
Linux for PHP Documentation

Release 8.2.0

Foreach Code Factory

Jun 16, 2021

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CHAPTER 1

Installation

In order to start using *Linux for PHP*, you must install *Docker* on your computer first.

General information on the *Docker CE* engine is available at the following address: <https://docs.docker.com/install/>

For more specific information on how to install *Docker CE* on your operating system of choice, please see the following pages:

- **Windows 10** : <https://docs.docker.com/docker-for-windows/install/>
- **Windows 7/8** : <https://docs.docker.com/toolbox/overview/>
- **MacOS** : <https://docs.docker.com/docker-for-mac/install/>
- **CentOS** : <https://docs.docker.com/install/linux/docker-ce/centos/>
- **Debian** : <https://docs.docker.com/install/linux/docker-ce/debian/>
- **Fedora** : <https://docs.docker.com/install/linux/docker-ce/fedora/>
- **Ubuntu** : <https://docs.docker.com/install/linux/docker-ce/ubuntu/>
- **Linux Binaries** : <https://docs.docker.com/install/linux/docker-ce/binaries/>

Once Docker is installed, you can now run a *Linux for PHP* container. It is possible to run the container in Docker's interactive or detached modes.

2.1 Docker's Interactive Mode

To run a *Linux for PHP* container in interactive mode, with the non thread-safe version of PHP 7.4, please enter the following command using your system's shell (*Bash/PowerShell*):

```
$ docker run --rm -it asclinux/linuxforphp-8.2-ultimate:7.4-nts /bin/bash
```

You will then get a command-line interface similar to this one :

```
File Edit View Search Terminal Help
jed@jed:~$ docker run -it asclinux/linuxforphp-8.2-ultimate:7.4-nts /bin/bash
root@132757aafe28 [ / ]# php --version
PHP 7.4.6 (cli) (built: May 16 2020 13:44:57) ( NTS )
Copyright (c) The PHP Group
Zend Engine v3.4.0, Copyright (c) Zend Technologies
    with Xdebug v2.9.1, Copyright (c) 2002-2020, by Derick Rethans
root@132757aafe28 [ / ]#
```

To find out the IP address assigned (assuming you did not set one manually):

```
$ ifconfig
```

Once you are done with the container, please quit the container by typing:

```
$ exit
```

2.2 Docker's Detached Mode

And, what if you wish to run a PHP application from a Web browser and start the *Linux for PHP* container in Docker's detached mode? To do so, enter the following command:

```
# Change to your project's working directory
$ cd /my/project/folder
$ docker run -dit --restart=always \
-v ${PWD}:/srv/www \
-p 8181:80 \
-p 10443:443 \
asclinux/linuxforphp-8.2-ultimate:7.4-nts \
lfphp
```

Note: This last command uses the `lfphp` script to start all available services inside the container. For more details, please see *Automating Services in Linux for PHP*.

You should now be able to access any of the PHP scripts contained in your project folder by pointing your browser to <http://localhost:8181/>.

Once you are done with the container, you can stop and remove it as you would any other Docker container running in detached mode:

```
$ docker stop [container_id_here]
$ docker rm [container_id_here]
```

2.3 Pre-Compiled PHP Binaries

As mentioned previously, it is possible to run *Linux for PHP* containers that come with pre-compiled binary versions of any of the major versions of PHP. To obtain a list of the available binaries, please visit the project's download page:

<https://linuxforphp.net/download>

2.4 Compiling PHP from Source

Of course, *Linux for PHP* is a lightweight version of Linux with all the software needed to easily compile any recent version of PHP. Thus, if you prefer to compile and use a different version of PHP, you can do so by entering the following command in a new terminal window. Please make sure to enter the version that you wish to compile, as per the following example (8.1.0dev in this case):

```
$ docker run -dit -p 8181:80 asclinux/linuxforphp-8.2:src /bin/bash -c "lfphp-compile_
↪8.1.0 nts"
```

After a few minutes, the new PHP binaries will be compiled and ready to be used! You can always check on the compilation's progress by connecting to the container using the `docker exec` command:

```
$ docker exec -it [id_of_the_container] /bin/bash
```

On the container's CLI, enter the `top` command:

```
$ top
```

To return to the command line, press Q.

2.5 Manually Compiling PHP from Source

Alternatively, you could also decide to do it manually. If so, start by running a *Linux for PHP* base image containing the PHP source files with the following command:

```
$ docker run -it asclinux/linuxforphp-8.2-ultimate:src /bin/bash
```

And, on the container's command line interface (CLI), checkout the version of PHP you wish to compile and begin compilation by entering the following commands (in our example, we will compile PHP 7.4.6):

```
$ cd /root
$ wget https://github.com/php/php-src/archive/PHP-7.4.6.zip
$ unzip PHP-7.4.6.zip
$ cd php-src-PHP-7.4.6
$ ./buildconf --force
$ ./configure \
  --prefix=/usr \
  --sysconfdir=/etc \
  --localstatedir=/var \
  --datadir=/usr/share/php \
  --mandir=/usr/share/man \
  --enable-fpm \
  --with-fpm-user=apache \
  --with-fpm-group=apache \
  --with-config-file-path=/etc \
  --with-zlib \
  --enable-bcmath \
  --with-bz2 \
  --enable-calendar \
  --enable-dba=shared \
  --with-gdbm \
  --with-gmp \
  --enable-ftp \
  --with-gettext=/usr \
  --enable-mbstring \
  --enable-pcntl \
  --with-openssl \
  --with-readline \
  --with-snmp \
  --with-mysql-sock=/run/mysqld/mysqld.sock \
  --with-curl \
  --with-openssl \
  --with-openssl-dir=/usr \
  --with-mhash \
  --enable-intl \
  --with-libdir=/lib64 \
  --enable-sockets \
  --with-libxml \
  --enable-soap \
  --enable-gd \
  --with-jpeg \
```

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```
--with-freetype \
--enable-exif \
--with-xsl \
--with-xmlrpc \
--with-pgsql \
--with-pdo-mysql=/usr \
--with-pdo-pgsql \
--with-mysqli \
--with-pdo-dblib \
--with-ldap \
--with-ldap-sasl \
--enable-shmop \
--enable-sysvsem \
--enable-sysvshm \
--enable-sysvmsg \
--with-tidy \
--with-expat \
--with-enchanted \
--with-ldap=/usr/local/imap-2007f \
--with-ldap-ssl=/usr/include/openssl \
--with-kerberos=/usr/include/krb5 \
--with-sodium=/usr \
--with-zip \
--enable-opcache \
--with-pear \
--with-ffi \
--enable-opcache
$ make
$ make test
$ make install
$ install -v -m644 php.ini-production /etc/php.ini
$ mv -v /etc/php-fpm.conf{.default,}
$ cp -v /etc/php-fpm.d/www.conf.default /etc/php-fpm.d/www.conf
$ sed -i 's@php/includes"@&\ninclude_path = ".:usr/lib/php"@' /etc/php.ini
$ sed -i -e '/proxy_module/s/^#//' -e '/proxy_fcgi_module/s/^#//' /etc/httpd/httpd.
↪conf
$ echo 'ProxyPassMatch ^/(.*.php)$ fcgi://127.0.0.1:9000/srv/www/$1' >> /etc/httpd/
↪httpd.conf
$ sed -i 's/DirectoryIndex index.html/DirectoryIndex index.php index.html/' /etc/
↪httpd/httpd.conf
$ /etc/init.d/mysql start
$ /usr/sbin/php-fpm &
$ /etc/init.d/httpd start
```

3.1 Starting and Stopping Services in Linux for PHP

When manually starting and stopping services within a *Linux for PHP* container, one must use the standard *init* system to do so.

To start the PHP-FPM server:

```
$ /etc/init.d/php-fpm start
```

To stop the PHP-FPM server:

```
$ /etc/init.d/php-fpm stop
```

To get the status of the PHP-FPM server:

```
$ /etc/init.d/php-fpm status
```

These commands apply to all the main services that are included within all *Linux for PHP* images :

- Apache : `/etc/init.d/httpd [start/stop/status]`
- nginx : `/etc/init.d/nginx [start/stop/status]`
- MariaDB (MySQL) : `/etc/init.d/mysql [start/stop/status]`
- PostgreSQL : `/etc/init.d/postgresql [start/stop/status]`
- OpenLDAP : `/etc/init.d/slapd [start/stop/status]`
- Exim Mail : `/etc/init.d/exim [start/stop/status]`
- MongoDB : `/etc/init.d/mongod [start/stop/status]`
- OpenSSH : `/etc/init.d/sshd [start/stop/status]`

Note: All configuration files can be found within the `/etc` directory.

3.2 Automating Services in Linux for PHP

When using a *Linux for PHP* container in detached mode, it is possible to automate services using the `lfphp` command. If you wish to start a container with only the *MariaDB (MySQL)* server running, you would enter the following command when invoking the container:

```
$ docker run -dit asclinux/linuxforphp-8.2-ultimate:7.4-nts bash -c "lfphp --mysql"
```

The available services are :

- Apache (`--apache`)
- Exim Mail (`--exim`)
- OpenLDAP (`--ldap`)
- MariaDB/MySQL (`--mysql`)
- nginx (`--nginx`)
- PostgreSQL (`--pgsql`)
- PHP FPM (`--phpfpm`)

Note: These optional switches can be combined and that the default behavior of the `lfphp` command is to start all services when no options are given.

Note: It is possible to get up to date help in using this command by entering the command `lfphp --help` or `lfphp -h`.

3.3 Package Installation Using the `lfphp-get` Command

Any *Linux for PHP* container makes it possible to install optional services from within the container by using the `lfphp-get` command. To install an additional service, simply enter the following command on the container's CLI:

```
$ lfphp-get [options] name_of_service_to_install
```

Note: The `lfphp-get` command allows to compile some packages from source, by adding the `--compile` option to the command.

To get a complete and up to date list of available services, please use the `--list` option:

```
$ lfphp-get --list
```

Note: For now, *Linux for PHP* does NOT offer an easy way to automate optional services. These must be configured manually by creating and symlinking the appropriate runit scripts (`/services/[name_of_service] => /etc/sv/[name_of_service]`).

Note: It is possible to get up to date help in using this command by entering the command `lfphp-get --help` or `lfphp-get -h`.

Here are a few examples of ways that you can use *Linux for PHP* containers, in order to use them in production or to debug/profile a slow PHP script you are working on in development.

4.1 CMS Installation Using the `lfphp-get` Command

To install *Concrete5*, *Drupal*, *Joomla*, *WordPress*, *Magento* or *Prestashop* inside a Linux for PHP container, please enter the following command on the container's CLI:

```
$ lfphp-get cms
```

After asking you which CMS you wish to install, and what is your project's name, the `lfphp-get` command will set everything up for you. Once this is done, you will be able to finish installing *Concrete5*, *Drupal*, *Joomla*, *WordPress*, *Magento* or *Prestashop* by using the corresponding CMS' default Web installer. By default, the CMS will be installed in the `/srv/tempo` folder inside the container. If you share this folder with the host, you will be able to access the source from outside the container after the end of the CMS' installation.

Note: If you are using clean URLs, you might have to create the appropriate `.htaccess` file according to what is needed to run the CMS that you are installing.

4.2 PHP Framework Installation Using the `lfphp-get` Command

To install *Laminas (Zend Framework)*, *Mezzio (Zend Expressive)*, *Symfony*, *Laravel*, *CakePHP*, *Slim* or *LightMVC* inside a Linux for PHP container, please enter the following command on the container's CLI:

```
$ lfphp-get php-frameworks
```

After asking you which framework you want to install, and what is your project's name, the `lfphp-get` command will set everything up for you.

Note: By default, the framework's skeleton application will be installed in the `/srv/tempo` folder inside the container. If you share this folder with the host, you will be able to access the source code from outside the container after the end of the framework's installation.

4.3 Blackfire.io Installation Using the `lfphp-get` Command

If you wish to install and configure *Blackfire.io* on *Linux for PHP*, please run this command:

```
$ lfphp-get blackfire
```

Once done, you will be able to profile your PHP applications by using the *Blackfire* command line tool directly, or by installing and using the *Blackfire* browser plugin in your favorite browser.

4.4 Node.js Installation Using the `lfphp-get` Command

If you wish to install and configure *Node.js* on *Linux for PHP*, please run this command on the container's CLI:

```
$ lfphp-get nodejs
```

Once done, *Node.js* and the npm tools will be available from within your *Linux for PHP* container.

Note: It is possible to compile *Node.js* from source by adding the `--compile` option to the `lfphp-get` command.

For more information on the `lfphp-get` command, please see *Package Installation Using the lfphp-get Command*.

4.5 MongoDB Installation Using the '`lfphp-get`' Command

If you wish to install and configure *MongoDB* on *Linux for PHP*, please run this command on the container's CLI:

```
$ lfphp-get mongodb
```

Once done, *MongoDB* and its import and export tools will be available from within your *Linux for PHP* container.

If you wish to use the *MongoDB* extension for PHP, you can do so by entering the following commands on the container's CLI:

```
$ lfphp-get --force php-ext mongodb
$ echo "extension=mongodb.so" >> /etc/php.ini
```

Note: It is possible to compile *MongoDB* from source by adding the `--compile` option to the `lfphp-get` command.

For more information on the `lfphp-get` command, please see *Package Installation Using the lfphp-get Command*.

Note: Also, it is possible to use *MongoDB* with all of its SSL options by default.

5.1 New Since Version 8.2.0 (May 17, 2020)

- **New features:**

- PHP has been updated to version 7.4.6
- There's a new and updated PHP GD extension for graphics processing
- MongoDB 4.0 is installed (version 4.4 soon to come!)
- `_All_` underlying ASCLinux libraries have been updated

- **LAMMPPP updates:**

- Linux (4.15.0-99-generic) - Kernel is NOT installed in this Docker image, only the headers!
- Apache (2.4.29)
- MariaDB (10.2.13)
- MongoDB (4.0.16)
- PHP (5.6.40, 7.0.33, 7.1.33, 7.2.31, 7.3.18, 7.4.6 or 8.0.0-dev)
- Perl (5.24.0)
- Python (2.7.14, 3.7.4)

- **Updated OS software/libraries:**

- Bash (4.3.42)
- CMake (3.10.2)
- cURL (7.68.0)
- Doxygen (1.8.16)
- FreeType (22.0.16)
- GnuTLS (3.6.2)

- icu-io,icu-uc,icu-i18n (60.2)
- libcap (2.25)
- libgd (3.0.5)
- libpipeline (1.4.1)
- libtool (2.4.6)
- libzip (1.6.1)
- meson (0.54.2)
- Ninja (1.10.0)
- rabbitmq-client (0.10.0)
- Redis (6.0.2)
- re2c (1.3.0)
- Ruby (2.5.0)

• **Complete list of installed software/libraries:**

- Acl (2.2.52)
- Alsa-lib (1.1.4.1)
- Apache (2.4.27)
- Apr (1.6.2)
- Apr-Util (1.6.0)
- Aspell (0.60.6.1)
- Attr (2.4.47)
- Autoconf (2.69)
- Automake (1.15)
- Bash (4.3.30)
- Bc (1.06.95)
- Berkeley DB (6.2.32)
- Binutils (2.27)
- Bison (3.0.4)
- Bzip2 (1.0.6)
- c-ares (1.12.0)
- Certificate Authority Certificates
- Check (0.10.0)
- CMake (3.9.1)
- CPIO (2.12)
- Coreutils (8.25)
- Cups (2.2.4)
- cURL (7.55.1)

- Cyrus-SASL (2.1.26)
- DejaGNU (1.6)
- DHCP Client (4.3.6)
- Diffutils (3.5)
- Docbook-xml (4.5)
- Docbook-xsl (1.79.1)
- Doxygen (1.8.15)
- Eudev (3.2)
- E2fsprogs (1.43.1)
- Enchant (1.6.0)
- Exim (4.89.1)
- Expat (2.2.0)
- Expect (5.45)
- File (5.28)
- Findutils (4.6.0)
- Flex (2.6.1)
- Fontconfig (2.12.4)
- FreeTDS (1.00.112)
- FreeType (2.8)
- Gawk (4.1.3)
- GCC (6.2.0)
- GDBM (1.12)
- Gettext (0.19.8.1)
- Giflib (5.1.4)
- Git (2.14.1)
- Glib (2.60.1)
- Glibc (2.24)
- GMP (6.1.1)
- GnuTLS (3.5.14)
- Gperf (3.0.4)
- Grep (2.25)
- Groff (1.22.3)
- GRUB (2.02~beta3)
- Gzip (1.8)
- Iana-Etc (2.30)
- icu4c (59.1)

- IMAP-Cclient (2007f)
- Inetutils (1.9.4)
- Intltool (0.51.0)
- IPRoute2 (4.7.0)
- Kbd (2.0.3)
- Kerberos5 (1.17)
- Kmod (23)
- Less (481)
- LFS-Bootscripts (20150222)
- libarchive (3.3.2)
- Libcap (2.25)
- libevent (2.1.8)
- libexif (0.6.21)
- libffi (3.2.1)
- libgd (2.2.4)
- libjpeg-turbo (1.5.2)
- libmcrypt (2.5.8)
- libnghttp2 (1.32.0)
- Libpipeline (1.4.1)
- libpng (1.6.31)
- libsodium (1.0.15)
- libtasn (1-4.12)
- Libtool (2.4.6)
- libunistring (0.9.7)
- libxml (2-2.9.4)
- libxslt (1.1.29)
- libzip (1.6.1)
- Linux (4.7.2) - Kernel is NOT installed in this Docker image!
- LZO (2.10)
- M4 (1.4.17)
- Make (4.2.1)
- Man-DB (2.7.5)
- Man-pages (4.07)
- MariaDB (10.2.8)
- mcrypt (2.6.8)
- meson (0.50.1)

- mhash (0.9.9.9)
- MongoDB (3.6.8)
- MPC (1.0.3)
- MPFR (3.1.4)
- MSMTP (1.8.4)
- Ncurses (6.0)
- Nettle (3.3)
- Net-SNMP (5.8)
- nginx (1.13.12)
- Ninja (1.9.0)
- Node.js (10.7.0)
- oniguruma (6.9.5)
- OpenJDK (1.8.0.141)
- OpenLDAP (2.4.45)
- OpenSSH (8.0p1)
- OpenSSL (1.0.2l)
- p11-kit (0.23.8)
- Patch (2.7.5)
- PCRE (8.41)
- Perl (5.24.0)
- PHP (5.6.40, 7.0.33, 7.1.33, 7.2.31, 7.3.18, 7.4.6 or 8.0.0-dev)
- Pkg-config (0.29.1)
- PostgreSQL (9.6.4)
- Procps (3.3.12)
- Psmisc (22.21)
- Python (2.7.13, 3.6.2)
- rabbitmq-client (0.9.0)
- re2c (1.1.1)
- Readline (6.3)
- Redis (5.0.4)
- Rsync (3.1.3)
- Ruby (2.4.1)
- runit (2.1.2)
- runit-docker (1.1.0)
- Sed (4.2.2)
- SGML-common (0.6.3)

- Shadow (4.2.1)
- SQLite (3.20.0)
- Sysklogd (1.5.1)
- Sysvinit (2.88dsf)
- Tar (1.29)
- Tcl (8.6.7)
- Texinfo (6.1)
- Tidy-HTML5 (5.4.0)
- Time Zone Data (2016f)
- Udev-lfs Tarball (udev-lfs-20140408)
- UnZip (6.0)
- Util-linux (2.28.1)
- Vim (7.4)
- Wget (1.19.1)
- Which (2.21)
- XML::Parser (2.44)
- Xorg Libraries 7
- Xz Utils (5.2.2)
- yasm (1.3.0)
- Zip (3.0)
- Zlib (1.2.8)

5.2 New Since Version 8.1.3 (Jan 2, 2019)

- **New features:**
 - Adds the re2c library (1.1.1)
 - Adds the libzip library (1.5.1)
- List of installed software/libraries:
 - Acl (2.2.52)
 - Apache (2.4.27)
 - Apr (1.6.2)
 - Apr-Util (1.6.0)
 - Attr (2.4.47)
 - Autoconf (2.69)
 - Automake (1.15)
 - Bash (4.3.30)

- Bc (1.06.95)
- Berkeley DB (6.2.32)
- Binutils (2.27)
- Bison (3.0.4)
- Bzip2 (1.0.6)
- c-ares (1.12.0)
- Certificate Authority Certificates
- Check (0.10.0)
- CMake (3.9.1)
- Coreutils (8.25)
- cURL (7.55.1)
- Cyrus-SASL (2.1.26)
- DejaGNU (1.6)
- DHCP Client (4.3.6)
- Diffutils (3.5)
- Docbook-xml (4.5)
- Docbook-xsl (1.79.1)
- Eudev (3.2)
- E2fsprogs (1.43.1)
- Exim (4.89.1)
- Expat (2.2.0)
- Expect (5.45)
- File (5.28)
- Findutils (4.6.0)
- Flex (2.6.1)
- Fontconfig (2.12.4)
- FreeType (2.8)
- Gawk (4.1.3)
- GCC (6.2.0)
- GDBM (1.12)
- Gettext (0.19.8.1)
- Git (2.14.1)
- Glibc (2.24)
- GMP (6.1.1)
- GnuTLS (3.5.14)
- Gperf (3.0.4)

- Grep (2.25)
- Groff (1.22.3)
- GRUB (2.02~beta3)
- Gzip (1.8)
- Iana-Etc (2.30)
- icu4c (59.1)
- Inetutils (1.9.4)
- Intltool (0.51.0)
- IPRoute2 (4.7.0)
- Kbd (2.0.3)
- Kmod (23)
- Less (481)
- LFS-Bootscripts (20150222)
- libarchive (3.3.2)
- Libcap (2.25)
- libevent (2.1.8)
- libexif (0.6.21)
- libffi (3.2.1)
- libgd (2.2.4)
- libjpeg-turbo (1.5.2)
- libmcrypt (2.5.8)
- libnghttp2 (1.32.0)
- Libpipeline (1.4.1)
- libpng (1.6.31)
- libsodium (1.0.15)
- libtasn (1-4.12)
- Libtool (2.4.6)
- libunistring (0.9.7)
- libxml (2-2.9.4)
- libxslt (1.1.29)
- libzip (1.5.1)
- Linux (4.7.2) - Kernel is NOT installed in this Docker image!
- LZO (2.10)
- M4 (1.4.17)
- Make (4.2.1)
- Man-DB (2.7.5)

- Man-pages (4.07)
- MariaDB (10.2.8)
- mcrypt (2.6.8)
- mhash (0.9.9.9)
- MPC (1.0.3)
- MPFR (3.1.4)
- Ncurses (6.0)
- Nettle (3.3)
- nginx (1.13.12)
- OpenLDAP (2.4.45)
- OpenSSL (1.0.2l)
- p11-kit (0.23.8)
- Patch (2.7.5)
- PCRE (8.41)
- Perl (5.24.0)
- PHP (5.6.37, 7.0.32, 7.1.24, 7.2.12 or 7.3.0)
- Pkg-config (0.29.1)
- PostgreSQL (9.6.4)
- Procps (3.3.12)
- Psmisc (22.21)
- Python (2.7.13)
- Python (3.6.2)
- re2c (1.1.1)
- Readline (6.3)
- Ruby (2.4.1)
- runit (2.1.2)
- runit-docker (1.1.0)
- Sed (4.2.2)
- SGML-common (0.6.3)
- Shadow (4.2.1)
- SQLite (3.20.0)
- Sysklogd (1.5.1)
- Sysvinit (2.88dsf)
- Tar (1.29)
- Tcl (8.6.7)
- Texinfo (6.1)

- Time Zone Data (2016f)
- Udev-lfs Tarball (udev-lfs-20140408)
- UnZip (6.0)
- Util-linux (2.28.1)
- Vim (7.4)
- Wget (1.19.1)
- XML::Parser (2.44)
- Xz Utils (5.2.2)
- yasm (1.3.0)
- Zip (3.0)
- Zlib (1.2.8)

5.3 New Since Version 8.1.2 (Oct 25, 2018)

- **New features:**
 - Fixes issues with the 'lfphp' scripts
 - Updates the nginx scripts
 - Adds nginx as a default runit service
 - Fixes issues with the way the Docker layers were generated
- List of installed software/libraries:
 - Acl (2.2.52)
 - Apache (2.4.27)
 - Apr (1.6.2)
 - Apr-Util (1.6.0)
 - Attr (2.4.47)
 - Autoconf (2.69)
 - Automake (1.15)
 - Bash (4.3.30)
 - Bc (1.06.95)
 - Berkeley DB (6.2.32)
 - Binutils (2.27)
 - Bison (3.0.4)
 - Bzip2 (1.0.6)
 - c-ares (1.12.0)
 - Certificate Authority Certificates
 - Check (0.10.0)

- CMake (3.9.1)
- Coreutils (8.25)
- cURL (7.55.1)
- Cyrus-SASL (2.1.26)
- DejaGNU (1.6)
- DHCP Client (4.3.6)
- Diffutils (3.5)
- Docbook-xml (4.5)
- Docbook-xsl (1.79.1)
- Eudev (3.2)
- E2fsprogs (1.43.1)
- Exim (4.89.1)
- Expat (2.2.0)
- Expect (5.45)
- File (5.28)
- Findutils (4.6.0)
- Flex (2.6.1)
- Fontconfig (2.12.4)
- FreeType (2.8)
- Gawk (4.1.3)
- GCC (6.2.0)
- GDBM (1.12)
- Gettext (0.19.8.1)
- Git (2.14.1)
- Glibc (2.24)
- GMP (6.1.1)
- GnuTLS (3.5.14)
- Gperf (3.0.4)
- Grep (2.25)
- Groff (1.22.3)
- GRUB (2.02~beta3)
- Gzip (1.8)
- Iana-Etc (2.30)
- icu4c (59.1)
- Inetutils (1.9.4)
- Intltool (0.51.0)

- IPRoute2 (4.7.0)
- Kbd (2.0.3)
- Kmod (23)
- Less (481)
- LFS-Bootscripts (20150222)
- libarchive (3.3.2)
- Libcap (2.25)
- libevent (2.1.8)
- libexif (0.6.21)
- libffi (3.2.1)
- libgd (2.2.4)
- libjpeg-turbo (1.5.2)
- libmcrypt (2.5.8)
- libnghttp2 (1.32.0)
- Libpipeline (1.4.1)
- libpng (1.6.31)
- libsodium (1.0.15)
- libtasn (1-4.12)
- Libtool (2.4.6)
- libunistring (0.9.7)
- libxml (2-2.9.4)
- libxslt (1.1.29)
- Linux (4.7.2) - Kernel is NOT installed in this Docker image!
- LZO (2.10)
- M4 (1.4.17)
- Make (4.2.1)
- Man-DB (2.7.5)
- Man-pages (4.07)
- MariaDB (10.2.8)
- mcrypt (2.6.8)
- mhash (0.9.9.9)
- MPC (1.0.3)
- MPFR (3.1.4)
- Ncurses (6.0)
- Nettle (3.3)
- nginx (1.13.12)

- OpenLDAP (2.4.45)
- OpenSSL (1.0.2l)
- p11-kit (0.23.8)
- Patch (2.7.5)
- PCRE (8.41)
- Perl (5.24.0)
- PHP (5.6.35, 7.0.29, 7.1.16, 7.2.5 or 7.3.0dev)
- Pkg-config (0.29.1)
- PostgreSQL (9.6.4)
- Procps (3.3.12)
- Psmisc (22.21)
- Python (2.7.13)
- Python (3.6.2)
- Readline (6.3)
- Ruby (2.4.1)
- runit (2.1.2)
- runit-docker (1.1.0)
- Sed (4.2.2)
- SGML-common (0.6.3)
- Shadow (4.2.1)
- SQLite (3.20.0)
- Sysklogd (1.5.1)
- Sysvinit (2.88dsf)
- Tar (1.29)
- Tcl (8.6.7)
- Texinfo (6.1)
- Time Zone Data (2016f)
- Udev-lfs Tarball (udev-lfs-20140408)
- UnZip (6.0)
- Util-linux (2.28.1)
- Vim (7.4)
- Wget (1.19.1)
- XML::Parser (2.44)
- Xz Utils (5.2.2)
- yasm (1.3.0)
- Zip (3.0)

- Zlib (1.2.8)

5.4 New Since Version 8.1.1 (Jun 20, 2018)

- **New features:**
 - Adds a package installation script (lfphp-get)
 - Modifies compilation scripts to add HTTP/2 support for cURL
 - Adds a notice for the Apache 2.0 license
- **List of installed software/libraries:**
 - Acl (2.2.52)
 - Apache (2.4.27)
 - Apr (1.6.2)
 - Apr-Util (1.6.0)
 - Attr (2.4.47)
 - Autoconf (2.69)
 - Automake (1.15)
 - Bash (4.3.30)
 - Bc (1.06.95)
 - Berkeley DB (6.2.32)
 - Binutils (2.27)
 - Bison (3.0.4)
 - Bzip2 (1.0.6)
 - c-ares (1.12.0)
 - Certificate Authority Certificates
 - Check (0.10.0)
 - CMake (3.9.1)
 - Coreutils (8.25)
 - cURL (7.55.1)
 - Cyrus-SASL (2.1.26)
 - DejaGNU (1.6)
 - DHCP Client (4.3.6)
 - Diffutils (3.5)
 - Docbook-xml (4.5)
 - Docbook-xsl (1.79.1)
 - Eudev (3.2)
 - E2fsprogs (1.43.1)

- Exim (4.89.1)
- Expat (2.2.0)
- Expect (5.45)
- File (5.28)
- Findutils (4.6.0)
- Flex (2.6.1)
- Fontconfig (2.12.4)
- FreeType (2.8)
- Gawk (4.1.3)
- GCC (6.2.0)
- GDBM (1.12)
- Gettext (0.19.8.1)
- Git (2.14.1)
- Glibc (2.24)
- GMP (6.1.1)
- GnuTLS (3.5.14)
- Gperf (3.0.4)
- Grep (2.25)
- Groff (1.22.3)
- GRUB (2.02~beta3)
- Gzip (1.8)
- Iana-Etc (2.30)
- icu4c (59.1)
- Inetutils (1.9.4)
- Intltool (0.51.0)
- IPRoute2 (4.7.0)
- Kbd (2.0.3)
- Kmod (23)
- Less (481)
- LFS-Bootscripts (20150222)
- libarchive (3.3.2)
- Libcap (2.25)
- libevent (2.1.8)
- libexif (0.6.21)
- libffi (3.2.1)
- libgd (2.2.4)

- libjpeg-turbo (1.5.2)
- libmcrypt (2.5.8)
- libnghttp2 (1.32.0)
- Libpipeline (1.4.1)
- libpng (1.6.31)
- libsodium (1.0.15)
- libtasn (1-4.12)
- Libtool (2.4.6)
- libunistring (0.9.7)
- libxml (2-2.9.4)
- libxslt (1.1.29)
- Linux (4.7.2) - Kernel is NOT installed in this Docker image!
- LZO (2.10)
- M4 (1.4.17)
- Make (4.2.1)
- Man-DB (2.7.5)
- Man-pages (4.07)
- MariaDB (10.2.8)
- mcrypt (2.6.8)
- mhash (0.9.9.9)
- MPC (1.0.3)
- MPFR (3.1.4)
- Ncurses (6.0)
- Nettle (3.3)
- nginx (1.13.12)
- OpenLDAP (2.4.45)
- OpenSSL (1.0.2l)
- p11-kit (0.23.8)
- Patch (2.7.5)
- PCRE (8.41)
- Perl (5.24.0)
- PHP (5.6.35, 7.0.29, 7.1.16, 7.2.5 or 7.3.0dev)
- Pkg-config (0.29.1)
- PostgreSQL (9.6.4)
- Procps (3.3.12)
- Psmisc (22.21)

- Python (2.7.13)
- Python (3.6.2)
- Readline (6.3)
- Ruby (2.4.1)
- runit (2.1.2)
- runit-docker (1.1.0)
- Sed (4.2.2)
- SGML-common (0.6.3)
- Shadow (4.2.1)
- SQLite (3.20.0)
- Sysklogd (1.5.1)
- Sysvinit (2.88dsf)
- Tar (1.29)
- Tcl (8.6.7)
- Texinfo (6.1)
- Time Zone Data (2016f)
- Udev-lfs Tarball (udev-lfs-20140408)
- UnZip (6.0)
- Util-linux (2.28.1)
- Vim (7.4)
- Wget (1.19.1)
- XML::Parser (2.44)
- Xz Utils (5.2.2)
- yasm (1.3.0)
- Zip (3.0)
- Zlib (1.2.8)

5.5 New Since Version 8.1 (May 17, 2018)

- New features:
 - nginx 1.13.12
 - HTTP/2 module/support for Apache/cURL
 - Python 2 and 3
 - Ruby 2.4
 - Full support for Docker's detached mode
 - Full support for Composer integration (Linux for Composer)

- List of installed/updated software/libraries:
 - Acl (2.2.52)
 - Apache (2.4.27)
 - Apr (1.6.2)
 - Apr-Util (1.6.0)
 - Attr (2.4.47)
 - Autoconf (2.69)
 - Automake (1.15)
 - Bash (4.3.30)
 - Bc (1.06.95)
 - Berkeley DB (6.2.32)
 - Binutils (2.27)
 - Bison (3.0.4)
 - Bzip2 (1.0.6)
 - c-ares (1.12.0)
 - Certificate Authority Certificates
 - Check (0.10.0)
 - CMake (3.9.1)
 - Coreutils (8.25)
 - cURL (7.55.1)
 - Cyrus-SASL (2.1.26)
 - DejaGNU (1.6)
 - DHCP Client (4.3.6)
 - Diffutils (3.5)
 - Docbook-xml (4.5)
 - Docbook-xsl (1.79.1)
 - Eudev (3.2)
 - E2fsprogs (1.43.1)
 - Exim (4.89.1)
 - Expat (2.2.0)
 - Expect (5.45)
 - File (5.28)
 - Findutils (4.6.0)
 - Flex (2.6.1)
 - Fontconfig (2.12.4)
 - FreeType (2.8)

- Gawk (4.1.3)
- GCC (6.2.0)
- GDBM (1.12)
- Gettext (0.19.8.1)
- Git (2.14.1)
- Glibc (2.24)
- GMP (6.1.1)
- GnuTLS (3.5.14)
- Gperf (3.0.4)
- Grep (2.25)
- Groff (1.22.3)
- GRUB (2.02~beta3)
- Gzip (1.8)
- Iana-Etc (2.30)
- icu4c (59.1)
- Inetutils (1.9.4)
- Intltool (0.51.0)
- IPRoute2 (4.7.0)
- Kbd (2.0.3)
- Kmod (23)
- Less (481)
- LFS-Bootscripts (20150222)
- libarchive (3.3.2)
- Libcap (2.25)
- libevent (2.1.8)
- libexif (0.6.21)
- libffi (3.2.1)
- libgd (2.2.4)
- libjpeg-turbo (1.5.2)
- libmcrypt (2.5.8)
- libnghttp2 (1.32.0)
- Libpipeline (1.4.1)
- libpng (1.6.31)
- libsodium (1.0.15)
- libtasn (1-4.12)
- Libtool (2.4.6)

- libunistring (0.9.7)
- libxml (2-2.9.4)
- libxslt (1.1.29)
- Linux (4.7.2) - Kernel is NOT installed in this Docker image!
- LZO (2.10)
- M4 (1.4.17)
- Make (4.2.1)
- Man-DB (2.7.5)
- Man-pages (4.07)
- MariaDB (10.2.8)
- mcrypt (2.6.8)
- mhash (0.9.9.9)
- MPC (1.0.3)
- MPFR (3.1.4)
- Ncurses (6.0)
- Nettle (3.3)
- nginx (1.13.12)
- OpenLDAP (2.4.45)
- OpenSSL (1.0.2l)
- p11-kit (0.23.8)
- Patch (2.7.5)
- PCRE (8.41)
- Perl (5.24.0)
- PHP (5.6.35, 7.0.29, 7.1.16, 7.2.5 or 7.3.0dev)
- Pkg-config (0.29.1)
- PostgreSQL (9.6.4)
- Procps (3.3.12)
- Psmisc (22.21)
- Python (2.7.13)
- Python (3.6.2)
- Readline (6.3)
- Ruby (2.4.1)
- runit (2.1.2)
- runit-docker (1.1.0)
- Sed (4.2.2)
- SGML-common (0.6.3)

- Shadow (4.2.1)
- SQLite (3.20.0)
- Sysklogd (1.5.1)
- Sysvinit (2.88dsf)
- Tar (1.29)
- Tcl (8.6.7)
- Texinfo (6.1)
- Time Zone Data (2016f)
- Udev-lfs Tarball (udev-lfs-20140408)
- UnZip (6.0)
- Util-linux (2.28.1)
- Vim (7.4)
- Wget (1.19.1)
- XML::Parser (2.44)
- Xz Utils (5.2.2)
- yasm (1.3.0)
- Zip (3.0)
- Zlib (1.2.8)

5.6 New Since Version 8.0 (Dec 20, 2017)

- Added and/or updated the following software :
 - Apache (2.4.27)
 - Apr (1.6.2)
 - Apr-Util (1.6.0)
 - Berkeley DB (6.2.32)
 - CMake (3.9.1)
 - cURL (7.55.1)
 - Cyrus-SASL (2.1.26)
 - DejaGNU (1.6)
 - DHCP Client (4.3.6)
 - Docbook-xml (4.5)
 - Docbook-xsl (1.79.1)
 - Exim (4.89.1)
 - Expect (5.45)
 - Fontconfig (2.12.4)

- FreeType (2.8)
- Git (2.14.1)
- GnuTLS (3.5.14)
- icu4c (59.1)
- libarchive (3.3.2)
- libevent (2.1.8)
- libexif (0.6.21)
- libffi (3.2.1)
- libgd (2.2.4)
- libjpeg-turbo (1.5.2)
- libmcrypt (2.5.8)
- libpng (1.6.31)
- libsodium (1.0.15)
- libtasn (1-4.12)
- libunistring (0.9.7)
- libxml (2-2.9.4)
- libxslt (1.1.29)
- LZO (2.10)
- MariaDB (10.2.8)
- mcrypt (2.6.8)
- mhash (0.9.9.9)
- Nettle (3.3)
- OpenLDAP (2.4.45)
- OpenSSL (1.0.2l)
- p11-kit (0.23.8)
- PCRE (8.41)
- PostgreSQL (9.6.4)
- Python (3.6.2)
- runit (2.1.2)
- SGML-common (0.6.3)
- SQLite (3.20.0)
- Tcl (8.6.7)
- UnZip (6.0)
- Wget (1.19.1)
- yasm (1.3.0)
- Zip (3.0)

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CHAPTER 7

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