Description of scenario

Name – Exchange process of requirements set between OEM and RSP.

Problems and needs

The exchange and use of requirements between people within the same enterprise or in the frame of extended enterprises is quite complex because information to export could be numerous and various.

For example, requirements are generally stored in different Requirements Management tools. Each tool presents the requirements list in a table containing a set of requirements (lines) and additional information (chapters, explanation, etc.). The requirements' statuses are often defined through different columns (e.g. Requirement Status, statement, rationale, etc.). If some European Aerospace and Defence industries use IBM DOORS® for managing requirements, other tools or databases (like WinWord, Excel, Access, etc.) could be used as well.

Data representation and exchange of requirements are not well standardized even if some data models start to be properly defined. This situation drives difficulties to ensure smooth exchanges of information between different tools. She requires the development of adapters for retrieving and using the right data. Moreover, if attributes are clearly defined for requirements, they remain noted as free text. This is the case for requirement statement focusing on the expected behaviour or on the global performance of product. Therefore, to exchange a specific set of requirements' attributes from one to several stakeholders, several means supporting a standardized export of data and processes between different tools are required.

The lack of tool interoperability for the exchange and management of requirements still exists and justifies we address this issue. In this business case, the specific attributes of a set of requirements are extracted from a requirement management tool in order to be exchanged from a main actor (the Original Equipment Manufacturer - OEM) to a second actor (the risk sharing partner – RSP). The OEM sends its set of requirements to the RSP. This last one should reply with information regarding the interpretation and use of requirements. The OEM then will manage his requirements with regard to the answers given by the RSP.

Context of use case (global overview)

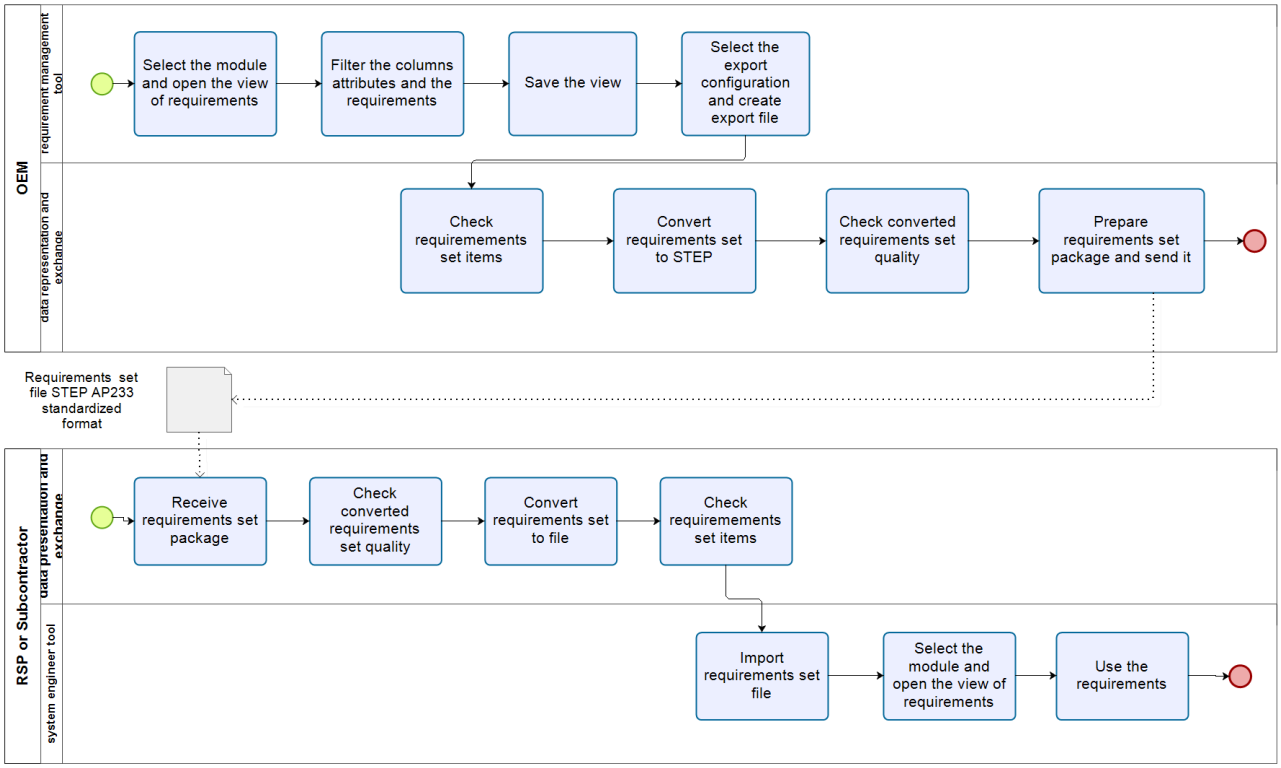
A company (customer – OEM) wants to share a Requirements Set with one or more other companies (supplier or RSP) and to get back answers from them in his RM tool Database.

Note: this present use case partially covers the global overview of the context of exchange of information between OEM and RSP.

Use case summary

Scope	The exchange of the requirements data.
Level	High Summary.
Preconditions	The two parties have a contract in place. The two parties have a Requirement Management (RM) Tool installed (or at least are able to emulate the functionality of state of-the-art RM-Tools) with STEP AP233 import/export extension.
Success End Condition	The Requirements Set with comments and information of RSP.
Failed End Condition	No Requirements Set is in the RSP RM-Tool-Database.
Primary Actor	The OEM.
Trigger	The OEM exports his Requirements Set and sends it to the RSP.

Process diagram



Scenario initiation

Request to exchange a set of requirements between two the OEM and RSP. Note: the actors use applications allowing exchange of information through nested STEP AP233.

Sequence of events within activity

Select the module and open the view of requirements: the System Engineer of OEM, through his RM tool, selects the requirements module and opens the view he wants to export.

Filter the columns attributes and the requirements: the Systems Engineer of OEM, through his RM tool, selects the columns of attributes and the requirements he wants to exchange. The columns and

requirements selected become visible in this view (the other are hidden). Note that certain attributes columns cannot be hidden for the proper exchange (i.e.: reference, requirement text, etc.). This minimum list of column attribute identifies the type of requirements exchanged.

Save the view: the System Engineer of OEM, through his RM tool, save a new view containing the information to be exchanged (requirements set and attributes).

Select the export configuration and create export file: the System Engineer of OEM, through his RM tool, selects the type of data he wants to exchange. This data could be of the following formats: .xls, .csv, .tsv, .dta, …

Check requirements set items: the quality of requirements set is checked to ensure that the proper information can be exported according to the data model and the rules for exchanging requirements. The attributes mandatory for the exchange (the other attributes are added according to the columns attributes selected by the Systems Engineer):

- Reference: to be able to refer to the requirement thanks to a tag based on a unique identifier kept during the whole lifecycle.
- Requirement text: requirement statement.

Convert requirements set: if the requirements set from the RM tool is not in the standard format agreed for the exchange, a conversion is done on the data (example: native format to AP233 conversion) and vice versa.

Check converted requirements set quality: the quality of data (structured requirements set) is checked in order to ensure that the data can be converted according to the criteria defined by standard AP233.

Prepare requirements set package and send it: create the requirements set package in the appropriate form and make it ready to send it to the receiver.

Receive requirements set package: inform the sender and the receiver that a requirements set package has been received.

Import the requirement set file: the System Engineer of RSP, through his RM tool, imports the requirements set received.

Select the module and open the view of requirements: the System Engineer of RSP selects the appropriate module containing the set of requirements and opens the view.

Use requirements set: the System Engineer of RSP, through his RM tool, uses the requirements set with regards to his activity.

Actors

OEM (actor 1):

- Selects the set of requirements to exchange.
- Manages the requirements for exchanges.
- Exchanges the requirements.

RSP (actor 2):

- Receives the set of requirements.
- Uses the requirements and add his information.

Controls

Two quality control points are listed in the process:

- Check requirements set items
- Check converted requirements set quality

Internal decision points

Not applicable.

Information flows

Requirements set file standardized format.

Scenario results

The export, exchange and import of requirements set have been processed successfully. The requirements were used efficiently.

The process of exchange failed should have possible reasons:

- Incorrect requirements set attributes selection.
- Unknown requirements set item selected.
- Wrong conversion of requirements set.
- Unknown RM tool used.
- Receiver not identified / unknown.

Exception handling

Error handling.

Performance requirements/Service level agreements

Not applicable.