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Yes. Please, see the <i>D6.2 Report of JamMo Stand-alone development</i> .	

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Mobile devices, music technology, sequencer, loop sequencer, audio, MIDI, recording technology, user interface, virtual instruments

Abstract (10-20 lines) summarising the content and results presented in the deliverable:

JamMo version 0.5 is a stand-alone mobile application that enables children to get, play, manage and make music. This midway prototype is targeted at 3-6 years children and implements singing and composing games.

This document describes briefly how to get and install the application. In addition, instructions how to fetch and build the original source code are given. Finally, the list of all individuals that have participated in the development and the software license used to distribute JamMo is included.

The main contribution in the *D6.1 JamMo Stand-alone Prototype* is the JamMo version 0.5 application itself and its source code available separately as described here.

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1 Introduction

This document describes briefly how to get the *D6.1 JamMo Stand-alone Prototype* (“JamMo”, or “JamMo version 0.5” in short). JamMo version 0.5 is a stand-alone mobile application that enables children to get, play, manage and make music. This midway prototype is targeted at 3-6 years children and implements singing and composing games.

Chapter 2 is for ordinary end-users that need an installable application package, and Chapter 3 is for developers requiring the original source code. In addition, Chapter 4 lists all individuals that have participated in the development, and Chapter 5 describes the software license. Should you need more information about the JamMo version 0.5, please, see the *D6.2 Report of JamMo Stand-alone development*.

2 Binary packages

This chapter describes how to install JamMo version 0.5 into a Nokia N900 mobile device or into a desktop PC running Ubuntu Linux operating system. It is the recommended way for ordinary users to get JamMo.

2.1 *Installing into a Nokia N900 mobile device*

JamMo version 0.5 is available at [maemo.org Extras-devel](http://wiki.maemo.org/Extras-devel) application repository (<http://wiki.maemo.org/Extras-devel>). The repository is meant for latest development versions of Maemo applications. JamMo is located in the “Education” section of the repository. It can be installed simply through the device's Application Manager.

To activate Extras-devel one has to perform the following steps: 1) Launch the Application Manager, 2) Navigate to the application menu (tap the title bar), 3) Select “Application catalogs”, 4) Select “New”, 5) Enter a catalog name of “Maemo extras-devel”, 6) Enter a web address of “<http://repository.maemo.org/extras-devel>”, 7) Enter a distribution of “fremantle” (note that “fremantle” has only one 'e'), 8) Enter components of “free non-free”, and finally 9) Select ‘Save’.

JamMo version 0.5 will be promoted into the official [maemo.org Extras](http://wiki.maemo.org/Extras) application repository soon after the D6.1 release (<http://wiki.maemo.org/Extras>). That makes easier also for ordinary users to install the application through the Application Manager without additional steps, because the repository is pre-configured in the N900 device.

The binary packages for Nokia N900 are also available in Optima. Look at the following files in the WP6/JamMo folder:

```
jammo_0.5.0_armel.deb  
jammo-data_0.1.22_all.deb  
jammo-data-fi_0.1.22_all.deb  
jammo-data-composing_0.1.22_all.deb  
jammo-data-singing_0.1.22_all.deb
```

When using these packages, an user has to fulfil dependencies manually (not recommended).

2.2 *Installing into a desktop Linux computer*

JamMo version 0.5 can be installed into a desktop Linux computer also. Repository for Ubuntu 9.10 is <https://launchpad.net/~aapo-rantalainen/+archive/jammo-stable-ubuntu/>

To activate it and install JamMo one has to run following commands:

```
sudo add-apt-repository ppa:aapo-rantalainen/jammo-stable-ubuntu  
sudo apt-get update  
sudo apt-get install jammo
```

The binary packages for Ubuntu 9.10 are also available in Optima. Look at the following files in the WP6/JamMo folder:

```
jammo_0.5.0-1~karmic_i386.deb  
libtangle-0_0.0.20100325-6~karmic_i386.deb  
jammo-data_0.1.22_all.deb  
jammo-data-fi_0.1.22_all.deb  
jammo-data-composing_0.1.22_all.deb  
jammo-data-singing_0.1.22_all.deb
```

When using these packages, an user has to fulfil dependencies manually (not recommended).

3 Source code

This chapter describes how to fetch the version 0.5 of the JamMo source code, install related libraries, and compile it.

3.1 Downloading

The source code can be downloaded from several locations. The git version control system in Gitorious is the official one. Other places have a snapshot of the version 0.5 (D6.1) release.

The source code of JamMo version 0.5 can be downloaded as an tar.gz archive filed using the following URL:

<http://gitorious.org/jammo/jammo/archive-tarball/v0.5.0>

The same archive file is also uploaded into Optima. Look at the following file in the WP6/JamMo folder:

`jammo-jammo-v0.5.0.tar.gz`

The source code can be also browsed on-line. In that case the web address is:

<http://gitorious.org/jammo/jammo/trees/v0.5.0>

Additionally, the debian source package that is used to generate the binary package is available at maemo.org Extras-devel:

http://repository.maemo.org/extras-devel/pool/fremantle/free/source/j/jammo/jammo_0.5.0.tar.gz

3.2 Related libraries

Before JamMo can be built from source code, the following external prerequisites has to be fulfilled by installing a development package of the depended library:

GStreamer is an open source multimedia framework for constructing graphs of media-handling components. The applications it supports range from simple Ogg/Vorbis playback, audio/video streaming to complex audio (mixing) and video (non-linear editing) processing. (<http://www.gstreamer.net>)

Clutter is an open source software library for creating fast, visually rich, portable and animated graphical user interfaces. It uses OpenGL (and optionally OpenGL|ES for use on Mobile and embedded platforms) for rendering but with an API which hides the underlying GL complexity from the developer. (<http://www.clutter-project.org>)

Tangle Toolkit is a graphical widget library that is based on the Clutter. It provides many high-level user interface elements that are not available in the Clutter. (<http://gitorious.org/tangle>)

3.3 Compiling for a Nokia N900 mobile device

To compile JamMo for a Maemo device, you need fully installed Maemo 5 Fremantle SDK. These instructions suppose that you are using an Ubuntu 9.10 in your development machine and Scratchbox2 (sb2) as a cross-compiling environment. Refer to the Maemo SDK documentation for installing and using it. Please, note that you need also closed source 3D libraries provided by Nokia as part of the Maemo SDK.

1) Install the required tools:

```
sudo apt-get install --assume-yes git-core automake pkg-config gtk-doc-tools
```

2) Enable extras-devel repository to be used inside the cross-compiling environment:

```
echo 'deb http://repository.maemo.org/extras-devel/ fremantle free non-free' \  
>> ~/.maemo-sdk/rootstraps/armel/fremantle5.0minimal_armel/etc/apt/sources.list
```

3) Update the package list:

```
sb2 -eR apt-get update
```

4) Install the required libraries and their development files:

```
sb2 -eR apt-get install --assume-yes libclutter-1.0-dev libgstreamer0.10-dev \  
libtangle-0-dev
```

5) Install the required data files and runtime dependencies:

```
sb2 -eR apt-get install --assume-yes jammo-data gstreamer0.10-gnonlin
```

6) Enter into the JamMo source directory (it is supposed that you have already downloaded and extracted the source code):

```
cd jammo
```

7) Configure and compile JamMo:

```
./autogen.sh  
sb2 -e ./configure N900=yes  
sb2 -e make
```

3.4 Compiling for a desktop Linux computer

To compile JamMo for a desktop PC running Linux, you need a fully working development environment with suitable tools for C programming. These instructions suppose that you are using Ubuntu 9.10.

1) Install the required tools:

```
sudo apt-get install --assume-yes git-core automake pkg-config gtk-doc-tools
```

2) Enable the universe repository (if you do not have it already):

```
echo 'deb http://archive.ubuntu.com/ubuntu karmic universe' | \  
sudo tee -a /etc/apt/sources.list
```

3) Update the package list:

```
sudo apt-get update
```

4) Install the required libraries and their development files:

```
sudo apt-get install --assume-yes libclutter-1.0-dev libgstreamer0.10-dev
```

5) Tangle Toolkit is not yet available for a desktop PC as a package. You have to fetch, build and install it manually:

```
git clone git://gitorious.org/tangle/tangle.git  
cd tangle  
./autogen.sh  
./configure  
make  
sudo make install  
cd ..
```

5) Install the required data files and runtime dependencies:

```
sudo apt-get install --assume-yes jammo-data gstreamer0.10-gnonlin
```

6) Enter into the JamMo source directory (it is supposed that you have already downloaded and extracted the source code):

```
cd jammo
```

7) Configure and compile JamMo:

```
./autogen.sh
```

```
./configure
```

```
make
```

4 Authors

The JamMo version 0.5 has been implemented mainly at the Department of Information Processing Science in University of Oulu. Other developers have contributed minor parts, but those are not yet or not any more used in the production release.

4.1 Current developers

The following developers have implemented the JamMo Stand-alone Prototype:

Henrik Hedberg, project manager, UOULU (implemented the core MEAM and CHUM classes)

Aapo Rantalainen, lead developer, UOULU (implemented the application logic)

4.2 Other developers

The following developers have participated in the JamMo implementation, but their code is not used in the current prototype (the code is either rewritten or not yet integrated):

Matti Leinonen, developer, UOULU (initial MEAM implementation, not in use any more)

Tero Riipinen, developer, UOULU (initial MEAM implementation, not in use any more)

Ossi Rytkönen, developer, UOULU (initial MEAM implementation, not in use any more)

Jukka Weissenfelt, developer, UOULU (initial MEAM implementation, not in use any more)

Olavi Arvola, developer, UOULU (initial CHUM implementation, not in use any more)

Ville Lehtoniemi, developer, UOULU (initial CHUM implementation, not in use any more)

Mika Mars, developer, UOULU (initial CHUM implementation, not in use any more)

Timo Puikko, developer, UOULU (initial CHUM implementation, not in use any more)

Mikko Gynther, developer, LUT (co-author of GStreamer plugins, not in use yet)

Heli Hintikka, developer, UOULU (7-12 yrs full sequencer, not in use yet)

Vikke Matikainen, developer, UOULU (7-12 yrs full sequencer, not in use yet)

Antti Tenhunen, developer, UOULU (7-12 yrs full sequencer, not in use yet)

Jari Tervaskanto, developer, UOULU (7-12 yrs full sequencer, not in use yet)

Teemu Kuusento, developer, UOULU (7-12 yrs midi editor, not in use yet)

Henri Kuusirati, developer, UOULU (7-12 yrs midi editor, not in use yet)

Kalle-Martti Lämsä, developer, UOULU (7-12 yrs midi editor, not in use yet)

Mauno Vähä, developer, UOULU (7-12 yrs midi editor, not in use yet)

4.3 Other contributors

JamMo utilizes musical material provided by the UMSIC consortium. As a result of WP4, JYU has produced virtual instrument sounds, sound loops and samples for the composing game, and UOULU has recorded songs for the singing game and mentor speeches. In addition, graphics are made by Tiina Uimonen. All this material is distributed in a separate package that is required and automatically installed in order to execute JamMo application.

5 License

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