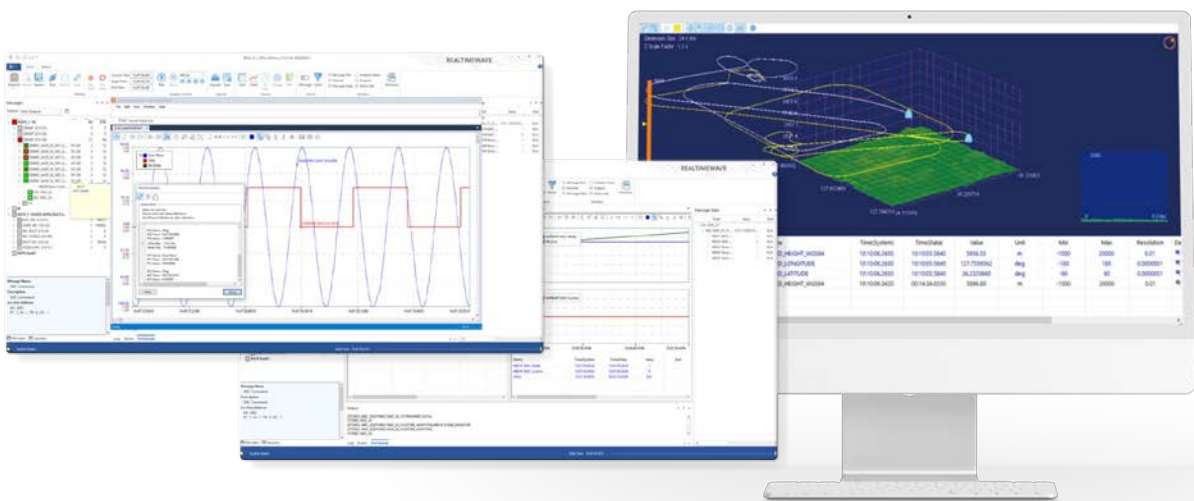# RDSS

Realtime Data Storage Server

RDSS (Realtime Data Storage Server)

RDSS monitors and stores data entered from various monitoring devices in real-time.

The data received from the monitoring device is converted according to the engineering data format defined in the ICD. (Interface Control Document)

And it can be displayed through analysis windows such as grid table or strip chart.
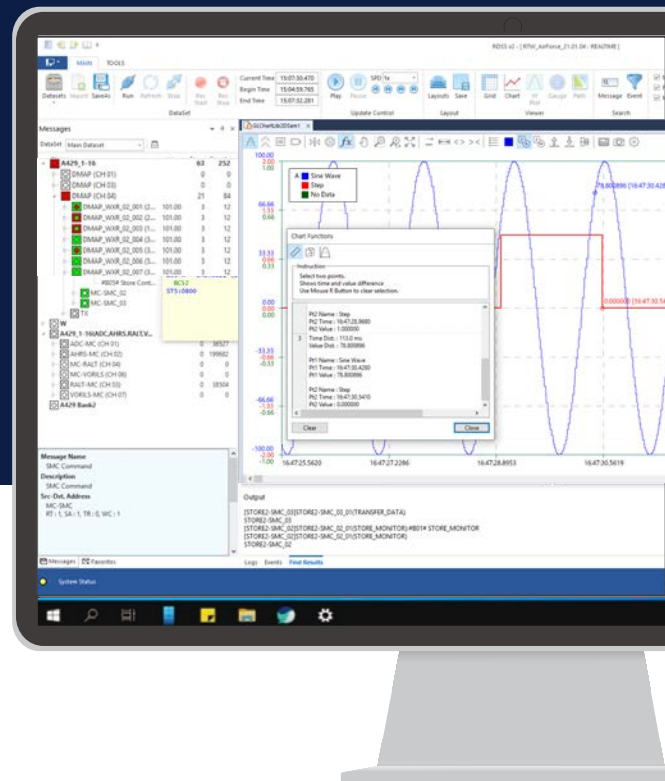

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**RDSS is
core software which is able to monitor and analyze the real-time data.**

▸ Monitor a lot of interface (1553B, ARINC 429, etc.) simultaneously(Max. 16)

▸ Available to separate ICD with messages that correspond to the monitoring interface and
  display them as a tree format to check intuitively whether it is received or not.

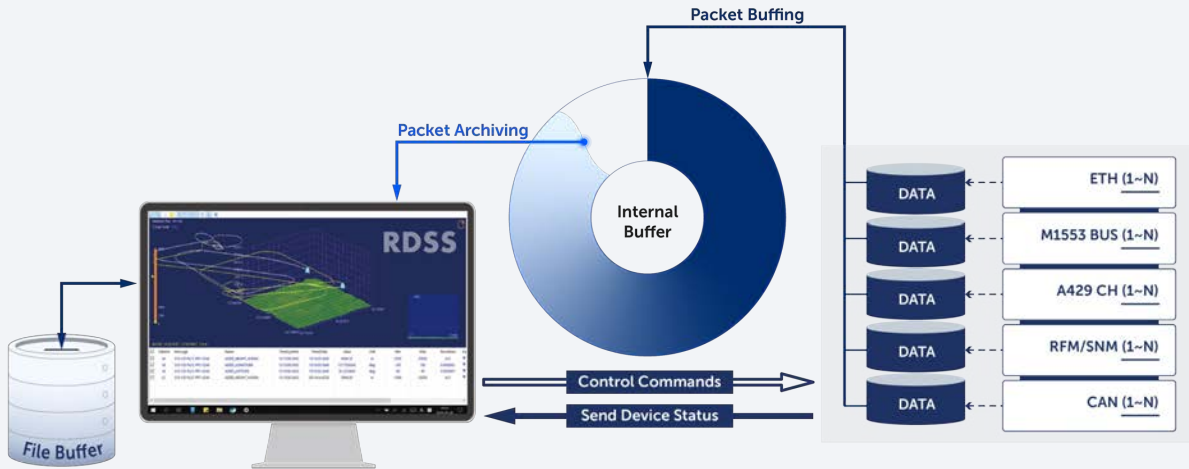▸ Compare and analyze real-time incoming data with stored data easily

Highlights

- **LRU(Line-Replaceable Unit) oriented message tree**
  - By importing ICD(Interface Control Document) which is created by ICD Manager
  - By user created message from RDSS

- **Search records with multiple conditions**
  - Provides time repositioning by selecting search result

- **Show as Engineering Data Format, as defined in the ICD, from Various Analysis Views**
  - Grid / Strip Chart / XY Plot
  - Gauge(will be supported 2nd period of 2021)
  - Flight Path(Only UTM 52 Zone, will be extended world wide 3rd period of 2021)

- **Realtime packet monitoring and archiving(saving) from various interface up to 1KHz**
  - Shows total received and error messages counter
  - Shows packet status(Green/Yellow/Red)
  - Provides RAW packet display window which shows HEX data, command word, status word, packet count, packet time
  - Saved data can be exported as MATLAB MAT file, EXCEL file or CSV file

- **Synchronize incoming data time from various interface**
  - Displays messages from different interfaces on the same timeline, even each data times are different

- **Open saved dataset for analysis and multiple datasets simultaneously for comparing**
  - Replay saved dataset for analysis (Play/Pause/Stop/Step Forward/Step Backward)
  - Changeable play speed(1x, 2x, 4x, 8x)
  - Travel play position by moving slider control or entering specific time to the time control

Function

Wizard to form project	This function makes it easy for users to create a project by simply selecting the interface they want to monitor and the corresponding ICD.
Data monitoring (Real-time)	It is able to monitor many interface including MIL-STD-1553B, ARINC429, RFM/SMN and Network Tap simultaneously(Max. 16). Monitored messages from different interfaces are stored with time synchronization and real-time incoming or saved messages provide the ability to display on the same time axis in the analysis window.
Message Tree	ICD is separated as a message corresponding to the monitoring interface and displayed as a tree format. User can check the reception status of message with this message tree and register the messages easily they want to check in the analysis window by dragging and dropping them from the tree list to the analysis window.
Search for playing data and section	The user can play the stored data at 1/2/4/8 times faster the playback controller and move the playback time slide or enter a specific time directly to the desired storage interval location. Also, when user monitors data in real-time, he(or she) can move the all(or individual) time position of the data displayed in the analysis window, without affecting the function to monitor and store data in real-time.
Compare saved data	It provides the function to compare stored data(Max. 4) by giving time offset to stored data. Also, it support to compare real-time incoming data with saved data.
Search for data	User can search data which meet the conditions input in the storage section with the function of searching data. Also, user can cross-check and compare different message values at times that match the search condition through the function to move time position of search results.
Analyze data	It provides analysis window as Grid Table, Strip Chart, XY Plot, Flight Path format to analysis data and the adds new analysis windows continuously and improve the function of existing analysis windows. Also, it supports the function which able to activate multiple analysis windows and can display many messages per each analysis window at the same time. As needed, user can display messages as not only Engineering data type but also Hexadecimal, Bit type. Furthermore, 'Chart' provides a variety of functions necessary for analysis related to zooming/moving, calculating the average and deviation within the section.
Extract and save data	It allows saved data to output as various file type such as CSV, Excel and Matlab MAT, etc. Additionally, if user outputs data, it provides the function available to select data section which user want to output and user is able to select variable type as Decimal, Hexadecimal and Bit type. Display area of chart could be copied at clipboard or saved by file format to copy to another document.

System Architecture

Specification

CPU	Intel® Xeon® E5 Series
	4 Cores, 3.0 GHz / 8 Cores, 3.2 GHz 2x8 Cores, 3.2 GHz / 2x16 Cores, 2.3 GHz
Storage	SSD (Solid State Drive)
OS	Window® 10
I/O Interface	Supports up to 64 monitoring devices - MIL-STD-1553B - ARINC 429 - CAN - RFM(Reflective Memory) / SMN(Shared Memory Network) - ETHERNET: Direct UDP, Network Tap(Likewise Wireshark, Can be filtered) **Additional interface types are available