Long Duration Test

Title	**Long Duration Test**
Project	Fleet-Monitor
Date	10.12.2021
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Contents

1. Test Introduction

1.1. Scope of the Test

The scope of the long duration test is to verify the operation of the Fleet-Monitor over a long period of time.

In detail the following functions should be tested:

- Memory fragmentation over long period of time
- Connectivity issues
- WIFI connection
- Ethernet connection

The test should run for at least 48 hours to get a good result.

1.2. Acceptance criteria

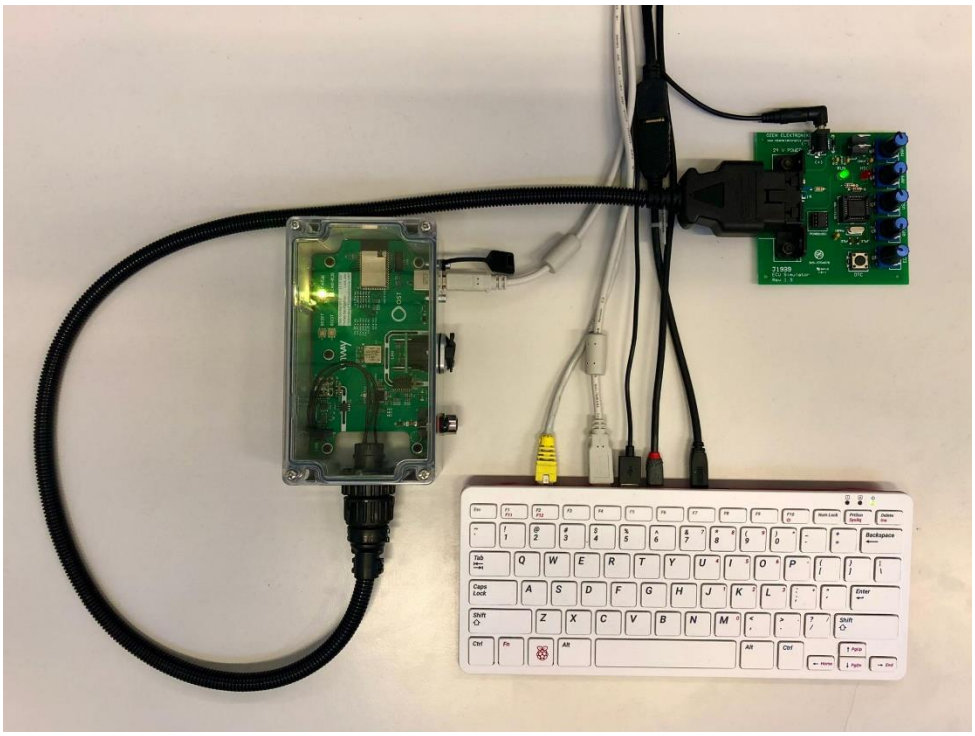
The test is successful if:

1. The device is still running after 48 hours
2. Data is still read from the CAN bus
3. Data is still transmitted to the server
4. Hot swapping networking interface is still working

2. Test Setup

2.1. Setup

The Fleet-Monitor is connected to the J1939 CAN simulator and connected through WIFI to the Raspberry Pi. The http server on the Raspberry Pi is continuously logging the incoming data.



2.2. Equipment

Tool	Further specification
Fleet-Monitor	
Raspberry Pi	With running WIFI hotspot and HTTP server software
J1939 Simulator	
CAN Cable	To connect simulator with Fleet-Monitor. Make sure the CAN termination is enabled on the Fleet-Monitor.
Ethernet Cable	To connect the Fleet-Monitor to the Raspberry Pi
USB A to B Cable	To power the Fleet-Monitor
USB C Cable	To power the Raspberry Pi
24V power supply	To power the J1939 simulator

3. Main Tests and Post-Tests

3.1. Test Variables

Duration at least 48h over the weekend

3.2. Main Test Procedure

Procedure	Comments	Status
Plug in Raspberry Pi	Make sure everything is running. Check with phone if WIFI hotspot is present.	Good
Start HTTP Server on Raspberry Pi	Check if no error code was thrown	Good
Plug in J1939 Simulator and connect it to Fleet-Monitor		Good
Plug in Fleet-Monitor	Check out LEDs and check if it receiving CAN messages and transmitting data to server	Good

3.3. Post-Test Procedure

Procedure	Comments	Status
Check if CAN messages are still received		Good
Check if Fleet-Monitor is still connected		Good
Check if HTTP server is still running		Not running
Read the data from the log file and see if first and last timestamp match	This is to see how long the device was logging data	Good
Plug in Ethernet cable	Check if Fleet-Monitor is still able to do hot-swap	Good

4. Results

4.1. Measured / Observed

What	Notes
First timestamp	1639069899 -> Thursday, December 9, 2021 17:11:39
Last timestamp	1639393915 -> Monday, December 13, 2021 11:18:55
Test Duration	90h

4.2. Test success

The device was powered on for an extended period of time and no anomalies were observed on the Fleet-Monitor side. It was signaling that the connection to the server was lost but was still connected through WIFI. After the restart of the HTTP server everything was still running normally. Hot swapping to Ethernet was also working fine.

4.3. Unexpected Observations

The HTTP server was not working anymore. We think this is because the log file got too big and caused an error. The server was logging for 90 hours and the log file exceeded 1GB.

4.4. Things to improve

This test shows that the Fleet-Monitor is running as expected and nothing needs to be improved on the monitor side. The HTTP server on the other hand should create new log files every hour or more in order to not crash after an extended period of time.