



HEXAGON

R&D Metrology & Production Software BU
Manufacturing Intelligence Division

Using Q-DAS Export in Spatial Analyzer

SPC Support

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**Table of Document Changes**

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2.0	Adjusted for customer use	Didier Serveille	10/20/2022
3.0	Modified format and added clarifications	Olga Diskin	11/01/2022
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1 Introduction

1.1 What is Q-DAS?

Q-DAS is stands for Qualitative Data Analysis Software.

Hexagon’s Q-DAS Process Control Solution provides multiple software products and services for quality assurance in industrial production [HxGn Q-DAS Product Line \(hexagonmi.com\)](https://www.hexagonmi.com)

When evaluation of production quality and process assessment are needed, Q-DAS is the right tool for you.

1.2 When to Use Q-DAS

If you need to analyze some basic statistic for a part measurement, an instrument, or to check a quick measurement process you can use Charting Tool in SA (see more information on Statistical Process Control (SPC) and charting options in References[5] *Charting* chapter)

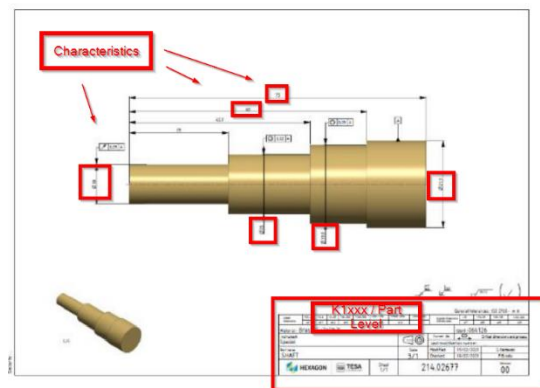
However, for a part’s manufacturing quality in production, that can only be guaranteed through continuous monitoring, more information is needed for analysis. For example, operator names, measurement equipment data, etc. For this purpose, Q-DAS Export Tool should be used in SA. It allows to export the required data to Hexagon’s Q-DAS Process Control Solution to further processing.

1.3 Importance of Reliable Measurement Process

During the processing of data from any measurement software Q-DAS is checking something called Key-fields. Those are definition fields that create a structure in the Q-DAS database for the uploaded test plans. For example, you need to perform inspection in production on the following part:



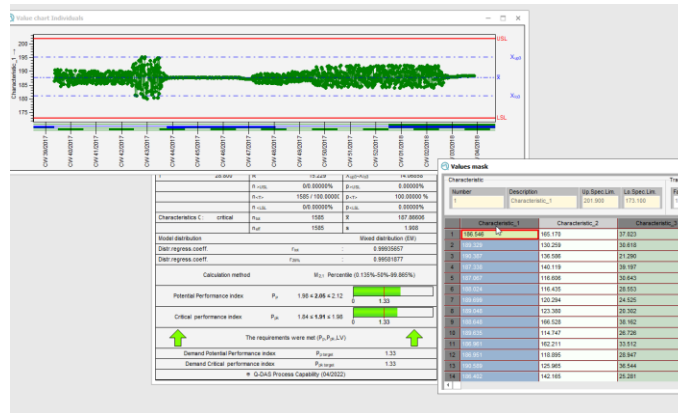
The drawing below shows this part described by K1xxx fields. It also indicates what features (characteristics - K2xxx) should be measured during inspection:



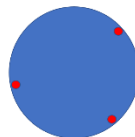


A **reliable measurement routine** should be established with strictly defined steps *how to measure*. Such routine will be used to inspect this part type in production for a long period of time for thousands of manufactured pieces.

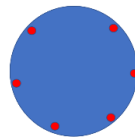
Q-DAS database collects the measured data over time for the same part's characteristics. Based on the data, Q-DAS software makes the calculation of the process-capability:



It is very important that the established measurement process with exact rules will not change over time; otherwise, the statistic must start from scratch! For example, a tactile Gage originally measured a diameter with 3 points:



Later, someone decides, that a 6-point-measurement would be better:



In case when one of Key fields change, Q-DAS will create a separate test plan in the database. All the statistical analysis will restart.

Establishing a reliable measurement routine is the most important phase of Q-DAS Export tool.



1.4 Q-DAS Export Format

The Q-DAS Export formats are defined in References [1]-[4].

AQDEF® (Advanced Quality Data Exchange Format) is based on the Q-DAS® ASCII transfer format that has been established in the automotive industry for a long time and became a requirement for the suppliers of measuring equipment that has been specified in corporate guidelines at an early stage.

<https://www.q-das.com/en/company/30-years-of-q-das>

The exported DFQ file has a specific structure based on the checks performed in the Q-DAS. Each exported criterion is called a characteristic. That mean for example that circularity and diameter are two characteristics, not directly link under a circle feature. For more information refer to the Q-DAS_ASCII-Transfer-Format document References [1].

For example, the following DFQ file sample presents an export of a circle diameter. It includes a feature name, description, type, nominal value, tolerances, units:

```
K2001/1 Diameter-E78177CA
K2002/1 A::BoltHole Pattern1-Diameter
K2009/1 202
K2101/1 6.456693e-01
K2112/1 -5.000000e-03
K2113/1 5.000000e-03
K2142/1 in
```

The last block presents measured value, date, operator, part identification...

```
K0001/1 6.533408e-01
K0004/1 2022-02-22/13:25:44
K0008/1 0
K0014/1 12345
```

1.5 Definitions and Acronyms

<i>AQDEF</i>	Advanced Quality Data Exchange Format
<i>GD&T</i>	Geometric Dimensioning and Tolerancing
<i>GUI</i>	Graphical User Interface
<i>MP</i>	Measurement Plan
<i>Q-DAS</i>	Qualitative Data Analysis Software
<i>Q-DM</i>	Q-DAS Data Manager
<i>SA</i>	Spatial Analyzer
<i>SDK</i>	Software Development Kit
<i>SPC</i>	Statistical Process Control
<i>TBD</i>	To Be Defined



1.6 References

[1]	Q-DAS_ASCII-Transfer-Format_ENG_V12_ec.pdf	https://www.q-das.com/fileadmin/mediamanager/Datenform at_Dokumente/Q-DAS_ASCII-Transfer-Format_ENG_V12_ec.pdf	2015
[2]	Specification_AQDEF_V6_0_0_EN_2022-01-19.pdf	https://www.q-das.com/fileadmin/mediamanager/Datenform at_Dokumente/Specification_AQDEF_V6_0_0_EN_2022-01-19.pdf	2022
[3]	qs-STAT-PositionDeviations.pdf		2021
[4]	Q-DAS_V11_CAS_Evaluation_Strategy_EN.pdf	https://www.q-das.com/fileadmin/mediamanager/CAS_Downloads/Q-DAS_V11_CAS_Evaluation_Strategy_EN.pdf	2015
[5]	SA User Manual 2022.3.pdf	Index of /ftp/SA/Install/Documentation (kinematics.com)	2022
[6]	MP Command Reference 2022.3.pdf	Index of /ftp/SA/Install/Documentation (kinematics.com)	2022



2 Exportable Data

The SA application allows to export to Q-DAS software the characteristics of

1. Relationships:
 - ✓ Geometry Relationships
 - ✓ Average Point Relationships
 - ✓ Point-to-Objects Relationships
 - ✓ Vector Group-to-Vector Group Relationships
 - ✓ Frame-to-Frame Relationships
2. GD&T Feature Checks
3. Dimensions
4. Vector Groups

2.1 Relationships

2.1.1 Geometry and Average Point Relationships

The Q-DAS Export is applicable to any double relationship’s “criteria” (characteristics) if the following requirements are met:

- criteria are checked for report
- criteria have assigned tolerances

Based on this knowledge, user can control which double criteria to export to Q-DAS using relationship Properties/Report Options dialogs.

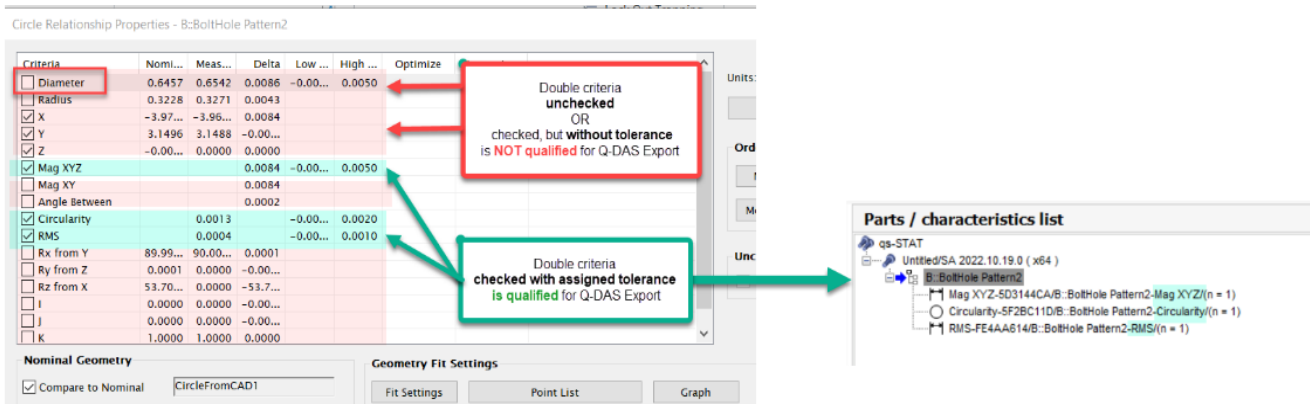


Figure 1 - QDAS Export Relationship Double Criteria Example

2.1.2 Other Relationships

For other relationships, each value in the summary report table is exported as a characteristic. For example, RMS, Min, Max, etc.



If you have a relationship with points to surface and want to see the detail for each point, you will need to activate the autovector then export the vector group. See Vector Groups for more details.

User can control which characteristics to export using relationship’s Report Options dialogs.

2.2 GD&T

Before GD&T feature checks export is initiated, user needs to run GD&T Feature Checks evaluation. Once the evaluation is completed, the measurement deviation value is exported as Q-DAS characteristic.

The following GD&T feature checks are supported:

- Form Tolerance
 - ✓ Circularity
 - ✓ Cylindricity
 - ✓ Straightness
 - ✓ Flatness
- Orientation Tolerance
 - ✓ Angularity
 - ✓ Perpendicularity
 - ✓ Parallelism
- Run-Out Tolerance
 - ✓ Circular Runout
 - ✓ Total Runout
 - ✓ Concentricity
- Locations Tolerance
 - ✓ Surface Profile
 - ✓ Composite Surface Profile
 - ✓ True Position Group
 - ✓ True Position Individual
 - ✓ Composite True Position
 - ✓ Line Profile

For SPC process the Q-DAS specification (see References [3] and [4]) defines evaluation strategies.

Each GD&T feature check is exported as a single characteristic with a measurement deviation value.

The GD&T True Position with the cylindrical tolerance zone is exported with 2D XY values. On export of GD&T Composite True Position Check, two characteristics will be created, upper and lower.

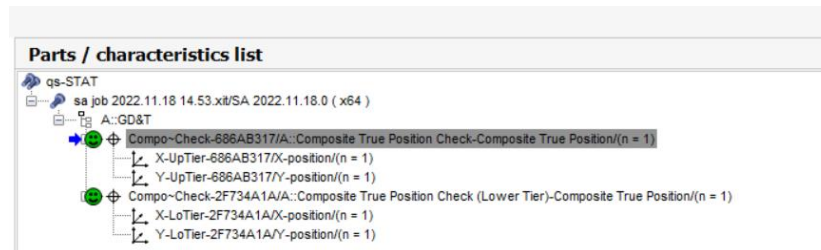


Figure 2 - Exported to QDAS GD&T True Position Example



2.3 Dimensions

Each dimension is exported as one characteristic.

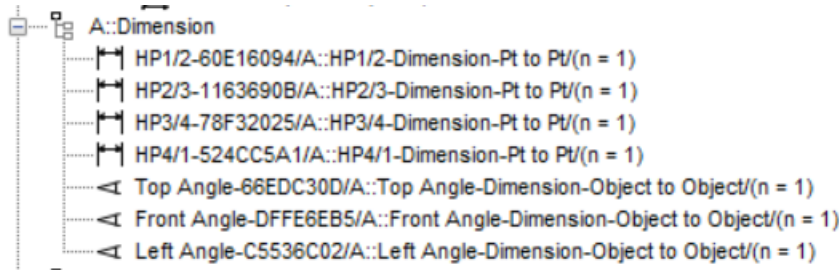


Figure 3 - Exported to QDAS Dimensions Example

2.4 Vector Groups

User can configure what vector characteristics to export through the Vector Group’s Report options

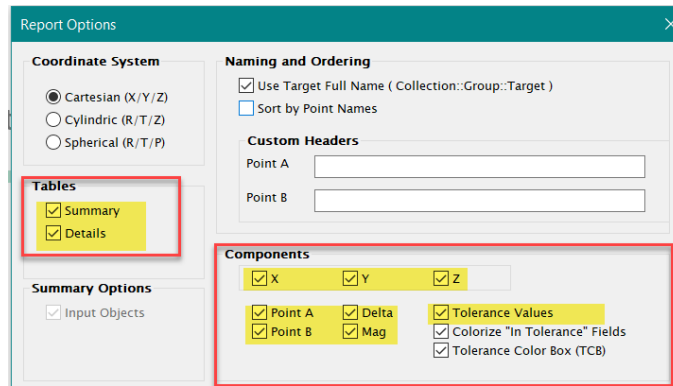


Figure 4 - QDAS Export Vector Group Controls

Any of the highlighted checked/unchecked flags affects Q-DAS export. The SA application matches Q-DAS export to the Vector Group report. For example,

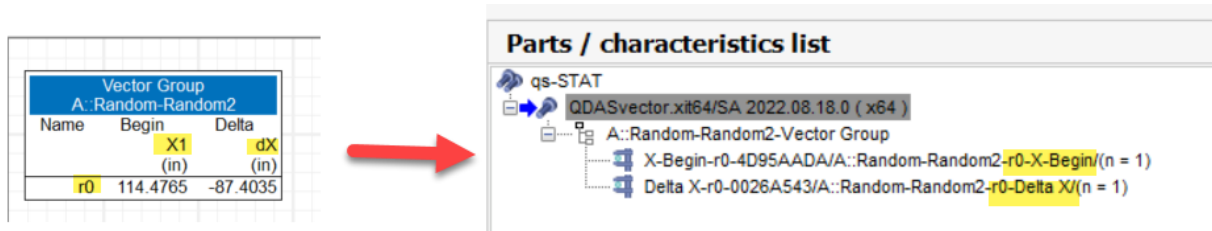


Figure 5 - QDAS Export Vector Group Example



3 Q-DAS Export Menu Option

3.1 Measurement Process

The intention of a Q-DAS Export **manual menu option** is to demonstrate

- SA capability of creating a valid DFQ output file
- SA capability of working with Q-DAS catalogues
- SA rules of what type of part’s characteristics are allowed to export

Important Notes:

- It is important to understand is that no reliable repeatable process can be established using a manual option. No operator can possibly refill all multi-Kxxxx fields and reselect the same characteristics again and again...Please see the Importance of Reliable Measurement Process.
- A potential customer needs to buy Q-DAS product and upgrade to SA Ultimate to be able to establish repeatable SPC process through SA’s MP scripting capabilities (see section Q-DAS Export by MP)

The manual initiation of Q-DAS export is available using *File >> Export >> Vendor Specific File Formats >> Q-DAS DFQ File* menu option.

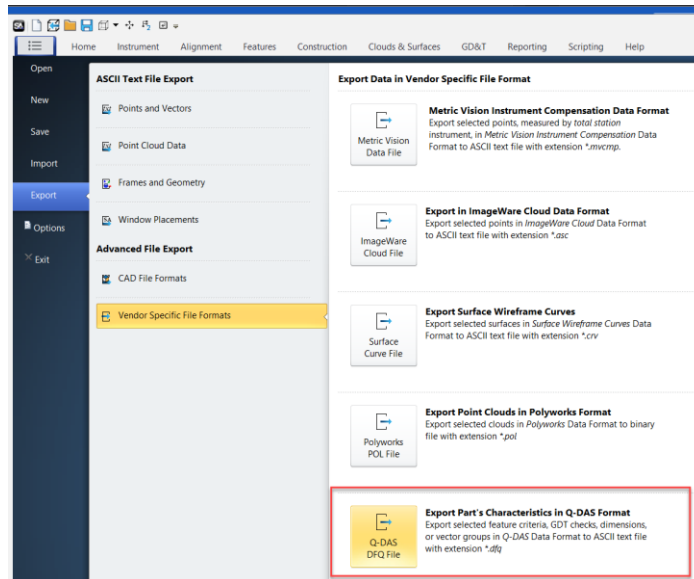


Figure 6 - QDAS Export Menu Option

The option opens QDAS Export dialog with the following tabs:

- Export File Repository Tab
- Supplier and Info Tab
- Catalog Entries Tab
- Select Export Data Tab

Once user enters needed information, the button “Export Data” will complete the QDAS Export operation.



3.2 Export File Repository Tab

The first tab allows user to define a base name of an output *.DFQ file. The Q-DAS export files are automatically placed into the pre-defined Q-DAS repository directory.

During the Q-DAS export, the SA application automatically adds a sequential number to the base name of the DFQ file if found more than one file in the repository. For example,

SA QDAS Data Export-1.dfq

SA QDAS Data Export-2.dfq

SA QDAS Data Export-3.dfq

...

One of the modules of Q-DAS software (Q-DM) could periodically checking the specified Q-DAS repository directory for *.DFQ file existence. If found, the *.DFQ file is imported to Q-DAS database automatically.

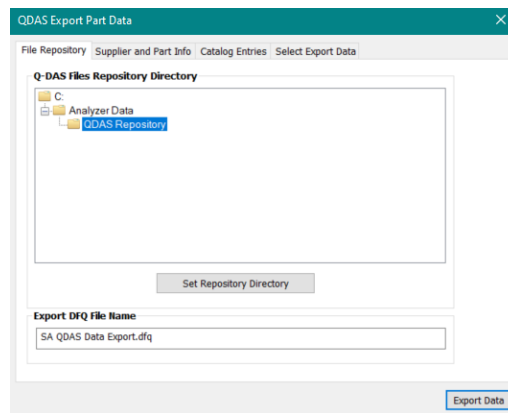


Figure 7 - QDAS Export Part Data: File Repository Tab

3.3 Supplier and Part Info Tab

The *Supplier and Part Info* Tab allows user to enter the most common information related to the part export.

In this section **K1001** (Part number) and **K1002** (Part description) are **mandatory fields**. The rest of the info are optional data.

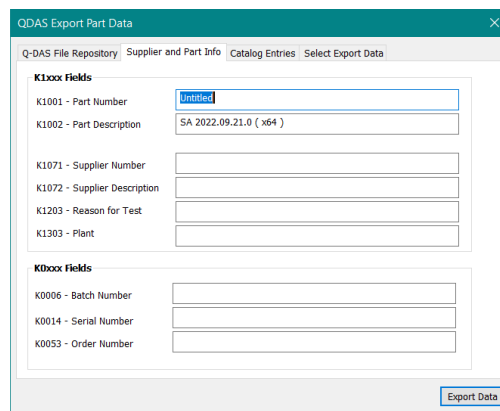


Figure 8 - QDAS Export Part Data: Supplier and Part Info Tab



3.4 Catalog Entries Tab

3.4.1 Q-DAS Catalog Import

The Q-DAS catalog is created/edited by independent Q-DAS software. Before SA can use it, it is important to export the current Q-DAS catalog into a DFD file. The SA application allows user to import the Q-DAS DFD file. No checks on SA side are verifying that it is up-to-date Q-DAS catalog file. It is a responsibility of an operator.

On a catalog import, the SA application saves the current catalog entries on a document level. It means that once imported, the Q-DAS catalog entries are available for user selection from this dialog or through MP commands (see 4.5.2) while SA is running.

Once SA application is restarted, an operator should re-import Q-DAS catalog file. This design enforces an operator to refresh (export/import) catalog entries to be updated.

Imported Q-DAS catalog may have more than a dozen different categories of records. The SA application currently supports import of the following 6 categories:

- Event Catalog
- Cavity Catalog
- Operator Catalog
- Machine Catalog
- Process Parameter Catalog
- Gage Catalog

Each catalog

The K0005 (events) and K0011(process parameter) fields have special multi entries formats. Once the Q-DAS catalog is imported, user can use this information to construct the correct value for these fields according to References [1] and [2].

The use of Q-DAS catalog is optional operation.

3.4.2 Catalog Entries

The *Catalog Entries* Tab allows user to Import Q-DAS catalog from *.DFD file and select the correct entry for the following target fields:

- K0007: Cavity Identifier
- K0008: Operator Identifier
- K0010: Machine Identifier
- K0012: Gage Identifier

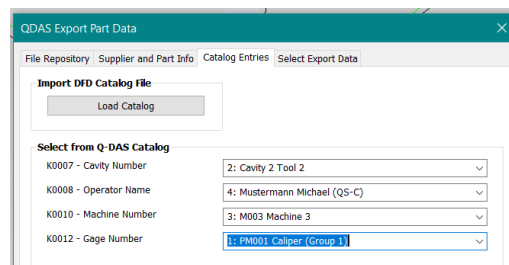


Figure 9 - QDAS Export Part Data : Catalog Entries Tab



3.5 *Select Export Data Tab*

The *Select Export Data* Tab helps user to define mandatory data to export.

3.5.1 Date/Time Field

The dialog tips user about acceptable 24-hour and 12-hour date/time formats. For user convenience date/time value can be generated automatically.

3.5.2 Select Export Data

User must select what data to export to Q-DAS before pressing “Export Data” button. See 0



Exportable Data

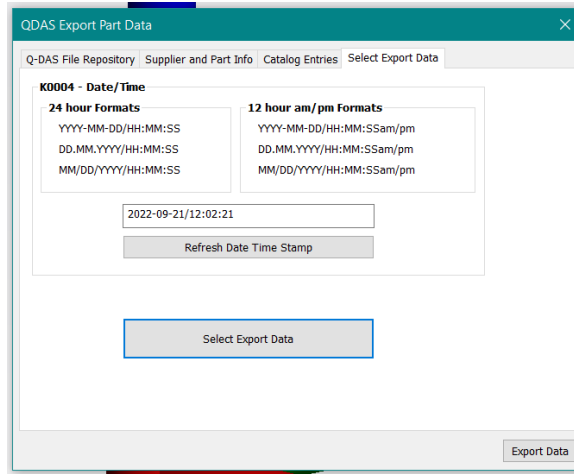


Figure 10 - QDAS Export Part Data: Select Export Data Tab



4 Q-DAS Export by MP

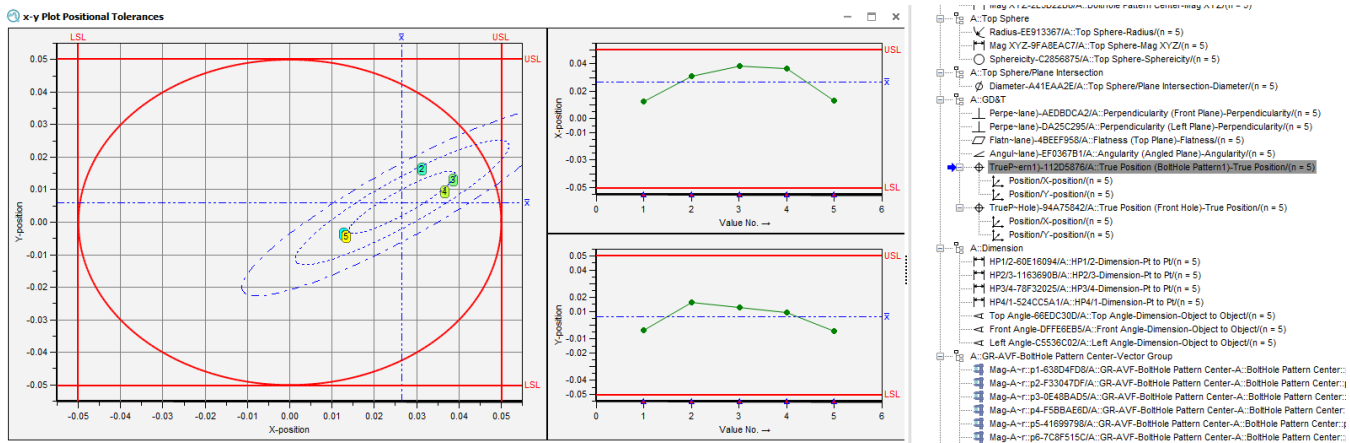
4.1 Measurement Process

The reliable measurement process can be established using SA Ultimate MP scripting capabilities.

The repeatable process is based on a predefined SA inspection template file for a single part. The template file is created by customer or by AE with the customer. Once the measurement routine finalized,

1. Use the prepared template to measure the required part.
2. At the end of the inspection, MP script saves SA job file and automatically generates QDAS DFQ file.
3. Clean measured data and start a new part measurement (see step 1).

Below is an example of repeated process 5 times:



4.2 QDAS Export MP Commands

This section will present each MP command relative to Q-DAS export.

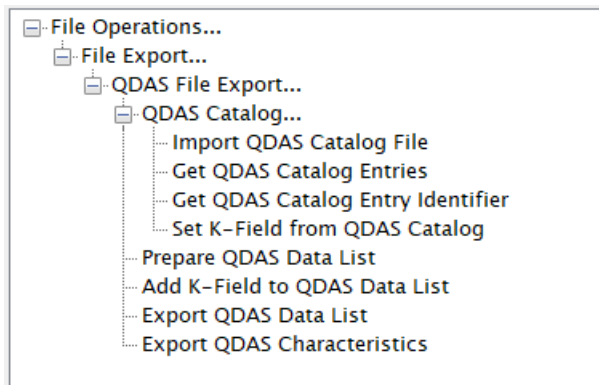


Figure 11 - QDAS Export MP Commands

4.3 Baseline Q-DAS Export

The MP command “Export QDAS Characteristics” replicates Q-DAS menu export (see chapter Q-DAS Export Menu Option). This command provides a baseline export option with minimum set of K-Fields needed to satisfy Q-DAS specifications.



You must populate the mandatory arguments:

- QDAS Export File Path
- K1001: Part Number
- K1002: Part Description
- At least one type of data to export

Other arguments are optional.

Export QDAS Characteristics					
<< Click to Enter Step Comment >>					
A0	File Path or Embedded File	QDAS Export File Path	Enter Path		
A1	String	K1001: Part Number	Enter Value		
A2	String	K1002: Part Description	Enter Value		
A3	String	K1071: Supplier Number	Enter Value		
A4	String	K1072: Supplier Description	Enter Value		
A5	String	K1203: Reason for Test	Enter Value		
A6	String	K1303: Plant	Enter Value		
A7	String	K1900: Part Remark	Enter Value		
A8	String	K0006: Batch Number	Enter Value		
A9	String	K0014: Part ID	Enter Value		
A10	String	K0053: Order Number	Enter Value		
A11	String	K0004: Date Time Stamp	Enter Value	2022-10-18/11:09:18	
A12	Integer	K0008: Operator Identifier	Enter Value	-1	
A13	Integer	K0010: Machine Identifier	Enter Value	-1	
A14	Integer	K0012: Gage Identifier	Enter Value	-1	
A15	Relationship Ref List	Relationship List	Enter	Empty	
A16	Feature Check Ref List	Feature Check List	Enter	Empty	
A17	Dimension Ref List	Dimension List	Enter	Empty	
A18	Collection Object Name Ref List	Vector Group List	Enter	Empty	

Figure 12 – MP “Export QDAS Characteristics”: Mandatory Arguments

To correctly create a string for the “K004 Date time Stamp” argument, use the “Make a System String” MP command with Format String: “%Y-%m-%d/%H:%M:%S”

Make a System String				
<< Click to Enter Step Comment >>				
A0	System String	String Content	Pick	Date & Time
A1	String	Format String (Optional)	Enter Value	%Y-%m-%d/%H:%M:%S
A2	String	Resultant String	Result Only	Result Only

Figure 13 – MP “Export QDAS Characteristics”: Date Time Stamp by MP “Make a System String”

For optional argument about K-Field coming from catalog, you can directly put your valid entry, or refer to 4.4.1

4.4 Customized Q-DAS Export

Some users want to add more information that are available in the baseline MP command above. For this purpose, use the following MP commands:

- “Prepare QDAS Data List”
The command allows you to choose what to export and common K-Fields



- "Add K-Field to QDAS Data List"

The command allows you to add a specific K-field to the QDAS Data List. You can use this step as many times as you need, to add all required K-Fields.

- "Export QDAS Data List"

The last command to export the prepared QDAS Data List to the .dfq file.

1 Import QDAS Catalog File				
<< Click to Enter Step Comment >>				
A0	File Path or Embedded File	QDAS DFD File Path	Browse	C:\ProgramData\Q-DAS\Local\PLANT\DEFAULT.C
2 Get QDAS Catalog Entry Identifier				
<< Click to Enter Step Comment >>				
A0	String	K-Field Target	Enter Value	K0008
A1	String Ref List	User Prompt	Enter	Empty
A2	Font Type	Font	Enter Value	MS Shell Dlg..8
A3	Integer	Entry Identifier	Result Only	Result Only
3 Set K-Field from QDAS Catalog				
<< Click to Enter Step Comment >>				
A0	Integer	K0007: Cavity Identifier	Result Only	Result Only
A1	Integer	K0008: Operator Identifier	Result Only	Result Only
A2	Integer	K0010: Machine Identifier	Result Only	Result Only
A3	Integer	K0012: Gage Identifier	Result Only	Result Only
4 Make a Feature Check Reference List- WildCard Selection				
<< Click to Enter Step Comment >>				
A0	String	Collection Wildcard Criteria	Enter Value	*
A1	String	Feature Check Wildcard Criteria	Enter Value	*
A2	Feature Check Ref List	Resultant Feature Check Reference List	Result Only	Result Only
5 Make a Dimension Ref List- WildCard Selection				
<< Click to Enter Step Comment >>				
A0	String	Collection Wildcard Criteria	Enter Value	*
A1	String	Dimension Wildcard Criteria	Enter Value	*
A2	Dimension Ref List	Resultant Dimension Ref List	Result Only	Result Only
6 Make a System String				
<< Click to Enter Step Comment >>				
A0	System String	String Content	Pick	Date & Time
A1	String	Format String (Optional)	Enter Value	%Y-%m-%d/%H:%M:%S
A2	String	Resultant String	Result Only	Result Only
7 Make a System String				
8 Concatenate Strings				
9 Prepare QDAS Data List				
<< Click to Enter Step Comment >>				
A0	String	K1001: Part Number	Enter Value	partNumber here
A1	String	K1002: Part Description	Enter Value	description of the part
A2	String	K1071: Supplier Number	Enter Value	supplier number
A3	String	K1072: Supplier Description	Enter Value	supplier description
A4	String	K1203: Reason for Test	Enter Value	why test?
A5	String	K1303: Plant	Enter Value	where? plant...
A6	String	K1900: Part Remark	Enter Value	remark...
A7	String	K0006: Batch Number	Enter Value	batch number
A8	String	K0014: Part ID	Reference	
A9	String	K0053: Order Number	Enter Value	order number
A10	String	K0004: Date Time Stamp	Reference	Ref [S6 A2]
A11	Integer	K0008: Operator Identifier	Reference	Ref [S3 A1]
A12	Integer	K0010: Machine Identifier	Reference	Ref [S3 A2]
A13	Integer	K0012: Gage Identifier	Reference	Ref [S3 A3]
A14	Relationship Ref List	Relationship List	Enter	4 Entries
A15	Feature Check Ref List	Feature Check List	Reference	Ref [S4 A2]
A16	Dimension Ref List	Dimension List	Reference	Ref [S5 A2]
A17	Collection Object Name Ref List	Vector Group List	Enter	2 Entries
10 Add K-Field to QDAS Data List <K0007-all>				
11 Add K-Field to QDAS Data List <K2311-all>				
12 Add K-Field to QDAS Data List <K2311-characteristic number 2 only>				
13 Add K-Field to QDAS Data List <K2011-all>				
14 Add K-Field to QDAS Data List <K1003-all>				
15 Add K-Field to QDAS Data List <K0009-all>				
16 Add K-Field to QDAS Data List <K0009-characteristic number 3 only>				
17 Ask for String (Pull-Down Version)				
18 Add K-Field to QDAS Data List <K0017-all>				
19 Export QDAS Data List				
<< Click to Enter Step Comment >>				
A0	File Path or Embedded File	QDAS Export File Path	Reference	Ref [S8 A1]

Figure 14 - QDAS Export MP Script Example



4.4.1 Prepare QDAS Data List

The command prepares part’s characteristics for Q-DAS export. It creates a QDAS data list of most common Kxxxx fields needed for part’s description and its characteristics.

1 Prepare QDAS Data List			
<< Click to Enter Step Comment >>			
A0	String	K1001: Part Number	Enter Value
A1	String	K1002: Part Description	Enter Value
A2	String	K1071: Supplier Number	Enter Value
A3	String	K1072: Supplier Description	Enter Value
A4	String	K1203: Reason for Test	Enter Value
A5	String	K1303: Plant	Enter Value
A6	String	K1900: Part Remark	Enter Value
A7	String	K0006: Batch Number	Enter Value
A8	String	K0014: Part ID	Enter Value
A9	String	K0053: Order Number	Enter Value
A10	String	K0004: Date Time Stamp	Enter Value
A11	Integer	K0008: Operator Identifier	Reference
A12	Integer	K0010: Machine Identifier	Reference
A13	Integer	K0012: Gage Identifier	Reference
A14	Relationship Ref List	Relationship List	Enter
A15	Feature Check Ref List	Feature Check List	Enter
A16	Dimension Ref List	Dimension List	Enter
A17	Collection Object Name Ref List	Vector Group List	Enter

Figure 15 - MP "Prepare QDAS Data List" Example

The following arguments **must have values**:

- **A0 - K1001** Part Number
- **A1 - K1002** Part Description
- **A14, A15, A16, or A17** – at least one of the arguments must have a value

4.4.2 Add K-Field to QDAS Data List

2 Add K-Field to QDAS Data List			
<< Click to Enter Step Comment >>			
A0	String	Field Name	Enter Value
A1	String	K-Field	Enter Value
A2	Integer	Characteristic Number	Enter Value
A3	Integer	Value Max Length	Enter Value
A4	QDAS Value Type	Value Type	Pick
A5	String	Value	Enter Value
A6	Integer	Catalog Entry Identifier	Reference

K0007: Cavity Catalog Entry
K0007
0
255
110
Ref {S0 A1}

Figure 16 - MP "Add K-Field to QDAS Data List" Example

Once “Prepare QDAS Data List” command is in the script (prerequisite), then based on customer requirements this command allows to add to the QDAS data list additional Kxxxx field except K5xxx ones.

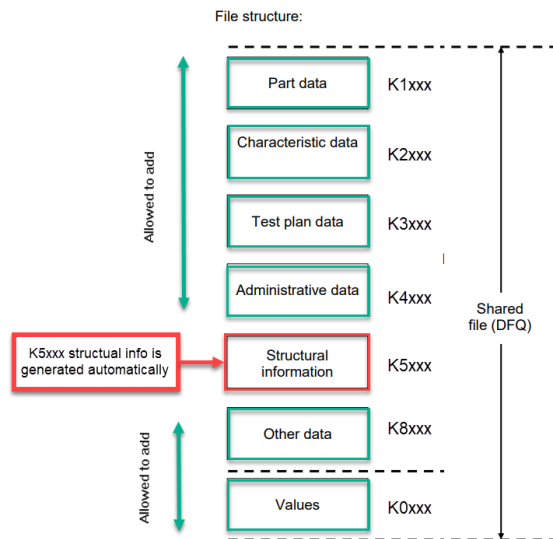


Figure 17 - QDAS Export DFQ File Structure

The structural information of logical groups in the output DFQ file is generated automatically based on SA Tree structure. If needed user may re-organize SA tree in the desired groups before finalizing Q-DAS export routine.

A0	Field Name	Optional info to simplify MP script Reading
A1	K-Field	Mandatory field in the following format: Kxxxx, where xxxx is a numeric value between 1-9999
A2	Characteristic Number	Number to indicate to which characteristic it is applicable. Default value is 0 (applicable to all)
A3	Value Max Length	Mandatory field defined by QDAS specification
A4	Value Type	Mandatory field defined by QDAS specification provided as drop-down list selection
A5	Value	A Kxxxx field value in string format that should satisfy requirements defined by A3 and A4
A6	Catalog Entry Identifier	A Kxxxx field value as a reference to a catalog entry.

Important Notes:

- **It is a responsibility of user to use Q-DAS specifications** to properly define the required K-Field type, max length, and field type. According to entered information, SA will validate user input, according to reference [1].
- **Either A5 or A6** argument must be defined, but not simultaneously. If both arguments have values by mistake, the A6 will define the field’s value.
- In case of **multiple collections** like in the example below, keeping the SA tree structure name simplifies reading of QDAS reports. Indeed, SA job could have one Top Plane in each collection, which are not the same.

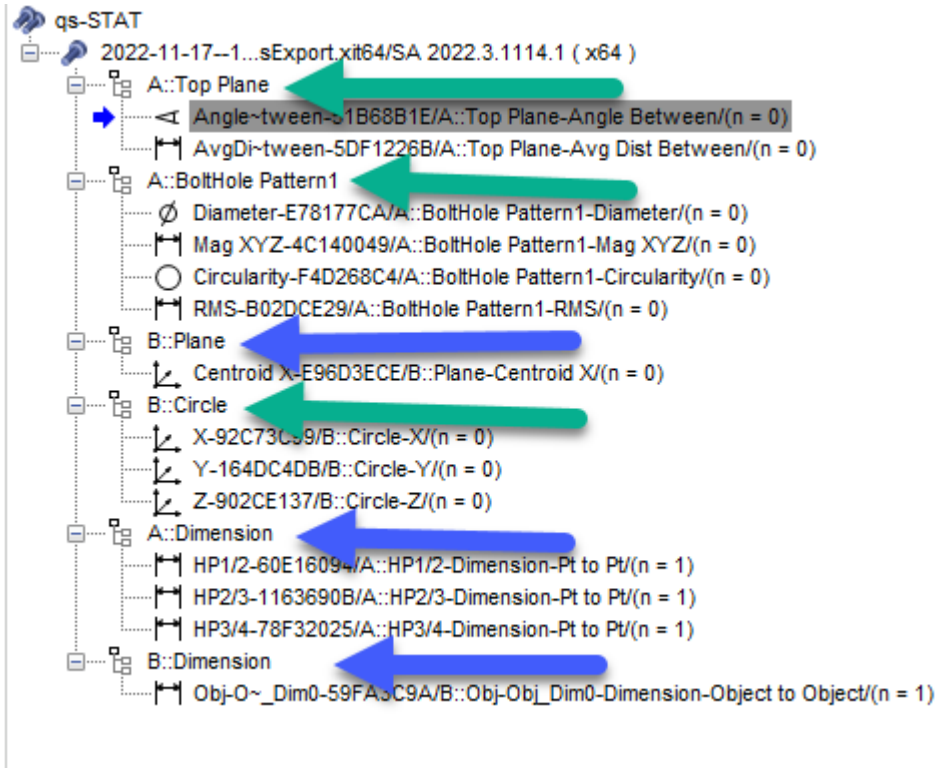


Figure 18 - Exported QDAS Characteristics from SA Multiple Collections Example

4.4.3 Export QDAS Data List



This command exports the existing QDAS Data List into the specified *.DFQ file.

Figure 19 - MP "Export QDAS Data List" Example

4.5 Q-DAS Catalog MP Commands

4.5.1 Import QDAS Catalog File



The command imports a DFD Catalog file. See 3.4.1 Q-DAS Catalog Import for details

4.5.2 Get QDAS Catalog Entries

The command creates a string list of QDAS catalog entries applicable to a target Kxxxx field. For example, for the target K0008 field the result is a list of operators' names recorded in the Q-DAS catalog.



That can be useful if you want to create your own graphical interface to let user chose on the list. Be aware that only what is on the left of “:” in the string should be used as value for the associate argument.

1 Get QDAS Catalog Entries				
<< Click to Enter Step Comment >>				
A0	String	K-Field Target	Enter Value	K0008
A1	String Ref List	Catalog Entries	Result Only	Result Only

As a result, you will have a string ref list:

- 1: N/A
- 1: David Dupond (QS-A)
- 2: Jean Laffont (QS-B)
- 3: Jules Durant (QS-C)
- 4: John Smith (QS-C)

In the example above, only “3” should be used to fill appropriate argument in one of the QDAS Export MP commands.

4.5.3 Get QDAS Catalog Entry Identifier

The command shows a window letting the user choose in the list of possible value for the desired K-Field. The output argument can be use directly to fill the appropriate argument in one of the QDAS Export MP Step.

1 Get QDAS Catalog Entry Identifier				
<< Click to Enter Step Comment >>				
A0	String	K-Field Target	Enter Value	K0010
A1	String Ref List	User Prompt	Enter	1 Entries
A2	Font Type	Font	Enter Value	MS Shell Dlg::8
A3	Integer	Entry Identifier	Result Only	Result Only

String Select ✕

Select Machine from QDAS Catalog entries? OK

Cancel

-1: N/A

1: M001 Machine 1

2: M002 Machine 2

3: M003 Machine 3

4: M004 Machine 4

5: M005 Machine 5

6: M006 Machine 6

7: M007 Machine 7

8: M008 Machine 8

9: M009 Machine 9

10: M010 Maschine 10



Figure 20 - MP "Get QDAS Catalog Entry Identifier" Example

4.5.4 Set K-Field from QDAS Catalog

This command opens a window allowing user to choose all catalog (implemented in SA) related value.

The command allows to re-load Q-DAS catalog if needed and select a record identifier in the QDAS catalog per each K-field targeted.

The record identifier selection is optional. If nothing is selected (default value -1), the target field will not be added to QDAS export file.

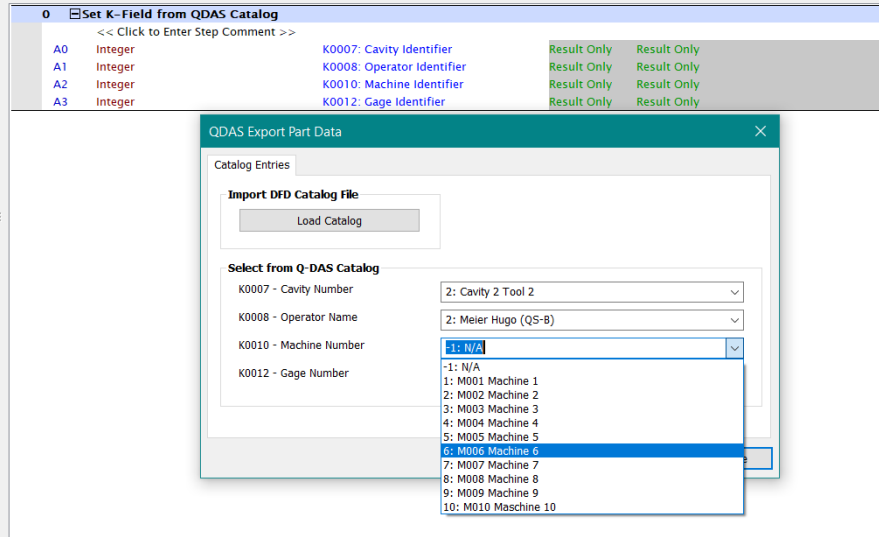


Figure 21 - MP "Set K-Field from QDAS Catalog" Example

5 Auto Used Q-DAS K-Fields

5.1 Auto-Populated K-Fields

In addition to the capability to support any Q-DAS Key field through MP commands, the following table lists the Q-DAS data fields that SA is automatically populated if user defines field's value

#	K-Field	Length	Name	Comments
1.	K0001	22	Measured value	Measured Quantity
2.	K0004	-	Date/Time	
3.	K0005	10	Event Number	Catalog Entry Identifier For example, value is 3,15,26
4.	K0006	14	Batch number / Ident number	
5.	K0007	10	Cavity Number	Catalog Entry Identifier
6.	K0008	10	Operator Name	Catalog Entry Identifier
7.	K0010	10	Machine Number	Catalog Entry Identifier
8.	K0011	10	Process Parameter Number	Catalog Entry Identifier For example, value is [1 3, 4 8, 3 5]



#	K-Field	Length	Name	Comments
9.	K0012	10	Gage Number	Catalog Entry Identifier
10.	K0014	40	Part Ident	Serial Number
11.	K0053	20	Order Number	
12.	K0100	5	Total no. of characteristics in file	
13.	K1001	30	Part Number	
14.	K1002	80	Part Description	
15.	K1071	20	Supplier Number Text	
16.	K1072	40	Supplier Description	
17.	K1203	80	Reason for Test	
18.	K1303	40	Plant	
19.	K1900	255	Remark	Part Remark (any text)
20.	K2001	20	Characteristic Number	
21.	K2002	80	Characteristic Description	
22.	K2004	5	Characteristic Type	
23.	K2009	5	Measured quantity	
24.	K2022	5	Decimal Places	
25.	K2101	22	Nominal Value	
26.	K2110	22	Lower Specification Limit	Low Tolerance
27.	K2111	22	Upper Specification Limit	High Tolerance
28.	K2112	22	Lower Allowance	Low Tolerance Minus
29.	K2113	22	Upper Allowance	High Tolerance Plus
30.	K2120	3	Lower Boundary Type	Lower Limit Type
31.	K2121	3	Upper Boundary Type	Upper Limit Type
32.	K2142	20	Unit	
33.	K2800	50	user field description	
34.	K2801	1	user field description type	
35.	K2802	255	user field description contents	
36.	K2900	255	Characteristic Remark	
37.	K5002	80	Group description	Group Name
38.	K5103	5	Group as part of a group	Group Node
39.	K5111	5	Parts group	
40.	K5112	5	Characteristics group	
41.	K5113	5	Group element	Group Number



5.2 Catalog K-Fields

SA application extracts data from the imported Q-DAS catalog. It presents it with some details to help user to select the correct catalog entry record. The following table lists what K-Fields are used during the catalog parsing process.

#	K-Field	Length	Name	K-Field Refer to Catalog Record
Machine Catalog				
1.	K4062	20	Machine Number	K0010
2.	K4063	80	Machine name	
3.	K4064	50	Machine Sector	
Gage Catalog				
4.	K4072	20	Gage Number	K0012
5.	K4073	80	Gage name	
6.	K4074	20	Gage Group	
Operator Catalog				
7.	K4092	20	Operator's last name	K0008
8.	K4093	80	Operator's first name	
9.	K4094	50	Operator's department	
Event Catalog				
10.	K4222	20	Event Number	K0005 (multi events value)
11.	K4223	80	Event Text	
Process Parameter Catalog				
12.	K4242	20	Process Parameter Number	K0011 (multi-parameters/values)
13.	K4243	80	Process Parameter name	
14.	K4244	20	Process Parameter text	
Cavity Catalog				
15.	K4252	20	Cavity Number	K0007
16.	K4253	80	Cavity name	