Autodesk® Moldflow® Insight 2012

AMI Results

Autodesk®

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Results 1

Different results are generated for each analyses performed.

Results

After a successful analysis you will be able to view the results by selecting them in the Study Tasks pane.

Displaying a result

You can choose to display results at a later time.

After you create a result, it displays automatically. To display a result at a later time, follow the procedure below.

1 Ensure there are results listed in the **Study Tasks** pane.

2 Either select the check box next to the result, or right-click the result name and select **Show**.

3 Right-click the result and select **Hide** when you have finished viewing the result.

NOTE: You can also overlay a result over another result.

Animating a result

The **Animation** toolbar includes several options you can use to animate results.

Click one of the following buttons to display the selected result in the required way.

 Step backward one frame at a time

 Step forward one frame at a time

 Play

 Pause

 Stop

 Loop animation (from start to finish repeatedly, until another button is selected)

Bounce animation (from start to finish then the reverse repeatedly, until another button is selected)

For some results plots, you can choose what to animate; for example: animate over time or over a single dataset. Results displayed over a single dataset are animated through the unit of that result. For example, the Pressure at velocity/pressure switchover result is animated through the pressure values in the specified unit system (if Metric units are specified, pressure values are displayed in MPa).

1. Right-click on the selected plot in the **Study Tasks** pane.
2. Select **Properties**.
3. Select your preferred option from the **Animate result over** drop-down list.

NOTE: Certain plots have only one option available.

The number of frames can be increased or decreased; for example, increase the number of frames to smoothen out a jerky animation.

To change the number of frames used in the animation, edit the plot properties.

TIP: You can drag the slider or use the arrow keys to step the animation forward or back.

Examining a result plot

The Examine Result tool allows you to obtain precise result values in specific model areas.

To use the Examine Result tool, ensure you have a result displayed.

1. Click **Results tab > Plots panel > Examine**.
   The mouse cursor will change to small cross-hairs.
2. Move the cursor to the location where you require an exact value and click the left mouse button once.
3. Right-click the mouse button once and choose **Select** to deactivate the Examine Result function.

NOTE: You can use the **Ctrl** key to examine more than one area at a time. Simply hold-down the **Ctrl** key and click on different areas on your model.

Deleting a result

You can delete a result if it is of no interest to your particular part design, or to maintain an organized project.

You may also need to delete a result if you made a mistake when creating the result.

1 Ensure that you have analysis results open.
2 Right-click the result in the **Study Tasks** pane and select **Delete**. The selected result will be removed from the list.

NOTE: The result can be re-created if necessary by clicking **Results tab > Plots panel > New Plot > Plots** and selecting the required result from the **Available results** section.

Displaying results on an opaque model

You can display a Weld Line or Air Trap result on an opaque, rather than a transparent model.

1 Right-click on the result in the **Study Tasks** pane and select **Properties**.
2 On the **Mesh Display** tab, select **Opaque** as the **Surface display**.
3 Click **OK**.

Displaying results within a specified scale

For results other than XY plots or molding window slice plots, you may want to view only the results that fall within a specified range.

Displaying results within a specified scale allows you to target a range. For example, you may wish to see where the bulk temperature is between 240 and 260 °C. To do so, follow the steps below.

1 Select the check-box next to the result in the **Study Tasks** pane and click **Results tab > Results panel > Plot Properties**, or alternatively right-click the result name and select **Properties**.
2 Select the **Scaling** tab in the **Plot Properties** window and click the **Specified** button.
3 Enter the new minimum and maximum values.
4 Ensure that **Extended Color** is not selected.
5 Click **OK**.

Now the only area plotted is within the specified range. The rest of the part is gray or transparent.

Synchronizing and comparing views, plots, or animations

When you have multiple windows open, or have split a window into two or four sub-windows, you can synchronize (lock) the views, plots or animations of selected windows to visualize differences between them.

There are several synchronizing options available.

- Synchronizing **View** maintains the same model rotation, pan position and zoom level in each locked window/sub-window.
- Synchronizing **Plot** displays the same result plot in each locked window/sub-window.
- Synchronizing **Animation** simultaneously animates the result plot in each locked window/sub-window.

The window synchronization feature has been implemented with flexibility. You can apply any combination of the above to a particular window, and lock/unlock any or all displayed windows. The windows/sub-windows that are synchronized can relate to the same study in the project, or different studies, and these studies can contain the same or different models.

To synchronize windows:

1 Click on a window to select it.

2 Select one of the following entries under **View tab > Locking panel**.


Lock View


Lock Plot


Lock Animation

3 Repeat the above steps for each window that you want to synchronize.

4 If necessary, arrange all windows by clicking **View tab > Windows panel > Tile Horizontally** or **View tab > Windows panel > Tile Vertically**.

5 Select one of the synchronized windows and set up the desired view, plot, and/or animation.

The synchronized windows will automatically update the same display aspects that you have locked.

6 To quickly unlock all windows again, select one of the following entries under **View tab > Locking panel**.


Unlock All Views


Unlock All Plots


Unlock All Animations

Viewing intermediate results (Midplane or Dual Domain)

Viewing intermediate results while a result is running allows you to retrieve information as they are produced.

During a Fill+Pack analysis, intermediate results are saved at specified intervals. Intermediate results offer additional time-animation capabilities and recovery options.

1 Click  **Home tab > Molding Process Setup panel > Process Settings**.

2 On the **Fill** or **Fill+Pack Settings** page of the Wizard, click **Advanced Options**.

The **Fill+Pack Analysis Advanced Options** dialog appears.

3 In the **Solver Parameters** area, click **Edit**.

4 Click the **Intermediate Output** tab and select **Yes** from the **Dynamically update result display analysis** drop-down list.

5 Click **OK** twice and complete the **Process Settings Wizard**.

6 Click **Home tab > Analysis panel > Start Analysis** to launch the analysis.

As soon as the first set of intermediate results are available, the available plots are listed under the **Results** node in the **Study Tasks** pane. You can view these plots or add new plots in the same way as for completed analyses.

Viewing intermediate results (3D)

Viewing intermediate results while a result is running allows you to retrieve information as they are produced.

During a Fill+Pack analysis, intermediate results are saved at specified intervals. Intermediate results offer additional time-animation capabilities and recovery options.

1 Click **Home tab > Molding Process Setup panel > Process Settings**.

2 On the **Fill** or **Fill+Pack Settings** page of the Wizard, click **Advanced Options**.

3 In the **Solver Parameters** pane, click **Edit**.
The **Thermoplastic injection molding solver parameter (3D)** dialog appears.

4 Click the **Edit intervals...** tab in the **Intermediate results** pane.
The **Results Output Settings** dialog appears.

5 Select **Yes** as the **Dynamically update result display analysis** option to display intermediate results.

6 Click **OK** until the **Process Settings Wizard** is complete.

7 Click **Home tab > Analysis panel > Start Analysis** to launch the analysis.

As soon as the first set of intermediate results are available, the available plots are listed under the **Results** node in the **Study Tasks** pane. You can view these plots or add new plots in the same way as for completed analyses.

Analysis log

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An analysis log is generated every time an analysis is performed. It reports on any inputs used, any warnings or errors encountered, and provides a summary of results generated at the end of the filling and packing phases.

NOTE: Detailed analysis logs are included by default in results files exported from Autodesk Moldflow Insight.

TIP: To save the information to a text file, right-click on the **Analysis Log** tab and select **Save As**.

Header

This section contains the copyright details of the application. It also lists all of the analyses performed within the sequence, a date and time stamp, and any warnings or errors encountered at the initial stage.

Summary of analysis inputs

All of the inputs specified for the analysis are listed in this section. Use this section to verify that all of the inputs are correct. The following information is described:

- Solver parameters
- Material data
- Process settings
- Model details
- Coolant data for Cool (FEM) analyses
- Cool process settings for Cool (FEM) analyses

Analysis progress table

This section includes an analysis progress table, which provides tabular results for each time-step in the analysis. During the filling phase you can see the relation of volume of cavity filled, pressure inside the cavity, clamp force and flow rate to analysis times. During the packing phase the percent of cavity packed over time is reported.

NOTE: In the case of an Injection-compression analysis, the %Volume value is based on the final cavity thickness when the mold is closed. The %Volume value can therefore exceed 100% before press compression commences.

Results Summary

Various results are reported in this section of the analysis log, depending upon the analysis sequence chosen. Examples of results reported include the required clamp force and the recommended ram speed profile, bulk temperature, wall shear stress, frozen layer fraction, shear rate, cavity temperature results and volumetric shrinkage results.

Analysis log

You can view and save the Analysis Log generated after an analysis is performed.

Saving the Analysis Log to a text file

To maintain a record of an analysis, you can save the information in the Analysis Log to a text (*.txt) file.

You must run an analysis, or have one ready before attempting this task.

1. Open an analysis that has a result.
2. In the **Study Tasks** pane, select the **Logs** check box.
   The textual log files appears in the **Summary** pane.
3. Select the **Analysis Log** tab, or click an analysis tab to see the **Summary** for that analysis.
   An output description or summary appears.
4. Right-click on the **Analysis Log** or **Summary** display and select **Save As**.
   The **Save As** dialog appears.
5. Navigate to the folder where you want to save the text file and enter a name for the file in the **File name** box.
6. Click **Save**.

NOTE: You can open the (*.txt) file into any text editor.

Analysis check

3

The Analysis Check text result is generated for each analysis, and displays a complete list of any warnings or errors that occurred during each analysis in the sequence. A file is written for each analysis in the sequence.

Review this file to determine whether any warnings or errors occurred. If it has, make the necessary corrections to the model or analysis inputs, and then re-run the analysis. Click the tabs to view the analysis check for each corresponding analysis in the sequence.

You can also check the Solver Messages help topic for further information about warnings or errors.

If the Analysis Check finishes, and detects no significant warning or errors with the model that could affect the analysis, the message **Analysis Check completed successfully** is displayed.

NOTE: This result can be selected or deselected from the **Change Analysis Options** option in the **General** page under **Options**.

Results files 4

Autodesk Moldflow Results files contain a selection of results and analysis logs from one or two studies, and may also contain an Autodesk Moldflow Criteria file.
Results files are viewed with Autodesk Moldflow Communicator or a CAE results viewer that has been developed specifically for visualizing, quantifying, and comparing Autodesk Moldflow Results files.

In Autodesk Moldflow Communicator, you can compare the studies contained in Autodesk Moldflow Results files. You can also compare studies in an Autodesk Moldflow Results file to the values specified in an Autodesk Moldflow Criteria file.

Results files may include embedded criteria files (*.criteria). These are used to restrict the information displayed when results files are compared to criteria in Autodesk Moldflow Communicator. If you want to further restrict the information exported to a results file, ensure the analysis logs are not marked for export.

Results files

You can export results from more than one study.

Exporting results files

Analysis logs are marked for export by default. If you do not want to include analysis logs in the Autodesk Moldflow Results file, right-click on **Logs** in the **Study Tasks** pane, and then select **Unmark for export**.

1 Right-click a result name in the list of results and select **Mark for export**.
An asterisk appears after the result name. It has now been marked for export.

2 Repeat to mark additional results for export in the same way.

TIP: You can export the same results from 2 studies by marking the results in each of the studies, and then using the Control or Shift key to select both studies. Continue with the steps below to create the Autodesk Moldflow Communicator results file with results from both studies.

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3 Click **Results tab > Export and Publish panel > Moldflow Results**.
Alternatively, click then (**Publish > Results in MFR Format**).
The **Publish** dialog opens.

4 Navigate to the location in which you want to save the results file.

5 In the **File name** text box, enter a name for the results file.

6 Select **Autodesk Moldflow Results file (*.mfr)** in the **Save as type** drop-down list, and then click **Save**.

A confirmation dialog appears to inform you the results were exported successfully.

7 Select the **Include criteria file** check box to include a criteria file. Select the **Browse** button to choose your criteria file, and then click **Save**.

Criteria should be specifically entered for the study and results that you are exporting.

The file you selected is displayed in the check box.

8 If you want to restrict the display of information in Autodesk Moldflow Communicator when comparing studies to criteria, select the **Restrict MFR contents based on criteria** check box.

When a study is compared to a restrictive criteria file in Autodesk Moldflow Communicator, only the information that is specified in the criteria file is displayed.

9 Click **OK** to export the Autodesk Moldflow Results file.

A confirmation dialog appears to inform you the results were exported successfully.

NOTE: You can deselect all results that have been marked for export by right-clicking on any result, and then selecting **Unmark All for Export**.

Criteria files 5

An Autodesk Moldflow Criteria file (*.criteria) contains a set of criteria that describe optimum values or ranges for input values and results.

A criteria file can be compared with studies to analyse whether the processing conditions for that study are acceptable (within the tolerances described by the criteria). It can also be used to restrict the information displayed in Autodesk Moldflow Communicator software when comparing studies in an Autodesk Moldflow Results file (*.mfr) to criteria.

NOTE: A criteria file (*.criteria) is created or modified by using the Criteria Editor, which is available only in Autodesk Moldflow Insight software.

Criteria files

An Autodesk Moldflow Criteria file (*.criteria) describes optimum values or ranges for input values and results.

Creating or modifying a criteria file

A criteria file can be compared to studies to analyze whether the processing conditions for that study are acceptable (within the tolerances described by the criteria).

NOTE: Criteria files can be included in an Autodesk Moldflow Results file (*.mfr) to limit the information displayed when comparing results to criteria in Autodesk Moldflow Communicator.

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1. Click **Results tab > Export and Publish panel > Criteria**.

   The **Criteria Editor** enables you to select the criteria to include, as well as the possible values for each criterion.
2. Select the criteria you want to include in the criteria file by clicking the check boxes on the left side of each criterion.
3. Each criterion has either a drop-down list of possible values or a text entry box in which you can enter the appropriate value. For each criterion you include, enter an appropriate value.
4. Click **OK** to save the criteria file.
5. Navigate to the location in which you want to save the file, enter the file name, and click **Save** to save the file and close the **Criteria Editor** dialog.

Including criteria files by default when exporting results files

You can include a criteria file by default when exporting an Autodesk Moldflow Results file (*.mfr) to be used in Autodesk Moldflow Communicator.

You must create a criteria file containing the information you want to be visible when comparing results to criteria in Autodesk Moldflow Communicator.

NOTE: Analysis logs are marked for export by default. Criteria files do not restrict the information displayed in analysis logs. When you do not want to include analysis logs for each study you include in a results file, ensure the **Logs** are not marked for export.

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1. Click  then **Options**.
2. In the **Options** dialog, select the **External applications** tab.
3. Click **Set MFR Options**.
   The **MFR Export Settings** dialog is displayed.
4. Select the **Include criteria file** checkbox.
5. Select **Browse** to select a criteria file (*.criteria).
6. Once you have selected the criteria file, select **Save** to save your selection and return to the **MFR Export Settings** dialog.
7. If you want to restrict the information that is visible when comparing results to criteria in Autodesk Moldflow Communicator, select the **Restrict MFR contents based on criteria** checkbox.
8. Click **OK** to return to the **Options** dialog.
9. Click **OK** to save your preferences.

The criteria file you selected will be included by default when a Autodesk Moldflow Results file (*.mfr) is exported.

Criteria files

Use the Criteria Editor dialog to create and edit criteria files.

Criteria Editor dialog

This dialog is used to create and edit Autodesk Moldflow Criteria file (*.criteria). These files describe optimum values or ranges for input values and results.

To access this dialog, click  (**Results tab > Export and Publish panel > Criteria**).

The Criteria Editor dialog consists of two panes:

Criteria File	Contains the path and filename of the criteria file. To edit an existing file, browse to the appropriate folder and click a file to open. To create a new criteria file, browse to the appropriate folder, enter a new filename in the text box, and click **Save**.
Attribute pane	Contains a checkbox for each attribute and result, and displays their associated values. To include an attribute or result in the Autodesk Moldflow Criteria file, ensure there is a tick in the check box. Each attribute and result may have a text field or drop down list. To change a value, enter text in the text box, or select the appropriate value from the drop down list.

Valid comparisons 6

Comparing several different studies of the same part, each with slightly different settings, will help you optimize the design and manufacturing process.

The following guidelines should be observed when comparing studies:

NOTE: You can also compare studies to criteria files.

- Ensure the criteria file has been developed specifically for the part that has been analyzed in the studies.
- Compare different studies of the same part. It does not make sense to compare a bottle cap to a car bumper bar.
- Ensure the scales of the models and results are the same. Results that are different may just be reported in different scales.
- Compare studies with the same analysis technology. Results vary substantially between different analysis technologies.
- Comparing different studies of the same part and model and only making a few small changes can help you optimize the design. It is useful to compare the following for one model:
  - different gate locations and number of gates
  - different processing settings
  - slightly different materials with similar properties
  - different cooling channel configurations

Valid comparisons

The following tasks describe how to make valid comparisons.

Comparing result plots in the same study

It is sometimes helpful to view two different results for the same study simultaneously, for example the **Fill time** and **Time to reach ejection temperature** results.

1. Split the window to create enough sub-windows to contain the results you want to see.
2. Select each sub-window in turn and set up the desired plot.

TIP: To show the same result twice with different scaling (coloring of minimum/maximum values), create a new plot of the same result, and set the scaling for the new plot.

3 Synchronize the sub-windows' views or animations if desired.

Comparing result plots in different studies

It is sometimes helpful to see the same result for different studies simultaneously, for example, different process settings for the same model.

1 Open the studies. Tile the windows if desired.
2 Select each window in turn and set up the desired plot.
3 Synchronize the windows' views, plots, or animations if desired.

Comparing studies

Comparing studies provides a tabular summary of the key analysis inputs and results for the selected studies. This comparison enables you to optimize your design.

1 Select two or more studies in the **Project View** pane by holding **Shift** or **Ctrl** while you left-click on the study names.
2 Right-click one of the selected studies and select **Compare Studies**.

A dialog appears with a tabular summary of the inputs and results of the selected studies. Where the inputs or results differ between the studies, the associated table cells are highlighted.

NOTE: You should only compare studies with similar properties.

You can choose to display only the rows with differences by clicking on the check box below the table.

To export the report as a comma delimited spreadsheet file (*.csv), click **Export** and then specify the target folder and name for the export file.

NOTE: The reference study in the report is indicated by the * symbol at the top of the column. All other studies in the report are compared to this study.

Comparing studies with criteria

NOTE: A criteria file can be created and edited in Autodesk Moldflow Insight.

The criteria should describe the optimum results and tolerances. You can use this table to analyze where the inputs and results of each study differ from the criteria.

1. Select one study, or hold down the **Shift** key while you click on multiple file names in the **Project View** pane.
2. Right-click on any of the highlighted names and select **Compare with criteria**.
3. Navigate to the folder where the criteria file (*.criteria) is located, select the file, and then click **Open**.
   The **Study Comparison Report** dialog displays the tabular comparison between the criteria file and the selected studies. Where the inputs or results differ from the criteria or between the studies, the associated table cells are highlighted.
4. To display only the rows with differences, click the **Show only rows with differences** check box below the table.
5. To display only the rows with criteria, click the **Show only rows with criteria** check box below the table.

To export the table to a comma delimited spreadsheet file (*.csv), click **Export** and then specify the target folder and name for the export file.

Valid comparisons

You can compare different studies by accessing the Study Comparison Report dialog.

Study Comparison Report dialog

This dialog is used to compare the key inputs and results of one more studies in the current project. To access this dialog, select at least two studies in the **Project View** pane, then right-click and select **Compare Studies**.

File extensions 7

Interface and result files can be identified by their file extension. The following table lists the purpose of each type of file. Files designated “temporary” can be safely deleted after the completion of an analysis.

NOTE: To recover disk space, use the **Compact project** command (**File > Compact Project...** to delete unwanted project files.

Extension	File type	Purpose
amm	Model file	Model export format for transferring a Dual Domain surface mesh to Autodesk Moldflow Adviser
c2p	Interface file, Cool analysis to Fill+Pack analysis for the following analysis technologies: ■ Midplane ■ Dual Domain	Stores the following information: ■ Cycle time parameters ■ Element top and bottom temperatures ■ Also stores element top and bottom heat fluxes
clm	Result file, Cool analysis.	MPI 2.0 cooling laminate results
cmz	Interface file, Cool analysis to Fill+Pack analysis (3D)	Stores the following information: ■ Cycle time parameters ■ Element top and bottom temperatures ■ Also stores element top and bottom heat fluxes
con	Temporary intermediate file, Cool analysis	Stores the data relating to system matrix indices for the Boundary Element method (BEM) solver
cr0	Restart file, Cool analysis	MPI 2.0 Cool restart file

Extension	File type	Purpose
die	Result file, Fill+Pack analysis	Stores the "Machine Setup" result
dsu	Result file, Shrink analysis	Stores all the results of a Shrink analysis
dum	Temporary intermediate file, Wire Sweep/Paddle shift	Interface extension for Abaqus
err	Result file, all analyses	Stores error messages for each analysis performed
fem	Interface file, Autodesk Moldflow Insight to Abaqus	Model data for Abaqus (C-MOLD / Abaqus 6.2 license holders)
flm	Result file, Fill analysis	MPI 2.0 fill laminate results
fpo	Interface file, Autodesk Moldflow Insight to MPX	Stores material, injection molding machine and process setup data for Moldflow Plastics Xpert
fr0	Restart file, Fill analysis	MPI 2.0 end of Fill restart file
fts	Result file, Fill+Pack analysis	MPI 2.0 time series results
h3d	Model file	Altair Hyper3D format model file for storing Midplane, Dual Domain or 3D mesh and result data
hbr	Restart file, 3D Fill+Pack analysis (MPI 6.0)	
inp	Temporary intermediate file, Warp/Stress analyses	
jg1	Temporary intermediate file, Cool analysis	Stores the g term Boundary Element method (BEM) integral for the average temperature calculation
jg2	Temporary intermediate file, Cool analysis	Stores the g term Boundary Element method (BEM) integral for the temperature difference calculation
jh1	Temporary intermediate file, Cool analysis	Stores the h term Boundary Element method (BEM) integral for the average temperature calculation
jh2	Temporary intermediate file, Cool analysis	Stores the h term Boundary Element method (BEM)

Extension	File type	Purpose
		integral for the temperature difference calculation
jou	Temporary intermediate file, Cool analysis	Manages the jg1, jg2, jh1 and jh2 temporary files for the Boundary Element Method (BEM) equations
ls4	Result file	Stores information for the paddle-shift interface
lsp	Interface file, Warp analysis to Stress analysis	Stores layer-based stress and thermal and mechanical properties
mab	Interface file, Autodesk Moldflow Insight to Abaqus	Input data for Abaqus (Autodesk Moldflow Insight / Abaqus 6.2 license holders)
m3i	Model file	MPI 2.0 format for storing 3D mesh
m3r	Restart file, 3D Fill + Pack analysis (MPI 5.1)	
mfl, nda, ela, ata, ain	Model file	MPI 2.0 format for storing Midplane, Dual Domain and 3D mesh
mfr	Results file	Study result files for export to Autodesk Moldflow Communicator
mws	Workspace settings file	Stores a custom workspace configuration
oc1	Result file, Cool analysis	Stores all cooling circuit results
ocs	Result file, core shift analysis	All core shift specific results
od1	Result file, DOE analysis	Stores all XY plot results
od2	Result file, DOE analysis	Stores all contour plot results
of1	Result file, Fill analysis	Stores all filling phase results except weld line and air traps
of2	Result file, Fill analysis	Stores weld line and air trap results
og1	Result file, Gas-assisted Fill+Pack analysis	Stores all filling phase results
oic	Result file, Injection-compression analysis	Stores all filling phase results

Extension	File type	Purpose
oj1	Result file, Co-injection analysis	Stores all results specific to a Co-injection analysis
oo1	Result file, Fiber orientation analysis	For Midplane and Dual Domain models, fiber orientation data are stored during the filling phase. For 3D models data are stored at the end of the filling for a fill analysis, and at the end of packing for a Fill+Pack analysis
oo2	Result file, Fiber orientation analysis	For Midplane and Dual Domain models, fiber orientation data are stored during the packing phase
op2	Result file, Pack analysis	Stores all packing phase results
os1	Result file, reactive molding analyses	Stores all filling phase results of a RIM, RTM or SRIM, Underfill encapsulation or Microchip encapsulation analysis
os2	Result file, reactive molding analyses	Stores weld-line data
os3	Result file, Microchip encapsulation analysis	Stores all wire sweep results
os4	Result file, Microchip encapsulation analysis	Stores all paddle shift results
osp	Interface file, Autodesk Moldflow Insight to Abaqus	Residual stress and/or material property data for Abaqus (C-MOLD / Abaqus 6.2 license holders)
ot1	Result file, Gate location analysis	Stores gate location analysis specific results
ot2	Result file, Molding window analysis	Stores molding window analysis specific results
ot3	Result file, Runner balance analysis	Stores runner balance analysis specific results
ot4	Result file, Process optimization analysis	Stores filling phase results
ot5	Result file, Process optimization analysis	Stores packing phase results

Extension	File type	Purpose
out	Temporary intermediate file, Warp/Stress analyses	
ow3	Result file, Warp analysis	Stores displacements and stresses
ow4	Result file	Stores stress related results
pat	Model file	Patran format model file for storing Midplane, Dual Domain or 3D mesh
plm	Result file, Pack analysis	MPI 2.0 flow laminate results
ppc	Interface file, Fill+Pack analysis to Cool analysis	Stores melt temperature and heat fluxes
pr0	Restart file, Pack analysis	MPI 2.0 end of packing restart file
rbc	Interface file, Fill+Pack analysis to Runner balance analysis	Element throughput and nodal pressure results from original Fill+Pack analysis
rfn	Temporary project management file	Stores the completion status of an analysis
rs0	Restart file, Fiber orientation analysis	
rsp	Restart file, Fill+Pack analysis	
sdy	Project management file	Study file containing geometry, mesh, materials, injection location(s), process settings, solver parameters
stl	Model file	Model export format for visualization of a Midplane mesh in third party CAD systems
tsp	Interface file, Warp analysis results to structural analysis packages	Provides initial stress results for tetra elements for interfacing with structural analysis packages
udm	Project management file	Export of study to ASCII format file for support diagnosis
udm	Project management file	Compressed version of text udm

NOTE: To recover disk space, click  then  **Project > Compact** to delete unwanted project files.

Customize results 8

You can customize the results list to include only the results that are required for the current task, to minimize the list of results and to save post processing time. A set of default results are created at the end of an analysis or analysis sequence.

Customize results

You can customize the results list to display information in a way that meets your specific needs.

Customizing the default results list

You can customize the results list to include only the results that are required for the current task, to minimize the list of results and to save post processing time.

A set of default results are created at the end of an analysis or analysis sequence.

NOTE: Results automatically created from an analysis can be edited if necessary.

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1. Click  **> Options** and select the **Results** tab.
2. Click **Add/Remove**.
3. In the **All results** pane click on a result, and then click **Move Right** to add it to the **Default results** pane.

   This will specify the result as a default result.
4. Click **OK** when you have finished.
5. Click **OK** to close the **Options** dialog.

   The results that you selected will be created by default after you perform the next analysis.

NOTE: To specify all results for that analysis type to be created by default, you can select a folder, and then the right arrow button,

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Setting how intermediate results are created (3D)

Intermediate results offer additional time-animation capabilities and recovery options. During a Fill+Pack analysis, intermediate results are saved at pre-specified intervals by default.

You can choose when to save intermediate results.

1. Click **Home tab > Molding Process Setup panel > Process Settings**.
2. In the **Fill** or **Fill+Pack Settings** page, click **Advanced Options**.
   The **Fill+Pack Analysis Advanced Options** dialog appears.
3. In the Solver Parameters area, click **Edit**.
   The **Thermoplastics injection molding solver parameters** dialog appears.
4. From the **Intermediate results** drop-down list in the **Fill+Pack Analysis** tab, select an option to set how intermediate results are created.
   - **None** does not display interval results.
   - **Write at constant intervals** displays results at a constant and regular interval. Edit the intervals if necessary to specify the number of results per interval.
   - **Write at specified times** displays results at user-defined times. Edit the times if necessary to specify when intermediate results are created.
5. Click **OK** twice and complete the **Process Settings Wizard**.
6. Click **Home tab > Analysis panel > Start Analysis** to launch the analysis.
   Intermediate results will be saved as configured.

Rotating the model to match the global coordinate system

The default parting plane for a mold is the XY plane of the global coordinate system. If your part is modeled with a different parting plane, you can rotate the model so the global coordinate system's XY plane coincides with the parting plane.

The model must be rotated before you run the analysis.

1. Click (**Geometry tab > Utilities panel > Move**) and select **3 Points Rotate** from the drop down list.
2. Select all the elements in the model, either with the mouse or (**Geometry tab > Selection panel > Select All**).
3. Select three points on the model, all of which are on the parting plane. The points must not be in a straight line.
4. Click **Apply**.

The part is now rotated as required.

Synchronizing and comparing views, plots, or animations

When you have multiple windows open, or have split a window into two or four sub-windows, you can synchronize (lock) the views, plots or animations of selected windows to visualize differences between them.

There are several synchronizing options available.

- Synchronizing **View** maintains the same model rotation, pan position and zoom level in each locked window/sub-window.
- Synchronizing **Plot** displays the same result plot in each locked window/sub-window.
- Synchronizing **Animation** simultaneously animates the result plot in each locked window/sub-window.

The window synchronization feature has been implemented with flexibility. You can apply any combination of the above to a particular window, and lock/unlock any or all displayed windows. The windows/sub-windows that are synchronized can relate to the same study in the project, or different studies, and these studies can contain the same or different models.

To synchronize windows:

1 Click on a window to select it.

2 Select one of the following entries under **View tab > Locking panel**.


Lock View


Lock Plot


Lock Animation

3 Repeat the above steps for each window that you want to synchronize.

4 If necessary, arrange all windows by clicking **View tab > Windows panel > Tile Horizontally** or **View tab > Windows panel > Tile Vertically**.

5 Select one of the synchronized windows and set up the desired view, plot, and/or animation.

The synchronized windows will automatically update the same display aspects that you have locked.

6 To quickly unlock all windows again, select one of the following entries under **View tab > Locking panel**.


Unlock All Views


Unlock All Plots


Unlock All Animations

Customize results

You can customize the results list to include only the results that are required for the current task.

Add/Remove Default Results dialog

This dialog is used to configure the default list of results that are displayed in the **Study Tasks** pane after an analysis has been performed. To access this dialog, click  , then click **Options**, select the **Results** tab, and then click **Add/Remove** below the **Default results:** list.

Order of Default Results dialog

This dialog is used to configure the order in which default results are displayed in the **Study Tasks** pane after an analysis has been performed.

To access this dialog, click  , then click **Options**, select the **Results** tab, and then click **Order** below the **Default results:** list.