Getting Started Guide

Autodesk® Moldflow® Communicator

Release 2010-R2

Autodesk®

Revision 2, 23 June 2009.

Autodesk® Moldflow® Communicator

Trademark

The following are registered trademarks or trademarks of Autodesk, Inc., in the USA and other countries: 3DEC (design/logo), 3December, 3December.com, 3ds Max, ADI, Alias, Alias (swirl design/logo), AliasStudio, Alias|Wavefront (design/logo), ATC, AUGI, AutoCAD, AutoCAD Learning Assistance, AutoCAD LT, AutoCAD Simulator, AutoCAD SQL Extension, AutoCAD SQL Interface, Autodesk, Autodesk Envision, Autodesk Insight, Autodesk Intent, Autodesk Inventor, Autodesk Map, Autodesk MapGuide, Autodesk Streamline, AutoLISP, AutoSnap, AutoSketch, AutoTrack, Backdraft, Built with ObjectARX (logo), Burn, Buzzsaw, CAiCE, Can You Imagine, Character Studio, Cinestream, Civil 3D, Cleaner, Cleaner Central, ClearScale, Colour Warper, Combustion, Communication Specification, Constructware, Content Explorer, Create>what's>Next> (design/logo), Dancing Baby (image), DesignCenter, Design Doctor, Designer's Toolkit, DesignKids, DesignProf, DesignServer, DesignStudio, Design|Studio (design/logo), Design Web Format, DWF, DWG, DWG (logo), DWG Extreme, DWG TrueConvert, DWG TrueView, DXF, Ecotect, Exposure, Extending the Design Team, FBX, Filmbox, FMDesktop, Freewheel, GDX Driver, Gmax, Green Building Studio, Heads-up Design, Heidi, HumanIK, IDEA Server, i-drop, ImageModeler, iMOUT, Incinerator, Inventor, Inventor LT, Kaydara, Kaydara (design/logo), Kynapse, Kynogon, LandXplorer, LocationLogic, Lustre, Matchmover, Maya, Mechanical Desktop, MotionBuilder, Movimento, Mudbox, NavisWorks, ObjectARX, ObjectDBX, Open Reality, Opticore, Opticore Opus, PolarSnap, PortfolioWall, Powered with Autodesk Technology, Productstream, ProjectPoint, ProMaterials, RasterDWG, Reactor, RealDWG, Real-time Roto, REALVIZ, Recognize, Render Queue, Retimer,Reveal, Revit, Showcase, ShowMotion, SketchBook, SteeringWheels, Stitcher, StudioTools, Topobase, Toxik, TrustedDWG, ViewCube, Visual, Visual Construction, Visual Drainage, Visual Landscape, Visual Survey, Visual Toolbox, Visual LISP, Voice Reality, Volo, Vtour, Wiretap, and WiretapCentral.

The following are registered trademarks or trademarks of Autodesk Canada Co. in the USA and/or Canada and other countries: Backburner, Discreet, Fire, Flame, Flint, Frost, Inferno, Multi-Master Editing, River, Smoke, Sparks, Stone, and Wire.

The following are registered trademarks or trademarks of Moldflow Corp. in the USA and/or other countries: Moldflow, MPA, MPA (design/logo), Moldflow Plastics Advisers, MPI, MPI (design/logo), Moldflow Plastics Insight, MPX, MPX (design/logo), Moldflow Plastics Xpert.

Disclaimer

THIS PUBLICATION AND THE INFORMATION CONTAINED HEREIN IS MADE AVAILABLE BY AUTODESK, INC. "AS IS." AUTODESK, INC. DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING THESE MATERIALS.

Contents

Chapter 1

Introduction

Autodesk® Moldflow® Communicator 2010-R2 is a free software program that allows distributed product teams to visualize, quantify and compare analysis results output by Autodesk Moldflow Adviser or Autodesk Moldflow Insight software.

Unlike static 3D viewers, Autodesk Moldflow Communicator software allows users to understand the assumptions behind a given set of analysis results. This is vital to gaining the insight required to make critical design decisions.

One of the greatest challenges faced by CAE companies is ensuring their users properly communicate analysis results and the associated assumptions to members of increasingly distributed product development teams. All too often, painstaking design optimization work done at the beginning of the design-to-manufacturing process is not taken advantage of due to poor communication between team members.

Autodesk Moldflow Communicator software allows users to easily share the insight gained from analysis-driven design optimization with any member of a product development team, many of whom are not part of the design team. Extended team members can now view results dynamically and interactively on 3D models and use a set of powerful tools to compare analysis results. Results from two iterations of an analysis can be compared "side-by-side" to better understand design improvements. One of the most compelling benefits is the ability to understand the assumptions behind a given set of analysis results. This can help team members make informed decisions to reduce development times, improve part quality and speed time to market.

Autodesk Moldflow Communicator software provides the means to quantify the quality of analyses performed, using analysis quality criteria. It is important for companies that either outsource or rely on their vendors or suppliers to perform analyses, to check the quality of the results they receive.

Autodesk Moldflow Communicator software capabilities

Autodesk Moldflow Communicator software allows you to visualize, compare and quantify results.

Visualize results	Review analysis results on a single model interactively by manipulating, rotating or zooming in on the model displayed on the screen.
Compare results	Compare results from two analyses of the same model at the same time. Autodesk Moldflow Communicator software displays the first result from each study, one above the other. The rotation, zoom and animations are locked and synchronized, making the review of results easier.
Quantify results	View a tabular summary of one or two studies compared to a set of rules and values (analysis quality criteria) stored in an Autodesk Moldflow Criteria file. Where values are different between the specified criteria and the actual studies, the associated table cells are highlighted. **Note:** You can only quantify results output by Autodesk Moldflow Insight software. This option is not available for results output by Autodesk Moldflow Adviser software.

Files used with Autodesk Moldflow Communicator software

There are two file types compatible with Autodesk Moldflow Communicator software: results files and criteria files.

Autodesk Moldflow Results file

An Autodesk Moldflow Results file (*.mfr) contains a selection of results and analysis logs.

Results files can contain one or two studies, and each of the studies can contain up to 8 results from each analysis in the analysis sequence. A results summary (Autodesk Moldflow Adviser) or analysis log (Autodesk Moldflow Insight) is usually included by default in results files as they are exported.

You can create results files in either Autodesk Moldflow Insight or Autodesk Moldflow Adviser software. If the results file was exported using Autodesk Moldflow Insight software, it may also optionally contain an embedded Autodesk Moldflow Criteria file (*.criteria) file.

Autodesk Moldflow Results file compatibility

Autodesk Moldflow Communicator 2010-R2 software supports results files created in the following products:

- Autodesk Moldflow Insight 2010 and later
- Autodesk Moldflow Adviser 2010 and later
- Moldflow Plastics Insight 6.1 and later
- Moldflow Plastics Advisers 8.1 Revision 3 and later

Autodesk Moldflow Criteria file

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.

Chapter 2

Exploring the User Interface

The Autodesk Moldflow Communicator software user interface provides an efficient work area to visualize and compare results.

The user interface consists of the following elements:

Menu bar	Contains a list of menus available in Autodesk Moldflow Communicator.
Toolbars	Allows quick access to tools and commands available in Autodesk Moldflow Communicator. Toolbars can be added and removed as necessary, and can be displayed as large or small icons. There are four main toolbars: ■ Standard ■ Animation ■ Viewer ■ Viewpoint
Project panel	Displays information about the project and allows you to manage the open project. The Project panel consists of two sections: ■ Project View pane ■ Study Task pane
Notes panel	Contains additional information added by the creator of the project. The Notes panel consists of two tabs: ■ Study Note ■ Plot Note
Display window	Displays the model and its analysis summary.
Dynamic Help panel	Displays the help topic associated with the result displayed on the screen.
Status bar	Provides information about the molding process used in the active study, and allows you to access the analysis log or results summary.
Context menu	Displays additional tools and options when the right mouse button is clicked. The context menu will display different options, depending on where you click the mouse.

Menu bar

The Menu bar contains a list of menus available in Autodesk Moldflow Communicator software. The commands available within the menus depend on the result you are currently viewing.

The menus and their functions are listed below.

File	Open and close results files, review project and study properties, print, set preferences and exit Autodesk Moldflow Communicator software.
Edit	Copy and save images and animations.

View	Display/hide the various panels and toolbars within Autodesk Moldflow Communicator software and change the toolbar icon size.
Results	Select display options for visualizing results such as overlay, compare and quantify. Results such as fill time and air traps, fill time and weld lines, and fill time and orientation results (core/skin) can be overlaid.
Windows	Control how multiple windows are displayed.
Help	Access the online help and other information about Autodesk Moldflow Communicator software, including keyboard shortcuts, tutorials and the website.

Toolbars

The Toolbars allow quick access to tools and commands available in Autodesk Moldflow Communicator software. Most of the commands in the toolbar can also be accessed via the menu bar.

Tip: To view the tooltip, hover your mouse over an icon on the toolbar.

You can move a toolbar within Autodesk Moldflow Communicator by clicking on a toolbar and dragging, or you can toggle the display of the toolbars by clicking **View** > **Toolbars**.

The toolbars and their functions are listed below.

Standard	Open a results file, print, display panels and online help. Overlay, compare and quantify results.
Animation	Control the animation of results.
Viewer	Manipulate the display of the model.
Viewpoint	Select standard view rotations.

Specific tools and their functions are listed in the appendix *List of standard toolbar icons* on page 16.

Project panel

The Project panel displays information about the project - studies and results - and allows you to manage it.

The Project panel consists of two sections:

- Project View pane
- Study Tasks pane

Note: You can move the divider bar to adjust the viewing panes.

Project View pane

The **Project View** pane lists the studies (models) included in the Autodesk Moldflow Results file. One or two studies will be displayed with one or more icons representing the analysis sequence. For example,  (Cool + Flow + Warp). These icons represent individual analyses in the analysis sequence.

Table 1: Analysis icons and names

Icon	Analysis name
	Cool
	Cooling Quality

Icon	Analysis name
	Design of Experiments
	Fill
	Gate Location
	Geometry
	Molding Window
	Pack
	Process Optimization
	Runner Adviser
	Runner Balance
	Shrink
	Sink Mark
	Stress
	Warp

Study Tasks pane

The **Study Tasks** pane displays the results and activities associated with the open study.

Table 2: Study Tasks pane icons

Icon	Name	Action
	Summary or Logs	When viewing a results file from Autodesk Moldflow Insight software, the Logs provide access to the mesh log, analysis log, analysis sequence log and other information. When viewing a results file from Autodesk Moldflow Adviser software, the Summary provide access to the Results Summary for each analysis, as well as configuration information.
	Results	Lists all results available for the study.

Notes panel

The Notes panel contains additional information about the project, and is added by the creator of the results file.

It can be used to convey specific information that may assist in the interpretation of the project and the displayed result. To open the Notes panel, click **View** > **Notes**.

The Notes panel consists of two tabs.

Study Note	Displays general information about the entire study and not just a single plot.
Plot Note	Displays explanatory text about the selected result.

Note: Study and plot notes must be added in Autodesk Moldflow Insight or Autodesk Moldflow Adviser software before the results file is exported.

Display window

The Display window displays the model and its analysis summary or analysis log.

You can have up to two studies open at one time in the display window. To maximize the display window and hide all other panels, click **View** > **All Panels**.

Analysis logs and result summaries

Use the analysis logs and result summaries to view the study's analysis and result attributes.

Analysis logs and result summaries are exported by default from Autodesk Moldflow Insight and Autodesk Moldflow Adviser software respectively.

For results files exported by Autodesk Moldflow Insight software, open the analysis logs by selecting the **Logs** check box in the Study Tasks pane, or in the status bar. The analysis logs contain configuration and progress information, solver messages and detailed results from each analysis. View each analysis log by selecting the appropriate tab.

For results files exported by Autodesk Moldflow Adviser software, open the results summaries by selecting the **Summary** check box in the Study Tasks pane, or in the status bar. Result summaries contain summarized information about the initial configuration, progress and results of each analysis, as well as solver messages. View each result summary by selecting the appropriate tab.

Dynamic Help panel

The Dynamic Help panel displays the help topic associated with the result displayed on the screen.

The dynamic help automatically displays information about the current selected result. To toggle the display of the Dynamic Help, click **View** > **Dynamic Help**.

Context menu

The Context menu displays additional tools and options when the mouse button is right-clicked.

Context menu appear as short menus and will have different options, depending on what is highlighted, or the location of the cursor.

Context menus will appear if you right-click the mouse in the following locations:

- Project view pane
- Logs/summary or any result in the Study Task pane
- Toolbars
- Display window

Context menus are a convenient way to access additional tools in Autodesk Moldflow Communicator software.

Chapter 3

Using Autodesk Moldflow Communicator software

The following exercises demonstrate how to use the main features of Autodesk Moldflow Communicator software.

To complete additional tutorials within Autodesk Moldflow Communicator software, click **Help** > **Tutorials**, and then click **Getting Started**.

Where to find tutorial files

In order to do the lessons in the Getting Started Guide, you are required to open a results file.

You may use a results file that you have created, or you may use sample tutorial files provided by Autodesk. The supplied tutorial files are installed in the Autodesk Moldflow Communicator tutorial directory during the installation. Additional sample results files are also available on the Autodesk website.

- To access the tutorial files from the default tutorial directory, go to `C:\Program Files\Autodesk\Moldflow Communicator 2010-R2\tutorial` and then select an Autodesk Moldflow Results file (*.mfr) file.
- To download tutorial files from the Autodesk website, in your browser, go to *www.autodesk.com/communicator*, navigate to the download page and then download the Autodesk Moldflow Results file (*.mfr) file you would like to work with.

Creating backup copies of the original tutorial files

You should create backup copies of the original tutorial files so that you always have the original versions available.

To create backup copies, you need to specify a backup folder.

1. Navigate to the tutorial directory.

   By default, the tutorial files are installed in the tutorial directory during installation: `C:\Program Files\Autodesk\Moldflow Communicator 2010-R2\tutorial`. If you have specified a different path during the installation, go to the user-specified directory instead.

   Note: You can create the backup folder anywhere, but we recommend that you create the backup folder within the tutorial directory. By creating a backup folder within the tutorial directory, all tutorial files are located in one place.

2. In that directory, create a new folder and give it an appropriate name.
3. Copy and paste the original tutorial files into the new folder.

Opening a results file

Open a results file to begin visualizing the results.

1. Click **Start** > **Programs** > **Autodesk** > **Autodesk Moldflow Communicator 2010-R2** > **Autodesk Moldflow Communicator 2010-R2** to open Autodesk Moldflow Communicator software.
   The Launch wizard displays.
2. Click  **Browse** to navigate to the directory where the tutorial file is located.
3. Select the Autodesk Moldflow Results file (*.mfr) file you would like to work with and then click **Next**.

4 Select the **Visualize results** option and then click **Finish**.

Viewing results

Review analysis results on a single model and manipulate the display using various tools and toolbars.

To get the best out of viewing results, ensure the **Dynamic Help** is turned on (**View** > **Dynamic Help**).

Orientating the view

Changing the model's orientation allows you to view different aspects of the model, based on its rotation.

1 Open a results file.
The default orientation is **Front** view.

2 Click  **Right**.
Note the orientation of the model changes.

Experiment with other orientations to view the model from different angles.

Animating results

Animating a result allows you to watch the results play out in a motion sequence.

1 In the **Study Tasks** pane, select a result.
For example, the **Fill time** result.

2 Click  **Animate**.
Different results animate differently. For example, for the Fill time result, the progress indicator bar (located on the right side of the display window) fills as the result animates.

3 Click  **Next** to view the animation in increments.

4 Select a different result and animate it.

Experiment with other animation tools to watch different results animate.

Manipulating the view

Manipulating the view allows you to reposition the model, focus on certain parts of the model in greater or lesser detail, or specify areas for measurement.

1 Ensure the Viewer toolbar is visible. Click **View** > **Toolbars** > **Viewer**.

2 Click  **Zoom**, then with the left mouse button pressed down, drag your mouse up and down to scale the display of the model.

3 Click  **Rotate**, then use your mouse to orientate the model.

4 In the Study Tasks pane, select a result.
For example, the **Temperature, mold** result.

5 Click  **Clip** to create a cutting plane.
A cutting plane allows you to see inside a solid model, enabling you to view areas which would otherwise be difficult to see.

6 In the **Cutting Plane** dialog, select **Plane ZX** and then click **Flip**.

7 Click **Make Active**.
The **Move Cutting Plane** dialog displays.

8 With the left mouse button pressed down, move the cutting plane up and down so you can view the inside areas of the part.

Experiment with the other viewer tools to manipulate the view.

Comparing results

Compare results from two analyses of the same model at the same time.

To compare results, your results file must have two studies.

Note: The following sample files provided by Autodesk have two studies:

- amc_tutorial.mfr (`C:\Program Files\Autodesk\Moldflow Communicator 2010-R2\tutorial\amc_tutorial.mfr`)
- seat.mfr (*www.autodesk.com/communicator*)

Autodesk Moldflow Communicator software displays the first result from each study, one above the other while the rotation, zoom and animations are locked and synchronized, making the comparison easier.

Note: A padlock icon appears on the top left side of the window when the Compare tool is turned on. This indicates that the view and animation are locked and synchronised.

1 Open a results file that has two studies.

2 Click **Results** > **Compare Results**.
The first result of each study opens in separate windows and is tiled horizontally. The results are locked and synchronized, allowing you to manipulate them together.

3 Compare the results by using the view and animation tools available.

4 Select a different result and compare their results.

5 To turn off the Compare tool, click **Results** > **Compare Results**.

Note: You can still use the view and animation tools when the Compare tool is turned off. However, the results are not locked or synchronized.

Quantifying results

View the summary of up to two studies, compared to a set of rules and values (analysis quality criteria) stored in an Autodesk Moldflow Criteria file.

Note: The Quantify results tool is available only for results files with an embedded criteria file that was exported by Autodesk Moldflow Insight software.

Criteria file contents are listed in the appendix *List of criteria file contents* on page 18.

Note: The following sample files provided by Autodesk have an embedded criteria file:

- amc_tutorial.mfr (`C:\Program Files\Autodesk\Moldflow Communicator 2010-R2\tutorial`).

1 Ensure you open a results file that has an embedded criteria file.
Criteria files (.criteria) have its own file extension, but are associated with the results file (.mfr) it was exported with.

2 Click **Results** > **Quantify Results**.

The **Open** dialog appears.

3 Select the associated Autodesk Moldflow Criteria file (*.criteria) file and then click **Open**.
A **Study Comparison Report** dialog appears, displaying a list of the study's result values and of the criteria values.

Note: Rows that are highlighted indicate differences exist between the study's result values and criteria values.

4 Select the **Show only rows with differences** check box to display only the rows with differences.
View and compare the differences between what was input (study details) and what was specified (criteria values).

5 Select the **Show only rows with criteria** check box to display only the rows with specified criteria.
View and compare whether the study's input match the criteria values specified.

6 Click **Export** to export the comparison report as an .csv format.
Exporting the report to an .csv format allows you to open the file in Microsoft Excel.

7 Navigate to the location where you want to save the file.

8 Type a name for the file and then click **Save**.

9 Click **Close** to close the **Study Comparison Report** dialog.

Creating a results file

Create a results file so you can share, visualize, evaluate and compare analysis results in Autodesk Moldflow Communicator software.

To create a results file, you need to use the export tool in Autodesk Moldflow Adviser or Autodesk Moldflow Insight software. If you use Autodesk Moldflow Insight software to export a results file, you may optionally include an analysis quality criterion (an embedded criteria file).

A results file may contain all the model and results information necessary for displaying one or two studies, and may contain up to 8 results per analysis, per study. There are a number of steps involved in creating a results file:

1 *Reviewing the models* on page 13
2 *Marking results for export* on page 14
3 *Adding additional information* on page 14
4 *Creating a criteria file* on page 14
5 *Exporting to a results file* on page 14

Note: Autodesk Moldflow Communicator software does not have the ability to turn on or off layers (Autodesk Moldflow Insight), or entities (Autodesk Moldflow Adviser). Nor does it have the ability to change result properties. You must set these properties in Autodesk Moldflow Insight or Autodesk Moldflow Adviser software prior to exporting the results to a results file.

Note: Study notes, plot notes, project information and study information must be edited in Autodesk Moldflow Insight or Autodesk Moldflow Adviser software before exporting the results to a results file.

You can export multiple copies of a result with different plot properties, such as scaling, color and mesh display, which can then be compared in Autodesk Moldflow Communicator software.

Reviewing the models

Review the model's geometry to check that the analyses ran have produced good results.

1 In your Autodesk Moldflow analysis software (Autodesk Moldflow Insight or Autodesk Moldflow Adviser), open the studies from which you would like to export results.

Note: You can open as many studies as you like, but you can only export up to two studies per results file.

2 Review the model's geometry using the model manipulation tools.

3 Ensure the required layers (Autodesk Moldflow Insight) or entities (Autodesk Moldflow Adviser) are displayed.

Marking results for export

Mark the results that you would like included in the results file.

1. In the Study Tasks pane, right-click on the result you want to export and select **Mark for export**.
   An asterix (*) is appended to the result name which indicates the result has been marked for export.
2. Repeat the above step to mark other results for export.
   You can mark up to 8 results per analysis, per study.

Note: To deselect items marked for export, right-click on any result and select **Unmark All for export**.

Adding additional information

Additional information such as notes, project information and study information are optional, and provide supplementary details about the study or project. Additional information must be added before the results file is exported.

1. Ensure the Notes panel is open. Click **View** > **Notes**.
2. To add a study note, click the **Study Note** tab, type some information about the study and then click **Save**.
3. To add a plot note, select the result you want to associate the plot note with, click the **Plot Note** tab, type some information about the selected result and then click **Save**.
4. To add project information, click **File** > **Project Properties**, complete the fields and then click **OK**.
5. To add study information, click **File** > **Study Properties**, complete the fields and then click **OK**.

Creating a criteria file

You can define appropriate values and ranges that attributes must have for the part to be considered of high quality.

Creating a criteria file is optional, and is available only in Autodesk Moldflow Insight software.

1. Click **Tools** > **Criteria Editor** to display the **Criteria Editor** dialog.
2. Select the criteria you want to include in the criteria file by selecting the check boxes located on the left of each criterion.
3. For each criterion selected, enter some data: either select a value from the drop-down list, or type a range of values using a colon (:) to separate the range.
4. Click **OK** to accept the criterion.
5. Navigate to the location where you want to save the file, type a file name and then click **Save** to save the criteria file.

Exporting to a results file

After reviewing the model and marking results for export, you can export the selected results to a results file.

If you have added some notes or created a criteria file, they will also be included in the exported results file.

1. In the Project View pane, select the studies to be exported.

   Note: You can select a maximum of up to two studies.

2. Click  **File** > **Export**.
3. Navigate to the directory where you want to save the results file.
4. Type a file name and then click **Save** to export the results as a results file.
   Ensure you select Autodesk Moldflow Results file (*.mfr) for **Save as type**.

5 *Optional in Autodesk Moldflow Insight software*: If you are exporting from Autodesk Moldflow Insight software, the **MFR Export Settings** dialog will ask you whether you want to include a criteria file in the results file. You need to create a criteria file first before you can include it (see *Creating a criteria file* on page 14). To include a criteria file in a results file, complete the following steps:

   a In the **MFR Export Settings** dialog, select the **Include criteria file** check box.

   b Navigate to the location where there is an existing criteria file (*.criteria), select the criteria file, and then click **Save**.

   c If you want to restrict the information to display only criteria that have been specified, select the **Restrict MFR contents based on criteria** check box.

   d Click **OK** to export the results file with an embedded criteria file.

When the results file is successfully exported, the size of the results file is displayed in a dialog.

Appendix A

List of standard toolbar icons

Table 3: Standard toolbar icons

Icon	Name	Action
	Open	Open an Autodesk Moldflow Results file.
	Properties	View plot properties of the Design of Experiments (DOE) result currently displayed.
	Overlay	View more than one result at a time on the same model. Overlay air traps or weld lines on another result.
	Compare	Display two studies, one above the other, and select the first result from each study. The panes are locked together, so changes made in one pane also appear in the other.
	Quantify	Compare all studies in the results file with a criteria file, and display a table, highlighting information that does not match the criteria.
	Statistics	Display mesh statistics of a model exported from Autodesk Moldflow Insight software.
	Print	Display the print dialog. View or modify the current print settings, and then print the active window.
	Help	Open the Autodesk Moldflow Communicator software online help.
	Explain	Display context sensitive help. Click this icon, and then click another part of the user interface to view help on that feature.
	Panels	Show/hide all panels in the user interface. Use this to get a larger view of your results.

Table 4: Animation toolbar icons

Icon	Name	Action
	Previous	Display the previous frame of the animation.
	Next	Display the next frame of the animation.
	Animate	Animate the result in time or through the scale.
	Pause	Temporarily stop the animation at its present view.
	Stop	Terminate the animation.

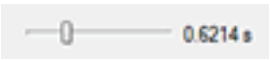
Icon	Name	Action
	Loop	Loop the animation until the **Stop** button is clicked.
	Animation control	Display and control the progress of the animation.

Table 5: Viewer toolbar icons

Icon	Name	Action
	Rotate	Rotate the part dynamically.
	Pan	Move the part within the display.
	Zoom Box	Zoom in to an area that you select by banding.
	Zoom	Increase/decrease the model magnification by holding the left mouse button and dragging the cursor up or down the screen.
	Center	Move the location that you click on to center of the screen. This becomes the new center of rotation.
	Measure	Measure the distance between two locations on the model. The part can be manipulated after selecting the first location.
	Zoom Fit	Resize the model to fit the entire part in the display window.
	Move Clip	Move the active cutting plane manually, or use animation by entering an incremental value.
	Clip	Define and activate a cutting plane to see inside the model.
	Examine Result	Examine the value of a result at a particular location on the model.

Table 6: Viewpoint toolbar icons

Icon	Name	Action
	Front	Display the front side of the model, rotation 0, 0, 0.
	Right	Display the right side of the model, rotation 0, -90, 0.
	Top	Display the top side of the model, rotation 90, 0, 0.
	Back	Display the back side of the model, rotation 0, 180, 0.
	Left	Display the left side of the model, rotation 0, 90, 0.
	Bottom	Display the bottom side of the model, rotation -90, 0, 0.

Appendix B

List of criteria file contents

A criteria file has the following categories and fields:

Product	Product name: (currently supported for Autodesk Moldflow Insight only)
	Product release
Mesh	Mesh type
Analysis	Molding process
	Analysis sequence (string)
Material	Manufacturer
	Grade code
	Family abbreviation
	Filler type
	Material Melt temperature
	Material Mold temperature
	Transition temperature
	Ejection temperature
	Default viscosity model
	Shrinkage model
Process Settings	Mold surface temperature
	Mold open time
	Mold temperature
	Melt temperature
	Injection/packing/cooling time
	Cooling time
	Geometric influence calculation method
	Aggregated mesh solver
	Number of injection nodes
	Filling control
	V/P switch over
	Machine name
	Fiber orientation analysis
	Warpage analysis type
	Corner effects
Flow Analysis	Maximum injection pressure
	Time at end of fill

	Maximum clamp force during fill
	Minimum bulk temperature
	Maximum bulk temperature
	Maximum wall shear stress
	Maximum shear rate
	Minimum peak pressure
	Total weight (part + runner)
	Injection pressure at V/P switch-over
	Volume filled at V/P switch-over (%)
	Mass
	Frozen volume (%)
	Injection pressure
	Maximum frozen layer fraction
	26 Criteria file contents
	Minimum frozen layer fraction
	Maximum volumetric shrinkage
	Minimum volumetric shrinkage
	Current time from start of cycle
Cool Analysis	Maximum cavity surface temperature
	Minimum cavity surface temperature
	Average cavity surface temperature
	Average cavity surface temperature difference
	Average mold exterior temperature
	Cycle time
Diagnostics	3D number of layers through thickness
	Midplane Fusion mesh——number of laminates
	Number of overlaps
	Number of intersections
	Number of free edges
	Number of non-manifold edges
	Unoriented elements
	Maximum aspect ratio
	Average aspect ratio
	Mesh match ratio
	Reciprocal mesh match ratio