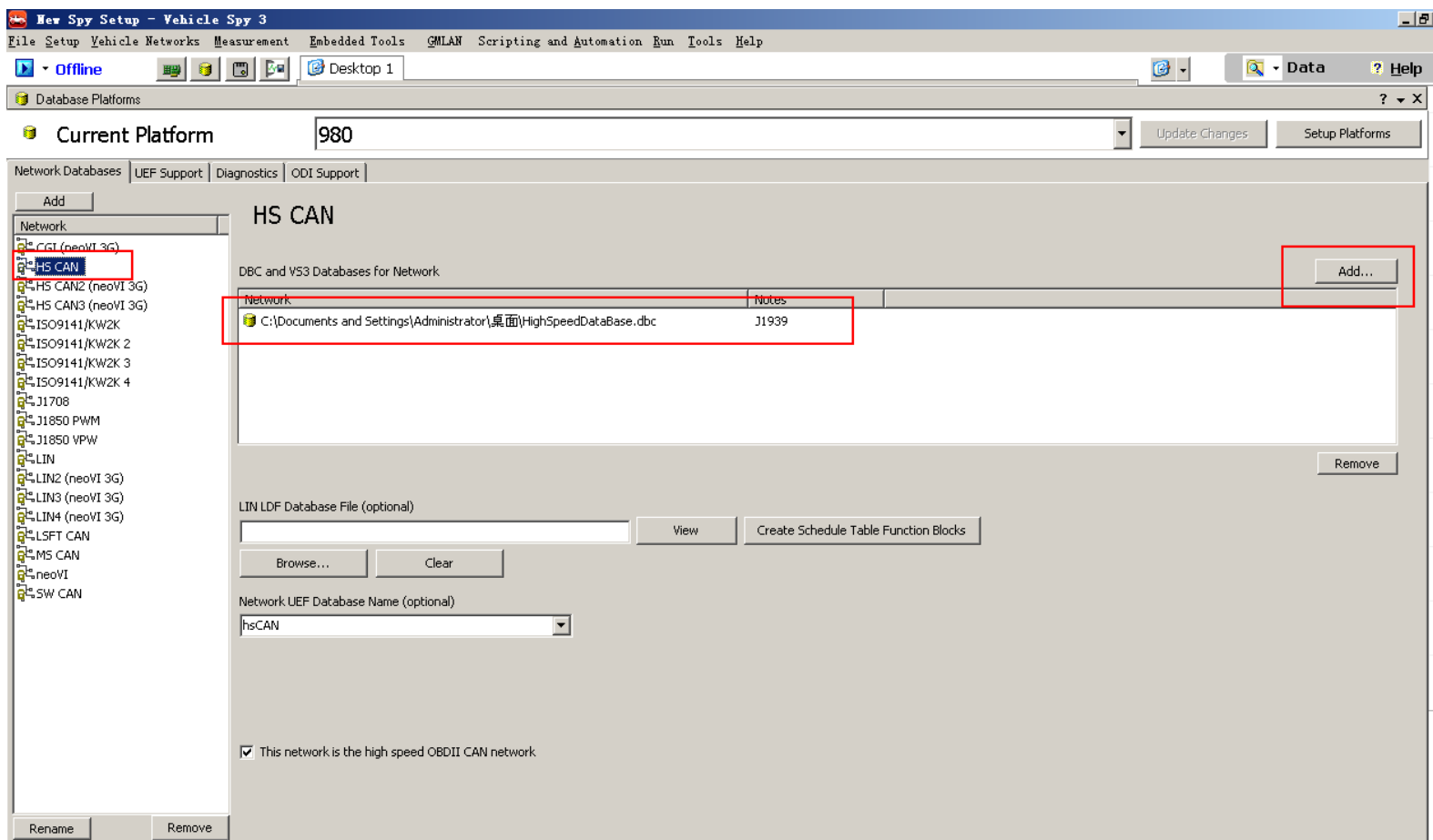




Vspy3 ECU Simulation

ECU / 节点 模拟方法 1, 步骤:

1、加载 DBC 数据库。(如果没有数据库, 可以根据 ECU 的规格文档在 Message Editor 中建立相应的节点的报文 message.)





2、查看 DBC 中各个节点的定义情况，比如节点 message 中包含信号的类型，所绑定的字节，信号计算的公式等等信息。

The screenshot shows the Vehicle Spy 3 interface. The top part is a table of CAN messages. The bottom part is a configuration window for the 'mVehSecPas' message.

Key	Description	Type	Arb ID	Multi	DLC	B1	B2	B3	B4	B5	B6	B7	B8	Src Node	Tx Msg	Color
db0	mWhetoBodRelPos	Std 11 bit	188	None	8									RTD_H	None	
db1	mWheSpe	Std 11 bit	280	None	8									ABS_H	None	
db2	mVINDig2_9HS_	Std 11 bit	670	None	8									GW_H	None	
db3	mVINDig10_HS_	Std 11 bit	131	None	8									GW_H	None	
db4	mVehSpeandOdo	Std 11 bit	410	None	8									ECM_H	None	
db5	mVehSecPTStaNonImm	Std 11 bit	170	None	2									ECM_H	None	
db6	mVehSecPas	Std 11 bit	130	None	6									GW_H	None	
db7	mVeh	Std 11 bit	674	None	5									GW_H	None	
db8	mUUDResfroTCM	Std 11 bit	5EA	None	8									TCM_H	None	
db9	mUUDResfroRTD	Std 11 bit	54E	None	8									RTD_H	None	
db10	mUUDResfroHSONS	Std 11 bit	54D	None	8									OnStar_H	None	

Setup for mVehSecPas

Description: mVehSecPas, Source Node: GW_H, Color: Custom...

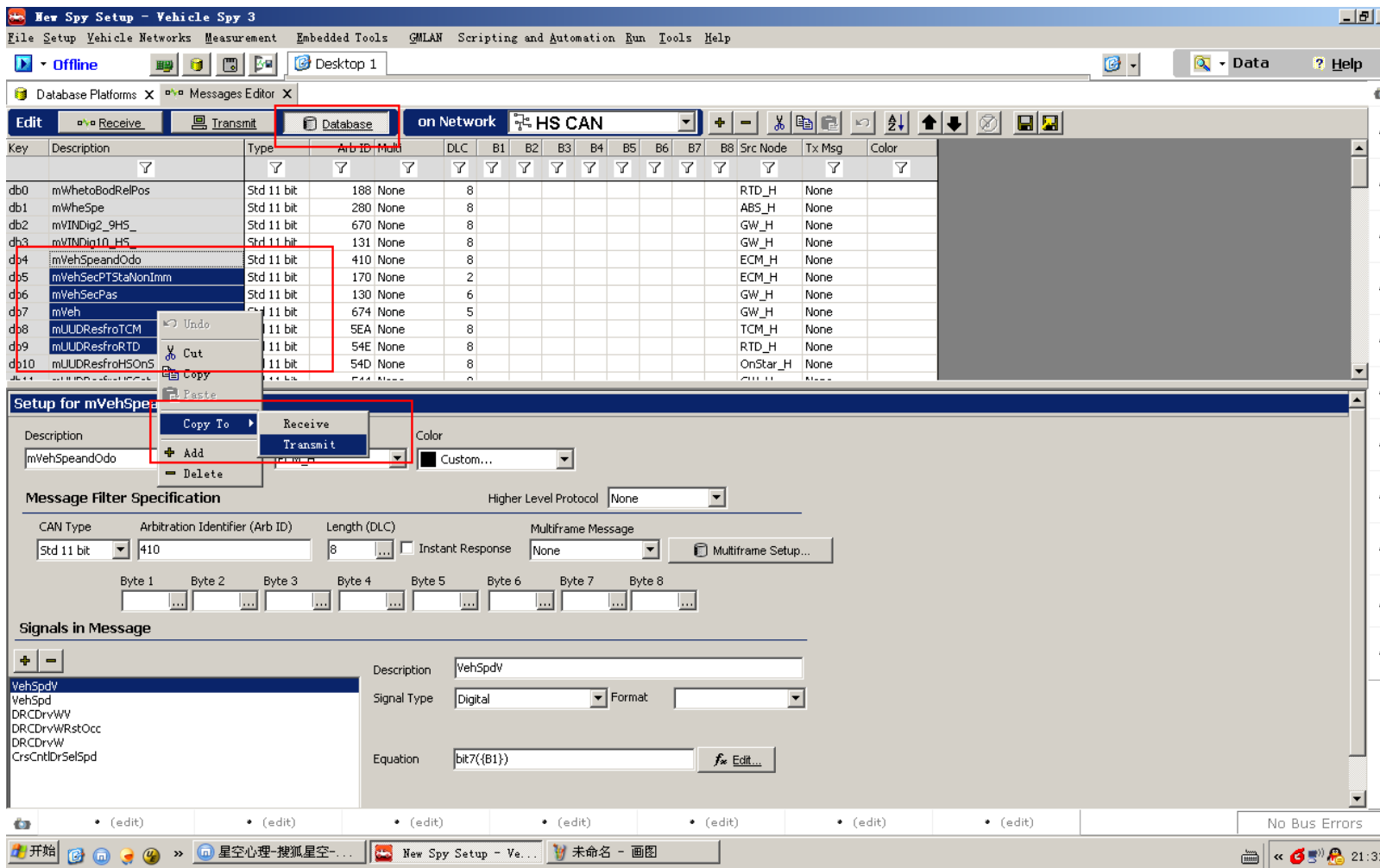
Message Filter Specification: CAN Type: Std 11 bit, Arbitration Identifier (Arb ID): 130, Length (DLC): 6, Instant Response: , Multiframe Message: None

Signals in Message:

Description	Signal Type	Units	Equation
VhSecNimoPwdSt	Analog		{Raw Value} 0,1,21,3



3、将需要模拟的节点拷贝到 TX panel, 发送区。以便准备需要进行模拟的数据和控制模拟。





4、填写进行模拟的各个节点的模拟 signal 数据，设置周期，绑定函数或者变化步长等。

The screenshot displays the 'New Spy Setup - Vehicle Spy 3' software interface. The top menu bar includes File, Setup, Vehicle Networks, Measurement, Embedded Tools, GMLAN, Scripting and Automation, Run, Tools, and Help. The main window is titled 'Messages Editor' and shows a table of CAN messages. Below the table is a configuration panel for 'mEngTor'.

Key	Description	Type	Arb ID	Multi	DLC	B1	B2	B3	B4	B5	B6	B7	B8	Src Node	Tx Msg	Color
out7	mDynHeaLevSta	Std 11 bit	38A	None	1									GW_H	None	
out8	mChaGenSta2_A	Std 11 bit	420	None	2									ABS_H	None	
out9	mChaGenSta	Std 11 bit	2F0	None	7									ABS_H	None	
out10	mChaConDynDat2_A	Std 11 bit	144	None	5									ABS_H	None	
out11	mChaConDynDat1_A	Std 11 bit	140	None	8									ABS_H	None	

Setup for mEngTor

Description: mEngTor
Source Node: ECM_H
Color: Custom...
Hotkey: (No Hotkey)

Message Filter Specification

Higher Level Protocol: None

CAN Type: Std 11 bit
Arbitration Identifier (Arb ID): 120
Length (DLC): 8
High Voltage Remote Frame:
Multiframe Message: None
Multiframe Setup...

Byte 1: ... Byte 2: ... Byte 3: ... Byte 4: ... Byte 5: ... Byte 6: ... Byte 7: ... Byte 8: ...

Signals in Message

Description: VehLftDvStV
Signal Type: Digital
Format: ...



New Spy Setup - Vehicle Spy 3

File Setup Vehicle Networks Measurement Embedded Tools GMLAN Scripting and Automation Run Tools Help

Offline Desktop 1 Data Help

Messages Editor Tx Panel

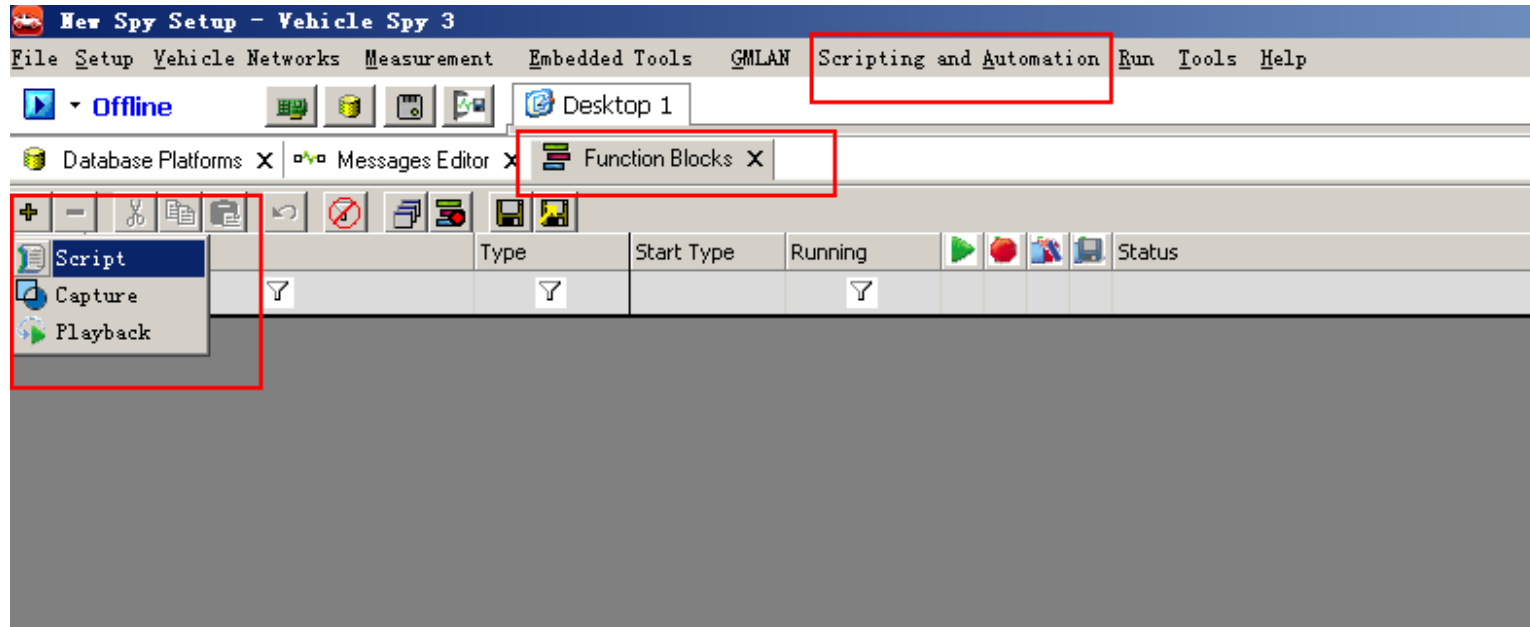
Edit Transmit Messages Disable All Tx

Key	Description	Tx	Auto Tx	Rate
out11	mChaConDynDat1_A		Periodic	None
out10	mChaConDynDat2_A		Periodic	None
out9	mChaGenSta		Periodic	None
out8	mChaGenSta2_A		Periodic	None
out7	mDynHeaLevSta		Periodic	None
out6	mDynHeaSta		Periodic	None
out5	mEngGenSta1_E		Periodic	None
out4	mEngGenSta2_E		Periodic	None
out3	mEngHVAPTcandGenSta		Periodic	None
out2	mEngSenDat		Periodic	None
out1	mEngSpeandPedPos		Periodic	None
out0	mEngTor		Periodic	None

Key	Idx	Description	In	Dc	Step Size	Value	Raw Value
sig0	0	ThrPosV	+	-		1	0
sig1	1	ThrPos	+	-		1	0
sig2	2	EngSpdV	+	-		1	0
sig3	3	EngSpd	+	-		1	0
sig4	4	rrottIovrrdDet	+	-		1	0
sig5	5	icNtrlStatusRC	+	-		1	0
sig6	6	intrlStatusProt	+	-		1	0
sig7	7	CrsCntAtv	+	-		1	0
sig8	8	AccPosV	+	-		1	0
sig9	9	AccPos	+	-		1	0
sig10	10	AccActPosV	+	-		1	0
sig11	11	AccActPos	+	-		1	0



5、根据需要添加控制各个节点的模拟发送，接收的脚本程序。





New Spy Setup - Vehicle Spy 3

File Setup Vehicle Networks Measurement Embedded Tools GMLAN Scripting and Automation Run Tools Help

Offline Desktop 1

Database Platforms Messages Editor Function Blocks

Key	Description	Type	Start Type	Running	Status
tst0	Function Block 1	Script	Immediate	Stopped	Function Block has not started
tst1	Function Block 2	Script	Immediate	Stopped	Function Block has not started
tst2	Function Block 3	Script	Immediate	Stopped	Function Block has not started
tst3	Function Block 4	Script	Immediate	Stopped	Function Block has not started
tst4	Function Block 5	Script	Immediate	Stopped	Function Block has not started
tst5	Function Block 6	Script	Immediate	Stopped	Function Block has not started
tst6	Function Block 7	Script	Immediate	Stopped	Function Block has not started
tst7	Function Block 8	Script	Immediate	Stopped	Function Block has not started

Script Start **Function Block 8**

No Errors

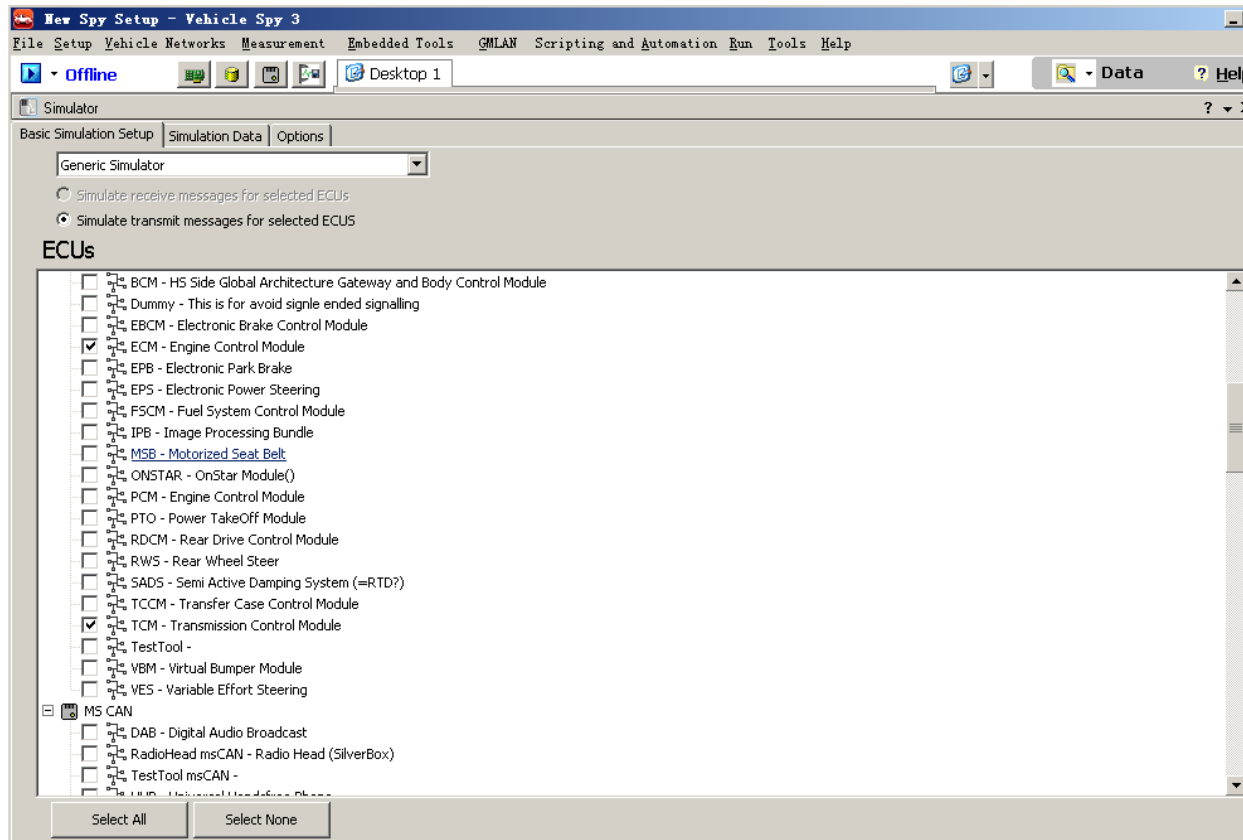
Step	Description	Value	Comment
1			
2	// TODO: Add step commands here		
3			
4			
5			
6			
7			
8			
9			
10			

6、最终通过 Manual 手动发送模拟节点的 message 或者通过多个程序控制节点的收发流程，运算等，实现对节点或者真个网络的模拟。



ECU / 节点 模拟方法 2, 用 simulator 必须要有数据库, 步骤:

1. 加载数据库
2. 菜单 vehicle networks -> simulator
3. 选取要模拟的 ECU。
4. 构造 ECU 的模拟的信号数据产生方式, 发送周期等。





New Spy Setup - Vehicle Spy 3

File Setup Vehicle Networks Measurement Embedded Tools GMLAN Scripting and Automation Run Tools Help

Offline Desktop 1 Data Help

Simulator

Basic Simulation Setup Simulation Data Options

Simulated messages transmitted by the following ECUs: Apply Expression Clear Expression

Name	Type	Rate	Source	Data Type	Min	Max
ECM - Engine Control Module						
<input checked="" type="checkbox"/> UUDT_Resp_From_ECM (\$5E8) Setup						
<input checked="" type="checkbox"/> USDT_Resp_From_ECM_HS (\$7E8) Setup						
<input type="checkbox"/> PPEI_Trans_General_Status_1 (\$F9) Setup						
<input type="checkbox"/> PPEI_Transfer_Case_Status (\$2D1) Setup						
<input type="checkbox"/> PPEI_Trans_General_Status_3 (\$4C9) Setup						
<input type="checkbox"/> PPEI_Trans_General_Status_2 (\$1F5) Setup						
<input type="checkbox"/> PPEI_Engine_General_Status_1 (\$C9) Setup						
<input type="checkbox"/> PPEI_Engine_General_Status_2 (\$3D1) Setup						
<input type="checkbox"/> PPEI_Engine_General_Status_3 (\$3F9) Setup						
<input type="checkbox"/> PPEI_Engine_General_Status_4 (\$4C1) Setup						
<input type="checkbox"/> PPEI_Engine_General_Status_5 (\$4D1) Setup						
<input type="checkbox"/> ETEI_Engine_General_Status (\$1A1) Setup						
<input type="checkbox"/> PPEI_Powertrain_Config_Data (\$4F1) Setup						
<input type="checkbox"/> PPEI_Engine_Torque_Status_3 (\$2C3) Setup						
<input type="checkbox"/> ETEI_Engine_Torque_Status (\$191) Setup						
<input type="checkbox"/> PPEI_Fuel_System_Request (\$1ED) Setup						
<input type="checkbox"/> PPEI_Engine_Fuel_Status (\$3FB) Setup						
<input type="checkbox"/> PPEI_Powertrain_Immobilizer_Data (\$3C1) Setup						
<input type="checkbox"/> PPEI_Vehicle_Speed_and_Distance (\$3E9) Setup						
<input type="checkbox"/> DTC_Triggered_772 (\$772) Setup						
<input type="checkbox"/> PPEI_Fuel_System_Request_2 (\$1FF) Setup						

Clear All Customizations

Simulation Log File

File Path Browse...

Generate Template File... Repeat File when finished



ECU / 节点 模拟方法 3, 适用于带诊断功能的 ECU 的模拟, 必须要有数据库, 步骤:

1. 加载数据库
2. 菜单 vehicle networks -> ECUS
3. 选取要模拟的 ECU。
4. 构造 ECU 的模拟的诊断信息等。
5. 选择 ‘模拟这个 ECU’ 开始模拟



New Spy Setup - Vehicle Spy 3

File Setup Vehicle Networks Measurement Embedded Tools GMLAN Scripting and Automation Run Tools Help

Offline Desktop 1

ECUs

Import Export Save Standard DIDs Save Database Changes Wizard

ECU Basics DIDs DPIDs PIDs CPIDs Memory Data Diagnostic Services Standard DIDs

Enable this ECU Simulate this ECU's Diagnostics

ECU Short Description Network
 DHL_H HS CAN

ECU Long Description

Virtual Network Management Frame ID (VNMF)
 Device ID: 0 CAN ID: \$

Diagnostic CAN Identifiers (hex)

ECU Diagnostic Address: 41
 \$2xx = physical request CAN Identifier \$5xx = UUDT response CAN Identifier \$6xx = USDT response

Manually Specified

Physical Request (USDT)	UUDT Response ID	UUDT Response ID

ECU List (Left Panel):

- GMLAN
 - HS CAN
 - GM (\$) ABS_H :
 - GM (\$) ACCA_H :
 - GM (\$) Body_Controller :
 - GM (\$) DHL_H :
 - GM (\$) Diagnostics :
 - GM (\$) ECM_H :
 - GM (\$) GW_H :
 - GM (\$) Instruments :
 - GM (\$) Master_Light_Switch :
 - GM (\$) OnStar_H :
 - GM (\$) RTD_H :
 - GM (\$) TCM_H :
 - GM (\$) Tester_H :
 - GM (\$) x45HSGD_H :
 - GM (\$) x46HSGD_H :
 - GM (\$) x47HSGD_H :
 - GM (\$) x48HSGD_H :
 - GM (\$) x4AHSGD_H :
 - GM (\$) x4CHSGD_H :
 - GM (\$) TestTool :
 - GM (\$241) BCM : HS Side Global Architectur
 - GM (\$242) EPS : Electronic Power Steering
 - GM (\$243) EBCM : Electronic Brake Control
 - GM (\$244) Dummy : This is for avoid signle
 - GM (\$246) RW5 : Rear Wheel Steer
 - GM (\$247) PTO : Power TakeOff Module
 - GM (\$249) AHL_AFL : Automatic Headlamp
 - GM (\$245) ACC : Adaptive Cruise Control

