Building your own Call of Duty 4: Modern Warfare Linux Dedicated Server

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Abstract

This is a short article on how to build your own Call of Duty 4: Modern Warfare Linux Dedicated Server. This article assumes basic to intermediate Linux knowledge and was tested using an Ubuntu 14.04.1 LTS x86_64 machine. Other Linux distributions may differ, but this article could still be used as a reference.

Contents

1 Introduction

Building your own Call of Duty 4: Modern Warfare Linux Dedicated Server can be a challenge on newer (64-bit) Linux systems. I therefore documented this, primarily for my own documentation, but also to share this with others. The steps in this article have been tested using an Ubuntu 14.04.1 LTS (GNU/Linux 3.13.0-35-generic x86_64) machine. It is actually advised to use a x86 Ubuntu system since the 32-bit library dependencies (ia32-libs) have been deprecated since Ubuntu 13.10 Saucy. However, since we're all so very much accustomed to 64-bit systems nowadays (and for good reason, to use all your RAM to say the least) I created this article for people that use a 64-bit system.

I'd like to thank the author on http://freenerd.net/ (website offline now) whose old Linux guide inspired me to create this article. (Freenerd.net, n.d.)

2 Installing the 32-bit libraries

Since we're using a 64-bit version of Ubuntu, we need the 32-bit libraries. You probably don't need to install these libraries if you're already on a 32-bit system. To install the 32-bit libraries, we will be installing the old and deprecated ia32-libs package using the old 13.04 Raring repositories.

Since I do not know which exact 32-bit libraries the Call of Duty 4: Modern Warfare Linux Dedicated Server depends on, this article actually uses a quick and dirty work around to install the 32-bit libraries If anyone could provide me with a more elegant solution, I'd be happy to hear about it.

Here's how to install the 32-bit libraries (the quick and dirty way):

```
$ sudo touch /etc/apt/sources.list.d/ia32-libs-raring.list
$ sudo echo "deb http://old-releases.ubuntu.com/ubuntu/\
    raring main restricted universe multiverse" | sudo tee \
    /etc/apt/sources.list.d/ia32-libs-raring.list > /dev/null
$ sudo apt-get update
$ sudo apt-get install ia32-libs
```

3 Separate service account

For security reasons, create a new service account to run the server on. the "adduser" command should automatically create a home directory and ask you to set a password as well. Check this and set them manually if it doesn't:

```
$ sudo adduser cod4server
```

Create a new "cod4" folder (as the new service account) to store all the server files in:

```
$ su cod4server -c "mkdir /home/cod4server/cod4"
```

4 Uploading server files

If you have Call of Duty 4: Modern Warfare installed on your own Windows system, upload the "main" and "zones" folders to "/home/cod4server/cod4" on your server. If you use SSH on your server, you can use SFTP to upload all the files with an SFTP client (like FileZilla). Be sure to set the ownership of the uploaded files to your new service account "cod4server". If you SFTP into your server, you can use the cod4server credentials. That will automatically set the ownership of all the uploaded files to cod4server. Or you can do it manually:

```
$ sudo chown -R cod4server:cod4server /home/cod4server/cod4/
```

Next upload the "cod4_lnxded" file to "/home/cod4server/cod4" on the server. This is the actual server binary, so when this is executed, this runs the actual Call of Duty 4 Linux Dedicated Server. Also make sure it's executable when you've uploaded it:

```
$ chmod +x /home/cod4server/cod4/cod4_lnxded
```

Now upload the "dedicated.cfg" file to "/home/cod4server/cod4/main" which contain the settings for the server. Change any lines in this file to whatever suits you. Just to name a few:

```
set scr_hardcore 1
set sv_hostname "NAME"
set net_ip "123.123.123.123"
set net_port "28960"
set dedicated "2" // 0 = Listen, 1 = LAN, 2 = Internet
set g_password ""
set rcon_password "password"
set sv_privatePassword ""
```

To host custom mods and maps see appendix A.

5 Firewall rules

When hosting a server accessible from the Internet, open the port which the server is listening on (28960 by default, unless otherwise specified). You can use ufw (iptables front-end), or iptables directly. I find ufw much easier. Only add the SSH rule if you use SSH. Also change the port numbers if you use different ones:

```
$ sudo ufw enable
$ sudo ufw allow ssh
$ sudo ufw allow 28960/udp
```

6 Startup script

Create a script in your own home directory to run the server:

```
$ echo -e '#!/bin/bash' "\n"'cd /home/cod4server/cod4' \
    "\n"'./cod4_lnxded +set net_ip 123.123.123.123 +set \
    net_port 28960 +set dedicated 2 +exec dedicated.cfg \
    +map_rotate >/dev/null 2>&1 &' > ~/cod4server.sh
```

Make the script executable:

```
$ chmod +x /home/yourusername/cod4server.sh
```

To launch the server, simply log in under your own user account and issue the following command:

```
$ su cod4server -c /home/yourusername/cod4server.sh
```

References

Freenerd.net. (n.d.). *Call of duty 4 dedicated linux server setup guide.* Retrieved from http://cod4-linux-server.webs.com/

A Custom mods and maps

Playing Call of Duty 4: Modern Warfare is fun, but it can be much more fun to play other maps as well. Or what about playing with different weapons? There are all kinds of mods and maps available on the internet.[1][2][3] This appendix explains how you can do that.

A.1 Installing an HTTP server

When you're hosting custom maps, every player needs to have the exact same custom map (with all the files involved) in order to play them. The server can actually send these maps to the clients, but it's limited at a horribly slow connection speed. That's because the "set sv_maxRate" value of "25000" bytes is the maximum speed the server accepts, meaning that it's throttled at a maximum of 25 kbps.

In order to bypass this, we need to host an HTTP server (like Apache) to redirect the clients to. The server actually supports this by adding a few lines to the dedicated.cfg file (we'll get to that later). First we need to install an HTTP server. So log in using your own account and install Apache:

```
$ sudo apt-get install apache2
```

When Apache is installed, make sure the firewall is configured to accept HTTP traffic. I like to use ufw. This opens TCP port 80 for both IPv4 and IPv6:

```
$ sudo ufw enable # Enable ufw if it isn't enabled yet.
$ sudo ufw allow http
```

Test if you can reach your server over your public IP address or hostname within your own web browser. I trust you know how to do this. You can use curl to lookup your public IPv4 (and IPv6) address:

```
$ curl -4 icanhazip.com # Your IPv4 public address
$ curl -6 icanhazip.com # Your IPv6 public address (if any)
```

A.2 Creating new folders

To play custom maps and mods, you need to create a few folders. First, log in as the service account (cod4server), then create the following directories (you may change the name of the "mymods" folder):

[1] http://cod4.gamebanana.com/maps
[2] http://callofduty.filefront.com/files/Call_of_Duty_4;116index
[3] http://www.mapmodnews.com/filemgmt/viewcat.php?cid=2

```
$ mkdir -p /home/cod4server/cod4/{usermaps,mods/mymods}
```

Then you need to configure your HTTP server so that it can serve the "usermaps" and the "mods" folders. I like to use symbolic links for this. First, log in as your own user acccount again and create a new folder inside the directory tree which is now accessible over the wire. Then create your symbolic links:

```
$ sudo mkdir /var/www/http/cod4
$ sudo ln -s /home/cod4server/cod4/{usermaps,mods} \
/var/www/html/cod4
```

This should be the result:

```
$ tree /var/www/html/
/var/www/html/
|-- cod4
|-- |-- mods -> /home/cod4server/cod4/mods
|-- `-- usermaps -> /home/cod4server/cod4/usermaps
`-- index.html

3 directories, 1 file
```

You can see that, in the new "cod4" folder, there are now two symbolic links called "mods" and "usermaps" that point to the actual folders of the server. Check if you can reach them using your web browser.

A.3 Uploading your mods and maps

Now we're finally ready to upload some mods and maps to our server. So, for example, when you've downloaded a custom map, simply upload the .ff file(s) to "/home/cod4server/cod4/usermaps". Then upload the .iwd file(s) to "/home/cod4server/cod4/mods/mymods". I don't know why the server wants to lookup these files in two different places, but it works.

Next, add these two lines in the dedicated.cfg (the third is optional):

```
set sv_wwwDownload "1"
set sv_wwwBaseURL "http://your.ip.address.or.hostname/cod4"
//set sv_wwwDlDisconnected "0"
```

Now edit your script in your own home directory which you use to run the server. Add "+set fs_game mods/mymods" to the command so that the server knows where to look for the .iwd file(s). You don't need to specify "usermaps" folder - The server will find that automatically once you've specified the mods/mymods folder.

Your command should look something like this now:

```
$ echo -e '#!/bin/bash' "\n"'cd /home/cod4server/cod4' \
    "\n"'./cod4_lnxded +set net_ip 123.123.123.123 +set \
    net_port 28960 +set dedicated 2 +exec dedicated.cfg \
    +set fs_game mods/mymods +map_rotate >/dev/null 2>&1 \
    &' > ~/cod4server.sh
```

Make the script executable (if it isn't already):

```
$ chmod +x /home/yourusername/cod4server.sh
```

To launch the server, simply log in under your own user account and issue the following command:

```
$ su cod4server -c /home/yourusername/cod4server.sh
```