Installing DerbyNet on Debian Linux (including Ubuntu or Raspbian)

For Debian-based Linux distributions, including Ubuntu, or Raspbian for Raspberry Pi, DerbyNet is distributed as three “deb” package files, described below. Depending on what you wish to achieve, you may want to install one, two, or all three debs.

derbynet-server	Install this package if you want to host the DerbyNet web server on your Debian/Raspbian system.
derbynet-timer	Install this package if you wish to connect your track timer directly to your Debian/Raspbian system.
derbynet-extras	Install this package for utility scripts to help you e.g. run a kiosk or automated photo stand on your Debian/Raspbian system.

Adding the DerbyNet Apt Repository

Debian-based systems use the “apt” package management system to download and install software. DerbyNet is available in its own repository, but is not part of the standard Raspian repository. The following commands will allow apt to access the repository containing DerbyNet packages:

```
sudo apt-get update

sudo apt-get install -y apt-transport-https

wget -q -O- https://derbynet.org/debian/derbynet.gpg | \
  sudo tee /usr/share/keyrings/derbynet-archive-keyring.gpg > /dev/null

echo "deb [arch=all signed-by=/usr/share/keyrings/derbynet-archive-keyring.gpg] " \
         " https://derbynet.org/debian stable main" | \
  sudo tee /etc/apt/sources.list.d/derbynet.list > /dev/null

sudo apt-get update
```

(The commands above also ensure that apt supports https-based repositories, and downloads the key used to sign the DerbyNet repository.)

Note that apt requires an internet connection to download packages from the repository. After installation is complete, you can run the installed software without access to the public internet.

If apt Says There’s No “Release” File

Older versions of apt authenticate a repository differently than more recent versions. If you see an error message that the repository “does not have a Release file,” these commands are likely to be more

successful:

```
wget -q -O- https://derbynet.org/debian/derbynet.gpg | \
 sudo apt-key add -

echo "deb [arch=all] https://derbynet.org/debian stable main" | \
  sudo tee /etc/apt/sources.list.d/derbynet.list > /dev/null

sudo apt-get update
```

If You Previously Installed derbynet

If you have previously installed the monolithic derbynet package (v2.0 or earlier), apt may refuse to install any of the new debs until the older derbynet package is removed. It may be easiest to do this explicitly, before installing any of the new debs:

```
sudo apt-get remove derbynet
```

All of the functionality previously offered by the old derbynet package is provided through the new packages.

Installing derbynet-server

After adding the DerbyNet repository (see above), install derbynet-server with the following command:

```
sudo apt-get install derbynet-server
```

Derbynet-server has a dependency on nginx to provide the underlying web server. If you already have the Apache web server installed, you may wish to uninstall it to avoid conflicts with nginx:

```
sudo apt-get remove apache2
```

(If Apache is running, it will prevent nginx from starting. If your attempts to browse to the web server result only in "Forbidden" response pages, a conflict with Apache is a possible, even likely, cause.)

Roles and Passwords for derbynet-server

When installed, the derbynet-server package establishes two roles and passwords by default. (These are the roles by which browser users identify themselves to the web server. They are unrelated to Linux user accounts.) For details, including how to recover and change the passwords, see the "**Default Roles and Passwords**" document that accompanies this installation guide in the **/usr/share/derbynet/docs** folder.

derbynet-server and php.ini

The installation script for derbynet-server may (likely will) make changes to the PHP init file, php.ini, found (somewhere) under the /etc/php or /etc/php5 directory. This might be of concern if you host other PHP applications on the same system.

The change is to increase the upload_max_filesize parameter from 2M to 8M. A backup file named php.ini.pre-derbynet will be left in the same directory as any modified php.ini file.

Note that removing the derbynet-server package will ***not*** undo this change.

Installing derbynet-timer

After adding the DerbyNet repository (see above), install derbynet-timer with the following command:

```
sudo apt-get install derbynet-timer
```

After installing, derby-timer.jar is available as a command on the command line:

```
derby-timer.jar
```

You may need to run with elevated permissions in order to access the serial ports:

```
sudo derby-timer.jar
```

Installing derbynet-extras

After adding the DerbyNet repository (see above), install derbynet-extras with the following command:

```
sudo apt-get install derbynet-extras
```

derbynet-extras has no dependencies, and should install without complaint. Look through /usr/share/derbynet to see what's available.

Turn-Key Clients on Raspberry Pi

The Raspberry Pi is especially well suited to act as dedicated a DerbyNet client, including being a kiosk or connecting to a timer. This section discusses setting up a Raspberry Pi as a dedicated DerbyNet client.

The Raspberry Pi /boot Partition

The Raspberry Pi boots from an SD or micro-SD card. The card includes two partitions: the main partition, and a smaller /boot partition. While the main partition uses one of the Linux-only 'ext' file systems, the /boot partition is a vfat file system. vfat, and hence the /boot partition, can be read and written by Windows, Mac, and Linux systems.

/boot/wpa_supplicant.conf

When Raspbian starts up, if a /boot/wpa_supplicant.conf file is present, it is moved to the /etc/wpa_supplicant directory. This allows a Windows, Mac, or Linux machine to write a WiFi configuration directly to the card. (https://www.raspberrypi.org/blog/another-update-raspbian/)

/boot/derbynet.conf and /etc/derbynet.conf

Several scripts in derbynet-extras and derbynet-timer retrieve configuration information from two possible configuration files: `/etc/derbynet.conf` and `/boot/derbynet.conf`. If both files are present, settings in `/boot/derbynet.conf` take precedence over those in `/etc/derbynet.conf`.

The derbynet-extras package writes a skeleton `/etc/derbynet.conf` file. On Raspbian, the installer also copies the same skeleton to `/boot/derbynet.conf`, where it can be subsequently

customized by putting the card in a Windows, Mac, or Linux machine.

Nothing in the derbynet-server packages consults the `derbynet.conf` files; they are exclusively for configuring DerbyNet client scripts.

Turn-key Kiosk on a Raspberry Pi

If you know in advance what either the DNS name or IP address for the DerbyNet web server will be, you can configure a Raspberry Pi so that it becomes a kiosk as soon as it's plugged in, with no additional intervention required. derbynet-extras includes scripts and configuration files to make this easy. Follow these steps:

1. Copy the autostart file to the local autostart directory:

```
mkdir ~/.config/autostart

cp /usr/share/derbynet/autostart/kiosk.desktop \
   ~/.config/autostart
```

2. *Optional:* Choose your browser. There are several web browsers available for the Raspberry Pi. By default, the script at `/usr/share/derbynet/scripts/kiosk.sh` will select a browser to use based on what browsers are installed. If you prefer to use a different browser, edit a config file (e.g., `/etc/derbynet.conf`). See the comments at the top of the `kiosk.sh` script for further details.

3. Enter the address of your DerbyNet server. Your kiosk browser needs to be pointed to your DerbyNet web server. For true turn-key operation, you must configure your kiosk with the DNS name or IP address of the DerbyNet web server.

   Edit the `/boot/derbynet.conf` configuration file to set the value for the DERBYNET_SERVER variable.

4. If you have a screen saver installed, you will probably want to disable it.

Turn-Key Timer Client on a Raspberry Pi

If you installed the derbynet-timer package, you can set up a Raspberry Pi to act as the intermediary between your track timer and the DerbyNet web server. For more details about the timer-to-web-server communication path, see the "**Timer Operations"** document that accompanies this installation guide in the **/usr/share/derbynet/docs** folder.

1. Copy the autostart file to the local autostart directory:

```
mkdir ~/.config/autostart

cp /usr/share/derbynet/autostart/derby-timer.desktop \
   ~/.config/autostart
```

2. Edit (or create) a `derbynet.conf` configuration file (either `/etc/derbynet.conf` or `/boot/derbynet.conf`; see above) to set the value for the DERBYNET_SERVER variable

to the DNS name or IP address of your DerbyNet server. (As described above, the derbynet-extras package writes a skeleton version of these files which you can subsequently modify.)