

# Build a Linux RLCraft Server

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## Video:

v2.8.2:

<https://youtu.be/U2636UEFXas>

**Note:** I used sudo when operating as 'user' for most of the commands. Running sudo vs running directly as root is negligible when operating in a personal use environment like this. If you're running in a more cyber security conscious environment, only using sudo may be appropriate. This is just minecraft not a matter of national security; use best practices for your environment.

v2.8.1:

<https://youtu.be/HHZyDNQP07c>

The video is out of date. I will be creating a new one soon.

## Backup created in video:

This backup image is what was backed up in the video. If you want to use this backup image in proxmox (or other VM service) **please, for the love of all that is holy, *change the passwords!*** Use passwd for both root and user. You will also need to modify the network configuration in /etc/network/interfaces to match your network requirements.

v2.8.2:

<https://drive.google.com/open?id=10veAFpKor7fFEMvBvSsoGRHyuSNAJ0zv>

That file is probably only usable with Proxmox VE. Zipped Image of Virtual Drive for other environments here: <https://drive.google.com/open?id=1KFbZ9Nd333jRc9z5S1TIUoA4L31usymQ>

v2.8.1:

[https://drive.google.com/file/d/1L5SZ61yTqoQp94\\_pL373n-jBjv2nmbet/view?usp=sharing](https://drive.google.com/file/d/1L5SZ61yTqoQp94_pL373n-jBjv2nmbet/view?usp=sharing)

# Intro:

Building a Linux RLCraft server is fairly easy once you know the process, and if you know the linux OS you're going to install on. This guide is written around Debian 10, but with good knowledge of your linux distro you should be able to make it work for you.

# Notes:

Version 1.12 of Minecraft that RLCraft is using is single threaded, like most versions of minecraft. Having 8 or 10 cores for your server is wasted resources. If you're creating a VM use 2 to 4 cpu cores, but provide as much RAM as possible. A fast CPU and fast RAM is better if you're hosting on a physical box, or planning a physical build.

With RLCraft recommended RAM is 8GB, minimum of 4GB to the RLCraft instance itself. You should leave some RAM for the OS, in this guide about 512MB of ram is needed for the OS. I recommend 16 to 32GB of RAM on your server. During my first install of RLCraft I saw typical usage of about 20GB of RAM used in a 32GB VM.

It is recommended to reboot your server, or just stop and start forge regularly to keep memory problems at bay. You can do this daily, or if your server is not public you should do it right before playing. Rebooting from a VM should only take a few minutes, restarting the forge service should take less than a minute or two. If you're installing on hardware, restarting a physical machine can take longer.

# Resources:

- Curseforge RLCraft Page:
  - <https://www.curseforge.com/minecraft/modpacks/rlcraft>
- Linuxnorth.org's Install Minecraft Server Instructions:
  - [https://www.linuxnorth.org/minecraft/modded\\_linux.html#Step%206%20-%20Optional%20Configure%20Minecraft%20to%20start%20on%20bootup](https://www.linuxnorth.org/minecraft/modded_linux.html#Step%206%20-%20Optional%20Configure%20Minecraft%20to%20start%20on%20bootup)
- RLCraft Discord:
  - <https://discord.gg/7tefQc>
- Debian:
  - <https://www.debian.org>

# Steps:

Instructions steps are regular text.

Console commands are in `monospaced` and highlighted in grey.

Text bits that are needed but not a command are `monospaced` and highlighted in yellow.

- Install Linux Debian 10 from Net Install Disc with only ssh and server utils.
- On completion of install
  - Check your network configuration is good.
  - Update Apt Sources
    - `nano /etc/apt/sources.list`
      - Add `contrib non-free` to the existing repositories.
      - Add stretch repository (for openjdk-8):
 

```
deb http://deb.debian.org/debian/ stretch main contrib non-free
deb http://security.debian.org/debian-security stretch/updates
main contrib non-free
```
  - Install Required Software (you shouldn't skip this)
    - `apt install screen unzip`
      - Screen
        - To start a session and keep it running without being logged in.
      - Unzip
        - gunzip won't extract RLCraft zip file
    - Install Recommended Software (you can skip this)
      - `apt install haveged sudo htop qemu-guest-agent aptitude`
        - Haveged
          - Helps ssh by filling entropy for random data.
        - Sudo
          - Not installed by default on Debian
        - Htop
          - Server resource monitoring
        - Qemu-guest-agent
          - If you're running a qemu guest VM
        - Aptitude
          - Cleaner search function for apt installs
    - Install Java
      - Openjdk-8-jre
        - `apt install openjdk-8-jre`
          - Since this is the only java we're installing, we don't need to update alternatives or any of that runaround. If you're using ubuntu or something else that comes preinstalled with java, you will need to remove them or update alternatives to make openjdk-8 your default.
        - If you want Oracle java, you'll need to download the jdk from Oracle's website, and follow linuxnorth.org's instructions for updating alternatives.
    - Create Install location at /opt/minecraft
      - `mkdir /opt/minecraft`
    - Download Forge, to install directory (wget)

<https://files.minecraftforge.net/maven/net/minecraftforge/forge/1.12.2-14.23.5.2838/forge-1.12.2-14.23.5.2838-installer.jar>

- Download RLCraft Server File, to install directory (wget)

<https://media.forgecdn.net/files/2935/323/RLCraft+Server+Pack+1.12.2+-+Beta+v2.8.2.zip>

- Run forge installer, in install directory  

```
java -jar forge-1.12.2-14.23.5.2838-installer.jar --installServer
```
- Run forge for first time  

```
java -jar forge-1.12.2-14.23.5.2838-universal.jar
```
- Accept eula.txt file
- Extract RLCraft Server Pack in the install directory  

```
unzip RLCraft+Server+Pack+1.12.2+-+Beta+v2.8.2.zip
```
- Download Chunk Pregenerator to mods directory (use wget)

<https://media.forgecdn.net/files/2811/832/Chunk+Pregenerator+V1.12-2.2.jar>

- Run forge for the second time, modify memory profile (xms, and mxm) to fit your server.

```
java -Xms8G -Xmx15G -jar forge-1.12.2-14.23.5.2838-universal.jar
```

- At Minecraft console, stop the server.  

```
> stop
```
- Modify server.properties file per "FOR SERVERS ONLY..."txt
  - Change seed variable for custom seed. If you want the custom seed to be in effect, delete the world folder. **(be careful, wrongly typing this command can destroy your install, and your server.)**  

```
rm -rf /opt/minecraft/world
```
- Create a script file to run forge

```
echo cd /opt/minecraft/ > rlcraft.sh
echo java -Xms8G -Xmx15G -XX:+UseConcMarkSweepGC -XX:+UseParNewGC
-XX:+CMSIncrementalPacing -XX:ParallelGCThreads=4 -XX:+AggressiveOpts
-jar /opt/minecraft/forge-1.12.2-14.23.5.2838-universal.jar >>
rlcraft.sh
```

- make it executable  

```
chmod +x rlcraft.sh
```
- Now you can start the forge server from the script file
  - Let Forge Minecraft server start
  - Once it appears the spawn area is ready, run chunk pregen:  

```
> /pregen utils setPriority pregenerator
> /pregen timepertick 250
> /pregen gen startmassradius square 0 0 b10000 100
```
  - Chunk pregen will take a long time (upwards of 24 hours) and crash the server instance multiple times:
    - Keep an eye on it, restart the forge server if it crashed
    - Errors and warnings are normal, there's multiple mods trying to modify the same space. (Some mods may crash and throw java exception errors this is also normal.)

- Prgen will continue until complete
  - When chunk pregen is complete, stop forge, then reboot the server:
 

```
> stop
systemctl reboot
```
- Create rc.local service
 

```
nano /etc/systemd/system/rc-local.service
```

```
[Unit]
Description=/etc/rc.local
ConditionPathExists=/etc/rc.local

[Service]
Type=forking
ExecStart=/etc/rc.local start
TimeoutSec=0
StandardOutput=tty
RemainAfterExit=yes
SysVStartPriority=99

[Install]
WantedBy=multi-user.target
```
- Enable rc.local service
 

```
systemctl enable rc-local
```
- Edit /etc/rc.local to start Minecraft on boot in a screen session.
 

```
nano /etc/rc.local
```

```
#!/bin/sh
cd /opt/minecraft
screen -dm -S minecraft /opt/minecraft/rlcraft.sh
exit 0
```
- Make rc.local executable
 

```
chmod +x /etc/rc.local
```
- Perform a Backup
  - Shutdown and create a backup of your server.
  - or Reboot your server if you did a live backup or a checkpoint.
- Log in, and access your server session
 

```
screen -r minecraft
```
- Start your RLCraft Forge install on your gaming computer, and connect to your new Server.

## Resources for Desktop Game:

- RLCraft Beta 2.8.2 Mods for Desktop:

- <https://media.minecraftforge.net/files/2935/316/RLCraft+1.12.2+-+Beta+v2.8.2.zip>
- Correct Forge Version Forge:
  - <https://files.minecraftforge.net/maven/net/minecraftforge/forge/1.12.2-14.23.5.2838/forge-1.12.2-14.23.5.2838-installer.jar>
- Correct Optifine for RLCraft, and Forge:
  - [https://optifine.net/adloadx?f=OptiFine\\_1.12.2\\_HD\\_U\\_E3.jar](https://optifine.net/adloadx?f=OptiFine_1.12.2_HD_U_E3.jar)
- Chroma Hills Resource Pack:
  - [www.chromahills.com](http://www.chromahills.com)
- SEUS Shaders for Optifine:
  - <https://sonicether.com/shaders/download/v11.0/>
- Dynmap Mod to Render a Map Website
  - <https://media.minecraftforge.net/files/3068/729/Dynmap-3.1-beta4-forge-1.12.2.jar>
- SQLite for Dynmap (Add to Mods folder)
  - <https://github.com/xerial/sqlite-jdbc/releases/download/3.32.3.2/sqlite-jdbc-3.32.3.2.jar>