

APIS IQ Software version 6.5

- Innovations -

As of: 2014-01-15 (based on update training course documents as at 2013-07-15)

History of revisions:

2014-01-15	translations integrated, text colorization, e.g. red removed
2013-05-08	additional chapters integrated, incomplete translation
2013-05-06	first edition (draft)

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1 Foreword

The following information is directed to experienced users of APIS IQ software. The catchwords found below focus on those areas of the software in which major changes took place.

This document does not replace any training in which specific questions will be clarified. A few of these topics are not dealt in-depth in the usual standard trainings. Especially filters, Functional Safety, consolidation or Graph Editor are suitable for special trainings.

Our training range can be found under <http://iq.apis.de/training>. We also offer in-house services in which the content can be tailored to your objective target.

The APIS-Team

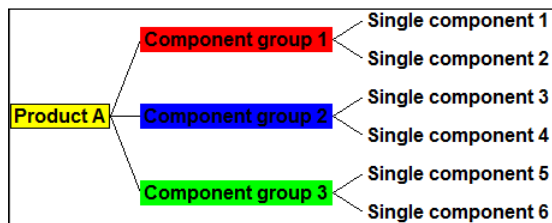
2 Object ID for other objects

So far, it was only possible to manually assign an object ID to failures. You can now assign object IDs to other object types as well.

The *object ID* can be used for viewing, searching, and filtering purposes.

3 Background color for system elements

System and process elements were provided with another object attribute, the background color, which can be used for viewing, searching, and filtering purposes.



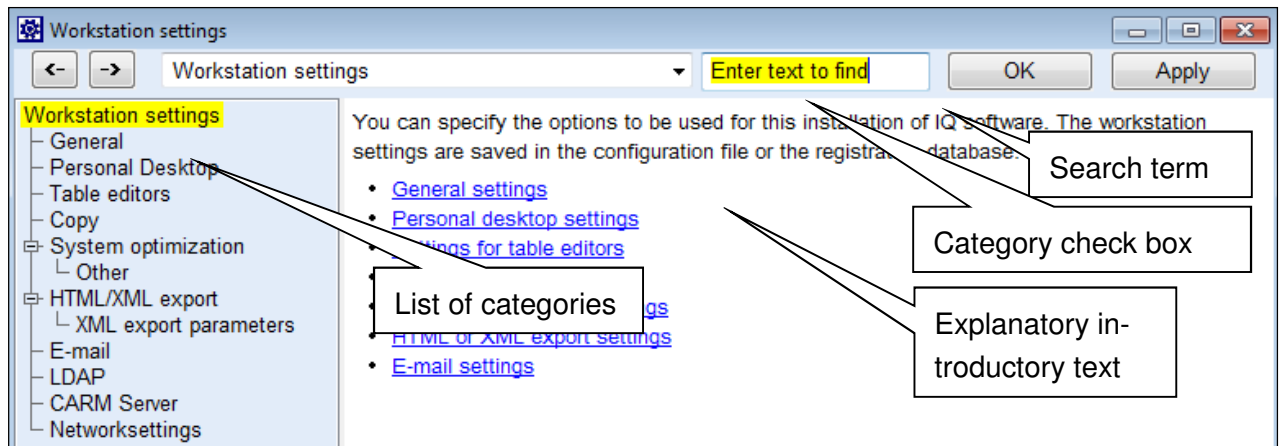
4 Show two notes categories simultaneously

If, in addition to the default notes category, there are further notes categories, one of those can be additionally shown in tables.

FMEA Forms Editor VDA 96/ VDA 06: Component group 1			
Effects	S	C	Failure mode
System element: <input checked="" type="checkbox"/> Component group 1			
content of the note for category 1			
content of the note for category 2			

5 Redesigned settings dialogs

Document and workstation settings as well as the display options have many entries. The categories are not given on *tabs* anymore, but in *hierarchical lists* on the left side or in *check boxes* at the top. The newly integrated search box makes it easier to find a specific option or setting.



6 NLX license can be logged in

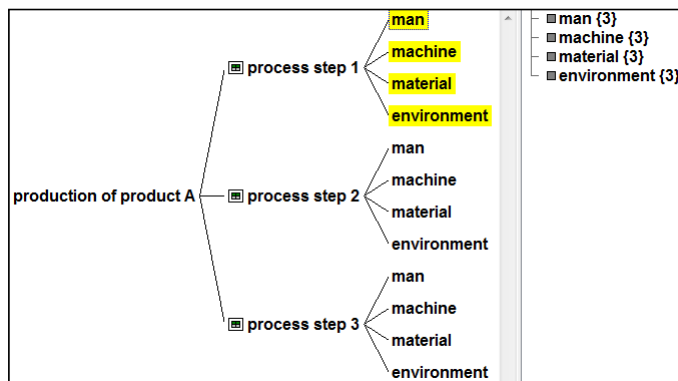
In addition to the log-out of license keys, you can now log in license keys as well.

7 Highlighting in other editors

Highlighting is now available in the Structure and the FFA Editors as well.

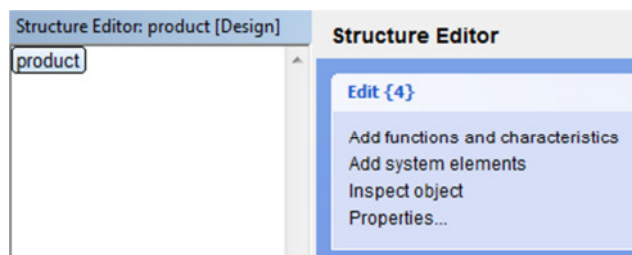
8 System/process element as typed object

Similar to previously functions and failures, system and process elements are now typed objects as well, i.e. catalog entries have occurrences and the input collector can be used.



9 Suggestion list

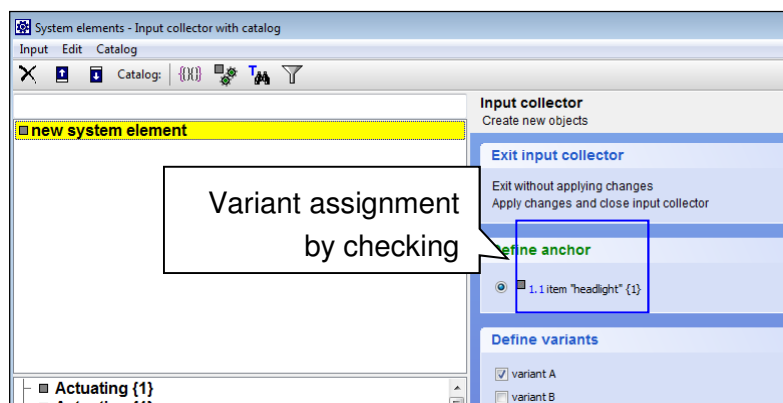
All editors have an optional suggestion list for operating purposes.



10 New input collector

The suggestion list provides you with a new input collector, which offers additional options for newly entered objects. Among other things, you use an input collector respectively to jointly record

- functions, product and process characteristics
- failures, operating conditions, failure detection and reaction.



11 Third toolbar

Information from the previous extended toolbar can now be shown in a third toolbar, thus enabling the access on insufficiently wide screens.



12 Selection color

The default selection color provided by Windows can result in awkward color combinations, such as e.g. green writing against blue background. To permanently change the selection color, you do not need to access the Windows color management anymore. A corresponding option was integrated in the IQ software.

13 User-defined view in template filed (normal.fmt)

User-defined views can now be stored in the template file (Normal.FMT) as well.

14 New reorganization options

The reorganization dialog contains new options:

- Remove automatically created entries for individual actions from meeting log
- Merge catalog entries of the same name
- Delete private PIM entries

15 Calendar weeks

The Windows system setting for the first weekday is now used, not necessarily Monday as before.

16 Conversion of requirements

It is now possible to convert requirements into product or process characteristics.

17 Structure name for effects and causes

As an additional display option, the structure name can be displayed with causes and effects.

18 Categories for action groups

The categories previously attached as object attributes to revision states, e.g. development, production, and customer operation, are now attached to action groups, i.e. they are now referred to as “Category for action groups”.

19 Cause-centered FMEA view

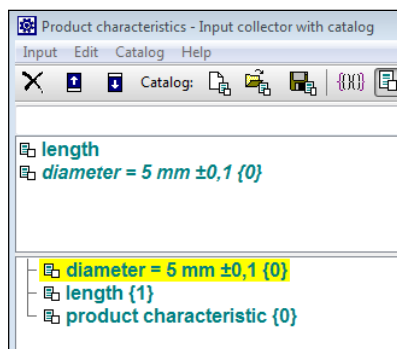
Now, there is an additional FMEA form view available, which focuses on the cause. It can be shown for each cause element.

20 Quantified risk assessment with costs

Based on the specifications of an order development, columns were integrated in the FMEA form (layout VDA 96 / VDA 06 only) enabling a cost appraisal for each failure and quantified risk assessment for failures in different project phases. The Statistics editor contains a new type of analysis called Quantified risks per project phase for the analysis of quantified risks.

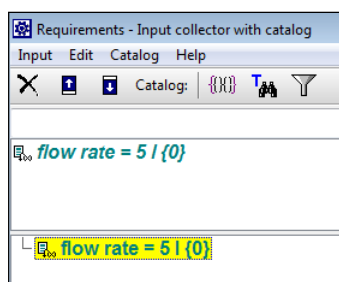
21 Characteristics with default specification

When creating occurrences of product and process characteristics, available default values are transferred into the specification section. The default values in the catalog are kind of a master.



22 Requirements with standard specification

When creating occurrences of a requirement, available default values are transferred into the specification section. The default values in the catalog are kind of a master.



23 Default value for S rating – global failure

If a failure is made a “global failure” via the context menu in the failure catalog, then the S rating will be identical for all occurrences. The S rating is stored with the type and can be changed in the catalog as well. The failure symbol is additionally marked as a global failure.

S=5  leakage

24 Background color for palette entries

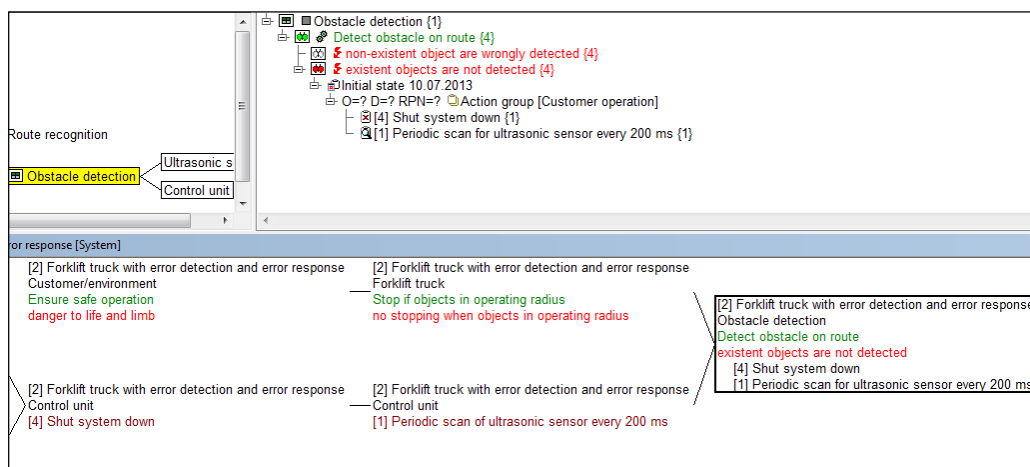
Palette entries for classification and process flow diagram can be assigned with a background color. In the process flow diagram for instance, the respective symbols are thus also represented with the background color.

25 Background color classification of action groups

Categories of action groups can be assigned with a background color. Thus, the classification will be accordingly highlighted in color in the FMEA form.

26 Mechatronics FMEA

The mechatronic objects *operating condition*, *failure detection*, and *failure reactions* from failure nets can be transferred as preventive and detection action.



or response [System]	Forklift truck with error detection and error response	Control unit
[2] Forklift truck with error detection and error response Customer/environment Ensure safe operation danger to life and limb	[2] Forklift truck with error detection and error response Forklift truck Stop if objects in operating radius no stopping when objects in operating radius	[2] Forklift truck with error detection and error response Obstacle detection Detect obstacle on route existent objects are not detected [4] Shut system down [1] Periodic scan for ultrasonic sensor every 200 ms
[2] Forklift truck with error detection and error response Control unit	[2] Forklift truck with error detection and error response Control unit	[2] Forklift truck with error detection and error response Control unit
[4] Shut system down	[4] Shut system down	[4] Shut system down
	[1] Periodic scan of ultrasonic sensor every 200 ms	[1] Periodic scan of ultrasonic sensor every 200 ms

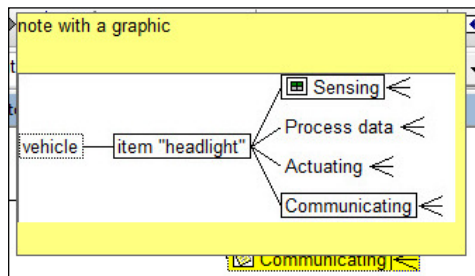
27 Deadline description in FMEA form

The attribute value “Description” for the deadline of an action can now be shown in the FMEA form.

S	C	Failure mode	C	Cause	C	Preventive action	O	Detection action
Preventive action: change shielding of plug after tests						NONE	5	tests with prototypes
Revision state: 05.03.2009								
change shielding of plug after tests						3	tests with prototype	
Seetzen, Gudrun, D-PT, Entwicklung						Santy, David, ZQS, Qualitätsentwicklung		
20.02.2009 (finished)						02.04.2009 (in progress)		
additional information for the date of the preventive action						additional information for the date of the detection action		
Revision state: 05.03.2009								

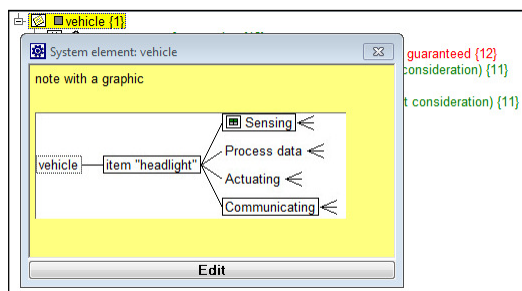
28 Notes tool tip

If the mouse pointer is located above a notes symbol, information on the note's content is shown.



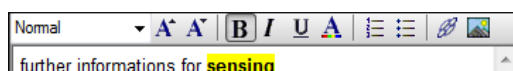
29 Editing mode for sticky notes

Sticky notes are shown when double-clicking on a notes icon, if the respective workstation setting is enabled or if the ALT key is pressed when double-clicking. This notes window now contains an "Edit" button.



30 Notes dialog with icons

A toolbar containing icons was integrated in the notes dialog.

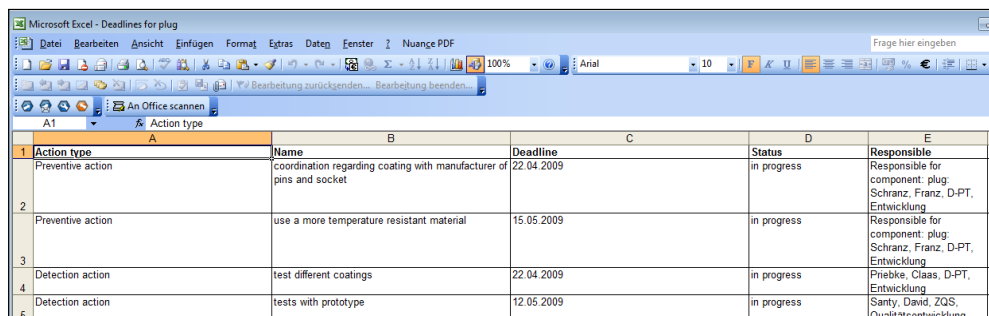


31 Excel export of tables

Tabular views of the IQ software can now be exported directly in the XLS or XLSX format. It was previously required to take a detour via HTML. The XLSX file format can also be used for the import and export in the translation sector.

32 Export and import list of actions

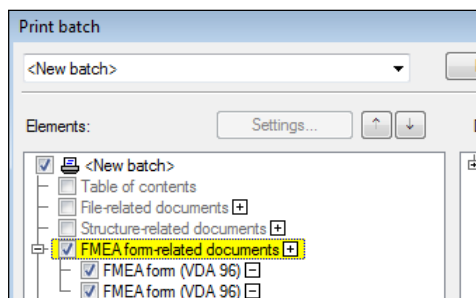
Similar to the export and import in the translations sector, the list of actions can now be exported and imported as well. It is thus possible to change the status and deadline of actions in MS Excel.



Action type	Name	Deadline	Status	Responsible
Preventive action	Coordination regarding coating with manufacturer of pins and socket	22.04.2009	in progress	Responsible for component: plug: Schranz, Franz, D-PT, Entwicklung
Preventive action	use a more temperature resistant material	15.05.2009	in progress	Responsible for component: plug: Schranz, Franz, D-PT, Entwicklung
Detection action	test different coatings	22.04.2009	in progress	Priebe, Claas, D-PT, Entwicklung
Detection action	tests with prototype	12.05.2009	in progress	Santny, David, ZGS, Qualitätsentwicklung

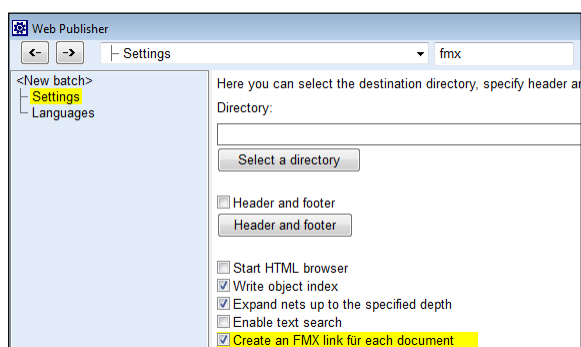
33 Presentation print and Web Publisher

The dialog to define a print or web publishing batch was fundamentally revised. It is now also possible to integrate a document several times in a batch by means of e.g. different display options.



34 Web Publisher with FMX bookmarks

FMX bookmarks can now be integrated in documents, i.e. the original FME file can then be opened from the web browser with a mouse-click.



35 Variant-specific notes

Notes cannot only be translated, but also translated specifically for variants of:

- System and process elements
- Function, characteristic, requirement
- Failure

- Revision state, action group, actions

Note: You can show and change variant-specific notes in the object inspector.

Object inspector					
Structure	Structure(V)	Name	Note	Note(V)	Miscellaneous
Attribute name		Attribute value			
1. Project					
2. [3] Forklift truck with operating conditions, error detection, and failure response					
3. Customer/environment					
4. Ensure safe operation					
Failure: 1.a.1 danger to life and limb					
Attribute name		Attribute value			
Note (Deutsch, System)					
Note (Deutsch, System) (variant 1)		relevant für Kunde A, B			
Note (Deutsch, System) (variant 2)		relevant für Kunde C, D			
Note (English, System)					
Note (English, System) (variant 1)		relevant for customer A, B			
Note (English, System) (variant 2)		relevant for customer C, D			

36 Variant-specific user-defined attribute

User-defined attributes are now variant-specific for:

- System and process elements
- Function, characteristic, requirement
- Failure
- Revision state, action group, actions

Note: You can show and change variant-specific user-defined attributes in the object inspector.

37 Variant-specific ID number

The *ID number* to be manually assigned by the user (not the *object ID* of the IQ software) is now also variant-specific for:

- System and process elements
- Function, characteristic, requirement
- Failure
- Revision state, action group, actions
- Control method/reaction plan (if the new Control Plan method is applied)

Item code:	<input type="text"/>
Number:	<input type="text" value="1.1"/>
ID number:	<input type="text" value="SE-ID"/>

Note: You can show and change variant-specific ID numbers in the object inspector.

38 Variant-specific classification

It is now possible to use a variant-specific classification for the following objects:

- System elements
- Function
- Characteristic
- Requirement
- Failure
- Revision state

39 Icon for variant-specific values

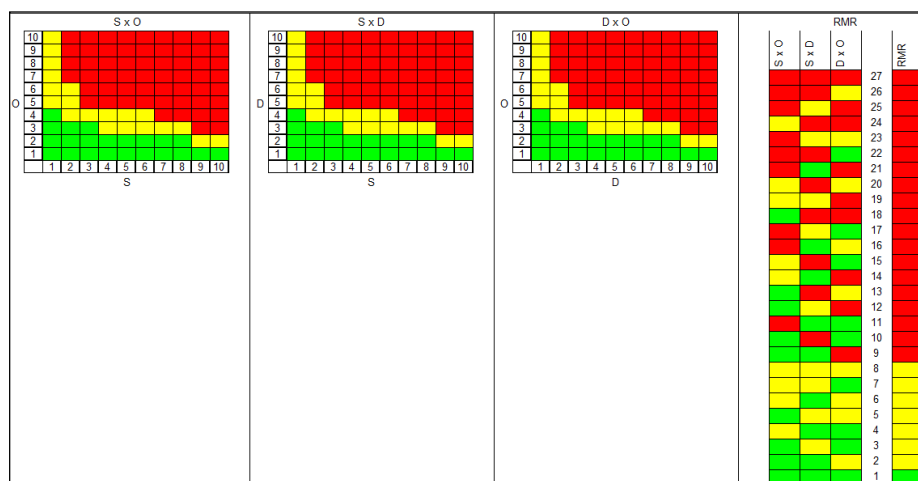
A hot-click icon is provided for the availability of variant-specific values. It can be displayed e.g. in the structure list via the display options. Double-clicking on the icon will open the object inspector.

40 Variants matrix with hierarchical list

For better navigation, there is now a hierarchical list (similar to the structure list), in which you can specifically unfold and fold parts of the list using the +/- icons.

41 Risk matrix set

Similar to valuation catalogs, there can now be several designated matrix sets with S/O, S/D, D/O. In addition, all 27 possible color combinations can be ranked. The ranking is called the Risk Matrix Ranking (RMR). Each ranking position can then again be assigned with a traffic light color.

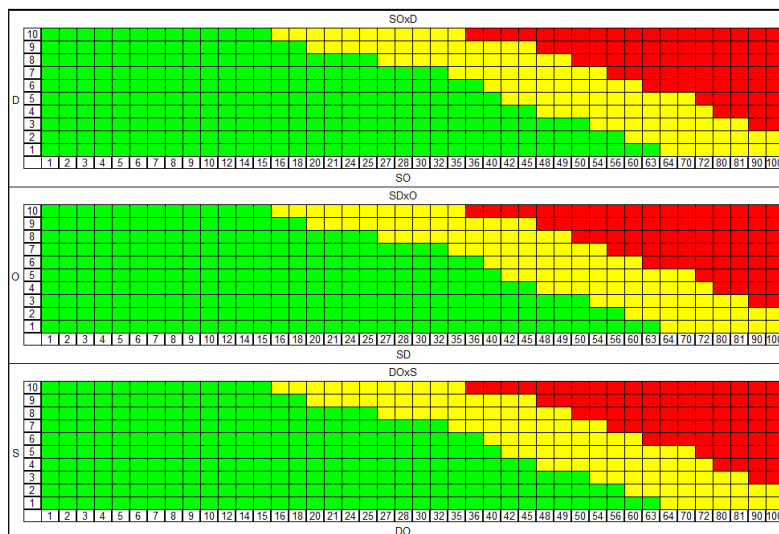


A risk matrix set can be assigned to the FME file, the project, the structure, the variant, or the FMEA form. If no risk matrix set is defined on the respective level, then the relevant risk matrix set is determined by means of the following *inheritance hierarchy*:

- Variant from structure
- Structure from project
- Project from database (FME file)
- FMEA form from database (FME file)

42 Risk matrix set for extended risk matrix

Similar to the *risk matrix sets* described above, you can also define **several** sets for the *extended risk matrix* and **assign** them as required.



43 Risk matrix and Statistics Editor

The Statistics Editor uses the assigned set (possibly through inheritance) as the basis of analysis for the analysis types risk matrix and extended risk matrix. If no set is assigned, the default set is used.

44 Risk matrix colors and RMR color in FMEA form

The colors of risk matrix sets can be additionally shown in separate columns in the FMEA form layout *VDA96/06*.

Failure mode	Cause	Preventive action	S x O	Detection action	S x D	D	D x O	RPN	RM R	R/D
body										
Assignment of connector pins to wires										
Incomplete assignment of wires to contact pins	[Constructive design of plug body] <layout of contacts> >> mechanical layout of contacts does not correspond with electrical layout	Initial state: 05.03.2009 verify measurements in CAD layout	4	tests with prototypes	4	144	144	144	144	144
			4		4					
Wrong assignment of wires to contact pins	[Constructive design of plug body] <layout of contacts> >> mechanical layout of contacts does not correspond with electrical layout	Initial state: 05.03.2009 verify measurements in CAD layout	4	tests with prototypes	4	144	144	144	144	144
			4		4					

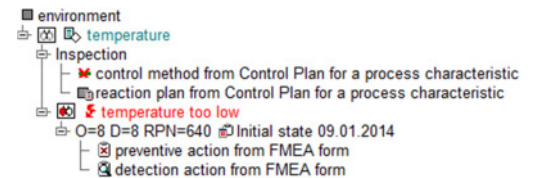
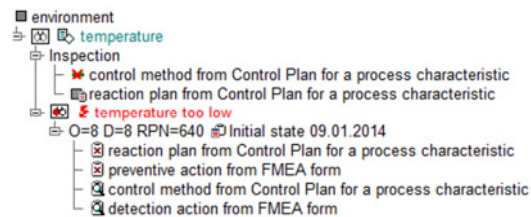
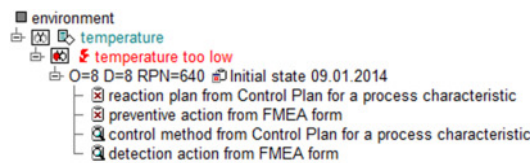
The colors in the additional columns can be used for filtering purposes.

45 Alternative Control Plan method

In FMEA, there are preventive (PA) and detection actions (DA). The Control Plan contains columns labeled control method (CM) and reaction plan (RP). In version 6, CM and RP are represented above PA and DA. Via attribute values of PA and DA, you can decide, whether a relevance to PA and DA is available. The previous handling of the Control Plan can be maintained in version 6.5.

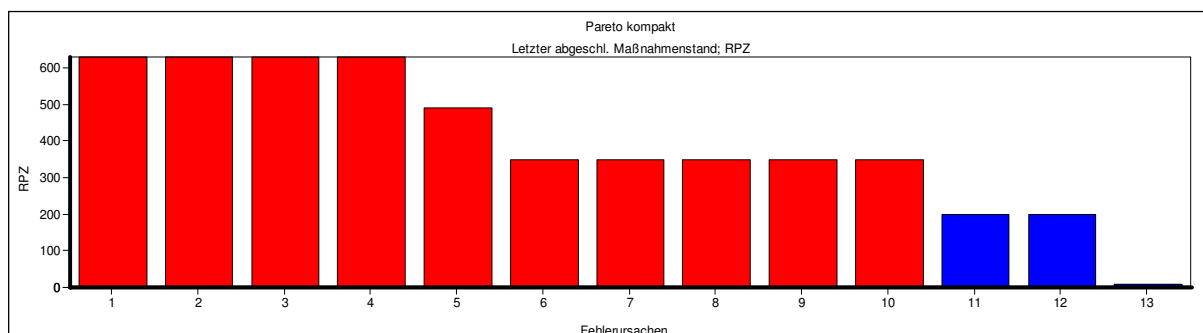
An alternative method is now available, which is called the “new Control Plan method”. Control method and reaction plan respectively are separate objects in this method.

If you decided to work with the new Control Plan method, you have to change the method in the document settings, and the data are converted by that. There is an initial redundancy, as none of the previous objects or object attributes is changed. The new objects are additionally created. The following shows an example of CP old, CP new after conversion, and CP new cleaned and edited.



46 Pareto compact

A new analytical method, “Pareto compact”, is available. In this, the color of the critical failures is different and there is no cumulative curve.



47 Pareto analyses with RMR

The RMR can be alternatively chosen in the Pareto analysis.

48 Statistic results list and Structure Editor

It is now also possible to synchronize the results list with the structure tree using the new context menu item Structure Tree.

49 Bilingual user-defined view

The content of the user-defined views can now be displayed bilingually.

50 Show different valuations

If actions have several occurrences, it is now possible to activate “Different valuations for selected action” via the context menu.

51 Highlighting filter

As you already know from the FMEA Forms Editor, you can now use the highlighting filters in the Structure Tree and Function/Failure Analysis Editors as well.

52 Redesigned filter dialog

Similar to the dialogs of Workstation settings, Document settings, and Display options, the Filter dialog was revised as well to make it easier for you to find the required individual levels/criteria and to know what they do.

53 System filter – Changes of structure version

So far, you could only use this filter to compare the structure’s content with the content of the last created structure version and have the changes displayed. Now you can define the available structure version you want to compare the structure’s content with.

54 System filter - Top-10

The category System-defined filters in the filter dialog (menu View | Filter) contains several filters for the top 10 failures. You can change the Number of worst failures for these filters to another value than 10.

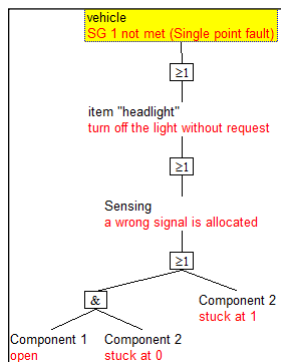
55 New filter criteria

New filter criteria were included in various filtering levels:

- IQ objekt ID
- Risk matrix color
- Back color for system elements
- DVP&R is available

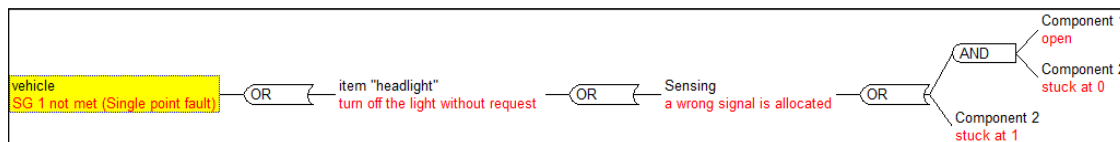
56 Fault tree (FTA) – alignment

The left-to-right alignment based on the failure net can now be realized from the top down.



57 Fault tree (FTA) – symbols

The previously used symbols according to IEC 60617-12 (1997) can now be changed to become symbols according to ANSI/IEEE 91-1984.



58 Functional Safety

One major focus within version 6.5 addresses Functional Safety.

You will find a detailed description at <http://iq.apis.de/FunctionalSafetyV65>.

Please get in touch with us if you need services for Functional Safety. Contact: training@apis.de

59 Graph Editor

The Graph Editor is a new additional editor which is especially useful analyzing Functional Safety and Mechatronic Systems.

You will find a detailed description at <http://iq.apis.de/FunctionalSafetyV65>.

Please get in touch with us if you need services for the Graph Editor. Contact: training@apis.de

60 Object Inspector - Tabs

The assignment of the various object details to the various tabs was completely revised. The *Variants* tab is not available anymore. Instead, another tab with the add-on "V" in brackets (e.g. *Note (V)*) will be provided in addition to the tab itself (e.g. *Note*).

61 Object Inspector – Icons

The various tabs of the Object Inspector provide some new icons to facilitate editing your data. Note: If the cursor is placed above one of the icons, a tooltip is shown briefly explaining its purpose.

62 Konsolidierung

One other major focus within version 6.5 addresses Consolidation.

You will find a detailed description at <http://iq.apis.de/ConsolidationV65>.

Please get in touch with us if you need services for Consolidation. Contact: training@apis.de

63 DVP&R

The Design Verification Plan and Report (DVP&R) was previously coupled to an available control plan, i.e. there was no DVP&R without a control plan. Now DVP&R is a separate report for a system element. A report can now be generated for each system element.

You can reuse available preventive and/or detection actions via Drag&Drop in the DVP&R and thus save typing work. However, no new instances of the action will be generated but only separate text copies.

Hint: It is recommended to create e.g. a user-defined attribute called "DVP&R" with the respective system elements. This user-defined attribute can be used for filtering or documenting existing DVP&R.

64 Translation

You can export an Excel file containing the contents to be translated for a translation agency. At a later point in time you import the translated Excel file. Now the IQ Software additionally creates entries containing further information on the individually detected problematic cases in the Personal Information Manager.