NativeViewLibrary



Requirements

This document mandates adherence to the Android Application Development Environment Setup Guide, as a prerequisite for system compliance.

> The project requirements

- NativeViewLibrary Android application uses the **Android Gradle Plugin version 7.2.1** and **Gradle version 7.3.3**.
- A **custom NDK 26** is required, as described in the Android Native Development Kit (NDK) chapter.
- **CMake 3.22.1** is required as described in the CMake chapter.
- **Eclipse Temurin JDK 11** is required as described in Java Development Kit (JDK) chapter.
- Supported API levels: **23–28** (The application is compatible with later Android versions up to API 36 on Android 16).
- Supported ABIs: **arm64-v8a, x86_64, x86**

- The NativeViewLibrary Android application integrates the NativeView library, which is provided externally from **../libs/nativeview-lib** and already imported into the project.

Building and Running the Android Application

To build and run the Android application, perform the following steps:

1. **Substitute the CGI Studio root as described in the windows-commands/subst article.**

   Open a Command Prompt in the CGI Studio root directory (e.g., "...\cgistudio") and type:

```
subst x: .
```

   Press **enter**. The CGI root is now available under the **X:** drive in Windows Explorer.

2. **Configure local.properties:**

   - Open **local.properties.sample** file from the root of the Android application.
   - Copy the content of the sample to the **local.properties** file in the root of the Android application.
   - Update the **USERNAME** in the SDK and NDK paths to match your system.
   - Configure from where the asset should load under the **Asset Configuration** block.
   - Set the ABI to the target CPU architecture under the **Target ABI** block.
   - Save **local.properties** and **sync project with Gradle files** (Ctrl+Shift+O).

> Note: If the SDK or NDK paths do not exist, Android Studio may reset **local.properties** after syncing the project with Gradle files.

3. **Open the Android Application:**

   Launch Android Studio and open the project located at:

```
X:\cgi_studio_apps\References\Android\NativeViewLibrary
```

4. **Create an Android asset**

   Run the following batch file:

```
X:\bin\SceneComposer\SceneComposer_Android_OpenGLES30.bat
```

- Choose an asset template (e.g., “3D Basic”) and save this as Test.bin
  - **If from sdcard:** to the **/sdcard/** directory of the target or emulator. In Android Studio, this can be done in the "Device Explorer" of the target or emulator.
  - **If from APK:** to the following folder:

```
X:\cgi_studio_apps\References\Android\NativeViewLibrary\sample\src\main\assets
```

5. **Build variant:**

   - In Android Studio, open [View | Tool Window | Build Variants].
   - In the Build Variants tool window, select debug or release under **Active Build Variant.**

6. **Run the application**:

   - Select the target device or emulator in Android Studio.
   - Click **Run** (the play button)
   - The first time the Application starts, it will request permissions. Accept and restart the application. The asset should now be running.

7. **APK**

After the application is running, the current built APK can be found in the build directory. This can located by opening [Build | Analyze APK]. The usual directory would be:

```
X:\cgi_studio_apps\References\Android\NativeViewLibrary\sample\build\intermediates\apk\
```

> If the build was for release, the APK will be signed.

Troubleshooting

- If encountering any issues during the setup, refer to the official documentation for Android Studio,
  CMake, and NDK for troubleshooting steps.

Platform Tests

- Google Pixel C, ARM Cortex A57, Android 8.1.0, API 27
- Huawei MediaPad M5, ARM Cortex A73, Android 9, EMUI 9.1.0, API28
- Emulator Pixel 2, x86_64, Android 6, API 23 (Without Play/APIs)
- Emulator Medium Phone, x86_64, Android 9, API 28 (Without Play/APIs)

- Emulator Pixel 2, x86, Android 9, API 28 (Without Play/APIs)
- Emulator Google Pixel Tablet, x86_64, Android 14.0, API 34
- Emulator Google Pixel Tablet, x86_64, Android 16.0, API 36
- Emulator Google Pixel 9 Pro XL, x86_64, Android 16.0, API 36

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