UNIVERSAL ROBOTS

UR Log Viewer Manual

e-Series and CB-Series

Original Instructions (EN)

UR Log Viewer version: 1.2

Documentation version: 1.2

Robots:

UR3, UR3e, UR5, UR5e, UR10, UR10e and UR16e

Controller Versions:

CB3 & e-Series

Software Versions:

CB3: 3.4 higher
e-Series: 5.0 higher

Contents

1. General Information

1.1 Purpose

The purpose of the UR Log Viewer Manual is to help Universal Robots (UR) users and integrators to perform service-related analysis and understanding of the robot behavior to support any enhancements and troubleshoot needed.

Universal Robots industrial robots are designed using high quality components to ensure a long lifetime. However, improper use of the robot or robot parts can potentially cause unexpected failures due to misuse. If, for example, the robot is overloaded, dropped during relocation, damaged by collision, or any other improper usage, the warranty will be void.

Universal Robots recommends the user does not attempt repair, adjustment, or make other interventions in the mechanical or electrical systems of the robot without first being trained and consulting an UR certified service engineer. Any unauthorized intervention voids the warranty. Service-related operations and troubleshooting should only be performed by qualified personnel.

Before performing service-related operations, stop the robot program, power it off, and disconnect the main power input to any potentially dangerous tool on the robot or in the surroundings.

In the event of a defect, Universal Robots recommends ordering new parts from the Universal Robot distributor where the robot was originally purchased. Alternatively, parts can be ordered from the nearest distributor, details of which can be obtained from Universal Robots official website at www.universal-robots.com

1.2 Company Details

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1.3 Disclaimer

Universal Robots continues to improve reliability and performance of its products, and therefore reserves the right to upgrade the product without warning. Universal Robots takes every care that the contents of this manual are precise and correct but takes no responsibility for any errors or missing information.

2. UR Log Viewer

2.1 Intro

The UR Log Viewer is a software intended for reading and viewing the Support File from the Universal Robot's cobots, which are generated automatically inside each robot, and contain the log files, programs and flight reports. The software is a support tool for the user of the robot to do troubleshooting in case needed. It is a tool for understanding the robot behavior and have data analysis, as well to do improvements on your application and programming.

2.2 Applicable to

UR3, UR3e, UR5, UR5e, UR10, UR10e and UR16e

2.3 Requirements

To install and execute the UR Log Viewer you need the following requisites:

- OS Windows 7, 8, 8.1 or 10 – current version doesn't work on Linux or Mac.
- .Net 4.8 minimum installed
- User access defined to be able to install and execute the software
- Works with Polyscope SW versions:
  - CB3: 3.4 higher
  - E-series: 5.0 higher

NOTE: For CB1 or CB2, please use the Support Log Reader (SLR) found on UR's support site.

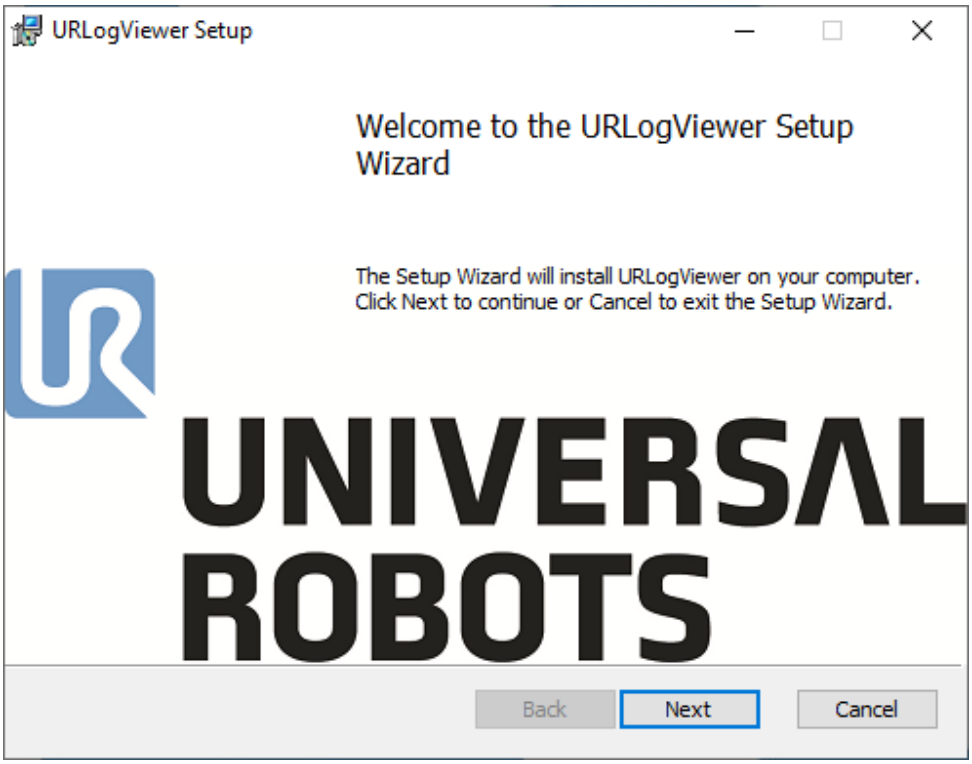
2.4 Installation

2.4.1 Download UR Log Viewer

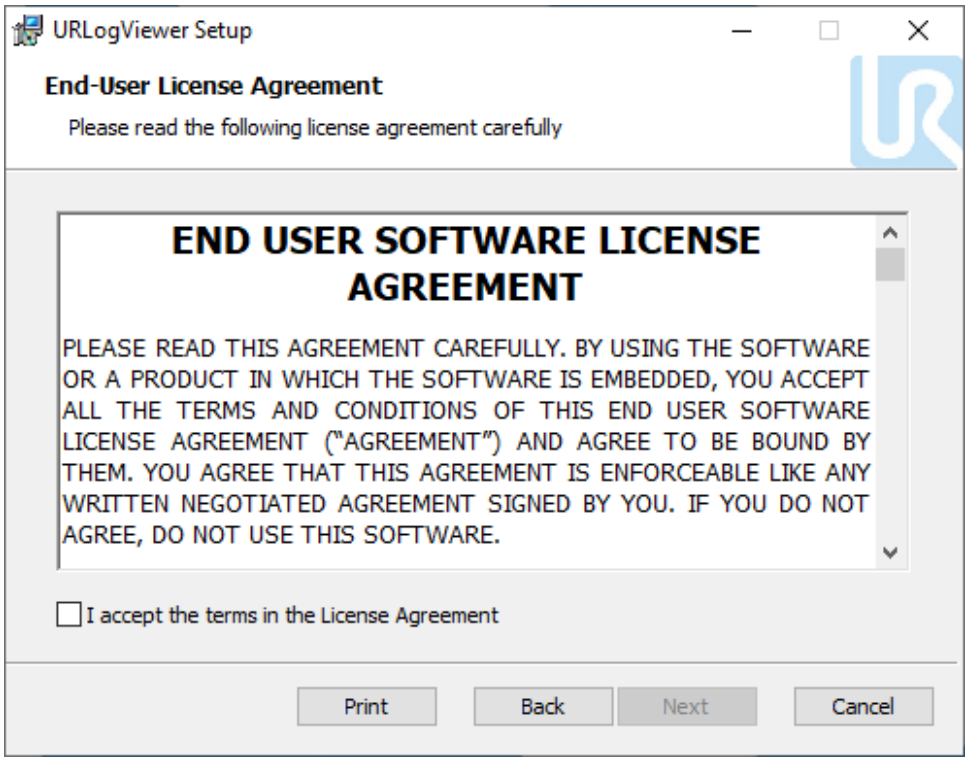
First step is to download the UR Log Viewer's software from Universal Robot's website: www.universal-robots.com/download . Choose robot version: CB-Series or e-Series -> Software -> UR Log Viewer

2.4.2 Steps to Install

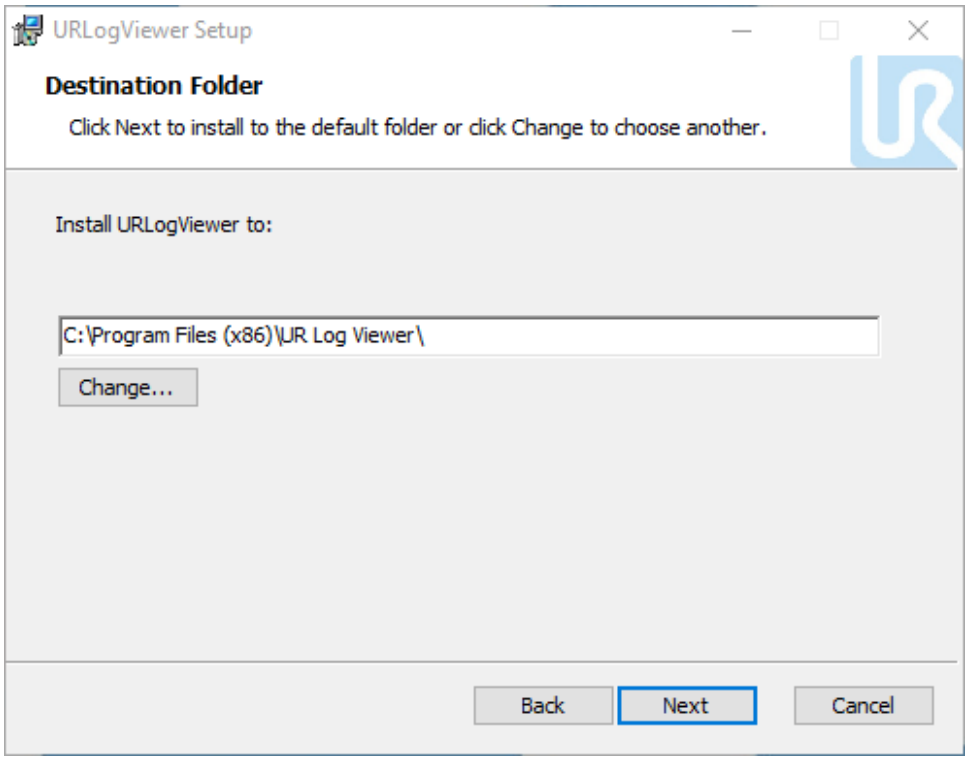
To install in your computer, you first need to unzip the file in your computer, secondly double click on the UR Log Viewer Setup file in the folder, run as administrator if needed, then follow the instructions shown on your computer screen:



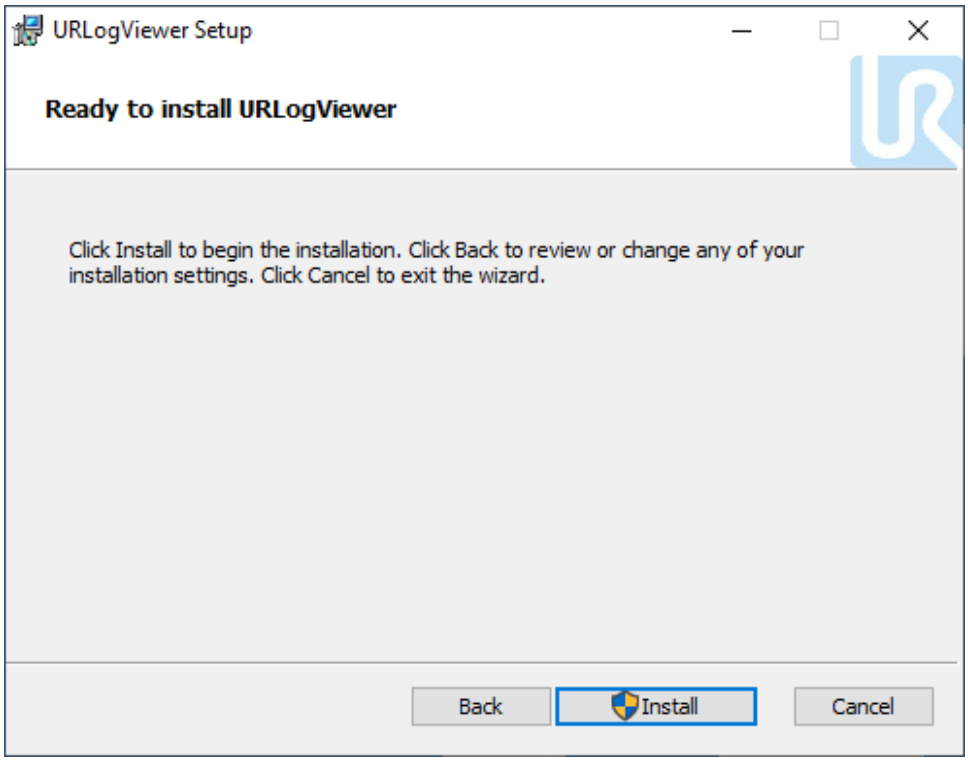
Welcome screen



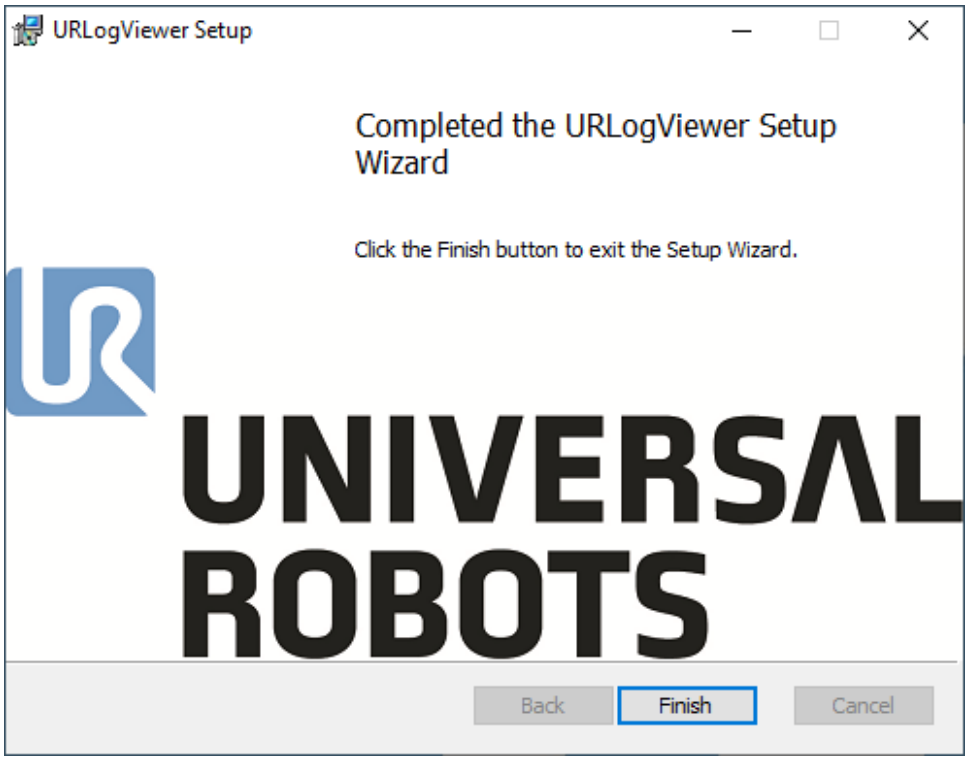
Approve the License Agreement



Change destination folder



Begin installation



Complete installation

2.5 How to use the UR Log Viewer

The purpose of the tool is to read, analyze and examine robot data from e-Series and CB3-Series robots. Any findings based on this tool is the sole responsibility and interpretation of the user. To have a final saying in case of service needs, please refed to your distributor or Universal Robot's technical supporter for guidance on service, trainings and warranties.

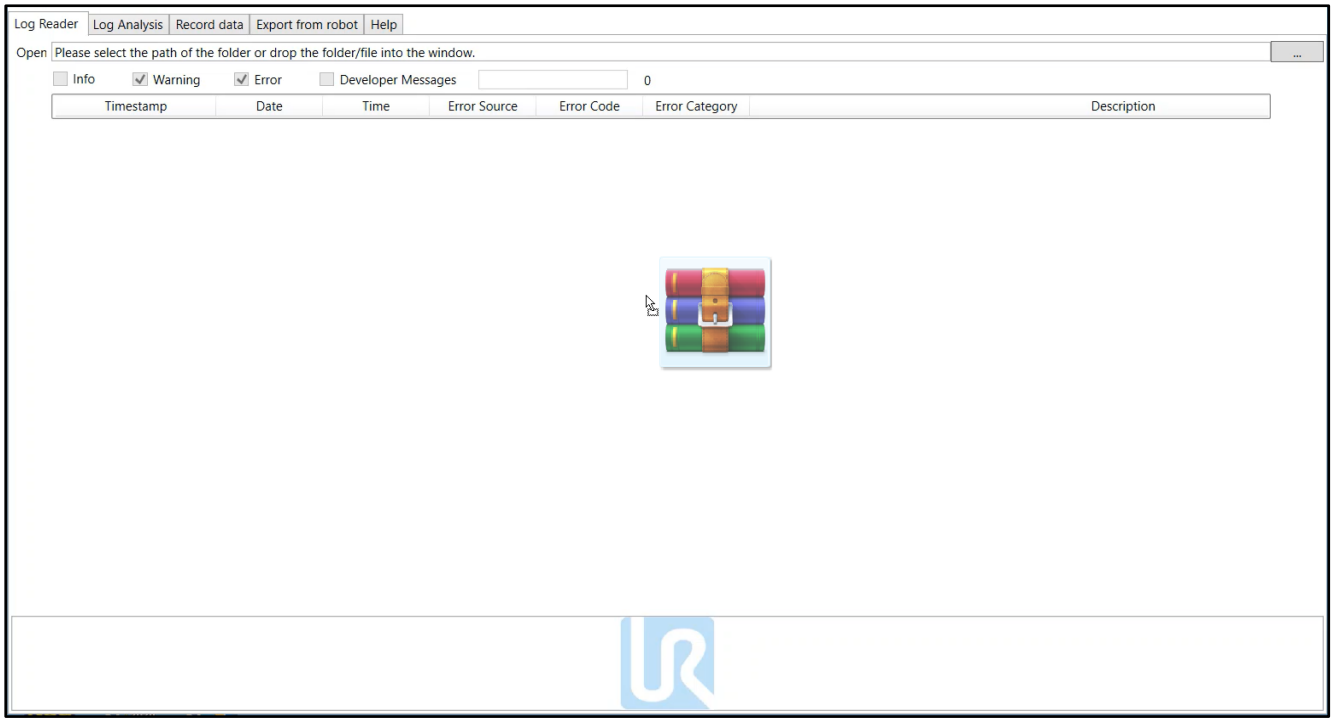
2.5.1 Type of files supported

The following files are supported:

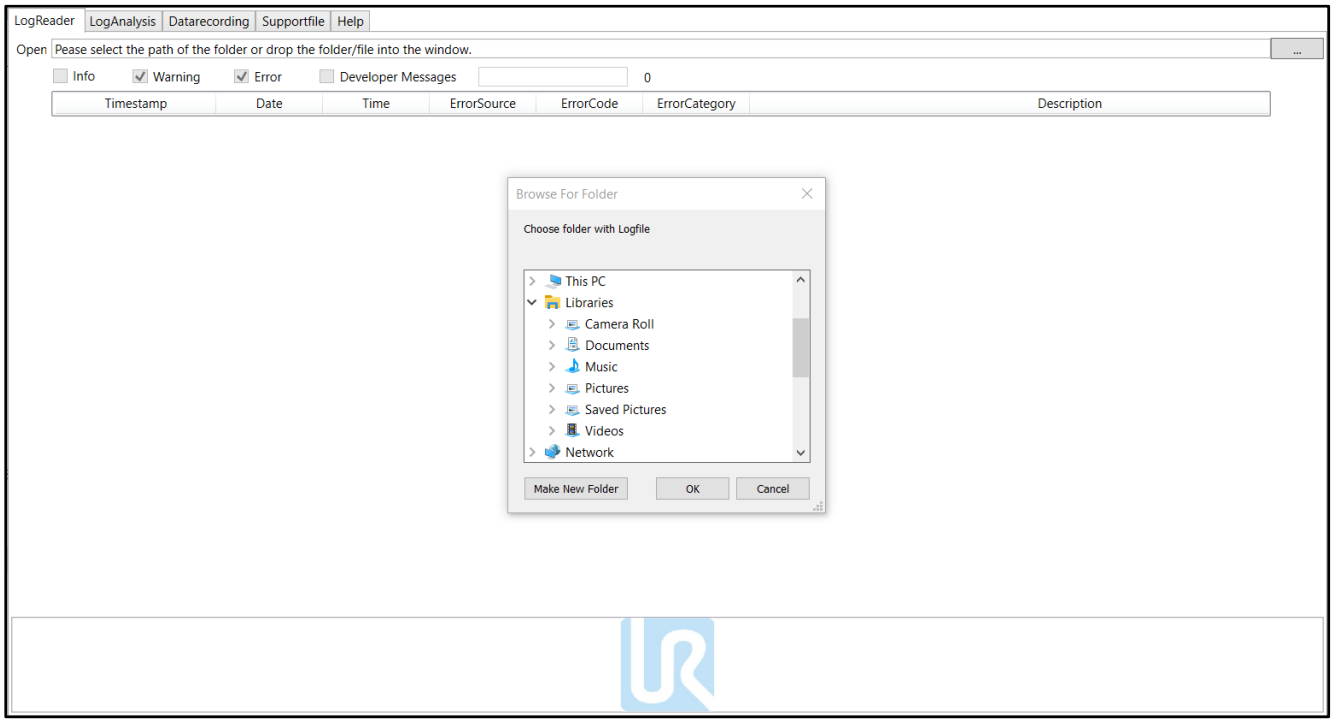
- **Support File (implemented on SW 3.13 and 5.8 forward):** ex.: ur_20195099999_2020-07-16_09-24.zip
- **Flight Reports:** ex.: recording20200520_17_59_14.zip
- **Log History:** ex.: log_history.txt, log_history.bak
- **Real-time recordings:** Created by UR Log Viewer: ex.: recording.csv

2.5.2 Loading the file

The available file can be either dragged and drop on the Log Reader tab or opened by selecting the path where the file is stored in your computer. A third option is by selecting it directly from Windows, using right-click on the file -> open with -> choose another app -> UR Log Viewer.



Option of opening support file by drag and drop on the Log Reader tab on UR Log Viewer



Option of opening support file by drag and drop on the Log Reader tab on UR Log Viewer

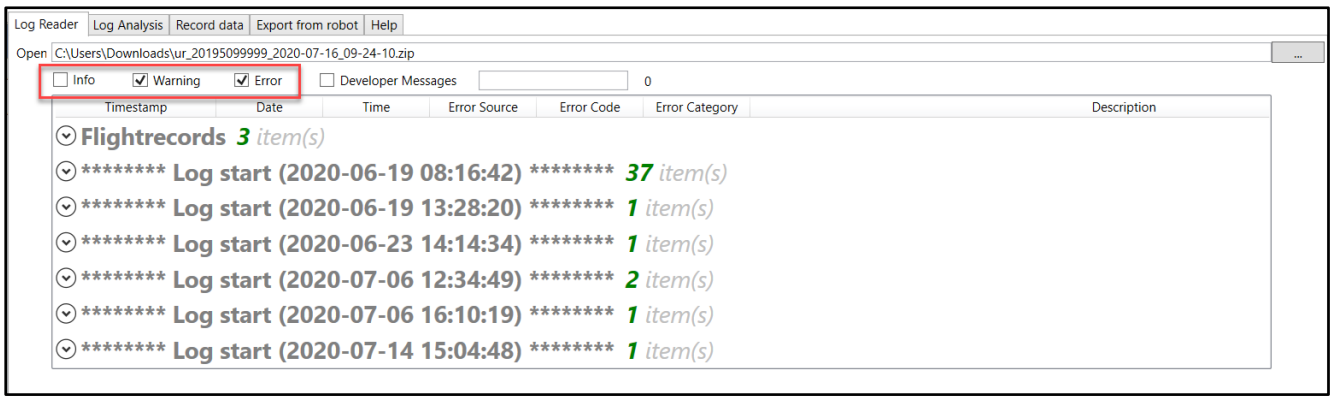
NOTE: If you try to load the file and it doesn't allow you to do so, please restart your software and try it again. Make sure you have the correct file while loading. If you need any support or service, consult your local Universal Robots distributor or Universal Robot's website.

2.5.3 Log Reader Tab

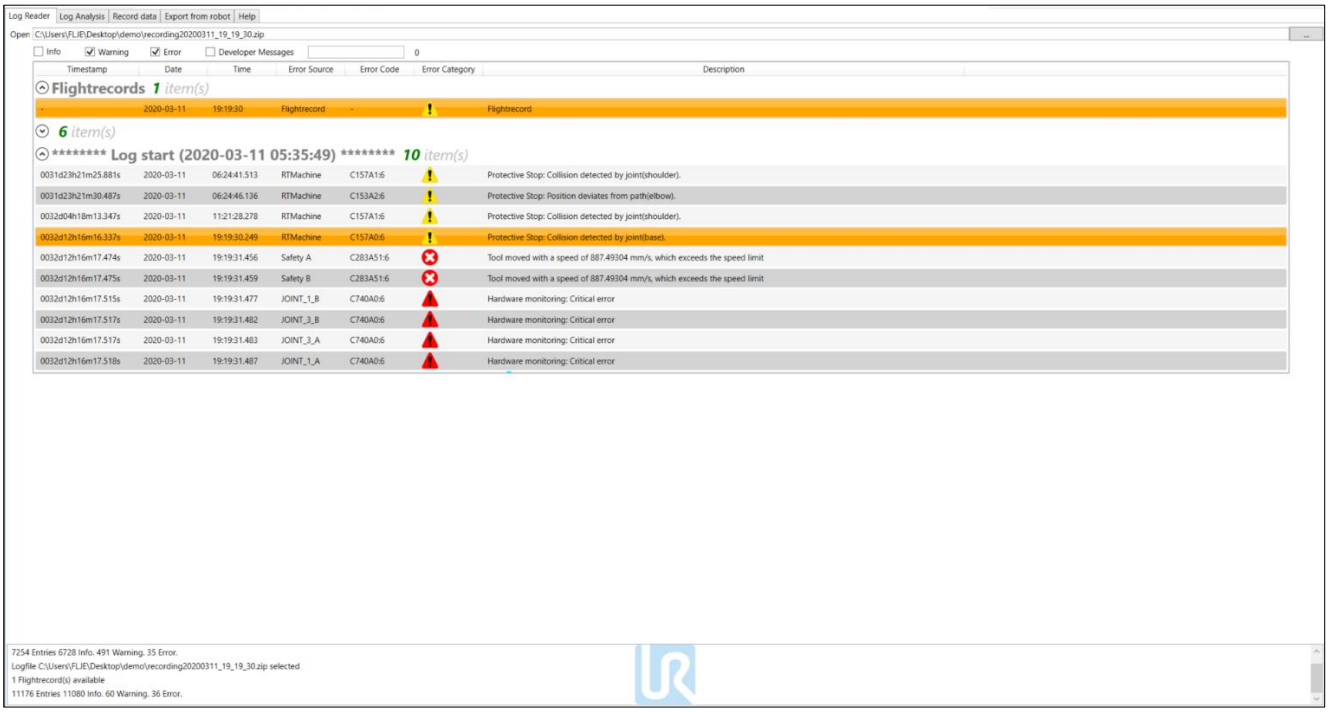
Use this tab to load the desired support file. If a log file is loaded, you can choose which types of messages to be shown.

Once the file is loaded you will have the option of choosing which types of messages to be shown on the Log Reader screen, the options are:

- **Info**
- **Warning**
- **Error**



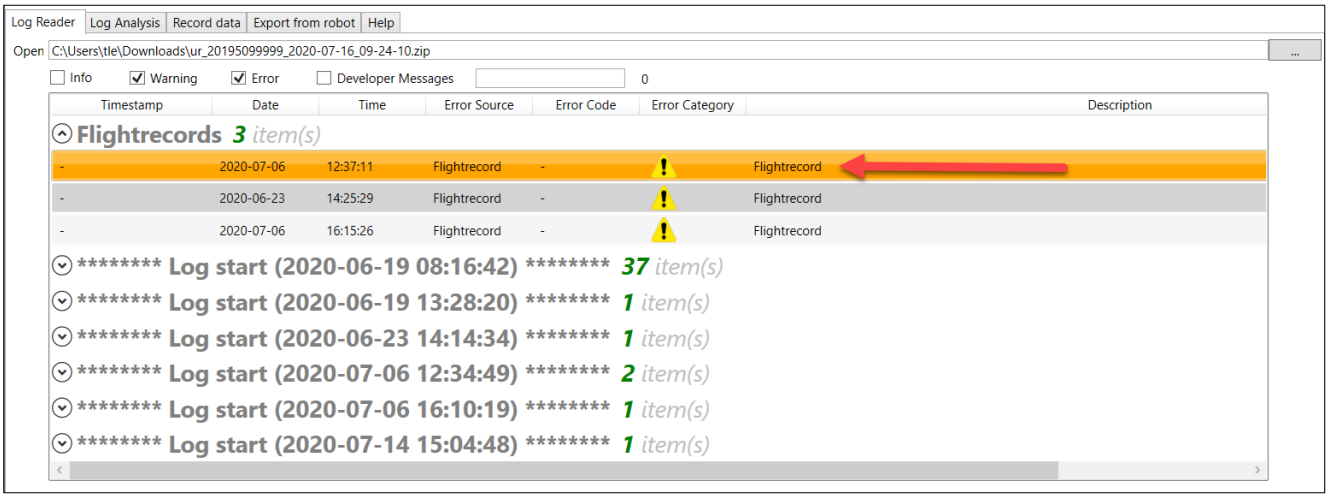
NOTE: "Developer Messages" are intended for expert-level users only. Please use it only if advised.



The user will see the Flight Records section only when opening a Support File, Flight Report file or Real-time Recordings data file, if you open a Log History file, you will only see the Log Start section with the info, warnings and error codes and their respective entries.

2.5.3.1 Flight Records

The Flight Records section gives the user the capability of generating graphs from the stored data on the mentioned files above. To open the standard graphs, double-click on the Flight Record entry to open the graphs of the data recordings.



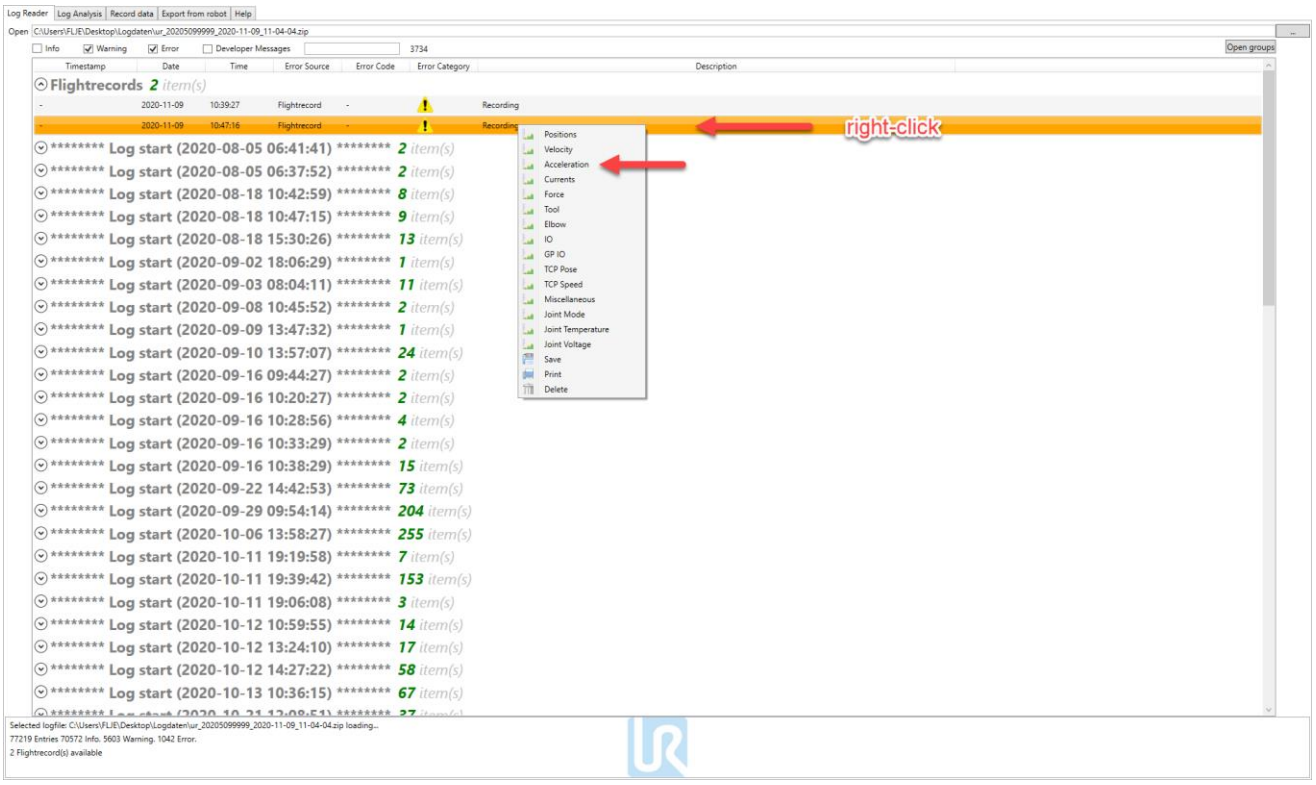
This will open 6 new windows with real-time data graphs for the selected Flight Record. Each opened window contains data for the respective joint and the data of the exact moment of the fault that has happened on the robot.

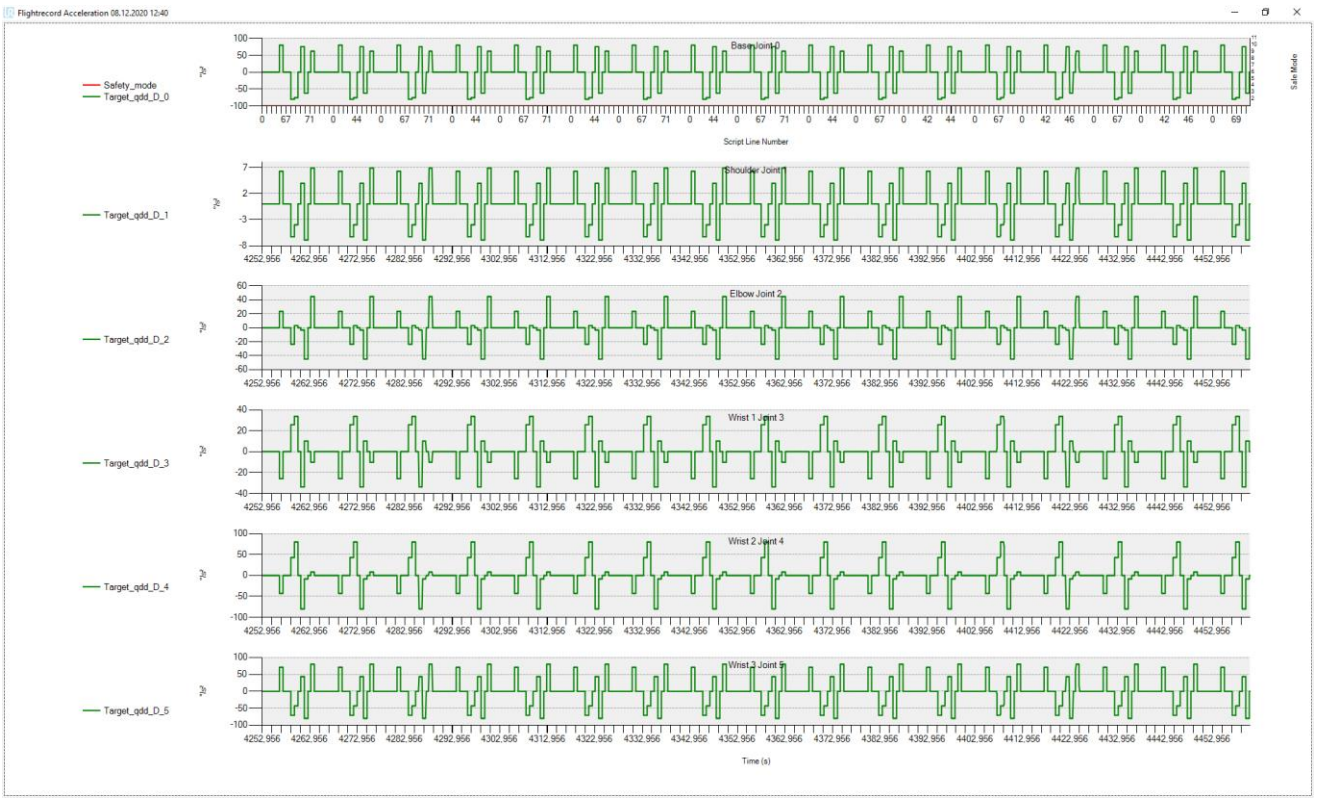
Representation of the standard graph window at the exact fault recorded data from joint Shoulder

The standard generated graph contains information of the robot behavior when it had the fault. The information shown on the standard graph is: Position, Velocity, Acceleration, Current, Torque.

The X axis shows the script line number of the program or the index of the data point, if available.

If you need any other graph to be generated, the user has the option of choosing other data variables by right-clicking on the Flight Record and choosing on the seen drop-down list:



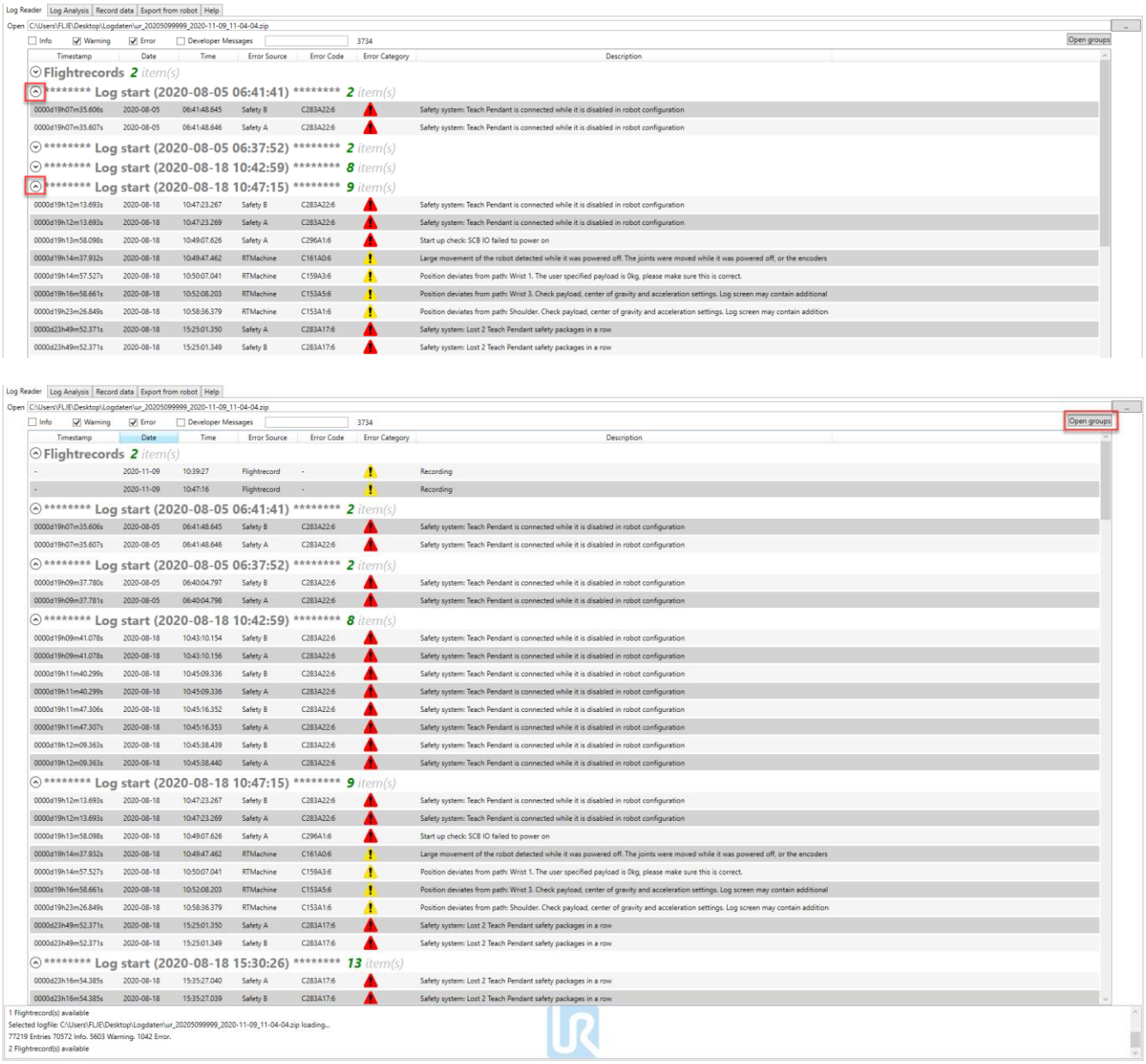


Example of a personalized graph generated of all joints by right-clicking on chosen Flight Record and picking acceleration at the time of the fault

2.5.3.1 Log Start

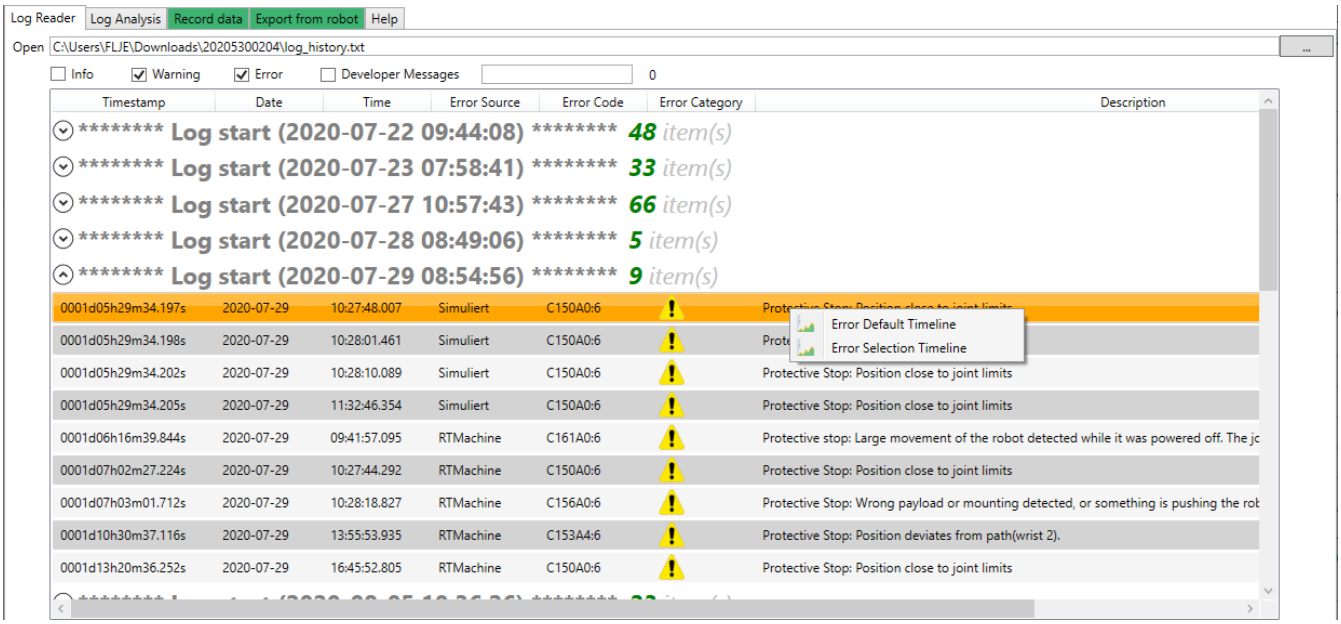
To read the log history section, you must click on the Log Start arrow to open and be able to read where the entries from the robot will be shown accordingly to its date and time and the type of message. The description

of the message, error category, error code, error source, time, date and time stamp will be shown after opening the log start entry. You can also press the “Open groups” button to open all grouped entries.

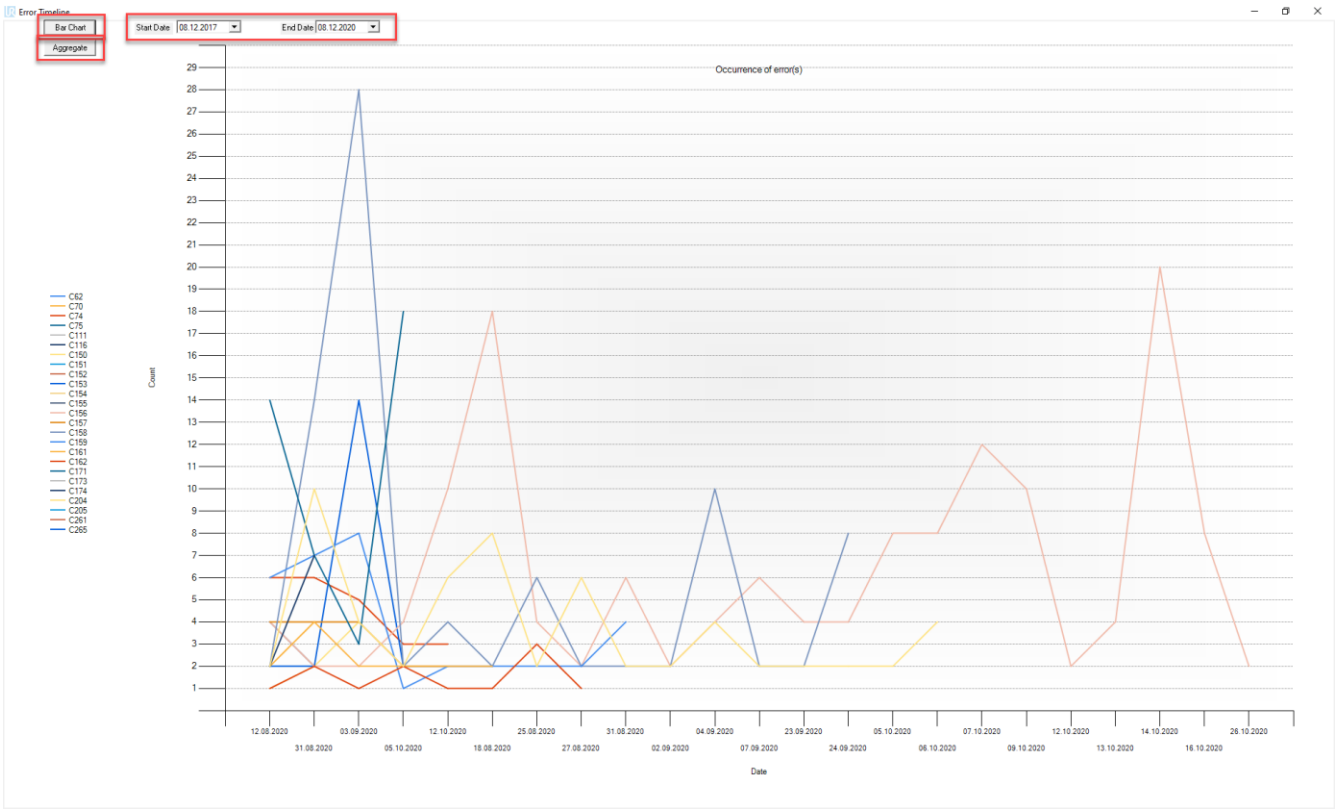


Example of a window showing warning and errors from a log start entry

By right-clicking on the Log entry and choosing “Error Default Timeline” or “Error Selection Timeline” a new window will be displayed. It shows you the occurrence of errors over the time. Here you can switch the displayed range of errors, change the type of chart and switch to an accumulated view.



Context menu for Error Timeline Charts



Example of a window showing Error Default Timeline

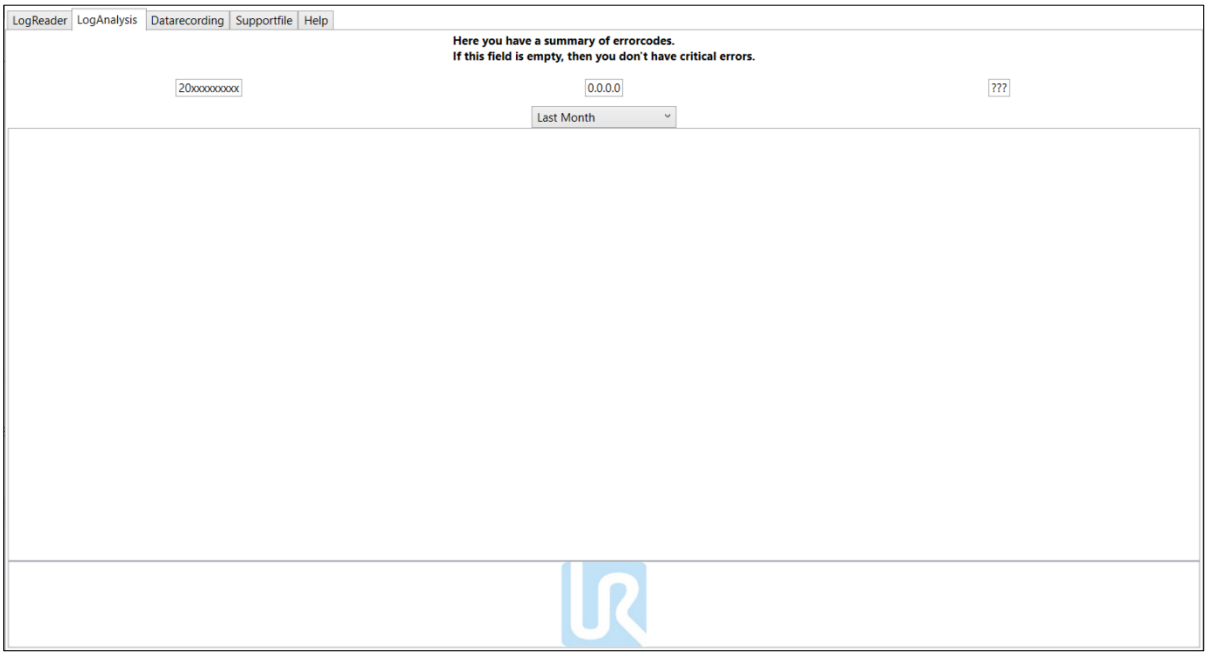
Shortcuts:

CTRL+C: Copy the selected Log History line.

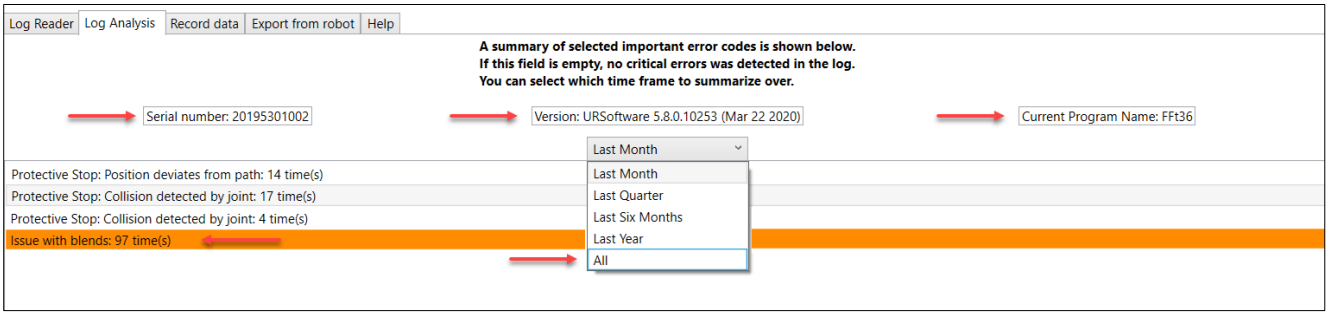
CTRL+E: Copy the error codes of the selected Log History line(s). You can select many lines and click the shortcut to copy the codes.

2.5.4 Log Analysis Tab

Use this tab to see a summary of important error codes found in the loaded file. You can select different time frames to see the progress of your robot in time.



The Serial Number of the robot, the robot software current version, and the last program running on the robot will be displayed on this screen for information.



If a high number of critical error codes are found, they will be highlighted on the list for awareness and corrective actions to be taken by the user to solve the source of the message.

NOTE: If you have a high number of messages shown up on the Log Analysis tab, take action to try to solve the source of these error/warning messages generation. It is not right to have many messages showing up on the robot, they need to be acted upon.

2.5.5 Record data Tab

This tab enables the real-time data recording of the robot connected through ethernet cable with your computer.

Before starting to record any data, make sure you have your computer connected to the robot's ethernet port and you have setup your computer's IP address on the same range of the robot's IP address. Make sure your firewall is not blocking the connection from happening.

After you have the connection done, select the relevant data fields you want to be recorded. The frequency of update can be defined as wanted. You can adjust sample time and measurement duration

for the recording. We advise keeping the default values not to create high memory consumption. Press “start” on the right top corner for the data recording to begin.

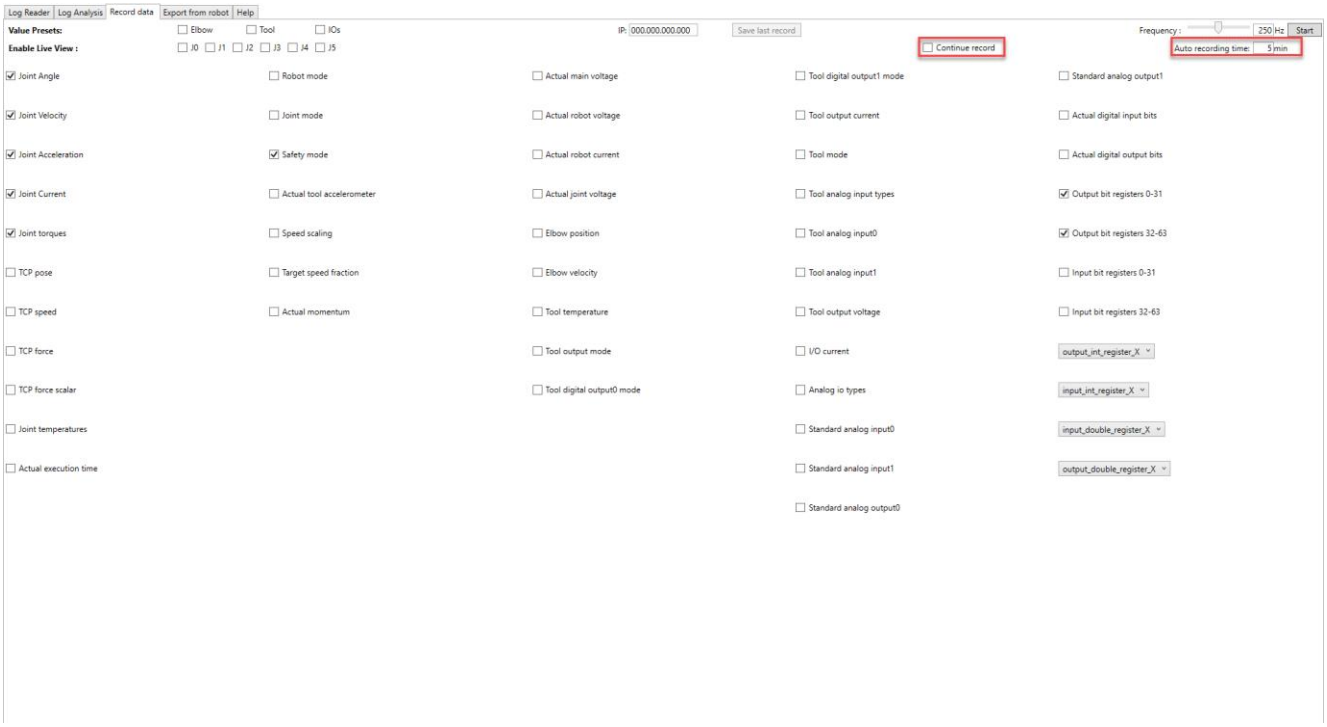
Continue record enables long record periods. If selected a new record file will be saved periodically, depending on the setting time of the auto record field. We recommend for long terms 100Hz and 5 minutes. This has the reason of memory consumption and for better analysis.

NOTE: High frequency combined with long sample periods leads to big data traffic recordings, potentially affecting memory consumption on some systems.

After starting to record, the data will be available in the Log Reader’s tab. Please check if your robot’s software version has all selected data field available, if not, update your robot to the latest software version for complete usage experience.

NOTE: Please notice that the button "save last record" only saves the last record started. If there were many records started and stopped, and you want to save the others, go to the Log Reader tab, right-click on the previous Flight Record you want to save, and press save. The previous ones are not saved automatically and if you close the software they will be lost.

Shortcuts:
CTRL+A: Select all check boxes
CTRL+N: Select the default check boxes



Record data Tab

2.5.6 Export from robot Tab

The Export from Robot tab allows you to create and export the Support File from your connected robot via ethernet connection to the computer. Refer to 2.5.5 Record Data tab topic in this manual, to understand how to connect the robot’s and computer IP addresses.

For older robot software versions (PolyScope 5.7 and 3.12 below) the Log History and Flight Reports are retrieved instead of the Support File.

After the download the user will be asked, if he/she wants to open the pulled data directly on UR Log Viewer or just store in the computer.

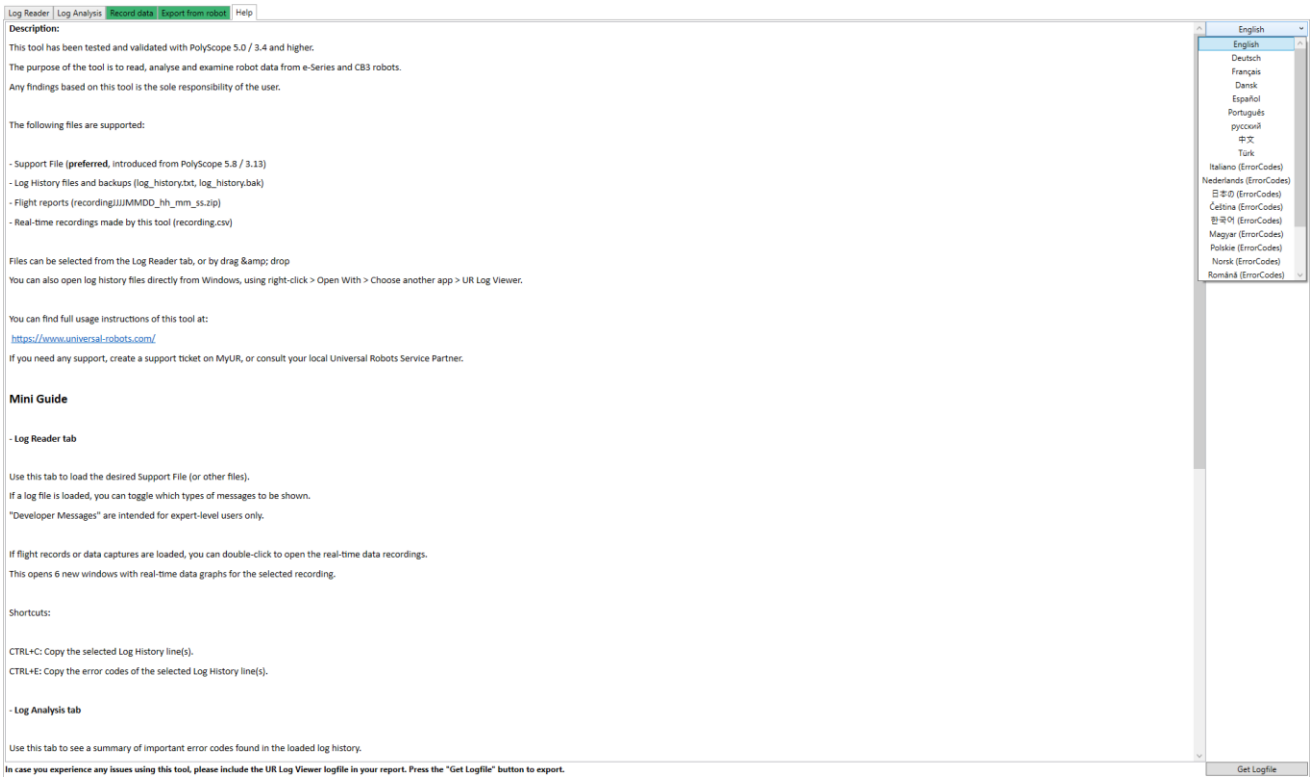
2.5.7 Help Tab

In the Help Tab window, you will find the software description and a summary of this manual. Please use it for future reference.

You have the possibility to change the language. Languages with "(ErrorCodes)" at the end only showing error codes in the selected language. The other ones also showing the user interface in the specific language.

2nd level Error codes only in English available.

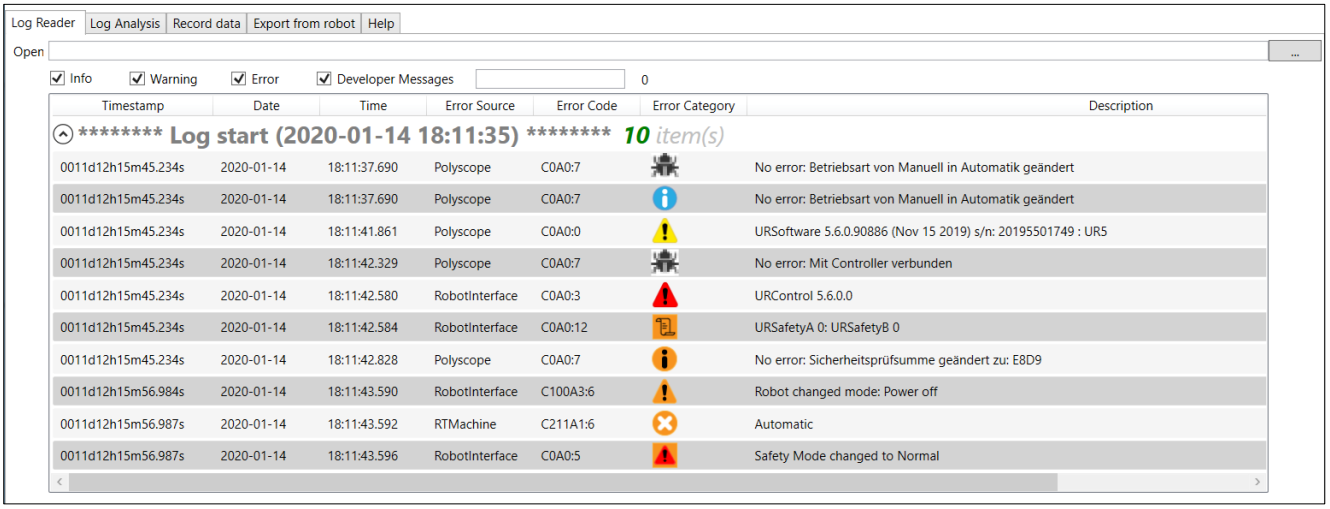
In case you experience any issues using the UR Log Viewer software, send the logfile to your provider so we can always improve and add new features. For downloading the UR Log Viewers logfile, press the button on the right bottom corner "Get Logfile". A pop-up window will open, choose where to save it and send it to your UR Log Viewer provider.



Help tab

3. Type of Messages

Message's icons in this document contain information that helps you to understand and troubleshoot the robot.



The Symbols are the same as in the protocol tab from Polyscope.

-  Debug Message
-  Info Message
-  Warning Message
-  Error Message
-  Fault Message
-  Developer Message
-  Developer Message
-  Developer Message
-  Developer Message
-  Developer Message

4. Change log

Date	Revision	Action	Changes
July 3rd, 2020	1.0.0	Started	Log Viewer manual creation
July 16th, 2020	1.0.0	Started	Software release
October 29th, 2020	1.1.0	Started	Software release 1.1.0.0. Manual updates
December 08th, 2020	1.2.0	Started	Software release 1.2.0.0. Manual updates