Ballard

User manual

Features:
- supports ARINC 429 and MIL-STD-1553 data buses;
- manage multiple devices and multiple cores;
- recognize USB, ETHERNET and PCI devices;
- extensive possibilities to convert binary data to user recognizable format;
- quickly build transmit schedules and creating "transmit on click" messages;
- save data bus traffic and replay it latter without hardware;

*... the precision signal conditioning company*

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1. Installation

Ballard devices works with DEWESoft via Ballard plugin. To install it, please copy Ballard.dll to the Addons folder of DEWESoft. When this is done, the Ballard plugin will appear in Hardware setup plugin list.

Refer to Ballard manual for installation of Ballard drivers and connecting Ballard devices.

2. Hardware setup
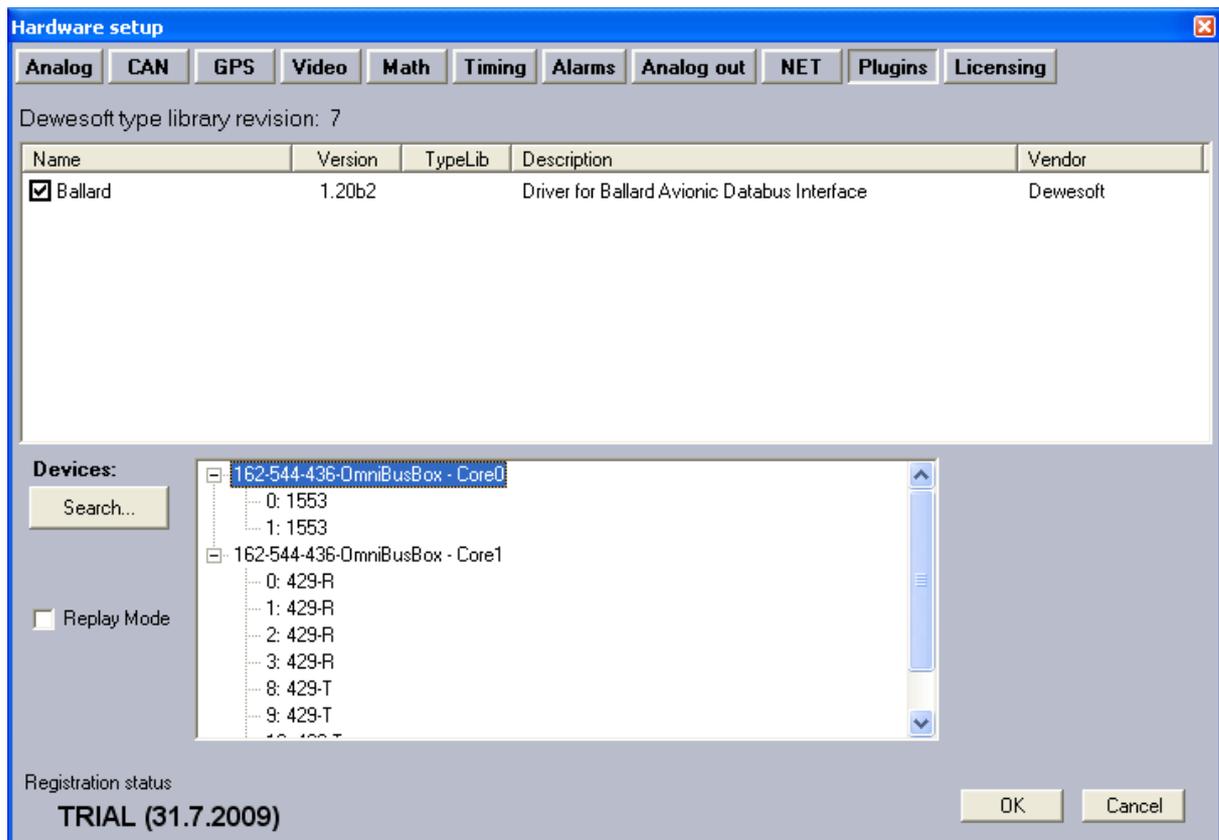
(Image 2.1 – Hardware setup)

First check the Ballard plugin to enable it. If any devices will be found they will be shown at Devices panel. If hardware configuration changes, just press the Search button and system will be rescanned.

If you want to use previous recorded data or/and don't have hardware, you can use a replay mode. Check it and select appropriate csv file(s) with device definition and bus data.
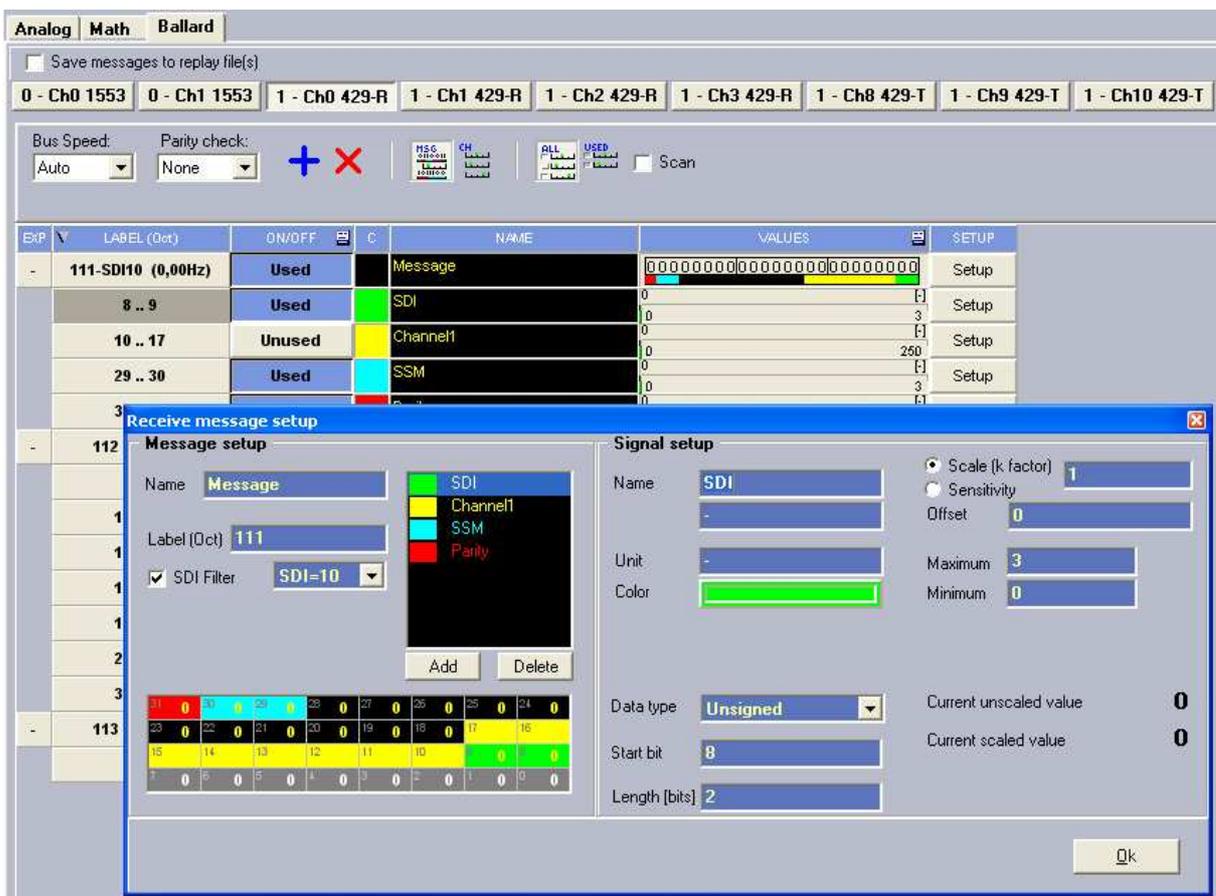
3. Setup

At the top you have save messages check box for saving replay files. Just check it and one csv file for each device (core) will be created along with DEWESoft data file when recording (on the same folder with the same name).

Under it is one button for each bus. Short name on the button is composed of device number, channel number and channel type. MIL-STD-1553 buses have two tabs, one for receive and one for transmit.

3.1. ARINC 429 receive setup

In addition to standard buttons for adding and deleting messages or channels and display options there is a scan check box. If it is checked every unhandled message coming through the bus will be added automatically to the list. On start every message already had standard channels (SDI, SSM and Parity). They can be deleted if you do not need them.
Bus speed and Parity check are there for ARINC 429 bus control. Messages that do not have proper parity will be ignored.

(Image 3.1.1 – ARINC 429 Receive Setup)

On the table you can see all messages and channels with basic information and live data. Labels are always in octal notation and for the message value you can choose between hexa and binary (right click on the values column). Messages are always ordered by their Labels. Some properties like Color and Name can be change directly on the table and for others you must open Setup. In the Setup form you can add channels and manage their properties.

There is no problem to have more messages with the same label (and SDI filter) and/or more channels using same bits. When the message will come through the bus all that messages and channels will catch its data.

3.2. ARINC 429 transmit setup

Here you have buttons for adding and deleting messages and for sorting them. Bus speed is for ARINC 429 bus setup.
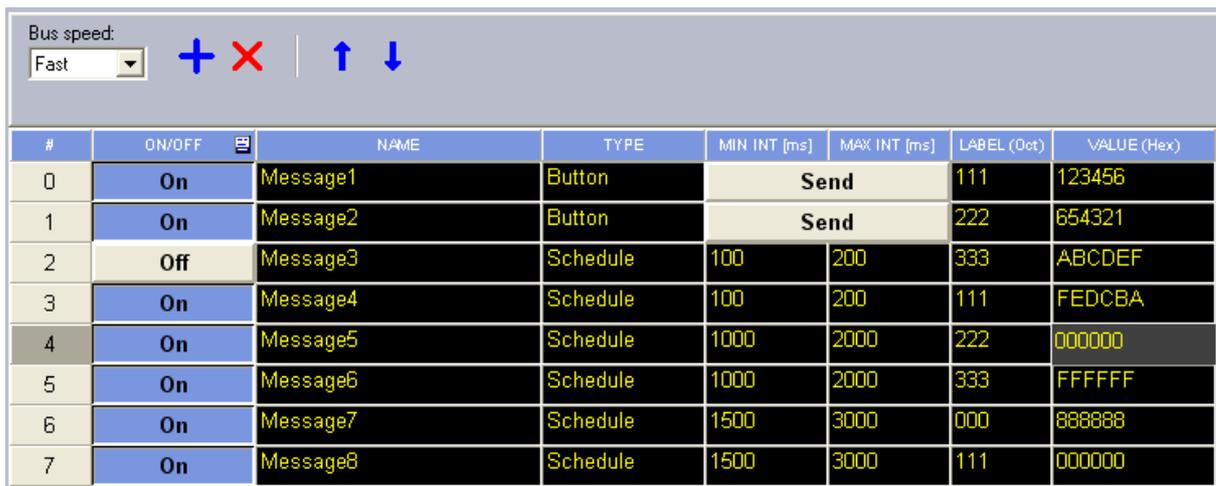
#	ON/OFF	NAME	TYPE	MIN INT [ms]	MAX INT [ms]	LABEL (Oct)	VALUE (Hex)
0	On	Message1	Button	Send		111	123456
1	On	Message2	Button	Send		222	654321
2	Off	Message3	Schedule	100	200	333	ABCDEF
3	On	Message4	Schedule	100	200	111	FEDCBA
4	On	Message5	Schedule	1000	2000	222	000000
5	On	Message6	Schedule	1000	2000	333	FFFFFF
6	On	Message7	Schedule	1500	3000	000	888888
7	On	Message8	Schedule	1500	3000	111	000000

(Image 3.2.1 – ARINC 429 Transmit setup)

Two types of messages can be created. Button and Schedule.

Schedule messages will be send automatically in intervals which are defined with MIN INT and MAX INT values. The schedule is created and scheduled messages start to transmit after you leave the tab by entering some other tab or entering the measure mode.

Button messages are never sent automatically. You get a button to send them manually. In setup mode the button for each Button message is on the table, and in Measure mode you get the special window with buttons for all that messages.

(Image 3.2.2 – ARINC 429 Transmit messages in measure mode)

3.3. MIL-STD-1553 receive setup

Like in ARINC 429 setup there are standard buttons for adding and deleting messages or channels and display options. There is also a scan check box. If it's checked every unhandled message coming through the bus will be added automatically to the list.
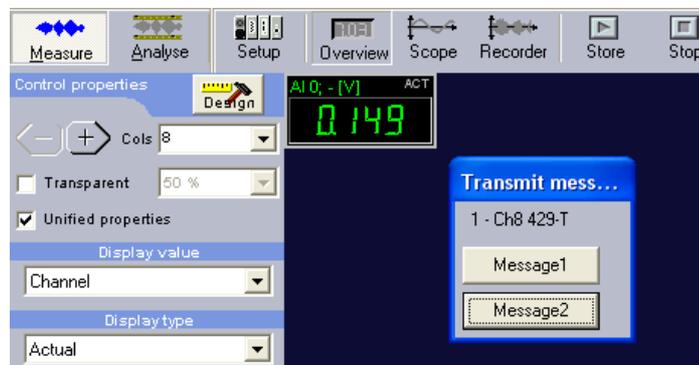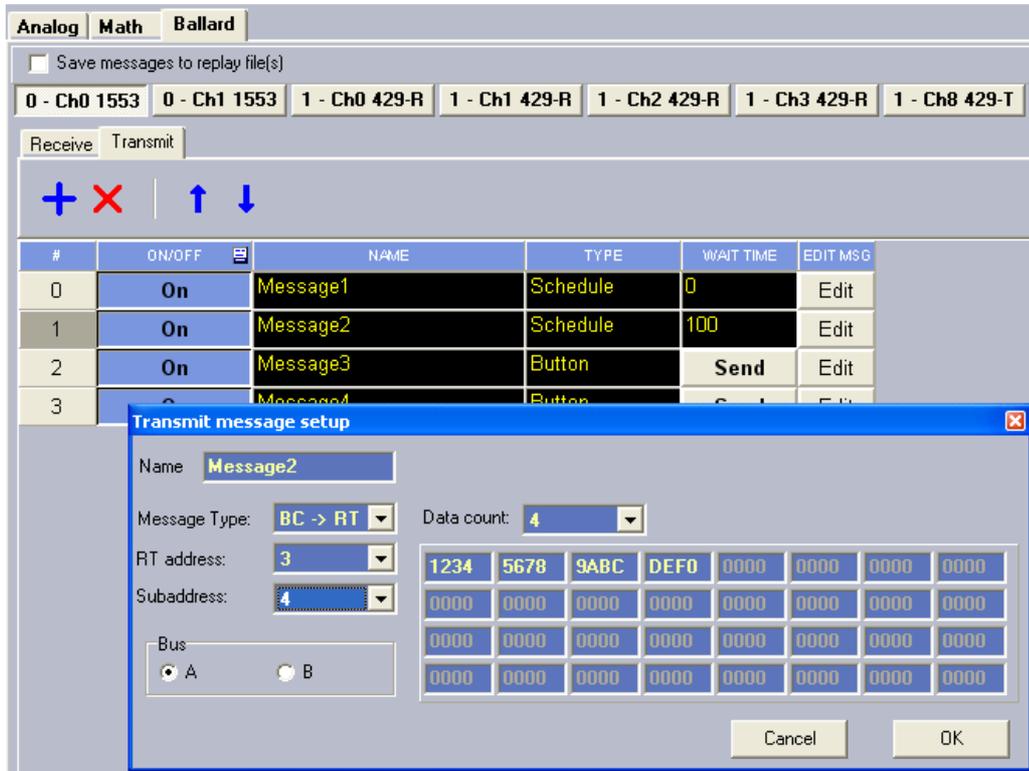

(Image 3.3.1 – MIL-STD-1553 Receive Setup)

On the table you can see all messages and channels with basic information and live data. Messages are always ordered by their Addresses. Some properties like Color and Name can be change directly on the table and for others you must open Setup. In the Setup form you can add channels and manage their properties.

There is no problem to have more messages with the same Address and/or more channels using same word/bits. When the message will come through the bus all that messages and channels will catch its data.

3.4. MIL-STD-1553 transmit setup

Here you have buttons for adding and deleting messages and for sorting them.

(Image 3.4.1 – MIL-STD-1553 Transmit setup)

Every message has the Edit button which opens Transmit message setup form where all message properties and data can be set.

Two types of messages can be created. Button and Schedule.

Schedule messages will be send automatically in the same order they have in the list. After each message there can be wait time which can be defined in Wait time column. After last message is sent the schedule starts will the first message again. The schedule is created and scheduled messages start to transmit after you leave the tab by entering some other tab or entering the measure mode.

Button messages are never sent automatically. You get a button to send them manually. In setup mode the button for each Button message is on the table, and in Measure mode you get the special window with buttons for all that messages.

4. Load setup with different hardware

All settings for each bus are stored to Dewesoft setup file. Since the Ballard devices and their order can change there is a system how the setup will be loaded if the hardware is not the same. The settings of first bus of each type in setup will be loaded to the first existing bus of same type and so on.