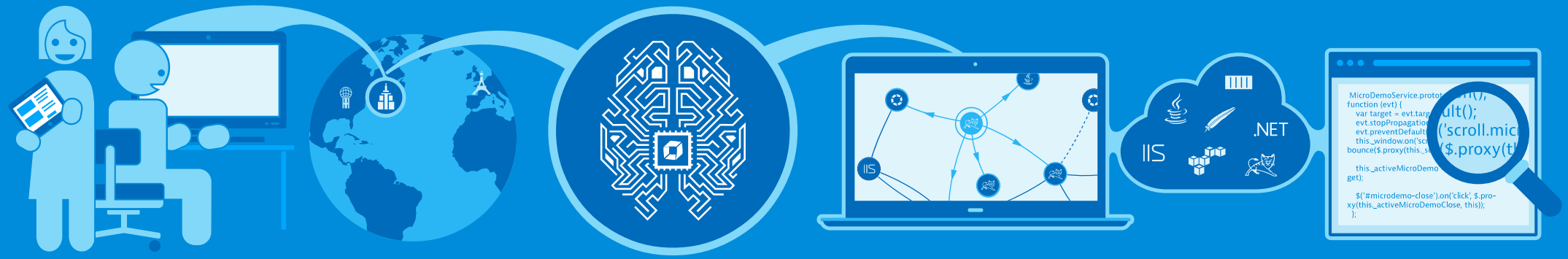
dynatrace

Perform 2018 Hands on Training
Mobile Performance Management for Native Mobile Applications

Prerequisites and preparation steps



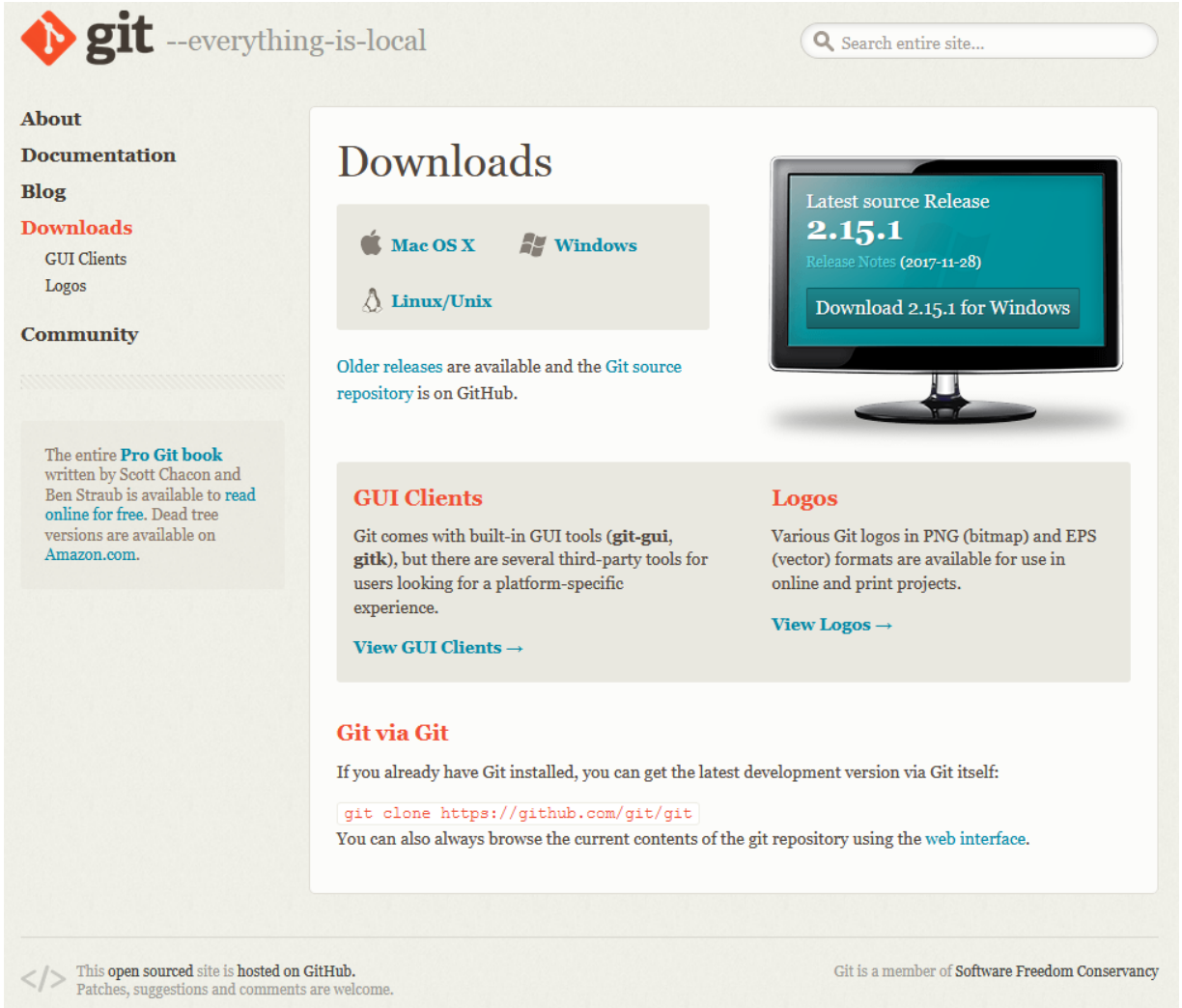
Prerequisites for the hands-on lessons

- As it runs on a variety of operating systems, we will use Android Studio for the exercises. With a few technical differences, the same concepts apply to iOS mobile monitoring with Dynatrace, so there is not much differences.
- Please bring your laptop with:
  - Administrator permissions
  - Internet access (wi-fi will be provided)
  - Recommended at least 8 GB RAM
  - At least 12 GB of free disk space available
  - Unless you have a physical Android device to run your applications, we strongly recommend to avoid usage of virtual machines (VMWare, VirtualBox, etc). Android emulators do not perform well (or at all) in virtual environments, the performance degradation is significant (at least 10x slower).
- Please download and install the following tools before the class. The software tools we will need for the lessons take many GBs of space and we will not have the necessary bandwidth for everyone to download these at the same time during the HOT session. More detailed instructions in the following pages.
  - Git
  - Android Studio
  - Oracle Java Development Kit (JDK) version 1.8
  - nodeJS, Ionic and Cordova

Git installation

- Git is a version control system. For this class, we will use to clone the class repository from Github. Github is a web-based hosting service for Git.

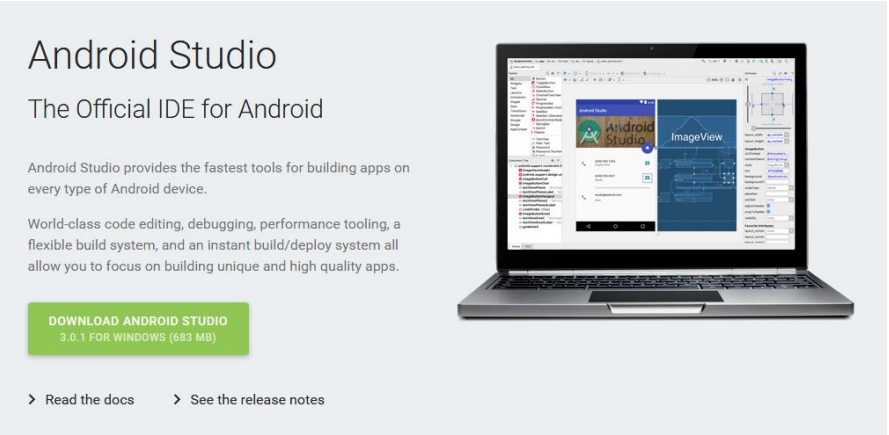
  - Download and install Git from : https://git-scm.com/downloads
  - To verify the installation, launch your command-line interface
    - Windows : Windows button -> type “cmd” at the prompt
    - Mac OS : Search for “Terminal” in the Spotlight Search
  - Type the command : **git**
  - The command should return the Git command usage (help). If an error is returned, there has been a problem during the installation.

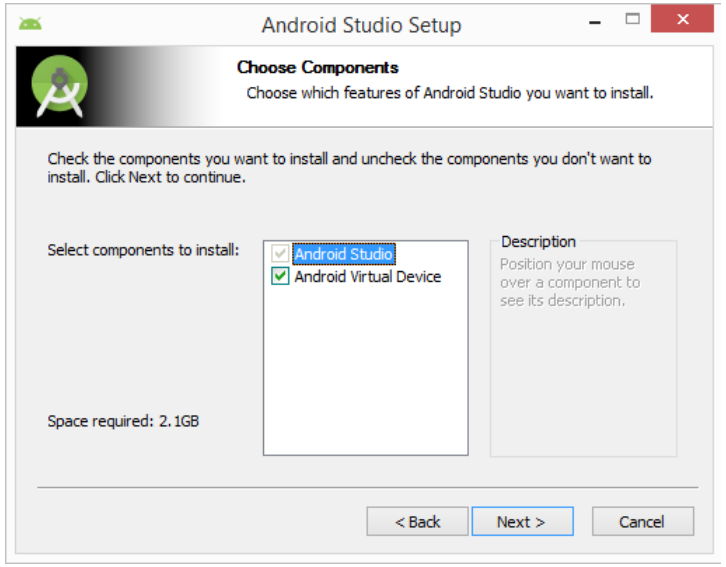


Android Studio installation

- Android Studio is Google's official development environment (IDE) for Android. It has been built from JetBrain's IntelliJ IDEA Java IDE with the specific purpose of Android application development. There is a variety of alternative IDEs for Android development, such as Eclipse, IntelliJ IDEA, NetBrains, Visual Studio with Xamarin.

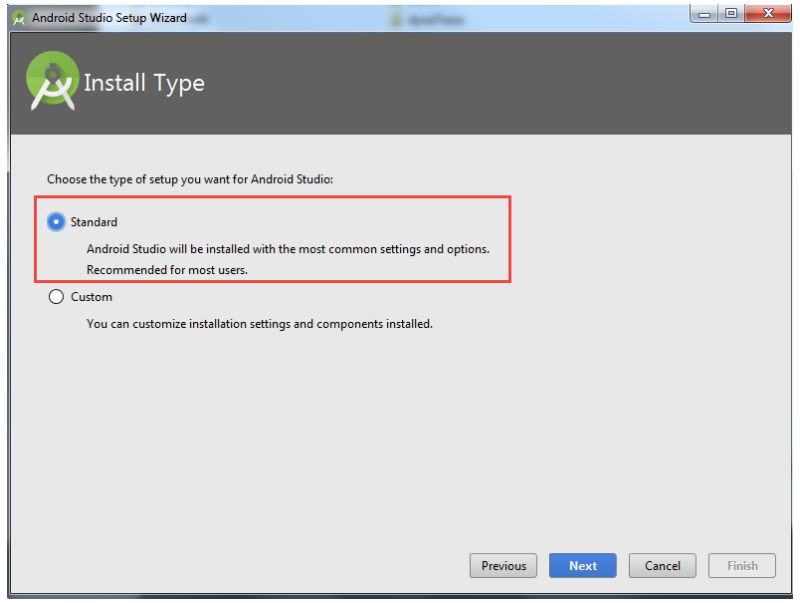
  - If you already have Android Studio installed, please make sure it meets the following minimal requirements. The projects are configured to work with these versions, if you don't meet these requirements, we cannot guarantee the lessons will work for you.
    - Android SDK : 23+
    - Build Tools : 26.0.2+
    - Gradle : 4.1 (android plugin 3.0.0)
  - Otherwise, download and install the latest Android Studio release from : https://developer.android.com/studio/index.html
  - Once downloaded, run the installer and navigate through the installation wizard, keeping the default options.

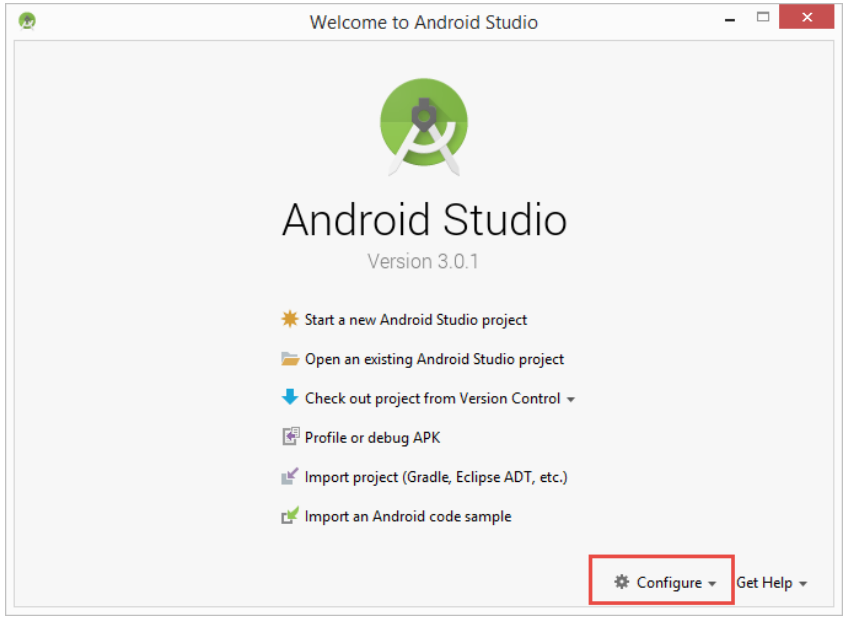




Android Studio installation (2)

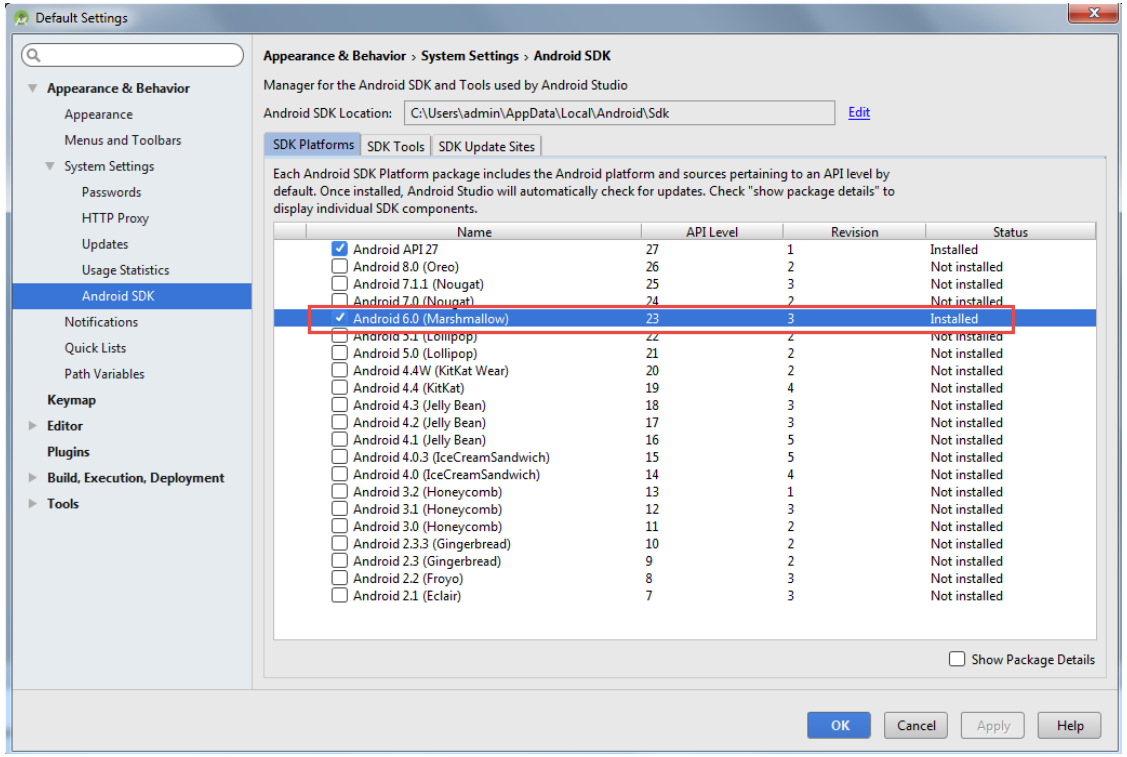
- Launch Android Studio
- Select “Do not import settings”
- At the Install Type dialog box, select “Standard”
- In the Android Studio start screen, click on the Configure button (bottom right) and select SDK Manager

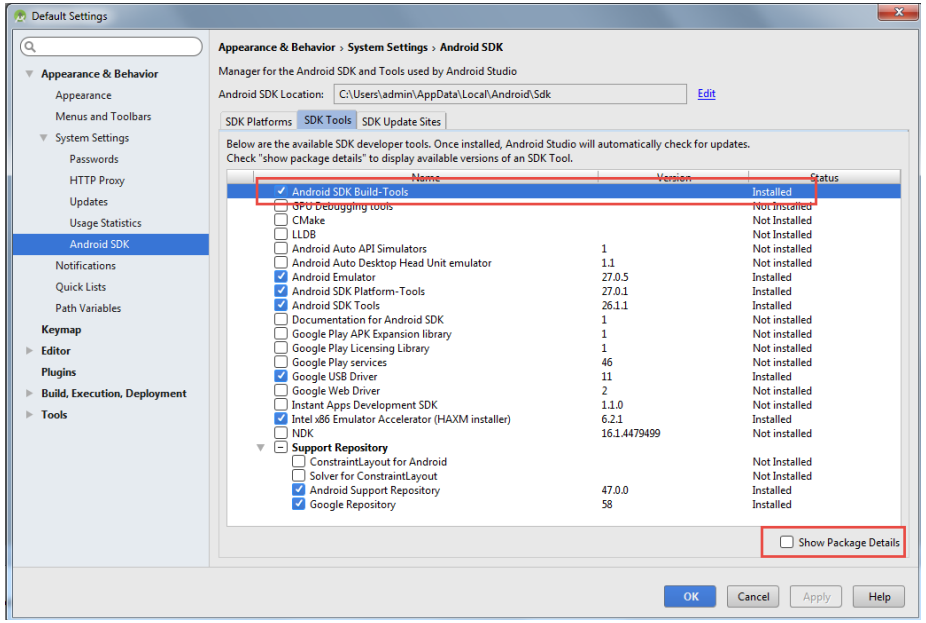


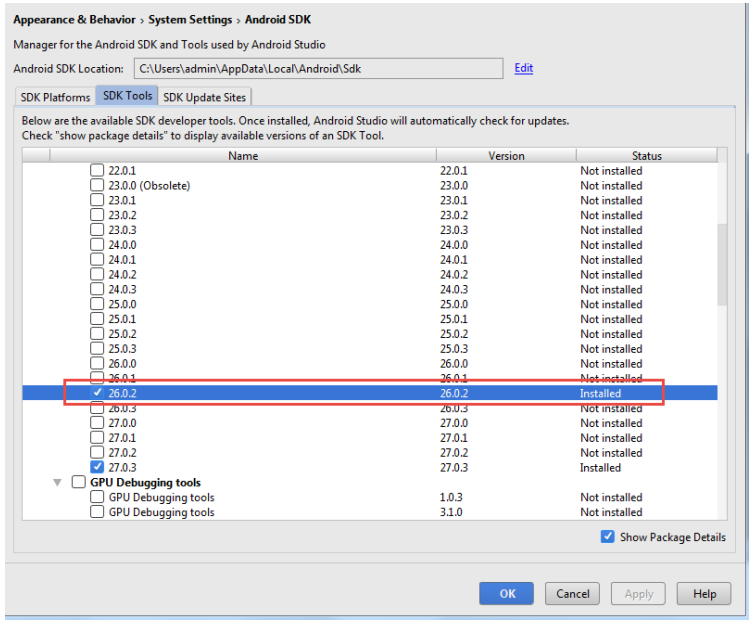


Android Studio configuration (SDK Manager)

- In the **“SDK Platforms”** tab of the SDK Manager dialog box, if it is not already installed, select to install “Android 6.0 (Marshmallow) API Level 23”
- Switch to **“SDK Tools”** tab
- Select **“Android SDK Build Tools”** and tick the **“Show Package Details”** check box.
- In the expanded list of build tools, scroll down to version 26.0.2 and select it to be installed
- Click the OK button

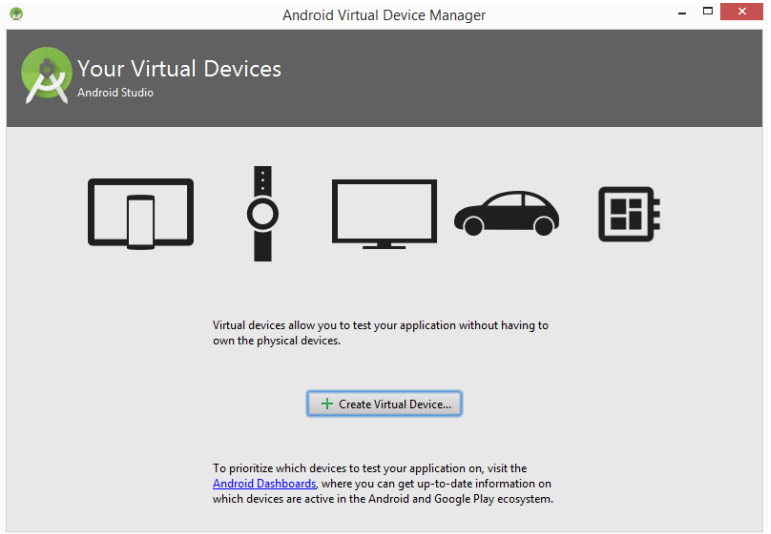


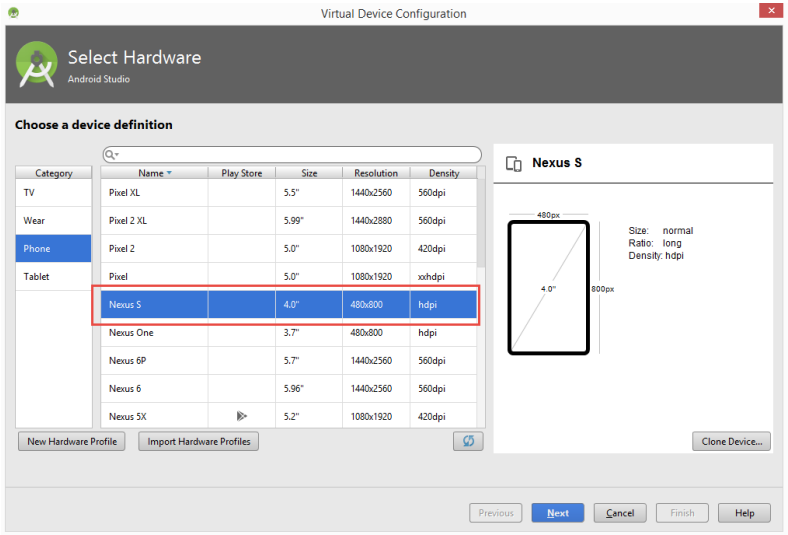




Android Device configuration

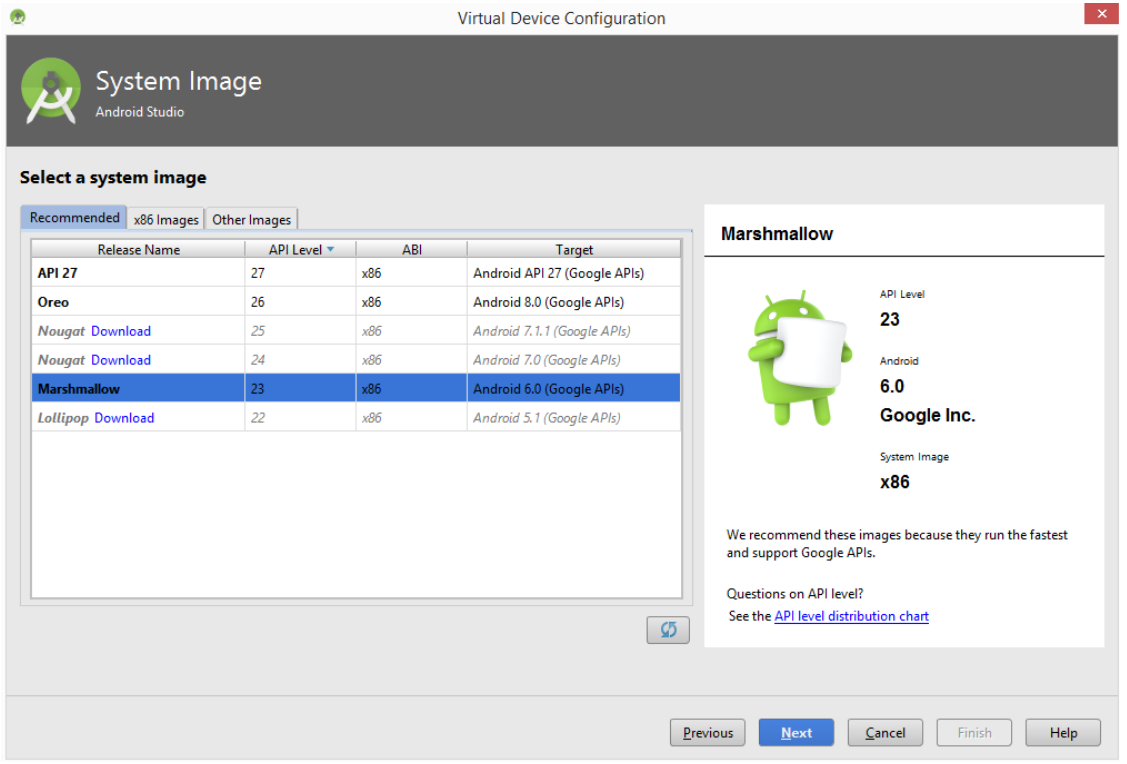
- You will need a device to run your monitored mobile application so that Dynatrace can capture its monitoring data. Android device emulators are available to run a virtual device for application testing. If you have a physical Android device, you can also use it to test your application.
  - Android Studio comes installed with an Android emulator. If you have a preference for other 3rd party emulators (Genymotion, Xamarin for VS, etc), you can use it instead.
  - Installing an Android virtual device requires a significant download so please prepare this before the class if possible.
  - Launch Android Studio and select to Start a new Android Studio project. Click the next button on each screen until you hit Finish.
  - In the Android Studio menu, go to Tools->Android->AVD Manager. You might have to wait a bit before this becomes available in the menu.
  - For this class, you don't need anything fancy. It is better to create a simple device to make sure it will run on your laptop.
  - Select Category:Phone and device **Nexus S**. Click Next.

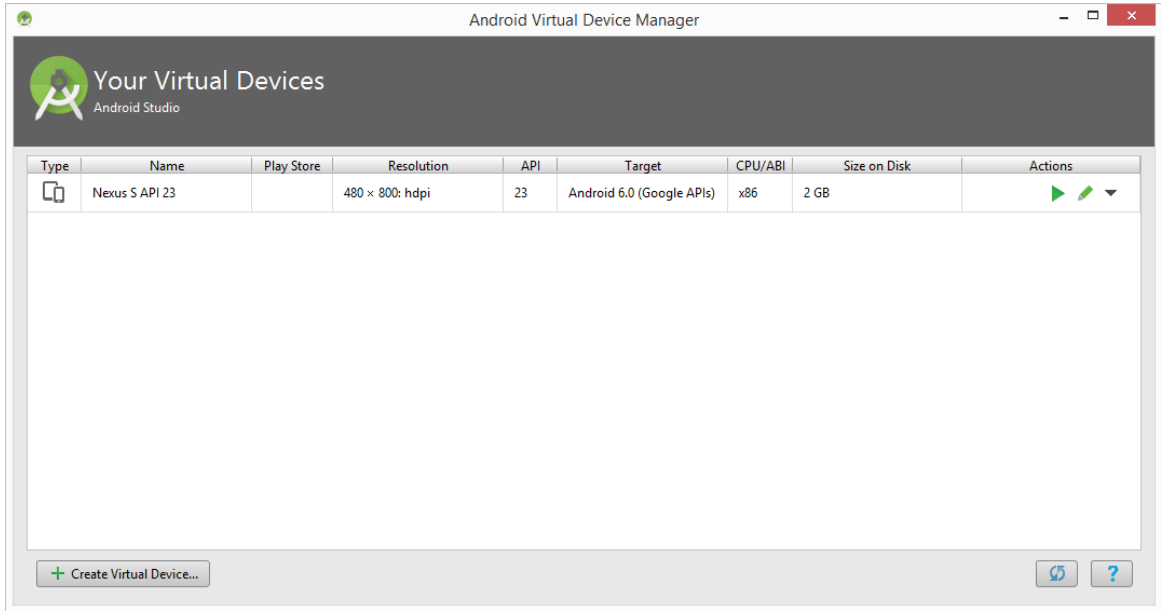




Android Device configuration (2)

- You then need to select a System Image, which is the version of Android that will run on your virtual device. In the Recommended tab, you can select **Marshmallow (API 23)**. If it is not already installed, click on the blue Download link next to the Release Name.
- Once the image is downloaded, click Next and then click Finish.
- You should now have a device available in the Android Virtual Device Manager screen.
- You can launch the device in the emulator if you want by clicking on the play button.
- If you would like to use a physical Android device during the hands-on lessons, make sure that:
  - You have your USB cable to connect the device to your laptop
  - You have the required USB drivers installed on your laptop. For more details, see here: https://developer.android.com/studio/run/oem-usb.html
  - Your device is set up for development (developer options enabled). For more details, see here: https://developer.android.com/studio/run/device.html





Java Development Kit installation

- A Java Development Kit is a package including Java Virtual Machine, libraries and tools such as compilers and debuggers to develop and run Java applications. Native Android applications are running on Java. The Dynatrace auto-instrumentation plugin requires a JDK version 1.8.x.

  - Get the latest version 8 Oracle JDK from : http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html
  - Accept the License Agreement
  - Select the download corresponding to your operating system
  - Run the JDK installer

Java SE Development Kit 8u152

You must accept the Oracle Binary Code License Agreement for Java SE to download this software.

○ **Accept License Agreement** ○ **Decline License Agreement**

Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	77.94 MB	jdk-8u152-linux-arm32-vfp-hflt.tar.gz
Linux ARM 64 Hard Float ABI	74.88 MB	jdk-8u152-linux-arm64-vfp-hflt.tar.gz
Linux x86	168.99 MB	jdk-8u152-linux-i586.rpm
Linux x86	183.77 MB	jdk-8u152-linux-i586.tar.gz
Linux x64	166.12 MB	jdk-8u152-linux-x64.rpm
Linux x64	180.99 MB	jdk-8u152-linux-x64.tar.gz
macOS	247.13 MB	jdk-8u152-macosx-x64.dmg
Solaris SPARC 64-bit	140.15 MB	jdk-8u152-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	99.29 MB	jdk-8u152-solaris-sparcv9.tar.gz
Solaris x64	140.6 MB	jdk-8u152-solaris-x64.tar.Z
Solaris x64	97.04 MB	jdk-8u152-solaris-x64.tar.gz
Windows x86	198.46 MB	jdk-8u152-windows-i586.exe
Windows x64	206.42 MB	jdk-8u152-windows-x64.exe

Node.js, Ionic and Cordova installation

- Node.js is a Javascript runtime. It is at the core of **npm**, a Javascript package manager and software registry from which we will deploy the components, including Ionic and Cordova, needed for the hybrid mobile application lesson. Ionic is an open-source Software Development Kit for hybrid application development. It is build on top of Apache Cordova and AngularJS. Cordova is a framework for hybrid application development.

  - Download the latest LTS distribution (8.9.4) of Node.JS from : https://nodejs.org/en/
  - Launch the installer and navigate through the wizard leaving the default options selected.
  - From the command line interface, run the following command : **npm install -g ionic cordova grunt-cli**
  - This will install :
    - Ionic : SDK for hybrid app development
    - Cordova : framework for hybrid app development
    - Grunt : build tool for Ionic Cordova
  - From your command line interface, type **ionic** and **cordova** commands to ensure these are well installed. This should return the command usage (help), otherwise there has been a problem during the installation.