Installation and Configuration of CentOS7 Diskless OS for x86_64 and armv7

Bryan Moffit <moffit@jlab.org>

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Outline

Installation and Configuration Intro

The following guide describes the installation and configuration of CentOS7 for use with diskless clients running `x86_64` (e.g. VME Controllers), `armv7` (VTPs), or `aarch64` (MOLLERADC). It's my hope that this will be useful to anyone left to do this on their own. This guide assumes that you have a DHCP that can be configured with these parameters

```
filename "pxelinux.0";
next-server 129.57.xxx.xxx;
```

Where `next-server` should reflect the IPv4 address of your (tftp) host machine.
It also assumes that your host machine and VME/VTP have DNS entries.
dnsmasq is a program that can be used to handle TFTP, DHCP, and DNS. Here's a good write-up I found describing it's use with pxelinux: PXELinux using Proxy DHCP

The Boot Process

VME

Host packages to install

`nfs-utils, tftp-server, syslinux-tftpboot, syslinux`

- I installed these on my host system using yum

```
yum install nfs-utils tftp-server syslinux-tftpboot syslinux
```

Download

centos7_dist

- Clone the `centos7_dist` repo from github

```
git clone --depth 1 git@github.com:JeffersonLab/centos7_dist
```

or on site

```
git clone --depth 1 /site/coda/contrib/devel/centos7_dist
```

tgz's

Download and install the root and tftp pair for your module(s).

- VTP (armv7):
  - root-rc6 (filesize = 1G) tftp-rc2 (filesize = 26M)
- VME (x86_64):
  - root-rc5 (filesize = 1.5G) tftp-rc2 (filesize = 7.2M)
- I downloaded these and moved them into the `tgz` directory

  `centos7_dist/tgz/root_x86_64-rc5.tgz`

Configure the distribution

VME OS

I put together the following configuration for my system:

```
# The local paths for NFS exports to diskless paths: /, /hor
#   using base path
#       /usr/local/diskless
#
# Uncomment and set, if running the diskless_* scripts on a
#  that's not the indented NFS server.  Otherwise the defaul
#NFS_SERVER_HOSTNAME="daqfs.jlab.org"

NFS_PATH=/usr/local/diskless/CentOS7/x86_64

NFS_ROOT_PATH=${NFS_PATH}/root
NFS_SNAPSHOT_PATH=${NFS_PATH}/snapshot
NFS_HOME_PATH=${NFS_PATH}/home

NFS_EXPORTS=centos7-x86_64.exports
```

Enable and start the NFS-server service

- As root, execute

```
systemctl enable nfs-server.service
systemctl start nfs-server.service
```

Enable and start the TFTP server

- As root, execute

```
systemctl enable tftp
systemctl start tftp
```

First Login

Setup daq account

- I logged in as root and set up the home directory for the daq account and set its password

```
ssh root@davme6
/usr/sbin/mkhomedir_helper daq
passwd daq
```

- Change the root password while you're at it.
- Now you can log in as the daq user

```
ssh daq@davme6
```

Fixes

VTP Booting sometimes halts (fixed in rc6)

- in serial debug connection, booting stops/halts at

```
[  OK  ] Reached target Local File Systems (Pre).
         Starting udev Kernel Device Manager...
[  OK  ] Started udev Kernel Device Manager.
[  OK  ] Started Dispatch Password Requests to Console D
[  OK  ] Reached target Paths.
[  OK  ] Found device /dev/ttyPS0.
```

Update `rhel-readonly.service`

- Change the `/etc/systemd/system/rhel-readonly.service [Unit]` section to read:

```
[Unit]
Description=Configure read-only root support
DefaultDependencies=no
Conflicts=shutdown.target systemd-tmpfiles-setup.service
```