Ionic Introduction

Ionic is an open source UI toolkit for building performant, high-quality mobile and desktop apps using web technologies — HTML, CSS, and JavaScript — with integrations for popular frameworks like [Angular](https://ionicframework.com/docs/angular/overview), [React](https://ionicframework.com/docs/react), and [Vue](https://ionicframework.com/docs/vue/overview).

**Environment Setup**

To get started with Ionic Framework, the only requirement is a [Node & npm](https://ionicframework.com/docs/intro/environment#node--npm) environment.

Of course, a code editor is also required. [Visual Studio Code](https://code.visualstudio.com/) is recommended. Visual Studio Code is a free, batteries-included text editor made by Microsoft.

# Installing Ionic

Ionic apps are created and developed primarily through the Ionic [command-line](https://ionicframework.com/docs/reference/glossary#cli) utility. The Ionic CLI is the preferred method of installation, as it offers a wide range of dev tools and help options along the way. It is also the main tool through which to run the app and connect it to other services, such as Appflow.

## **Install the Ionic CLI**[**​**](https://ionicframework.com/docs/intro/cli#install-the-ionic-cli)

Before proceeding, make sure your computer has [Node.js](https://ionicframework.com/docs/reference/glossary#node) installed. See [these instructions](https://ionicframework.com/docs/intro/environment) to set up an environment for Ionic.

Install the Ionic CLI with npm:

npm install -g @ionic/cli

# Starting an App

Starting a new Ionic app is incredibly simple. From the command line, run the ionic start command and the CLI will handle the rest.

**$** ionic start  
  
Every great app needs a name! 😍  
  
Please enter the full name of your app. You can change this at any time.  
To bypass this prompt next time, supply name,  
the first argument to ionic start.  
  
? Project name: █

Here, myApp is the name of the project, tabs is the starter template, and the project type is angular.

tabs is not the only project template available. Between all project types, there are three templates available:

* tabs: A tabs based layout
* sidemenu: A sidemenu based layout
* blank: An empty project with a single page
* To do so, run ionic serve from the command line in the project's directory:
* **$** ionic serve  
  > ng run app:serve --host=0.0.0.0 --port=8100  
    
  [INFO] Development server running!  
    
   Local: http://localhost:8100  
   External: http://192.168.1.169:8100  
    
   Use Ctrl+C to quit this process  
    
  [INFO] Browser window opened to http://localhost:8100!
* Copy
* With ionic serve running, continue developing your app. As you save changes, the app reloads with those changes applied.

# Structure

Ionic Framework provides several different layouts that can be used to structure an app. From single page layouts, to split pane views and modals.

## Header and Footer Layout[​](https://ionicframework.com/docs/layout/structure#header-and-footer-layout)

### Header[​](https://ionicframework.com/docs/layout/structure#header)

### The most simple layout available consists of a [header](https://ionicframework.com/docs/api/header) and [content](https://ionicframework.com/docs/api/content). Most pages in an app generally have both of these, but a header is not required in order to use content.

<ion-app>  
 <ion-header>  
 <ion-toolbar>  
 <ion-title>Header</ion-title>  
 </ion-toolbar>  
 </ion-header>  
  
 <ion-content class="ion-padding">  
 <h1>Main Content</h1>  
 </ion-content>  
</ion-app>

### Footer

### As you can see, a toolbar in a header appears above the content. Sometimes an app needs to have a toolbar below the content, which is when a footer is used.

<ion-app>  
 <ion-content class="ion-padding">  
 <h1>Main Content</h1>  
 </ion-content>  
  
 <ion-footer>  
 <ion-toolbar>  
 <ion-title>Footer</ion-title>  
 </ion-toolbar>  
 </ion-footer>  
</ion-app>

# Responsive Grid

The grid is a powerful mobile-first flexbox system for building custom layouts. It is composed of three units — a [grid](https://ionicframework.com/docs/api/grid), [row(s)](https://ionicframework.com/docs/api/row) and [column(s)](https://ionicframework.com/docs/api/col). Columns will expand to fill their row, and will resize to fit additional columns. It is based on a 12 column layout with different breakpoints based on the screen size. The number of columns can be customized using CSS.

How it works[​](https://ionicframework.com/docs/layout/grid#how-it-works)

<ion-grid>  
 <ion-row>  
 <ion-col>  
 <div>1 of 3</div>  
 </ion-col>  
 <ion-col>  
 <div>2 of 3</div>  
 </ion-col>  
 <ion-col>  
 <div>3 of 3</div>  
 </ion-col>  
 </ion-row>  
</ion-grid>

## **Grid size**[**​**](https://ionicframework.com/docs/layout/grid#grid-size)

By default, the grid will take up 100% width. To set a specific width based on the screen size, add the fixed attribute. The width of the grid for each breakpoint is defined in the --ion-grid-width-{breakpoint} CSS variables. For more information, see [customizing the grid](https://ionicframework.com/docs/layout/grid#customizing-the-grid).

| **Name** | **Value** | **Description** |
| --- | --- | --- |
| xs | 100% | Don't set the grid width for xs screens |
| sm | 540px | Set grid width to 540px when (min-width: 576px) |
| md | 720px | Set grid width to 720px when (min-width: 768px) |
| lg | 960px | Set grid width to 960px when (min-width: 992px) |
| xl | 1140px | Set grid width to 1140px when (min-width: 1200px) |

## Grid attributes[​](https://ionicframework.com/docs/layout/grid#grid-attributes)

The grid takes up the entire width of the screen by default. This can be modified using the attribute below.

| **Property** | **Description** |
| --- | --- |
| fixed | Set a max width based on the current screen size. |

## Default breakpoints[​](https://ionicframework.com/docs/layout/grid#default-breakpoints)

The default breakpoints are defined in the table below. Breakpoints can not be customized at this time.

| **Name** | **Value** | **Width Prefix** | **Offset Prefix** | **Push Prefix** | **Pull Prefix** | **Description** |
| --- | --- | --- | --- | --- | --- | --- |
| xs | 0 | size- | offset- | push- | pull- | Set columns when (min-width: 0) |
| sm | 576px | size-sm- | offset-sm- | push-sm- | pull-sm- | Set columns when (min-width: 576px) |
| md | 768px | size-md- | offset-md- | push-md- | pull-md- | Set columns when (min-width: 768px) |
| lg | 992px | size-lg- | offset-lg- | push-lg- | pull-lg- | Set columns when (min-width: 992px) |
| xl | 1200px | size-xl- | offset-xl- | push-xl- | pull-xl- | Set columns when (min-width: 1200px) |