Introduction:

Hi, in this tutorial you can read how to make a network bootable image in linux. At the end of the tutorial you will know how to make a bootable image without network implements. This image is also called a ramdisk because it loads it's self in to the memory and run from there. With this you can test and things out and learn some other aspects of linux. This tutorial is made in Red Hat so if you wish to follow the tutorial step by step then use Red Hat.

1: Making a ramdisk

Now let's start doing something before we fall asleep :P

First we fire up linux and start a nice terminal (bash/shell). After that we make a map somewhere. I prefer to make the map in / so let's do it:
"cd /"
"mkdir ramdisk"
Now we go in to the map and make 3 maps in the map "ramdisk".
"cd ramdisk"
"mkdir bin"
"mkdir sbin"
"mkdir lib"

After we have done this we need to find out what we need to put in our ramdisk. We start like this:
"ldd /bin/bash"
You will get something like this not completely the same but still:

libncurses.so.5 => /lib/libncurses.so.5 (0x4001c000)
libdl.so.2 => /lib/libdl.so.2 (0x4005a000)
libc.so.6 => /lib/libc.so.6 (0x4005e000)
/lib/ld-linux.so.2 => /lib/ld-linux.so.2 (0x40000000)

Now you need to copy all those files including bash to the /ramdisk:
You can do that by doing:
"cp /lib/libc.so.5 /ramdisk/lib"
You copy the /lib files in /ramdisk/lib and you copy the bash in to the /bin

After you have copied all those files to /ramdisk we need to test if our ramdisk works.
To test if our ramdisk works we do it like this:
"chroot /ramdisk"
And it will show up a shell, if not then go to bin
"cd bin"
And start bash:
"bash"
If you want to exit just type:
"exit"

After this we can go further, we insert our Red Hat CD1 in to the drive and we go in to the map "isolinux", we copy the initrd.img to /

“cp initrd.img /”
We rename our initrd.img to initrd.img.gz and then we extract it:
“**mv initrd.img initrd.img.gz**”
“Gzip –d initrd.img.gz”
Now we only have to mount it:
“**mount –o loop initrd.img test”**
Now we need to copy the /dev map to our own /ramdisk because we need this to get our ramdisk working:
“cd test”
“**cp –a dev /root/ramdisk**”
Umount test:
“umount test”

We need to make a script now so our bash runes auto on boot. We make a file named script.sh, we make this file in /ramdisk/sbin.
“vi script.sh”
Now we press **“i”** and then we can type. We make a script like this:
#!/bin/bash
echo “Hello World!”;
exec /bin/bash;
Script is ready now we need to save it and quit vi, pres **ESC** and then **“:wq”** (don’t forget the :) now we are back in terminal. We need to make the script runable and we need to rename it to init:
“**chmod 750 script.sh**”
“**mv script.sh init**”

If you have done everything rite then your ramdisk could look like this:

Bin	Sbin	lib	dev
Bash	Init	ld-linux.so.2	
		libc.so.6	
		libdl.so.2	
		Libtermcap.so.2	

Now for a small test we do:
“chroot /ramdisk”
It will probably show something like
bash-2.05b

Now we need to create an img file from all of this we start like this:
“dd if=/dev/zero of=/root/ramdisk.img bs=1024 count=8000”
To let linux know what file system it is we do:
“**mke2fs ramdisk.img**”
We need to create a new map where we can mount the ramdisk.img in to and we mount it:
“**mkdir test**”
“**mount –o loop ramdisk.img test**”
So we copy all the files from /ramdisk in to the ramdisk.img by copying it like this:
“cp –a /ramdisk/bin test”
“cp –a /ramdisk/sbin test”
“cp –a /ramdisk/lib test”

“cp –a /ramdisk/dev test”
When done we umount it:
“**umount test**”

2: Extra

So we made a ramdisk, you can use it to load it and use it in linux or you can use it to boot your system with it. If you want to know how to use the img to boot your system with it then read on.

First we start of with copying the kernel to /:
“**cp /boot/vmlinuz /**”

After this we only need to setup grub to load the kernel and our image as the root so let’s start with it :D
Reboot your pc and then when grub shows up pres **c** to enter a command line of grub, when you see the command line type these lines:
Root (hd0,1)
Kernel /root/vmlinuz ramdisk_size=8000 root=/dev/ram
Initrd /root/ramdisk.img OF initrd=/root/ramdisk.img
Boot

Now if everything has gone OKE you will see:

Hello world!
bash-2.05b

Have fun :D

3: End

This tutorial has been written by Kimatrix and DiabloHorn (two proud co-founders of KD-Team). We have tested this method for making a ramdisk and we found it very usefull during our HHS school project on making a system backup system with linux.So that’s why we are sharing it with you guys. since this is the beginning of it all and it can serve different purposes. Hope you have fun with it.