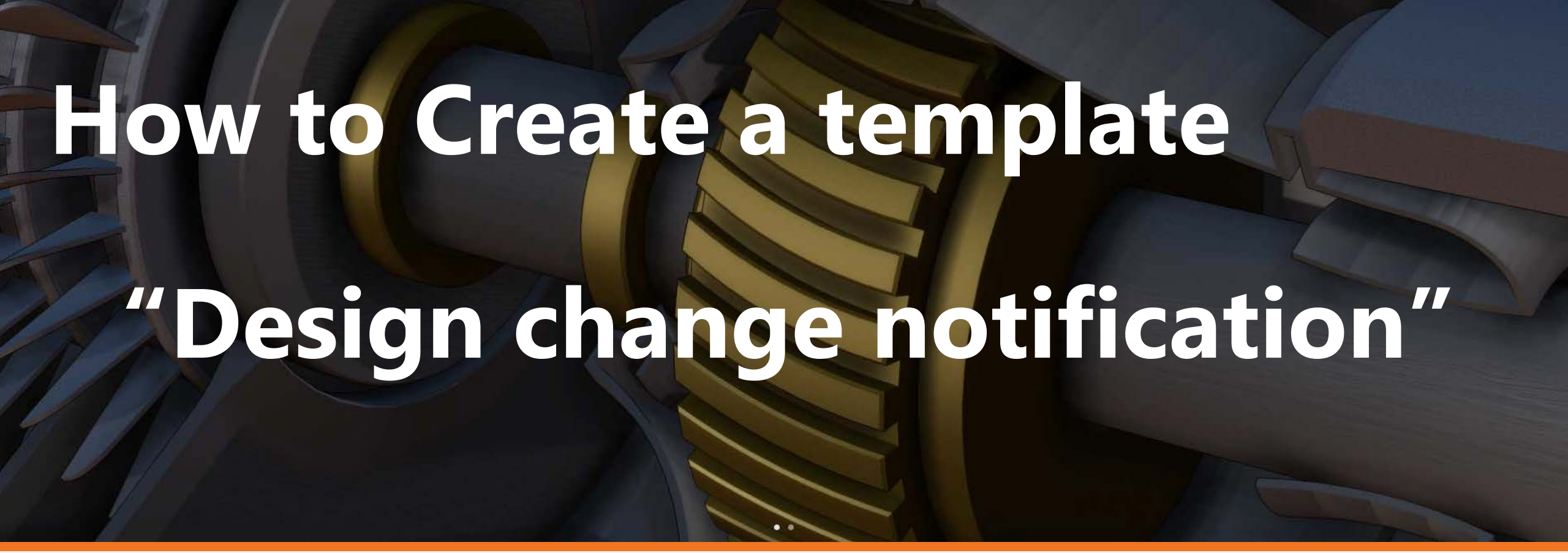


How to Create a template

“Design change notification”

Design and Create rich interactive 3D PDF Documents

Tetra4D Enrich - Add in for Adobe® Acrobat® Pro

TETRA4D

Description of the « Design Change Notification » template

Goal:

- This template is meant to create 3D PDF documents that present the design modifications between two versions of a part.

Template structure:

- 3D annotation
- Title block
- Generic actions assigned to buttons
- Table with assigned actions

How to populate a Tetra4D Enrich template:

- This templates, created with Tetra4D Enrich, can be populated by Tetra4D Enrich (using the Replace 3D feature). Some of the items have to be manually updated because are specific and not coming from the CAD data (table from CSV, actions linked to the table)

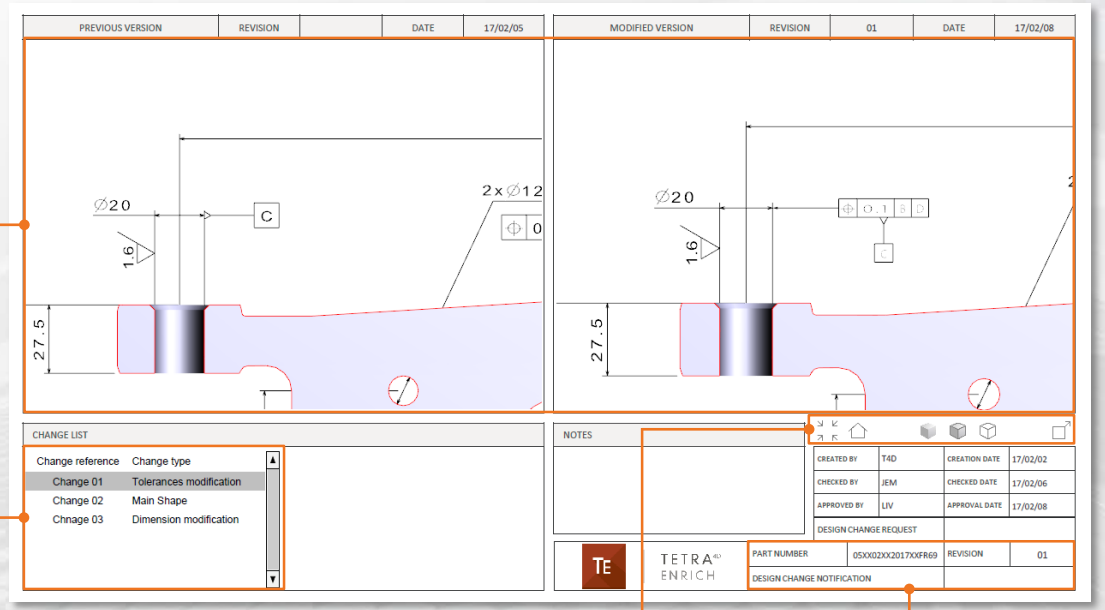
<u>Important note:</u>

The documents provided in this package have been created using Tetra4D Enrich V2017

You must be equipped with the same version in order to reuse these documents

3D Annotations:
Area where the 3D models are displayed

Table (from cvs)
Shows the modifications between the two versions of the part. Actions are triggered when selecting a row



Buttons with "actions":
Provide direct access to the most used 3D related controls (Part visibility, rendering modes…)

Title block:
Text fields are automatically populated when the CAD file is read.

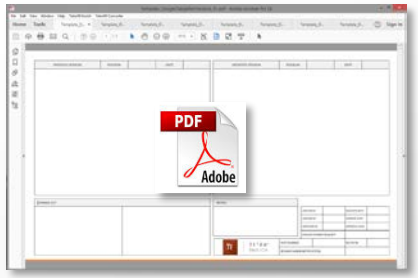
Creation process of the « Technical Data Package » template

1: Create template background

Define place holders to identify the different information that will be put in the document
Add company logo
Define notes and labels if any

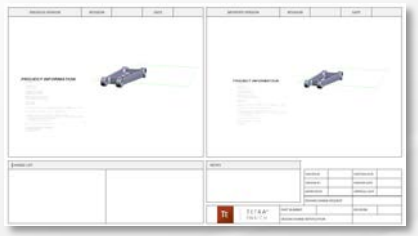
2: Convert the document into PDF

Export to PDF from the application or use Adobe Acrobat to convert file to PDF



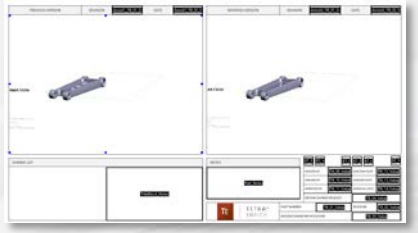
3: Create the 3D annotations

The chosen generic CAD model must be representative of the company's CAD methodology (views, attributes…)
This template requires two CAD models



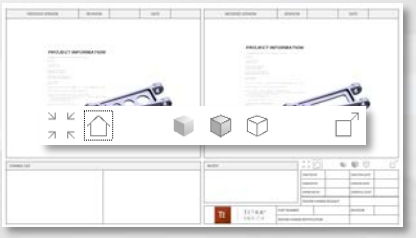
4: Create text fields and buttons

Text fields are used to display title block information and some notes.
Buttons are used to trigger actions.



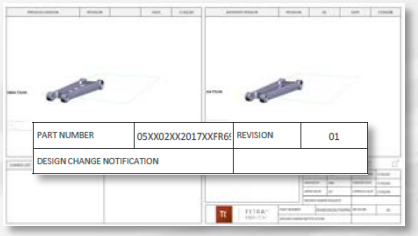
5: Define the generic actions

The generic actions are assigned to buttons, and give the access to the most used 3D controls (rendering mode, part visibility…)



6: Define how to populate title block

The text fields that are used in the title block are filled with CAD file information (name, extension) and with CAD model attributes)

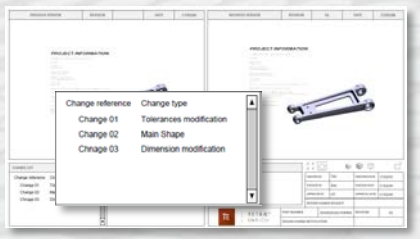


7: Create Views that focus on changes

The Acrobat View creation feature is used to create views that zoom on the changes in the two 3D annotations.

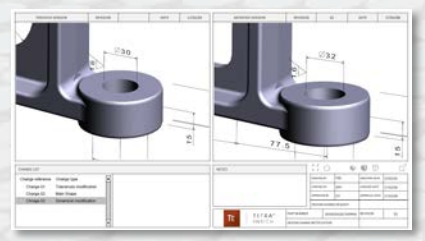
8: Create the table to show changes

The table is created from a CSV file and contains rows that list the different modifications that have been done between the 2 versions of the part.



9: Define actions to show the changes

The actions are triggered when selecting a row in the table and activate the views that focus on the chosen modification

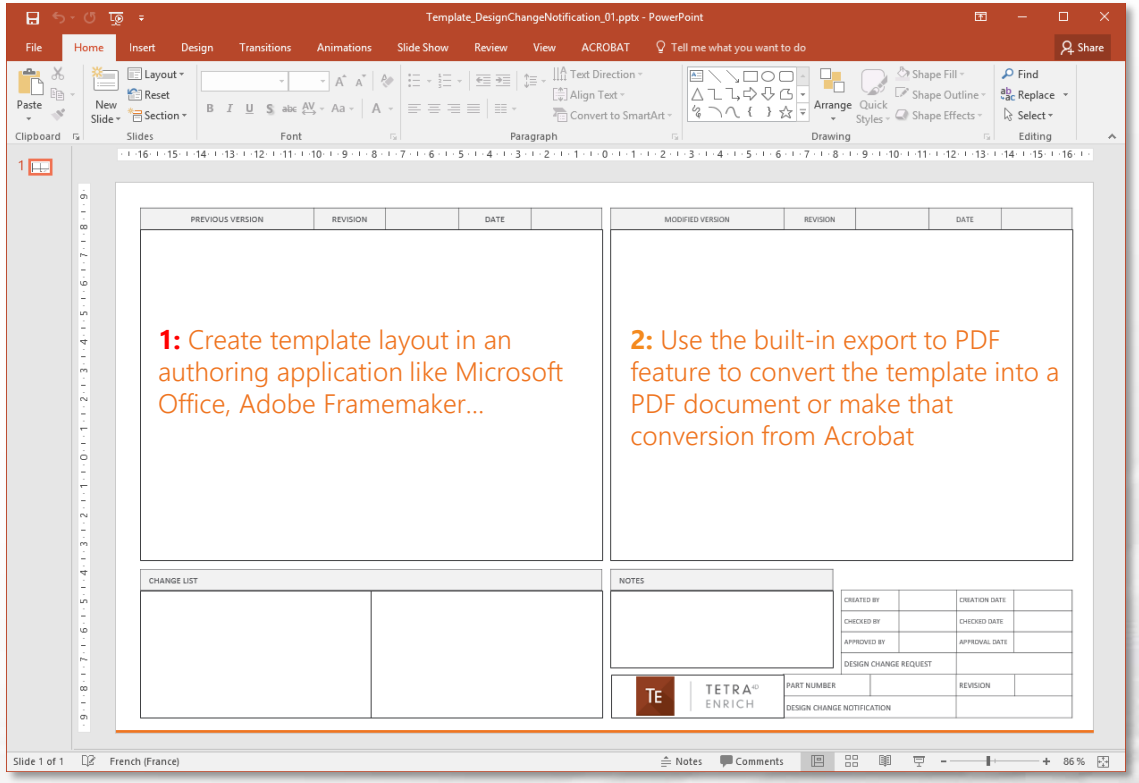


1 - 2 Define the template layout

The layout and background of the template can be defined using any Authoring application that can generate PDF files.

Template_DesignChangeNotification_01.pptx

Template_DesignChangeNotification_01.pdf

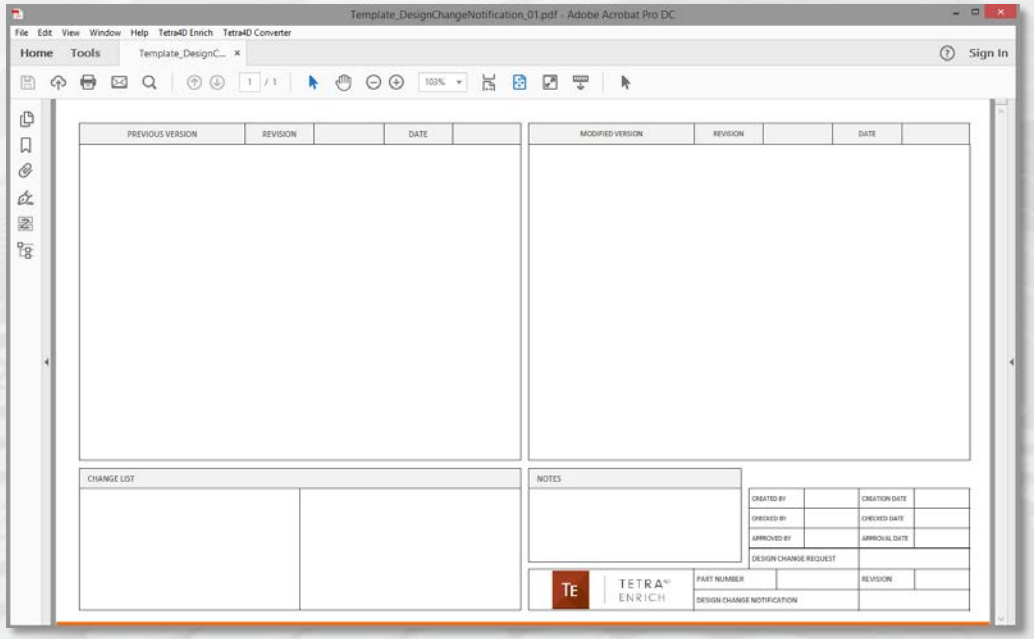


Note:

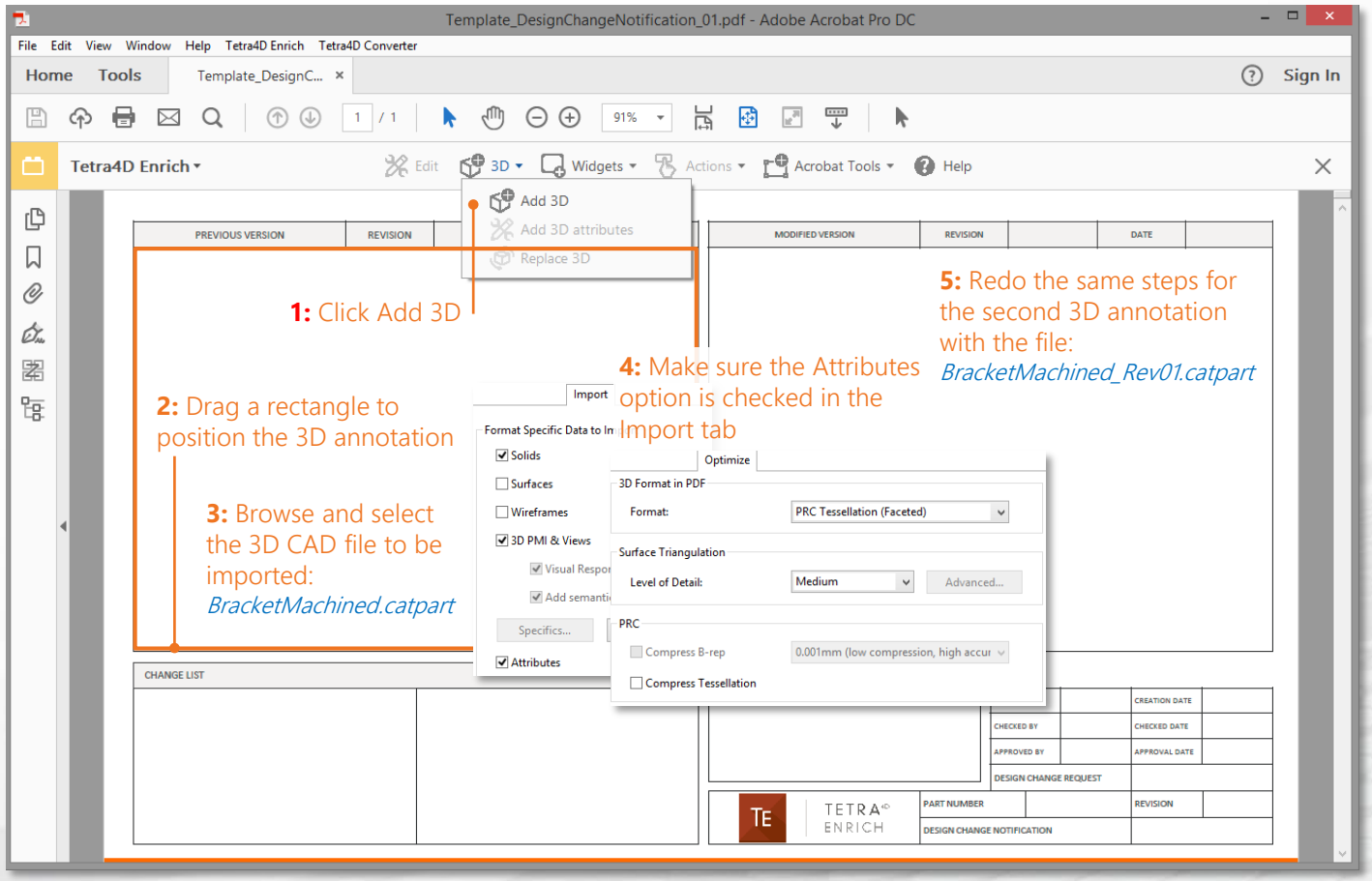
This document is meant to introduce the different steps required to build similar templates. It doesn't substitute to the Tetra4D Enrich User Manual, and doesn't detail all the available possibilities of the product.

This documents is focusing on the Tetra4D Enrich features and on interactivity that can be defined between the 3D annotation and other objects (text fields, buttons) present in the 3D PDF document.

All the documents corresponding to the different steps are provided in the package, as well as the CAD files that have been used to create the template.

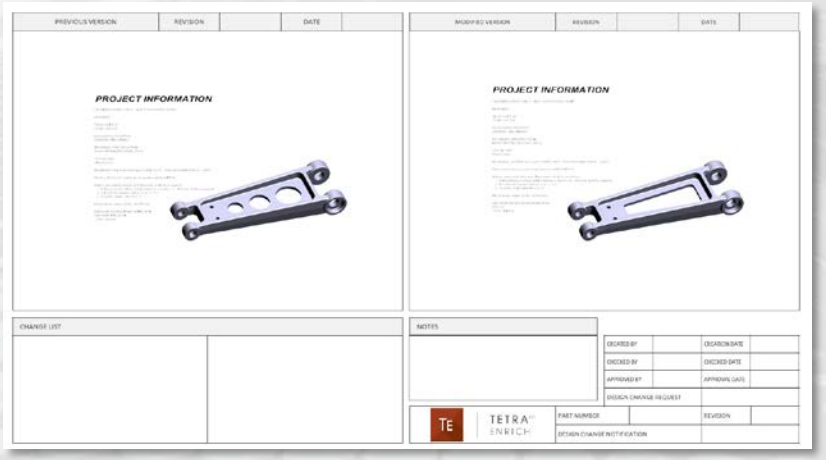


3	Insert the 3D annotation	The CAD data selected to build the template must be representative of the CAD design methodology, to ease the definition of Tetra4D Enrich objects and features afterwards	Template_DesignChangeNotification_01.pdf Template_DesignChangeNotification_02.pdf



Note: It is recommended to avoid:
- Having the 3D annotation overlapping with Acrobat objects like text fields and buttons,
- Defining the 3D annotation background as transparent.

Note: The recommended reading options are set here in order to obtain results that make it possible to build the templates (reading of Attributes in B-rep mode and reading of native CAD views)
Other reading modes and options may also be considered, according to the company CAD methodology, the templates, and the usages of the PDF documents.

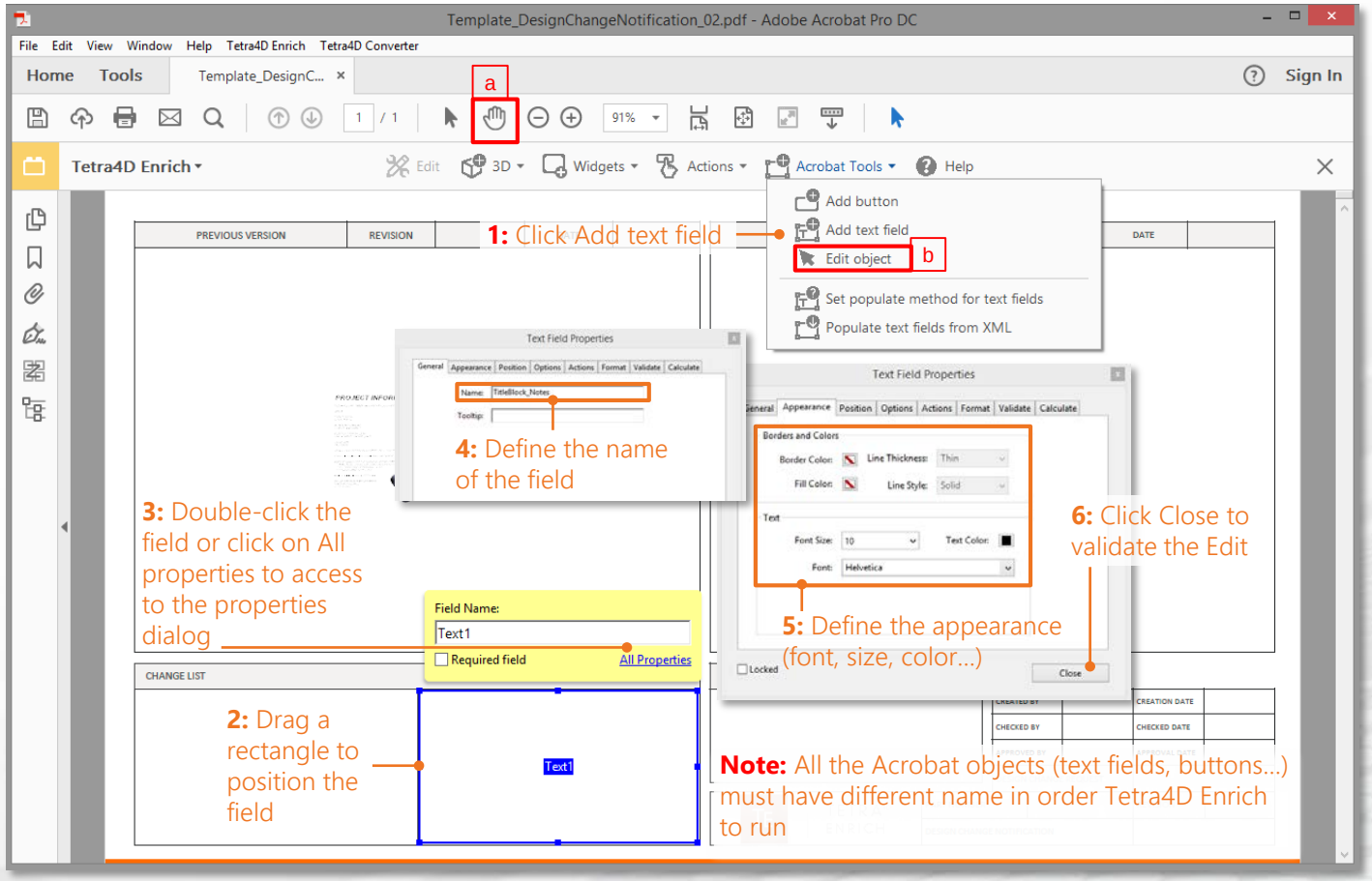


4 Create text fields and buttons

Text fields are defined in the title block area to show information about the CAD data
Buttons are added to provide user with direct access to some common 3D related features

Template_DesignChangeNotification_02.pdf

Template_DesignChangeNotification_03.pdf

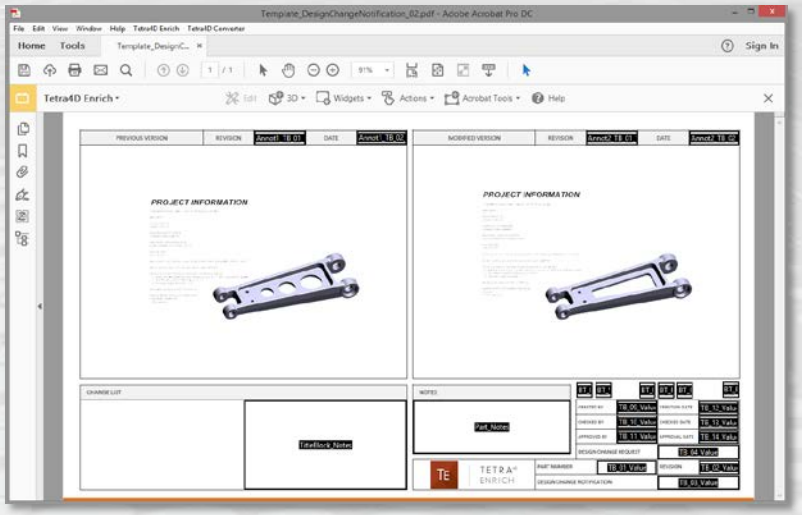


Note: The appearance of Acrobat objects is fully customizable. This document only introduces the feature to create text fields.

It is possible to copy buttons and text fields between PDF documents. During Copy, the objects are not automatically renamed, so make it sure afterwards that all the objects have unique names.
Also, copying buttons and text fields from an existing Tetra4D Enrich document won't copy the Tetra4D Enrich actions linked to these objects if any

a) To exit the Acrobat objects creation mode:
- Click of the icon
- Or select any Tetra4D Enrich menu

b) To edit text fields, buttons, or to move or resize the 3D annotation, select the menu "Edit object"

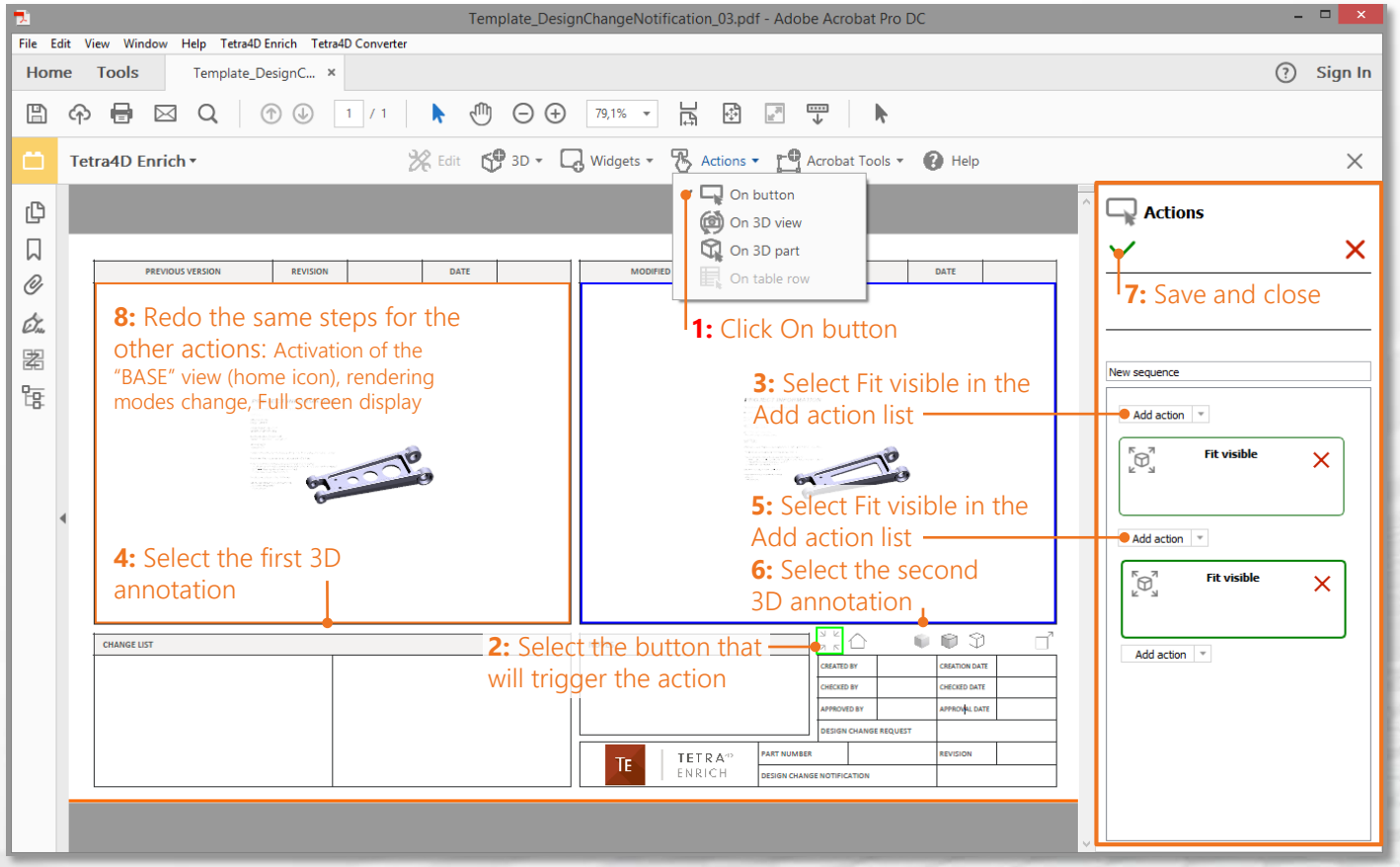


5 Define the generic actions

Actions are optional Tetra4D Enrich features that can be triggered by several means. In this template, the actions are assigned to buttons, and provide the consumer with a direct access to some common 3D control functions

Template_DesignChangeNotification_03.pdf

Template_DesignChangeNotification_04.pdf



Note: This template contains different types of actions. This first set of actions provide user with direct access to some 3D related features.
These actions apply here to the two 3D annotations.
These actions are triggered by buttons, and do:

- Rendering modes: Shading, Shading outline, Illustration
- Home view activation (here a CAD view named BASE)
- Full screen display…

And some will apply to a selection of parts:

- Fit visible

During the action definition process, it is possible once the trigger has been selected (here a button) to define several actions the may apply to the same 3D annotation or to different 3D annotations present on the same page.

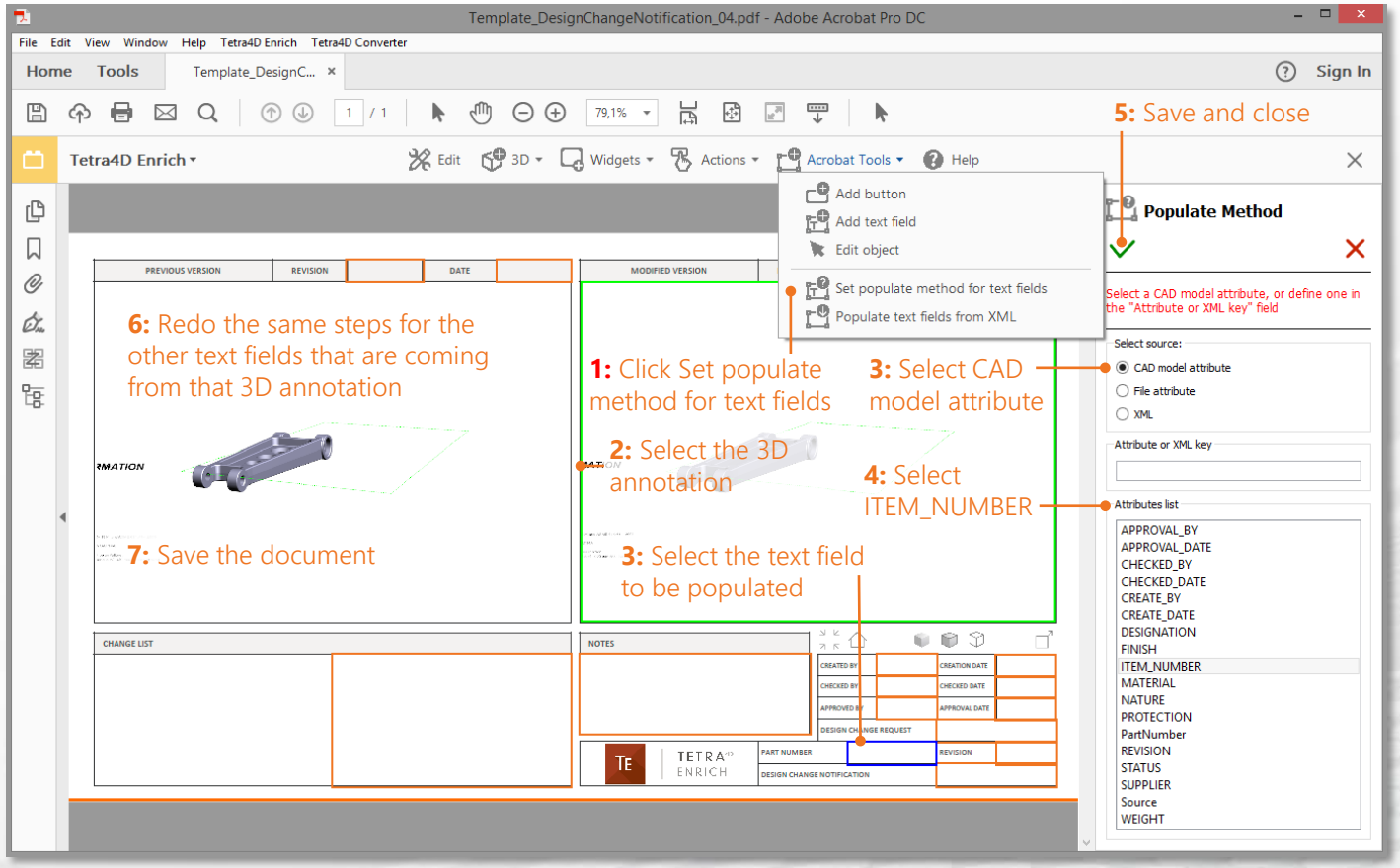
Note: These actions are "generic" (so are independent of the data present in the 3D annotation).
Consequently, all these actions are suitable for a template and they will be maintained when the template will be populated with a new CAD data set.

6 Define how to populate text fields

The Set populate method for text fields feature is meant to define what information will be used to automatically fill some text fields when a new CAD data set is imported in the template

Template_DesignChangeNotification_04.pdf

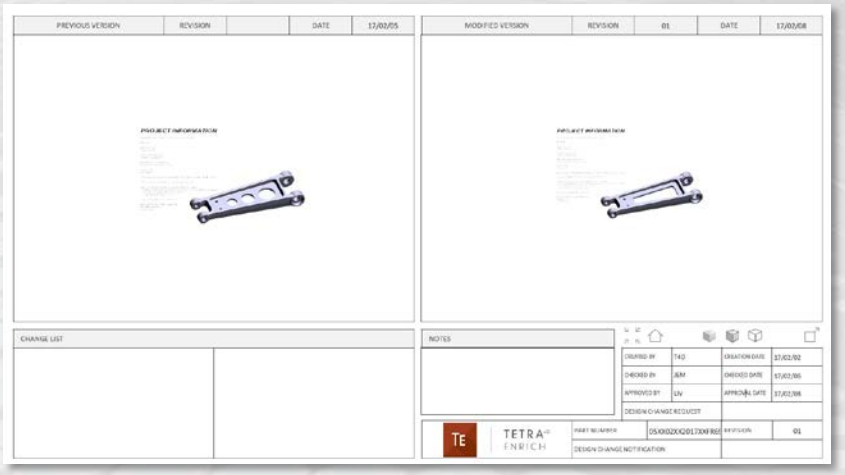
Template_DesignChangeNotification_05.pdf



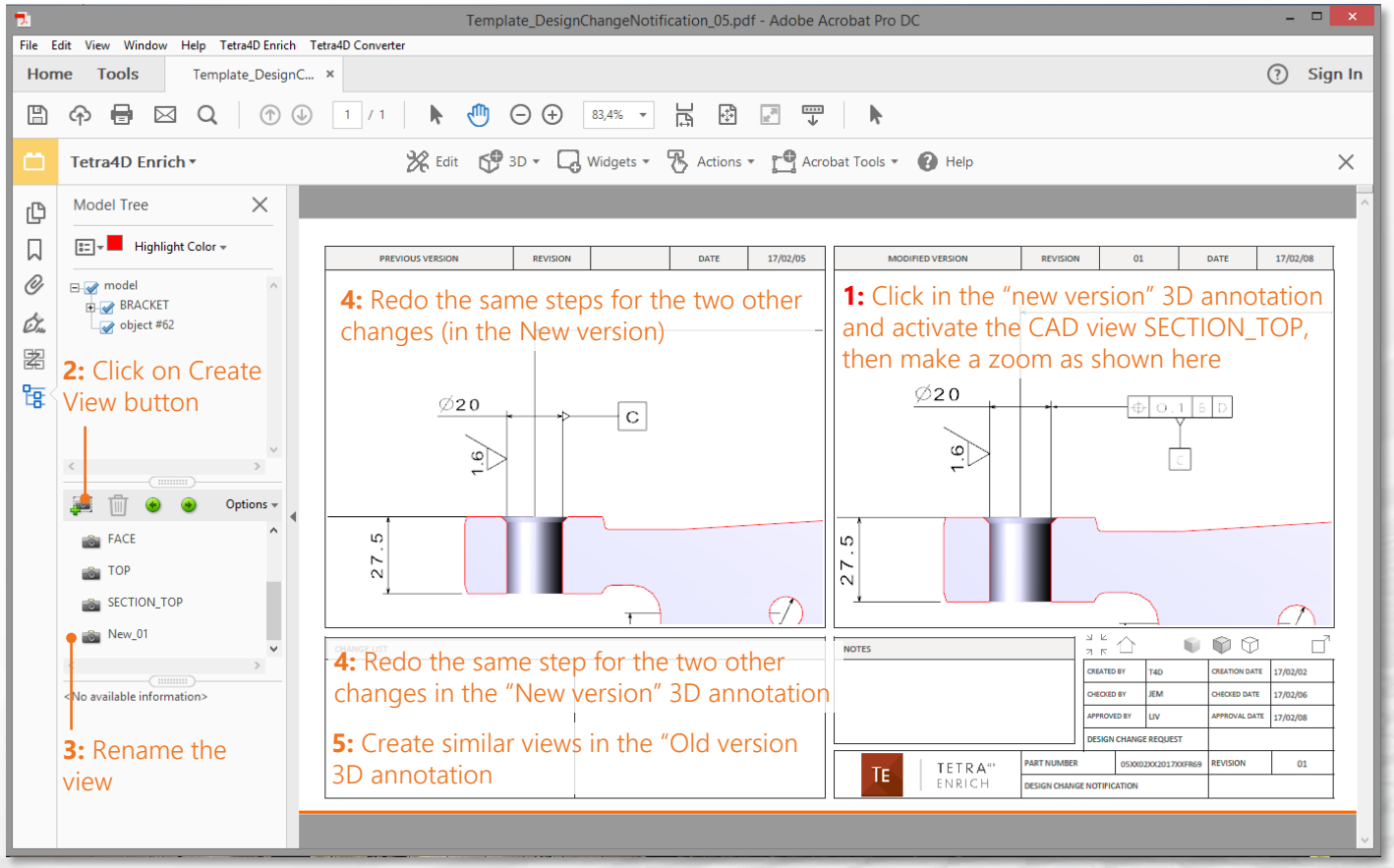
Note: The values to be displayed in text fields can be manually defined. However, to avoid errors and to save time, and also because the information to be put in these fields can be linked to the CAD files, the "Set populate method for text fields" makes it possible to define and to actually populate the text fields while maintaining the chosen method in the template.

There are 3 methods to populate a text fields:
- Using a CAD model attribute (ie: material information)
- Using a CAD file attribute (ie: file name, file size…)
- From an XML file

In this template, most of the text fields are populated by CAD model attributes. However, some text fields like the "Design change request" and "Design change notification" have to be manually defined.



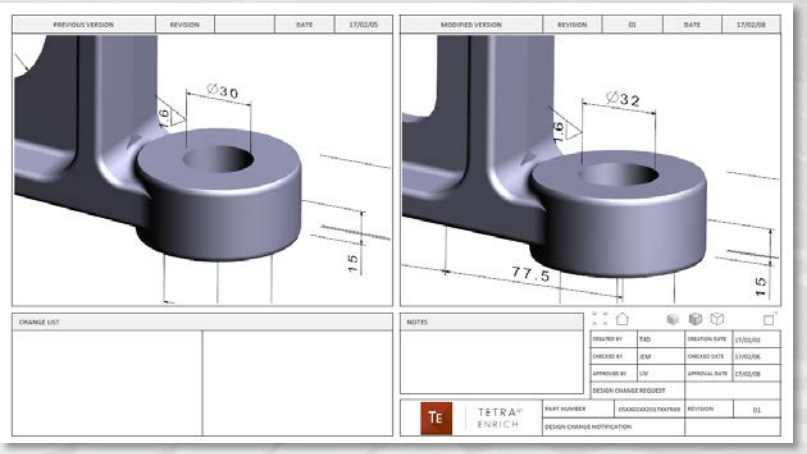
7	Create the views to highlight changes	In addition to the existing CAD views, some manually defined views focusing on the modified areas will help user to understand the changes	Template_DesignChangeNotification_05.pdf Template_DesignChangeNotification_06.pdf



Note: The creation of views is not a Tetra4D Enrich feature. However, since this template is meant to show to the consumer the different changes between two versions of a part, by selecting some change references in a table, it is helpful to have these additional views.
In order to simplify the creation of the "On table row" actions (later in this document), it is recommended to use a rule to name the different views in the two 3D annotations.

Note: There could be other means to communicate the changes, like adding comments (which would also create commenting views)

Note: There are three modifications between the too versions:
- Main shape of the part
- Tolerance (PMI)
- Diameter of a hole

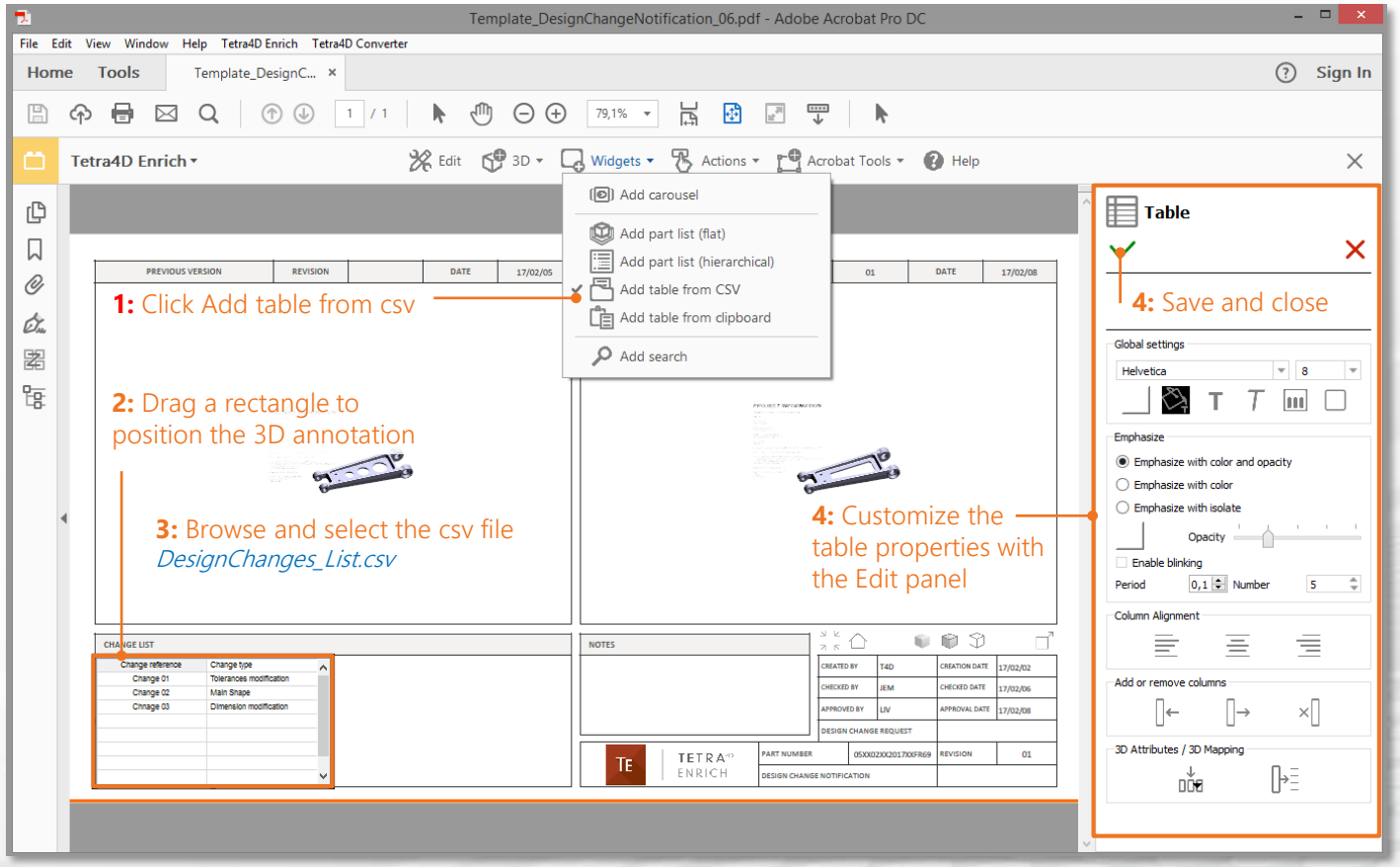


8 Create a table from a csv file

The table is an optional widget that makes it possible to create lists of parts based on the 3D data from a 3D annotation, or to create a table presenting external information.

Template_DesignChangeNotification_06.pdf

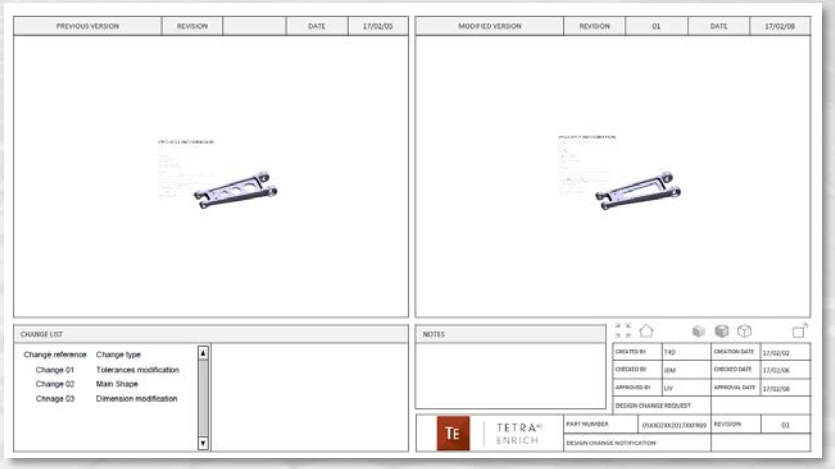
Template_DesignChangeNotification_07.pdf



Note: Tables created from an external source have as a default no link with the other items present in the PDF document.
It is possible to:

- create actions that can be triggered when selecting a row in the table (see next step),
- Or, if the nature of the data in the table is relevant, define a mapping between the table and the 3D annotation to enable cross-selection between the table and the 3D parts.

Note: The part lists (flat or hierarchical) calculated according to the 3D data the are present in a 3D annotation are automatically updated when the template is populated with a new CAD data set.
The tables created from CSV or from clipboard are not automatically updated if the CAD data are replaced in an existing document.

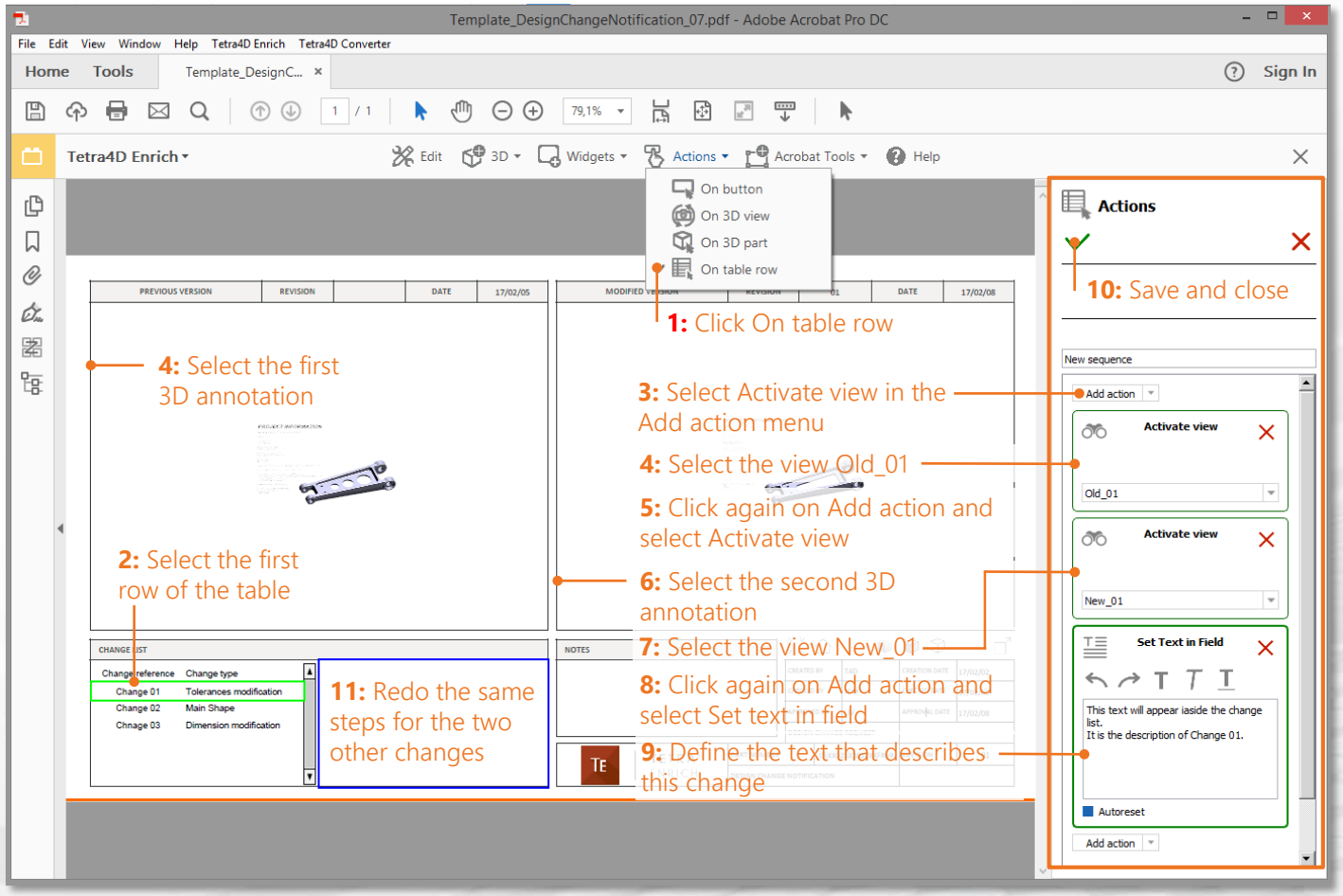


9 Creating “On table rows” actions

The “On table rows” actions make it possible to trigger actions when a row of the table is selected.

Template_DesignChangeNotification_07.pdf

Template_DesignChangeNotification_08.pdf



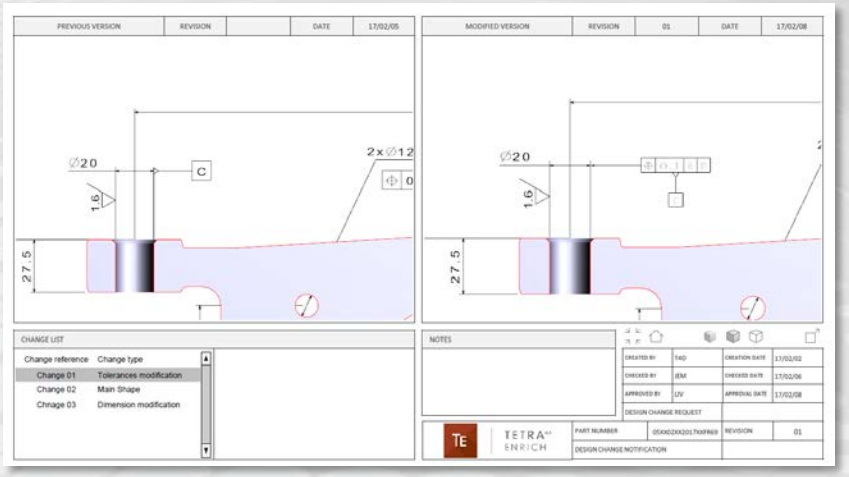
Note: The selection of a row in a table can trigger different actions:

- Activate a view
- Change the color of a node (a part)
- Set text in a field

When defining an action with this trigger, it is required to directly select the correct row in the table.

Note: The actions defined here are activating views that have been manually defined. As a consequence, these actions are not “generic” and won’t be maintained if the CAD models are replaced in the template.

The process to populate this template with other CAD data will require to execute again the operations that are presented starting on slide 9 (creation of views to identify the changes, Suppression and creation of the table, creation of the “On table row” actions).




TETRA 4D