

Partkeepr 1.3.0 on Raspberry Pi3 Model B running Debian 9 Stretch

Tools Needed:

[Notepad++](#) (Choose the version for your pc OS)

[SDFormatter v4.0](#)

[Win32Diskimage](#)

Windows 7 or 10 OS

Remote Desktop Connection (included in either Windows 7 or 10)

Sheet of paper and pen to record usernames and passwords generated.

Micro SDCard 16GB minimum (prefer 32GB [Recommended](#))

Micro SDCard Writer/Reader

Raspberry Pi3 connected to HDMI TV/monitor with keyboard and mouse and wired internet, not powered on yet.

Optional:

[MicroSDCard to SDCard Extension Cable](#) (makes it easier to remove and insert Micro SDCard)

[DS3231 RTC module](#)

Preliminary Steps:

Download [Debian 9 Stretch PI version](#) from www.raspberrypi.org and save to a folder. Unzip file in folder so that image is available as an actual file.

Prep SDCard using Windows OS

Use SDFormatter to format SDCard (Quick Option)

Use Win32Diskimage to copy contents of Debian Stretch image to SDCard

Take a nap

RTC DS3231 setup part 1 (optional)

While SDCard still inserted into reader/writer

Open config.txt file on SDCard with Notepad++

Place the following text towards bottom of file underneath this line
'#dtoverlay=lirc-rpi':

```
dtoverlay=i2c-rtc,ds3231
```

Save file and properly eject SDCard from card reader/writer.

Much of the following install steps were first documented on the [Partkeepr Wiki page](#). I have modified some steps to apply specifically to the PI3 installation quirks.

Raspbian Debian Stretch Operating System Install steps

Insert micro SDCard into Pi(Extension Cable) and apply power.

Allow PI3 to fully boot.

Once the PI3 boots up to the desktop open the terminal window. Now each step is numbered from here on out. The '>' symbol references the prompt symbol in the terminal window. When you see this '*NOTE*' write down the information as you will need it in later steps.

1. Get latest fixes for the image. You may be asked to okay actions, just type y and then press return

```
>sudo apt-get update
```

At the prompt again

```
>sudo apt-get upgrade
```

At the prompt again

```
>exit
```

Reboot PI3 to apply changes to image

2. Localize PI3

Open the terminal window again and at the prompt

```
>sudo raspi-config
```

Select #1 Change pi username password since at this time there is no pw *NOTE*

Select #2 and N1

Set your network visible name or leave unchanged. *NOTE*

Select #3

Choose B1 and on next screen B3

This will force the PI3 to boot to the GUI, but require a login to access it.

Select #4

Choose I2 and then your country, then set your timezone.

Select Finish but do not reboot

```
>sudo nano /etc/default/keyboard
```

Change

```
XKBLAYOUT='gb'
```

TO

```
XKBLAYOUT='us'
```

To exit nano press Control X, press y and then the Return key

Locate Ethernet NIC address for setting up static ip address in your router

```
>ifconfig eth0
```

Look for the word ether followed by six two-digit groups of numbers/letters separated by : The series of numbers/letters are your MAC address. *NOTE*

Now using the network visible name and this MAC address you should have enough information to set a static ip address in your router's dhcp server. Since we are setting the PI3 up as a server we need to have an IP address that doesn't potentially change as it reboots and new devices are added to the network.

3. Now add new user to sudo group. This user will be used to remote access PI3. Substitute whatever you want for the username except PI

```
>sudo adduser 'username' *NOTE*
```

All the fields are optional except for the password. *NOTE*

```
>sudo adduser 'username' sudo
```

```
>exit
```

Now restart PI3 Login with the PI user and password you created earlier. Reopen terminal window when desktop comes back up.

4. RTC DS3231 setup part 2 (optional)

```
>sudo nano /lib/udev/hwclock-set
```

These three lines should be close to the top of the file. Place # in front of each of the three lines

```
if[-e /run/systemd/system]; then
exit 000-default
fi
```

To exit nano press Control X, press y and then the Return key

```
>exit
```

Now restart PI3 again

5. Now add ability to remote access Pi. Login with the PI user and new pw. Reopen terminal window when desktop comes back up.

```
>sudo apt-get clean
```

```
>sudo apt-get install xrdp
```

Get the ip address of the PI3 if you don't already know it

```
>hostname -I
```

```
>exit
```

Logout of the PI desktop

Now switch to Windows computer and run Remote Desktop Connector

Enter Pi3 ip address

Login with the new remote username and password

You should have a windowed view of the PI3 desktop

Open the terminal window again

6. From this cli window we will step by step install the server apps

First Apache

```
>sudo apt-get install apache2 apache2-doc
```

Next install ntp

```
>sudo apt-get install ntp
```

Next MariaDB(MySQL Clone)

```
>sudo apt-get install mariadb-server mariadb-client
```

Next secure the database

```
>sudo mysql_secure_installation
```

When prompted to "Enter current password for root (enter for none):" press Enter.

When prompted to "Set root password," press Y and Enter, then enter the desired password.
NOTE

When prompted to "Remove anonymous users," press Y and Enter.

When prompted to "Disallow root login remotely," press Y and Enter.

When prompted to "Remove test database and access to it," press Y and Enter.

When prompted to "Reload privilege tables now," press Y and Enter.

Next setup user with admin privileges and create database for partkeepr. In the example below substitute admin with your chosen username and password with the chosen password

```
>sudo mysql -u root
```

Now we are logged into sql under root. Enter each line exactly as written except for the username and password substitution and wait for prompt to return before continuing. *NOTE*

```
USE mysql;
CREATE USER 'admin'@'localhost' IDENTIFIED BY 'password';
GRANT ALL PRIVILEGES ON *.* TO 'admin'@'localhost';
CREATE USER 'Partkeepr'@'localhost' IDENTIFIED BY 'dropcheck1';
FLUSH PRIVILEGES;
CREATE DATABASE PartKeepr CHARACTER SET UTF8;
GRANT USAGE ON *.* TO 'Partkeepr'@'localhost';
GRANT ALL PRIVILEGES ON PartKeepr.* TO 'Partkeepr'@'localhost';
EXIT
```

Next install php and extensions

```
>sudo apt-get install php php-apcu php-apcu-bc php-curl php-gd php-intl php-ldap php-mysql php-dom php-xml php-bcmath
```

7. Now test Apache and verify php

```
>sudo nano /var/www/html/phpinfo.php
```

Enter this line:

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

To exit nano press Control X, press y and then the Return key

Open browser and enter <http://localhost/phpinfo.php> in the address box

You should see the php info page.

8. Now get partkeepr, install and change file permissions

```
>wget http://partkeepr.org/downloads/partkeepr-1.3.0.zip
```

Unzip it to your home directory:

```
>unzip partkeepr-1.3.0.zip
```

Rename directory to something easier to type

```
>mv partkeepr-1.3.0 partkeepr
```

Now copy it to the correct Apache Web server location

```
>sudo cp -r ./partkeepr /var/www/html/
```

Now modify partkeepr directory and file permissions

```
>sudo chown -R $(whoami):www-data /var/www/html/partkeepr
```

```
>sudo find /var/www/html/partkeepr -type d -exec chmod 770 {} +
```

```
>sudo find /var/www/html/partkeepr -type f -exec chmod 660 {} +
```

9. Configure Apache2 for partkeepr

Enable the Apache modules userdir and rewrite

```
>sudo a2enmod userdir rewrite
```

Modify Apache settings

```
>sudo nano /etc/apache2/apache2.conf
```

Add this section in the part that contains the default security model settings

```
<Directory /var/www/html/partkeepr/>
    AllowOverride All
</Directory>
```

To exit nano press Control X, press y and then the Return key

Modify Apache web root

```
>sudo nano /etc/apache2/sites-enabled/000-default.conf
```

Change web root to

```
DocumentRoot /var/www/html/partkeepr/web
```

To exit nano press Control X, press y and then the Return key

Do same to ssl.conf

```
>sudo nano /etc/apache2/sites-available/default-ssl.conf
```

Change web root to

```
DocumentRoot /var/www/html/partkeepr/web
```

To exit nano press Control X, press y and then the Return key

10. Configure php configuration

```
>sudo nano /etc/php/7.0/apache2/php.ini
```

find line

```
max_execution_time = 30
```

change to

```
max_execution_time = 120
```

find line

```
;extension=php_ldap.dll
```

remove the semi-colon

```
extension=php_ldap.dll
```

find line

```
;date.timezone =
```

change to

```
date.timezone = America/Chicago
```

To exit nano press Control X, press y and then the Return key

```
>sudo service apache2 restart
```

11. Now make allowances for [PI3 i/o slowness](#)

```
>sudo nano /var/www/html/partkeepr/app/config/config_framework.yml
```

Note indentation is critical

Add the following snippet to the top of the file:

```
services:
  app.doctrine.apc_cache:
    class: Doctrine\Common\Cache\ApcCache
    calls:
      - [setNamespace, [""]]
```

Do not type in the word framework. Instead below the word framework insert the last two lines preserving the indentation

```
framework:
  annotations:
    cache: "app.doctrine.apc_cache"
```

To exit nano press Control X, press y and then the Return key

```
>exit
```

12. As a final act reboot the PI gracefully. Once the PI3 has rebooted, either remote connect to the PI3 via Remote Desktop Connection from a Windows computer or access the PI3 directly.

Now the PI3 has had all the supporting server software installed to run Partkeepr. The next steps involve configuring Partkeepr from the browser to connect to the database and verifying that all prerequisites have been met. Much of the following is directly from the Partkeepr Wiki Debian Stretch install web page

In a web browser on your Windows computer, type the network address followed by /setup. For example, if the PI3 machine's network address is 192.168.10.10, type `http://192.168.10.10/setup`.

At this point, the PartKeepr setup wizard should appear in your web browser.

If the PartKeepr setup wizard does not appear, one of several issues might be preventing it. There might not be network connectivity between your browser machine and the PartKeepr machine. There might be something missing or misconfigured in the steps above. Double-check the configuration and the PI ip address.

Initially, the Welcome screen is shown. Click "Next" to show the Prerequisites screen.

In the Prerequisites screen, PartKeepr performs tests to verify that it can run successfully. If any errors are shown, click the Show Errors button and try to correct the issues described in the popup window that appears. Most problems will be caused by having a version of PHP that is too old, not having all needed PHP modules installed, missing or incorrect web server settings, or incorrect ownership and/or permissions of the partkeepr directory.

Once PartKeepr is satisfied that its prerequisites are fulfilled, click Next to show the Authentication Key screen.

PartKeepr will ask for a code from the `app/authkey.php` file. Click on folder icon at top of PI desktop window, then transition to `/var/www/html/partkeepr/app` folder. Right click on `authkey.php` file and chose to open it with textfile program. Copy the auth key code (which is a string of letters) and close text editor and folder explorer program. Then paste it into the Authentication Key field in the web browser.

Once the code is pasted or typed, click Next to show the Existing Configuration screen. Since this is a new installation, there will be no configuration found.

Click Next again to show the Database Parameters screen. Select Database Type. In our case, we select MySQL. Set the fields as follows:

```
Database Hostname: localhost
Database Name: PartKeepr
Database Username: Partkeepr
```

Database Password: enter the password you selected earlier for the PartKeepr database user

Put checkmark for default

Click Next to show the Setup (1/2) screen. This should test for database connectivity successfully. Afterwards, it will set up the database schema, part units, default footprints, SI prefixes, default units, and default manufacturers. Then, it should check for existing users. Since this is a new installation, there will be no existing users yet.

Click Next to show the User Data screen. On this screen, create the PartKeepr administrator user. Enter a suitable username, password, and email address. Be particularly careful when typing the password as there is currently no field to type it a second time as a confirmation. *NOTE*su

Below, in Authentication Method, there is a choice of HTTP Basic and WSSE. Make sure HTTP Basic is chosen

Click Next to show Setup (2/2). This will set up the admin user, save configuration files, move legacy files, and warm up the cache. The last step takes a few moments. Wait for it to complete and then click Next to show the Setup Complete screen.

At this point, PartKeepr will ask you to set up a cronjob. Cron is a program that schedules tasks to run at given intervals. Please note that under Debian, cron jobs are configured a bit differently than other systems. Rather than add a line to /etc/crontab, we add a file in /etc/cron.d as follows:

Open the terminal window on the PI3 desktop

```
>sudo nano /etc/cron.d/partkeepr
```

Type the following contents, being particularly careful to copy the spaces and commas exactly. (Spaces separate between fields, whereas commas allow placing multiple items into a single field -- but only if there are no spaces after those commas!)

Important: replace "admin" with your username:

```
0 0,6,12,18 * * * admin /usr/bin/php /var/www/html/partkeepr/app/console  
partkeepr:cron:run
```

This means: At minute 0 of hours 0, 6, 12, and 18, on all days of the month, on all months, on all days of the week, execute the file /var/www/html/partkeepr/app/console in the PHP interpreter under the admin user's account.

Note that the line shown above is slightly different than what PartKeepr told us to use. The "admin" field was added. This is because cron on Debian systems allows you to specify under which user's account the cron job should run. We prefer to run it as a regular user rather than root. Remember to replace "admin" with the Linux username you created during Linux installation.

To exit nano press Control X, press y and then the Return key

In the web browser, click Submit to apply the settings and go to the PartKeepr login screen.

From here, you can log in and begin using PartKeepr.

