



# Mali GPU Shader Development Studio Release Note

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## Abstract

This document contains notes relating to the v1.3.0 Beta release of the Mali GPU Shader Development Studio.

## Release Information

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- The product revision or version.
- An explanation with as much information as you can provide. Include symptoms if appropriate.

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- A concise explanation of your comments.

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# 1 PREFACE

This document contains general release information about the Mali GPU Shader Development Studio v1.3.0 Beta deliverables and covers the following topics:

- Deliverables summary.
- Details of external tools required.
- Build instructions.
- Changes and fixes in this release.
- Known issues.
- Details of testing prior to release.

## 2 PRODUCT DELIVERABLES

### 2.1 Files

The Mali GPU Shader Development Studio is delivered as a single compressed archive containing a local Eclipse Update Site as below:

<i>File Name</i>	<i>Description</i>
Mali_GPU_Shader_Development_Studio_1.3.0. <b>BN</b> _Beta.zip	A zip archive containing the Mali GPU Shader Development Studio for Windows or Linux.

*Table 2-1 Files making up the Mali GPU Shader Development Studio*

Note: **BN** is the Build Number.

#### 2.1.1 ShaderServer

The Mali GPU Shader Development Studio deliverable contains source code to the ShaderServer, an executable that wraps an OpenGL ES 2.0 implementation in a Mali Remote Interface layer to allow OpenGL ES 2.0 shaders to be rendered on hardware that would not otherwise be able to utilize the Mali Remote Interface. Separate executables are provided for Windows and for Linux.

The Mali GPU Shader Development Studio User Guide contains more information about the ShaderServer.

## 3 DOCUMENTATION

### 3.1 Mali GPU Shader Development Studio Errata

This document describes the errata discovered in the implementation of the Mali GPU Shader Development Studio, categorised by level of severity. Each description includes:

- a description of where the implementation deviates from the specification,
- the conditions under which erroneous behavior 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.

Any issues found subsequent to this release will be documented in new versions of the Errata Notice.

### 3.2 Mali GPU Shader Development Studio User Guide

The integration guide provides user information for Mali GPU Shader Development Studio. It describes how to install and operate the software.

### 3.3 Release Note

This document contains general release information about the Mali GPU Shader Development Studio product.

## 4 REQUIRED TOOLS

ARM Limited recommends the use of the same hardware and software that were used to develop and test the Mali GPU Shader Development Studio. This section lists the additional hardware and software that is required.

### 4.1 Reference platform

#### 4.1.1 Windows

The reference platform for Windows is a desktop PC running Windows XP Professional Service Pack 3 with Eclipse 3.5.2. In order to perform local shader effect rendering using the built-in ShaderServer renderer, the following additional hardware and software is recommended:

- The OpenGL ES 2.0 Emulator library for Windows. This library should be available on the user's PATH. To download the OpenGL ES 2.0 Emulator library, visit [www.malideveloper.com](http://www.malideveloper.com).
- A graphics card capable of rendering OpenGL 2.0 shaders. ARM recommends an NVIDIA-based card.

#### 4.1.2 Linux

The reference platform for Linux is a desktop PC running Ubuntu 10.04 LTS with Eclipse 3.5.2. In order to perform local shader effect rendering using the built-in ShaderServer renderer, the following additional hardware and software is recommended:

- The OpenGL ES 2.0 Emulator library for Linux. This library should be available on a shared library path (eg., `/usr/local/lib`). To download the OpenGL ES 2.0 Emulator library, visit [www.malideveloper.com](http://www.malideveloper.com).
- A graphics card capable of rendering OpenGL 2.0 shaders. ARM recommends an NVIDIA-based card.

### 4.2 Build platform

#### 4.2.1 Eclipse Plug-in

The Mali GPU Shader Development Studio Eclipse plug-in is a binary release and cannot be built from source.

#### 4.2.2 ShaderServer

The source code of the ShaderServer executable is supplied with the Mali GPU Shader Development Studio in order that it can be built on an embedded platform, and as such the reference platform for this source code is a Linux machine with a 2.6 kernel release, GNU Toolchain, Sourcery G++ Lite for ARM GNU/Linux version 2007q1-21 and ARM Mali200 OpenGL ES 2.0 hardware and associated libraries.

## 5 INSTALLATION

### 5.1 Installation Procedure

#### 5.1.1 Unpacking the bundle and parts

**Note:** The Mali GPU Shader Development Studio bundle can be imported into Eclipse directly without unpacking.

If you wish to unpack the bundle; relocate the Mali\_GPU\_Shader\_Development\_Studio\_1.3.0.**BN\_Beta**.zip file to an appropriate temporary location. Unpack the file as follows:

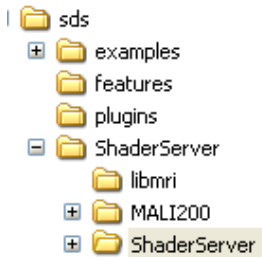
```
unzip Mali_GPU_Shader_Development_Studio_1.3.0.BN_Beta.zip
```

This will extract the deliverables into a directory named the same as the bundle number.

**Note:** If you download the parts individually from ARM, then when you extract each downloaded file it will be placed into a subdirectory with the same name as the part number.

#### 5.1.2 Directory Structure

The installed directory structure will be as below (for both Windows and linux):



The examples folder contains patches for the Shader Library. For information on how to apply these see Section 3.3 in the User Guide.

The 'plugins' and 'features' folders form part of the Eclipse Update site component delivery.

The 'ShaderServer' folder contains source code for the renderer which can be used to allow rendering on a remote target if required.

#### 5.1.3 Installing the Mali GPU Shader Development Studio

This is a brief overview of the steps you need to take to install the Mali GPU Shader Development Studio. For further detailed information see Section 2.1 in the User Guide:

- 1) Install a suitable Java Runtime Environment (JRE) (v1.6)
- 2) Install the ARM OpenGL ES 2.0 Emulator (v1.3 or later)  
See the emulator user guide for further details.
- 3) Install a suitable version of Eclipse (3.5.2 or later)  
This can be obtained from <http://eclipse.org>
- 4) Install the supplied Mali GPU Shader Development Studio bundle as an update site in Eclipse.  
See the User Guide for further details.

#### 5.1.4 Installing the Mali GPU Shader Development Studio Source Kit

See Appendix A1 in the User Guide for details. Note that this is only necessary if you wish to exercise shader code on the target hardware rather than the supplied, prebuilt host renderer.

## 6 BUILDING

The Mali GPU Shader Development Studio is supplied as an Eclipse update site and no build is required for this component. It includes a pre-built Shader Server which will render shaders on the host machine using the ARM OpenGL ES emulator.

Source code is supplied for the Shader Server to allow shaders to be executed on a suitable target platform. For instructions on building the ShaderServer binary from the supplied source code, consult the Mali GPU Shader Development Studio User Guide.

## **7 CHANGES IN FUNCTIONALITY FROM PREVIOUS RELEASES**

This release addresses several issues discovered in the previous release of the product, and adds no significant new functionality.

## 8 KNOWN ISSUES AND LIMITATIONS

Issues related to this release are documented in the Mali GPU Shader Development Studio Errata. Additionally, the following issues are known:

### 8.1 “Ghost” Eclipse Perspective after un-installation

In some circumstances, a “ghost” Eclipse Perspective remains after uninstalling the Mali GPU Shader Development Studio. This perspective will have the name “<Mali GPU Shader Development Studio>”. Attempting to activate this perspective will result in no activity.

This is expected behavior with Eclipse 3.5: the plug-in has successfully uninstalled. The ghost perspective can be removed through the “General” > “Perspectives” preference pane in Eclipse by selecting the ghost perspective and clicking “Delete”.