Hermann Wagner (DGS-EC/ECB4)

Impact Analysis Tool Customization

1. Purpose

This document describes how the impact analysis tool (short: IA tool) can be customized by a department.

2. Indented audience

The indented audience for this document are the people who are responsible for Requirements Engineering within a department. This can be one of the following roles:

- Lead System Architect or Lead System Engineer
- Process owner for Requirements Engineering
- Department ASPICE coordinator
- Process, methods and tool responsible

3. Prerequisites

Before you read this document and start customizing the IA tool for your department, please make sure that you have read and understood the [architecture] of the tool.

4. How to

The IA tool is highly customizable. You can easily change the questions, answers, risks, actions, … (any kind of text), the lists and even the algorithm and code itself. How this can be done is described below:

1. **Design your impact analysis on paper**
   Before you start editing the different files, please take a step back and think about the design of your future impact analysis. You have to ask yourself which questions are necessary for you department.
   Example: Maybe there has been a re-occurring particular problem in the past and you want to make sure that every SWSD needs to analyse if this problem can also apply for his/her Issue. → This would be a perfect candidate for a new IA question.

   Tip 1: If you add or remove questions/answers keep in mind that your SWSDs/FNDs need to answer these questions for each single issue. Don't make the list of questions too exhaustive.

   Tip 2: The IA tool can hide questions based on answers of previous questions. Use this functionality if questions exclude each other. In this way you can reduce the effort for your colleagues. How this can be done is described in point 2.

2. **Download and adapt the text.js file (optional)**
   If you want to change the following things, the text.js file is the right choice:
   - Questions including
     - Order
     - Answers
     - Category
     - How to
     - Actions
     - Risks
     - Examples
     - Relations to other questions

   The file text.js uses parse-able JavaScript to describe the content. This means the file is good human readable (in opposite to XML) and easy to edit with any text editor.
   CAUTION: You have to make sure that you follow the JavaScript syntax or otherwise you will get an error during runtime. If you don't know JavaScript the following page gives you a good overview on the possible datatypes: http://json.org/.

   Text.js mainly consists of 3 different objects:
   - ***Initial questions***
     Contains the questions which are shown initially and is equivalent to the L2 impact analysis.

   - ***SF questions***
     Contains the questions which are shown for each selected system element and is equivalent to the L3 impact analysis. A system element can be anything you define within "system-elements.csv". By default the system elements shows the PTSA and uses the SF as selectable unit.

   - ***Infrastructure questions***
     The infrastructure questions contain questions for infrastructure units (IU). An IU is a system element which is used to implement a requirement, but only needs to be configured. Good examples for infrastructure units are: EEPROM, ComDia, ComVeh and Sw-Sharing. You can define the IUs in the file "infra.csv".

   CAUTION: Don't change the "type" of the main object unless you also change the code and you know what you are doing.

   HINT: The best way to get familiar with the file is by studying the files structure and then trying to find any text within the IA tool.

For changing the file you need to:

- Download it here
- Change the content of the file
- Upload it as attachment to your pool project

3. **Change the system-elements.csv file (optional)**
   Contains the system-elements which can be effected by a requirement. By default this is the PTSA, but you can also use the FC or BC SW-Architecture.

   For changing the file you need to:

   - Download it here
   - Change the content of the file, but make sure that you use a header
   - Upload it as attachment to your pool project

4. **Change the infra.csv file (optional)**
   Contains the system-elements which can be used by other system-elements as infrastructure units (UI). An IU is a system element which is used to implement a requirement, but only needs to be configured. Good examples for infrastructure units are: EEPROM, ComDia, ComVeh and Sw-Sharing.
   By default this list contains pre-selected PTSA elements, but you can also use the FCs or BCs.

   For changing the file you need to:

   - Download it here
   - Change the content of the file, but make sure that you use a header
   - Upload it as attachment to your pool project

5. **Change the customer.js file (optional)**
   This file allows you to add or overwrite the IA tool code. You can download an example here. This example is actually used by the ECB to:

   - Add a so-called “feature-list” to the impact analysis. The ECB only performs “change based development” for predefined features. This list allows the SWSD to identify if the issue changes or implements a feature from the feature list.
   - Overwrites automatic issue allocation: Because we additionally have a feature list, we need to change the allocation algorithm.

   CAUTION: You definitely need coding experience to change this file.

   For changing the file you need to:

   - Download it here and also download the default code of the IA tool here
   - Change the content of the file
   - Upload it as attachment to your pool project

5. Help

In case you get stuck or if you can’t follow the instructions above, you can contact the developer of the IA tool: hermann.wagner2@bosch.com.