User Guide - V1

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1 Opening a measurefile

In order to open a measurefile you need to open the File dialog from the menu bar and click on Open Measurement.Alternatively you can use the shortcut Ctrl+O to open your measurement. After opening the file the measurement is then loaded into the program's memory and displayed in the TableTab.

2 Saving a measurefile

In order to save a measurefile you need to open the File dialog from the menu bar and click on Save Measurement. Alternatively you can use the shortcut Ctrl+S to save your measurement.

3 Creating a plot

In order to create a plot from the previous measurement you can click the CreatePlot button in either the StartTab's lower right corner or the PlotTab's upper right corner when specifying a filter the plot can again be created from the button in the PlotTab's upper right corner.

4 Exporting a plot

In order to export a plot from the previous measurement you can either click the ExportPlot button in the PlotTab's upper right corner. You have the opportunity to save the file in .png format.

5 Editing the Plot

In order to work with the plot and seek precise information from it you can apply a display time range through configuring the timestamp of display begin and end. This can be done through clicking the arrow in the combo box to the left and right of the tab window or through long clicking the moveable borders of the green time bar. When using both methods ApplyRange will zoom in on the plot as specified. For an overview the plot can quickly be zoomed out by clicking both reset buttons (R) and thus applying an unmodified range.

6 Configuring communication parameters

In the ConfigTab you can configure your parameters. In this way you can:

- Set your serial settings (COM/BAUD/PARITY/SB). These settings must fit your Microcontroller-UART configuration.
- Activating Logging and/or Measurement files.
- Configure your desired measurement mode (CONTINUOUS,TRIGGER,SINGLESHOT).

Explanations for modes used in the ConfigurationTab:

- Singleshot: Enter a specified duration (in ticks) in the corresponding textbox. The measurement will then complete after the relative amount of ticks that has been read by the program.
- Trigger: After a certain information type has been captured (e.g TASK_SWITCHED_IN, specified by the combobox below), run a singleshot-measurement for the duration specified in the textbox.
- Continuous: The measurement will continue until the 'Stop Analyzing'-button is manually pressed. Careful: The buffer is not restricted and may overflow. Use this mode with caution.

7 Configuring the hardware filter in the FilterTab

The FilterTab enables utilizing the hardware-filter of the Tracer running on the microcontroller. Deselect the InformationIDs you don't want to be sent over the serial interface and click on Send filter to device in order to send an unconfirmed filter message to the controller. Search for specific IDs with the searchbar above the table. This filter-unit is independent of the software-filter.

8 Configuring the software filter

The Software-filter allows the user to filter out unwanted packets out of the measurement display. You can select either informationIDs or Tracer-Objects to be filtered. Deselecting an ID removes every packet with the corresponding ID from the tab. Deselecting a Tracer-Object removes any packets that contain data related to the object. Use the searchbar to look for specific IDs or objects. Apply the filter with the Save filter button. This filter-unit is independent of the hardware-filter and does not alter the original measurement. If you want to re-enable certain information IDs or objects, simply re-select them in the filter and apply again. Tabs can use either a local filter (persistent to only their own tab-space) or a global filter (persistent across all tab-spaces).

9 Using the measurement table in TableTab

A measurement is loaded into the TableTab after completion or after opening a measurement-file. In order to clear the table, either click the clear-table Button at the top or select the AutoClear checkbox, which will clear the table with every new measurement. You can search for individual ID's in the searchbox. The tableTab shows every information received by the packet as defined per TraceSnifferProtocol.

10 Glossary

General

The software's status is always displayed in the window's lower left corner. As described in StartTab. each window possesses a grey circular button in the upper right corner to dock off the tab from the main window. This will come in handy, when multi window mode is required.

Status	This shows the current status of the measurement .
Grey Circular Button	Located in the upper right corner of each tab, allows the user to release the tab from the framework, useful when multi-window mode is required.

StartTab

This tab is the first tab opened when the software is run. For a good consecutive funtionality this should be configured primarily.

Start	This button sets the TraceSniffer to measuring mode relative to the mode set in *MEASUREMENT MODE* in *ConfigTab* .
Open Measurefile	This allows the user to open/import a measurefile from the computer.
Save Measurefile	This allows the user to save a measurefile to the computer.
Create Plot	Clicking this button generates the plot for the current measurement. Generation of the plot is only executed when the previous measurement is completed.
Filter Ticks	Obsolete: Sets a hardware filter command to the controller in order to filter the hardware increment tick packets.

TableTab

This tab shows the measurement table: Here the user has the ability to confiure a software filter for the display of information or analyze the occurring objects in the underlying table.

Clear Table Clears the underlying measurement table on button click. .

Auto Clear Automatically clears the table on next measurement completion when the respective checkbox is selected.

Search Table Searches the table on click for the term specified in its search window to the left of this button.

Local Sets filter access to local for the configuration of the filter below through *Configure Filter*.

Global Sets filter access to global for the configuration of the filter below through *Configure Filter*.

Configure Filter This button establishes the access to the Filter Configuration window.

Show Summary This button establishes the access to the Measurement Summary window.

ConfigureFilter

This dialog establishes access to the configuration of the software filter.

Search Table Searches the table on click for the term specified in its search window to the left of this button.

Save Filter Saves the filter configuration relative to the mode set through selecting *Local* or *Global* in TableTab.

Enable Enables the respective ID or object on selection to be excluded from the filter.

ShowSummary

This dialog shows different calculated information on the appropriate measurement.
Clear Table Clears the entire selected tab on button click.

ConfigTab

This tab allows configuration inside the communciation standard mechanism used such as serial configuration containing hardware based properties and configuration for the measurement itself.

COM-Port	This combo box allows the user to select the respective Communication port hardware interface for the controller in use. The software will automatically show all available ports in a drop down combo box when clicking the arrow located on the right border of the respective field.
Refresh COM	Refreshes available COM Ports for the devices connected to the computer.
Baudrate	This is where the user should specify the UART communication baudrate for the measurement relative to the target device used. Typical baudrates for the UART protocol are available from the start in a drop down combo box, when clicking the arrow located on the left border of the field.
Stop Bits	This allows the user to specify the UART communication stop bits for synchronization of both communication endpoints.
Parity	This allows the user to define the UART communication parity to be set in each packet stream.
Measurement Time	This allows the user to define the measurement time in SingleShot mode in milliseconds.
Measurement Mode	This allows the user to define the measurement mode. The user can choose betweeen *Single Shot Mode* (Measurement for a specified time), *Continous* (consecutive measurement) or *Trigger* (Measurement starts on trigger event specified in *Trigger* window below).
Trigger	This allows the user to specify the trigger existent on the hardware target for the measurement mode *Trigger*. The user can choose from a previously established list of FreeRTOS triggers.
Save Inc. Tick Data	Obsolete.
Activate Logging	Activates the software's logging functionality.
Save Logfile	This allows the user to save the log to a file. The directory can be chosen afterwards.
Toggle Theme Logging	This allows the user to change the software's theme. Available are a bright and dark theme.
Tick to ms ratio	This allows the user to define the system tick to milliseconds ratio as a scale for all information provided.

PlotTab

This tab shows the plot generated according to the measurement openend or recorded through *StartTab*. Use the mouse wheel to zoom in on the plot and the scroll bar to scroll horizontally.

Local	Sets filter access to local for the configuration of the filter below through *Configure Filter*.
Global	Sets filter access to global for the configuration of the filter below through *Configure Filter*.
Configure Filter	This button establishes the access to the Filter Configuration window.
Apply Range	Applies the range specified in the content boxes at the side of the window.
R	Resets the range value specified in the box to its left/right.
Create Plot	Generate the plot on button click.
Export Plot	Exports the plot as a PNG-file to a chooseable directory.

FilterTab

This tab allows the user access to specifiying the reverse hardware filter for the target device. The user can disable IDs as wished and send the filter in return to the target device.

Search Table	Searches the table on click for the term specified in its search window to the left of this button.
Send filter to device	Sends the hardware filter configuration to the target device.
Enable	Enables the respective informationID on selection to be excluded from the filter.