

Table of Contents

Starting the RCE GUL.....	1
Setting/unsetting FEB emulation mode on the RCEs.....	2
Real WIB Data.....	2
Emulated Data.....	2
RPT SDK:.....	3

Starting the RCE GUI

from np04-srv-XXX

```
source /nfs/sw/rce/setup.sh  
rce_talk CERN-1 start_gui #where 1 means COB 1
```

Setting/unsetting FEB emulation mode on the RCEs

Real WIB Data

Assuming the config is called "Coldbox":

edit Coldbox/user_run_options.fcl and set

```
daq.fragment_receiver.rce_feb_emulation_mode: false
```

Emulated Data

Assuming the config is called "Coldbox":

edit Coldbox/user_run_options.fcl and set

```
daq.fragment_receiver.rce_feb_emulation_mode: true
```

RPT SDK:

<https://confluence.slac.stanford.edu/display/RPTUSER/SDK+Download+and+Installation> [Login to lxplus.](#)

```
wget http://www.slac.stanford.edu/projects/CTK/SDK/rce-sdk-latest.tar.gz
```

Set up the SDK:

```
Login to pddaq-gen02-ctrl0
[matt@pddaq-gen02 rce]$ cd /daq/rce/
[matt@pddaq-gen02 rce]$ scp magraham@lxplus.cern.ch:~/rce/rce-sdk-latest.tar.gz .
[matt@pddaq-gen02 rce]$ tar -xvf rce-sdk-latest.tar.gz
```

For the On-RCE code: =lxplus> svn checkout

svn+ssh://rhel6-64.slac.stanford.edu/afs/slac/g/reseng/svn/repos/DUNE/trunk . = Then scp to to pddaq-gen02-ctrl0

```
[matt@pddaq-gen02 rce]$ scp -r magraham@lxplus:~/rce/firmware .
[matt@pddaq-gen02 rce]$ scp -r magraham@lxplus:~/rce/software .
```

(NOTE, as of 1/27/17 we are using the 35ton code that lives in ../repos/LBNE/trunk)

===== Some notes on getting the self set up (should only have to do this when the shelf is moved)

Shelf Manager: Login to 192.168.1.2 as root Set the shelf name: `clia shelfaddress` Set the shelf IP param: `=clia setlanconfig 1 3 192.168.1.2 =`

Get RCE mac addresses, used to set up the reserved dhcp addresses: `cob_dump_bsi --all 192.168.1.2`

Add them to the DHCP config: `/etc/dhcp/dhcpd.conf`

```
option domain-name "pddaq";
default-lease-time 600;
max-lease-time 7200;
ddns-update-style none;
not authoritative;
log-facility local7;
option ip-forwarding false;
option mask-supplier false;

deny unknown-clients;

#### Our Subnet, IP address Pool and gateway/router
subnet 192.168.10.0 netmask 255.255.255.0 {
    interface enp10s0;
    #range dynamic-bootp 192.168.10.10 192.168.10.200;
    option broadcast-address 192.168.10.255;
    option routers 192.168.10.1;

    host rce1 {
        hardware ethernet 08:00:56:00:43:ca;
        fixed-address 192.168.10.11;
        option host-name "rce1";
    }
}
```

To start (or restart) DHCP server:

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```
[matt@pddaq-gen02 ~]$ sudo systemctl restart dhcpd.service
```

To see if the RCEs got the IPs, look at:

```
[matt@pddaq-gen02 ~]$ sudo tail /var/log/messages
```

```
Jan 28 09:26:47 pddaq-gen02 dhcpd: DHCPDISCOVER from 08:00:56:00:43:c3 via enp10s0
Jan 28 09:26:47 pddaq-gen02 dhcpd: DHCPOFFER on 192.168.10.15 to 08:00:56:00:43:c3 via enp10s0
Jan 28 09:26:47 pddaq-gen02 dhcpd: DHCPREQUEST for 192.168.10.15 (192.168.10.1) from 08:00:56:00:
Jan 28 09:26:47 pddaq-gen02 dhcpd: DHCPACK on 192.168.10.15 to 08:00:56:00:43:c3 via enp10s0
```

=====

Setup an NFS share <https://www.howtoforge.com/nfs-server-and-client-on-centos-7> Add to /etc/exports:

```
/var/nfsshare 10.193.160.0/23(rw, sync, no_root_squash, no_all_squash)
/daq/rce/software.pd 10.193.160.0/23(rw, sync, no_root_squash, no_all_squash)
/daq/rce/proto-dune/software 10.193.160.0/23(rw, sync, no_root_squash, no_all_squash)
```

restart nfs as follows: `sudo exportfs -a ; sudo systemctl restart nfs` don't forget to make sure the firewall is off forever

```
sudo systemctl stop firewalld
sudo systemctl disable firewalld
```

=====

Setting up the /daq/rce/software/35ton/rceScripts/rce_talk script:

We need to tell rce_talk where the RCEs are .add the ip addresses to the code like this:

```
self.slot_map= {
    #####
    # CERN Defined RCEs
    #####
    ( '192.168.1.2' ): 'CERN-SM',
    ( '192.168.10.11' ): 'CERN-100',
    ( '192.168.10.12' ): 'CERN-102',
    ( '192.168.10.13' ): 'CERN-110',
    ( '192.168.10.14' ): 'CERN-112',
    ( '192.168.10.15' ): 'CERN-120',
    ( '192.168.10.16' ): 'CERN-122',
    ( '192.168.10.17' ): 'CERN-130',
    ( '192.168.10.18' ): 'CERN-132',
    ( '192.168.10.19' ): 'CERN-DTM1'
}
```

...then you can do things like this: `[matt@pddaq-gen02 rceScripts]$ python rce_talk CERN-102`
`check_host .. done`

```
[CERN-102]::stdout:: 4.0.0-xilinx-11503-gca893ab [CERN-102]::stdout:: 23:38:41 up 6:38, 0 users, load
average: 0.07, 0.03, 0.05 [CERN-102]::stdout:: root 2365 17.0 0.9 367232 9628 ? Sl 23:38 0:03 bin/rceServer
[CERN-102]::stdout:: Filesystem Size Used Avail Use% Mounted on [CERN-102]::stdout:: /dev/root 7.8G
2.2G 5.3G 30% /
```

...

=====

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Once the RCE IPs and nfs server are set up, we can change the `axistreamdma.sh` script (which is run at RCE bootup) to mount nfs directory, install the AxiStream driver on the RCE, and start the rceServer. The script is in the `software/35ton/rceData` directory and, for the CERN setup in buiding 4, should look like this:

```
[matt@pddaq-gen02 35ton]$ cat rceData/axistreamdma.sh=
```

```
#!/bin/sh

mkdir -p /mnt/host

mount -t nfs 192.168.10.1:/daq/rce/software /mnt/host

insmod /mnt/host/35ton/AxiStreamDma/driverV3_4.00/AxiStreamDmaModule.ko cfgRxSize=2048,2048,32768

chmod a+rw /dev/axi*

/mnt/host/35ton/rceScripts/start_server.csh
```

this file needs to be put on each RCE at `/bin/axistreamdma.sh`, which you can do using `rce_talk`:

```
[matt@pddaq-gen02 rceScripts]$ python rce_talk CERN-1 scp_put ../rceData/axistreamdma.sh
/bin/axistreamdma.sh
```

Then, you can either reboot the COB (`rce_talk CERN-SM powercycle_cob`) or just run the command using `rce_talk`

```
[matt@pddaq-gen02 rceScripts]$ python rce_talk CERN-1 ssh_cmd /bin/axistreamdma.sh
```

Check to see if rceServer is running on the RCEs using the `check_host` command with `rce_talk`.

NOTE!!! You have to do the same thing for the DTM...replace `CERN-1` with `CERN-DTM`

=====

To run the RCE GUI, run `rce_talk CERN-1XX start_gui` To put the RCE in emulation mode in commands tab, hit the `StartDebugFebEmu` .

=

Change trigger rate from DTM : edit `defaults.xml` -> `= 0x61A800 =` -- this means 10 Hz. (wait time in clock cycles with 64 MHz clock)

Change DAQ destination : edit `defaults.xml` -> `= 10.193.160.28=`

-- KarolH - 2017-02-14

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