



Linux Ubuntu 22.4.5 Manual Pages on command 'update-binfmts.8'

\$ man update-binfmts.8

UPDATE-BINFMTS(8) BSD System Manager's Manual UPDATE-BINFMTS(8)

NAME

update-binfmts ? maintain registry of executable binary formats

SYNOPSIS

update-binfmts [options] --install name path spec

update-binfmts [options] --remove name path

update-binfmts [options] --import [name]

update-binfmts [options] --unimport [name]

update-binfmts [options] --display [name]

update-binfmts [options] --enable [name]

update-binfmts [options] --disable [name]

update-binfmts [options] --find [path]

DESCRIPTION

Versions 2.1.43 and later of the Linux kernel have contained the binfmt_misc module.

This enables a system administrator to register interpreters for various binary for?

mats based on a magic number or their file extension, and cause the appropriate in?

terpreter to be invoked whenever a matching file is executed. Think of it as a more

flexible version of the #! executable interpreter mechanism, or as something which

can behave a little like "associations" in certain other operating systems (though in

GNU/Linux the tendency is to keep this sort of thing somewhere else, like your file

manager). update-binfmts manages a persistent database of these interpreters.

When each package providing a registered interpreter is installed, changed, or re?

moved, update-binfmts is called to update information about that interpreter.

update-binfmts is usually called from the postinst or prepm scripts in Debian pack?

ages.

OPTIONS

Exactly one action must be specified; this may be accompanied by any one of the com?

mon options.

COMMON OPTIONS

--package package-name

Specifies the name of the current package, to be used by package post-installation and pre-removal scripts. System administrators installing binary formats for local use should probably ignore this option.

When installing new formats, the --import action should be used instead. Similarly, when removing old formats, the --unimport action should be used instead.

--admindir directory

Specifies the administrative directory, when this is to be different from the default of /var/lib/binfmts.

--importdir directory

Specifies the directory from which packaged binary formats are imported, when this is to be different from the default of /usr/share/binfmts.

--test

Don't do anything, just demonstrate what would be done.

--help

Display some usage information.

--version

Display version information.

ACTIONS

--install name path spec

Install a binary format identified by name with interpreter path into the data? base. After registration, this format will be used when the kernel tries to execute a file matching spec (see BINARY FORMAT SPECIFICATIONS below).

--install will attempt to enable this binary format in the kernel as well as adding it to its own database; see --enable below.

You cannot install a format with any of the names ".", "..", "register", or

"status", as these are used by the filesystem or the binfmt_misc module.

`--remove name path`

Remove the binary format identified by name with interpreter path from the database. This will also attempt to disable the binary format in the kernel; see `--disable` below.

`--import [name]`

Import a packaged format file called name, or import all format files currently on the system if no name is given. If name is not a full path, it is assumed to be a file in the import directory (`/usr/share/binfmts` by default). See **FORMAT FILES** below for the required contents of these files.

For packages, this is preferable to using the `--install` option, as a format file can be installed without `update-binfmts` needing to be available.

`--unimport [name]`

Unimport a packaged format file called name, or unimport all format files currently on the system if no name is given. If name is not a full path, it is assumed to be a file in the import directory (`/usr/share/binfmts` by default). See **FORMAT FILES** below for the required contents of these files.

For packages, this is preferable to using the `--remove` option, for symmetry with `--import`.

`--display [name]`

Display any information held in the database about the binary format identifier name, or about all known binary formats if no name is given. Also show whether displayed binary formats are enabled or disabled.

`--enable [name]`

Enable binary format name, or all known binary formats if no name is given, in the kernel, thus enabling direct execution of matching files. You must have `binfmt_misc` compiled into the kernel or loaded as a module for this to work.

`--disable [name]`

Disable binary format name, or all known binary formats if no name is given, in the kernel, thus disabling direct execution of matching files. You must have `binfmt_misc` compiled into the kernel or loaded as a module for this to work.

`--find [path]`

Print the list of interpreters that will be tried in sequence when attempting

to execute path, one per line. The first one for which `execvp(3)` succeeds will be used.

Note that if multiple formats match an executable, then the order is in general not defined, and may not be preserved between `update-binfmts` operations, so you should generally try to ensure that this option prints at most one line for any given path. The exception to this is that any format with a userspace detector will be run before any format without a userspace detector.

BINARY FORMAT SPECIFICATIONS

`--magic` byte-sequence

This matches all files with the magic number byte-sequence. Hexadecimal escapes may be included in the byte-sequence by preceding them with `\x`, for example `?\x0a?` for a linefeed. Remember to protect such escapes with quotes or an additional backslash to prevent their interpretation by the shell.

Also see `--offset` and `--mask`.

`--offset` offset

This is the offset of the magic/mask in the file, counted in bytes. The default is 0. Only valid with `--magic`.

`--mask` byte-sequence

This mask will be logically-ANDed with the string to be checked against the magic number given with `--magic`. The default is all 0xff, i.e. no effect.

Only valid with `--magic`.

`--extension` extension

This matches all files whose names end in `".extension"`. Hexadecimal escapes are not recognized here. Extension matching is case-sensitive.

`--detector` path

If this option is used, a userspace detector program will be used to check whether the file is suitable for this interpreter. This may be used when the binary format is more complex than can be handled by the kernel's format specifications alone. The program should return an exit code of zero if the file is appropriate and non-zero otherwise. This option cannot be used together with `--fix-binary` yes.

`--credentials` yes, `--credentials` no

Whether to keep the credentials of the original binary to run the interpreter;

this is typically useful to run setuid binaries, but has security implications.

--preserve yes, --preserve no

Whether to preserve the original argv[0] when running the interpreter, rather than overwriting it with the full path to the binary.

--fix-binary yes, --fix-binary no

Whether to open the interpreter binary immediately and always use the opened image. This allows the interpreter from the host to be used regardless of usage in chroots or different mount namespaces. The default behaviour is no, meaning that the kernel should open the interpreter binary lazily when needed. This option requires Linux 4.8 or newer. It cannot be used together with --detector, or with multiple binary formats that share the same magic number, since the kernel will only open a single interpreter binary which will then not be able to detect and execute the real interpreter from inside a chroot or from a different mount namespace.

FORMAT FILES

A format file is a sequence of options, one per line, corresponding roughly to the options given to an --install command. Each option consists of a key, followed by whitespace, followed by a value.

The package option should be set to the current package. The interpreter option should be set to the path to the interpreter that will handle this binary format.

The magic, offset, mask, extension, detector, credentials, preserve, and fix-binary options correspond to the command-line options of the same names.

EXIT STATUS

- 0 The requested action was successfully performed.
- 2 Problems were encountered whilst parsing the command line or performing the action.

EXAMPLES

This format file can be used with an interpreter capable of handling Java .class files:

```
package javawrapper
```

```
interpreter /usr/bin/javawrapper
```

```
magic \xca\xfe\xba\xbe
```

This corresponds roughly to the following command:

```
update-binfmts --package javawrapper \  
--install javawrapper /usr/bin/javawrapper \  
--magic '\xca\xfe\xba\xbe'
```

NOTES

If you're not careful, you can break your system with update-binfmts. An easy way to do this is to register an ELF binary as a handler for ELF, which will almost certainly cause your system to hang immediately; even if it doesn't, you won't be able to run update-binfmts to fix it. In the future update-binfmts may have some checks to prevent this sort of thing happening accidentally, though of course you can still manipulate the binfmt_misc kernel module directly.

AUTHOR

update-binfmts is copyright (C) 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011 Colin Watson <cjwatson@debian.org>. See the GNU General Public License version 3 or later for copying conditions.

You can find the GNU GPL v3 in /usr/share/common-licenses/GPL-3 on any modern Debian system.

Richard Guenther wrote the binfmt_misc kernel module.

THANKS

Ian Jackson wrote update-alternatives and dpkg-divert, from which this program borrows heavily.

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