PlutoSDR Basic Environment Settings

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```
sdr@sdr-Samsung-DeskTop-System:~$ sudo vi /etc/udev/rules.d/53-adi-plutosdr-usb.rules
```

```
 1 # allow "plugdev" group read/write access to ADI PlutoSDR devices
 2 # DFU Device
 3 SUBSYSTEM=="usb", ATTRS{idVendor}=="0456", ATTRS{idProduct}=="b674", MODE="0664", GROUP="plugdev"
 4 SUBSYSTEM=="usb", ATTRS{idVendor}=="2fa2", ATTRS{idProduct}=="5a32", MODE="0664", GROUP="plugdev"
 5 # SDR Device
 6 SUBSYSTEM=="usb", ATTRS{idVendor}=="0456", ATTRS{idProduct}=="b673", MODE="0664", GROUP="plugdev"
 7 SUBSYSTEM=="usb", ATTRS{idVendor}=="2fa2", ATTRS{idProduct}=="5a02", MODE="0664", GROUP="plugdev"
 8 # tell the ModemManager (part of the NetworkManager suite) that the device is not a modem,
 9 # and don't send AT commands to it
10 SUBSYSTEM=="usb", ATTRS{idVendor}=="0456", ATTRS{idProduct}=="b673", ENV{ID_MM_DEVICE_IGNORE}="1"
11 SUBSYSTEM=="usb", ATTRS{idVendor}=="2fa2", ATTRS{idProduct}=="5a02", ENV{ID_MM_DEVICE_IGNORE}="1"
~
~
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~
-- INSERT --                                                              11,98          All
```

The Previously approved version (07 Sep 20

Opening plutosdr-m2k-udev_1.0_amd64.deb

You have chosen to open:

📄 **plutosdr-m2k-udev_1.0_amd64.deb**

which is: Debian package (2.2 KB)
from: https://wiki.analog.com

What should Firefox do with this file?

○ **O**pen with   Software Install (default)   ▾

◉ Save File

☐ Do this automatically for files like this from now on.

Cancel   OK

- SUSE Linux Enterprise Desktop 12 [2)]

```
sdr@sdr-Samsung-DeskTop-System:~$ ls
android                                    petalinux_zynq
Android                                    Pictures
apmplanner2                                PlayOnLinux's virtual drives
arduino                                    project
Arduino                                    Public
c++                                        Qt
CarND-System-Integration                   qt_workspace
clion                                      self_drive
CLionProjects                              sw
Desktop                                    Templates
Documents                                  test
down_ccs                                   Texas_Instruments
Downloads                                  ti
down_qt                                    ti-processor-sdk-linux-am335x-evm-05.01.00.11
examples.desktop                           ti-processor-sdk-linux-am57xx-evm-04.03.00.05
foo                                        ti-processor-sdk-linux-am57xx-evm-05.00.00.15
fpga                                       tmp_boot
Hardware_Setup_App_for_ADALM_PLUTO_Radio.txt  tmp_fs
i2c_proj                                   tms570_workspace
install_vivado                             udacity
ip_repo                                    usb
lab                                        verilog
lab_fpga                                   Videos
lecture                                    vmware
matlab_exam                                workspace_v8
modelsim.ini                               Xilinx_Zynq_Based_Radio.txt
modelsim.ini.bak                           zynq_fpga
Music                                      zynq_test
my_proj                                    zynq_workspace
ocv                                        zynq_zybo
sdr@sdr-Samsung-DeskTop-System:~$ cd sw
sdr@sdr-Samsung-DeskTop-System:~/sw$ mv ~/Downloads/plutosdr-m2k-udev_1.0_amd64.deb ./
sdr@sdr-Samsung-DeskTop-System:~/sw$ 
```
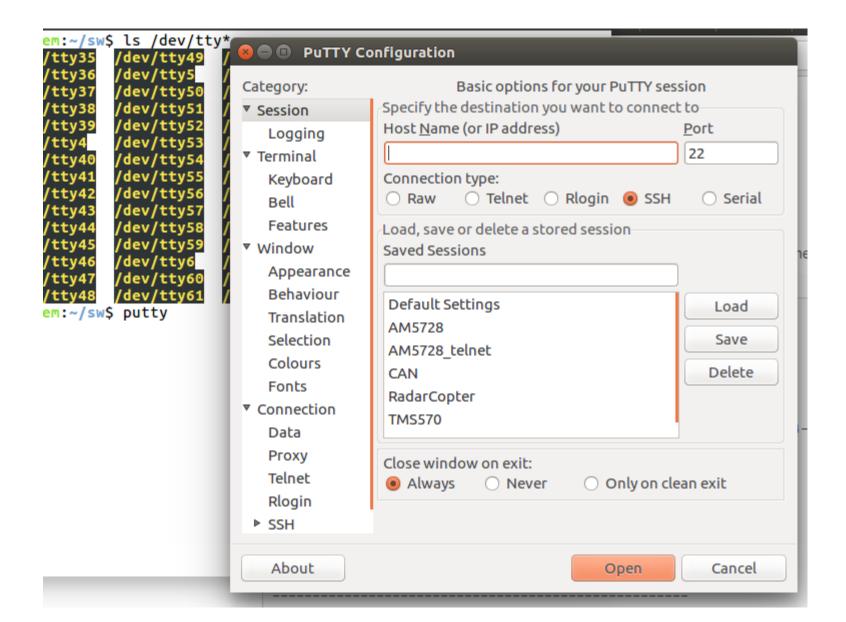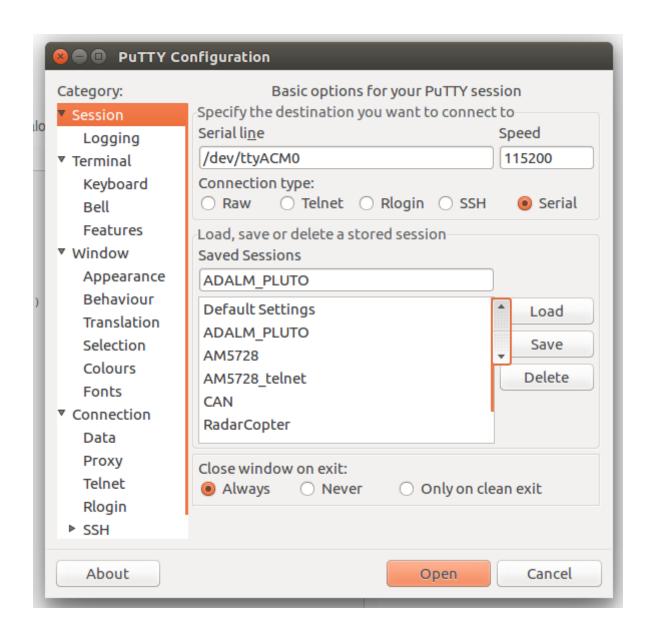
```
sdr@sdr-Samsung-DeskTop-System:~/sw$ ls
addon_matlab    cuda      MathWorks_tools    plutosdr-m2k-udev_1.0_amd64.deb    sdk
alex_dataset    data      matlab_2018        qwt                                serial
asm             iso       modelsim           rfsdk                              test_source
boost           libiio    opencv             road_data                          vmware
sdr@sdr-Samsung-DeskTop-System:~/sw$ sudo dpkg -i plutosdr-m2k-udev_1.0_amd64.deb
Selecting previously unselected package plutosdr-m2k-udev.
(Reading database ... 401910 files and directories currently installed.)
Preparing to unpack plutosdr-m2k-udev_1.0_amd64.deb ...
Unpacking plutosdr-m2k-udev (1.0) ...
Setting up plutosdr-m2k-udev (1.0) ...
sdr@sdr-Samsung-DeskTop-System:~/sw$ udevadm control --reload-rules
root privileges required
sdr@sdr-Samsung-DeskTop-System:~/sw$ sudo service udev restart
sdr@sdr-Samsung-DeskTop-System:~/sw$ ☐
```
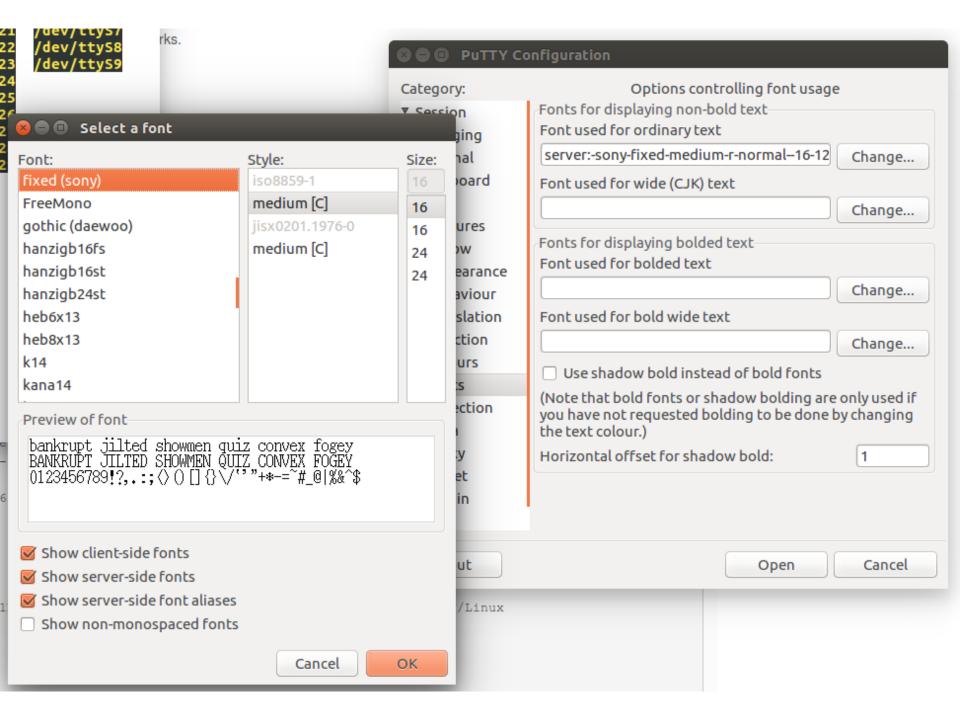
```
[   59.460010] wlp4s0: associate with bc:96:80:b0:8a:b1 (try 1/3)
[   59.463474] wlp4s0: RX AssocResp from bc:96:80:b0:8a:b1 (capab=0x411 status=0 aid=3)
[   59.463565] wlp4s0: associated
[   59.585081] IPv6: ADDRCONF(NETDEV_CHANGE): wlp4s0: link becomes ready
[   59.785124] userif-2: sent link down event.
[   59.785125] userif-2: sent link up event.
[   63.021758] userif-2: sent link down event.
[   63.021759] userif-2: sent link up event.
[ 1634.266296] usb 3-7: new high-speed USB device number 4 using xhci_hcd
[ 1634.415848] usb 3-7: New USB device found, idVendor=0456, idProduct=b673
[ 1634.415851] usb 3-7: New USB device strings: Mfr=1, Product=2, SerialNumber=3
[ 1634.415853] usb 3-7: Product: PlutoSDR (ADALM-PLUTO)
[ 1634.415855] usb 3-7: Manufacturer: Analog Devices Inc.
[ 1634.415857] usb 3-7: SerialNumber: 104473dc59930019190021000fc929245e
[ 1634.647077] cdc_acm 3-7:1.3: ttyACM0: USB ACM device
[ 1634.647320] usbcore: registered new interface driver cdc_acm
[ 1634.647321] cdc_acm: USB Abstract Control Model driver for USB modems and ISDN adapters
[ 1634.663484] usb-storage 3-7:1.2: USB Mass Storage device detected
[ 1634.663543] scsi host6: usb-storage 3-7:1.2
[ 1634.663606] usbcore: registered new interface driver usb-storage
[ 1634.666303] usbcore: registered new interface driver uas
[ 1634.701378] usbcore: registered new interface driver cdc_ether
[ 1634.709600] rndis_host 3-7:1.0 eth0: register 'rndis_host' at usb-0000:00:14.0-7, RNDIS device, 00:
e0:22:8f:a3:81
[ 1634.709633] usbcore: registered new interface driver rndis_host
[ 1634.717493] usbcore: registered new interface driver rndis_wlan
[ 1634.719252] rndis_host 3-7:1.0 enx00e0228fa381: renamed from eth0
[ 1634.755918] IPv6: ADDRCONF(NETDEV_UP): enx00e0228fa381: link is not ready
[ 1634.956287] userif-2: sent link down event.
[ 1634.956289] userif-2: sent link up event.
[ 1635.666755] scsi 6:0:0:0: Direct-Access     Linux    File-Stor Gadget 0409 PQ: 0 ANSI: 2
[ 1635.667105] sd 6:0:0:0: Attached scsi generic sg4 type 0
[ 1635.667833] sd 6:0:0:0: [sdd] 61441 512-byte logical blocks: (31.5 MB/30.0 MiB)
[ 1635.668073] sd 6:0:0:0: [sdd] Write Protect is off
[ 1635.668076] sd 6:0:0:0: [sdd] Mode Sense: 0f 00 00 00
[ 1635.668310] sd 6:0:0:0: [sdd] Write cache: enabled, read cache: enabled, doesn't support DPO or FUA
[ 1635.672297]  sdd: sdd1
[ 1635.673786] sd 6:0:0:0: [sdd] Attached SCSI removable disk
[ 1637.112109] userif-2: sent link down event.
[ 1637.112111] userif-2: sent link up event.
sdr@sdr-Samsung-DeskTop-System:~/sw$
```
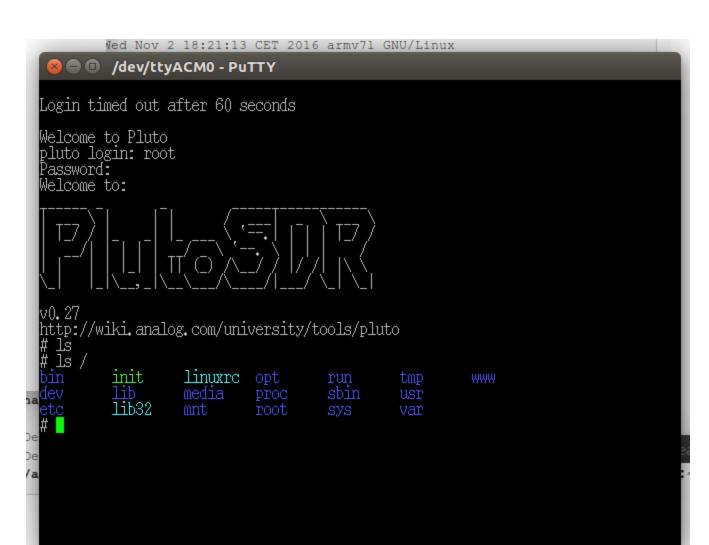
```
sdr@sdr-Samsung-DeskTop-System:~/sw$ ls /dev/tty*
/dev/tty        /dev/tty21   /dev/tty35   /dev/tty49   /dev/tty62      /dev/ttyS16   /dev/ttyS3
/dev/tty0       /dev/tty22   /dev/tty36   /dev/tty5    /dev/tty63      /dev/ttyS17   /dev/ttyS30
/dev/tty1       /dev/tty23   /dev/tty37   /dev/tty50   /dev/tty7       /dev/ttyS18   /dev/ttyS31
/dev/tty10      /dev/tty24   /dev/tty38   /dev/tty51   /dev/tty8       /dev/ttyS19   /dev/ttyS4
/dev/tty11      /dev/tty25   /dev/tty39   /dev/tty52   /dev/tty9       /dev/ttyS2    /dev/ttyS5
/dev/tty12      /dev/tty26   /dev/tty4    /dev/tty53   /dev/ttyACM0    /dev/ttyS20   /dev/ttyS6
/dev/tty13      /dev/tty27   /dev/tty40   /dev/tty54   /dev/ttyprintk  /dev/ttyS21   /dev/ttyS7
/dev/tty14      /dev/tty28   /dev/tty41   /dev/tty55   /dev/ttyS0      /dev/ttyS22   /dev/ttyS8
/dev/tty15      /dev/tty29   /dev/tty42   /dev/tty56   /dev/ttyS1      /dev/ttyS23   /dev/ttyS9
/dev/tty16      /dev/tty3    /dev/tty43   /dev/tty57   /dev/ttyS10     /dev/ttyS24
/dev/tty17      /dev/tty30   /dev/tty44   /dev/tty58   /dev/ttyS11     /dev/ttyS25
/dev/tty18      /dev/tty31   /dev/tty45   /dev/tty59   /dev/ttyS12     /dev/ttyS26
/dev/tty19      /dev/tty32   /dev/tty46   /dev/tty6    /dev/ttyS13     /dev/ttyS27
/dev/tty2       /dev/tty33   /dev/tty47   /dev/tty60   /dev/ttyS14     /dev/ttyS28
/dev/tty20      /dev/tty34   /dev/tty48   /dev/tty61   /dev/ttyS15     /dev/ttyS29
sdr@sdr-Samsung-DeskTop-System:~/sw$
```

```
em:~/sw$ ls /dev/tty*
/tty35    /dev/tty49
/tty36    /dev/tty5
/tty37    /dev/tty50
/tty38    /dev/tty51
/tty39    /dev/tty52
/tty4     /dev/tty53
/tty40    /dev/tty54
/tty41    /dev/tty55
/tty42    /dev/tty56
/tty43    /dev/tty57
/tty44    /dev/tty58
/tty45    /dev/tty59
/tty46    /dev/tty6
/tty47    /dev/tty60
/tty48    /dev/tty61
em:~/sw$ putty
```

PuTTY Configuration

Category:

- ▼ Session
  - Logging
- ▼ Terminal
  - Keyboard
  - Bell
  - Features
- ▼ Window
  - Appearance
  - Behaviour
  - Translation
  - Selection
  - Colours
  - Fonts
- ▼ Connection
  - Data
  - Proxy
  - Telnet
  - Rlogin
  - ▶ SSH

Basic options for your PuTTY session

Specify the destination you want to connect to

Host Name (or IP address)   Port
[   ]   [22]

Connection type:
○ Raw   ○ Telnet   ○ Rlogin   ● SSH   ○ Serial

Load, save or delete a stored session

Saved Sessions
[   ]

Default Settings   [Load]
AM5728
AM5728_telnet   [Save]
CAN
RadarCopter   [Delete]
TMS570

Close window on exit:
● Always   ○ Never   ○ Only on clean exit

[About]   [Open]   [Cancel]

```
21  /dev/ttyS7
22  /dev/ttyS8          rks.
23  /dev/ttyS9
24
25
```

Select a font

Font:

| fixed (sony) |
| FreeMono |
| gothic (daewoo) |
| hanzigb16fs |
| hanzigb16st |
| hanzigb24st |
| heb6x13 |
| heb8x13 |
| k14 |
| kana14 |

Style:

| iso8859-1 |
| medium [C] |
| jisx0201.1976-0 |
| medium [C] |

Size:

| 16 |
| 16 |
| 16 |
| 24 |
| 24 |

Preview of font

```
bankrupt jilted showmen quiz convex fogey
BANKRUPT JILTED SHOWMEN QUIZ CONVEX FOGEY
0123456789!?,.:;◇()[]{}\/''""+*-=~#_@|%&^$
```

☑ Show client-side fonts
☑ Show server-side fonts
☑ Show server-side font aliases
☐ Show non-monospaced fonts

Cancel   OK

PuTTY Configuration

Category:

▼ Session
  ....ging
  ....nal
  ....oard
  ....
  ....ures
  ....ow
  ....earance
  ....aviour
  ....slation
  ....ction
  ....urs
  ....s
  ....ection
  ....n
  ....y
  ....et
  ....in

Options controlling font usage

Fonts for displaying non-bold text

Font used for ordinary text

`server:-sony-fixed-medium-r-normal--16-12`   Change...

Font used for wide (CJK) text

[   ]   Change...

Fonts for displaying bolded text

Font used for bolded text

[   ]   Change...

Font used for bold wide text

[   ]   Change...

☐ Use shadow bold instead of bold fonts

(Note that bold fonts or shadow bolding are only used if you have not requested bolding to be done by changing the text colour.)

Horizontal offset for shadow bold: [1]

....ut   Open   Cancel

/Linux

```
Wed Nov 2 18:21:13 CET 2016 armv7l GNU/Linux
```

/dev/ttyACM0 - PuTTY

```
Login timed out after 60 seconds

Welcome to Pluto
pluto login: root
Password:
Welcome to:


 _____  _        _        _____ ____  _____
|  __ \| |      | |      / ____|  _ \|  __ \
| |__) | |_   _ | |_ ___| (___ | | | | |__) |
|  ___/| | | | || __/ _ \\___ \| | | |  _  /
| |    | | |_| || || (_) |___) | |_| | | \ \
|_|    |_|\__,_| \__\___/_____/|____/|_|  \_\


v0.27
http://wiki.analog.com/university/tools/pluto
# ls
# ls /
bin        init       linuxrc    opt        run        tmp        www
dev        lib        media      proc       sbin       usr
etc        lib32      mnt        root       sys        var
#
```

```
Terminal  File  Edit  View  Search  Terminal  Help

sdr@sdr-Samsung-DeskTop-System:~/sw$ mount | grep -i pluto
/dev/sdd1 on /media/sdr/PlutoSDR type vfat (rw,nosuid,nodev,relatime,uid=1000,gi
d=1000,fmask=0022,dmask=0022,codepage=437,iocharset=iso8859-1,shortname=mixed,sh
owexec,utf8,flush,errors=remount-ro,uhelper=udisks2)
sdr@sdr-Samsung-DeskTop-System:~/sw$ ls -l /media/sdr/PlutoSDR/
total 16
-rw-r--r-- 1 sdr sdr   420 1월  1  1980 config.txt
drwxr-xr-x 2 sdr sdr  2048 1월  1  1980 img
-rw-r--r-- 1 sdr sdr 10687 1월  1  1980 info.html
sdr@sdr-Samsung-DeskTop-System:~/sw$ firefox /media/sdr/PlutoSDR/info.html
```

ANALOG DEVICES
AHEAD OF WHAT'S POSSIBLE™

Get Started   Firmware   Version   Settings   Help and Support   About Analog Devices

Welcome to the ADALM-PLUTO Active Learning Module

Thank you for purchasing the ADALM-PLUTO Active Learning Module (PlutoSDR). The easy to use ADALM-PLUTO active learning module (PlutoSDR) helps introduce electrical engineering students to the fundamentals of software-defined radio (SDR), radio frequency (RF), and wireless communications. Designed for students at all levels and from all backgrounds, the module can be used for both instructor-led and self-directed learning to help students develop a foundation in real-world RF and communications that they can build on as they pursue science, technology, or engineering degrees.

Based on the AD9363, The PlutoSDR features independent receive and transmit channels that can be operated in full duplex. The active learning module can generate or acquire RF analog signals from 325 MHz to 3800 MHz at up to 61.44 megasamples per second (MSPS). Small enough to fit in a shirt pocket, the PlutoSDR is completely self-contained and entirely USB powered with the default firmware. Because PlutoSDR is enabled by libiio drivers, it supports OS X® , Windows®, and Linux®, which allows students to learn and explore on a variety of host platforms.

Getting Started   Back to top

The PlutoSDR on line documentation provides instruction on how to set up the software on your host PC to use the ADALM-PLUTO Active Learning Module.

- Using the ADALM-PLUTO with MATLAB
- Using the ADALM-PLUTO with GNU Radio
- Using the ADALM-PLUTO with other tools

Detailed documentation can be found at the Main Documentation page. Information on regulatory compliance and safety information can be found online.

```
sdr@sdr-Samsung-DeskTop-System:~/sw$ /sbin/ifconfig
docker0     Link encap:Ethernet   HWaddr 02:42:ce:88:4b:8b
            inet addr:172.17.0.1  Bcast:172.17.255.255  Mask:255.255.0.0
            UP BROADCAST MULTICAST  MTU:1500  Metric:1
            RX packets:0 errors:0 dropped:0 overruns:0 frame:0
            TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:0
            RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

enx00e0228fa381 Link encap:Ethernet   HWaddr 00:e0:22:8f:a3:81
            inet addr:192.168.2.10  Bcast:192.168.2.255  Mask:255.255.255.0
            inet6 addr: fe80::14c7:f848:4424:940a/64 Scope:Link
            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
            RX packets:45 errors:0 dropped:0 overruns:0 frame:0
            TX packets:117 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:5640 (5.6 KB)  TX bytes:21805 (21.8 KB)

lo          Link encap:Local Loopback
            inet addr:127.0.0.1  Mask:255.0.0.0
            inet6 addr: ::1/128 Scope:Host
            UP LOOPBACK RUNNING  MTU:65536  Metric:1
            RX packets:2558 errors:0 dropped:0 overruns:0 frame:0
            TX packets:2558 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:239412 (239.4 KB)  TX bytes:239412 (239.4 KB)

vmnet1      Link encap:Ethernet   HWaddr 00:50:56:c0:00:01
            inet addr:192.168.67.1  Bcast:192.168.67.255  Mask:255.255.255.0
            inet6 addr: fe80::250:56ff:fec0:1/64 Scope:Link
            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
            RX packets:0 errors:0 dropped:0 overruns:0 frame:0
            TX packets:183 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

vmnet8      Link encap:Ethernet   HWaddr 00:50:56:c0:00:08
            inet addr:172.16.122.1  Bcast:172.16.122.255  Mask:255.255.255.0
            inet6 addr: fe80::250:56ff:fec0:8/64 Scope:Link
            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
            RX packets:0 errors:0 dropped:0 overruns:0 frame:0
            TX packets:180 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

```
sdr@sdr-Samsung-DeskTop-System:~/sw$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: wlp4s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default
qlen 1000
    link/ether ac:b5:7d:94:3e:af brd ff:ff:ff:ff:ff:ff
    inet 192.168.219.102/24 brd 192.168.219.255 scope global dynamic wlp4s0
       valid_lft 82236sec preferred_lft 82236sec
    inet6 fe80::ad70:90c5:e7cb:4f71/64 scope link
       valid_lft forever preferred_lft forever
3: vmnet1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNOWN group
default qlen 1000
    link/ether 00:50:56:c0:00:01 brd ff:ff:ff:ff:ff:ff
    inet 192.168.67.1/24 brd 192.168.67.255 scope global vmnet1
       valid_lft forever preferred_lft forever
    inet6 fe80::250:56ff:fec0:1/64 scope link
       valid_lft forever preferred_lft forever
4: vmnet8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNOWN group
default qlen 1000
    link/ether 00:50:56:c0:00:08 brd ff:ff:ff:ff:ff:ff
    inet 172.16.122.1/24 brd 172.16.122.255 scope global vmnet8
       valid_lft forever preferred_lft forever
    inet6 fe80::250:56ff:fec0:8/64 scope link
       valid_lft forever preferred_lft forever
5: docker0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group def
ault
    link/ether 02:42:ce:88:4b:8b brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.1/16 brd 172.17.255.255 scope global docker0
       valid_lft forever preferred_lft forever
6: enx00e0228fa381: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNO
WN group default qlen 1000
    link/ether 00:e0:22:8f:a3:81 brd ff:ff:ff:ff:ff:ff
    inet 192.168.2.10/24 brd 192.168.2.255 scope global dynamic enx00e0228fa381
       valid_lft 861410sec preferred_lft 861410sec
    inet6 fe80::14c7:f848:4424:940a/64 scope link
       valid_lft forever preferred_lft forever
sdr@sdr-Samsung-DeskTop-System:~/sw$ 
```

```
sdr@sdr-Samsung-DeskTop-System:~/sw$ wget https://raw.githubusercontent.com/analogdevicesi
nc/plutosdr_scripts/master/ssh_config -O ~/.ssh/config
--2019-01-26 21:40:55--  https://raw.githubusercontent.com/analogdevicesinc/plutosdr_scrip
ts/master/ssh_config
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 151.101.228.133
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|151.101.228.133|:443..
. connected.
HTTP request sent, awaiting response... 200 OK
Length: 366 [text/plain]
Saving to: '/home/sdr/.ssh/config'

/home/sdr/.ssh/config  100%[============================>]       366  --.-KB/s    in 0s

2019-01-26 21:40:56 (37.9 MB/s) - '/home/sdr/.ssh/config' saved [366/366]

sdr@sdr-Samsung-DeskTop-System:~/sw$ ssh plutosdr
Warning: Permanently added 'plutosdr' (ECDSA) to the list of known hosts.
root@plutosdr's password:
Welcome to:


  _____  _   _         _____  _____  _____
 |  __ \| | | |       / ____||  __ \|  __ \
 | |__) | | | |_  ___| (___  | |  | | |__) |
 |  ___/| | | | __|/ _ \___ \ | |  | |  _  /
 | |    | |_| | |_| (_) |____) | |__| | | \ \
 |_|     \___/ \__|\___/|_____/|_____/|_|  \_\


v0.27
http://wiki.analog.com/university/tools/pluto
# uname -a
Linux pluto 4.9.0-10221-gf457f60 #213 SMP PREEMPT Tue Jan 30 13:53:36 CET 2018 armv7l GNU/
Linux
#
```

```
# exit
Connection to 192.168.2.1 closed.
sdr@sdr-Samsung-DeskTop-System:~/sw$ sshpass -panalog ssh plutosdr
The program 'sshpass' is currently not installed. You can install it by typing:
sudo apt install sshpass
sdr@sdr-Samsung-DeskTop-System:~/sw$ sudo apt-get install sshpass
[sudo] password for sdr:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.15.0-36 linux-headers-4.15.0-36-generic linux-headers-4.15.0-39
  linux-headers-4.15.0-39-generic linux-image-4.15.0-36-generic
  linux-image-4.15.0-39-generic linux-modules-4.15.0-36-generic
  linux-modules-4.15.0-39-generic linux-modules-extra-4.15.0-39-generic
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  sshpass
0 upgraded, 1 newly installed, 0 to remove and 310 not upgraded.
Need to get 10.5 kB of archives.
After this operation, 56.3 kB of additional disk space will be used.
Get:1 http://kaist.archive.ubuntu.com/ubuntu xenial/universe amd64 sshpass amd64 1.05-1 [1
0.5 kB]
Fetched 10.5 kB in 1s (9,180 B/s)
Selecting previously unselected package sshpass.
(Reading database ... 401915 files and directories currently installed.)
Preparing to unpack .../sshpass_1.05-1_amd64.deb ...
Unpacking sshpass (1.05-1) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up sshpass (1.05-1) ...
sdr@sdr-Samsung-DeskTop-System:~/sw$ 
```

```
sdr@sdr-Samsung-DeskTop-System:~/sw$ sshpass -panalog ssh plutosdr
Warning: Permanently added 'plutosdr' (ECDSA) to the list of known hosts.
Welcome to:


 _____    _   _    _____
| ___ \   | | | |  / ____|  _ \  _ \
| |_/ /   | | | | ( |    | | | | |_/ /
|  __/ /| | | |_| |  `--. | | | |  __/
| |  | | | |_| || | (_) /\__/ / |/ \
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v0.27
http://wiki.analog.com/university/tools/pluto
# exit
Connection to 192.168.2.1 closed.
sdr@sdr-Samsung-DeskTop-System:~/sw$ iio_info -n 192.168.2.1 | grep device
IIO context has 5 devices:
        iio:device3: cf-ad9361-dds-core-lpc (buffer capable)
        iio:device1: ad9361-phy
                18 device-specific attributes found:
                                attr  0: dcxo_tune_coarse ERROR: No such device (-19)
                                attr  6: dcxo_tune_fine ERROR: No such device (-19)
        iio:device4: cf-ad9361-lpc (buffer capable)
                                attr  3: samples_pps ERROR: No such device (-19)
                                attr  3: samples_pps ERROR: No such device (-19)
        iio:device2: xadc
                1 device-specific attributes found:
        iio:device0: adm1177
sdr@sdr-Samsung-DeskTop-System:~/sw$ sudo apt-get install libiio-utils█
```

```
sdr@sdr-Samsung-DeskTop-System:~/sw$ sudo apt-get install libiio-utils
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.15.0-36 linux-headers-4.15.0-36-generic linux-headers-4.15.0-39
  linux-headers-4.15.0-39-generic linux-image-4.15.0-36-generic
  linux-image-4.15.0-39-generic linux-modules-4.15.0-36-generic
  linux-modules-4.15.0-39-generic linux-modules-extra-4.15.0-39-generic
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libiio0
The following NEW packages will be installed:
  libiio-utils libiio0
0 upgraded, 2 newly installed, 0 to remove and 310 not upgraded.
Need to get 44.7 kB of archives.
After this operation, 170 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://kaist.archive.ubuntu.com/ubuntu xenial/universe amd64 libiio0 amd64 0.6.40-1
[32.5 kB]
Get:2 http://kaist.archive.ubuntu.com/ubuntu xenial/universe amd64 libiio-utils amd64 0.6.
40-1 [12.2 kB]
Fetched 44.7 kB in 2s (19.4 kB/s)
Selecting previously unselected package libiio0:amd64.
(Reading database ... 401920 files and directories currently installed.)
Preparing to unpack .../libiio0_0.6.40-1_amd64.deb ...
Unpacking libiio0:amd64 (0.6.40-1) ...
Selecting previously unselected package libiio-utils.
Preparing to unpack .../libiio-utils_0.6.40-1_amd64.deb ...
Unpacking libiio-utils (0.6.40-1) ...
Processing triggers for libc-bin (2.23-0ubuntu10) ...
Setting up libiio0:amd64 (0.6.40-1) ...
Setting up libiio-utils (0.6.40-1) ...
Processing triggers for libc-bin (2.23-0ubuntu10) ...
sdr@sdr-Samsung-DeskTop-System:~/sw$ 
```

```
sdr@sdr-Samsung-DeskTop-System:~/sw$ iio_info -n 192.168.2.1 | grep device
Unable to read attribute fastlock_recall
Unable to read attribute fastlock_recall
IIO context has 5 devices:
        iio:device3: cf-ad9361-dds-core-lpc
        iio:device1: ad9361-phy
Unable to read attribute: dcxo_tune_coarse
Unable to read attribute: gain_table_config
Unable to read attribute: dcxo_tune_fine
Unable to read attribute: multichip_sync
Unable to read attribute samples_pps
Unable to read attribute samples_pps
            18 device-specific attributes found:
        iio:device4: cf-ad9361-lpc
        iio:device2: xadc
             1 device-specific attributes found:
        iio:device0: adm1177
sdr@sdr-Samsung-DeskTop-System:~/sw$ iio_readdev -n 192.168.2.1 -s 64 cf-ad9361-lpc | hexd
ump -x
0000000    0021    ffee    ffee    fff7    ffdd    fff4    fff6    fff6
0000010    ffe0    fff7    ffc3    0013    ffd8    001b    ffdf    0016
0000020    001c    002f    0027    001f    ffe5    0041    ffe0    ffe2
0000030    0006    ff93    ffde    ffdf    ffc9    ffe6    0028    ffd2
0000040    fff8    ffe6    ffde    ffda    002c    ffe4    0021    ffe3
0000050    0019    0001    0018    fffb    004f    fff7    0038    ffed
0000060    000b    ffa8    0017    ffaa    ffec    ffd3    ffce    ffeb
0000070    ffed    002f    001d    0018    002f    ffdb    0046    0001
0000080    0009    0055    000c    006d    008b    0044    006d    0010
0000090    006d    0003    003b    0012    0035    0023    ffeb    ffdf
00000a0    ffd0    ffe7    fffb    002f    0018    ffff    002f    ffda
00000b0    fffe    0000    ffb8    0003    ffe9    0004    0049    0015
00000c0    001c    000b    ffe1    001e    fffd    ffd6    ffde    ffbc
00000d0    ffdf    0014    fff7    fff6    0012    000e    ffe3    ffe9
00000e0    ffc0    002c    ffd8    0030    ffe4    ffff    fff6    0053
00000f0    0003    004f    001a    0007    ffc4    ffe2    ffb7    ffd2
0000100
sdr@sdr-Samsung-DeskTop-System:~/sw$
```