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 intall dhcp busybox-anaconda tftp
```

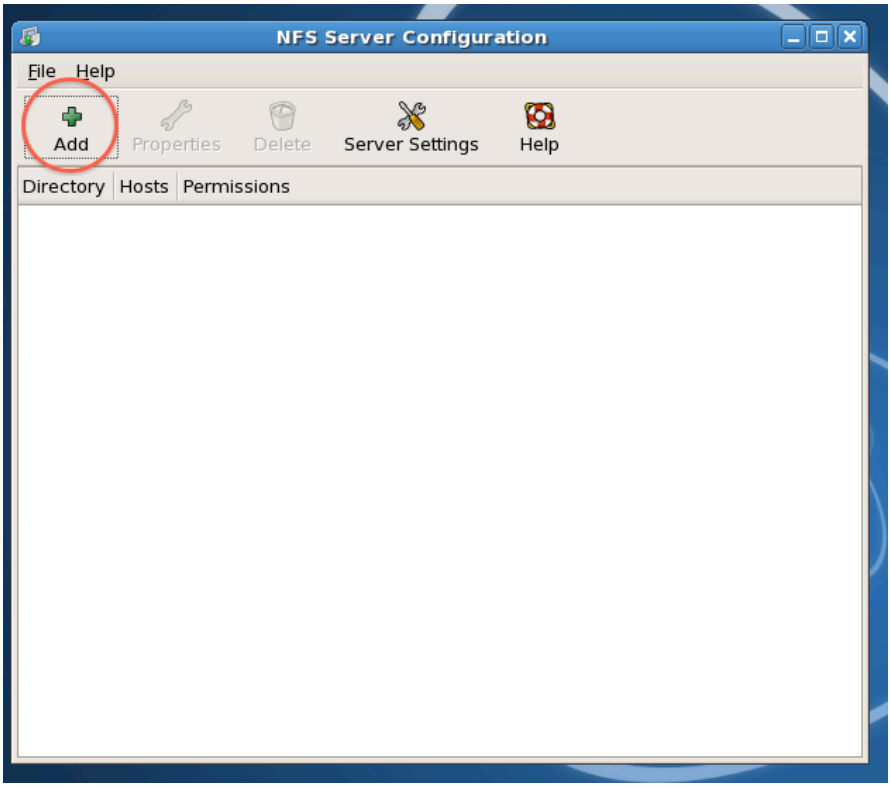
   confirm `rpm -q -a 'system-config-netboot*'` shows `system-config-netboot` and `system-config-netboot-cmd`
   confirm the existence of `/tftpboot/linux-install/msgs`, `pxelinux.0`, `pxelinux.cfg`
   These files and directories belong to `system-config-netboot-cmd`. If you have deleted some of them by 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
```

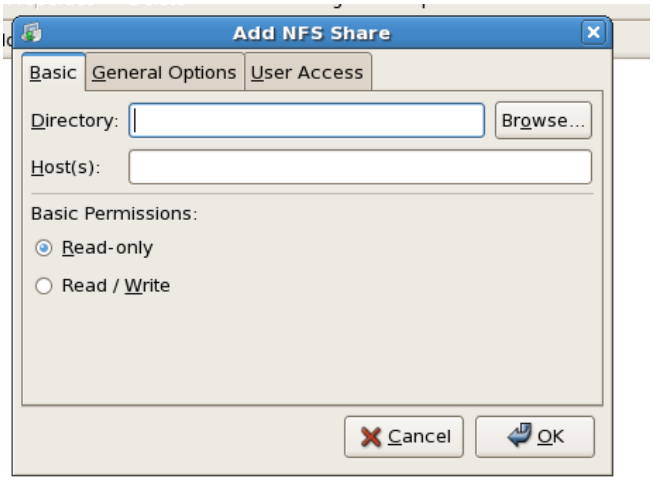
   install base system for diskless client

```
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



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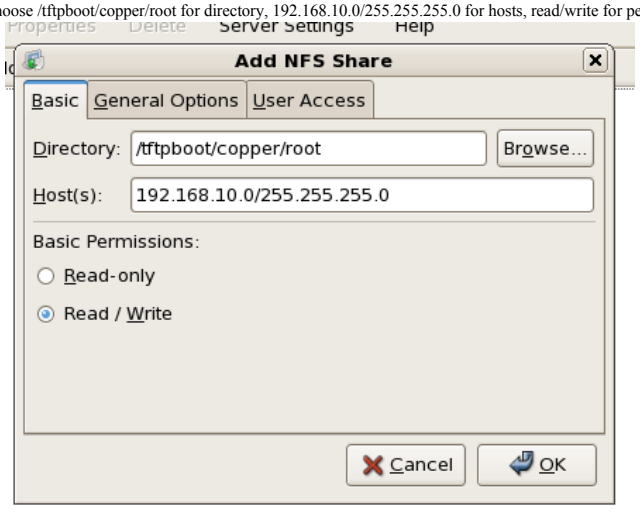
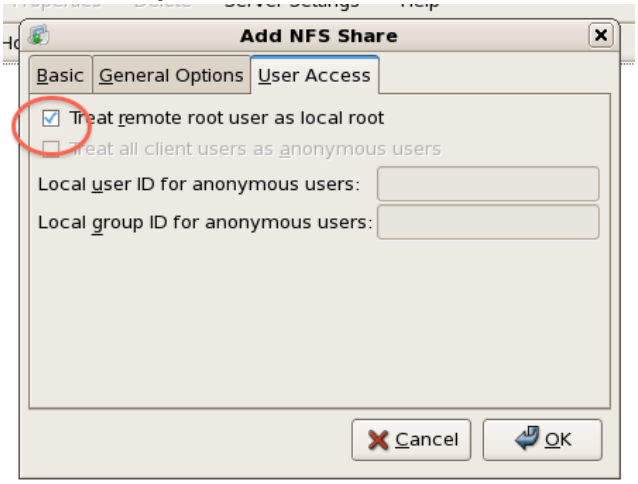
Choose /tftpboot/copper/root for directory, 192.168.10.0/255.255.255.0 for hosts, read/write for permission

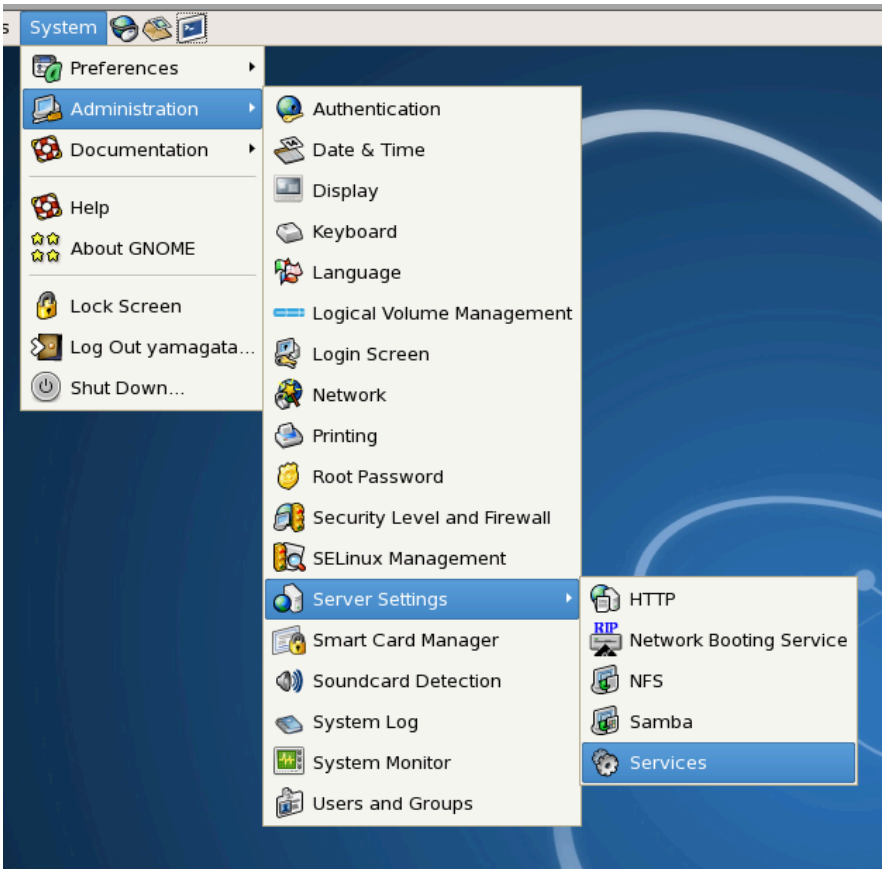



User Access must be changed.




Press OK

restart NFS service



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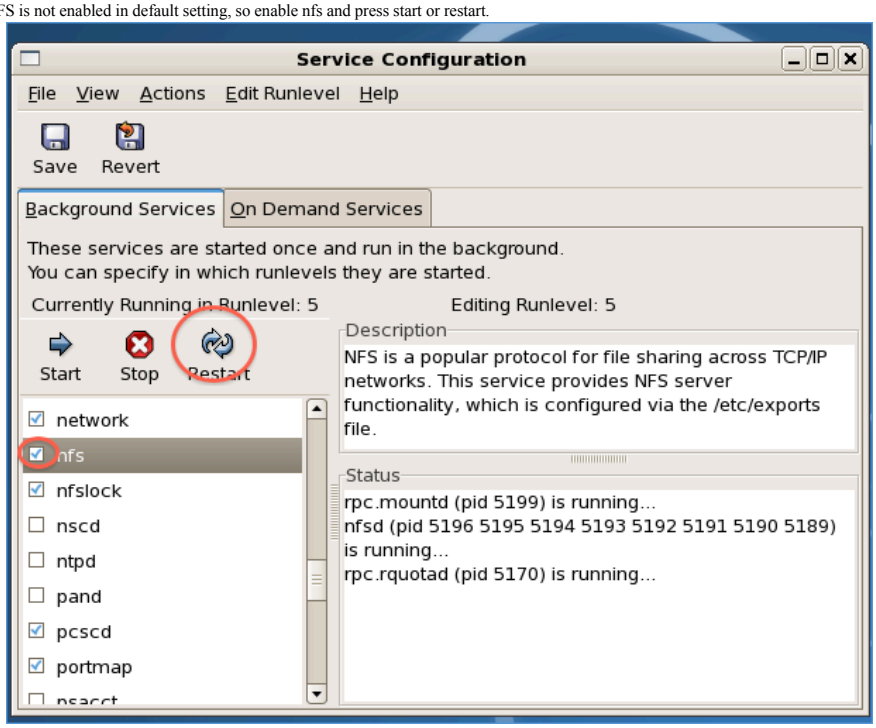
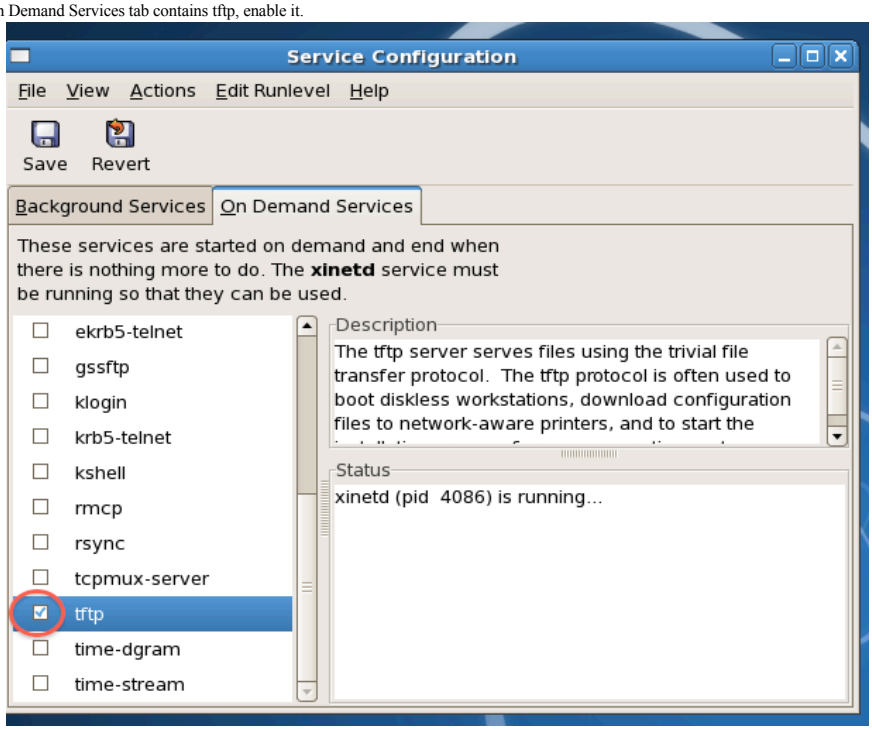
NFS is not enabled in default setting, so enable nfs and press start or restart.



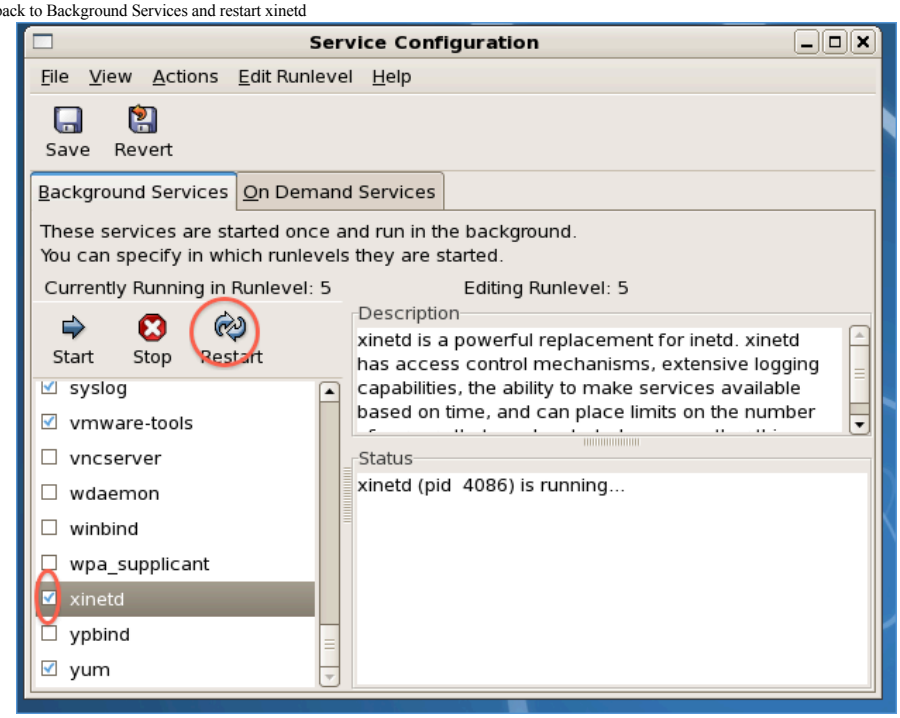

You have to confirm NFS is really working by "`mount -o ro 192.168.10.1:/tftpboot/copper/root /mnt`". If succeeded, unmount it.

5. **Enable tftpd**

On Demand Services tab contains tftp, enable it.

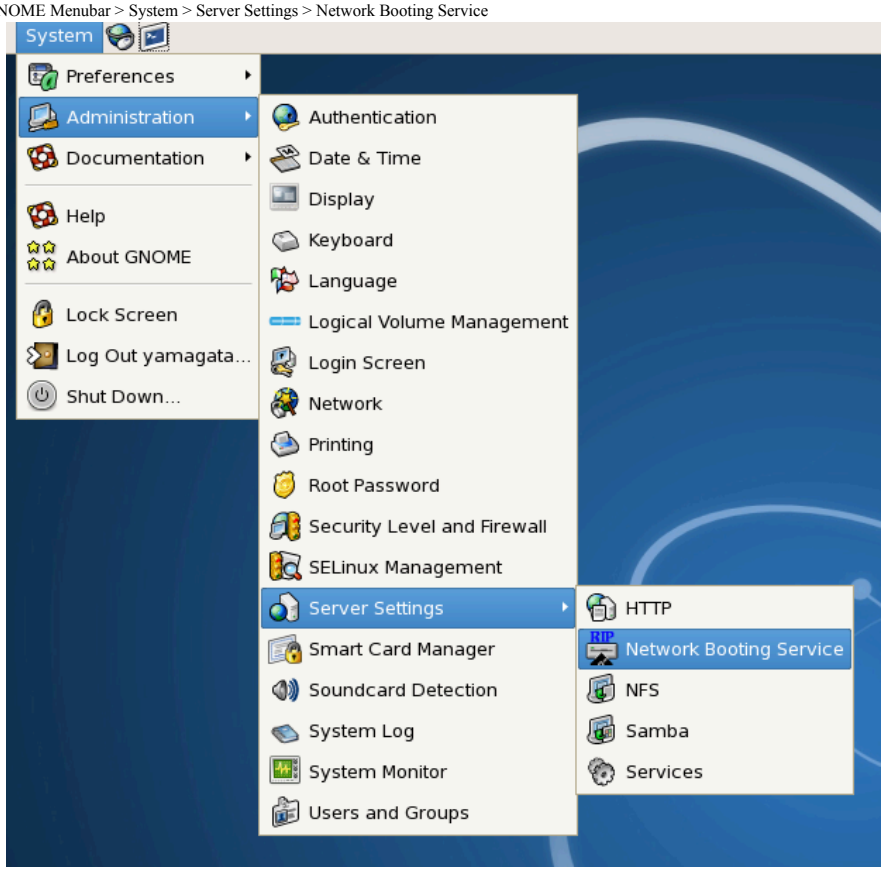


back to Background Services and restart xinetd




6. **Configure pxelinux**

GNOME Menubar > System > Server Settings > Network Booting Service



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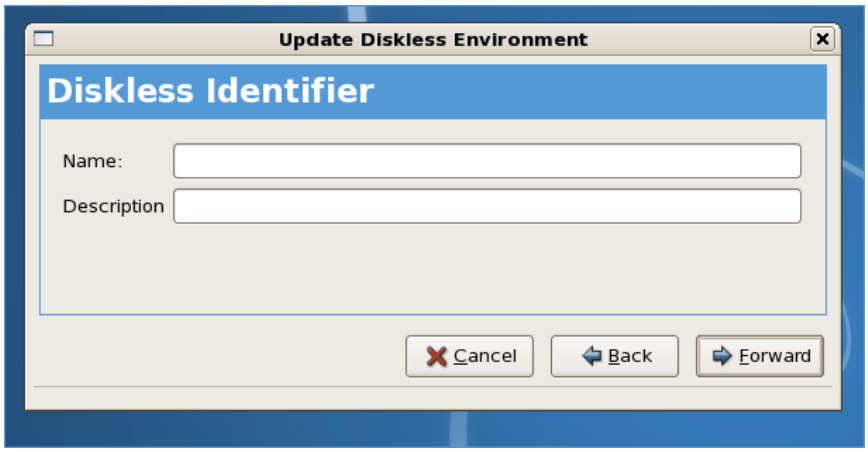
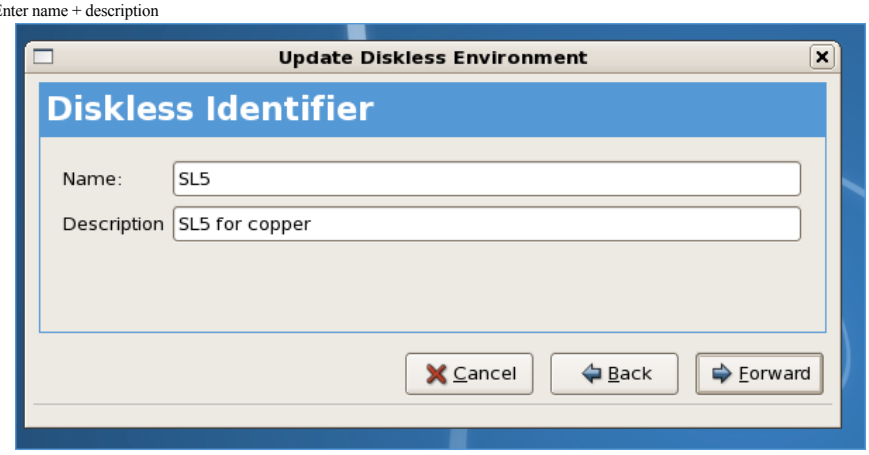
You will see ...


Press diskless


Press Forward




Enter name + description



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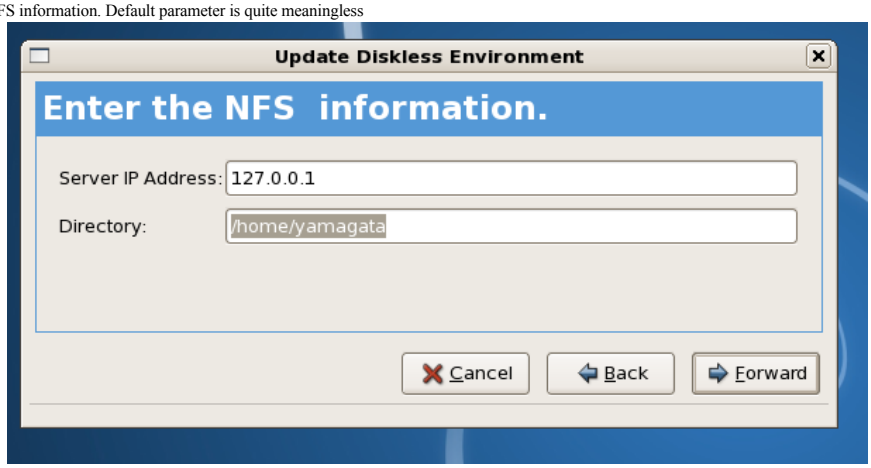
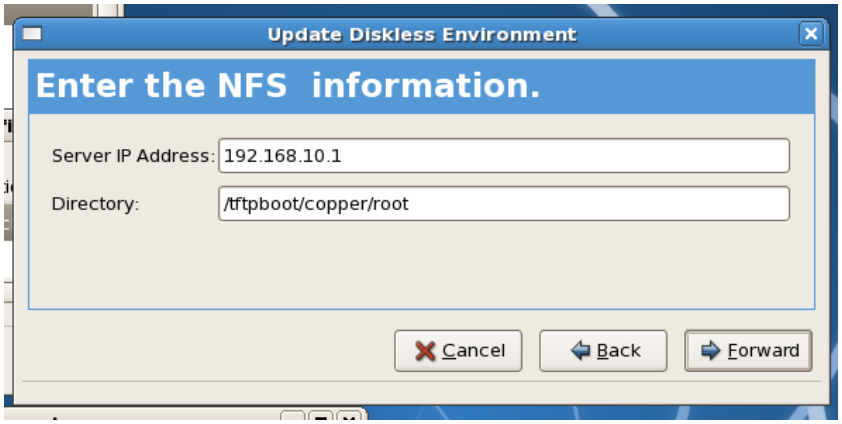
NFS information. Default parameter is quite meaningless




like this




choose kernel


confirm


You need to copy
/sbin/busybox.anaconda
to /tftpboot/copper/root/sbin

you will see a window like 1 or 2

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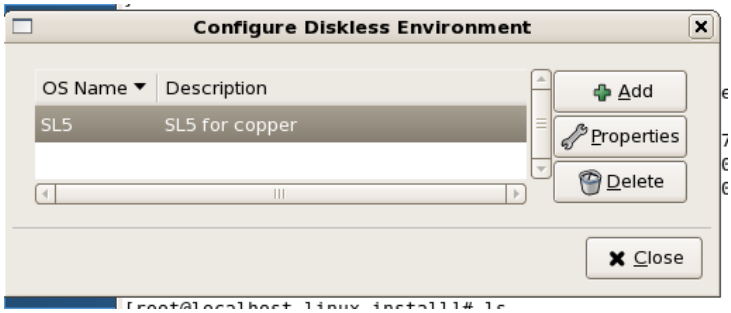
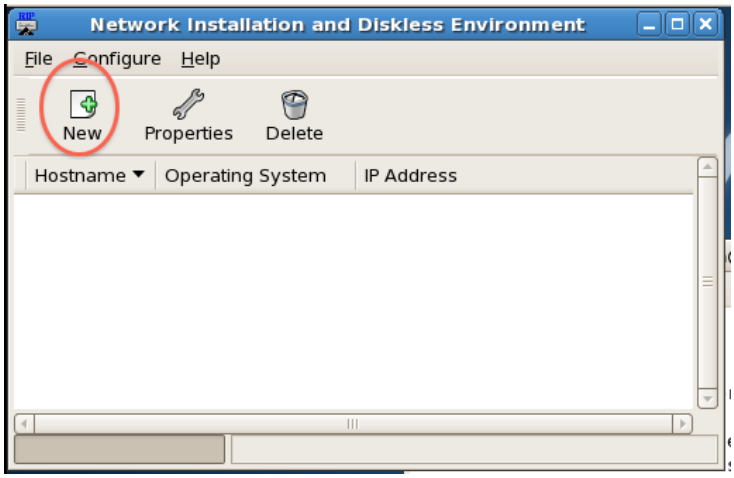
1.

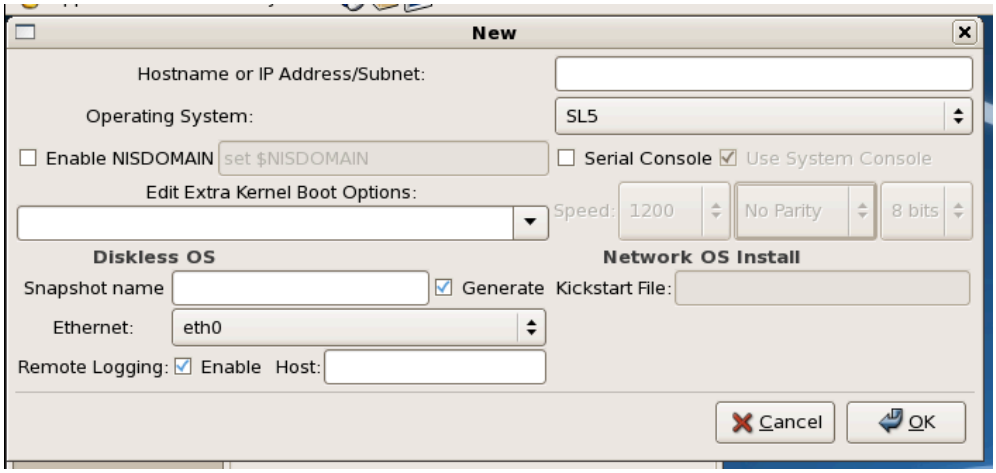



If you will see this, something problematic may have occurred. Only you can do "close". In this case, the OS choice column will be empty after re-launch of system-config-netboot.
In my case, the problem was that files in /tftpboot/linux-install/ are deleted.

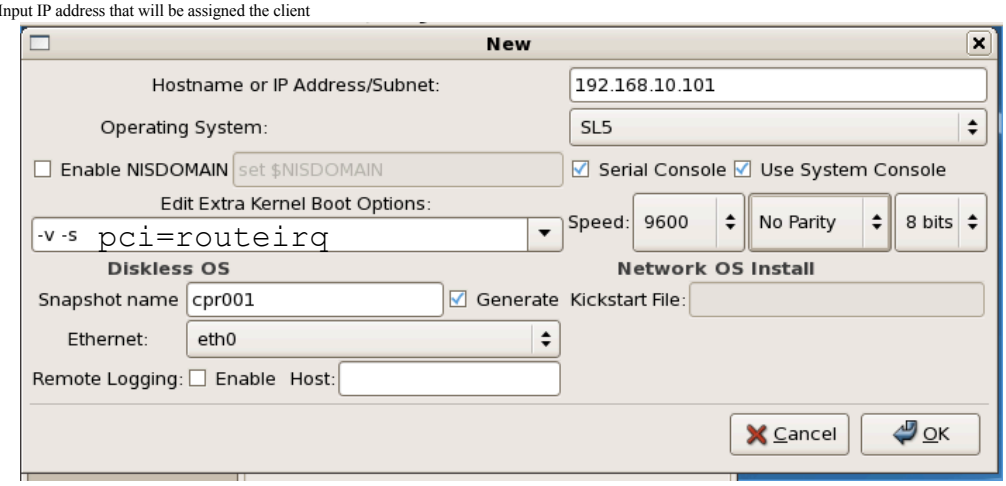
2




Press new

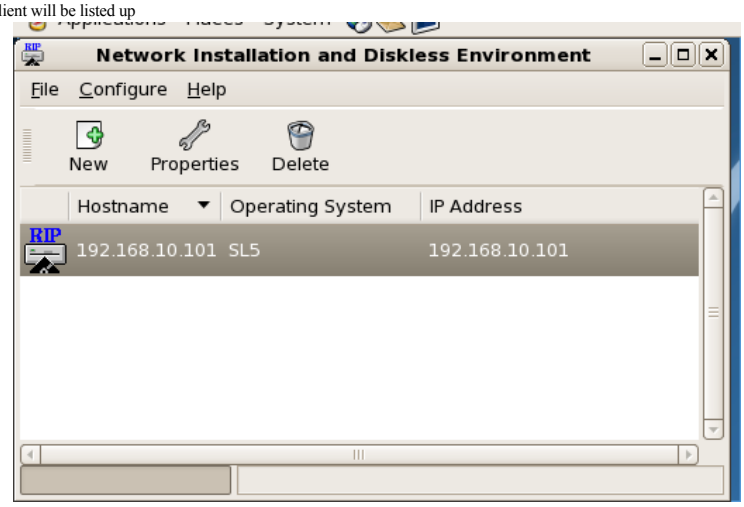



Input IP address that will be assigned the client




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

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/msgs
/tftpboot/linux-install/msgs/expert.msg
/tftpboot/linux-install/msgs/boot.msg
/tftpboot/linux-install/msgs/param.msg
/tftpboot/linux-install/msgs/general.msg
/tftpboot/linux-install/msgs/snake.msg
/tftpboot/linux-install/msgs/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, `dhcpd -d -d -d`

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

Turn on COPPER crate,

step1 dhcpd 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.