

# Netbooting of a RHEL 6.9 PowerVM LPAR with an AIX NIM Server

For this example the following settings are assumed:

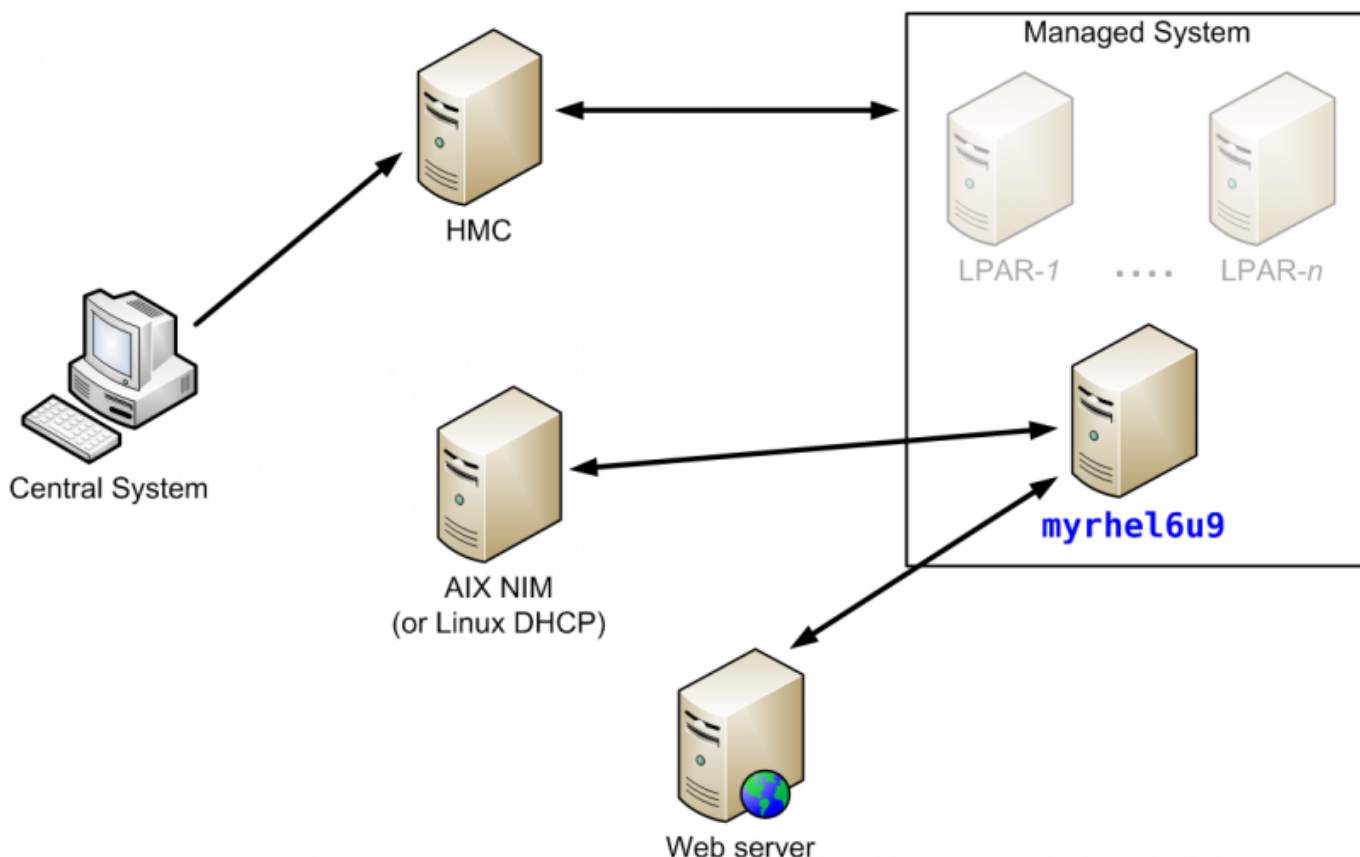
- A HMC called **hmc** manages **managed-system**.
- A LPAR named **myrhel6u9** is already defined on **managed-system**.
  - All required network and storage adapters as well as disk storage have been created up front.
  - The designated IP address is **192.168.10.75/24**.
- The AIX NIM server **nim** has the IP address **192.168.10.10/24**.
- The network adapter used for netbooting has the following mac address:  
**96:0d:e1:c7:5b:03**.
- Access to the HMC **hmc** via password-less SSH is possible from a central system.
- The Red Hat Kickstart file used for the installation is accessible through a **web server** (IP address **192.168.10.120/24**) at this URL:

```
http://<web-server>/RHEL_Kickstart/myrhel6u9.ks
```



How to create a Red Hat Kickstart file is beyond the scope here, please check your RHEL documentation on how to do it!

This picture shows the example setup in detail:



## 1) Copy the RHEL yaboot binary

- From the RHEL 6.9 DVD image - mounted under /mnt in this example - copy this file:

```
[root@nim ~]$ cp /mnt/ppc/chrp/yaboot /tftpboot/yaboot.rhel6u9
[root@nim ~]$ chmod 0644 /tftpboot/yaboot.rhel6u9
```

## 2) Create the entry in the /etc/bootptab file on the AIX NIM server

```
[root@nim ~]$ cat etc/bootptab:
# Legend:
# first field -- hostname (may be full domain name and probably should be)
# bf -- bootfile
# ip -- host IP address
# ht -- hardware type
# ha -- hardware address
# sa -- server IP address to tftp bootfile from
# sm -- subnet mask
myrhel6u9:bf=/tftpboot/myrhel6u9:ip=192.168.10.75:ht=ethernet:ha=960DE1C75B0
3:sa=192.168.10.10:sm=255.255.255.0:
```

## 3) Create the symbolic link to the yaboot binary

```
[root@nim ~]$ cd /tftpboot
[root@nim tftpboot]$ ln -s yaboot.rhel6u9 myrhel6u9
[root@nim tftpboot]$ ls -l myrhel6u9
lrwxrwxrwx  1 root system 14 Dec 13 18:46 myrhel6u9 -> yaboot.rhel6u9
```

## 4) Adapt the AIX TFTP server



### Note:

The TFTP server on AIX does not chroot incoming clients into a specific directory by default.

Instead, access to the server is controlled by the /etc/tftpaccess.ctl file.

Make sure your /etc/tftpaccess.ctl file looks like this - or at least allows access to the /tftpboot and /etc directories:

```
[root@nim ~]$ cat /etc/tftpaccess.ctl
# NIM access for network boot
```

```
allow:/tftpboot
allow:/etc
```

## 5) Activate the bootp changes

As the bootp daemon runs under the control of the inetd daemon we have to notify the inetd to refresh its subsystems.

```
[root@nim ~]$ refresh -s inetd
```

## 6) Create a customized yaboot.conf file in /etc

The naming for this customized yaboot.conf file is `01-<MAC-ADDRESS>` with `<MAC-ADDRESS>` coded as `xx-yy-zz-aa-bb-cc`.



This customized yaboot.conf must be placed in /etc as the AIX TFTP server does not chroot to the /tftpboot base directory!

```
[root@nim ~]$ cat /etc/01-96-0d-e1-c7-5b-03
message=/etc/yaboot.txt

timeout=10

default=rhel6u9

image=/tftpboot/rhel6u9/vmlinuz
  label=rhel6u9
  initrd=/tftpboot/rhel6u9/initrd.img
  append="ks=http://192.168.10.120/RHEL_Kickstart/myrhel6u9.ks
ksdevice=eth0 ip=192.168.10.10 netmask=255.255.255.0 gateway=192.168.10.1"
  read-only
```



If you include a message file (in the example above /etc/yaboot.txt) in your yaboot configuration you must put this file also in a directory where AIX TFTP has access to!

## 7) Copy the proper boot images into the right location

- From the RHEL 6.9 DVD image - mounted under /mnt in this example - copy these files:

```
[root@nim ~]$ cp /mnt/ppc/ppc64/vmlinuz /tftpboot/rhel6u9/vmlinuz
[root@nim ~]$ cp /mnt/ppc/ppc64/initrd.img /tftpboot/rhel6u9/initrd.img
[root@nim ~]$ chmod 0644 /tftpboot/rhel6u9/*
```

## 8) Start the lpar\_netboot command on the HMC

At last, initiate the installation from the central system via password-less SSH access of the HMC.

```
[root@<central system> ~]$ ssh hscroot@<hmc> lpar_netboot -t ent -m
960DE1C75B03 -S <nim> -C 192.168.10.75 -K 255.255.255.0 -s auto -d auto -f -
i -E LPAR_NETBOOT_DEBUG -T off myrhel6u9 <lpar_profile_of_myrhel6u9>
<managed-system>
```

After a while your Kickstart-automated RHEL installation should begin...

## Using a Linux DHCP Server instead of the AIX NIM Server

- The same steps as in the AIX NIM server scenario would be performed but a Linux DHCP server would be used instead of the AIX NIM server.

```
[root@<linux_dhcp> ~]$ cat /etc/dhcpd.conf
option domain-name "<your_domain_name_here>";
option domain-name-servers 192.168.10.8; # DNS server IP address
option routers 192.168.10.1;
option ntp-servers 192.168.10.8; # NTP server IP address
ddns-update-style none;
ignore unknown-clients;
allow bootp;
subnet 192.168.10.0 netmask 255.255.255.0 {
    range 192.168.10.100 192.168.10.250;
    default-lease-time 86400;
    max-lease-time 604800;
}
host myrhel6u9 {
    hardware ethernet 96:0D:E1:C7:5B:03;
    filename "myrhel6u9";
    fixed-address 192.168.10.75;
    next-server 192.168.10.51; # DHCP server IP address
}
```

# Yaboot sequence of TFTP requests for RHEL 6.X

Yaboot will try to find its configuration file under these names in the following order:

<b>Client IP:</b>	192.168.10.75 (= 0xC0A80A4B)
<b>MAC address:</b>	96:0D:E1:C7:5B:03

```
/etc/grub.cfg-01-96-0d-e1-c7-5b-03
/etc/C0A80A4B
/etc/C0A80A4
/etc/C0A80A
/etc/C0A80
/etc/C0A8
/etc/C0A
/etc/C0
/etc/C
/etc/yaboot.conf
```

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