



On2 Flix Engine for Linux Installation



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- PHP
- Python

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Preparing the System

Perform the following to prepare the system for installation:

1. Read the *System Overview* document provided with this release.
2. Verify Linux prerequisites.
 - a. Operating System: x86 GNU/Linux with GNU C Library (glibc) version 2.3.2 or higher, x86_64 is supported with 32-bit support libraries installed. To determine the version of glibc installed on your system, execute the following:

```
$ /lib/ld-linux.so.2 /lib/libc.so.6
```

This command should produce output similar to the following (note, your output may differ, however the version number should be equal or greater).

```

GNU C Library stable release version 2.3.2, by Roland McGrath et al.
Copyright (C) 2003 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.
There is NO warranty; not even for MERCHANTABILITY or FITNESS FOR A
PARTICULAR PURPOSE.
Compiled by GNU CC version 3.3.3.
Compiled on a Linux 2.4.26 system on 2004-05-24.
Available extensions:

    GNU libio by Per Bothner
    crypt add-on version 2.1 by Michael Glad and others
    linuxthreads-0.10 by Xavier Leroy
    BIND-8.2.3-T5B
    libthread_db work sponsored by Alpha Processor Inc
    NIS(YP)/NIS+ NSS modules 0.19 by Thorsten Kukuk

Report bugs using the `glibcbug' script to <bugs@gnu.org>.

```

- b. Verify portmap is running.

```
$ rpcinfo -p
```

This should produce output similar to the following:

```

program vers proto  port
100000      2   tcp    111  portmapper
100000      2   udp    111  portmapper

```

With perhaps additional ports and processes listed. If portmap is not running you may be able to start it by running it as root:

```
# portmap
```

or

```
# rpc.portmap
```

Your distribution may provide a start script for portmap. It will be installed in a location similar to:

```
/etc/init.d/portmap
```

or

```
/etc/rc.d/rc.portmap
```

You should add this to your system startup scripts so that if the machine reboots, flixd will be able to run. Additional information on portmap can be found in its man page. You can view this by typing:

```
$ man portmap
```

Note, it is possible for a distribution not to come preinstalled with portmap. Should any of the above commands fail, this is likely the case. You will have to install portmap before proceeding with the installation. Consult your distribution's documentation for the appropriate package. As an example, on a Debian-based distribution you would run, as root:

```
# apt-get install portmap
```

- c. Install additional codecs for decoding.

On2 Technologies flixd uses MEncoder (<http://www.mplayerhq.hu/>).

To fully function, it requires a codec pack be installed in `/usr/local/lib/codecs`. A suitable archive can be obtained at http://www.mplayerhq.hu/design7/dload.html#binary_codecs, with the 'all' codec pack providing the fullest input file support.

3. Determine the languages that you want On2 Flix Engine for Linux to support. These language bindings are optional. You may install support for any combination of the languages below.

The language bindings must be compiled before being installed. To ensure compatibility, this process must be done on the target machine and may require you to download support packages for your language of choice if they are not already installed. The details and prerequisites for each language can be found in the following sections. Installing *any* of the language bindings requires that you have `gcc`, the `libc` development files and `make` installed on your target machine. See your Linux distribution documentation for more information.

It is possible to build 64-bit language bindings. See <http://support.on2.com/flixengine/linux/faq/#g0004> for further details.

Java

Flix Engine supports Java version 1.3 or greater. Verify that you have a proper Java development environment installed by entering the following:

```
$ java -version && javac -version
```

This should produce output similar to the following:

```
java version "1.5.0_06"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.5.0_06-b05)
Java HotSpot(TM) Client VM (build 1.5.0_06-b05, mixed mode, sharing)
javac 1.5.0_06
javac: no source files
```

If the command fails you will need to obtain a current version of the Java Development Kit (JDK) from <http://java.sun.com> or your distribution if it provides a separate installer.

After installing the JDK, you may have to set your `JAVA_HOME` environment variable to its install location. In a Bash shell you would run the following:

```
$ export JAVA_HOME=</path/to/jdk>
```

Where `</path/to/jdk>` is similar to:

```
/usr/local/jdk1.5.0_06
```

You may also need to add `$JAVA_HOME/bin` to your path so you can run Java:

```
$ export PATH=$JAVA_HOME/bin:$PATH
```

Once the development environment is installed, you are ready to build the JNI bindings. The bindings consist of a jar file containing the class files, `fliXengine2.jar`, and a shared object containing the JNI bindings themselves named `libfliXengine2_jni.so`. These are installed in `$JAVA_HOME/lib/ext` and `$JAVA_HOME/lib/<arch>` (where `arch` is typically `i386`), respectively. Additional Javadoc documentation for the classes will be installed by default in `/usr/local/src/flixmodules/flixjava/doc`.

The above directories should be in Java's default class path so you should only have to add the following to your Java code:

```
import com.on2.flix.*;
```

If this fails you can add `-classpath .:fliXengine2.jar` to your javac command line.

Perl

Flix Engine supports Perl version 5.6.0 or greater. Note that earlier versions may work, but have not been tested nor will they be supported. You can verify that you have Perl installed by entering the following:

```
$ perl --version
```

This should produce output similar to the following:

```
This is perl, v5.8.7 built for i486-linux
```

```
Copyright 1987-2005, Larry wall
```

```
Perl may be copied only under the terms of either the Artistic License
or the GNU General Public License, which may be found in the Perl 5
source kit.
```

```
Complete documentation for Perl, including FAQ lists, should be found
on this system using `man perl' or `perldoc perl'. If you have access to
the Internet, point your browser at http://www.perl.org/, the Perl Home
Page.
```

The `fliXengine2` Perl module does require the `MakeMaker` Perl module to build. This file is usually installed, but you can verify that it is by typing the following:

```
$ perl -e 'use ExtUtils::MakeMaker'
```

If the command succeeds there will be no output. Should the command fail you can download the appropriate Perl module from CPAN (<http://cpan.org/>).

Once the development environment is installed, you are ready to install the flixengine2 Perl module. The Perl module, named `f1ixengine2.pm`, will be installed into Perl's system dependent module directory, similar to the following:

```
/usr/lib/perl5/site_perl/5.8.7/i486-linux/On2/
```

and

```
/usr/lib/perl5/site_perl/5.8.7/i486-linux/auto/On2
```

The flixengine2 module will be usable in your code by adding the following:

```
use On2::flixengine2;
```

PHP

Flix Engine supports PHP version 4 or higher. Verify that you have a proper PHP development environment installed. Being able to execute PHP scripts on your web server or command line is not necessarily indicative of this. Typically the development package comes with a utility called `php-config`.

```
$ php-config --version
```

This should produce output similar to the following:

```
4.4.1
```

If this command fails, the PHP extension for Flix Engine will not be able to be built and installed.

You will need to download the PHP development package for your distribution. The development package may be named starting with something similar to `php<version>-dev` or `php<version>-devel`. Consult your distribution's documentation for further details.

For example, to install the PHP4 development packages on a Debian-based distribution you would run, as root:

```
# apt-get install php4-dev
```

Once the development environment is installed, you are ready to build and install the PHP extension. This consists of a shared object file named `f1ixengine2.so` and a PHP wrapper

called `flixengine2.php`. They are installed to `php-config --extension-dir` and `php-config -extension-dir/..`, respectively.

Since the latter takes care of loading the shared object, all you should have to add to your code is the following:

```
include('flixengine2.php')
```

After building and installing the PHP extension, the above include may still fail. This means that PHP cannot locate the wrapper or shared object file. This error is usually caused because either or both of the files are not in PHP's search path(s).

This error can be fixed by modifying one or two variables in your `php.ini` file. The first, `include_path`, should contain the path to `flixengine2.php`. The second, `extension_dir`, should contain the path to `flixengine2.so`, as described above. Your distribution may have separate `php.ini` files for each use of PHP: command line, CGI, Apache, etc. If this is the case, a `php.ini` will be contained in a subdirectory named similar to the examples given.

Further information about the `php.ini` file can be found at: <http://www.php.net/manual/en/ini.core.php>.

Python

Flix Engine supports Python 2.2 or greater. You can verify Python is installed by entering the following:

```
$ python -v
```

This should produce output similar to the following:

```
Python 2.4.1
```

Verify that you have a proper Python development environment installed.

```
$ echo "#include <Python.h>" >foo.c && python -c "from distutils.core import *;
  setup(ext_modules=[Extension('foo',['foo.c'])])" build --build-base foo-build;
  rm -r foo.c foo-build
```

If this command succeeds you should see output similar to the following:

```

running build
running build_ext
building 'foo' extension
creating foo-build
creating foo-build/temp.linux-i686-2.4
gcc -pthread -fno-strict-aliasing -DNDEBUG -O3 -march=i486 -mtune=i686 -
fPIC -I/usr/include/python2.4 -c foo.c -o foo-build/temp.linux-i686-2.4/foo.o
creating foo-build/lib.linux-i686-2.4
gcc -pthread -shared foo-build/temp.linux-i686-2.4/foo.o -o foo-build/lib.linux-
i686-2.4/foo.so

```

If the command fails, you'll need to install the Python development package for your distribution. The development package is usually named starting with something similar to `python<version>dev` or `python<version>-devel`. Consult your distribution's documentation for further details.

For example, to install the Python 2.4 development package on a Debian-based distribution you would run the following:

```
# apt-get install python2.4-dev
```

Once the development environment is installed, you are ready to install the `fliengine2` Python extension. The extension, named `fliengine2.py`, will be installed in Python's system dependent extension directory, similar to the following:

```
/usr/lib/python2.4/site-packages/
```

The `fliengine2` extension will be usable in your code by adding the following:

```
import fliengine2
```

Installation Instructions

To install On2 Flix Engine for Linux:

1. Accept the EULA

Execute the installer script provided. The exact filename may differ from the one shown here:

```
# ./fli-engine-installer-linux-8.0.6.0.bin
```


The On2 Flix Engine End User License Agreement (EULA) displays. Press the Space Bar to advance from one page to the next. Be sure to read and understand the license before proceeding. When complete, the following prompt displays:

```
Do you accept these conditions (yes/no)?
```

The answer must be typed as the full text of the appropriate word. Answer “no” to terminate the installation process. Answer “yes” to proceed.

2. Verify Prerequisites

The next screen examines the system for prerequisite software needed by the On2 Flix Engine or its installation process. When successful, the following displays:

```
On2 Technologies Flix Engine archive unpacker (version 8.0.6.0).
  created on: Thu Oct 19 15:34:44 EDT 2006

root privileges detected

Looking for required programs for installation:
  awk. bash. cat. cp. cut. dd. file. grep. head.
  install. ln. ls. md5sum. rm. rmdir. sed. sort. tail.
  tar. touch. tr. uname. uniq. wc. which.
Please make sure you have at least 30MB of space in /root.

*** This installer supports non interactive installations.***
Type ./flix-engine-installer-linux-8.0.6.0.bin --help for more information

Press enter to continue or ctrl-c to quit.
```

Failure to find any of the required installation programs results in a fatal error that terminates the installation. The required package will be available in your Linux distribution, but will not be installed. Check your distribution’s documentation for details.

For more information about md5sum see <http://www.gnu.org/software/textutils/textutils.html> or check your Linux distribution’s documentation.

Press Enter to advance to the next step.

3. Uninstall the Previous Version

The next screen gives you the chance to uninstall a previous version of On2’s Flix Engine before installing the new one. If you have previously run an installer and have not already uninstalled the engine by running `flix-engine-uninstall.sh` it is strongly recommended that you answer **y** to the following questions as shown.

```

*** It is STRONGLY recommended that you uninstall any previous versions      ***
*** of Flix Engine Linux before attempting to install this one.                ***
*** The uninstaller is named flix-engine-uninstall.sh and will be located in   ***
*** the same directory as the flixd binary.Setup can attempt to locate and    ***
*** execute this script.                                                       ***

```

```

Have you ever run a Flix Engine Linux installer on this machine before (y/n)? y
would you like setup to search common install locations for copies of
flix-engine-uninstall.sh (y/n)? [y]:

```

This response will perform a search of `/usr` and `/opt` for copies of the uninstaller script. If one is found the following will be displayed:

```

Searching for flix-engine-uninstall.sh in /usr and /opt...
Found /usr/local/sbin/flix-engine-uninstall.sh
would you like to execute this script (y/n)? [y]:

```

Press Enter or type `y` to run the uninstaller and remove the previous version from your system.

If you chose to install the previous version in a non-standard location, this search may find nothing, in which case the following will be displayed:

```

Searching for flix-engine-uninstall.sh in /usr and /opt...
No copies of flix-engine-uninstall.sh were found.
would you like setup to perform a more complete search for
flix-engine-uninstall.sh (y/n)? [y]:

```

If you are certain that you have a version of On2's Flix Engine already installed, it is recommended that you answer `y` to the above question to search the entire system (with the exception of: `/proc`, `/var` and `/dev`). This process may take a few minutes to complete. If a copy of the uninstaller is found during this search, you will be prompted to execute it. Once complete the following will display:

```

Press Enter to proceed to the main installation menu or ctrl-c to quit.

```

Press Enter to proceed to the next section.

4. Verify Language Support

The archive is unpacked and optional packages are located. These packages include development environments for the various languages supported by the On2 Flix Engine. If one of these packages is not found, installation can proceed, but that language will not be supported by this installation. If you want to use that language with the On2 Flix Engine, the

development package for that language must be installed from your Linux distribution. For example:

```
checking prerequisites for Java language bindings ...
WARNING: Java not installed or can't be found:
WARNING: disabling the install of the Java language bindings.
WARNING: The Java language bindings are REQUIRED to run the Java samples.
WARNING: The Java samples will NOT function properly until Java language
WARNING: bindings are installed.
```

Note:

Some Linux distributions provide separate packages for the runtime and development environments for each language. Therefore, even if you can execute a script or run a program, the On2 Flix Engine may require extra software be installed in order to build the Flix extensions. Since extending languages on a very low level (as Flix does) is not a common user operation, the development environment for your language of choice may not be installed by default. See Chapter 1: Preparing the System for more information.

5. Register On2 Flix Engine

To register, the machine must be connected to the Internet.

After the prerequisites have been verified, a registration screen similar to the following will be displayed:

```
Flix Engine Registration
-----
Username:
Serial number:
```

Complete the prompts using the registration information provided to you by On2. Upon successful registration, the following confirmation is displayed:

```
Successfully retrieved flix engine license.
```

If you wish to install without registering, you may re-execute the installer script using the `--offline` option.

Note that while you may install without registering, the engine will be unusable until a license is properly applied. If the `--offline` option is used, the installer will display instructions for applying license information at a later time.

6. Configure the Installation

A menu displays the default installation options. These options can be adjusted to suit the tastes of the system administrator or for better conformance with your Linux distribution's practices. For example:

```
Flix Engine Installation and Configuration Options
-----
1) Flix binary files   : /usr/local/sbin
2) Flix library files  : /usr/local/lib
3) Flix header files   : /usr/local/include/flixengine2
4) Support libraries   : /usr/local/lib
5) on2 mencoder binary  : /usr/local/libexec/on2/flixengine
6) Documentation and Samples --->
7) Language Binding Configuration --->
8) Flix Options (Advanced) --->
-----
p)refix s)ave r)eset q)uit
Choose an option:
```

The following settings from this menu are tunable:

- Flix binary files: Path to the On2 Flix Engine daemon.
- Flix library files: Path to the On2 Flix Engine client libraries.
- Flix header files: Path to the C include files.
- Support libraries: Path to the LAME library.
- On2 mencoder binary: Path where the On2 MEncoder binary should be installed. If another MEncoder is already installed on your system, place the On2 MEncoder in a different path.

In addition to changing the settings, the following options are available:

- Documentation and Samples: Descend to a sub-menu for configuring install locations for API documentation and samples.
- Language Binding Configuration: Descend to a sub-menu for selecting individual language bindings to install.
- Flix Options (Advanced): Descend to a sub-menu for configuring parameters passed to the On2 Flix Engine daemon. Note these settings should only be changed by one who is familiar with the install system and its practices.
- p)refix: Shortcut to change the prefix on all paths. For example, quickly make all paths relative to `/opt/flix` or `/usr/local`.
- s)ave: Save the current settings and begin the installation.

- r)reset: Reset all settings to their defaults.
- q)uit: Exit the installation

```
Flix Engine Samples and Documentation
```

```
-----
```

```
0) Previous Menu --->
```

```
1) Flixd man page           : /usr/local/man
2) Flix Engine documentation : /usr/local/share/doc/on2/flixengine
3) C,Java,Perl,PHP,Python samples : /usr/local/share/on2/flixsamples
```

```
-----
```

```
Choose an option:
```

The following settings are tunable on this menu:

- Flix man page: Path to install the flixd man page (should be in your MANPATH).
- Flix Engine documentation: Path to install html/pdf API documentation.
- C, Java, Perl, PHP, Python samples: Path to install sample code.

In addition to changing the settings, the following options are available:

- Previous Menu: Return to the Main menu.

```
Flix Engine Language Bindings Configuration
```

```
-----
```

```
0) Previous Menu --->
```

```
1) Language Binding Sources       : /usr/local/src/flixmodules
2) Install Java Binding Sources   : y
3) Install Perl Binding Sources   : y
4) Install PHP Binding Sources    : y
5) Install Python Binding Sources : y
6) Compile and Install Language Bindings : y
```

```
-----
```

```
Choose an option:
```

The following settings are tunable on this menu:

- Language Binding Sources: Path to install language binding sources for each desired support language.
- Install Java Binding Sources: Install Java binding sources rooted in the above path.
- Install Perl Binding Sources: Install Perl binding source rooted in the above path.
- Install PHP Binding Sources: Install PHP binding sources rooted in the above path.
- Install Python Binding Sources: Install Python binding sources rooted in the above path.

- Compile and Install Language Bindings: Compile the extensions for the installed languages. Note that this must be done to be able to use On2 Flix Engine from languages other than C.

In addition to changing the settings, the following options are available:

- Previous Menu: Return to the Main menu.

```
Flixd (Encoding Daemon) Options
-----
0) Previous Menu --->
1) Log file or syslog      : syslog
2) Log level               : 2
3) PID file                : /var/run/flixd.pid
4) TCP listen port        : any
5) Bind interface         : any
6) Max concurrent encoding sessions : -1
-----
Choose an option:
```

The following settings are tunable on this menu:

- Log file or syslog: Filename to log diagnostic messages. May also be sent to the system log (syslog).
- Log level: Verbosity of logging messages (0-4)
- PID file: Filename to store the process id (PID) of the Flix daemon
- TCP listen port: Port number to bind the daemon to, if desired.
- Bind interface: Interface to bind to. Useful on multihomed systems or to listen only to localhost. Defaults to all.
- Max concurrent encoding sessions: Maximum number of concurrent encodes.

In addition to changing the settings, the following options are available:

- Previous Menu: Return to the Main menu.

After making any necessary changes, enter **s** at the Main menu to continue the installation. Review the installation summary:

Current installer settings:

```
-----
Flix Binaries      : /usr/local/sbin
Flix Libraries     : /usr/local/lib
Flix Headers       : /usr/local/include/flixengine2
Mencoder Binary    : /usr/local/libexec/on2/flixengine
Support Libraries  : /usr/local/lib
flixd options      : log=syslog,loglevel=2,pid=/var/run/flixd.pid,
                   port=any,iface=any,maxsn=-1
Language Binding Sources : /usr/local/src/flixmodules
Language Bindings   : Perl PHP Python Java
Compile/Install Bindings : y
Samples            : /usr/local/share/on2/flixsamples
Documentation       : /usr/local/share/doc/on2/flixengine
-----
```

Enter “y” at the following prompt:

```
Do you wish to use these settings and continue (y/n)?
```

7. Install Files

For a system that has not previously installed the On2 Flix Engine, the installation process is completely automated. On systems with previous installations, the installer may prompt to delete or overwrite files. In general, choose to delete or overwrite files unless there is a specific reason to retain a file.

8. Configure the System

The installer creates service startup and shutdown scripts. The On2 Flix Engine can be started automatically at boot time. The specific question will vary between Linux distributions:

```
Add /etc/rc.d/rc.flixengine to system startup file /etc/rc.d/rc.local (y/n)? [y]:
```

or

```
Add links for system startup and shutdown (y/n)? [y]:
```

If any libraries are installed in paths not supported by your distribution, they must be added to the `ld.so.conf` file. The installer will prompt you to do so, if necessary:

```
WARNING: /opt/flix/lib not found in ld.so.conf.  
Would you like to add /opt/flix/lib to /etc/ld.so.conf (y/n)? [y]:
```

9. Build Optional Modules

The selected modules are compiled and installed in the following order: Perl, PHP, Python, Java. For each module, the path to the module files is first displayed, and installation is paused before compiling:

```
Perl module files are installed in:  
  /usr/local/flixmodules/flixperl.  
  
Ready to compile Perl module.  
Press Enter to continue or type skip to skip this step:
```

If an error occurs, the following message will be printed:

```
WARNING! There was an error compiling the Perl module.  
You can try to recompile by running  
sh /usr/local/flixmodules/compile-flix-perl-module.sh
```

If an error occurs, please review the steps in Chapter 1: Preparing the System.

10. Installation Complete

If successful, the On2 Flix Engine starts and the following displays:


```
would you like to start the Flix Engine encoding daemon now (y/n)? [y]:
Executing '/etc/init.d/flixengine start'
Started Flix Engine.
Flix Engine encoding daemon started.
To stop the daemon: /etc/init.d/flixengine stop
```

```
*** INSTALLATION SUMMARY ***
```

```
-----
Flix Binaries : /usr/local/sbin
Flix Libraries : /usr/local/lib
Flix Headers : /usr/local/include/flixengine2
MEncoder Binary : /usr/local/libexec/on2/flixengine
Support Libraries : /usr/local/lib
flixd options : log=syslog,loglevel=2,pid=/var/run/flixd.pid,
                port=any,iface=any,maxsn=-1
Language Binding Sources : /usr/local/src/flixmodules
Language Bindings : Perl PHP Python Java
Compile/Install Bindings : y
Samples : /usr/local/share/on2/flixsamples
Documentation : /usr/local/share/doc/on2/flixengine
-----
```

```
Thank you for using On2 Technologies Flix Engine.
Press Enter to continue...
```

```
Flix Engine API and sample documentation can be found in
/usr/local/share/doc/on2/flixengine.
Further details on flixd can be found in its man page. If
/usr/local/man is in your MANPATH 'man flixd' will bring it up.
```

```
Please check the FAQ
(http://support.on2.com/on2-flix-faq/enginefaq-linux/)
for the latest support updates.
```

```
For any further questions please email flixsupport@on2.com. Make sure to
include the word(s) 'flixd' or 'flix engine linux' in the subject field.
If your query is related to an install failure make sure you attach the
install log and include any relevant system information in the message.
```

```
A log of this installation can be found here:
/root/incoming/flix-engine-installer-linux-8.0.6.0.bin.log
```

Additional Resources

For additional information on the On2 Flix Engine for Linux, refer to the comprehensive API documentation. The path to this documentation is specified during the install process and defaults to `/usr/local/share/doc/on2/flixengine`. The API documentation is available in both HTML and PDF format.

Be sure to check <http://support.on2.com/> for the latest helpful support information or contact flixsupport@on2.com for any support questions. Please include the words “flixd” or “flix engine linux” in the subject of all emails related to this product.

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