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# CAE2VTFx

**Version 0.9.5 – July 2019**

A console converter of CAE result database files to the VTFx format

# Introduction

CAE2VTFx is a console application that converts various CAE file formats to Ceetron's VTFx file format. Files from the following solvers are supported:

- ABAQUS
- ANSYS
- NASTRAN
- CGNS
- Femap
- IDEAS
- FLUENT
- LS-DYNA
- OpenFoam
- Ensight
- VTK (VTU files)
- MSC MARC
- PTC

CAE2VTFx is written in C++ and is based on Ceetron Import, Ceetron Export and Abaqus ODB API.

- By default, all formats except Abaqus ODB ultimately rely on the VdmTools library provided by Visual Kinematics (http://www.vki.com/2013/Products/VdmTools.html).

- The default reader for Abaqus ODB is based on Abaqus ODB API, the VdmTools version can be activated using the -vdmodb command line option. The default reader will provide result and step/frame names closer to the original ODB, and will run more efficiently in most cases.

Conversion is limited to elements supported by Ceetron 3D Components, as well as result types and mappings. Please refer to documentation for details

http://ceetron.com/docs/Documentation/classcee_1_1ug_1_1_element.html#details

http://ceetron.com/docs/Documentation/namespacecee_1_1ug.html#aaa1605de698e92d044b19b9051eb1bab

http://ceetron.com/docs/Documentation/namespacecee_1_1ug.html#a3dd1ccfd78fe8f28c0b1e278312f2ef9

# Usage

The application is intended to run in a DOS command window (cmd.exe). Its syntax is:

**CAE2VTFx CAE_File** [-append CAE_Result_File] [-out VTFx_file] [-unique_result_names] [-res result_name_wildcard] [-last_state_per_group] [-surface_only]

**Options for all formats**

-append

appends the given result file to the database. This applies to result databases that store results and geometry separately, such as Fluent (geometry in a .cas file and results in .dat files). The option can be used multiple times to append multiple files.

-out

specify the VTFx output file. By default, the file name is the same as the input file with a .vtfx extension

-unique_result_names

some files contain identical result names, e.g. stresses with different result mappings.

Use this option to make sure result names are all different. If needed, a suffix will be added indicating the result mapping [N], [E] or [EN] for nodes, elements and element-nodes.

-res

only results whose names match the given wildcard will be stored (e.g. -res Stress*). Multiple occurrences of the option are handled, to allow selective storing of more than one result (e.g. -res Stress* -res Disp*)

- last_state_per_group

only the last state in each state group (usually a load case) will be exported. If there are no groups, only the last state will be exported.

-surface_only

Only the skin of the model will be exported (both geometry and results). This is useful to reduce file storage. Internal elements and results will however be lost.

**Options for ODB files**

ODB files can use two converters. The choice of the converter is controlled by the option -vdmodb.

**CAE2VTFx ODB_File** will use an Abaqus ODB API reader developed by Ceetron. This is the default.

**Additional options for ODB files using the default converter (not using -vdmodb)**

**CAE2VTFx ODB_File** [-upgrade] [-silent_upgrade] [-geo] [-step step_index] [-last_frame_per_step]

If the input file is an Abaqus ODB file, the application offers several options to filter what is converted, to control the output name or perform an ODB format upgrade.

-upgrade: only perform an upgrade to the latest version of Abaqus ODB API (2016)

- upgrade: run silently. Upgrade will be performed if necessary

-geo: only geometry will be stored (no results), unless specific results are added with the \"-res\" option

-step: adds a step to be stored. If none are provided, all steps will be stored. Multiple occurrences of the option are handled, to allow selective storing of more than one step

- last_frame_per_step: this is a duplicate of the general option “-last_state_per_group”, using ODB vocabulary. Only the final step of the final frame will be exported.

-frame: adds a frame to be stored in every stored step. If none are provided, all frames will be stored. Multiple occurrences of the option are handled, to allow selective storing of more than one frame per step

**CAE2VTFx ODB_File -vdmodb** will use the Visual Kinematics VdmTools library

**Options for ODB files when using the -vdmodb option**

**CAE2VTFx ODB_File -vdmodb** [-upgrade] [-silent_upgrade] [-last_frame_per_step]

If the input file is an Abaqus ODB file, the application offers several options to filter what is converted, to control the output name or perform an ODB format upgrade.

-upgrade: only perform an upgrade to the latest version of Abaqus ODB API (2016)

- silent_upgrade: run silently. Upgrade will be performed if necessary

-

- last_frame_per_step: this is a duplicate of the general option “-last_state_per_group”, using ODB vocabulary. Only the final step of the final frame will be exported.