



# Mali OpenGL ES 2.0 SDK for Android 1.0.0 Release Note

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## Abstract

This document contains notes relating to the version 1.0.0 of the Mali OpenGL ES 2.0 SDK for Android. This release is an EAC quality release.

## Release Information

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- The product revision or version.
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- The document title.
- The document number.
- The page number(s) to which your comments refer.
- A concise explanation of your comments.

General suggestion for additions and improvements are also welcome.

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# 1 PREFACE

This document contains general release information about the Mali OpenGL ES 2.0 SDK for Android 1.0.0 EAC deliverables and covers the following topics:

- Deliverables summary.
- Details of external tools required.
- Build instructions.
- Known issues.

## 2 PRODUCT DELIVERABLES

### 2.1 Parts

#### 2.1.1 Windows

The Windows release of Mali OpenGL ES 2.0 SDK for Android is made available via a Microsoft Installer Package,

```
Mali_OpenGL_ES_2_0_SDK_for_Android_vm.vn.vp.vr_Win32.msi
```

Where `vm` is the major version number, `vn` is the minor version number, `vp` is a patch level and `vr` is the build number of the package.

#### 2.1.2 Linux

The Linux release of Mali OpenGL ES 2.0 SDK for Android is made available via a gzipped tar archive,

```
Mali_OpenGL_ES_2_0_SDK_for_Android_vm.vn.vp.vr_Linux.tar.gz
```

Where `vm` is the major version number, `vn` is the minor version number, `vp` is a patch level and `vr` is the build number of the package.

## 3 DOCUMENTATION

Additional documentation for the Mali OpenGL ES 2.0 SDK for Android is available from <http://www.malideveloper.com/>. This documentation comprises:

### 3.1 Mali OpenGL ES 2.0 SDK for Android Errata

Document Number: PR538-PRDC-012976

This document describes the errata discovered in the implementation of the Mali OpenGL ES 2.0 SDK for Android, categorised by level of severity. Each description includes:

- a description of where the implementation deviates from the specification,
- the conditions under which erroneous behaviour occurs,
- the implications of the erratum with respect to typical applications,
- the application and limitations of a work-around where possible,
- the status of corrective action.

### 3.2 Mali OpenGL ES 2.0 SDK for Android User Guide

Document Number: ARM DUI 0587A

The integration guide provides user information for the Mali OpenGL ES 2.0 SDK for Android. It describes how to install and operate the Mali OpenGL ES 2.0 SDK for Android.

### 3.3 Release Note

This document contains general release information about the Mali OpenGL ES 2.0 SDK for Android product.

## 4 REFERENCE PLATFORM

ARM Limited recommends the use of the same platform that was used to develop and test the Mali OpenGL ES 2.0 SDK for Android. This section lists the additional hardware and software that is required.

### 4.1 The reference platforms

#### 4.1.1 Development platform

The development reference platform for the Mali OpenGL ES 2.0 SDK for Android is an x86 PC running Microsoft Windows XP SP3 or Ubuntu 10.04 LTS.

#### 4.1.2 Target platform

The target reference platform for running the sample applications is the Hardkernel ODROID-A Developer Tablet. More information about this platform is available from <http://www.malideveloper.com/>.

### 4.2 Installing the system on the reference platform

To install the SDK on the reference platform, the following are required:

- For Windows, an up to date version of Windows Installer is needed. This should be kept up-to-date by your operating system and separate installation is highly unlikely to be necessary.
- For Linux, a version of GNU tar 1.13 or greater is required.

## 5 INSTALLATION

### 5.1 Installation Procedure

On Windows, installation is achieved via the Windows Installer mechanism. Run the installer package and follow the on-screen instructions. On Linux, installation is performed via extracting the gzipped tarball to a location on disk.

For complete installation information on both platforms, consult the Mali OpenGL ES 2.0 SDK for Android User Guide.

### 5.2 Directory Structure

By default, the Mali OpenGL ES 2.0 SDK for Android will install the following files:

- Sample applications (sources and assets).
- Scripts to build the sample applications.

For a complete list of the installed components, consult the Mali OpenGL ES 2.0 SDK for Android User Guide.

## 6 BUILDING SAMPLE APPLICATIONS

### 6.1 Required Tools

To build sample applications of the Mali OpenGL ES 2.0 SDK for Android on a desktop platform the following tools are required:

<i>Development platform</i>	<i>Android Development Kit</i>	<i>Build system</i>
<b>Linux desktop</b>	<b>Android NDK</b>	<b>Command-line (through shell script)</b>
<ul style="list-style-type: none"> <li>Android NDK (tested with Revision 7)</li> </ul> Build with: <code>bash build-android-sdk.sh</code>		
<b>Linux desktop</b>	<b>Android SDK</b>	<b>Command-line (through shell script)</b>
<ul style="list-style-type: none"> <li>Android SDK (tested with Revision 15)</li> </ul> Build with: <code>bash build-android-ndk.sh</code>		
<b>Microsoft Windows</b>	<b>Android NDK</b>	<b>Command-line (through shell script)</b>
<ul style="list-style-type: none"> <li>Android NDK (tested with Revision 7)</li> <li>Cygwin 1.7 or higher.</li> </ul> Build with: <code>bash build-android-ndk.sh</code>		
<b>Microsoft Windows</b>	<b>Android SDK</b>	<b>Command-line (through shell script)</b>
<ul style="list-style-type: none"> <li>Android SDK (tested with Revision 15)</li> </ul> Build with: <code>bash build-android-sdk.sh</code>		
<b>Linux desktop</b>	<b>Android NDK</b>	<b>Eclipse</b>
<ul style="list-style-type: none"> <li>Android NDK (tested with Revision 7)</li> <li>Eclipse 3.7.0 or higher.</li> <li>ADT (Android Development Tools) Plugin for Eclipse (tested with revision 15)</li> <li>Cygwin 1.7 or higher.</li> </ul>		
<b>Linux desktop</b>	<b>Android SDK</b>	<b>Eclipse</b>
<ul style="list-style-type: none"> <li>Android SDK (tested with Revision 15)</li> <li>Eclipse 3.7.0 or higher.</li> <li>ADT (Android Development Tools) Plugin for Eclipse (tested with revision 15)</li> </ul>		
<b>Microsoft Windows</b>	<b>Android NDK</b>	<b>Eclipse</b>

<i>Development platform</i>	<i>Android Development Kit</i>	<i>Build system</i>
		<ul style="list-style-type: none"> <li>• Android NDK (tested with Revision 7)</li> <li>• Eclipse 3.7.0 or higher.</li> <li>• ADT (Android Development Tools) Plugin for Eclipse (tested with revision 15)</li> <li>• Cygwin 1.7 or higher.</li> </ul>
<b>Microsoft Windows</b>	<b>Android SDK</b>	<b>Eclipse</b>
		<ul style="list-style-type: none"> <li>• Android SDK (tested with Revision 15)</li> <li>• Eclipse 3.7.0 or higher.</li> <li>• ADT (Android Development Tools) Plugin for Eclipse (tested with revision 15)</li> </ul>

For information about building sample applications on your platform consult the Mali OpenGL ES 2.0 SDK for Android User Guide.

**Note:** Any requirements specified by the tools listed here must also be met.

**Note: awk problem with Android NDK r7 on Linux**

Android NDK revision 7 for Linux is shipped with a prebuilt version of the awk tool compiled for 64 bit. This will not run on a 32 bit system. If you are using a 32 bit system the workaround is to replace the prebuilt awk tool with the system one (usually found in /usr/bin/awk). For more information see:

[http://groups.google.com/group/android-ndk/browse\\_thread/thread/b63e938785290fae](http://groups.google.com/group/android-ndk/browse_thread/thread/b63e938785290fae)

## 7 KNOWN ISSUES AND LIMITATIONS

### 7.1 Known Issues

The known issues affecting the Mali OpenGL ES 2.0 SDK for Android are documented in the Mali OpenGL ES 2.0 SDK for Android Errata document, available from <http://www.malideveloper.com>.

Any issues found subsequent to this release of the Mali OpenGL ES 2.0 SDK for Android will be documented in new versions of the errata document.

### 7.2 Support

Please contact [support@arm.com](mailto:support@arm.com) regarding any issues with the installation and content of this release.

It should be noted that Support of the product will only be provided by ARM if such support is covered by a current contract with the recipient.