

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

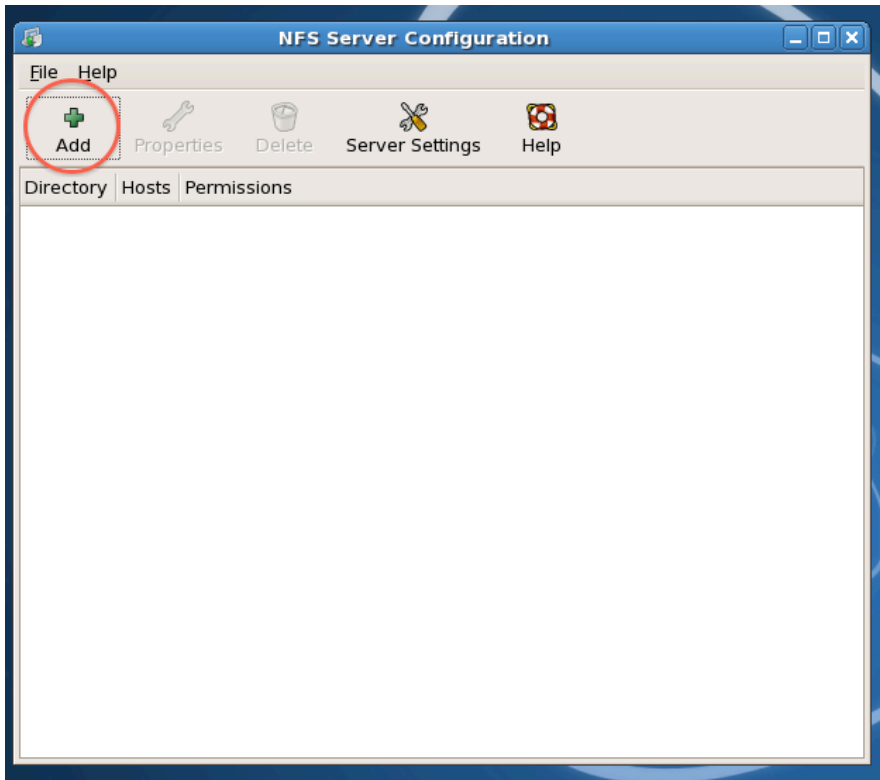
```
yum --installroot=/tftpboot/copper/root groupinstall Base
```

3. Assign NIC as boot server

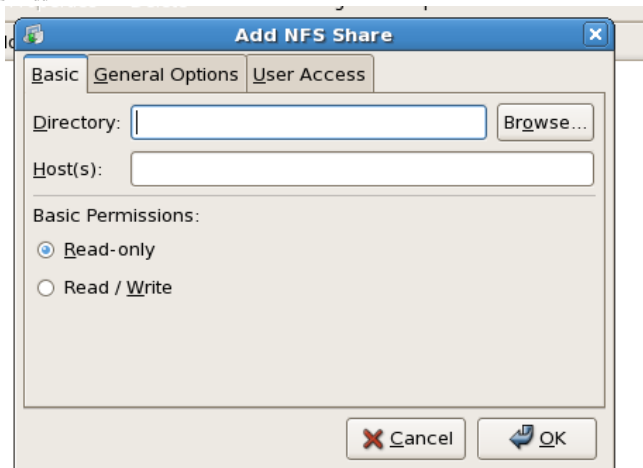
for example, we will use 192.168.10.1 and netmask 255.255.255.0

4. Configure NFS export

you will see

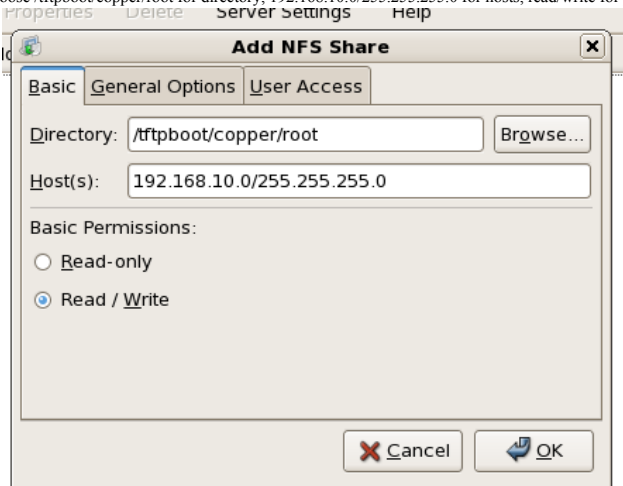


push Add

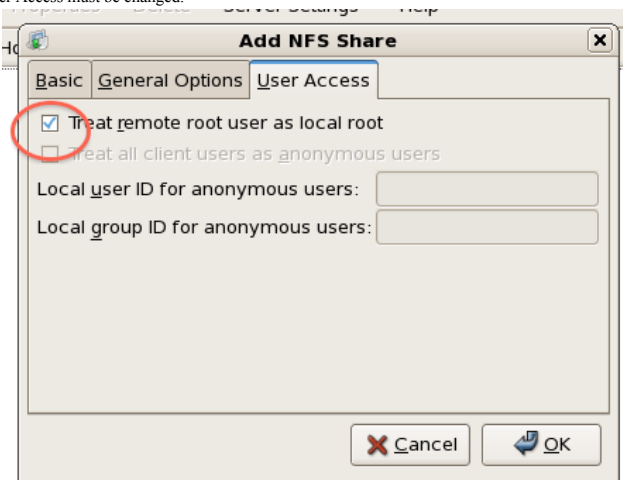


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Choose /tftpboot/copper/root for directory, 192.168.10.0/255.255.255.0 for hosts, read/write for permission

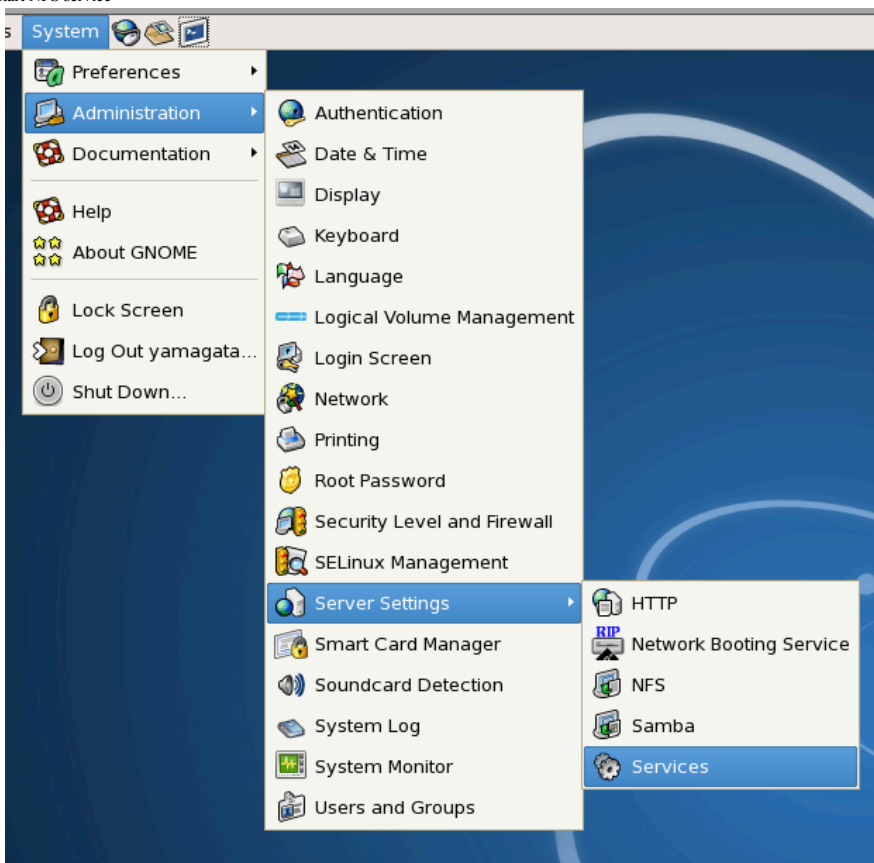


User Access must be changed.



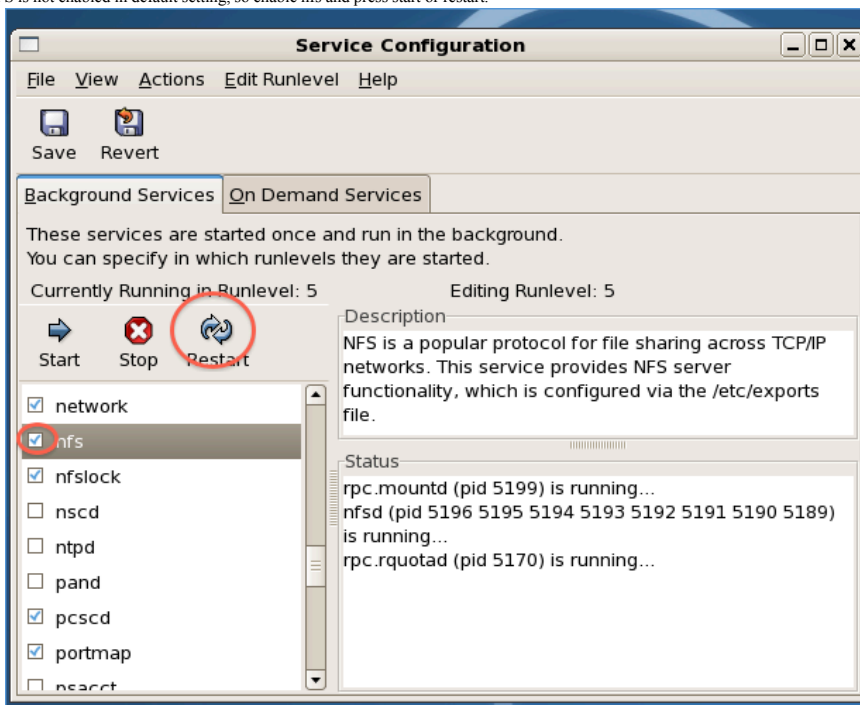
Press OK

restart NFS service



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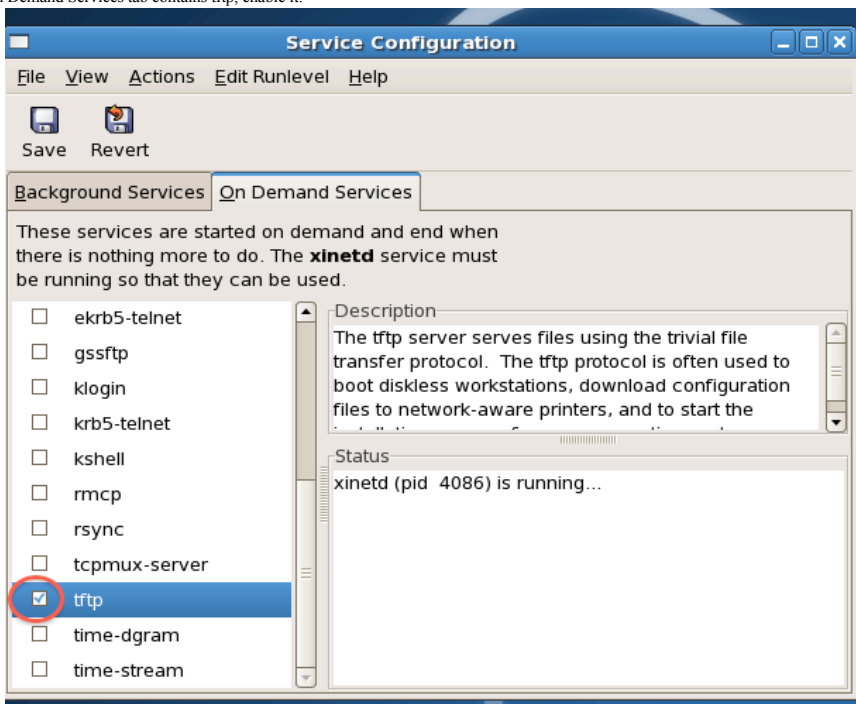
NFS is not enabled in default setting, so enable nfs and press start or restart.



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

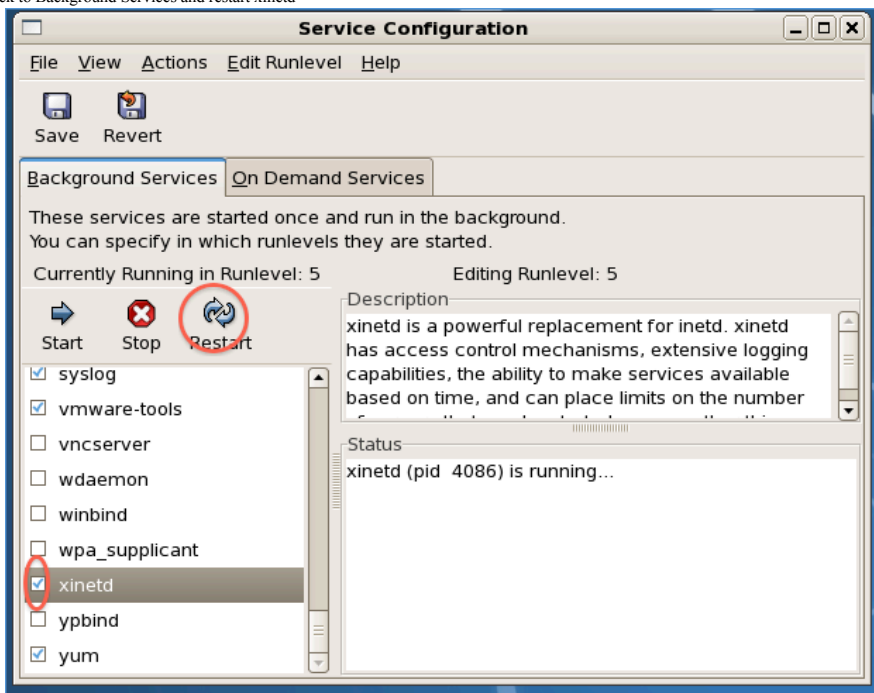
5. Enable tftpd

On Demand Services tab contains tftp, enable it.



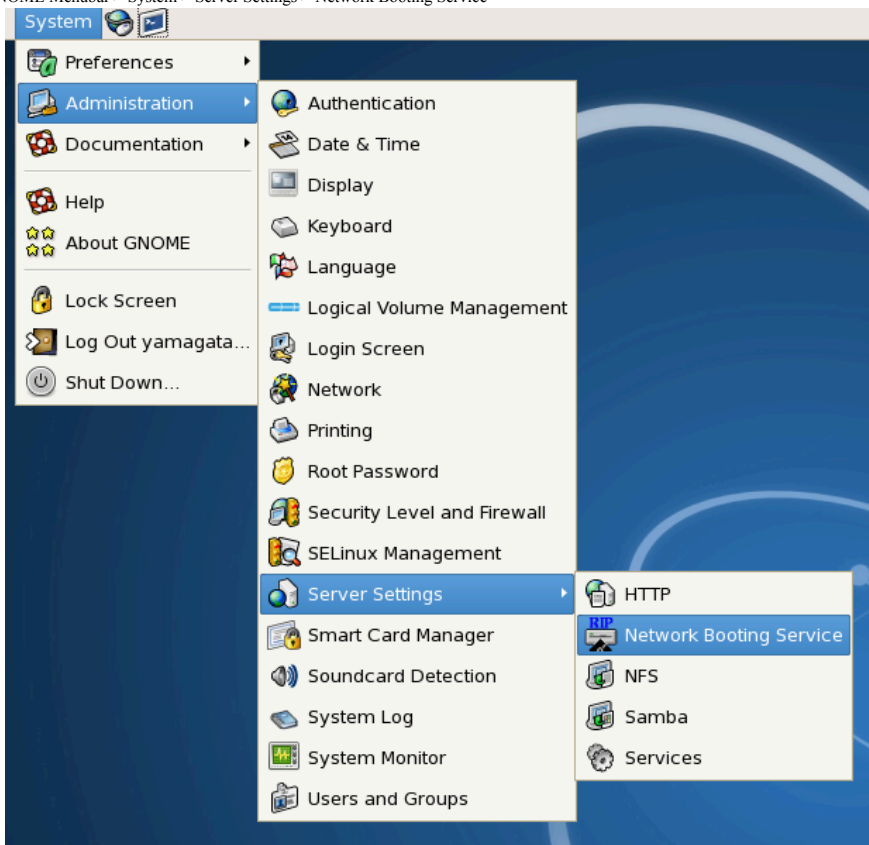
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back to Background Services and restart xinetd



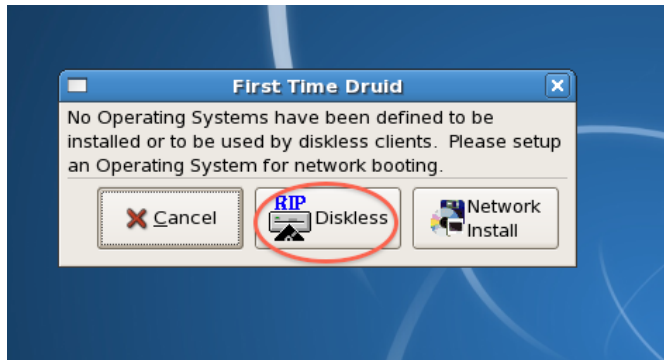
6. Configure pxelinux

GNOME Menubar > System > Server Settings > Network Booting Service



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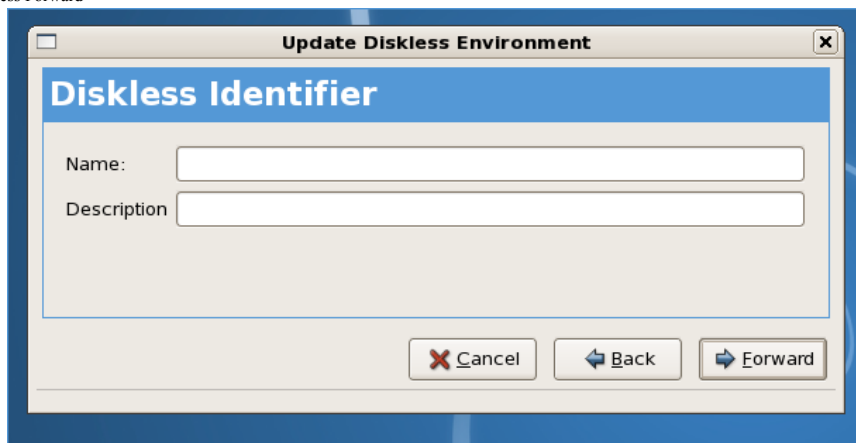
You will see ...



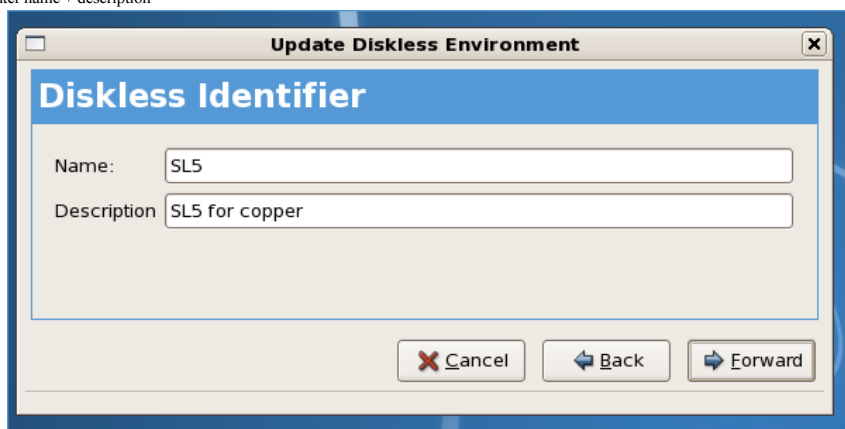
Press diskless



Press Forward

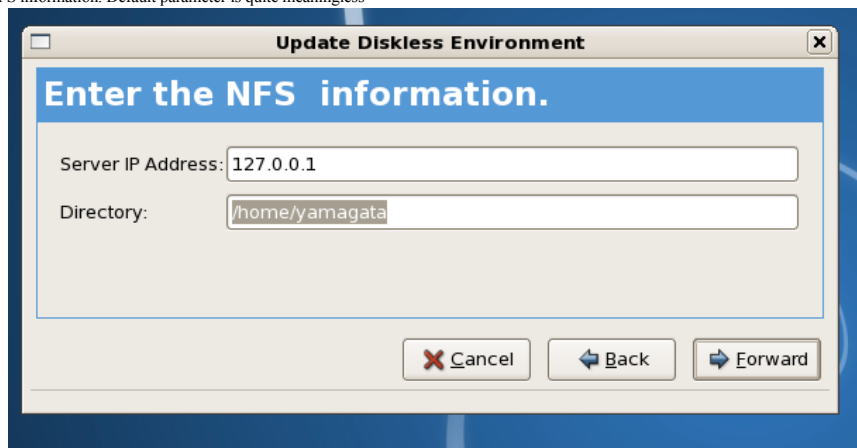


Enter name + description

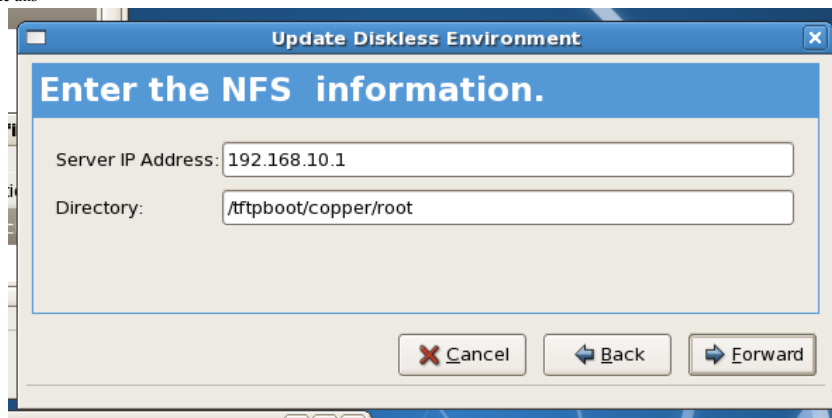


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NFS information. Default parameter is quite meaningless



like this



choose kernel



confirm

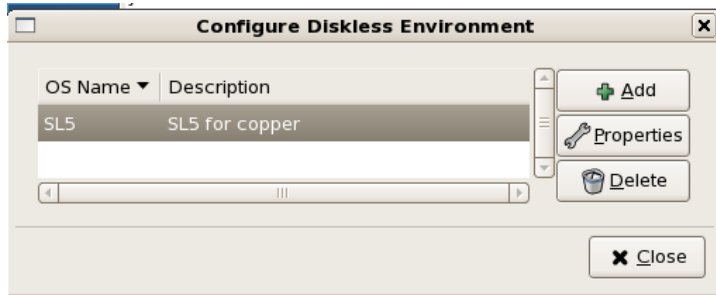


you will see a window like 1 or 2

```
% cp /sbin/busybox.anaconda  
/tftpboot/copper/root/sbin/  
may be needed.
```

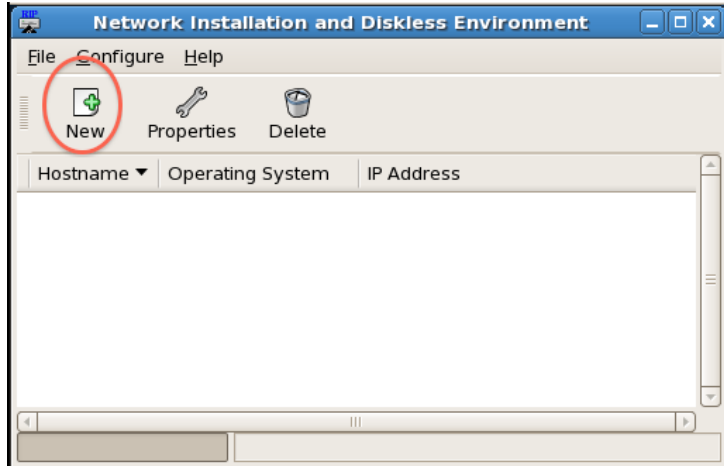
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1.

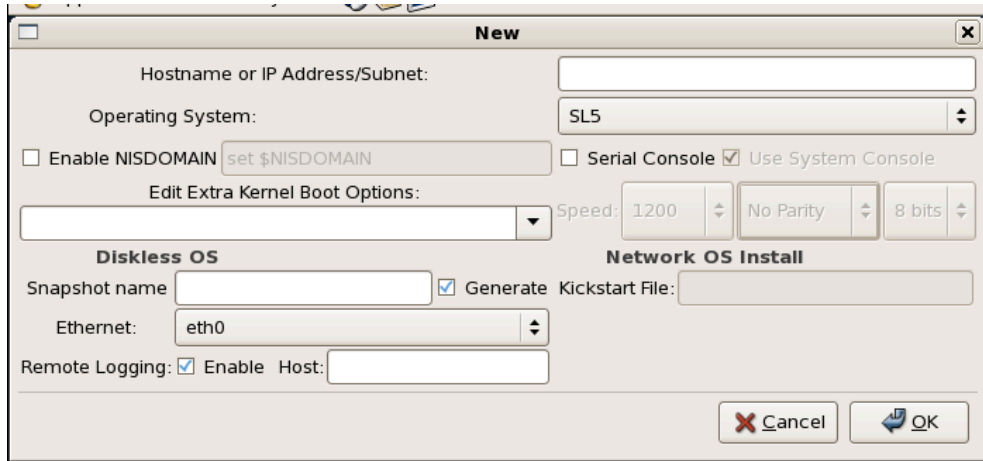


If you will see this, something problematic may have occurred. Only you can do "close". In this case, the OS choice column will be empty after re-launch of system-config-netboot. In my case, the problem was that files in /tftpboot/linux-install/ are deleted.

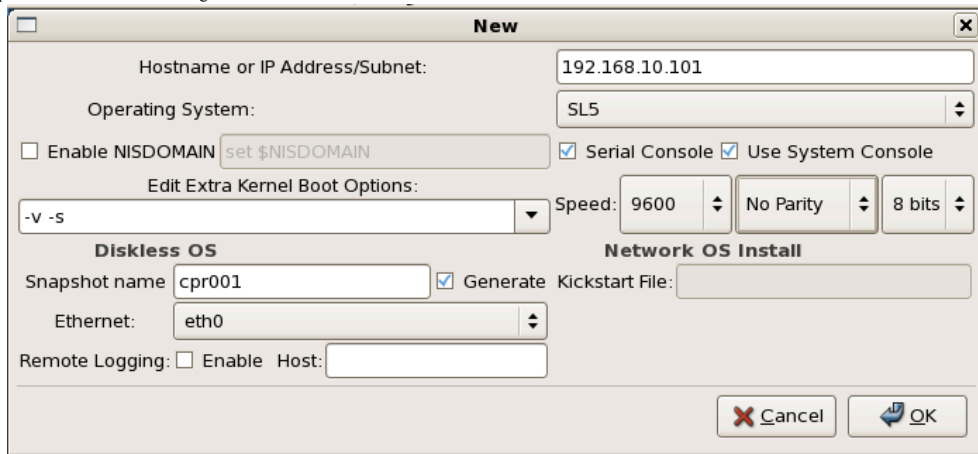
2.



Press new



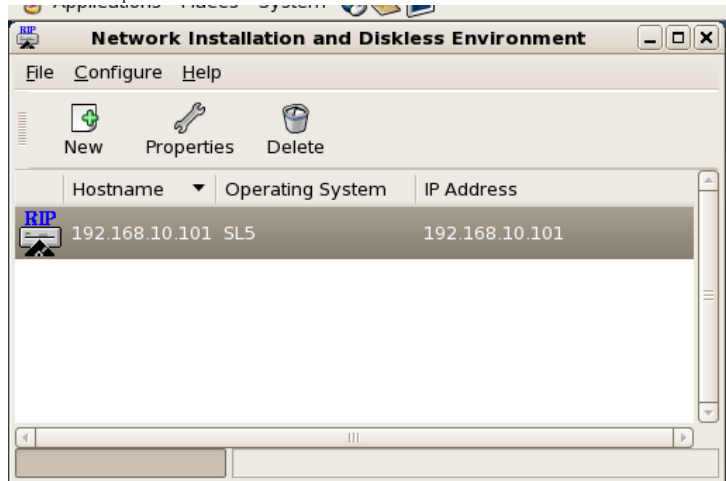
Input IP address that will be assigned the client



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

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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 1600;
    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;
    }
}
```

Change lease time to 'infinite'. (w/o quotation marks)
Otherwise, COPPER OS sometimes becomes inaccessible from outside.

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.