



# ALTAIR

## Altair Flow Simulator 2021.1

### Release Notes

Updated: 04/16/2021

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**PBS Application Services™** ©2008-2017 is now part of **Altair Access**

**PBS Analytics™** ©2008-2017 is now part of **Altair Control**

**PBS Desktop™** ©2008-2012 is now part of **Altair Access**, specifically **Altair Access desktop**, which also has **Altair Access web** and **Altair Access mobile**

**e-Compute™** ©2000-2010 was replaced by "**Compute Manager**" which is now **Altair Access**

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# Technical Support

Altair provides comprehensive software support via web FAQs, tutorials, training classes, telephone, and e-mail.

## Altair One Customer Portal

Altair One (<https://altairone.com/>) is Altair's customer portal giving you access to product downloads, a Knowledge Base, and customer support. We strongly recommend that all users create an Altair One account and use it as their primary means of requesting technical support.

Once your customer portal account is set up, you can directly get to your support page via this link: [www.altair.com/customer-support/](http://www.altair.com/customer-support/)

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Participate in an online community where you can share insights, collaborate with colleagues and peers, and find more ways to take full advantage of Altair's products.

Visit the Altair Community (<https://community.altair.com/community>) where you can access online discussions, a knowledge base of product information, and an online form to contact Support. These valuable resources help you discover, learn and grow, all while having the opportunity to network with fellow explorers like yourself.

## Altair Training Classes

Altair's in-person, online, and self-paced trainings provide hands-on introduction to our products, focusing on overall functionality. Trainings are conducted at our corporate and regional offices or at your facility.

For more information visit: <https://learn.altair.com/>

If you are interested in training at your facility, contact your account manager for more details. If you do not know who your account manager is, contact your local support office and they will connect you with your account manager.

## Telephone and E-mail

If you are unable to contact Altair support via the customer portal, you may reach out to technical support via phone or e-mail. Use the following table as a reference to locate the support office for your region.

When contacting Altair support, specify the product and version number you are using along with a detailed description of the problem. It is beneficial for the support engineer to know what type of workstation, operating system, RAM, and graphics board you have, so please include that in your communication.

Location	Telephone	E-mail
Australia	+61 3 9866 5557	<a href="mailto:anzsupport@altair.com">anzsupport@altair.com</a>
Brazil	+55 113 884 0414	<a href="mailto:br_support@altair.com">br_support@altair.com</a>

Location	Telephone	E-mail
Canada	+1 416 447 6463	<a href="mailto:support@altairengineering.ca">support@altairengineering.ca</a>
China	+86 400 619 6186	<a href="mailto:support@altair.com.cn">support@altair.com.cn</a>
France	+33 141 33 0992	<a href="mailto:francesupport@altair.com">francesupport@altair.com</a>
Germany	+49 703 162 0822	<a href="mailto:hwsupport@altair.de">hwsupport@altair.de</a>
Greece	+30 231 047 3311	<a href="mailto:eesupport@altair.com">eesupport@altair.com</a>
India	+91 806 629 4500 +1 800 425 0234 (toll free)	<a href="mailto:support@india.altair.com">support@india.altair.com</a>
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Italy	+39 800 905 595	<a href="mailto:support@altairengineering.it">support@altairengineering.it</a>
Japan	+81 3 6225 5830	<a href="mailto:support@altairjp.co.jp">support@altairjp.co.jp</a>
Malaysia	+60 32 742 7890	<a href="mailto:aseansupport@altair.com">aseansupport@altair.com</a>
Mexico	+52 55 5658 6808	<a href="mailto:mx-support@altair.com">mx-support@altair.com</a>
New Zealand	+64 9 413 7981	<a href="mailto:anzsupport@altair.com">anzsupport@altair.com</a>
South Africa	+27 21 831 1500	<a href="mailto:support@altair.co.za">support@altair.co.za</a>
South Korea	+82 704 050 9200	<a href="mailto:support@altair.co.kr">support@altair.co.kr</a>
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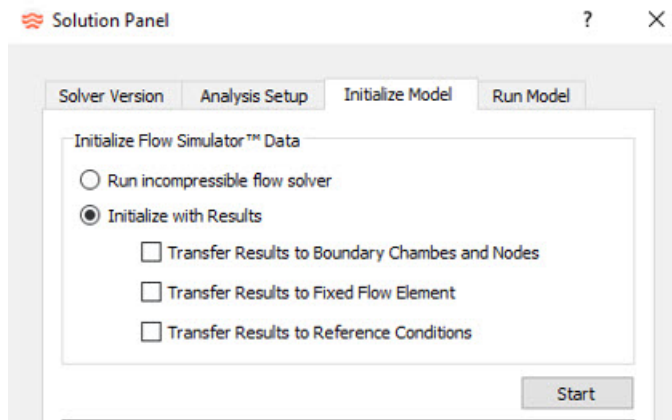
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See [www.altair.com](http://www.altair.com) for complete information on Altair, our team, and our products.

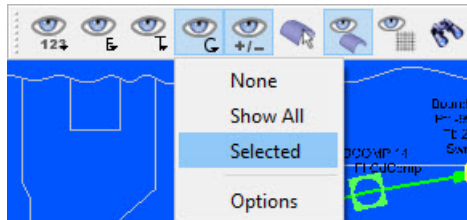


## GUI

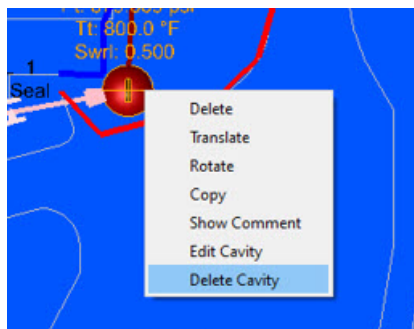
1. Added ability to initialize a model using the chamber information from a results file (\*.res). The pressure and temperature of internal chambers will be set from the results file. Optional capability to transfer results to the boundary chambers, fixed flow elements, and reference conditions (rotor speeds and cycle flow).



2. New text display control added for chambers, elements, and so on.



3. Implemented GUI inputs for new solver features: axial compressor and turbine efficiency, axial compressor and turbine choking and surge flow, vermes seal groove options, generic heat exchanger performance.
4. Added input for standard compressible tube "Duct Shape".
5. Provided ability to delete a cavity from the menu displayed with Right Mouse Click on selected chamber.



6. The "Auto Fill" option for cavity flows will now use the vermes seal radius.

## Solver

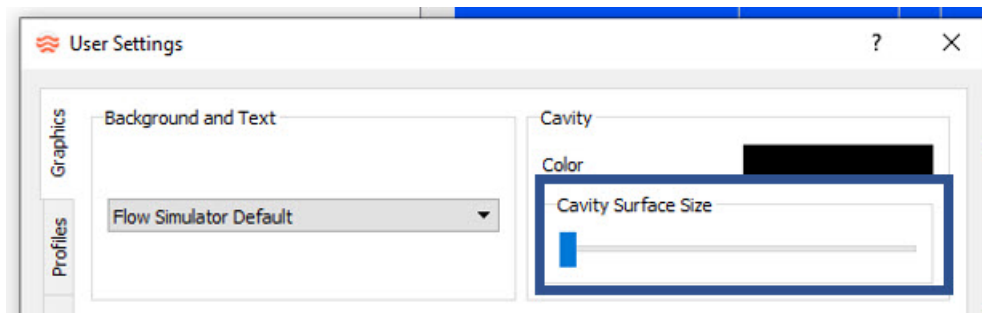
1. Improved .xml results file output. Including: Add units information, add element type, add vermes seal pocket information, remove extra spaces, use scientific notation format.
2. Added swirl, radius, RPM and chamber number to existing UDE\_GET\_BOUNDARY\_CONDITION function. See myelib\_param\_mod.f90 for valid parameter names.
3. Created new UDE function for general fluid properties retrieval: UDE\_GET\_FLUID\_PROP.
4. Enhanced velocity components, swirl and velocity calculation method to SET\_UDE\_SOLVED\_VALUE. See myelib\_param\_mod.f90 for valid parameter names.
5. Added items to controller including gauge compressible tube fluid properties for each station; gauge vermes seal groove information; gauge compressor corrected flow, corrected speed, polytropic efficiency; manipulate compressor polytropic efficiency; gauge tank height.
6. Implemented vermes seal groove input information and add a correlation based on Ref: Zimmermann, H., Wolf, K.H., "Air System Correlations Part 1: Labyrinth Seals", ASME 98-GT-206, Figure 7,  $Re > 5000$ ,  $GRV\_WIDTH/WT > 2$ , Tooth not in groove. This groove multiplier can also be changed using a controller with customer correlations.
7. Provided options to axial compressor and turbine including: Efficiency vs Corr. Flow Rate vs Corr. Speed; Efficiency vs Press. Ratio vs Corr. Speed; Surge and choke limits based on mass flow.
8. Implemented custom correlations capability in FORTRAN and Python for Tube (compressible, incompressible, and advanced orifice) heat transfer coefficients, HTC inlet multiplier, and friction factor; HTC for thermal convectors; Cavity surface friction.
9. Improved new generic heat exchanger performance options based on "Hs" parameter.

The following known issues will be addressed in a future release as we continuously improve the performance of the software:

- Import/Export is not updated for new elements/components & new properties for existing elements/components.

## GUI

- Fixed problem with plotting results on a thermal network when the results file is in SI units.
- Fixed problem with superscript symbols for non-English language (especially Chinese).
- Fixed crash when reading results files.
- Fixed problem of saving IGES file in the wrong units.
- Removed "Fixed" keyword from Boundary chamber display.
- Fixed cavity point resizing problem and improved with slider.



- Fixed problem with "Number of Streams" when plotting Total Flow in the color contour post-processing tool.
- Fixed problem with Advanced Orifice element not saving the laminar heat transfer coefficient (HTC) relation.

## Solver

- Fix some xml results file issues with units and ordering.
- Vermes seal now using HCSIZE and checking against SEAT input. FS GUI has also fixed bug related to this.
- Controller was using compressible tube Dh and area in reversed order.
- Fixed Water-hammer time-stepping based on wavespeed.
- Fix problem if hot and cold side connections were flipped for heat exchanger.
- Fixed valve vena-contracta velocity output in .res file.
- Fixed combustion element Rayleigh flow problem for temperature decrease through element.