RTU32 Update Tool

RTU32x Series Remote Update Tool

User Guide

Version 1.01, 2011-06-16

Contents

1. Customer Information

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http://www.brodersensystems.com,

Choose the product in question under product search and under each product you will find accompanying data sheets, manuals, user guides etc.

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1. Collect all the information about the problem encountered. (For example, Product type and s/n, hardware and software version etc.) Note anything abnormal and describe the error in a product failure report.
2. Call your distributor and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, make arrangement with your distributor about this.
4. Carefully pack the defective product, a complete failure report and a photocopy of proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Ship it to your distributor.

2. Introduction

Update tool for remote and/or bulk update of RTU32 Series products

The Update Tool for the RTU32 Series is designed for remote and/or bulk updates of RTU32 series product in a WAN/LAN network. It includes also a stand-alone scanning tool for finding devices on the network. The supported functions are;

- Scan an Ethernet network for RTU32 modules
- Open web configuration page or System Log eventviewer via link
- Update STRATON project in one or more RTU32
- Update RTU32 firmware/software – partly or completely.
- Upload files to the RTU32 Flash disc.
- Remote boot any RTU32 in the network

The tool is designed for Windows operating systems and support to run on .NET 3.5 (Windows XP SP2 to Window 7).

3. Installation and user license details

Installation

RTU32 Update Tool is supplied on a CD/DVD and installed via an installation program. The software license is allowed to install on one PC.

The Update tool is installed in the Brodersen RTU folder in the Start / Programs.

4. IMPORTANT NOTES BEFORE YOU STARTING UPDATING RTUs

Firmware version update limitations – what is possible and what is NOT possible

It is very important to understand what limitations there is in updating older remote RTUs in your network. In general there are the following limitations:

1. **RTU32 in 300MHz version**

   Can ONLY be updated with firmware designed for 300MHz RTUs. You can from the configuration webserver page determine if the running RTU is a 300MHz or 500MHz version. Open the configuration page with your browser and look for the RTU32 CE Image version (NK.bin). ***If the version is 1.00.xx – it is a 300MHz RTU32.***

2. **RTU32 in 500MHz version with MS-DOS or FDOS formatted Flash disc**

   All of the 500MHz firmware versions are so far recognized by the RTU32 CE Image version (NK.bin) = 1.10.xx (read on the overview web configuration page).

   The 500MHz RTU32 version (current version) is delivered in two different formatting options; MS-DOS formatting and FDOS formatting (currently formatting used). And you must ensure that the firmware you are using for update are compliant with the formatting on the Flash disc. **If not the complete update will fail – and you will not be able to re-start the RTU32!**

Each firmware version for 500MHz RTUs is linked to the Flash disc formatting type – see the firmware compliance list in appendix A for details. You can also determine the current FLASH disc formatting by reading the files on the root of the Flash disc via ftp – if you find IO.SYS file it is MS-DOS format and if you find KERNEL.SYS it is FDOS formatting. IT IS ONLY POSSIBLE TO REMOTE UPDATE A FIRMWARE THAT IS USING THE SAME FORMATTING!

3. **Update of running DLLs**

   There are a few dll files which are active running on the RTU32 Flash disc. These dll's are;

   - RemoteAdmin.dll (see note)
   - RTU32_SOE_Drv.dll
   - rtu32snmp.dll

   These dll's can (except for RemoteAdmin.dll) ONLY be updated in 500MHz RTUs that is running with FDOS formatting. If you try to update these files in older version you will get a report that these file cannot be updated. In FDOS formatted versions these files will be placed a batch file in the updated RTU and will be installed at boot. In all other versions the dll's will NOT be installed.

   NOTE:

   It is only possible to install the RemoteAdmin.dll file – if there has been no access to the RTU32 website for more than 20 minutes. If the website is accessed this dll is running and cannot be overwritten.

4. **STRATON PLC runtime application**

   In general the STRATON PLC runtime application will run on all RTU32 firmware versions. The only limitation is that you will need to ensure that a new STRATON application do not use functions not supported by the running firmware version. This is only relevant for very a small number of new added functions – but anyway you have to test compliance on a workshop RTU32 before you start updating remote RTUs.

Recommendations

Do always make an update procedure test on a workshop RTU before you start updating remote RTUs.

Carefully check the compatibility on the topics described above before starting an update process

Compare you currently running firmware with the new firmware in the Appendix A – to clarify if there are any issues you need to address.

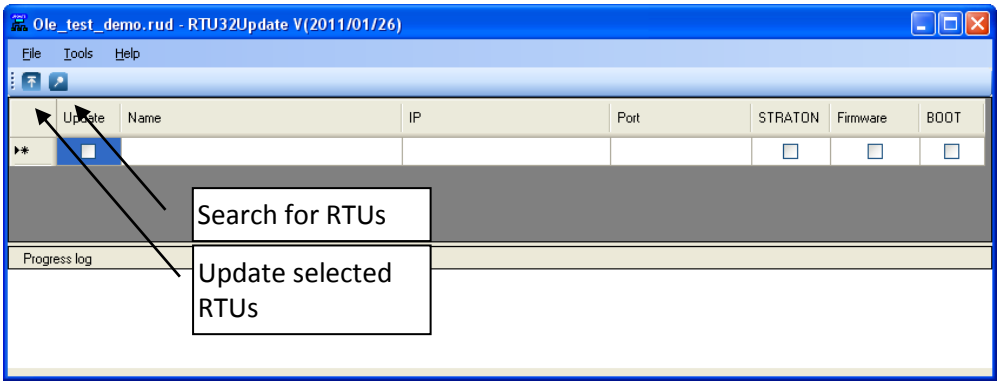
5. Getting started and general functions

Start up and defining RTUs for update

Start the RTU Update tool from Start/Programs/Brodersen RTU/.

The User interface will appear. The main window is used for listing the RTUs that needs to be updated and defining the specific update settings for each RTU.

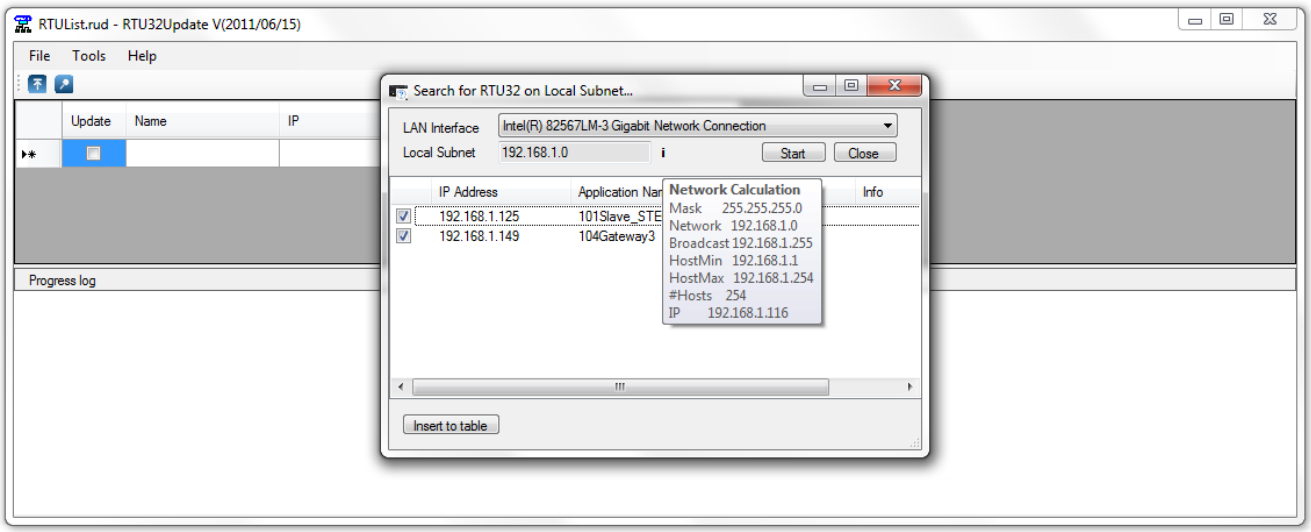
You have 2 options for defining the RTUs you want to update. Either you use the search function and select relevant RTUs from a list of found RTUs – or enter the RTUs manually in the list.



In the main windows you find 2 function buttons;

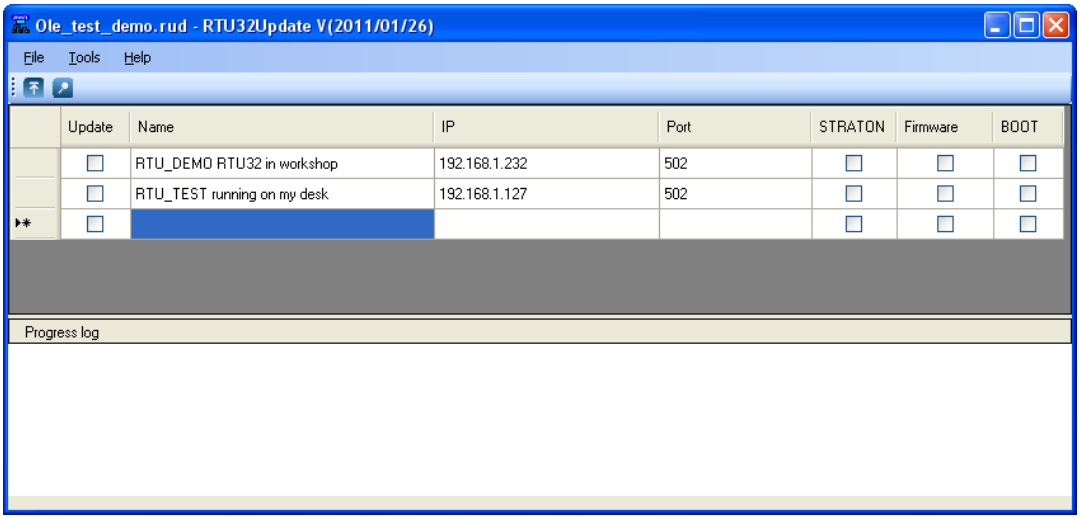
- Search for RTUs in the network
- Update selected RTUs

When you select the “Search for RTUs” the search window will appear;



Select the relevant LAN Interface on your PC – use default if you only have one. Check that the local subnet is correct and press “Start” to search for RTUs. If the RTUs are assigned a correct IP address and connected to your network, they will appear in the list as shown above. You can now use the check box at the left side and the “Insert to table” button to copy the found RTUs to your table in the Main window.

If you want to remove a RTU from the list in the main window, just high light it by selecting it on the left side and press Delete.



NOTE: If you put your cursor at the Name and right click, you have the possibility to open the configuration webpage in the actual RTU.

The listed RTUs are defined by a range of parameters and information's;

Update check box

Is check when you want to update the RTU. If not checked it will be ignored in the update process.

Name

The name of the applicable RTU. Default is set the text: RTU_[IP address] – e.g. RTU_123.123.12.123. But you are free to enter your own naming.

IP

The IP address of the RTU – and ONLY the IP address – e.g. 123.123.123.123.

Port

Port address for STRATON connections – default always set to 502. (It is the same port address as ModbusTCP and that is on purpose selected).

STRATON Check box

To be checked if you want to update a STRATON PLC project in the RTU. When you select it, additional fields are displayed for defining the STRATON project you want to copy to the RTU and a field for enter the STRATON password if applicable.

If you ONLY select this update, STRATON project are transferred without using FTP (STRATON background file transfer used) and the STRATON project will be started right after upload.

If you select more installation options, FTP will instead be used for all uploads.

Note: If STRATON project is loaded without any additional option, the project will be loaded after download. If the STRATON project is uploaded via FTP, the STRATON project is not started after upload – you will have to

send a boot order to make the RTU start up with the new project. This tool does NOT support online changes – if that is required you have to use STRATON WorkBench.

Project Path (only when STRATON check box is selected)

Here you define the folder incl. path for the STRATON project you want to upload/update. If you double click on the field a browse window will open where you can find and define the project.

STRATON Password (only when STRATON check box is selected)

If you have protected your running STRATON project with a password, you will need to enter it here.

Firmware Check box

Is checked if you want to update the RTU32 firmware full or partly. Or if you want to copy some files to the RTU32.

Firmware Path (only when Firmware check box is selected)

Double click on the field to browse for files and folders to upload. All the files and folder that are placed in the folder you selected will be copied to the Flash disc root ("\Hard Disk\").

It is recommended that you have full control of all you want to update – what files is required etc.

FTP User

You have to define the FTP user name of RTU e.g. admin (same as for login to WebServer).

FTP Password

You have to define the FTP password of the RTU - (same as for login to WebServer).

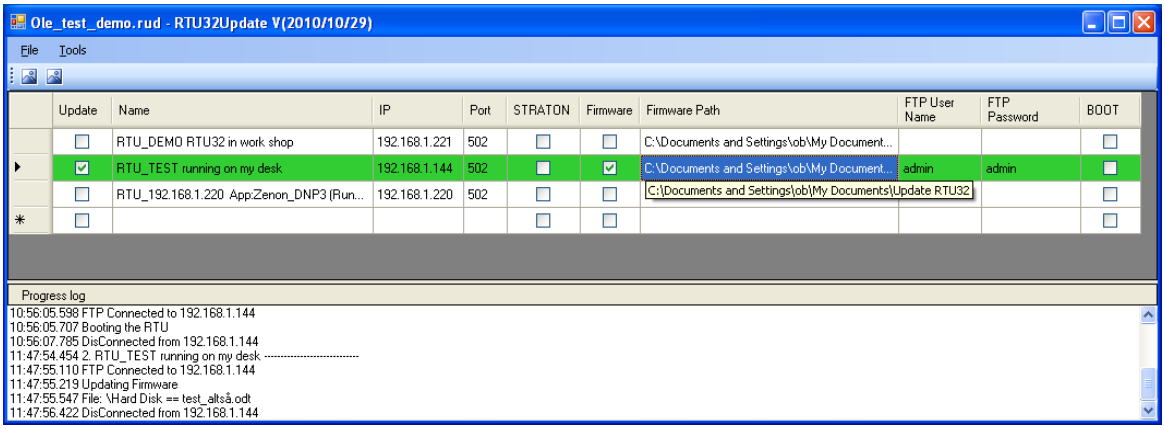
BOOT Check box

Used if you want to boot the RTU32. Can be used together with the other update procedures or as a standalone procedure. It might be a good idea to copy all updates to all RTUs in your application and then at the end send a boot command to all, so all requested updates are initialized at the same time.

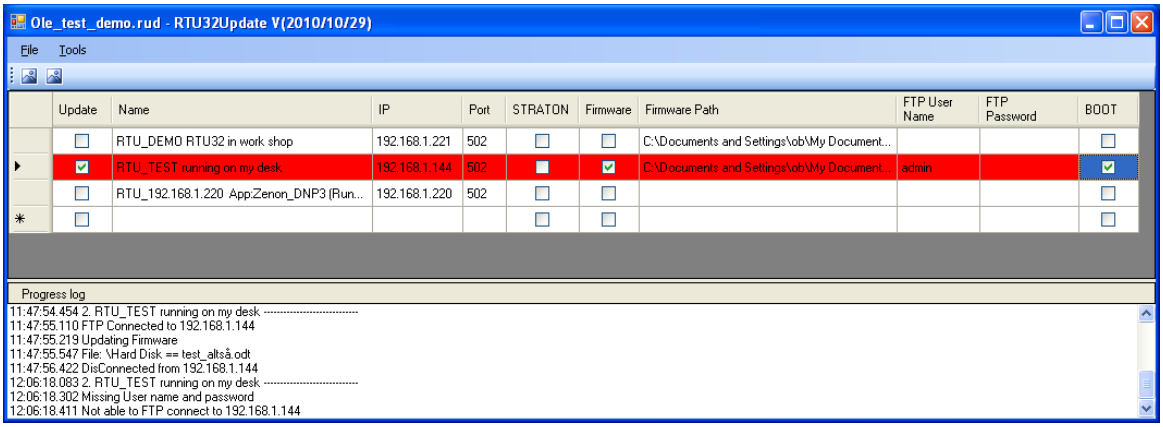
NOTE that you have to add FTP user name and password for BOOT command.

6. Progress indicators and log

The progress log is providing information about the running applications. Update processing, successful or failures in update procedures are shown by reporting yellow, green or red background on each RTU update line. If the update is successful executed it will appear green – see example below;



And if an error has occurred, the line background will be red;

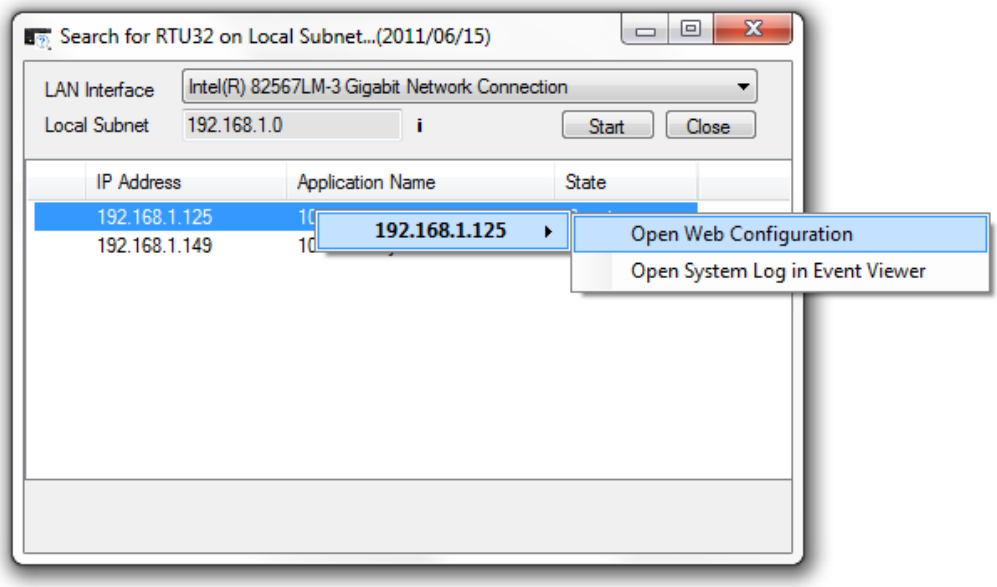


And the Progress log will indicate error.

7. Additional features

An update project can be saved with all the relevant setting. Just select files, save as and enter your project name. The RTU Update project is defined a text file type “*.rud”.

It is possible to right click the RTU´s found by the search function and open the web configuration in the default browser. It is also possible to open the RTU32 System Log in the Event Viewer program. This requires a newest version of the event viewer.



Appendix A1 – RTU32 300MHz Firmware overview

Date	NK.BIN	RTU32.exe	Description
20110207	1.00.48	1.49	The RTU32 folder from LX800 V1.49 (20100916) is copied to 300Mhz version to be able to run IEC61850 drivers in this old RTU32.
			SRAM board will not work with this version.
20091216	1.00.48	1.42B0	SOE (Sequence of Events) implemented.
			NOTE: COM3 to COM6 are not supported on the 300 MHz version when SOE is enabled.
20090918	1.00.48	1.41	STRATON VM7.4 released.
20090511	1.00.48	1.40	Version 1.40 version released with SR7-3
20081007	1.00.46	1.30	Released as version 1.30
20070712	1.00.32	1.21	Released as version 1.21
20070427	1.00.32	1.20	Number of event clients (ethernet sockets) are increased from 8 to 32
			Number of Communication Server ports (ethernet sockets) are increased from 8 to 32.
			Battery backed memory for Straton retain variables are implemented.
20061208	1.00.20	1.10	IEC60870-5-104 Server link layer has been tested at KEMA, Arnhem and accepted.
			Released as version 1.10
20060912	1.00.17	1.00	Released as version 1.00

Appendix A2 – RTU32 500MHz Firmware overview

Date	NK.BIN	RTU32.exe	Description	MS-DOS Formatted	FDOS formatted
20101013	1.10.14	1.49	Due to hardware compatibility issue the COM2=RS485 or RS232 option requires separate firmware versions. Make sure you get the right firmware that fit to your RTU32 configuration.		
			COM2=RS232 or COM2=RS485 is readable from the website		
20100916	1.10.12	1.49	FreeDOS is now used to BOOT and Load NK.BIN		
20100615	1.10.10	1.46	New function block LogCSV implements log with write behind functionality so STRATON is not delayed by file access.		
			New parameter (3) for the DAY_TIME function, which returns current time as string in the format: YYYY/MO/DD HH:MI:SS.ms.		
			System Log is placed in battery backed RAM if the board is found.		
			BIOS REV.1.01 (2010/05/10) OEM FOR BRODERSEN should be used.		
20100224	1.10.07	1.45	Released as BS1.45/CE1.10.07		
			Battery backed SRAM Board is now supported in this version. SRAM board support applied to the LX800 board. This requires new BIOS REV.1.00 (2010/01/25) OEM FOR BRODERSEN.		
			All logos adjusted (Brodersen Systems A/S)		
			STRATON project info (name, build date, version, CRC and start) displayed on webpage and system log.		
			SOE Driver implemented		
20090918	1.10.03	1.41	STRATON VM7.4 Released.		
			New function block DTCurDateTime implemented.		
			Binding timing parameters configurable on web page.		
			This version should run with BIOS version LX800B 1.11		
20090511	1.10.03	1.40	Version 1.40 version released with SR7-3		
			This version should run with BIOS version LX800B 1.11		
20081106	1.10.03	1.30	Release as version 1.30		
			Windows CE updates 08/07 and 08/08 added.		
			Battery backed RAM Board is NOT supported in this version		

IMPORTANT: FIRMWARE CAN ONLY BE REMOTE UPDATED TO A VERSION THAT USE SAME FLASH DISC FORMATTING!

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