android auto

AUDIO APP UI GUIDELINES

INTRODUCTION

Designing apps for automotive use

Designing apps for cars is fundamentally different from designing for phones or tablets. It requires rethinking how experiences are structured.

Because driving is the primary activity in the car, all digital experiences should be designed to complement and augment driving.

The Android Auto Audio app framework uses an app template, which lets users learn a single navigation model that works across all their audio-related apps.

CREATIVE VISION

Glanceable and simple

Android Auto was designed not only to simplify the UI, but also to optimize interactions, reduce cognitive load, and improve safety. Effective apps provide just enough information for drivers to make content decisions easily, so they can quickly return their attention to the road. Good apps also limit the number of features to only those that are safe and drive-appropriate.

Predictive, yet predictable

Android Auto leverages rich, contextual awareness to keep the driver informed about important situations during the drive. Timely information is combined with predictable functions. Effective apps make use of the patterns for common tasks and show new information only when relevant.

Connected

By leveraging the user's connected apps and services, Android Auto promotes a continuous experience between the driver's various devices and the car. When drivers connect their device to their cars, their audio content is instantly available.

Naturally integrated

By using the screens, controls, and capabilities of the vehicle, Android Auto feels like an extension of the car and of the user's device to the automotive environment.

MINIMIZING DRIVER DISTRACTION

Requirements

Google takes driver distraction very seriously. The Android Auto framework was developed to facilitate the creation of apps that adhere to a multitude of safety and distraction guidelines from around the world.

Drivers need to keep their eyes and attention on the road. App interfaces need to be quick and easy to navigate. To ensure that your app minimizes distraction, follow the guidelines presented in this document.

Note: All apps offered for the Android Auto platform will undergo a review process to ensure that they meet minimum safety and driver distraction guidelines.

Fonts & sizing

Roboto is used throughout the interface for consistency. To ensure readability across a wide variety of displays and vehicle layouts, two font sizes are preset. The primary text font size is used for all text that is important for making a decision, such as a song name in a playlist. Use the secondary font size to provide supplemental information that is not critical for decision making, such as the artist name in a playlist.

Text string lengths

To help ensure short glance times, make all text strings concise and brief. Strings that do not fit within their allotted space will be truncated with "...".

Contrast ratio

Proper visual contrast between the foreground (textual or iconic information) and background (colors, album art, etc.) is crucial for legibility and easy interpretation of information while driving. In-vehicle foreground/background contrast must be acceptable in various environmental lighting conditions such as nighttime, normal daylight, and direct sunlight.

Review criteria:

Color contrast in your app will be subject to qualitative testing to ensure proper contrast and minimal distraction in all lighting conditions.

MINIMIZING DRIVER DISTRACTION

Night vs Day modes

Nighttime driving interfaces have to be tailored for low-light environments to reduce the brightness of the content being displayed. Content displayed during the daytime can be either positive (dark text on light background) or negative (light text on dark background), while nighttime interfaces can only be negative.

Review criteria:

The colors in your app will be subject to review to ensure suitability in both daytime and nighttime environments.

Imagery & video

You can use static imagery in select locations. On the Now Playing screen, album/media art displayed in the background enhances the experience. The system automatically provides a darkening overlay to enhance contrast between the artwork and the item's name. Include thumbnails in lists when it clearly helps the user make content decisions.

Note: Video and animated images are prohibited.

Advertising

Textual and graphical advertising may not be displayed at any time within the interface. Ad content may be presented via the auditory channel as part of an audio stream, but any associated textual or graphical metadata may not be displayed.

Auto-scrolling text

Text may not scroll automatically. Auto-scrolling text is considered distracting. The user must remain in control of the pace of when and how information is displayed.

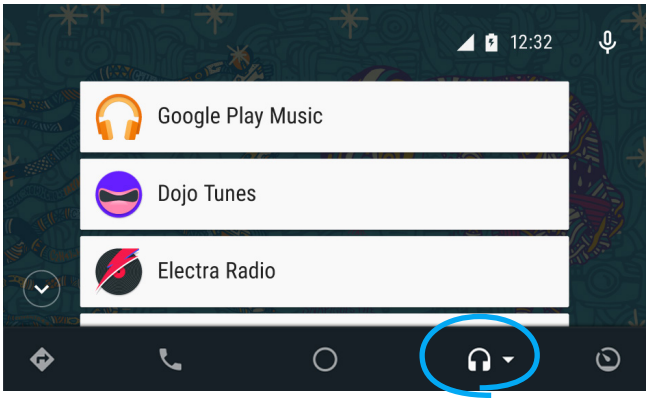
Notifications and alerts on phone

When Android Auto is active, the only way to present information to the driver should be the in-vehicle system display. Your app must not push any form visual content (such as notifications, videos, or images) to the phone screen itself.

ANATOMY OF ANDROID AUTO APPS

5 discrete sections:

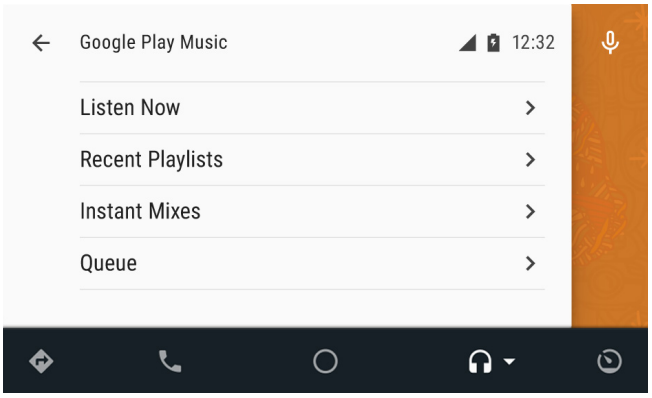
- Activity bar and App switching
- Navigation drawer
- Overview screen
- App view and its menu
- Demand layer



Activity bar

The Activity bar is persistently anchored at the bottom of the screen. It contains icons that afford users access to the four types of driving-related activities and an Overview screen in the center. The four activities are: Navigation, Communication, Media and car-related functions

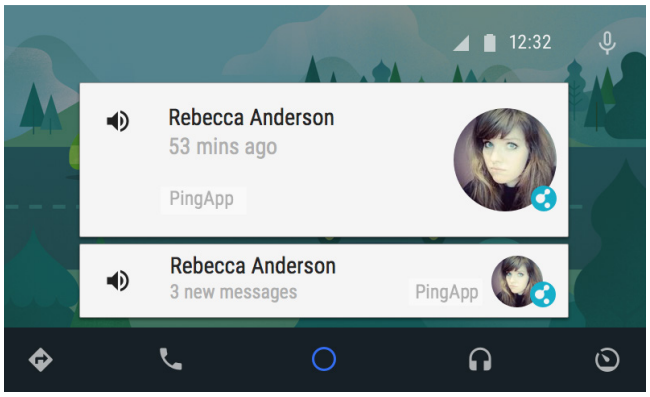
Switching apps: touching one of the icons in the Activity Bar twice lets the user see all apps installed for that activity category. For example, touching the Audio icon twice lets the user see all audio/music apps.



Navigation drawer

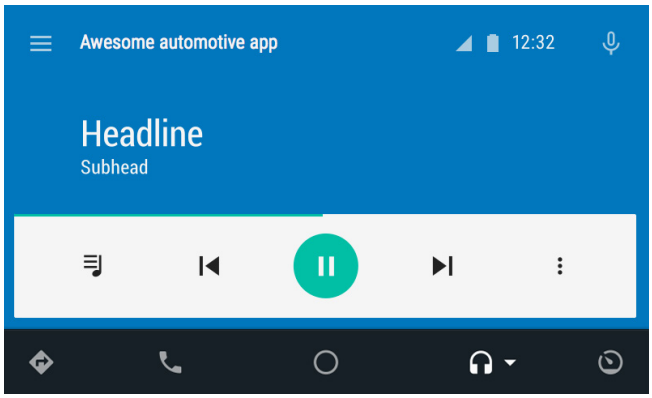
The side nav drawer patterns are designed to reduce complexity and allow for simpler and quicker access to content and a few select global actions while driving.

ANATOMY OF ANDROID AUTO APPS



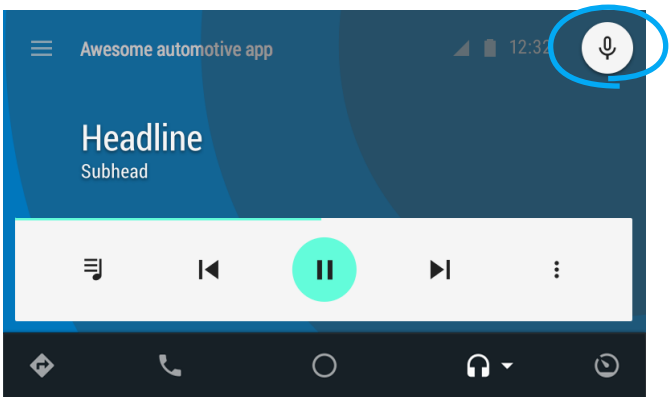
Overview Screen

When a user first connects their Android device to the car, they land on the Overview screen. This screen contains contextual cards based on the user's location, time of day, etc. This is also the place where the user can view their notifications.



App view

Within an app, the user can navigate the app's categories of content and access functions via the side nav drawer, which slides out from the left. Once a user has entered one of those categories, they can go back using the Back button at the top left (similar to Up navigation on the phone), and exit the drawer at any time by touching the colored area below the mic button.



Demand layer

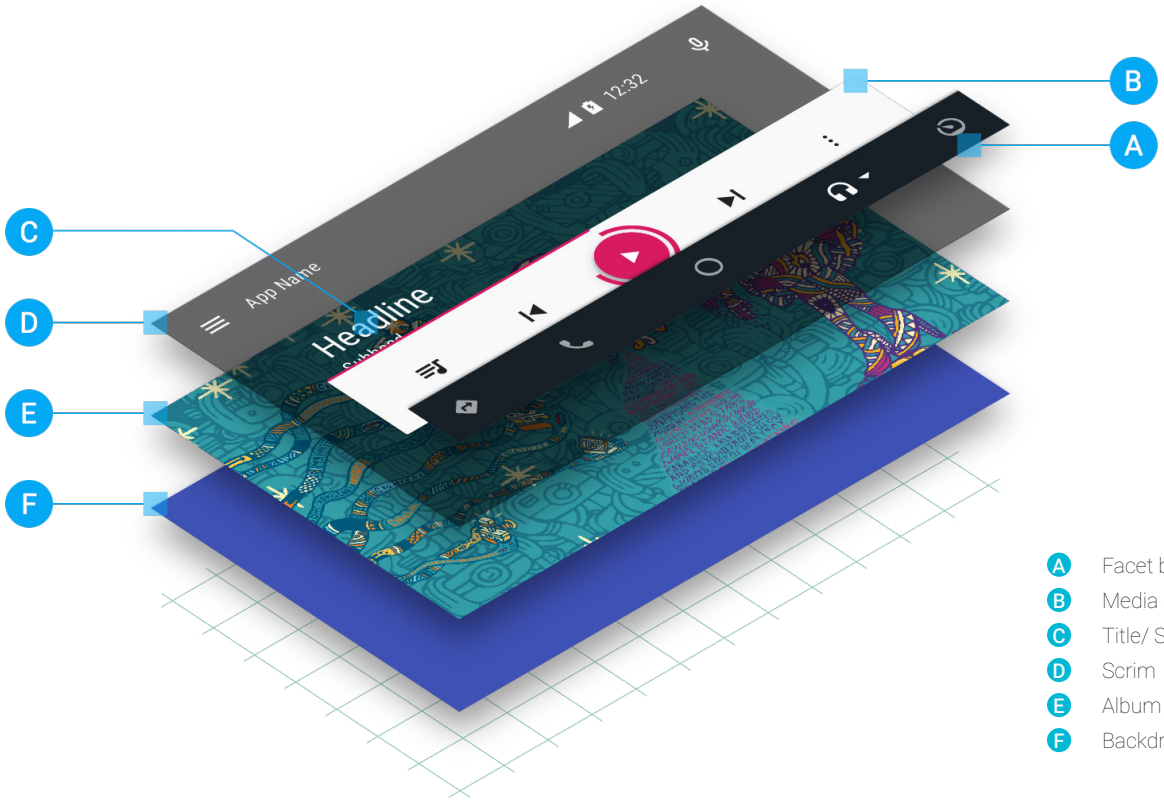
Touching the microphone invokes the Demand layer. The Demand layer handles voice actions and search.

MEDIA APP STRUCTURE

Important design principles

- Focus on presenting core content and primary actions only. Don't port your entire app into Android Auto. The car experience is about finding and consuming content quickly.
- Don't include settings or flows that require focused attention. Users should perform such tasks directly on their phones. For example, creating an account, signing in, or creating a playlist should all be done on the phone.
- Focus on showing recent, frequent, and favorite content that is most likely to interest the driver.

The audio template has a very simple structure. The **Now Playing** screen consists of a card with media controls (media control card) and a full-bleed album art background. A **navigation** drawer lets the user access content and important actions.

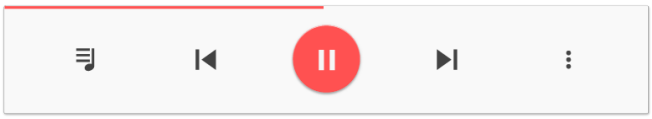


A Facet bar
B Media control card
C Title/ Subtitle
D Scrim
E Album Art
F Backdrop

AUDIO APP STRUCTURE

Media control card

Primary actions (up to 4) + optional action overflow toggle



Play/Pause or Play/Stop is a required primary action and must appear in the center of the card. The default icon set also includes a “coming up” button, Previous/Next buttons, and the action overflow toggle. Selecting the action overflow lets users toggle between primary and secondary actions.

If your application includes Previous or Next actions, include them to the left and right of the Play button, respectively. The action overflow toggle is to the right of the primary actions.

If your application doesn’t use “Queue”, Previous/Next, or the action overflow toggle, you can use those slots for other actions that are important in your app.

Optional secondary actions (up to 4) + action overflow toggle

Secondary actions are application-specific and appear when user touches/clicks the action overflow toggle. Some examples of secondary actions for audio apps are thumbs up/thumbs down, shuffle, and radio. Selecting the overflow button returns the user to the primary actions. You can add up to 4 commands in the Secondary Actions area, and they will load from left to right.

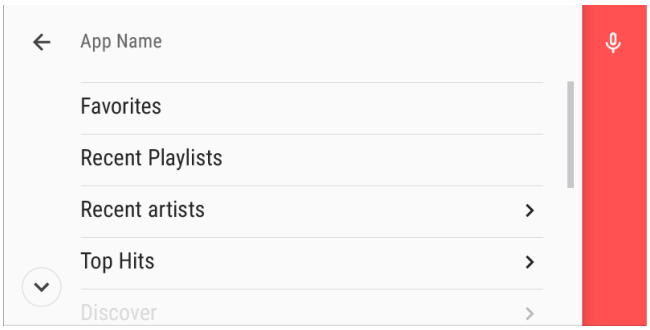
MEDIA APP STRUCTURE

Navigation drawer

The navigation drawer is where users can find content (and actions if necessary). It manages your app's information structure and is a required component.

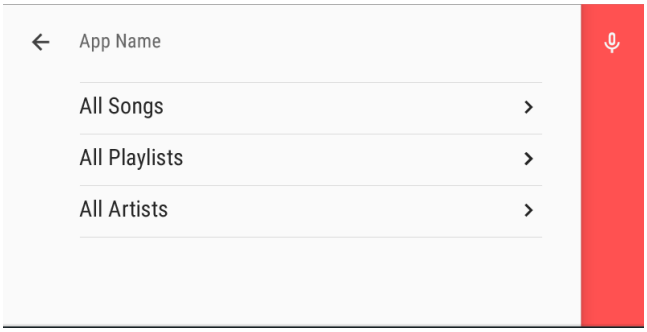
Tailor the audio app drawer to the user

- Surface frequently used items, like playlists or channels.
- Make it easy for the user to access their favorite music and other items stored on their device.
- Allow quick access to popular content.



DO

Do show recent artists and top hits. These categories are timely, context-specific. They are also manageable lists.



DON'T

Don't show unbounded, broad categories like "all artists" or "all playlists". These lists will be truncated unexpectedly when the user has reached the maximum number of steps allowed in a task.

Instead, structure your navigation to create bounded content for the driver to more easily scan, such as " favorite artists" or "recent songs". Also, consider creating collections such as "top 100 songs" or "recommended for you."

MEDIA APP STRUCTURE

Navigation drawer

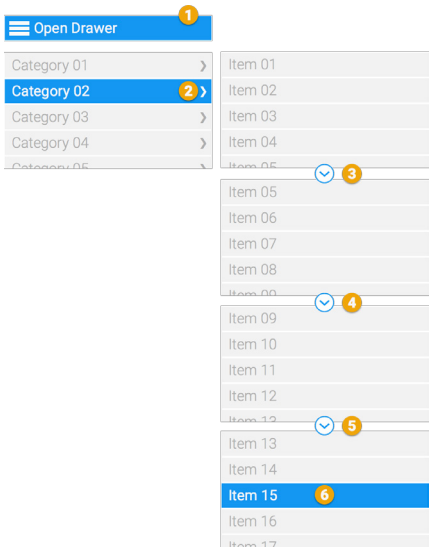
The navigation drawer is where users can find content (and actions if necessary). It manages your app's information structure and is a required component.

Bounded navigation

To simplify content navigation while driving there are a few rules around how this is content is to be surfaced in the drawer:

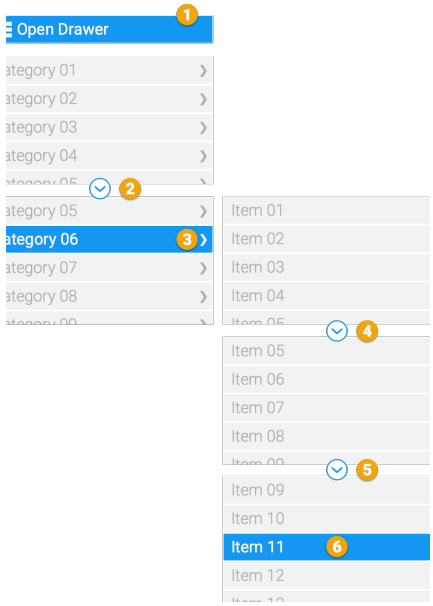
- A single action has to be completed within 6 steps.
- No more then 2 levels of hierarchy can be used in the drawer.
- 4-5 items that can be shown on any single drawer screen, after which the drawer needs to be scrolled.

Pattern 1:



Navigation patterns

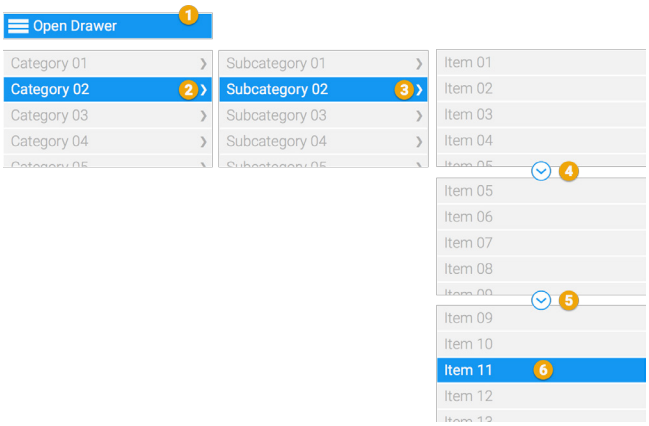
Applying those rules will allow the application to use one of the following drawer navigation patterns:



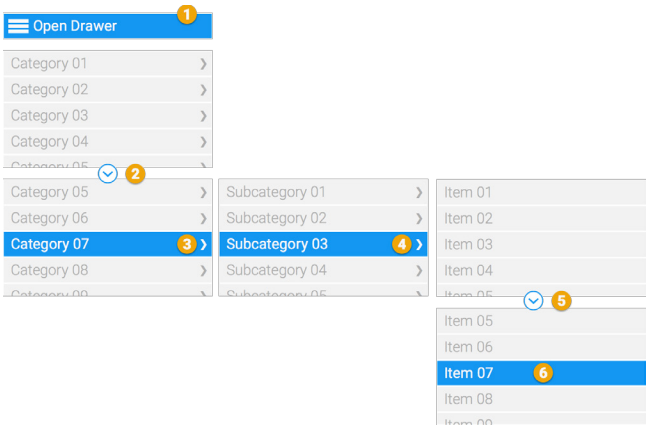
MEDIA APP STRUCTURE

Navigation drawer

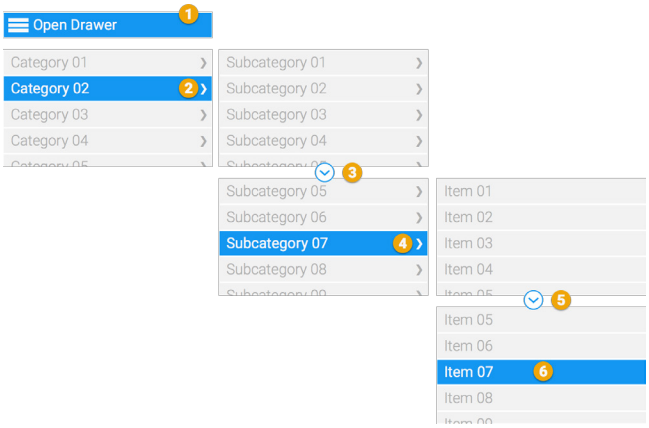
Pattern 3:



Pattern 5:



Pattern 4:



MEDIA APP STRUCTURE

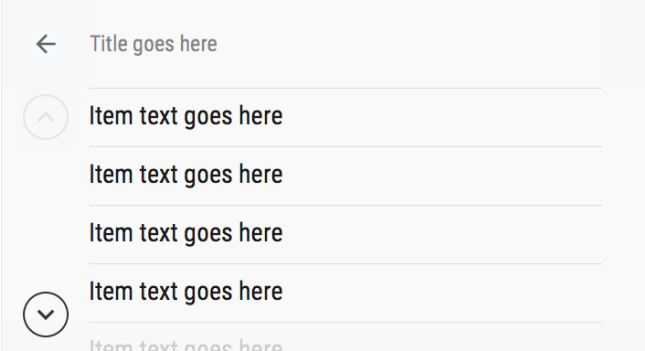
Navigation drawer

Drawer content items

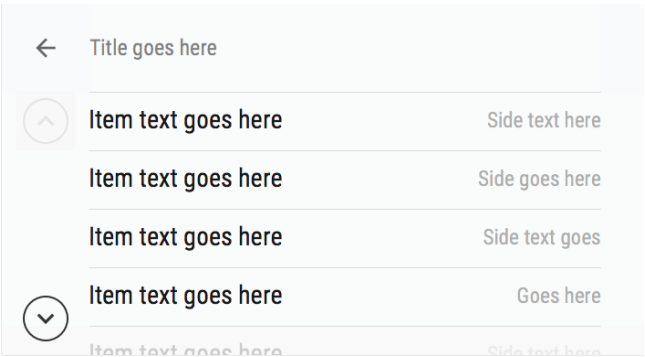
There are a few more rules around content items:

- Actions may be shown at the top level of the drawer. *Actions have to be grouped together either before or after the content items*.
- A level may either contain categories (which lead to another set of content items) or content items but not both. *Apps may not mix content and category items at the same level.*
- Icons may be used for items only if they are necessary to clarify the meaning of content items. If one item uses an icon, all items at that level have to use icons. *Apps may not mix icon and non-icon items at the same level*
- Items may either be one line items or items with an extra line of meta data. More items can be fit per screen when one line items are used. All items in the same level have to be of the same kind. *Apps may not mix one and two line items.*

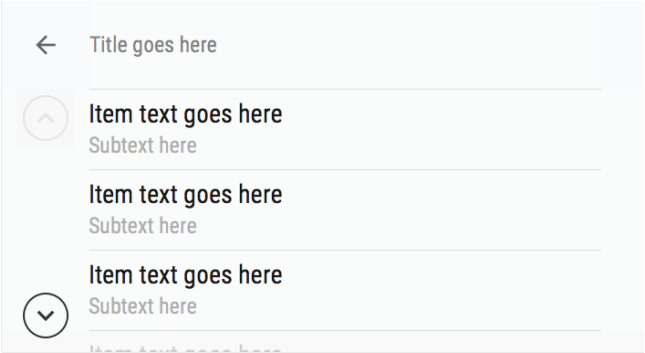
Single line items



Single line with side meta data (space saving):



Two line items (use for critical metadata):

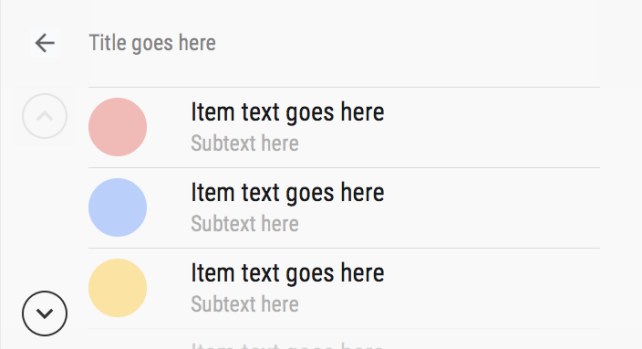


MEDIA APP STRUCTURE

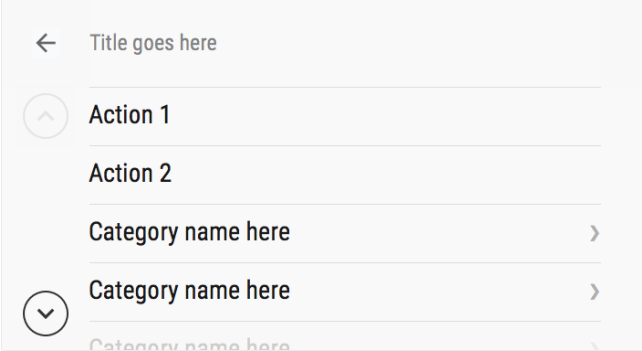
Navigation drawer

Drawer content items

Items showing icons



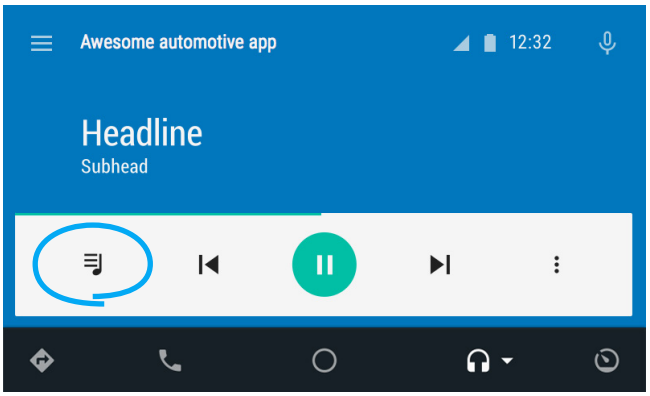
Actions at the top level

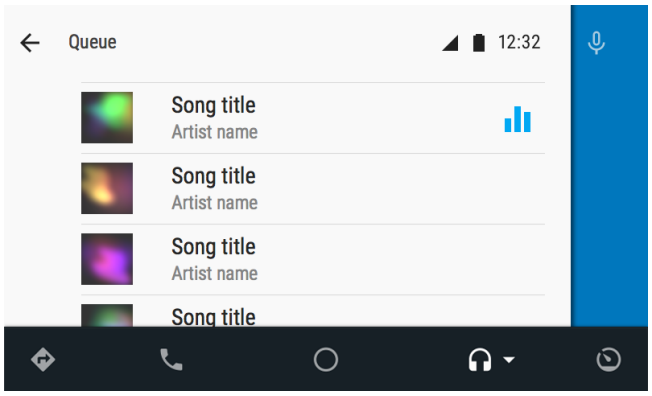


MEDIA APP STRUCTURE

Queue

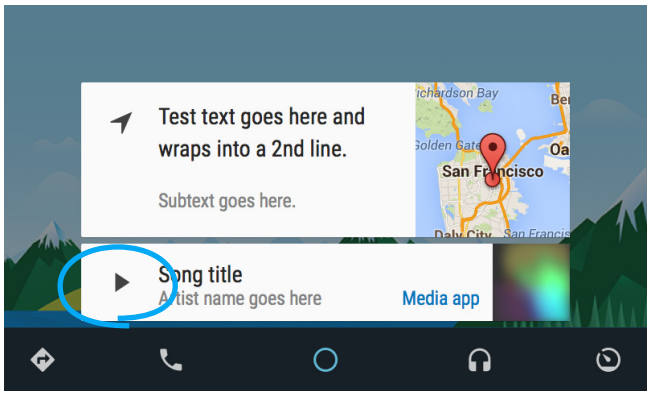
A view of the currently playing queue of content can be displayed inside the navigation drawer. The control to open the queue view is to be placed to the left of the primary transport controls





Starting the app from the overview screen

When the user connects their phone to Android Auto, the most recent audio applications used on their phone appear as cards on the Overview screen. If they've most recently been using your audio app, your app appears on the Overview screen, and the user can touch the card to continue listening where they left off.

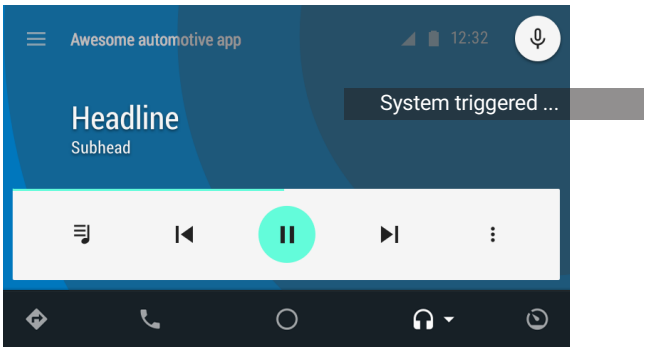


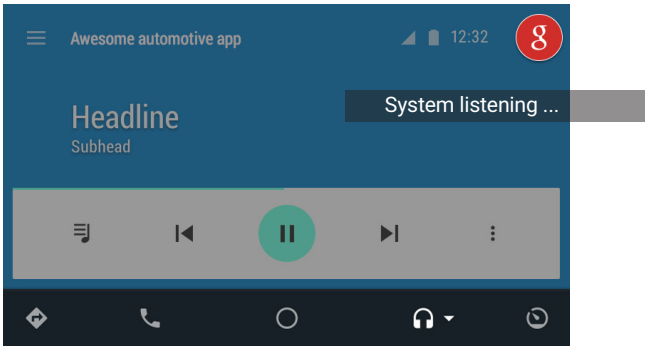
MEDIA APP STRUCTURE

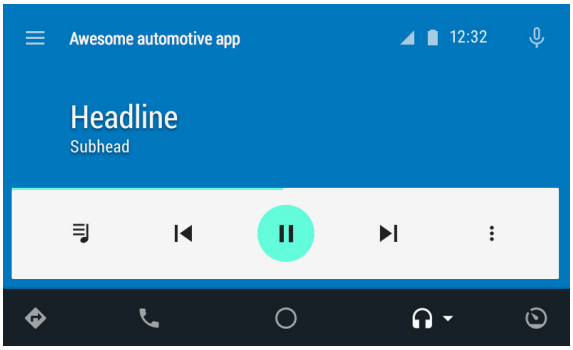
Demand Layer

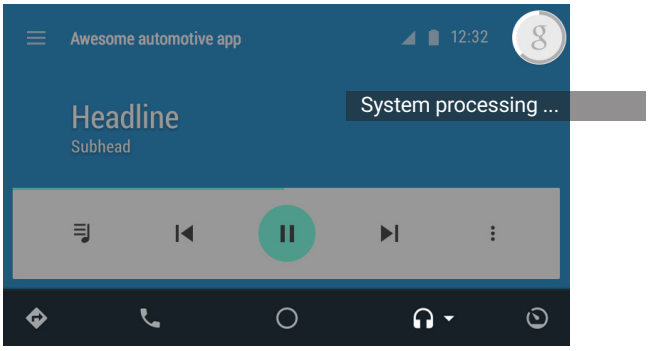
The demand layer handles helps drivers find different content to consume.

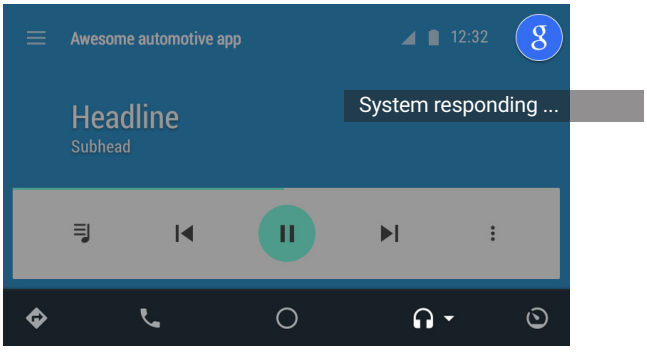
To avoid driver distraction, the current screen context does not change. All of the interaction happens via voice.











AUDIO APP STRUCTURE

Notifications

Notifications should be shown based on whether they are important enough to warrant interrupting the driver.

Notifications add to driver distraction, and are subject to regulations and guidelines before being approved for driving.

Notifications are rendered by the system with the app providing text content and an optional image

Anatomy of heads-up notification

Identification area: A content image for the origin of the message, badged with an app icon

Content area: Textual description of message and secondary meta data

Touching either identification or content area will open the content area of the originating app.

Dismissal: Can be dismissed by the driver by touching the close icon

Sound: Provided by the system

Lifespan

- Apps can withdraw/expire notifications.
- Notifications may be displaced by the system if a more important notification needs to be shown. Displaced notifications:
  - Are accessible as cards in the Overview space afterwards
  - Are cued up with other notifications on the driver's phone
- Notifications may be grouped if multiple notifications get shown by an app within a certain interval
- If not dealt with, a notification showing will timeout after n seconds max
- User can dismiss the notification immediately by pressing the close icon

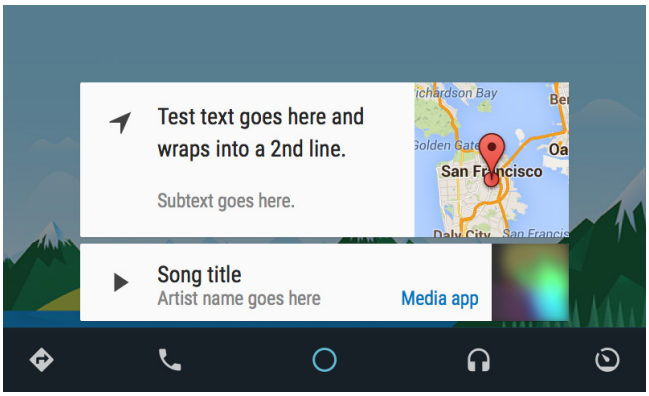
Accessing past notifications

- Are accessible as cards in the Overview space afterwards
- Are cued up with other notifications on the driver's phone

MEDIA APP STRUCTURE

Overview space

Previous messages from your driving session can be found in the Now Space. Android Auto may rank and group your appropriate messages together. The number of cards presented in the Overview space will be capped to prevent too long of a list. Thus your messages may be rolled off the Overview screen if a large amount of new and relevant content comes in. In this case the message notifications will still be available on the phone for after driving consumption



Anatomy of a media card

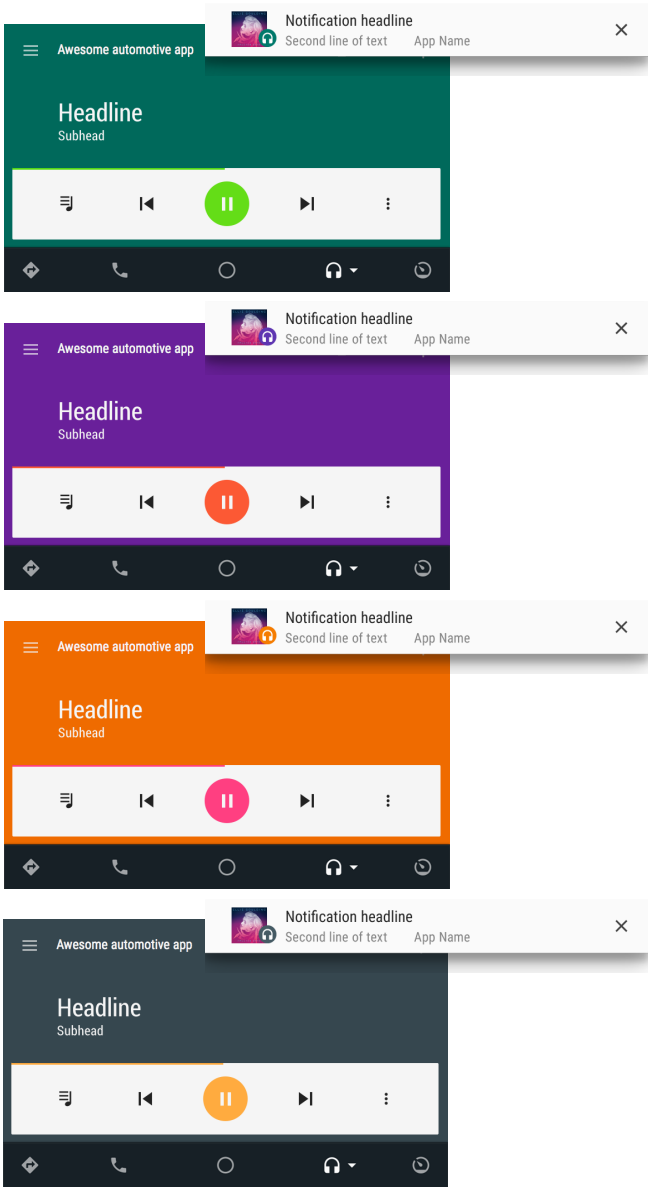
Content area: Message can be played (through Google Voice) by touching it or the action icon. Reply prompts are given after.

Identification area: An image describing the content (e.g album art) badged with an app icon, automatically placed on a background using the app's "colorPrimary" brand color.

The app provides: title, any metadata, a content image and the app's name. The latter will automatically be rendered in the app's "colorPrimary" brand color.

The system will render the card, and sizes it based on priority in the overall overview card stack.

APPENDIX: CUSTOMZING AND BRANDING



Color and notifcation icon provides branding opportunity for the app. Android Auto apps make use of the same theme colors that Android Lollipop uses for Material apps.

The app developer also needs to provide a second, darker set of these same colors to be used when the system switches to “Night mode”.

See “*Color customization & branding for apps*” Android Auto UI guidelines for detailed color and customization descriptions.

Review criteria:

Color values in your app will be subject to qualitative testing to ensure proper contrast and minimal distraction in all lighting conditions for automotive usage.