

Application Note

**Application Design Guidelines
For Jet/Jet Pro**

Application Design Guidelines for Jet/Jet Pro

The Jet and Jet Pro have a unique heads up display system. This document covers the optimal design guidelines that your application needs to look its very best.

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Overview

These design guidelines provide a practical introduction to the unique features of ReconOS and to the process of designing apps for Recon Jet. By following these guidelines, you will be able to design your apps in such a way that they make effective use of Jet's control scheme and provide a consistent, intuitive user experience.

ReconOS features Recon-specific APIs that enable features key to near-to-eye technology, including access to sensor data.

We'll update our design guidelines as ReconOS grows and evolves.

Designing for Jet

Jet is a fundamentally different type of device than a smartphone or a tablet, and its usage model follows very different rules.

Users are not expected to focus on Jet's display for long periods of time; instead, Jet's entire purpose is to provide bite-sized pieces of information at a glance. Similarly, Jet has more limited input capabilities than a phone or tablet. That's why we designed ReconOS to keep interface interactions as brief and straightforward as possible.

When designing apps for Jet, you should keep asking yourself, "Is what I've designed easier to do on a phone?" If the answer is yes, then you risk making users feel bogged down. If the answer is no, then your users will feel empowered and will enjoy using your app.

In fact, we recommend putting yourself in the user's shoes throughout the design process:

- Think about what most people will do most of the time, and focus on that functionality.
- Try not to interrupt users with irrelevant information or to overwhelm them with too many configuration options.
- If your app is going to be used during an activity, limit interaction as much as possible, and keep information easy to consume with a glance. Nobody wants to scroll through menus while trying to beat their lap time!

Keep in mind, too, that you can use information from Jet's sensors to determine what users are doing.

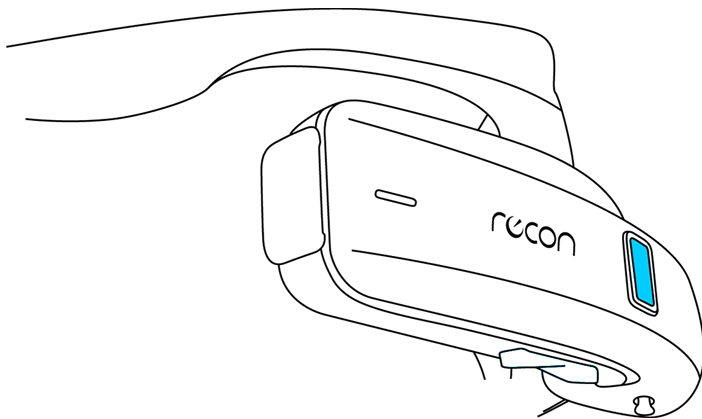
Understanding Jet's Controls

To design your app, you should have a good grasp of Jet's control scheme—and particularly of which controls to use in which scenarios.

The optical touchpad

Jet's optical touchpad is located on the side of the engine. It registers horizontal and vertical swipes, which ReconOS interprets as follows:

- Swiping forward (toward your nose) navigates toward the right in the user interface.
- Swiping backward (toward your ear) navigates toward the left.
- Swiping down navigates down.
- Swiping up navigates up.



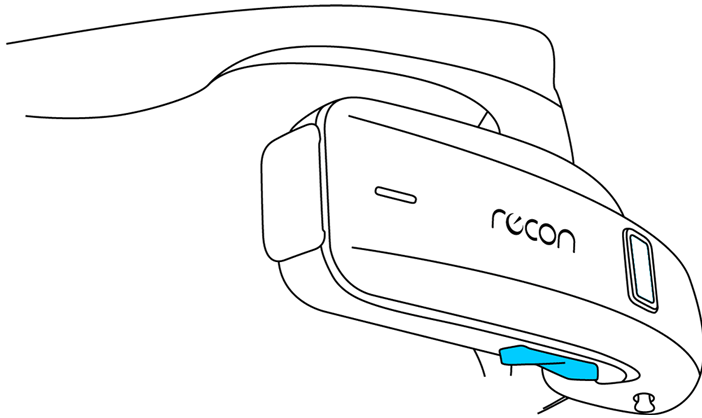
The two-button rocker

Jet's two-button rocker sits on the underside of the engine. It comprises select and back/power buttons, each of which can activate different functions depending on whether it's pressed or pressed and held. Those functions are as follows:

- Select
 - Pressing select takes the user down through the interface hierarchy, toggles options, and activates selected items.
 - Pressing and holding select for 3 seconds brings up the QuickNav menu, which provides shortcuts to the camera, notifications, music player, smartphone connection settings, and home menu.

- Back/power
 - Pressing back/power takes the user up through the interface hierarchy, cancels actions, and dismisses overlays.
 - Pressing and holding back/power for 3 seconds brings up the Option menu, which includes Display Off and Shutdown functions.

The back/power button can also be pressed for 7 seconds to perform a hard shutdown.



Ergonomics

Jet's controls are all designed to be operated as quickly and easily as possible during users' activities. Because these controls are physically and functionally different from one another, however, some are slightly easier to use than others.

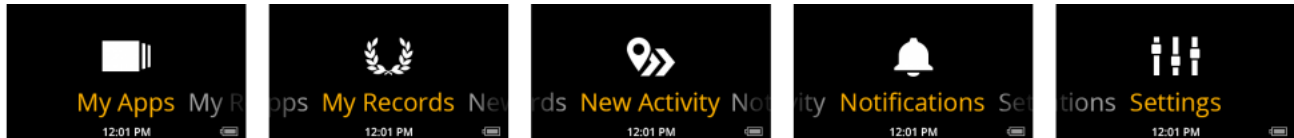
Horizontal (backward and forward) swipes are the easiest to execute. Button presses rank second in ease of use, and vertical swipes rank third.

Consequently, we recommend making horizontal swipes your app's primary navigation method. ReconOS makes extensive use of horizontal layouts, and it limits the number of hierarchical levels in order to keep button presses to a minimum.

The Different Shapes of a Jet App

A single Jet app can appear to users in three different forms: as an expanded app, an app panel, and an app widget.

Expanded apps are accessible from the My Apps launcher on Jet's home menu. App panels and app widgets are accessible once the user begins an activity through the home menu's New Activity launcher.



Expanded apps

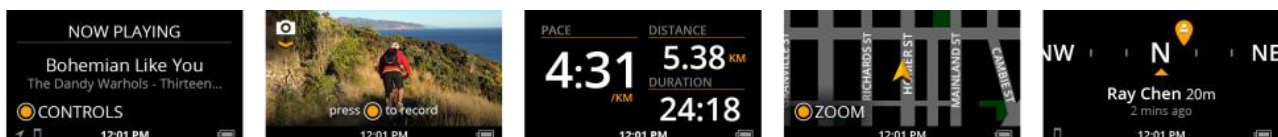
In ReconOS, expanded apps are the closest equivalents to standard smartphone or tablet apps. They can take up the entire screen, often without showing the status bar. They can incorporate their own hierarchies of panels and menus, and they can make full use of all of Jet's inputs. Expanded apps are the most full-featured types of Jet apps.

App panels

App panels are pared-down versions of expanded apps designed to be used during activities. They can be accessed by swiping horizontally from the metrics dashboard. App panels can appear on either side of the metrics dashboard, but never above or below it.

Generally, an expanded app should have only one corresponding app panel. Since app panels are meant to be used mid-activity, they should display information that can be consumed quickly with a glance. For users who need more information or functionality, app panels can also act as shortcuts to the corresponding expanded apps.

App panels must always display the status bar. Interaction with them must be limited to the select button and vertical swipes. (Horizontal swipes are used to navigate across different app panels, while the back/power button is used to return to the home menu.)



App widgets

While app panels sit alongside the metrics dashboard, app widgets are integrated into it. App widgets share space with individual metrics widgets and, as a result, should generally contain only a single piece of data.

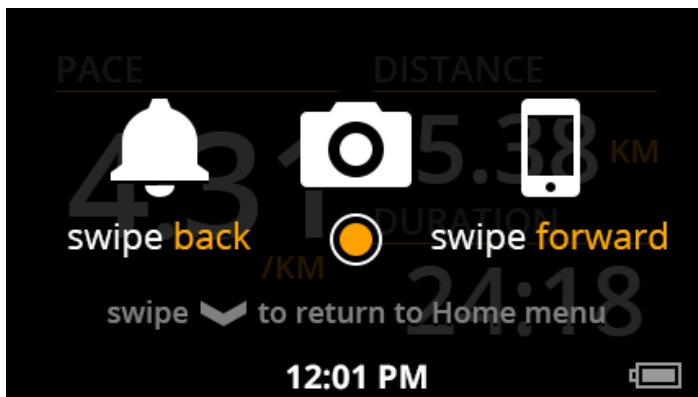
Unlike app panels, app widgets are not interactive and cannot act as shortcuts to expanded apps.

Pattern Building Blocks

The building blocks outlined below are used throughout ReconOS. You should get to know them to ensure your app looks, feels, and behaves in a way that's consistent with the rest of Jet's user interface.

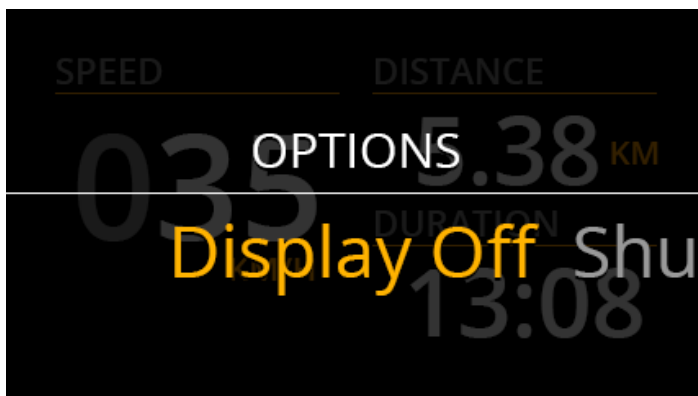
The Quick Nav menu

This menu appears as an overlay from anywhere in ReconOS—even the activity dashboard—when users press and hold the select button for 1 second. It includes shortcuts to the camera, notifications, music player, smartphone connection settings, and home menu



The Options menu

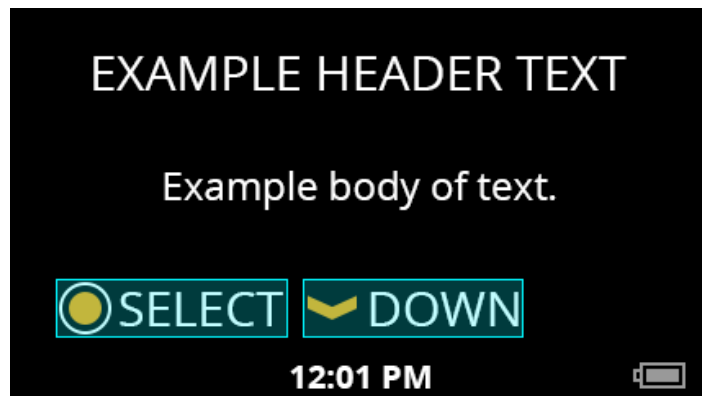
The Options menu is used to power off the display or shut down Jet. This menu appears as an overlay anywhere in Jet's user interface when users press and hold the back/power button for 1 second.



Button callouts

Button callouts are used to tell the user what functions the select button, back/power button, and swipe gestures perform. A button callout should always contain two elements: a label and an icon. The icon can represent either a button or an arrow.

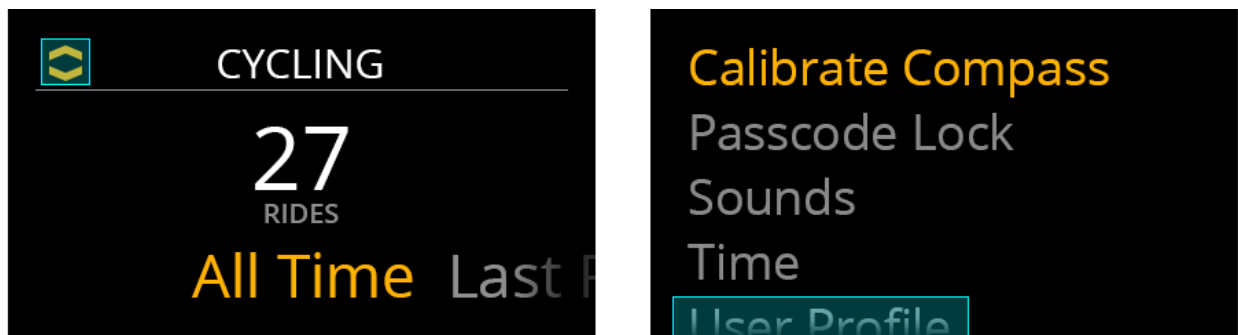
Button callouts are not needed when buttons and swipe gestures perform default functions, such as selecting highlighted menu items.



Swipe hints

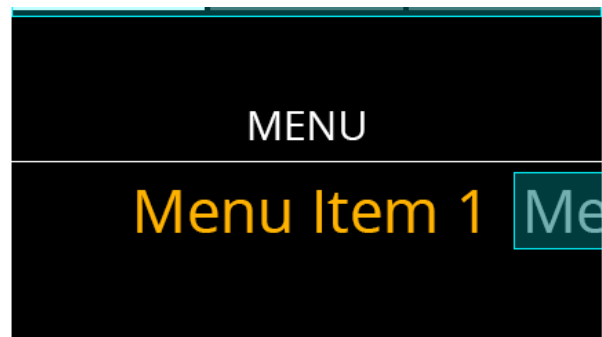
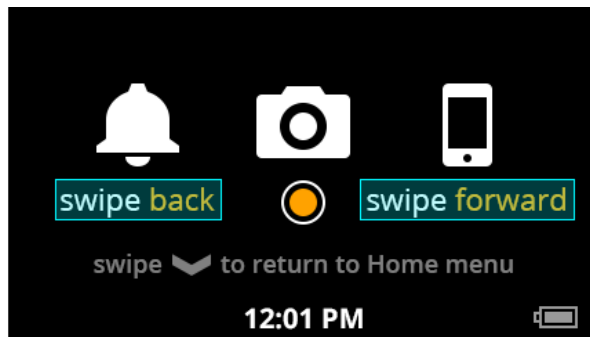
ReconOS offers multiple types of cues to tell users they can swipe to view additional content.

For vertically arranged content, you should use either arrow indicators or the fade effect.



For horizontally arranged content, you should use one of the following:

- Breadcrumb bars. (See the section on breadcrumb bars below.)
- Partially revealed content. (For example, a menu can partially reveal adjacent menu items.)
- Explicit instructions. (For instance, "swipe forward.")



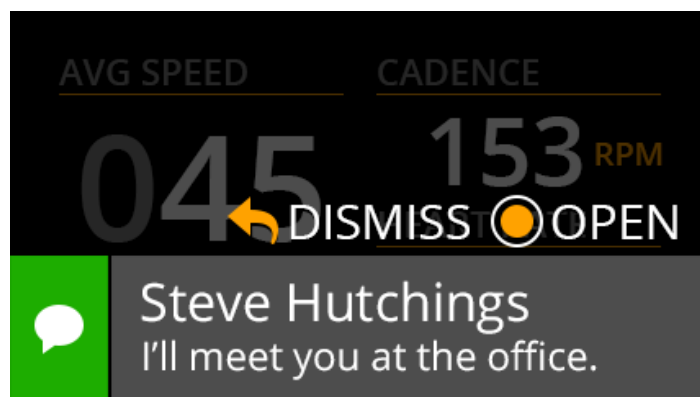
We recommend against using arrows as swipe hints for horizontally arranged content. Since Jet's display sits along a different axis than the optical touchpad, the meaning of the arrows may not be clear to the user. In our testing, we've found that some users will interpret a left arrow as a forward swipe, while others will interpret it as a backward swipe.

Notifications

Notifications allow you to communicate information to the user from anywhere in ReconOS. Two notification types are available: **interactive** and **passive**.

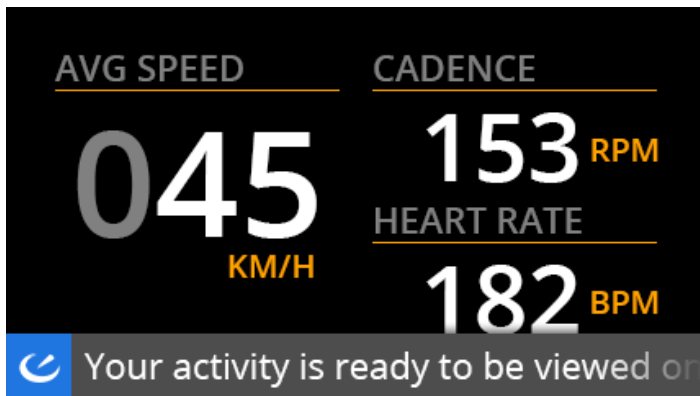
Interactive notifications appear as full-screen messages that users must either act upon or dismiss (though they do disappear on their own after an X-second delay). Pressing the select button will take the user directly to the app that generated the notification; pressing back/power will dismiss the notification.

You should use interactive notifications only for important alerts.



Passive notifications deliver information that's less important. They take up less space than interactive notifications, are non-interactive, and disappear automatically after X seconds. When a message inside a passive notification is too long to fit on the screen, the message will be scrolled horizontally.

You should use passive notifications to inform users without interrupting them.



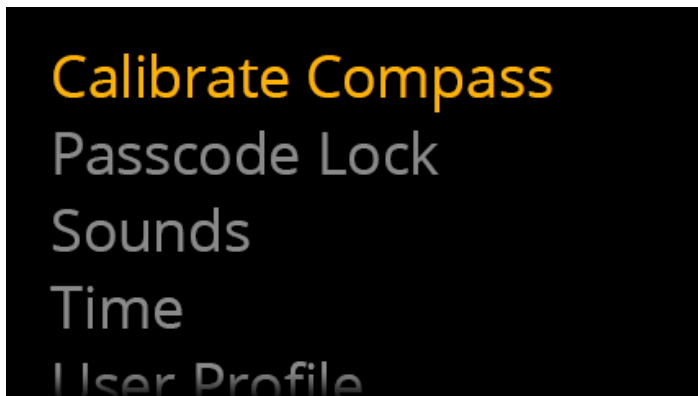
Menus

ReconOS features three types of menus: **horizontal**, **vertical**, and **read-only**.

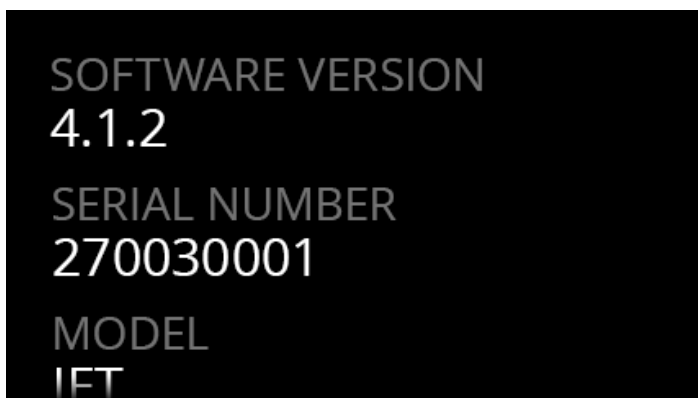
Horizontal menus list items side by side and are scrolled with forward and backward swipes on the optical touchpad. Horizontal menus are easier to navigate than vertical menus, but they can display less information on the screen. We recommend using horizontal menus for short lists of items.



Vertical menus display items on top of one another, and they're navigated with up and down swipes. Vertical menus can fit more items on the screen, but they can be slower to navigate. We recommend using them for long lists with many items.



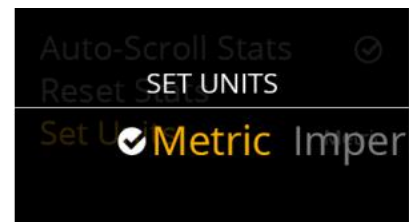
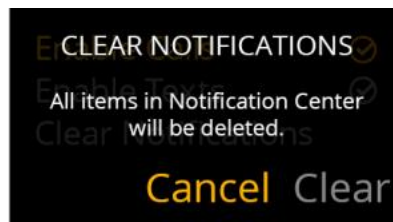
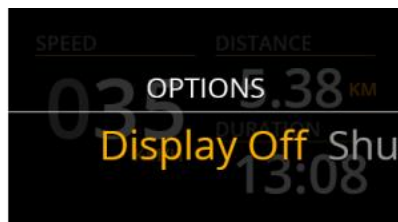
Read-only menus are special kinds of vertical menus. Their items can be either static or dynamically generated, but they cannot be interacted with, aside from simply scrolling up and down. You should use read-only menus to present information that does not require any action on the user's part.



Modal overlays

Modal overlays appear on top of applications. They typically contain two or more menu items presented over a semi-transparent background. Users must either act upon modal overlays by hitting the select button or dismiss them by hitting the back/power button.

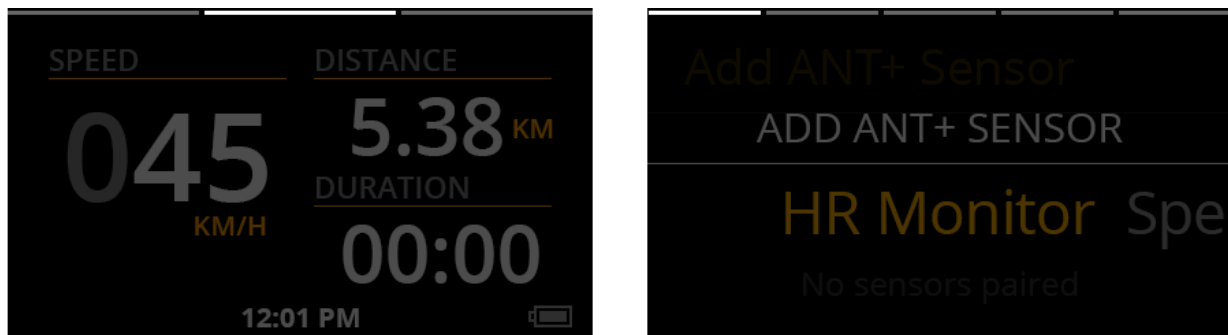
Use modal overlays when you want to present options to users without taking them completely out of your app.



Breadcrumb bars

ReconOS uses breadcrumb bars to tell users they can swipe to reveal off-screen items. Breadcrumb bars are triggered when two or more pages or app panels—or three or more menu items—are on the same list. They become visible as soon as a swipe is registered and disappear automatically after a set amount of time.

The number of breadcrumb bars must always be equal to the total number of items on the list. Also, navigation must always be sequential: the user should only be able to go from one item to the next in a sequence without skipping ahead.

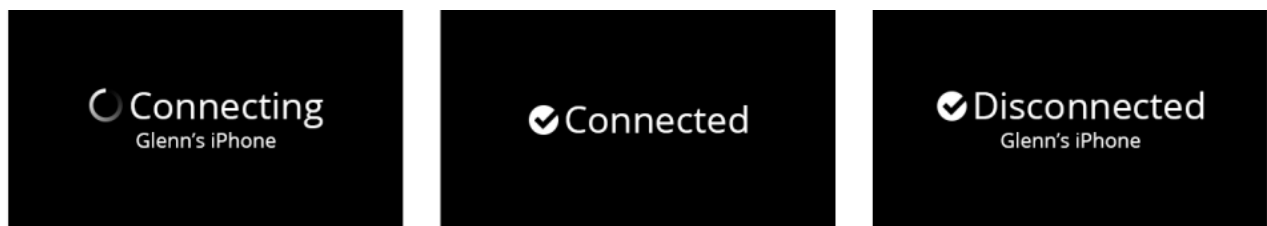


Feedback overlays

ReconOS uses feedback overlays to notify users when:

- An action is in progress (e.g. a smartphone is being connected or Jet is shutting down).
- An action has been carried out (e.g. the user has reset Jet's stats).

Feedback overlays appear over a semi-transparent background and disappear automatically after a set amount of time. They can include a primary message and a smaller secondary message. That secondary message can provide hints to the user. For example, if the primary message is "Activity Started," the secondary message could be "Press select to pause." (In this example, the select icon would be used instead of the word "select.")



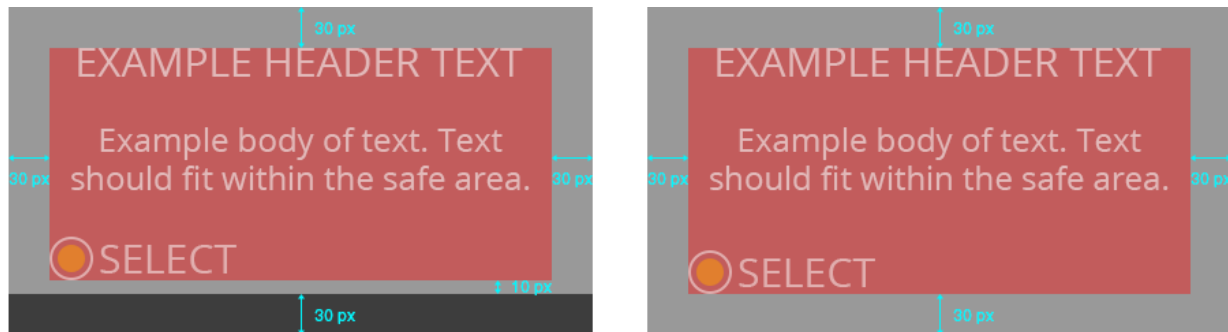
Styling and Best Practices

The guidelines below will help your app look and feel consistent with the rest of Jet's user interface. While you're free to exercise creative license, bear in mind that, from a user's point of view, a consistent interface will make your app look more polished and behave more intuitively.

Display and layout

Jet's display has a resolution of 428×240 and is always used in a landscape orientation.

Apps should have 30-pixel margins along all four sides of the screen—except when the status bar is visible, in which case the bottom margin should be only 10 pixels. (The status bar itself is 30 pixels tall.)



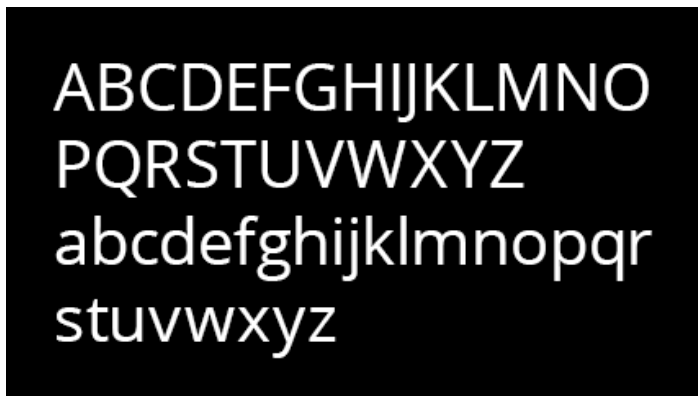
Try to keep your app's interface as uncluttered as possible, and try to use margins generously. Remember, Jet's display is designed to be glanced at, not stared at. An uncluttered interface with plenty of padding will be easier to decipher and navigate at a glance.

Typography

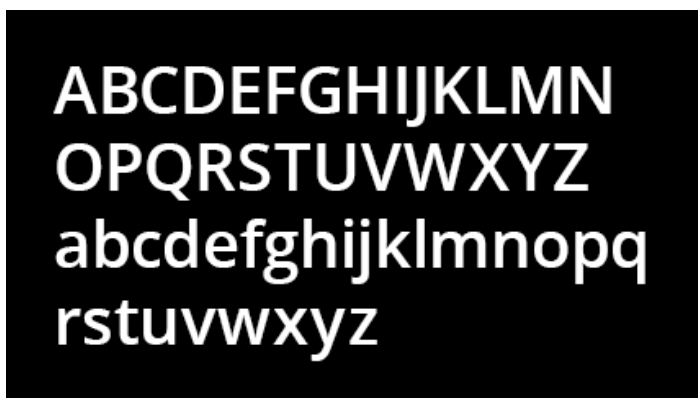
All text in ReconOS is set in either **Open Sans Regular** or **Open Sans Semibold**.

You should use the semibold weight for smaller text and the regular weight for all other text.

Open Sans Regular



Open Sans Semibold



Text and background colors

Since Jet's display is designed to be worn outside in full sunlight, ReconOS attempts to maximize contrast by using light text and objects on dark backgrounds. The following colors are used as standard:

- White (#FFFFFF) for text.
- Orange (#FFB300) for highlighted menu items. **EXAMPLE**
- Gray (#808080) for non-highlighted menu items. **EXAMPLE**
- Black (#000000) for backgrounds. **EXAMPLE**

We recommend against overlaying dark objects on light backgrounds. Because Jet's display is very bright, light backgrounds tend to bleed into darker objects, which can make those objects hard to see. This holds especially true for text.

Icon and container sizes and colors

ReconOS uses the following pixel sizes for icons and containers:

- 110 x 110 for expanded app icons in My Apps.
- 30 x 30 for icons in the Notification center.
- 30 x 30 for icons in interactive notifications.

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- 60 x 90 for the background container of interactive notification icons.
- 40 x 40 for passive notification icons.

For maximum visibility and contrast, we recommend that all notification icons (interactive and passive) be white on a dark background. Remember: the easier your icons are to distinguish, the more likely users are to recognize them when glancing at the screen.