Setup

- 1) Connect to the wifi (on your laptop and devices)
  - Network name:
  - Password:
- 2) Go to platform.telerik.com and login
- 3) Make sure you have the NativeScript app installed on your Android and/or iOS device(s)

NativeScript Deep Dive

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- Sebastian Witalec | @sebawita

Agenda

- NativeScript intro (TJ)
  - Lab #1
- Data, styling, layouts, and more (Clark)
  - Lab #2
- MVVM, modules, extensibility (Sebastian)
  - Lab #3

Follow NativeScript

- nativescript.org
- @nativescript
- nativescript.org/blog

What is NativeScript?

- A runtime for building and running *native* iOS, Android, and Windows Phone apps with a single, JavaScript code base


JS

Why NativeScript?

- Skills reuse
  - Standards-based JavaScript, CSS, optionally TypeScript
- Code reuse
  - npm modules, 3rd-party iOS and Android libraries
- Easily use native APIs
  - No wrappers to access native APIs
  - Use native UI elements
- Open source!

Contribute! (nativescript.org/contribute)

Contributing to NativeScript

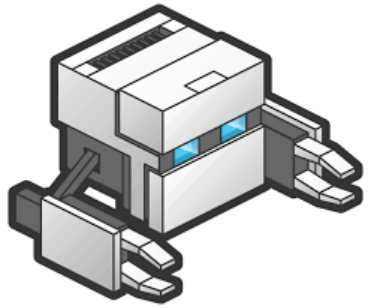
Thank you for your interest in contributing to the NativeScript project!

Anyone wishing to contribute to the NativeScript project MUST read & sign the NativeScript Contribution License Agreement. The NativeScript team cannot accept pull requests from users who have not signed the CLA first.

NativeScript is a complex framework, involving cross-platform modules, a Command-Line Interface and platform-specific runtimes. Each of these follows a specific technology, therefore the contribution instructions are different for each.

Please, visit these repositories for detailed contribution guidelines:
Cross-Platform modules
Command-Line Interface
Android-Runtime
iOS-Runtime

!=



- No DOM

!=

- No cross compilation

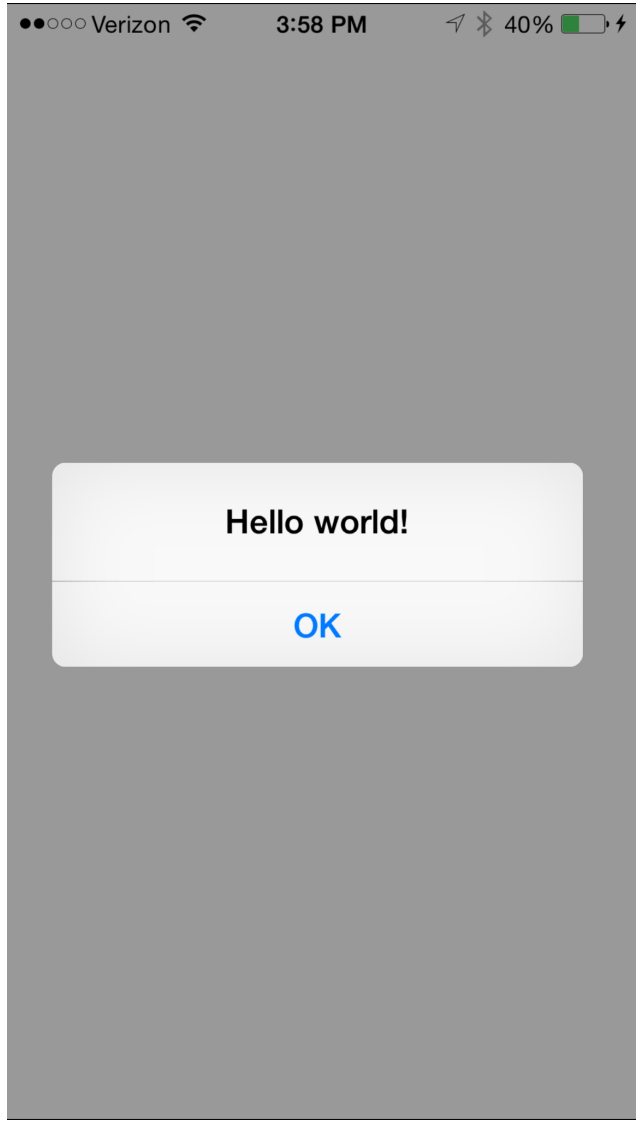
NativeScript Android example

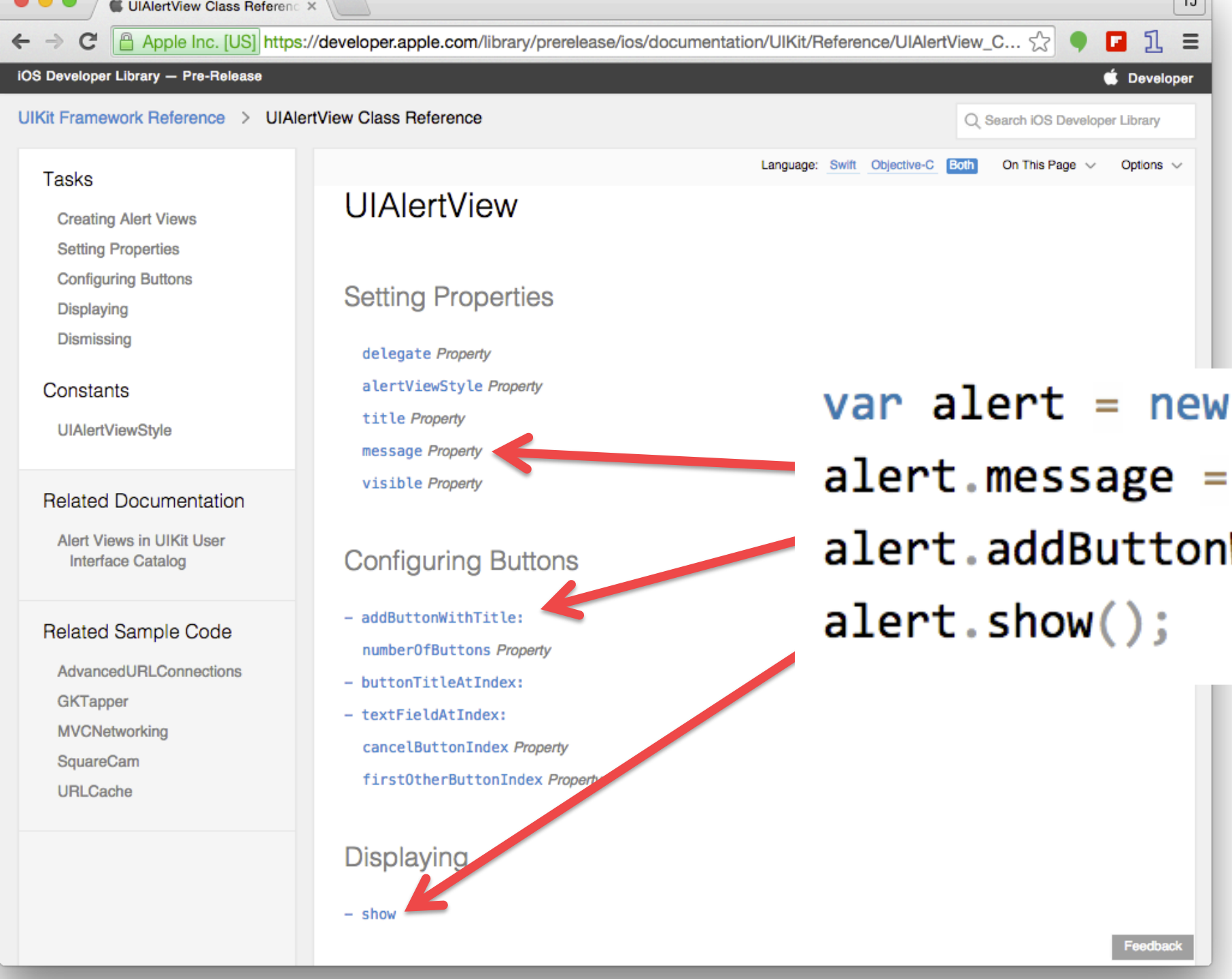
```
var time = new android.text.format.Time();
time.set( 1, 0, 2015 );
console.log( time.format( "%D" ) );
```

Output: `"01/01/15"`

NativeScript iOS example

```
var alert = new UIAlertView();
alert.message = "Hello world!";
alert.addButtonWithTitle( "OK" );
alert.show();
```






```
var alert = new UIAlertView();
alert.message = "Hello world!";
alert.addButtonWithTitle( "OK" );
alert.show();
```

How does this work?

NativeScript and JS VMs

- NativeScript runs JavaScript on a JavaScript VM
  - JavaScriptCore on iOS
  - V8 on Android
  - JavaScriptCore on Windows

```
var time = new android.text.format.Time();
time.set( 1, 0, 2015 );
console.log( time.format( "%D" ) );
```

- Runs on V8

```
var alert = new UIAlertView();
alert.message = "Hello world!";
alert.addButtonWithTitle( "OK" );
alert.show();
```

- Runs on JavaScriptCore

So do you only write native code?

No

NativeScript modules

- NativeScript-provided modules that provide cross-platform functionality.
- There are dozens of them and they’re easy to write yourself.
- NativeScript modules follow Node module’s conventions (CommonJS).

NativeScript file module

```
var fileSystemModule = require( "file-system" );
new fileSystemModule.File( path );
```

```
new java.io.File( path );
```

```
NSFileManager.defaultManager();
fileManager.createFileAtPathContentsAttributes(path);
```

HTTP module example

```
var http = require( "http" );
http.getJSON( "https://api.myservice.com" )
    .then(function( result ) {
        // result is JSON Object
    });
```

Custom NativeScript modules

```
// device.ios.js
module.exports = {
    version: UIDevice.currentDevice().systemVersion
}

// device.android.js
module.exports = {
    version: android.os.Build.VERSION.RELEASE
}
```

Using the custom device module

```
var device = require( "./device" );
console.log( device.version );
```

But how do I turn this into an app?

Two ways to use NativeScript

1) 

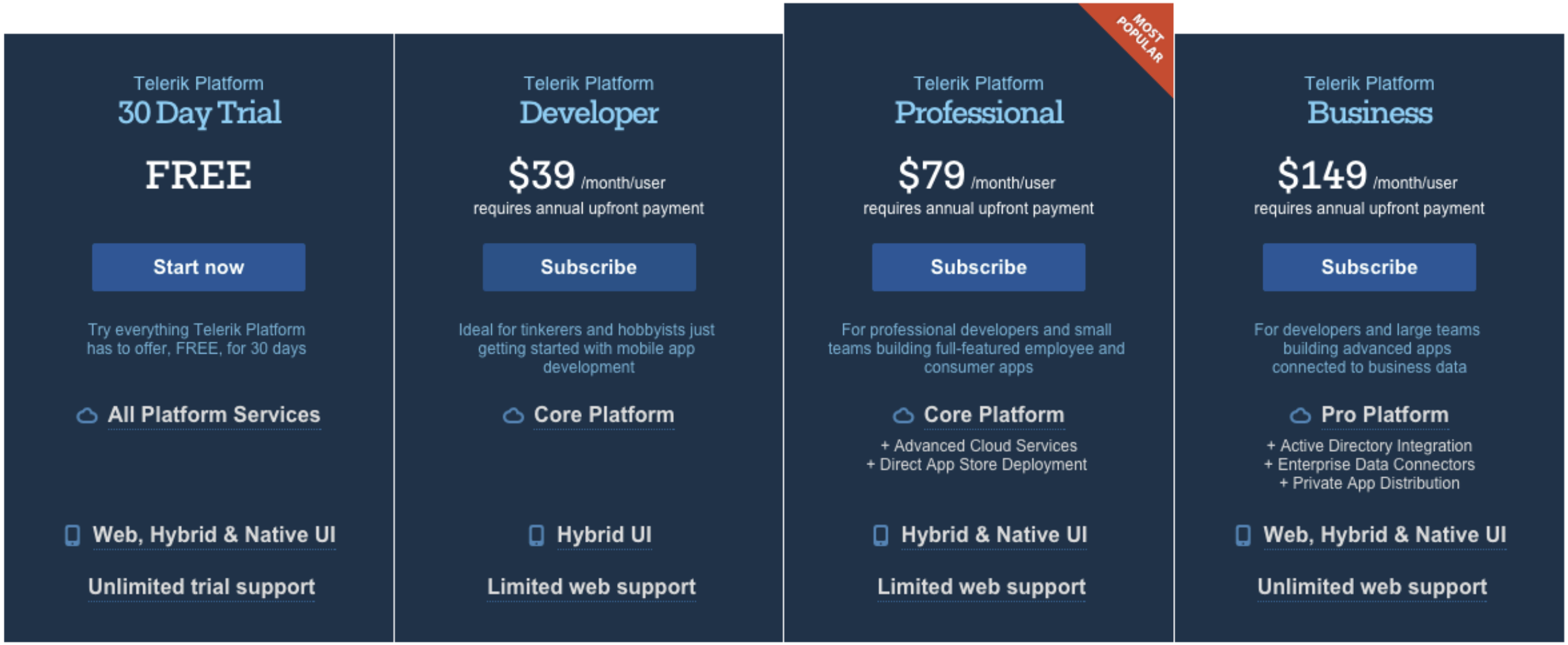
2) `npm install -g nativescript`

Telerik Platform℠ http://telerik.com/platform

- Backend-as-a-service
  - Push notifications, cloud data, file storage, and more
- Analytics
- AppBuilder
  - Cloud builds (build iOS apps on Windows, Windows Phone apps on a Mac)
  - NativeScript debugging and tooling
- Automated app testing
- And more!

Telerik Platform℠

https://www.telerik.com/purchase/platform



Telerik AppBuilder IDE Options

- In-Browser Client
- Visual Studio Extension
- Sublime Text Package
- Command-Line Interface

NativeScript CLI

- Free and open source
- https://github.com/nativescript/nativescript-cli

NativeScript CLI requirements

- https://github.com/nativescript/nativescript-cli#system-requirements

- JDK, Apache Ant, Android SDK

- Xcode, Xcode CLI tools, iOS SDK

Starting a new project

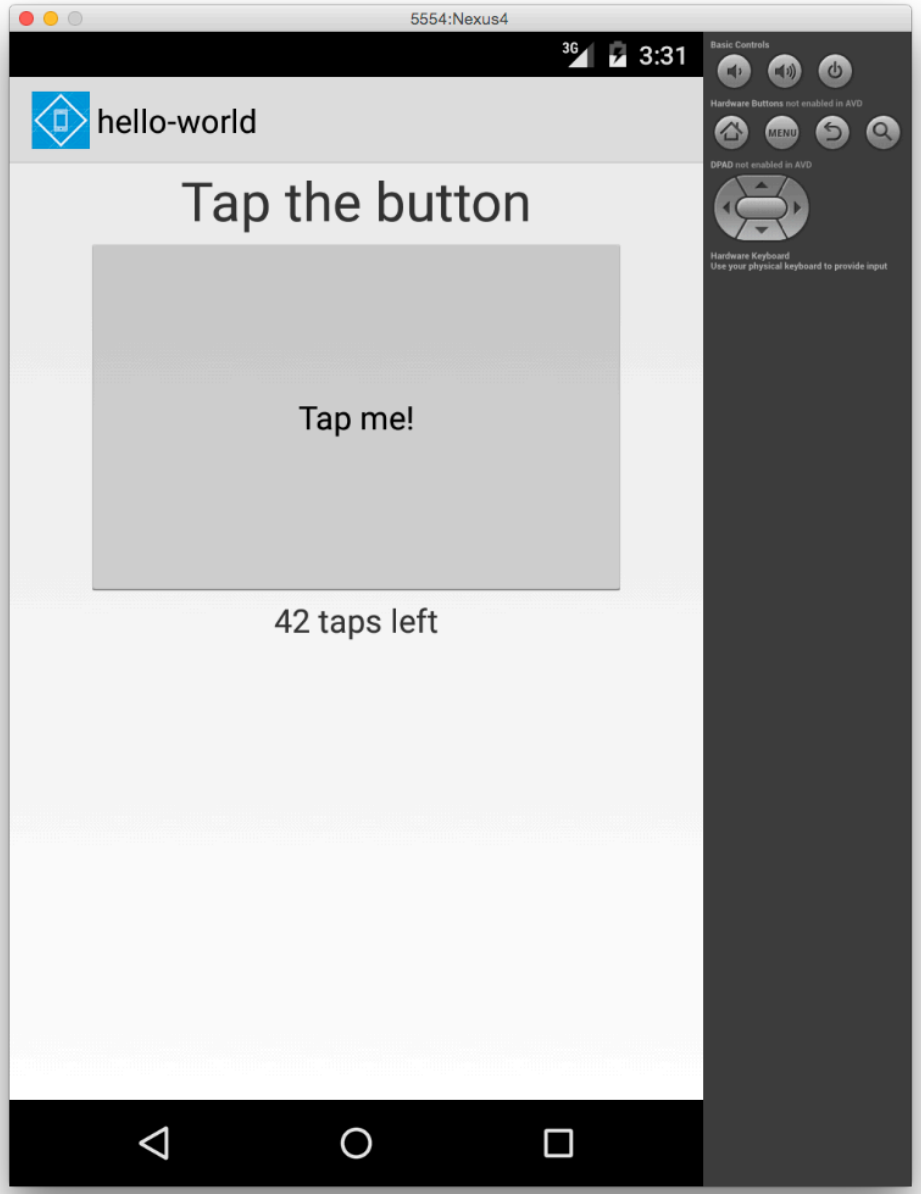
```
$ npm install -g nativescript

$ tns create hello-world
$ cd hello-world
```

Running on iOS

```
$ tns platform add ios
$ tns run ios --emulator
```

Running on Android

```
$ tns platform add android
$ tns run android --emulator
```



Creating Platform apps

- Demo

```
.
└── app
    ├── App_Resources  <-- icons, splash screens, config files
    │   ├── Android
    │   └── iOS
    ├── app.css
    ├── app.js
    ├── main-page.css
    ├── main-page.js
    ├── main-page.xml
    ├── node_modules   <-- npm modules
    │   └── ...
    ├── package.json
    ├── tns_modules    <-- NativeScript modules
    │   └── ...
    └── platforms
        ├── android
        └── ios
```

app.js

```
var application = require( "application" );
application.mainModule = "main-page";
application.start();
```

Pages

- XML markup structure
- Elements (e.g. `<Page>`, `<Label>`) are NativeScript modules

```
<Page>
    <Label text="hello world" />
</Page>
```

Custom XML Components

Example: Code-Only Custom Component

This sample `main-page.xml` uses two custom components defined in separate declarations in the `xml-declaration` directory. The custom controls are wrapped horizontally.

XML

```
<Page
    xmlns:customControls="app/xml-declaration/mymodule"
    xmlns:customOtherControls="app/xml-declaration/mymodulewithxml">
  <WrapLayout>
    <customControls:MyControl />
    <customOtherControls:MyControl />
  </WrapLayout>
</Page>
```

http://docs.nativescript.org/ui-with-xml#custom-components

Questions?

Getting started

- Clone …?