Reset ECU (0x11)

Purpose: This service is used to restart the ECU

Introduction

- ECU send positive response to the tester **before the reset is executed** in the ECU. After a **successful** server reset, the server shall activate the default Session.(Note)
- During the time, ECU does not accept any other request messages and send any response messages.(Note)
- ECU Reset service does not support data-parameters in the request message.

Sub-functions

Enum Values	Description
0x00	SAE Reserved
0x01	Hard Reset
0x02	Key Off On Reset
0x03	Soft Reset
0x04	Enable Rapid Power Shut Down
0x05	Disable Rapid Power Shut Down
0x06 to 0x3F	ISO SAE Reserved
0x40 to 0x5F	OEM Specific
0x60 to 0x7E	Supplier specific
0x7F	SAE Reserved

Request Frame:

1. **Service Id**
2. **Sub-function (Reset)**

Positive Response Frame:

1. **Service Id**
2. **Sub-function (Reset)**

Negative Response Frame:

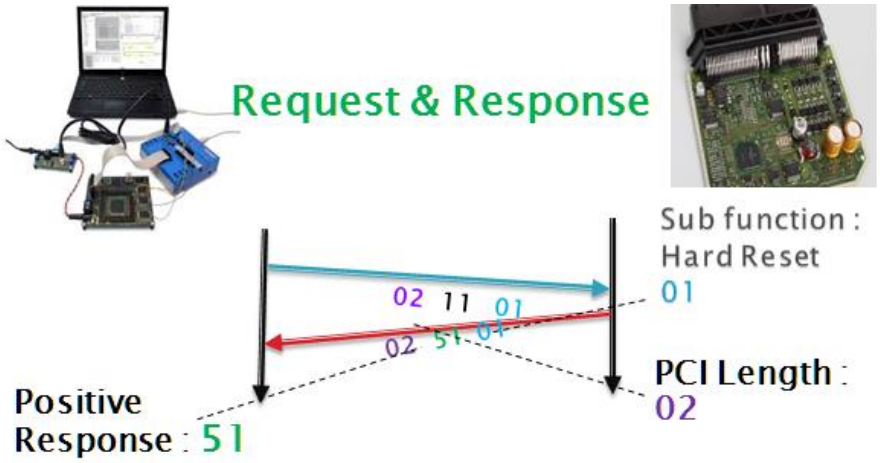
1. **Negative Response (7F)**
2. **Service Id**
3. **NRC Code**

Assumption scenario:

Tester wants to reset the ECU for any reason (as reasons are not limited (Note) by any of the followings

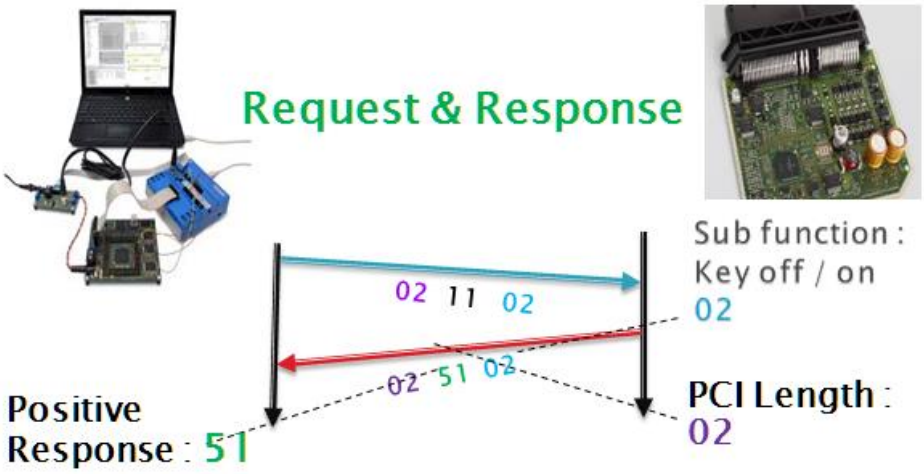
Sub-functions for ECU Reset

- **Hard Reset - 0x01: Hard Reset makes the ECU to reset by the physical condition which simulates the power-on or start-up that can performed after the processor or an ECU which has been disconnected previously from its power supply (i.e Battery).**
- **It means the memory includes either Volatile or Non-volatile memory and other electronic sub-components directly connected in to the ECU which all are initialized upon request of the reset type which are also initialized during the power-up sequence.**



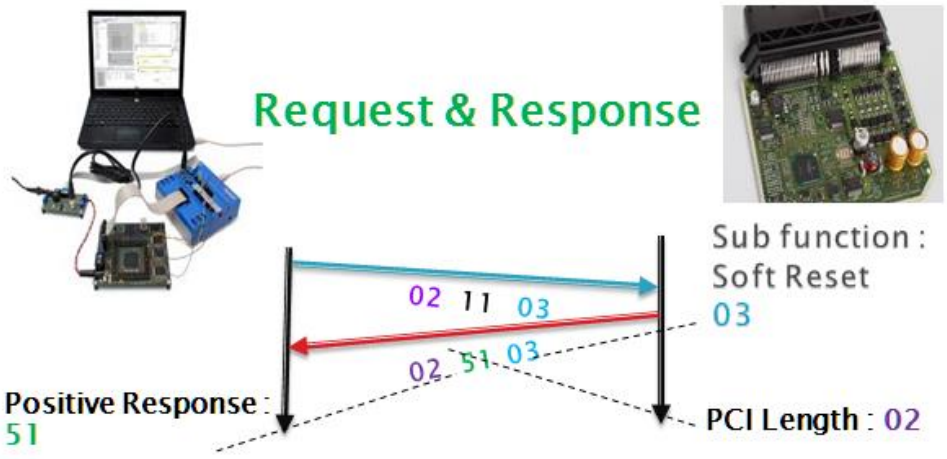
ECU Reset – Hard Reset

- **Key Off On – 0x02: This sub-function identifies a condition similar to the vehicle driver turning the ignition key off & back on.**
- **This reset condition should simulate a key-off-on sequence by interrupting power supply (off/on)**
- **The performed action is implementation specific by requirements and not defined any standards.**
- **Typically, the values of non volatile memory locations are preserved and volatile memory will be initialized.**



ECU Reset – Key Off / On

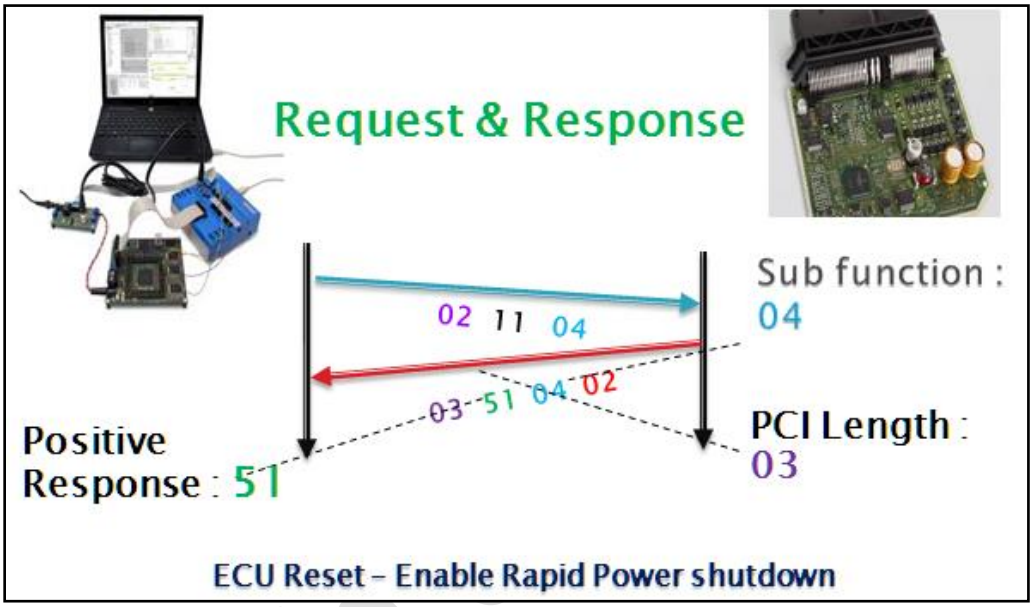
- **Soft Reset – 0x03: Soft reset condition which causes the server to immediately restart the application.**
- **The performed action is implementation specific and not defined any standard.**
- **A typical action is to restart the application without re-initializing of previously learned configuration data, adaptive factors and other long-term adjustments.**
- **The word soft indicates (not physical) but by software**



ECU Reset – Soft Reset

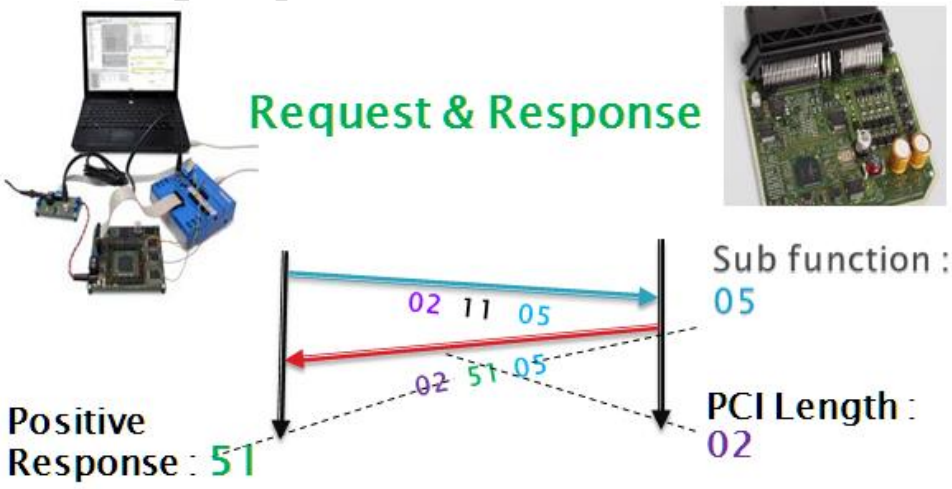
- **Enable Rapid Power shut down – 0x04: This sub-function requests the server to enable and perform a rapid power shut down function.**
- **The server shall execute the function immediately after key/ignition is switched off.**
- **While the server executes the power down function, it shall transition either directly or after a defined stand-by time to sleep mode.**

- **The client shall not send any request messages in order to not disturb the rapid power shut down function.**
- **NOTE -This sub-function is only applicable to a server supporting a stand-by mode!**



ECU Reset – Enable Rapid Power shutdown

- **Disable Rapid Power shut down – 0x05: This sub-functions requests the server to disable the previously enabled "rapid power shut down" function.**



ECU Reset – Disable Rapid Power shutdown

DTC's Present are:

2F 01 00 - Brake failure -

11 3D 11 - Camera Lens Adjustment required

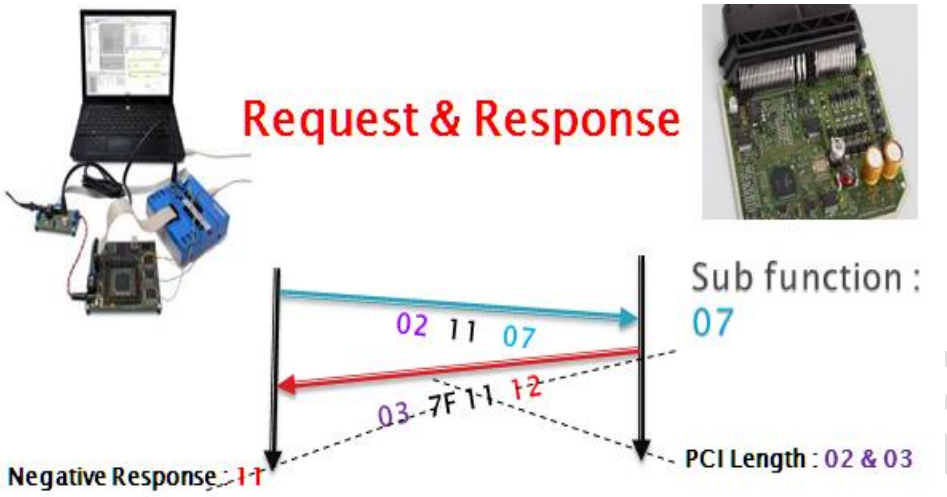
To clear this DTC completely, Tester needs to fix the above two issues and clear the same. But to clear the DTC from Volatile and Non-Volatile memory, ECU Reset should be done. Hence tester can reset the ECU as soon fixes the issues. This is applicable for flashing sequence also.

List of NRCs Supported

1. **0x12 Sub-function Not Supported**
2. **0x13 Incorrect Message Length**
3. **0x22 Conditions Not Correct**
4. **0x33 Security Access Denied**

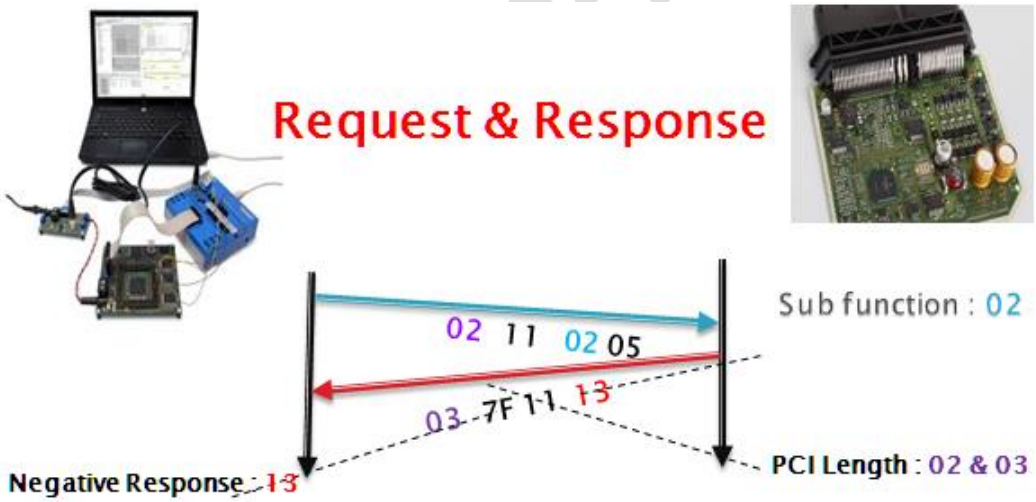
Sub-function Not Supported (0x12)

ECU responds with **NRC 12** if tester tries to request with unsupported sub-function and the **sub function is not supported** as per requirement



Incorrect Message Length (0x13)

ECU responds with **NRC 13** if tester tries to request with **incorrect message length**



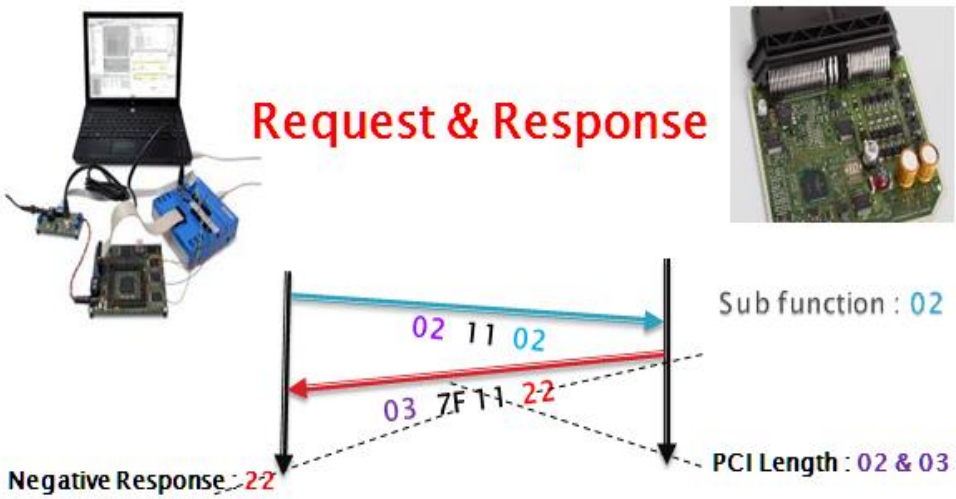
Conditions not correct (0x22)

ECU responds with **NRC 22** if tester tries to request this service when the **conditions are not met**.

Conditions not correct occurs under different circumstances given below

- If requested server operating conditions are not met
- If requested server Internal conditions are not met
- If server is in critical mode
- If server request is already in progress and yet to finish
- If requested criteria not met in the server

Ex: If the requested ECU is engine management, then engine should be OFF, if not then ecu response with NRC 22



Security Access Denied (0x33)

ECU responds with **NRC 33** if tester tries to request this service without unlocking the security access