that 15-minute window:

```
cdp-player --start 1200 --end 2100
```

4.4 Use with CUWB Viewer

CDP Playback is fully compatible with the CUWB Viewer. To view the data:

1. Open network settings in the CUWB Viewer
2. Configure the Viewer to listen to the specific IP address and Port used by the CDP player
3. Start the playback; the viewer will render the movements and data exactly as it would for a live CUWBNet.



5 Revision

Version	Date	Change Description
5.0.2	2026-09-04	Adding Ubuntu 26.04 support
5.0.1	2025-11-14	Updating Host PC Requirements
5.0.0	2025-10-31	Initial Preliminary Release

6 APPENDIX A : License Terms and Conditions

1 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.

This Agreement constitutes the entire and exclusive Agreement between Licensor and Licensee regarding Ciholas services and products, unless modified and agreed to in writing by both parties. We may terminate or suspend access to our services and products at any time, without prior notice or liability, for any reason whatsoever, and without limitation if you breach the General Terms. All provisions of the General Terms shall survive termination, including, without limitation, ownership provisions, warranty disclaimers, indemnity, and limitations of liability. If any provision of this Agreement is deemed invalid or unenforceable, the remaining provisions shall remain in full force and effect.

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

2 Definitions

For purposes of this Agreement, the following terms shall have the following meanings, unless the context clearly requires otherwise:

“Agreement” means this General Terms of Purchase/Service Agreement and Technology License, any exhibits or appendices attached hereto, and any documents incorporated by reference.

“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.

“Indemnatee” includes, but is not limited to, all End-Users, Buyers, and/or Licensees.

“License Configuration” means a particular configuration or setting provided with Ciholas services and/or products for the purposes of meeting regulatory requirements, or ensuring performance to specification.

“Licensee” means any individual or entity who purchases or uses Ciholas services and/or products covered by this Agreement.

“Licensor” means Ciholas, Inc. including any entity controlled by Ciholas, Inc.

“Our” means Ciholas, Inc. including any entity controlled by Ciholas, Inc.

“Personal Identifiable Information (PII)” means any identifying information unique to you that is 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 phone number /email.

“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.

“Technology License” means the License granted to the Licensee for the use of Ciholas services and products through this Agreement.

“We” means Ciholas, Inc. including any entity controlled by Ciholas, Inc.

“You” means the person or entity entering into this Agreement with Ciholas.



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Subject to the terms and conditions of this Agreement, Ciholas grants to you, the Licensee, a limited, non-exclusive, license to use CUWB Software and CUWB Hardware containing Ciholas' Intellectual Property and patent-protected technologies. Ciholas remains the owner of all titles, rights, and interests in the CUWB Software, CUWB Hardware, and other Ciholas products.

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It is a violation of this Agreement to alter any of the Ciholas products to change their designated capability with the intent, or resulting effect, of circumventing the license configuration. Any unauthorized modification violates the terms of service and may make the products illegal in certain jurisdictions (see Government, Regulation, Jurisdiction, and Export Control below).

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.

The Licensor may amend the License at any time and will post such modifications on our website. Changes are effective upon posting. The Licensee's continued use of the Software after such posting constitutes acceptance.

4 Support

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.

5 Indemnification

Notwithstanding any other Agreements with Ciholas, the user shall indemnify, defend, and hold harmless the Licensor, its employees, successors, and heirs against any claim, liability, cost, damage, deficiency, loss, expense, or obligation of any kind or nature (including, without limitation, reasonable attorney's fees and other costs and expenses of litigation) incurred by or imposed upon the indemnitees, or any one of them, in connection with any claims, suits, actions, demands, or judgments (including, but not limited to, actions in the form of tort, warranty, or strict liability) arising from the use of Ciholas software and products.

6 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.

7 Government Regulation, Jurisdiction, and Export Control

Ciholas products are subject to governmental regulations and laws that may vary by state and country. By purchasing Ciholas products, you agree you will not ship, transfer, or export said products in any manner prohibited by law. You also warrant and agree that you are not located in, under the control of, or a national or resident of any of the countries defined by the Office of Foreign Assets Control, which include, but may not be limited to, Cuba, Iran, North Korea, and Syria. In addition to embargoes, other countries and/or regions may face restrictions under various U.S. export control regulations or be the target of sanctions governed by the Export Administration Act of 1979 (EAA), as amended, any successor legislation, the Export Administration Regulations (EAR), and the International Traffic in Arms

Regulations (ITAR). You will comply in all respects with the export and reexport restrictions applicable to Ciholas products and will otherwise comply with the EAA, EAR, ITAR, and other United States laws and regulations in effect from time to time.

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.

7.1 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.

8 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.

9 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.

9.1 Product Warranty Exclusions

Ciholas does not warrant or guarantee, and is not responsible for the following:

1. Defects, failures, damages, or performance limitations caused in whole or in part by: (A) power failures and surges; fires; floods; acts of nature; excessive temperatures; corrosive environments; accidents; actions by third parties; or

- other events outside of Ciholas' control; or (B) customer abuse; mishandling; misuse; negligence; improper storage, servicing, installation, or operation; or unauthorized attempts to repair or alter equipment in any way.
2. Performance of the equipment when used in combination with equipment not purchased, specified, or approved by Ciholas.
 3. Consumable goods used with, or required by, Ciholas products.
 4. Alterations and/or modifications to any Ciholas equipment without Ciholas' written authorization. Such action unconditionally VOIDS the Ciholas Agreement and Warranty.
 5. Installation of any software code, other than that provided and licensed by Ciholas. Any such installation onto any Ciholas product voids the one-year warranty, unless a written exemption is provided to the customer by Ciholas.

9.2 Disclaimer of Warranty

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10 Ciholas Standard Privacy Policy

Ciholas is committed to protecting your personal information and your right to privacy. If you have any questions or concerns about our policy or our practices with regards to your personal information, please notify Ciholas at info@ciholas.com.

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.

10.1 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.

10.2 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.

10.3 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.

10.4 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.

10.5 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.

10.6 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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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 Player.

1 bzip2

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bzip2/libbzip2 version 1.1.0 of 6 September 2010

