Previewing Android Applications

In Qt Design Studio, you can preview Android applications live using an Android emulator.

Prerequisites

Install OpenJDK 11

You need to install OpenJDK 11 as described in Getting Started with Qt for Android, to do this:

- On Linux:
  1. In the command line, run:

```
sudo apt-get install openjdk-11-jdk
```

- On macOS:
  1. Download OpenJDK 11 from Download OpenJDK.
  2. In the command line, run:

```
cd ~/Downloads
tar xf microsoft-jdk-11.0.13.8.1-macos-x64.tar.gz
```

  3. Copy the unzipped folder to a location where macOS searches for Java by default:

```
sudo cp -Rv jdk-11.0.13+8 /Library/Java/JavaVirtualMachines/
```

  4. Check if Java was correctly installed:

```
java -version
```

```
openjdk version "11.0.13" 2021-10-19 LTS
OpenJDK Runtime Environment Microsoft-27990 (build 11.0.13+8-LTS)
OpenJDK 64-Bit Server VM Microsoft-27990 (build 11.0.13+8-LTS, mixed mode)
```

- On Windows:
  - OpenJDK 11 is automatically installed with Android Studio.

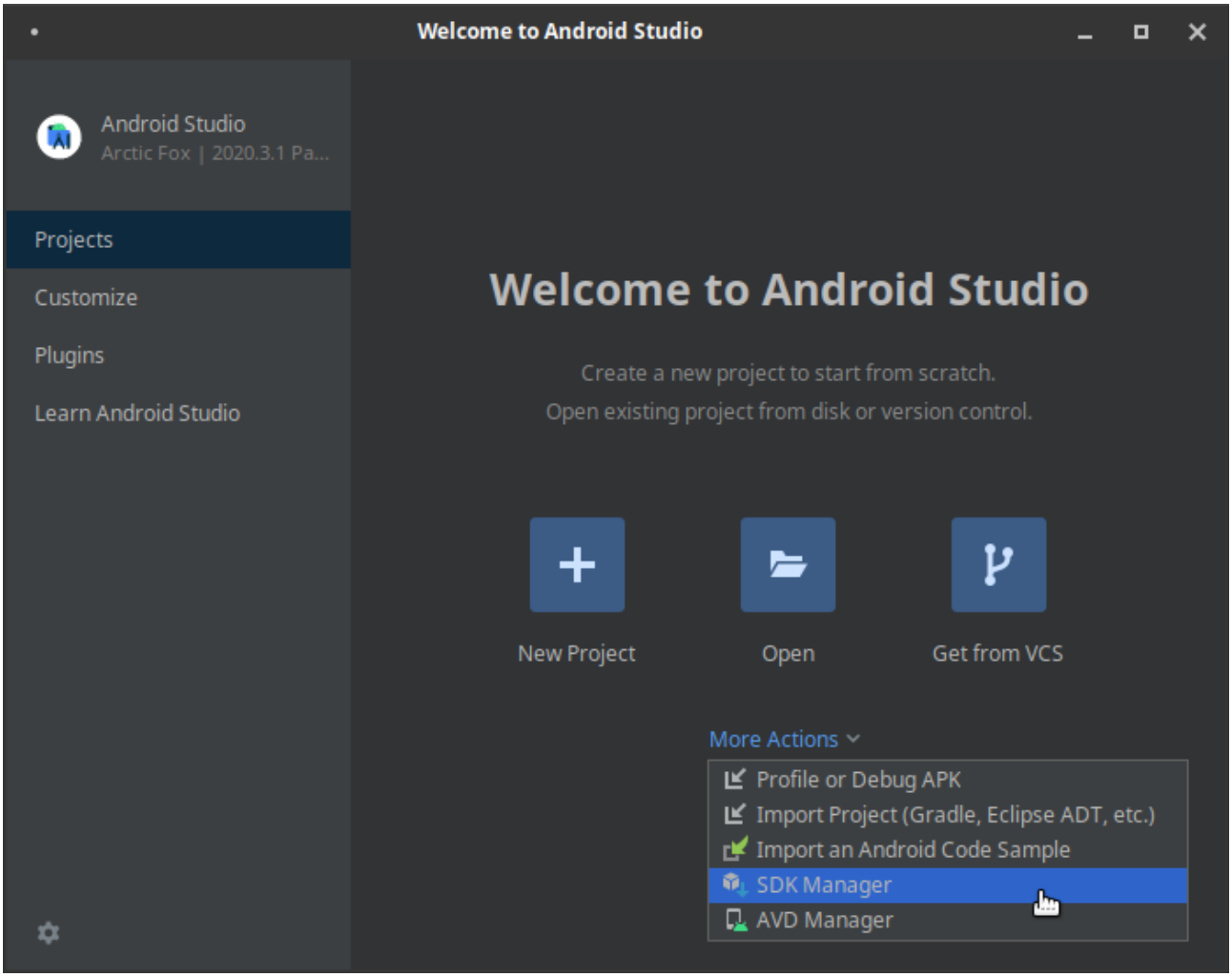
Install Android Studio and SDK Tools

You need to install Android Studio:

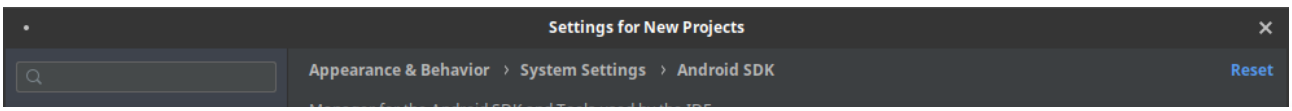
1. Download Android Studio from Download Android Studio.
2. Install Android Studio according to the Android Studio Installation Guide.

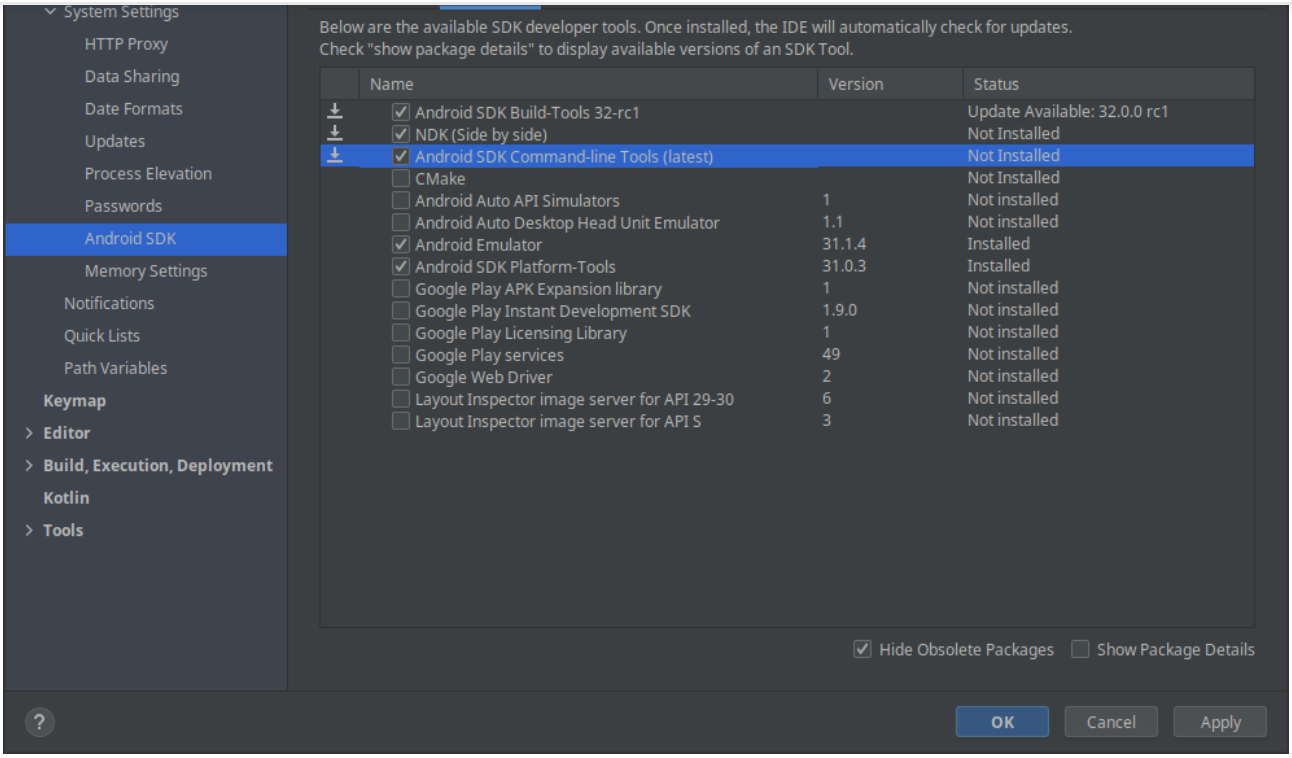
Next, you need to install Android SDK command-line tools:

1. Run Android Studio and on the welcome page, select **More Actions** > **SDK Manager**.



2. Select **Android SDK Build-Tools 32-rc1**, **NDK (Side by side)**, and **Android SDK Command-line Tools (latest)**.



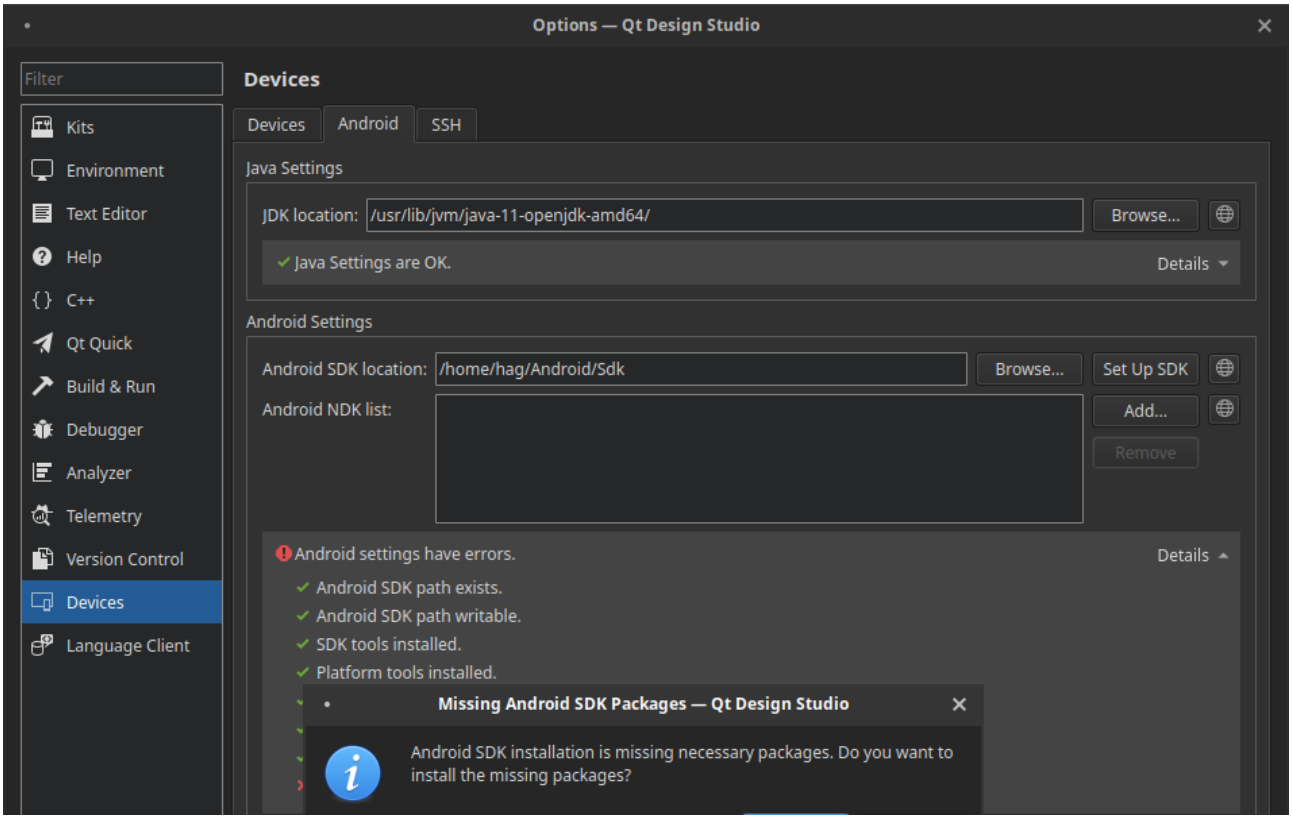


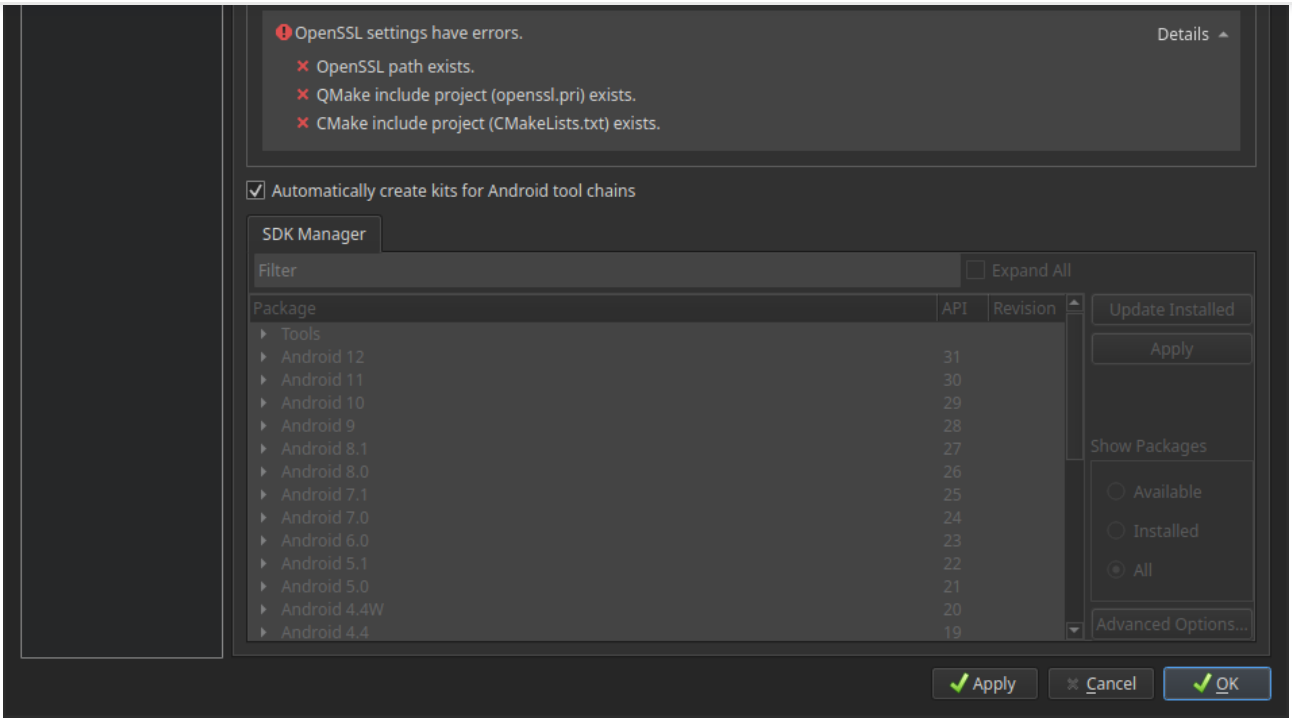
3. Select **Apply** and follow the instructions in the wizard to finalize the installation.

Install Android SDK Packages in Qt Design Studio

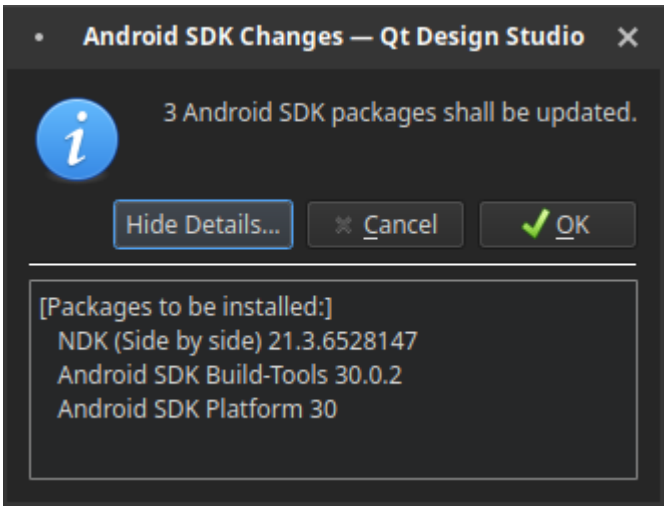
You need to install Android SDK packages in Qt Design Studio:

1. Run Qt Design Studio.
2. Go to **Edit** > **Preferences** > **Devices**.
3. Select **Yes** on the **Missing Android SDK Packages** dialog.

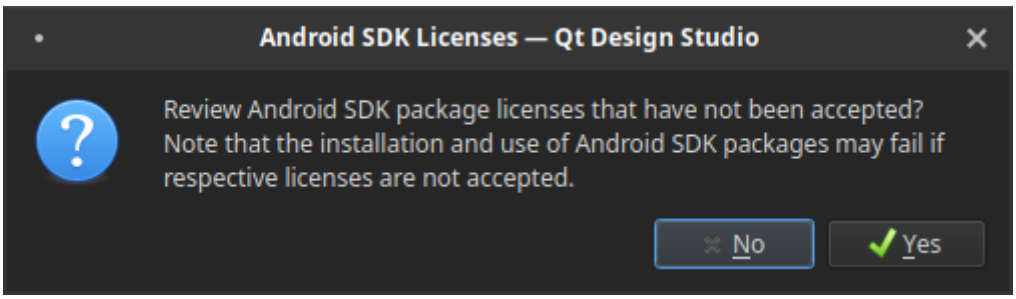




4. Select **OK** on the **Android SDK Changes** dialog.

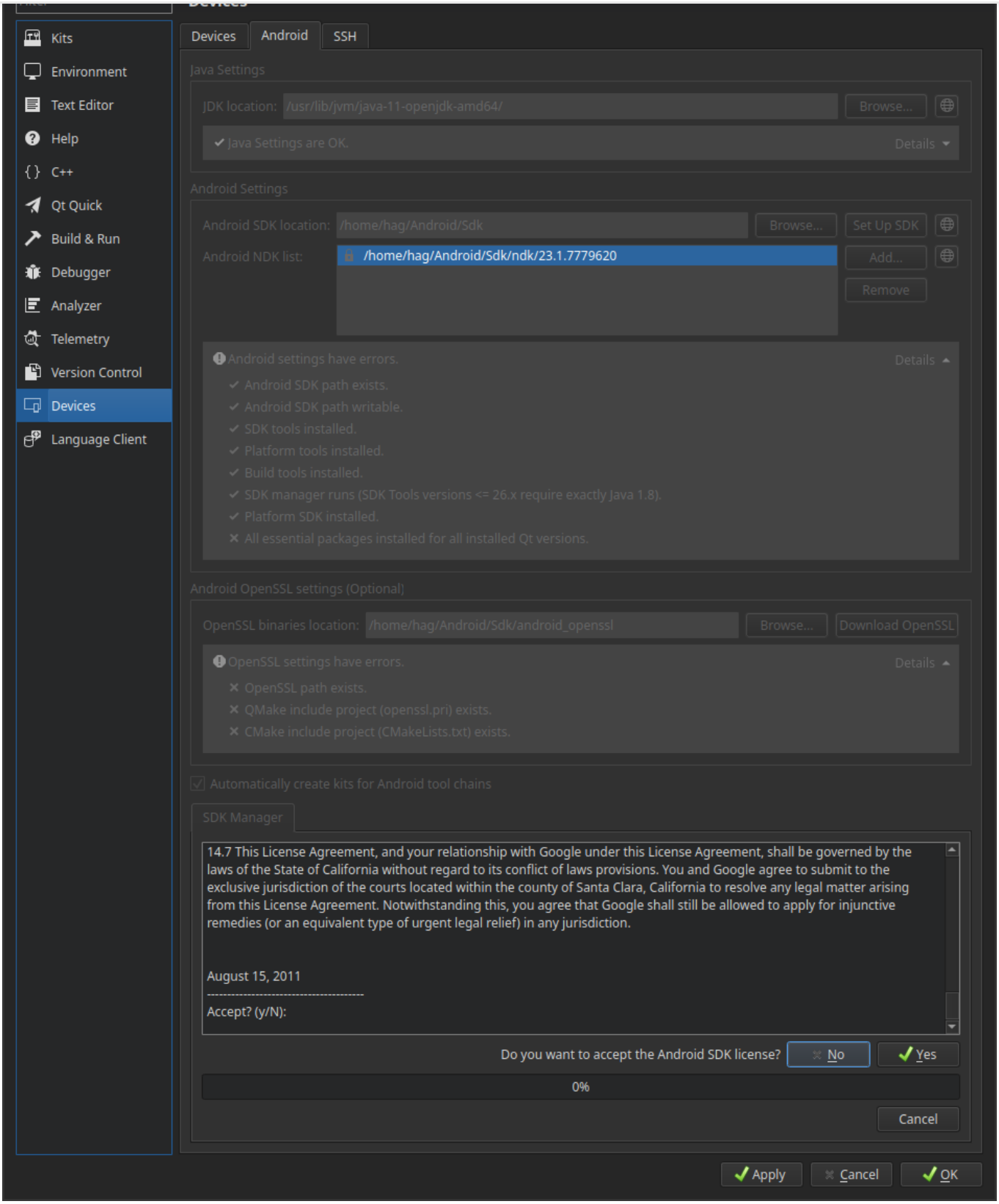


5. Select **Yes** on the **Android SDK Licenses** dialog.



Note: The installation can take a while. If the installation process seems to have stopped working, try to restart Qt Design Studio and run the installation again.

After completing these steps, you should no longer have any errors on the **Edit** > **Preferences** > **Devices** page.

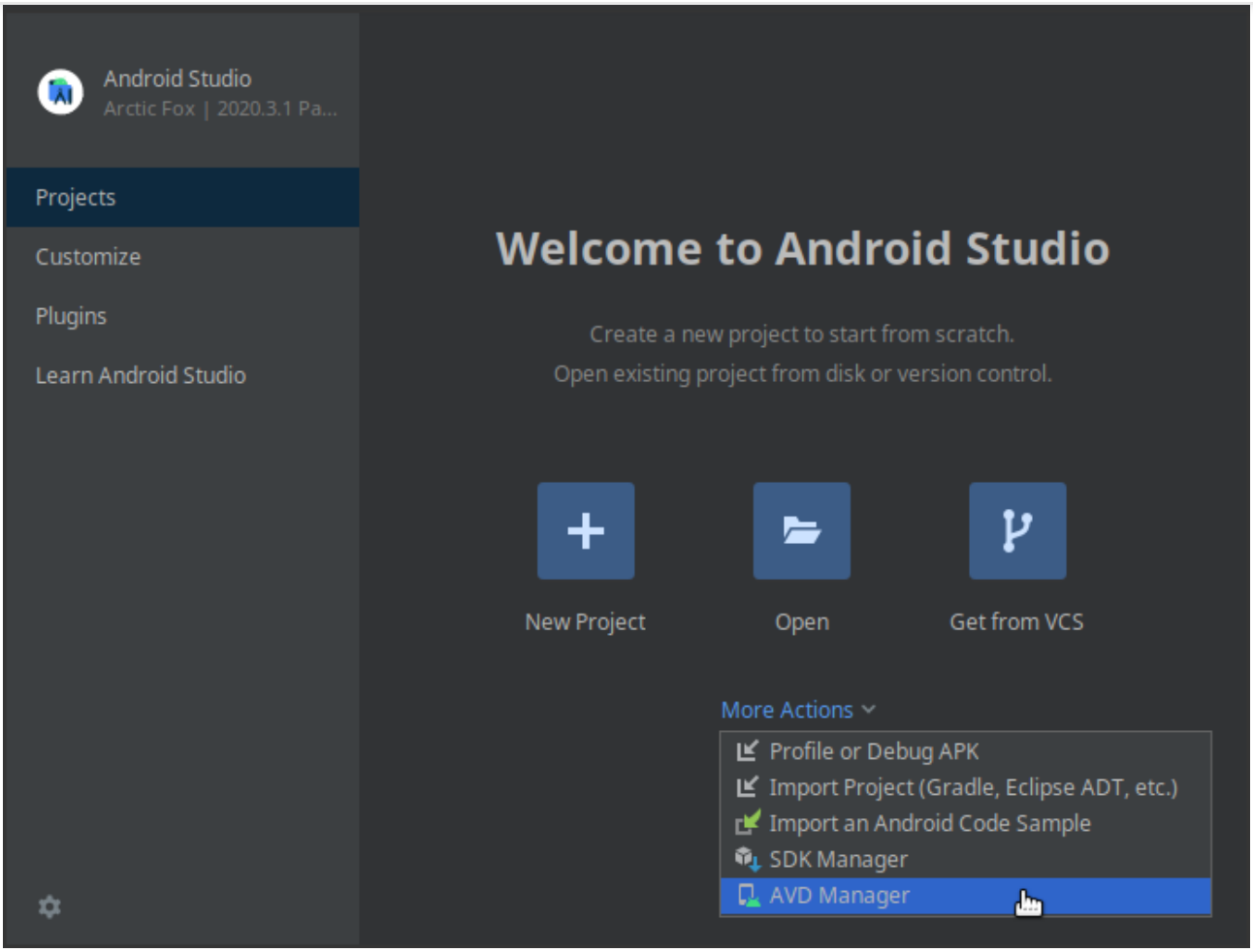


Create Android Virtual Devices

Next, you need to create an Android Virtual Device (AVD):

> **Note:** You might need to download a system image depending on your setup.

1. Run Android Studio and on the welcome page, select **More Actions** > **AVD Manager**.



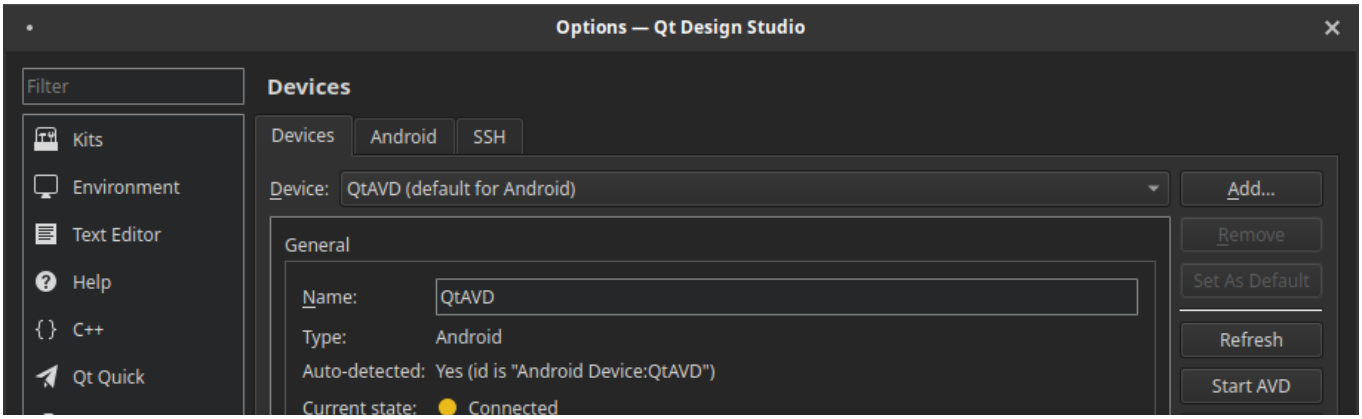
2. Select **Create Virtual Device** and follow the instructions in the wizard to finalize the creation.

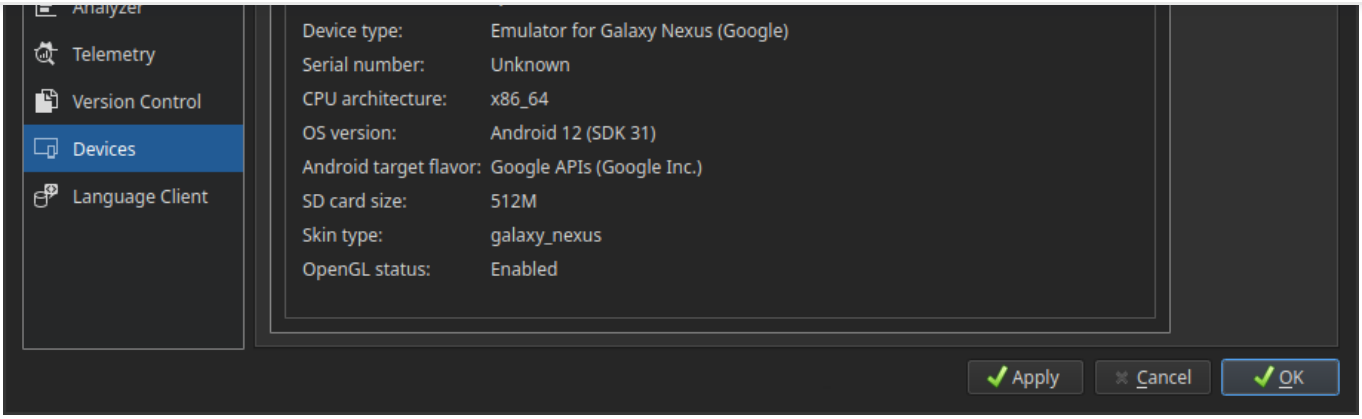
Qt Design Studio has a AVD manager where you can create AVDs as well but it is recommended to use Android Studio because then you can directly install the needed system package for the selected device configuration.

To create an AVD in Qt Design Studio:

1. Go to **Edit** > **Preferences**.
2. On the **Devices** tab, select **Add** and follow the wizard to finalize the creation. If there is no entry for *Android Device* in the **Available device types** list, try restarting Qt Design Studio.

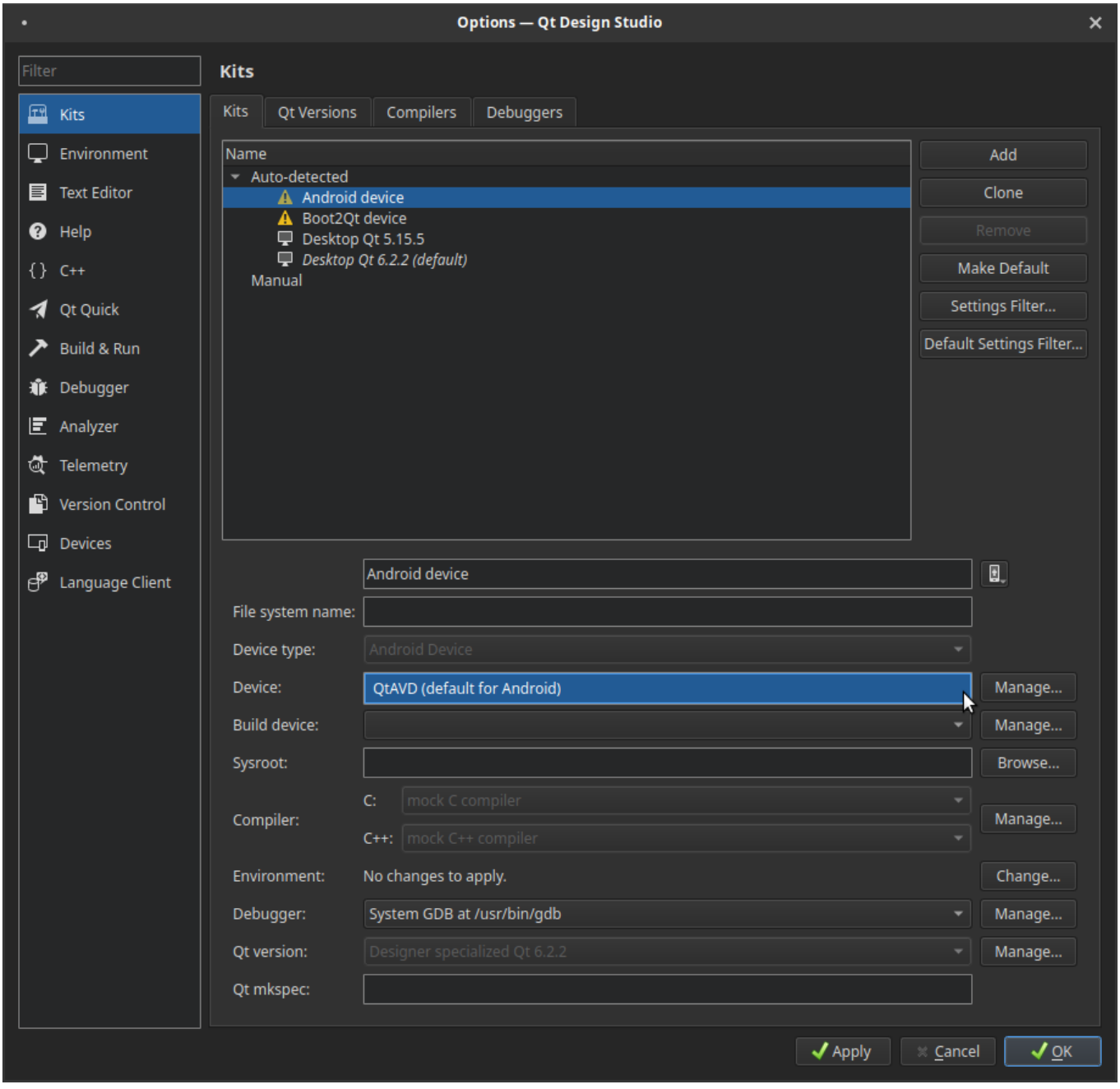
Note: Many device images require Intel HAXM to work on Windows 10 and later, you can download and install the drivers from here.





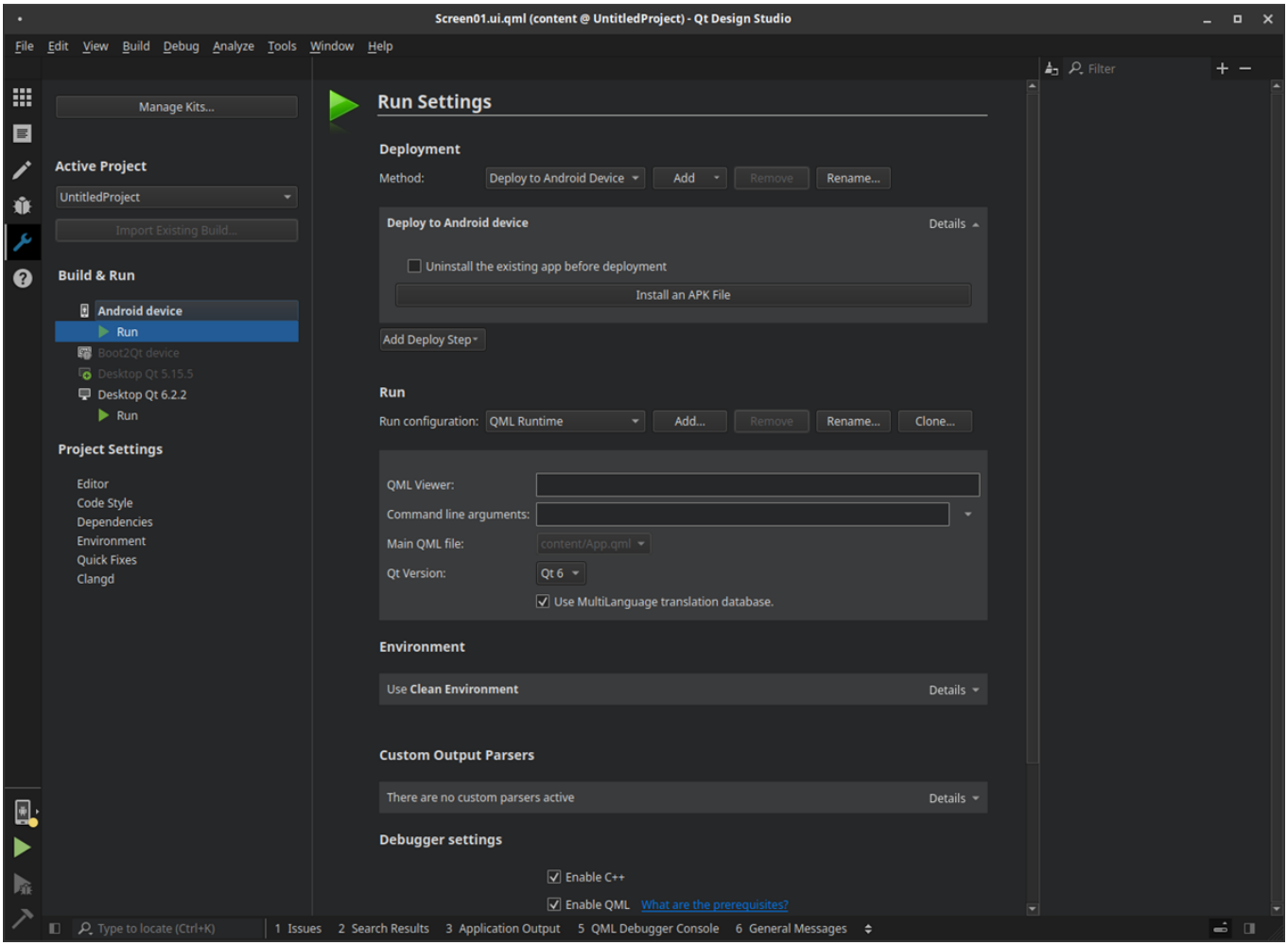
Set the AVD as the Device in the Android Kit

Next, you need to set the AVD as the Android device kit. You do this under the the **Kits** tab. If the **Kits** list is empty, restart Qt Design Studio.



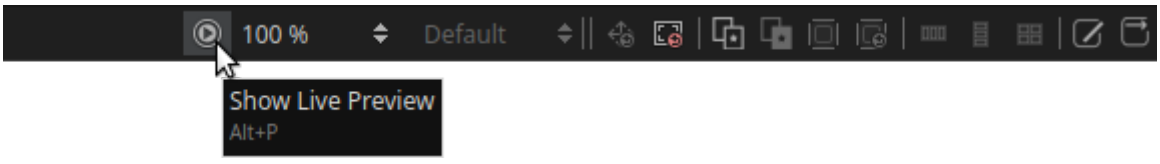
Now, you are set up and can create a project in Qt Design Studio. In the project, configure it to run on the Android device:

1. Select the **Projects** mode tab.
2. Under **Build & Run**, select the Android device.



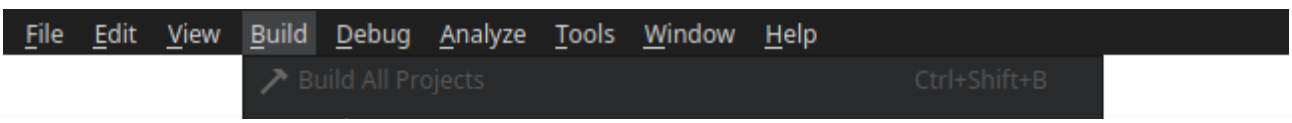
Next, to run the emulator, do one of the following:

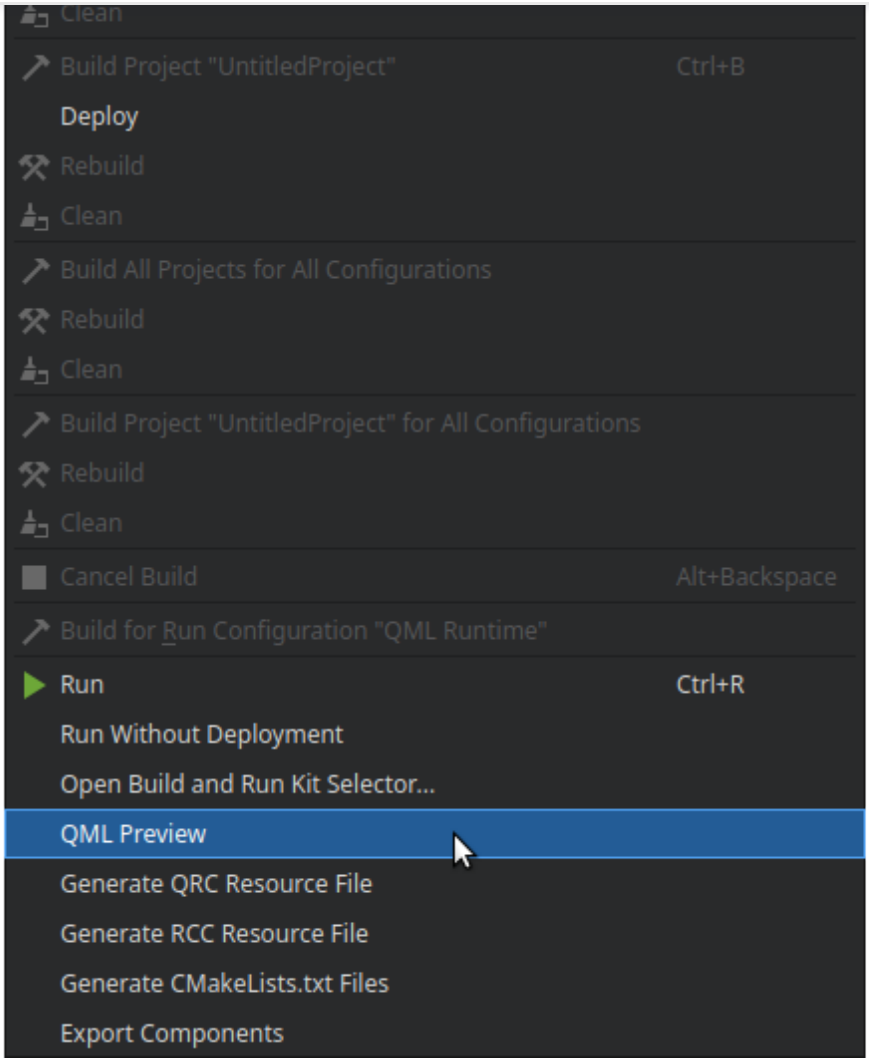
- Select **Show Live Preview** in the the **2D** view toolbar.



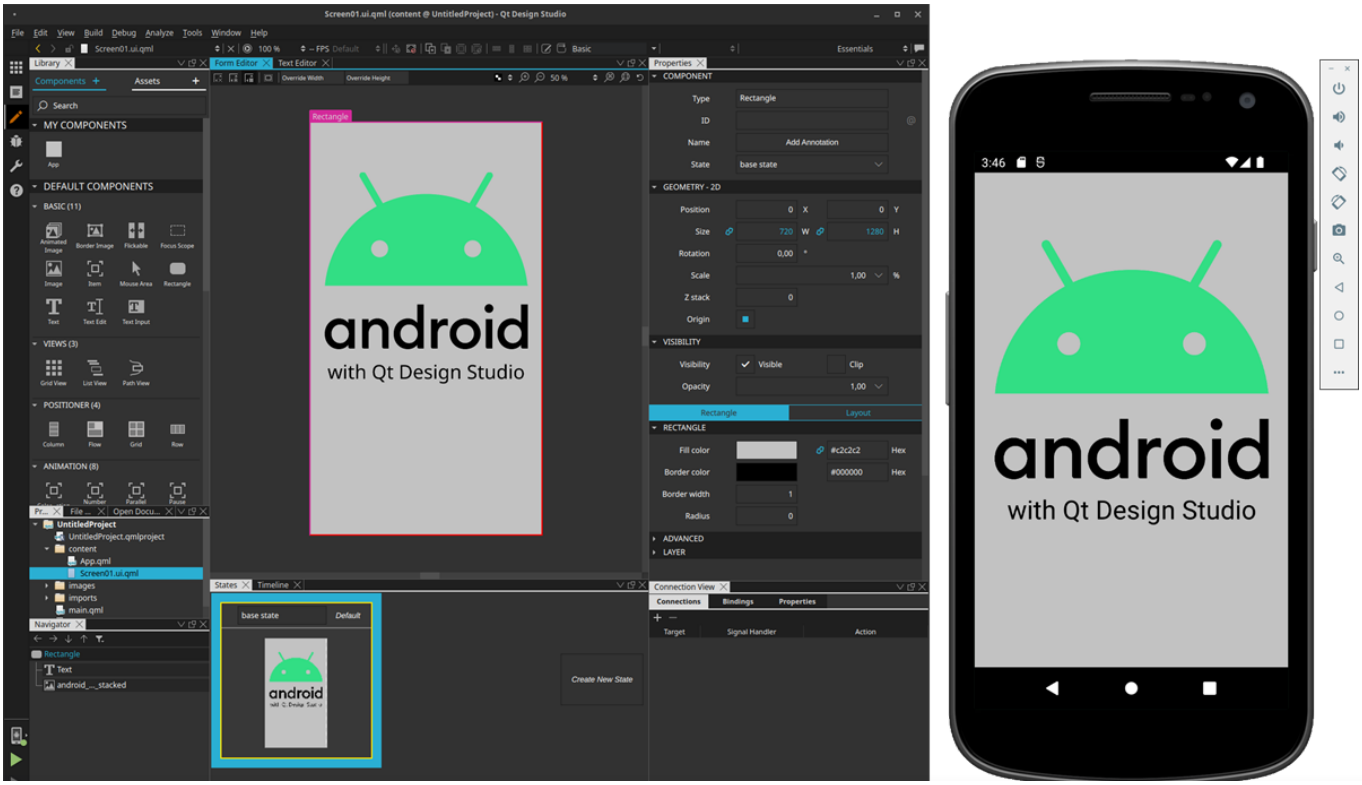
- Select **Build** > **QML Preview**.

> **Note:** The **Build** menu option is not visible by default. To show it, go to **Edit** > **Preferences** > **Environment** > **Qt Design Studio Configuration**.





Now the emulator runs, the qtdesignviewer APK delivered with the Qt Design Studio installation is uploaded, and the project is uploaded and shown in the emulator.



- The qtdesignviewer for Android currently has no live preview. You have to restart the preview to see updates.
- Android typically has very high DPI and it is good to familiarize yourself with how high DPI works in Qt 6. You can, for example, use QT_SCALE_FACTOR or QT_USE_PHYSICAL_DPI. You can define those in the *.qmlproject* file.
- The qtdesignviewer for Android is currently built with Qt 6.2 and comes with all QML modules shipped with Qt Design Studio 2.3.

‹ Previewing on Devices

Sharing Applications Online ›