

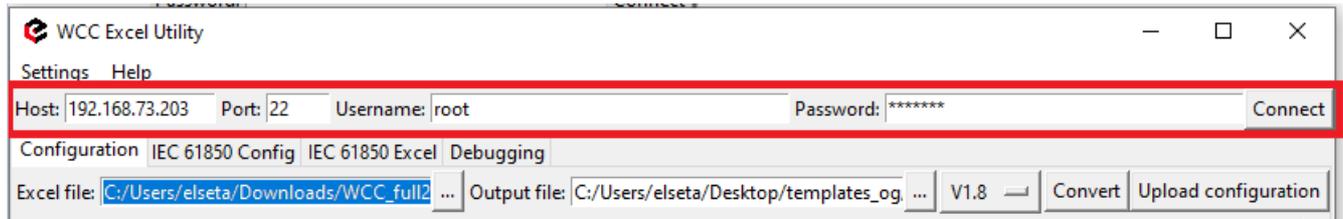
WCC Excel utility

WCC Excel Utility app can be used to:

- Upload configurations to WCC Lite device. App checks if there are no errors in your WCC Lite excel configuration file and converts excel configurations to .json file. Excel file → validation → .json file.
- Debug various protocols.
- Create IEC 61850 protocol client and server model from .icd, .scd or .cid extensions.
- Create excel configurations for IEC 61850 protocols.

Connecting WCC Lite

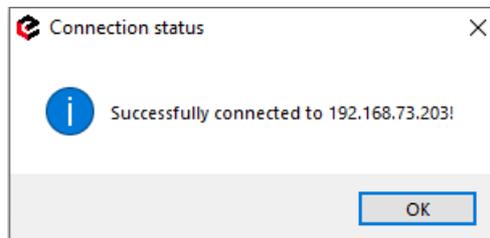
To start using the app you will need to connect your WCC Lite. Fill in *Host*, *Port*, *Username*, *password* and connect as required.



- **Host** - an IP address for the device to connect to. (Default value 192.168.1.1)
- **Port** - a PORT number to which an SSH connection can be made; valid values fall into a range between 1 and 65535. (Default is 22)
- **Username** - a username which is used to make an SSH connection. (Default username is root)
- **Password** - a password of a user used for establishing an SSH connection. (Default password is wcc-lite)

Successful connection

If connection is successful a connection status message will appear. Also a bar on the bottom of the app will turn green.



Connected to host: 192.168.73.203

Successful connection message

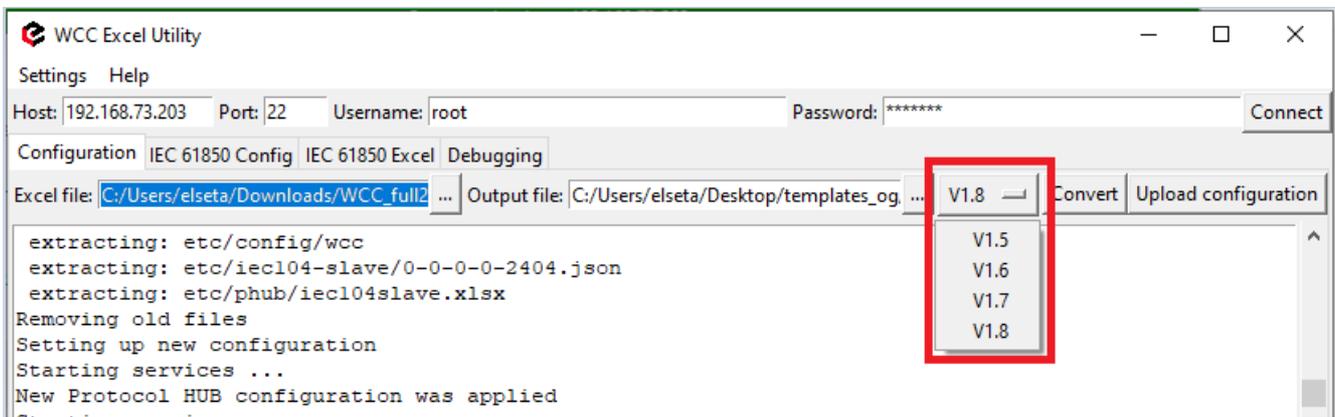
Once connected the app scans your current WCC Lite firmware version and suggest to use a correct conversion version.

Recommend configuration versi... X

Recommended version: V1.8

OK

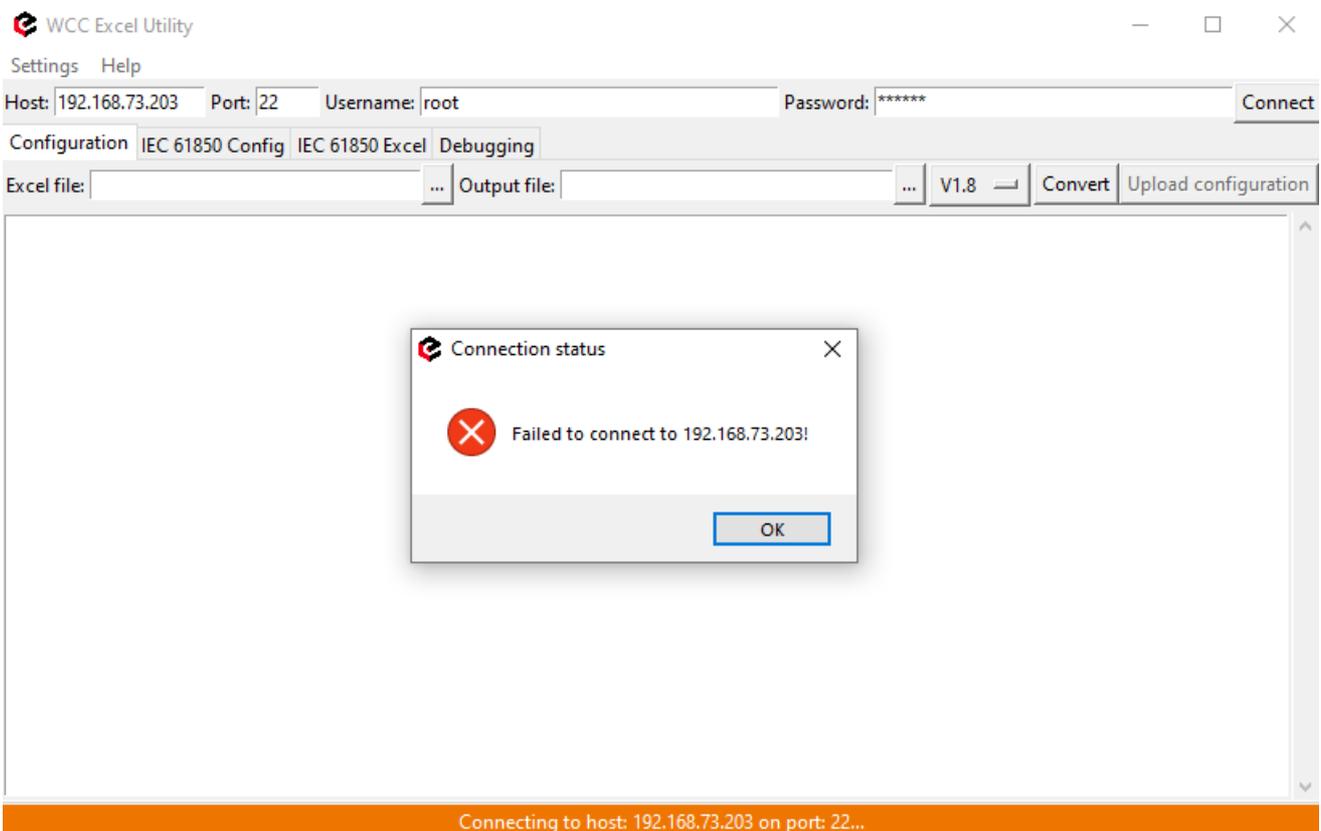
If you are using previous WCC Lite firmware versions you could select that from dropdown tab.



WCC Lite firmware selection tab

Failed connection

In case connection was not successful a connection status message will appear.

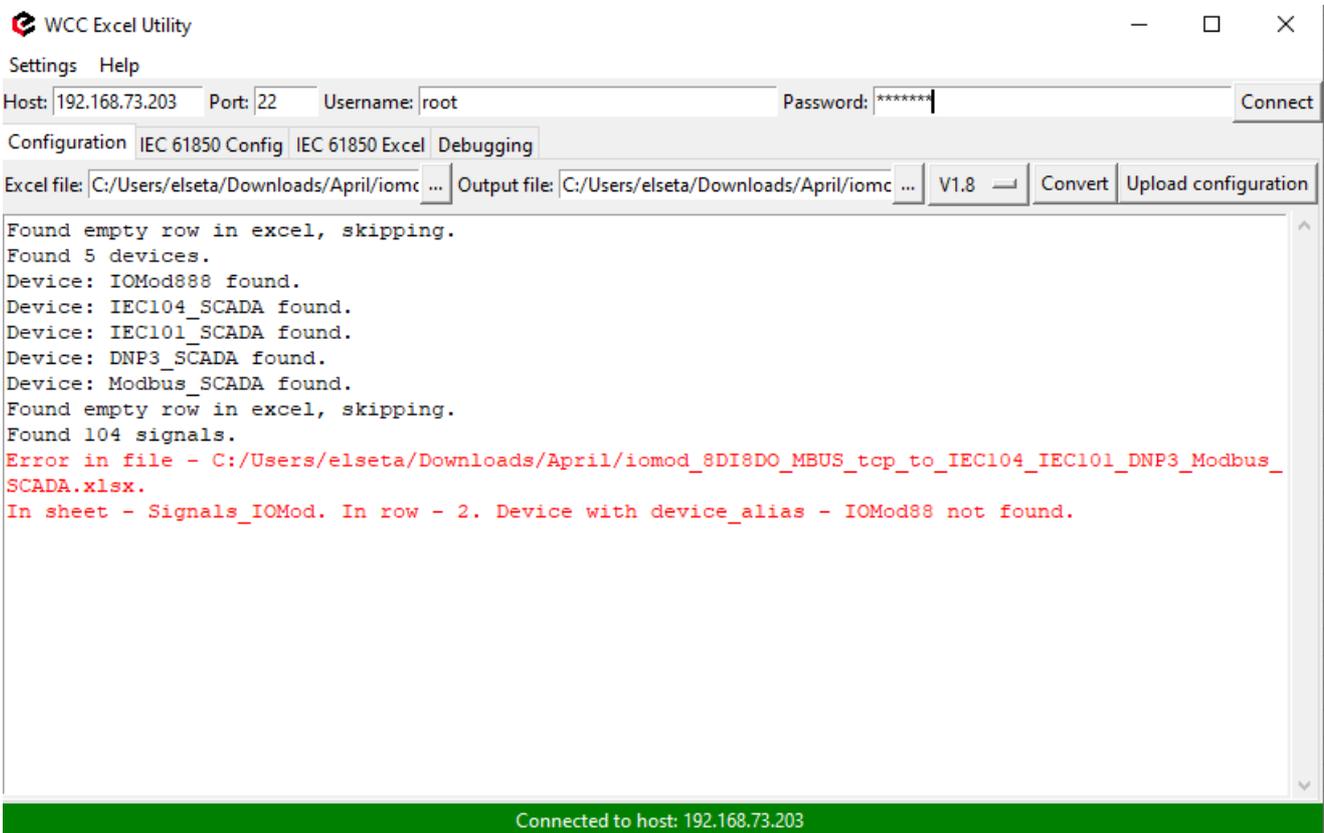


Connection failure

Make sure parameters: *Host IP, username and password* you have entered are correct. Note that connection can only be successful if a port used for SSH connection is open for IP address filled in the hostname entry field. Also please check WCC Lite firewall settings in case of connection failure.

Validate and upload

To make a conversion please select your excel configuration file and press **Convert**. File will go through various validation steps. If there are no errors found in the configuration, the output file should contain the generated configuration, otherwise, an error message is shown to a user.



Error message indicates where changes need to be made

In order to send a configuration to your WCC Lite press **Upload configuration**. If no errors occur, you should finally be met with text output mentioning configuration has been applied. During the course of the upload process, the aforementioned button is disabled to prevent spanning multiple concurrent processes.

The screenshot shows the WCC Excel Utility application window. At the top, there are tabs for 'Settings' and 'Help'. Below that, connection details are displayed: Host: 192.168.73.203, Port: 22, Username: root, Password: *****. A 'Connect' button is on the right. The main interface has tabs for 'Configuration', 'IEC 61850 Config', 'IEC 61850 Excel', and 'Debugging'. The 'IEC 61850 Excel' tab is active. Below the tabs, there are fields for 'Excel file:' (C:/Users/elseta/Downloads/WCC_full2 ...) and 'Output file:' (C:/Users/elseta/Desktop/templates_og ...). There are also buttons for 'V1.8', 'Convert', and 'Upload configuration'. The main area contains a text log of the process. The log starts with 'Found 30 signals.' and 'All validations passed successfully.' (highlighted in green). It then lists various steps: 'In protocol: "iec 61850 server" detected unused variables: access_point.', 'Generated iec61850-server.json file.', 'Generated tag-engine.json file.', 'Generated events-log.json file.', 'Generated wcc file.', 'Overall time taken: 0.03ms.', 'Writing file C:/Users/elseta/Desktop/templates_og/iecl04slave', 'Copying C:/Users/elseta/Desktop/templates_og/iecl04slave to remote /tmp/config.zip', 'Stopping services', 'Stopping: tag-engine', 'Stopping: events-log', 'OK', 'Resetting GPIO', 'setting up led LAN', 'setting up led WAN', 'setting up led WLAN', 'Applying new configuration', 'Archive: /tmp/config.zip', 'extracting: version.txt', 'extracting: etc/tag-engine.json', 'extracting: etc/config/wcc', 'extracting: etc/events-log/events-log.json', 'extracting: etc/iec61850-server/iec61850-server.json', 'extracting: etc/phub/WCC_full2.xlsx', 'Removing old files', 'Setting up new configuration', 'Starting services ...', 'New Protocol HUB configuration was applied' (highlighted in green), 'Starting services', 'Starting: tag-engine', 'Starting: pooler', 'Starting: iec61850-client', 'Starting: events-log', 'Starting: lua-runner', 'Enabling on boot: tag-engine', 'Enabling on boot: pooler', 'Enabling on boot: iec61850-client', 'Enabling on boot: events-log', 'Enabling on boot: lua-runner'. At the bottom, a green bar indicates 'Connected to host: 192.168.73.203'.

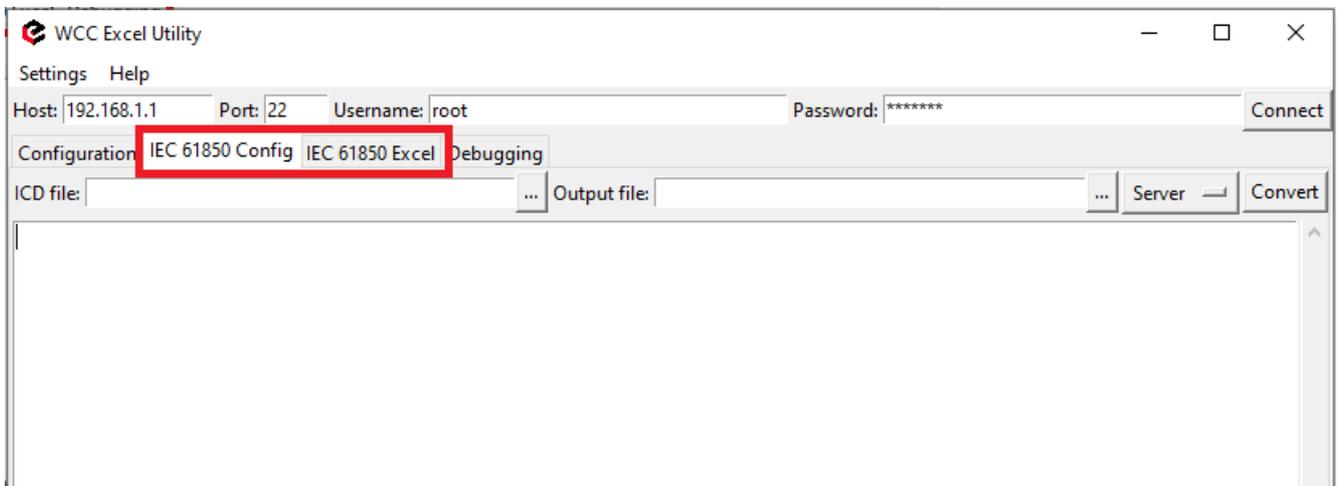
```
Found 30 signals.
All validations passed successfully.
In protocol: "iec 61850 server" detected unused variables: access_point.
Generated iec61850-server.json file.
Generated tag-engine.json file.
Generated events-log.json file.
Generated wcc file.
Overall time taken: 0.03ms.
Writing file C:/Users/elseta/Desktop/templates_og/iecl04slave
Copying C:/Users/elseta/Desktop/templates_og/iecl04slave to remote /tmp/config.zip
Stopping services
Stopping: tag-engine
Stopping: events-log
OK
Resetting GPIO
setting up led LAN
setting up led WAN
setting up led WLAN
Applying new configuration
Archive: /tmp/config.zip
extracting: version.txt
extracting: etc/tag-engine.json
extracting: etc/config/wcc
extracting: etc/events-log/events-log.json
extracting: etc/iec61850-server/iec61850-server.json
extracting: etc/phub/WCC_full2.xlsx
Removing old files
Setting up new configuration
Starting services ...
New Protocol HUB configuration was applied
Starting services
Starting: tag-engine
Starting: pooler
Starting: iec61850-client
Starting: events-log
Starting: lua-runner
Enabling on boot: tag-engine
Enabling on boot: pooler
Enabling on boot: iec61850-client
Enabling on boot: events-log
Enabling on boot: lua-runner
```

Successful upload message

Configuration

Configuration of IEC61850 for WCC Lite is done via WCC Utility. Elseta WCC Utility has two IEC 61850 selections - IEC 61850 Config and IEC 61850 Excel:

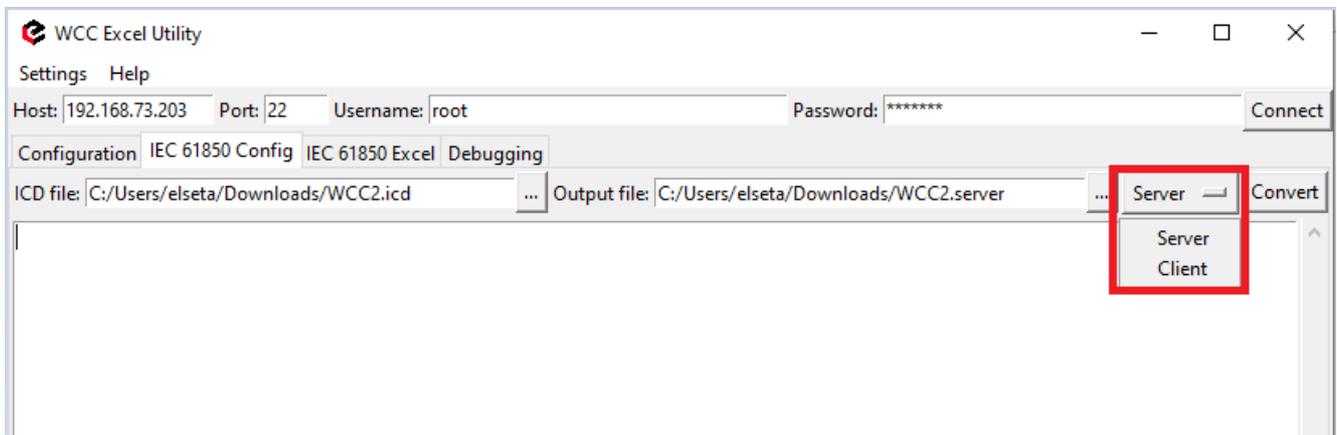
- **IEC 61850 Config** is used to create a configuration model file, which IEC 61850 Client service will use to parse reports from the server. IEC 61850 Server is used to send responses to master requests and commands.
- **IEC 61850 Excel** is used to generate excel configuration file which in turn will be used to generate configuration .json via excel-utility.



WCC Utility with IEC61850 selections

Generate model file

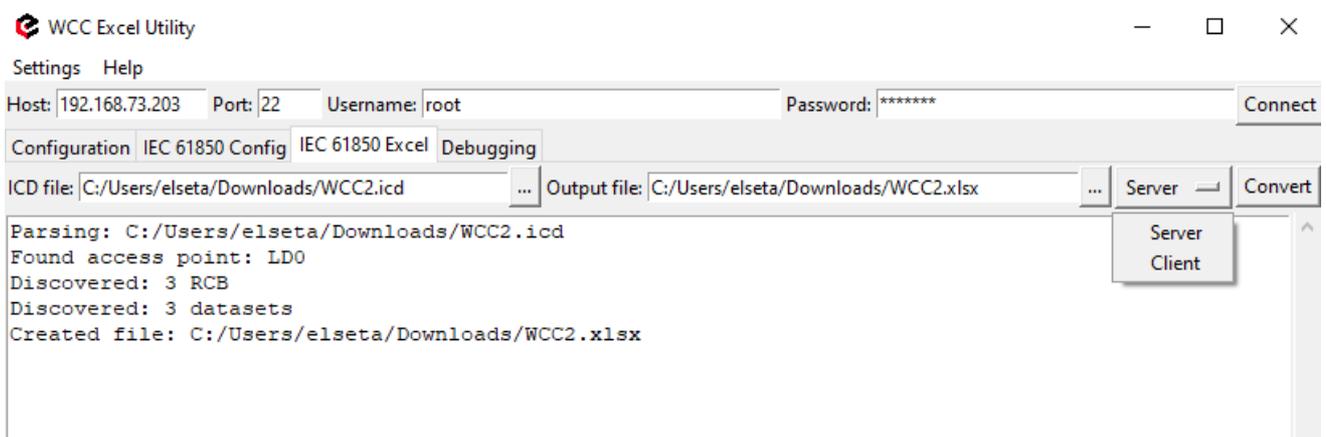
To generate IEC 61850 Client or Server model file select "Client" or "Server" in drop down selection tab. Upload file with extensions .icd, .scd or .cid, then select where to output the generated model and press **Convert**.



Generate IEC 61850 model file

Generate excel file

To generate IEC 61850 Client or Server excel file select "Client" or "Server" in drop down selection tab. Upload file with extensions .icd, .scd or .cid, then select where to output the generated file and press **Convert**.



Generate IEC 61850 excel file

After generating excel file additional configuration information must be written in the devices sheet:

- A valid host ip address must be provided.
- An authorization method must be provided (if it is a complex authorization method, additional parameters

might be required).

- Model filename must be provided. The model filename must be exactly the same as that was generated one step earlier (Model filename can include extension, but it is not mandatory).

I	J	K
host	authorization	model_filename
192.168.122.146	none	WCC

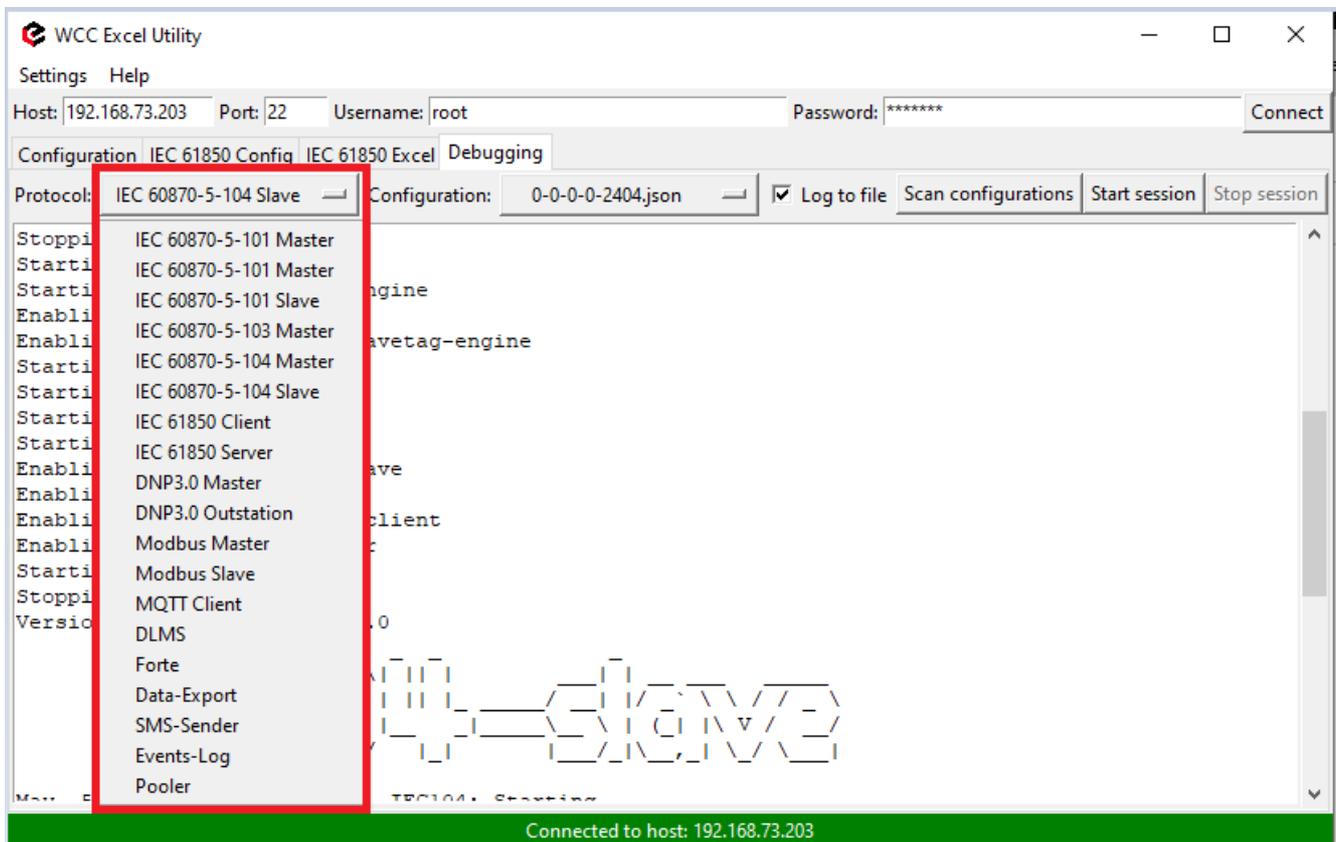
Excel configuration (Devices sheet)

Debugger

WCC excel utility has a debugging tool. This feature helps to track protocol service process and monitor events in real time. If protocol does not work properly (e.g. no communication between devices, data is corrupted, etc.), a user can launch a debug session and find out why the link is not functioning properly

Configuration

Step 1. Use dropdown menu tab to select a **protocol** you want to debug.



Protocol selection tab

Step 2. Click on *Scan configurations* to validate protocol.



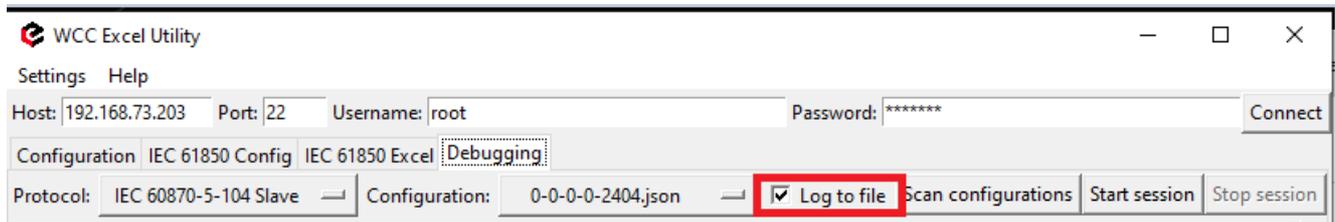
Successful protocol validation message

Please note that Debugger only works with protocols that are uploaded to your WCC Lite. If you select a protocol that is not configured on your device an error message will appear. Also you could only debug one protocol at a time.

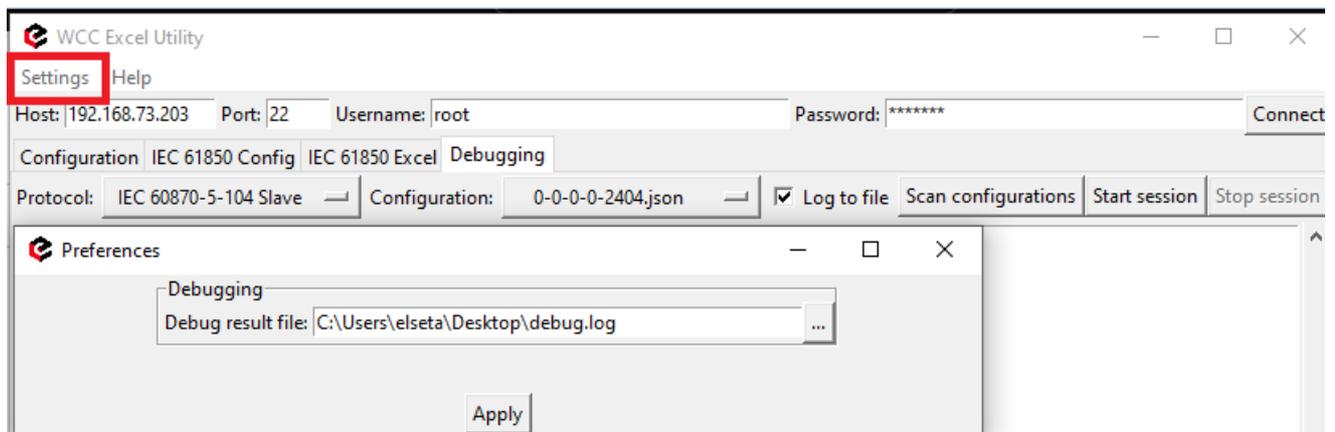
Step 3. Click on *Start session*

Debugger logging

There is an option to store debugger log to a file. Tick the box before starting a session.



In order to change debug logger output file location navigate to *Settings -> Preferences*



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