

Title Interface Description	Confidentiality	Document no KS003B16EN	Revision V2
Project TFQ Webservice	Issued by Håkan Ahl		Date 2010-01-15

Interface Description

TFQWebService

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1 DOCUMENT INFORMATION

1.1 Summary

Interface description for TFQ Webservice (TFQ_WS). TFQ_WS will be a webservice implemented in VB.NET with .NET Framework 2.0.

1.2 Prerequisites

The reader of this document is supposed to have good knowledge of the QSP database model and of the process of test and fault input to QSP.

1.3 Revision history

Revision	Comment	Changed by /date	Approved by / date
P1	First draft	HAAH/2009-12-08	
P2	<ul style="list-style-type: none"> • Changed the type for all TimeForControl to DateTime. • Removed length indication for string parameters. • Added the parameters BatchNumber and UserName to function UpdateFaultInfo. • Changed text 'Order number' to 'Batch number' in Fault Information 2. • Added ActionDescription and FaultDescription to Fault Information 2. • Added the following functions: GetAllActionCodes GetAllFaultCategories GetFaultCodes GetAffectedProducts GetFaults GetFaultCount GetProductChildren GetMeasurements GetTests GetTestCount GenericXML 	HAAH/2010-01-12	
P3	Added two functions: GetSystemInfo GetTableUpdates	HAAH/2010-01-15	
V1	Approved version	HAAH/2010-01-15	
V2	Added needed functions for AOI	VEOL/2011-02-16	

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2 FUNCTION OVERVIEW

The main functions in the TFQ_WS are:

Function	Description	Affected database table
InsertTestInfo	Inserts test data into the QSP database.	CONTROL_DATA, CONTROLLED_UNIT, DETECTED_SYMPTOM_OF_FAULT
UpdateTestInfo	Updates test data into the QSP database.	CONTROL_DATA, CONTROLLED_UNIT, DETECTED_SYMPTOM_OF_FAULT
UpdateTestInfo2	Updates test data into the QSP database using the Control identity as key.	CONTROL_DATA, CONTROLLED_UNIT, DETECTED_SYMPTOM_OF_FAULT
InsertFaultInfo	Inserts fault data into the QSP database.	CAUSE_OF_FAULT, CAUSE_OF_FAULT_TIME, CAUSE_OF_FAULT_COMMENT, AFFECTED_PRODUCT
InsertFaultInfo2	Inserts fault data into the QSP database using the control identity as key.	CAUSE_OF_FAULT, CAUSE_OF_FAULT_TIME, CAUSE_OF_FAULT_COMMENT, AFFECTED_PRODUCT
UpdateFaultInfo	Updates fault data into the QSP database.	CAUSE_OF_FAULT, CAUSE_OF_FAULT_TIME, CAUSE_OF_FAULT_COMMENT
InsertFaultTimeInfo	Insert fault time data into the QSP database.	CAUSE_OF_FAULT_TIME
GetTestAndFaultInfo	Returns both test and fault data for a unit with the IDNumber as key.	CONTROL_DATA, CONTROLLED_UNIT, DETECTED_SYMPTOM_OF_FAULT, CAUSE_OF_FAULT, CAUSE_OF_FAULT_TIME, CAUSE_OF_FAULT_COMMENT
GetAllActionCodes	Returns all defined action codes	ALLOWED_ACTION
GetAllFaultCategories	Returns all defined fault categories.	FAULT_CATEGORY
GetFaultCodes	Returns all fault codes matching selected fault category and/or action code	ALLOWED_FAULT, FAULT_CODE_FAULT_CATEGORY
GetAffectedProducts	Returns all affected products matching selected Control identity or FaultID or IDNumber or UserName	AFFECTED_PRODUCT, CAUSE_OF_FAULT
GetFaults	Returns all faults matching selected Control identity or FaultID or IDNumber or UserName	CAUSE_OF_FAULT, ALLOWED_FAULT, ALLOWED_ACTION, PRODUCT_RELATION, CAUSE_OF_FAULT_COMMENT, AFFECTED_PRODUCT, DETECTED_SYMPTOM_OF_FAULT
GetFaultCount	Returns the number of faults matching selected control identity or FaultID or IDNumber or UserName	CAUSE_OF_FAULT, ALLOWED_FAULT, ALLOWED_ACTION, PRODUCT_RELATION,

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		CAUSE_OF_FAULT_COMMENT, AFFECTED_PRODUCT, DETECTED_SYMPTOM_OF_FAULT PRODUCT_RELATION, PRODUCT
GetProductChildren	Returns the products that are children to selected product number and r-state.	PRODUCT_RELATION, PRODUCT
GetMeasurements	Returns the measurement info matching the selected Control identity or IDNumber or Result.	CONTROLLED_UNIT, DETECTED_SYMPTOM_OF_FAULT
GetTests	Returns the tests matching the selected Control identity or IDNumber or Result. More selection criteria can be selected.	CONTROL_DATA, CONTROLLED_UNIT, AREA
GetTestCount	Returns the number of tests matching the selected Control identity or IDNumber or Result. More selection criteria can be selected.	CONTROL_DATA, CONTROLLED_UNIT, AREA
GetSystemInfo	Returns the name of the QSP-database server, the QSP-database version, the TFQWebService version, the company name and the site location.	QSP_SYSTEM
GetTableUpdates	Returns a list of tables and their last update time.	TABLES_UPDATES
GenericXML	Takes an XML-string as input parameter. A tag in the XML-string determines which of the following function that shall be executed: <ul style="list-style-type: none"> • InsertTestInfo • UpdateTestInfo • UpdateTestInfo2 • InsertFaultInfo • InsertFaultInfo2 • UpdateFaultInfo • InsertFaultTimeInfo <p>The content of the XML-string will vary depending on the selected function.</p>	The same tables as the corresponding function to be executed.
CheckAndCreateModelling	Checks if given modeling exists and creates it if not found.	AREA, LINE, CONTROL_CATEGORY, PRODUCT, REPORT_PLACE, CONTROL_PLACE
CheckAndCreateComponent	Checks if product relation exists and creates it if needed.	PRODUCT, PRODUCT_RELATION
InsertFaultInfoAOI	Inserts fault and aoi data into the QSP database.	CAUSE_OF_FAULT, CAUSE_OF_FAULT_TIME, CAUSE_OF_FAULT_COMMENT, AFFECTED_PRODUCT CAUSE_OF_FAULT_AOI
GetDBVersion	Gets database version of QSP database. Can be used for	QSP_SYSTEM

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3 FUNCTIONS

The public functions available in the Webservice are described in this section.

3.1 InsertTestInfo

This function inserts test data into the QSP database. The data entered as parameters to the function is usually produced by a test station when a test is performed on a specific unit.

3.1.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
IDNumber	String	Y	In	The serial number/ID-number for the unit being tested.
Area	String	Y	In	The name of the area where the unit was tested.
ProductionLine	String	Y	In	The name of the production line where the unit was tested.
TestCategory	String	Y	In	The name of the test category where the unit was tested.
ProductNumber	String	Y	In	The product number for the unit being tested.
RState	String	Y	In	The R-state for the unit being tested.
TimeForControl	DateTime	Y	In	Contains the time when the test was performed.
TestStatus	Integer	Y	In	0 = Failed in test 1 = Passed in test
UserName	String	N	In	An identification of the sending system. To be able to use the TFQ-Report this field needs to have the value 'TNET' or the station number as a numeric string of max 4 characters. Max value is then '9999'.
MeasurementPoint	String	N	In	Holds the measurement point for a failed tested unit or an empty string if unknown. Always use the first failing measurement point.
MeasurementGroup	String	N	In	Holds the measurement group for the fault code or an empty string if unknown.
InspectedBy	String	N	In	Inspected by
AssembledBy	String	N	In	Assembled by
OrderNumber	String	N	In	The order number for the test.
IDComment	String	N	In	A comment for the tested unit.
ControllIdentity	Integer		Out	The Control Identity for the created test in the QSP database.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.1.2 Return Value

The status of the operation (true/false). Boolean

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3.2 UpdateTestInfo

This function updates test information in the QSP database.

3.2.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
IDNumber	String	Y	In	The serial number/ID-number for the tested unit. This field cannot be changed.
TimeForControl	DateTime	Y	In	The time when the test was performed. This field cannot be changed.
Area	String	Y	In	The area for the test. This field cannot be changed.
ProductionLine	String	Y	In	The line for the test. This field cannot be changed.
TestCategory	String	Y	In	The test category for the test. This field cannot be changed.
ProductNumber	String	Y	In	The product number for the tested unit. This field cannot be changed.
RState	String	Y	In	The r-state for the tested unit. This field cannot be changed.
UserName	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
MeasurementPoint	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
MeasurementGroup	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
InspectedBy	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
AssembledBy	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
OrderNumber	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
IDComment	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.2.2 Return Value

The status of the operation (true/false). Boolean

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3.3 UpdateTestInfo2

This function updates test information in the QSP database.

3.3.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
IDNumber	String	Y	In	The serial number/ID-number for the tested unit. This field cannot be changed.
Controllidentity	Integer	Y	In	The Control Identity for the created test in the QSP database. This field cannot be changed.
UserName	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
MeasurementPoint	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
MeasurementGroup	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
InspectedBy	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
AssembledBy	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
OrderNumber	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
IDComment	String	N	In	This field can be changed. If the field is blank or null the value in the database will remain unchanged.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.3.2 Return Value

The status of the operation (true/false). Boolean

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3.4 InsertFaultInfo

This function inserts fault data into the QSP database. The data entered as parameters to the function is usually produced by a fault or repair station when a fault/troubleshoot/repair activity is performed on a specific unit.

3.4.1 Parameters

Parameter name	Type	Mand	Dir	Description
Area	String	Y	In	The name of the area where the unit was tested.
ProductionLine	String	Y	In	The name of the production line where the unit was tested.
TestCategory	String	Y	In	The name of the test category where the unit was tested.
ProductNumber	String	Y	In	The product number for the unit being tested.
RState	String	Y	In	The R-state for the unit being tested.
IDNumber	String	Y	In	The serial number/ID-number for the unit being tested.
TimeForControl	DateTime	N*	In	Contains the time when the test was performed. If the parameter is not used the parameter MatchLastTestNotReported will decide how to find the corresponding test for this fault. Value <='1900-01-01 00:00:00' means not used.
MatchLastTestNotReported	Boolean	N*	In	If the parameter TimeForControl is not used this field will control how the matching control identity will be found. True: We match the latest test with no faults reported. False: We match the latest test.
UserName	String	N	In	An identification of the sending user/system.
Faults	Array of Fault Information , see chapter 3.4.2	Y	In	Holds fault information on a tested unit.
FaultIDs	Array of Integer		Out	An array of all created Fault IDs.
Message	String		Out	Holds the detailed description of the error if the function returns false.

* At least one of the parameters must be used.

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3.4.2 Fault Information (Repeating Group)

The fault information is made up from several fields. One of the fields, AffectedProducts, is also a repeating group.

Parameter name	Type	Mandatory	Description
FaultyCompProductNumber	String	Y	The product number for the faulty component on the faulty product.
FaultCompRState	String	Y	The R-state for the faulty component on the faulty product.
FaultCode	String	Y	The fault's fault code.
FaultClass	String	N	The fault's fault class. If the sending system is unable to retrieve a fault's fault class, set this field to "A".
ActionCode	String	N	The action coupled to the fault. Default value is empty string.
QuantityOfFault	Integer	N	The number of faults having the same measurement point and being reported on the same position on the tested product. Default value is 1.
RepairTime	Integer	N	Time for repair (in seconds). Default value is 0.
TroubleshootTime	Integer	N	Time for troubleshoot (in seconds). Default value is 0.
UserName	String	N	An identification of the user.
BatchNumber	String	N	The batch number for a faulty product.
Manufacturer	String	N	The manufacturer of the faulty component.
IDComment	String	N	Comment on the fault input.
ActionSuccess	String	N	'N' = Not verified 'F' = Failed 'P' = Passed Default value is 'N'.
SentToTest	String	N	Is the individual sent to test? Default value is 'N'.
SentFrom	String	N	Sent from: 'T' = Troubleshoot 'F' = Repair Default value is 'F'.
AlarmCode	String	N	Alarm code used in conjunction with ExchangedUnitID.
ExchangedUnitID	String	N	If an AlarmCode is entered this field holds the ID-number for the exchanged unit.
FaultSearchRep	String	N	Sent to: 'T' = Troubleshoot 'F' = Repair 'R' = Test Default value is 'R'.

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Parameter name	Type	Mandatory	Description
StationID	String	N	An identification of the sending repair station.
UserProfile	String	N	Identification of the activity. 'R' = Repair, 'P'= PreTroubleshoot, 'T'= Troubleshoot. Default value is 'R'
AffectedProducts	Array of Affected Product Information , see chapter 3.4.3	Y	Holds affected products information on a tested unit. See additional information in chapter 3.4.3 .

3.4.3 Affected Product Information (Repeating Group)

The affected product information is made up from the following fields.

Parameter name	Type	Mandatory	Description
Level	Integer	Y	The level in the product structure. Top tested product has level = 0.
ProductNumber	String	Y	The affected product's product number.
RState	String	Y	The affected product's R-state.
Position	String	Y	The position of the subordinate affected product. For the last affected product, this is the same as the faulty component's position.
Status	String	N	The product status 'T' = Tested, 'F' = Faulty. The faulty product has status = 'F', all others has status = 'T'. Default value is 'T'.
IDNumber	String	N	The ID number for the affected product.

3.4.4 Return Value

The status of the operation (true/false). Boolean

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3.5 InsertFaultInfo2

This function inserts fault data into the QSP database using the control identity and the ID-Number as key. The data entered as parameters to the function is produced by a fault or repair station when a fault/troubleshoot/repair activity is performed on a specific unit.

3.5.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
ControllIdentity	Integer	Y	In	An identification of the corresponding test
IDNumber	String	Y	In	The serial number/ID-number for the tested unit which a faulty reported individual was mounted in.
UserName	String	N	In	An identification of the sending user/system.
Faults	Array of Fault Information , see chapter 3.4.2	Y	In	Holds fault information on a tested unit.
FaultIDs	Array of Integer		Out	An array of all created Fault IDs.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.5.2 Return Value

The status of the operation (true/false). Boolean

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3.6 UpdateFaultInfo

This function updates fault information in the QSP database.

3.6.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
FaultID	Integer	Y	In	The fault ID for the fault information that should be changed. This fault ID must exist in the database. Cannot be changed.
FaultCode	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
FaultClass	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
ActionCode	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
BatchNumber	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
UserName	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
Manufacturer	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
IDComment	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
QuantityOfFault	Integer	N	In	This field can be changed. If the field is <0 the value in the database will remain unchanged.
RepairTime	Integer	N	In	This field can be changed. If the field is <0 the value in the database will remain unchanged.
TroubleshootTime	Integer	N	In	This field can be changed. If the field is <0 the value in the database will remain unchanged.
ActionSuccess	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
SentToTest	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
SentFrom	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.

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Parameter name	Type	Mand.	Dir.	Description
AlarmCode	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
ExchangedUnitID	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
FaultSearchRep	String	N	In	This field can be changed. If the field is empty or null the value in the database will remain unchanged.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.6.2 Return Value

The status of the operation (true/false). Boolean

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3.7 InsertFaultTimeInfo

This function inserts the fault time information for an existing faultID in table cause_of_fault_time the QSP database. A new record will be created in table cause_of_fault_time and the field fault_order will be increased by 1 for each new record.

3.7.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
FaultID	Integer	Y	In	The fault ID for the fault information that should be added. This fault ID must exist in the database.
StationID	String	N	In	An identification of the sending (test)station.
UserName	String	N	In	An identification of the sending user/system.
UserProfile	String	N	In	Identification of the activity. 'R' = Repair, 'P'= PreTroubleshoot, 'T'=Troubleshoot. Default value is 'R'.
UserProfileTime	Integer	N	In	Time for UserProfile activity (in seconds). Default value is 0.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.7.2 Return Value

The status of the operation (true/false). Boolean

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3.8 GetTestAndFaultInfo

This function returns test and fault information regarding an ID-Number. If a TimeForControl is supplied all data specific to this test is returned else data for all tests is returned.

3.8.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
IDNumber	String	Y	In	The serial number/ID-number for the tested unit.
TimeForControl	DateTime	N	In	Contains the time when the test was performed. Value < ='1900-01-01 00:00:00' means not used. In this case the test and fault data connected to all tests for the ID-Number will be returned.
TestAndFaultInfo	Array of TestAndFault Information , see chapter 3.8.2		Out	Contains the test and fault data for the ID-Number.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.8.2 TestAndFault Information (Repeating Group)

The TestAndFault Information is made up from the following fields.

Parameter name	Type	Description
ControllIdentity	Integer	The Control Identity for the created test in the QSP database.
TimeForControl	DateTime	Contains the time when the test was performed.
UserName	String	An identification of the sending user/system.
Area	String	The name of the area where the unit was tested.
ProductionLine	String	The name of the production line where the unit was tested.
TestCategory	String	The name of the test category where the unit was tested.
ProductNumber	String	The product number for the unit being tested.
RState	String	The R-state for the unit being tested.
TestStatus	integer	0 = Failed in test 1 = Passed in test
OrderNumber	String	The order number for the test.
MeasurementGroup	String	The measurement group for the fault code.
MeasurementPoint	String	The measurement point for the failed tested unit.
IDComment	String	The comment for the tested unit.
InspectedBy	String	Inspected by.
AssembledBy	String	Assembled by.
QuantityOfRepairs	integer	The number of repairs.

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Parameter name	Type	Description
FaultInfo	Array of Fault Information 2 , see chapter 3.8.3	Contains the fault data for the ID-Number and a specific TimeForControl.

3.8.3 Fault Information 2 (Repeating Group)

The fault information is made up from the following fields.

Parameter name	Type	Description
FaultID	Integer	The fault ID for the fault input.
FaultTime	DateTime	The timestamp for the first fault input for this faultID.
UserName	String	An identification of the sending user/system for the fault input.
ActionCode	String	The action coupled to the fault.
ActionDescription	String	The description for the action code.
BatchNumber	String	The batch number for the faulty product.
FaultClass	String	The fault's fault class.
FaultCode	String	The fault's fault code.
FaultDescription	String	The description for the fault code.
FaultyCompProductNumber	String	The product number for the faulty component on the faulty product.
FaultCompRState	String	The R-state for the faulty component on the faulty product.
QuantityOfFault	Integer	The number of faults having the same measurement point and being reported on the same position on the tested product.
RepairTime	Integer	Time for repair (in seconds).
TroubleshootTime	Integer	Time for troubleshoot (in seconds).
MeasurementPoint	String	The measurement point coupled to the fault.
Manufacturer	String	The manufacturer of the faulty component.
IDComment	String	Comment on the fault input.
ActionSuccess	String	Is action successful or failed? 'N' = Not verified 'F' = Failed 'P' = Pass
SentToTest	String	Is the individual sent to test? (Y/N)
SentFrom	String	Sent from: 'T' = Troubleshoot 'F' = Repair
AlarmCode	String	Alarm code used in conjunction with ExchangedUnitID.
ExchangedUnitID	String	Holds the ID-number for the exchanged unit.

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Parameter name	Type	Description
FaultSearchRep	String	Sent to: 'T' = Troubleshoot 'F' = Repair 'R' = Test
FaultTimeInfo	Array of FaultTime Information , see chapter 3.8.4	Holds the records stored in the table cause_of_fault_time for the FaultID.

3.8.4 FaultTime Information (Repeating Group)

Parameter name	Type	Description
FaultOrder	Integer	The order of the fault input.
StationID	String	An identification of the sending teststation.
UserName	String	An identification of the sending user/system.
UserProfile	String	An identification of the activity. 'R' = Repair, 'P' = PreTroubleshoot, 'T' = Troubleshoot.
UserProfileTime	Integer	The used time for the UserProfile activity.
FaultTimeStamp	DateTime	The timestamp for the fault input.

3.8.5 Return Value

The status of the operation (true/false). Boolean

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3.9 GetAllActionCodes

This function returns all action codes.

3.9.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
ActionCodeInfo	Array of Action Code Information , see chapter 3.9.2		Out	Contains the information for the action codes.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.9.2 Action Code Information (Repeating Group)

Parameter name	Type	Description
ActionCode	String	The action code.
Description	String	The description for the action code.

3.9.3 Return Value

The status of the operation (true/false). Boolean

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3.10 GetAllFaultCategories

This function returns all fault categories.

3.10.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
FaultCategoryInfo	Array of Fault Category Information , see chapter 3.10.2		Out	Contains the information for the fault categories.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.10.2 Fault Category Information (Repeating Group)

Parameter name	Type	Description
FaultCategory	String	The fault category.
Description	String	The description for the fault category.

3.10.3 Return Value

The status of the operation (true/false). Boolean

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3.11 GetFaultCodes

This function returns all matching fault codes.

3.11.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
FaultCategory	String	N*	In	The fault category. Empty value means not used.
ActionCode	String	N*	In	The default action code. Empty value means not used.
FaultCodeInfo	Array of Fault Code Information , see chapter 3.11.2		Out	Contains the information for the matching fault codes.
Message	String		Out	Holds the detailed description of the error if the function returns false.

*At least one of the parameters must be used.

3.11.2 Fault Code Information (Repeating Group)

Parameter name	Type	Description
FaultCode	String	The fault code.
ActionCode	String	The default action code for the fault code.
Description	String	The description for the fault code.
StdDescription	String	The standard description for the fault code.
FaultCategory	String	The fault category for the fault code.

3.11.3 Return Value

The status of the operation (true/false). Boolean

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3.12 GetAffectedProducts

This function returns all matching affected products.

3.12.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
Controllidentity	Integer	N*	In	The Control Identity for the created test. Value <0 means not used.
FaultID	Integer	N*	In	The fault ID for the fault input. Value <0 means not used.
IDNumber	String	N*	In	The serial number/ID-number for the tested unit. Empty value means not used.
UserName	String	N*	In	An identification of the sending user/system. Empty value means not used.
AffectedProducts	Array of Affected Products Information2 , See chapter 3.12.2		Out	Contains the information for the affected products.
Message	String		Out	Holds the detailed description of the error if the function returns false.

*At least one of the parameters must be used.

3.12.2 Affected Product Information 2 (Repeating Group)

The affected product information 2 is made up from the following fields.

Parameter name	Type	Description
FaultID	Integer	The fault ID for the fault input.
Level	Integer	The level in the product structure. Top tested product has level = 0.
ProductNumber	String	The affected product's product number.
RState	String	The affected product's R-state.
Position	String	The position of the subordinate affected product. For the last affected product, this is the same as the faulty component's position.
Status	String	The product status 'T' = Tested, 'F' = Faulty. The faulty product has status = 'F', all others has status = 'T' Default value is 'T'.
IDNumber	String	The ID number for the affected product.

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3.12.3 Return Value

The status of the operation (true/false). Boolean

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3.13 GetFaults

This function returns all matching faults.

3.13.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
Controllidentity	Integer	N*	In	The Control Identity for the created test. Value <0 means not used.
FaultID	Integer	N*	In	The fault ID for the fault input. Value <0 means not used.
IDNumber	String	N*	In	The serial number/ID-number for the tested unit. Empty value means not used.
UserName	String	N*	In	An identification of the sending user/system. Empty value means not used.
FaultInfo	Array of Fault Information 3 , see chapter 3.13.2		Out	Contains the matching faults.
Message	String		Out	Holds the detailed description of the error if the function returns false.

*At least one of the parameters must be used.

3.13.2 Fault Information 3 (Repeating Group)

The fault information 3 is made up from the following fields.

Parameter name	Type	Description
FaultID	Integer	The fault ID for the fault input.
Controllidentity	Integer	The Control Identity for the test.
FaultTime	DateTime	The timestamp for the first fault input for the faultID.
UserName	String	An identification of the sending user/system for the fault input.
ActionCode	String	The action coupled to the fault.
ActionDescription	String	The description for the action code.
BatchNumber	String	The batch number for the faulty product.
FaultClass	String	The fault's fault class.
FaultCode	String	The fault's fault code.
FaultDescription	String	The description for the fault code.
Position	String	The position for the fault on the faulty product.
FaultyCompProductNumber	String	The product number for the faulty component on the faulty product.
FaultCompRState	String	The R-state for the faulty component on the faulty product.

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Parameter name	Type	Description
QuantityOfFault	Integer	The number of faults having the same measurement point and being reported on the same position on the tested product.
RepairTime	Integer	Time for repair (in seconds).
MeasurementPoint	String	The measurement point coupled to the fault.
IDNumber	String	The serial number/ID-number for the tested unit.
IDComment	String	Comment on the fault input.
ExchangedUnitID	String	Holds the ID-number for the exchanged unit.

3.13.3 Return Value

The status of the operation (true/false). Boolean

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3.14 GetFaultCount

This function returns the number of matching faults.

3.14.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
Controllidentity	Integer	N*	In	The Control Identity for the created test. Value <0 means not used.
FaultID	Integer	N*	In	The fault ID for the fault input. Value <0 means not used.
IDNumber	String	N*	In	The serial number/ID-number for the tested unit. Empty value means not used.
UserName	String	N*	In	An identification of the sending user/system. Empty value means not used.
FaultCount	Integer		Out	Contains the number of matching faults.
Message	String		Out	Holds the detailed description of the error if the function returns false.

*At least one of the parameters must be used.

3.14.2 Return Value

The status of the operation (true/false). Boolean

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3.15 GetProductChildren

This function returns all children to a specific product.

3.15.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
ProductNumber	String	Y	In	The parent's product number
RState	String	Y	In	The parent's r-state
ProductChildInfo	Array of Product Child Information , see chapter 3.15.2		Out	Contains the product information for the matching children.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.15.2 Product Child Information (Repeating Group)

Parameter name	Type	Description
ProductNumber	String	The child's product number.
RState	String	The child's r-state
Position	String	The position for the child.
Description	String	The description for the child product.
ProductName	String	The name of the child product.

3.15.3 Return Value

The status of the operation (true/false). Boolean

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3.16 GetMeasurements

This function returns all matching measurements.

3.16.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
Controllidentity	Integer	N*	In	The Control Identity for the test. Value <0 means not used.
IDNumber	String	N*	In	The serial number/ID-number for the tested unit. Empty value means not used.
Result	String	N	In	The result of the test 'T' = Pass 'F' = Fail Empty value means not used.
MeasurementInfo	Array of Measurement Information , see chapter 3.16.2		Out	Contains the matching measurements.
Message	String		Out	Holds the detailed description of the error if the function returns false.

*At least one of the parameters must be used.

3.16.2 Measurement Information (Repeating Group)

Parameter name	Type	Description
Controllidentity	integer	The Control Identity for the test.
IDNumber	String	The serial number/ID-number for the tested unit.
MeasurementGroup	String	The measurement group
MeasurementPoint	String	The measurement point (symptom code)

3.16.3 Return Value

The status of the operation (true/false). Boolean

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3.17 GetTests

This function returns all matching tests.

3.17.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
ControllIdentity	Integer	N*	In	The Control Identity for the test. Value <0 means not used.
IDNumber	String	N*	In	The serial number/ID-number for the tested unit. Empty value means not used.
Result	String	N*	In	The result of the test 'T' = Pass 'F' = Fail Empty value means not used.
Area	String	N	In	The area. Empty value means not used.
ProductionLine	String	N	In	The production line. Empty value means not used.
TestCategory	String	N	In	The test category. Empty value means not used.
TimeForControl	DateTime	N**	In	The time for the test.
TimeForControlStart	DateTime	N**	In	Start time for interval
TimeForControlEnd	DateTime	N**	In	End time for interval
TestInfo	Array of Test Information , see chapter 3.17.2		Out	Contains the matching faults.
Message	String		Out	Holds the detailed description of the error if the function returns false.

*At least one of the parameters must be used.

**Only single timestamp OR interval OR none of them can be used at the same time.

3.17.2 Test Information (Repeating Group)

Parameter name	Type	Description
ControllIdentity	integer	The Control Identity for the test.
IDNumber	String	The serial number/ID-number for the tested unit.
ProductNumber	String	The product number for the tested product
RState	String	The r-state for the tested product
ControlSuccession	Integer	The number of tests made on this unit on this location
Area	String	The area for the test.
ProductionLine	String	The production line for the test.
TestCategory	String	The test category for the test.

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Parameter name	Type	Description
UserName	String	An identification of the sending user/system.
TimeForControl	DateTime	The time for the test
OrderNumber	String	Order number
Result	String	The result of the test 'T' = Pass 'F' = Fail

3.17.3 Return Value

The status of the operation (true/false). Boolean

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3.18 GetTestCount

This function returns the number of matching tests.

3.18.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
Controllidentity	Integer	N*	In	The Control Identity for the test. Value <0 means not used.
IDNumber	String	N*	In	The serial number/ID-number for the tested unit. Empty value means not used.
Result	String	N*	In	The result of the test 'T' = Pass 'F' = Fail Empty value means not used.
TimeForControl	DateTime	N**	In	The time for the test. Value <= '1900-01-01 00:00:00' means not used.
TimeForControlStart	DateTime	N**	In	Start time for interval. Value <= '1900-01-01 00:00:00' means not used.
TimeForControlEnd	DateTime	N**	In	End time for interval. Value <= '1900-01-01 00:00:00' means not used.
TestCount	Integer		Out	Contains the number of matching tests.
Message	String		Out	Holds the detailed description of the error if the function returns false.

*At least one of the parameters must be used.

**Only single timestamp OR interval OR none of them can be used at the same time. If interval is used both the start value and the end value must be specified.

3.18.2 Return Value

The status of the operation (true/false). Boolean

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3.19 GetSystemInfo

3.19.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
QSPServer	String		Out	Name of the QSP-database server from the TNET_PARAMS table in the Testnet database.
DBVersion	String		Out	The QSP-database version from the QSP_SYSTEM table in the QSP database.
TFQWebServiceVersion	String		Out	Version on the TFQWebService.
CompanyName	String		Out	Company name from the QSP_SYSTEM table in the QSP database.
Location	String		Out	Site location from the QSP_SYSTEM table in the QSP database.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.19.2 Return Value

The status of the operation (true/false). Boolean

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3.20 GetTableUpdates

3.20.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
TableUpdate	Array of Table Update Information , see chapter 3.20.2		Out	Table name and latest update time.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.20.2 Table Update Information (Repeating Group)

Parameter name	Type	Description
TableName	String	The name of the table.
UpdateTime	DateTime	The date and time when the table was last updated.

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3.21 GenericXML

This interface is used for creating/updating data to the QSP database in Testnet. The same function will be performed as in the following interface functions:

- InsertTestInfo
- UpdateTestInfo
- UpdateTestInfo2
- InsertFaultInfo
- InsertFaultInfo2
- UpdateFaultInfo
- InsertFaultTimeInfo

The main difference is that all parameter data is in the XmlContent parameter and that the GenericXML interface function will not return any information on which control identities or fault identities that has been created as a result of the function.

3.21.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
XmlContent	String	Y	In	The content from an XML-file with a tag specifying which function to execute.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.21.2 XmlContent parameter details

The XmlContent parameter is a string with xml syntax and can be of seven different types one for each function to execute. All will be available as xml schema.

3.21.2.1 Parameter content for InsertTestInfo

```
<TFQFunction Name="InsertTestInfo">
  <IDNumber></IDNumber>
  <Area></Area>
  <ProductionLine></ProductionLine>
  <TestCategory></TestCategory>
  <ProductNumber></ProductNumber>
  <RState></RState>
  <TimeForControl></TimeForControl>
  <TestStatus></TestStatus>
  <UserName></UserName>
  <MeasurementPoint></MeasurementPoint>
  <MeasurementGroup></MeasurementGroup>
  <InspectedBy></InspectedBy>
  <AssembledBy></AssembledBy>
  <OrderNumber></OrderNumber>
  <IDComment></IDComment>
</TFQFunction>
```

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3.21.2.2 Parameter content for UpdateTestInfo

```
<TFQFunction Name="UpdateTestInfo">
  <IDNumber></IDNumber>
  <TimeForControl></TimeForControl>
  <Area></Area>
  <ProductionLine></ProductionLine>
  <TestCategory></TestCategory>
  <ProductNumber></ProductNumber>
  <RState></RState>
  <UserName></UserName>
  <MeasurementPoint></MeasurementPoint>
  <MeasurementGroup></MeasurementGroup>
  <InspectedBy></InspectedBy>
  <AssembledBy></AssembledBy>
  <OrderNumber></OrderNumber>
  <IDComment></IDComment>
</TFQFunction>
```

3.21.2.3 Parameter content for UpdateTestInfo2

```
<TFQFunction Name="UpdateTestInfo2">
  <IDNumber></IDNumber>
  <ControlIdentity></ControlIdentity>
  <UserName></UserName>
  <MeasurementPoint></MeasurementPoint>
  <MeasurementGroup></MeasurementGroup>
  <InspectedBy></InspectedBy>
  <AssembledBy></AssembledBy>
  <OrderNumber></OrderNumber>
  <IDComment></IDComment>
</TFQFunction>
```

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3.21.2.4 Parameter content for InsertFaultInfo

```

<TFQFunction Name="InsertFaultInfo">
  <Area></Area>
  <ProductionLine></ProductionLine>
  <TestCategory></TestCategory>
  <ProductNumber></ProductNumber>
  <RState></RState>
  <IDNumber></IDNumber>
  <TimeForControl></TimeForControl>
  <MatchLastTestNotReported></MatchLastTestNotReported>
  <UserName></UserName>
  <Faults>
    <Fault>
      <FaultyCompProductNumber></FaultyCompProductNumber>
      <FaultyCompRState></FaultyCompRState>
      <FaultCode></FaultCode>
      <FaultClass></FaultClass>
      <ActionCode></ActionCode>
      <QuantityOfFault></QuantityOfFault>
      <RepairTime></RepairTime>
      <TroubleshootTime></TroubleshootTime>
      <UserName></UserName>
      <BatchNumber></BatchNumber>
      <Manufacturer></Manufacturer>
      <IDComment></IDComment>
      <ActionSuccess></ActionSuccess>
      <SentToTest></SentToTest>
      <SentFrom></SentFrom>
      <AlarmCode></AlarmCode>
      <ExchangedUnitID></ExchangedUnitID>
      <FaultSearchRep></FaultSearchRep>
      <StationID></StationID>
      <UserProfile></UserProfile>
      <AffectedProducts>
        <AffectedProduct>
          <Level></Level>
          <ProductNumber></ProductNumber>
          <RState></RState>
          <Position></Position>
          <Status></Status>
          <IDNumber></IDNumber>
        </AffectedProduct>
      </AffectedProducts>
    </Fault>
  </Faults>
</TFQFunction>

```

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3.21.2.5 Parameter content for InsertFaultInfo2

```

<TFQFunction Name="InsertFaultInfo2">
  <ControlIdentity></ControlIdentity>
  <IDNumber></IDNumber>
  <UserName></UserName>
  <Faults>
    <Fault>
      <FaultyCompProductNumber></FaultyCompProductNumber>
      <FaultyCompRState></FaultyCompRState>
      <FaultCode></FaultCode>
      <FaultClass></FaultClass>
      <ActionCode></ActionCode>
      <QuantityOfFault></QuantityOfFault>
      <RepairTime></RepairTime>
      <TroubleshootTime></TroubleshootTime>
      <UserName></UserName>
      <BatchNumber></BatchNumber>
      <Manufacturer></Manufacturer>
      <IDComment></IDComment>
      <ActionSuccess></ActionSuccess>
      <SentToTest></SentToTest>
      <SentFrom></SentFrom>
      <AlarmCode></AlarmCode>
      <ExchangedUnitID></ExchangedUnitID>
      <FaultSearchRep></FaultSearchRep>
      <StationID></StationID>
      <UserProfile></UserProfile>
      <AffectedProducts>
        <AffectedProduct>
          <Level></Level>
          <ProductNumber></ProductNumber>
          <RState></RState>
          <Position></Position>
          <Status></Status>
          <IDNumber></IDNumber>
        </AffectedProduct>
      </AffectedProducts>
    </Fault>
  </Faults>
</TFQFunction>

```

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3.21.2.6 Parameter content for UpdateFaultInfo

```
<TFQFunction Name="UpdateFaultInfo">
  <FaultID></FaultID>
  <FaultCode></FaultCode>
  <FaultClass></FaultClass>
  <ActionCode></ActionCode>
  <BatchNumber></BatchNumber>
  <UserName></UserName>
  <Manufacturer></Manufacturer>
  <IDComment></IDComment>
  <QuantityOfFault></QuantityOfFault>
  <RepairTime></RepairTime>
  <TroubleshootTime></TroubleshootTime>
  <ActionSuccess></ActionSuccess>
  <SentToTest></SentToTest>
  <SentFrom></SentFrom>
  <AlarmCode></AlarmCode>
  <ExchangedUnitID></ExchangedUnitID>
  <FaultSearchRep></FaultSearchRep>
</TFQFunction>
```

3.21.2.7 Parameter content for InsertFaultTimeInfo

```
<TFQFunction Name="InsertFaultTimeInfo">
  <FaultID></FaultID>
  <StationID></StationID>
  <UserName></UserName>
  <UserProfile></UserProfile>
  <UserProfileTime></UserProfileTime>
</TFQFunction>
```

3.21.3 Return Value

The status of the operation (true/false). Boolean

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3.22 CheckAndCreateModelling

This function checks if modeling exists and creates it if needed.

3.22.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
Area	String	Y	In	The area for the test.
ProductionLine	String	Y	In	The line for the test.
TestCategory	String	Y	In	The test category for the test.
ProductNumber	String	Y	In	The product number for the tested unit.
RState	String	Y	In	The r-state for the tested unit.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.22.2 Return Value

The status of the operation (true/false). Boolean

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3.23 CheckAndCreateComponent

This function checks if component exists and creates it if needed.

3.23.1 Parameters

Parameter name	Type	Mand.	Dir.	Description
ProductNumber	String	Y	In	The product number for the tested unit.
RState	String	Y	In	The r-state for the tested unit.
Position	String	Y	In	The position of the subordinate component.
CompProductNumber	String	Y	In	The product number for the component on the tested product.
CompRState	String	Y	In	The R-state for the component on the tested product.
Message	String		Out	Holds the detailed description of the error if the function returns false.

3.23.2 Return Value

The status of the operation (true/false). Boolean

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3.24 InsertFaultInfoAOI

This function inserts fault and aoi data into the QSP database. The data entered as parameters to the function is usually produced by a AOI station when an automatic inspection is performed on a specific unit.

3.24.1 Parameters

Parameter name	Type	Mand	Dir	Description
Area	String	Y	In	The name of the area where the unit was tested.
ProductionLine	String	Y	In	The name of the production line where the unit was tested.
TestCategory	String	Y	In	The name of the test category where the unit was tested.
ProductNumber	String	Y	In	The product number for the unit being tested.
RState	String	Y	In	The R-state for the unit being tested.
IDNumber	String	Y	In	The serial number/ID-number for the unit being tested.
TimeForControl	DateTime	N*	In	Contains the time when the test was performed. If the parameter is not used the parameter MatchLastTestNotReported will decide how to find the corresponding test for this fault. Value < = '1900-01-01 00:00:00' means not used.
MatchLastTestNotReported	Boolean	N*	In	If the parameter TimeForControl is not used this field will control how the matching control identity will be found. True: We match the latest test with no faults reported. False: We match the latest test.
UserName	String	N	In	An identification of the sending user/system.
Faults	Array of Fault AOI Information , see chapter 3.24.2	Y	In	Holds fault information on a tested unit.
FaultIDs	Array of Integer		Out	An array of all created Fault IDs.
Message	String		Out	Holds the detailed description of the error if the function returns false.

* At least one of the parameters must be used.

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3.24.2 Fault AOI Information (Repeating Group)

The fault information is made up from several fields. One of the fields, AffectedProducts, is also a repeating group.

Parameter name	Type	Mandatory	Description
FaultyCompProductNumber	String	Y	The product number for the faulty component on the faulty product.
FaultCompRState	String	Y	The R-state for the faulty component on the faulty product.
FaultCode	String	Y	The fault's fault code.
FaultClass	String	N	The fault's fault class. If the sending system is unable to retrieve a fault's fault class, set this field to "A".
ActionCode	String	N	The action coupled to the fault. Default value is empty string.
QuantityOfFault	Integer	N	The number of faults having the same measurement point and being reported on the same position on the tested product. Default value is 1.
RepairTime	Integer	N	Time for repair (in seconds). Default value is 0.
TroubleshootTime	Integer	N	Time for troubleshoot (in seconds). Default value is 0.
UserName	String	N	An identification of the user.
BatchNumber	String	N	The batch number for a faulty product.
Manufacturer	String	N	The manufacturer of the faulty component.
IDComment	String	N	Comment on the fault input.
ActionSuccess	String	N	'N' = Not verified 'F' = Failed 'P' = Passed Default value is 'N'.
SentToTest	String	N	Is the individual sent to test? Default value is 'N'.
SentFrom	String	N	Sent from: 'T' = Troubleshoot 'F' = Repair Default value is 'F'.
AlarmCode	String	N	Alarm code used in conjunction with ExchangedUnitID.
ExchangedUnitID	String	N	If an AlarmCode is entered this field holds the ID-number for the exchanged unit.
FaultSearchRep	String	N	Sent to: 'T' = Troubleshoot 'F' = Repair 'R' = Test Default value is 'R'.

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Parameter name	Type	Mandatory	Description
StationID	String	N	An identification of the sending repair station.
UserProfile	String	N	Identification of the activity. 'R' = Repair, 'P'= PreTroubleshoot, 'T'= Troubleshoot. Default value is 'R'
TimeFaultInput	Date	Y	Time for fault input.
Pin	String	N	The pin/leg number of component.
Type	String	N	Algorithm used by the AOI equipment.
XPos	Double	N	X position for the fault.
YPos	Double	N	Y position for the fault.
AOIFaultCode	String	N	The error code from AOI equipment.
OperatorFaultCode	String	N	The error code from operator classification.
C	String	N	
UserId	String	N	The user making the input.
Board	String	N	Test program name.
TagSet	String	N	Possibility to inspect part of the program.
Mult	String	N	Multiple cards on one panel.
H	String	N	
RepairerId	String	N	The repair station id.
AffectedProducts	Array of Affected Product Information , see chapter 3.24.3	Y	Holds affected products information on a tested unit. See additional information in chapter 3.24.3

3.24.3 Affected Product Information (Repeating Group)

The affected product information is made up from the following fields.

Parameter name	Type	Mandatory	Description
Level	Integer	Y	The level in the product structure. Top tested product has level = 0.
ProductNumber	String	Y	The affected product's product number.
RState	String	Y	The affected product's R-state.
Position	String	Y	The position of the subordinate affected product. For the last affected product, this is the same as the faulty component's position.

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Parameter name	Type	Mandatory	Description
Status	String	N	The product status 'T' = Tested, 'F' = Faulty. The faulty product has status = 'F', all others has status = 'T'. Default value is 'T'.
IDNumber	String	N	The ID number for the affected product.

3.24.4 Return Value

The status of the operation (true/false). Boolean

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3.25 GetDBVersion

This function gets database version from QSP_SYSTEM.

3.25.1 Parameters

No parameters

3.25.2 Return Value

The database version String