Validation Laboratory Testing

Week of March 12, 2018

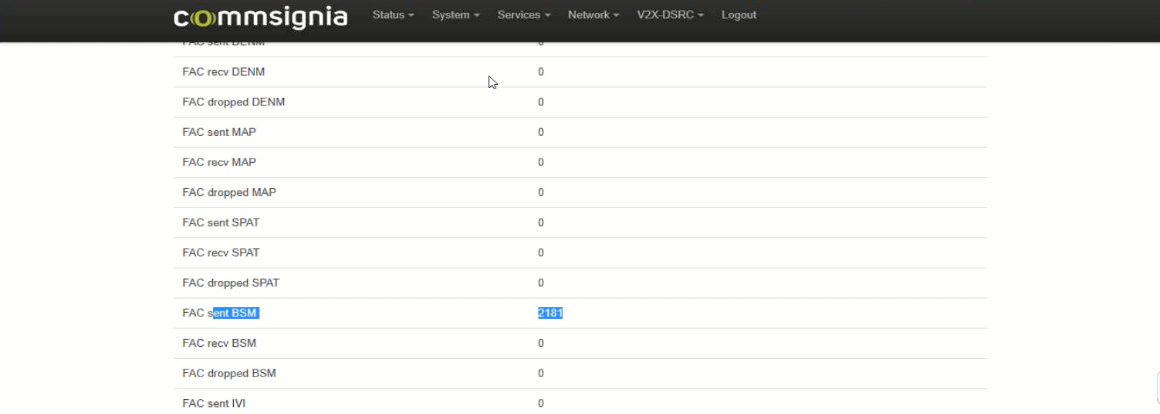
**Testing Of Units**

Commsignia RSU/Cohda OBU/Naztec

1. Powered up Commsignia RSU. Check to see if receiving GPS signal through the GUI.
   * IP 192.168.1.54
2. Powered up Cohda OBU
3. For Cohda - Open a Putty session and command to see if there is GPS

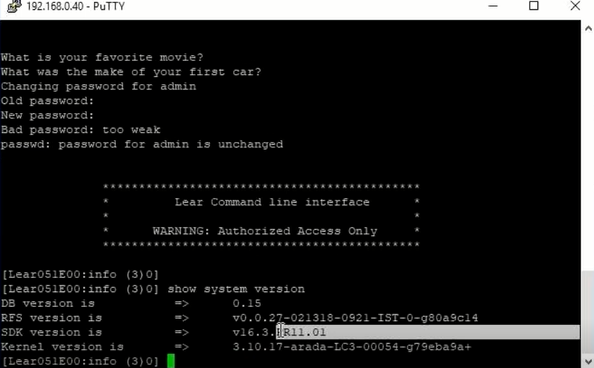
* Command: gpspipe -r
* Cd/opt/cohda/application/example1609#
  + ./rc.example1609 start
  + At this point, you will see a “dot2” message. This indicates Security is failing. The Security needs to be enabled on a daily basis.
* To fix security:
  + - Cd/opt/cohda/application/example1609#
    - ./rc.example1609 stop
  + Cd/opt/cohda/application#
    - rm -rf example1609
    - rm -rf/mnt/rw/example1609
    - ls
    - tar -xzvf example1609-mk5-69933.tgz
    - ls
    - dmesg -c

1. Rerun command: Cd/opt/cohda/application/example1609#
   * + ./rc.example1609 start
       - Cd /mnt/rw/log#
     + Log#
       - Cd /[log file name][hit enter]
       - Enter command: “watch ls -als”
2. Check to see if the Commsignia RSU is sending/receiving BSMs from the OBU
   * Log into the GUI
   * IP 192.168.1.54
   * Navigate to the V2X-DSRC tab and click on Status. The “sent and recv” areas will show increasing numbers



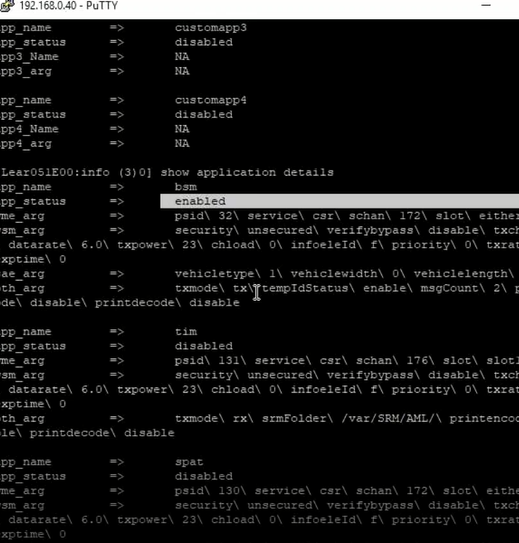
Commsignia RSU/Lear OBU/Naztec

1. Powered up Commsignia RSU and Lear OBU
2. Putty into the Lear OBU (note that the firmware has already been upgraded):
   * IP 192.168.1.50
3. The “Show system version command lists the SDK:



* + “Show time” command means GPS should be enabled
  + “request system shell” command will give the lat/long and 3D fix

1. To check if sending/receiving messages:
   * Run command: “show application details” – shows all the default applications that are running. Here you will see the BSMs running. This is a default application running on the OBU. Looking at the status, BSM is running, TIM and SPAT are not running. The IP service is running.



* + Run command: “show application summary BSM”
  + Run command: “show application summary MAP”
  + Run command: “show application summary SPAT”
  + To check all, “Show application summary egoproces”

1. Check to see if the Commsignia RSU is sending/receiving BSMs from the OBU
   * Log into the GUI
   * IP 192.168.1.54
   * Navigate to the V2X-DSRC tab and click on Status. The “sent and recv” areas will show increasing numbers
2. Verified both units are receiving and sending BSM, MAP, SPAT messages

CommSignia RSU/WaveMobile OBU/Naztec

1. Note: WaveMobile’s devices can be used as both OBU and RSU
2. Note: OBU unit device ID 4070008
3. Changed IP to the .1 network; IP 192.168.1.20 (WaveMobile OBU)
   * Putty session: IP 192.168.1.20
   * Command: “uci set network.wan.ipaddr=192.168.1.20”
   * Command: “uci commit”
   * Command: “reboot”
4. Checked to see if signals are being received:
   * Command: “cat/dev/ttys0”
   * Command: “ps” (to see what is running)
   * Command: “killall bsmCchAppRSU”
   * cd/usr/sbin#” Command: bsmCchApp &”
5. Hypothesis: Commsignia RSU sending messages but not receiving. WaveMobile OBU not receiving/sending messages. This test was redone on 3/20/18.

Cohda RSU/Cohda OBU/Naztec

1. Putty Session to RSU: 192.168.1.30
2. Putty Session to OBU: 192.168.1.40
3. Verified the firmware/image was updated on the Cohda RSU
4. Verified GPS signal:
   * Command: “cd/mnt/rw#”
   * Command: “gpspipe -r”
   * Checked to see image firmware:
     1. Command: “fim -1”
     2. Command: “cd log”
   * Display current log:
     1. Command: “ls”
5. Checked to see if RSU is getting BSMs from OBU:
   * Command: “watch ls -las/mnt/rw/log/current”
6. Verified same on OBU side:
   * Command: “fim -1’
   * root@mks: “gpspipe -r”
   * Command: “chronyc tracking”
   * Command: “cd/mnt/rw” (go to this directory)
   * Command: “ls – al”
   * Command: “mount|grep src”
7. Restart the OBU:
   * root@mks: “opt/cohda/application/example1609#”
   * Command: “./rc.example1609 stop”
   * Command: “./rc.example1609 start”
8. Check to see messages transmitting. Files should grow. At this point, Security log error since the unit needs to be initialized with security daily.
9. To fix security:
   * + Cd/opt/cohda/application/example1609#
     + ./rc.example1609 stop
   * Cd/opt/cohda/application#
     + rm -rf example1609
     + rm -rf/mnt/rw/example1609
     + ls
     + tar -xzvf example1609-mk5-69933.tgz
     + ls
     + dmesg -c
10. Rerun command: Cd/opt/cohda/application/example1609#
    * + ./rc.example1609 start
        - Cd /mnt/rw/log#
      + Log#
        - Cd /[log file name][hit enter]
        - Enter command: “watch ls -als”
11. Verified messages were being sent/received between both Cohda units.

Lear RSU/Lear OBU/Naztec

1. Putty Session to RSU: 192.168.1.45
2. Putty Session to OBU: 192.168.1.50
3. Command: “show application summary”
4. Verified messages are being sent/received

Lear RSU/Cohda OBU/Naztec

1. Putty Session to Lear RSU: 192.168.1.45
2. Putty Session to Cohda OBU: 192.168.1.40
3. Verified GPS signal still running on Cohda OBU
4. Command to see if messages are being transmitted on Cohda OBU:
   * Cd/opt/cohda/application/example1609#
     + ./rc.example1609 start
       - Cd /mnt/rw/log#
     + Log#
       - Cd /[log file name][hit enter]
       - Enter command: “watch ls -als”
5. Command to see if messages are being transmitted on Lear RSU:
   * + - Command: “show application summary”
6. Verified messages were being sent/received between both Lear RSU and Cohda OBU.

Lear RSU/CommSignia OBU/Naztec

1. Ping Commsignia OBU via GUI: 192.168.1.55
2. Putty Session to Lear RSU: 192.168.1.45
3. On the Lear RSU, check to see if receiving/sending messages:
   * Command: “show application summary egoprocess”
   * Verified receiving/sending messages
4. On the Commsignia GUI, check to see if receiving/sending messages:
   * Navigate to the V2X-DSRC tab and click on Status. The “sent and recv” areas will show increasing numbers
5. Verified both units are receiving and sending BSM, MAP, SPAT messages