Custom DNS TLD (for internal purpose)

Tools

- ***PowerDNS*** Authoritative Server For your authorithative server, we have selected PowerDNS mostly because of the availability of a HTTP API. This API will help us to easly 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 ressource 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-xmlrpc 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.

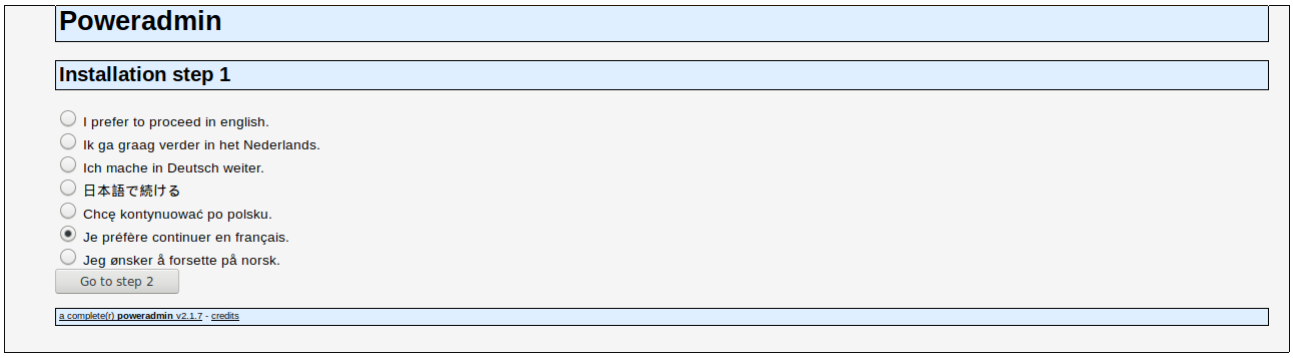

Figure 1: Select Your Language

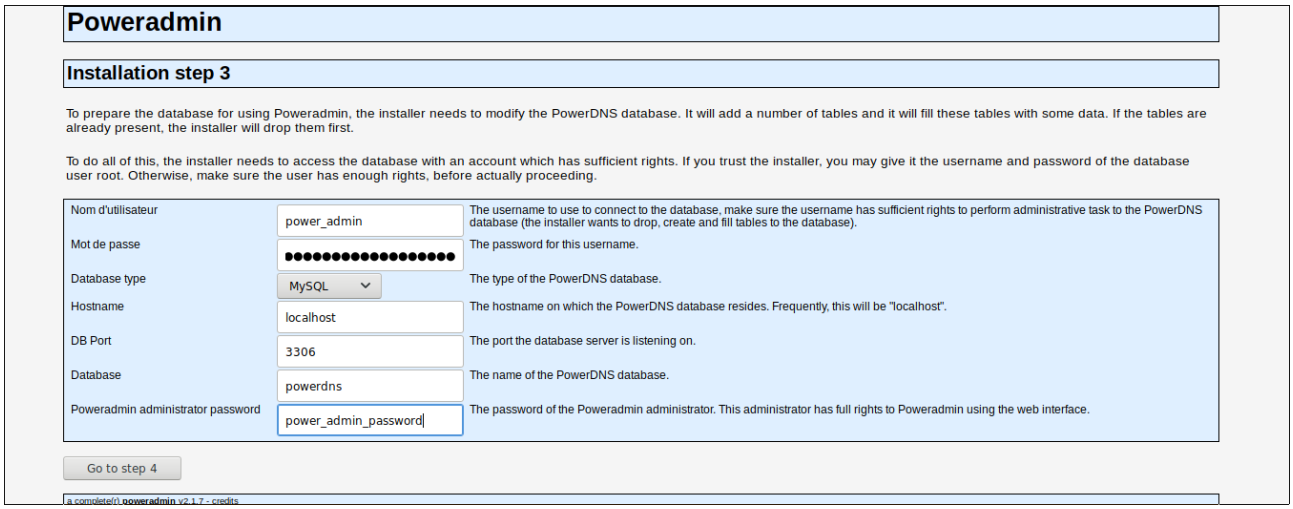

Figure 2: Enter Your MySQL Information

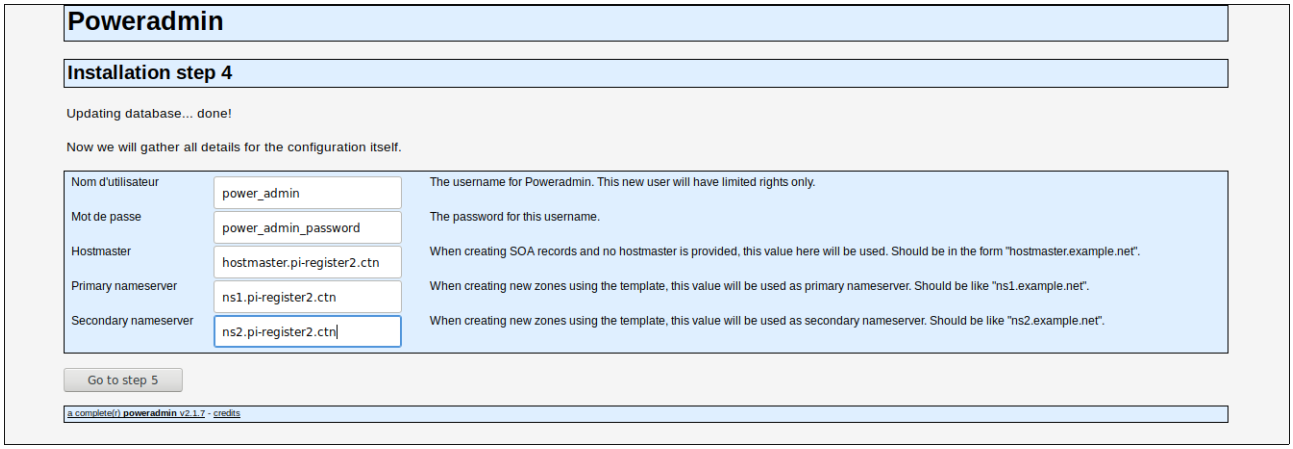

Figure 3: Enter Your Basic DNS Domain Information

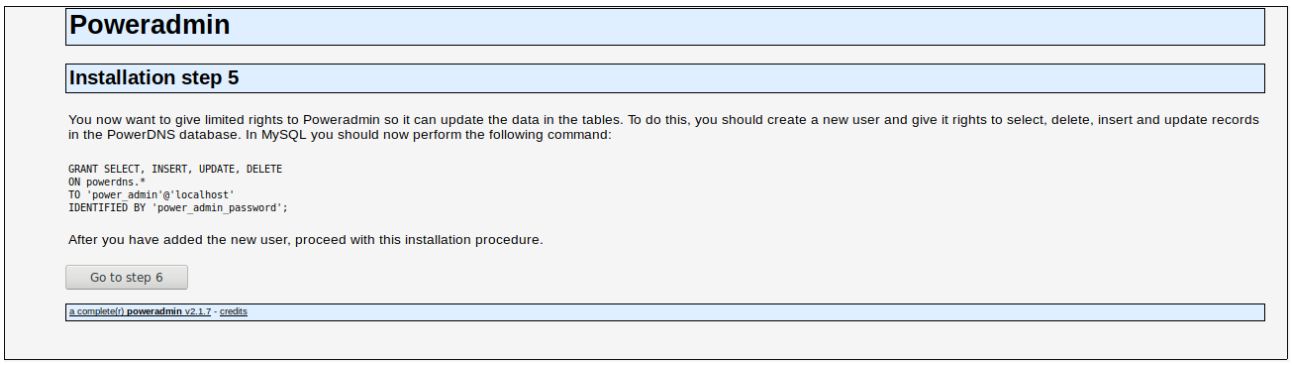

Figure 4: Give Poweradmin Rights

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.

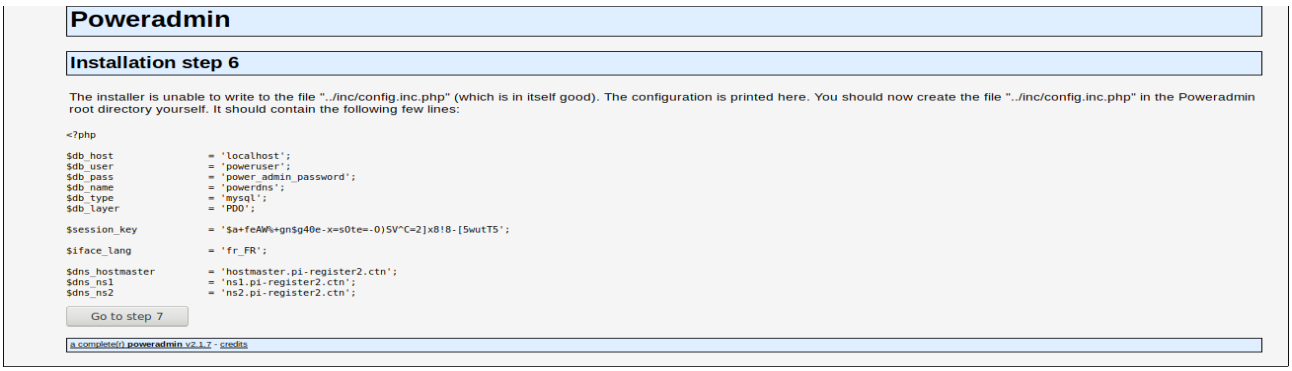

Figure5: content of ../inc/config.inc.php file

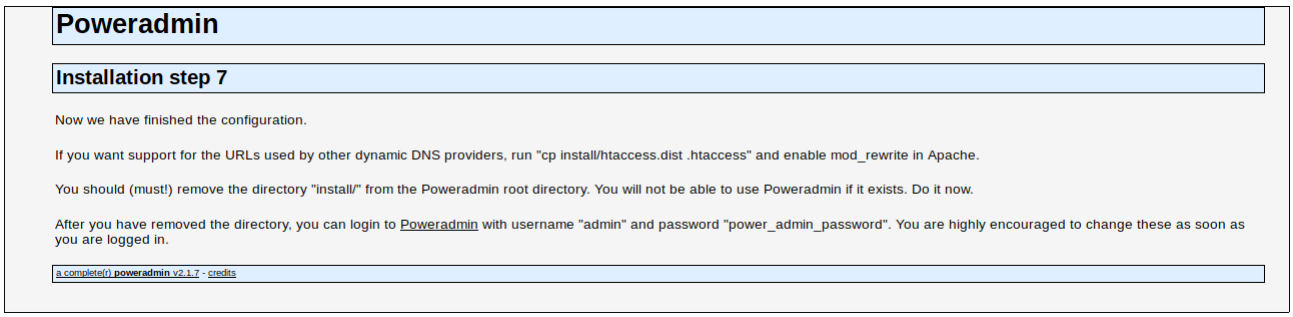

Figure6: End of Poweradmin installation

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.

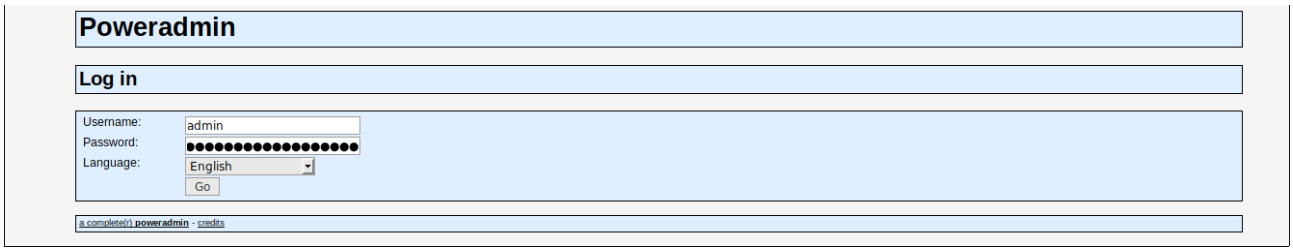

Figure 7: Poweradmin login page.

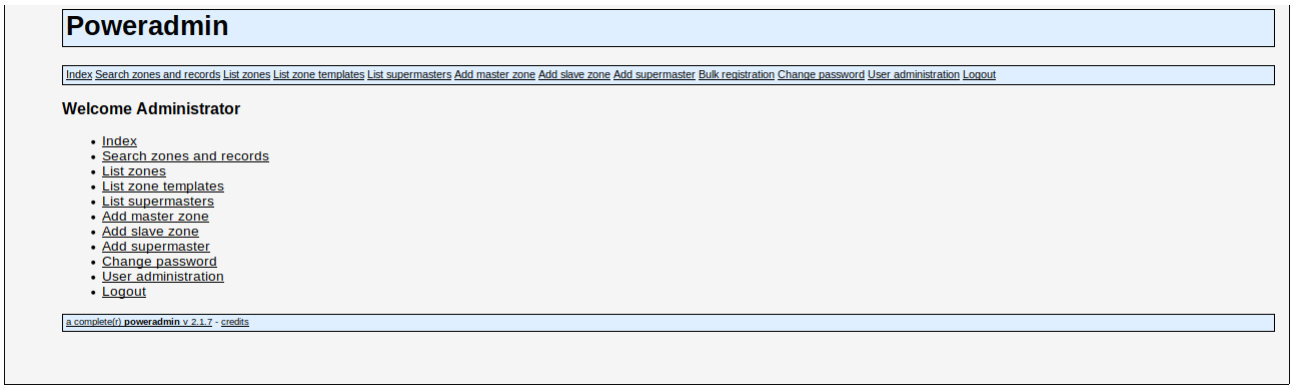

Figure 8: Poweradmin management web GUI.

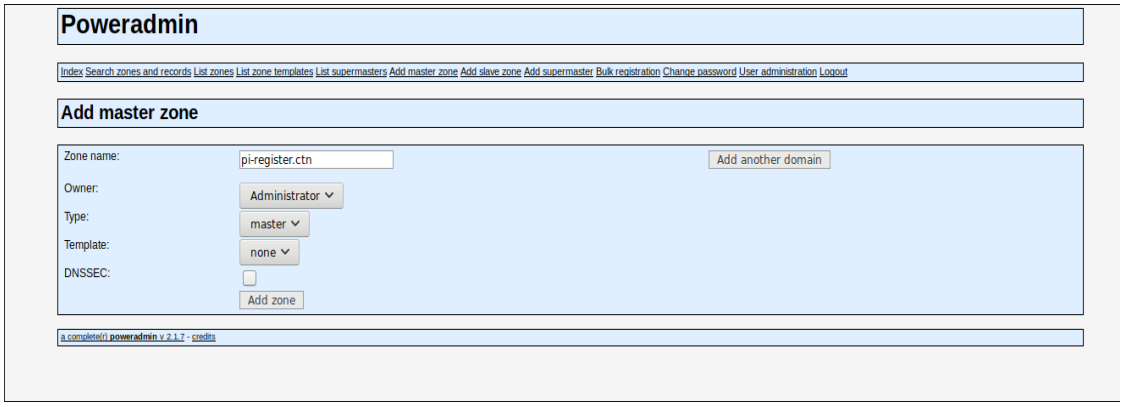

Figure 9: Adding a master zone.

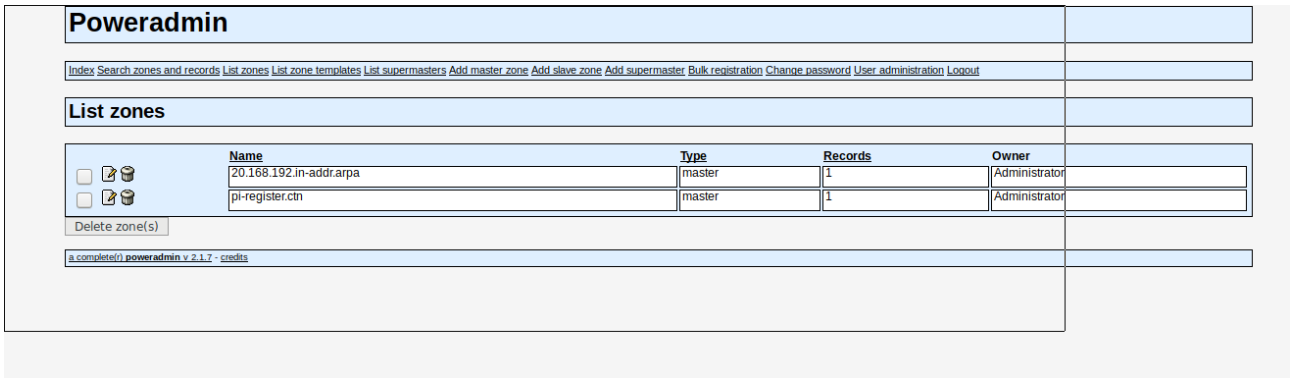

Figure 10: Listing existing zones.

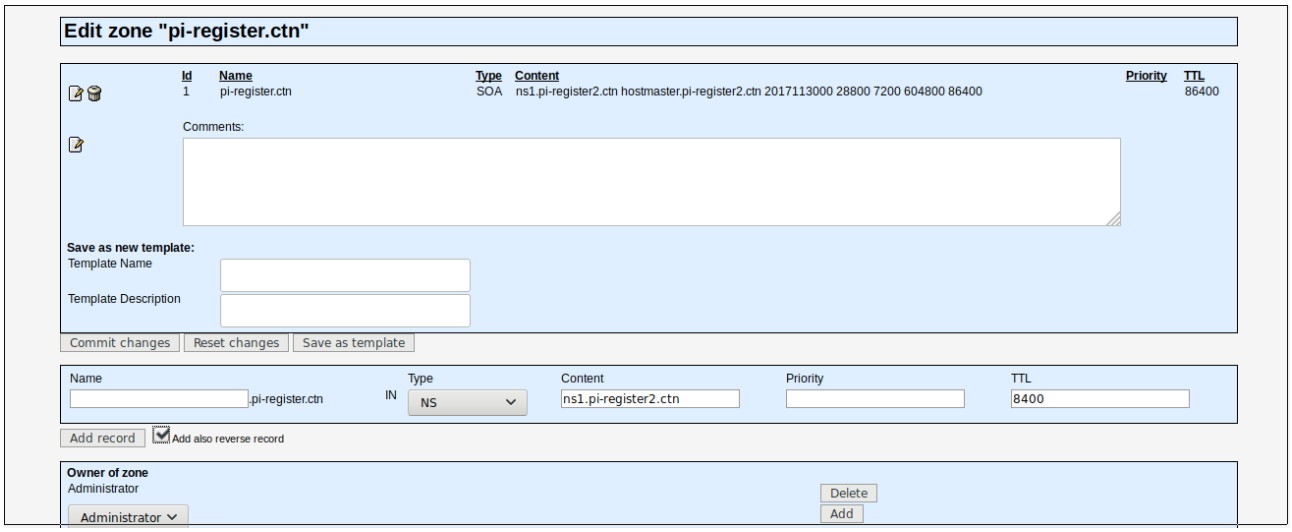

Figure 11: Editing an existing zone.

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’**

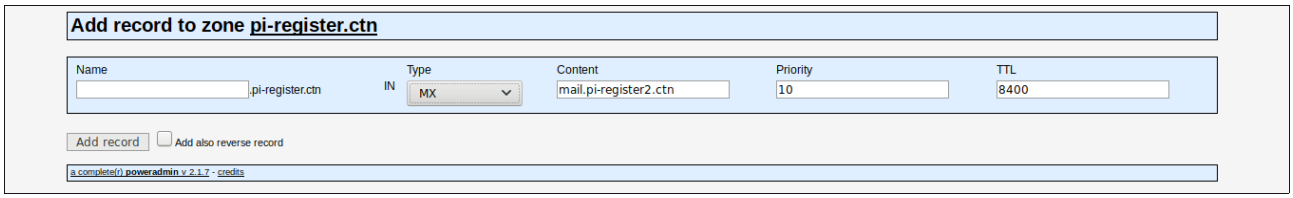

Figure 12 : MX records example

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/