HEXAGON

Q-DAS Q-DM

Automated data transmission

General handling

FAQ/Handling
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Quality Assurance

Information about this document

Parts of this document may be translated automatically.

Document History

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v-0.58	16.07.2021	SJ	Initial release 12.0.2.1 (QDas-156)
v-1.2	25.10.2021	GA/SA/UB	Release Version 13.0.5.1 (QDas-1361)
v-0.107	20.12.2023	SJ	Translation 2024.1 (15.0.1.1)
v-0.112	02.08.2024	SJ	New option from version 2024.2. Chapter 6.4.3.7

Q-DAS Q-DM

CONTENTS

1 Q-DM functionality

The Q-DM application (formerly Q-DAS Upload) is the central tool for automatic cyclical upload of measurement files from external systems to a database. This includes data from coordinate measuring machines that store the files in a Q-DAS compliant data format, or local O-QIS MCA/CMM Reporting installations that forward the files to the central upload after the first control loop.

The special case of CMM Upload for using O-QIS MCA/CMM Reporting and it's special configuration is described in the MCA/CMM Reporting manual.

Not all warnings and notes are included in this document.

Not all possible constellations and their effects have been tested and described in this document.

1.1 System structure

Before setting up the Q-DM system, some preliminary considerations regarding the structure need to be made. The general Q-DM installation procedure is described in a separate installation document.

Each upload contains at least one client and causes a corresponding workload on the central database. Therefore there are two general rules to follow:

Per plant: As few uploads as possible, as many as necessary.

Per upload: As few upload clients as possible, as many as necessary.

Possible reasons for creating additional uploads are:

- Separate upload per department or cost centre to allow the person responsible to make the appropriate configurations themselves.
- Limited number of upload clients depending on the database type used. For example, when using Microsoft Access databases, a maximum of 6 upload clients can be created per upload.

Possible reasons for creating additional clients within an upload are:

- Different value databases to which the data from the measurement file is to be uploaded.
- Different key fields.
- Other mechanisms for synchronisation with the writing system (handshake).
- ...

There is NO need to create new uploads or clients if additional source directories or paths exist. This must be avoided in order to keep track of everything. Uncontrolled duplication of executable upload or clients can cause them to interfere with each other. This can result in files being blocked and data not being uploaded.

1.1.1 Installation types

The following installation options are available:

- Q-DAS Server (installation of several Q-DAS applications on one server).
- Own Q-DM server (installation on a separate server).
- Installation on the measuring system.

Q-DAS Server (installation of several Q-DAS applications on one server)

Central upload is often installed on the same server as other Q-DAS applications such as qs-STAT.

Advantage: Only one server is needed.

Disadvantage: With this type of installation, Q-DM uses the same text and configuration database as other Q-DAS applications. Under certain circumstances, the upload may block access to the text and configuration database (Microsoft Access) and these can only be unblocked after a restart. This problem can be avoided by regular maintenance of the server installation and cyclical restarts of the system.

Q-DM Server (installation on a separate server)

Another installation option is to install the upload on a separate server.

Advantage: The maintenance of a separate installation cannot collide with the databases of the main server (see above).

Disadvantage: It requires the maintenance and updating of a second server. Any changes to the main system, such as changes in evaluation strategy or in text database, must be transferred manually.

Installation on the measuring systems

Occasionally, a separate upload may be installed for each data source (source directory). This may be due to IT requirements or data flow.

At first glance, this type of installation looks quite simple, as each station "just" gets its own configuration. However, this can lead to serious difficulties. If each station is configured individually, a central point is required to control all local uploads. Otherwise, the different configurations can lead to chaos and loss of data in the central database.

1.2 Data flow

1	Coordinate measuring machine creates measurement files in Q-DAS compliant data format.
2	The files created by the coordinate measuring machine are stored in the Q-DM collection directory (data source).
3	Q-DM accesses the data in the collection directory and uploads it to the stored database.
4	The measurements/values uploaded to the central database can now be made available to any user, for example via qs-STAT (web).

1.3 Suitable data formats

By default, the following file types can be uploaded to a database with Q-DM:

- *.DFD / *.DFX file pair
- *.DFQ files

If measurement files are available in a different data format, such as Microsoft Excel or text files (*.TXT), a corresponding converter must be integrated.

The development of a customised converter is not free of charge.

If a custom converter is required, the requirements must be specified in a workshop with the Q-DAS project team. Contact e-mail: info.qdas.mi@hexagon.com.

1.4 Key fields

What is a "key field?

The Q-DM application "sorts" the data sets into the database. This sorting is done using K-fields. The key fields are the K-fields, which together uniquely represent a test plan (data set) in the database.

Changing the content of any of the key fields in the measurement file means that a new data set is created in the database.

Changing the content of any of the non-key fields means that existing information in the database can be overwritten, depending on the setting.

1.5 Notes on "Data manipulation"

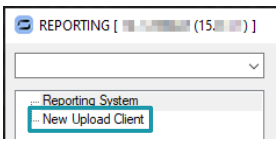
Over the years, most of the options available in Q-DM have been added because writing systems cannot guarantee the correct spelling or cannot write certain fields according to customer requirements. These include, for example:

- Converter for non Q-DM compliant data formats
- Shift-Down / Shift-Up options (data transfer)
- Nominal normation
- Car body mode

Not all of the available options have been tested and their interactions described.

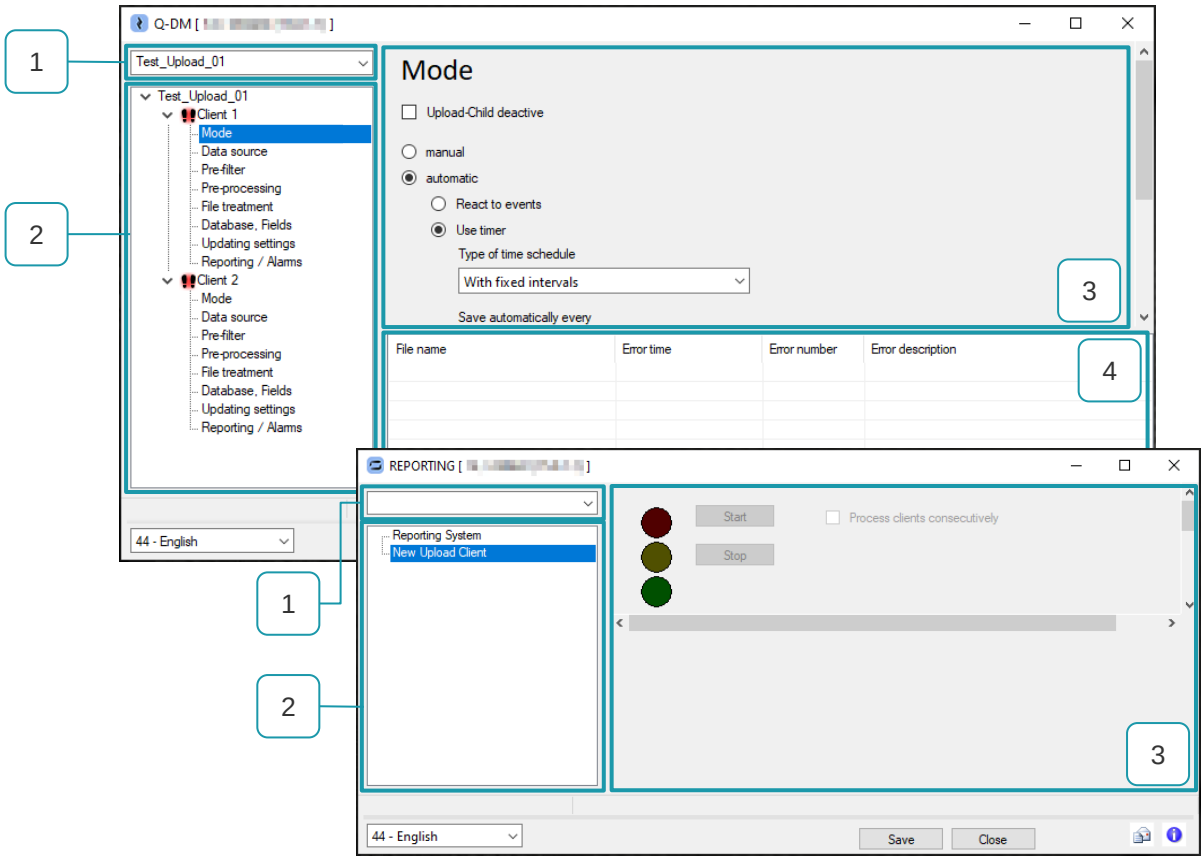
2 Q-DM start

There are two ways to start.

Q-DAS Q-DM	Q-DM as a stand-alone application.
Q-DAS M-QIS Reporting	As a function within the M-QIS Reporting application.  Q-DM is only available within the M-QIS application if the required Q-DM licence is available and correctly registered.

3 Q-DM dialogue structure

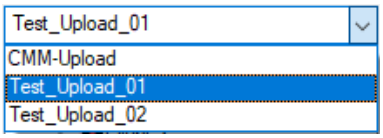
The dialogue is divided into several window areas.



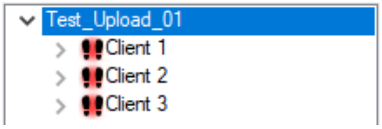
1	**Upload selection list** After starting the Q-DM application, the available uploads are listed here. A registered Q-DM licence is required to list the uploads in M-QIS Reporting.
2	**“Menu” window area** The various configuration options are grouped in different menu groups according to their tasks and functions. The menu groups are listed here and are used for navigation. Additional options for managing and configuring the upload can be found in the context menu of this window area.
3	**“Menu groups configuration” window area** This window area contains the options and functions of the menu group selected in the "Menu" window area.
4	**“Messages” window area** Lists system and error messages that occur during runtime. If logging is enabled, historical messages are also listed here.

4 Q-DM administration

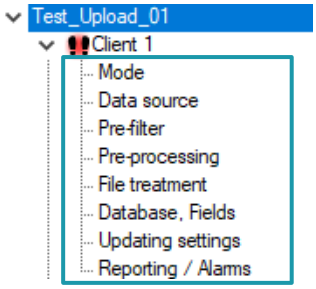
The management of uploads is hierarchical. The previously saved upload configurations are listed in the upload selection list.

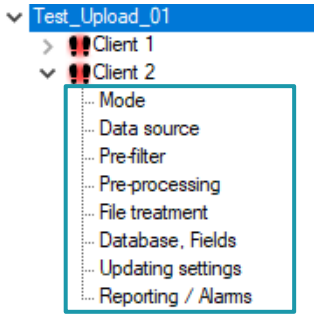


After selecting an upload configuration, the clients assigned to the upload are displayed in the "Menu" window area. Each upload configuration contains at least one client.

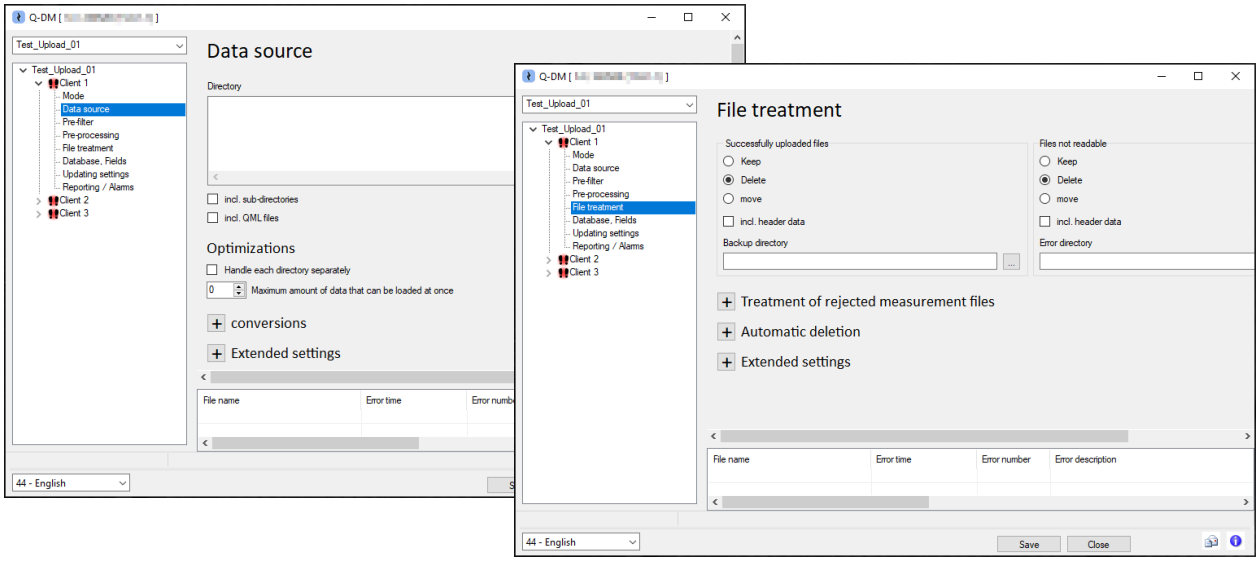


The actual upload settings are assigned to the clients. The configuration options are grouped into different menus according to their tasks and functions. The list of menu groups in the "Menu" window area is the same for all clients.

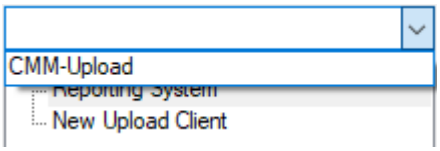




The following is an example of the overview of options in the "Data source" and "File treatment" menu group.



The standard delivery includes an upload configuration, the "CMM upload". This configuration can only be used in O-QIS MCA/CMM Reporting.

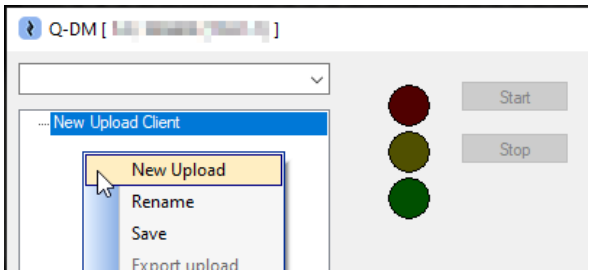


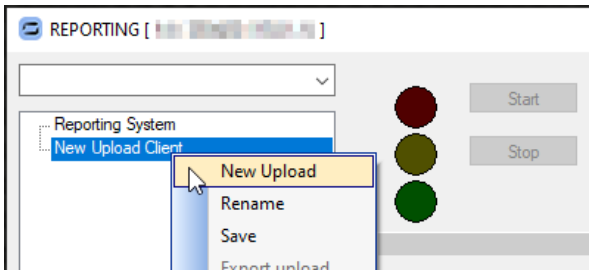
Any attempt to start the "CMM upload" as a "normal" upload will result in an error message.

File...	Error...	Error n...	Error description
	11.0...	-98	Upload configurations with "Support for CMM-R...

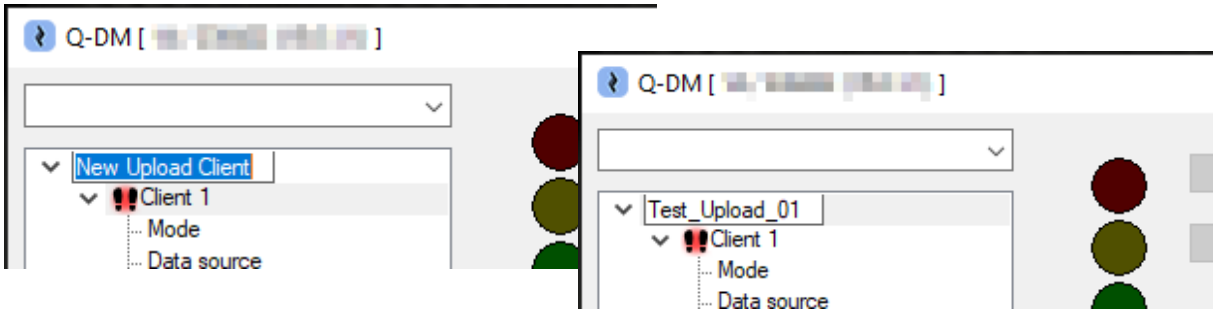
4.1 Create upload

A new upload is created by selecting "New upload" from the context menu. In Q-DM, the context menu is opened by right-clicking in the "Menu" window area. In M-QIS Reporting, it is necessary to switch from the reporting interface to the upload interface. Here, the context menu of the menu item "New Upload Client" must be opened.





The new upload configuration needs an unique name.



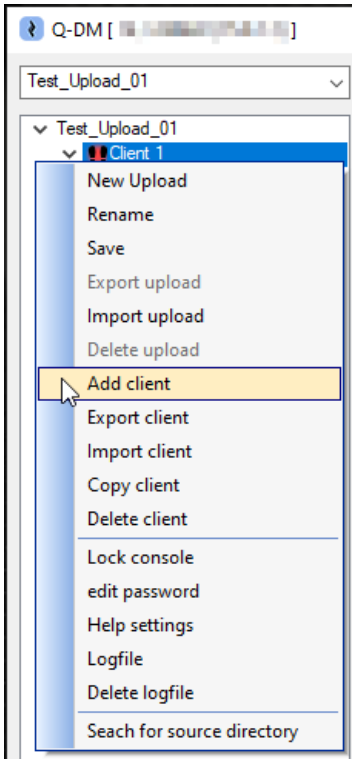
When a new upload is created, a client is automatically created. Once the upload name has been changed, the upload settings must then be made in the upload client.

As described above, it is important to first determinate the need for multiple uploads.

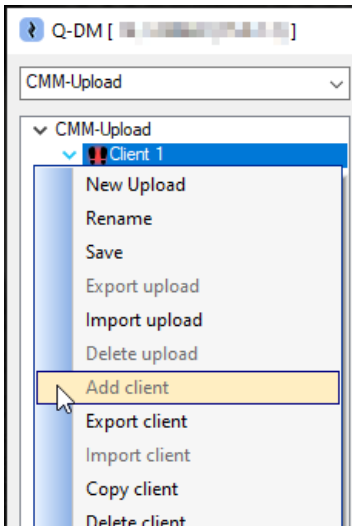
Basic rule: As few uploads as possible, as many as necessary.

4.2 Add client

Additional clients can be added to any "normal" upload. An exception to this is the upload configuration for the "MCA/CMM Reporting" application.



The O-QIS MCA/CMM Reporting application only supports one client and therefore does not allow additional clients to be added.



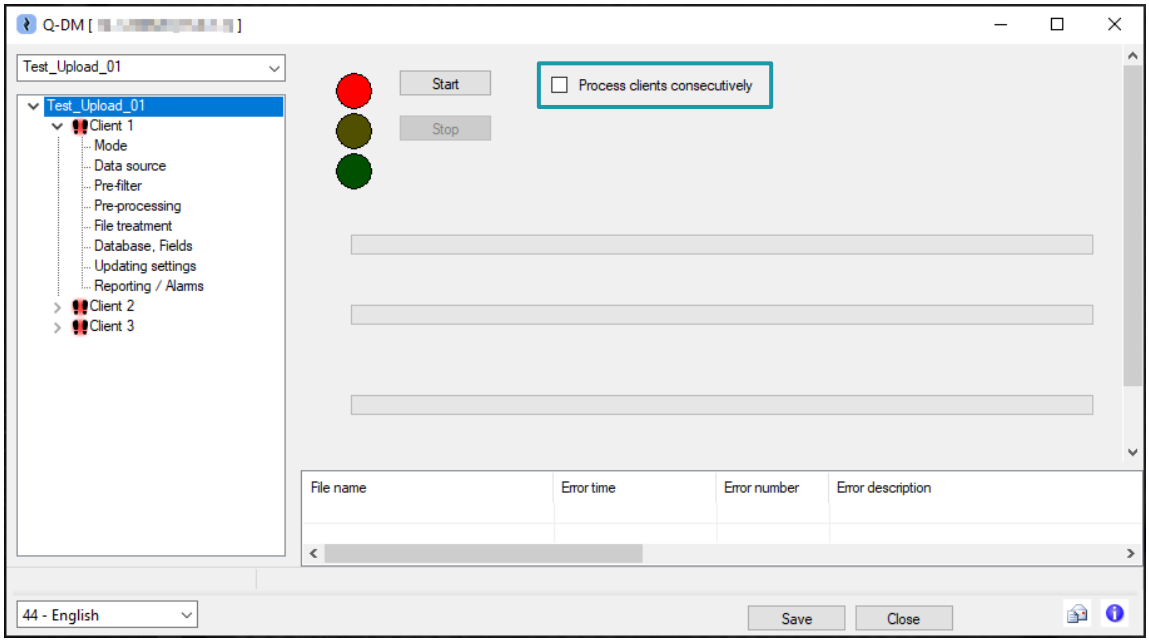
The actual upload settings are assigned to the clients.

As described above, it is important to note that the need for multiple upload clients must first be determined.

Basic rule: As few upload clients as possible, as many as necessary.

4.3 Procedure when using multiple upload clients

By default, clients are processed simultaneously. This usually results in a faster upload of measurement files. Processing clients in parallel can cause problems in certain constellations. The "Process clients consecutively" option is available for this purpose.

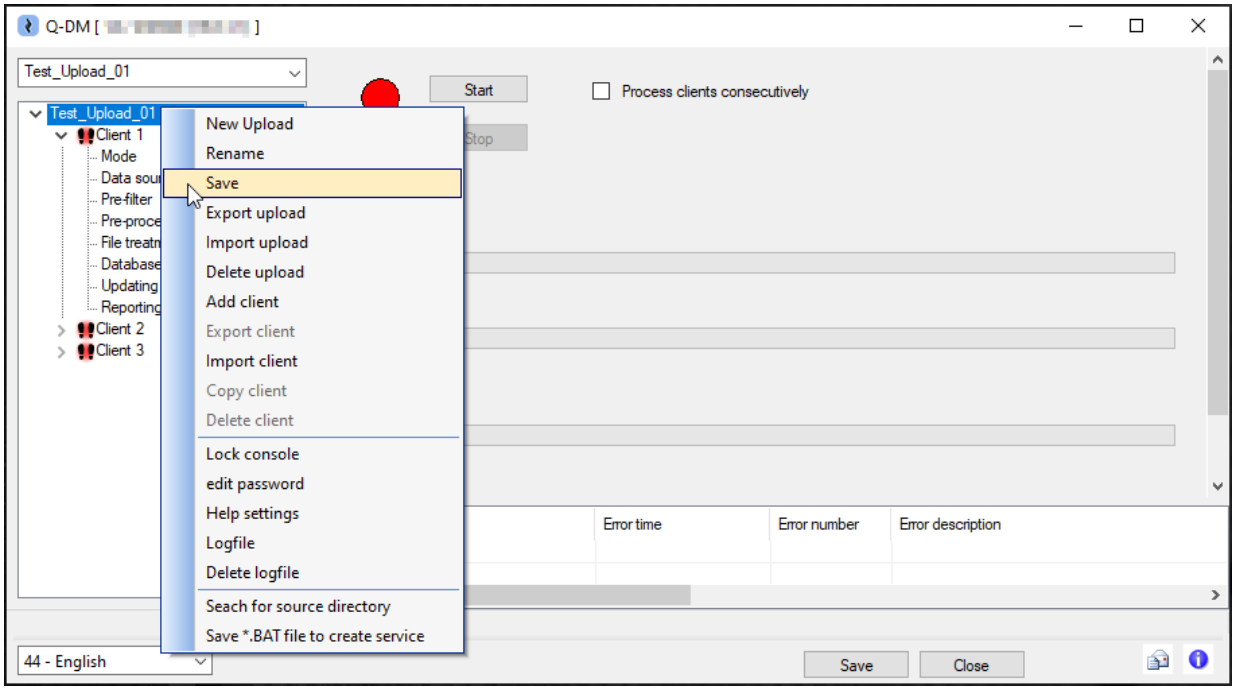


The "Process clients consecutively" option should be enabled in the following cases:

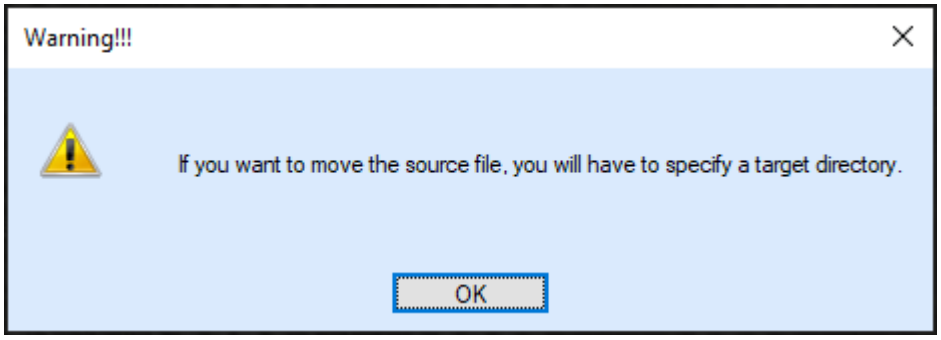
- When different upload clients use different source directories but the same key fields and the same database.
  In this case, both clients will upload their measurement files to the same test plan (part).
- If the database cannot handle the number of simultaneous upload client connections.

4.4 Saving upload settings

Individually configured upload settings can be saved using the "Save" button or by selecting the "Save" option from the context menu.



If inconsistencies are detected during saving due to missing settings for data flow and paths, a message will be displayed.



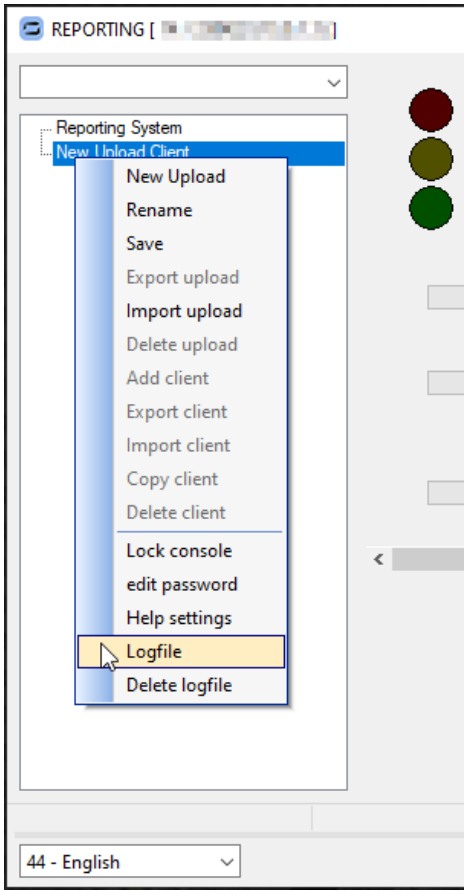
4.5 Log file (protocol)

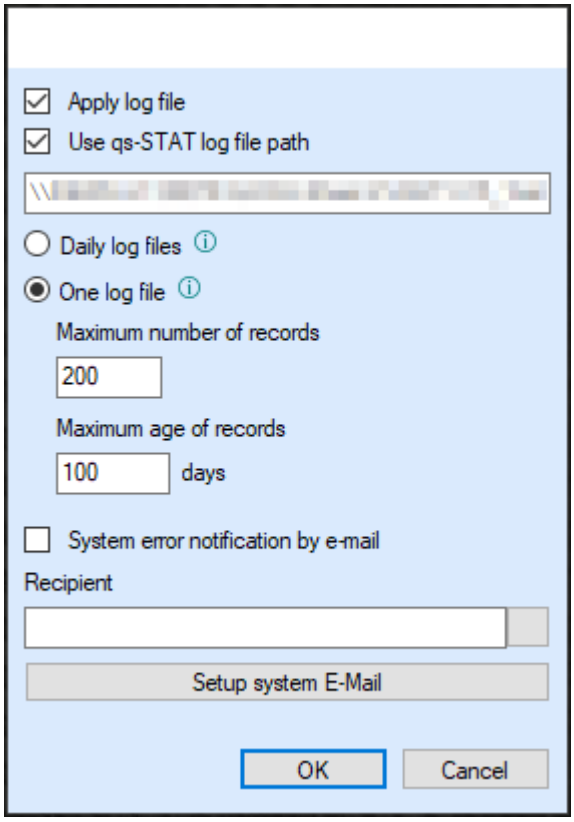
If system or error messages occur during runtime, they are listed in the "Messages" window area.

File...	Error...	Error n...	Error description
	11.0...	-98	Upload configurations with "Support for CMM-R...

The "Logfile" dialogue offers the option of saving the messages to a log file and sending them by e-mail.

While in Q-DM the context menu is opened by right-clicking in the "Menu" window area, in M-QIS -Reporting a right-click on the upload node or one of the sub-nodes is required.





The configuration in the "Logfile" dialogue applies globally for all uploads.

"Apply log file" (requires path specification)

Saving the messages to a log file is enabled by activating this option. A path must be specified so that the messages are actually saved to a file.

“Use qs-STAT log file path" (advanced option for "Apply log file")

If this option is enabled, the default path specified during installation is used to store the log files. If a different path is required, the field for the path selection is only enabled by deselecting this option.

By default, the "Apply log file" and "Use qs-STAT log file path" options are enabled. It is recommended to leave the "Apply log file" option activated to specify a path, otherwise the messages will only be available at runtime. If log file saving is enabled, the messages saved to file are also listed in the "Messages" window area.

"Daily log files" / "One log file" (advanced options for "Apply log file")

The options allow you to choose between a single log file or daily log files. If the "Daily log files" option is enabled, a date stamp will be added to the log files names as a suffix.

Maximum entries (advanced option for "One log file")

If the "One log file" option is enabled, the "Maximum number of entries" and "Maximum age of records" options can be used to limit the size of the log files. This prevents the log files from growing indefinitely. The “0” settings disables both options.

The maximum entry options are processed sequentially. First, the number of entries is checked and deleted if necessary, then the entries that exceed the maximum age specified are checked and deleted if necessary.

The status window is updated immediately, while the log file is updated when the application is closed or at a fixed cycle. It is therefore possible that the log file may contain more entries than specified.

"System error notifications by e-mail" (requires e-mail settings and e-mail address)

Sending system and error messages by email is enabled by enabling this option. This includes, for example, messages such as inaccessible drives or multiple characteristics in the file being uploaded.

In order for the messages to be sent by e-mail, it is necessary to configure the e-mail settings and specify at least one e-mail address for delivery.

Each message is sent as a separate e-mail.

"Recipient" (advanced option for "System error notification by e-mail")

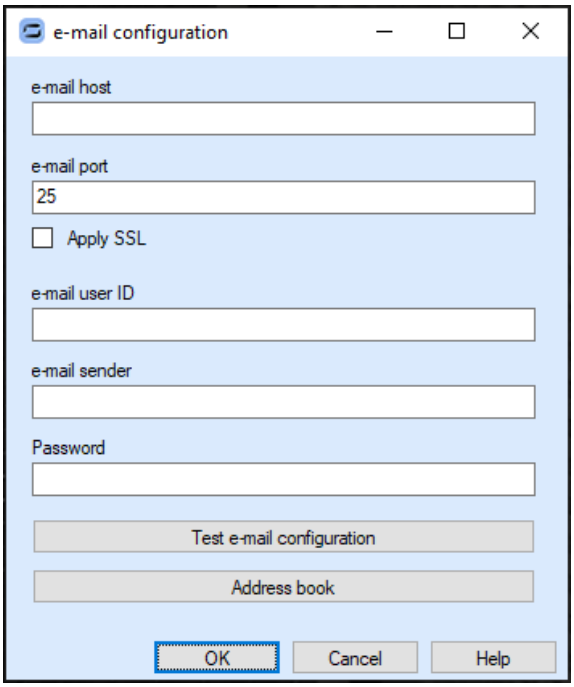
At least one e-mail address is required to send an e-mail.

"Setup system e-mail" (advanced options for "System error notification by e-mail")

Sending messages by e-mail requires that the mail server (outgoing server) settings are entered. Detailed information is described in the separate document "Sending alarm notifications by e-mail".

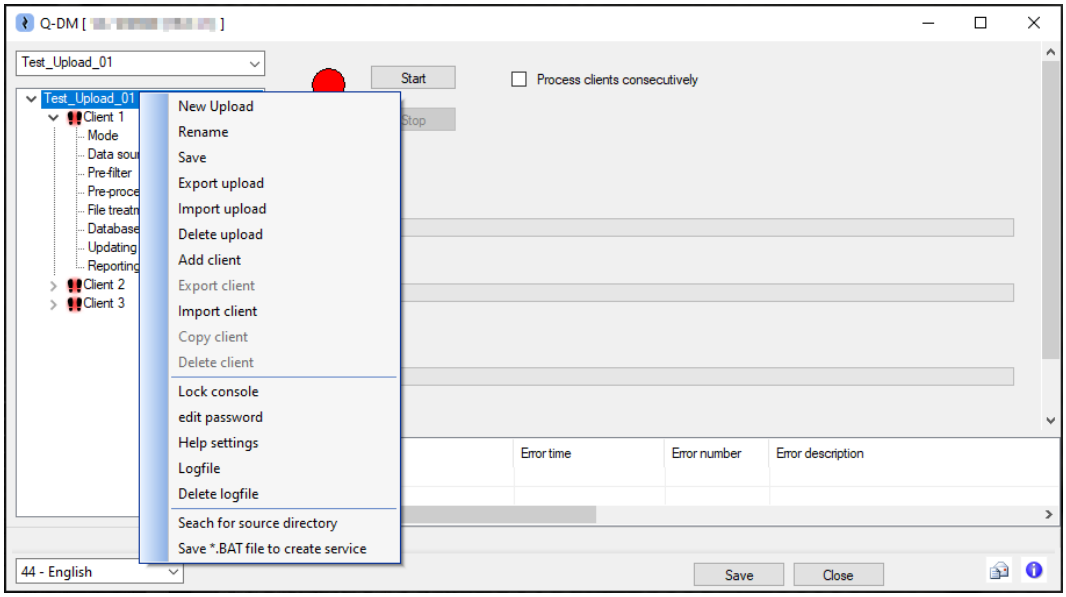
All settings are stored independently of the module, but are user specific for the "SuperUser" user. This means that the configuration of the mail server is also available to the "SuperUser" user in other Q-DAS applications, such as qs-STAT.

For assistance in determining the required mail server settings, contact the company's IT department.



4.6 Upload context menu

The context menu of an upload provides additional functions.



Only those functions that are not already described in the "Q-DM administration" section are described below.

Export / Import

The configuration is saved when an upload or upload client is exported. For security reasons, not all configuration settings are saved when exporting. An import can therefore not be used to run an upload or upload client. This function is only used to view the configuration, e.g. for hotline enquiries.

Lock console

The Q-DM interface is locked for further processing.

password

The "Edit password" function can be used to protect the editing of an upload or an upload client with a password. If a password has already been assigned, it can be reset using the "Edit password" function. The old password must be entered first. Then the dialogue must be confirmed without entering a new password..

.BAT - Save file for service creation

Detailed information on "Installing Q-DM as a service" can be found on our webpage or in in the latest help.

5 Execute Q-DM

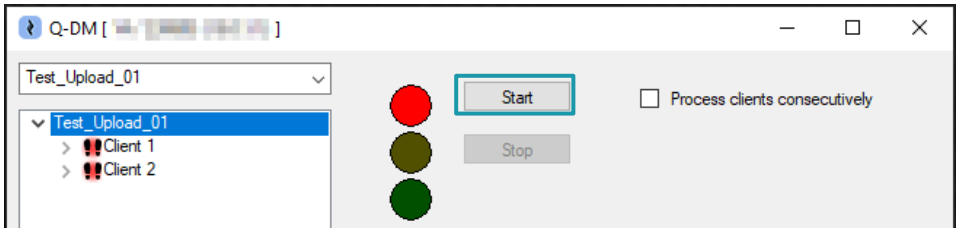
The Q-DM application can be started manually via the user interface or as a service (Windows service).

Starting via the Q-DM interface is recommended, for example, for test purposes during commissioning. In addition to starting an upload with all clients, the interface also allows you to run individual upload clients. After the test phase, it is recommended to install and run the Q-DM upload as a service for an automated process flow.

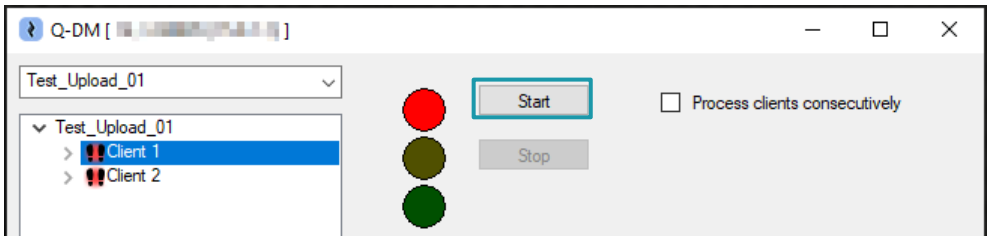
Detailed information on "Installing Q-DM as a service" can be found on our webpage or in in the latest help

5.1 Start upload / client via Q-DM interface

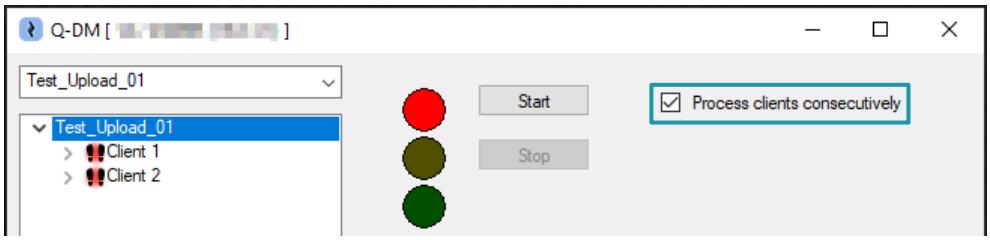
By selecting an upload, the upload can be started with all its clients:



By selecting a specific client, a single upload client can also be started manually:



The "Process clients consecutively" option ensures that the clients associated with the respective upload are processed sequentially one after the other.

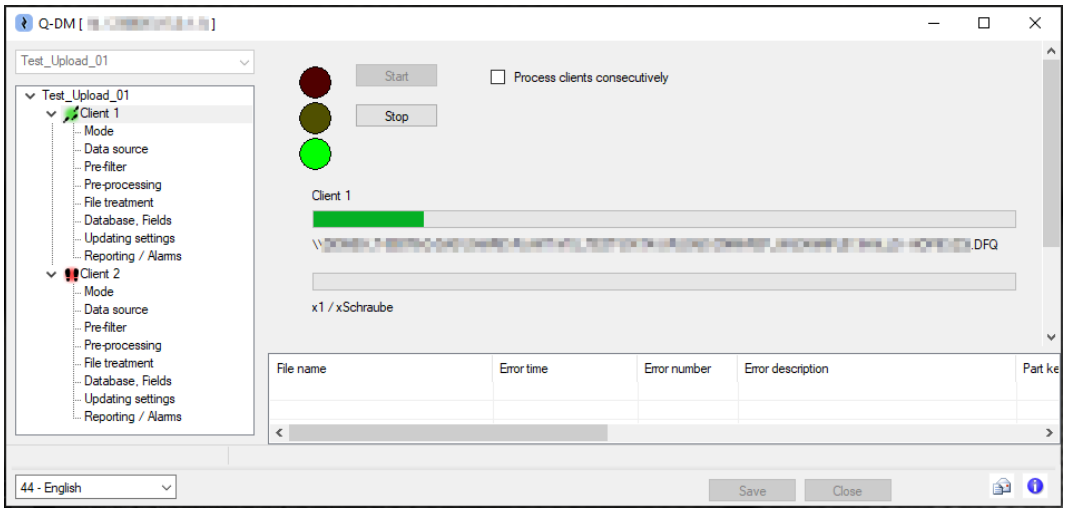


5.2 Upload procedure

An upload or an upload client is performed as follows:

- First, all included directories are checked for compliant files.
- An internal list is created.
- The files are processed according to the list. The order is according to the timestamp of inclusion in the list (modification date). The file creation timestamp is not taken into account.
- The Q-DM configuration is applied to each file and the file is handled accordingly.

If only a single upload client is started, the status can be monitored via the progress bar.

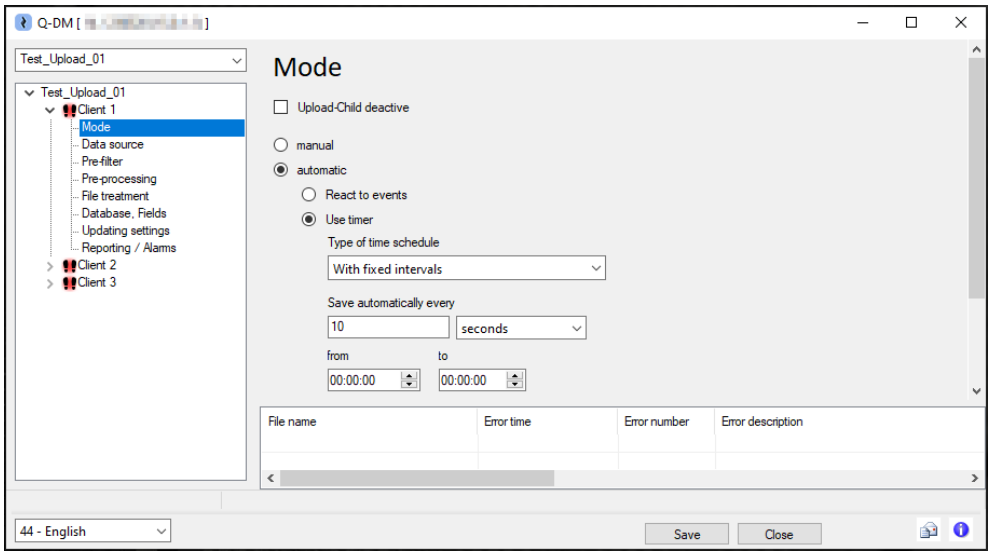


6 Q-DM settings

The various Upload Client configuration options are grouped into different menu groups according to their tasks and functions. Each of these options and functions are described in the following sub-chapters.

6.1 “Mode” menu group

The options in this menu group define the basic mode of operation and the output of the status messages from an upload client and provide access to a third-party application via web access.



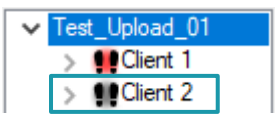
6.1.1 How the Upload Client works

The options in this window area are used to define the launch behaviour and the way an upload client works.

"Upload child" option deactivated

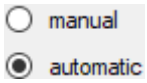
Enabling this option blocks the upload client from running. The launch options and the button for launching the Upload Client manually are disabled. This option provides the configuration of an upload client for test purposes.

A disabled upload client is indicated by a greyed out icon.



Client mode

An upload client can be launched in different modes. Manually, to upload the files from the collection directories once. Or automatically, to constantly upload the files from the source directories.



“Manual” mode

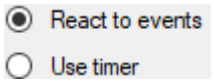
By enabeling the "Manual" option, the upload client is started once after the "Start" button is pressed. A manually started upload client accesses the directories stored in the data source. Once all the measurement files in the data source have been uploaded, the upload client will stop.

“Automatic” mode

When this option is enabled, the data source is constantly monitored. This option also requires the configuration of a trigger to repeat the data source check and the upload. A new check can be triggered cyclically or by monitoring the changed events. Monitoring of the data source is started by selecting the "Start" button. The check and upload are repeated according to the configured trigger. Monitoring is stopped by selecting the "Stop" button.

6.1.1.1 “Automatic” mode - Trigger

There are two different types of triggers used for a continuous check of the data source.



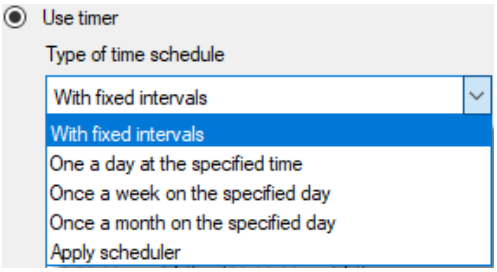
React to events" option

When a write process occurs in the source directory, the upload client is activated. A write process or event includes, for example, newly added measurement files, changing or overwriting the contents of existing measurement files. When an event occurs, all DFQ, DFD/DFX and QML files are uploaded. This includes files that were already in the source directory before this option was enabled.

However, from version 12.0.2.1, an initial upload is always performed when starting the upload, which uploads the existing data pool of the data source first. The "React to events" option only takes effect after the initial upload.

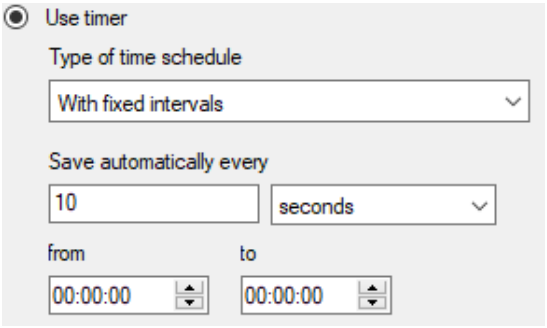
“Use timer” option

Various time intervals are available to trigger a cyclical check of the data source.



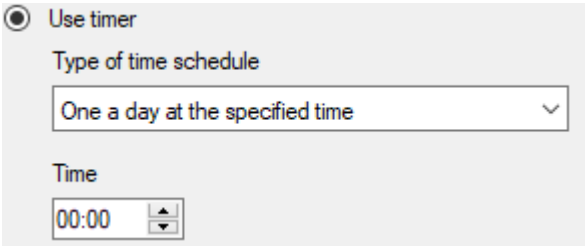
“With fixed intervals” option (advanced option for "Use timer")

Monitoring of the data source will be repeated according to the settings in the "Save automatically every" field. The additional specification in the "From" and "To" fields specifies a time window during which the upload client is active. The measurement files will only be uploaded within the configured time window.



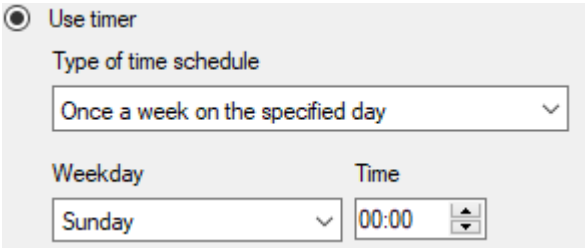
“One a day at the specified time” option (advanced option for "Use timer")

The time specified determines when the data source is checked. Only the measurement files that are in the source directory at the time of activation will be uploaded.



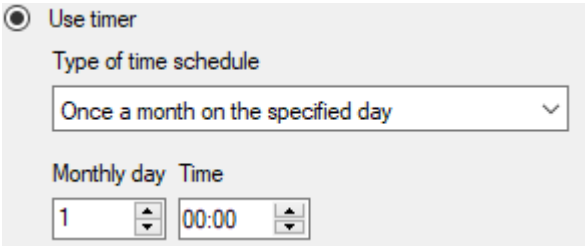
“Once a week on the specified day” option (advanced option for "Use timer")

The day of the week and time are used to determine when the data source is checked. Only the measurement files that are in the source directory at the time of activation will be uploaded.



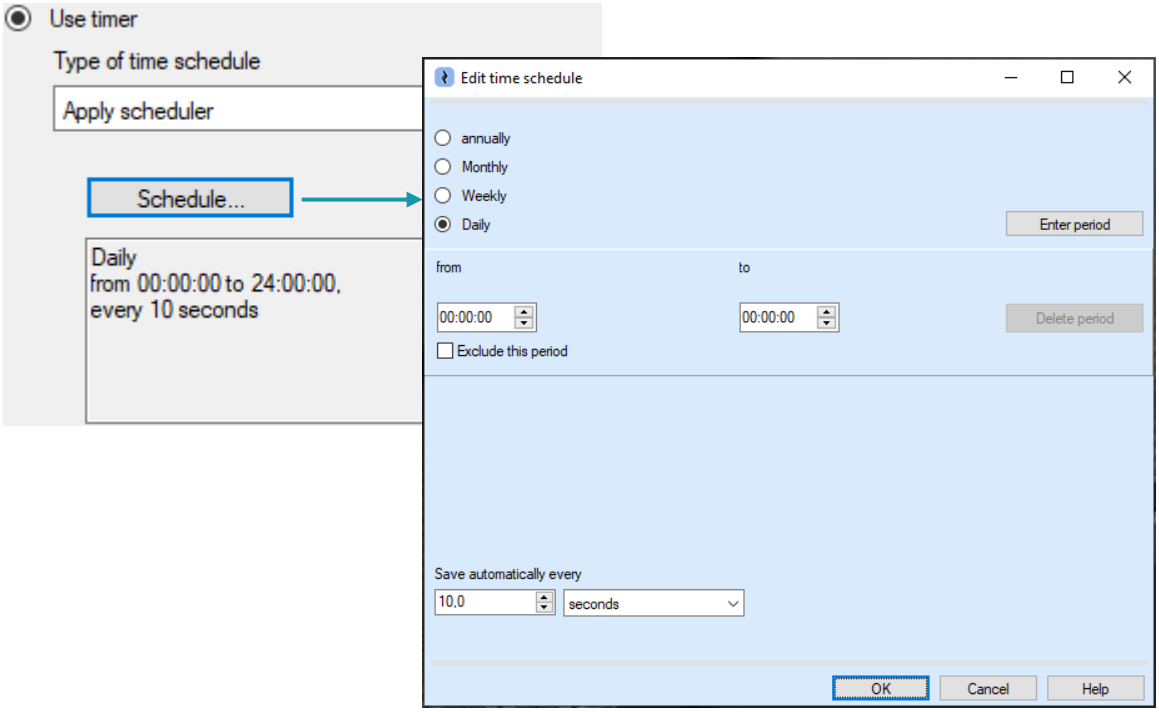
“Once a month on the specified day” option (advanced option for "Use timer")

The day of the month and time are used to determine when the data source is checked. Only the measurement files that are in the source directory at the time of activation will be uploaded.



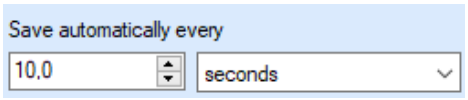
“Apply scheduler” option (advanced option for "Use timer")

In addition to configure multiple time periods, the scheduler also provides the ability to define time periods to prevent measurement files from being uploaded. The "Edit schedule" dialogue is available for configuration. The dialogue is opened by selecting the "Schedule" button.



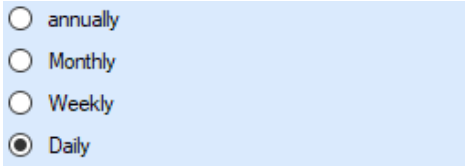
Data source monitoring interval

The monitoring of the source directories is repeated according to the settings in the "Save automatically every" fields.



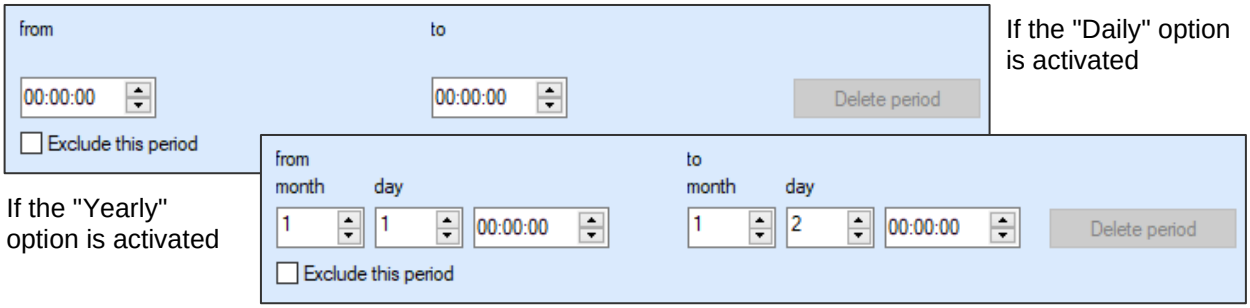
Define time unit

The period in which the Upload Client is active is defined by selecting the time unit and at least one time window. The available time units are yearly, monthly, weekly and daily. It is important to note that only one option can be selected here. It is not possible to combine different time units (yearly, monthly, weekly, daily) within a schedule.



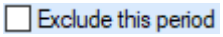
Define time window

Depending on the time unit selected, different fields are offered for specifying the time windows.



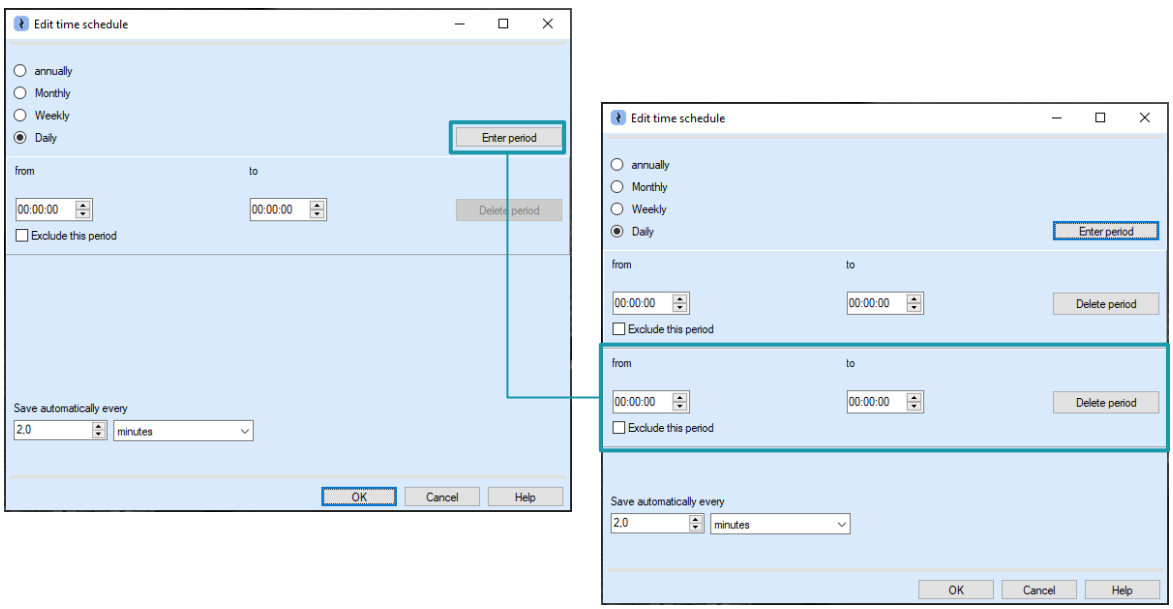
The "from" and "to" settings define a time window in which the upload client is active. The measurement files will only be uploaded within the defined time window.

With the additional "Exclude this period" option enabled, the upload client will be disabled during the defined time window. Measurement files will not be uploaded from the data source during the defined time window.



Define additional time windows

The "Enter period" button allows additional time windows to be defined. Each time the "Enter period" button is pressed, another "from ... to" time interval is inserted in the centre of the window. Each of these time windows can be configured separately.

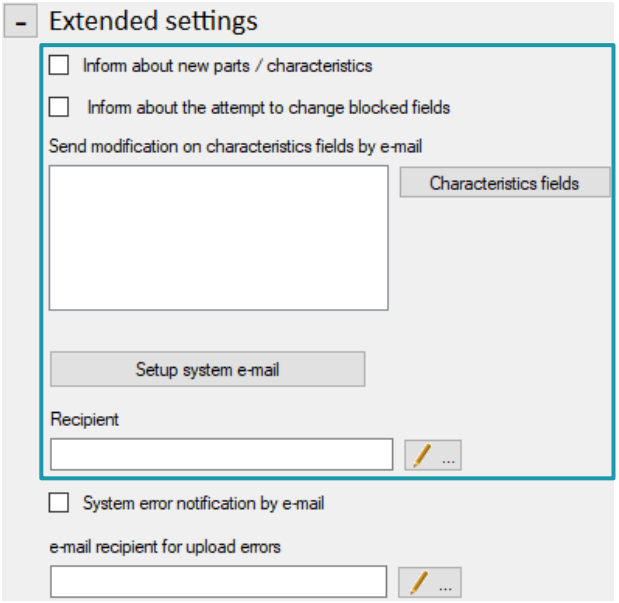


6.1.2 Extended settings

The options in this window area allow the configuration of email notifications for various status messages related to the data set, as well as for system and error messages.

6.1.2.1 Notification of changes to the data pool (by e-mail)

The options available here are used to receive information by e-mail when changes are made to characteristic fields, when new parts are created and when an attempt is made to change locked fields.



In order to receive notification by e-mail, it is necessary to enable at least one of the options, configure the e-mail settings and specify at least one e-mail address for delivery.

Option "Inform about new parts/characteristics"

When this option is set, an e-mail is sent to the e-mail address specified in “Recipient” field for each new part or new characteristic that has been successfully uploaded.

Option "Inform about attempted changes to blocked fields"

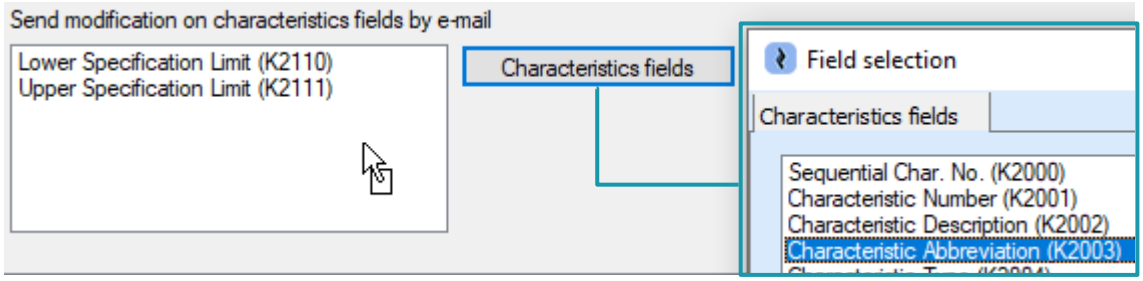
If this option is selected, an e-mail will be sent to the e-mail address stored in the "Recipient" field when an attempt is made to change one of the protected K-fields. The K-fields that are protected during upload are specified in the "Database, Fields" menu group.

The application first checks whether a change is allowed in general and then whether the fields are protected. This means that the e-mail can only be sent if the corresponding K-fields are allowed to be changed in the "Update settings" menu group.

Option "Send modifications on characteristics fields by e-mail"

For each K-field listed in the "Send modifications on characteristics fields by e-mail" field, the system will check to see if any changes have been made as a result of the upload. If a change has been made, an e-mail will be sent to the e-mail address specified in the “Recipient” field.

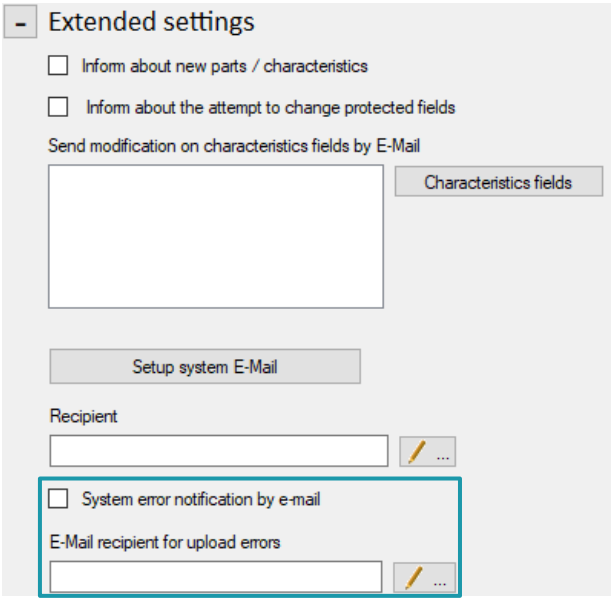
This option is enabled by adding the K-fields from the "Field selection" dialogue to the "Send modifications on characteristics fields by e-mail" field.



The application first checks whether a change is allowed in general and then whether the fields have been changed. This means that the e-mail can only be sent if a change to the corresponding characteristic fields are allowed to be changed in the "Update settings" menu group.

6.1.2.2 System and error notifications by e-mail (Upload Client)

The options here are used to configure the sending of system and error notifications by e-mail for the upload client.



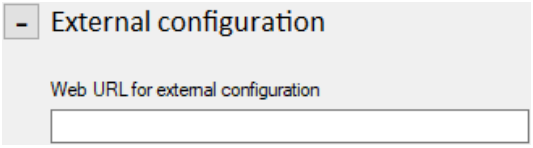
In order for the messages to be sent by e-mail, it is necessary to enable the option "System error notification by e-mail", configure the e-mail settings and specify at least one e-mail address as the recipient.

The sending of system and error notifications by e-mail can be configured globally for all uploads using the log file dialogue. A detailed description can be found in the chapter Log file (protocol).

Enabling system and error notifications via upload client is independent of the global settings. If both are enabled, the same error message will be sent according to the upload client and the global configuration.

6.1.3 External configuration

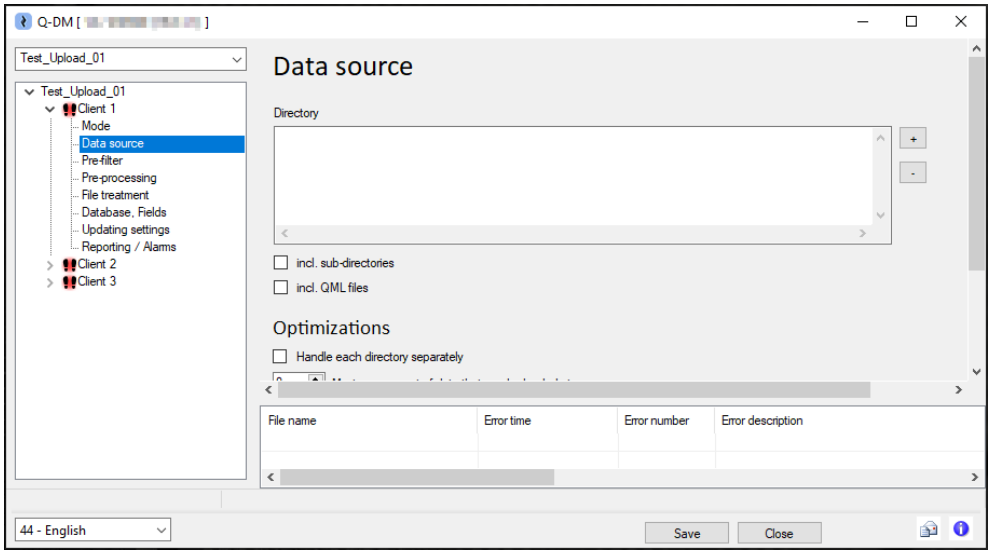
This option allows a specific third-party application to be accessed and configured via the web address (web URL). The "External configuration" option is used, for example, to configure measurement systems where the manufacturer offers web access for configuration.



The settings of the third-party application are not saved in the Q-DAS application. The configuration or saving of the settings is done exclusively via the third-party application. Only the specified web URL is saved by the Q-DAS application.

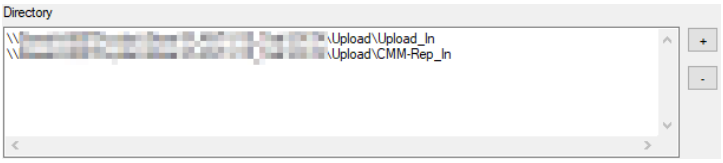
6.2 “Data source” menu group

The options in this menu group are used to control the connection to the pick-up directories and the handling and requirements of the measurement files.



6.2.1 Data source (pick-up directories)

This window area is used to manage the directories containing the measurement files to be uploaded. The "+" or "-" buttons are used to add or remove the path of a pick-up directory. The total length of a path, including file name and file name extension, must not exceed 255 characters.

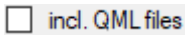


Option "incl. sub-directories" (advanced option for "Directory")

In addition to the measurement files in the specified path, the measurement files in the subdirectories are also taken into account.

Option "incl. QML files" (advanced option for "Directory")

With this option, files with a "QML" file extension are also included in the upload.

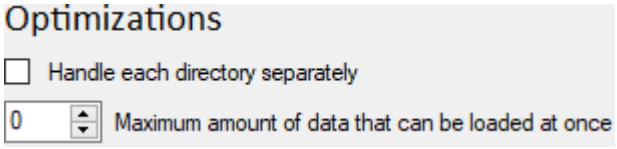


The file extension of the QML measurement file and the QML alarm file is identical. Q-DM cannot distinguish between a QML measurement file and a QML alarm file based on the content. If the "Incl. QML files" option is activated, a QML alarm file is treated as a QML measurement file.

It is not possible to enable both "Incl. QML files" and "Create alarm QML" at the same time. *Client* | *Reporting / Alarms* | *Alarm* | *Create alarm QML*. If the "Create alarm QML" option is selected, the "Incl. QML files" option will be automatically disabled. When the "Create alarm QML" option is enabled, activating "Incl. QML files" option cannot be saved.

Optimisations

This window area is used to define the handling of the pick-up directories stored in the data source and the processing of the measurement files to be uploaded.



Option "Handle each directory separately" (advanced option for "Directory")

If this option is enabled, the directories listed in the "Directory" window area will be processed one at a time.

Option "Maximum amount of data that can be loaded at once" (advanced option for "Directory")

At the start of an upload client, an internal list of the measurement files in the pick-up directory is created. In other words, a list and order of the measurement files to be uploaded in the current cycle.

If there are several thousand measurement files in a pick-up directory, creating the list alone can take a long of time. To improve the performance of the upload, this option allows to limit the processing of the files in steps of 1000. If set to "0", all files in the data source will be listed and processed at once.

6.2.2 Conversions

If measurement files are available in an unsuitable character encoding or other data format, they can be converted. The character encoding is converted directly during the upload. An custom converter is required to convert measurement files that are not written in the Q-DAS compliant data format.

The development of a custom converter is cost based.

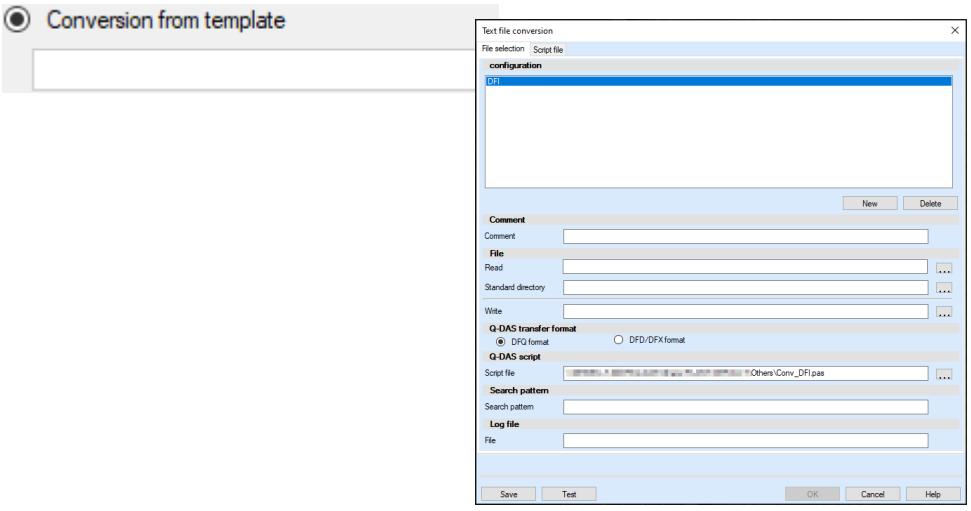
If a custom converter is required, the requirements must be specified in a workshop with the Q-DAS project team. Contact e-mail: info.qdas.mi@hexagon.com.

“No conversion” option

The data format is not changed (converted).

“Conversion from template” option

If measurement files are in a different data format, such as Microsoft Excel or text files (*.txt), they can be transformed into Q-DAS compliant data format using a converter. Enabling the option opens the dialogue for setting up a converter. In the following example, a template is created for DFI files.



When using an custom converter, a DFQ file with the same name will be created for the original file. If it is configured to delete or move the source files after a successful upload, the original file and the DFQ file will be affected. *Client* | *File treatment* | *Successfully uploaded files* | *Keep, delete or move*.

"DOS character set" option

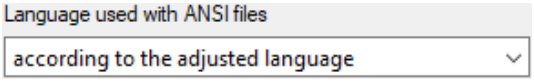
The option available here is an outdated handling that allows DOS-coded data sets to be transferred to external systems. As there are hardly any DOS-based systems left, this option is no longer relevant and is only available for compatibility reasons.

If this option is enabled, the data sets are converted to the DOS character set and cannot be displayed correctly on standard Windows-based systems.

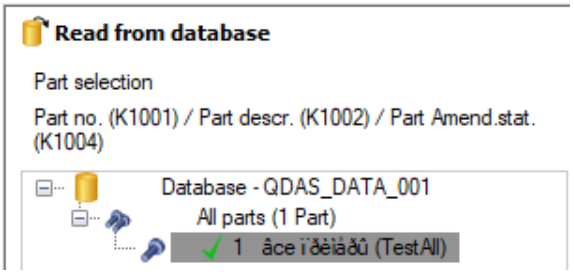
"Language used for ANSI files" option

If measurement files are available in ANSI character encoding, the characters for the country or region are displayed correctly by selecting the corresponding language.

In the following, English is the default language for the "SuperUser" user in the Q-DM application.

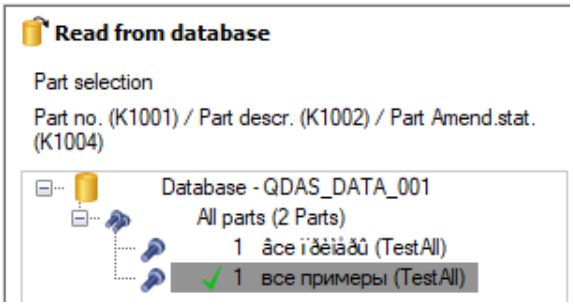


Uploading an ANSI encoded DFQ file with Russian characters will result in incorrect display. As configured, the English language is used for encoding.



The ANSI conversion language must be changed to Russian to match the encoding of the DFQ file.

Uploading the same ANSI encoded DFQ file will result in the correct display of Russian characters.



6.2.3 Extended settings

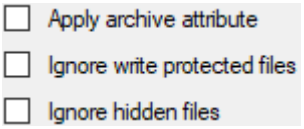
This window area is used to define the requirements for the file properties, the consistency and permission checks before uploading, and the prevention of simultaneous file access.

6.2.3.1 File treatment (file properties requirements)

The options in this window area are used to define the requirements for the file properties and to prevent simultaneous file access. These are only relevant if the writing system cannot work correctly with the operating system option "Lock exclusively".

File treatment

By enabling the following options, only files with the corresponding file properties will be uploaded.



“Apply archive attribute" option (File treatment)

When enabled, the files that have the "Archive" file attribute set will be uploaded. During access, Q-DM deletes the file attribute to signal to other systems that the file is currently being accessed. The files for which the "Archive" file attribute is missing remain in the pick-up directory.

“Ignore write protected files” option (File treatment)

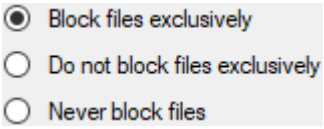
If this option is enabled, only files for which the "Read-only" file attribute is not active will be uploaded. The write-protected files will remain in the pick-up directory.

“Ignore hidden files” option (File treatment)

If the option is enabled, files with the "Hidden" file attribute will not be uploaded.

Simultaneous file access

The options available here are an outdated handling that controls simultaneous access to the measurement files by Q-DM during upload. These options are no longer relevant and are only available for compatibility reasons.



When dealing with simultaneous file accesses, only the "Block files exclusively" option is recommended.

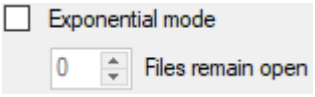
If the options "Do not block files exclusively" or "Never block files" are required, the requirements must be specified in a workshop with the Q-DAS project team. Contact e-mail: info.qdas.mi@hexagon.com.

6.2.3.2 Miscellaneous

The options in this window area are used to check consistency, to check access rights and to prevent simultaneous file accesses by the Q-DM application.

"Exponential mode" option - handling of related measurement files

If measured values are appended to existing measurement files or DFD/DFX files are used, it is quite possible that the writing system still has access to the files while Q-DM is trying to process them. The "Exponential mode" option can be used to avoid access problems and improve upload performance.



Enabling this option requires the writing system, e.g. measuring machine, to create the header data once and each measurement as an individual DFX file with incrementing file names. If "Exponential mode" is enabled, Q-DM first reads in the DFD file (header data). All subsequent DFX files (measurements) are assigned to this header data. This applies until the next DFD file is read.

Example:

00000001.DFD	Initial parameterisation of the system
00000001.DFX	Measured values of the first part measurement
00000002.DFX	Measured values of the second part measurement
00000003.DFX	Measured values of the third part measurement
...	...
00000087.DFX	Measured values of the 87th part measurement
00000088.DFD	New DFD file due to a change in header data
00000088.DFX	Measured values of the first part measurement for the new header data (88th part measurement of the system in total)

If the "Exponential mode" option is enabled, the number of DFX files that will not to be uploaded can be specified in the "Files remain open" field. A default setting allows the writing system to finish writing the measurement file. This avoids access problems.

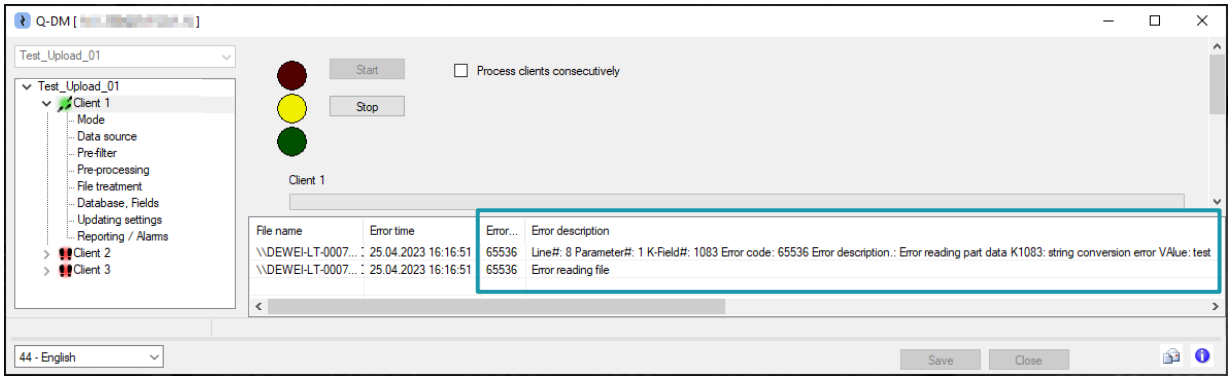
If Q-DM is used to upload O-QIS monitoring files, the Q-DM option "Files remains open" must be compared with the O-QIS monitoring options for file handling after import.

If the exponential mode is active, the "incl. header data" option in the *Client* | *File treatment* | *Successfully uploaded files* | *incl. header data* is ignored.

“Check Dataformat” option

The ASCII data transfer format has been developed for standardised data exchange between external systems and the Q-DAS applications. This option allows the length and data type of the k-fields of a measurement file to be checked for consistency with the ASCII data transfer format specifications.

In the following example, the K1083 field contains alphanumeric content instead of the specified 5 integer characters. If this option is enabled, the measurement file with the incorrect spelling will be detected and handled according to the "Files not readable " configuration in the "File treatment" menu group.



The "Check Dataformat" option is not a complete check for all syntactical errors. This is particularly relevant for k-fields at value level. Especially in the case of additional data, there are k-fields for which it is desirable to upload them in truncated form.

Q-DM always requires correctly written measurement files. In order to avoid format errors, certification is also available for manufacturers of the measuring devices.

“Check access rights to source files and backup directories" option

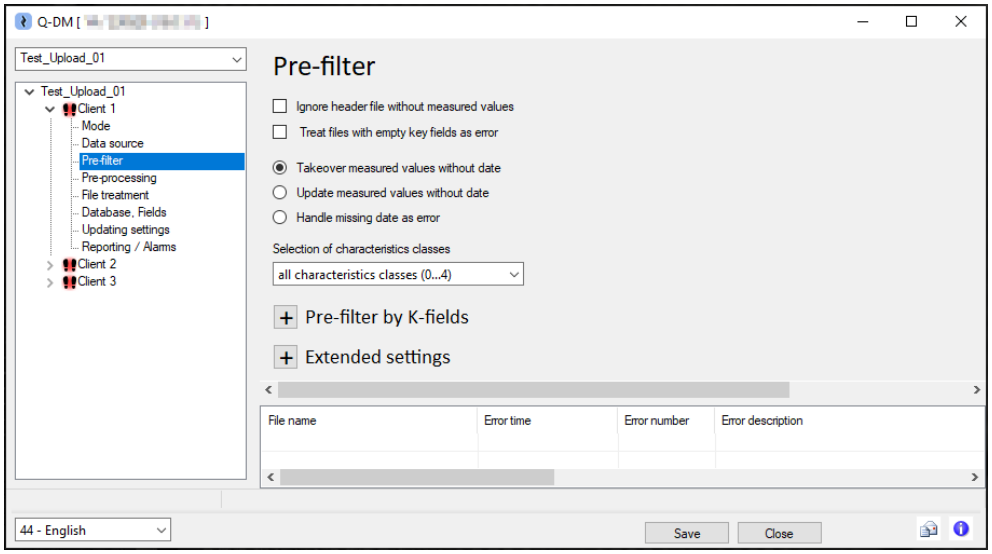
A common error is that, for example, the backup directories where the uploaded files should be stored are not accessible or are write-protected. Or that measurement files in the pick-up directory are write-protected and therefore cannot be deleted. This can be checked with this option when the upload client is initially started. If the required permission is not granted, the upload client will be prevented from starting.

The first time the upload client is launched, the check is performed. Changes to permissions during operation are not checked and are not taken into account.

If the executing Windows user does not have the permission to check the access rights to the specified directories, the protection mechanism of the option will take effect. The upload client will not be started. In this case, Q-DM access rights check must be disabled. The access rights for all directories must be guaranteed by the customer’s internal IT department.

6.3 “Pre-filtration” menu group

The options in this menu group are used to check measurement files before uploading and to react to missing content.



6.3.1 General pre filters

The options in this window area are used to catch gross syntax errors in a measurement file.

"Ignore header file without measured values" option

When using the DFD/DFX file format, the upload client requires both files to perform the upload. When "Automatic" mode is enabled, the data source is constantly monitored. If only the header data (DFD) file is present in the pick-up directory, the upload client will repeatedly check to see if the file can be uploaded.

Enabling this option means that DFD files without matching DFX files will be ignored by the upload client. Only if there is a DFX file with the same name in the same directory will the upload client also check the DFD file.

"Treat files with empty key fields as error" option

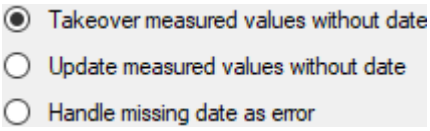
If k-fields are defined as key fields, the measurement files with empty or missing key fields are also uploaded. The missing information is used as new information. This may result in the creation of new data sets, groups or characteristics in the database.

Enabling this option means that measurement files with empty or missing k-fields defined as key fields, will not be uploaded to the database. The measurement file will be handled according to the configuration "Handling of files that cannot be uploaded for reasons of logic" in the "File treatment" menu group.

Some characteristic types have no specification limits. For example, attributive, nominal or ordinal characteristics, or superordinate positional tolerances. If specification limits are defined as key fields and the handling of empty key fields is enabled, These characteristics cannot be uploaded.

Missing date and time information

These options are used to define how to handle measured values without associated date and time information (K0004).



"Takeover measured values without date" option

Enabling this option will upload all measured values. If date and time information is missing in the file to be uploaded, the k-field 0004 will remain empty in the database.

"Update measured values with missing date" option

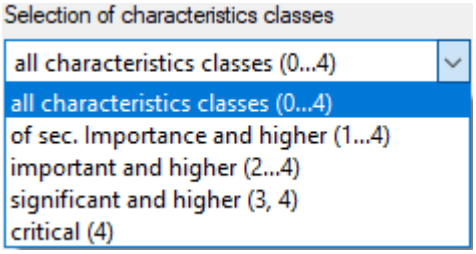
If this option is enabled, all measured values will be uploaded. Any missing date and time information will be added to the database k-field 0004 using the time stamp of the upload process.

"Handle missing date as error" option

By enabling this option, the measurement files with missing date and time information will not be uploaded. The measurement file is handled according to the configuration "Handling of files that cannot be uploaded for reasons of logic" in the "File treatment" menu group.

Selection of characteristics classes

By specifying characteristic classes, only the relevant part of the measurement file is uploaded to the database. If a measurement file also contains characteristics with other characteristic classes than those specified, these characteristics and the corresponding measured values will be ignored by the upload client.



"all charact. classes (0...4)" option

Characteristic classes that are uploaded: 0-unimportant, 1-of sec. importance, 2-important, 3-significant, 4-critical

"of sec. importance and higher (1...4)" option

Characteristic classes that are uploaded: 1- of sec. importance, 2-important, 3-significant, 4-critical

"important and higher (2...4)" option

Characteristic classes that are uploaded: 2-important, 3-significant, 4-critical

"significant and higher (3, 4)" option

Characteristic classes that are uploaded: 3-significant, 4-critical

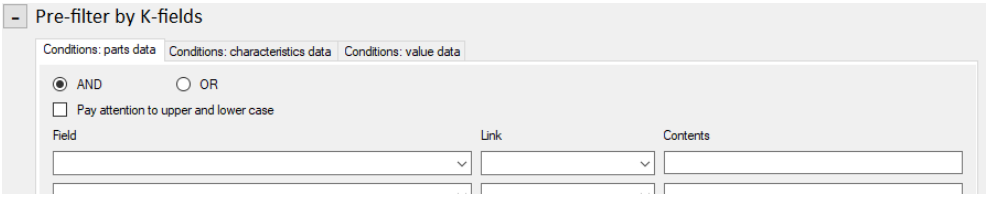
"critical (4)" option

Characteristic class that is uploaded:4-critical

When using mathematical groups such as positional tolerances, 3D positional tolerances, AFNOR etc., an incorrect selection of characteristic classes can change the group structure and lead to data loss.

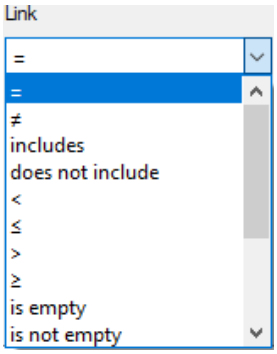
6.3.2 Pre-filter by k-fields

The options here allow to define the content to be checked. This makes it possible to upload only the measurement files or the part of the measurement file to the database that contains the defined part, characteristics or measured value information.



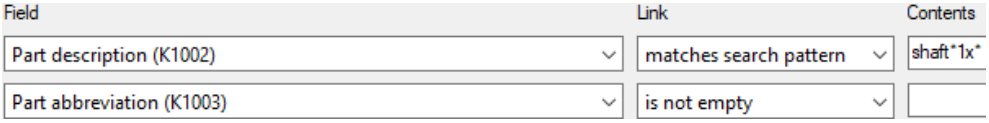
Creating the conditions

The conditions are displayed in the "Conditions: Part data", "Conditions: Characteristics data" and "Conditions: Value data" tabs. To create a condition, a k-field and a comparison operator must be selected. When using comparison operators that require wildcards or search terms, the specification in the "Contents" field is also required.



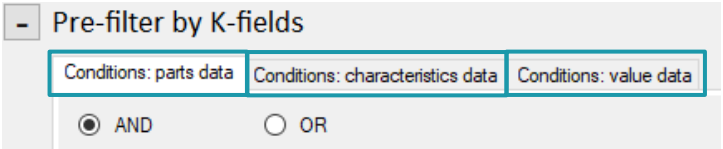
The comparison operators can be selected from the "Link" field.

Application of various comparison operators with and without specifying the search terms in the "Content" field.



For each of the tabs, you can also select whether the conditions should be linked within the AND or OR tab, and whether they are case-sensitive.

The individual tabs are processed sequentially. Filtering is first performed first at the part level, then at the characteristics level, and then at the value level.



Handling the pre-filtered measurement files

The handling of measurement files after upload is defined in the "File treatment" menu group. A distinction is made between successfully uploaded files and rejected files due to the pre-filters at part level.

Successfully uploaded measurement files

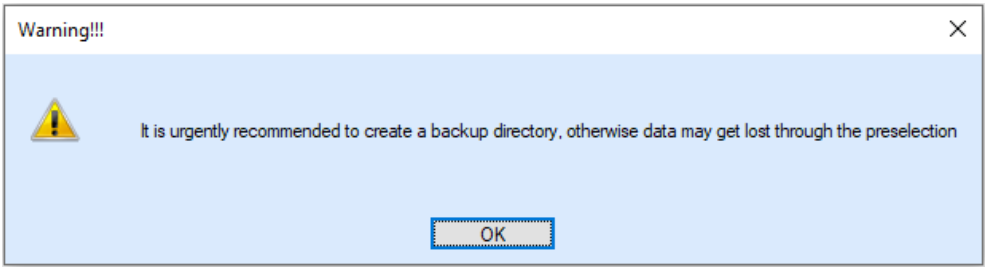
If the conditions of the pre-filter apply to a measurement file or part of a measurement file, the file is considered successfully uploaded. If a pre-filter is defined only for the characteristics or measured value level, i.e. only for part of the measurement file, the measurement file is considered uploaded even if the conditions of the pre-filter do not apply.

If the pre-filter only applies to part of the data, only that part will be uploaded to the database. Measurement files for which only part of the data is uploaded are considered to have been successfully uploaded.

If a part of a data set that has been excluded by the pre-filter is still required, the already transferred file must be uploaded again with the pre-filter negated.

Measurement files outside the pre-filters

Files outside the pre-filters are files to which the conditions at part level do not apply. If no storage directory is active for the files outside the pre-filters, the following message is displayed.



6.3.2.1 Pre-filter via k-fields - examples

The following example explain the behaviour of the upload client with different configurations in the "Pre-filter" menu group using the same measurement file.

Contents of the measurement file

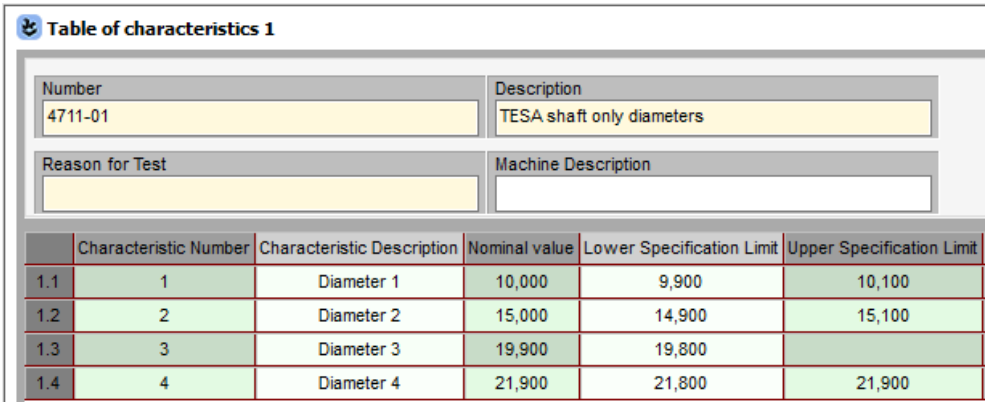


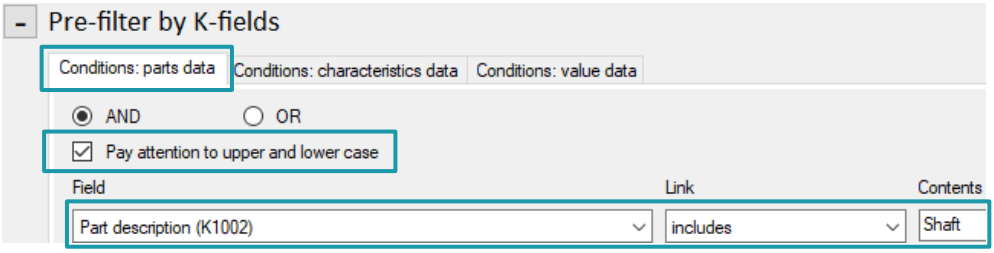
Table of characteristics 1

Number	Description
4711-01	TESA shaft only diameters
Reason for Test	**Machine Description**

	Characteristic Number	Characteristic Description	Nominal value	Lower Specification Limit	Upper Specification Limit
1.1	1	Diameter 1	10,000	9,900	10,100
1.2	2	Diameter 2	15,000	14,900	15,100
1.3	3	Diameter 3	19,900	19,800	
1.4	4	Diameter 4	21,900	21,800	21,900

Filtering at part level with a condition that does NOT apply - example

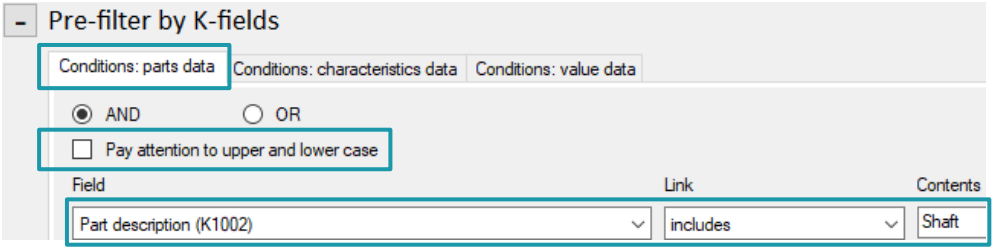
In the following, a condition is defined at part level. The search is for part descriptions that contain the exact spelling of the character string "Shaft". No conditions are defined at the characteristics and measured value level.



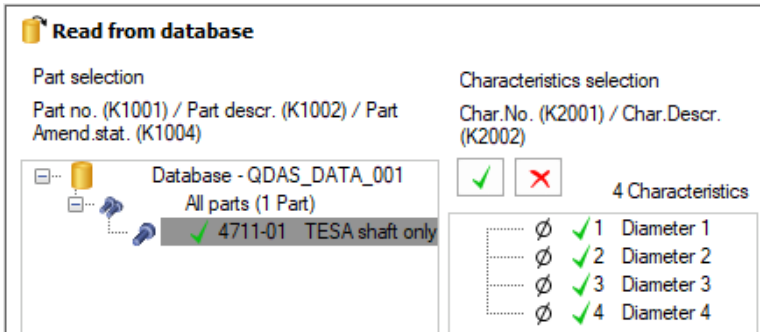
The upload client reads in the measurement file. It checks to see if the k-field part description (K1002) contains the search term "Shaft". The part description in the measurement file is "TESA ***shaft*** only diameters". Although the search string is contained, the content "shaft" does not match the search term "Shaft" because the spell checker is enabled. The filter condition is not met. The measurement file is not uploaded to the database. The measurement file itself is treated as a rejected file.

Filtering at part level with matching condition - example

In this example, a condition is defined at the part level. There are no conditions defined at the characteristics and measured value level. The search is for part descriptions that contain any spelling of the character string "Shaft".

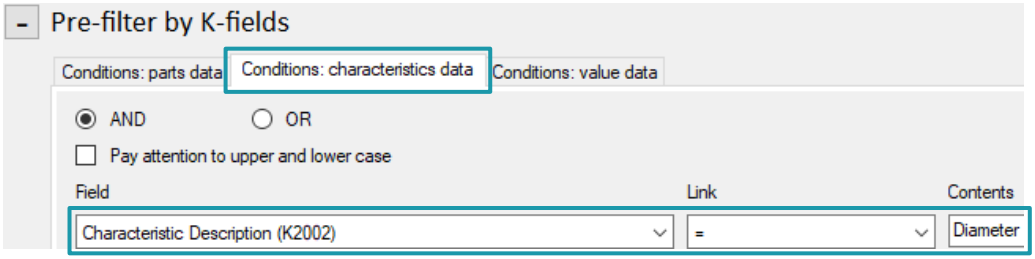


The upload client reads in the measurement file. It checks whether the k-field contains the search term "Shaft". The part description in the measurement file is "TESA ***shaft*** only diameters". As case sensitivity is not active, the spelling of "shaft" is recognised as a fulfilled filter condition. The contents of the measurement file are transferred to the database. The measurement file itself is treated as a successfully uploaded file.



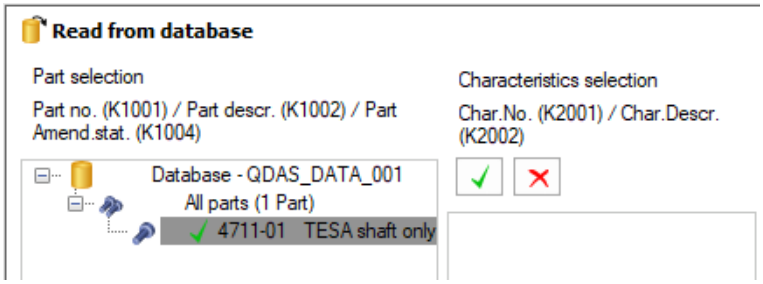
Filtering at characteristic level with a condition that does NOT apply - example

In the following, a condition is defined at the characteristic level. No conditions are defined at part and measured value level. Characteristic description with the exact character string "Diameter" are searched for.



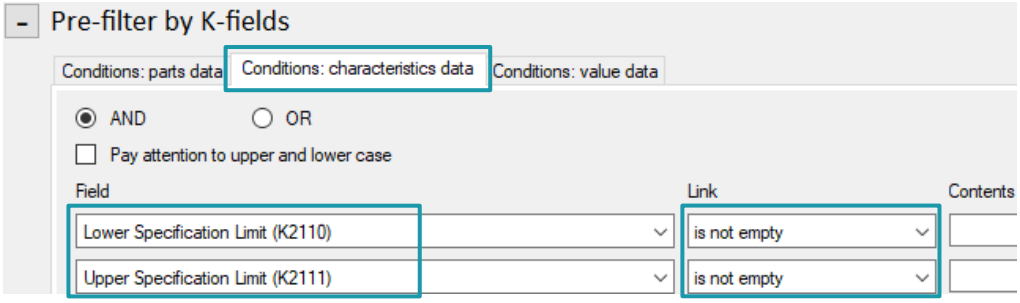
The upload client reads the measurement file. It checks whether the k-fields "Characteristic description" (K2002) contain the exact search term "Diameter". All characteristic descriptions in the measurement file contain additional characters, e.g. "Diameter **2**". Even if the filter condition is not met, the measurement file is treated as a successfully uploaded file.

The part and group level contents are transferred from the measurement file to the database. The measurement file itself is treated as a successfully uploaded file.



Filtering at characteristic level with partially matching condition - example

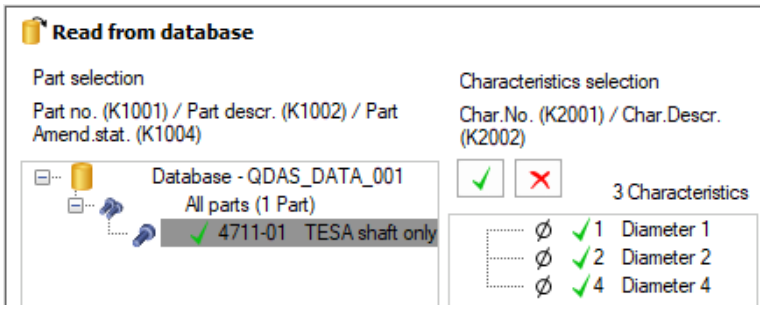
In this example, two conditions are defined at the characteristic level. There are no conditions defined at part and measured value level. We are looking for characteristics for which the upper and lower specification limits are defined.



The upload client reads the measurement file. For each characteristic, the system checks whether the k-fields "Lower specification limit (K2110)" and "Upper specification limit (K2111)" contain content. The characteristic labelled "Diameter 3" has no upper specification limit.

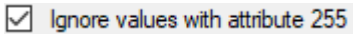
	Characteristic Number	Characteristic Description	Nominal value	Lower Specification Limit	Upper Specification Limit
1.1	1	Diameter 1	10,000	9,900	10,100
1.2	2	Diameter 2	15,000	14,900	15,100
1.3	3	Diameter 3	19,900	19,800	
1.4	4	Diameter 4	21,900	21,800	21,900

Only the content of the measurement file to which the filter condition applies will be uploaded to the database. The measurement file is treated as a successfully uploaded file.



6.3.3 Extended settings

If there are measurement files with incompletely recorded measurements where the not recorded value fields are marked (filled), this option allows the measurement files to be uploaded with only the actual measured values. Empty value fields with the attribute "255" are interpreted as filled value fields.



An example of a measurement file that does not contain measured values for all characteristics of all test objects. The measured values not recorded are filled in (marked with an attribute). Each line represents one test object.

	Test 1	Attribut	Test 2	Attribut	Test 3	Attribut	Test 4	Attribut
1	-0,009	0	-0,025	0	0,013	0	0,005	0
2	-0,002	0		255		255		255
3	0,002	0	-0,007	0	0,014	0	0,023	0
4	-0,017	0	-0,004	0	0,023	0	0,027	0
5	0,006	0	0,021	0	0,016	0		255
6	0,001	0	-0,006	0	0,006	0	-0,003	0
7	0,022	0	-0,012	0	-0,029	0	-0,038	0
8	0,040	0	-0,028	0	0,007	0	0,019	0
9	0,003	0	0,008	0	-0,037	0		255

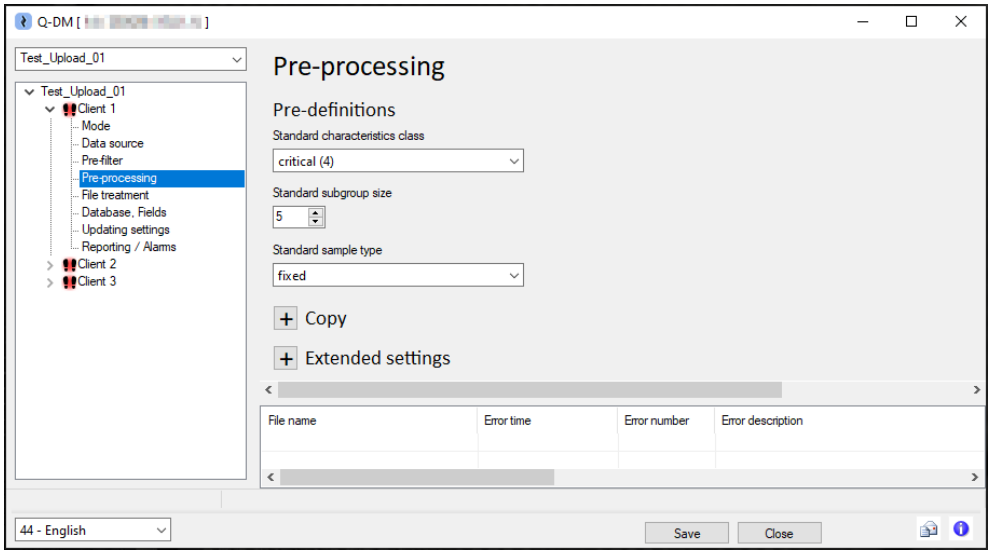
If the option "Ignore values with attribute 255" is enabled, only the actual measured values will be uploaded to the database. The reference to the test object is lost.

	Test 1	Attribut	Test 2	Attribut	Test 3	Attribut	Test 4	Attribut
1	-0,009	0	-0,025	0	0,013	0	0,005	0
2	-0,002	0	-0,007	0	0,014	0	0,023	0
3	0,002	0	-0,004	0	0,023	0	0,027	0
4	-0,017	0	0,021	0	0,016	0	-0,003	0
5	0,006	0	-0,006	0	0,006	0	-0,038	0
6	0,001	0	-0,012	0	-0,029	0	0,019	0
7	0,022	0	-0,028	0	0,007	0		
8	0,040	0	0,008	0	-0,037	0		
9	0,003	0						

If measurement files with filled measured values are available, it is recommended that the "Ignore values with attribute 255" option is not enabled. This will ensure that the allocation of the measured values and the structure of the data set are maintained in the database after upload.

6.4 “Pre-processing” menu group

If information is missing in the measurement file to be uploaded, or is not output in the required form, the options in this menu group allow the data to be stored in database in in corrected form. It is also possible to maintain the catalogue entries by uploading them.

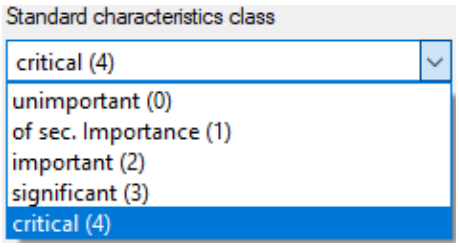


6.4.1 Pre-definitions

The options in this window area provides the ability to check measurement files before uploading and to add missing content when storing them in the database.

“Standard characteristics class” option

If information on the characteristic class (K2005) is missing in the measurement file, it will be completed with the characteristic class configured here when it is uploaded to the database.



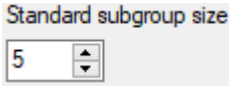
The characteristic classes are completed for completely missing entries and for entries with no other characters in the content (nothing). Entries with spaces after the k field have contents that are interpreted as "0". This results in the characteristic class "0 unimportant" being added to the database.

Example of completing characteristic classes with Q-DM

Contents DFQ file	Explanation	Charact. class after uploading
K2002/1 entry K2005 missing K2110/1 173,1	Entry "K2005" and the content are missing.	Q-DM default characteristic class is used.
K2002/2 no content K2005 K2005/2	Entry "K2005" is included but without content.	Q-DM default characteristic class is used.
K2002/3 spaces in content K2005/3	Entry "K2005" with spaces in the content is included.	Characteristic class "unimportant (0)" is used.
K2002/4 K2005 with contents K2005/4 3	Entry "K2005" with content "3".	Characteristic class "significant (3)" is used.

“Standard subgroup size” option

If the subgroup size (K8500) information is missing in the measurement file, it will be completed with the subgroup size configured here when uploaded to the database.



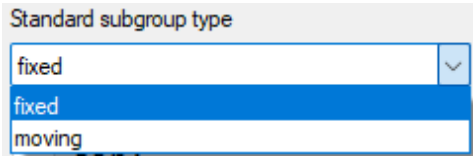
The subgroup size will be completed for completely missing entries and for entries with no other characters in the content (nothing). Entries with spaces after the k-field are interpreted as content "5".

Example of completing subgroup size with Q-DM

Contents DFQ file	Explanation	Subgroup size after uploading
K2121/1 1 K8501/1 0	Entry "K8500" and the contents are missing.	Q-DM default subgroup size is used.
K8500/2 K8501/2 0	Entry "K8500" is included but without content.	Q-DM default subgroup size is used.
K8500/3 K8501/3 0	Entry "K8500" with spaces in the content is included.	Subgroup size "5" is used.
K8500/4 3 K8501/4 0	Entry "K8500" with content "3".	Subgroup size "3" is used.

“Standard subgroup type" option

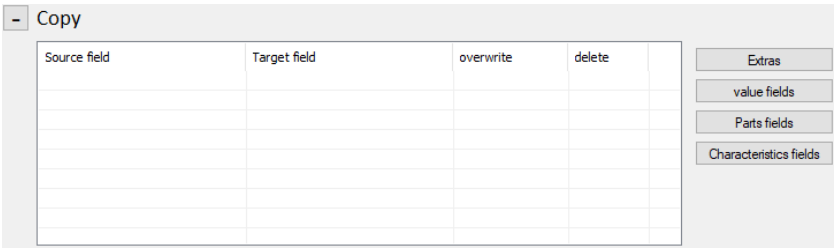
If subgroup type (K8501) information is missing in the measurement file, it will be completed with the subgroup type configured here when uploading to the database.



The subgroup type will be completed for completely missing entries and entries with no further characters in the content (0). Entries with spaces after the k-field are interpreted as content "0". This results in the subgroup type "0 fixed" being added to the database.

6.4.2 Copy

The contents of the K-fields in the measurement file can be stored in other K-fields in the database using these options. Up to version 13, this copying of content is also known as "shifting".

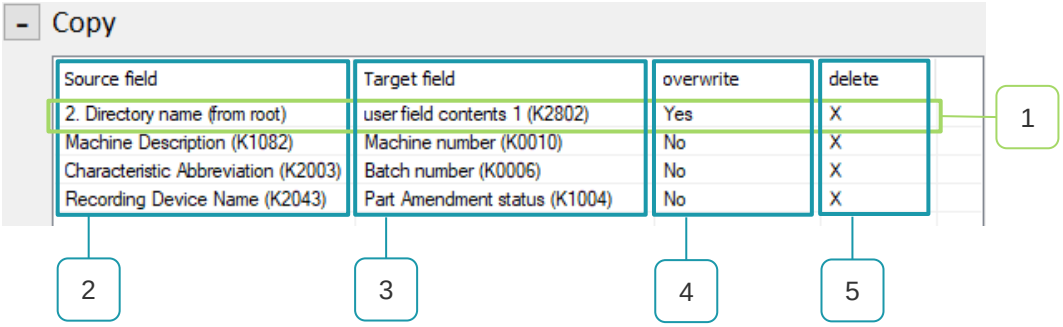


The transfer takes place before the key fields are checked.

Transfer rules

The transfer is defined by rules. Each line represents one rule (1). The content to be transferred must be specified in the "Source field" (2). The k-field of the database to which the content is to be copied must be entered in the "Target field" field (3). If the K-field stored in the "Target field" also exists in the measurement file, the "Overwrite" option (4) determines which content is copied.

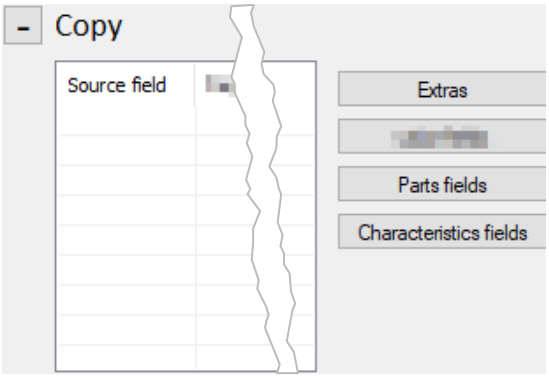
An existing rule can be removed by selecting "X" in the corresponding line.



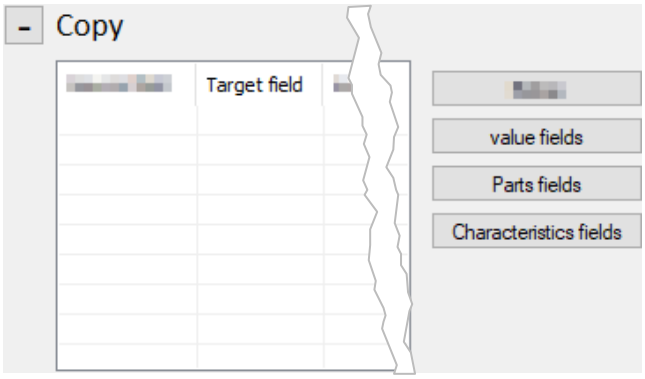
6.4.2.1 Using the transfer rules

To create a rule, the "Source field" must first be specified. The options available are free text, the source path of the measurement file and the contents of the part or characteristic fields. The selection in the "Target field" is only possible once the "Source field" has been defined.

Selection options for the "Source field" specification



Selection options for the "Target field" specification



“Extras” button

The "Takeover path or text" dialogue is available for transferring the complete measurement file path, part of the path (according to directory level) or individual texts. This can be accessed via the "Extras" button.

“Complete path” option
File path of the measurement file including the file name. For example: *C:\Dept abc\Gage 1\Part1.dfq*

“n-th directory name (starting from root)” option
The name of the directory level stored in the "n=" starting from the root directory. This option distinguishes between UNC paths and paths with drive letters.

Path "*C:\Dept abc\Gage 1\Part1.dfq"* with the setting "n=2": *GAGE 1*
0 - C:\
1 - Dept abc
2 - Gage 1
3 - Part1.dfq

Path "*\\Servername\Q-DAS\Dept abc\Gage 1\Part1.dfq"* with the setting "n=2": *GAGE 1*
\\servername
0 - Q-DAS
1 - Dept abc
2 - Gage 1
3 - Part1.dfq

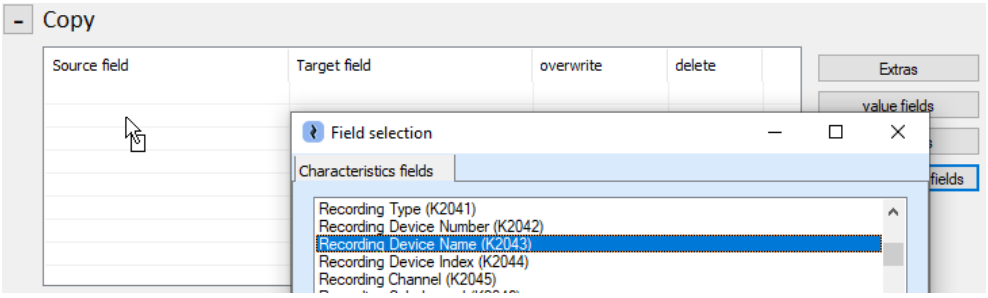
“n-th directory name (starting from file)” option
The name of the directory level stored in the "n=" starting from the file name. Example "n=2": *DEPT ABC*
3 - C:\
2 - Dept abc
1 - Gage 1
0 - Part1.dfq

“ Fill field automatically with” option
Allows the input of a user defined text.

Confirming the dialogue with the "OK" button transfers the configured content to the "Source field".

“Part fields”, “Characteristics fields” and “Value fields” buttons

The corresponding field selection list is opened by selecting the "Part fields", "Characteristics fields" and "Value fields" buttons. A k-field is added by drag & drop, i.e. by dragging the k-field from the field selection list and dropping it on the source field or the target field.



“Overwrite” option

If the k-field stored in the "Target field" is not part of the measurement file or has no content, the content of the defined rule is transferred to the database. If the k-field has a content in the measurement file, “Yes” is used to transfer the content as defined in the rule. If “No” is selected, the content of the k-field from the measurement file is used.

Please note the following when creating transfer rules:

When transferring k-field contents from a higher level to a lower level (down shifting), the maximum number of characters allowed is the number corresponding to the k-field with the smallest format length.

When down shifting from part level to characteristic level, if the format length of the target field is less than the contents of the source field, the measurement file cannot be uploaded. The file is handled according to the configuration in *Client* | *File treatment* | *Treatment of rejected measurement files* | *Rejected due to field in the database missing or too small.*

If the format length of the target field is less than the contents of the source field when down shifting from the part or characteristic level to the value level, the contents will be truncated when uploaded.

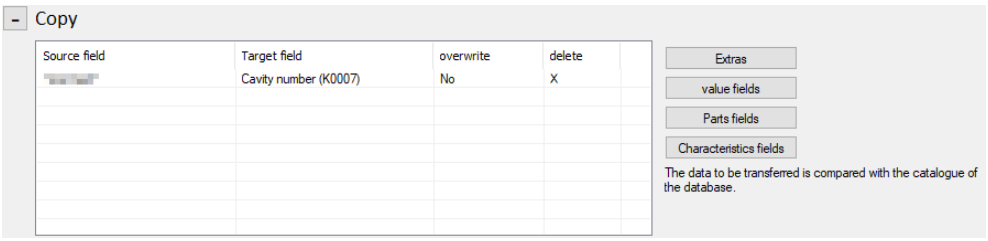
When transferring k-field contents from the characteristic level to the part level (up shift), the contents of the first characteristic are transferred. If the format length of the target field is less than the content of the source field, the measurement file cannot be uploaded. The file is handled according to the configuration in *Client* | *File treatment* | *Treatment of rejected measurement files* | *Rejected due to fields in the database missing or too small.*

If catalogues from files are used to transfer to catalogue-based value fields, the relationship between the data sets and the catalogue cannot be guaranteed. If there are missing entries in the catalogue file during the transfer, a transfer with the Overwrite option enabled may result in loss of data in the catalogue file itself.

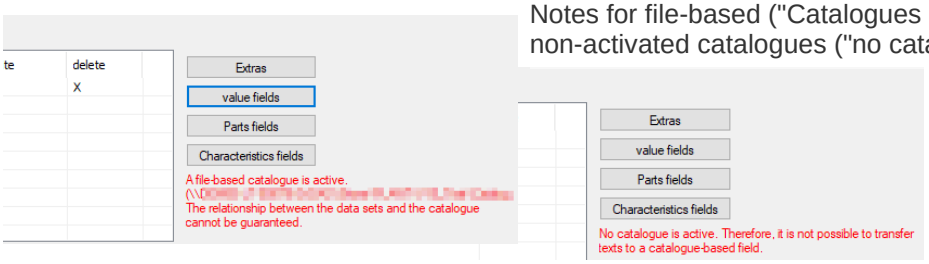
When transferring to catalogue fields, the database-based catalogues, "Catalogues data from databases", must be used.

6.4.2.2 Transfer to catalogue-based value fields

The catalogue selection is read in when the application is started. A reference to the catalogue source is only displayed when a catalogue field is added in the "Target field". When transferring to catalogue-based value fields, the database-based catalogues must be used.



Note when using catalogues from the database.



Notes for file-based ("Catalogues data from file") and non-activated catalogues ("no catalogues").

When the measurement file is uploaded, the corresponding catalogue is searched for the content to be transferred. The contents of the "Source field" are compared with the contents of catalogue columns 2 and 3.

Catalogue

Operator Catalogue

cons. no.	Name 1	Name 2	Depa
1	Mueller	Erwin	QS-A
2	Meier	Hugo	QS-B
3	Meister	Franz	QS-C

2 3

Catalogue

Machine Catalogue

cons. no.	Number	Description	Sect
1	M001	Machine 1	
2	M002	Machine 2	
3	M003	Machine 3	

2 3

The exact content is compared, i.e. both upper and lower case letters are taken into account. If the searched content ("source field") does not match the catalogue content or does not exist, a new entry is automatically added to the catalogue.

When creating catalogue entries, make sure that there are no duplicate entries, as the first entry listed is generally used.

If the reading application, e.g. qs-STAT, is open when new catalogue fields are created, the new catalogue entry will initially only be displayed with a consecutive number. The catalogue will not be updated until the reading application is restarted.

	Test 1	Cavity number	Test 2	Cavity number	Test 3	Cavity number
9	191,856	Tool 3	154,410	Tool 3	27,895	Tool 3
10	181,038	Tool 1	156,012	Tool 1	29,758	Tool 1
11	187,114	[11]	176,198	[11]	27	
12						

The new catalogue entry is initially displayed with the current catalogue number.

The contents of the catalogue will only be updated after the reading application has been restarted.

	Test 1	Cavity number	Test 2	Cavity number	Test 3	Cavity number
9	191,856	Tool 3	154,410	Tool 3	27,895	Tool 3
10	181,038	Tool 1	156,012	Tool 1	29,758	Tool 1
11	187,114	Cavity NEW	176,198	Cavity NEW	27,231	Cavity NEW
12						

“Overwrite” option for catalogue fields

Determines whether the content of the k-field is transferred to the database from the measurement file or according to the defined rule. If "Yes" is specified, the content is transferred according to the defined rule. If the catalogue field is not found in the measurement file or does not contain the current catalogue number as an entry, then the contents of the defined rule are also transferred to the database.

New catalogue entry by spelling - example

In the following example, the transfer of the contents from the k-field "Machine Description" to the k-field "Gage number" is configured.

Copy

Source field	Target field	overwrite	delete
Machine Description (K1082)	Gage number (K0012)	No	X

Only the k-field "Machine Description" (K1082) is included in the measurement file. The k-field "Gage number" (K0012) is not recorded in the measurement file.

```
K1082/1 Umss
```

When the measurement file is uploaded, the gage catalogue is searched for the content "Umss". As the spelling is different from the existing catalogue entries, the application automatically creates a new catalogue entry. The catalogue columns "Number" and "Description" are filled with the same content.

Gage catalogue before uploading the measurement file.

Catalogue

Gage Catalogue

cons. no.	Number	Description	Gage Group	Latest
1	PM001	Caliper	Group 1	
2	PM002	Hardness tester	Group1	
3	PM003	Profile projector	Group 2	
4	PM004	UMESS	Group 2	

Gage catalogue after uploading the measurement file.

Catalogue

Gage Catalogue

cons. no.	Number	Description	Gage Group	Latest
1	PM001	Caliper	Group 1	
2	PM002	Hardness tester	Group1	
3	PM003	Profile projector	Group 2	
4	PM004	UMESS	Group 2	
5	Umess	Umess	Umess	

The uploaded measured values are assigned the new catalogue entry in the database.

	Test 1	Gage number	Test 2	Gage number	Test 3	Gage number
1	188,793	UMESS	135,933	UMESS	29,768	UMESS
2	191,090	UMESS	161,317	UMESS	30,372	UMESS
10	181,038	UMESS	156,012	UMESS	29,758	UMESS
11	187,114	Umss	176,198	Umss	27,231	Umss

6.4.2.3 Catalogue entries when transferring combined k-fields

Some k-fields are linked to each other by the Q-DM application. If such k-fields are used as source fields for transfer to catalogue-based value fields, the content will also be transferred to the combined k-field when new catalogue entries are created if information is missing. The following k-field combinations are affected.

K-fields at part level

- Machine number (K1081) and machine description (K1082)
- Test facility number (K1201) and test facility description (K1202)
- Inspector number (K1221) and inspector name (K1222)

K-fields at the characteristic level

- Machine number (K2301) and machine description (K2302)
- Gage number (K2401) and gage description (K2402)

New catalogue entry using combined k-fields - example

In the following example, the transfer of the contents from the k-field "Machine number" (K1081) to the catalogue-based value field k-field "Machine number" (K0010) is configured. If entries are missing in the catalogues during the transfer, they are automatically added by Q-DM.

Copy

Source field	Target field	overwrite	delete
Machine Number (K1081)	Machine number (K0010)	No	X

The content used to create a new catalogue entry depends on the contents of the k-fields "Machine number" (K1081) and "Machine Description" (K1082) in the measurement file. The k-field "Machine number" (K0010) is not included in the measurement file.

If the measurement file contains only the field stored in the source field, the contents are transferred to the catalogue columns number and description.

K1081/1 M011

Machine Catalogue

cons. no.	Number	Description
11	M011	M011

If the measurement file contains both combined k-fields, the contents of the number and description columns are transferred accordingly.

K1081/1 M012 → Machine number (K1081) for the number column

K1082/1 Machine 12 → Machine description (K1082) for the description column

Machine Catalogue

cons. no.	Number	Description
12	M012	Machine 12

K1082/1 Machine 13 No new catalogue entry is created if the measurement file contains only the combined K-field.

6.4.3 Extended settings

If the measuring machines are unable to output the contents of the measurement files as required, the options in this window area provides a form of fixing during the upload. These are to transfer the contents to other k-fields in the database, to recalculate them and to complete or adapt the entries in the database catalogues.

6.4.3.1 “Takeover K0053 at part level (K1053)” option

This option allows the contents of the k-field order (K0053) to be transferred from the value level to the part level in the k-field order (K1053) (up shift).

☐ Takeover K0053 at part level (K1053)

The fields have different lengths. The number of characters corresponding to the k-field with the shortest format length is transferred to the database. If there are incorrectly written measurement files with more than 20 characters in the k-field order (K0053), the contents are truncated during transfer.

No error message is displayed (log file).

The "Check Dataformat" option is performed before the transfer and therefore does not apply to this option.

The corresponding fields are transferred before the key fields are checked.

6.4.3.2 “Nominal normation” option

When this option is enabled, for example, characteristics with dynamic nominal sizes can be standardised. When uploading, only the deviations from the nominal size are stored in the database instead of the measured values. The nominal size (K2101) is set to zero and the lower specification limit (K2110) and upper specification limit (K2111) are converted to the new nominal size.

☐ Nominal normation

In the following example, the nominal size has been normalised after upload for DFQ files with only one characteristic and one measured value.

K-fields content before uploading:

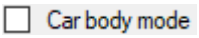
```
K2101: 20.000
K2110: 19.96000
K2111: 20.04000
K0001: 20.022
```

After uploading:

```
K2101:  0.000
K2110: -0.040
K2111:  0.040
K0001:  0.022
```

6.4.3.3 “Car body mode” option

The "Body mode" option allows the axes of the characteristics to be mirrored. During mirroring, the nominal sizes, upper and lower specification limits and measured values are converted.



The conversion is requested by specifying "1" in the k-field K2203 in the measurement file to be uploaded and only works in conjunction with negative nominal sizes, i.e. nominal sizes that are less than zero.

If not all conditions are met, the data set will be uploaded without conversion. No error message will be displayed.

The value "10" is entered in the k-field K2203 after the upload to indicate successfully uploaded data sets in body mode. A conversion that was not requested or not carried out, e.g. for positive nominal sizes, is marked with a value of "0" in k-field K2203 after upload.

Contrary to the "Body mode on" option in qs-STAT, for example, where only the graphical display is mirrored, the values are actually converted when the "Body mode" option is set in the Upload Client.

The following example shows a file with three characteristics.

K-field content before upload:

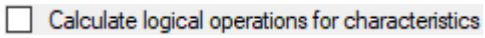
```
K2101/1 -14.0700
K2110/1 -14.075000
K2111/1 -14.060000
K2203/1 1

K2101/2 20.000
K2110/2 19.96000
K2111/2 20.04000
K2203/2 1

K2101/1 -0.09750
K2110/1 -1.0500
K2111/1  0.950
K2203/1 1
```

After upload:

```
K2101/1 14.0700
K2110/1 14.060000
K2111/1 14.075000
K2203/1 10

K2101/2 20.000
K2110/2 19.96000
K2111/2 20.04000
K2203/2 0

K2101/1 0.9750
K2110/1 -0.950
K2111/1 1.0500
K2203/1 10
```

6.4.3.4 “Calculate logical operation for characteristics” option

Enabling this option allows characteristics to be calculated based on measured values.



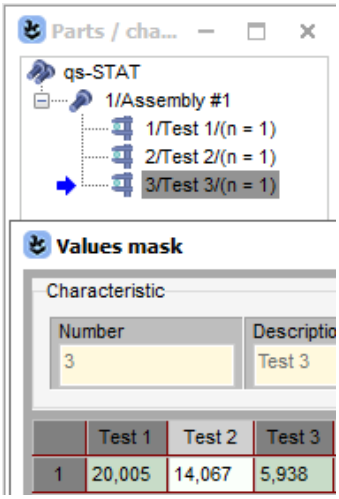
It is necessary for the calculation that the measurement file to be uploaded has the logical operation formula and the corresponding measured values. A calculation cannot be performed if the measured values or the logical operation formula are missing.

In the following example, the measuring machine writes the measured values for the characteristics "Test 1" and "Test 2". The characteristic "Test 3" is calculated from the two measured characteristics.

Extract from the DFQ file

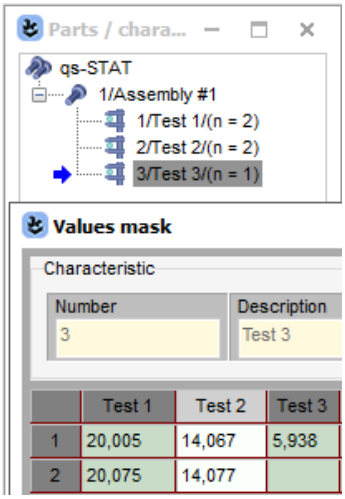
```
K2001/1 1
K2002/1 Test 1

K2001/2 2
K2002/2 Test 2

K2001/3 3
K2002/3 Test 3
K2021/3 m1-m2

2.00050000000000E
+0001[0]06.04.2023/13:49:16
[]#[0][0][0][0]1.40671000000000E
+0001[0]06.04.2023/13:49:16
[]#[0][0][0][]0
```

After uploading



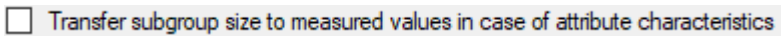
If the logical operation formula is missing in the measurement file, the characteristics cannot be calculated.

```
K2001/1 1
K2002/1 Test 1


K2001/2 2
K2002/2 Test 2


2.00750000000000E
+0001[0]06.04.2023/13:49:16
[]#[0][0][0][0]1.40771000000000E
+0001[0]06.04.2023/13:49:16
[]#[0][0][0][]0
```



6.4.3.5 “Transfer subgroup size to measured values in case of attribute characteristics” option

With this option, it is possible to overwrite the recorded subgroup size with the content of the k-field "Number of parts (attr.)" (K8505) when recording attribute subgroup sizes with the variable or constant subgroup type. (K8505).



According to the notation of a measurement file, the specification of k-fields K8500 and K8505 is required for attribute characteristics. Missing information will be added by the Q-DAS application Q-DM during the upload. Which content is transferred to the characteristic level and the measured value level therefore also depends on the spelling.

Contents of a measurement file with three characteristics using different spelling.

Characteristic	Characteristic	Characteristic 3
K2001/1 1	K2001/2 2	K2001/3 3
K2002/1 Test 1	K2002/2 Test 2	K2002/3 Test 3
K2004/1 1	K2004/2 1	K2004/3 1
K8500/1 3		K8500/3
K8503/1 0	K8503/2 3	K8503/3 0
K8505/1 50	K8505/2 65	K8505/3 70

Contents of the characteristic fields after upload. Missing information is completed with the fallback level informations.

	Test 1	Test 2	Test 3
K2001	1	2	3
K2002	Test 1	Test 2	Test 3
K2004	attribute	attribute	attribute
K8503	variable	variable	variable
K8500	50	5	70
K8505	50	5	70

In the following example, a measurement file with three characteristics and five measured values each is uploaded. This is an incorrectly written data set that does not correspond to the description in the ASCII transfer format manual.

Uploading the measurement file with the option disabled.

	K0020	K0021	K0021.11	K0020	K0021	K0021.11	K0020	K0021	K0021.11
	Subgroup size	Test 1	Error (%)	Subgroup size	Test 2	Error (%)	Subgroup size	Test 3	Error (%)
1	100	1	1.0000%	50	0	0.0000%	0,001	0	0.0000%
2	100	2	2.000%	60	2	3.333%	75	0	0.0000%
3	100	0	0.0000%	55	0	0.0000%	80	1	1.250%
4	100	7	7.000%	56	2	3.571%	23	0	0.0000%
5	100	0	0.0000%	45	0	0.0000%	50	0	0.0000%

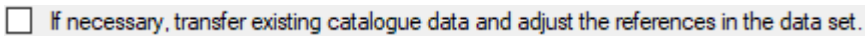
If this option is enabled, the contents of the k-field "Subgroup size" (K0020) are overwritten at the value level. The contents of the k-fields "Error (%)" (K0021) are transferred from the measurement file to the database.

	Subgroup size	Test 1	Error (%)	Subgroup size	Test 2	Error (%)	Subgroup size	Test 3	Error (%)
1	50	1	2.000%	5	0	0.0000%	70	0	0.0000%
2	50	2	4.000%	5	2	40.00%	70	0	0.0000%
3	50	0	0.0000%	5	0	0.0000%	70	1	1.429%
4	50	7	14.00%	5	2	40.00%	70	0	0.0000%
5	50	0	0.0000%	5	0	0.0000%	70	0	0.0000%

This option can only be used if the "Overwrite characteristics data" option is enabled in the "Update settings" menu group.

6.4.3.6 "If necessary, transfer existing catalogue data and adjust the references in the data set" option

Enabling this option allows the measurement file to be used to supplement the catalogue entries or to adapt existing entries when using catalogues from the database.



If the measurement file contains catalogue k-fields (K4xxx), the system checks whether the contents of the k-fields can be found as entries in the database catalogue. To identify an entry, the k-field "K4xx2" is compared with catalogue column 2 and the k-field "K4xx3" is compared with catalogue column 3. The comparison is not case-sensitive.

If the fields do not match, a new entry is added (1). If the entries match, the existing entry is adjusted (2). If the measurement file uses upper and lower case letters that differ from those in the database catalogue, the spelling in the database catalogue is adjusted to match the measurement file (3).

Entries in the database catalogues before uploading.

"Supplier Catalogue" (left) and "Machine Catalogue" (right)

Supplier Catalogue

cons. no.	Number	Name 1	Name 2	Department	Plant
1	L001	Supplier 1	Suppl-1		
2	L002	Supplier 2	Suppl-2		
3	L003	Supplier 3	Suppl-3		
4	L004	Supplier 4	Lief-4		

Machine Catalogue

cons. no	Number	Description	Sector	Dept.	Op
1	M001	Machine 1			
2	M002	Machine 2			
3	M003	Machine 3			

Measurement file with catalogue k-fields for three catalogue entries.

According to the data format, the k-fields "K402x" belong to supplier catalogue and the k-fields "K406x" belong to the machine catalogue. Detailed information on the data format can be found in the separate documentation "Q-DAS_ASCII transfer format".

```
K4022/1 4711
K4023/1 HxGN MI
K4025/1 Dept. A
```

1: To identify the entry, the contents of the k-fields "K4022" and "K4023" are compared with the "Number" and "Name" columns. The entry does not exist in the database catalogue and will be added.

```
K4022/2 L004
K4023/2 Supplier 4
K4024/2 Suppl-4
K4025/2 Dept. B
```

2: The entry exists. The contents of the columns "Name 2" and "Department" differ from the contents of the k-fields "K4024" and "K4025". Catalogue entry will be adapted.

```
K4062/3 M003
K4063/3 machine 3
K4065/3 Dept. A
```

3: The entry exists. The spelling in the k-field "K4063" differs from the spelling in the "Description" column. Catalogue entry will be adapted.

Entries in the database catalogues after the measurement file has been uploaded.

Supplier Catalogue

cons. no.	Number	Name 1	Name 2	Department
1	L001	Supplier 1	Suppl-1	
2	L002	Supplier 2	Suppl-2	
3	L003	Supplier 3	Suppl-3	
4	L004	Supplier 4	Suppl-4	Dept. B
5	4711	HxGN MI		Dept. A

2

1

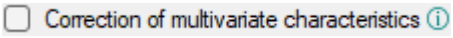
Machine Catalogue

cons. no.	Number	Description	Sector	Dept.	Ope
1	M001	Machine 1			
2	M002	Machine 2			
3	M003	machine 3		Dept. A	

3

6.4.3.7 “Correction of multivariate characteristics” option

If the measuring software generates characteristics whose group type does not match the measured quantity, the group type will be adjusted during upload to match the measured quantity if this option is enabled.

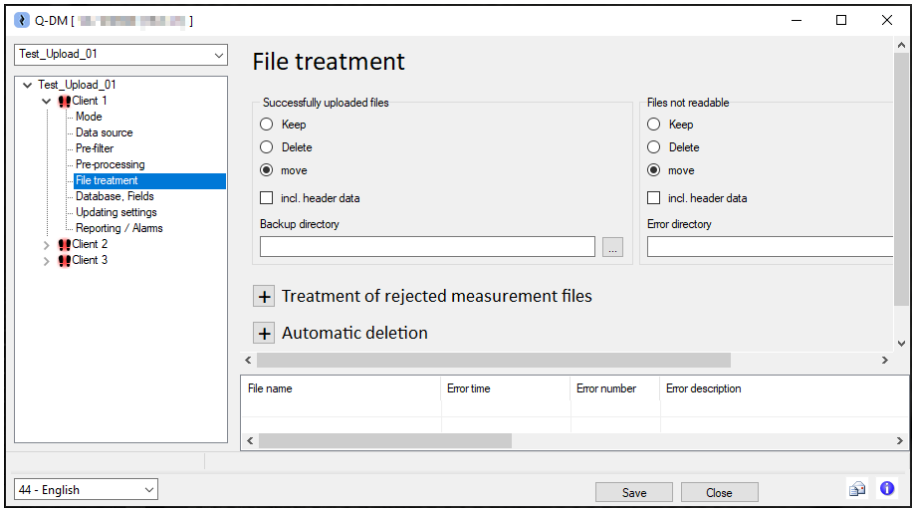


The option applies to multivariate characteristics with the measured quantities (K2009) perpendicularity (107), concentricity (110), unbalance (300) or coaxiality (663) and the group type (K2008) positional tolerance (2).

Option “Correction of multivariate characteristics” is available from version 2024.2.

6.5 “File treatment” menu group

The options in this menu group are primarily used to clean up the data source directories. If measurement files are backed up, it is possible to expand the structure of the backup and error directories and clean them up.



6.5.1 File treatment – Classification of measurement files

A basic distinction is made between successfully uploaded measurement files, measurement files that cannot be uploaded and measurement files that can be uploaded but are not uploaded to the database.

“Successfully uploaded files” window area

The measurement files that can be read and uploaded to the database.

“Files non readable” window area

The measurement files that cannot be read due to the faulty structure of the Q-DAS ASCII transfer format. These would be, for example, measurement files with missing k-field K0100. If the "Check Dataformat" option is activated, the measurement files are also checked for syntax specifications.
An error message is always displayed (log file).

Treatment of rejected files. These are readable measurement files that are not uploaded to the database.

“Rejected due to ‘pre-filter’ settings for at part level” window area

Measurement files that are excluded due to the k-field content at part level. The pre-filters are used e.g. for cascaded uploads. *Client* | *Pre-filter* | *Pre-filter by K-fields* | *Conditions: Part data*.

“Rejected due to the current configuration of Q-DM” window area

Measurement files that will not be uploaded due to the selected Q-DM configuration. This includes, for example:

- Measurement files that lead to the creation of new data sets in the database if the *Client* | *Update settings* | *New parts not allowed* option is enabled.
- Treat measurement files with empty key fields as errors if the *Client* | *Pre-filter* | *Treat files with empty key fields as error* option is enabled.
- Measurement files in which several characteristics contain the same information in the key fields of the characteristic level, if the *Client* | *Database, Fields* | *Check for duplicate characteristics* option is enabled.
- Measurement files with new characteristics if the *Client* | *Update settings* | *Do not allow new characteristics* and *Client* | *Update settings* | *Reject complete file if a characteristic has is rejected* options are enabled.

An error message is always displayed (log file).

“Rejected due to fields in the database mission or too small” window area

Measurement files that cannot be uploaded due to missing or too small database fields.

- Missing database fields (additional data fields):
  If the contents of the additional data fields are transferred with the measurement file and the corresponding fields are activated in the Q-DM additional dataset, the system checks during the upload whether the additional data fields exist in the database.

- Database fields too small:
  During the upload, a comparison is made between the field types and field lengths expected by the Q-DM application and those available in the database. Format differences can occur in databases that have not been updated after a version change.

  This is the case, for example, when using Q-DM version 15 with an old, not updated, version 10 database. When uploading a measurement file with 80 characters in the characteristic abbreviation (K2003), the file is considered readable as the Q-DM application can process 80 characters. However, the content cannot be uploaded as only 20 characters are available in the database.

  If there are no format differences between the Q-DM application and the database and the option "Check Dataformat" is disabled, too long contents are truncated by default during upload.

An error message is only written once (log file). In this window area, a sort of log memory is used when error messages are output. The error type is only output once per upload client. If the error is repeated, no further error message will be logged.

The log memory is reset by deleting the log file (Delete logfile) or by restarting the Q-DM application.

6.5.2 File treatment - Configuration

The file treatment configuration options are used to control what happens to measurement files after they have been uploaded or when an attempt is made to upload them to the database.

Normally, the measurement files are handled according to their classification and the defined configurations. In the following special cases, it is possible that the measurement file is not handled as configured, but the file extension is automatically renamed by Q-DM.

XDFQ, XQML or XDFD/XDFX

The "X" is added as a prefix to the file extension the measurement file cannot be deleted. This would be the case, for example, in the event of access problems, permissions or blocking by virus scanners. The renamed measurement file remains in the source directory. Whether the measurement file is uploaded to the database depends on the file treatment classification.

MDFQ, MQML or MDFD/MDFX

If moving a measurement file fails, an "M" is added as a prefix to the file extension of the source file. The renamed measurement file remains in the source directory. Whether the measurement file is uploaded to the database depends on the file treatment classification.

DDFQ, DQML or DDFD/DDFX

If measurement files cannot be uploaded due to missing or too small database fields, the next upload attempt will be prevented by renaming the file extension. This is the case if the "Keep" option is enabled in the "Rejected due to fields in the database missing or too small " window area. The "D" is added as a prefix to the file extension of the source file.

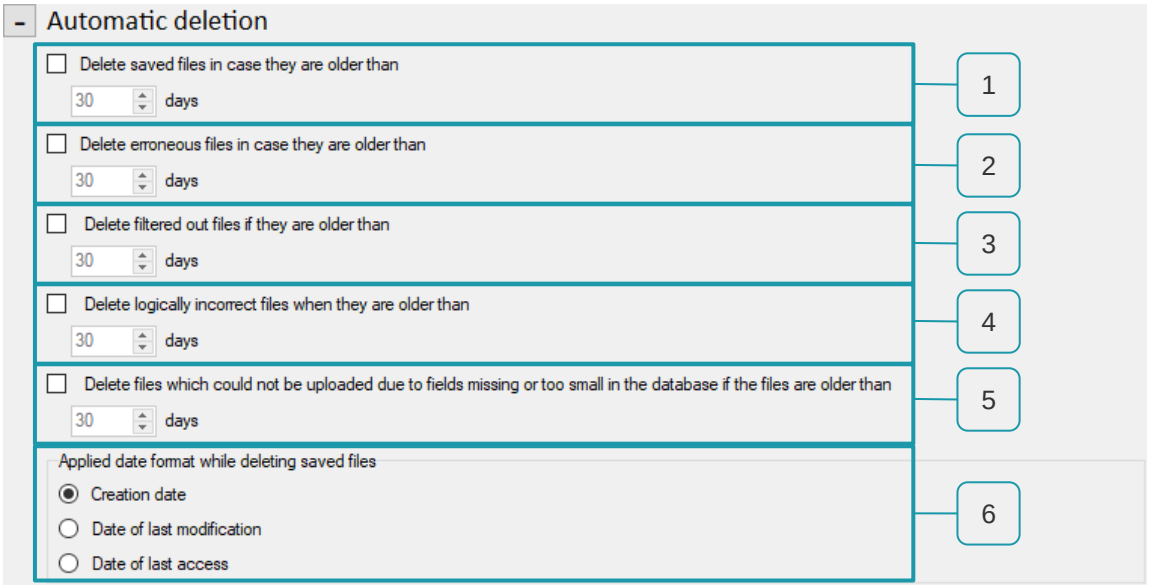
Option	Handling the measurement file
Keep	After a successful upload or upload attempt, the files remain in the data source directory. To avoid duplication of parts, characteristics and values in the database, the "Keep" option should generally only be used in test mode. If the "Keep" option is enabled in the "Rejected due to fields in the database missing or too small " window area, the measurement file is renamed. The "D" is added as a prefix to the file extension of the source file.
Delete	After a successful upload or upload attempt, the files are deleted from the data source directory. The deletion process is performed without any further prompting or a backup of the measurement file.

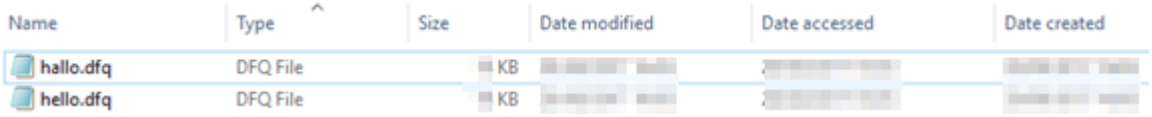
Option	Handling the measurement file
Move	After uploading or attempting to upload, the measurement file is moved from the data source directory to the backup or error directory. To enable this function, a target path must be specified in the backup or error directory field. When using converters, the original files will also be moved if the converter has been set up correctly.
incl. header data	When using DFD/DFX files, this option specifies how the DFD files, the header data, are handled. If the option is enabled, the DFD files are treated in the same way as the DFX files, the measured values. The "incl. header data" option is ignored when the “Exponential mode” mode is active.
Backup / Error directory	(advanced option for "Move") Enabling the "Move" option requires a target path to be specified in the backup or error directory field. It must be ensured that the corresponding backup or error directory exists and is available. The total path length including file name and file name extension must not exceed 255 characters.
Treat like "Successfully uploaded files"	The measurement files are handled according to the configuration in the "Successfully uploaded files" window area. This option is only available for readable measurement files that are not uploaded to the database.
Treat like "Files not readable"	The measurement files are handled according to the configuration in the "Files not readable " window area. This option is only available for readable measurement files that are not uploaded to the database.

6.5.3 Automatic deletion

If the "Move" option is enabled and the target path is specified, the measurement file will be moved to the backup or error directory after the upload or upload attempt. The options in this window area allow to clean up the backup and error directories.

Automatic deletion can be enabled separately for each file treatment, i.e. for each classification.



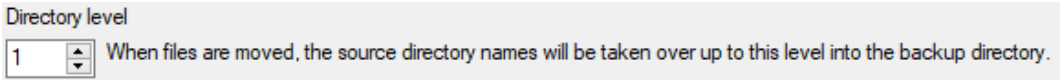
1	Options for cleaning up the backup directory for the successfully uploaded measurement files.
2	Options for cleaning up the error directory for measurement files that cannot be read.
3	Options for cleaning up the backup directory for measurement files that are excluded by pre-filters.
4	Options for cleaning up the error directory for measurement files that could not be uploaded due to the selected Q-DM configuration.
5	Options for cleaning up the error directory for measurement files that could not be uploaded due to missing or too small database fields.
6	Specifies which type of date is used for automatic deletion. The file properties can be viewed in e.g. Windows Explorer.  • Creation date (date created) • Date of the last change (date modified) • Date of last access (date accessed)

6.5.4 Extended settings

If the "Move" option is enabled and the target path is specified, the measurement file will be moved to the backup or error directory after the upload or upload attempt. The options in this window area allow to extend the structure of the backup and error directories. The directory structure can be extended by both a chronological subdivision and by a subdivision according to the selected directory depth of the data source path.

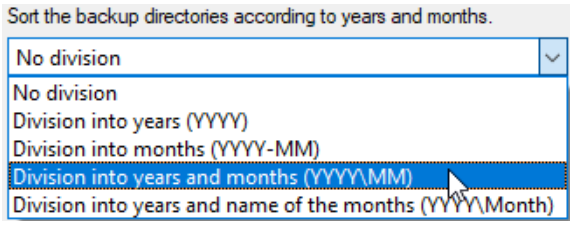
These options apply to all classifications of measurement files. In other words, for successfully uploaded measurement files and measurement files that cannot be uploaded, as well as for measurement files that can be uploaded but are not uploaded to the database.

Subdivision according to the data source path



By selecting the buttons (up/down), the directory depth starting from the file is specified. The default value "0" disables splitting according to the data source path. A maximum of ten directory depths are possible.

Chronological division

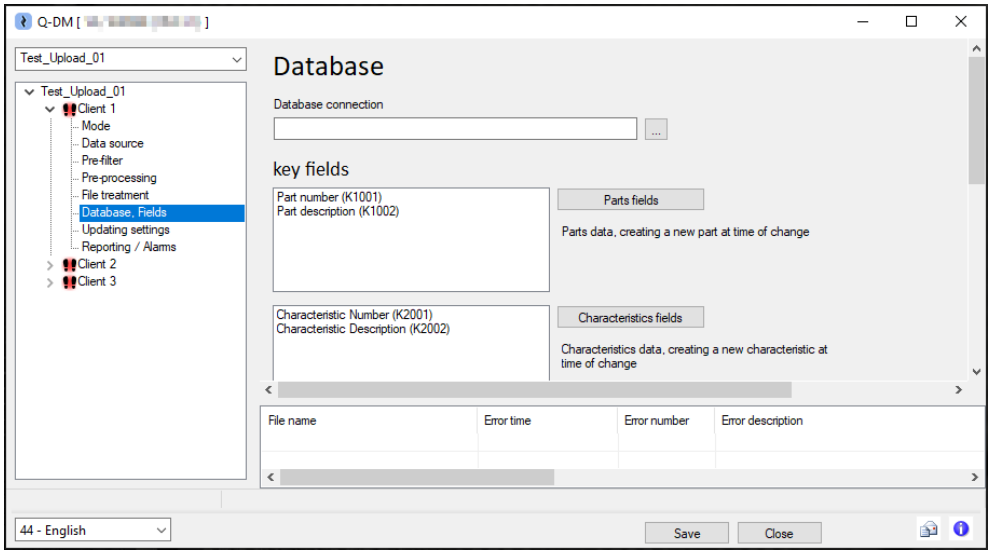


The backup or error directory is expanded according to the selected option. Selecting the options with "\" will create a directory for the year and a subdirectory for the month.

> **Extension of the directory depth of the backup and error directories - example**
>
> In the following, the structure of the defined backup and error directories is extended by chronological subdivision and according to the directory depth of the data source path.
>
> The following settings are configured in the Upload Client:
>
> Source directory (*Client* | *Data source* | *Directory*): \\....\DATA\Upload\Gage_01
> Backup directory for successfully uploaded files: \\....\Dept abc\Upload_In
> Error directory for files that cannot be read: \\....\Dept abc\Upload_Error
> "Directory level" (split according to the data source path): 1
> Chronological subdivision: breakdown by years and months (YYYY\MM)
>
> This results in the following paths for storing the successfully uploaded measurement files that cannot be read.
>
> Backup directory for successfully uploaded files: \\....\Dept abc\Upload_In\2023\5\Gage_01
> Error directory for files that cannot be read: \\....\Dept abc\Upload_Error\2023\5\Gage_01

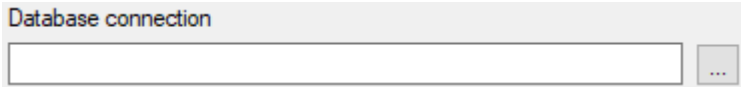
6.6 “Database, Fields” menu group

The options in this menu group allow to specify the database connections and the k-fields that are required to store the measurement files in the database. In addition, it is possible to specify how the k-fields and the data set structures are handled in the database.



6.6.1 Database connection

The database to which the measurement files are uploaded is defined in this window area.



If a database connection is not explicitly selected, the database stored in the "Data DB" area of the used Q-DM product INI file is automatically selected for uploading the files.

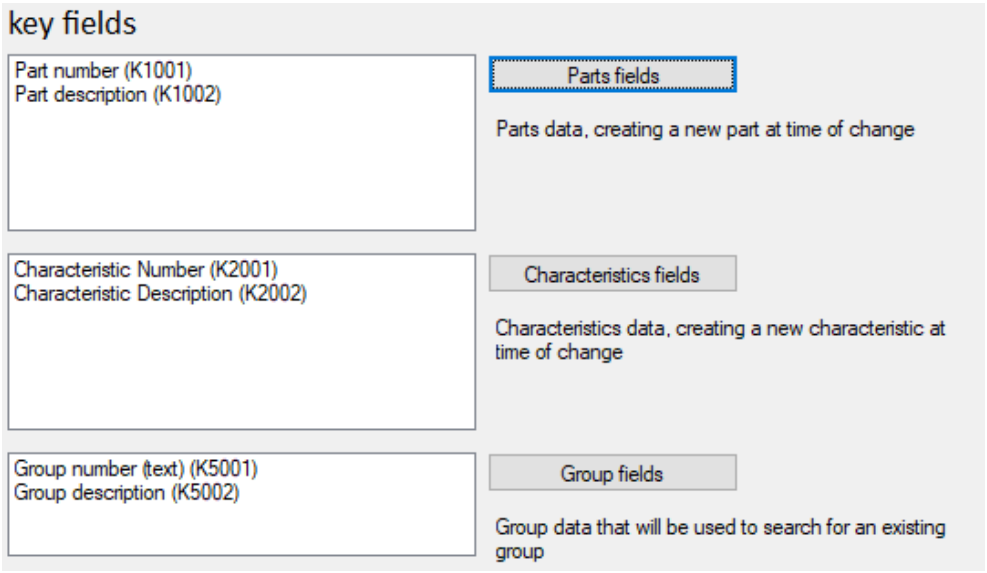
```
; Data-DB
sys_data_FDDBConn=FDDBConnStr_Data_001
sys_db_connection=
sys_db=
```

If no database connection is selected and the entry in the "Data DB" area is missing, the entry in the "Central DB" area is used as default.

```
; Central-DB (Synchron)
sys_rpt_central_FDDBConn=FDDBConnStr_Data_003
sys_reporting_central_db_connection=
sys_reporting_central_db=
```

6.6.2 Key fields

The identification and association of a measurement file with a data set in the database is done via the key fields. K-fields are defined as key fields in this window area.



K-fields can be defined as key fields at part, characteristic and group level. The corresponding field selection list is opened by selecting the "Parts fields", "Characteristics fields" and "Group fields" buttons. A k-field is added by drag & drop, i.e. the k-field is dragged from the field selection list and dropped in the corresponding window area of the key field list.

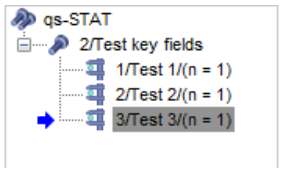
Key fields are the k-fields that together represent a data set. If the contents of the k-fields defined as key fields of a measurement file to be uploaded match an existing data set in the database, Q-DM will identify this and upload the measured values to this data set. If this is not the case, a new data set will be stored in the database when using the default settings.

Using key fields - example

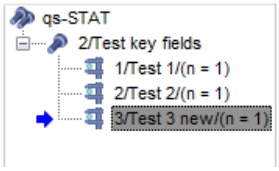
In the following example, two measurement files are uploaded one after the other. The key fields that are specified by default are used for the upload. These are part number (K1001), part description (K1002), characteristic number (K2001) and characteristic description (K2002).

The first measurement file is uploaded. The data set is stored in the database. When the second measurement file is uploaded, the key fields at part level are compared first. The combination of K1001 and K1002 is used to identify that the second measurement file belongs to the data set in the database. The key fields at the characteristics level are then checked using the combination K2001 and K2002. A match is identified for the first and second characteristics. The measured values are appended. The differences in the characteristic description of the third characteristic results in creation of a new characteristic.

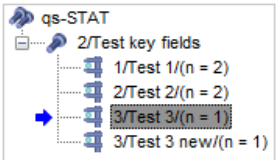
1st measurement file



2nd measurement file



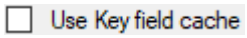
Result after uploading the second measurement file



When reloading test plans, ensure that the combination of key fields defined is reflected in the files to be uploaded.

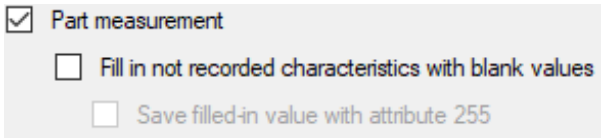
"Use key fields cache" option

This option is a legacy option from the first versions. When using Oracle databases, Q-DM stores the contents of the key fields and their database allocation in the application (cache) at runtime. This improves the performance when uploading measurement files that are already in the database. Due to the fundamental improvement in performance, this option is now obsolete.



“Part measurement” option

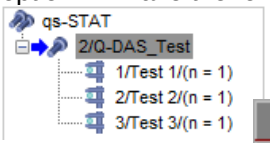
Enabling this option allows the data structure to be retained when using complete and short test plans. The uploaded data sets are marked internally in the database accordingly so that, for example, a part evaluation can be carried afterwards.



If the "Part measurement" option is used in Q-DM without advanced options, the missing structure can be temporarily generated in qs-STAT. This requires the configuration of the load options in the "Read from database" dialogue. *Read from database* | *Configuration* | *Sort* | *Sort and fill by serial number* | *Field used as serial number: Value number* (database key).

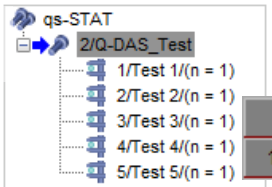
Preserve data structure when uploading - example

If, for example, a short test plan is uploaded first and then a complete test plan, the "Part measurement" option will have the following effect.



Short test plan

	Test 1	Test 2	Test 3
1	18,995	11,356	3,506



Complete test plan

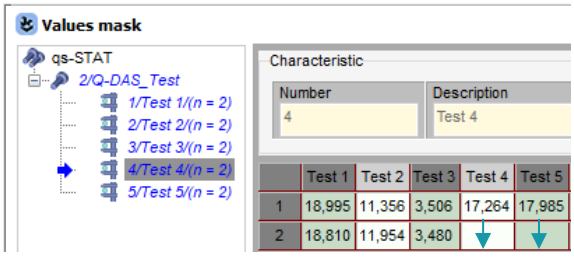
	Test 1	Test 2	Test 3	Test 4	Test 5
1	18,810	11,954	3,480	17,264	17,985

	Test 1	Test 2	Test 3	Test 4	Test 5
1	18,995	11,356	3,506	17,264	17,985
2	18,810	11,954	3,480		

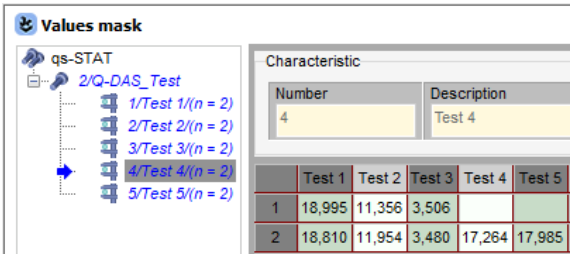
Q-DM uses the defined key fields to recognise that the two test plans belong together. If the short test plan is uploaded first and then the complete test plan, the allocation of the measured values is shifted.

If the "Part measurement" option is active during the upload, a part evaluation can be performed by temporarily filling in the missing structure in the qs-STAT.

“Part measurement” option disabled.
Result with part evaluation (qs-STAT)
Structure remains displaced.



“Part measurement” option enabled.
Result with part evaluation (qs-STAT)
Structure is temporarily corrected.



It should be noted that subsequent changes to the option, e.g. uploading the data sets without and then reloading the data sets with the "Part measurement" option, can lead to a corrupted result.

Option "Fill in not recorded characteristics with blank values" (advanced option for "Part measurement")

If this option is enabled, the value "0" will be added to the missing measured values. The "Fill in not recorded characteristics with blank values" option can only be used in combination with the "Part measurement" option.

It should be noted here that when using attributive characteristics, filling with zero values declares the unmeasured characteristics as good units (OK).

The option "Fill in not recorded characteristics with blank values" requires a complete measurement to be taken first.

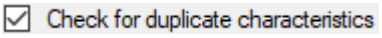
"Save filled-in value with attribute 255 " option (advanced option for " Fill in not recorded characteristics with blank values")

If this option is enabled, the attribute 255 is also written for the missing measured values.

This option can only be used in combination with the activated options "Part measurement" and " Fill in not recorded characteristics with blank values".

"Check for duplicate characteristics" option

If this option is enabled, only those measurement files will be uploaded where the key fields are not repeated at the characteristic level. If different characteristic fields are defined as key fields, all will be used to search for a match. Files with duplicate characteristic key fields are treated as files that cannot be uploaded.



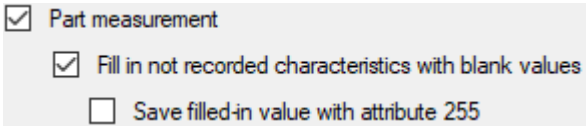
6.6.2.1 Using key fields - examples

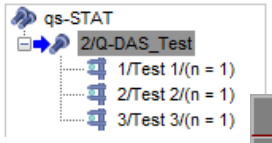
It is common practice to measure all characteristics at the beginning and end of production. Only the critical characteristics are measured during the production process.

The reloading of the measurement files and the effects of the key field options if not handled correctly are explained below using various examples.

Fill in missing measured values - example

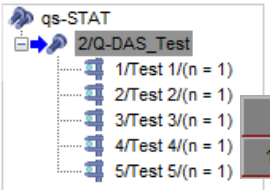
The key fields that are enabled by default are used for uploading. These are part number (K1001), part description (K1002), characteristic number (K2001) and characteristic description (K2002). The options for filling in the unmeasured characteristics are enabled.





Short test plan with critical characteristics

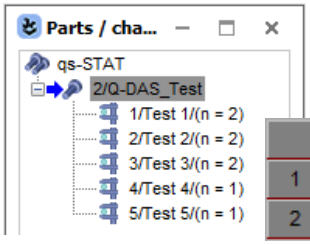
	Test 1	Test 2	Test 3
1	18,995	11,356	3,506



Complete test plan

	Test 1	Test 2	Test 3	Test 4	Test 5
1	18,810	11,954	3,480	17,264	17,985

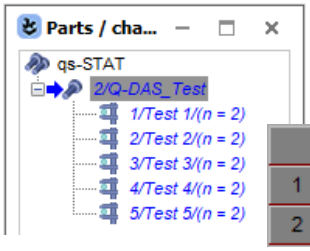
The measurement file with only the critical characteristics is uploaded. The data set is stored in the database. When the measurement file with the complete test plan is uploaded, the key fields are used to identify that this file matches the data set in the database. The measurement file is added to the existing set of data.



Missing measured values are not added, even though the "Fill in not recorded characteristics with blank values" option was enabled during upload.
The allocation of measured values is shifted.

	Test 1	Test 2	Test 3	Test 4	Test 5
1	18,995	11,356	3,506	17,264	17,985
2	18,810	11,954	3,480		

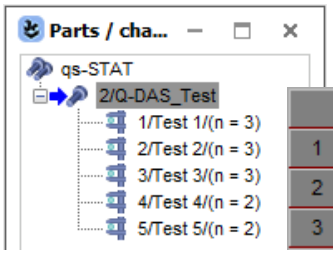
As the "Part measurement" option was enabled during the upload, it is possible to temporarily fill in the missing structure in qs-STAT.



The load option used in qs-STAT can only correct the allocation of measured values. The missing measured values will not be added in this case either.

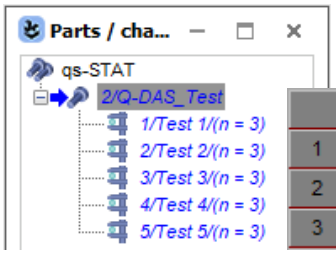
	Test 1	Test 2	Test 3	Test 4	Test 5
1	18,995	11,356	3,506		
2	18,810	11,954	3,480	17,264	17,985

If another measurement file with only critical characteristics is loaded, the missing measured values will be added. Without further loading options, the allocation of the measured values is shifted.



	Test 1	Test 2	Test 3	Test 4	Test 5
1	18,995	11,356	3,506	17,264	17,985
2	18,810	11,954	3,480	0,000	0,000
3	18,853	11,325	2,797		

By activating the load option to temporarily fill the structure, the allocation of measured values is displayed correctly.



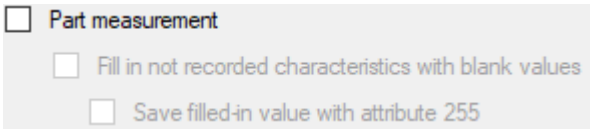
	Test 1	Test 2	Test 3	Test 4	Test 5
1	18,995	11,356	3,506		
2	18,810	11,954	3,480	17,264	17,985
3	18,853	11,325	2,797	0,000	0,000

The filling of completion of unmeasured characteristics is based on the maximum number of characteristics of a data set in the database. In this example, the number of characteristics in the database has been increased by reloading the complete test plan. The maximum number of characteristics is therefore known. This makes it possible to fill in a subsequent uploaded short measurement.

If it is desired to fill in missing measured values when using short and complete test plans, a complete measurement is required initially.

Change Q-DM configuration with existing data pool - example

The default key fields are used for uploading. These are part number (K1001), part description (K1002), characteristic number (K2001) and characteristic description (K2002). The options for maintaining the data structure and for filling in missing measured values are not active.

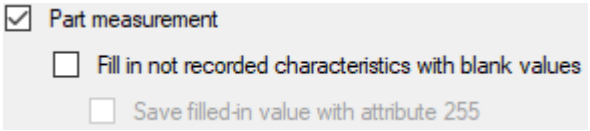


The following data sets with one measurement each are uploaded:

1 File with 5 characteristics (complete test plan)
2 File with 3 characteristics (short test plan)
3 File with 3 characteristics (short test plan)
4 File with 5 characteristics (complete test plan)

	Char 1	Char 2	Char 3	Char 4	Char 5
1	Value	Value	Value	Value	Value
2	Value	Value	Value		
3	Value	Value	Value		
4	Value	Value	Value	Value	Value

The Q-DM configuration is then changed. The "Part measurement" option is activated.



Further data sets with one measurement each are uploaded:

5 Measurement file with 5 characteristics one measurement (complete test plan)
6 Measurement file with 3 characteristics one measurement (short test plan)
7 Measurement file with 3 characteristics one measurement (short test plan)

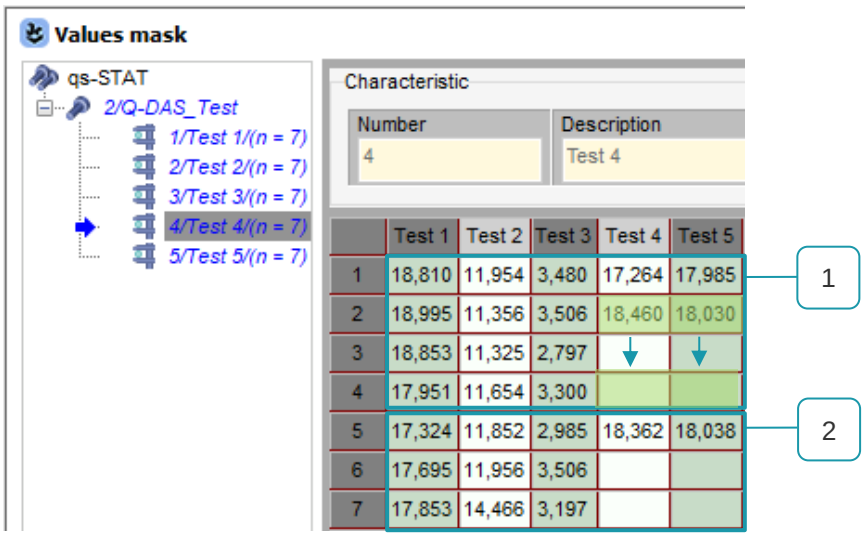
Overview and sequence of the uploaded measured values. Each line represents a measurement file.

	Char 1	Char 2	Char 3	Char 4	Char 5
1	Value	Value	Value	Value	Value
2	Value	Value	Value		
3	Value	Value	Value		
4	Value	Value	Value	Value	Value
5	Value	Value	Value	Value	Value
6	Value	Value	Value		
7	Value	Value	Value		

Uploaded with the "Part measurement" option deactivated

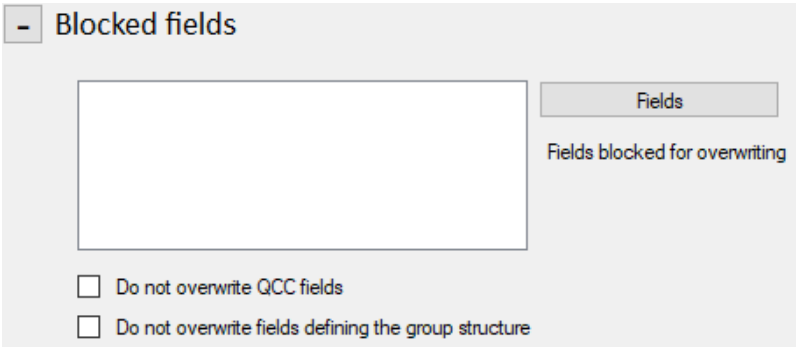
Uploaded with the "Part measurement" option activated

The changed Q-DM configuration has no effect on the data pool already present in the database. Activating the load option to temporarily fill the structure only affects the data pool that was uploaded with the "Part measurement" option activated (2). The allocation of measured values for the data pool that was uploaded without the "Part measurement" option activated is still incorrect (1).



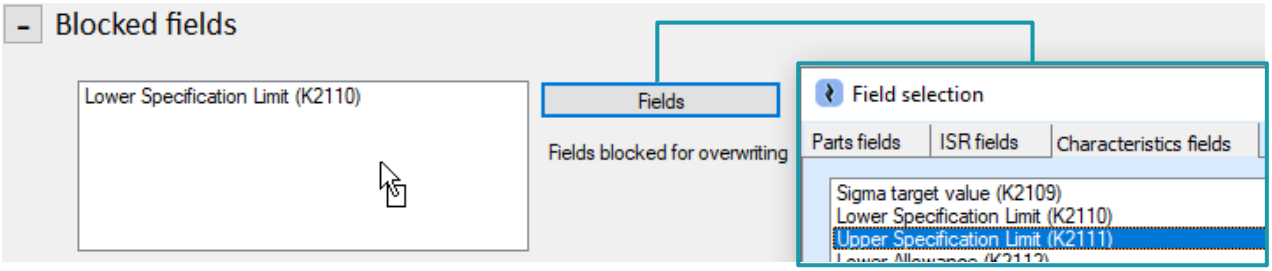
6.6.3 Blocked fields

The options in this window area provide the ability to protect already uploaded k-field content and data record structures from overwriting.



Fields blocked for overwriting

This option is enabled by adding the k-fields from the "Field selection list" dialogue to the "Fields blocked for overwriting" window area. The k-fields defined as key fields are always protected against overwriting.



For the k-fields listed here, the contents of the measurement file are compared with the contents already in the database. If the contents do not match, the measurement file is uploaded without the contents of the locked fields. The contents of the locked fields are therefore protected in the database. No message is displayed.

However, by enabling another option and entering an e-mail address, an e-mail notification can be sent. *Client | Mode | Extended settings | Inform about the attempt to change blocked fields.*

Do not overwrite QCC fields

Saved QCCs with user defined limits can be protected from being overwritten with this option. This includes all quality control charts that are displayed as saved quality control charts in the process analysis.

The quality control chart fields include all k-fields that are larger than K8000 and smaller than K8500.

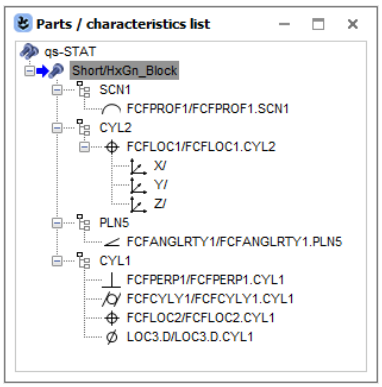
If the option is not enabled, all QCC fields will always be overwritten, even if the file being uploaded does not contain any content for QCC fields. In this case, any information that is not written will be used to delete the existing quality control charts stored in the database.

When a data set is initially created with this option enabled, the QCC field contents are not transferred to the database.

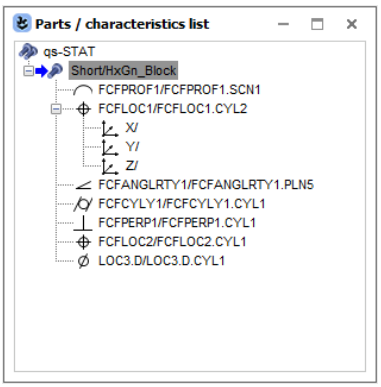
Do not overwrite fields defining the group structure

This option keeps the group structure of a data set in the database. This is necessary if the data sets in the database have a group structure, but the measuring machine cannot generate measurement files with a group structure.

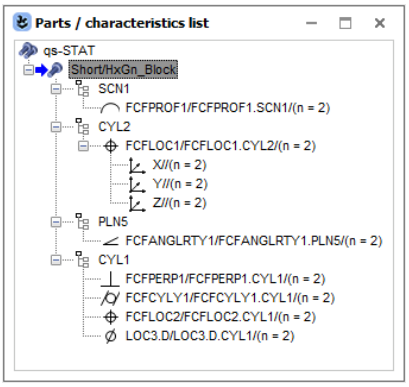
Data record structure in the database



Measurement file with data record structure corresponding to the measuring machine

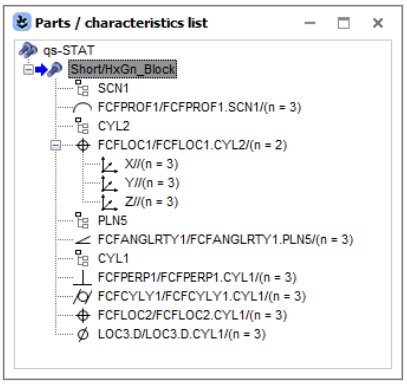


Measurement file uploaded with the option activated



The measured values are correctly allocated to the characteristics. The structure of the data set is kept.

Measurement file uploaded with the deactivated option

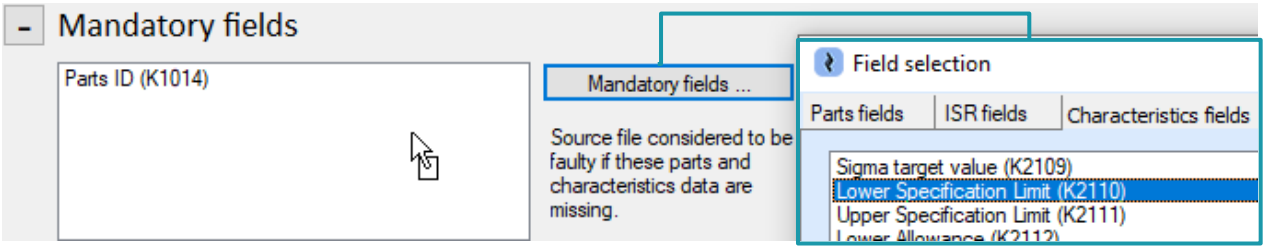


The measured values are correctly allocated to the characteristics. However, the original group structure of the data set is lost.

6.6.4 Mandatory fields

The k-fields required for uploading a measurement file can be defined in this window area. While the key fields are required to identify and allocate a measurement file to a data set, the mandatory fields are simply an additional requirement for the content of a measurement file.

The option is enabled by adding the k-fields from the "Field selection list" dialogue to the "Mandatory fields" window area.

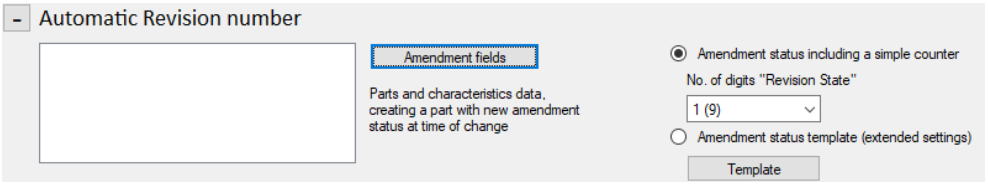


When importing, Q-DM checks whether the measurement file contains content for the listed mandatory fields. If the k-field is missing in the measurement file or if the k-field is specified without content, the measurement file is rejected for upload. The handling of the source file corresponds to the settings in the *Client* | *File treatment* | *Treatment of rejected measurement files* | *Rejected due to the current configuration of Q-DM*. An error message will be logged (log file).

For an additional check of the mandatory fields with regard to the syntax specifications, the option "Check Dataformat" must be enabled. *Client* | *Data source* | *Extended settings* | *Check Dataformat*.

6.6.5 Automatic Revision number (part amendment status)

The automatic creation of an amendment status is enabled using the options in this window area.



After allocating measurement to an existing data set in the database via the key fields, the contents of the k-fields listed in the amendment fields are checked. Only the k-fields that do not belong to the key fields can be used as amendment status fields.

If the contents of the measurement file do not match those in the database, there is a status change. The measurement file will be uploaded. A new data set is created using the key fields. This is marked with the automatically generated revision number in the k-field "Part Amendment status" (K1004).

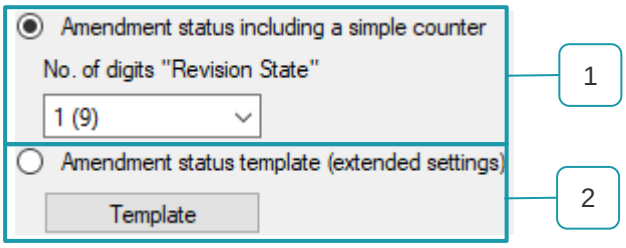
If a measurement file contains content in the k-field part amendment status (K1004) and the automatic revision number is active, the automatic revision number is used for the upload.

Each change is incremented according to the settings. This is also the case if the content is repeated. When the amendment status is checked, the k-field contents of the last uploaded data set are compared with the next one.

This option is enabled by adding the k-fields from the "Field selection list" dialogue to the "Automatic Revision number" window area.

Output format for amendment status

The amendment status can be a simple counter (1) or a custom counter (2).

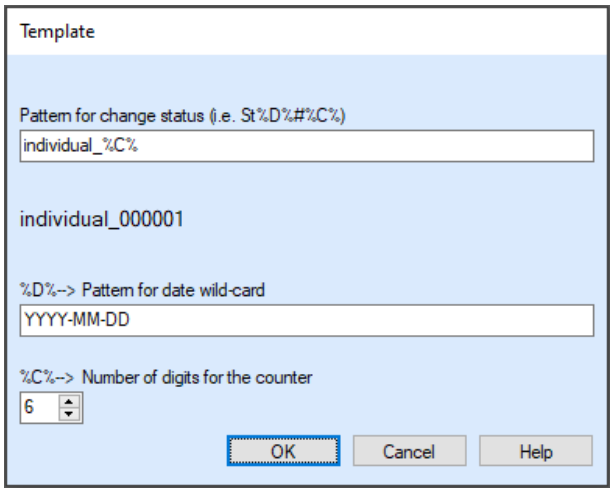


The content of an custom counter is configured using the "Template" button. This can contain an individual text, the current date (placeholder) and an automatic counter (placeholder). The order is freely selectable.

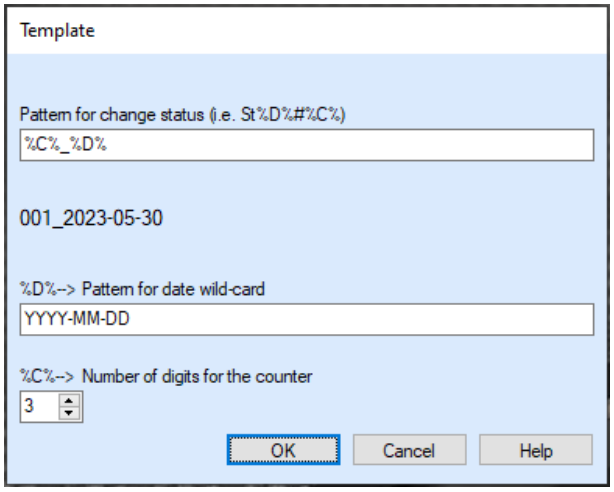
- **Placeholder for the date format**
  The default date format must be entered in the "Pattern for date wild-card" field. The date placeholder is used by entering "%D%" in the "Pattern for change status " field.

- **Placeholder for the automatic counter**
  When using a counter, the number of digits is configured in the "Number of digits for the counter" field. The counter is activated by entering "%C%" in the "Pattern for change status" field.

Output form for custom amendment status - example 1

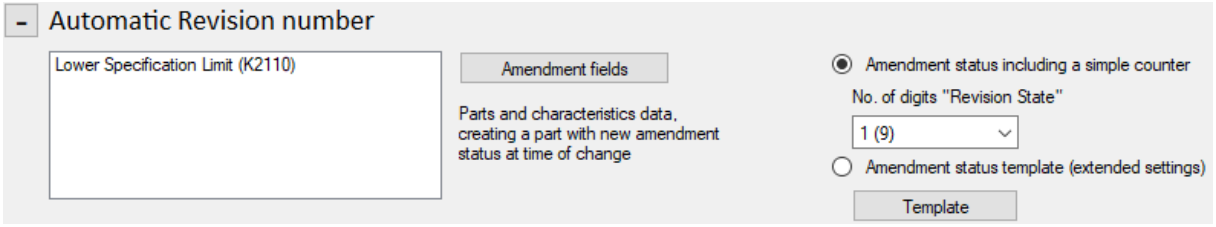


Output form for custom amendment status - example 2



Automatic amendment status - example

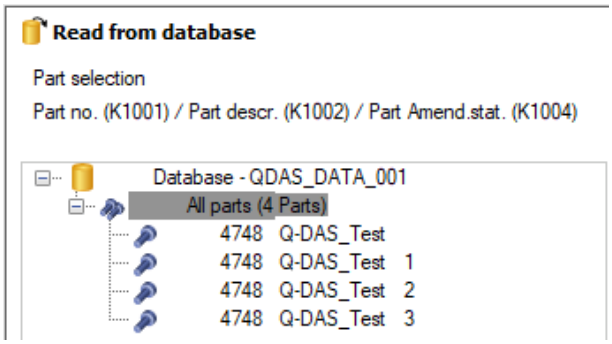
In the following example, the key fields K1001, K1002, K2001 and K2002 are used to identify a data set. The content of the k-field lower specification limit (K2110) is used to identify the amendment status. The simple one-digit counter is used as the output format for the amendment status. The identified amendment status is added to the corresponding data set in the k-field " Part Amendment status" (K1004) in the database.



The following data sets are uploaded:

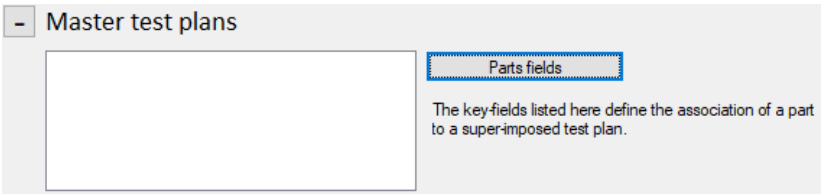
Data record content	**Behaviour during upload**
Q-DAS_Test with characteristics Test 1 lower spec. limit 17.410	The initial entry in the database
Q-DAS_Test with characteristics Test 1 lower spec. limit 17.510	First amendment status
Q-DAS_Test with characteristics Test 1 lower spec. limit 17,310	Second amendment status
Q-DAS_Test with characteristics Test 1 lower spec. limit 17.510	Third amendment status.

The result after uploading:



6.6.6 Master test plans

This window area allows the automatic creation of subordinate test plans (children) for parent-child structures.



Parent-child structures have been used in many different ways in the past. From today's perspective, most of these use cases are no longer relevant. Due to the development of filtering, the possibility of summarising data based on k-fields and the like, almost all use cases for parent-child structures have become obsolete, and so have their problems. It is also considered a bad idea to use parent-child structures to map a sort of "test plan structure", similar to a Windows Explorer. All this can be done with selections and the display of the k-fields, without a parent-child structure.

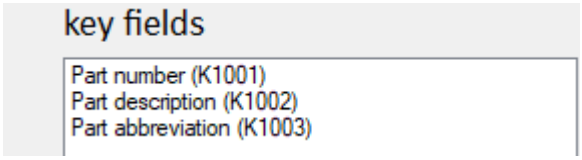
For questions and support, please contact the Q-DAS project team. Contact e-mail: info.qdas.mi@hexagon.com.

The "Master test plans" window area contains the key fields that are used to identify the superior level test plans. The k-fields, which are listed in the "Key fields" window area (part level) but not in the "Master test plans" window area, are used to identify the subordinate test plans.

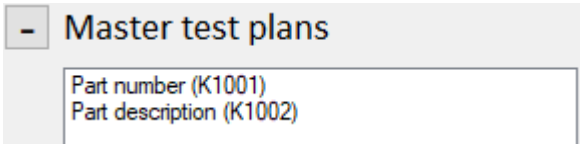
The option is enabled by adding the k-fields (part level) from the "Field selection list" dialogue to the "Master test plans" window area. The additional activation of the "Consider master test plans" option is required so that the data sets are correctly categorised in the parent-child structure. *Client* | *Update settings* | *Level of part data* | *Consider master test plans*.

Automatic creation of subordinate test plans - example

In the following example, the k-field "Part abbreviation" (K1003) is used to create the subordinate test plans.

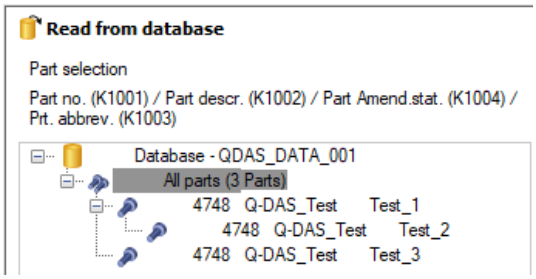


The identification and allocation of a measurement file to a data set in the database is done via K-fields K1001, K1002 and K1003, which are defined as key fields.



The identification and allocation of a measurement file to a superior data set (test plan) in the database is done via K-fields K1001 and K1002.

The "Master test plans" option is used to create subordinate data sets (test plans). When uploading, the key fields are checked first.

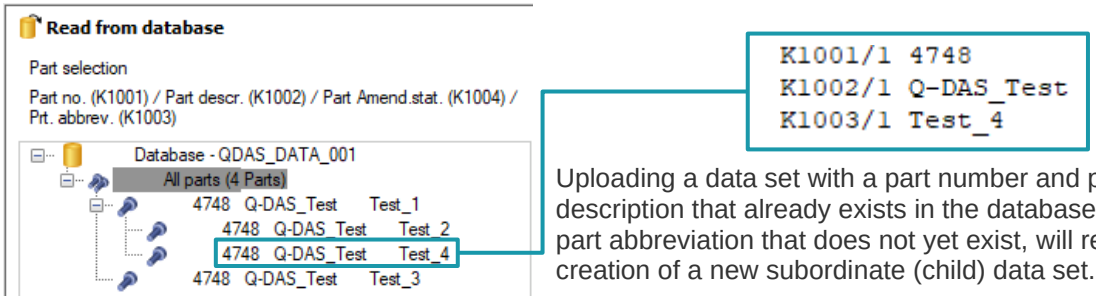


Initial situation

There are three data sets in the database. All three have the same part number and part description, but different part abbreviations.

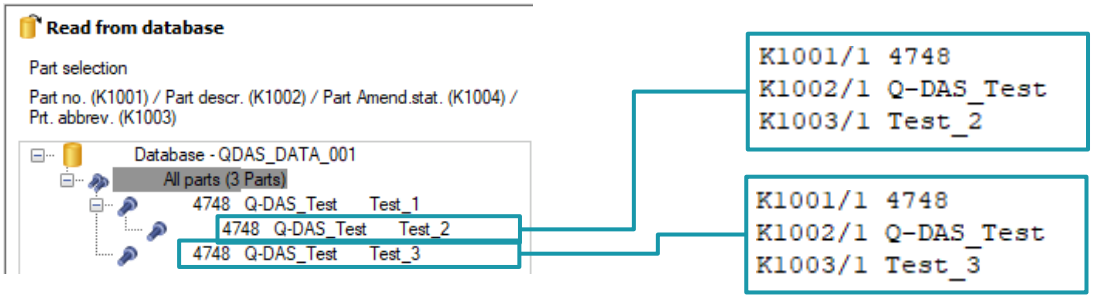
If not all key fields match, the key fields in the "Key fields" (part level) and "Master test plans" window areas are compared. In this example, it is the k-field "Part abbreviation" (K1003).

The first data set in the database is identified according to the key fields listed in the "Master test plans". A new subordinate test plan is created for this superordinate data set (test plan), taking into account the contents of the k-field "Part abbreviation" (K1003). The measurement file is uploaded to this subordinate data set.



Uploading a data set with a part number and part description that already exists in the database, but with a part abbreviation that does not yet exist, will result in the creation of a new subordinate (child) data set.

If the data set already exists in the database and all key fields match, the measurement file will be uploaded into that data set. It is added regardless of whether the existing data set is a parent or child data set.

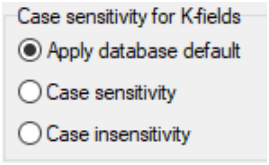


6.6.7 Extended settings

The options in this window area can be used to define various configurations for handling the database. For example, case sensitivity can be ignored, additional information can be stored to the data sets/measured values, or the data set can be recalculated in order to achieve a balance between form/position and dimensional tolerances (MMP method) or to suggest a position correction (BFM method).

6.6.7.1 Upper/lower case for key fields

When using databases configured to be case-sensitive, the text comparison rule to recognise upper and lower case for sorting key fields can be disabled in this window area.

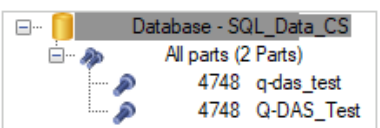
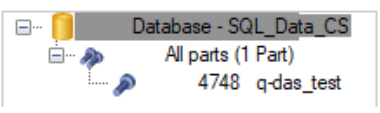


- **Apply database default**
  The text comparison rule from the database is used.
- **Case sensitivity**
  This applies case sensitivity. As this option only applies to "case-sensitive" databases, it has essentially the same effect as the "Apply database default" option.
- **Case insensitivity**
  Upper/lower case is NOT taken into account. The "case-sensitive" setting of the database is ignored. The content of a key field in the database is based on the last data set uploaded.

The options in the "Case-sensitivity for K-fields" window area are not relevant for databases that use "case insensitive" as a text comparison rule. This is the case, for example, with Microsoft Access databases, which always have the "case insensitive" configuration.

In the following example, two files are uploaded with different spellings of part descriptions.

Measurement file 1:
`K1001/1 4748`
`K1002/1 q-das_test`
	Result of uploading with the option "Apply database default" or "Case sensitivity"	Result of uploading with the option "Case insensitivity"

Measurement file 2:
`K1001/1 4748`
`K1002/1 Q-DAS_Test`
		

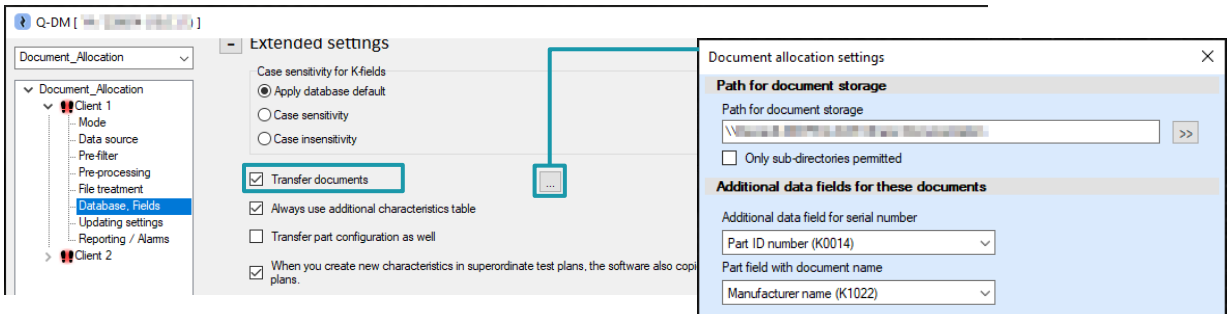
6.6.7.2 Transfer documents

With this option, documents containing detailed information about a manufactured part, for example, can be assigned to individual measured values. Documents which have been assigned in this way can then be called up in qs-STAT, for example.

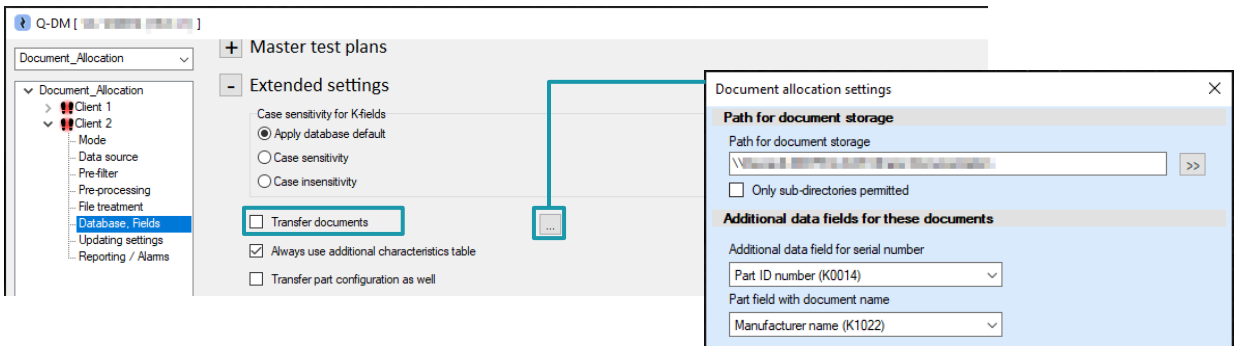
To ensure that documents can be accessed in all modules, some settings are stored for all modules, regardless of the user. These are essentially the path for document storage and the additional data field for the serial number.

Although the "Part field with document name" setting is user independent, it only applies to the Q-DM application. This means that all uploads and all clients will have the same settings. The settings can be activated or deactivated for each upload client.

"Client 1" with the "Transfer documents" option enabled.



"Client 2" with the "Transfer documents" option disabled.



For security reasons and to protect against overwriting, the settings for "Transfer documents" are excluded when importing and exporting uploads and clients.

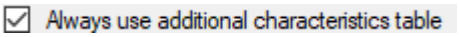
In order for the settings to be distributed to all modules and to be applied correctly within Q-DM, it is necessary to restart the Q-DM application after configuration.

Existing documents cannot be replaced by this function.

Detailed information on how to allocate documents to measured values can be found in the separate documentation "Transfer documents".

6.6.7.3 Additional characteristics table

By enabling this option, it is possible to use the data fields of the additional characteristic table "Merkmal_zus". The reason for the additional characteristics table is that the maximum number of possible data fields in the table “Merkmal” has been reached. The additional characteristics table contains, for example, the sub-catalogues, the CAD definitions and the Destra and VDA5 fields.



6.6.7.4 Transfer part configuration as well

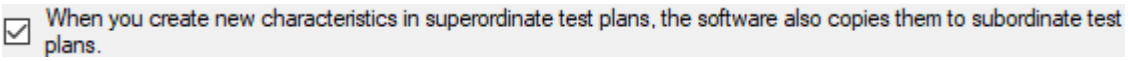
If a separate window layout configuration file exists for a dataset, enabling this option will store the configuration for the dataset in the database. This allows the dataset to be loaded in its original layout, especially if the configuration has been changed.

Using separate files with the window configuration is the old concept for saving layouts. The separate file contains the "Summary/input" configurations, all open graphics and allocations to characteristics and measured values.

The simplified and memory-saving concept has been available since version 13. Detailed information can be found in the separate documentation "New layout storage and configuration default".

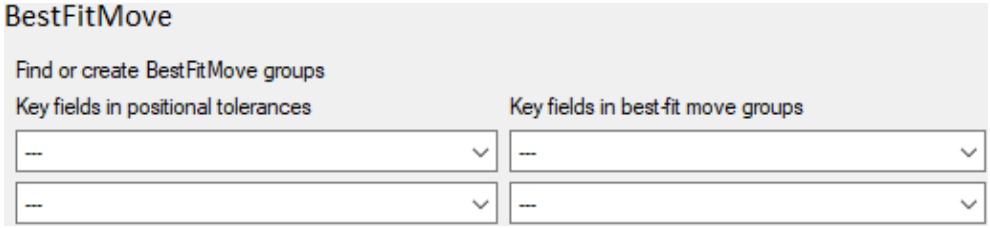
6.6.7.5 Assigning new characteristics to subordinate test plans

When using test plans with parent-child structures, subsequently added characteristics are normally only expanded in the superordinate test plans. By enabeling this option, when new characteristics are uploaded, they will also be assigned to the subordinate test plans.



6.6.7.6 Best-Fit-Move

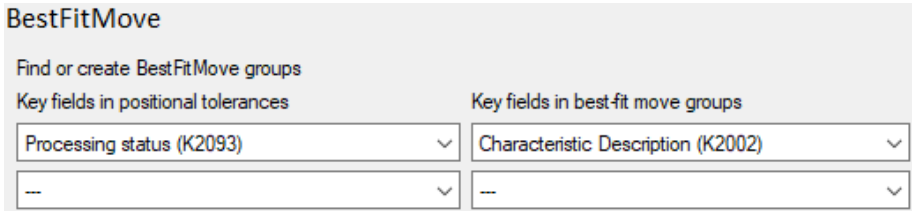
The options in this window area allow you to combine positional tolerances into common groups in order to create a position correction proposal using the Best Fit Move method.



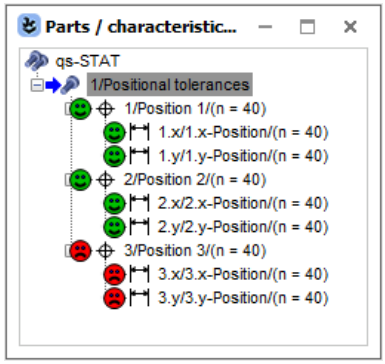
Two conditions can be defined for transferring the contents of the measurement file to the BFM group as information. These are also used to create the BFM groups.

This option is enabled as soon as a source field ("Key fields in positional tolerances") and a target field ("Target fields in BestFitMove group") are defined. The content of the individual positions in the data set to be uploaded is irrelevant for the generation of the BFM groups. Only the group data of the positions (position headers) are taken into account.

In the following, the BFM groups are generated according to the content of the k-field "Processing status". This is also used as the BFM group description (characteristic description).



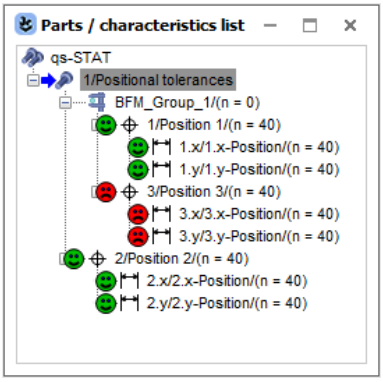
Data set structure before upload



Contents of the measurement file

```
K2002/1 Position 1
K2093/1 BFM_Group_1
K2900/1 4
     .. K2002/2 1.x-Position
     .. K2002/3 1.y-Position

K2002/4 Position 2
K2093/4
K2302/4
K2900/4
     .. K2002/5 2.x-Position
     .. K2002/6 2.y-Position

K2002/7 Position 3
K2093/7 BFM_Group_1
K2900/7 3
     .. K2002/8 3.x-Position
     .. K2002/9 3.y-Position
```

Data set structure after upload

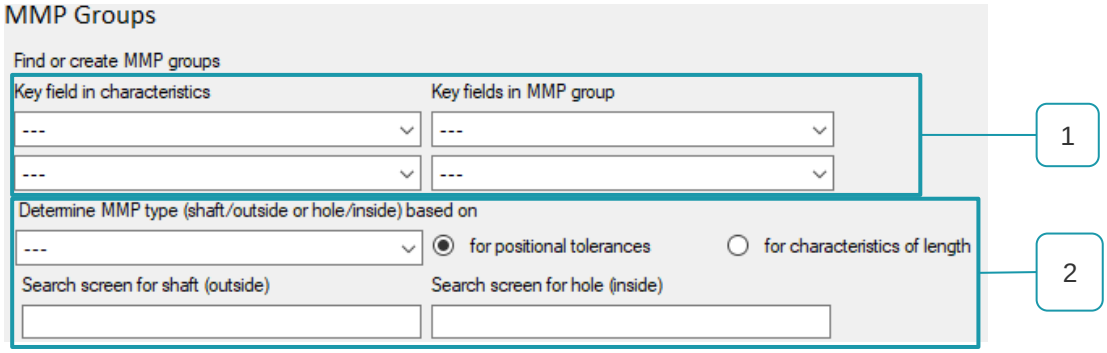


6.6.7.7 MMP group (Maximum Material Principle)

The options in this window area are used to create MMP groups.

By creating the MMP (Maximum Material Requirements MMR) groups, the dimensional tolerance of a characteristic specified on the drawing can be increased, for example, if the associated form tolerance of the characteristic has not been fully utilised. In principle, a compensation between form or position tolerances and the dimensional tolerances takes place. The MMP process is used in function-oriented component inspection to reduce the number of rejects.

The option of having the MMP group written correctly by the measuring device manufacturer is preferred. If the measuring device cannot write the MMP groups, it is recommended to use this option to test the possible combinations and work them out in a workshop with the Q-DAS project team. Contact e-mail: info.qdas.mi@hexagon.com.



This option is enabled as soon as a source field ("Key fields in characteristics") and a target field ("Key fields in MMP group") are selected. An MMP group can only be created if the conditions defined in "Search MMP group" are met and the MMP group content has been defined in "Create MMP groups".

Create MMP group (1)

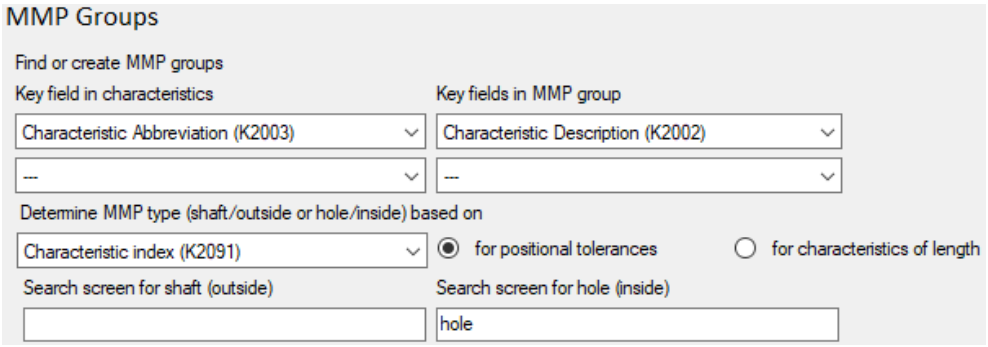
Two conditions can be defined for transferring the contents from the measurement file to the MMP group as information. These are also used to create the MMP group.

Search MMP group (2)

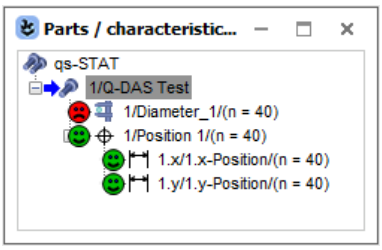
Three group indicators must be specified for MMP group to be found.

- The "Determinate MMP type" field defines the k-field in which the MMP content is searched.
- The type of characteristic is specified by selecting "for positional tolerances" or "for characteristic length".
- The search contents are defined in the fields "Search screen for shaft (outside)" and "Search screen for hole (inside)". The input is case-sensitive. Alternatively, search terms can be specified using the wildcard "*".

In the following example, the MMP grouping of the two characteristics "Position deviation" and "Diameter" needs to be set up for a hole. Unused position deviations can be used to increase the diameter tolerance (and vice versa).



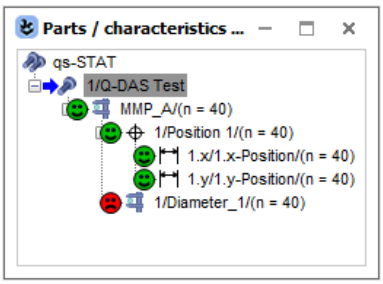
Data set structure before upload



Contents of the measurement file

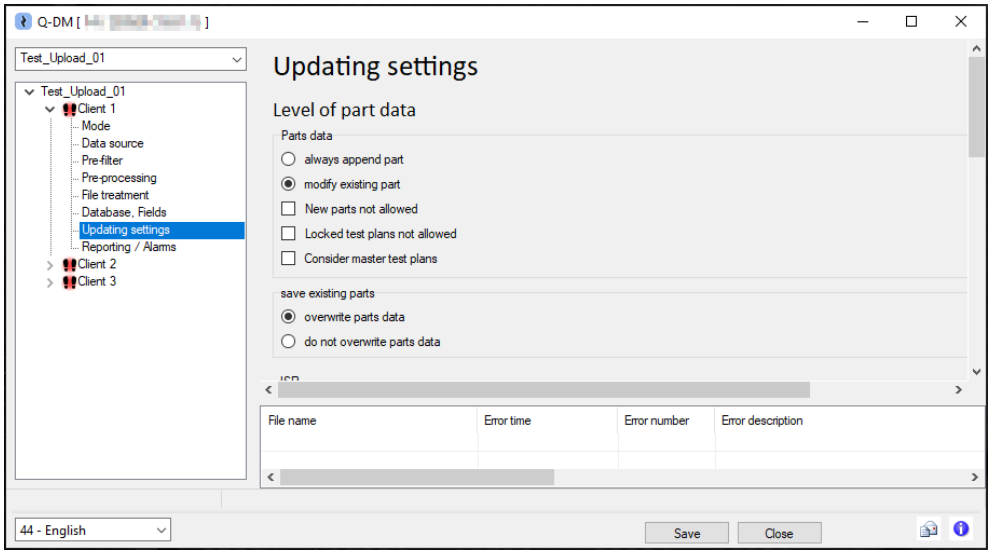
```
K2002/1 Diameter_1
K2003/1 MMP_A
K2091/1 hole

K2002/2 Position_1
K2003/2 MMP_A
K2091/2 hole
     .. K2002/3 Position 1.x
     .. K2002/4 Position 1.y
```

Data set structure after upload



6.7 “Update settings” menu group

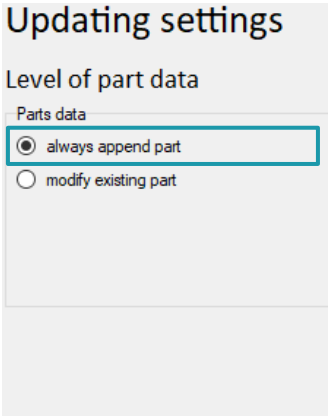
The options in this menu group determine how the data sets in the database are handled. Here it is possible to choose between appending and updating the existing content at part, characteristic and value level. The levels are processed sequentially starting from the part level.

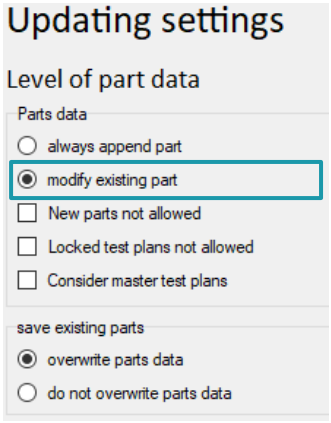


A measurement file is identified and allocated to a data set in the database using the key fields. Only then will the update settings be used to append or overwrite the contents of the database with the contents of measurement file.

K-fields defined as key fields or blocked fields are excluded from the update.

Depending on the option selected, other options will be shown or hidden. Here is an example of the "Always append parts" and "Modify existing part" options.



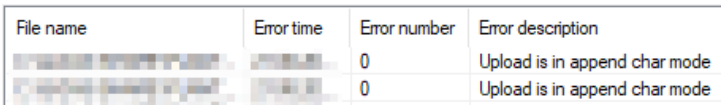


6.7.1 “Level of part data” window area

The options in this window area are used to define the conditions for whether the measurement files are added to the database as new data sets (test plans), appended to existing data sets or rejected.

“Always append part” option

Each uploaded measurement file is created as a new data set (test plan) in the database. As the same key field contents are used for the allocation, data sets that occur more than once can be differentiated by the consecutive part number. This option is generally used when transferring data, e.g. when changing the database systems. A log file with the contents "Upload is in append char mode" is created for each measurement file uploaded.



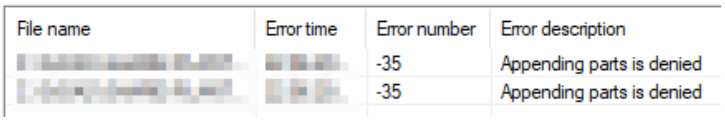
File name	Error time	Error number	Error description
[illegible]	[illegible]	0	Upload is in append char mode
[illegible]	[illegible]	0	Upload is in append char mode

“Modify existing part” option

If the part level key fields indicate that the measurement file content already exists as a data set (test plan) in the database, an upload will be performed. All part level k-fields that are not key fields will be updated with the measurement file content if there are differences. The characteristics and measured values are handled according to the settings at the characteristic and value level.

“New parts not allowed” option

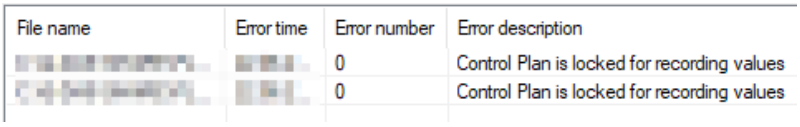
If the part level key fields indicate that the measurement file contents do not already exist as a data set (test plan) in the database, the measurement file is rejected and handled according to the file treatment configuration. *Client* | *File treatment* | *Treatment of rejected measurement files* | *Rejected due to the current configuration of Q-DM*. A log file is generated with the content "Appending part is denied".



File name	Error time	Error number	Error description
[illegible]	[illegible]	-35	Appending parts is denied
[illegible]	[illegible]	-35	Appending parts is denied

“Locked test plan not allowed” option

If the part level key fields indicate that the measurement file contents already exist as a data set (test plan) in the database with the status "Locked test plan" status, the measurement file will be rejected. The file is handled according to the configuration in *Client* | *File treatment* | *Treatment of rejected measurement files* | *Rejected due to the current configuration of Q-DM*. A log file is generated with the content "Control Plan is locked for recording values".



File name	Error time	Error number	Error description
[illegible]	[illegible]	0	Control Plan is locked for recording values
[illegible]	[illegible]	0	Control Plan is locked for recording values

"Consider master test plans" option

When using data sets with parent-child structures, the parent-child structure is only taken into account if this option is enabled. The configuration for the identifying and allocating parent and child data sets is carried out in *Client* | *Database, Fields* | *Master test plans*.

“overwrite parts data” option

The following applies to the data set identified in the database: All k-fields at part level that are not key fields are updated with the contents of the measurement file in case of differences. The characteristics and measured values are handled according to the settings at the characteristic and value level.

“Do not overwrite parts data” option

If differences are identified in the part level k-fields between the measurement file and the data set, the contents of the measurement file will be ignored. The contents of the database remain valid. The characteristics and measured values are handled according to the settings at the characteristic and value level.

“Overwrite ISR data” option

Activating this option overwrites the information stored in the database for the initial Sample Report. If the measurement file contains at least one ISR k-field, the overwriting of all ISR fields in the data database is triggered. In this case, enabling the option leads to a loss of data.

“Do not overwrite ISR data” option

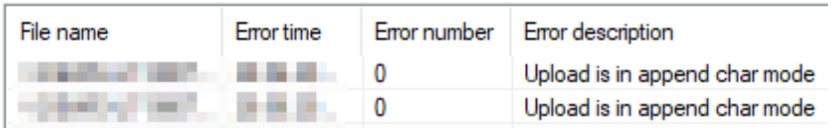
Regardless of whether the measurement file contains ISR content or not, the ISR content in the database remains valid. The content of the initial Sample Report entered in the database will not be overwritten.

6.7.2 “Level of characteristic data” window area

The options in this window area are used to define the conditions for handling the characteristics.

“Always append characteristics” option

If this option is enabled, all characteristics in a measurement file will be created as new characteristics in the database. This also applies to existing data sets (test plans) in the database. As the same key field contents are used for allocation, characteristics that occur more than once can be differentiated by the consecutive characteristic number. A log file with the contents "Upload is in append char mode" is created for each uploaded measurement file.



File name	Error time	Error number	Error description
[redacted]	[redacted]	0	Upload is in append char mode
[redacted]	[redacted]	0	Upload is in append char mode

"Modify existing characteristics" option

If the characteristic level key fields identify already existing characteristics in the database, they will be updated. All k-fields at the characteristics level that are not key fields will be updated with the contents of the measurement file in case of differences. The data sets (test plans) and the measured values are handled according to the settings at part and value level.

"Transfer new characteristics to master test plan" (advanced option for "Consider master test plans")

If data sets with parent-child structures are used, the new characteristics will also be added to the superordinate data set if the option is enabled when the subordinate data set is uploaded. While the structure and the measured values are added to the subordinate data set, only the structure is added to the superordinate data set.

This option does not affect the upload of superordinate data sets (Master Test Plans). When a superordinate data set is uploaded, the new characteristics are automatically inherited by the subordinate data set.

“Do not allow new characteristics” option

If this option is enabled, only the part of the measurement file for which characteristics already exist in the database will be uploaded.

When the measurement file is uploaded, the data set is first identified in the database using the key fields at part level. The characteristics are identified using the key fields at characteristic level. If characteristics are identified in the measurement file that do not exist in the database, the measurement file will still be uploaded and handled according to the configuration in *Client* | *File treatment* | *Successfully uploaded files*. A log file is generated for each characteristic that was not uploaded with the contents "Appending characteristic is denied" is.

File name	Error time	Error number	Error description	Part key	Characteristics key
[illegible]	[illegible]	0	Appending characteristics is denied	4710 / Q-DAS Test /	4 / Test 4
[illegible]	[illegible]	0	Appending characteristics is denied	4710 / Q-DAS Test /	5 / Test 5

“Reject complete file if a characteristic is rejected” (advanced option for “Do not allow new characteristics”)

As an extension to the "Do not allow new characteristics" option, this option rejects the entire measurement file. No data will be uploaded, not even from existing characteristics. The measurement file is processed in the same way as rejected files. *Client* | *File treatment* | *Treatment of rejected measurement files* | *Rejected due to the current configuration of Q-DM*. A log file is generated with the content "Appending characteristic is denied".

File name	Error time	Error number	Error description	Part key	Characteristics key
[illegible]	[illegible]	-36	Appending characteristics is denied	4710 / Q-DAS Test /	4 / Test 4

“Overwrite characteristic data” option

The following applies to the characteristics identified in the database: All k-fields at the characteristic level that are not key fields will be updated with the measurement file content if there are differences. The data sets (test plans) and measured values are handled according to the settings at part and value level.

“Do not overwrite characteristic data” option

If there are differences occur in the k-fields at characteristic level between the measurement file and the characteristics in the database identified during the upload, the contents of the measurement file will be ignored. The contents of the database will remain valid. The data sets (test plans) and the measured values are handled according to the settings at part and value level.

“Transfer of manual characteristics from O-QIS MCA/CMM Reporting to new test plans with amendment status” option

If characteristics are recorded manually in O-QIS MCA/CMM Reporting, enabling this option allows the transfer of manually recorded characteristics when creating new datasets with amendment status.

When the measurement file is uploaded, the data set is first identified in the database using the key fields at part level. The k-fields listed in the amendment fields are used to identify the amendment status. If the contents of the measurement file do not match those in the database, a new record is created. If this option is enabled, the manually entered "MCA/CMM Reporting" characteristics will be transferred from the existing dataset to the new data set, even if these characteristics are not part of the measurement file.

6.7.3 “Level of measured values data” window area

The options in this area are used to define the conditions for processing the measured values.

“Always append values” option

When this option is enabled, the values from a measurement file are created as new values for the corresponding characteristics in the database. This is the default setting.

“Overwrite values” option

The measured values of the characteristics identified by the part level and characteristic level key fields are replaced by the measured values from the measurement file. Enabling this option will result in a loss of information.

“Update values using GUID” option

This option can be used to overwrite existing measured values in the database. The measured value to be overwritten is identified by its GUID (Global Unique Identifier). To use this option, the "Use GUID (K0097)" option must be enabled in the database and a unique GUID must be entered for each measured value in the measurement file to be uploaded.

The GUID cannot be used in the following cases.

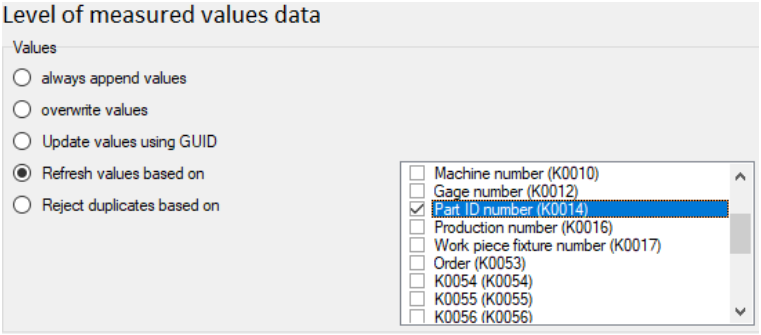
- If the use of GUIDs is enabled in the database, but the measurement file does not contain any measured value GUIDs, the GUIDs will be generated by Q-DM. The measurement file is uploaded. All measured values are appended.
- If the measurement file contains the measured value GUIDs but the use of GUIDs is not active in the database, the measurement file will not be uploaded and will be treated as a rejected file. *Client* | *File treatment* | *Treatment of rejected measurement files* | *Rejected due to fields in the database missing or too small*. A log file is generated with the content "Error: Data cannot be stored in database. K0097 cannot be written! Field WV0097 is missing ... ".

File name	Error time	Error number	Error description	Part key
[redacted]	[redacted]	-97	Error: Data cannot be stored in database. K0097 cannot...	4710 / Q-DAS

As every single measured value in the database is checked to verify whether it should be overwritten, this option can lead to a loss of performance.

“Refresh values based on” option

With this option, it is possible to overwrite existing measured values based on the additional data. The measured value to be overwritten is identified by the selected additional data field or by selecting the additional data fields in the combination.

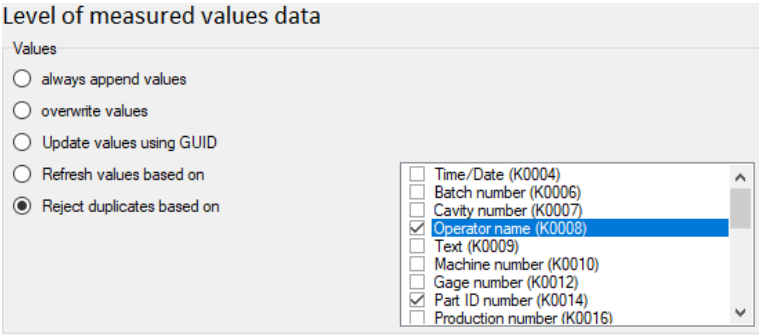


Only the first match in the database is searched. If this is intended to be used, it is recommended that only measurement files with single measurements are uploaded. It is also important to ensure that the combination of additional data fields is selected so that a unique measured value can be identified for each characteristic.

Enabling this option may result in loss of information.

“Reject duplicates based on” option

This option provides the ability to avoid overwriting or appending measured values based on the additional data. The measured values are identified by the selected additional data field or by selecting the additional data fields in the combination. Neither the contents of the measured values in the database nor in the measurement file are relevant.

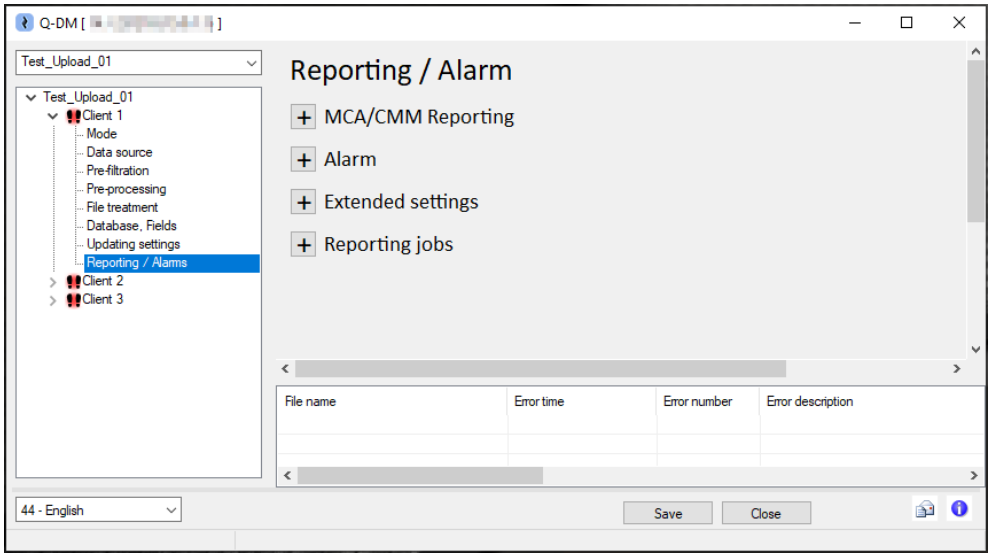


The measurement file will not be uploaded and will be treated as a rejected file if, for the selected additional data fields, the content of the additional data of at least one measured value matches the content in the database. *Client* | *File treatment* | *Treatment of rejected measurement files* | *Rejected due to the current configuration of Q-DM*. A log file is generated with the content "Duplicate values found".

File name	Error time	Error number	Error description	Part key	Characteristics key
[illegible]	[illegible]	-57	Duplicate values found => K0008 = ...	4710 / Q-DAS ...	1 / Test 1
[illegible]	[illegible]	-57	Duplicate values found => K0008 = ...	4710 / Q-DAS ...	2 / Test 2

6.8 “Reporting / Alarms” menu group

The options in this menu group can be used to provide measurement files for use in "MCA/CMM Reporting" and PLV, configure alarm generation and retrieve data sets (test plans) from the iqs system.



6.8.1 MCA/CMM reporting

In the Q-DAS application "MCA/CMM Reporting", the functions of an upload client are used to load the measurement files for evaluation and approval and to transfer them to the central database after acknowledgement. The options in this window area can be used to configure the upload client specifically for use in O-QIS MCA/CMM Reporting.

Depending on the data flow, the data will be held in a local or central MCA/CMM buffer database or directly in the central data database without a buffer function until it is acknowledged. Some of the options have different effects on the use of the MCA/CMM buffer database and the central database.

Whether the respective database is an MCA/CMM buffer database or a central database can be viewed in qs-STAT, for example. If the option "Use database as server for test plan" is active, it is a central database without a buffer function. *qs-STAT | File | Configurations | Databases | Options | Administration | Database type | Use database as server for test planning.*

6.8.1.1 “Support for MCA/CMM Reporting” option (CMM upload)

This option must be activated if an upload client is to be used in "MCA/CMM Reporting". The upload client can then be selected in the O-QIS MCA/CMM Reporting user interface.

O-QIS MCA/CMM Reporting uses the database connections stored in the product INI file. The database connection configured in the Upload Client is ignored by O-QIS MCA/CMM Reporting.

Due to the operating mode of O-QIS MCA/CMM Reporting, the options "Part measurement" (*Client* | *Database, Fields* | *Key fields*) and automatic mode (*Client* | *Mode*) are also activated when the "Support for MCA/CMM Reporting" option is enabled.

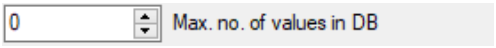
An upload that is to be used in O-QIS MCA/CMM Reporting can only have one client!

6.8.1.2 “local DB configurations” window area

The options in this window area control the loading of data sets and the measurements in "MCA/CMM Reporting".

“Max. no. of values in DB” option

In order to assess and confirm a measurement, it is necessary to specify the number of previous measurements according to the evaluation strategy. A specification here defines the maximum number of confirmed measurements that are made available in O-QIS MCA/CMM Reporting.



When using an MCA/CMM buffer database, the FIFO (First In - First Out) principle is used. As soon as the maximum number is reached, the confirmed measurements are deleted according to the FIFO principle. Measurements that have not yet been confirmed are not affected. The FIFO principle is switched off with the default setting "0". Confirmed measurements are not deleted from the MCA/CMM buffer database! The default setting "0" must not be set when using an MCA/CMM buffer database!

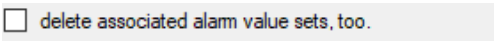
When using a central database without a buffer function, this option is used as a sort of load filter. All measurements are stored in a central database. The specification in the "Max. no. of values in DB" field indicates the number of confirmed measurements to be loaded in "MCA/CMM Reporting".

If the "Use database as server for test planning" option is enabled, the central database is protected. If it is not, the data in the central database will be lost.

Detailed information on the use of O-QIS MCA/CMM Reporting can be found in the separate documentation "Installation and database scenarios".

“delete associated alarm value sets, too" option (advanced option for "Max. no. of values in DB")

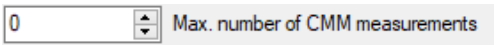
The O-QIS Alert Manager is used to visualise the alarms associated with the measurements at the level of additional data. If the option "delete associated alarm value, too" is enabled, the alarms in the O-QIS Alert Manager will also be deleted when the confirmed measurements are deleted.



This option is only effective if an MCA/CMM buffer database is used, as confirmed measurements are deleted according to the FIFO principle. If a central database is used, the alarms of the additional data level are loaded through some kind of load filter.

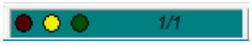
“Max. number of CMM measurements” option

This option forces unconfirmed measurements to be acknowledged.



If the maximum number is exceeded, O-QIS MCA/CMM Reporting will go into waiting mode. The MCA/CMM traffic light changes colour to purple. No new measurements will be uploaded.

As soon as the number of confirmed measurements falls below the maximum again, the MCA/CMM traffic light turns green again. New measurements can be uploaded.



The option is disabled with the default setting "0".

6.8.1.3 “Central DB configurations" window area

The options in this window area allow you to configure the transfer of confirmed measurements to the central database using DFQ files.

Depending on the data flow, the confirmed measurements are saved by uploading the corresponding DFQ files via a central upload (Q-DM) or by saving them directly to central database. When using the MCA/CMM buffer database, O-QIS MCA/CMM Reporting generates a DFQ file with the confirmed measurement and the associated events after acknowledgement. This DFQ file is placed in the collection directory for the central upload (Q-DM). The task of the central upload is then to transfer the DFQ file with the confirmed measurement to the central database.

Central upload directory

This is the directory path where O-QIS MCA/CMM Reporting stores the confirmed measurements as DFQ files. In the central upload (Q-DM), the same path must be defined as the collection directory.

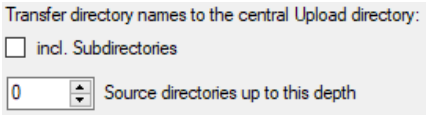
If this field is left blank when using a MCA/CMM buffer database, data may be lost. No log file entry will be made. If a central database without a buffer function is used, it is not necessary to specify a directory.

Extending the directory path structure

The options in this window area can be used to extend the specified directory path using the path in the Data source (*Client* | *Data source* | *Directory*) and using the k-field contents from the measurement file.

“Fields creating the directory structure”
Allows a directory substructure to be created based on the k-field contents. This option is enabled by adding the k-fields from the "Field selection list" dialogue to the left field. The k-fields at part, characteristic and value level are processed sequentially.

“Transfer directory names to the central Upload directory” option
The path specified in “Data source” is used to create the directory substructure.



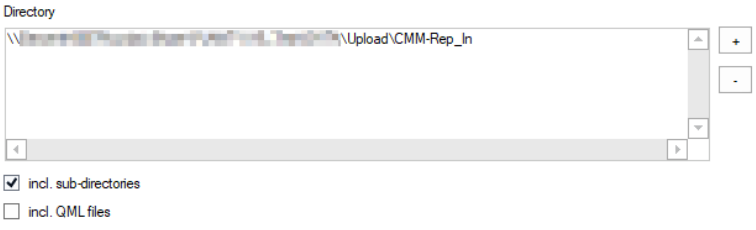
- The "Source directories up to this depth" option allows the directory structure of the data source to be transferred to the structure of the target directory.
  By selecting the (up/down) buttons, the directory structure is specified starting from the file. The option is disabled with the default setting "0".
- The "incl. Subdirectories" option creates the subdirectories for the target path based on the subdirectories of the data source path.

  This option requires the "incl. Subdirectories" option to be enabled in the “Data source” menu group. If a measurement file is found in a subdirectory of the data source, the confirmed measurement will be stored in a subdirectory of the same name in the target path.

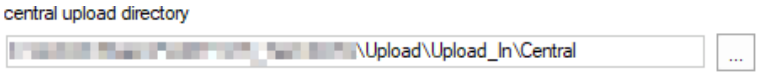
Creating the directory structure for storing confirmed measurements - examples

The following examples explain the use of the directory path and the creation of subdirectories for the storage of confirmed measurements in O-QIS MCA/CMM Reporting. These directories serve as pickup directories for the central upload.

A directory path is configured as the data source and the use of subdirectories is enabled. The specified main directory "CMM-Rep_In" contains further subdirectories.

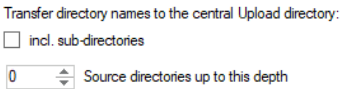


The following directory path is configured in the "Reporting / Alarms" menu group in the "Central upload directory" field.



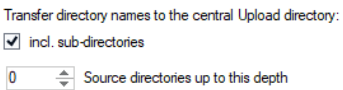
MCA/CMM Reporting options	Data source: Measurement file path	Target directory for the confirmed measurement file

If no other options are enabled, the target path specified in the "Central upload directory" is used.



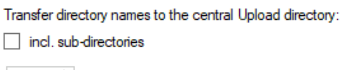
Upload\CMM-Rep_In	..\Upload_In\Central
..\Upload\CMM-Rep_In\Dept abc	..\Upload_In\Central

If the "incl. Subdirectories" option is enabled, the subdirectories of the data source are used to build the structure of the target directory.



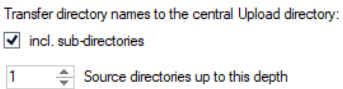
..\Upload\CMM-Rep_In	..\Upload_In\Central
..\Upload\CMM-Rep_In\Dept abc	..\Upload_In\Central\DEPT ABC

By specifying "1" in "Source directories up to this depth", the directory level “CMM-Rep_In” is included in the target directory structure.



..\Upload\CMM-Rep_In	..\Upload_In\Central\CMM-Rep_In
..\Upload\CMM-Rep_In\Dept abc	..\Upload_In\Central\CMM-Rep_In

The combination of the specifying the directory depth and enabling the "incl. Subdirectories" option configures the transfer of a directory depth from the data source path, taking into account subdirectories.



..\Upload\CMM-Rep_In\Dept abc	..\Upload_In\Central\CMM-Rep_In \DEPT ABC

The "Part number" and "Machine number" k-fields are configured to create the directory structure based on the k-field contents.

When using catalogue based k-fields, the content of catalogue column 2 is used as the name. In this example, the “Machine Catalogue” is used.

Extract from the Machine Catalogue:

Machine Catalogue

cons. no.	Number	Description	Sector	Dept.
1	M001	Machine 1		
2	M002	Machine 2		
3	M003	Machine 3		
4	M004	Machine 4		
5	M005	Machine 5		

MCA/CMM Reporting options	Data source and content of the measurement file	Target directory for the confirmed measurement file
Transfer directory names to the central Upload directory: ☐ incl. sub-directories 0 Source directories up to this depth	Upload\CMM-Rep_In K1001/1 x1 K1002/1 Q-DAS Test K0010/1 3	..\Upload_In\Central\x1\M003
Transfer directory names to the central Upload directory: ☐ incl. sub-directories 0 Source directories up to this depth	Upload\CMM-Rep_In K1001/1 x1 K1002/1 Q-DAS Test K0010/1 2	..\Upload_In\Central\x1\M002

If the directory structure is created using the k-field contents and the data source, the data source options are considered first and then those for the k-fields.

Below are the options configured to take into account the data source with subdirectories in addition to the k-fields.

Machine Catalogue cons. no. | Number | Description | Sector | Dept. 1 | M001 | Machine 1 2 | M002 | Machine 2 3 | M003 | Machine 3 4 | M004 | Machine 4 5 | M005 | Machine 5	..\Upload\CMM-Rep_In\Dept abc K1001/1 x1 K1002/1 Q-DAS Test K0010/1 3	..\Upload_In\Central\CMM-Rep_In\DEPT ABC\x1\M003

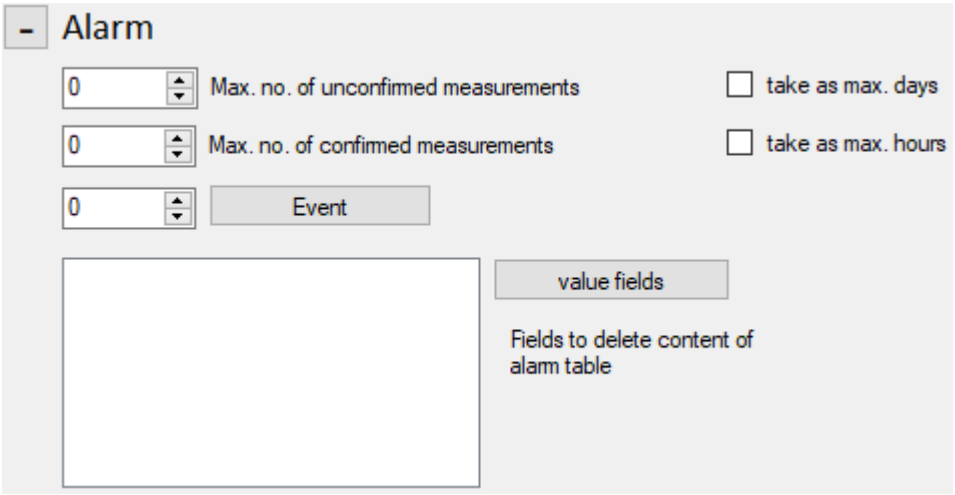
6.8.2 Alarm

The options in this window area control the generation of alarms and the handling of measurements in "MCA/CMM Reporting" by means of forced confirmation. In addition, an upload client can be configured here to use the "Dynamic Inspection" functions.

Forced confirmation in O-QIS MCA/CMM Reporting

The options in this window area are primarily used to clean up the view in the MCA/CMM Reporting Alarm viewer.

The options define the number of confirmed and unconfirmed measurements to be displayed in the Alarm viewer. If the number of unconfirmed measurements is exceeded, the measurement files will continue to be uploaded and the older unconfirmed measurements will be confirmed forcibly with an event.



When a measurement with alarms is forcibly confirmed, the specified event is only assigned to the alarmed characteristics. If no alarms occur during a measurement, all characteristics are forcibly confirmed with the specified event.

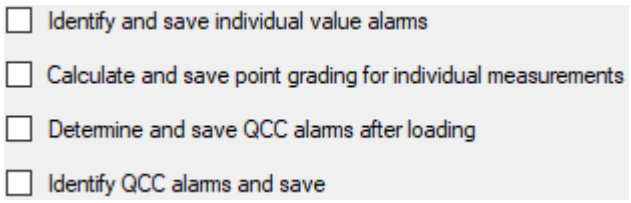
These options are only effective if an MCA/CMM buffer database is used and the "Buffer original files in DB" option is enabled. *Configuration MCA/CMM Reporting* | *Settings* | *Configurations 1* | *Buffer original files in DB*.

A directory must be specified to store the forced confirmed measurements. *Client* | *Reporting / Alarms* | *MCA/CMM Reporting* | *Central upload directory*.

Detailed information can be found in the separate document "O-QIS MCA/CMM Reporting - General Handling".

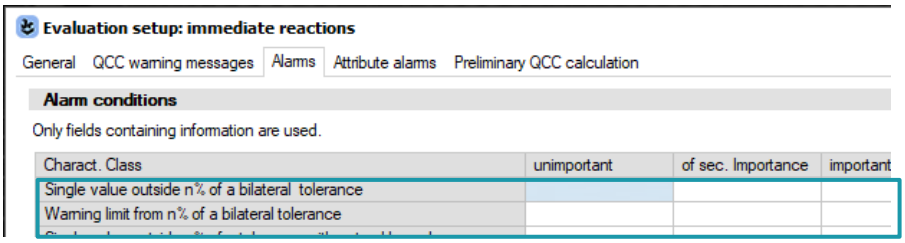
Identify alarms (Q-DM)

The options in this window area allow Q-DM to identify the alarms. Some options have been developed for specific customer requirements. Their description is not part of this document. The alarms identified by Q-DM can be displayed, for example, in the O-QIS Alert Manager, PLV (PlantViewer) or RTM (Real Time Monitoring).



“Identify and save individual value alarms” option
If this option is enabled, the individual value alarms are identified and stored. The evaluation strategy configured in Q-DM is used to identify the alarms. *Client* | *Reporting / Alarms* | *Extended settings* | *Evaluation Strategy*.

The conditions for determining the alarms are stored in the evaluation strategy.
For example, qs-STAT can be used to define alarms for different characteristic classes.



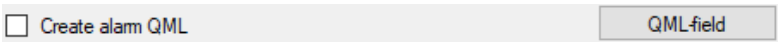
“Calculate and save point grading for individual measurements" option
Special development

“Determine and save QCC alarms after loading” option
Special development

“Identify QCC alarms and save” option
Special development

Alarms for transmission to an external system (Q-DM)

This option allows alarms to be stored in a QML file for transmission to an external system.



Once a measurement file has been evaluated and uploaded, the QML file is generated. It contains the header data and evaluation results and is stored in the directory of the data source. *Client* | *Data source* | *Directory*. The QML file name consists of the name of the uploaded measurement file followed by the date and time.

TEST_01_03082023_132207.QML
TEST_02_03082023_132209.QML

The structure of the QML file is configured in the "Fields selection for result export" dialogue. This is accessed via the "QML-fields" button. The configuration of the QML fields is global for all Q-DAS applications. If, for example, the QML fields are configured in qs-STAT or O-QIS, the configuration must be carried out with the "SuperUser" user. In this case, the dialogue is accessed via *File* | *Configurations* | *Fields, input and output* | *Result export (file)*.

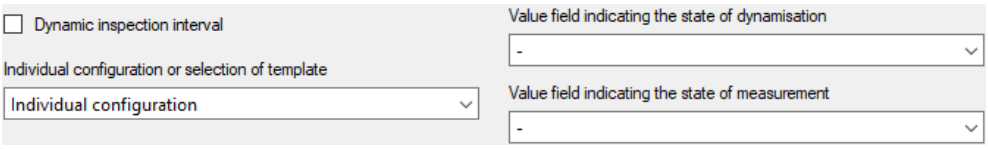
The file extension of the QML measurement file and the QML alarm file are identical. Q-DM cannot distinguish between a QML measurement file and a QML alarm file based on the content. If the "Incl. QML files" option is activated, a QML alarm file is treated as a QML measurement file.

It is not possible to select both options "Create alarm QML" and "Incl. QML files" at the same time. *Client* | *Data source* | *Directory* | *Incl. QML files*. If the "Incl. QML files" option is enabled, enabling the "Create alarm QML" option will automatically disable the "Incl. QML files" option. If the "Create alarm QML" option is enabled, the activation of the "Incl. QML files" option cannot be saved.

If the use of QML alarm files is desired for an upload client with the "Support for MCA/CMM Reporting" option enabled, the configuration must be done in O-QIS MCA/CMM Reporting. *Configuration MCA/CMM Reporting* | *Settings* | *Configurations 2* | *Create Alarm QML*. A storage path for alarm QML files can be configured here. *MCA/CMM Reporting* | *File* | *Configurations* | *Paths* | *Path for QML-result file output*.

Dynamic Inspection

The options in this window area are used to configure an upload client for the use of the "Dynamic Inspection" features. Dynamic Inspection is used to reduce the inspection time of a coordinate measuring machine (CMM) in terms of stability and production process.



Detailed information on the topic of "Dynamic Inspection" can be found in the latest help.

6.8.3 Extended settings

This window area allows to configure the merging of split measurements, select the evaluation strategy for generating alarms and to use the iqs system.

“Minutes for combination of split measurements” option (O-QIS MCA/CMM Reporting)

If a measurement is split into several measurement files due to a large number of characteristics, this option can be used to merge the measurement files for output in the report.

The option is enabled by specifying minutes. This is the period of time during which an external system makes the associated measurement files available in the source directory (data source).

Example: A total of 1700 characteristics are measured for test object A. The external system outputs these in two measurement files, one after the other. The first measurement file for test object A with the characteristics 1 to 800, followed by the second measurement file for test object A with the characteristics 901 to 1700. A corresponding report is used in O-QIS MCA/CMM Reporting. This shows the merged measurement files as one part measurement and thus enables part evaluation.

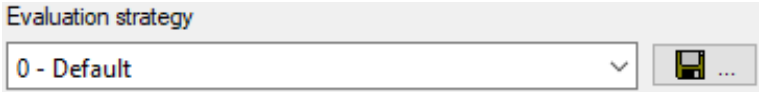
The "Minutes for merging split measurements" option requires an upload client with the "Support for MCA/CMM Reporting" option enabled.

In O-QIS MCA/CMM Reporting it is possible to define which report is opened after merging the measurement files. Dialog *Configuration MCA/CMM Reporting* | *Settings* | *Upload* | *Report after merging split measurements*.

Only reports for which the "Generation of alarm summaries" option is activated can be used to display the merged split measurements. *Q-FD* | *Report* | *Form sheet features* | *Intended use* | *Generation of alarm summaries*.

“Evaluation strategy” option (Q-DM)

The selection here determines which evaluation strategy is used to generate the alarms.



Several evaluation strategies are available. Additional evaluation strategies can be imported using the "Save" button. The selection will be saved for each upload client.

An evaluation strategy can be viewed, customised or defined as a default in qs-STAT or O-QIS, for example.

The default evaluation strategy defined in O-QIS MCA/CMM Reporting will be used by an upload client with the "Support for MCA/CMM Reporting" option enabled to generate alarms.

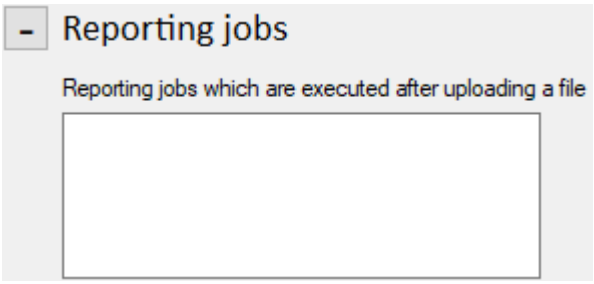
“Upload with iqs coupling” option

If the iqs CAQ software is used for quality assurance, this option allows access to the iqs data. If this option is enabled, data sets (test plans) will be created or modified in the database in according to the contents of the iqs system.

If the use of an iqs connection is desired, the coordination of the requirements and the necessary configuration must be worked out in a workshop with the Q-DAS project team. Contact e-mail: info.qdas.mi@hexagon.com.

6.8.4 Reporting jobs

This window area is used to enter the reporting jobs that will be run after a data file has been uploaded.



The actual configuration is done Q-DAS M-QIS Reporting. The reporting job configuration name is required to enable the reporting job to run.

The combination of Q-DM and M-QIS Reporting functions is mainly used to prepare data for the PLV (Plant Viewer). In this use case, Q-DM loads the measurement files into the database and M-QIS Reporting summarises the data for display in the PLV.

Detailed information on "PLV" can be found in the latest help.