



# CORDOVA

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## About the Tutorial

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**Cordova** is a platform that is used for building mobile apps using HTML, CSS and JS. We can think of Cordova as a container for connecting our web app with native mobile functionalities.

Web applications cannot use native mobile functionalities by default. This is where Cordova comes into picture. It offers a bridge for connection between web app and mobile device.

By using Cordova, we can make hybrid mobile apps that can use camera, geolocation, file system and other native mobile functions.

## Audience

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We are creating this tutorial for HTML, CSS and JavaScript developers that want to learn about mobile development. During the course we will go through most of the Cordova key points and we will show you how to use most of the Cordova plugins.

All of the examples provided can be used as a starting point in your own apps. We will also try to explain theory behind Cordova so you can get better picture of building process of hybrid mobile apps. We will try to show you examples as simple as possible so you can understand the essential principle of the Cordova development.

## Prerequisites

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You need to be familiar with HTML, CSS and JavaScript. If you ever created single page apps (SPA), that knowledge will be useful when working with Cordova but it is not necessary to understand most of the things this tutorial offers.

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# 1. Cordova – Overview

**Cordova** is a platform for building hybrid mobile applications using HTML, CSS and JavaScript.

The official documentation gives us the definition of the Cordova -

"Apache Cordova is an open-source mobile development framework. It allows you to use standard web technologies such as HTML5, CSS3, and JavaScript for cross-platform development, avoiding each mobile platform native development language. Applications execute within wrappers targeted to each platform, and rely on standards-compliant API bindings to access each device's sensors, data, and network status."

## Cordova Features

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Let us now understand the features of Cordova in brief.

### Command Line Interface (Cordova CLI)

This tool can be used for starting projects, building processes for different platforms, installing plugins and lot of other useful things that make the development process easier. You will learn how to use the Command Line Interface in the subsequent chapters.

### Cordova Core Components

Cordova offers a set of core components that every mobile application needs. These components will be used for creating base of the app so we can spend more time to implement our own logic.

### Cordova Plugins

Cordova offers API that will be used for implementing native mobile functions to our JavaScript app.

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## Cordova Advantages

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We will now discuss the advantages of Cordova.

- Cordova offers one platform for building hybrid mobile apps so we can develop one app that will be used on different mobile platforms – IOS, Android, Windows Phone, Amazon-fireos, blackberry, Firefox OS, Ubuntu and tizien.
- It is faster to develop hybrid app then native app so Cordova can save on the development time.

- Since we are using JavaScript when working with Cordova, we don't need to learn platform specific programming languages.
- There are many community add-ons that can be used with Cordova, these have several libraries and frameworks, which are optimized for working with it.

## **Cordova Limitations**

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Following are the limitations of Cordova.

- Hybrid apps are slower than native ones so it is not optimal to use Cordova for large apps that require lots of data and functionality.
- Cross browser compatibility can create lots of issues. Most of the time we are building apps for different platforms so the testing and optimizing can be time consuming since we need to cover large number of devices and operating systems.
- Some plugins have compatibility issues with different devices and platforms. There are also some native APIs that are not yet supported by Cordova.

## 2. Cordova – Environment Setup

In this chapter, we will understand the Environment Setup of Cordova. To begin with the setup, we need to first install a few components. The components are listed in the following table.

S.NO.	Software & Description
1	<b>NodeJS and NPM</b> NodeJS is the platform needed for Cordova development. Check out our <a href="#">NodeJS Environment Setup</a> for more details.
2	<b>Android SDK</b> For Android platform, you need to have Android SDK installed on your machine. Check out <a href="#">Android Environment Setup</a> for more details.
3	<b>XCode</b> For iOS platform, you need to have xCode installed on your machine. Check out <a href="#">iOS Environment Setup</a> for more details.

### Installing Cordova

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Before we start, you need to know that we will use Windows **command prompt** in our tutorial.

#### Step 1 - Installing git

Even if you don't use git, it should be installed since Cordova is using it for some background processes. You can download git [here](#). After you install git, open your environment variable.

- Right-Click on Computer
- Properties
- Advanced System settings
- Environment Variables
- System Variables
- Edit

Copy the following at the end of the **variable value field**. This is default path of the git installation. If you installed it on a different path you should use that instead of our example code below.

```
;C:\Program Files (x86)\Git\bin;C:\Program Files (x86)\Git\cmd
```

Now you can type **git** in your command prompt to test if the installation is successful.

## Step 2 - Installing Cordova

This step will download and install Cordova module globally. Open the command prompt and run the following –

```
C:\Users\username>npm install -g cordova
```

You can check the installed version by running –

```
C:\Users\username>cordova -v
```

This is everything you need to start developing the Cordova apps on Windows operating system. In our next tutorial, we will show you how to create first application.



## 3. Cordova – First Application

We have understood how to install Cordova and set up the environment for it. Once everything is ready, we can create our first hybrid Cordova application.

### Step 1 - Creating App

Open the directory where you want the app to be installed in command prompt. We will create it on desktop.

```
C:\Users\username\Desktop>cordova create CordovaProject io.cordova.hellocordova  
CordovaApp
```

- **CordovaProject** is the directory name where the app is created.
- **io.cordova.hellocordova** is the default reverse domain value. You should use your own domain value if possible.
- **CordovaApp** is the title of your app.

### Step 2 - Adding Platforms

You need to open your project directory in the command prompt. In our example, it is the **CordovaProject**. You should only choose platforms that you need. To be able to use the specified platform, you need to have installed the specific platform SDK. Since we are developing on windows, we can use the following platforms. We have already installed Android SDK, so we will only install android platform for this tutorial.

```
C:\Users\username\Desktop\CordovaProject>cordova platform add android
```

There are other platforms that can be used on Windows OS.

```
C:\Users\username\Desktop\CordovaProject>cordova platform add wp8
```

```
C:\Users\username\Desktop\CordovaProject>cordova platform add amazon-fireos
```

```
C:\Users\username\Desktop\CordovaProject>cordova platform add windows
```

```
C:\Users\username\Desktop\CordovaProject>cordova platform add blackberry10
```

```
C:\Users\username\Desktop\CordovaProject>cordova platform add firefoxos
```

If you are developing on Mac, you can use –

```
$ cordova platform add IOS
```

```
$ cordova platform add amazon-fireos
```

```
$ cordova platform add android
```

```
$ cordova platform add blackberry10
```

```
$ cordova platform add firefoxos
```

You can also remove platform from your project by using –

```
C:\Users\username\Desktop\CordovaProject>cordova platform rm android
```

### Step 3 - Building and Running

In this step we will build the app for a specified platform so we can run it on mobile device or emulator.

```
C:\Users\username\Desktop\CordovaProject>cordova build android
```

Now we can run our app. If you are using the default emulator you should use –

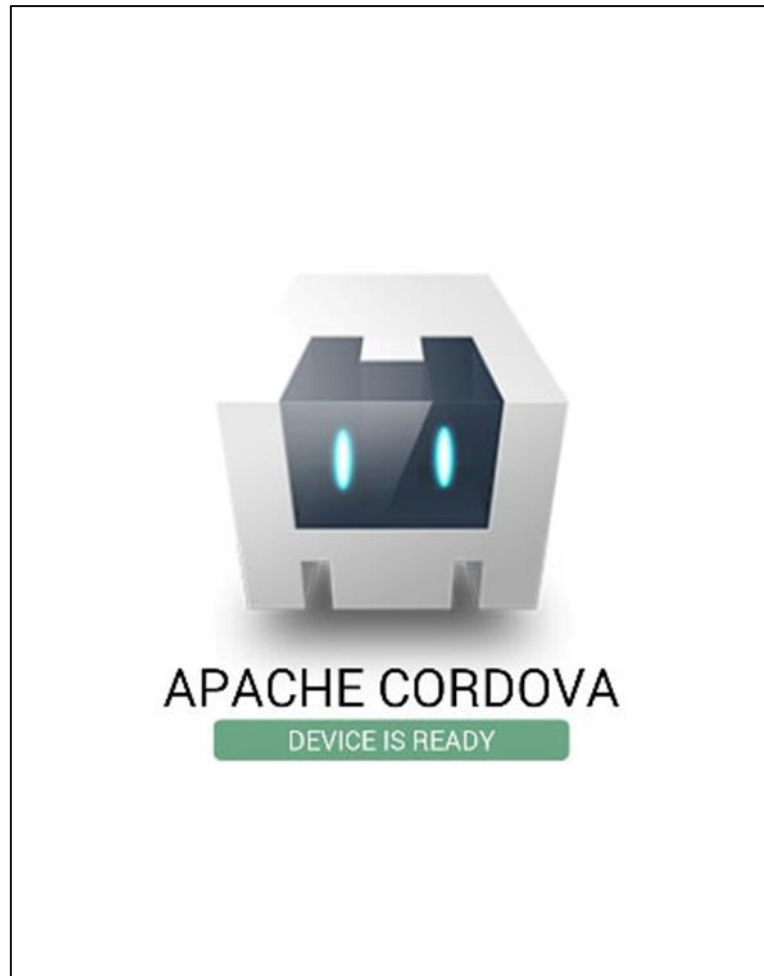
```
C:\Users\username\Desktop\CordovaProject>cordova emulate android
```

If you want to use the external emulator or real device you should use –

```
C:\Users\username\Desktop\CordovaProject>cordova run android
```

**NOTE** – We will use the **Genymotion android emulator** since it is faster and more responsive than the default one. You can find the emulator [here](#). You can also use real device for testing by enabling **USB debugging** from the options and connecting it to your computer via USB cable. For some devices, you will also need to install the USB driver.

Once we run the app, it will install it on the platform we specified. If everything is finished without errors, the output should show the default start screen of the app.



In our next tutorial, we will show you how to configure the Cordova Application.

## 4. Cordova – config.xml File

The **config.xml** file is the place where we can change the configuration of the app. When we created our app in the last tutorial, we set reverse domain and name. The values can be changed in the **config.xml** file. When we create the app, the default config file will also be created.

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <widget id="com.example.hello" version="0.0.1" xmlns="http://www.w3.org/ns/widgets" xmlns:cdv="http://cordova.apache.org/ns/1.0">
3   <name>CordovaApp</name>
4   <description>
5     A sample Apache Cordova application that responds to the deviceready event.
6   </description>
7   <author email="dev@cordova.apache.org" href="http://cordova.io">
8     Apache Cordova Team
9   </author>
10  <content src="index.html" />
11  <plugin name="cordova-plugin-whitelist" spec="1" />
12  <access origin="*" />
13  <allow-intent href="http://*" />
14  <allow-intent href="https://*" />
15  <allow-intent href="tel:*" />
16  <allow-intent href="sms:*" />
17  <allow-intent href="mailto:*" />
18  <allow-intent href="geo:*" />
19  <platform name="android">
20    <allow-intent href="market:*" />
21  </platform>
22  <platform name="ios">
23    <allow-intent href="itms:*" />
24    <allow-intent href="itms-apps:*" />
25  </platform>
26 </widget>
```

The following table explains configuration elements in **config.xml**.

### config.xml Configuration Table

Element	Details
widget	The app reverse domain value that we specified when creating the app.
name	The name of the app that we specified when creating the app.
description	Description for the app.
author	Author of the app.
content	The app's starting page. It is placed inside the <b>www</b> directory.
plugin	The plugins that are currently installed.
access	Used to control access to external domains. The default <b>origin</b> value is set to * which means that access is allowed to any domain. This value will not allow some specific URLs to be opened to protect information.

allow-intent	Allows specific URLs to ask the app to open. For example, <b>&lt;allow-intent href = "tel:*" /&gt;</b> will allow <b>tel:</b> links to open the dialer.
platform	The platform for building the app.

End of ebook preview

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