

How to build COPPER boot server for new PrPMC**1. Install SL5 for server**

With GNOME desktop environment

Optional packages

```
yum groupinstall 'system tools' 'administration tools' 'server configuration tools'
yum install dhcp busybox-anaconda tftp
```

confirm `rpm -q -a 'system-config-netboot*'`  shows `system-config-netboot` and `system-config-netboot-cmd`

confirm the existence of `/tftpboot/linux-install/mgs, pxelinux.0, pxelinux.cfg`

These files and directories belong to `system-config-netboot-cmd`. If you have deleted some of them by mistake, re-install the rpm. Otherwise, diskless client setup will fail always.

**2. Install SL5 for diskless client**

prepare the directory for diskless client

```
mkdir -p /tftpboot/copper/root
cd /tftpboot/copper/root
mkdir dev etc sys
mount --bind /sys /tftpboot/copper/root/sys
cd /tftpboot/copper/root/dev
cp /dev/MAKEDEV .
./MAKEDEV generic
cp /etc/fstab /tftpboot/copper/root/etc
```

install base system for diskless client

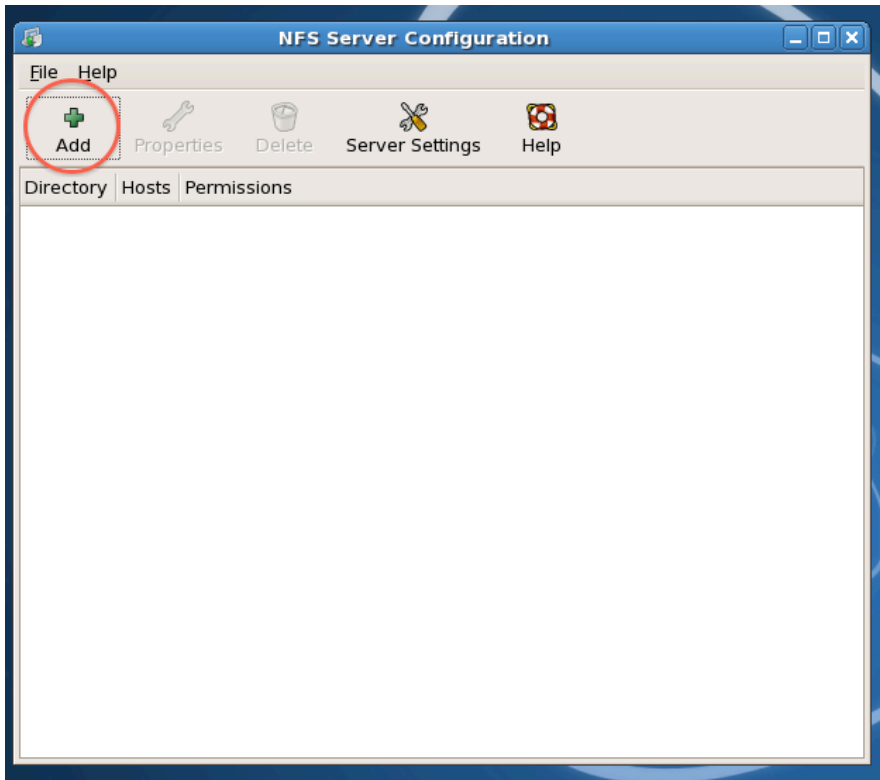
```
yum --installroot=/tftpboot/copper/root groupinstall Base
```

**3. Assign NIC as boot server**

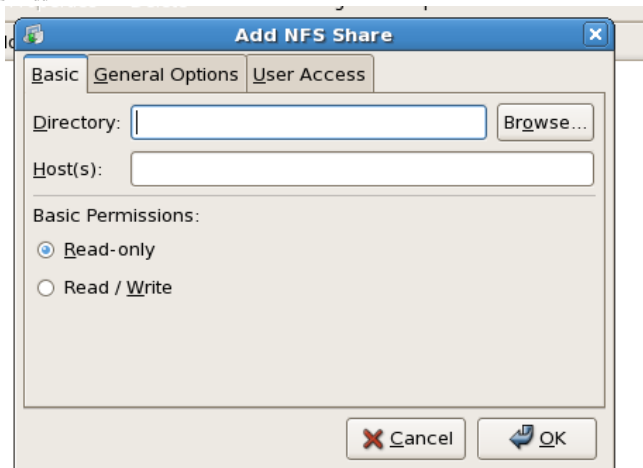
for example, we will use 192.168.10.1 and netmask 255.255.255.0

**4. Configure NFS export**

you will see

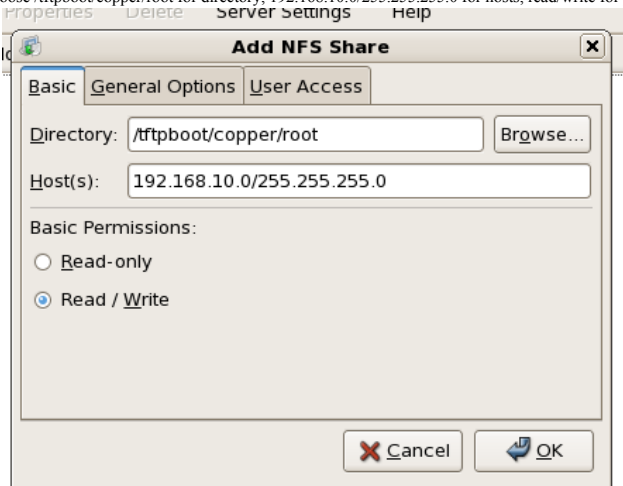


push Add

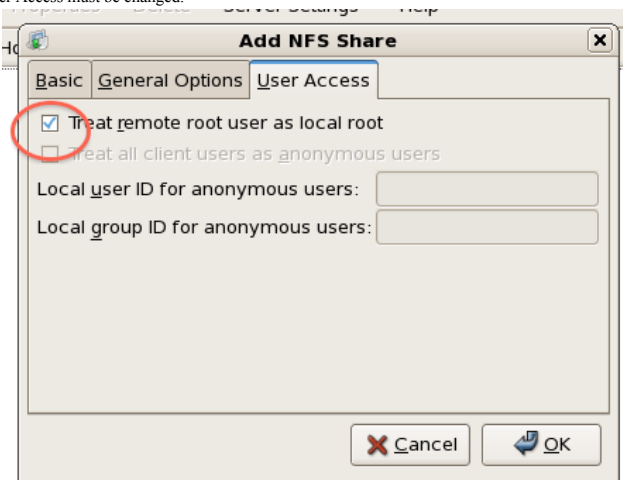


## How to build COPPER boot server for new PrPMC

Choose /tftpboot/copper/root for directory, 192.168.10.0/255.255.255.0 for hosts, read/write for permission

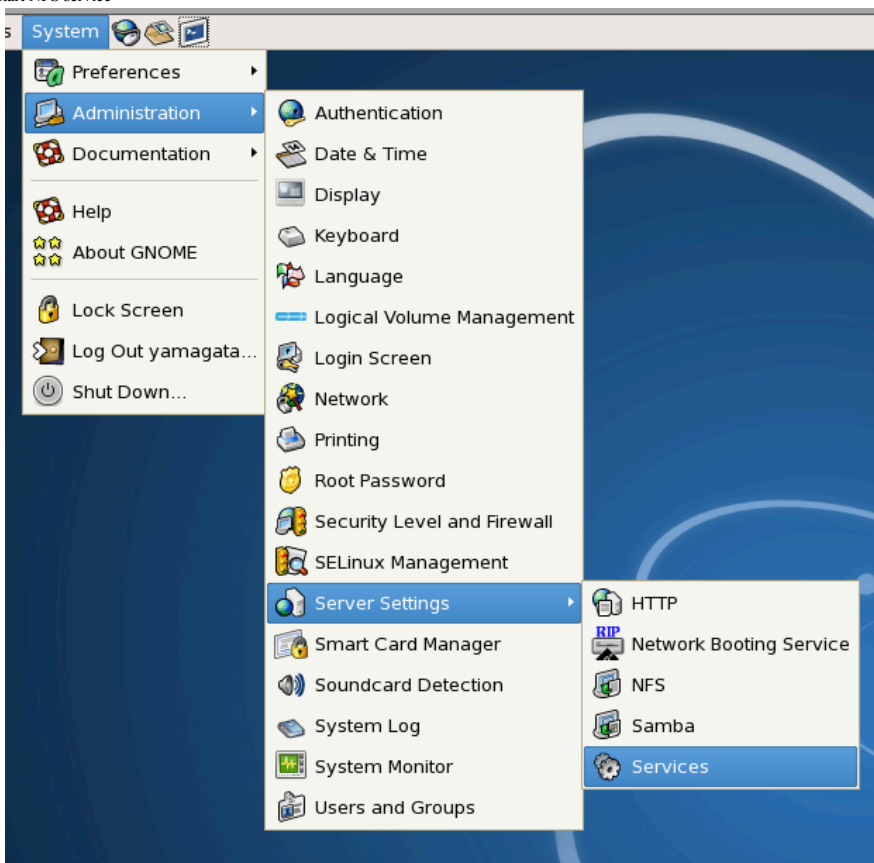


User Access must be changed.



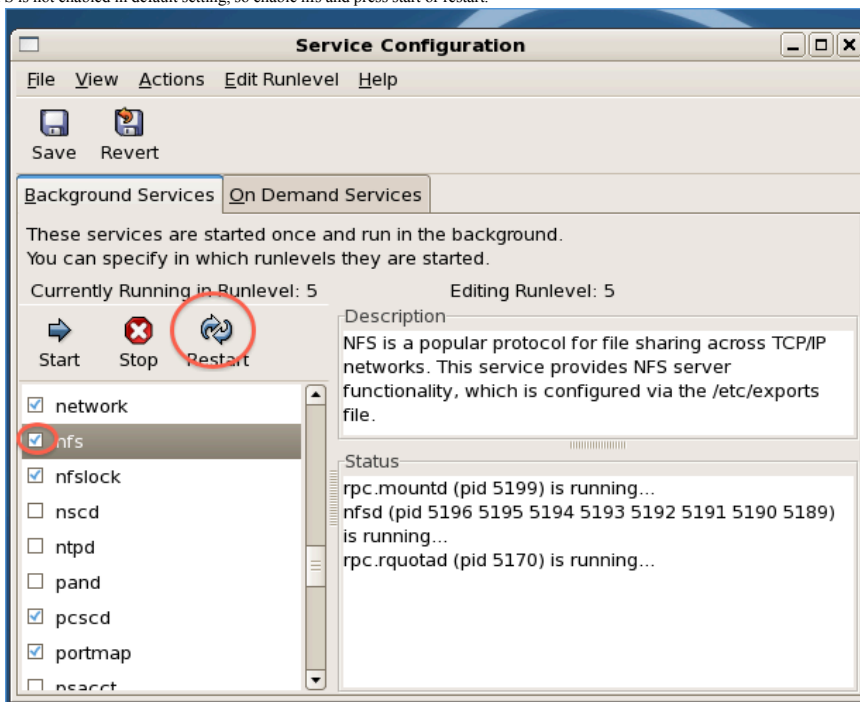
Press OK

restart NFS service



## How to build COPPER boot server for new PrPMC

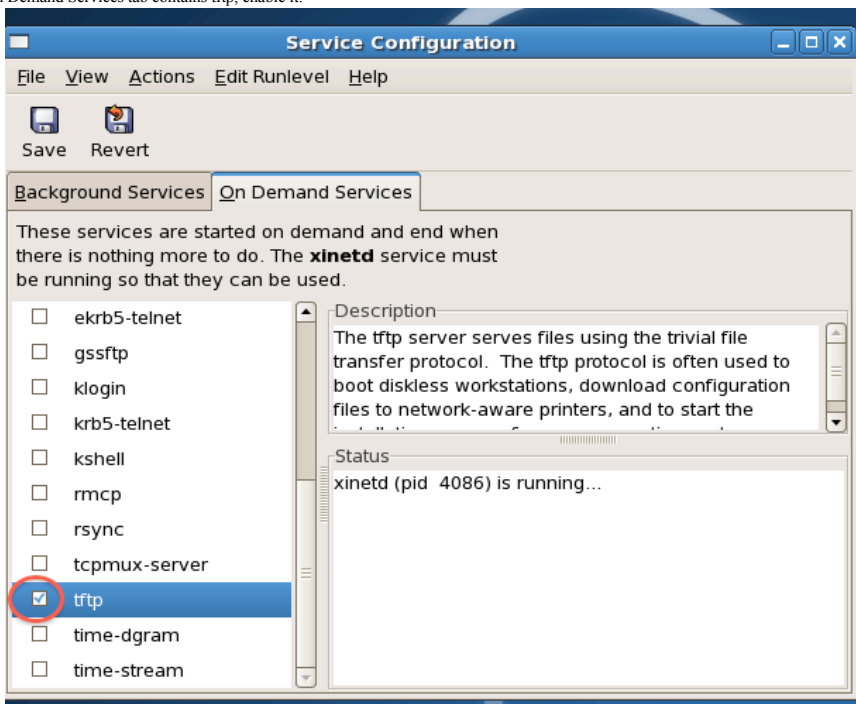
NFS is not enabled in default setting, so enable nfs and press start or restart.



You have to confirm NFS is really working by "`mount -o ro 192.168.10.1:/tftpboot/copper/root /mnt`". If succeeded, unmount it.

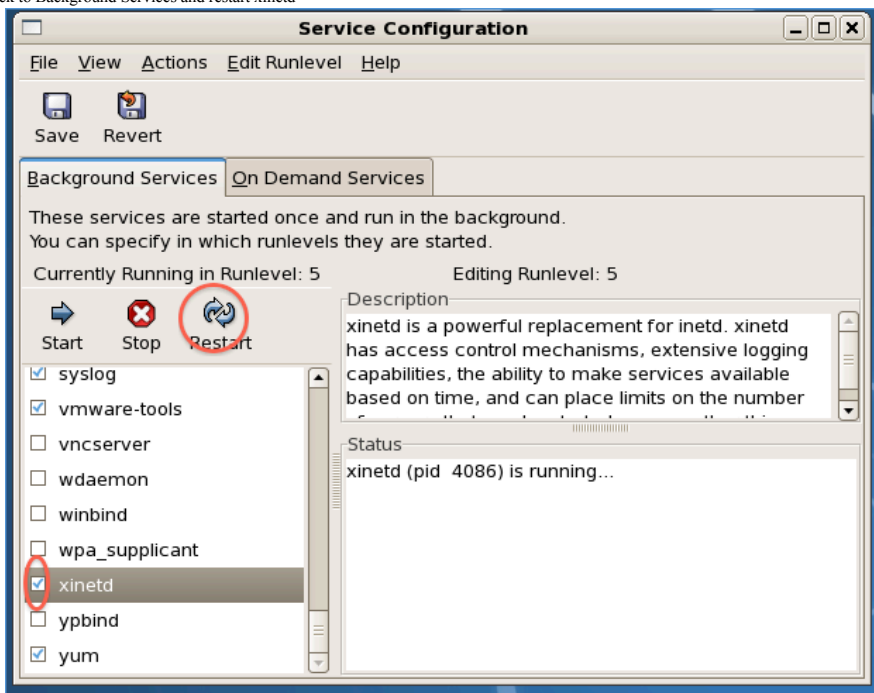
### 5. Enable tftpd

On Demand Services tab contains tftp, enable it.



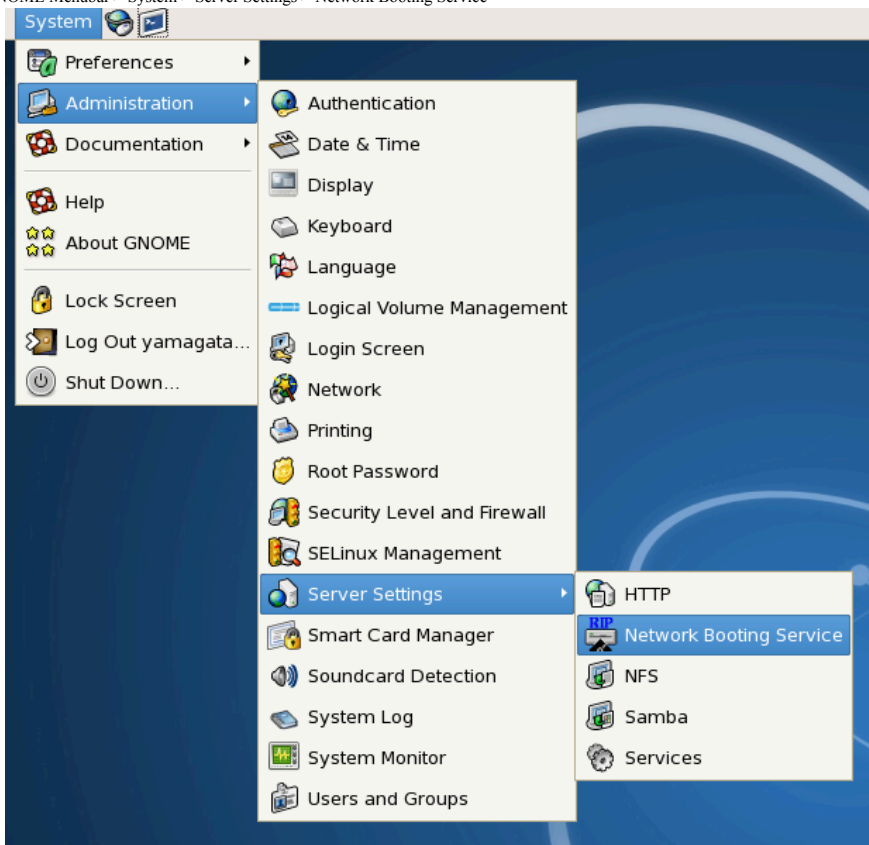
## How to build COPPER boot server for new PrPMC

back to Background Services and restart xinetd



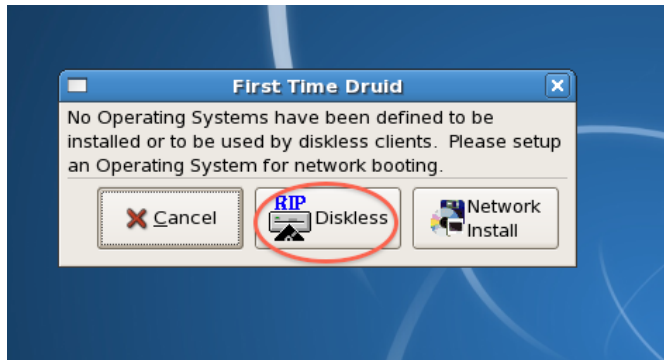
### 6. Configure pxelinux

GNOME Menubar > System > Server Settings > Network Booting Service



## How to build COPPER boot server for new PrPMC

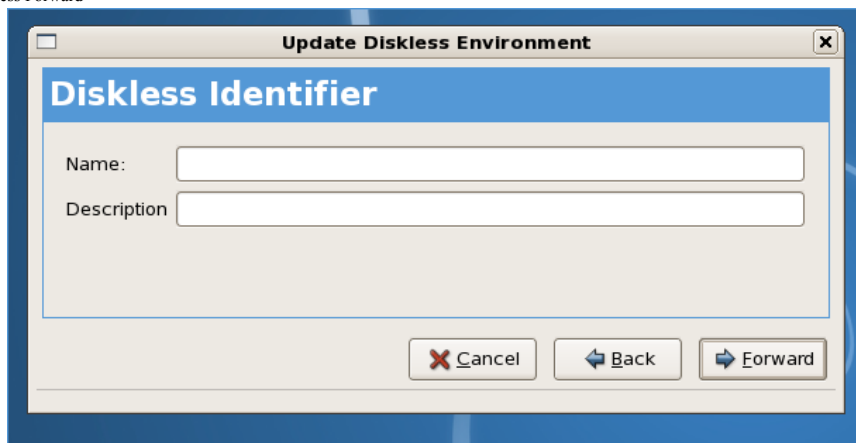
You will see ...



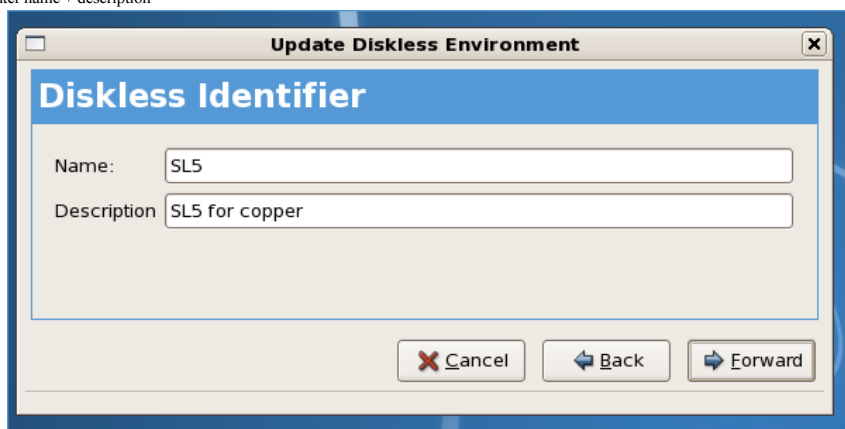
Press diskless



Press Forward

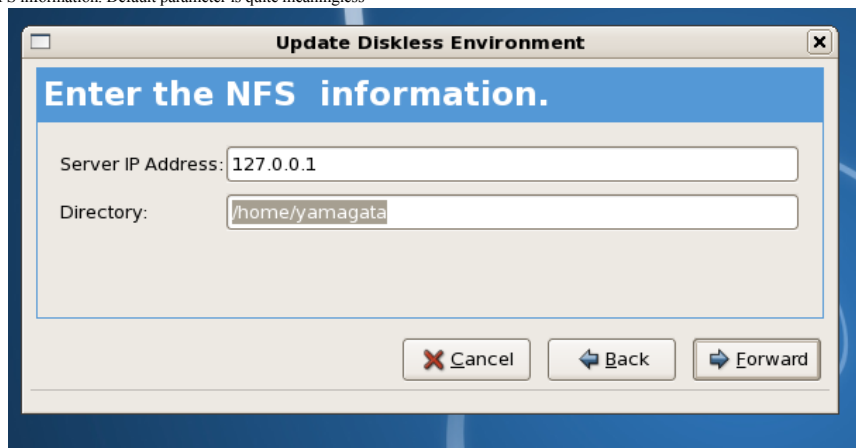


Enter name + description



## How to build COPPER boot server for new PrPMC

NFS information. Default parameter is quite meaningless



**Update Diskless Environment**

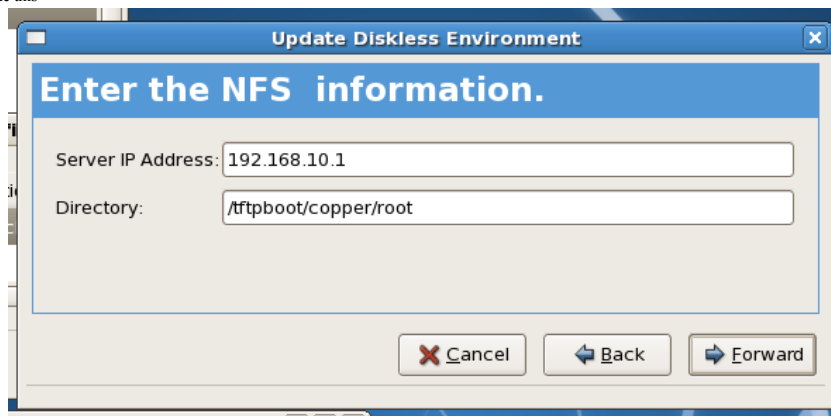
**Enter the NFS information.**

Server IP Address: 127.0.0.1

Directory: /home/yamagata

Cancel Back Forward

like this



**Update Diskless Environment**

**Enter the NFS information.**

Server IP Address: 192.168.10.1

Directory: /tftpboot/copper/root

Cancel Back Forward

choose kernel



**Update Diskless Environment**

**Select the kernel for the diskless clients.**

2.6.18-308.13.1.el5

Cancel Back Forward

confirm



**Update Diskless Environment**

**Complete Diskless Environment Setup**

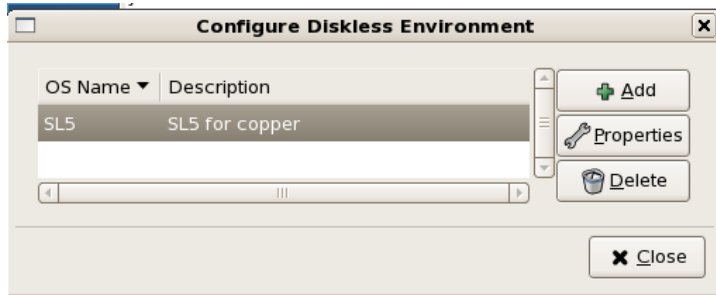
The diskless environment will be updated and the diskless kernel and image file will be created and copied to the pxe boot directory. This may take a while.

Cancel Back Apply

you will see a window like 1 or 2

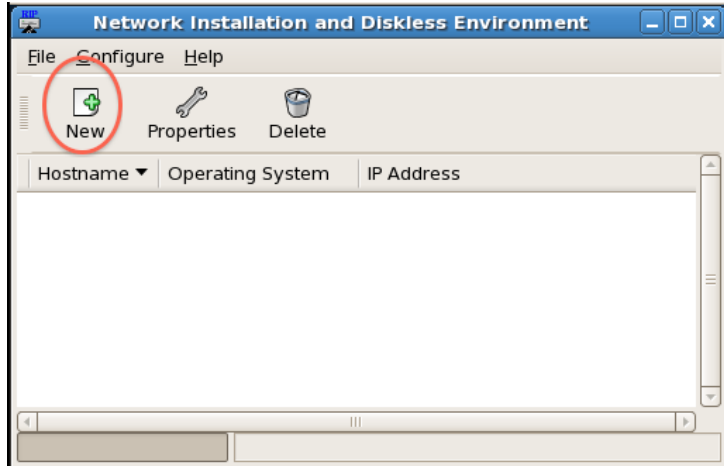
## How to build COPPER boot server for new PrPMC

1.

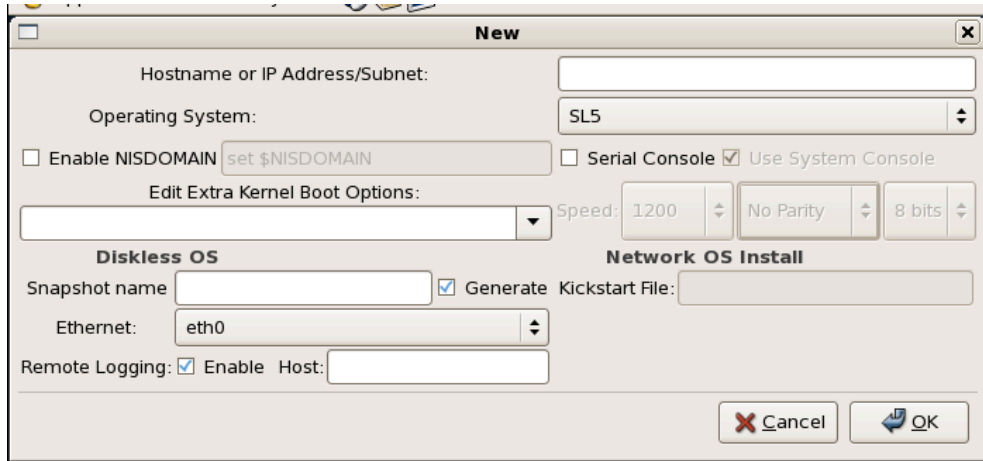


If you will see this, something problematic may have occurred. Only you can do "close". In this case, the OS choice column will be empty after re-launch of system-config-netboot. In my case, the problem was that files in /tftpboot/linux-install/ are deleted.

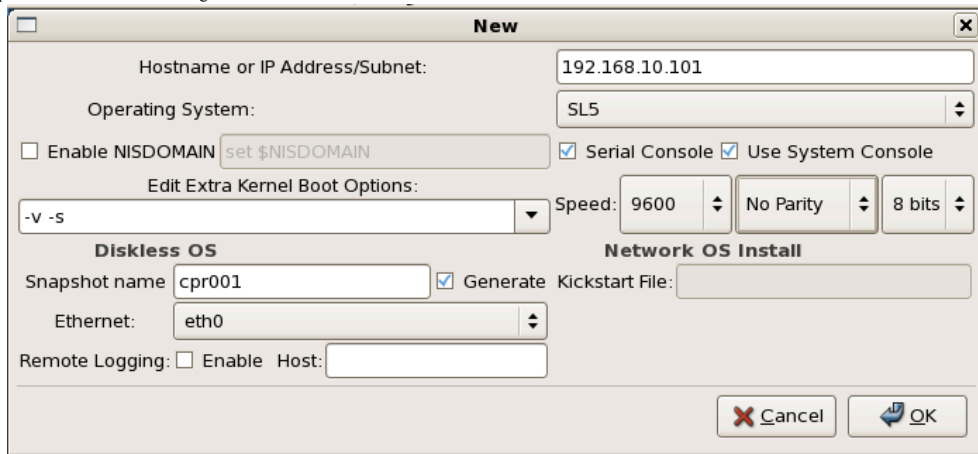
2.



Press new



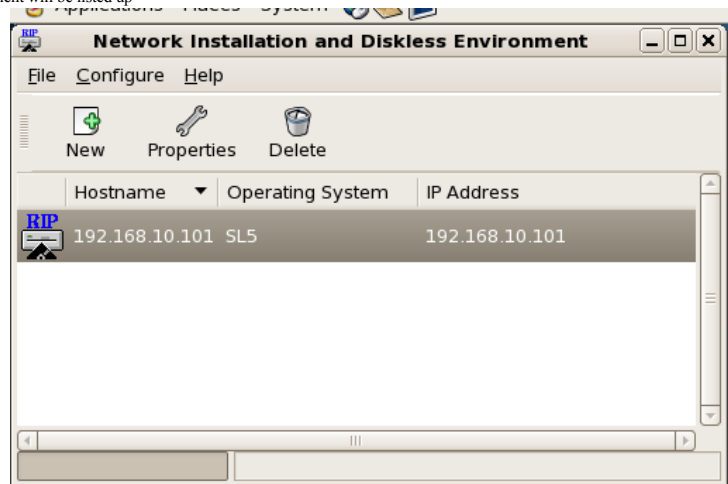
Input IP address that will be assigned the client



It is better to enable serial console and system console both.

## How to build COPPER boot server for new PrPMC

client will be listed up



You will find `/tftpboot/linux-install/pxelinux.cfg/[IP address of COPPER in HEX format]` and `/tftpboot/linux-install/[Operating System Name that you assigned]`

```
/tftpboot/linux-install
/tftpboot/linux-install/mgs
/tftpboot/linux-install/mgs/expert.msg
/tftpboot/linux-install/mgs/boot.msg
/tftpboot/linux-install/mgs/param.msg
/tftpboot/linux-install/mgs/general.msg
/tftpboot/linux-install/mgs/snake.msg
/tftpboot/linux-install/mgs/rescue.msg
/tftpboot/linux-install/SL5
/tftpboot/linux-install/SL5/vmlinuz
/tftpboot/linux-install/SL5/initrd.img
/tftpboot/linux-install/pxelinux.cfg
/tftpboot/linux-install/pxelinux.cfg/default
/tftpboot/linux-install/pxelinux.cfg/pxeos.xml
/tftpboot/linux-install/pxelinux.cfg/C0A80A65
/tftpboot/linux-install/pxelinux.0
```

Confirm you can get files for pxelinux boot.

```
cd /tmp
tftp 192.168.10.1
get linux-install/pxelinux.0
get linux-install/pxelinux.cfg/C0A80A65
quit
```

confirm the file consistency.

### 7. Configure dhcpd

there is no good GUI and you have to do it manually. For example,

```
ddns-update-style none;
ignore client-updates;

subnet 192.168.10.0 netmask 255.255.255.0 {

    option routers                192.168.10.1;
    option subnet-mask            255.255.255.0;

    option domain-name-servers   192.168.10.1;

    range dynamic-bootp 192.168.10.128 192.168.10.254;
    default-lease-time 21600;
    max-lease-time 43200;

    next-server                   192.168.10.1;
    filename                      "/linux-install/pxelinux.0";

    host cpr001 {
        hardware ethernet 00:50:56:22:8E:F3;
        fixed-address 192.168.10.101;
    }
}
```

### 8. Boot test

Before turning on power of COPPER crate,

open two terminals

On first terminal, `dhcpcd -d -d -d`

On second terminal, `tcpdump -i ethX -n -p -vvvv -s 2000`

Turn on COPPER crate,

step1 dhcpcd will show DHCP interaction

step2 the COPPER will take, `linux-install/pxelinux.0`

step3 that will take, `pxelinux.cfg/C0A80A65`

step4 that will take `copper/root/boot/vmlinuz` and `initrd`

If you have connected to serial or VGA console on the debug board, you will see the boot message.