

## Understanding V4 to V5 Migration

### CT Core Technologie

#### **Project**

CT CoreTechnologie created and developed an automated process to extract the 3D data from the CAD/PLM system and migrate to another CAD/PLM System

#### **Objective**

This document provides an example of how the above concepts were applied to a real world situation. It will also give an overview to some of the technical requirements for migration V4 to V5 and how CT CoreTechnologie addressed those requirements utilizing an automated approach with Enterprise Batch Manager (EBM) and 3D Evolution.

#### **Abstract**

The question that has been asked time and time again from CATIA users: Is there an automated process to convert CATIA V4 to V5? How can I translate surfaces without gaps to CATIA V5, is there a way to get rid of gaps without manually redrawing the whole surface? How can I confirm that 100% migration from CATIA V4 model to a CATIA V5 workbench?

Migration inoperability companies have taken the challenge with some painful success. Directors of Engineering have seen standard out of the box demos. However, what happens in the real world has proven that demo's lack the understanding of requirements from each customer, and more specifically each model. After a few meeting with CT CoreTechnologie development team we have been put to the challenge to think outside the box and almost start from scratch. It was simple, fail soon and often. With the process of listing the failures in our migration the development team was able to take the laundry list of required enhancement and put the intellectual capital of our team in Lyon, France to work. The results became one of CT CoreTechnologie's greatest success to date.

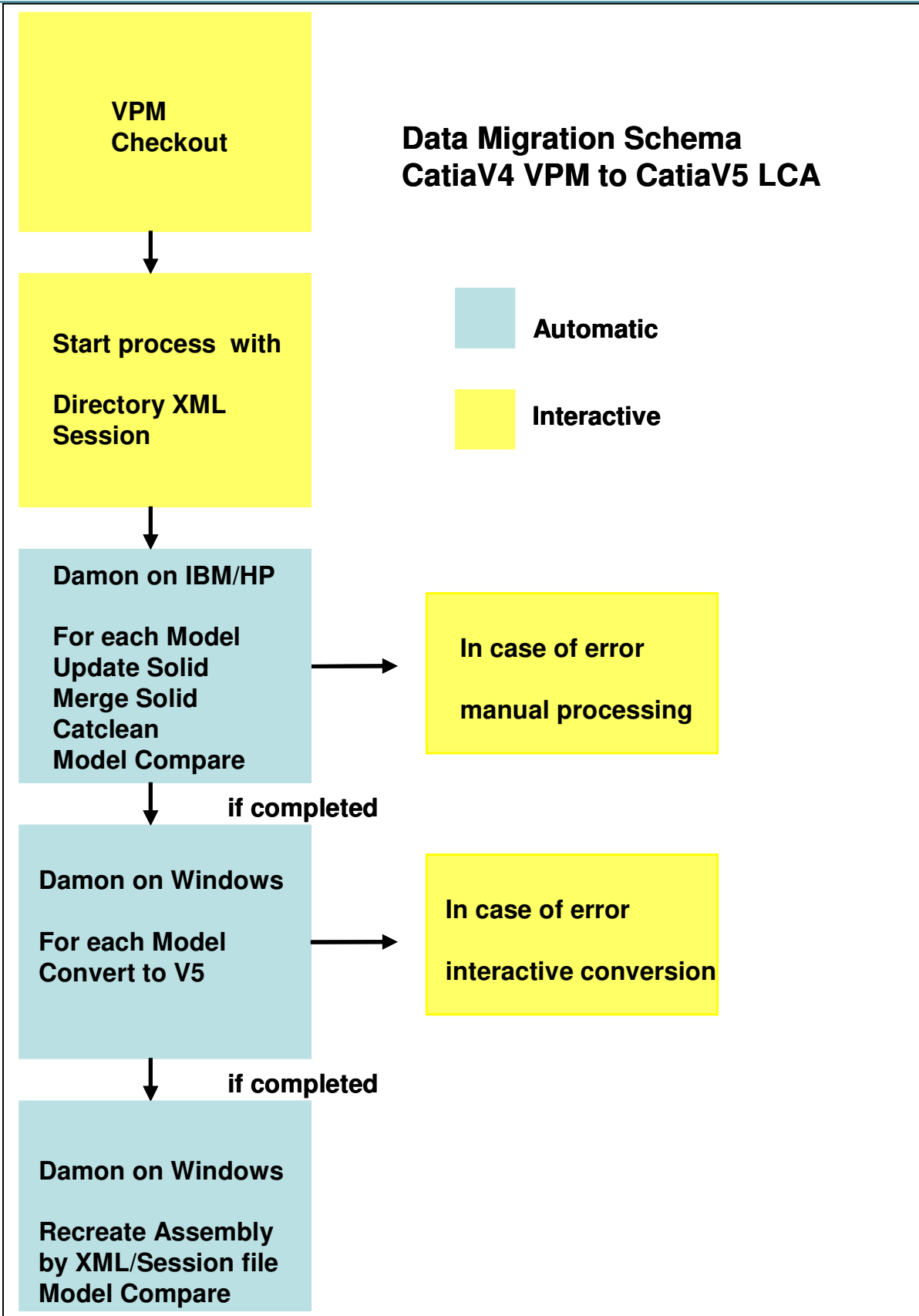
#### **1. Requirements:**

Ability to extract the V4 data from VPM which includes:

- a. Model files – Features ( incl. MML ) Dittos/Details, BREP geometry, assembly structure, properties
- b. PLM information - Annotations, meta data, property and user information.

#### **2. Solutions:**

- a. A user requests from the PLM system (called VPM) to locate an assembly and place the data into a specified folder on the user desktop.
- b. The data includes all \*.model files to include the part and a .xml file includes all of the PLM information's for assembly structure and the migration can proceed automatically.



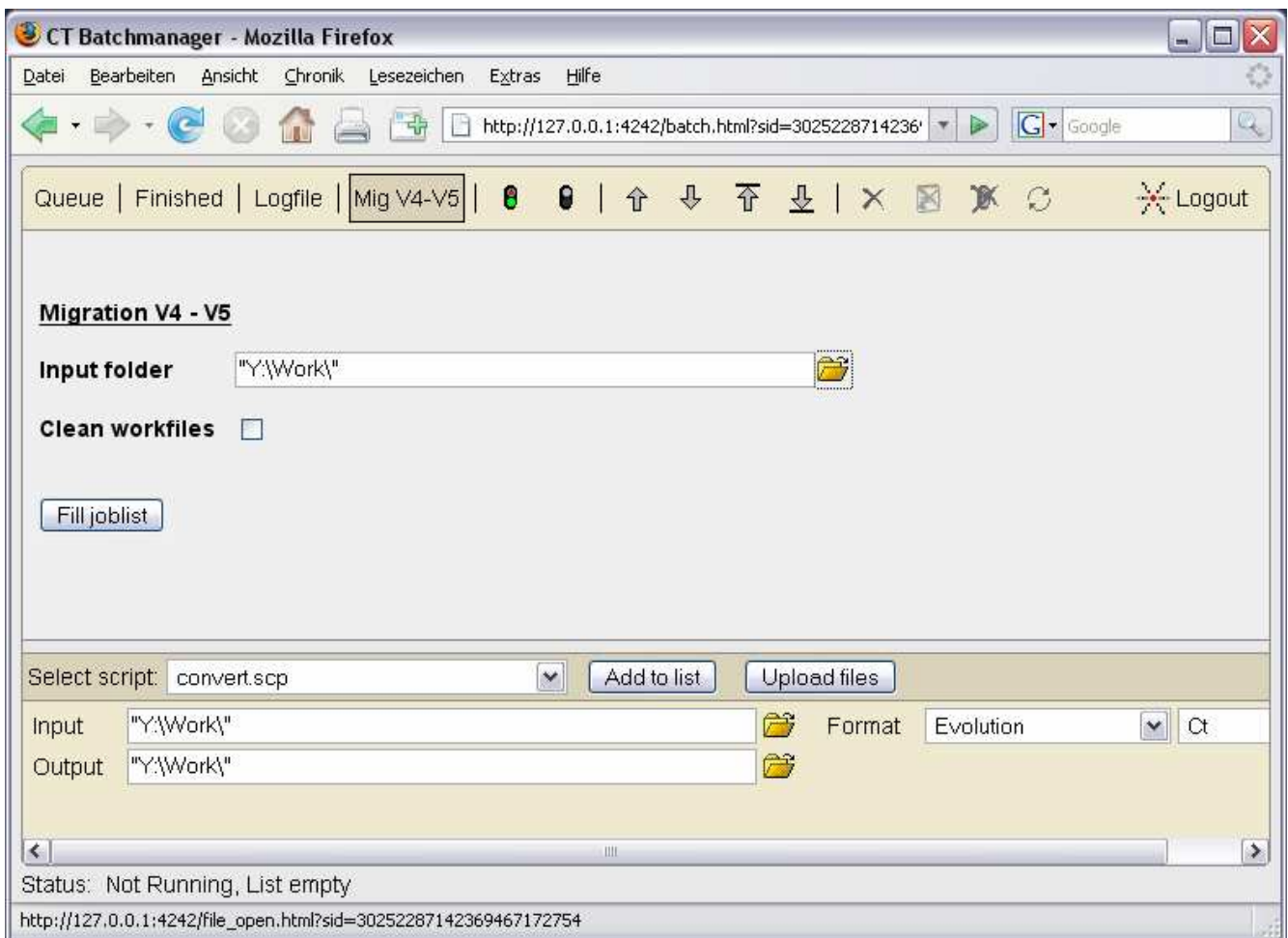
### 3. 3D\_Evolution's EBM (Enterprise Batch Manager):

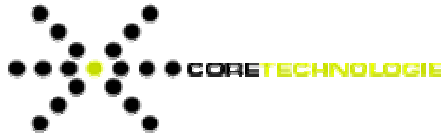
- a. The user now logs into the EBM via username and password
- b. The user browses to the location where the files are and imports the data into the EBM.
- c. The user then adds the data to the queue for processing
- d. Using a conversion script that customizes the translation for the following:
  - i. The system checks the data to recognize feature type, B-rep or Solid-M or Sheet metal parts.
  - ii. If a CSG feature tree, 3D\_Evolution forces V4 to make an upgrade solid and Catclean.
  - iii. Compare the original geometry model and the upgraded model
  - iv. Start the translation thru 3D\_Evolution migration plug-in
  - v. Rewriting all the properties (user environment, Catstart...etc.) into V5.
  - vi. Compare again V4 to V5 parts (geometric comparison)
  - vii. Reassemble the structure with a Catproduct contents Catparts including Multi-solid (if needed).
- e. Translation for MML
  - i. For V4 models contents MML (multi modeling Links) we trace the binary V4 part file to check all the links (UUID) between the models and set the flag for active.
  - ii. While translating we recreate the V4 models into V5 in the same order like V4 and recreate all the links.
  - iii. We recreate last assembly structure thru the MML file.

### Goal of Newly Developed Process

The standard installed feature-based module of 3D\_Evolution 2008 includes native interfaces. This allows the conversion of CAD models with history and parametric, without the need to access the license of the source CAD system. CAD models between the prevalent systems such as CATIA V4 to CATIA V5 can be converted with a full history tree; known as a parametric model. Native interfaces read, not only the B-REP data, but also the history and parametric of the CAD models directly from the native data, whereby for the first time – and thanks to this exclusive technology, the seamless transfer of all information is achieved. These algorithms guarantee a smooth and automatic generation of the model by the target application. During conversion, the feature-based kernel also implements the adaption and optimization of the assembly structure, feature and related parameters, attributes, B-Rep geometry, as well as optimized process exactly adapted for the respective target system. Specifically for CATIA V4 models, the linearization of the tree and the recognition of hole features is possible, so as to adapt the tree structure to the procedure of modern CAD systems. The automatic generation of the models in the CAD-systems occurs automatically through Core Technologie plug-ins, integrated in the respective target systems.

Absolutely unique to CT CoreTechnologie the new feature-based kernel, since also imported skins, volumes and solids are first adjusted through healing functions without losing parametric, and check - step by step - the feature creation against the temporary B-Rep model. Useful in the case of mixed models, since the necessary basis for the safe generation of feature operations, based on import solid, is created. With the integrated compare function the resulting geometry can be compared to the source model. Potential discrepancies greater than the user-defined tolerance are documented through a log file and are highlighted in the graphical user interface of 3D\_Evolution.





## **Conclusion**

In an era that is witnessing technological discontinuities, managers should not focus on size as a goal; instead, they should focus on the development of new business models that help them have a competitive advantage to stay alive. It has been said, "if you are not [implementing automated process] in this era, you will not be in business". Companies like CT CoreTechnologie allow its customer to automated migration projects, reducing time-to-market while making its core business the engineering chore. The end result is displacing our competition while increasing its intellectual capital through resources, technology, and methodologies.

It is important to note that the increased automation of routine scripts will not remove the human element in innovation. On the contrary, it will allow people to focus on areas where their value is greatest; generating novel ideas and concepts, learning from experiments, and ultimately making decisions that require judgment. CT CoreTechnologie welcome the understanding of our customers migration needs.

## **Acknowledgments**

The success of developing this new process is attributed to the assistance and good relationship with our customers. We would like to thank them.