

# Ionic 4

## System Model, Ionic/Core, Ionic/Angular, CLI, Stencil, JSX, Capacitor, PWA Toolkit

Ionic 4 is a complete re-imagination of how Ionic works based on W3C Web Component standards, while retaining most of the existing Ionic API used by apps.

User interface developers have for decades been creating apps by weaving together their own code with pre-built blocks of functionality – these are sometimes called widgets, custom controls or just components. With [Web Components](#), this approach is now becoming a reality for the Web Platform also. We can now have, say, a small Ionic component consumed by a larger React component hosted by a plain JS application.

Most modern web frameworks are recently adding significant Web Component support (e.g. [Angular Elements](#)) and with v4 we see this in the Ionic world.

This course brings web developers with little or no previous Ionic experience up to speed with Ionic 4 programming. We will see how Ionic 4 is a powerful framework that enables developers use TypeScript and familiar web technologies to build apps for mobile devices. Ionic contains a set of mobile-friendly UI components, a library to interact with native services, a CLI and a toolkit for creating progressive web apps.

<b>Contents of One-Day Training Course</b>	
<p><b>Target Audience</b> Web developers who wish to build either PWA or native apps for mobile devices using the latest web technologies.</p> <p><b>Prerequisites</b> Experience of web development, in particular Angular. During the course we discuss the relationship between Ionic v4 and Angular (with Ionic v3, use of Angular was mandatory, with v4 it is optional).</p> <p>No previous Ionic experience needed – we start with the Ionic v4 fundamentals.</p> <p>All demos and labs will be in TypeScript, so attendees need to know TypeScript.</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p style="text-align: center;"><b>W3C Web Components</b></p> <p>Ideas behind this W3C set of standards Custom Elements Shadow DOM HTML Templates</p> <p style="text-align: center;"><b>Ionic 4 Overview</b></p> <p>Developing for mobile – smaller screens, use of touch, limited device features How Ionic delivers a set of capabilities to facilitate web developers building cross platform mobile apps</p> <p style="text-align: center;"><b>Concepts</b></p> <p>Major architectural subsystems and how they work together. Building your first Ionic 4 app The toolchain</p> <p style="text-align: center;"><b>Ionic CLI (v4)</b></p> <p>A command-line interface to generate, serve, build and package Ionic apps Important commands and their options</p> <p style="text-align: center;"><b>Ionic 4 Core</b></p> <p>Based on Stencil UI components Themes Utils Controllers Configuration</p> <p style="text-align: center;"><b>Ionic 4 Angular</b></p> <p>Optional Angular integration Injectable controllers Directives for virtual Interaction with Angular routing IonicModule (an NgModule)</p> </div> <div style="width: 48%;"> <p style="text-align: center;"><b>Stencil</b></p> <p><a href="#">Ionic Stencil</a> is a compiler that makes Web Components Use of JSX The idea of a virtual DOM Async rendering Data binding</p> <p style="text-align: center;"><b>Capacitor</b></p> <p>A mobile app will often need from time to time to use services of the native OS – we see <a href="#">Ionic Capacitor</a> delivers capability (Capacitor takes over the role of Cordova) The Capacitor API and its usage How it works on different substrates</p> <p style="text-align: center;"><b>Ionic PWA Toolkit</b></p> <p>Principles of progressive web apps that <a href="#">Ionic PWA Toolkit</a> implements Service workers / push notifications Configuration / routing</p> <p style="text-align: center;"><b>Ionic 4 Internals</b></p> <p>Tour of Ionic 4 source code <a href="https://github.com/ionic-team">https://github.com/ionic-team</a> Explore how the various projects mesh together and can be extended</p> <p style="text-align: center;"><b>Architecture Considerations</b></p> <p>How to elegantly design mobile apps Handling differences among device types Issues to pay attention to</p> <p style="text-align: center;"><b>Project</b></p> <p>Bringing together all the ideas discussed in the course into a larger project to create a mobile app that will be competitive in the app stores</p> </div> </div>