STwrench and Scalable Quality Solution 3 Integration

Pocket Guide

1 Revision history

Revision	Date	Author	Description
1.0	February 13, 2018	Hendrik Fischer	Initial version
1.1	January 10, 2020	Hendrik Fischer	SQS name change; change of instructions due to SQS3 Configurator improvement

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2 Purpose of this document

This document describes the configuration steps that are required to integrate an STwrench and the Scalable Quality Solution 3 (SQS3). In particular, it describes the connection of the two products directly via Open Protocol. The connection via Power Focus or via Power Focus Open Protocol (PFOP) API are not covered. The document only details the tasks that are specific to the basic integration of the two products. The reader of the document needs to possess good knowledge of the configuration and operation of all components involved as a prerequisite.

3 Prerequisites

These components are required for a successful integration of the STwrench and the SQS3:

- A STwrench with RBU Production API and an IRC-W Module installed
- STwrench FW revision supported by SQS3 according to the SQS3 Fact Sheet: http://toosseas0004/portal/content.php/3343-Single-Qualition-Solution-tool-connectivity-corner
- ToolsTalk BLM 10.5.1 or newer
- Scalable Quality Solution 3.3.0 or newer

4 STwrench configuration

4.1 ToolsTalk BLM

Start ToolsTalk BLM, switch the *Target device* to “STwrench” and connect to your STwrench.

4.2 Set sources

The SQS3 will select the PSets or jobs required for tightenings. The input sources for programs or jobs must be set accordingly.

1. In the *Tree view* of your STwrench expand *Controller* and double-click *Configuration*.
2. Navigate to *Sources* and set both *Source program* and *Sub source job* to "API".
3. Store and close the *Configuration* pane.

4.3 Configure Open Protocol settings

The SQS3 will communicate with the STwrench directly via Open Protocol. The connection parameters must be configured accordingly. Consult a network administrator to determine the correct settings for the wireless network you're trying to connect the STwrench to.

1. In the *Wrench map* of your STwrench expand *Controller* and double-click *Open Protocol*.
   a. If you receive a warning message saying that a connection to ToolsNet, Power Focus or IRC-W API is already active, open the settings of that connection and disable it first. Afterwards try opening the *Open Protocol* settings again.
2. If the checkbox *Connection Enabled* is checked, uncheck it.
3. Configure *General Settings*:
   a. **SSID**: The SSID of the wireless network you want to connect the STwrench to
   b. **Hostname**: the name the STwrench will have on the network. Make sure to use a hostname that is not used by another computer or device on the network
4. Configure *Security Settings*:
   a. **Security type**: the type of security that protects the wireless network you're trying to connect to. In the unlikely case that the network is not protected at all, select *Disable*
   b. **Psk**: the pre-shared key (psk) respectively password required to access the wireless network
5. Configure *Internet protocol (TCP/IP)*
   a. Check *TCP listener*
   b. Enter "4545" into the field *Device port*
   c. Select *Device IP config* and apply these settings:
      i. **IP address**: the IP address of your STwrench. Make sure to use an IP address that is not used by another computer or device on the network
      ii. **Sub mask**: the subnet mask of the wireless network
      iii. **Gateway**: the IP address of the gateway on the wireless network
6. Configure *Additional Settings*
   a. Check *Open Protocol 2.x VIN format*
7. *Store* the new settings
8. Check *Connection Enabled* and *Close* the *Open Protocol* settings

4.4 Add PSets

Configure PSets as required for the tightenings you want to do with the STwrench.

5 Scalable Quality Solution 3 configuration

5.1 Add the tool

The Open Protocol connection to the STwrench needs to be configured:

1. In the *Station Tree*, add new *Tool* to the *Hardware* of your station. Choose “Open Protocol Tool” as the *Device class*.
2. Enter a *Tool/channel name* and the *IP Address* you previously assigned to the STwrench and verify the *Port* is set to “4545”.
3. On the *Advanced* tab make sure the parameter *Set time of controller* is checked
4. Select whether the SQS3 shall download *OK or NOK traces* from the STwrench. Beware that the download of traces will increase the amount of disk capacity consumed by the SQS3 result data
5. On the Options tab check the box *Read data from scanner connected to tool* if you are planning on using the STwrench’s optional barcode module to scan product IDs or part data

5.2 Assign the STwrench to bolt cases and bolt locations

Assign the STwrench to the bolt cases linked to your station and select the PSets you want to use as tightening programs. The SQS3 will enable the STwrench for these bolt cases and select the PSets.

6 Verify the setup

Upon completion of the configuration start the SQS3 operator guidance. There is a new status light representing the newly configured STwrench at the right side of the screen. This status light should be green. Also, the STwrench should show an IRCW logo at the top left of its display and the message “Wrench Locked”.

7 Troubleshooting

7.1 No connection from SQS3 operator guidance to STwrench

The status light that represents the STwrench in the SQS3 operator guidance remains red. This means that the SQS3 is unable to establish a network connection to the tool.

Cause	Solution
The STwrench is not configured for an Open Protocol connection over Wifi. Instead it is paired with a Power Focus 6000 or set up for an IRC-W API connection	Connect ToolsTalk BLM to the STwrench. Verify that the *Open Protocol* connection is configured and enabled. For details please see chapter 4.3.
The network settings of the STwrench do not meet the settings of the network it is in. The tool is completely unavailable on the network.	Connect ToolsTalk BLM to the controller. Verify the *Open Protocol* settings of the STwrench with a network administrator and correct them if needed.
The network settings of the PC that hosts the SQS3 do not meet the settings of the network it is in. No other network device can be reached from the PC.	Use the *ping* command to reach other devices on the network. If there's no connection to other network devices, verify the network settings of the PC with a network administrator and correct them if needed.
The IP address and/or the Open Protocol port of the STwrench are incorrectly configured in the SQS3.	In the SQS3 Configurator, open the *Network* tab of the *Open Protocol Tool* you configured for the STwrench. Check the IP address and the Open Protocol port and correct them if needed.
Network IP address conflict	Turn off the STwrench and use the *ping* command on the PC to ping the STwrench's IP address. If there's a response even though the STwrench is turned off, there must be another device on the network using the same IP address. Configure a different, unique IP address on the STwrench and adjust the configuration of the *Open Protocol Tool* of the SQS3 accordingly.

7.2 No connection from SQS3 Configurator to STwrench

When configuring the SQS3 project, the *Synchronize* button of the *Bolt Case Link* on the station does not populate the list of *Tightening programs* with the PSet numbers of the STwrench. Instead you receive the message "Not able to synchronize; please check your settings".

Cause	Solution
There's no network connection available from the PC that runs the SQS3 Configurator to the STwrench.	This can be normal in environments where production networks are isolated from other networks. Simply enter the PSets manually into the *Tightening program* field.
There are no PSets configured on the STwrench.	Configure at least one PSet on the STwrench.

7.3 Wrench not enabled/PSet not selected

The status light that represents the STwrench in the SQS3 operator guidance is green but the SQS3 cannot properly enable the STwrench and select a PSet when a tightening needs to be done. The display of the STwrench continues to show the message "Wrench Locked" or it shows an error message.

Cause	Solution
There is no PSet number on the STwrench that matches the *Tightening program* assigned to the bolt case or bolt location in the SQS3 Configuration	In the SQS3 configuration verify that the *Tightening program* assigned to the bolt case or bolt location has a matching PSet number on the STwrench. Correct it if needed. Use the *Synchronize* button to get a list of available PSets.
The PSet is incorrectly configured on the STwrench	Check the error message on the display of the STwrench and correct the configuration of the PSet accordingly.
The setting *Source program* of the STwrench is incorrect	Connect ToolsTalk BLM to the STwrench, navigate to the folder *Controller* and open *Configuration*. Select "API" from the drop-down list *Source program*. For details see chapter 4.2.

7.4 No traces available in SQS3

After a bolt has been torqued, the trace is not available in the trace view on the SQS3 operator guidance. The trace is also not available from the web UI for SQS3 result data.

Cause	Solution
The FW revision of the STwrench or the SQS3 version do not meet the minimum requirements	Verify that both the STwrench firmware and SQS3 version meet the minimum requirements described in chapter 3.
The SQS3 is not configured to download OK or NOK traces from the STwrench	In the SQS3 Configurator open the configuration of the STwrench and select the *Advanced* tab. Tick the checkboxes for OK and/or NOK traces as needed.

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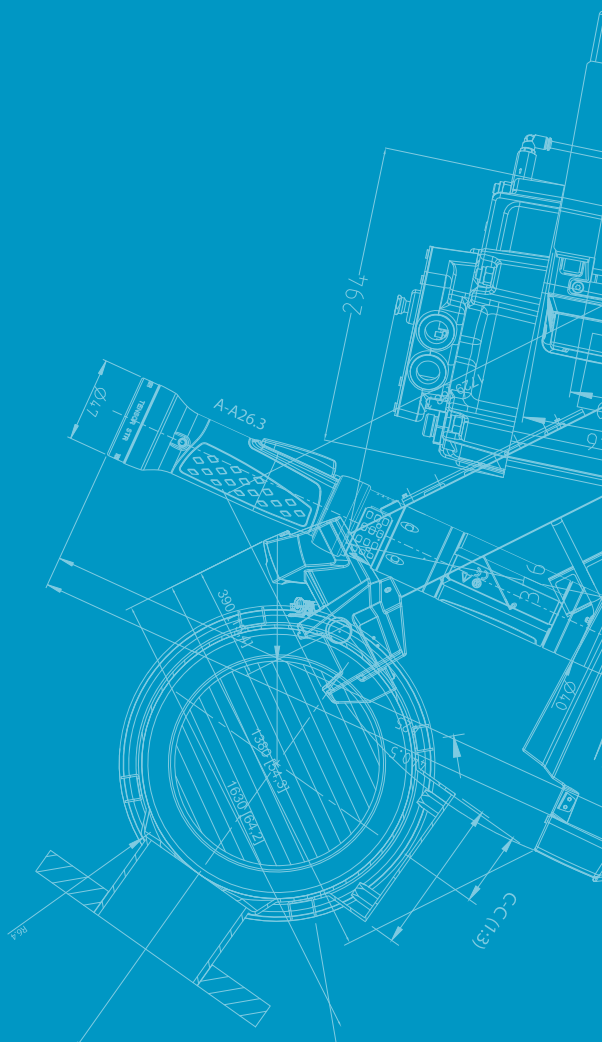
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