

SpaceClaim Add-in Style Guide

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SPACECLAIM
CORPORATION

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Introduction

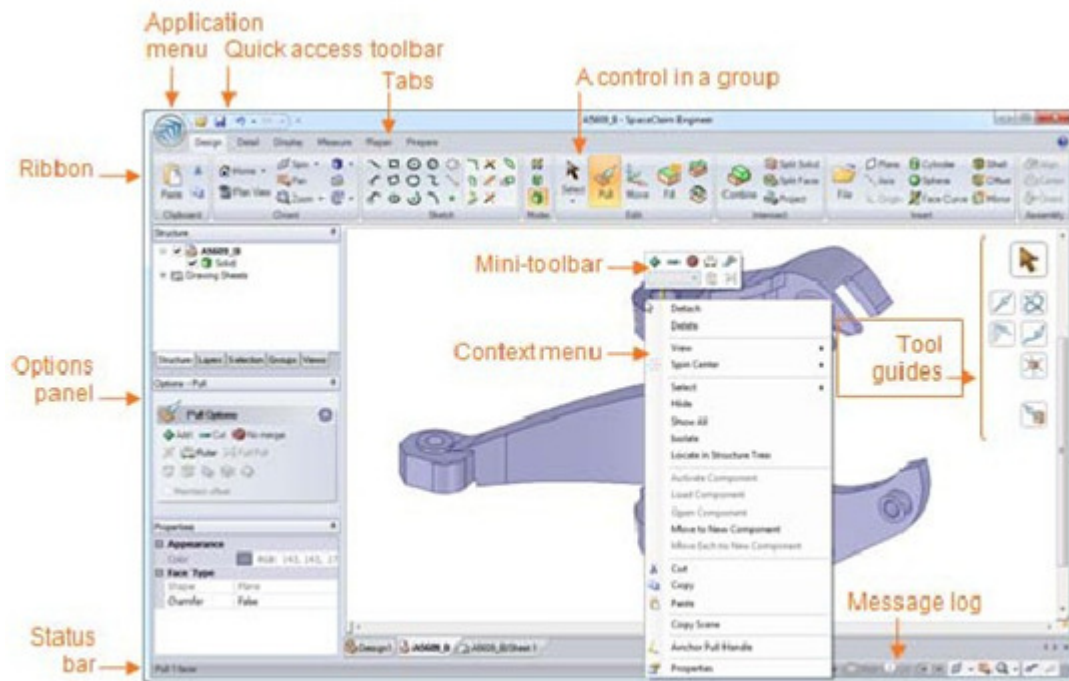
This document contains requirements and recommendations for developing user interface elements for SpaceClaim add-ins using the SpaceClaim API.

These guidelines should be used in addition to the 2007 Microsoft Office System User Interface Design Guidelines, which you can find at <http://msdn.microsoft.com/officeui>.

Customizing the SpaceClaim UI for Add-ins

Your SpaceClaim add-in can include:

- New tabs, groups, and controls in the Ribbon.
- Buttons to the application menu.
- Entries to the context (right-click) menu.
- Status bar text.
- Messages that are written to the message log.
- Modal or modeless pop-up forms.



The SpaceClaim UI

Workflow

Before you start on your add-in tool, you should consider its workflow.

There are four types of workflow:

1. **Interactive** (Pull, Move, sketch tools, etc.): This workflow is used when the user can drag an object to make a change.
2. **Auto-complete** (Combine, Split Solid, Shell, etc.): This workflow is used when you can determine that the operation should be applied based on the user's selection, and when the change doesn't require dragging.
3. **Manual complete** (Prepare>Midsurface, Prepare>Volume, etc.): This workflow is used when you can't determine when the user is ready to apply the operation based on their selection, and when the command doesn't require dragging.
4. **Immediate action** (Fill, Plane, Axis, etc.): This workflow is used when the user selects an object and then clicks the button. The action is applied immediately, without any user interaction.

The type of tool you create depends on the workflow that is required for the tool. Use the following sections to determine which type of workflow to create for your tool.

Interactive workflow steps

These tools show a preview and complete in real time. This approach should be used whenever possible.

1. Click the tool in the Ribbon (e.g., click Pull).
2. Select the object or objects you want to work with (e.g., click on a surface that you want to extrude). This is the primary selection.
3. (Optional) Use a tool guide or hold Alt to select secondary objects (e.g., hold Alt and select an edge to set the pull direction). These objects usually control direction or they anchor the operation.
4. Select options in the Options panel (e.g., click the Both Sides option to pull the surface in both directions at once).

5. Drag the primary selected object in the Design window to make the change (e.g., drag the surface into a solid). The change can be seen as a preview in real time, and is completed when you finish dragging and release the mouse button.

There are alternate workflows for using most tools, such as selecting the objects to work with before starting the tool, but the procedure outlined above is the standard method.

Auto-complete workflow steps

If a set number of objects are required to define an operation, then you should automatically apply the command when the required objects are selected.

1. Click the tool in the Ribbon (e.g., click Shell).
2. Select options in the Options panel (Shell doesn't have options, but this is when the user would select them).
3. Select the objects required for the operation (e.g., select the face you want removed on the solid you want to shell). The tool instantly applies the change when the correct objects are selected.

Manual complete workflow steps

Use this method when you cannot determine when the user is ready to apply the command, such as when an indeterminate number of objects need to be selected. The operation is completed with a Complete tool guide.

1. Click the tool in the Ribbon (e.g., click Midsurface on the Prepare tab).
2. Select objects and options, and use tool guides as required (e.g., select one or more face pairs using the Select Faces tool guide, then use the Swap Sides tool guide to swap the sides on two face pairs). The exact order of selection is not easily predictable.
3. Click the Complete tool guide to finish the operation. The design should be temporarily highlighted to show the change after this step whenever possible.

Immediate action workflow steps

Use this method when the user selects one object (or optionally selects multiple objects) and then applies a command. No options or further selection is necessary.

1. Select an object in the Design window or Structure tree (e.g., select the face of a hole in a solid).
2. Click the tool in the Ribbon (e.g., click Fill).
3. You should only use this workflow for very simple and straightforward operations. If a command requires the user to select multiple objects, then you should probably follow a different workflow.

Selection

The user should be able to select objects before he or she invokes a tool.

Use the following guidelines for selection with your add-in:

- You should restrict selection so only appropriate objects can be selected for each step.
- The user should always be able to box-select.
- Always add a tool guide when a secondary (or Alt-selection) is required for a tool.

Preview

The SpaceClaim API provides facilities for rendering previews. You should provide previews whenever a tool creates or changes geometry based on user selection or options. You can see an example of a preview if you use the Enclosure tool on the Prepare tab.

Dialog launcher

A tool can launch a dialog box when your add-in requires more sophisticated input than can be captured on the ribbon. For an example, see the Dimension Editor sample add-in.

Tabs and Groups

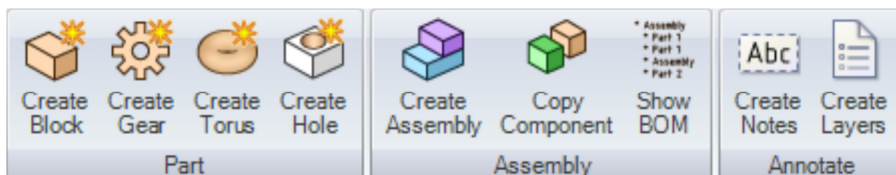
The Ribbon is the primary menu in the 2007 Microsoft Office UI. The SpaceClaim API provides a simple method to add tabs and controls to the Ribbon.

Groups are created by adding an entry to the Ribbon.xml file, and the SpaceClaim API creates and positions the group for you. The following guidelines will help you create tabs and groups that conform to Microsoft standards and blend seamlessly with the SpaceClaim UI.

Organization

According to the 2007 Microsoft Office UI guidelines, you must organize controls into groups, even when a group only contains one control.

Groups should contain controls that are logically related. You should avoid creating a new group for every control, and you should not put too many controls in a single group.



The buttons in the sample add-in are organized into small groups of logically related tools.

Text labels

SpaceClaim follows the Microsoft guidelines for UI capitalization:

- Use title style capitalization for the names of tabs, groups, and controls, and for the titles of dialogs and the options panel—capitalize nouns, verbs, adjectives, adverbs, pronouns, and the first and last words.
- Use sentence style capitalization for tooltips, elements within dialogs, and options panels—only capitalize the first word and proper nouns.

You can find the complete guidelines in the *Windows User Experience Interaction Guidelines* document at <http://msdn.microsoft.com/en-us/library/aa974176.aspx>.

Controls

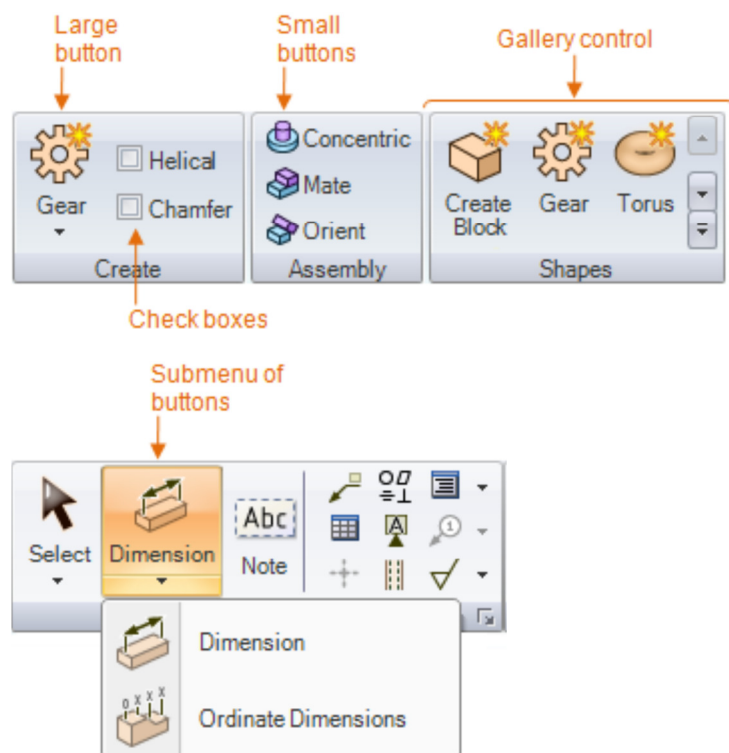
A control is an object on the Ribbon that the user interacts with to make something happen. It is the equivalent of a command in older UI styles.

Like groups, controls are defined in the Ribbon.xml file, and the SpaceClaim API handles their positioning. You have some control over the size and layout of controls.

Types of controls available

You can create the following types of controls:

- Large and small buttons
- Submenus of buttons
- Check boxes



Examples of the controls available in the API

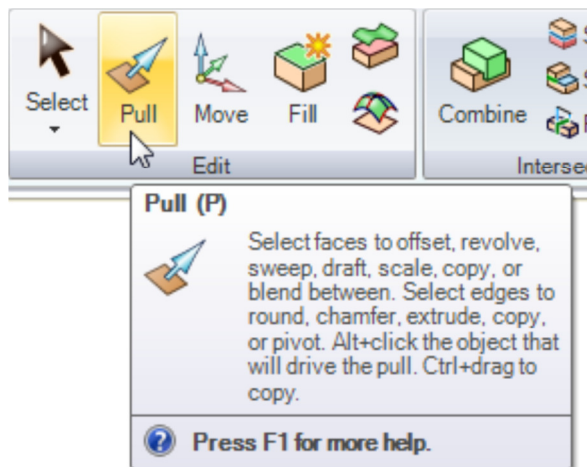
Layout

Use large icons unless space becomes limited. In that case, more frequently used tools should have large icons. Use smaller icons for less frequently used tools or for tools that are related and can be grouped together logically.

Tooltips

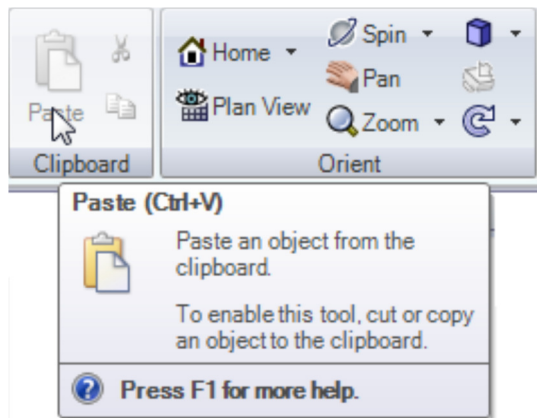
You should write tooltips (or hints) for controls. A tooltip is the text that pops up when you hover over a control, an icon in the mini-toolbar, and an option in the Options panel.

- Tooltips should be written in a resources file so they can be localized.
- A tooltip should be written as one or more complete sentences that briefly explain how to use the tool.



The tooltip for the Pull tool

DisableHint is an optional additional hint that is displayed when the control is disabled. It should tell the user why the control is disabled and how to enable it. Some examples of this are the Paste and Align buttons, both on the Design tab.



The second paragraph in the tooltip for Paste is the DisableHint text.

Progress bars

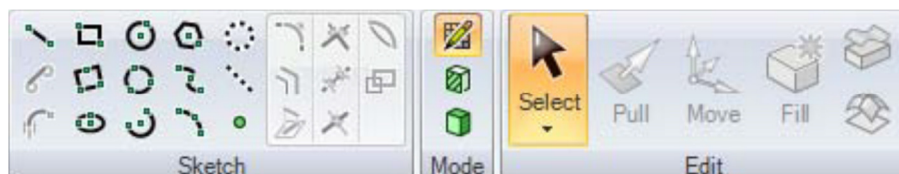
You should include a progress bar and a wait cursor when the operation will take more than about five seconds to complete.

The text labels for progress bars should include an ellipse at the end of the string. An ellipse is made by typing three periods, like this: ...

Active vs. inactive controls

When a tool cannot be used because the necessary objects are not selected or do not exist, then the control should be disabled. Inactive tools are gray and they can't be activated.

For example, when you open a new design that doesn't have any geometry, most of the Sketch tools are active but the Edit tools are inactive, as shown below.



Active and inactive tools in the Ribbon

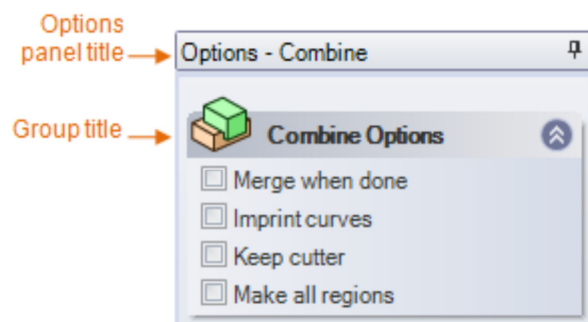
Other UI Elements

Some tools perform an operation without any input from the user, but most will require some user interaction. The following guidelines tell you when and how to use UI elements that are available for your custom tools.

Options panel

You will need to create an Options panel for your tool if the user can set options.

The title of the Options panel should read, "Options - <Tool Name>". The options panel title and group titles should be capitalized like a book title, but other labels in the panel are capitalized like a sentence, as shown in the example below.



Options panel for the Combine tool

Tool guides

You should create a tool guide when your tool requires the user to select something in the Design window or Structure tree.

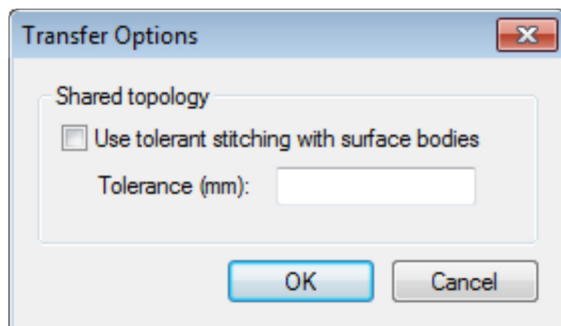
Although SpaceClaim displays three sizes and three color schemes for tool guide icons, you only have to make one image that is 48 x 48 pixels. The image will be resized and tinted automatically.

The name of a tool guide is capitalized like a book title, but its tooltip is written and capitalized as a sentence.

Dialog boxes

You should follow the Microsoft style guidelines for dialog boxes, which can be found on MSDN at <http://msdn.microsoft.com/en-us/library/aa511268.aspx>.

A dialog box title is capitalized like a book title, but other labels in the dialog are capitalized like a sentence.



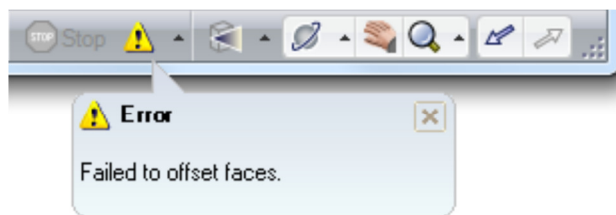
A dialog box with proper capitalization

Mini-toolbar

Icons for the mini-toolbar should be 16 x 16 pixels. The tooltips that is displayed in the mini-toolbar is the same as the tooltip displayed for the tool in the Ribbon.

Cursors

You should change the cursor to a wait cursor when the operation is likely to take more than five seconds to complete.



The error pop-up is displayed in the status bar message log

Errors and warnings

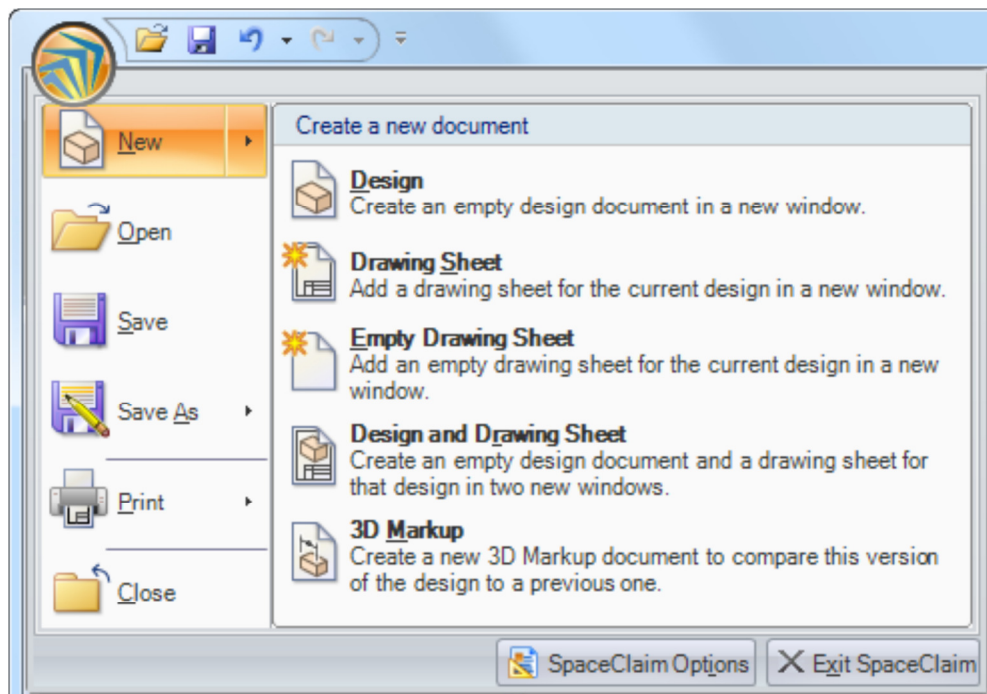
Error and warning messages are displayed briefly in a pop-up bubble and are recorded in the Message Log. An error message should be written as a short but complete sentence.

You can also set the severity (error, warning, or information), which sets the title and icon used by the balloon.

Application menu

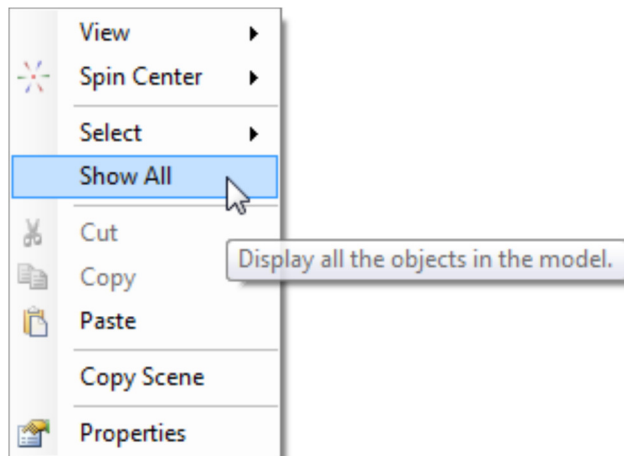
Icons for the application menu are 32 x 32 pixels.

The name of an application menu command is capitalized like a book title, but its tooltip is written and capitalized as a sentence. The tooltip (or hint) is used as the pop-up tooltip as well as the description displayed in the menu. The title at the top of a new application menu page is capitalized like a sentence (e.g., "Create a new document" in the image below).



Context menu

The name of a context menu command is capitalized like a book title, but its tooltip is written and capitalized as a sentence.



Icons

You should follow the guidelines in this section when you create icons for your add-in.

SpaceClaim provides Adobe Illustrator files with common icon elements for you to use in your own icons. These templates also include lines that will help you orient 3-dimensional icons to the correct angles.

Icon sizes

You can use three sizes of icons in your add-in. The size of the icon you should create depends on where the icon will be used:

- 32 x 32 pixel images are used for large buttons that are not vertically stacked.
- 24 x 24 pixel images are used where two commands are vertically stacked.
- 16 x 16 pixel images are used where three commands are vertically stacked and in the Options panel when an option does not have a checkbox.
- 48 x 48 pixel images are used for tool guides.

File formats

Icons must be saved as JPG or PNG images for use in the add-in. PNGs with transparency are preferred.

Colors

The color of elements within an icon have the following meanings:

- Green elements indicate that the tool creates something.
- Red elements indicate that the tool deletes or removes something.

General icon color meanings in SpaceClaim:

- View-related tools are usually blue.
- Tool guides for secondary (Alt) selection are usually blue.

Two-dimensional icons, like the File Save icon, are shaded so they don't look flat when used beside 3D icons.

Common icon elements

Several icons in SpaceClaim use the following graphical devices:



An asterisk (*) is used in an icon when the tool creates a new relationship or performs automatic inferencing. Notice that the asterisk looks more diamond shaped in the 16 x 16 version.



A green plus (+) is used when the tool creates a new object.



A red X is used in the icon when the tool deletes or removes something.

These elements are included in the Adobe Illustrator files.

3D orientation and shading

Icons that appear three-dimensional are made with the same shade on the left front side and top (A), and a slightly darker shade on the right front side (B).



Adobe Illustrator files

Use the Adobe Illustrator files at the following link to make your own icons.

<http://files.spaceclaim.com/Api/doc/StyleGuideIcons.zip>



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