

DEFORM News

Training:

- December 5-8, 2017: SFTC will host DEFORM training at our office in Columbus, Ohio. (This class is currently sold out.)
- February 13-16, 2018: SFTC will host DEFORM training at our office in Columbus, Ohio.

Events:

- May 1-2, 2018: SFTC will host the biannual DEFORM Users Group Meeting in Columbus, OH. Details will be announced at a later date.
- August 21-22, 2018: The annual Die Stress Analysis Workshop will be held at the SFTC office in Columbus, Ohio. Professor Joe Domblesky, from Marquette University, will co-instruct this very popular workshop.
- August 23, 2018: A one-day DEFORM training class will be offered following the Die Stress Analysis Workshop. This training will cover die stress analysis setup and simulation options from a DEFORM user perspective.

DEFORM V11.2

The recent release of DEFORM V11.2 brings with it a wide range of new features and improvements. A list of changes is provided on the next page and in the official release notes. A few of the notable features are described below.

Multiple Operation Interface

Since its introduction, the V11 multiple operation (MO) interface has provided a way to reuse an existing MO project as the basis for a new project. This has greatly reduced the time and effort required from users when modeling alternate design and process iterations. Up to this point, the ability has only been available in the "New Project" dialog.

What if you would like a library of MO projects covering a range of process workflows at your facility? A cold former might want a library of headers, such as 1-die/2-blow, 2-die/3-blow, 2-die/4-blow, etc. A forger may want a library of die layouts, such as upset, block/finish and bust/block/finish. The User Template capability allows users to save predefined MO setups to a custom library. They can then quickly pick a baseline setup from the user template list (below) when they begin modeling a new job.

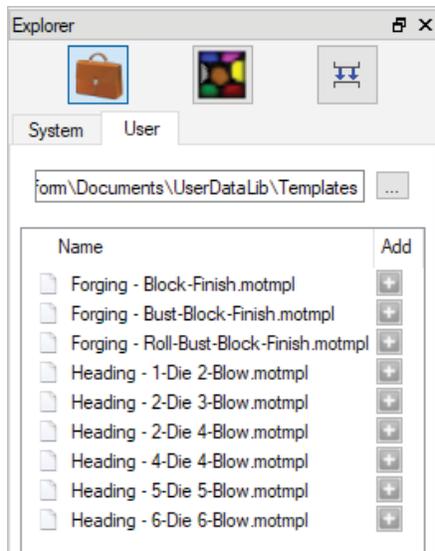
Within a particular MO project, the ability to modify the process chain has been further enhanced. One or more operations may be selected and then copied, via the right-click menu. These can then be pasted after a specific operation. This feature streamlines the creation of MO projects involving sequences of similar operations.

Advanced users occasionally have the need to manually modify a simulation midway through a MO sequence. They may want to change local boundary conditions, run a script on the partial results or integrate data from a third-party program. A "Stop" operation (below) can now be added, via the right-click menu, before or after a particular operation. The simulation will automatically stop when the Stop operation is reached. This allows users to perform manual adjustments and then continue the simulation when ready.



FORMING EXPRESS users will find changes to mechanical press setup procedures. The improvements provide a more robust and flexible movement control and die stroke input workflow. Automation is provided when tooling is drawn in either the top dead center or bottom dead center position.

Completed simulation databases can be quite large, particularly if they involve 3D modeling. 3D databases may reach 2GB, 10GB, 60GB or larger in size. Meanwhile, users are often faced with requirements to store simulation setups and/or results for a long term. Hard drives may therefore fill up quickly, particularly when a user runs many large simulations.



An Archive function has been added to the File menu in the MO interface to help better manage data. It provides a convenient tool to archive a project, its database and any associated DOE/Optimization runs. Databases may be automatically purged to reduce file size, while maintaining critical simulation setups and results.

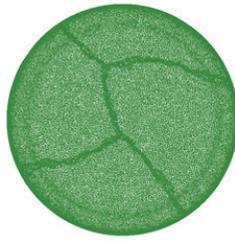
System Performance

SFTC continuously improves DEFORM system performance with each new release. Development opportunities are most apparent when dealing with large models. V11.2 includes many improvements in geometry loading, step selection, graphics, contact display, point selection and measurement performance and usability.

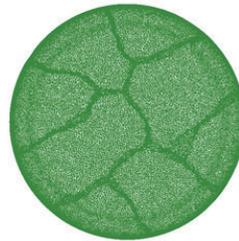
Users running large 3D models also stand to benefit from new parallel meshing technologies. Parallel meshing is the capability to split meshing procedures across multiple processor cores, thus reducing remeshing time. Users with applications requiring extensive remeshing can observe a significant speed improvement. For example, a bimetallic coin (right) has been meshed using 1, 4 or 8 core parallel meshing. Parallel meshing of the center body is illustrated below. The 8 core remeshing time across the entire simulation is more than three times faster than that with a single core.



1 Core
Runtime: 1



4 Cores
Runtime: <math>< \frac{1}{2}</math>



8 Cores
Runtime: <math>< \frac{1}{3}</math>

License and Queue Servers

V11.2 requires the removal of all old license servers and the installation of the newest license server, V3.2. The new server is provided with the V11.2 installer and as a stand-alone download. The license server has been updated to support better system integration, more flexible license handling and improved runtime robustness.

Job management tools have also received an overhaul with the introduction of the DEFORM Service Control utility. The new tool better supports license, queue, MO and DOE/Optimization requirements in shared or server/client environments. It makes the management and troubleshooting of simulation jobs much easier, regardless of whether or not the queue has been used. Exciting new features, such as remote job copying and submission are now possible thanks to these new developments.

It is important to note that when the user environment has multiple clients and simulation computers, they are all required to be on the same simulation server version. DEFORM Service Control assists with version checking and updating.

Parallel processing (MPI) permission configuration has also been redesigned in V11.2. This step is now transparent to users, thus eliminating the need for manual configuration by each user who installs the software.

Please contact your local DEFORM distributor with questions regarding V11.2 features.

DEFORM V11.2 Release

DEFORM V11.2 was released in October. The list of enhancements and new features include:

Graphical User Interface

- System performance improvements
- Improved large model handling
- Limited MO BCC redefinition
- MO stop operator
- MO archive function
- Object copy tool
- Enhanced mechanical press setup
- Point tracking for trimmed objects
- Postprocessor updates
- Picture-In-Picture (PIP) display
- ALE FLOWNET tracking
- Volume tracking
- Backward region of interest tracking
- DOE friction window variable
- DOE/optimization enhancements
- Updated shape rolling template

3D FEM

- Parallel meshing
- Furnace combustion air flow loss
- Kinematic hardening improvements
- Hydraulic press enhancements
- Material data handling updates
- Porous mini elements
- Tool wear improvements

2D FEM

- Porous material flow softening
- Thickness-based element deletion
- Hydraulic press enhancements
- Material data handling updates

Miscellaneous

- Material data updates
- 4 new lab exercises
- New license manager
- DEFORM Service Control utility
- Web-based simulation monitoring

A complete list of the new features can be found in the V11.2 release notes located in the DEFORM User Area.