

Custom DNS TLD (for internal purpose)

Tools

- **PowerDNS** Authoritative Server For your authoritative server, we have selected PowerDNS mostly because of the availability of a HTTP API. This API will help us to easily exchange information between registries and registrar as EPP is used on real world.
- **PowerAdmin**, PowerAdmin is on the web based management interfaces for PowerDNS. This user-friendly interface will help the team to create zones and resource records without writing any SQL statement.
- **MySQL**, it is a freely available open source Relational Database Management System (RDBMS) that uses Structured Query Language (SQL).

Installation & Configuration

1) PowerDNS

To install PowerDNS, we run

```
root@pi-register2# apt-get install pdns-server pdns-backend-mysql
```

The PowerDNS configuration is located in the /etc/powerdns directory - We will come to that in a moment.

Now we must configure PowerDNS so that it uses the MySQL backend.

```
root@pi-register2# vi /etc/powerdns/pdns.conf
```

Add the line **launch=gmysql** to pdns.conf:

```
[...]
#####
# launch      Which backends to launch and order to query them in
#
# launch=
launch=gmysql
[...]
```

Then open **/etc/powerdns/pdns.d/pdns.local** and make it look as follows:

```
root@pi-register2# vi /etc/powerdns/pdns.d/pdns.local
```

Here comes the local changes the user made, like configuration of the several backends that exists.

```
gmysql-host=127.0.0.1
gmysql-user=power_admin
gmysql-password=power_admin_password
gmysql-dbname=powerdns
```

After it, we restart pdns:

```
root@pi-register2# /etc/init.d/pdns restart
```

That's it, PowerDNS is now ready to be used. To learn more about it, please refer to its documentation: <http://downloads.powerdns.com/documentation/html/index.html>

2) Mysql

To begin, simply install MySQL with the command:

```
root@pi-register2# apt-get install mysql-server mysql-client
```

➤ Connecting to the MySQL Server

Now we can connect to our MySQL server and begin configuring it:

```
root@pi-register2# mysql -u root -p
```

Then, we type our MySQL root password, and we should be on the MySQL shell. On this shell (`mysql>`), we create :

a database for PowerDNS:

```
CREATE DATABASE powerdns;
```

➤ Creating a Database User

Now that we have created a database for PowerDNS, we need to add a user that will have access to that database. Doing so is as easy as:

```
GRANT ALL ON powerdns.* TO 'power_admin'@'localhost' IDENTIFIED BY 'power_admin_password';
GRANT ALL ON powerdns.* TO 'power_admin'@'localhost.localdomain' IDENTIFIED BY 'power_admin_password';
FLUSH PRIVILEGES;
```

Next, we create the database required for our install of PowerDNS. The tables needed by PowerDNS are defined :

```
USE powerdns;
```

```
CREATE TABLE domains (
id INT auto_increment,
name VARCHAR(255) NOT NULL,
master VARCHAR(128) DEFAULT NULL,
last_check INT DEFAULT NULL,
type VARCHAR(6) NOT NULL,
notified_serial INT DEFAULT NULL,
account VARCHAR(40) DEFAULT NULL,
primary key (id)
);
```

```
CREATE UNIQUE INDEX name_index ON domains(name);
```

```
CREATE TABLE records (
id INT auto_increment,
domain_id INT DEFAULT NULL,
name VARCHAR(255) DEFAULT NULL,
type VARCHAR(6) DEFAULT NULL,
content VARCHAR(255) DEFAULT NULL,
```

```
ttl INT DEFAULT NULL,  
prio INT DEFAULT NULL,  
change_date INT DEFAULT NULL,  
primary key(id)  
);
```

```
CREATE INDEX rec_name_index ON records(name);  
CREATE INDEX nametype_index ON records(name,type);  
CREATE INDEX domain_id ON records(domain_id);
```

```
CREATE TABLE supermasters (  
ip VARCHAR(25) NOT NULL,  
nameserver VARCHAR(255) NOT NULL,  
account VARCHAR(40) DEFAULT NULL  
);
```

And finally we leave the MySQL shell with :

```
mysql> quit;
```

3) Poweradmin

Now let's install Poweradmin, a web-based control panel for PowerDNS. Poweradmin is written in PHP, so we must install a web server (I'm using Apache2 in this example) and PHP:

```
root@pi-register2# apt-get install apache2 libapache2-mod-php5 php5 php5-common  
php5-curl php5-dev php5-gd php-pear php5-imap php5-mcrypt php5-mhash php5-ming  
php5-mysql php5-xmllrpc gettext
```

Continue installing libc-client without Mail dir support? <-- Yes Poweradmin also requires the following two PEAR packages:

```
root@pi-register2# pear install DB
```

```
root@pi-register2# pear install pear/MDB2#mysql
```

Now all prerequisites for Poweradmin are installed, and we can begin with the Poweradmin installation (I will install it in a subdirectory of /var/www - /var/www is the document root of Apache's default web site on Debian; if you've created a vhost with a different document root, please adjust the paths). Go to <https://www.poweradmin.org/trac/wiki/GettingPoweradmin> and download the latest Poweradmin package, e.g. as follows:

```
root@pi-register2# cd /tmp  
root@pi-register2# wget http://sourceforge.net/projects/poweradmin/files/poweradmin-2.1.7.tgz
```

Then install it to the /var/www/poweradmin directory as follows:

```
root@pi-register2# tar xvfz poweradmin-2.1.7.tgz  
root@pi-register2# mv poweradmin-2.1.7/ /var/www/html/poweradmin  
root@pi-register2# touch /var/www/poweradmin/inc/config.inc.php  
root@pi-register2# sudo chown -R www-data:www-data /var/www/html/poweradmin/  
root@pi-register2# Sudo service apache2 start
```

Now we open a browser and launch the web-based Poweradmin installer (<http://192.168.20.20/poweradmin/install>).

Note that I've only highlighted the steps that might require some user customization. Obvious steps in the sequence in Figures 1–4 were excluded explicitly.

The screenshot shows the 'Poweradmin' header and 'Installation step 1'. It contains a list of radio buttons for language selection: English, Dutch, German, Japanese, Polish, French (selected), and Norwegian. A 'Go to step 2' button is at the bottom. A footer link reads 'a complete() poweradmin v2.1.7 - credits'.

Figure 1: Select Your Language

The screenshot shows 'Installation step 3' with instructions on database preparation. It features a form with fields for: 'Nom d'utilisateur' (power_admin), 'Mot de passe' (masked), 'Database type' (MySQL dropdown), 'Hostname' (localhost), 'DB Port' (3306), 'Database' (powerdns), and 'Poweradmin administrator password' (power_admin_password). Each field has a descriptive tooltip. A 'Go to step 4' button is at the bottom. The footer link is 'a complete() poweradmin v2.1.7 - credits'.

Figure 2: Enter Your MySQL Information

The screenshot shows 'Installation step 4' with a status message 'Updating database... done!' and a note about gathering configuration details. The form includes fields for: 'Nom d'utilisateur' (power_admin), 'Mot de passe' (power_admin_password), 'Hostmaster' (hostmaster.pi-register2.ctn), 'Primary nameserver' (ns1.pi-register2.ctn), and 'Secondary nameserver' (ns2.pi-register2.ctn). Each field has a descriptive tooltip. A 'Go to step 5' button is at the bottom. The footer link is 'a complete() poweradmin v2.1.7 - credits'.

Figure 3: Enter Your Basic DNS Domain Information

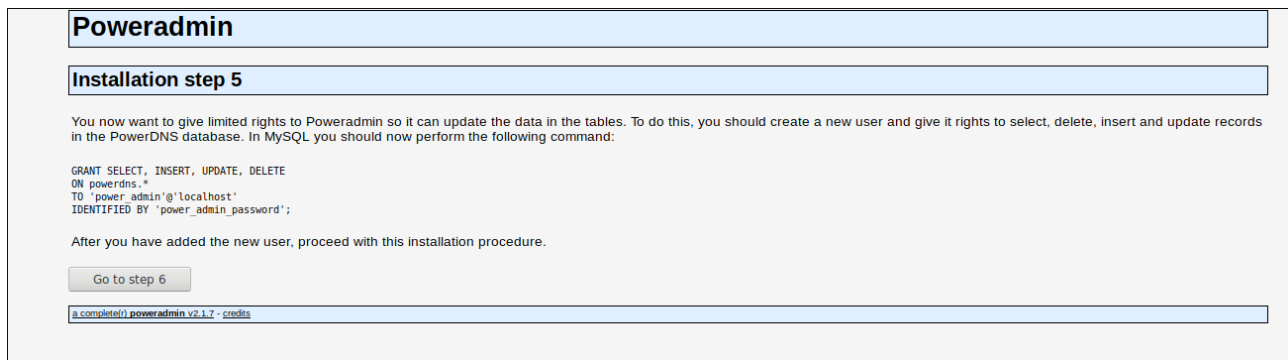


Figure 4: Give Poweradmin Rights

Now we want to give limited rights to Poweradmin so it can update the data in the tables. To do this, you should create a new user and give it rights to select, delete, insert, and update records in the PowerDNS database.

After we have added the new user, go back to MySQL and execute:

```
root@pi-register2:~# mysql -u root -p
```

```
use pdns;
```

```
GRANT SELECT, INSERT, UPDATE, DELETE
ON pdns.*
TO 'padmin'@'localhost'
IDENTIFIED BY 'pi-register2';
quit;
```

Once we are finished with initial setup you should do one more thing for security sake: remove the *install* directory:

```
root@pi-register2:~#rm -fr /var/www/Poweradmin/install/
```

● Poweradmin Configuration File

Like other PHP-based web applications, Poweradmin has a core configuration file that we can edit and customize to your heart's content at **/var/www/Poweradmin/inc/config.inc.php**.

In the event we would like to further customize our config file, we can edit this or explore the rest of this application's subdirectories.

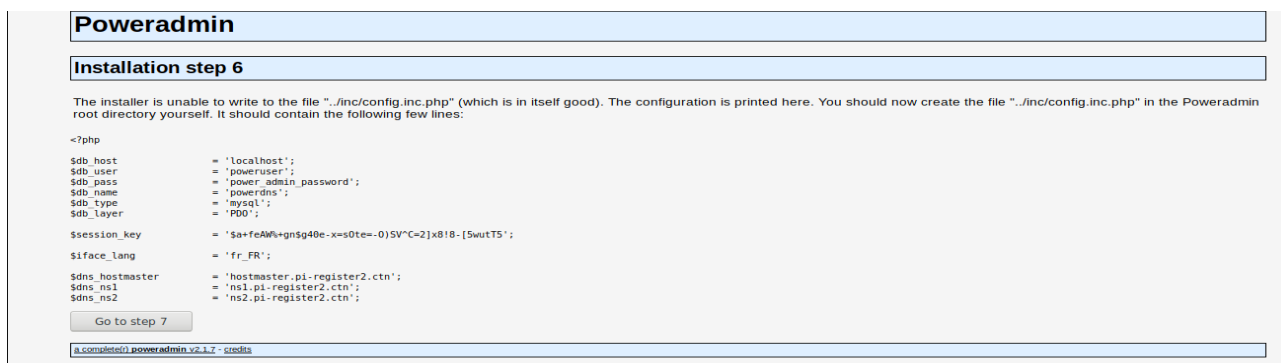


Figure5: content of ../inc/config.inc.php file

Poweradmin

Installation step 7

Now we have finished the configuration.

If you want support for the URLs used by other dynamic DNS providers, run "cp install/htaccess.dist .htaccess" and enable mod_rewrite in Apache.

You should (must!) remove the directory "install/" from the Poweradmin root directory. You will not be able to use Poweradmin if it exists. Do it now.

After you have removed the directory, you can login to [Poweradmin](#) with username "admin" and password "power_admin_password". You are highly encouraged to change these as soon as you are logged in.

a complete() poweradmin v2.1.7 - credits

Figure6: End of Poweradmin installation

TLDs Creation

● Logging In to Poweradmin

To access our Poweradmin server go to <http://192.168.20.20/Poweradmin/index.php> (Figure 7). Once there, we enter our powerdmin credential and we are redirect on Poweradmin management web GUI (Figure8). Then, we should add our master zone by clicking **Add master zone** from the initial login screen (Figure 8), add the information required for your base domain, and click **Add zone** (Figure 9) . From here, click on **List zones** (Figure 10) and then **Edit** an existing **pi-register2.ctn** zone, as in Figure 11.

Poweradmin

Log in

Username:

Password:

Language:

a complete() poweradmin - credits

Figure 7: Poweradmin login page.

Poweradmin

[Index](#)
[Search zones and records](#)
[List zones](#)
[List zone templates](#)
[List supermasters](#)
[Add master zone](#)
[Add slave zone](#)
[Add supermaster](#)
[Bulk registration](#)
[Change password](#)
[User administration](#)
[Logout](#)

Welcome Administrator

- [Index](#)
- [Search zones and records](#)
- [List zones](#)
- [List zone templates](#)
- [List supermasters](#)
- [Add master zone](#)
- [Add slave zone](#)
- [Add supermaster](#)
- [Change password](#)
- [User administration](#)
- [Logout](#)

a complete() poweradmin v 2.1.7 - credits

Figure 8: Poweradmin management web GUI.

Poweradmin

[Index](#) [Search zones and records](#) [List zones](#) [List zone templates](#) [List supermasters](#) [Add master zone](#) [Add slave zone](#) [Add supermaster](#) [Bulk registration](#) [Change password](#) [User administration](#) [Logout](#)

Add master zone

Zone name: [Add another domain](#)

Owner:

Type:

Template:

DNSSEC: ☐

[a complete\(r\) poweradmin v 2.1.2 - credits](#)

Figure 9: Adding a master zone.

Poweradmin

[Index](#) [Search zones and records](#) [List zones](#) [List zone templates](#) [List supermasters](#) [Add master zone](#) [Add slave zone](#) [Add supermaster](#) [Bulk registration](#) [Change password](#) [User administration](#) [Logout](#)

List zones

	Name	Type	Records	Owner
<input type="checkbox"/>	20.168.192.in-addr.arpa	master	1	Administrator
<input type="checkbox"/>	pi-register.ctn	master	1	Administrator

[a complete\(r\) poweradmin v 2.1.2 - credits](#)

Figure 10: Listing existing zones.

Edit zone "pi-register.ctn"

Id	Name	Type	Content	Priority	TTL
1	pi-register.ctn	SOA	ns1.pi-register2.ctn hostmaster.pi-register2.ctn 2017113000 28800 7200 604800 86400		86400

Comments:

Save as new template:

Template Name:

Template Description:

Name: IN Type: Content: Priority: TTL:

☒ Add also reverse record

Owner of zone: Administrator

Figure 11: Editing an existing zone.

As you can see, the GUI is very simple and will guide us through the process of creating our basic required DNS records. Once done, we go back to the same domain and add any additional records we would like.

- ➔ Name = “ ” ; Type= ‘NS’ ; Content = ‘ns2.pi-register2.ctn’ ; Priority = “ ” ;TTL= ‘8400’
- ➔ Name= “ ” ; Type= ‘MX’ ; Content = ‘mail.pi-register2.ctn’ ; Priority = ‘10’ ;TTL= ‘8400’

➔ Name = '101' ; Type= 'PTR' ; Content = 'ftp.pi-register2.ctn' ; Priority = '10' ;TTL= '8400'

Add record to zone **pi-register.ctn**

Name	IN	Type	Content	Priority	TTL
		MX	mail.pi-register2.ctn	10	8400

☐ Add record ☐ Add also reverse record

[a complete\(\) poweradmin v 2.1.7 - credits](#)

Figure 12 : MX records example

Links

- ➔ <https://www.powerdns.com/>
- ➔ <https://www.unixmen.com/install-poweradmin-a-web-based-control-panel-for-powerdns-in-linux/>
- ➔ <https://www.unixmen.com/how-to-create-new-zone-files-and-record-types-in-powerdns-using-poweradmin/>