

1. Preliminary notes

This document describes the changes and extensions of the MSRFMEA-DTD version 2.2.1 compared to the version 2.2.0 (Documentation „msrfmea_v2_2_0.ml-eadoc.chm“).

The modified elements are listed in chapter 2. The extensions of existing element definitions are marked as red text. The new elements are listed in chapter 3. General descriptions and the documentation of the unmodelled information in SDGS are described in chapter 4. In the end there is the history of changes of this document or the DTD.

We set great store on the compatibility of the DTD. The new elements are all optional. The files „felddoku.fme“ and „felddoku.xml“ are filled from IQ-Fmea with a scheme of numbering. Using a text editor the relation between IQ-Objects and XML-Elements should be visible and where Inputfields can be found within IQ-Fmea.

2. Changes on existing Elements

When releasing the version V6.5 of IQ-Fmea the following changes were implemented:

```
<!ELEMENT MSRFMEA (
  SHORT-NAME? ,
  ADMIN-DATA? ,
  FM-HEAD? ,
  FM-TOOL-DATA? ,
  FM-STRUCTURES? ,
  FM-STRUCTURE-ELEMENT-TYPES? ,
  FM-STRUCTURE-ELEMENTS? ,
  FM-FUNCTION-TYPES? ,
  FM-FUNCTIONS? ,
  FM-CHARACTERISTIC-TYPES? ,
  FM-CHARACTERISTICS? ,
  FM-FAULT-TYPES? ,
  FM-FAULTS? ,
  FM-ACTION-TYPES? ,
  FM-ACTIONS? ,
  FM-MEASURE-SEQUENCES? ,
  FM-ERROR-DETECTIONS? ,
  FM-ERROR-RESPONSS? ,
  FM-OPERATING-CONDITION-TYPES? ,
  FM-OPERATING-CONDITIONS? ,
  FM-DRBFM-MODIFICATION-TYPES? ,
  FM-DRBFM-MODIFICATIONS? ,
  FM-FORM-SHEETS? ,
  FM-CONTROL-PLANS? ,
  FM-PROCESS-DIAGRAMS? ,
  FM-DRBFM-SHEETS? ,
  FM-PROJECTS? ,
  FM-DRBFM-PROJECTS? ,
  FM-VARIANTS? ,
  FM-USER-RIGHT-SPEC? ,
  FM-SYMBOL-SPEC? ,
  FM-ASSESSMENT-CATALOGS? ,
  FM-USERDEFINED-ATTRIBUTES? ,
  FM-SYMBOLIC-DATES? ,
  FM-MACHINES? ,
  FM-TEST-SAMPLES? ,
  FM-TEST-EQUIPMENTS? ,
  FM-FTA-NODES? ,
```

```

FM-COLLECTIONS? ,
SPECIAL-DATA? ,
MSR-PROCESSING-LOG? ,
MATCHING-DCIS? ,
LOCS?

```

```

)
>

```

The category of actions is now anchored at the actiongroups (formerly in revision states). To be compatible the element FM-CATEGORY-REFS is anchored at FM-TASK-SET and FM-TASK-SETS.

```

<!ELEMENT FM-TASK-SET (
  LONG-NAME ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  FM-USERDEFINED-ATTRIBUTE-REFS? ,
  FM-DETECTION-TASKS? ,
  FM-OCCURRENCE-TASKS? ,
  FM-EXTERNAL-ACTIONS-DETECT? ,
  FM-EXTERNAL-ACTIONS-OCCURRENCE? ,
  FM-CLASSIFICATION? ,
  FM-CATEGORY-REFS? ,
  FM-RSM-PARAMETERS? ,
  FM-ANALYSISDESKTOP-PARAMETERS? ,
  FM-DRBFM-PARAMETERS? ,
  FM-OVERLAY-IMAGE? ,
  FM-VERSION-INFO? ,
  SDGS? ,
  MISC-DATA?
)>

```

```

<!ELEMENT FM-TASK-SETS
(
  LONG-NAME ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  FM-USERDEFINED-ATTRIBUTE-REFS? ,
  DATE-1? ,
  FM-TASK-SET* ,
  FM-CLASSIFICATION? ,
  FM-CATEGORY-REFS? ,
  FM-DRBFM-PARAMETERS? ,
  FM-OVERLAY-IMAGE? ,
  FM-VERSION-INFO? ,
  SDGS? ,
  MISC-DATA?
)
>

```

The element FM-TASK-SCHEDULE was added the tag FM-START-DATE.

```

<!ELEMENT FM-TASK-SCHEDULE
(
  DATE-1 ,
  FM-START-DATE? ,

```

```

DESC? ,
ANNOTATIONS? ,
NOTIFICATION-STATE? ,
FM-SYMBOLIC-DATE-REF?

```

```

)
>

```

The usage of variant excluded machines and userdefined attributes (UDA) was changed. The logic is positive now and the visible machines and UDA are listed here. Formerly the **excluded** machines were listed in the Element FM-NET-CONNECTIONS.

```

<!ELEMENT FM-VARIANT
(
  LONG-NAME ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  FM-VARIANT-REFS? ,
  FM-COLLECTION-CONTS? ,
  FM-NET-CONNECTIONS? ,
  FM-USERDEFINED-ATTRIBUTE-REFS? ,
  FM-MACHINE-REFS? ,
  FM-VARIANT-MISC-DATAS? ,
  FM-VERSION-INFO? ,
  SDGS? ,
  MISC-DATA?
)
>

```

For the type of global actions the element FM-HISTORY-STATES was added to describe the changes of deadlines.

```

<!ELEMENT FM-ACTION-TYPE
(
  LONG-NAME ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  FM-ACTION-TYPE-DECOMPOSITION? ,
  TEAM-MEMBER-REF? ,
  FM-TASK-SCHEDULE? ,
  FM-ACTION-STATE? ,
  REMARK? ,
  FM-HISTORY-STATES? ,
  FM-VERSION-INFO? ,
  SDGS? ,
  MISC-DATA?
)
>

```

The type of characteristics can now be used as a pattern. The specification of the type is inherited to the instances of the characteristics. For this reason the element PRMS is added to FM-CHARACTERISTIC-TYPE.

```

<!ELEMENT FM-CHARACTERISTIC-TYPE

```

```
(
  LONG-NAME ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  FM-CHARACTERISTIC-TYPE-DECOMPOSITION? ,
  PRMS? ,
  FM-VERSION-INFO? ,
  SDGS? ,
  MISC-DATA?
)
```

>

Faulttypes can be used as global in V6.5 now (comparable to the global actions). Therefore the FM-SIGNIFICANCE is added.

```
<!ELEMENT FM-FAULT-TYPE
(
  LONG-NAME ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  FM-FAULT-TYPE-DECOMPOSITION? ,
  FM-SIGNIFICANCE? ,
  FM-VERSION-INFO? ,
  SDGS? ,
  MISC-DATA?
)
```

>

Regarding the topic „functional safety“ the necessary parameters are added to FM-FUNCTION.

```
<!ELEMENT FM-FUNCTION
(
  LONG-NAME ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  FM-USERDEFINED-ATTRIBUTE-REFS? ,
  FM-LINK-DESTINATIONS? ,
  FM-FUNCTION-TYPE-REF? ,
  FM-PREREQUISITES? ,
  FM-FAULT-REFS? ,
  FM-REQUIREMENTS? ,
  FM-ERROR-DETECTION-REFS? ,
  FM-ERROR-RESPONSE-REFS? ,
  FM-CLASSIFICATION? ,
  TEAM-MEMBER-REF? ,
  FM-IEC-PARAMETERS? ,
  FM-DRBFM-PARAMETERS? ,
  FM-OVERLAY-IMAGE? ,
  FM-VERSION-INFO? ,
  SDGS? ,
  MISC-DATA?
)
```

>

Again regarding the topic „functional safety“ the necessary parameters are added to FM-STRUCTURE-ELEMENT too. Furthermore the Systemelements in V6.5 are typed objects now comparable to functions, faults and actions. The needed element to reference the type of the structureelement is added here (see FM-STRUCTURE-ELEMENT-TYPE-REF).

```
<!ELEMENT FM-STRUCTURE-ELEMENT
(
  LONG-NAME ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  FM-USERDEFINED-ATTRIBUTE-REFS? ,
  FM-LINK-DESTINATIONS? ,
  PART-NUMBER? ,
  FM-STRUCTURE-ELEMENT-TYPE-REF? ,
  FM-SE-DECOMPOSITION? ,
  FM-SE-FUNCTIONS? ,
  FM-SE-CHARACTERISTICS? ,
  FM-MODULE-REF? ,
  FM-MACHINE-REFS? ,
  TEAM-MEMBER-REF? ,
  FM-FTA-PARAMETERS? ,
  FM-IEC-PARAMETERS? ,
  FM-DRBFM-PARAMETERS? ,
  FM-OVERLAY-IMAGE? ,
  FM-VERSION-INFO? ,
  SDGS? ,
  MISC-DATA?
)
```

>

In V6.5 it is possible to create reaction plans and control methods as independent objects within control plans (the behaviour can be changed with a document-setting). They are belonging to the FM-TEST-SAMPLE and they are stored in the container FM-ACTIONS but with a particular category to be differed from other FM-ACTIONS.

```
<!ELEMENT FM-TEST-SAMPLE
(
  LONG-NAME ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  FM-TEST-EQUIPMENT-REFS? ,
  FM-CONTROL-METHODS? ,
  FM-REACTIONS? ,
  PRMS? ,
  FM-VERSION-INFO? ,
  SDGS? ,
  MISC-DATA?
)
```

>

3. New defined elements

With the typed system elements the following new elements are needed:

```

<!ELEMENT FM-STRUCTURE-ELEMENT-TYPE
(
  LONG-NAME ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  FM-STRUCTURE-ELEMENT-TYPE-DECOMPOSITION? ,
  FM-VERSION-INFO? ,
  SDGS? ,
  MISC-DATA?
)
>
<!ATTLIST FM-STRUCTURE-ELEMENT-TYPE

  F-ID-CLASS  NMTOKEN #FIXED "FM-STRUCTURE-ELEMENT-TYPE"
  ID          ID      #IMPLIED
  S           CDATA   #IMPLIED
  SI          CDATA   #IMPLIED
  SYSCOND     CDATA   #IMPLIED
  T           CDATA   #IMPLIED
  VIEW        CDATA   #IMPLIED
>

<!ELEMENT FM-STRUCTURE-ELEMENT-TYPE-DECOMPOSITION
(
  FM-STRUCTURE-ELEMENT-TYPE-REF*
)
>
<!ATTLIST FM-STRUCTURE-ELEMENT-TYPE-DECOMPOSITION

  S           CDATA   #IMPLIED
  SI          CDATA   #IMPLIED
  SYSCOND     CDATA   #IMPLIED
  T           CDATA   #IMPLIED
  VIEW        CDATA   #IMPLIED
>

<!ELEMENT FM-STRUCTURE-ELEMENT-TYPE-REF
(
  #PCDATA
)
>
<!ATTLIST FM-STRUCTURE-ELEMENT-TYPE-REF

  F-ID-CLASS  NMTOKEN #FIXED "FM-STRUCTURE-ELEMENT-TYPE"
  HYNAMES     NMTOKENS #FIXED "LINKEND ID-REF"
  HYTIME      NMTOKEN #FIXED "CLINK"
  ID-REF      IDREF   #IMPLIED
  S           CDATA   #IMPLIED
  SI          CDATA   #IMPLIED
  SYSCOND     CDATA   #IMPLIED
  T           CDATA   #IMPLIED
  VIEW        CDATA   #IMPLIED
>

<!ELEMENT FM-STRUCTURE-ELEMENT-TYPES

```

```
(
  FM-STRUCTURE-ELEMENT-TYPE*
)
>
<!ATTLIST FM-STRUCTURE-ELEMENT-TYPES
```

```
  S      CDATA  #IMPLIED
  SI     CDATA  #IMPLIED
  SYSCOND CDATA  #IMPLIED
  T      CDATA  #IMPLIED
  VIEW   CDATA  #IMPLIED
>
```

This is the elementdefinition of the start date (see FM-TASK-SCHEDULE):

```
<!ELEMENT FM-START-DATE
(
  #PCDATA
)
>
```

```
<!ATTLIST FM-START-DATE
```

```
  S      CDATA  #IMPLIED
  SI     CDATA  #IMPLIED
  SYSCOND CDATA  #IMPLIED
  T      CDATA  #IMPLIED
  VIEW   CDATA  #IMPLIED
>
```

This is the elementdefinition of the FM-FAILURE-RISK-INFO of the optional feature „Quantified Risk“:

```
<!ELEMENT FM-FAILURE-RISK-INFOS
(
  FM-FAILURE-RISK-INFO*
)
>
```

```
<!ATTLIST FM-FAILURE-RISK-INFOS
```

```
  S      CDATA  #IMPLIED
  SI     CDATA  #IMPLIED
  SYSCOND CDATA  #IMPLIED
  T      CDATA  #IMPLIED
  VIEW   CDATA  #IMPLIED
>
```

```
<!ELEMENT FM-FAILURE-RISK-INFO
```

```
(
  LONG-NAME? ,
  SHORT-NAME? ,
  DESC? ,
  CATEGORY? ,
  ADMIN-DATA? ,
  ANNOTATIONS? ,
  SDGS?
)
>
```

```
<!ATTLIST FM-FAILURE-RISK-INFO
  S      CDATA  #IMPLIED
  SI     CDATA  #IMPLIED
```

```

SYSCOND    CDATA    #IMPLIED
T          CDATA    #IMPLIED
VIEW       CDATA    #IMPLIED

```

>

4. General Descriptions

The general description handles fields and parts of IQ-Fmea which are not modelled as XML-Elements.

- Global actions: on behalf of readability the flag „isGlobal“ is listed two times in the SDGS of the FM-ACTION and the FM-ACTION-TYPE. They have the same meaning and value.
- Specific Fields for the Bosch-Formsheet: the header and coversheet fields fmeanumber (headerFmeaNumber), editionnumber (headerEditionNumber) and changed (headerFmeaModified) are written a second time as plain string (without HTML-Notation) into the SDGS of the FM-FORM-SHEET.

More unmodelled Values (SDGS)

FM-STRUCTURE

milOperatingTime: extension for the failure tree MB (mil)

operatingTime: extension for the failure tree MB

isMainStructure: is true if the structure is the main structure within all associated variants

numberOfInstallations: number of installations

userDefinedDegreeOfProgress: progress of the project

FM-STRUCTURE-ELEMENT

actionType: classification Klassifikation

sortedOrder: sort order of the children (functions, characteristics) of

FM-FAULT

milSignificance: Valuation (MIL)

milDataSource: MIL-source for Lambda P

occurrenceCount: ppm per time unit

timeUnit: number of time units

timeWindow: time unit (e.g. years).

FM-ACTION

supplementaryText: „description“ of the properties of a deadline

isGlobal: is „true“ for global actions

recordingMethod: recording method available in the corresponding control plan extensions

isFmedaRelevant: is used in the FMEDA-Formsheet

FM-ACTION-TYPE

isGlobal: is „true“ for global actions (see FM-ACTION)

FM-CHARACTERISTIC

isFailureRecordRelevant: Characteristic property attribut „Failure Record Sheet“

isInspectionRecordRelevant: Characteristic property attribut „Inspection record“

FM-FUNCTION-TYPE/FM-CHARACTERISTIC-TYPE

assessment: criticalFunction | sideFunction | riskyFunction | mainFunction

FM-MEASURE-SEQUENCE (measure sequencies within the ANALYSISDESKTOP)

responsibleIdentity: for responsible persons the name and the internal identity is deposited. To restore the original responsible person this identity can be used.

FM-TASK-SET

Modelliert über MISC-DATA:

notesIncidence: multi language notes to the occurrence valuation

notesDiscovery: multi language notes to the detection valuation

notesRisk: multi language notes to the RPN

TEAM-MEMBER/FM-TEAM

To reduce the differences to the ASAM-Element TEAM-MEMBER the element FM-VERSION-INFO needed for referenced Persons within structure versions is not used. Therefore the poolTypeInfo showing that this is an element of a structure version is written into the SDGS:

LdapId: the ID used in the LDAP system if available

FM-CATEGORY-REFS

The concept of the userdefined attributes (UDA) was generalized to categories of actions, notes and functions. These categories are implemented similar to the UDA. For this reason the FM-CATEGORY-REFS contains a list of FM-USERDEFINED-ATTRIBUTE-REF. The categories are written into the container FM-USERDEFINED-ATTRIBUTES as well.

Fieldassignments

Together with the IQ-Fmea software there are some examples in the subdirectory Data/XML delivered. Especially the files felddoku.fme and felddoku.xml containing IQ-Objects with their corresponding XML-Elementname. These names and descriptions should be found in the xml document and a relation to the corresponding Object or field within IQ-Fmea should be evident.

Description of the names of fields in the header and cover sheets

General:

Internal field name => field name used in IQ-Fmea (Userinterface)

The contents of the fields are the values of the corresponding XML-Element. (visible in user-cover-sheet, fm-form-header and misc-data)

Header and other forms:

Fieldname => Contents of the field; this pairs are stored generally in the SDG or MISC:

Cover sheets => user-cover-sheets

Header of form sheets => fm-form-header

ControlPlan-Header:

headerPrototype => Prototype

headerPrelaunch => Prelaunch

headerProduction => Production

headerPlanNumber => Control Plan number

headerPartNumber => Part number

headerPartName => Part name/Description

headerSupplierName => Supplier/plant

headerSupplierCode => Supplier code

headerKeyContact => Key contact/Phone

headerCoreTeam => Core team

headerSupplierDate => Supplier/Plant approval/Date

headerOtherApproval => Date/Other approval (if required)

headerDateCreated => Date of initial approval

headerDateModified => Date of revision

headerEngineerApproval => Customer engineering approval/date (if required)

headerQualityApproval => Customer quality approval/date (if required)

headerOther => Date/Other approval (if required)

Formsheet-Header:

headerStructureType => Type

headerFmeaNumber => Number

headerTypeModel => Typ/Modell/Fertigung/Charge

headerModelYears => Model year(s)/vehicle(s)

headerStructItemCode => Item code

headerStructState => Revision state

headerStructResponsible => Responsible

headerStructCompany => Company

headerStructCreated => Created

headerStructureElement => FMEA/system element

headerFmeaResponsible => Responsible

obsolet: headerProcessResponsible => (value of headerFmeaResponsible)

obsolet: headerDesignResponsible => (value of headerFmeaResponsible)

headerKeyDate => Completion date

headerPreparedBy => Prepared by

headerFmeaState => Revision state

headerFmeaCompany => Company

headerDescription11 => Field 1

headerDescription12 => Field 2

headerDescription13 => Field 3

headerDescription21 => Field 4

headerDescription22 => Field 5

headerDescription23 => Field 6

headerFmeaNumber => Number

headerTeam => Team

headerItemCode => Item code

headerDateCreated => Created

headerDateModified => Modified

headerProduct => Product

headerFmeaItemCode => Item code
headerSubsystem => Subsystem
headerDrawings => Drawings
headerSupplier => Supplier/plant
headerFmeaType => FMEA type
headerIssue => Issue
headerFmeaDept => DEPT.
headerFmeaCreated => Created
headerDocuments => Documents
headerDiagrams => Function diagrams
headerFmeaModified => Modified
headerComponent => Component
headerSystem => System
headerSpecification => Speziifikation
headerAircraft => Aircraft

Process-Diagramm-Header:

headerProgram => Program
headerPartNumber => Part number
headerPartDesc => Part description
headerRevisionLevel => Revision level
headerTreatedBy => Revised by
headerDateCreated => Date of initial approval
headerDateModified => Date of revision

Coversheet:

actions => 3. Actions
distributor => Distributor
enclosure => 4. Attachments
originalFile => Original file at
result => Result
task => 1. Task
workGroup => Workgroup

headerCustomerDrawingIssue => Customer drawing issue
headerCustomerDrawingNumber => Customer drawing number
headerCustomerNumber => Customer(s)
headerCustomerPartNumber => Customer part number
headerDrawingIssue => Issue
headerDrawingNumber => Drawing number
headerEditionNumber => Edition no.
headerFmeaPages => FMEA pages
headerNotes => Notes
headerFmeaNumber => FMEA no.
headerFmeaType => FMEA type
headerItemCode => Item code
headerItemNumber => Item no.
headerProduct => Product
headerRevisionLevel => Revision level

Discussed items (values of the system element):

revisionLevel => Revision level
drawingNumber => Drawing number
customerPartNumber => Customer part number
customerDrawingNumber => Customer drawing number
customerDrawingIssue => Customer drawing issue
drawingIssue => Issue

Variantspecific values in fm-variant-misc-data

itemCode => Item code
deviation => Characteristics: Tolerance
operator => Characteristics: operator
unit => Characteristics: uniq
value => Characteristics: value
significance => Severity
discovery => Detection (D)
incidence => Occurrence (O)

deadline => deadline

responsible => responsible

classification => Klassifikation

FORMHEADERID => Identity for variantspecific fields in header data

COVERSHEETID => Identity for variantspecific fields in cover sheets

Classes of header and coversheets:

All additional header and coversheet classes having an identity and which may be variantspecific:

FmeaObjectInfoData

Fmea8DReport

FmeaBasicData

FmeaControlPlanHeader

FmeaCoverSheet

FmeaDrbfmHeader

FmeaEtaHeader

FmeaEvaluationHeader

FmeaFormHeader

FmeaLogData

FmeaProcessFlowHeader

FmeaQA1Header

FmeaStructureHeader

Document-Settings (doc-type-info):

dbOptionCalculateClassification => Calculate the classification of a FMEA form automatically

dbOptionControlPlanRequirementNet => Control Plan/Process Flow Diagram: Display of process characteristics is based on characteristic/function net

dbOptionCsaWebCopyDatabase => Copy database to archive domain (Carm Server)

dbOptionCsaWebCreateHtml => Create Web Publisher export files (Carm Server)

dbOptionCssModuleUpdateKeepItemCode => Keep item code when updating a module (Carm Server)

dbOptionCssModuleUpdateKeepNumber => Keep element number when updating a module (Carm Server)

dbOptionDefaultDeadlineStatus => Default deadline status

dbOptionFullyPasswordProtected => if true all users need to have a password

dbOptionFunctionEnumAsInt => Use figures to number functions

dbOptionClassificationAssignmentMode => Klassifikation (K-column) at the failure modes

dbOptionClassificationAssignmentCause => Klassifikation (K-column) at the causes

dbOptionClassificationAssignmentEffect => Klassifikation (K-column) at the effects

dbOptionRevisionStateFirstHasDeadline => Initial state must have a deadline

dbOptionRevisionStateFirstHasResponsible => Initial state must have responsibility

dbOptionNotesCategory => 1st category (notes)

dbOptionParenthesisForRisk => RPN for incomplete states in parentheses

dbOptionReadOnlyRecommended => Read-only recommended

dbOptionShowChecklist => Show "Check List" column

dbOptionTypeHierarchyNameRepresentation => Representation of outline name

dbOptionUseTypeHierarchy => Use outline

dbOptionUseCalWeekForDeadline => Show deadlines in calendar weeks

dbOptionRequirementUseUpperLowerLimit => Requirement specification: Use 'Upper limit' / 'Lower limit' instead of 'Deviation'

dbOptionShowMeasureSupplementaryText => Show supplementary text of actions as add-on for names

dbOptionControlPlanMethodStrategy => Control method/reaction plan

dbOptionControlPlanNew => Use new Control method/reaction plan if true

dbOptionFunctionalSafetySilType => SIL assignment based on

localRefPath => Reference path for the current document:

showRiskForVisibleEffectsOnly => Calculate S and RPN from visible effects only

effectsView => describes the strategy which effects will be shown in the formsheet. This option determines the base for the valuation of the RPN when the option „showRiskForVisibleEffectsOnly“ is active. One of the following values is set:

- effects => All (effects)
- effectsRejectDuplicates => All, but do not show duplicate effects
- effectsDirect => Direct effects only
- effectsTop => Top effects only
- effectsDirectTop => Direct and top effects
- effectsMaxSignificance => Only the effects with the highest severity

causesView => describes the strategy which causes will be shown in the formsheet. One of the following values is set:

- causesAll => All (causes)

- causesDirect => Direct causes only
- causesLeaves => Root causes only
- causesDirectLeaves => Direct causes and root causes

Meeting-Logs:

If the appropriate document setting is active, there is a set of meeting logs within any fme. They are all summarized under the SpecialData. The value (GID) is „fmeaMeetingLogs“. For each meeting log a branch with this value is created. These branches have got the following values automatically:

- timeStamp (Zeitstempel beim Export)
- identity (dient als Identifizierungsmerkmal)

These values are changeable using the userinterface:

- location
- headerNotes
- headerDateModified
- headerSubLogo
- timeStampStart
- timeStampEnd

Each meeting log is written as an SDG (Special Data Group) which contains another SDG for each entry of the meeting log. Each entry contains the following fields (must not be filled):

- identity
- itemId
- itemClass
- itemString
- itemIcon
- comment
- style
- entryType
- timeStampRaw

Remark: as meeting logs may need a lot of space within the xml file and the export may need a lot of time there's a setting in the workstation settings (category HTML/XML-EXPORT) to disable the export of the meeting logs.

Faded in actions:

Actions can be faded in within formsheets and within the structure. This means that the „faded in“ action is not really anchored at the actions group of a cause in the formsheet but at a failure mode or

effect of the cause. Because identical causes may be visible in the formsheet (as you see it in the failure net), these „fading in“ connections to the failure mode or effect must be stored at the actions group where the actions should be visible in the formsheet. Their valuation must be stored there too, because it may differ from one „fading in“ to another.

The „fading in“ uses the element FM-EXTERNAL-ACTIONS-DETECT (control) und FM-EXTERNAL-ACTIONS-OCCURRENCE (preventive) below FM-TASK-SET. Each „fading in“ contains the 3 values FM-ACTION-REF (the action to be faded in), FM-FAULT-REF (the failure mode of the cause where the action should be faded in) and RISK-PRIORITY-FACTOR (valuation).

Rules to evaluate the RPN:

The RPN of a failure cause is not clear over all positions where the cause is visible. It must be evaluated according the failure mode looked at because the failure mode has the effects with the significance used for the RPN. If it is needed to evaluate exactly one RPN for an action it is recommended to evaluate the maximum of all possible RPNs.

Postponed deadlines:

If the document-setting „Initial state must have a deadline“ (dbOptionMeasureChangeFirstHasDeadline) is not active no postponement for the first revision state (initial state) is possible. All actions of the initial state are shown as finished. One fm-history-state is created with the attribute si="statusChange" and the current timestamp (in this case the creation stamp) as value of the element fm-task-schedule, finished as value of fm-action-state and the misc-value "finishedHistoryInfo".

If the document-setting is activated later on the actions are handled the same way until they get a deadline and the status will be changed. From now on they will be handled as if they are anchored not at the initial state.

Actions anchored at a revision state will get an initial fm-history-state with the attribute si="define" and the current timestamp (in the first case the creation stamp) as value of the element fm-task-schedule. When the deadline is postponed the first time a next fm-history-state will be created with the attribute si="postpone" and the fm-task-schedule of the previous value. You can find the difference (postponed from to) using this value and the fm-task-schedule of the fm-action.

When just a status change is done or the same date is entered, no new fm-history-state is created.

If the document-setting is deactivated again (after some postponements) the fm-history-states of actions of the initial state will stay and will be exported.

If an action is finished a final fm-history-state will be created with the attribute si="statusChange", the misc-value "finishedHistoryInfo", the current date as value of fm-task-schedule and the state of the previous fm-history-state as value of fm-action-state (see postponements).

Description:

- „initial state“ means the first revision state of an FM-ACTION
- „revision state“ means any FM-TASK-SETS after the initial state

5. Change history

Changehistory of the DTD:

06.03.2013: during the implementation of the IQ-Fmea Version V6.5 the changes of the DTD were done by Fa. Apis

30.07.2014: Adaption of the exported document-settings (see chapter document-settings)