

BitRock LAPPStack 1.0 Quick Start Guide

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Acknowledgments

Bitrock LAPPStack is based on a number of open source components:

The Apache HTTP server, developed by The Apache Software Foundation.

<http://www.apache.org/>.

Software developed by PostgreSQL.

<http://www.postgresql.org>

PHP, the Hypertext Preprocessor

<http://www.php.net>.

The Zend Engine.

<http://www.zend.com/>.

The Python Programming language by The Python Software Foundation.

<http://www.python.org>.

mod_python, software developed by Gregory Trubetskoy.

<http://www.modpython.org>.

phpPgAdmin, a web-based administration tool for PostgreSQL.

<http://phppgadmin.sourceforge.net/>

jpegsrc. Software developed by the The Independent JPEG Group.

<http://www.ijg.org>

The gd graphics library.

<http://www.boutell.com/gd/>

You can find the individual licenses for the above projects as part of the installation.

BitRock LAPPStack Overview

BitRock LAPPStack is an easy to install and easy to use open source Web Platform. It combines leading open source projects, such as Apache, PostgreSQL and PHP with BitRock's extensive open source expertise to provide a consistent, painless way to deploy LAPP in any Linux environment.

Components

BitRock LAPPStack includes **Apache 2.0.59**, **PostgreSQL 8.1.4** and **PHP 5.1.4**, **Python 2.4.3**, **mod_python 3.2.8** and **phpPgAdmin 4.0.1**.

Apache is the most popular HTTP server on the Internet. It provides a secure, efficient and extensible web platform. It is maintained by the Apache Software Foundation. You can find more information about Apache at <http://www.apache.org>.

PostgreSQL is an Open Source Software object relational database management system and a proven architecture that has earned it a strong reputation for reliability, data integrity, and correctness. You can find more information about PostgreSQL at <http://www.postgresql.org/>.

PHP is a web development scripting language that can be embedded into HTML. Powerful and easy to use, it is the most popular Apache module. It is maintained by the PHP Group. You can find more information about PHP at <http://www.php.net>.

The **Python** Programming language is an interpreted, interactive, object-oriented programming language. Python is portable across the most important modern platforms including different UNIX flavors, Windows and many others. It is maintained by the Python Software Foundation. You can find more information about Python at <http://www.python.org>.

mod_python is an Apache module that embeds the Python interpreter within the web server. It allows you to write web-based applications in the Python programming language with better flexibility and performance than using the CGI technology. It's a software developed by Gregory Trubetskoy. You can find more information about mod_python at <http://www.modpython.org>.

phpPgAdmin is a tool written in PHP intended to handle the administration of PostgreSQL through a web interface. It allows you

to manage easily your PostgreSQL server. You can find more information about phpPgAdmin at <http://phpPgAdmin.sourceforge.net>.

Requirements

To run BitRock LAPPStack you will need:

- A x86 Linux system with 64Mb of free RAM.
- A glibc \geq 2.2 distribution such as Red Hat 7.3 or later. It may run on older systems but those configurations are not officially supported.

BitRock LAPPStack has been tested and is commercially supported in the following distributions:

- Red Hat 9
- Red Hat Enterprise 3, 4.
- Fedora Core 1, 2, 3, 4.
- Suse 9.x series.
- Suse Enterprise 8, 9.
- Ubuntu 5.04.

It is also known to work in different versions of Debian, Slackware, Gentoo and Mandrake.

Installation Guide

This section describes where to download BitRock LAPPStack and the different installation modes that are available.

At the end of the installation process, if you are running Gnome or KDE, an icon will be created in your Desktop. Double-clicking on it will take you to the BitRock LAPPStack installation directory. There, you will find links to the documentation for the installed software and to other useful information.

Downloading BitRock LAPPStack

You can download the BitRock LAPPStack binary file from www.bitrock.com. It will be named `lappstack-1.0-linux-installer.bin`. The same binary file will work on any Linux distribution.

Once you have downloaded the file, make sure it has read and executable permissions: From your Desktop environment, right-click on the file, select "Properties" and then set the appropriate permissions. Alternatively, you can issue the following shell command:

```
$ chmod 755 lappstack-1.0-linux-installer.bin
```

Installing BitRock LAPPStack

You can install BitRock LAPPStack in graphical, text and unattended modes. By default the graphical mode will be used.

Graphical Mode

To begin the installation process, double-click on the file from your Desktop environment or invoke it directly from the command line with:

```
$ ./lappstack-1.0-linux-installer.bin
```

You will be greeted by the 'Welcome' screen. Pressing 'Next' will take you to the 'License Agreement' page. You must accept the agreement to continue the installation. The next step is to select the installation directory. The default installation path will be a folder on your home directory if you are running the installer as a regular user, or `/opt/lappstack-1.0`, if you are running the installation as root.

If the destination directory does not exist, it will be created as part of the installation.

After selecting the installation directory you will be asked for the password to the initial PostgreSQL administration account. This password cannot be empty.

The default listening port for Apache is 8080 and for PostgreSQL is 5432. If those ports are already in use by other applications, you will be prompted for alternate ports to use. Remember that if you plan to run both applications as a regular user you should select port numbers above 1024. The PostgreSQL tcp port will only be used if you later on decide to start PostgreSQL so it listens for TCP/IP connections. By default, for security reasons, it will use a local connection under the `postgresql` installation directory.

Finally, the installer will ask you for the initial password to access the your phpPgAdmin installation through the web. This password cannot be empty.

You are now ready to begin the installation, which will start when you press 'Next'. Once the installation process has been completed, you will see the 'Installation Finished' page.

If you receive an error message during installation, please refer to the Troubleshooting section.

The rest of this guide assumes that you installed BitRock LAPPStack in `/home/user/lappstack-1.0` and that you use port 8080 for Apache and 5432 for PostgreSQL.

Text Mode

This installation mode is designed for remote installation or installation on servers without X-Window support. It is started by default when a graphical environment is not available or by issuing the following command:

```
$ ./lappstack-1.0-linux-installer.bin --mode text
```

You will be greeted by the 'Welcome' message. Once you press 'Enter' you will be presented with the 'License Agreement'. You must accept the agreement to continue the installation. The next step is to select the installation directory. The default installation path will be a folder on your home directory if you are running the installer as a regular user, or `/opt/lappstack-1.0`, if you are running the installation as root. If the destination directory does not exist, it will be created.

After selecting the installation directory you will be asked for the password to the initial PostgreSQL administration account. This password cannot be empty.

The default listening port for Apache is 8080 and for PostgreSQL is 5432. If those ports are already in use by other applications, you will be prompted for alternate ports to use. Remember that if you plan to run both applications as a regular user you should select port numbers above 1024.

Finally, the installer will ask you for the initial password to access the your phpPgmyAdmin installation through the web. This password cannot be empty.

You are now ready to begin the installation process, which will start when you press 'Enter'. Once the installation process has been completed, you will see the 'Installation Finished' message.

If you receive an error message during installation, please refer to the Troubleshooting section.

The rest of this guide assumes that you installed BitRock LAPPStack in `/home/user/lappstack-1.0` and that you use port 8080 for Apache and 5432 for PostgreSQL.

Unattended Mode

It is possible to perform an unattended or silent installation using the `--mode unattended` command line option. This is useful for automating installations or for inclusion in shell scripts, as part of larger installation processes. You will not be asked for anything during the installation.

However you will need to pass to the installer the value of the password to the initial PostgreSQL administration account and the initial password to access phpPgAdmin. You can do that using the options `--rootpasswd` and `--phppgadminpasswd`. For example:

```
$ ./lappstack-1.0-linux-installer.bin --mode unattended --rootpasswd postgresqlpasswd --phppgadminpasswd pmapasswd
```

You can also modify the default installation directory by passing the `--prefix /path/to/installdir` command line option to the installer.

Apache will use by default the port 8080 and PostgreSQL the port 5432. You can change those values as well using the command line options `--dbport` and `--webport`:

```
$ ./lappstack-1.0-linux-installer.bin --mode unattended --rootpasswd
```

```
postgreslpasswd --phpgadminpasswd pmapasswd --dbport 5433 --webport 8085
```

Please make sure that the ports you specify are not already in use by other applications and remember that if you plan to run both applications as a regular user, you should select port numbers above 1024.

If you receive an error message during installation, please refer to the Troubleshooting section.

The rest of this guide assumes that you installed BitRock LAPPStack in `/home/user/lappstack-1.0` and that you use port 8080 for Apache and 5432 for PostgreSQL.

Directory Structure

The installation process will create several subfolders under the main installation directory:

- `apache2/`: Apache Web server.
- `common/`: common libraries.
- `licenses/`: Licenses of the components included in LAPPStack.
- `php/`: PHP Scripting Language.
- `postgresql/`: PostgreSQL Database.
- `python/`: The Python Programming Language.

Besides, you will find the `lappctl.sh` utility to start and stop the LAPPStack components and the `install_summary.txt` file with details of the installation settings.

Uninstalling BitRock LAPPStack

As part of the installation, an uninstall program will be created at `/home/user/lappstack-1.0/`. The uninstallation can also be performed in graphical, text and unattended modes. You can run the uninstaller by double-clicking on the uninstall application or through the command line:

```
$ /home/user/lappstack-1.0/uninstall
```

Apache Web server

This section describes how to start Apache for the first time and gives a basic introduction to the Apache configuration and log files.

Starting Apache

You can start Apache from the command line by issuing:

```
$ /home/user/lappstack-1.0/lappctl.sh start apache
```

If no error is found, you will see a message similar to:

```
Syntax OK
```

```
lappstack-1.0/lappctl.sh : httpd started at port 8080
```

This indicates the server is up and running. You can test so by opening a browser and accessing the following URL `http://127.0.0.1:8080`, which will take you to the test page.

If you receive an error message, the server cannot start or you cannot see the test page, please refer to the Troubleshooting section.

Stopping Apache

You can stop Apache from the command line issuing:

```
$ /home/user/lappstack-1.0/lappctl.sh stop apache
```

After a moment you should see a message similar to:

```
Syntax OK
```

```
/home/user/lappstack-1.0/lappctl.sh : httpd stopped
```

Apache Basic Configuration

The main Apache configuration file is called `httpd.conf` which you can find at `/home/user/lappstack-1.0/apache2/conf/httpd.conf`.

Once Apache starts, it will create two log files, the `access_log` and the `error_log`. You can find both files at the `/home/user/lappstack-`

`1.0/apache2/logs` directory.

The `access_log` file is used to track client requests. When a client requests a document from the server, Apache records several parameters associated with the request in this file, such as: the IP address of the client, the document requested, the HTTP status code, and the current time.

The `error_log` file is used to record important events. This file includes error messages, startup messages, and any other significant events in the life cycle of the server. This is the first place to look when you run into a problem when using Apache.

If you already have a web page and you want to serve its content with Apache, you can do so simply by copying your files to the default document root directory: `/home/user/lappstack-1.0/apache2/htdocs/`.

With the default configuration, Apache will wait for requests in the port 8080. You can change that by editing the `httpd.conf` file and modifying the value specified in the `Port` directive.

You can find more information about Apache in the technical documentation that is located in the `/home/user/lappstack-1.0/apache2/htdocs/manual` directory.

PostgreSQL Database

This section describes how to start the PostgreSQL database and gives you a few basic tips about PostgreSQL running. You can find the PostgreSQL documentation at <http://www.postgresql.org/docs/>.

PostgreSQL User

The installer will create a PostgreSQL named "administrator" with permissions to create databases and create new users. The password for this user is prompted during the installation.

Starting PostgreSQL

After installing BitRock LAPPStack you can start the PostgreSQL server issuing:

```
$ /home/user/lappstack-1.0/lappctl.sh start postgresql
```

If no error is found, you will see a message similar to:

```
./lappctl.sh : postgresql started at port 5432
```

To find out if PostgreSQL is running, use the following:

```
$ /home/user/lappstack-1.0/postgresql/bin/pg_ctl -D /home/user/lappstack-1.0/postgresql/data/
```

You also can connect to the PostgreSQL interactive terminal:

```
$ /home/user/lappstack-1.0/postgresql/bin/psql -h /home/user/lappstack-1.0/postgresql/ -p 5432
```

Stopping PostgreSQL

You can shutdown PostgreSQL with the following command:

```
$ /home/user/lappstack-1.0/lappctl.sh stop postgresql
```

PHP

This section describes how to test your PHP installation. You can find the [PHP technical documentation](http://www.php.net/manual/en/index.php) at <http://www.php.net/manual/en/index.php>

Testing Your Installation

The easiest way to test your PHP installation is to create a test script using the `phpinfo()` function. Open your favorite text editor and type:

```
<?php phpinfo(); ?>
```

Save the file as `phptest.php` in `/home/user/lappstack-1.0/apache2/htdocs/`. Make sure Apache is up and running, open a browser and type <http://127.0.0.1:8080/phptest.php>. You should then see a screen showing detailed information about the PHP version you are using.

mod_python

This section describes how to test the installation of mod_python. You can find the mod_python technical documentation at http://www.modpython.org/live/mod_python-3.2.8/doc-html/

Testing Your Installation

You can test your mod_python installation in three easy steps. First, create a directory called `/home/user/lappstack-1.0/apache2/htdocs/test`

Now edit the file `/home/user/lappstack-1.0/apache2/conf/httpd.conf` with your favorite text editor and add the following text:

```
<Directory /home/user/lappstack-1.0/apache2/htdocs/test>
AddHandler mod_python .py
PythonHandler mptest
PythonDebug On
                                PythonPath          "[ '/home/user/lappstack-
1.0/apache2/htdocs/test' ]+sys.path"
</Directory>
```

after the line:

```
PythonInterpreter /home/user/lappstack-1.0/python/bin/python
```

and save the file.

Finally, open your favorite text editor again and type:

```
from mod_python import apache

def handler(req):
    req.send_http_header()
    req.write("mod_python rocks!")
    return apache.OK
```

Save the file as `mptest.py` in `/home/user/lappstack-1.0/apache2/htdocs/test`. Restart Apache, open a browser and type `http://127.0.0.1:8080/test/mptest.py`. You should then see the message "mod_python rocks!" on the screen.

phpPgAdmin

This section describes how to access your phpPgAdmin installation.

phpPgAdmin is an easy to use management tool for PostgreSQL that allows you to manage all aspects of users and groups, databases, schemas, etc. And an easy data manipulation through a web-based interface.

Access to phpPgAdmin

To test your phpPgAdmin installation first make sure that your Apache and PostgreSQL servers are up and running. You can access your phpPgAdmin installation by opening a browser and typing `http://127.0.0.1:8080/phpPgAdmin`. You will then be asked for a username and password. As user name, use "**administrator**" and as password use the value specified during installation. Then select your server from the Servers list, and enter the username (administrator), password is not necessary.

Initially only requests from 127.0.0.1 will be allowed access to that section. You can change this behavior editing the Apache main configuration file located at `/home/user/lappstack-1.0/apache2/conf/httpd.conf`.

Troubleshooting

This section describes some of the most common problems you may find when installing BitRock LAPPStack.

Installer

Installer Payload Error

You may get the following error while trying to run the installer from the command line:

```
Installer payload initialization failed. This is likely due to an incomplete or corrupt downloaded file.
```

The installer binary is not complete, likely because the file was not downloaded correctly. You will need to download the file and repeat the installation process.

Installation does not complete and hangs at the end forever.

You are probably overwriting a previous LAPPStack installation and therefore a previous PostgreSQL. Remove or move your previous LAPPStack installation and try to install LAPPStack again.

Apache

If you find any problem starting Apache, the first place you should look at is the error log file that will be created at `/home/user/lappstack-1.0/apache2/logs/error_log`. There you will likely find useful information to determine what the problem may be. For issues not covered in this Quick Start guide, please refer to the Apache documentation included as part of the installation, which is located at `/home/user/lappstack-1.0/apache2/htdocs/manual`.

Test page is not working

If the server seems to start correctly (i.e. you can see the `./apachectl start: httpd started` message) but you cannot see the test page when you type `http://127.0.0.1:8080/` in your browser, it may be that there is already a server running in that port.

Search `/home/user/lappstack-1.0/apache2/logs/error_log` for a message similar to this:

```
[Mon Jan 9 19:52:10 2005] [crit] (98)Address already in use: make_sock:
could not bind to port 8080
```

This means that the port 8080 is already being used by another program. You can either stop the program that is using that port or edit the `httpd.conf` configuration file and change the port Apache will listen for requests in.

Cannot bind to port 80

If you change the default listening port for Apache and get the following error in `error_log`:

```
[Mon Jan 9 20:09:50 2005] [crit] (13)Permission denied: make_sock: could not
bind to port 80
```

you do not have enough permissions to bind to that port.

On Unix, to be able to bind to a port below 1024, you need to be a privileged user. Log in as root or issue the 'su' command and try to start the server again.