BETA
SIMULATION SOLUTIONS

physics on screen

ANSA
PRE PROCESSOR

Build Fasteners Library

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1. Introduction

Build Fasteners Library is a collection of scripts that organizes and facilitates the saving of fasteners in DM. Though *Build from Scratch* and *Add FE Representations* wizards the creation and saving of “common” and “FE” representations in DM is significantly automated.

2. Build from Scratch

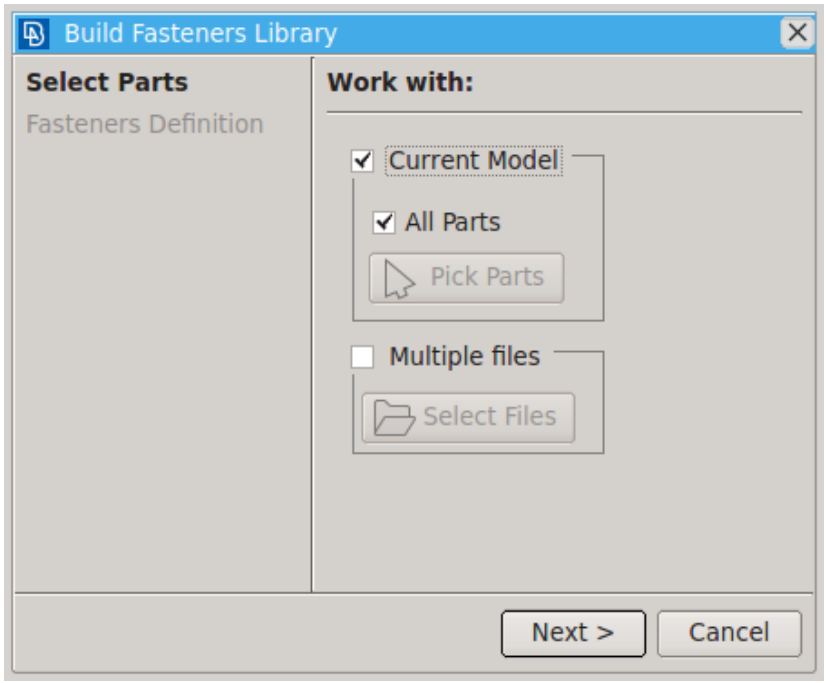
Build from Scratch plugin facilitates the saving of “common” representation of fasteners in DM.

Prerequisites to run:

1. A specified DM path.

2.1. Select Parts

On the first page of the wizard the user is prompt to define the ANSAPARTs to work on. The user can select to input the fasteners from the ANSAPARTs of the current database or from multiple external files.



2.2. Fasteners Definition

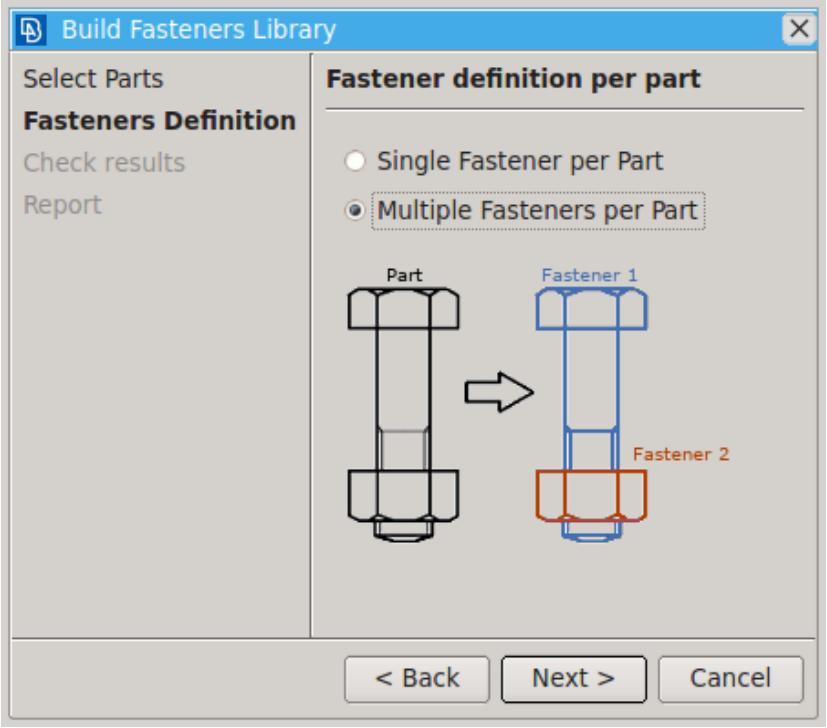
In the second page of the wizard the user has two options available:

1. Single Fastener per Part:

   One fastener will be created for each input ANSAPART.

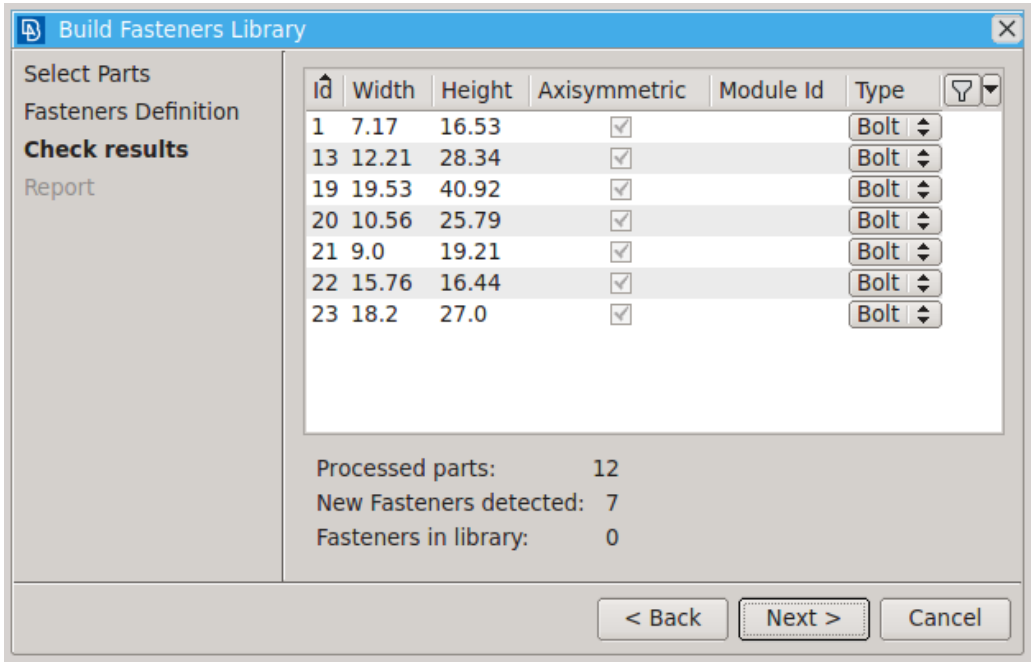
2. Multiple Fasteners per Part:

   The input ANSAPARTs will automatically split into connectivity groups. One fastener will be created out of each connectivity group.

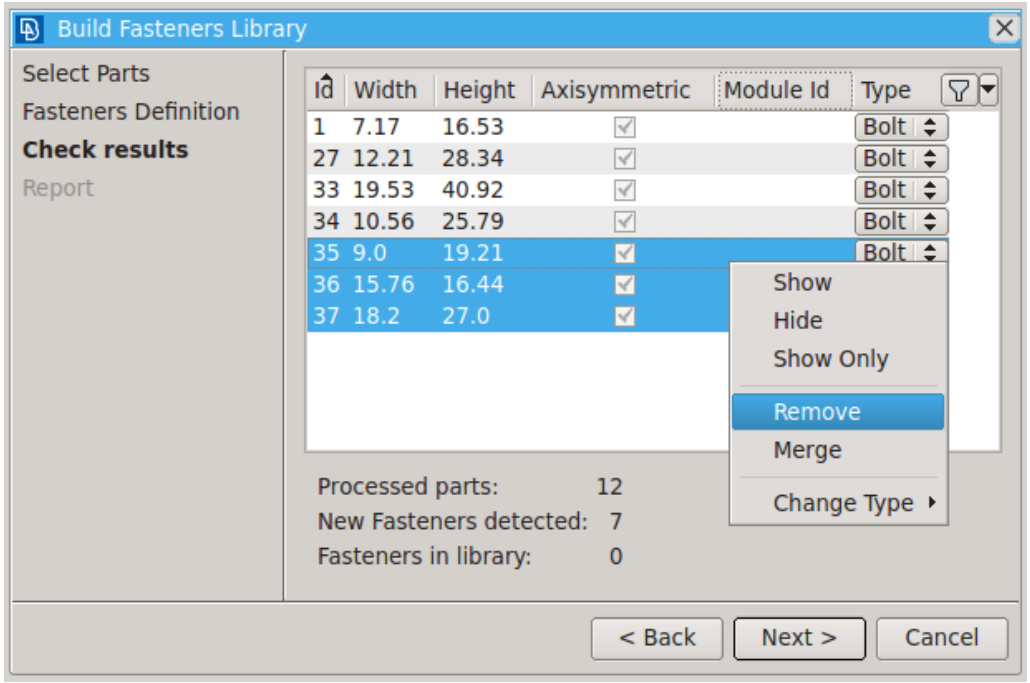


2.3. Check results

In the third page of the wizard all the detected fasteners that are going to be saved in DM are listed. Also, a small report is shown regarding how many parts were processed, how many new fasteners were detected and how many of them already exist in DM. Through the list the user can change the Type of the fastener and the Module Id.



With RMB a context menu is available. With the option “Remove” the user can remove fasteners from the list. With the option “Merge” the user can merge two or more fasteners into one.

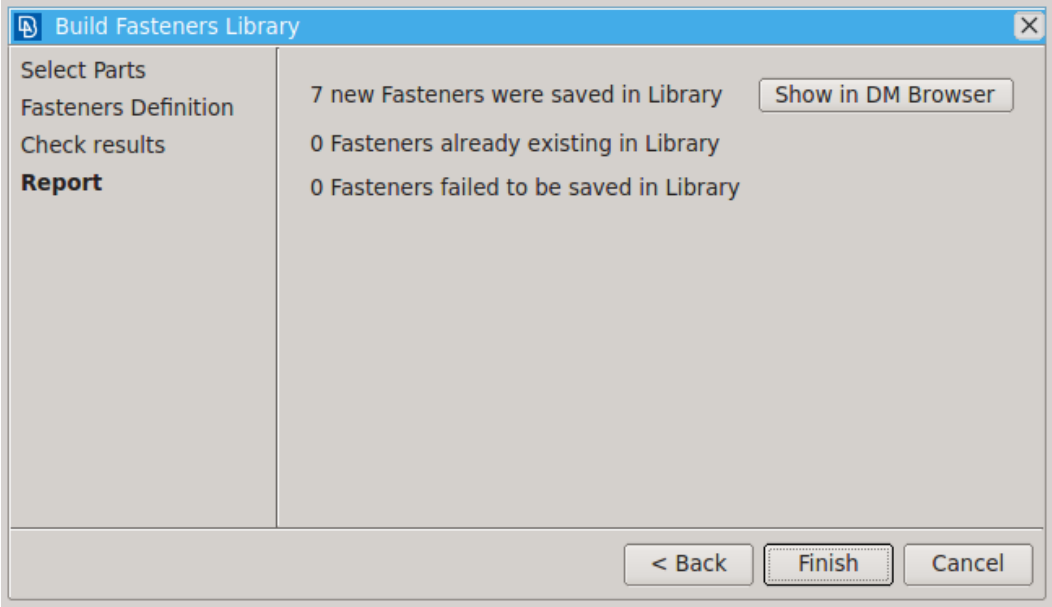


Note! : The “Check results” page is not available if “Multiple files” have been selected as input.

Finally, press the “Next” button to save **ALL** the new detected fasteners from the list in DM.

2.4. Report

The Report window will show information about the saving in DM. With the use of “Show in DM Browser” button, the user can easily check the new fasteners that were saved in DM.

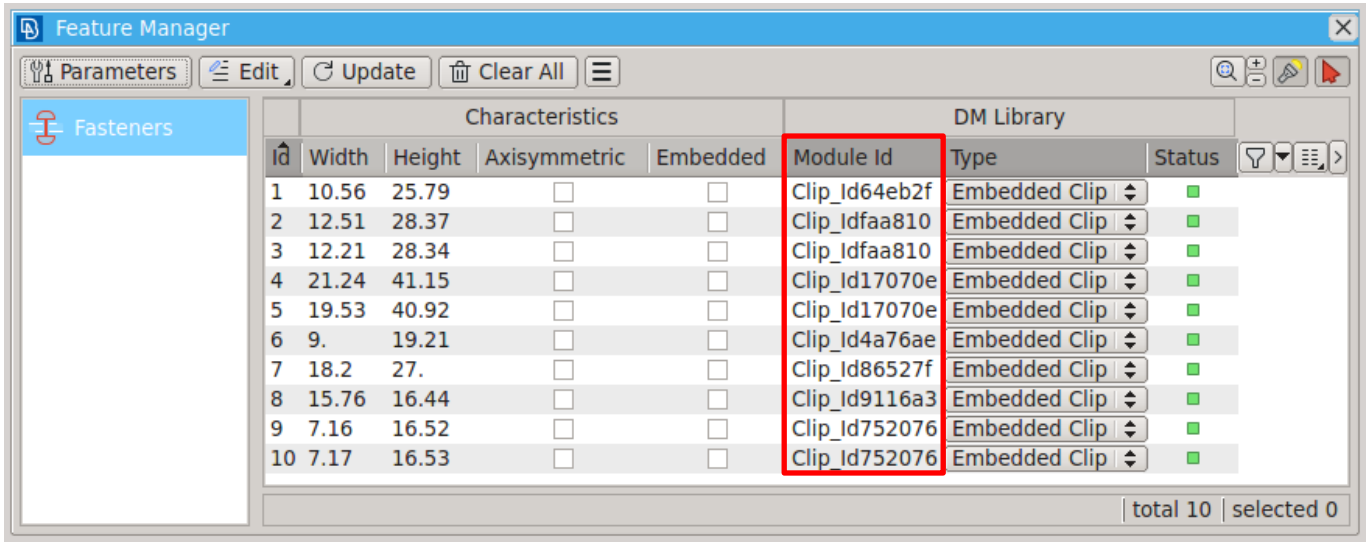


3. Add FE Representations

Add FE representations plugin facilitates the saving of fasteners FE representation in DM.

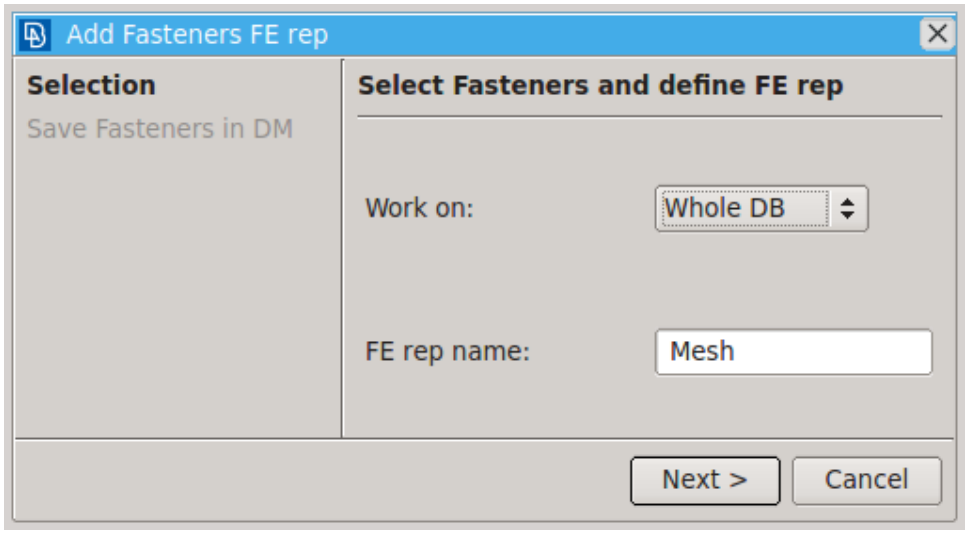
Prerequisites to run:

1. A specified DM path.
2. An input of fasteners. The fasteners “common” representation should already exist in DM. In order to check that open Feature Manager, select all fasteners and use the function **RMB>DM>Detect in DM**. If the “common” representation exists in DM, the Module Id column will automatically be filled. If the Module Id column of a fastener is not filled, this fastener will be ignored by the tool.



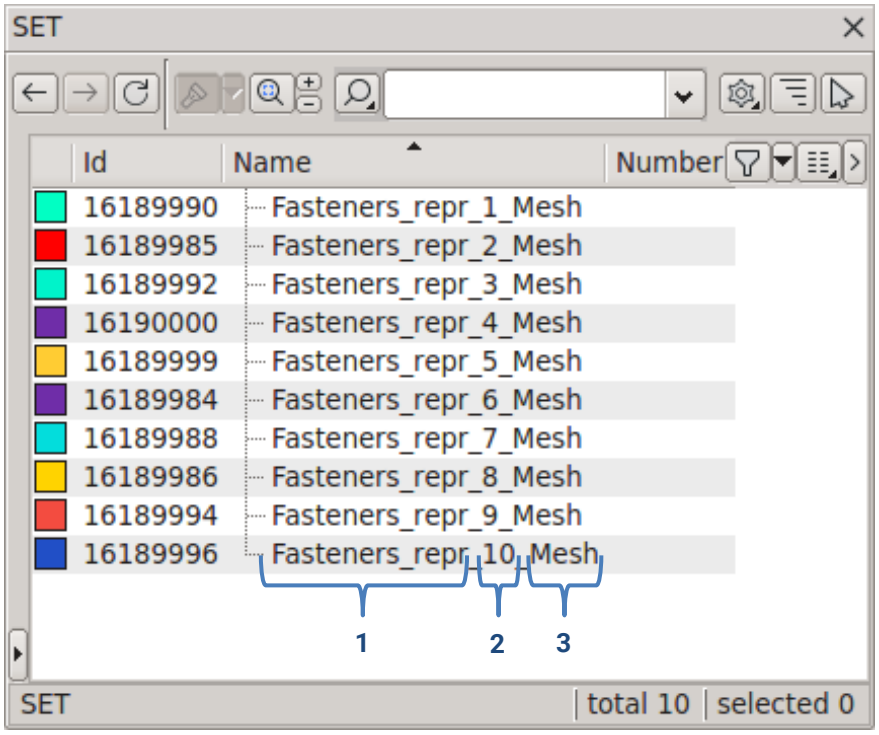
3.1. Selection

On the first page of the wizard the user is prompt to define the fasteners to work on (available options are: Whole DB, Visible and Selected) and the name of the FE representation that he wants to save in DM.



When the user presses the “Next” button, a Set for every input fastener will be created. The created Sets will automatically be filled with the FE elements that are proximal to the fastener feature. The user has to modify these Sets and assure that only the FE elements that correspond to the fastener’s FE representation will be included. The names on the respective Sets will be as following:

1. A “Fasteners_repr” prefix.
2. The Id of the corresponding fastener feature.
3. The Name of the FE representation.



Note! : If a Set already existed, it will not be re-created by the tool. The already existing Set will be used for the association of the fastener with the FE representation.

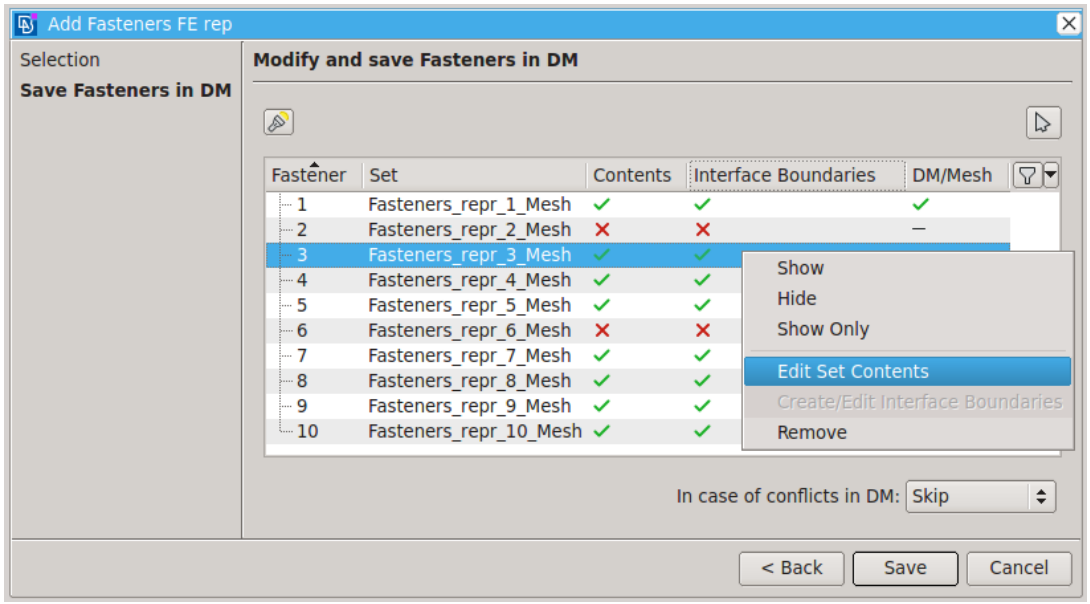
3.2. Modify and save Fasteners in DM

In the second page of the wizard a list with all the selected fasteners and their corresponding Sets will be available. Through “Contents” column the user can easily find out which Sets are empty (marked with an “x”). In the “DM/FE rep name” column the user can easily check which FE representations already exists in DM.

With RMB a context menu is available. With the option “Edit Set Contents” the user can modify the contents of the corresponding fastener Set. With the option “Remove” the user can remove fasteners from the list.

Note! : In case where multiple identical fasteners exist in the model, the one with minimum Id will appear on the list.

Note! : The option “Edit Set Contents” is available when only one fastener is selected from the list.



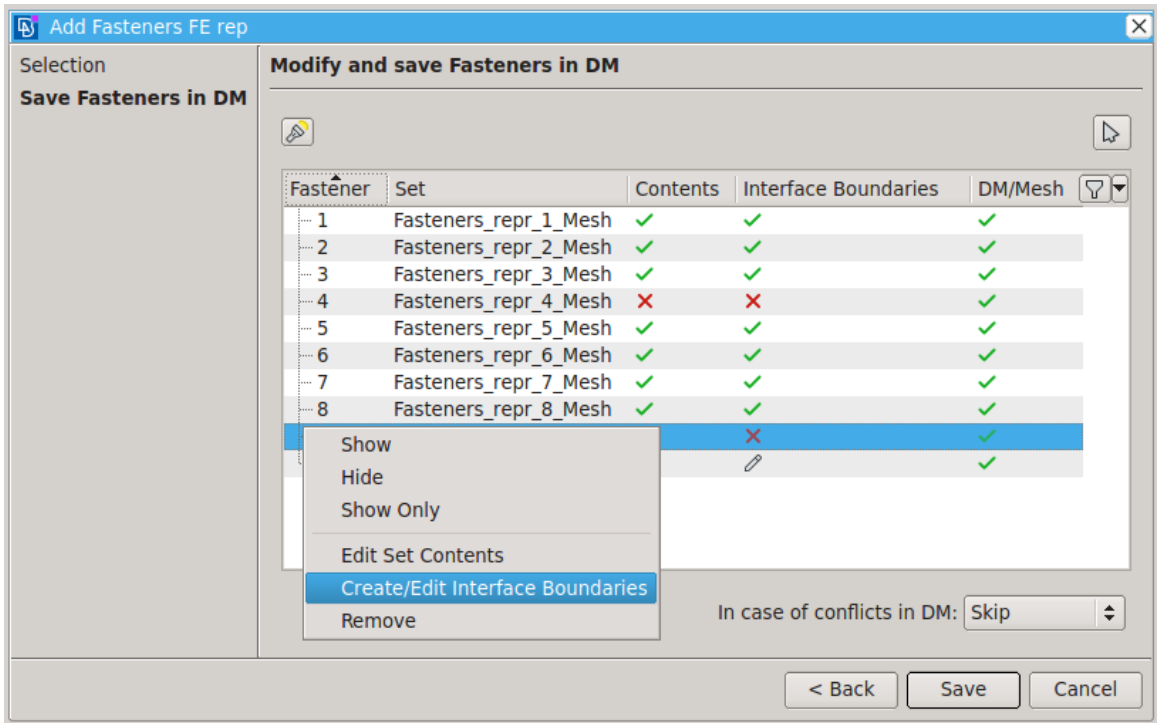
In case where the FE representation of a fastener already exists in DM, the user can control the saving behavior from the respective radio button “In case of conflicts in DM” (available options are: Skip and Overwrite).

3.3. Interface Boundaries

Interface Boundaries are ANSA entities that are used for the automated stitching functionality. They actually mark which perimeters of the fastener's FE representation should be connected to the main body of the part. If they do not exist in the fastener's FE representation, then the fastener will not be automatically connected to the main body of the part after importing the FE representation through Casting or Feature Manager. There are cases where Interface Boundaries are automatically identified by ANSA while in other cases the user needs to create them manually before saving the FE representation in DM:

1. The fastener's FE representation that is going to be saved in the DM is connected to the main body of the part. In this case no further action is needed! ANSA will automatically identify and create the Interface Boundaries in the saving step from the triple bounds of the FE representation. These fasteners will have a "tick" sign in the "Interface Boundaries" column.
2. The fastener's FE representation that is going to be saved in the DM is in a standalone form (e.g. a detached clip). In this case the user needs to create the Interface Boundaries manually by selecting the respective edges with "Create/Edit Interface Boundaries" option. These fasteners will have initially an "x" sign in the "Interface Boundaries" column. After the manual creation of Interface Boundaries the sign will switch to "edit" which means that Interface Boundaries have been created for this fastener and the user can modify them if needed.

Note! : The option "Create/Edit Interface Boundaries" is available when only one fastener is selected from the list.



3.4. Report

Finally, press the save button to save **ALL** the fasteners FE representation from the list in DM. Then, the DM report window will pop-up with information about the saving in DM. Fasteners with a corresponding empty Set will be omitted.