Build your personal cloud services

Own the Cloud

Set up your own personal cloud server with ownCloud.

By Dmitri Popov

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Dmitri Popov has been writing exclusively about Linux and open source software for many years, and his articles have appeared in Danish, British, US, German, and Russian magazines and websites. Dmitri is an avid amateur photographer, and he writes about open source photography tools on his Scribbles and Snaps blog at scribblesandsnaps.wordpress.com.

Moving your data and applications to the cloud seems like a great solution to many problems. You can access your files and documents from any device connected to the Internet, sync data between multiple machines, and stay productive while on the move. A myriad of third-party cloud-based services would be happy to store your data and give you access to their web-based applications for a monthly or yearly fee, but this approach raises another set of security and privacy issues. Besides, third-party services come and go. Even the most well-established cloud services that seem too big and popular to fail could fade away with time. In theory, you should be able to get your data back, but things don't always work out in practice. Even if you manage to get a hold of your documents and files, migrating to another cloud-based service can be both time consuming and expensive.

Instead of relying on the third-party cloud services, you can roll your own cloud server. This way, you don't have to pay for the privilege of accessing your own data and you can stop worrying about potential privacy issues. Of course, you have to consider a few things before going this route. For starters, you need a dedicated machine or virtual server, as well as a reliable and relatively fast Internet. Having your own cloud server also means that you have to maintain it and keep it running smoothly. In short, you should consider all the advantages and drawbacks of hosting your own cloud server before you make your move.

Deploying ownCloud

Among the several possible solutions for setting up a personal cloud server, ownCloud [1] is the most promising and probably the easiest to deploy. But before you install ownCloud, you need to do some preparatory work. To begin, make sure the machine that will act as a server has the required components, including the Apache web server, PHP5, and the MySQL database server. Plenty of resources on the web can help you install and configure this stack. The easiest way to turn a machine into a server is to install the server edition of Ubuntu. Alternatively, you can turn a regular Ubuntu or Debian-based desktop system into a server using two simple commands. To install the `tasksel` package, enter:

```
sudo apt-get install tasksel
```

Next, run the `sudo tasksel` command in the terminal, select the *LAMP Server* package, and press *OK* (Figure 1).

Besides MySQL, ownCloud can also use SQLite as its database back end, which is a good option if you want a more compact and light ownCloud setup. On Ubuntu and Debian-based systems, installing SQLite is a matter of running

```
apt-get install sqlite php5-sqlite
```

as root. Once you've done that, you have to enable SQLite support in Apache. To

do that, open the `php.ini` file for editing with

```
nano /etc/php5/apache2/php.ini
```

as root, then add the following lines to the text file:

```
extension=pdo.so
extension=pdo_sqlite.so
extension=sqlite.so
```

While you are at it, you might want to increase the default upload file size limit. To do this, locate the following lines and specify the desired values:

```
upload_max_filesize = 2M
post_max_size= 2M
```

To save the changes and restart the Apache server, run

```
/etc/init.d/apache2 restart
```

as root. Finally, install a handful of optional packages:

```
apt-get install mp3info curl libcurl3 libcurl3-dev ➥
  php5-curl zip
```

With all the pieces in place, you are ready to install ownCloud. The project's website offers both stable and development versions. Grab the version you want, unpack the downloaded archive, rename the resulting directory to `owncloud`, and move it to the document root of your server. Connect to the server via SSH and make the `owncloud` directory accessible to Apache:

```
chown -R www-data:www-data owncloud/
```

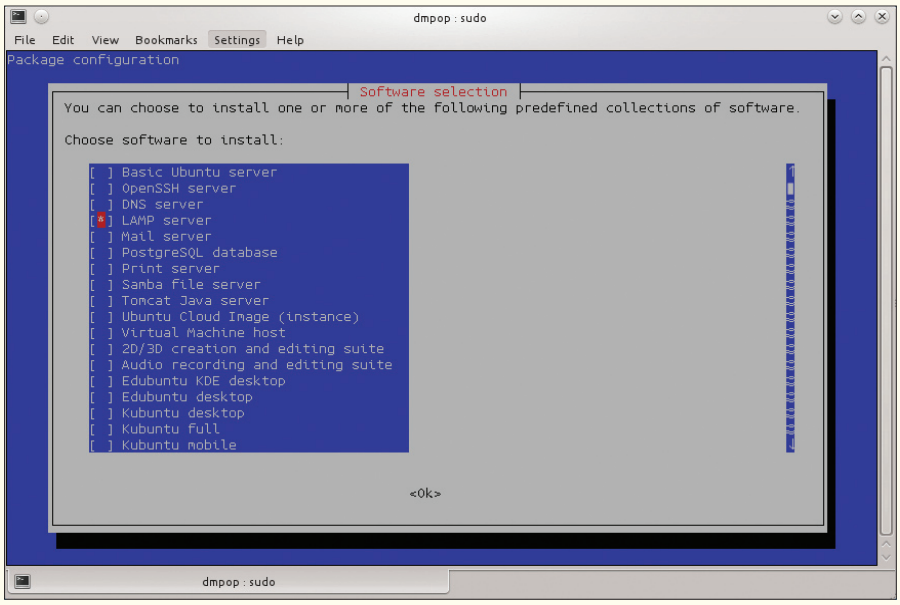


Figure 1: The tasksel tool can quickly turn a desktop running Ubuntu or Debian into a server.

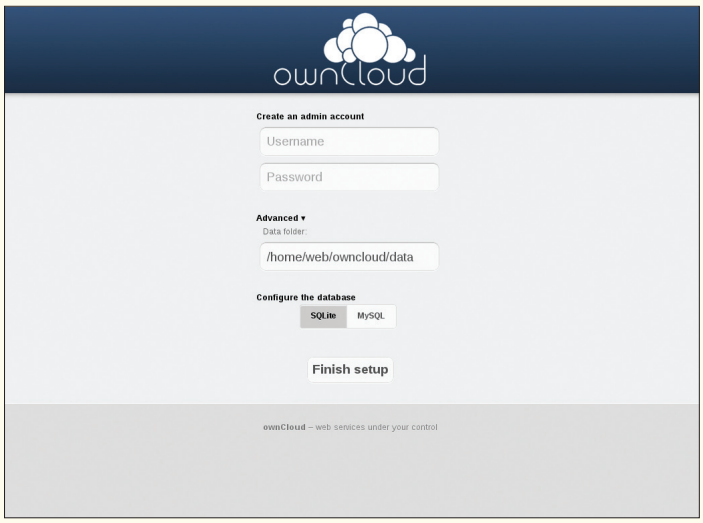


Figure 2: Installing ownCloud is a one-step procedure.

Note that the Apache user and group might be different on your specific Linux distribution. Finally, if you plan to use ownCloud with MySQL, create a database using your preferred database management tool like phpMyAdmin.

Point your browser to *http://127.0.0.1/owncloud* (replace *127.0.0.1* with the actual IP address or domain name of your server) and create an administrative account. The ownCloud installer automatically detects the available database back ends, and you have to choose the one you want to use with ownCloud (Figure 2). If you opt for MySQL, you need to enter the required database connection info then hit the *Finish setup* button to complete the installation. Once ownCloud is up and running, you can log in with the specified credentials.

Using ownCloud

When you log in, ownCloud automatically drops you into the *Files* section, and you can start adding files and documents right away. However, before you do that, it's a good idea to configure a few basic settings. If you plan to share your ownCloud installation with other users, you should create accounts for them. To do this, click on the *Settings* icon in the lower-left corner of the ownCloud main window, select *Users*, and add user accounts (Figure 3). For each user account, you can specify the disk space quota to limit how much data each user can upload and store. And, to keep

TRY OWNCLOUD

If you'd like to give ownCloud a try without committing to a full-blown installation, you have several options at your disposal. The project's website maintains a demo installation of ownCloud, which you are free to explore without registering or creating an account. The latest stable version of ownCloud is also available as an openSUSE-based virtual appliance [2], so you can try ownCloud using virtualization software like VirtualBox. Finally, if you prefer to test ownCloud on your network without installing it on a dedicated machine, you can use the XAMPP solution [3] which comes with all the required pieces (Apache, MySQL, PHP5, etc.) pre-configured and ready to run.

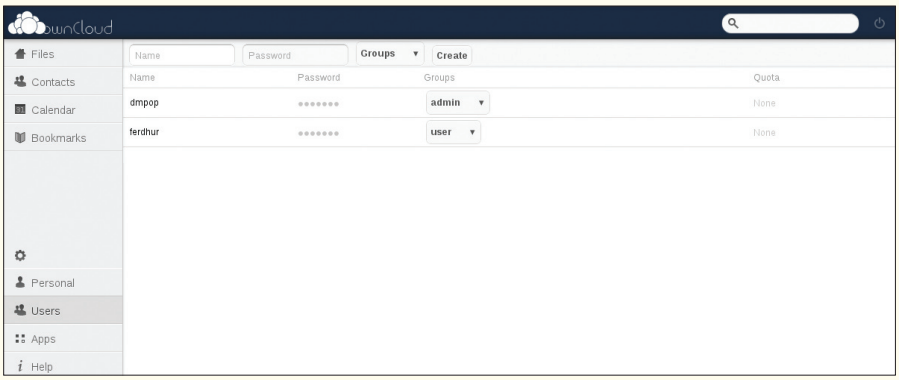


Figure 3: ownCloud can handle multiple users, and you can organize them into groups.

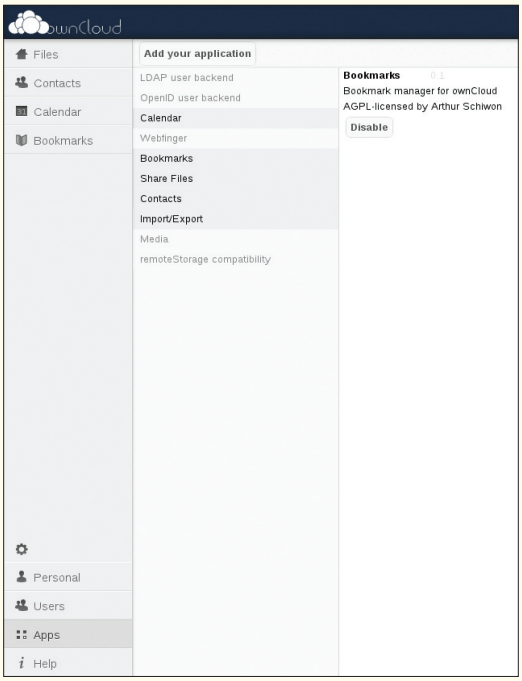


Figure 4: ownCloud comes bundled with a handful of apps, including Bookmarks.

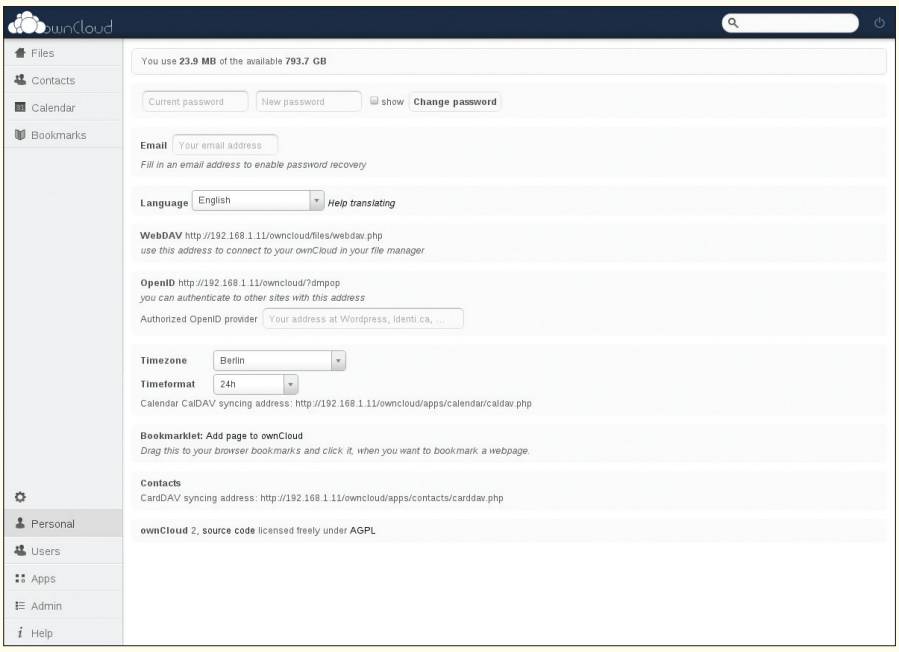


Figure 5: The Personal section contains the WebDAV URL of your ownCloud installation.

tabs on multiple users, you can organize them into groups.

ownCloud comes bundled with several simple apps, which you can disable and enable in the *Apps* section. Currently, the selection is pretty limited, but a few essential, albeit basic, apps are available, including Calendar, Contacts, Media, and Bookmarks (Figure 4).

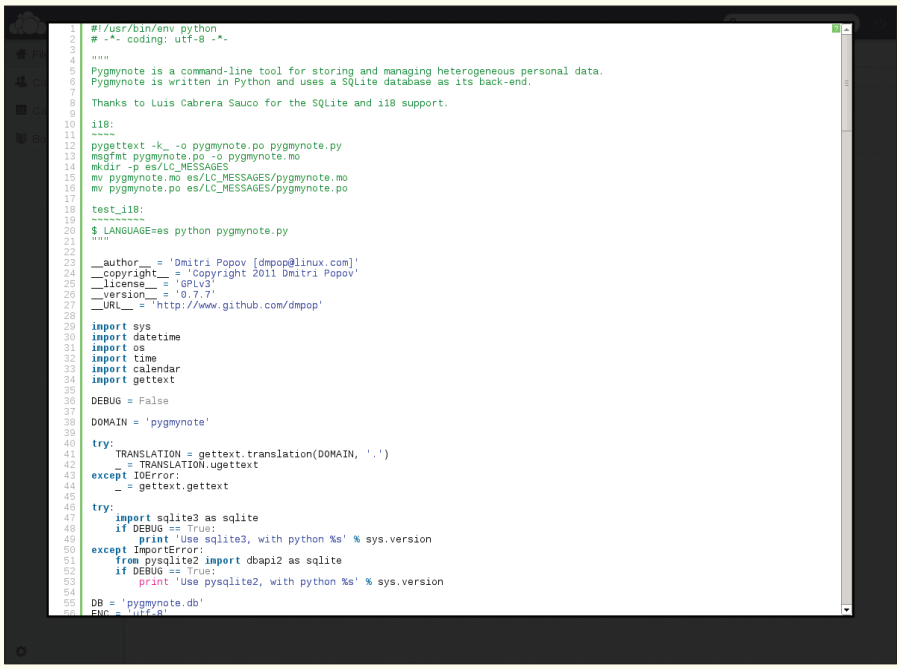
In the *Apps* section, you will also find more advanced tools, such as the LDAP back end for authenticating users through an LDAP server and OpenID, which allows users to log in to ownCloud via an OpenID provider. Finally, on the *Personal* page of the *Settings* section, you can configure a preferred language and time zone and change your password. The page also contains URLs to different services provided by ownCloud. Which services are available depends on which apps you enabled. At the very least, you should note the WebDAV URL: You will need it to access ownCloud's storage remotely (Figure 5).

Although you can use the supplied apps to manage your contacts and appointments, listen to music, and keep tabs on your bookmarks, ownCloud is geared toward storing files and documents and making them accessible from remote clients. The *Files* section lets you upload files and documents and group them into folders. If you have the `zip` package installed on your server, you can upload multiple files in one go.

ownCloud does not support the document editing functionality; however, it can display previews of files in the most popular formats, including JPG and PNG images and plain text files. ownCloud also includes a syntax highlighter, so when you preview scripts and program files, the system conveniently color-codes the code (Figure 6). The *Share* icon next to each file stored in ownCloud allows you to share a specific file or document quickly with individual users or groups (Figure 7). You can also make files public, so anyone can download them using public URLs generated by ownCloud.

As I mentioned previously, ownCloud can be accessed from a remote machine using the WebDAV protocol. On KDE, you can quickly access files stored on ownCloud by entering the WebDAV URL in the Dolphin file manager (you have to replace the *http://* prefix with *webdav://*).Instead of entering the URL every time you need to access your files, you can create a network shortcut in Dolphin. To do this, click on the *Network* entry in Dolphin's *Places* panel, then click on the *Add Network Folder* icon. Give the new shortcut a descriptive name in the *Name* fields and enter your ownCloud username in the *User* field. Next, specify the IP address or domain name (without the *http://* prefix) of your ownCloud server and the WebDAV path in the appropriate fields (Figure 8). To finish, just press the *Save & Connect* button and enter your password.

Things are even easier for Nautilus file manager users. Simply enter the WebDAV URL in the Location bar (you can evoke it with the Ctrl + L keyboard shortcut), replacing the *http://* prefix with



```
#!/usr/bin/env python
# -*- coding: utf-8 -*-

"""
Pygmynote is a command-line tool for storing and managing heterogeneous personal data.
Pygmynote is written in Python and uses a SQLite database as its back-end.

Thanks to Luis Cabrera Sauco for the SQLite and i18 support.

i18:
~~~~
pygettext -k_ -o pygmynote.po pygmynote.py
msgfmt pygmynote.po -o pygmynote.mo
mkdir -p es/LC_MESSAGES
mv pygmynote.mo es/LC_MESSAGES/pygmynote.mo
mv pygmynote.po es/LC_MESSAGES/pygmynote.po

test_i18:
~~~~~~~~~
$ LANGUAGE=es python pygmynote.py
"""

__author__ = 'Dmitri Popov [dmpop@linux.com]'
__copyright__ = 'Copyright 2011 Dmitri Popov'
__license__ = 'GPLv3'
__version__ = '0.7.7'
__URL__ = 'http://www.github.com/dmpop'

import sys
import datetime
import os
import time
import calendar
import gettext

DEBUG = False

DOMAIN = 'pygmynote'

try:
    TRANSLATION = gettext.translation(DOMAIN, '.')
    _ = TRANSLATION.ugettext
except IOError:
    _ = gettext.gettext

try:
    import sqlite3 as sqlite
    if DEBUG == True:
        print 'Use sqlite3, with python %s' % sys.version
except ImportError:
    from pysqlite2 import dbapi2 as sqlite
    if DEBUG == True:
        print 'Use pysqlite2, with python %s' % sys.version

DB = 'pygmynote.db'
ENC = 'utf-8'
```

Figure 6: ownCloud sports a built-in syntax highlighter.

dav://. This opens the ownCloud storage and automatically mounts the network folder on the desktop.

Of course, you are not limited to the Linux desktop, and you can access your files from any platform and application that supports the WebDAV protocol. For example, if you want to connect to ownCloud and retrieve documents and files from your Android device, you can use a WebDAV app like WebDAV Navigator [4], which lets you browse and download files stored on ownCloud, create folders, and upload files from your Android device (Figure 9). You can even snap photos with the built-in camera and push them directly to ownCloud. Unfortunately, WebDAV Navigator is not free, but you can try a Lite version of the app before you buy it.

Wrap-Up

ownCloud is far from being a comprehensive and mature solution. But even in its current form, ownCloud can be a decent solution for deploying a personal cloud server, especially if you are interested in hosting and sharing files and documents.

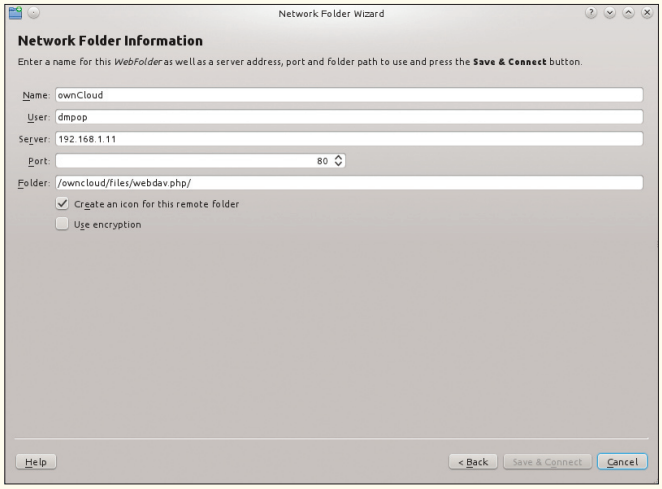


Figure 8: Adding a network shortcut in Dolphin.

Figure 7: You can easily share files with individual users or groups.

INFO

[1] ownCloud: *http://owncloud.org/*

[2] ownCloud in a box: *http://susegallery.com/a/TadMax/owncloud-in-a-box*

[3] XAMPP: *http://www.apachefriends.org/en/index.html*

[4] WebDAV Navigator app for Android: *https://market.android.com/details?id=com.schimera.webdavnav*

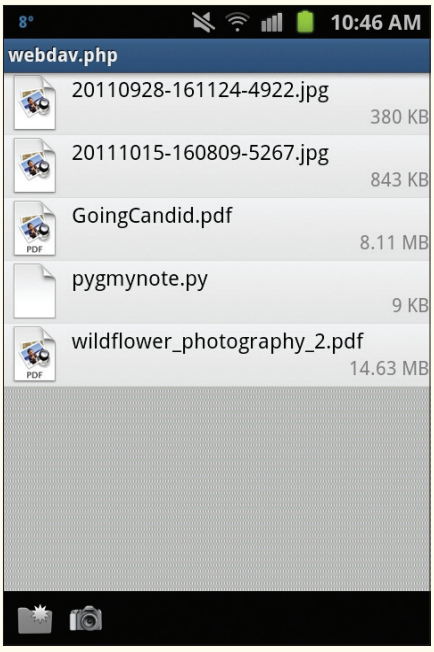


Figure 9: Using the WebDAV Navigator app, you can access ownCloud from an Android device.