

Freeform v12SP2 New Features and Enhancements

The following is a summary of new features and enhancements in FreeForm v12SP2. For a more comprehensive look at the new features and enhancements in the v12SP2 release see the online Help topic titled “What’s New?” You can access the help from within the FreeForm application by pressing F1. Or from the Start Menu group.

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

APPLICATION WINDOW

Enhancements:

Memory Meter

The memory meter, located in the bottom right corner of the Freeform application window has been enhanced with colored memory zone indicators. To the left of the numerical Memory Usage - which represents the total memory usage of the Freeform application and other applications running on your system - you will see either a yellow or red memory zone indicator. If the memory zone indicator is red your system is running low on memory.

AUTOSURFACER ‡

Enhancements:

Geomagic[®] Software

The Autosurfacing functions of Freeform Plus are now optimized to work with Geomagic products, and now include the “Exact Surfacing” capabilities of Geomagic Studio. You will need to contact Geomagic Sensable support to obtain a node-locked license for this functionality. Please do so by using the normal License Request form. The support team will send you an entitlement code along with your Freeform Plus license file. You can use the entitlement code in the “AutosurfacerLicenseWizard” (available in the Start Menu under Freeform Modeling Plus v12.0), to obtain and install the license automatically. When running the AutoSurfacerLicenseWizard, choose “License File” on the first screen and “Network Card” on the second. Then fill in the form with the entitlement number provided by support, choose your Host ID from the drop down (first choice) and fill in at least your email address and “Submit via Internet”. This will install your autosurfacer license automatically. If you have a prior installation of Freeform Plus, you can also continue to use the autosurfacing functionality from that installation with this version.

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

A new option has been added to the Mirror Clay dynabar - **Mirror Entire Piece**. The new option, combined with the existing **Create in New Piece** controls the three mirror modes.

- If Mirror Entire Piece is off and Create in New 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 Entire Piece is on and Create in New Piece 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 Entire Piece is on and Create in New Piece is on, it works like above but a copy is mirrored leaving the original in place.

Pattern Piece

The Pattern Piece tool has been enhanced. The dynabar option, Snap Origin to Endpoint has been renamed Start Point Snapping. The persistent options for this feature are Snap Origin to Start Point and Snap Start Point to Origin. The Snap Origin to Start Point function snaps the origin of the initial seed piece (blue) to the start point of the curve, eliminating any undesired offset in the pattern function. The Snap Start Point to Origin function causes the piece to follow the curve path as though the curve were repositioned and affixed to the seed piece (blue). This allows the pattern to duplicate the shape of the curve path from the blue seed piece's current location. See the dynabar options in Pattern Piece or Paste Pattern for more details.

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.

Fit Curve

The Fit Curve dynabar and advanced options were enhanced. The option **Use Global Settings** was renamed **Use Settings** and was moved from the dynabar to the advanced options along with the **Best fit resolution** option.

Projecting a Sketch Curve

The Projecting a Sketch Curve dynabar has been enhanced. The Advanced options have been removed and replaced with a **Tolerance** input which defines the control point spacing and preserves the 2d (sketch) curve profile as it is projected to the target object.

DETAIL CLAY

Enhancements:

Creating a Ridge

The Creating a Ridge tool has been enhanced with a new dynabar option, **Join Multiples**. With this check box selected multiple curve selections with shared endpoints will be joined together to create a ridge. When deselected, separate ridges will be created for each curve.

Emboss with Image

The Emboss with Image tool has been enhanced with new additions to the Image Properties dialog. New to Image Properties in v12 is the Image Width and Image Height. These fields display the width and height of the original image in pixels. The option Lock Aspect Ratio has been renamed **Lock Current Aspect Ratio** and the option Actual Size has been renamed **Reset Aspect** - this option will reset the current while recomputing with the specified Resolution.

Variable Round Edge

The Variable Round Edge tool has been enhanced with the capability to delete individual edge curves. 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.

If you leave Variable Round Edge while in the middle of defining a curve network, the Variable Round Edge-specific curves will be lost. The tool has been enhanced to display a warning message if you attempt to switch to another feature, such as Select/Edit with pending Variable Round Edge curves.

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.

The tool was also enhanced with a custom triad. The triad that appears near one of the corners of the lattice box and is independent of the triad seen through the View menu>Triad. The triad is

always tied to the coordinate system of the lattice box. If you move or rotate the lattice box, the triad will reflect those movements.

General Options

New Features:

Memory Options

The Tools Menu>Options>General section has a new page of options specifically for Memory.

Mesh Options

The Tools Menu>Options>General section has a new page of options specifically for Mesh objects. The option found on this menu is **Merge coplanar faces before Boolean operations**. When selected boolean success on objects with coincident faces is improved. This option also lightens model data without changing the model's shape.

Spaceball Options

The Tools Menu>Options>General section has a new page of options specifically for the Spaceball device. The Spaceball device provides the ability to manipulate the controller's pressure-sensitive handle to pan, zoom and rotate 3D imagery simultaneously, without stopping to change directions using keyboard shortcuts or the software interface.

Enhancements:

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.

Features Options

The Tools Menu>Options>General>Features dialog has a new option. The option **File Import saves/restores prior view** provides the capability to return to the view in effect before you imported a file.

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)**. Also added to the Object List options is a check box **Remember Object Type filter states** which, when selected, will recall the state of your Object List Filters (from the Object List Toolbar) between Freeform sessions.

The option **Override Folder Visibility (for Pieces)** was also added. 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.

The Object List has also been enhanced to improve the renaming of objects. With the option **Rename objects with double click** 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.

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 includes 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

New Features:

Set Pull Direction

A new tool, Set Pull Direction has been added to the Mold palette. You can use the tool to discover any potential problems with undercuts and where the parting line can go before you complete the model. This tool is especially useful if the model you are creating will be manufactured using a mold. With this information you can decide how to remedy the undercuts. You can toggle the view of the Pull Direction arrow in the workspace by using the **Alt+V** hot key.

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 new dynabar options, **Standard**, **Expanded Fill** and **Thin Piece**. With the Standard option selected, only the volume selected with the stylus will be used for the Fix Draft. With Expanded Fill you allow Freeform to remedy underfills by including areas outside of the selection volume. With Thin Piece you prevent Fix Draft from affecting the back side of thin pieces.

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.

Set Tool Vector

The dynabar option Set Direction has been renamed Set Tool Vector and enhanced in v12. The following options have been added to the Set Tool Vector dynabar in v12: **Show Colors**, **Synch Colors**, **Use Rainbow Colors**, **Flip Colors**, **Angle Step**, **Match**, **Show Pull Direction**, and **Reset**.

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**.

Export Planes as .CLY Files

A new icon has been implemented for Empty Pieces. When the empty piece is active, the icon is viewable in the Object List as an outline of the cube piece. The outline color is the active piece clay color. When the empty piece is not active in the workspace, the outline color of the box is grey.

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**.

Enhancements:

Combine as New

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

Copy to Mesh

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

This function has also been added to the Context Menus of Patches and Solids. When using the function from either the Patch or Solid context menu will open the **Convert Solid to Mesh** dialog.

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.

Slice...

The Object List Context Menu for patches has been enhanced with a Slice function. This is similar to the functionality of the Separate tool, allowing you to slice a model into pieces using a patch. When clicked, the Remove from dialog appears. After selecting a target clicking **OK**, the selected

object will become a new object (renamed in the OL) and the patch will be hidden in the Object List.

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.

Patch Display Properties

The **Patch Display Properties** of the Patch Display Menu have been enhanced. The settings that you define in Patch Display Properties will be remembered between Freeform sessions (when you shutdown and/or restart the Freeform application). In previous versions of Freeform you were required to set the Patch Display Properties for each session.

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 Surface Points**. This option will assess the piece in mesh format, identify all mesh vertices, and conceptualize these vertices through surface points on the active piece. Using this data the plane is positioned through the surface points 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.

POSITIONING

Enhancements:

Reposition

The Reposition tool has been enhanced. If you are manipulating heavy clay pieces, the shading, set in View Menu>Shading Clay will automatically default to **Always Sparse Shade** to improve the speed of your manipulation. However, if you have already set the Shade Clay settings to **Always Full Shade** the settings will not be altered. With Always Full Shade selected manipulations may be made more slowly and appear as choppy movements. A piece will not default to Always Sparse Shade if you are using Precise Movement.

Reposition Piece

The Reposition Piece tool has been enhanced. If you are manipulating heavy clay pieces, the shading, set in View Menu>Shading Clay will automatically default to **Always Sparse Shade** to improve the speed of your manipulation. However, if you have already set the Shade Clay settings to **Always Full Shade** the settings will not be altered. With Always Full Shade selected manipulations may be made more slowly and appear as choppy movements. A piece will not default to Always Sparse Shade if you are using Precise Movement.

REPOSITION TOOLS

Enhancements:

Reposition Origin

The Reposition Origin dynabar has been enhanced. Two options have been renamed to indicate the functionality more clearly. The option Normal to Surface has been renamed **Normal to Active Piece**. This option works explicitly on clay and mesh surfaces and *NOT* on patch or solid surfaces. The option Normal to Active Plane has been renamed **Normal to Selected Plane**. This has been

renamed to make it more clear that planes can be selected through the Object List - you do not have to activate the plane through the Edit Plane tool.

SKETCH

Enhancements:

Control Point Curve

The Control Point Curve tool has been enhanced to remove the editing options **Preserve Detail** and **Uniform Spacing**. These options are now only available when you Select a Sketch Object to edit.

Freehand Curve

The Freehand Curve tool has been enhanced to remove the editing options **Preserve Detail** and **Uniform Spacing**. These options are now only available when you Select a Sketch Object to edit.

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 very unique dynabar options for smoothing clay - **Melt**, **Smooth**, **Add** and **Remove**. The dynabar also includes the **Mask Transition** drop-down menu. On the drop-down menu you will find the following transition options, **None**, **Blended**, and **Sharp** which control how/if the mask volume will be smoothed.

Enhancements:

Smooth

The Smooth tool has been 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.

The Smooth tool has also been enhanced to improve smoothing when there is a mask involved. The Blend with Mask check box has been replaced with a **Mask Transition** drop-down menu. On the drop-down menu you will find the following transition options, **None**, **Blended**, and **Sharp** which control how/if the mask volume will be smoothed.

Smooth Area

The Smooth Area tool has been enhanced to improve smoothing when there is a mask involved. The Blend with Mask check box has been replaced with a **Mask Transition** drop-down menu. On

the drop-down menu you will find the following transition options, **None**, **Blended**, and **Sharp** which control how/if the mask volume will be smoothed.

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.

Register Pieces

The new tool, Register Pieces can be used to register coincident alignment of two pieces.

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

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

Select with Ball

The Select with Ball tool has been enhanced. The **Add to Selection** icon has been removed from the dynabar. In Freeform v12, Select with Ball is set to *Add to Selection* by default and the **Remove from Selection** icon has been changed on the dynabar.

Select with Box

The Select with Box tool has been enhanced. The **Add to Selection** icon has been removed from the dynabar. In Freeform v12, Select with Box is set to *Add to Selection* by default and the **Remove from Selection** icon has been changed on the dynabar.

Select with Lump

The Select with Lump tool has been enhanced. The **Add to Selection** icon has been removed from the dynabar. In Freeform v12, Select with Lump is set to *Add to Selection* by default and the **Remove from Selection** icon has been changed on the dynabar.

Select with Patch ‡

The Select with Patch tool has been enhanced. The **Add to Selection** icon has been removed from the dynabar. In Freeform v12, Select with Patch is set to *Add to Selection* by default and the **Remove from Selection** icon has been changed on the dynabar.

Select with Plane

The Select with Plane tool has been enhanced. The **Add to Selection** icon has been removed from the dynabar. In Freeform v12, Select with Plane is set to *Add to Selection* by default and the **Remove from Selection** icon has been changed on the dynabar.

Select with Profile

The Select with Profile tool has been enhanced. The **Add to Selection** icon has been removed from the dynabar. In Freeform v12, Select with Profile is set to *Add to Selection* 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. You cannot separate a mesh object with a curve, and mesh objects cannot use the multi-separation dynabar option.

TOOLS MENU

New Features:

Repair Curves

A new option, Repair Curves, has been added to the Tools menu. This command detects zero length curves, duplicate curves, similar curves and duplicate end points. The command allows you to delete the offending curves and merge the end points. In the case of duplicate and similar curves there is an option to hide the offending curves as well as delete them.

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.

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 View menu. **Show Meshes** 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. This option is also available from the Utilities palette.

Enhancements:

Pull Direction

Parting Line Colors menu has been renamed Pull Direction. 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 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.

VIEW OPTIONS

New Features:

Pull Direction Options

The Tools>Options>View>Pull Direction is a new options dialog to set preferences for draft angle and tool vectors. The option Parting Line Draft Angle has been renamed **Angle for Draft Colors** and been moved from the Setup options to the Pull Direction options.

Enhancements:

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.

Setup Options

The Tools>Options>View>Setup dialog has a new section for **View Rotation Center**. There are three check boxes: **Bounding box center of all visible objects**, **Active piece origin**, and **Global Origin**. Select one of these options to define the center for an objects rotation. The Setup dialog has also renamed the Parting Line Draft Angle input. This input is now named, **Angle for Draft Colors**.

Sketch Options Setup Options

The Tools>Options>General>Sketch dialog has a new section for shrinking sketch planes using the hot key **Alt+M**. In the sketch options you can choose to shrink the plane using the sketch object as the center or the center of the current (active) plane as the center.