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How to install Composer on Debian / Ubuntu Linux

in **Apache, Debian / Ubuntu, Linux, Nginx, PHP**   last updated August 2, 2016

'm trying to upgrade my Mediawiki installation and I'm getting an error that read as follows:

Error: your composer.lock file is not up to date, run "composer update" to install newer dependencies

How do I install composer command for my PHP installation on Debian or Ubuntu Linux running LAMP or LEMP stack? How do I Install and use Composer on running Ubuntu Linux server and fix this problem for mediawiki installation and/or manage and install PHP packages and dependencies for my project?

Composer is a dependency manager tool for PHP. It installs and updates the libraries for your project. It is not a package manager like yum command or apt-get command. It is desgined to use with each individual project like Mediawiki or your own custom app written in PHP. There are many open source projects and frameworks written in php use Composer to manage and install their packages and dependencies. In this tutorial you will learn how to install composer globally on Debian or Ubuntu Linux server. The following instructions should also work with RHEL/CentOS Linux 7.x or any other modern Linux distro.

The problem

When you try to update mediawiki to v1.26.0 using the following command:

```
[wwwuser@server1.cyberciti.biz:~/wiki]$ php update.php
```

You will will get the following error:

```
MediaWiki 1.26.0 Updater


composer/semver: not installed, 1.0.0 required.
liuggio/statsd-php-client: 1.0.12 installed, 1.0.16 required.
oyejorge/less.php: not installed, 1.7.0.9 required.
```

```
  mediawiki/at-ease: not installed, 1.1.0 required.
  oojs/oojs-ui: 0.11.3 installed, 0.12.12 required.
  wikimedia/assert: not installed, 0.2.2 required.
  wikimedia/cdb: 1.0.1 installed, 1.3.0 required.
  wikimedia/composer-merge-plugin: 1.0.0 installed, 1.3.0 required.
  wikimedia/ip-set: not installed, 1.0.1 required.
  wikimedia/utfnormal: 1.0.2 installed, 1.0.3 required.
  wikimedia/wrappedstring: not installed, 2.0.0 required.
  zordius/lightncandy: 0.18 installed, 0.21 required.
  Error: your composer.lock file is not up to date, run "composer update" to insta
```

To fix this problem you need to install the composer tool.

Installation

Make sure curl and php-cli, curl and related tools are installed on your Debian or Ubuntu server
(14.04 LTS or older):

```
$ sudo apt-get install curl php5-cli git
```

Sample outputs:

```
Reading package lists... Done
Building dependency tree
Reading state information... Done
php5-cli is already the newest version.
The following extra packages will be installed:
  git-man libcurl3 liberror-perl patch rsync
Suggested packages:
  gettext-base git-daemon-run git-daemon-sysvinit git-doc git-el git-email
  git-gui gitk gitweb git-arch git-bzr git-cvs git-mediawiki git-svn ed
  diffutils-doc openssh-server
The following NEW packages will be installed:
  curl git git-man libcurl3 liberror-perl patch rsync
0 upgraded, 7 newly installed, 0 to remove and 0 not upgraded.
Need to get 4,011 kB of archives.
After this operation, 23.4 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu/ trusty-updates/main libcurl3 amd64 7.35
Get:2 http://archive.ubuntu.com/ubuntu/ trusty-updates/main rsync amd64 3.1.0-2
Get:3 http://archive.ubuntu.com/ubuntu/ trusty-updates/main curl amd64 7.35.0-1
Get:4 http://archive.ubuntu.com/ubuntu/ trusty/main liberror-perl all 0.17-1.1
Get:5 http://archive.ubuntu.com/ubuntu/ trusty-updates/main git-man all 1:1.9.1
Get:6 http://archive.ubuntu.com/ubuntu/ trusty-updates/main git amd64 1:1.9.1-1
Get:7 http://archive.ubuntu.com/ubuntu/ trusty-updates/main patch amd64 2.7.1-4
Fetched 4,011 kB in 1s (2,181 kB/s)
Selecting previously unselected package libcurl3:amd64.
(Reading database ... 16719 files and directories currently installed.)
Preparing to unpack .../libcurl3_7.35.0-1ubuntu2.5_amd64.deb ...
Unpacking libcurl3:amd64 (7.35.0-1ubuntu2.5) ...
Selecting previously unselected package rsync.
Preparing to unpack .../rsync_3.1.0-2ubuntu0.1_amd64.deb ...
```

```
Unpacking rsync (3.1.0-2ubuntu0.1) ...
Selecting previously unselected package curl.
Preparing to unpack .../curl_7.35.0-1ubuntu2.5_amd64.deb ...
Unpacking curl (7.35.0-1ubuntu2.5) ...
Selecting previously unselected package liberror-perl.
Preparing to unpack .../liberror-perl_0.17-1.1_all.deb ...
Unpacking liberror-perl (0.17-1.1) ...
Selecting previously unselected package git-man.
Preparing to unpack .../git-man_1%3a1.9.1-1ubuntu0.1_all.deb ...
Unpacking git-man (1:1.9.1-1ubuntu0.1) ...
Selecting previously unselected package git.
Preparing to unpack .../git_1%3a1.9.1-1ubuntu0.1_amd64.deb ...
Unpacking git (1:1.9.1-1ubuntu0.1) ...
Selecting previously unselected package patch.
Preparing to unpack .../patch_2.7.1-4ubuntu2.3_amd64.deb ...
Unpacking patch (2.7.1-4ubuntu2.3) ...
Processing triggers for ureadahead (0.100.0-16) ...
Setting up libcurl3:amd64 (7.35.0-1ubuntu2.5) ...
Setting up rsync (3.1.0-2ubuntu0.1) ...
 Removing any system startup links for /etc/init.d/rsync ...
update-rc.d: warning: default stop runlevel arguments (0 1 6) do not match rsy
 Adding system startup for /etc/init.d/rsync ...
   /etc/rc0.d/K20rsync -> ../init.d/rsync
   /etc/rc1.d/K20rsync -> ../init.d/rsync
   /etc/rc6.d/K20rsync -> ../init.d/rsync
   /etc/rc2.d/S20rsync -> ../init.d/rsync
   /etc/rc3.d/S20rsync -> ../init.d/rsync
   /etc/rc4.d/S20rsync -> ../init.d/rsync
   /etc/rc5.d/S20rsync -> ../init.d/rsync
Setting up curl (7.35.0-1ubuntu2.5) ...
Setting up liberror-perl (0.17-1.1) ...
Setting up git-man (1:1.9.1-1ubuntu0.1) ...
Setting up git (1:1.9.1-1ubuntu0.1) ...
Setting up patch (2.7.1-4ubuntu2.3) ...
Processing triggers for libc-bin (2.19-0ubuntu6.6) ...
Processing triggers for ureadahead (0.100.0-16) ...
```

If you are using Ubuntu Linux 16.04 LTS or newer and want to use PHP 7.x, run:

```
$ sudo apt install curl php7.0-cli git
```

Install composer tool

Next install composer on Debian or Ubuntu Linux in /usr/local/bin/ directory as follows:

```
$ curl -sS https://getcomposer.org/installer | sudo php -- --install-dir=/usr/local/bin --filename=composer
```

Sample outputs:

Fig.01: Installing composer on your server running Ubuntu Linux

Verify composer

To verify installation type:

```
$ composer
```

OR

```
$ /usr/local/bin/composer
```

Sample outputs:

```
   _____
  /      /___  _____  ___  ____  ___  ___ ___
 /  __  / _ \`/  __ \/  __ \/  _ \/ _ \/   ___/
/  /_/ /  __/  / / /  /_/ / /_/ /  (_) /
\_____/\___/_/ /_/ /_/ .___/\____/\____/\___/
                    /_/
Composer version 1.0-dev (1c525b76f81123af180743d31c208c29351cf931) 2015-12-09

Usage:
  command [options] [arguments]

Options:
  -h, --help                   Display this help message
  -q, --quiet                  Do not output any message
  -V, --version                Display this application version
      --ansi                   Force ANSI output
      --no-ansi                Disable ANSI output
  -n, --no-interaction         Do not ask any interactive question
      --profile                Display timing and memory usage information
  -d, --working-dir=WORKING-DIR  If specified, use the given directory as work:
  -v|vv|vvv, --verbose         Increase the verbosity of messages: 1 for norr

Available commands:
  about          Short information about Composer
  archive        Create an archive of this composer package
  browse         Opens the package's repository URL or homepage in your brows∈
  clear-cache    Clears composer's internal package cache.
  clearcache     Clears composer's internal package cache.
  config         Set config options
  create-project Create new project from a package into given directory.
  depends        Shows which packages depend on the given package
  diagnose       Diagnoses the system to identify common errors.
  dump-autoload  Dumps the autoloader
  dumpautoload   Dumps the autoloader
  global         Allows running commands in the global composer dir ($COMPOSEF
  help           Displays help for a command
  home           Opens the package's repository URL or homepage in your brows∈
  info           Show information about packages
  init           Creates a basic composer.json file in current directory.
  install        Installs the project dependencies from the composer.lock file
  licenses       Show information about licenses of dependencies
  lint           Run the lint script as defined in composer.json.
```

```
   list              Lists commands
   phpcs             Run the phpcs script as defined in composer.json.
   remove            Removes a package from the require or require-dev
   require           Adds required packages to your composer.json and installs the
   run-script        Run the scripts defined in composer.json.
   search            Search for packages
   self-update       Updates composer.phar to the latest version.
   selfupdate        Updates composer.phar to the latest version.
   show              Show information about packages
   status            Show a list of locally modified packages
   suggests          Show package suggestions
   test              Run the test script as defined in composer.json.
   update            Updates your dependencies to the latest version according to
   validate          Validates a composer.json and composer.lock
```

How does composer work?

To use Composer you need to create or use composer.json file supplied by your vendor such as mediawiki. This file defines the dependencies of php app or project. Here is sample file from mediawiki project:

```
{
        "name": "mediawiki/core",
        "description": "Free software wiki application developed by the Wikime
        "keywords": ["mediawiki", "wiki"],
        "homepage": "https://www.mediawiki.org/",
        "authors": [
                {
                        "name": "MediaWiki Community",
                        "homepage": "https://www.mediawiki.org/wiki/Special:Ve
                }
        ],
        "license": "GPL-2.0+",
        "support": {
                "issues": "https://bugs.mediawiki.org/",
                "irc": "irc://irc.freenode.net/mediawiki",
                "wiki": "https://www.mediawiki.org/"
        },
        "require": {
                "composer/semver": "1.0.0",
                "cssjanus/cssjanus": "1.1.1",
                "ext-iconv": "*",
                "liuggio/statsd-php-client": "1.0.16",
                "oyejorge/less.php": "1.7.0.9",
                "mediawiki/at-ease": "1.1.0",
                "oojs/oojs-ui": "0.12.12",
                "php": ">=5.3.3",
                "psr/log": "1.0.0",
                "wikimedia/assert": "0.2.2",
                "wikimedia/cdb": "1.3.0",
                "wikimedia/composer-merge-plugin": "1.3.0",
                "wikimedia/ip-set": "1.0.1",
                "wikimedia/utfnormal": "1.0.3",
                "wikimedia/wrappedstring": "2.0.0",
                "zordius/lightncandy": "0.21"
        }
}
```

How do I install dependencies defined in `composer.json` file?

Simply type the following command to download and install all dependencies for your app/project:

```
$ composer install
```

OR switch to core project directory such as /var/www/html/wiki and run:

```
$ cd /var/www/html/wiki && composer install --no-dev
```

Sample outputs:

```
Loading composer repositories with package information
Installing dependencies from lock file
Warning: The lock file is not up to date with the latest changes in composer.j
  - Removing composer/semver (1.0.0)
  - Removing oyejorge/less.php (v1.7.0.9)
  - Removing mediawiki/at-ease (v1.1.0)
  - Removing wikimedia/avro (v1.7.7)
  - Removing nmred/kafka-php (v0.1.4)
  - Removing wikimedia/ip-set (1.0.1)
  - Removing firebase/php-jwt (v2.1.0)
  - Removing symfony/process (v2.7.3)
  - Removing ruflin/elastica (2.2.0)
  - Removing wikimedia/wrappedstring (v2.0.0)
  - Removing monolog/monolog (1.14.0)
  - Removing kzykhys/pygments (v1.0.0)
  - Removing wikimedia/assert (v0.2.2)
  - Removing wikimedia/composer-merge-plugin (v1.3.0)
  - Installing wikimedia/composer-merge-plugin (v1.0.0)
    Downloading: 100%

  - Removing liuggio/statsd-php-client (v1.0.16)
  - Installing liuggio/statsd-php-client (v1.0.12)
    Downloading: 100%

  - Removing oojs/oojs-ui (v0.12.12)
  - Installing oojs/oojs-ui (v0.11.3)
    Downloading: 100%

  - Removing wikimedia/cdb (1.3.0)
  - Installing wikimedia/cdb (1.0.1)
    Downloading: 100%

  - Removing wikimedia/utfnormal (v1.0.3)
  - Installing wikimedia/utfnormal (v1.0.2)
    Downloading: 100%

  - Removing zordius/lightncandy (v0.21)
  - Installing zordius/lightncandy (v0.18)
    Downloading: 100%

  - Installing leafo/lessphp (v0.5.0)
    Downloading: 100%

Generating optimized autoload files
```

The above will also create composer.lock file which can be used to update the dependencies later on to the latest version.

How do I update composer.lock file?

If there is no .lock file, this tool will create one based on the dependencies from the .json file. To fetch the dependent libraries to newer versions, run the following command i.e. if you have an existing composer.lock file you will need to run it as follows:

```
$ composer update
```

OR switch to core project directory such as /var/www/html/wiki and run:

```
$ cd /var/www/html/wiki/ && composer update --no-dev
```

Sample outputs:

```
> ComposerHookHandler::onPreUpdate
Deprecation Notice: The Composer\Package\LinkConstraint\VersionConstraint clas
Deprecation Notice: The Composer\Package\LinkConstraint\LinkConstraintInterfac
Loading composer repositories with package information
Updating dependencies

  - Removing leafo/lessphp (v0.5.0)
  - Removing wikimedia/composer-merge-plugin (v1.0.0)
  - Installing wikimedia/composer-merge-plugin (v1.3.0)
    Downloading: Connecting...
    Downloading: 100%

  - Removing liuggio/statsd-php-client (v1.0.12)
  - Installing liuggio/statsd-php-client (v1.0.16)
    Downloading: Connecting...
    Downloading: 100%

  - Installing mediawiki/at-ease (v1.1.0)
    Downloading: 100%

  - Removing oojs/oojs-ui (v0.11.3)
  - Installing oojs/oojs-ui (v0.12.12)
    Downloading: 100%

  - Removing wikimedia/cdb (1.0.1)
  - Installing wikimedia/cdb (1.3.0)
    Downloading: 100%

  - Removing wikimedia/utfnormal (v1.0.2)
  - Installing wikimedia/utfnormal (v1.0.3)
    Downloading: 100%

  - Removing zordius/lightncandy (v0.18)
  - Installing zordius/lightncandy (v0.21)
    Downloading: 100%

  - Installing composer/semver (1.0.0)
    Downloading: 100%
```

```
   - Installing oyejorge/less.php (v1.7.0.9)
     Downloading: 100%

   - Installing wikimedia/assert (v0.2.2)
     Downloading: 100%

   - Installing wikimedia/ip-set (1.0.1)
     Downloading: 100%

   - Installing wikimedia/wrappedstring (v2.0.0)
     Downloading: 100%

Writing lock file
Generating optimized autoload files
```

Finally updating mediawiki to version 1.26.0

Now mediawiki will be updated without any problem as composer already fetched required libs for your php app:

```
$ cd /var/www/html/wiki/
$ php update.php
```

Command summary

This tutorial described how to install the composer and update mediawiki. But, if you just need the composer tool for your own project, just run the following commands:

```
$ sudo apt-get install curl php5-cli git
$ sudo curl -sS https://getcomposer.org/installer | sudo php -- --install-
dir=/usr/local/bin --filename=composer
$ composer
```

Now create your own .json file:

```
$ cd /my/cool/project/
$ vi composer.json
```

Install the dependencies for your project from composer.json, enter:

```
$ composer install
```

To update the dependencies for your project:

```
$ composer update
```

And, there you have it composer installed and working for your LAMP project. For further information please see the official composer project documentation here.

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