

Defining Icons and Splash Screens



Maximiliano Firtman
MOBILE+WEB DEVELOPER
@firt firt.mobi

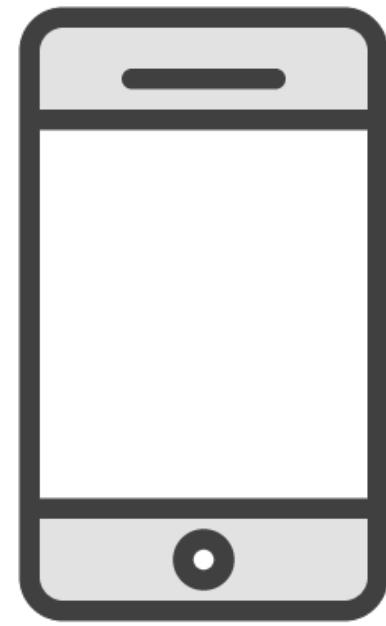
Overview

Icons and Splash Screens

- PWA Diversity
- Icon Guidelines
- Icons in the App Manifest
- Icons for iOS and iPadOS
- Splash Screens

PWA Diversity

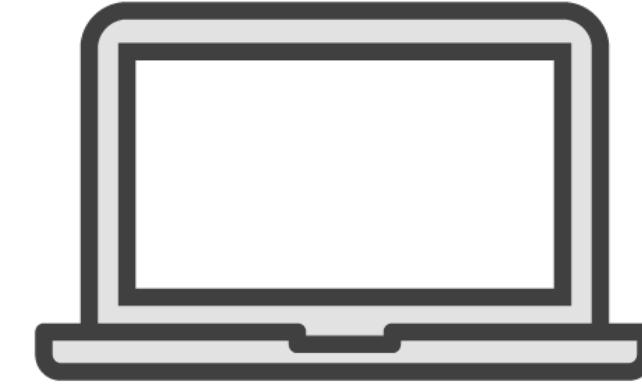
Progressive Web Apps Diversity



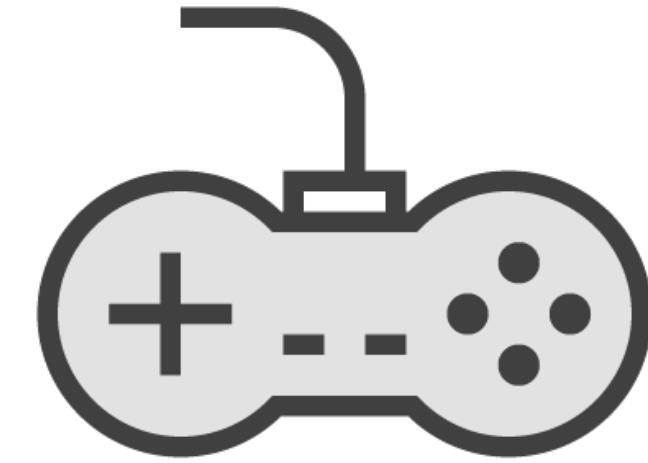
Mobile devices



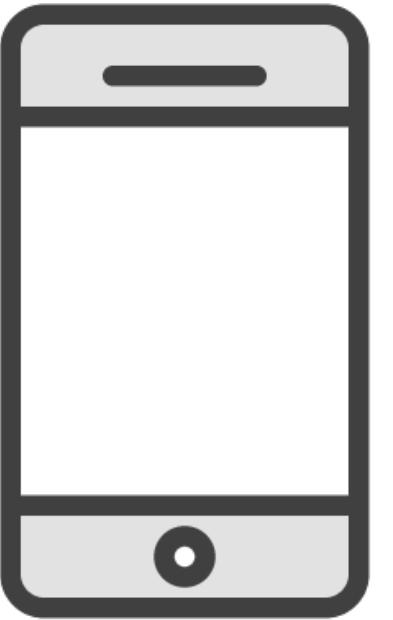
Feature Phones



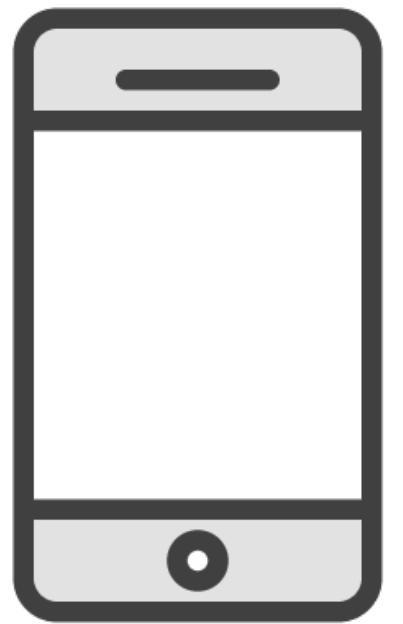
Computers



Game Consoles

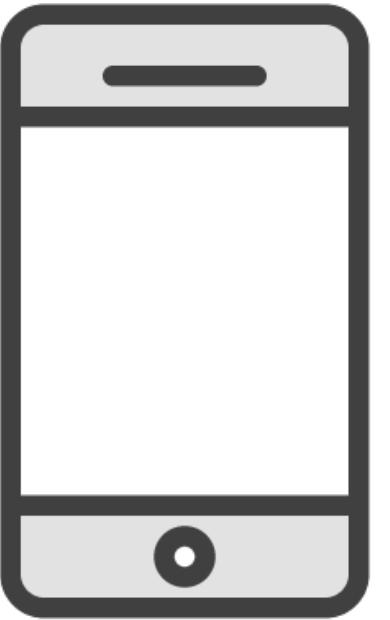


Mobile devices



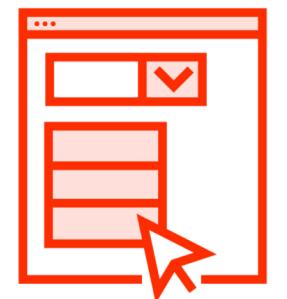
Mobile devices

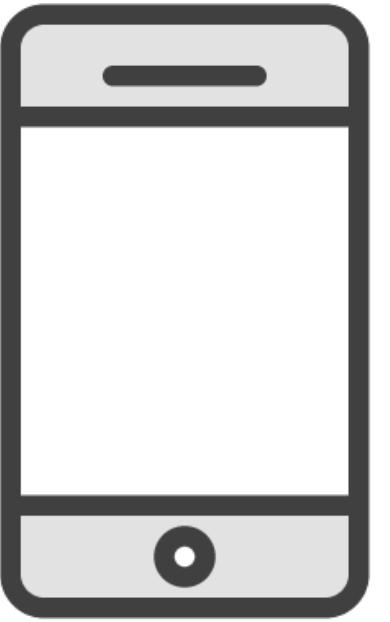
Android



Mobile devices

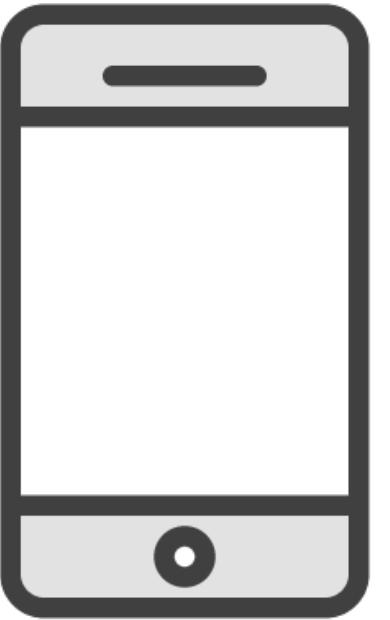
Android





Mobile devices

iOS

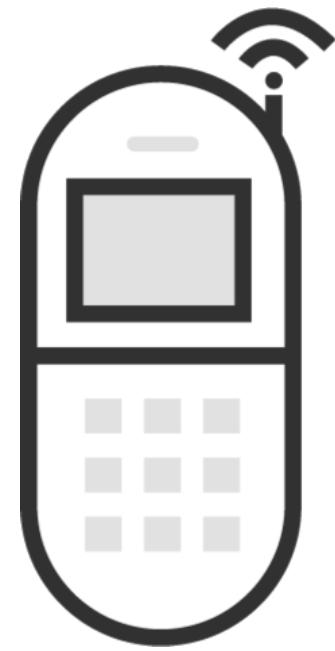


Mobile devices

iPadOS

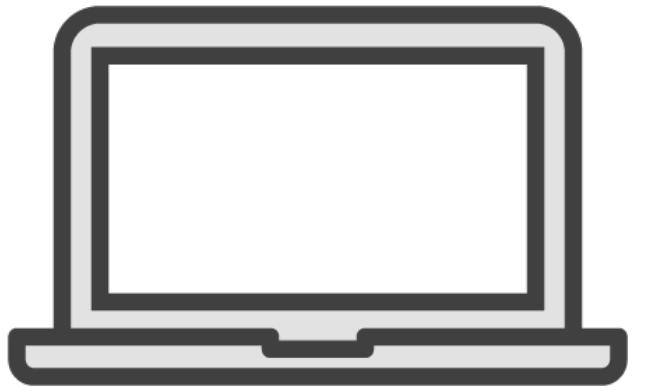


Feature phones



Feature phones

KaiOS



Desktop



Desktop

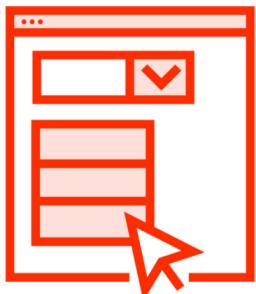
Windows

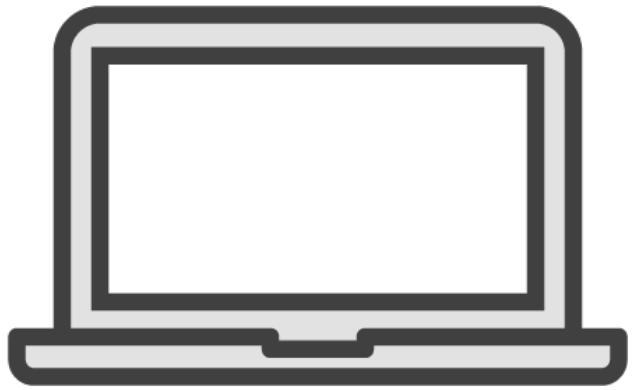




Desktop

Windows





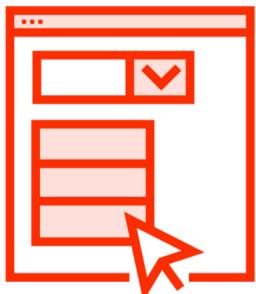
Desktop

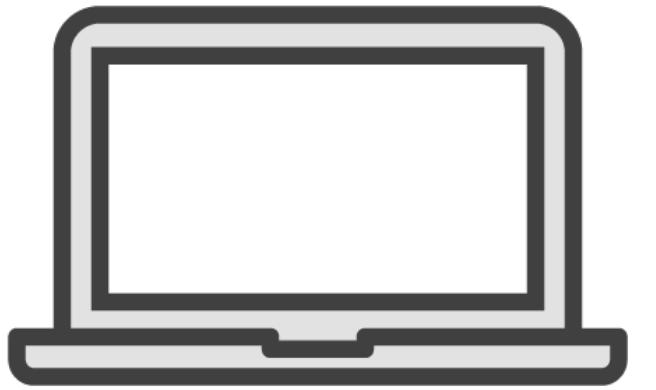
macOS



Desktop

macOS





Desktop

Chromebook



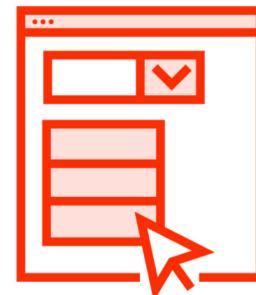
Desktop

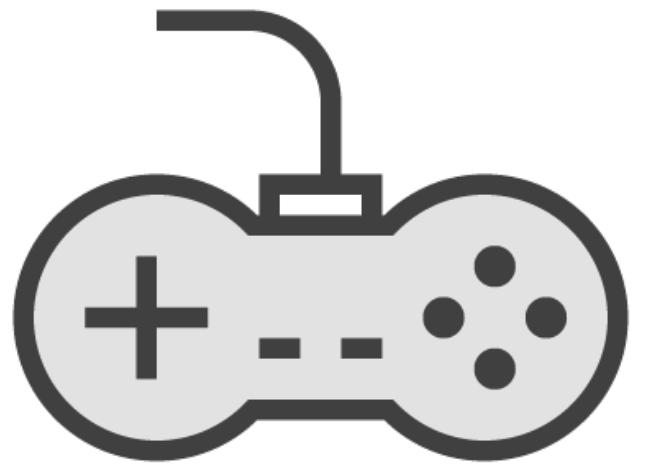
Linux



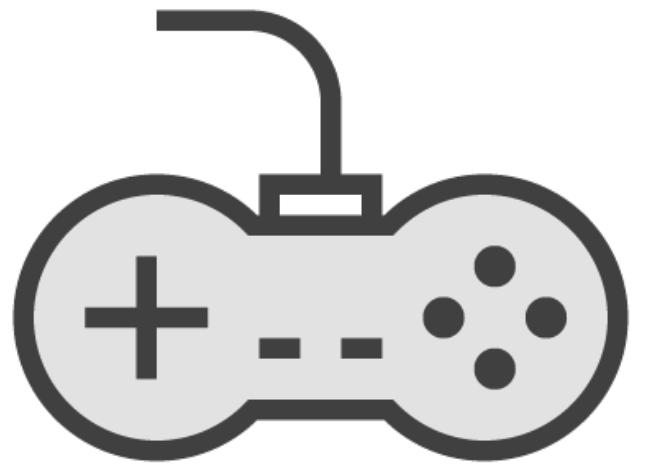
Desktop

Linux





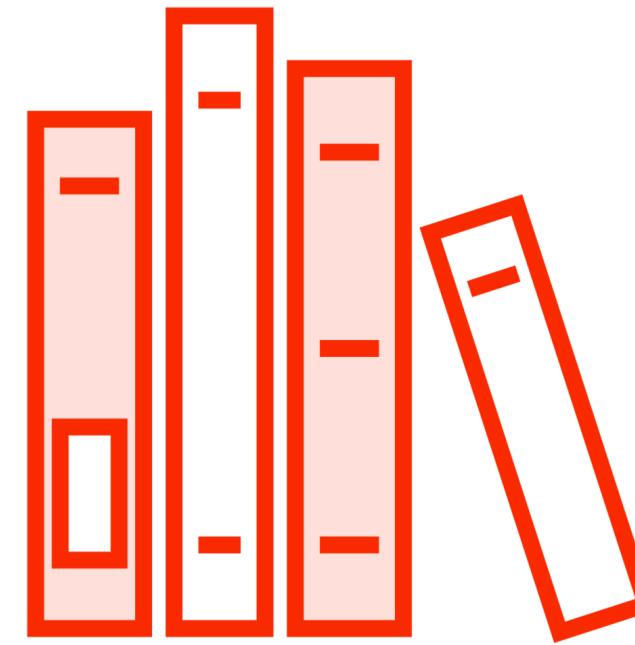
Game Consoles



Game Consoles

Xbox One

What diversity means for PWA asset design?



UI Guidelines

Not every OS uses
the same guidelines
for icon and splash
design

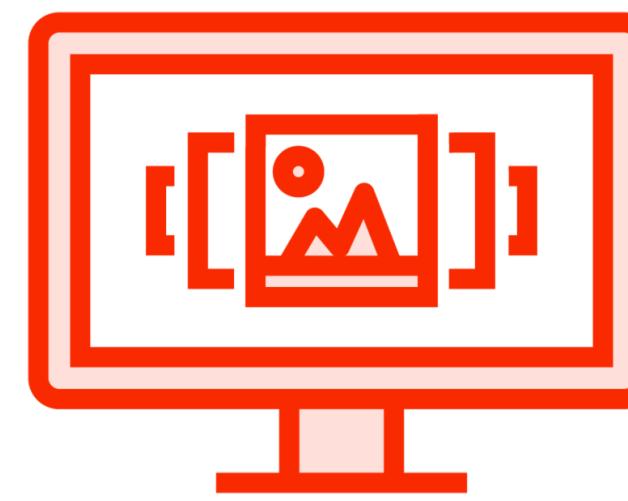


Image Sizes

Each platform and/
or device use
different sizes for
visual assets

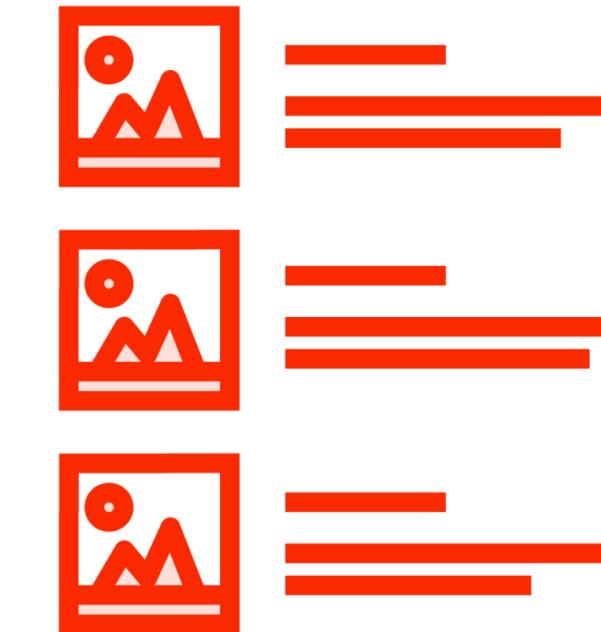
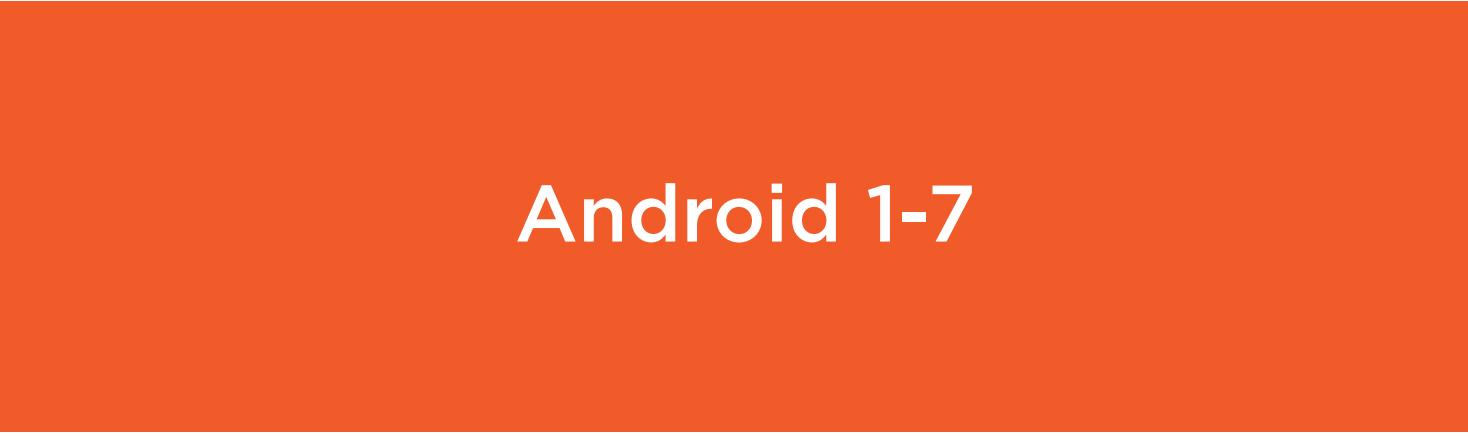


Image Formats

PNG is everywhere,
but transparency
support and shapes
are different

App's Icon PNG Transparency Support



Android 1-7



Desktop

No Transparency Support - Shape Fill

iOS

iPadOS

Android 8+

 Developer Discover Design Develop

Human Interface Guidelines

- > iOS
- > App Architecture
- > User Interaction
- > System Capabilities
- > Visual Design
- Icons and Images**
 - Image Size and Resolution
 - App Icon**
 - Custom Icons
 - System Icons
- > Bars
- > Views

App Icon

Every app needs a beautiful and recognizable icon that stands out on the Home screen. Your icon should communicate at a glance, your app's purpose. It also serves as a visual cue in search results.



Embrace simplicity. Find a single image or icon that clearly express that element in a simple, clean way.

Apple Human Interface Guidelines

It will serve as a place to find information about icons for all the Apple platforms, including iOS, macOS and iPadOS

The screenshot shows a Microsoft Docs page titled 'App icons and logos'. The page is part of the 'Design and UI' section under 'Windows Dev Center'. The URL is 'https://docs.microsoft.com/en-us/windows/uwp/design/style/app-icons-and-logos'. The page content discusses app icons and logos, mentioning their use in the start menu, taskbar, tiles, splash screens, and Microsoft Store. It includes a sidebar with navigation links for Design basics, Layout, Controls, Style, Color, Typography, and Icons.

App icons and logos

04/17/2018 • 9 minutes to read • 0 comments

Every app has an icon/logo that represents the app. This icon is used throughout the Windows shell:

- The app list in the start menu
- The taskbar and task manager
- Your app's tiles
- Your app's splash screen
- In the Microsoft Store

This article covers the basics of creating and managing app icons and logos, and how to manage them manually, should you need to.

App icons and logos

See also MDL2 icons

Download PDF

App icons guideline for Windows 10

It will serve as a place to find information about icons for Windows 10 apps and other Microsoft operating systems

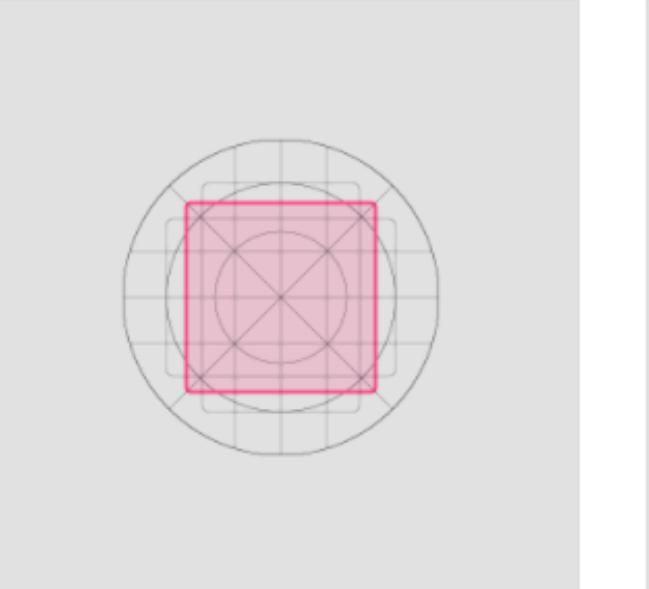
MATERIAL DESIGN

- Material System
 - Introduction
 - Material studies
- Material Foundation
 - Foundation overview
 - Environment
 - Layout
 - Navigation
 - Color
 - Typography
 - Sound
 - Iconography
 - Shape
 - Motion

Keyline shapes

Keyline shapes

Keyline shapes are used across all app icons to maintain consistency.



Square
Height: 44dp
Width: 44dp
Corner radius: 4dp

Material Design Icon Guidelines

It will serve as a place to find information about icons for Android; information sources differs from Android 8 and older devices.

≡ KaiOS

- INTRODUCTION
- GETTING STARTED
- CORE DEVELOPER TOPIC
- DESIGN GUIDE

Launcher Icon

Action icon
UI Component
Basic Navigation
Key
Typography
Marketing Banner
Hosted App

SUMMARY & DEBUG

kaiOS Design Guide

It will serve as a place to find information about launcher icons for feature phones using kaiOS

Even with different icon
design guidelines, for PWAs
we can't today target
different icons per platform

Different Icons per Platform

The App Manifest spec uses today an agnostic declaration of icons
But Apple is not using icons from Manifest
In the future we might be able to do it
Solution today:

- Use device detection and serve different icons from the server

Icons for the App Manifest

```
{  
  "name": "PWA Name",  
  "short_name": "PWA",  
  "theme_color": "#385770",  
  "background_color":  
    "#18481d",  
  "display": "standalone",  
  "orientation": "portrait",  
  "scope": "/",  
  "start_url": "/",  
  "icons": [ ]  
}
```



Web app manifest

- **Icons Collection**

```
"icons": [  
  {  
    "src": "icon.png",  
    "sizes": "192x192",  
    "type": "image/png"  
  },  
  {  
    "src": "icon.png",  
    "sizes": "512x512",  
    "type": "image/png"  
  }  
]
```



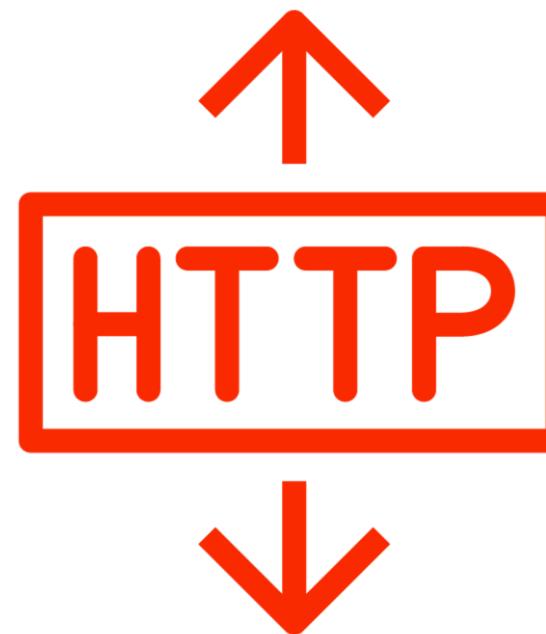
Web app manifest

- **Icons Collection**

- As many icons as we want
- We set agnostic metadata
- Each platform will pick the best one for each situation

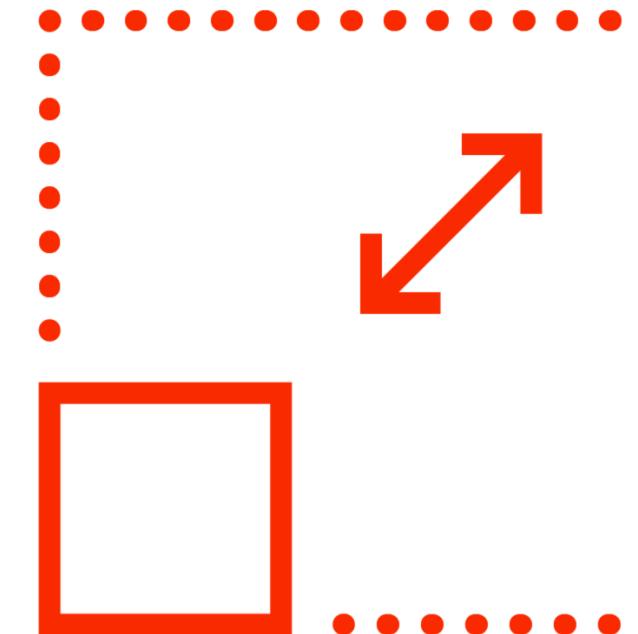
Objects in Icons Collection

Each icon can contain metadata



src

Path to image file,
absolute or relative
to App Manifest



sizes

"512x512"
"32x32 64x64"



type

MIME type
"image/png"

Icons for the App Manifest

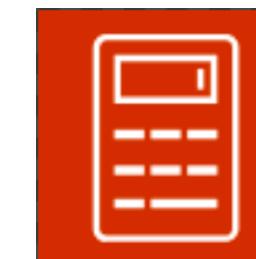
Format: PNG, Color space sRGB

Used on Android and desktop OS

If there is no exact icon available it will pick the closest one

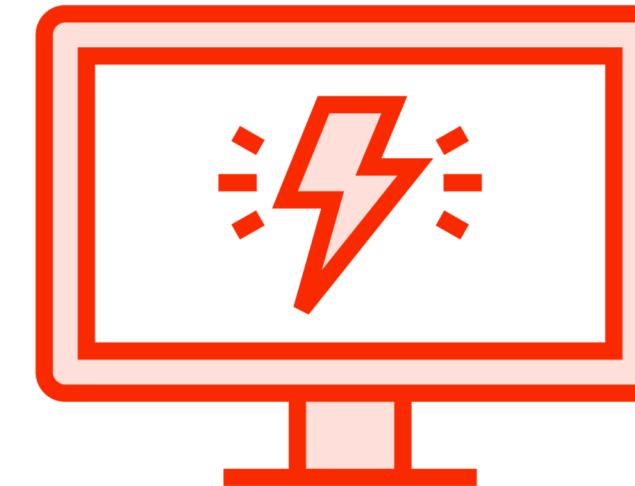
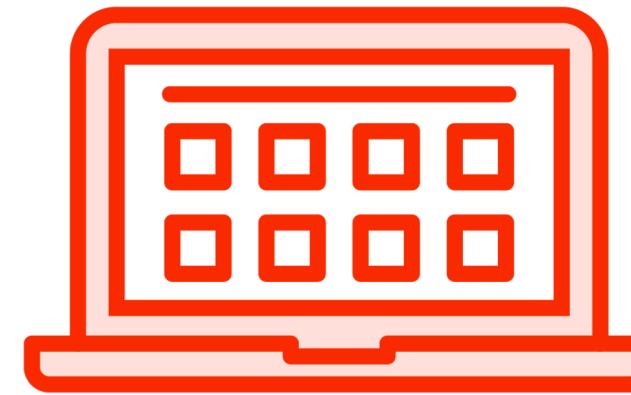
Recommended sizes:

- at least: 192x192, 512x512
- 384x384, 1024x1024
- deprecated sizes: 72x72, 152x152
- Simpler versions: 96x96, 144x144



Objects in Icons Collection

Each icon can contain metadata

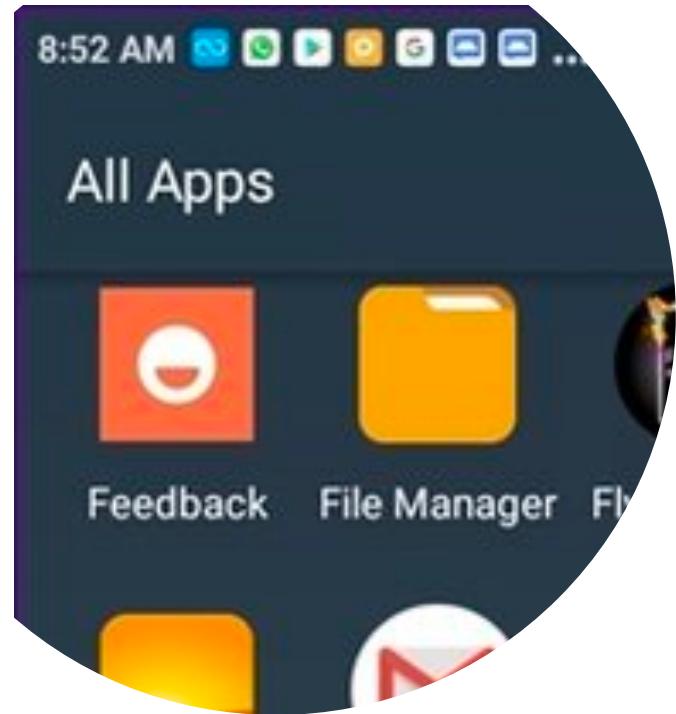


purpose

badge | maskable | any
space-separated

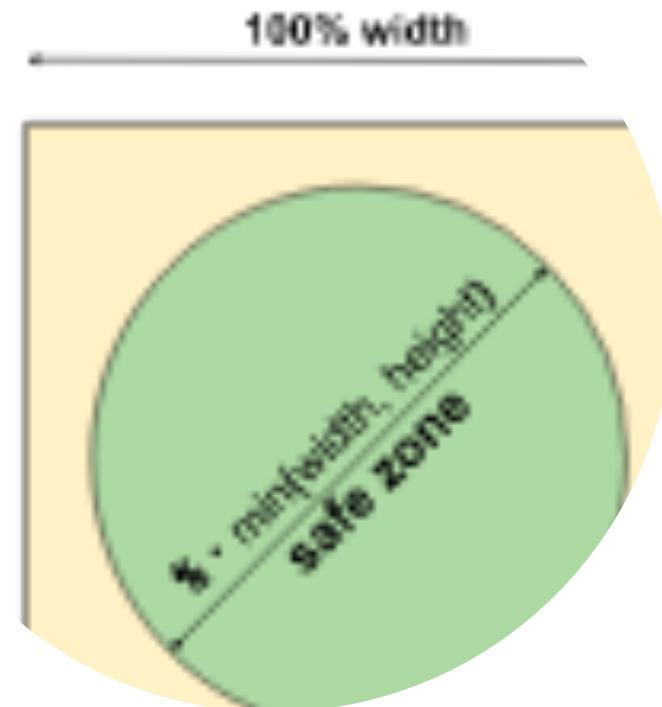
platform

windows | itunes | play
| chrome_web_store
Not implemented



purpose="badge"

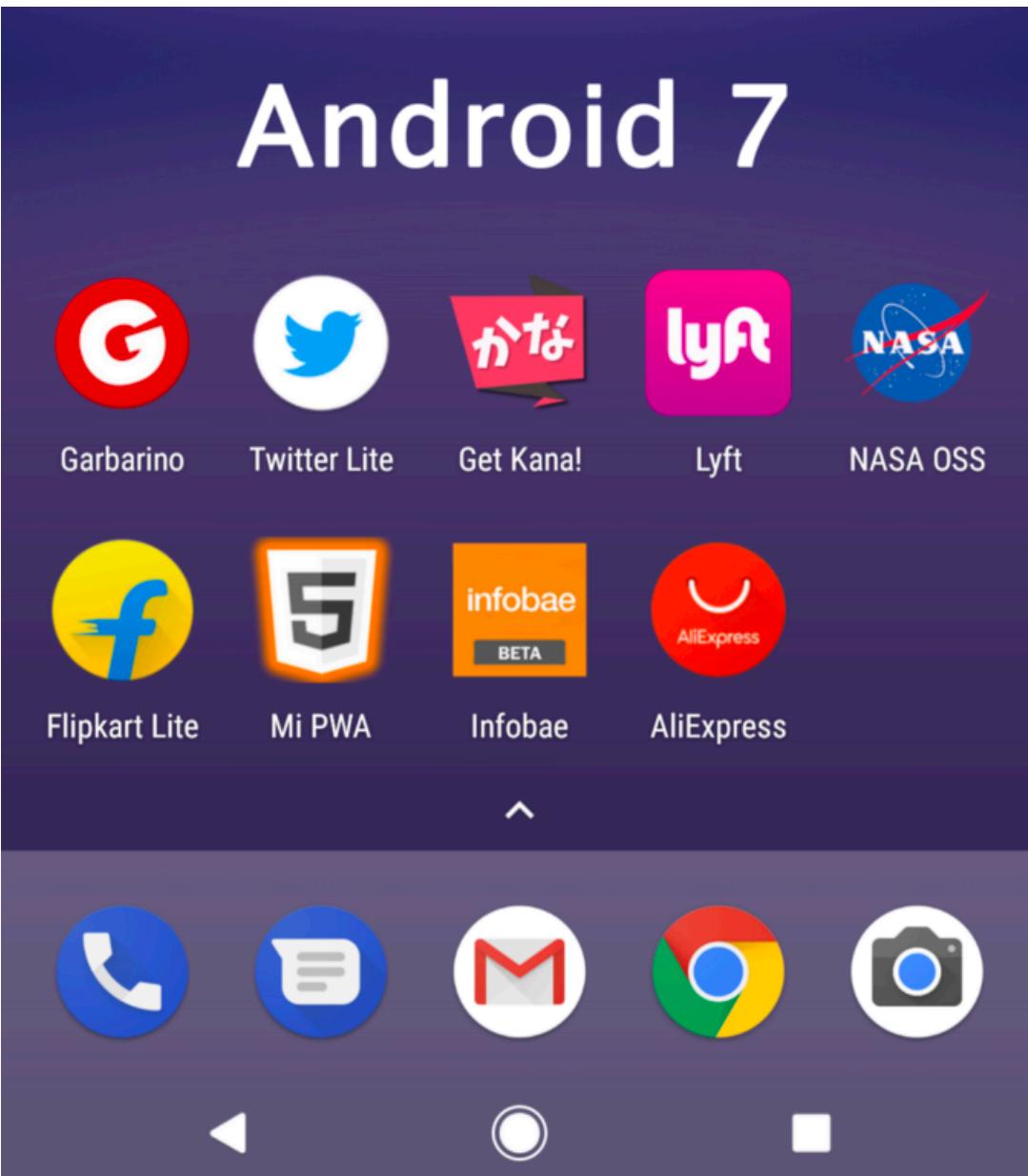
Space constraints and/or color requirements differ from those of the application icon.



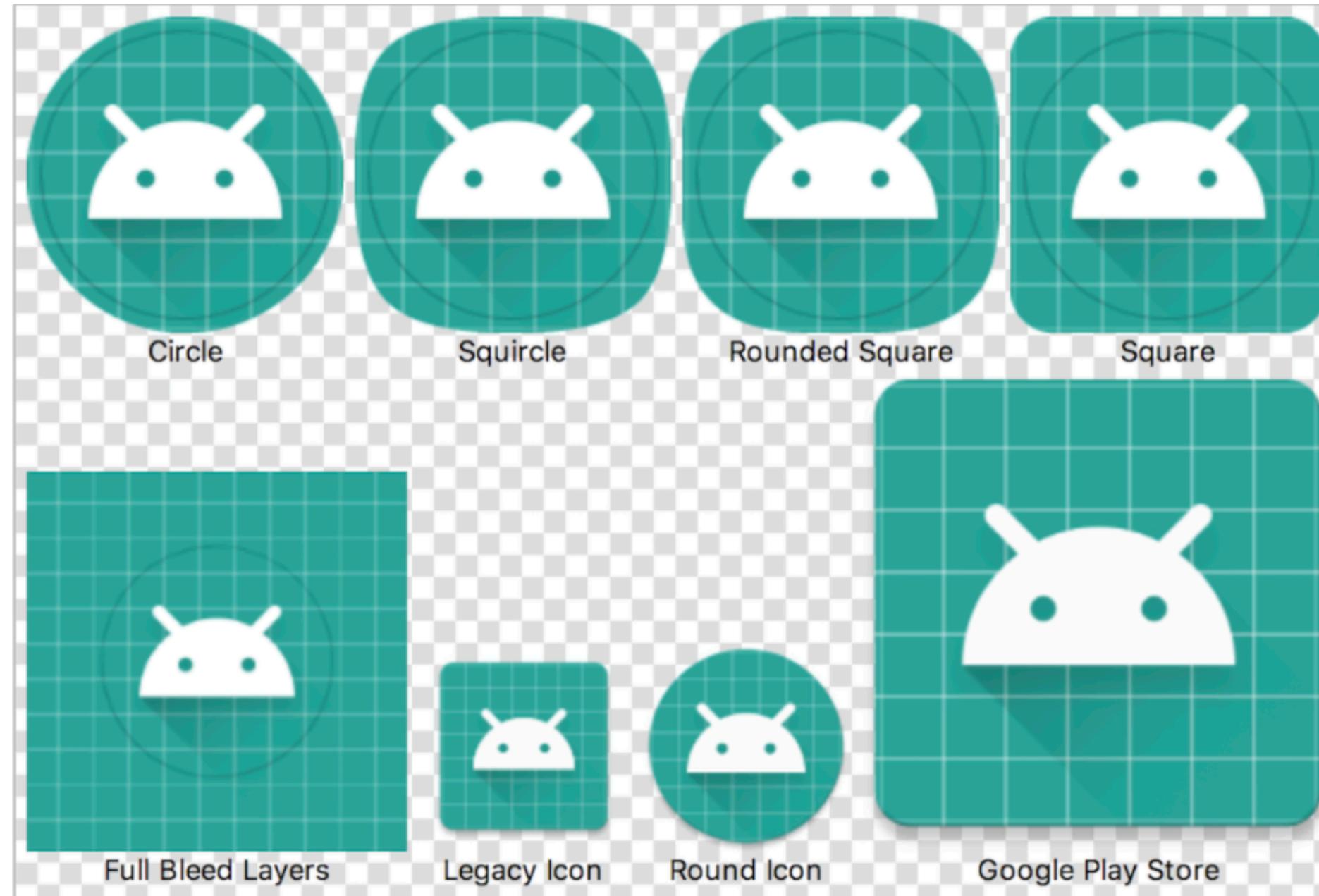
purpose="maskable"

Logo is designed with **icon masks and safe zone** in mind, such that any part of the image that is outside the **safe zone** can safely be ignored and masked away

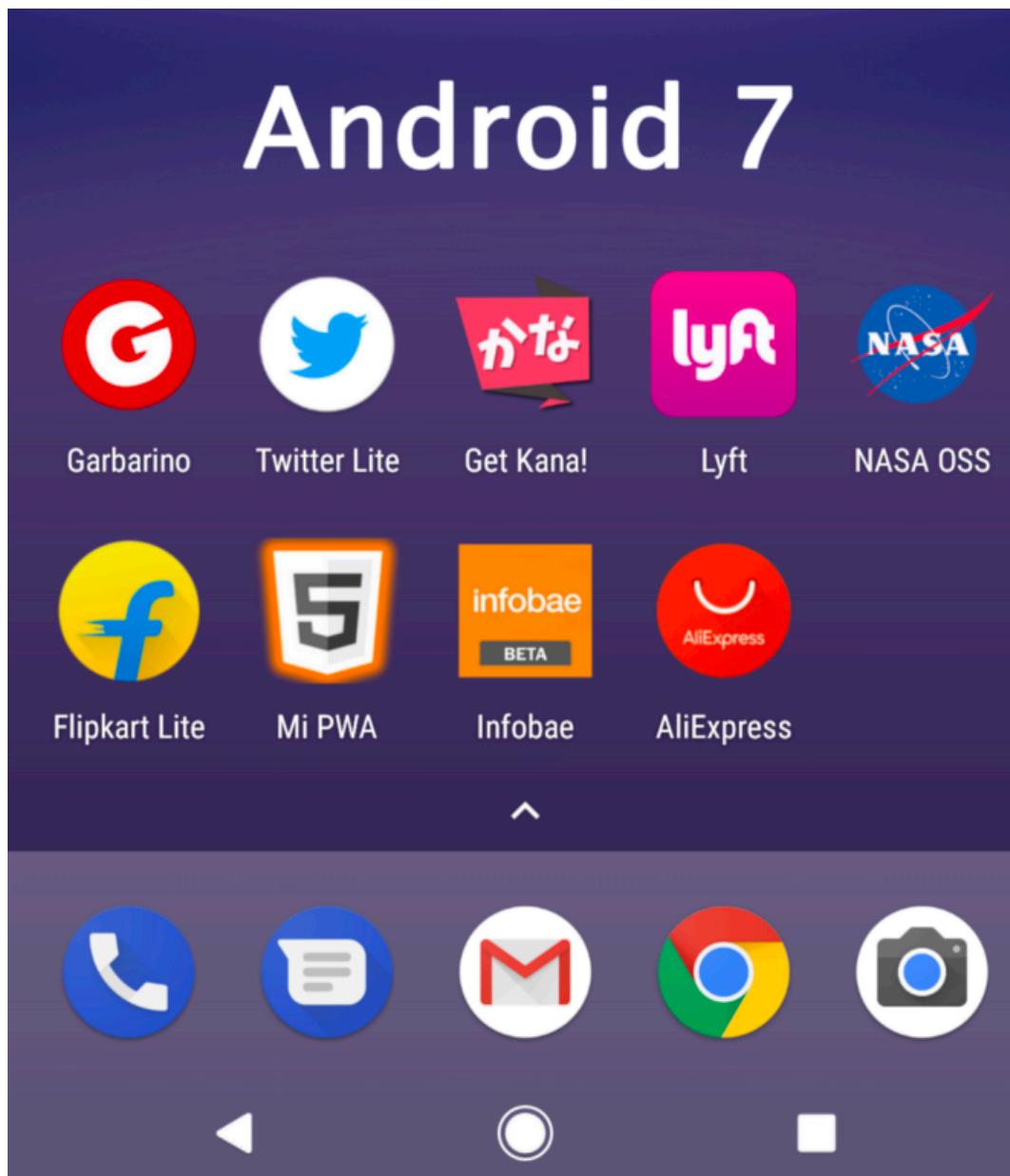
PWA Icons on Android



Adaptive Icons since Android 8

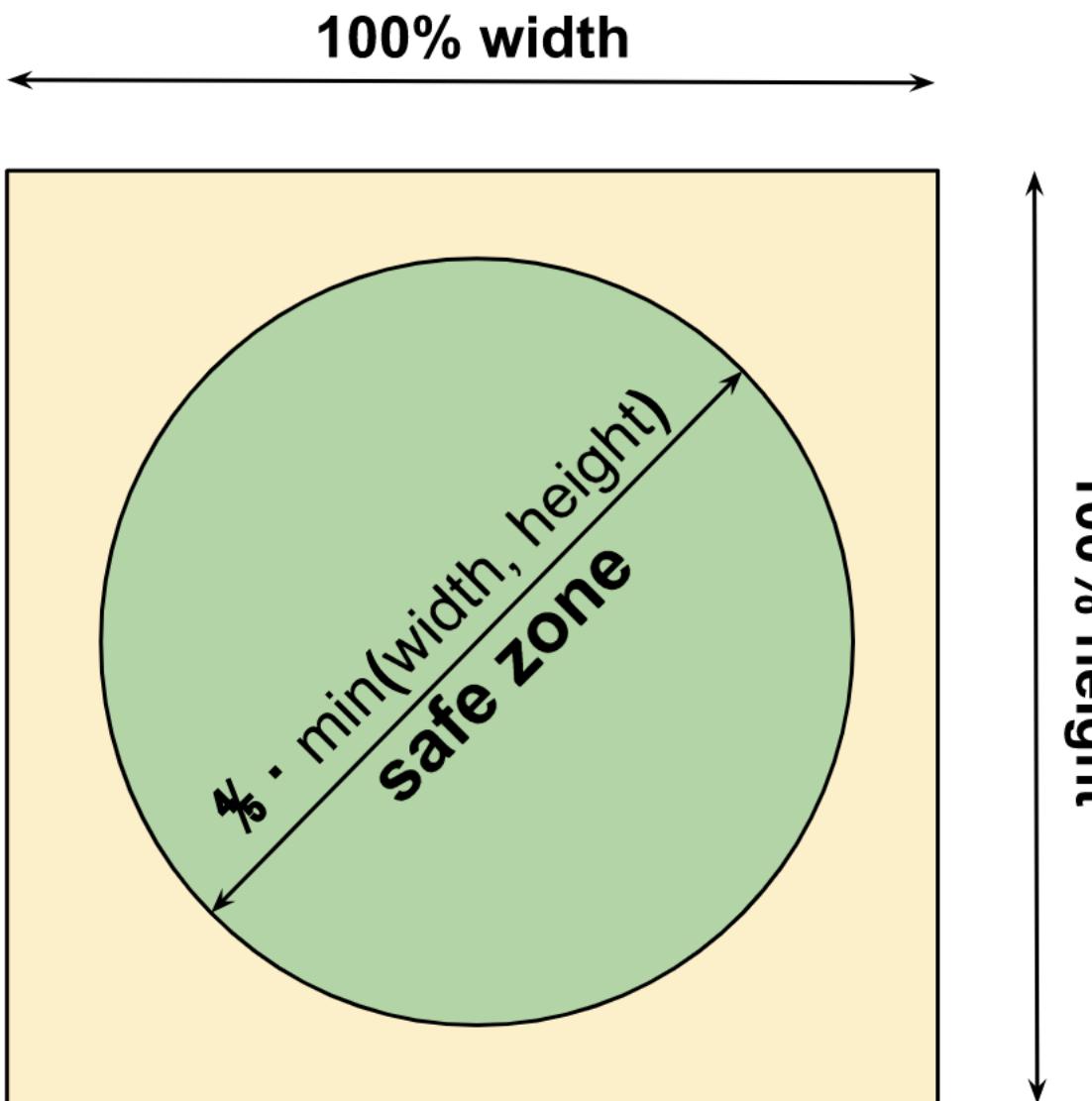


PWA Icons on Android



A maskable icon will solve
the problem; it's still a square
icon but with enough
discardable padding content
out of a safe area

Safe Area on Maskable Icons

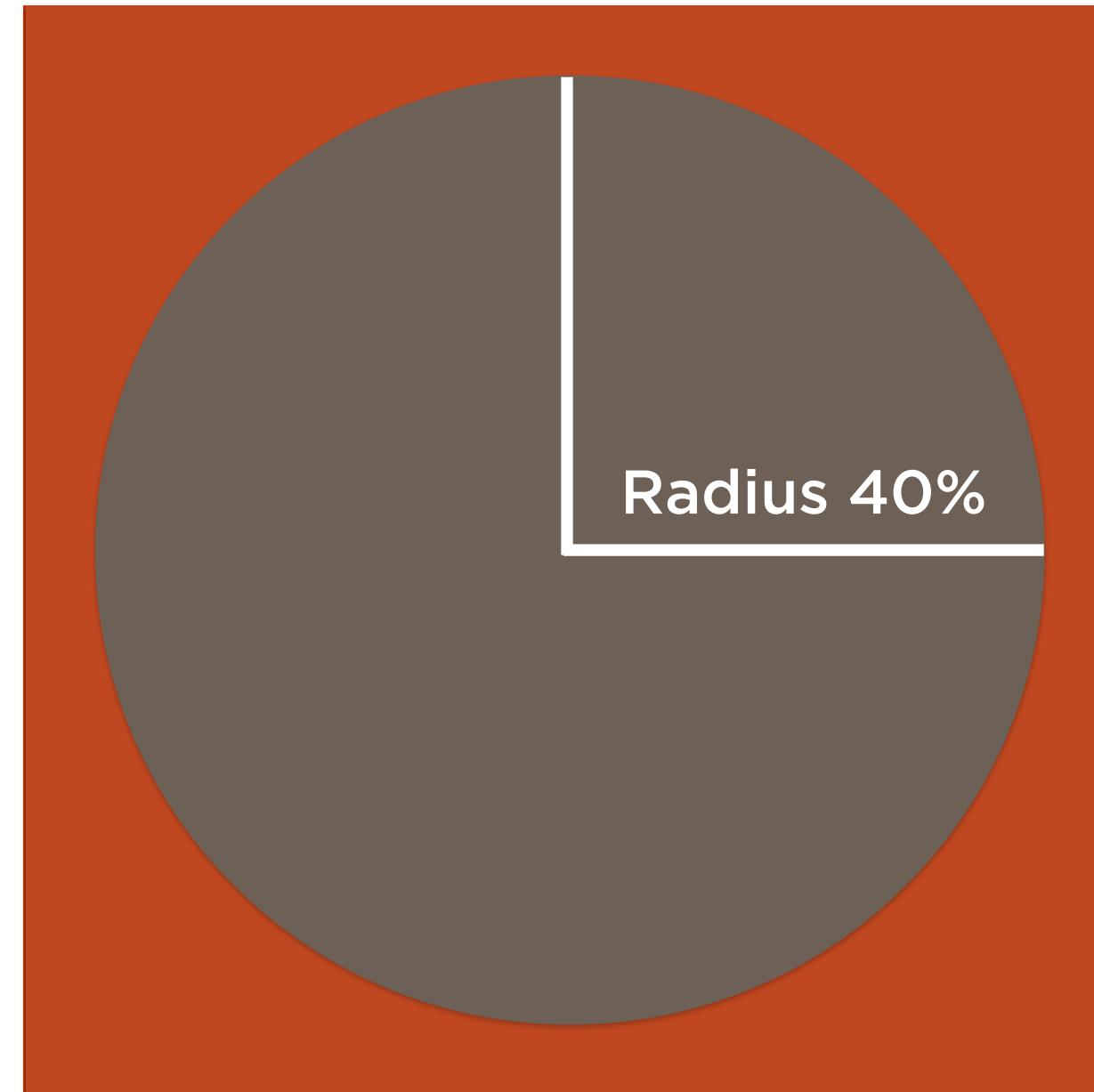


A centrally positioned circle, with radius 40% of the icon's width

Safe Area on Maskable Icons



Safe Area on Maskable Icons



Safe Area on Maskable Icons



Safe Area on Maskable Icons



Safe Area on Maskable Icons



Safe Area on Maskable Icons



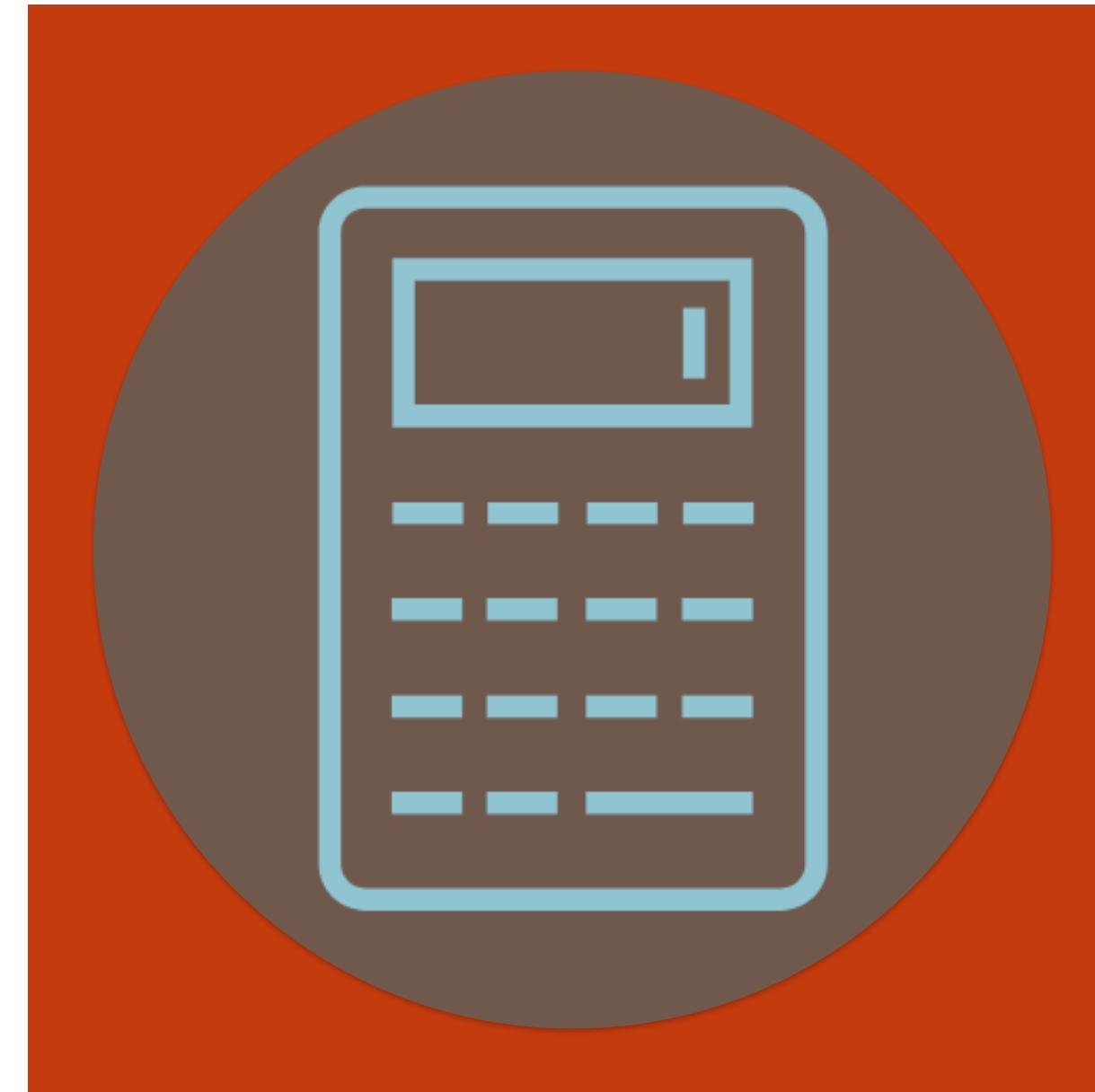
Safe Area on Maskable Icons



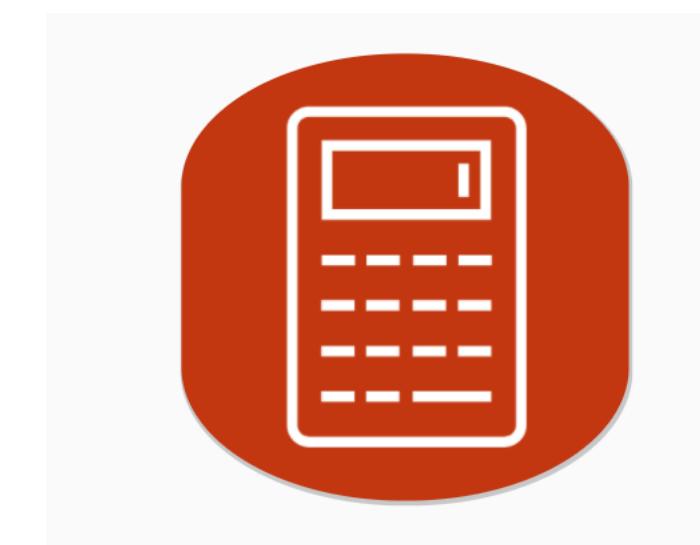
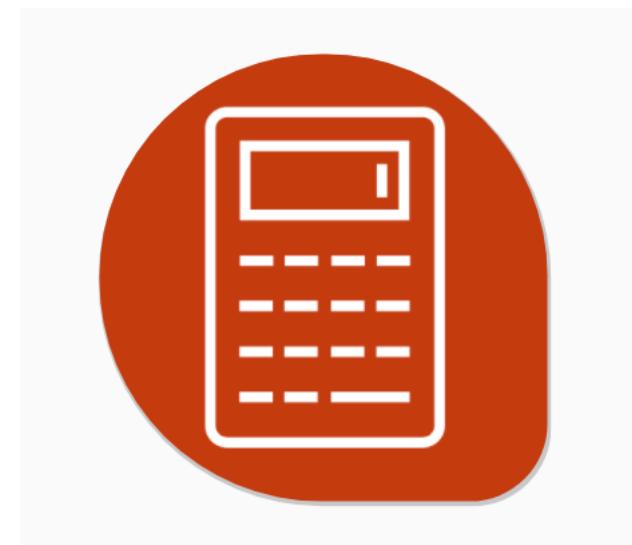
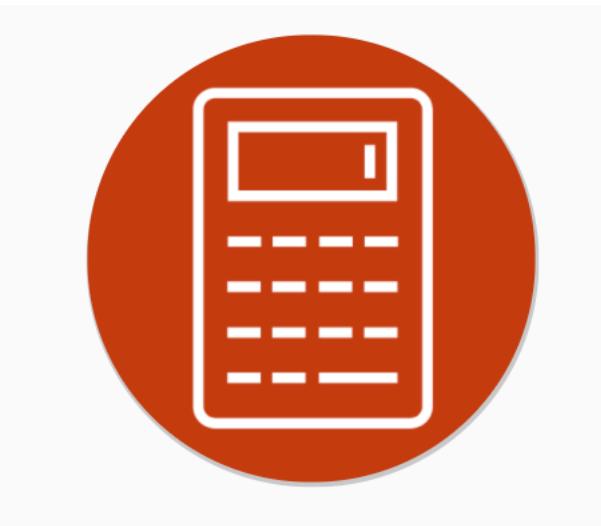
Safe Area on Maskable Icons



Safe Area on Maskable Icons



Safe Area on Maskable Icons



```
"icons": [  
  {  
    "src": "icon.png",  
    "sizes": "192x192",  
    "type": "image/png"  
  },  
  {  
    "src": "maskable.png",  
    "sizes": "512x512",  
    "type": "image/png",  
    "purpose": "maskable"  
  }  
]
```

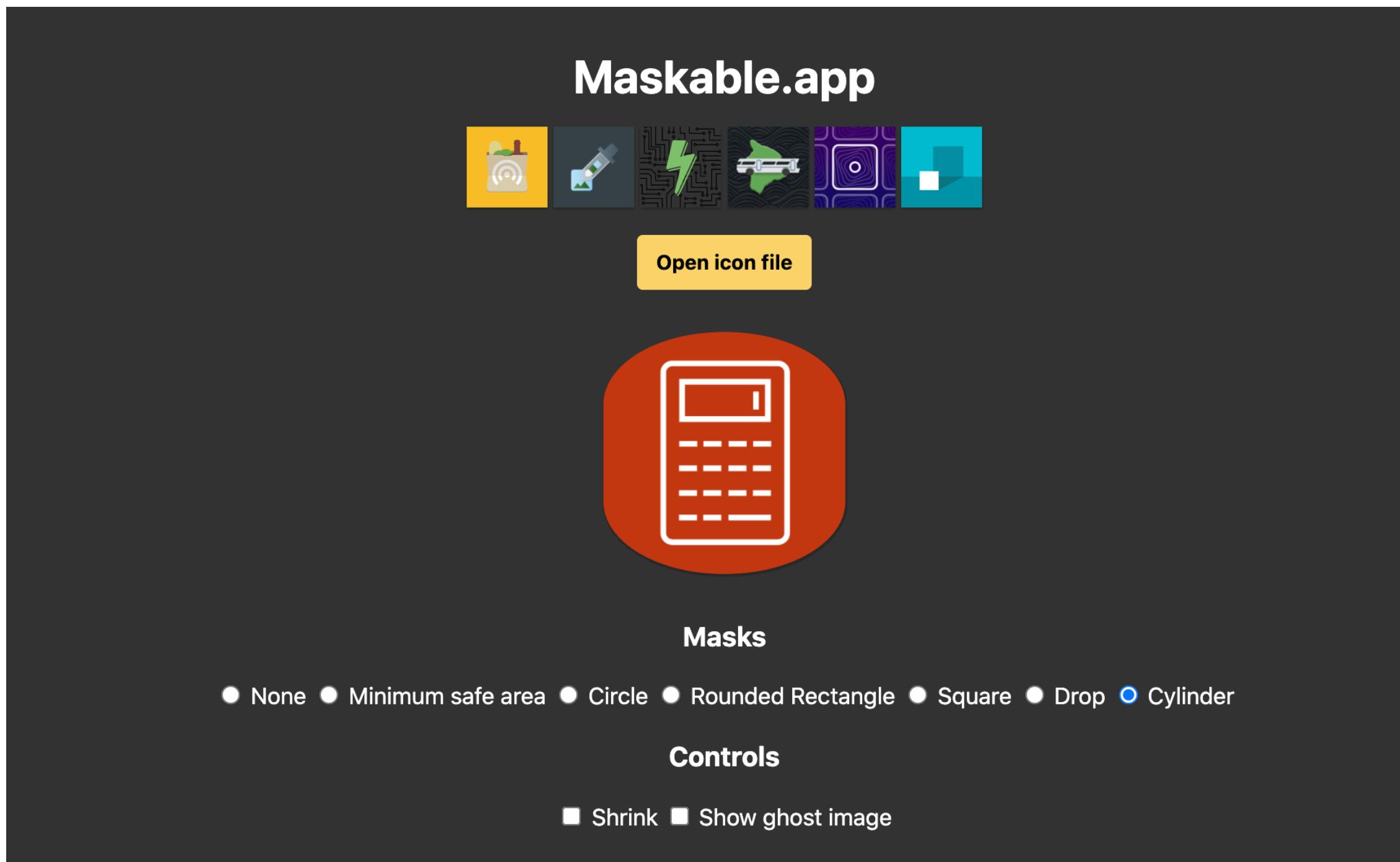


Web app manifest

- **Maskable Icon**

- Recommended size: 512x512
- purpose: "maskable"

Online Tool for Maskable Icons



Demo

Adding Icons to the App Manifest

- Add more Icon sizes
- One badge icon
- One maskable icon
- Maskable.app Tool
- Chromium DevTools

Icons for iOS and iPadOS

Safari ignores icons
collection in App Manifest,
so a screenshot is used
instead

App Manifest Icons on iOS and iPadOS

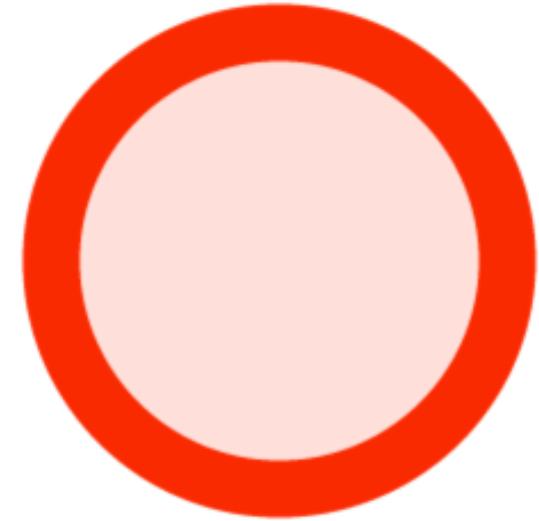


```
<link rel="apple-touch-icon" href="ios_icon.png">
```

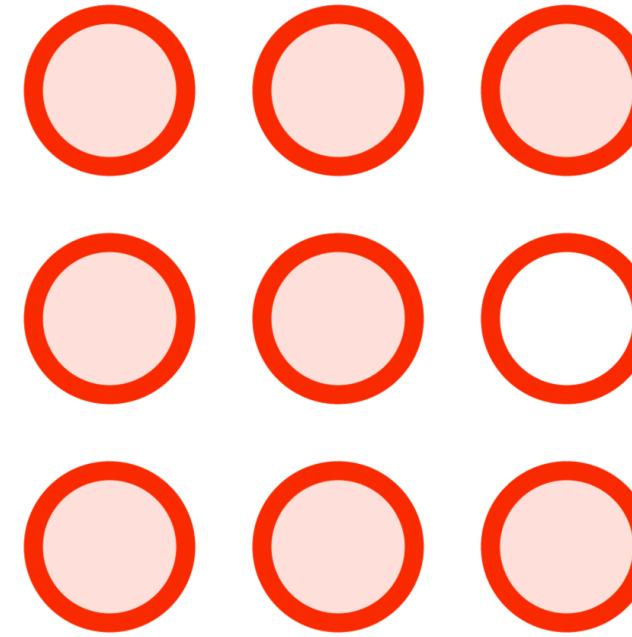
PWA Icons for iOS and iPadOS

We need to define one or more icons in the HTML file as a link element

iOS and iPadOS Icon Size Policy



One icon for all



Several icons for different devices

Icons for iOS and iPadOS

Format: PNG, Color space sRGB or P3

Flattened and without transparency

Square with no rounded corners

**If there is no exact icon available it will pick
the closest one**

Sizes:

- iPhone and iPod Touch - 60 points

120x120 @2x

180x180 @3x

- iPad Pro - 83.5 points

167x167 @2x

- iPad, iPad mini, iPad Air - 76 points

152x152 @2x

If one icon for all will be provided, it should be a 180x180 PNG

```
<link rel="apple-touch-icon" href="icon_180.png"  
      sizes="180x180">  
  
<link rel="apple-touch-icon" href="icon_167.png"  
      sizes="167x167">  
  
<link rel="apple-touch-icon" href="icon_152.png"  
      sizes="152x152">
```

Multiple Icons for iOS and iPadOS

We use the **sizes** property of the link element to define more than one possibility

Remember that preloading
the icon is a good idea to
avoid Safari to use a
screenshot when installing
an app

Demo

Adding Icons to the HTML

- Add iOS and iPadOS icons
- Test it on iPad and iPhone
- Review all the icons we can define

Splash Screen

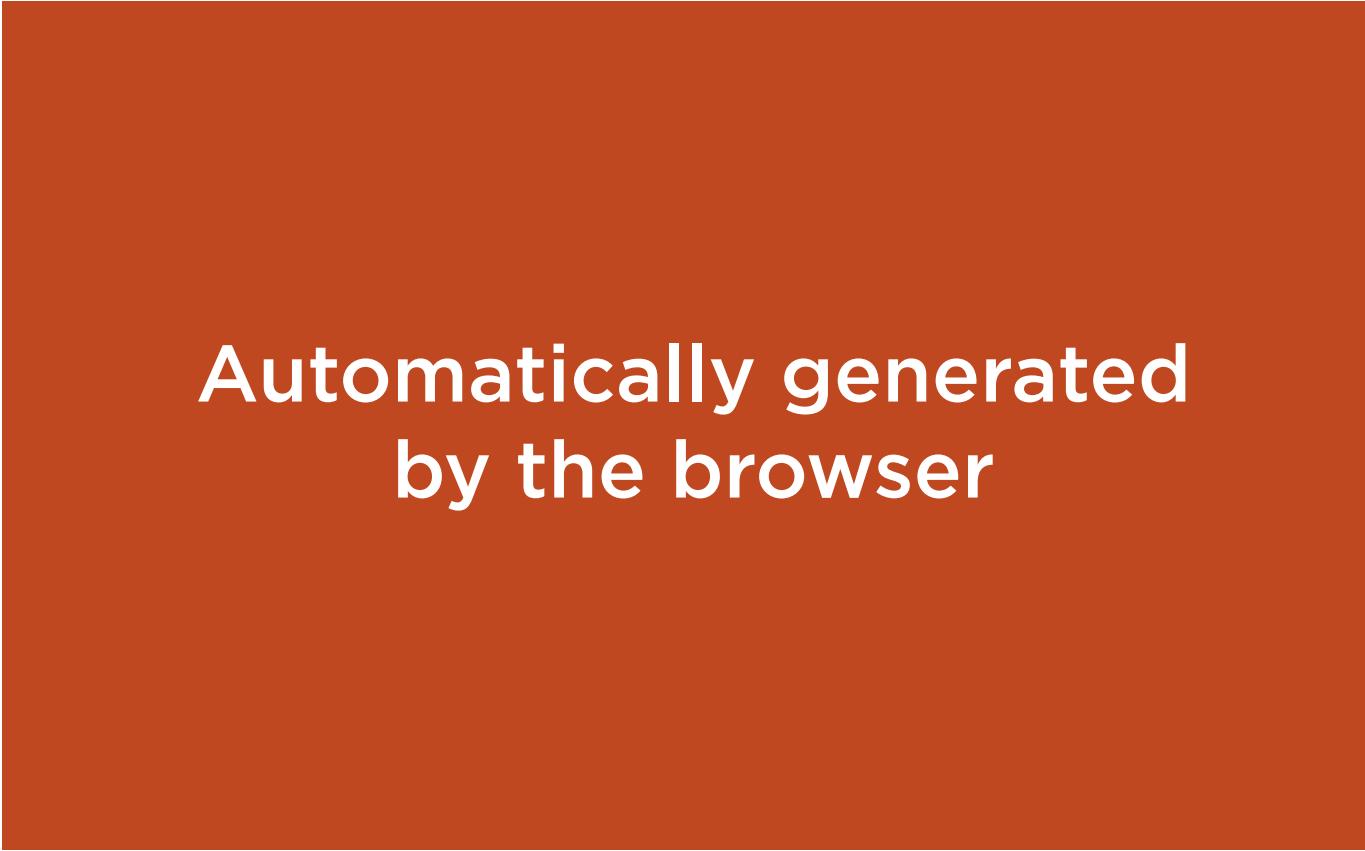
A splash screen is a mobile app design pattern that renders an static image while the app process is loading



Splash Screens on Android

Android browsers use App Manifest meta data to design the splash screens.

Splash Screens on Android

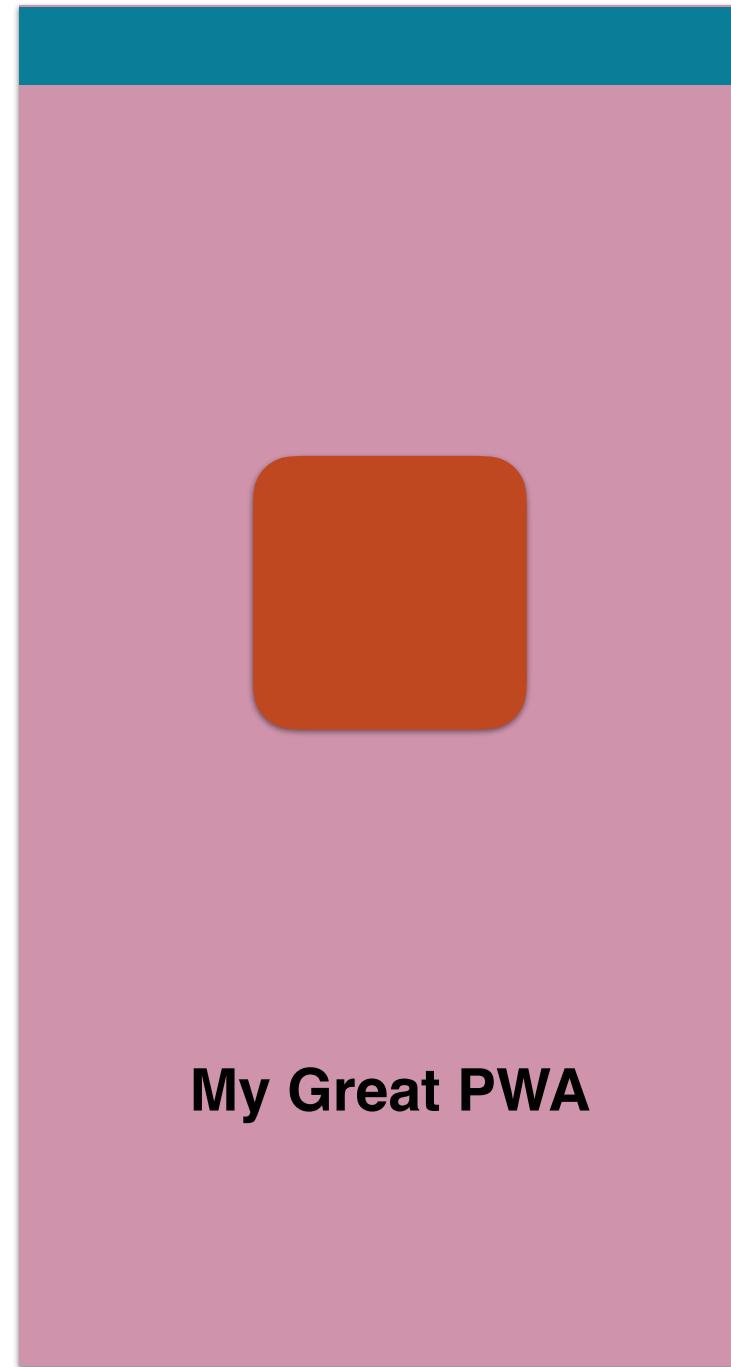


Automatically generated
by the browser

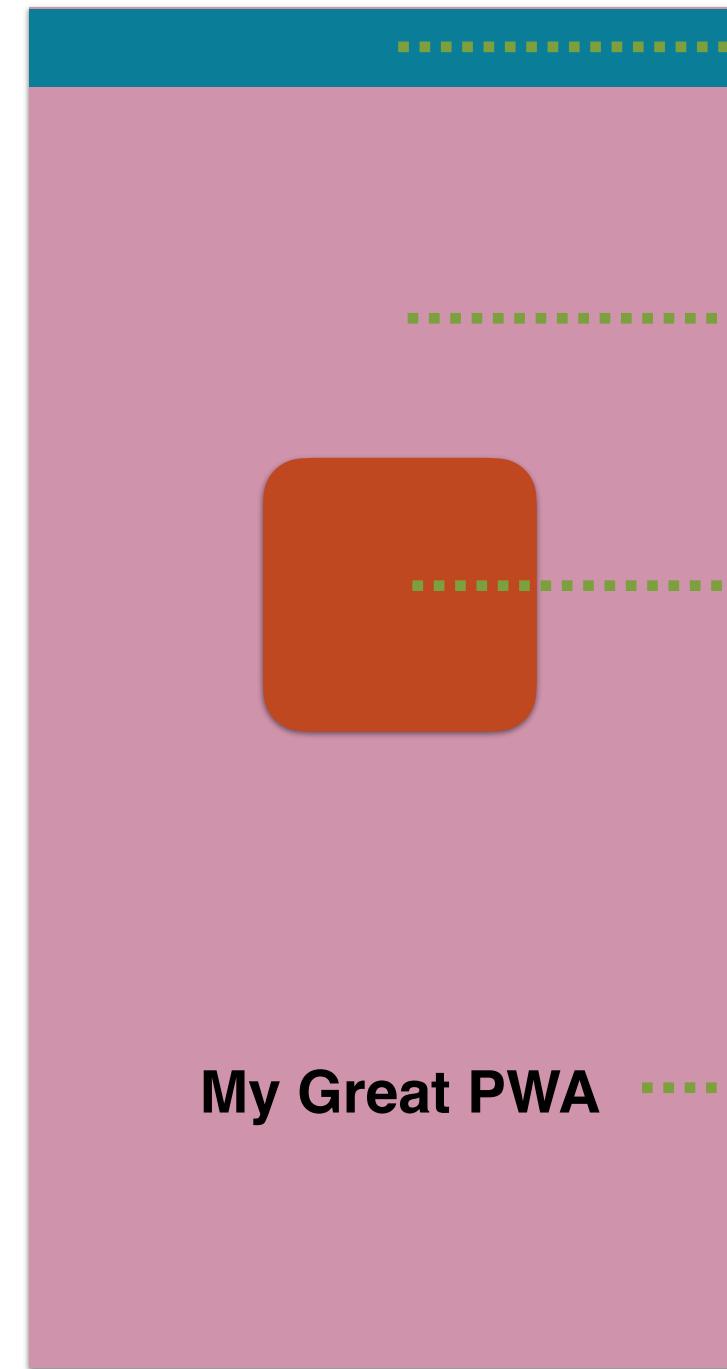


You can't create your own
images

Splash Screens on Android



Splash Screens on Android



`theme_color`

`background_color`

`icon (512x512 preferred)`

`name`



Splash Screens on iOS and iPadOS

Safari won't use the App Manifest meta data and it let us create our own static images. They are known as Startup Images

```
<link rel="apple-touch-startup-image" href="splash.png">
```

Startup Image for iOS and iPadOS

We define it through a link element

The problem on Safari is that
it needs the image with the
exact size of the device's
screen

Startup Images for iOS

iPhone SE

iPhone 7, 8, SE 2nd edition

iPhone X, XS, 11 Pro

iPhone XR, 11

iPhone 7 Plus, 8 Plus

iPhone X Max, XS Max, 11 Pro Max

More iPhones coming

Startup Images for iOS

Landscape: iPhone 7 Plus, 8 Plus

Landscape: iPhone X Max, XS Max, 11 Pro Max

Startup Images for iPadOS

**iPad, iPad Air, iPad Pro 9.7"
and iPad mini**

iPad Pro 10.5"

iPad Pro 12.9"

Startup Images for iPadOS

**Landscape: iPad, iPad Air, iPad Pro 9.7"
and iPad mini**

Landscape: iPad Pro 10.5"

Landscape: iPad Pro 12.9"

Startup Images for iPadOS

**Split-view
Side-View**

Device	Portrait size	Landscape size
12.9" iPad Pro	2048px × 2732px	2732px × 2048px
11" iPad Pro	1668px × 2388px	2388px × 1668px
10.5" iPad Pro	1668px × 2224px	2224px × 1668px
9.7" iPad	1536px × 2048px	2048px × 1536px
7.9" iPad mini 4	1536px × 2048px	2048px × 1536px
iPhone Xs Max	1242px × 2688px	2688px × 1242px
iPhone Xs	1125px × 2436px	2436px × 1125px
iPhone XR	828px × 1792px	1792px × 828px
iPhone X	1125px × 2436px	2436px × 1125px
iPhone 8 Plus	1242px × 2208px	2208px × 1242px
iPhone 8	750px × 1334px	1334px × 750px
iPhone 7 Plus	1242px × 2208px	2208px × 1242px
iPhone 7	750px × 1334px	1334px × 750px
iPhone 6s Plus	1242px × 2208px	2208px × 1242px
iPhone 6s	750px × 1334px	1334px × 750px
iPhone SE	640px × 1136px	1136px × 640px

You should prepare more
than 15 versions of the static
startup image

The sizes property is ignored
in the link element

```
<link rel="apple-touch-startup-image"  
      href="splash_1136.png"  
      media="screen and (device-width: 320px) and  
            (device-height: 568px) and (resolution: 2dppx) and  
            (orientation: landscape)">
```

Multiple Startup Image for iOS and iPadOS

We define multiple versions through media queries, playing with resolution, width, height and orientation.

```
8 <link
9   rel="apple-touch-icon"
10  sizes="180x180"
11  href="/assets/icons/icon_180x180.png"
12 />
13 <link
14   rel="apple-touch-startup-image"
15   media="screen and (device-width: 320px) and (device-height: 568px) and (-webkit-device-pixel-ratio: 2) and (orientation: landscape)"
16   href="/assets/splash/icon_1136x640.png"
17 />
18 <link
19   rel="apple-touch-startup-image"
20   media="screen and (device-width: 375px) and (device-height: 812px) and (-webkit-device-pixel-ratio: 3) and (orientation: landscape)"
21   href="/assets/splash/icon_2436x1125.png"
22 />
23 <link
24   rel="apple-touch-startup-image"
25   media="screen and (device-width: 414px) and (device-height: 896px) and (-webkit-device-pixel-ratio: 2) and (orientation: landscape)"
26   href="/assets/splash/icon_1792x828.png"
27 />
28 <link
29   rel="apple-touch-startup-image"
30   media="screen and (device-width: 414px) and (device-height: 896px) and (-webkit-device-pixel-ratio: 2) and (orientation: portrait)"
31   href="/assets/splash/icon_828x1792.png"
32 />
33 <link
34   rel="apple-touch-startup-image"
35   media="screen and (device-width: 375px) and (device-height: 667px) and (-webkit-device-pixel-ratio: 2) and (orientation: landscape)"
36   href="/assets/splash/icon_1334x750.png"
37 />
38 <link
39   rel="apple-touch-startup-image"
40   media="screen and (device-width: 414px) and (device-height: 896px) and (-webkit-device-pixel-ratio: 3) and (orientation: portrait)"
41   href="/assets/splash/icon_1242x2688.png"
42 />
43 <link
44   rel="apple-touch-startup-image"
45   media="screen and (device-width: 414px) and (device-height: 736px) and (-webkit-device-pixel-ratio: 3) and (orientation: landscape)"
46   href="/assets/splash/icon_2208x1242.png"
47 />
48 <link
49   rel="apple-touch-startup-image"
50   media="screen and (device-width: 375px) and (device-height: 812px) and (-webkit-device-pixel-ratio: 3) and (orientation: portrait)"
51   href="/assets/splash/icon_1125x2436.png"
52 />
```

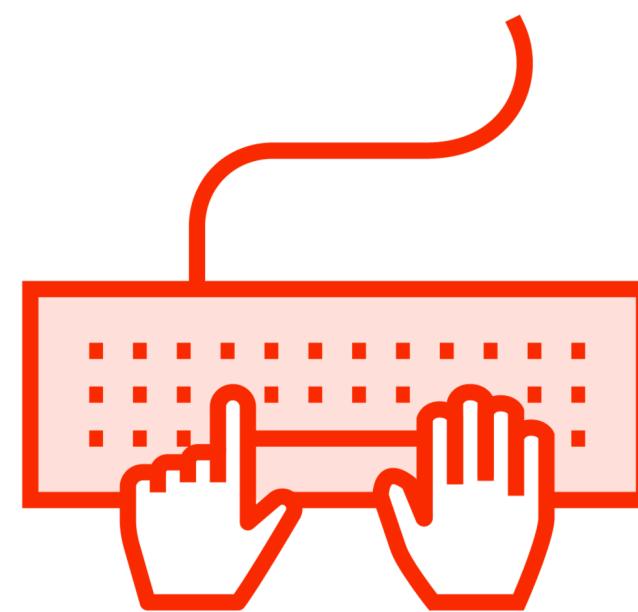
Differences over Android Solution

Full Customization

Dark mode

Needs lot of work

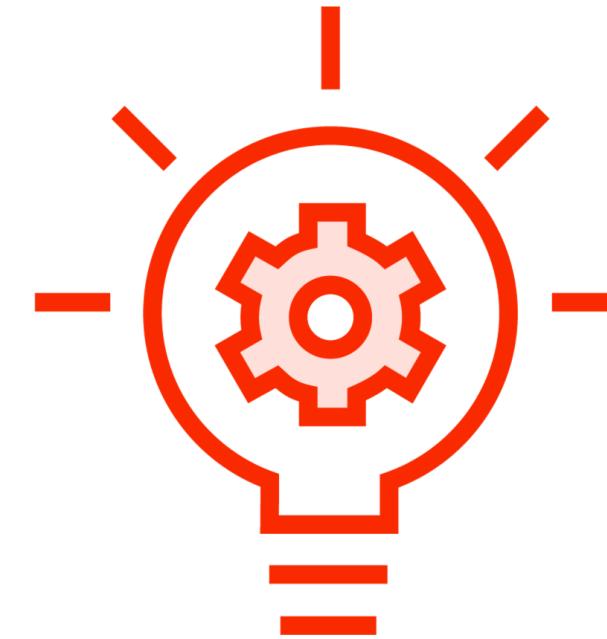
Providing Startup Images for iOS and iPadOS



Manually



Static generator



Client-side
library



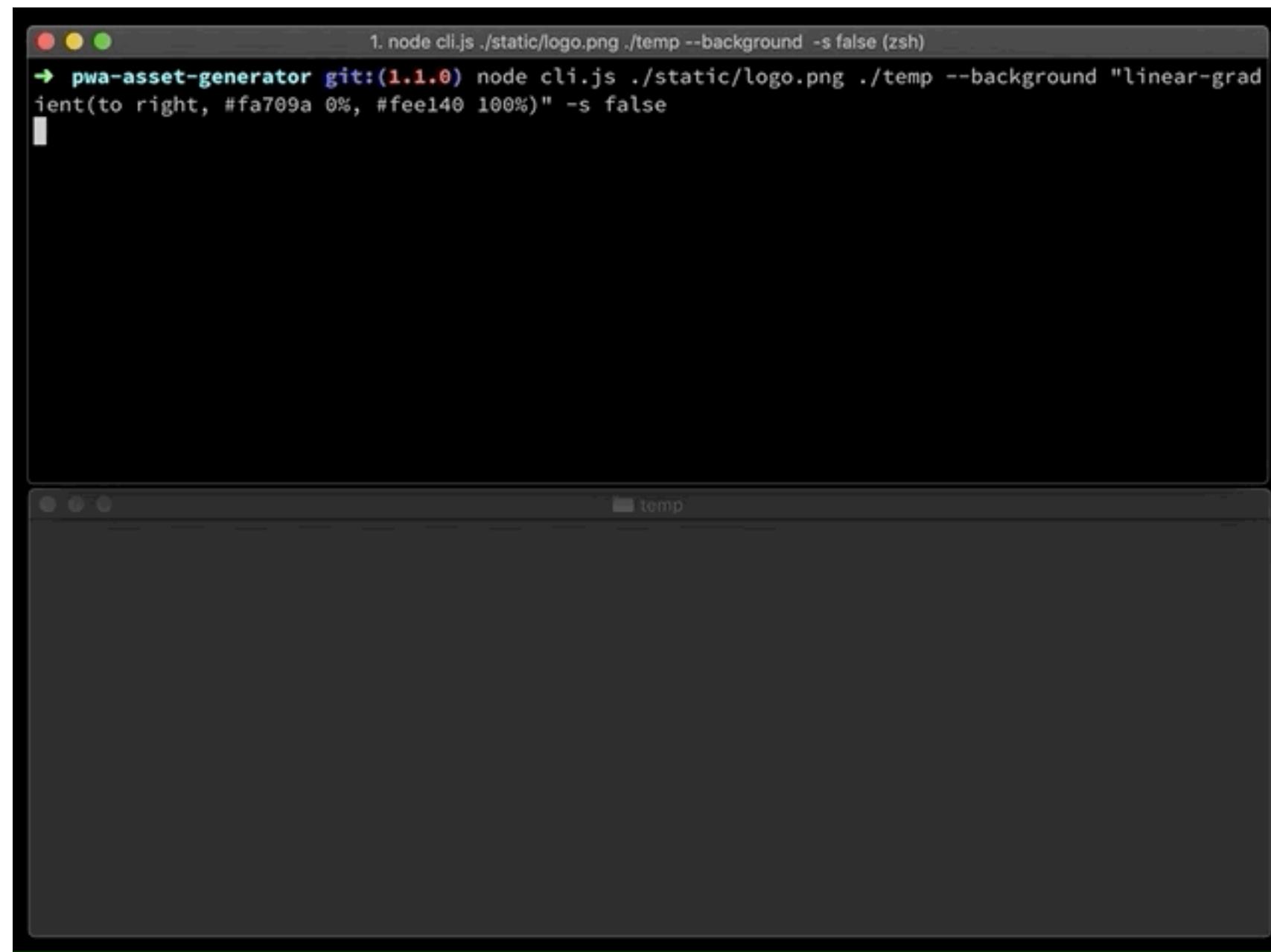
Server-side
library

Static Generator: pwa-asset-generator

```
npx pwa-asset-generator light-logo.svg ./assets --dark-mode --  
background dimgrey --splash-only --type jpeg --quality 80 --index  
./src/app/index.html
```

```
npx pwa-asset-generator dark-logo.svg ./assets --background  
lightgray --splash-only --type jpeg --quality 80 --index  
./src/app/index.html
```

Static Generator: pwa-asset-generator



Client-side Generator: PWACompat

Open source library by Chrome

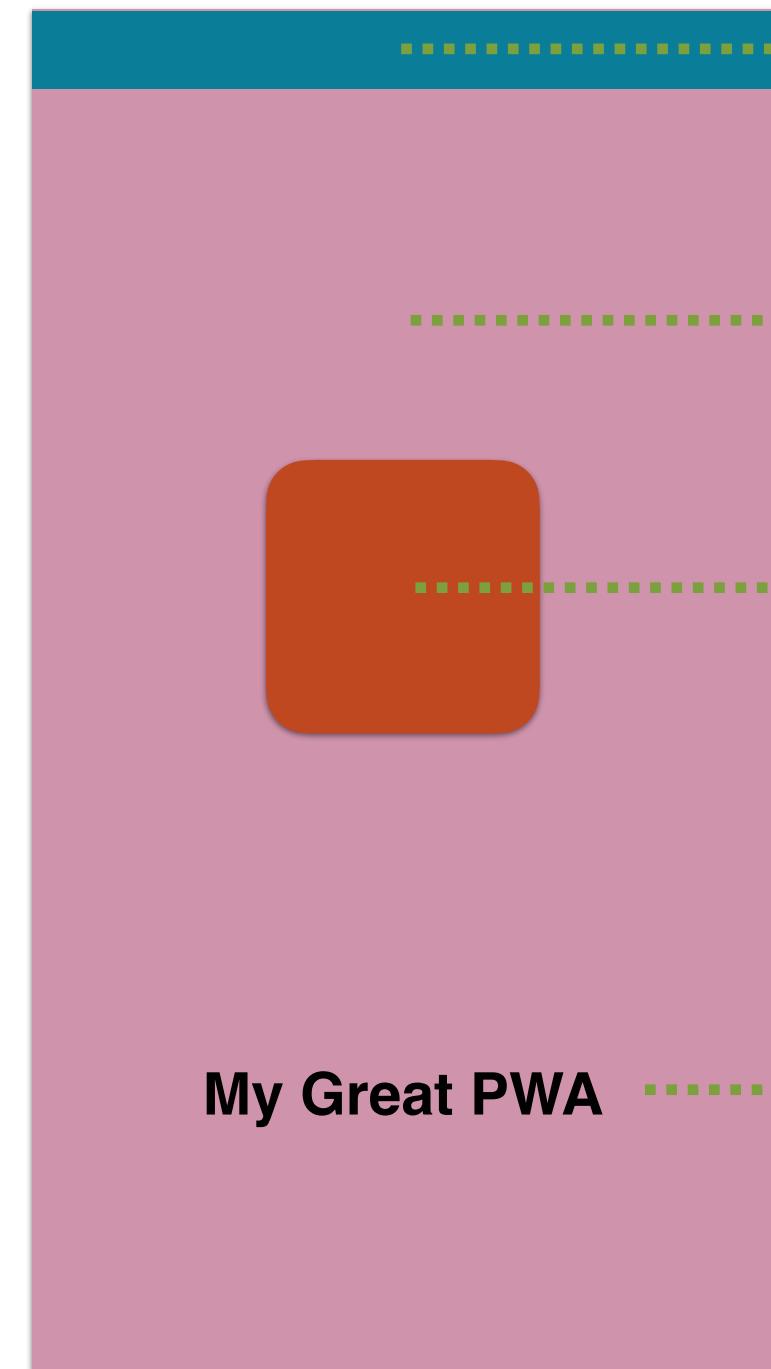
It takes the App Manifest and generates assets for other browsers

It adds meta tags

It generates Apple's custom assets, including startup images on the fly with JavaScript

It emulates Android splash screens for iOS

Splash Screens on iOS and iPadOS with PWACCompat



`theme_color`

`background_color`

`icon (512x512 preferred)`

`name`

(Font style can be defined in a CSS variable)

PWACompat

It will create client-side the Launch screens we need for current device

index.html

```
<link rel="manifest"  
      href="app.webmanifest">  
  
<script async  
      src="https://unpkg.com/pwacompat"  
      crossorigin="anonymous"></script>
```

styles.css

```
link[rel="manifest"] {  
  --pwacompat-splash-font: 24px  
  Verdana;  
}
```

Demo

Set Up Splash Screens

- Add background_color to App Manifest
- Add startup images for iOS
- Check solutions in devices

Summary

Icons and Splash Screens

- PWA Diversity
- Icon Guidelines
- Icons in the App Manifest
- Icons for iOS and iPadOS
- Splash Screens

Up Next: Defining Mobile and Desktop User Experiences
