HEXAGON

Q-DAS qs-STAT

TSAF
Application and use

HxGN
Quality Assurance

Information about this document

Document History

Version	Date	Author(s)	Modifications / Remarks
v-0.23	12.10.2022	GA	Initial release
v-0.4	12.10.2022	GA	Translation
v-0.9	08.11.2022	SJ	TSAF availability in the applications added (14.0.2.3)
v-1	18.11.2022	GA	Requirements and explanation changed
	25.08.2023	LG	New template

CONTENTS

1 TSAF

This document explains the technical procedure of the TSAF evaluation.

> ℹ The TSAF evaluation is not available in the Q-DAS vidara, Q-DAS destra, and HxGN Quality Assurance Essential applications.

1.1 Technical requirements

- The TSAF server must be licensed and installed.

- The TSAF licence of Q-DAS must be purchased and registered.

- In qs-STAT (Process Analysis module), graphical representation is possible.

- In the reporting system, the graphical representation as well as the alerting are possible.

- Version 14.0.2.2 or higher is required.

- The Q-DAS application needs permission to access the web service of the TSAF server.

- The menu item must be activated via the configuration of the ribbon.

- There must be at least 8 and a maximum of 3000 measured values.

- Only variable characteristics or the axes of position tolerances can be evaluated

- The measured values must be in chronologically ascending order.

- Time duplicates in the same second are not permitted

1.2 Technical set-up in the product INIs

The URL and the port must be specified in the product INIs, as well as whether TSAF should be used in the reporting system.

For this purpose, the following entries must be created in all INI files involved (V14_qs_STAT.INI; V14_M-QIS_Engine.INI; as well as all desired "ClientName_ V14_qs_STAT.INI"):

In the [CONFIG] section, specify the URL and the port:
TSAF_WS_URL= http://XX.XX.XXX.XX
TSAF_WS_port=XXXX

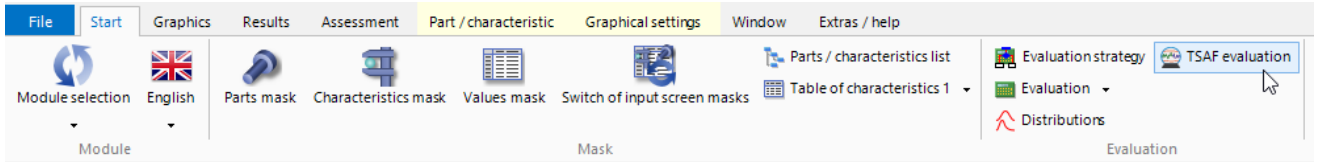> ℹ These details must be taken from the installation of the TSAF server

In the section [REPORTING], only important for the reporting system, in the V14_M-QIS_Engine.INI.
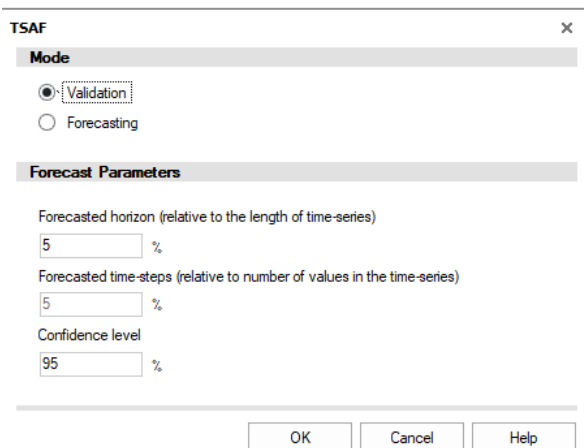USE_TSAF=1

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2 Implementation in qs-STAT

The button to start the TSAF evaluation is located in the ribbon under the evaluation tab:

ⓘ This must first be activated via the configuration of the ribbon.

In addition to the adjustable parameters, 2 options are available. Validation and Forecasting.

The parameters define the percentage that is visualised after the evaluation. For this document, this is set to 25% for better representation.

⚡ The two % values must be set to the same value in the prediction for version 14.0.2.2.

For the sake of simplicity, the examples are based on only one characteristic.

2.1 Graphic interpretations

Before the technical procedure, the graphic parts should be briefly addressed.

In this example picture you can see the blue line, this is a change point. A sudden process change was detected at these positions. Any calculation of the TSAF prediction is only done with the measured values after the last change point.
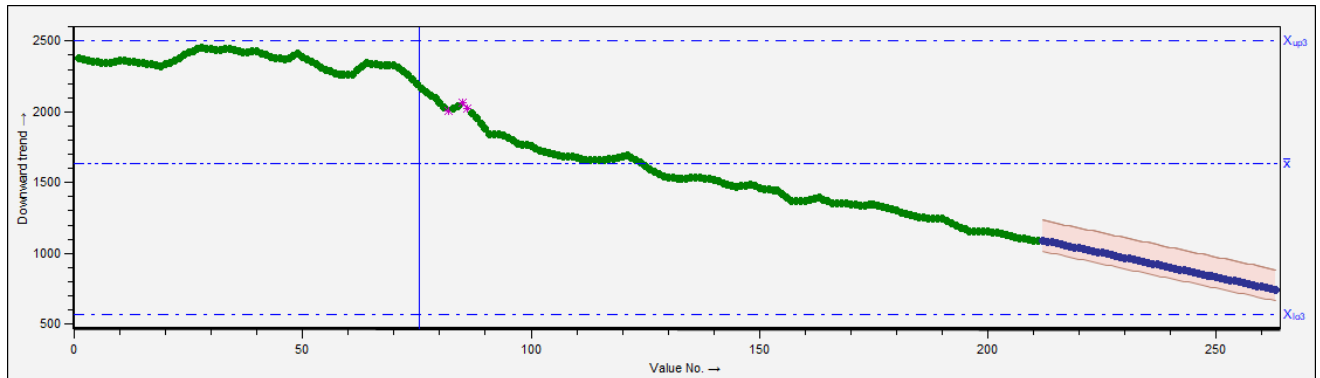

Marked measured values can be seen further to the right of the change point. These measured values are values recognised by the TSAF evaluation as outliers, which are not included in the calculation of the TSAF prediction.

2.2 Validation

A part with one feature is loaded (In the example. In the application the amount of features does not matter).
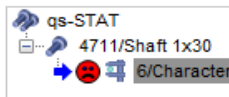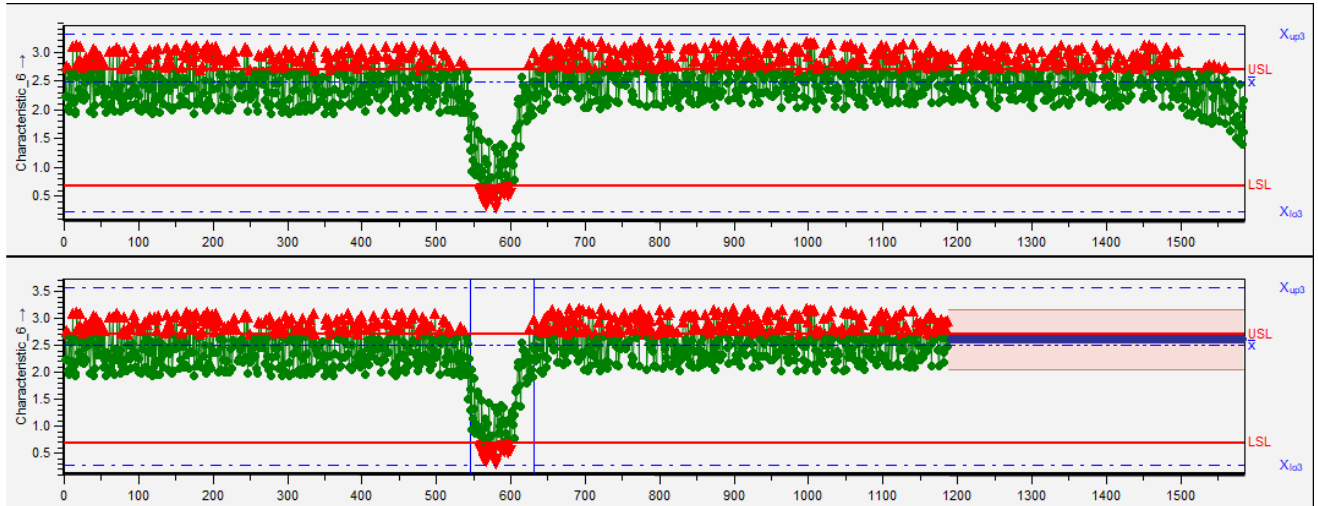

The TSAF evaluation with the option "Validation" now duplicates the dataset.
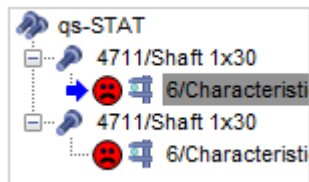
In the newly created data, the validation is now available so that the real data set can be compared with the prediction. As in this example through the multiple display of the value progression.
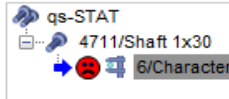

The 25% of the last values set in this example are "overwritten" with the prediction in the parallel dataset.
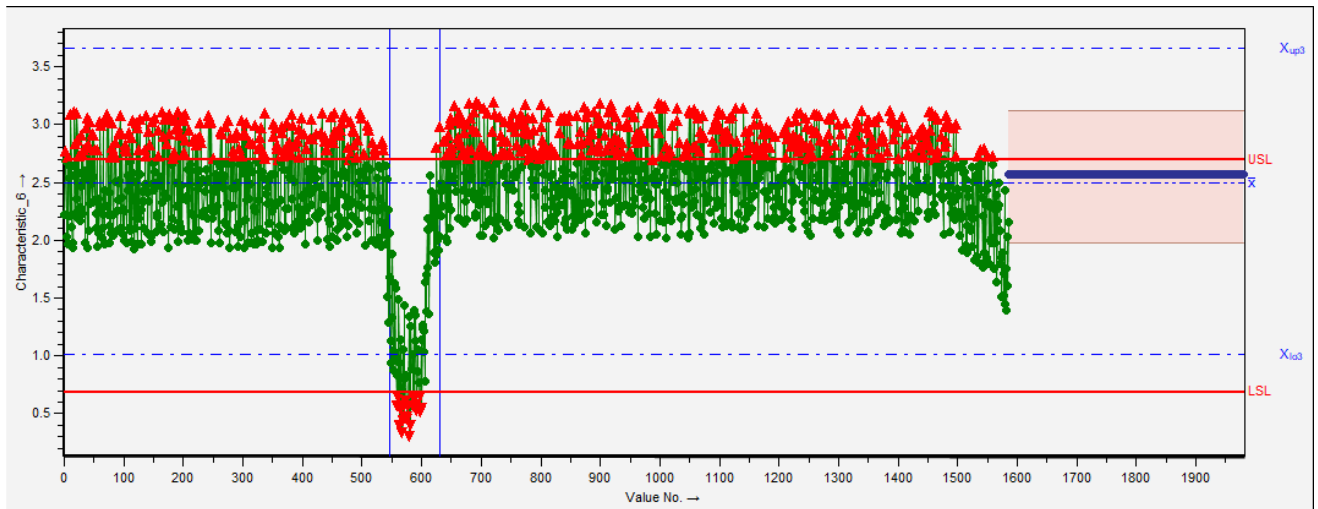
2.3 Forecasting

A part with one feature is loaded (in the example. In the application, the quantity of features does not matter).
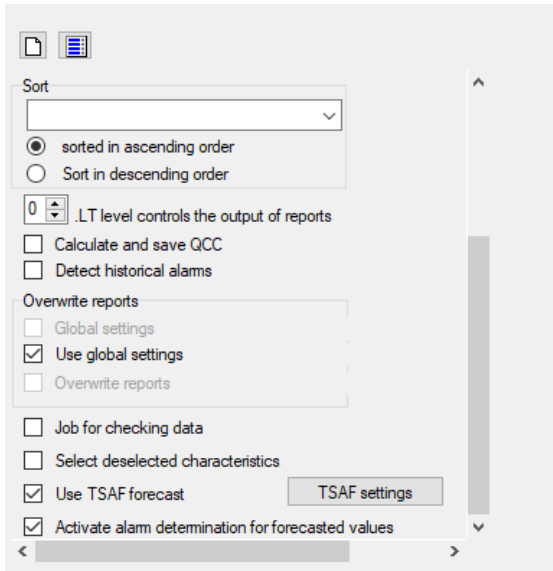

The TSAF evaluation with the option "Forecasting" now expands the dataset with the forecast for upcoming values:

3 Setup in the reporting system

In the reporting system, the options can be found in the advanced job settings:


The option "load all parts together" may not be used in current version 14.0.2.2, depending on the evaluation and report file.

If the alarm for tolerance violations in the prediction range is also to be used, this must also be set to "Forecasting" in the TSAF settings.

3.1 Report assignment for reporting system for alarms in the forecasting area

The following settings must be made in the report assignment for reporting:

Bad Smiley Report for the desired report:
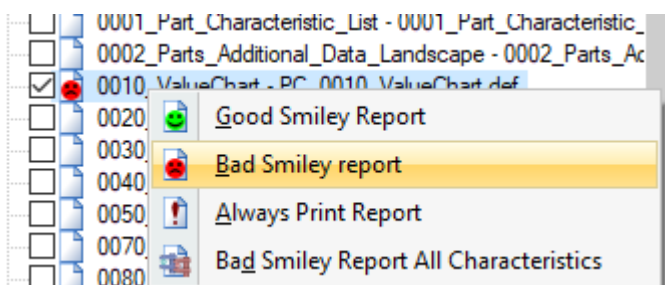
In the alarm settings (the reasons for the "Bad Smiley") the special settings must be made:

Alarm setup

○ Standard evaluation method(Show)

◉ Special setting(Change)

In these, only the alarm for the forecast area should be activated:

| non plausible measured value (attribute 290) | |
| Confidence level of forecasted values outside tolerance | ✕ |

☐ Identify measurement uncertainty alarms at specification limits

Location of the permitted interval within a bilateral tolerance

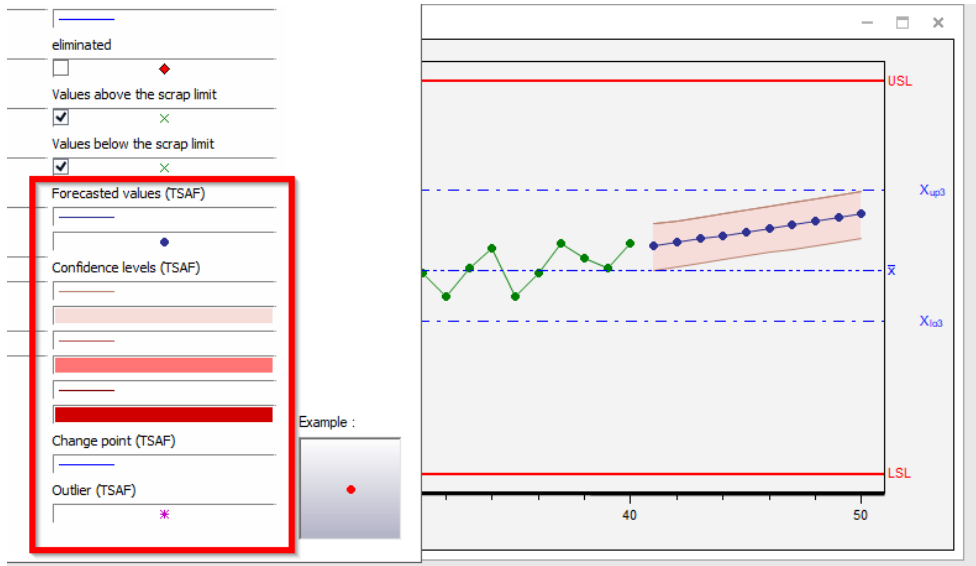○ Center around nominal

◉ Center around tolerance middle

○ Center around target value

4 Graphic settings

The display of the areas can be set in the graphic configuration:

With the current version 14.0.2.2, these are not available in the graphic styles for central distribution.