

CFturbo2ICEM

Automatic Geometry and Mesh Generation
in ANSYS ICEM CFD
based on CFturbo Geometries

Version 4
October 2010

The logo for CFturbo, featuring the letters 'CFturbo' in a bold, sans-serif font. The 'C' and 'F' are significantly larger than the 't', 'u', 'r', 'b', and 'o'.

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Dresden, Germany

www.cfturbo.com

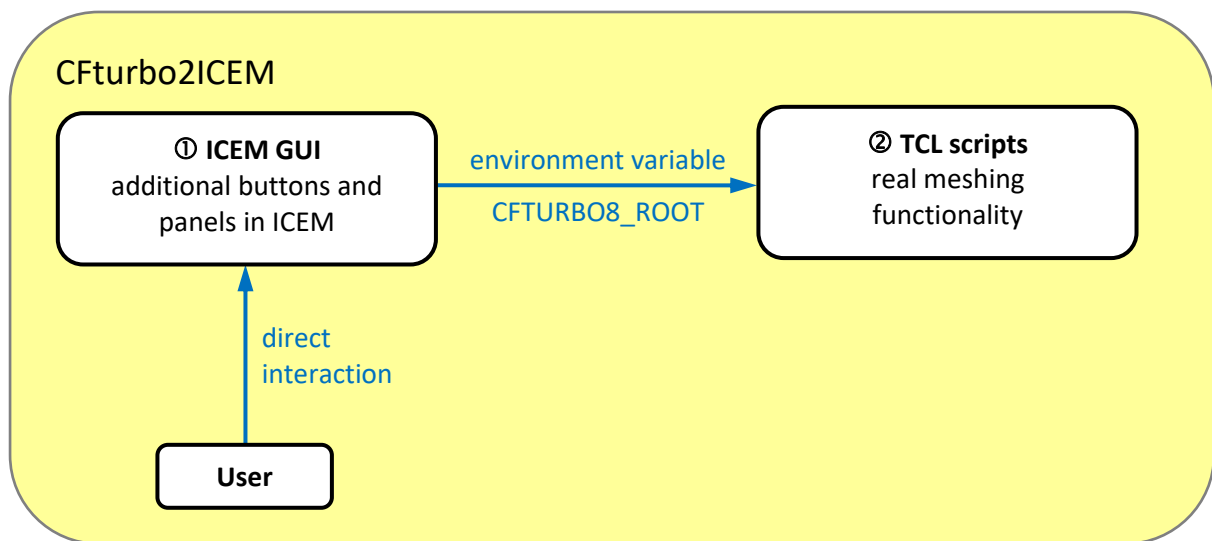
**Used files and their file system position
(manual installation)**

On **Windows** the installation is made by a comfortable setup program “Cfturbo2Icem*.exe”. Pre-condition is an installed ICEM and an installed Cfturbo. In this case no manual effort is necessary.

On **Linux** Cfturbo is not executable, but Cfturbo2ICEM can be used. Currently no installation program exists, therefore the files have to be installed/ copied manually with the help of this instruction.

On Linux one has to observe strictly the case sensitivity of file names.

General schema for using Cfturbo2ICEM



Files are stored in two different locations:

- ① Files for script handling in the ICEM GUI
- ② TCL scripts

The connection between ICEM and the TCL scripts is handled by the environmental variable CFTURBO8_ROOT. This variable contains the directory where the scripts are located.

Operating system	Windows	Linux
Environmental variable	%CFTURBO8_ROOT%	\$CFTURBO8_ROOT
Value assignment	automatically by installation program	depending on used shell, e.g. export (bash), setenv (tcsh)

On Windows systems where Cfturbo is installed, the environmental variable CFTURBO8_ROOT is created during the installation and points to the Cfturbo installation directory, by default „C:\Program Files\Cfturbo 8“. On Linux systems the environmental variable CFTURBO8_ROOT has to be defined manually before starting ICEM.

① ICEM GUI

These files are images (icons) and modified ICEM configuration files for displaying the CFturbo2ICEM buttons inside the ICEM GUI.

The destination directories `<ICEM-Root>` and `<ICEM-Sys>` can be localized as follows:

Operating system	Windows	Linux
ICEM installation directory <code><ICEM-Root></code>	%ICEMCFD_ROOT120% e.g. "C:\Program Files\ANSYS Inc\v120\icemcfd"	find directory by „which icemcfd“ e.g. /usr/ansys_inc/<version>/icemcfd
ICEM system directory <code><ICEM-Sys></code>	%ICEMCFD_SYSDIR% e.g. „win“	depending on processor type e.g. linux64_amd

② TCL scripts

The TCL script files are located under a directory that can be identified by the environmental variable `<CFTURBO8_ROOT>`. In this directory a new folder “script” has to be created where all TCL script files have to be copied.

Example:

Operating system	Windows	Linux
environmental variable <code><CFTURBO8_ROOT></code>	C:\Data\CFturbo2ICEM	/usr/cfturbo8
Folder „script“	C:\Data\CFturbo2ICEM\script	/usr/cfturbo8/script

List of all files

	Quelle CFturbo2ICEM/	Dateiname	Ziel
ICEM-GUI	icons/	CFturbo.gif ImpGeo35.gif ImpMesh35.gif VolGeo35.gif VolMesh35.gif	<ICEM-Root>/<ICEM-Sys>/ lib/ai_env/icons
	resource <ICEM-Version>/	geometryDEZs.ttkrf GeometryTab.ttkrf meshDEZs.ttkrf MeshTab.ttkrf	<ICEM-Root>/<ICEM-Sys>/ lib/ai_env/resource
		cfturbo.tcl	<ICEM-Root>/<ICEM-Sys>/ lib/ai_env/scripts
TCL scripts		version.dat	<CFTURBO8_ROOT>/ script
	udf/	cft_arc.tcl cft_calculate_nlayers.tcl cft_coeff.tcl cft_constants.tcl cft_cre_n_pts_on_crv.tcl cft_cre_pnt_cyl_coord.tcl cft_delete_families.tcl cft_delta_time.tcl cft_list.tcl cft_list_create_from_polynomial.tcl cft_match_cyl_surface.tcl cft_obtain_cyl_coord.tcl cft_obtain_pos_on_crv_at_val.tcl cft_smpl_crv.tcl cft_trim_surface.tcl cft_var.tcl cft_vector.tcl cft_write_body.tcl cft_write_thincuts.tcl load_udf.tcl	<CFTURBO8_ROOT>/ script/udf
	impeller/geometry/	create_bodies.tcl create_families.tcl createCFTGeolmp_0.tcl createCFTGeolmp_1.tcl createCFTGeolmp_2.tcl define_variables.tcl finalize_geometry.tcl full_impeller.tcl generator_geo.tcl impeller_construction.tcl interpolate.tcl ogrid.tcl repair.tcl set_params.tcl set_thincuts.tcl write_geo_info.tcl	<CFTURBO8_ROOT>/ script/impeller/geometry

TCL-scripts	impeller/meshing/	createCFtMeshImp_0.tcl createCFtMeshImp_1.tcl createCFtMeshImp_2.tcl define_variables.tcl export.tcl full_impeller.tcl group_elements.tcl reload_proj.tcl reorient_mesh.tcl set_color.tcl write_mesh_info.tcl	<CFTURBO8_ROOT>/ script/impeller/meshing
	impeller/meshing/ tetraprism/delaunay/	build_topo.tcl check_mesh.tcl main_delaunay.tcl prism.tcl smooth.tcl tetra.tcl	<CFTURBO8_ROOT>/ script/impeller/meshing/ tetraprism/delaunay
	impeller/meshing/ tetraprism/octree/	build_topo.tcl check_mesh.tcl main_octree.tcl prism.tcl smooth.tcl tetra.tcl	<CFTURBO8_ROOT>/ script/impeller/meshing/ tetraprism/octree
	volute/geometry/	create_bodies.tcl create_families.tcl define_variables.tcl density.tcl diffuser1.tcl finalize_geometry.tcl generator_geo.tcl main_geometry.tcl pipe_construction.tcl repair.tcl round_cutwater.tcl set_params.tcl set_thincuts.tcl trim_cutwater.tcl volute_construction.tcl write_geo_info.tcl	<CFTURBO8_ROOT>/ script/volute/geometry
	volute/meshing/	createCFtMeshVol_0.tcl define_variables.tcl export.tcl group_elements.tcl reload_proj.tcl reorient_mesh.tcl set_color.tcl write_mesh_info.tcl	<CFTURBO8_ROOT>/ script/volute/meshing
	volute/meshing/ tetraprism/delaunay/	build_topo.tcl check_mesh.tcl main_delaunay.tcl prism.tcl smooth.tcl tetra.tcl	<CFTURBO8_ROOT>/ script/volute/meshing/ tetraprism/delaunay
	volute/meshing/ tetraprism/octree/	build_topo.tcl check_mesh.tcl main_octree.tcl prism.tcl smooth.tcl tetra.tcl	<CFTURBO8_ROOT>/ script/volute/meshing/ tetraprism/octree