EKI-1500 Trouble Shooting when using Linux VCOM driver

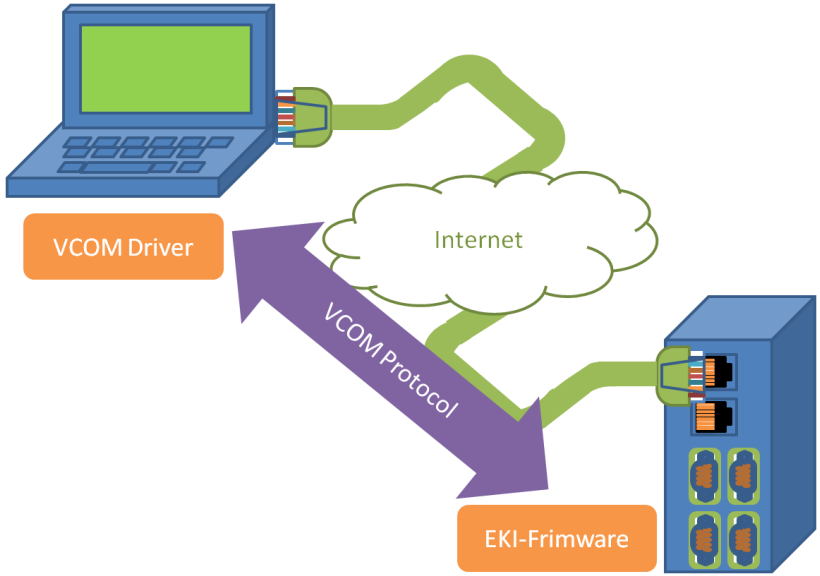
Purpose

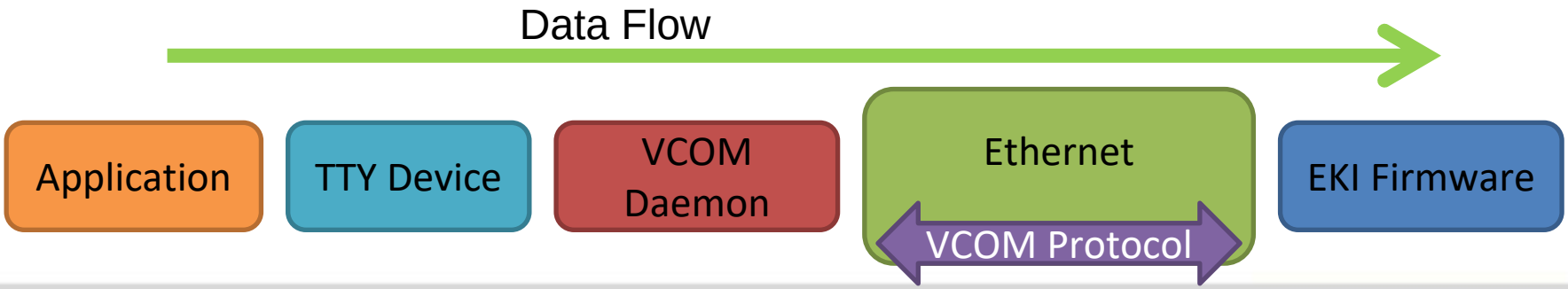
This paper would show how to monitor virtual com state in Linux OS. This paper was designed to provide critical real-time driver status, which will help system-administrators, and developers understand the internal state of a runtime VCOM driver; therefore, an issue can be analyzed and solved within the shortest time.

During the test, we use the latest Linux VCOM driver v2.1.0.

VCOM Linux Architecture

- After compiler VCOM driver in Linux OS, that can work fine in VCOM access.
- Advantech Linux Virtual COM driver that would handle the Application to EKI Firmware communication.
- In the next page, we would discuss how to trouble shooting via RS-232 loopback





Before Trouble Shooting

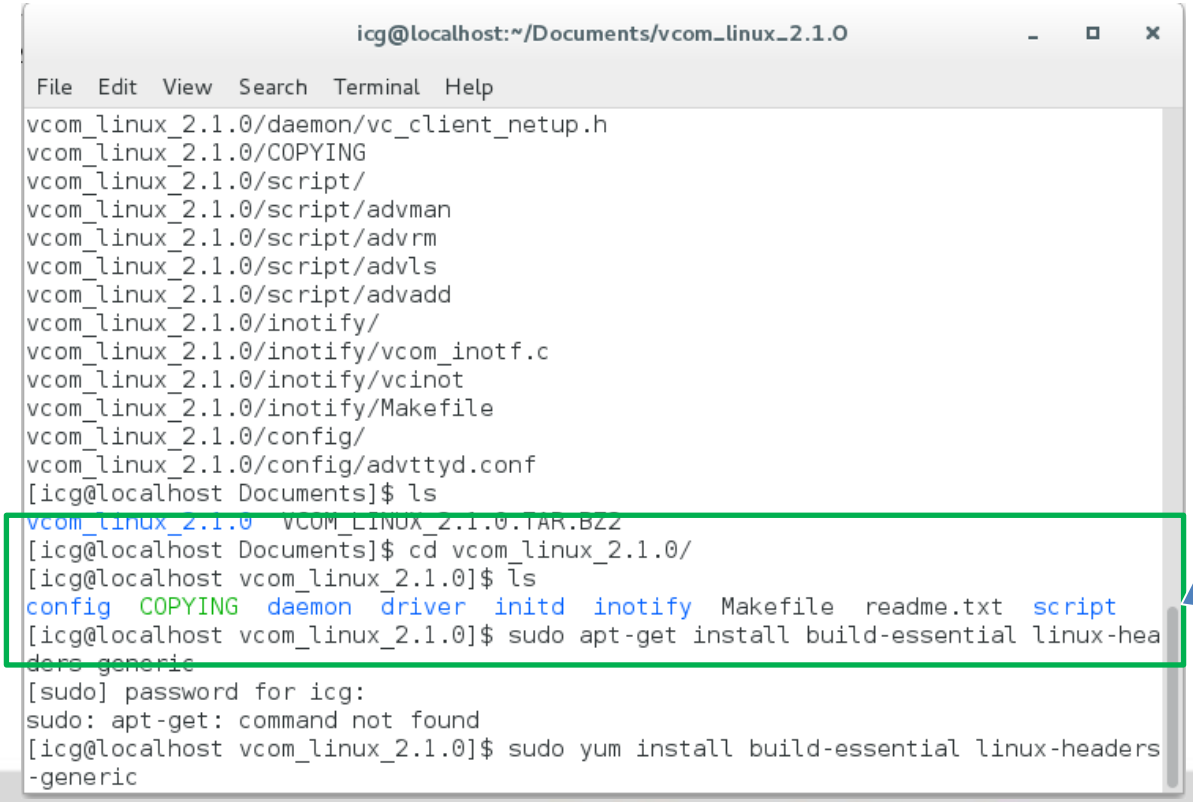
The VCOM Linux driver v.2.1.0 that support most common kernel version in the world. That support kernel version 3.10 and latter version. If you would like to check the kernel version, key “uname –a” to check it in Linux OS platform.

```
[root@localhost config]# uname -a
Linux localhost.localdomain 3.10.0-514.el7.x86_64 #1 SMP Tue Nov 22 16:42:41 UTC 2016 x86_64 x86_64
/Linux
[root@localhost config]#
```

If you are using older kernel 2.6.32. Please contact ICG.Support@advantech.com

Before Trouble Shooting

Download VCOM driver for Linux v2.1.0 from website and all operation setting can be found in the “VCOM 2 0 DRIVER FOR LINUX INSTALLATION GUIDE.pdf”



Unzip the “VCOM_Linux_2.1.0.tar.bz2”

VCOM Scripts Support

- VCOM driver support the below VCOM scripts to check the configure state
  -advadd
  -addrm
  -advman
  -advls
- For example use “advls” command to show current configure file
- For how to operate with each function, key “advls ?” to check it out.

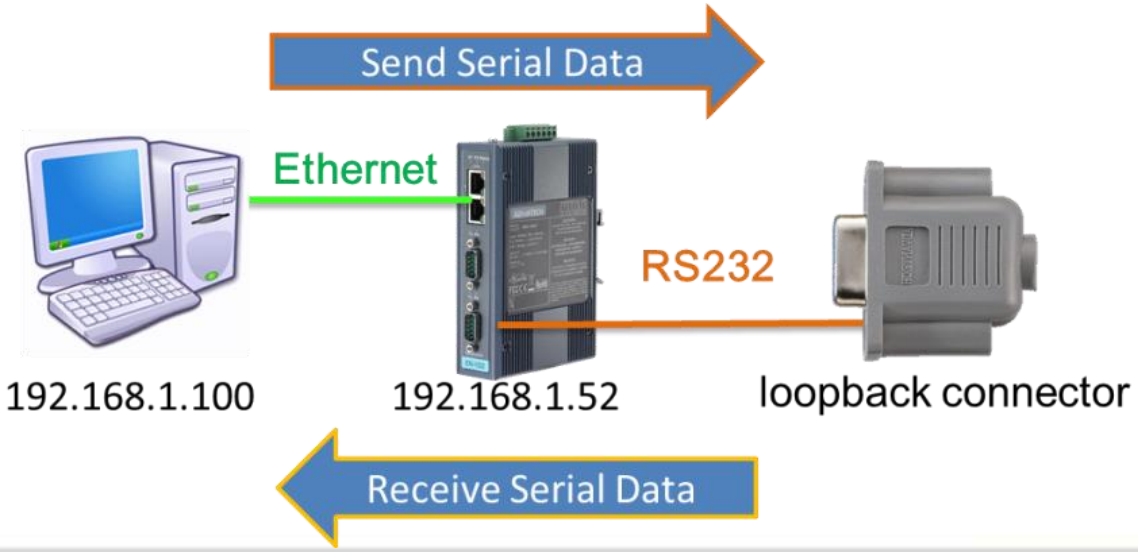
```
[icg@localhost ~]$ sudo advls
5   b522    192.168.1.121   1
6   b522    192.168.1.121   2
[icg@localhost ~]$
```

APP test

- Use Application to loopback test with RS-232 head to verify VCOM driver can work in Linux with no problem.

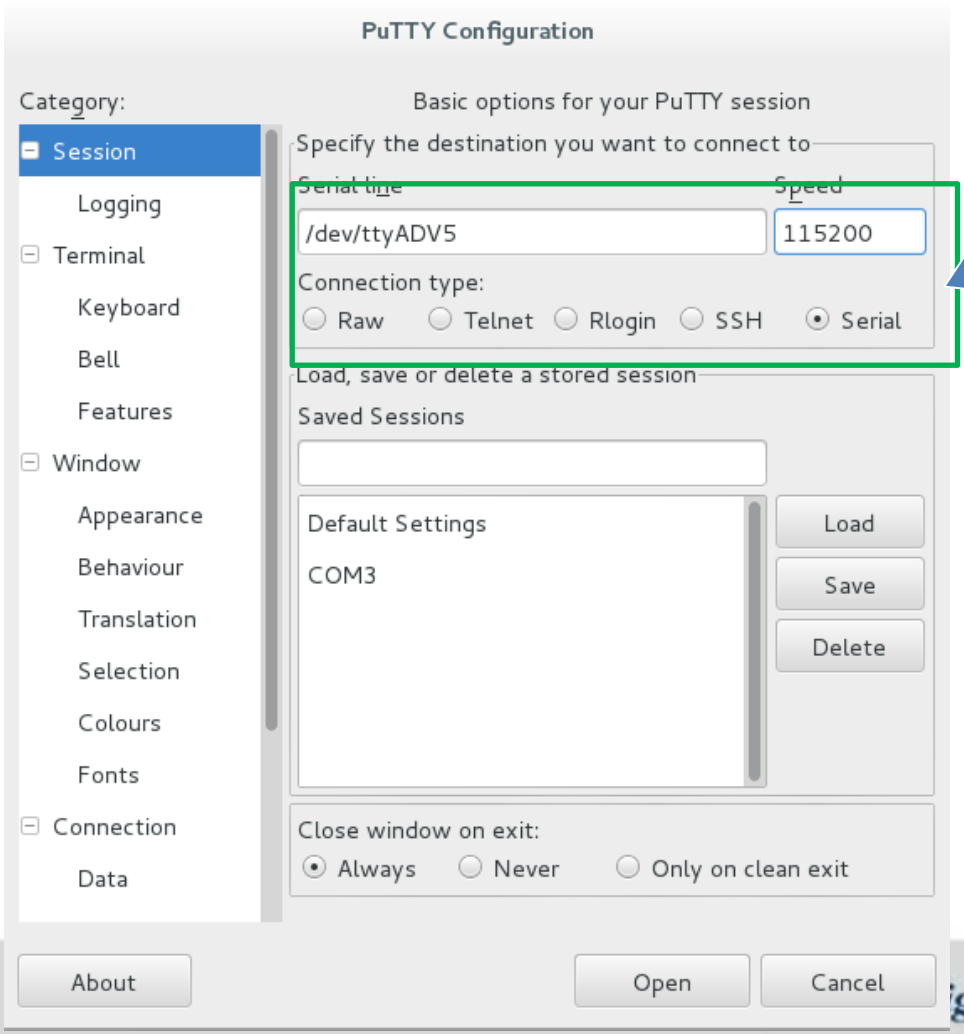
  Step1: check EKI-1500 series configuration setting in the EKI-1500 Web GUI.

  Step2: use some application test tool like putty, or minicom to test under Linux OS.

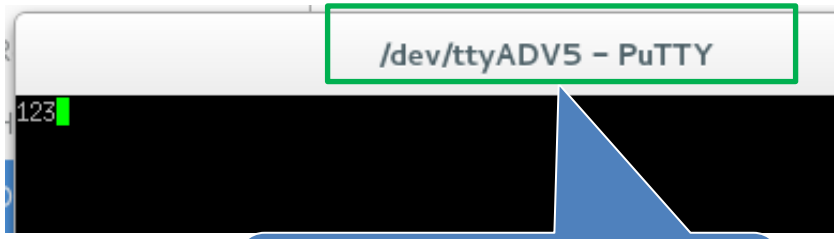


APP test

Use “*sudo Putty*” to test and default use /dev/ttyADV* to open port.



Step1: “ * ” of “ttyADV*” is vcom port that mapped



Step2: Open Port to verify in the path: /dev/ttyADV5

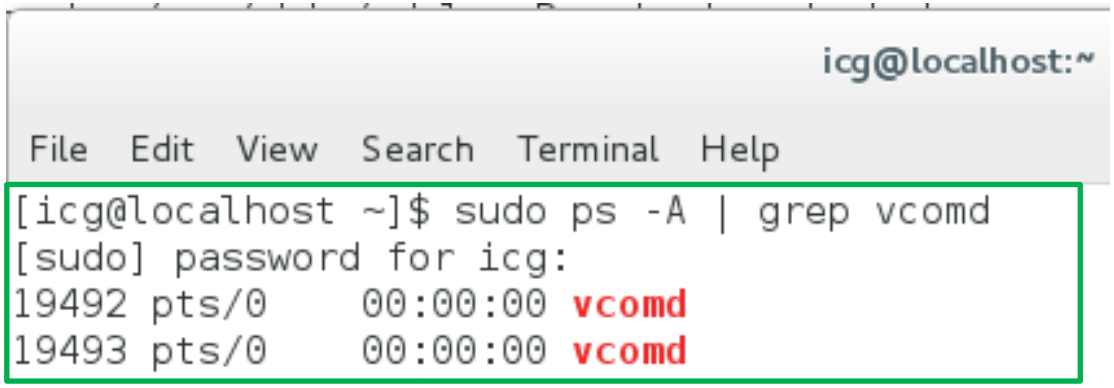
TTY Device check

- If you compiler with no problem and can found the device with "ls /dev/ttyADV*". That would no problem in tty device

```
tty     tty26   tty44   tty62     ttyADV111  ttyADV13   ttyADV148  ttyADV166  ttyADV184  ttyADV201  ttyADV22
tty0    tty27   tty45   tty63     ttyADV112  ttyADV130  ttyADV149  ttyADV167  ttyADV185  ttyADV202  ttyADV220
tty1    tty28   tty46   tty7      ttyADV113  ttyADV131  ttyADV15   ttyADV168  ttyADV186  ttyADV203  ttyADV221
tty10   tty29   tty47   tty8      ttyADV114  ttyADV132  ttyADV150  ttyADV169  ttyADV187  ttyADV204  ttyADV222
tty11   tty3    tty48   tty9      ttyADV115  ttyADV133  ttyADV151  ttyADV17   ttyADV188  ttyADV205  ttyADV223
tty12   tty30   tty49   ttyADV0   ttyADV116  ttyADV134  ttyADV152  ttyADV170  ttyADV189  ttyADV206  ttyADV224
tty13   tty31   tty5    ttyADV1   ttyADV117  ttyADV135  ttyADV153  ttyADV171  ttyADV19   ttyADV207  ttyADV225
tty14   tty32   tty50   ttyADV10  ttyADV118  ttyADV136  ttyADV154  ttyADV172  ttyADV190  ttyADV208  ttyADV226
tty15   tty33   tty51   ttyADV100 ttyADV119  ttyADV137  ttyADV155  ttyADV173  ttyADV191  ttyADV209  ttyADV227
tty16   tty34   tty52   ttyADV101 ttyADV12   ttyADV138  ttyADV156  ttyADV174  ttyADV192  ttyADV21   ttyADV228
tty17   tty35   tty53   ttyADV102 ttyADV120  ttyADV139  ttyADV157  ttyADV175  ttyADV193  ttyADV210  ttyADV229
tty18   tty36   tty54   ttyADV103 ttyADV121  ttyADV14   ttyADV158  ttyADV176  ttyADV194  ttyADV211  ttyADV23
tty19   tty37   tty55   ttyADV104 ttyADV122  ttyADV140  ttyADV159  ttyADV177  ttyADV195  ttyADV212  ttyADV230
tty2    tty38   tty56   ttyADV105 ttyADV123  ttyADV141  ttyADV16   ttyADV178  ttyADV196  ttyADV213  ttyADV231
tty20   tty39   tty57   ttyADV106 ttyADV124  ttyADV142  ttyADV160  ttyADV179  ttyADV197  ttyADV214  ttyADV232
tty21   tty4    tty58   ttyADV107 ttyADV125  ttyADV143  ttyADV161  ttyADV18   ttyADV198  ttyADV215  ttyADV233
tty22   tty40   tty59   ttyADV108 ttyADV126  ttyADV144  ttyADV162  ttyADV180  ttyADV199  ttyADV216  ttyADV234
tty23   tty41   tty6    ttyADV109 ttyADV127  ttyADV145  ttyADV163  ttyADV181  ttyADV2    ttyADV217  ttyADV235
tty24   tty42   tty60   ttyADV11  ttyADV128  ttyADV146  ttyADV164  ttyADV182  ttyADV20   ttyADV218  ttyADV236
tty25   tty43   tty61   ttyADV110 ttyADV129  ttyADV147  ttyADV165  ttyADV183  ttyADV200  ttyADV219  ttyADV237
```

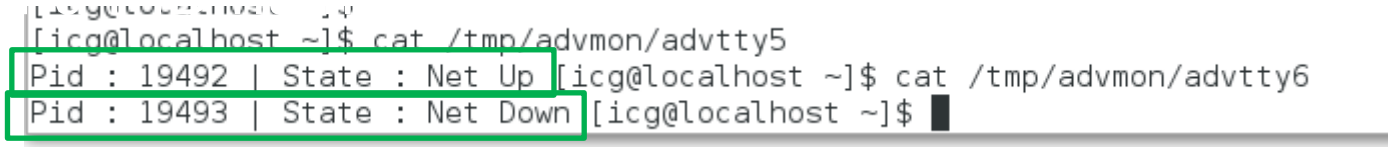
VCOM Daemon check (1/2)

- Use “ps –A | grep vcomd” to check daemon state and PID number



Daemon check(2/2)

“ cat /tmp/advman/advtty



Pid ****:
This is the PID of the daemon which is responsible for “ttyADV5”

|
This separates the PID and the current runtime status.

State[****]
This is the current runtime state.

Daemon check(2/2)

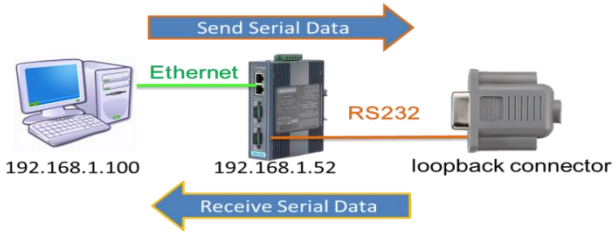
For example: “cat /tmp/advmon/advtty5”

A. The daemon related to this connection has a PID of *19492*.
B. The current state of the daemon is “Net Up”. A VCOM connection has been running, without ever engaging an exception.

For example: “cat /tmp/advmon/advtty6”

A. The daemon related to this connection has a PID of *19493*.
B. The current state of the daemon is “Net Down”. The network connection is disabled; therefore, VCOM driver has disconnected from the corresponding device server.

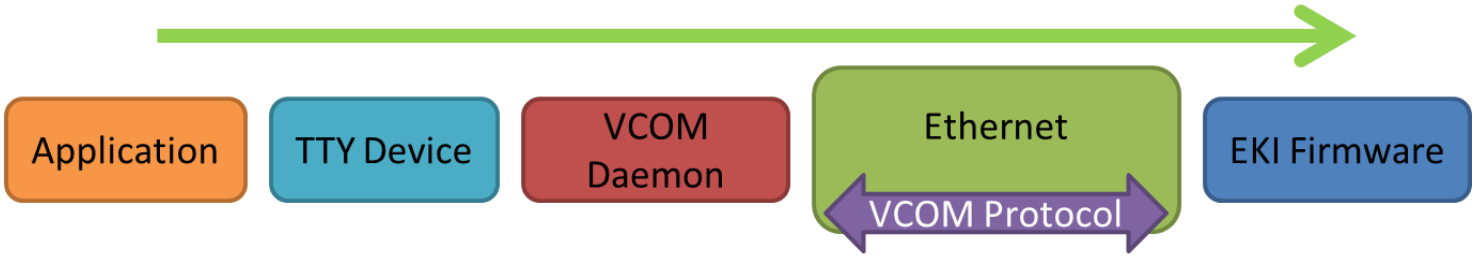
TCP/IP Topology check



In Ethernet TCP/IP with VCOM protocol check:

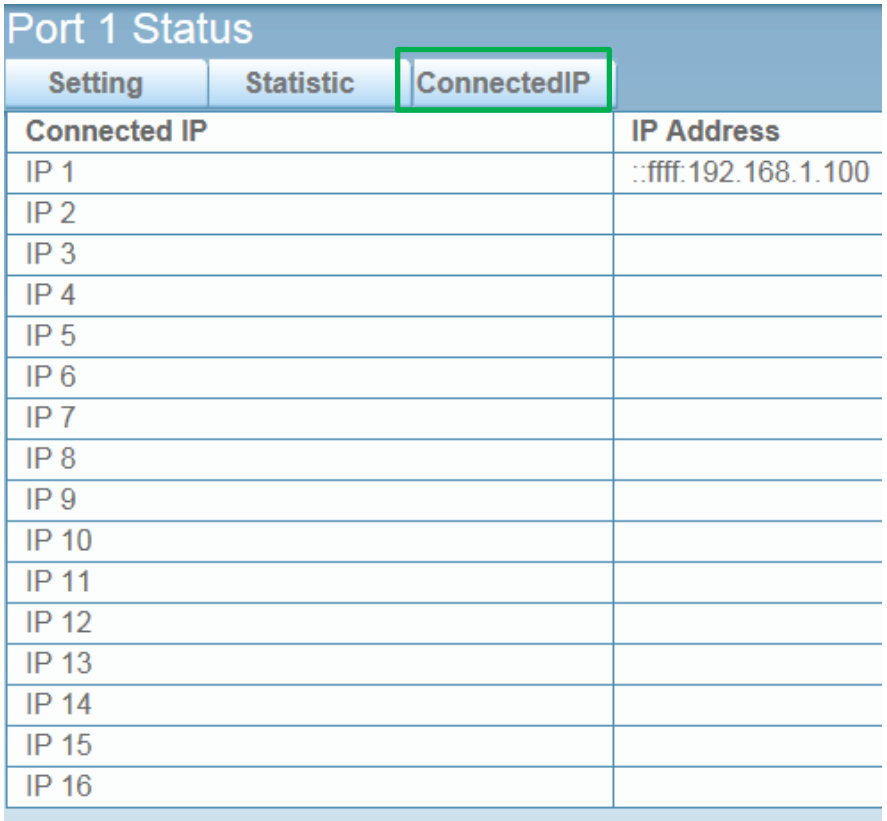
Network Topology and IP Setting is focused that include

1. Linux PC : IP address/default GW
2. EKI-1500 : IP address/default GW
3. Log-in EKI-1500 WEBGUI interface from Linux PC browser. Make sure the network setting is working fine.



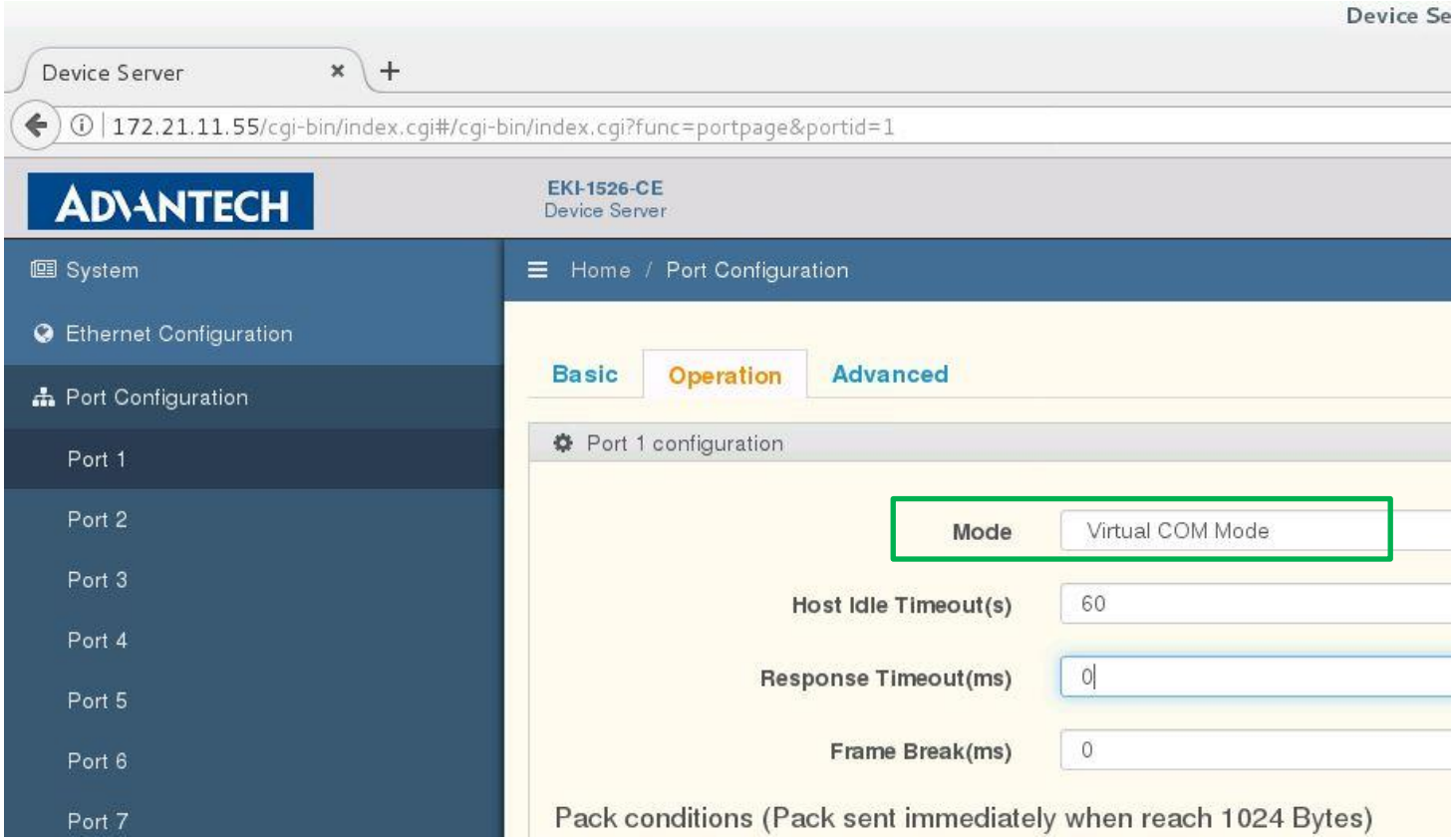
EKI Firmware Check

- In EKI Web GUI monitor page, you can see the connected IP Address which related port Status when com port open



EKI Firmware Check

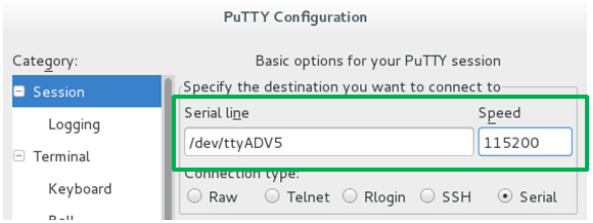
- Make sure set-up the correct operation mode



F&Q Question-1:
Is it available to modify the device name from /dev/ttyADV* to another one like /dev/vttyAP*?

- In default, EKI-1500 use *ttyADV** as the vcom driver device name. If the customer would like to change to different one. That just simply modify it.

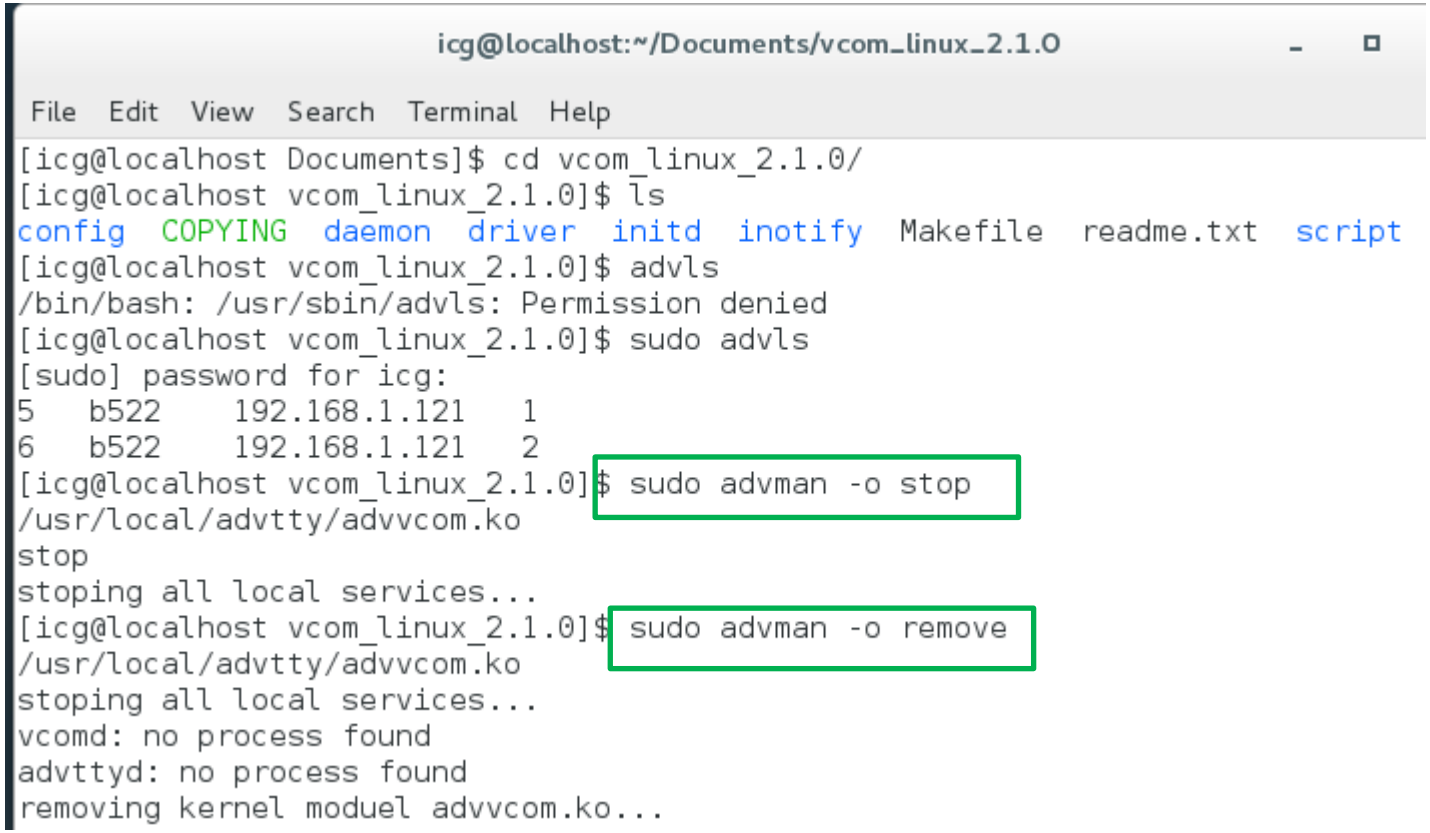
Original: Using putty to open serial port in the path: /dev/ttyADV*



Purpose: Using putty to open serial port in the path for example : /dev/vttyAP*

Answer:

Step 1: Stop & remove the advvcom.ko that running



Answer:

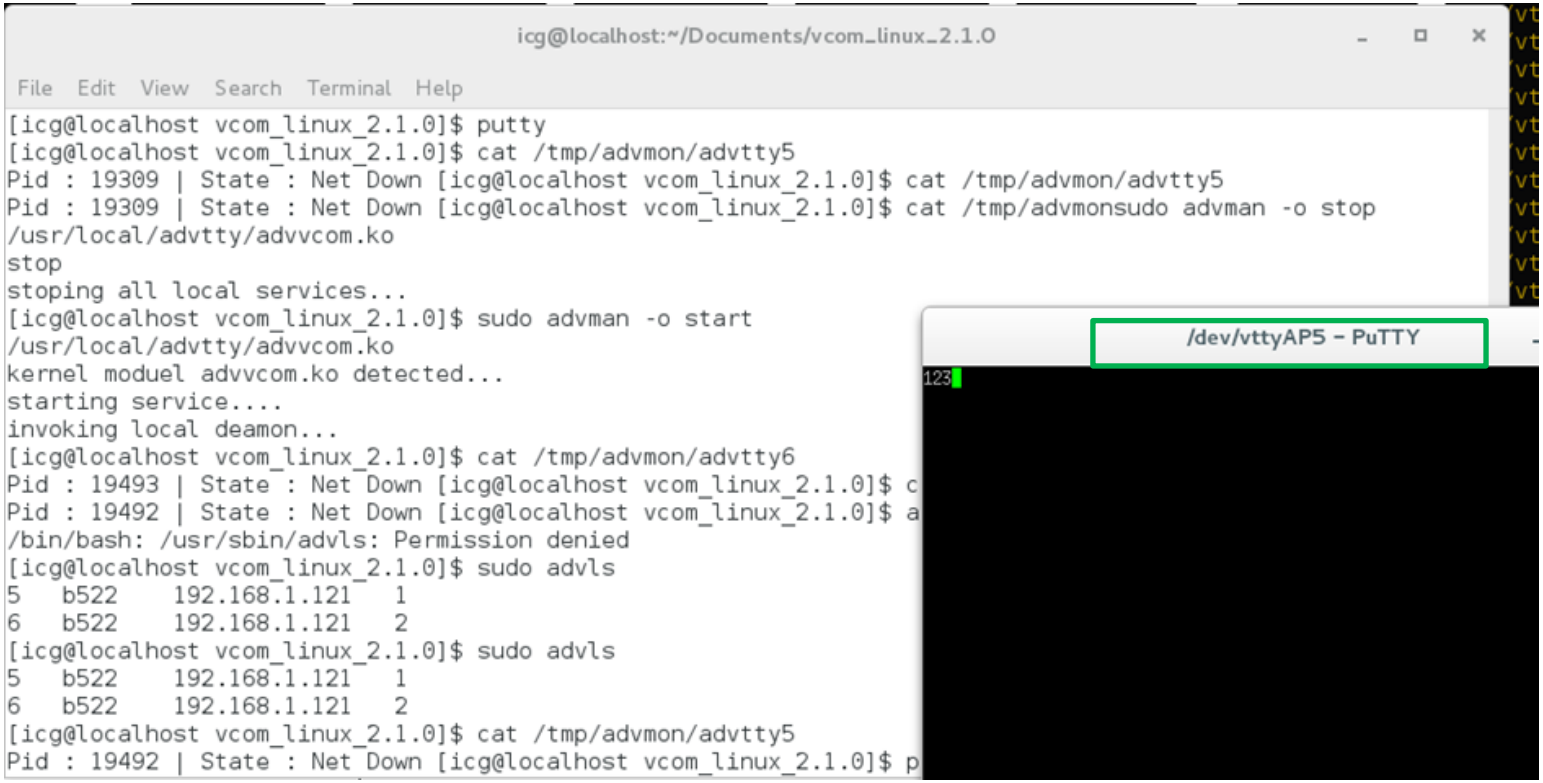
Step 2: Modify "dev_name" as you want in the *adv_uart.c* file. and then use "make" to compiler again

For example: modified "ttyADV" to "vttyAP"

```
[icg@localhost driver]$ cd ..
[icg@localhost vcom_linux_2.1.0]$ grep -i 'vttyAP*' driver/*
driver/adv_uart.c:      .dev_name               = "vttyAP",
Binary file driver/adv_uart.o matches
Binary file driver/advvcom.ko matches
Binary file driver/advvcom.o matches
[icg@localhost vcom_linux_2.1.0]$ grep -i 'ttyADV*' driver/*
driver/adv_uart.c://    .dev_name               = "ttyADV",
[icg@localhost vcom_linux_2.1.0]$ make
make -C ./daemon
make[1]: Entering directory `/home/icg/Documents/vcom_linux_2.1.0/daemon'
```

Answer:

Step 3: Follow the SOP to build and verify it.



F&Q Question-2:

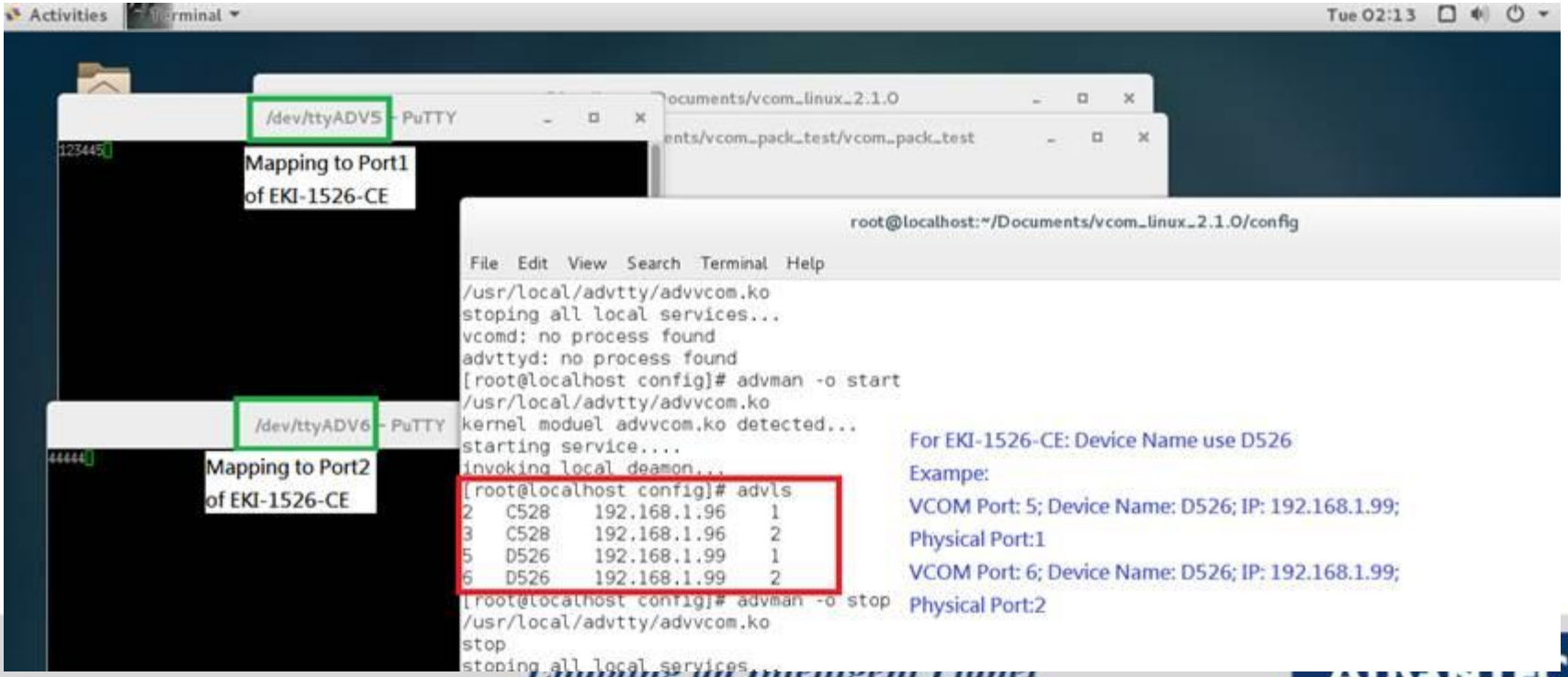
Some customer met the issue when they buy the EKI-1526-CE/EKI-1528-CE cannot success in Linux VCOM setting.

Solution:

Step1: Please check your Kernel version in Linux Platform.
Reference the page4-5.

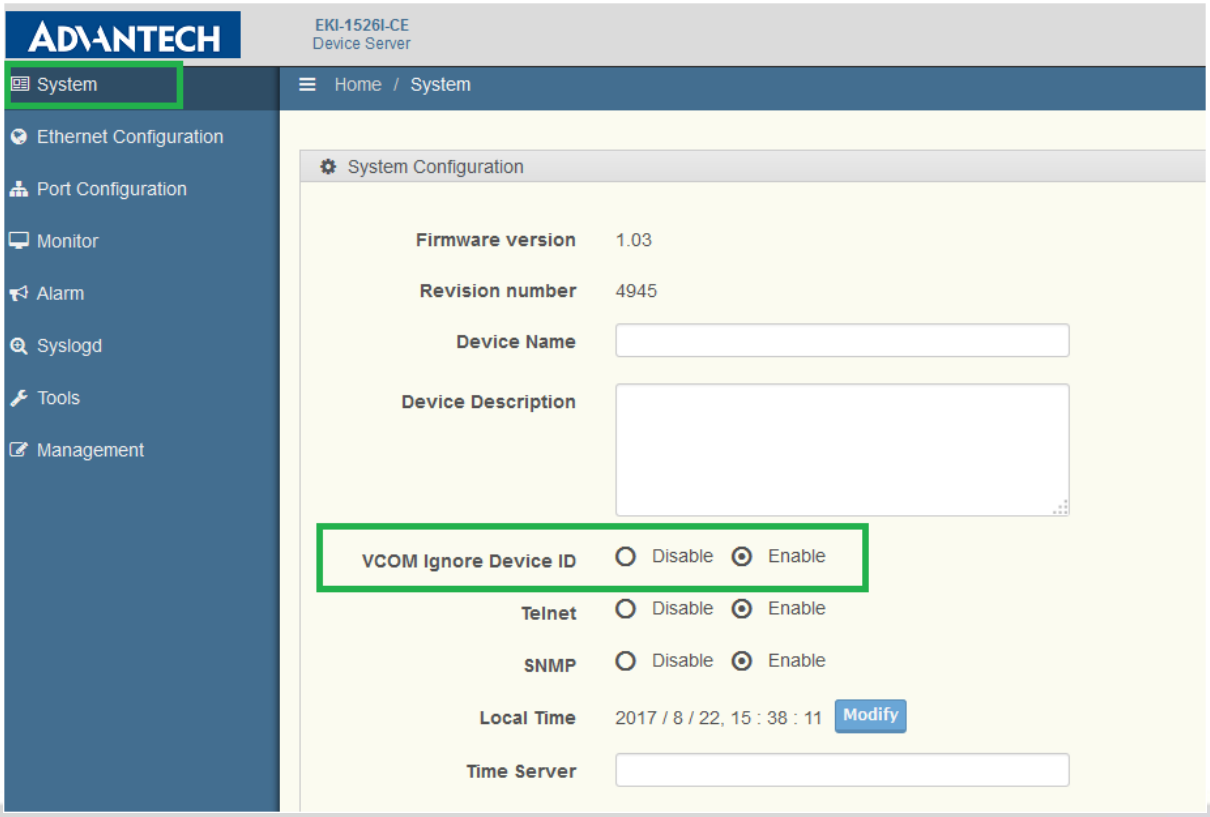
F&Q Question-2:
How to use EKI-1526-CE or EKI-1528-CE in Linux?

Step2: For VCOM in Linux used that need to map module name. Please follow the SOP in the website, in configure file you need to make sure you put the module name EKI-1526-CE as “D526”.



F&Q Question-2:
How to use EKI-1526-CE or EKI-1528-CE in Linux?

Another Option: You also can enabled “Ignore VCOM Device ID” in Web GUI then you don’t need to modify as “D526”. You can keep the C526 or name as you would like.

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