

What's New in This Release?

The following is a list of the New Features and Enhancements that are available in Freeform v12. For important technical information about this release, including bugs fixed since the last release, see the ReadMe located in the product install directory.

The ‡ symbol indicates features that are only available in Freeform Modeling Plus.

AUTOSURFACER ‡

Enhancements:

Updated Options

The AutoSurfacer has been updated with new options most notably, the Feature Following option. When Feature Following is selected, the AutoSurfacer will calculate and apply surfaces to the model using 90% fewer patches while simultaneously healing the mesh. When using this option, the following options are available in the AutoSurfacer window: Ignore Small Features, Split Feature Lines, An-Iso Threshold, Flat Threshold and Tess Level.

CONSTRUCT CLAY

New Features:

Curve Spheres to Clay

The Curve Spheres to Clay tool has been added to the Construct Clay palette. Using this tool you can edit curve spheres and/or convert curve spheres into clay. To create curve spheres either turn on the spheres button on the Draw Curve dynabar when drawing a curve, or select a curve and set the dynabar option "Spheres" to "On" using this tool.

Enhancements:

Mirror Clay

Two options have been added to the Mirror Clay dynabar - Mirror Whole Piece and Copy Original, and the option Create as New Piece has been removed. The two new options control the three mirror modes. If Mirror Whole Piece is off the clay on the back of the mirror plane is removed and the clay in front of the plane is mirrored into the original piece.

If Mirror Whole Piece is on and Copy Original is off, the entire piece is mirrored about the mirror plane in place (no new piece). Note that the clay in front of the plane goes to the back and the clay in back goes to the front.

If Mirror Whole Piece is on and Copy Original is on, it works like above but a copy is mirrored leaving the original in place.

Wire Cut Clay

The Wire Cut Clay tool has been enhanced to include a Flip check box on the dynabar that provides the ability to control the direction of the plane offset.

CURVES

Enhancements:

Copy from Edge

The Copy from Edge tool has been enhanced with a new option, All Edges. Using this new option provides the capability to copy all edges on a patch/solid surface to create curves.

Draw Curve

The Draw Curve dynabar has been enhanced with new modes and a new option. To draw curves you must select one of the Draw Curve modes:

- Create Edit Point Curve
- Create Traced Curve
- Replace Curve Segment

Another new option on the dynabar is Curve Spheres. When selected, curve spheres will be created around the curve. Once drawn, you can use the new tools Curve Spheres to Clay, or Curve Spheres to Solid. Also, because these spheres are created from curves, you can use the Mirror Curve tool to create multiple curve spheres.

DETAIL CLAY

Enhancements:

Variable Round Edge

The Variable Round Edge tool has been enhanced with the capability to delete individual edge curves. In Refine Mode, with an edge curve selected, press the Delete key. This will delete only the selected edge curve. The Clear option can still be used to delete all edge curves from the model.

Shape Clay

The Shape Clay tool has been enhanced - the Advanced option Minimize Control Points

- which places edit points only at the intersection of a section curve and another section curve has been renamed Minimize Edit Points.

DEFORM CLAY

New Features:

Bend and Twist Clay

The Bend and Twist Clay tool to select an area and use the Bend Widget to bend or twist clay. Clay located outside the widget will be rotated while clay within the widget can be bent and twisted. The Bend and Twist tool will preserve detailed clay, including clay with textures or ripples. While you bend

and twist the clay, the preview of your model will be updated dynamically. However, if the area being bent or twisted is too large, the preview will not update until you release the stylus button.

Enhancements:

Lattice Deform Box

The Lattice Deform Box was enhanced with new dynabar options. The new options, Center, Show All, Hide Falloff and Proportional provide the capability to set the center of the lattice box, show all lattice slices and points, hide the outer two slices of the lattice and move all lattice points proportionally.

MESH

New Features:

Smoothing a Mesh

The Smooth tool has been added to the Mesh Tools palette. Use this tool to interactively smooth the edges of a mesh.

Enhancements:

Select Mesh Area

The dynabar for the Select Mesh Area tool has been enhanced with new dynabar options. You can now select a mesh area using a Seed Point. This option selects polygons by flood-filling from a seed point that you select. Also new to the dynabar is the ability to Copy Selection and Create New Mesh. This option copies the selection area and creates a new mesh using this area. The original mesh will be hidden upon creation of the new mesh.

The remaining Convert and Create dynabar options have been renamed. The renamed options are, Cut Selection, Cut Selection and Create New Mesh, Convert Mesh Selection to Clay, and Copy Mesh Selection to Clay.

Other changes to the dynabar include the removal of the Add to Selection icon. In Freeform v12, Select Mesh Area is set to Add to Selection by default and the Remove from Selection icon has been changed on the dynabar.

Select Mesh with Curve Loop

The dynabar for the Select Mesh with Curve Loop tool has been enhanced. New to the dynabar is the ability to Copy Selection and Create New Mesh. This option copies the selection area and creates a new mesh using this area. The original mesh will be hidden upon creation of the new mesh.

The remaining Convert and Create dynabar options have been renamed. The renamed options are, Cut Selection, Cut Selection and Create New Mesh, Cut Selection and Convert to Clay, and Copy Selection and Convert to Clay.

MOLD

Enhancements:

Fix Draft

The Fix Draft tool has been enhanced to sync the Draft Angle found on the dynabar to Angle for Draft Colors found in Tools>Options>View>Setup. Modifying the value in one location will automatically update the value in the other location.

Fix Draft Selection

The Fix Draft Selection tool has been enhanced with two new dynabar options, Limit to Selection and Thin Piece Mode. Use Limit to Selection to select only the surface that the tool is in contact with. Use Thin Piece Mode to...

Fix Draft Selection has also been enhanced to sync the Draft Angle found on the dynabar to Angle for Draft Colors found in Tools>Options>View>Setup. Modifying the value in one location will automatically update the value in the other location.

Pull Direction Vector

In v12, Freeform has renamed the Parting Line View options to be Pull Direction View options. To access these options go to the View menu>Pull Direction View. On the sub-menu you will find the following options renamed:

- Set Parting Line View has been renamed Set Pull Direction to View
- Flip Parting Line View has been renamed Flip Pull Direction
- Show Pull Direction Vector has been renamed Show Vector

You now control the display of Pull Direction Colors (formerly Parting Line Colors) from the Pull Direction View submenu. The following options can be found on the submenu:

- The option Show Parting Line Colors has been renamed Show Colors.
- The option Standard Colors will display the standard pull direction colors.
- The option Rainbow Colors (formerly Parting Line Rainbow Map) will display a rainbow of color across the area from 0 degrees of draft to the user-defined draft angle

You also have the ability to Flip Colors. This switches the direction of the draft colors. The Updated Parting Line Colors option that is found on the dynabars of certain mold and curve tools has been renamed Update Colors.

OBJECT LIST

New Features:

Clay Utilities

The Object List Context Menu has a new sub-menu, Clay Utilities. The commands found on this sub-menu include: Copy to Mesh, Fill Voids, Create Offset Piece, Add to Mask and Add to Buck.

Divide Mesh

The Object List Context Menu for Mesh pieces has a new option, Divide Mesh. The option divides an existing mesh into smaller triangles. Each triangle side will be divided into two parts (four triangles from one side).

Export Planes as .CLY Files

A new option has been added to the Export menu that provides the capability to export sketch planes and sketch entities as a .CLY file.

Mesh Boolean Operators

The Boolean operators - Combine, Remove, and Intersect have been added to the Object List Context Menu for mesh pieces.

Mesh Utilities

The Object List Context Menu has a new sub-menu, Mesh Utilities. The commands found on this sub-menu include Copy to Clay, Mirror, Divide, Reverse, Merge Coplanar Facets and Reduce.

Reducing a Mesh

Use the Subdivide Mesh option, found on the Object List Context Menu for Mesh pieces to divide a selected mesh into smaller triangles. Each triangle side will be divided into two parts (four triangles from one).

Enhancements:

Combine as New

Use the Object List option Combine as New to combine multiple object types (clay/mesh) into one new piece.

Copy Clay to Mesh

The Object List Context Menu for Clay pieces has been enhanced with an option to Copy Clay to Mesh. You can use this option to convert a clay piece to mesh material.

Duplicate

The Duplicate option, found on the Object List Context Menu has been enhanced to provide the capability to duplicate a selected Folder and its contents as well as selected Planes in the Object List.

Hide Associated Objects

The eye icon indicates if the object is visible. The Object List has been enhanced so that you can also hide the associated objects of a piece, for example a curve. Pressing the Alt key and clicking the eye icon will hide or show the associated objects.

Object List Search Function

The Object List Search Function was enhanced with new search options. The options, Find & Select All and Find & Select Cumulatively were replaced with Select One, Add to Selection, and Select All Instances. These new options provide the ability to highlight search results one object at a time, to keep search results highlighted as you scroll through the Object List and to highlight all search results in the Object List.

Also added to the Search Function is the option, Loop Back to Start/End. Select this option to automatically continue searching the Object List when the search has reached the top or bottom of the Object List.

Object List Toolbar

The Object List was updated with a toolbar. The Toolbar runs across the bottom of the Object List and has eight icons. The icons provide the ability to sort the Object List alphabetically, to hide/show folders, planes, curves, patches, solids, and hidden objects, as well as open the Object List Search Function.

Override Folder Visibility (for Pieces)

The option, Override Folder Visibility (for Pieces) was added to the new Object List Options dialog through the Tool menu. You can use this option so that pieces in the Object List will remain visible in the Object List when the Flatten Folders option has been enabled on the Object List toolbar.

Renaming in the Object List

The Object List has been enhanced to improve the renaming of objects. In previous versions of Freeform, you had to rename an object using the Object List Context Menu. While that option still exists, with the option Rename objects with double click selected in the Tools>Options>General>Object List selected, you can double click an object name in the Object List to rename that Object. You cannot double click to rename a folder or sketch elements in the Object List.

See Through On/Off

The See Through Objects function has been enhanced to provide the capability to set the see-through status of multiple objects at the same time. With multiple objects selected in the Object List you can access this option by right-clicking one of the selected objects to view the Object List Context Menu.

Show Children/Hide Children

The Show Children/Hide Children options found on the Object List Context Menu for planes are enhancements that provide the capability to show or hide all sketch elements from a selected plane in the Object List and workspace.

PATCHES/SOLIDS ‡

New Features:

Curve Spheres to Solid ‡

The Curve Spheres to Solid tool has been added to the Patches/Solids palette. Using this tool you can edit curve spheres and/or convert curve spheres into clay. To create curve spheres either turn on the spheres button on the Draw Curve dynabar when drawing a curve, or select a curve and set the dynabar option "Spheres" to "On" using this tool.

Project Patch to Clay ‡

The Project Patch to Clay tool has been added to the Patches/Solids palette. Using this tool you can project a solid or patch surface onto a clay piece.

Solidify ‡

The Solidify tool has been added to the Patches/Solids palette. Using this tool you can convert one or more patches or solids into one solid.

Enhancements:

Create Patch

The advanced options of the Create Patch tool have been enhanced. Specifically, the Smoothing slider has new controls. When the slider is set to zero the advanced features are disabled; there will be no smoothing, no oversampling, and no sampling beyond the boundaries and no knot reduction. With the slider set to one (1) the result is similar to the smoothing with a zero setting but the advanced options will be applied. With the slider to the right the tool will average a sample of voxels - this may decrease accuracy, but ripples will be reduced and a smooth patch will be created.

Shape Patch

The Shape Patch tool has been enhanced - the Advanced option Minimize Control Points - which places edit points only at the intersection of a section curve and another section curve has been renamed Minimize Edit Points.

Wire Cut Solids ‡

The Wire Cut Solids tool has been enhanced to include a Flip check box on the dynabar that provides the ability to control the direction of the plane offset. Also added to the dynabar are a Height/Depth box and Raise and Lower options. Using these options you can emboss solid material.

PLANES

Enhancements:

Edit Plane

The Edit Plane dynabar has been enhanced with a new option, Orient through Point Cloud. This option will assess the piece in mesh format, identify all mesh vertices, and Conceptualize these vertices as a point cloud. Using this data the plane is positioned through the cloud in such a way that the plane will be aligned to the plane of greatest cross-sectional area, and approximated to the center of mass.

SCULPT CLAY

New Features:

Hot Wax

The Hot Wax tool has been added to the Sculpt Clay palette. Use this tool to interactively melt the edges of the clay with a ball-shaped tool by adding or removing clay. Hot Wax has unique dynabar options for smoothing clay - Melt, Smooth, Add and Remove.

Enhancements:

Smooth Tool

The Smooth tool has an enhanced to provide the capability to smooth using v10 smoothing or v11 smoothing. New dynabar options have also been added to the Smooth Tool that provide the capability to select a Smoothing mode. The available modes are Outside Smooth and Inside Smooth. The Outside Smooth option smooths the clay with an area of influence outside the tool sphere while the Inside Smooth option uses the area of influence within the tool sphere.

SELECT/MOVE CLAY

New Features:

Posing

Use the Pose tool to adjust and accommodate the movement of clay, or mesh, patch or solid elements. Once you have placed the Pivot point, the pivot shaft will appear in your workspace. Using the stylus, grab one of the handles on the pivot shaft to bend the element.

Enhancements:

3D Box Select: Select Hidden Objects

The Select Objects with 3D Box tool was enhanced with a dynabar option that provides the ability to select hidden objects in the workspace.

Mask & Selection Tools

The Mask tool and Clay Selection tools have been enhanced. The Add to Selection icon has been removed from the dynabar. In Freeform v12, Add to Selection is set by default and the Remove from Selection icon has been changed on the dynabar.

Separate Tool

The Separate Tool has been enhanced with the capability to separate a mesh piece.

TOOLS MENU

New Features:

Colors Options

The Tools Menu>Options>View>Colors dialog has a new option, Use Background Image. Selecting the checkbox provides the ability to browse for and select a specific image to use for workspace background.

Curve Options

The Tools Menu>Options>General>Curves dialog has a new option, Preview Draw Curve fit point. This option, selected by default, will enable a preview of the curve point when drawing a curve that will be fit to a clay, mesh or patch/solid surface. A shadow point will appear on the surface identifying where the fit point will be placed when the curve is not in contact with the surface.

Object List Options

The Tools Menu>Options>General section has a new page of options specifically for the Object List. In previous versions some of these options were located on different dialog pages, such as Force Unique Object List Names. New options have also been added to this added, such as Show Toolbar, and Override Folder Visibility (for Pieces).

Enhancements:

Mass Properties

The Mass Properties tool was enhanced with the capability to handle mesh pieces.

Piece Density

The Piece Density tool was enhanced with the capability to handle mesh pieces.

Setup Options

The Tools>Options>View>Setup dialog has renamed the Parting Line Draft Angle input. This input is now named, Angle for Draft Colors.

TWEENING

Enhancements:

Reposition Piece

The Reposition Piece tool has been enhanced when working with tweened pieces. In the advanced options, the movement measurement has been renamed Max Movement.

VIEW MENU

New Features:

Hide/Show Mesh Pieces

A new toggle option has been added to the Utilities palette. Hide/Show Mesh Pieces toggles the display of mesh pieces on and off. When selected, only the active mesh piece in the Object List will be shown in the workspace. When deselected, all entities will be shown in the workspace.

Pull Direction Vector

Parting Line Colors menu has been renamed Pull Direction Vector. The submenu options have been reorganized and renamed.