

Valentin-Daniel Boca

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HOWTO: Boot Linux from network using PXE and DNSMASQ proxy

This tutorial allows to boot and install Linux from network using PXE and DNSMASQ.

DNSMASQ is a very light implementation of TFTP, DHCP and NAMED.

In most of the cases there is already a DHCP server on the network and starting a new DHCP server would not work.

Therefore we are going to configure DNSMASQ as a PROXY DHCP for the existing server and specify what PXE service to use.

The example provides a menu that can install RedHat 5, RedHat 6 and also can start the [Memtest](http://memtest.org/) utility from the network.

Configure SYSLINUX

Install syslinux

```
yum install syslinux
```

Create a folder for TFTP server with the following (similar) structure

```
mkdir -p /tftboot/pxelinux.cfg
```

```
mkdir -p /tftboot/images/rhel/x86_64/5
```

```
mkdir -p /tftboot/images/rhel/x86_64/6
```

Copy the necessary files from syslinux

```
cp /usr/share/syslinux/menu.c32 /tftboot
```

```
cp /usr/share/syslinux/pxelinux.0 /tftboot
```

Copy initrd.img and vmlinuz from the original ISO

```
cp /mnt/rhel5/images/pxeboot/initrd.img /tftboot/images/rhel/x86_64/5
```

```
cp /mnt/rhel5/images/pxeboot/vmlinuz /tftboot/images/rhel/x86_64/5
```

```
cp /mnt/rhel6/images/pxeboot/initrd.img /tftboot/images/rhel/x86_64/6
```

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Create and edit /tftboot/pxelinux.cfg/default file

The IP 192.168.1.201 can be changed to reflect the path to your installation files

```
default menu.c32
prompt 0
```

```
menu title PXE Boot Menu
```

```
label rhel5-x86_64
    menu label rhel5-x86_64
    kernel images/rhel/x86_64/5/vmlinuz
        append initrd=images/rhel/x86_64/5/initrd.img method=nfs:192.168.1.201:/mnt
/rhel5 lang=us keymap=us ip=dhcp noipv6
```

```
label rhel6-x86_64
    menu label rhel6-x86_64
    kernel images/rhel/x86_64/6/vmlinuz
        append initrd=images/rhel/x86_64/6/initrd.img method=nfs:192.168.1.201:/mnt
/rhel6 lang=us keymap=us ip=dhcp noipv6
```

```
label memtest86
    menu label memtest86
    kernel memtest
    append -
```

If you like a VESA menu instead of the text mode, change menu.c32 with vesamenu.c32 (after you have copied it from /usr/share/syslinux).

Configure DNSMASQ

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The IP 192.168.1.201 should be the IP of the machine that runs DNSMASQ

```
tftp-root=/tftpboot
enable-tftp
dhcp-boot=pxelinux.0
dhcp-option=vendor:PXEClient,6,2b
dhcp-no-override
pxe-prompt="Press F8 for boot menu", 3
pxe-service=X86PC, "Boot from network", pxelinux
pxe-service=X86PC, "Boot from local hard disk", 0
dhcp-range=192.168.1.201,proxy
```

Edit /etc/dnsmasq.conf and check you have a line at the of the file similar to this:

```
conf-dir=/etc/dnsmasq.d
```

Start dnsmask

```
/etc/init.d/dnsmasq restart
```

Boot a machine using the network option from BIOS and install your system or run memtest!

Posted 13th February 2012 by [Valentin-Daniel Boca](#)

Labels: [boot](#), [centos](#), [dhcp](#), [dnsmasq](#), [howto](#), [install](#), [linux](#), [memtest](#), [network](#), [proxy](#), [pxe](#), [redhat](#), [syslinux](#)

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Unknown [August 4, 2015 at 1:04 PM](#)

Thank you, this is very helpful. I found a typo, an extra "L" in "menul label memtest86".

[Reply](#)



Valentin-Daniel Boca [September 8, 2015 at 12:38 PM](#)

Fixed. thanks!

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