Icon Design Guidelines

Beautiful, compelling icons are a fundamental part of the Mac OS X user experience. Far from being merely decorative, icons play an essential role in communicating with users.

Every application must include several versions of the app icon for display in the Finder and elsewhere. Many apps need to supply additional icons, such as toolbar and document icons. To look at home on Mac OS X, all of these icons should be meticulously designed, informative, and aesthetically pleasing.

About App Icon Genres and Families

Applications are classified by role—user app, software utility, and so on—and each role is associated with a recognizable icon style, or **icon genre**. An icon genre helps convey what users can do with an app before they open it. You can see a couple of different icon genres represented in the Dock.

Two icon genres that are easy to distinguish are user applications and utilities. In general, the icons for user apps are colorful and inviting, whereas the icons for utilities have a more serious appearance. For example, compare the bright colors used in the user app icons (shown in the top row of the figure below) to the grayer coloration of the utility icons (shown in the bottom row).

An icon family is a set of icons that reuse certain graphic elements. An application might create an icon family to help users identify files and other entities that are associated with the app. For example, iTunes reuses visual cues from its app icon in a plug-in icon:

and in a playlist icon:

Tips for Designing Icons

For the best results, enlist the help of a professional graphic designer. An experienced graphic designer can help you develop an overall visual style for your app and apply that style to all the icons and images in it.

The tips in this section help you design a great app icon, but many of them also apply to the design of other icons, such as toolbar icons.

Give your app icon a realistic, unique shape. On Mac OS X, app icons should have the shape of the objects they depict including, if applicable, cutouts. A unique outline focuses attention on the depicted object and makes it easier for users to recognize the icon at a glance.

If necessary, you can use a circular shape to encapsulate a set of images. In particular, you should avoid using the “rounded tile” shape that users associate

with iOS app icons.

Don't reuse your iOS app icon, if you have one. If you're developing a Mac OS X version of an iOS app, you should not reuse your iOS app icon. Although you want users to recognize your app, you don't want to imply that your app isn't tailored for the Mac OS X environment. Start by reexamining the way you use images and metaphors in your iOS app icon. Then, remove the rounded rectangular outline of the iOS app icon and try focusing on the main images within it. For example, if your iOS app icon shows a tree inside the rectangle, use the tree itself for your Mac OS X app icon.

Use universal imagery that people will easily recognize. Avoid focusing on a secondary aspect of an element. For example, for a mail icon, a rural mailbox is likely to be less recognizable than a postage stamp.

Strive for simplicity. In particular, avoid cramming lots of images into your icon. Try to use a single object that expresses the essence of your app. Start with a basic shape and add details cautiously. If an icon's content or shape is overly complex, the details can become confusing and may appear muddy at smaller sizes.

Use color and shadow judiciously to help the icon tell its story. Don't add color just to make the icon more colorful. Also, smooth gradients typically work better than sharp delineations of color. (Note that sidebar icons and icons inside toolbar buttons should not use color; for more information, see "Designing Toolbar Icons" and "Designing Sidebar Icons.")

Shadows give objects dimensionality and realism. They also help tie the elements of an icon together so that it doesn't look like a collage.

Choose the right perspective for your icon. You want the perspective of your icon to match the perspective of other icons in the same genre. For example, a user app icon should look like it's resting on a desk in front of you, whereas most utility app icons use a straight-on perspective. To learn more about different icon perspectives, see "Using Perspective and Texture to Reflect Reality." Regardless of the perspective that's appropriate for your icon genre, always use a single light source with the light coming from above the icon.

In general, avoid using "greek" text or wavy lines to suggest text. If you want to show text in your icon, but you don't want to draw attention to the words themselves, start with actual text and make it hard to read by shrinking it or doubling the layers. For example, it's hard to read the text in the TextEdit app icon unless you increase its size. Although the text in this icon has meaning, users don't need to read it to see that TextEdit is a text editing app.

In general, create an idealized version of the subject rather than using a photo. Although it can be appropriate to use a photo (or a screenshot) in an app icon, it's often better to augment reality in an artistic way. Creating an enhanced version can help you emphasize the aspects of the subject that you want users to notice.

If your app has a very recognizable UI, consider creating a refined representation of it, instead of using an actual screenshot of your software in the app icon. Creating an enhanced version of the UI is particularly important when users could confuse a large version of the icon with the actual interface of the app.

> **Note:** If an app icon depicts an image that is effectively a precursor of what users see when they open the app, it should use the straight-on, "flat against the wall" perspective. It makes sense to use this perspective because users would never see the UI as if it were sitting on a desk in front of them.

Avoid using Aqua interface elements in your icons. You don't want users to confuse your icons with the Mac OS X UI.

Don't use replicas of Apple hardware products in your icons. The symbols that represent Apple products are copyrighted and cannot be reproduced in your icons. In general, it's a good idea to avoid replicas of any specific devices in your icons, because these designs change frequently and icons that are based on them can look dated.

Don't reuse Mac OS X system icons in your interface. It can be confusing to users to see the same icon used to mean slightly different things in multiple locations throughout the system.

Create a .icns file for your app icon. First, use your image-editing program to output your app icon in the PNG format, which preserves your design's alpha values. Then, you can import this `.png` file into Icon Composer, which is located in `/Developer/Applications/Utilities` when you install the Xcode developer tools (to find out how to download these tools, see Developer Tools). There are also several third-party tools available for completing this step. Note that a `.icns` file is appropriate for app icons and document icons only; it is not an acceptable format to use for other types of icons in your app. (To learn more about creating document icons for your app, see "Designing Document Icons.")

Using Perspective and Texture to Reflect Reality

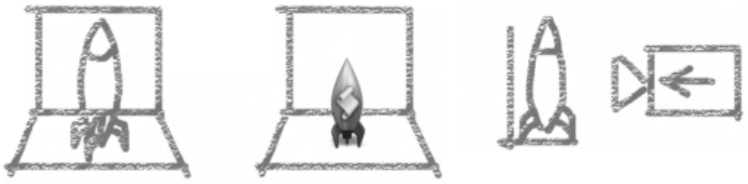
The angles and shadows used in various kinds of icons are intended to reflect how the objects would appear in the real world. It's important to learn which perspective is associated with each icon genre so that your icons look at home on the platform.

Different perspectives are achieved by changing the position of an imaginary camera that captures the icon. The light source that is causing the shadows is always directly above the object.

An application icon depicts an object that looks like it is sitting on a desk in front of you.

Utility icons are depicted as if they were on a shelf in front of you. Flat objects appear as if there were a wall behind them with an appropriate shadow behind the object.

A three-dimensional object, such as a rocket, is more realistically viewed as sitting on the ground. To depict the rocket, an icon shows it sitting on a shelf with its shadow below it.



For toolbar icons, the perspective is also straight-on, as if the object is on a shelf in front of you with the shadow below it. (For more information on designing toolbar icons, see "Designing Toolbar Icons.")

Portray real substances accurately. Icons that represent real objects should also look as though they are made of real materials and have real mass. Realistic icons accurately replicate the characteristics of substances such as fabric, glass, paper, and metal, and convey an object's weight and feel.

Use transparency when it makes sense. Transparency in an icon can help depict glass or plastic, but it can be tricky to use convincingly. You would never see a transparent tree, for example, so don't use one in your icon. (For some advice on handling transparency in an app icon, see "Enabling a Great Cover Flow Experience.")

Scaling Your Artwork

As you work on creating your app icon, you will probably need to spend some time scaling artwork to different sizes. The advice in this section can help increase the efficiency of the scaling process and improve the results.

To ensure that your app icon looks great in all the places that users see it, you need to create resources in the following sizes:

- 1024 x 1024 pixels
- 512 x 512 pixels
- 256 x 256 pixels
- 128 x 128 pixels
- 32 x 32 pixels
- 16 x 16 pixels

If your practice is to start with a large master art file and scale it down to the smaller sizes, it's especially useful to create your master image in a dimension that is a multiple of the icon sizes you need. If you also use an appropriate grid size in your image-editing application as you create the master image, you'll be able to keep each smaller icon version crisp and reduce the amount of retouching and sharpening you need to do.

For example, to create icons in the recommended sizes listed above, first create a 1024 x 1024 pixel version of your master file. In your image-editing application, you can set up an 8-pixel grid as you create the master file. This means that each block in the grid measures 8 x 8 pixels and represents one pixel in the 128 x 128 pixel icon. As you create your master file, "snap" the image to the grid and keep it within the boundaries to minimize the half pixels and blurry details that can result when you scale it down.

Although using an 8-pixel grid works fine when you need to create 512 x 512 pixel icons, you may prefer the increased precision you get when you use a 2-pixel grid to create the master image.

If you're not satisfied with the results when you scale art down to the 32 x 32 pixel and 16 x 16 pixel sizes, you can redraw the image at these sizes instead. If you decide to do this, setting up the proper grid can still help reduce extra work. For example, using a 32-pixel grid with a 1024 x 1024 pixel master file works well for creating the 32 x 32 pixel size, and a 64-pixel grid works well for creating the 16 x 16 pixel size.

As you create the 1024 x 1024 pixel version of your icon, be sure to treat it as its own resource. In particular, don't create the 1024 x 1024 version by blowing up each pixel of a smaller version. You want to avoid thick strokes and a "vectorized" look in this icon. In general, the larger icon should be a higher quality rendition of the 128 x 128 pixel resource that exhibits:

- Richer texture
- More details
- Greater realism

For example, the 128 x 128 pixel version of the Address Book application icon uses a smooth gradient in the cover and very little suggestion of page edges at the bottom edge of the book:

Compare the 128 x 128 pixel version of the Address Book app icon with the 512 x 512 pixel version, which reveals realistic details such as the leather book cover and binding and distinct page edges:

Enabling a Great Cover Flow Experience

In the Finder Cover Flow view, icons are displayed against a black background, set above a highly reflective surface. Because of this, you may need to adjust your icon in the following ways:

- If your icon includes a drop shadow, be sure to make the shadow fully black.

  If the drop shadow contains any gray tones, the gray will show up against the black background and make the shadow look more like a glow.

- If your icon includes a dark reflective surface, such as glass or metal, consider adding a slight inner glow just inside the edges to make the icon stand out against the black background.

  If you don't add a glow to make the edges of your icon prominent, it might appear to dissolve into the black background of the Cover Flow view.

- Avoid giving important parts of your icon high alpha levels (that is, lots of transparency), especially in the lower half of the icon. Areas with too much alpha may get clipped.

  In Cover Flow view, the Finder positions icons so that they appear to be on the same plane. To do this, the Finder begins examining an icon at the bottom edge, looking for pixels that are opaque enough to use for alignment. If there is significant transparency in the lower area of your icon, the Finder ignores the transparent pixels in favor of the first opaque pixel it finds. The Finder uses the opaque pixel to determine the icon's alignment with respect to the plane and may clip the transparent pixels below it.

The Mail icon includes a cancellation mark that extends past the bottom edge of the stamp image (you can see this icon in the figure below). Because this area of the icon has high alpha levels, the Finder uses an opaque pixel at the bottom left corner of the stamp image to align the icon, clipping some of the cancellation mark, as shown below.

Note: Mac OS X does not provide programming interfaces that support adding a custom cover flow experience to your app.

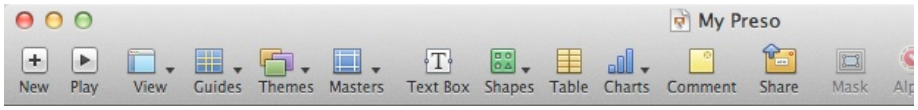
Designing Toolbar Icons

Toolbar items give users easy access to frequently used commands (to learn more about the concepts behind toolbar design, see "Designing a Toolbar"). To represent these commands in a toolbar, you need small, unambiguous icons that users can easily distinguish and remember.

To accommodate different app styles and usages, Mac OS X provides two styles of toolbar items: toolbar controls and freestanding icons that behave as buttons (the latter are known as icon buttons). To learn more about the toolbar controls that can contain icons, see "Window-Frame Controls." To learn more about icon buttons, see "Icon Button."

In general, main and document windows achieve a subtle, understated appearance by using streamlined icons within toolbar buttons controls. For example, the Mail toolbar uses several small icons in toolbar buttons and segmented controls.

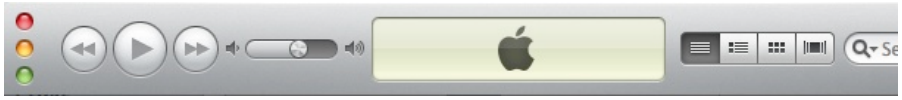
Icon buttons are occasionally used in the toolbar of a main or document window, such as the Keynote toolbar shown here.



Icon buttons tend to be more common in the toolbars of preferences windows, where they are often used as pane switchers. For example, the Safari preferences window displays several icon buttons that give users access to different preferences categories

The best toolbar icons use familiar visual metaphors that are directly related to the application commands they represent. When a toolbar icon depicts an identifiable, real-world object or recognizable UI element, it gives first-time users a clue to its function and helps experienced users remember it.

Identify parts of the user's mental model that lend themselves to visual representation. The mental model that users have of your app's task is usually based on real-world actions. (To learn more about the mental model concept, see "Mental Model.") For example, the iTunes toolbar shown below displays rewind, play, and fast forward controls that use symbols similar to those users see and use in physical devices, such as iPod.



Make toolbar icons distinct, yet harmonious. When each icon is easily distinguishable from the others, users learn to associate it with its purpose and locate it quickly. Variations in shape and image help to differentiate one toolbar icon from another. At the same time, an app's toolbar icons should harmonize together as much as possible in their perspective, size, and visual weight. This holds true whether the icon is free-standing or in a toolbar control.

For icons to put inside toolbar controls, create streamlined template images. These images should convey meaning through outline and contour, and should include very little internal detail.

It's best to make your icon as solid as possible (that is, with very little transparency, or alpha values) so that it will look good when the system applies effects, such as the inactive appearance. An icon that uses too much transparency can look disabled when the system applies either the active or inactive appearance to it. To help you create a solid icon, start by imagining the shadow that would be cast by the object you have in mind. If the contours of the shadow clearly show what the object is, you don't need to add any transparency.

To help you understand how the system-applied effects can change the appearance of an icon, consider the Send icon in Mail, shown here in its unprocessed state:

When the Send icon is in a toolbar button and the system applies the active, enabled appearance to it, it looks like this:

As you design an icon to put inside a toolbar control, such as a button or segmented control, follow these guidelines:

- Create icons that measure no more than 19 x 19 pixels
- Make the outline sharp and clear
- Use a straight-on perspective
- Use black (add transparency only as necessary to suggest dimensionality)
- Use anti-aliasing
- Use the PDF format
- Make sure the image is visually centered in the control (note that visually centered might not be the same as mathematically centered)

Note: It's recommended that you use black because it tends to make it easier to discern details and outlines while you're designing an icon for a toolbar control. But if you want, you can use any color to create your icons, because the system ignores the color and pays attention only to the alpha values that you add.

You might be able to use a system-provided icon or image to represent a common task or a standard interface element in your toolbar controls, such as the connect via Bluetooth icon (that is,). Mac OS X provides many icons that can be used inside toolbar controls, and a few icons that can be used as icon buttons in a toolbar. For more information about the images that are available and what they mean, see "System-Provided Icons."

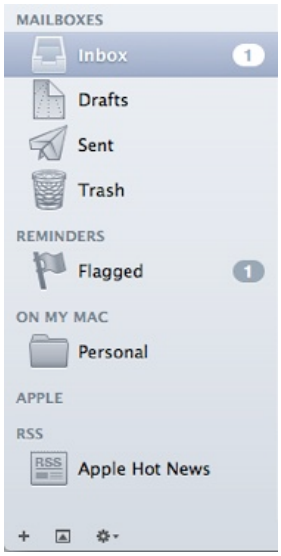
For icon buttons in a toolbar, create inviting images that are easy to identify. Because toolbar icon buttons do not need to fit within a toolbar control, you have a little more room for expression. As you design an icon button for your toolbar, follow these guidelines:

- Use a straight-on perspective
- Make the outline sharp and clear
- Use anti-aliasing
- Use color judiciously to add meaning
- Create an icon that measures 32 x 32 pixels
- Use the PDF format

Although you use the straight-on perspective for the icon buttons you design, if you use a recognizable icon from elsewhere in the interface in your toolbar, you should not change its appearance or perspective. That is, don't redesign a toolbar version of a well-known interface element.

Designing Sidebar Icons

If your application includes a sidebar (or source list), you need to design icons to display in it. For example, the Mail mailbox list contains several icons that represent the user's mailboxes, feeds, and reminders.



Sidebar icons are small and streamlined, but they provide more internal detail and a more realistic outline than the icons that go inside of toolbar controls. To achieve this look try imagining an X-ray of the object you have in mind, then use transparency to capture the details.

As with the icons that can be used inside toolbar controls, the system applies various effects to sidebar icons. To help you understand how these effects can change the appearance of a sidebar icon, consider the Finder Home icon, shown here in its unprocessed state:

After the system applies the active appearance to the Home icon, it looks like this:

Follow these guidelines as you design your sidebar icons:

- Create each icon in three sizes: 16 x 16 pixels, 18 x 18 pixels, and 32 x 32 pixels (you need to supply all three sizes because users can choose to see sidebar icons in small, medium, or large in General preferences)
- Use black combined with transparency (that is, alpha values) to suggest details
- Make the outline sharp and clear
- Use the PDF format
- Use a straight-on perspective

Note: It's recommended that you use black because it tends to make it easier to discern details and outlines while you're designing a sidebar icon. But if you want, you can use any color to create your icons, because the system ignores the color and pays attention only to the alpha values that you add.

Be sure to invert your sidebar icon to make sure that it looks good and still makes sense when the values are flipped. You need to check this because a sidebar icon's selected appearance is the inverse of its unselected appearance. For example, the Trash icon in the Mail sidebar has the following appearance when it is unselected:

But when it is selected, the Trash icon is inverted:

If necessary, provide an alternate design for the selected appearance of your sidebar icon. For example, the Desktop icon in the Finder sidebar is represented by two separate images to ensure that the icon conveys the same message in both selection states. Specifically, the unselected version of the Desktop icon shows a row of white Dock icons along the bottom edge:

If this icon were inverted, the Dock icons would become hollow black squares with white outlines, and they would no longer convey the same meaning. So the Desktop icon also includes a version that's designed to preserve the appearance of the Dock icons when the colors are inverted:

Designing Document Icons

Traditionally, a document icon looks like a piece of paper with its top-right corner folded down. This distinctive appearance makes it easy for users to distinguish their documents from their apps and other content, even when the icon sizes are small.

Follow the guidelines in this section as you design document icons for your app.

Make it obvious that your app and the documents it produces are related. In addition to using the familiar folded-corner outline, you can add an image that reminds users of your app. In general, you use your app icon for this purpose. For example, it's easy for users to tell which documents they created by using Pages.

Present a document icon as if it were hovering on the desktop. This perspective helps you reproduce the appropriate shadow behind the document.

Provide a set of document icons in the same set of sizes you provide for your app icon. Specifically, you need to provide your document icon in the following sizes:

- 1024 x 1024 pixels
- 512 x 512 pixels
- 256 x 256 pixels
- 128 x 128 pixels
- 32 x 32 pixels
- 16 x 16 pixels

As you do with your app icons, create a `.icns` file for your document icons. To learn more about how to create this type of file, see "Tips for Designing Icons."

Integrate a badge into the document shape (if one is necessary). If you want to put an identifying badge over a document icon, treat the badge as an integrated element within the icon. Avoid spoiling the document icon shape by adding a badge that extends beyond the outline and appears to be above the document.

Move the image appropriately to accommodate the badge. You need to allow enough space at the bottom edge of the document icon to display the badge. Note that this can mean that the upper-right corner of your image might be obscured by the folded-corner appearance of the background:

Use the appropriate font and font sizes for the badge. For all sizes, use Lucida Grande Bold, in color sRGB 0,0,0, and with 66% opacity.

To add a badge to all sizes of your document icon, use the following font sizes:

- 144 point for the 1024 x 1024 pixel document icon

- 72 point for the 512 x 512 pixel document icon
- 36 point for the 256 x 256 pixel document icon
- 18 point for the 128 x 128 pixel document icon
- 6.5 point for the 32 x 32 pixel document icon

Note that you should “greek” the text of the badge in the 16 x 16 pixel version of your document icon.

If a document badge has many characters, show as much of it as possible in the larger icon sizes, without shrinking the font too much. In the smaller sizes, simply truncate the badge text (don’t add an ellipsis). For example, the badge text “Archive” does not fit completely in the 32 x 32 pixel version of this document icon:

Icon Gallery

A great app icon is not only gorgeous and inviting, it also conveys the main purpose of the application and hints at the user experience. As you decide how best to represent your app in your app icon, it’s helpful to examine some successful icon designs.

User application icons are vibrant and inviting, and should immediately convey the application’s purpose. For example, the Photo Booth icon clearly indicates that this app helps users take pictures of themselves.

In an app that primarily helps users create or view media, it makes sense for the icon to include the media. If appropriate, the icon might also depict a tool to communicate the type of task that the app helps the user accomplish. The Preview icon (shown below) uses a magnification tool to help convey that the app can be used to view pictures. The proximity of the magnifier to the pictures makes it clear that the tool’s function is directly related to the content the app handles.

In the Stickies app icon, the yellow rectangles are easily identifiable as sticky notes. In a sense, the sticky note itself functions as a tool, so the icon doesn’t include a pen or other tool because it isn’t necessary to tell the icon’s story.

Some applications that represent objects or well known products, such as Calculator and QuickTime Player, are most easily recognized by enhanced versions of the symbols or objects themselves. Note that these app icons (shown below) use the straight-on perspective because users never see these objects from the three-dimensional, “on a desktop” perspective.

Icons for utility applications tend to convey a more serious tone than those for user apps. Color in utility app icons is desaturated, predominantly gray, and added only when necessary to clearly communicate what the apps do. For example, notice the prevalence of gray and the discriminating use of color in the Activity Monitor and System Information icons shown below.

Did this document help you? Yes It's good, but... Not helpful...