Installation notes from Oxford RPT workshop 27 Jan, 2015

The release tag is V0.7.1-WS. This contains a fix to the installation of the arm-rtems cross compilers due to a bug in the RTEMS distribution.

The confluence page at SLAC for the workshop is:
https://confluence.slac.stanford.edu/display/RPTUSER/2015-01-26%2C27%3A+Oxford

The RPT home page is:
https://confluence.slac.stanford.edu/display/RPTUSER/

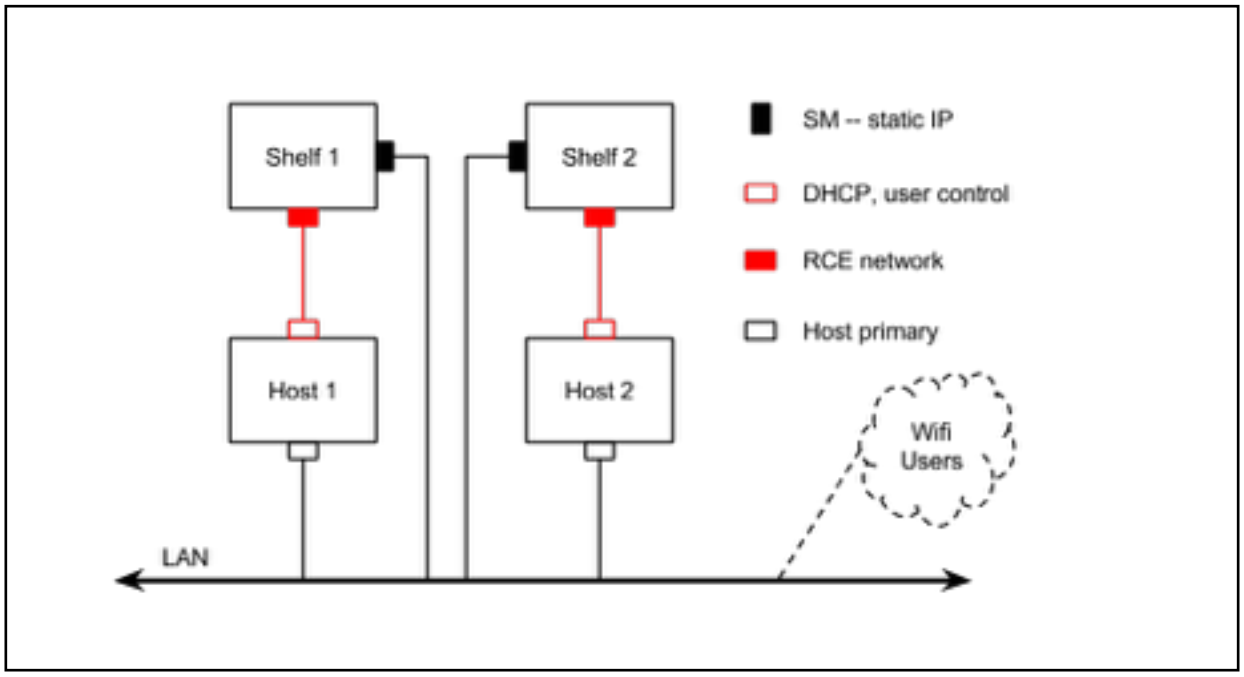
SDK Installation

Install up to 4 “architectures”: `arm-rtems-rceCA9, arm-linux-rceCA9, i86-linux-64, i86-linux-32`

```
git clone -q --branch rtems-V0.7.1-WS \
   http://www.slac.stanford.edu/projects/CTK/SDK/arm-rtems-rceCA9.git\
   install_path

git clone -q --branch linux-V0.7.1-WS \
   http://www.slac.stanford.edu/projects/CTK/SDK/i86-linux-64.git\
   install_path
```

For the RTEMS SDK, execute the `install-devtools.sh` script in the `tools` directory. For both the RTEMS and i86 SDKs, execute `install-sdk.sh` in the respective `tools` directories.



Network setup:

The shelf manager(s) need a static IP. This IP should not be on the same network as the RCE set. Best is to have it accessible from the hosts.
SLAC has a switch between the hosts an the RCEs, with each shelf on its own VLAN (in order to isolate traffic a bit). Any standard Layer 2 switch (1Gb/s or above) will work for this.

Network port configuration on Host:

```
$ cat pprcedaq2:/etc/sysconfig/network-scripts/ifcfg-p4p1
DEVICE=p4p1
HWADDR=68:05:CA:2F:8F:EA
TYPE=Ethernet
UUID=78edf86d-9419-4e7b-a770-7ba02ebef87b
ONBOOT=no
NM_CONTROLLED=no
BOOTPROTO=dhcp
USERCTL=yes
```

Notice the following:

- This interface does not come on at boot. The reason for this is that at boot of the host, the shelf is not guaranteed to be powered on. This scenario would lead to a 1-5 minute delay in the host booting, and is irritating. Thus we put the port under user control.
- Since the port is user controlled, it can and should be restarted by the user when it needs a new IP address. This is typically needed when a shelf is installed, after the shelf has been powered down for some period of time, or after booting the host.
- For RHEL6/SL6, the `NM_CONTROLLED` option is off. This fixes an issue with NetworkManager.

NFS exports:

```
$ cat /etc/exports
/home/daquser 192.168.0.0/16(rw,root_squash,async)
```

Typically RCEs are set up on the 192.168/16 subnet.

Shelf setup

Serial cable to shelf manager from the host with the i86-linux-XX SDK installed.
To set the static IP address for an ASIS shelf:

ssh root@<shelfmanager_ip>
pw: (there is no password)
clia setlanconfig 1 3 “10.255.5.7”
clia setlanconfig 1 6 “255.255.255.0”
clia setlanconfig 1 12 “10.255.255.1”

clia shelfaddress “ceg”
reboot
Then set the shelf IP record from the Host:

```
$ set_shelf_ip_info --shelf=10.255.5.7 --vlan=1 --untagged=0 --
tagged=1 --boundary-violations=0 --group-base=192.168.209.1 --group-
end=192.168.209.254 --subnet-mask=255.255.255.0 --gateway=0.0.0.0 -v
```

Log back into the shelf manager via ssh and reboot it **again**.

Reset the cold data on all COBs:

```
cob_cold_data_reset 10.255.5.7/6/4/0
```

Add the shelf IP / name to /etc/hosts. On pprcedaq2, the setup was:

```
[daquser@pprcedaq2 ~]$ cat /etc/hosts
127.0.0.1   localhost localhost.localdomain localhost4
localhost4.localdomain4
::1         localhost localhost.localdomain localhost6
localhost6.localdomain6
10.255.5.5  snowbird-sm
```

You may also add this to your normal DNS.

After all this, restart the network interface on the host.

General usage notes

- Sometimes the RCE gets stuck configuring the ethernet XAUI interface. Errors from BOOTP/DHCP will be seen in the console. If this happens use `cob_rce_reset` to reset the RCE until it comes up all the way. Sometimes this must be done repeatedly.
- Don’t do the UDP exercise from a telnet session. This tickles a bug in the XAUI plugin and locks up the network.