

# **Intrepid Control Systems, Inc.**

**Quick Start Guide for ICS Ethernet Products**  
**(VSPY, neoECU-15, RAD-Star, Ethernet EVB)**

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## 1. Introduction:

This document describes the Ethernet support in VSpy and the hardware connection configuration for Ethernet products.

## 2. Automotive Ethernet Support:

### 2.1 Hardware:

- neoECU15
- RAD-STAR
- Ethernet EVB

### 2.2 Connection Setup:

#### 2.2.1 neoECU-15 & RAD-STAR Connections

- neoECU15 is powered using Power Adaptor
- RAD-STAR is powered using Power Adaptor
- neoVI is connected to neoECU15 over CAN network for configuration
- neoECU15 & RAD-STAR is connected over Broad R connection
- RAD-STAR 4 WIRE Ethernet connection is with Laptop Ethernet port



Figure 1: neoECU-15 & RAD-STAR Connections



Figure 2: neoECU-15 & RAD-STAR Connections

### 2.2.2 neoECU-15 & Ethernet EVB Connections

- neoECU15 is powered using Power Adaptor
- ValueCAN 3 is connected to Ethernet EVB over CAN network for configuration
- neoECU-15 and Ethernet EVB is connected over Broad R connection

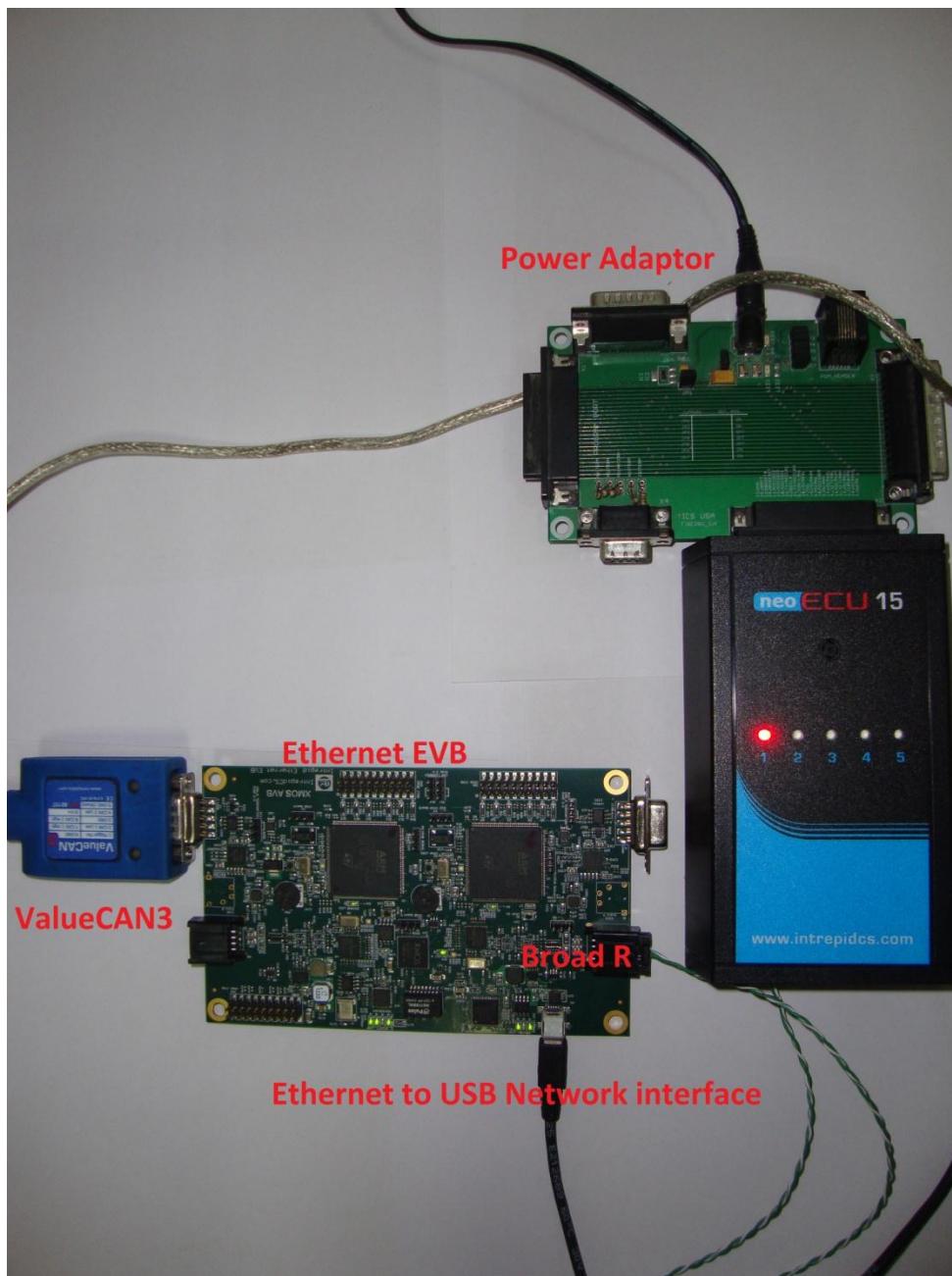


Figure 3: neoECU-15 & Ethernet EVB Connections

## 2.3 Product PIN Configurations

### 2.3.1 neoECU-15 Pin Configuration

Pinout						
1	SW CAN	10	AIN 1	19	PWM IO 4	
2	MISC WAKE	11	AIN 2	20	PWM IO 5	
3	LSFT CAN H	12	DEBUG DATA	21	PWM IO 6	
4	LSFT CAN L	13	GND	22	AIN 3	
5	PWM IO 1	14	DW/LS/SW CAN H	23	AIN 4	
6	PWM IO 2	15	DW/LS CAN L	24	DBG RESET	
7	MISC 1	16	DW CAN H	25	V BATT	
8	LIN	17	DW CAN L			
9	DBG CLK	18	PWM IO 3			

### 2.3.2 RAD-STAR Pin Configuration

Pinout DB 9		MOLEX	
1	LIN	1	No Connect
2	HS CAN L	2	TRD +
3	GND	3	TRD -
4	No Connect	4	No Connect
5	GND		
6	GND		
7	HS CAN H		
8	No Connect		
9	V BATT		

## 2.4 Vspy Ethernet Network configuration

### 2.4.1 Network Setup

- Run VehicleSpy3
- Go to Spy Networks → Networks
- Add the new Networks using + menu
- Rename the network as Ethernet
- Choose Hardware type as Ethernet PCAP
- Pick up the network interface of PC where the RAD-STAR 4 WIRE network/Ethernet EVB USB interface is connected.

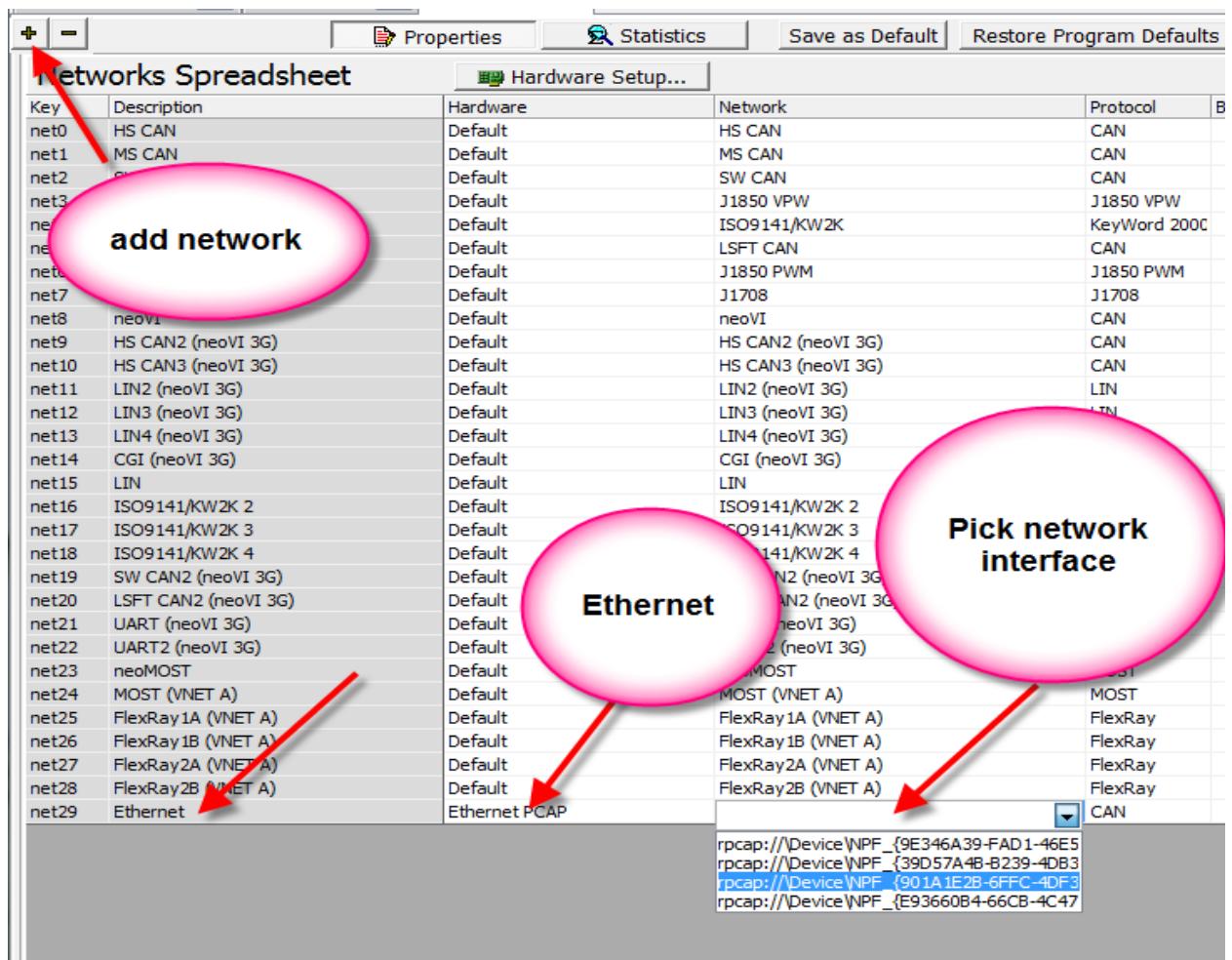


Figure 4: Network Setup to add an Ethernet Network in VSpy

## 2.5 ARXML Import:

- Run VehicleSpy3
- Go to Setup → Network Databases
- Setup Platform → Add → Give the Platform name
- Select the created Platform
- Select UEF/ VSDB Support → ARXML → ADD ARXML file (.ARXML)
- Save Platform Changes

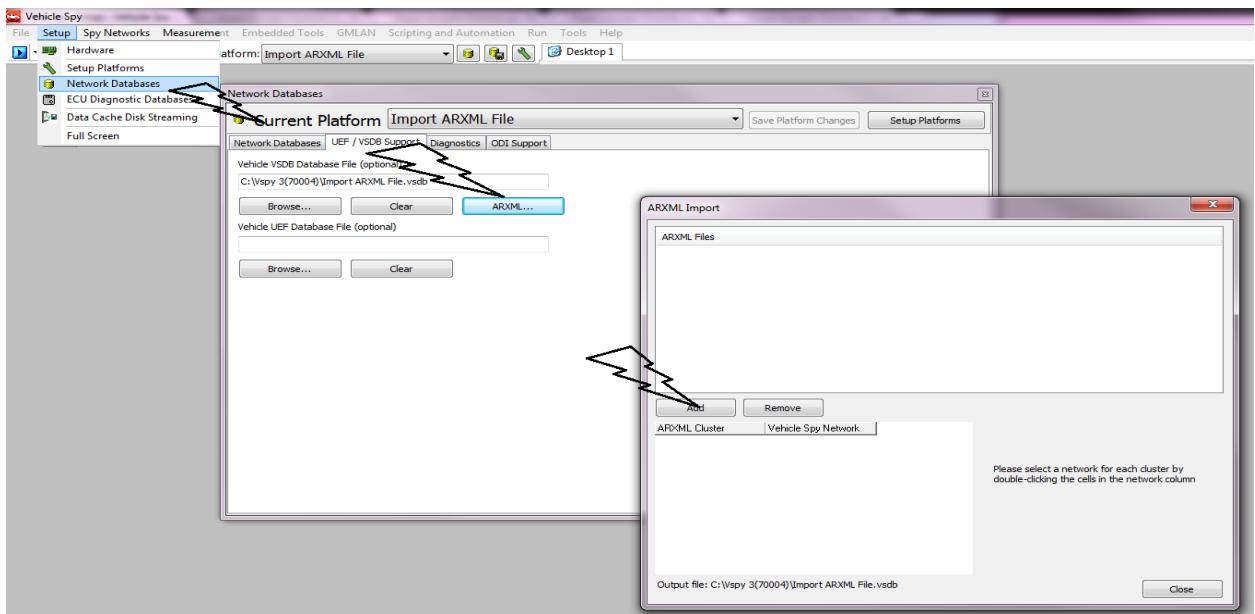


Figure 5: ARXML Import in VSpy.

## 2.6 Example: Create an IPV 4 Transmit message with UDP data type

### 2.6.1 Messages Editor: To Create Different types of Ethernet Frames

- Run VehicleSpy3
- Go to Spy Networks → Messages Editor
- Select Ethernet Network (on Networks) using drop down
- Select Transmit Tab to create Ethernet message to transmit
- Add new messages using + option
- As shown below, add message with IP Ethernet type
- Select Protocol → UDP
- Define Source Address → 192.168.2.100 → Port → 50000
- Define Destination Address → 192.168.2.255 → Port → 50008
- Select Payload Start → UDP Data
- Add different Signals in Message under UDP Data ( In example 4 Analog type signals, 6 Digital type signals are added)

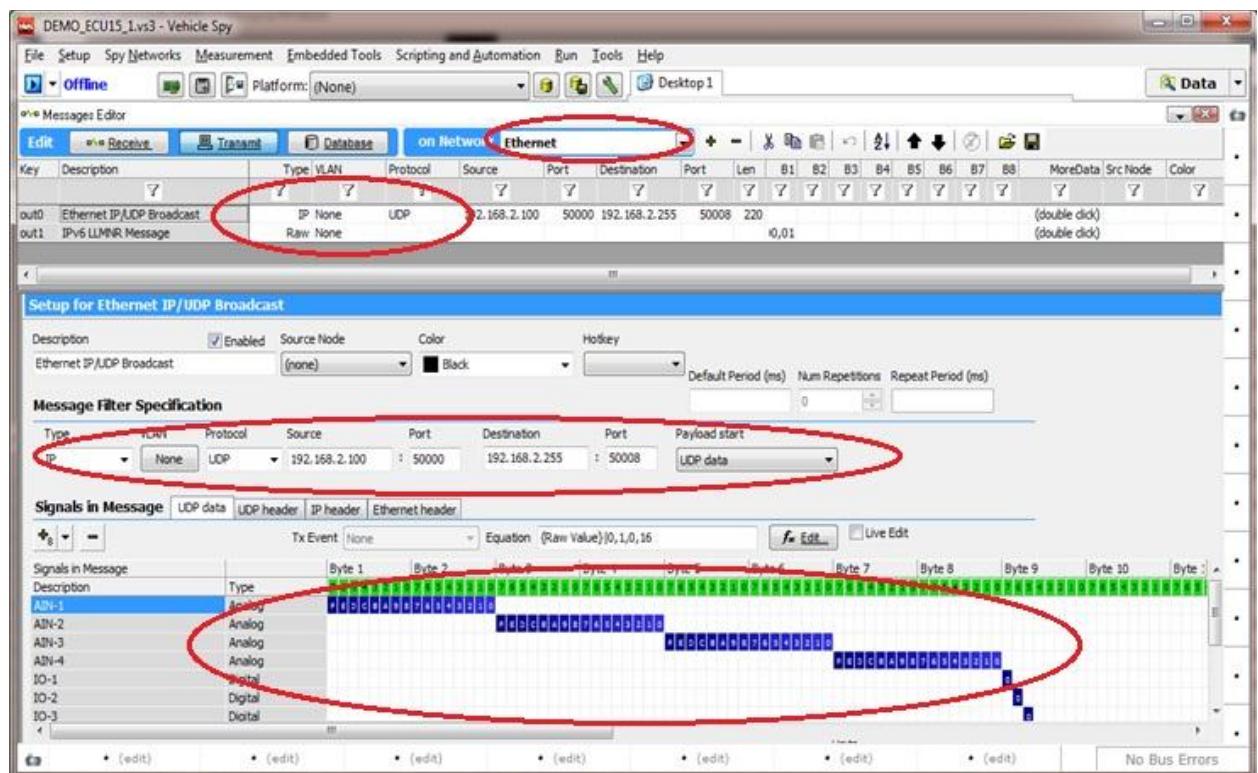


Figure 6: Message Editor settings to create an Ethernet frame in VSpay.

## 2.6.2 Scripting and Automation:

Create a Function Block Script to Transmit Ethernet IPV4 UDP frame in standalone mode (for neoECU15)

- Run Vehicle Spy3
- Go to Scripting And Automation → Function Blocks

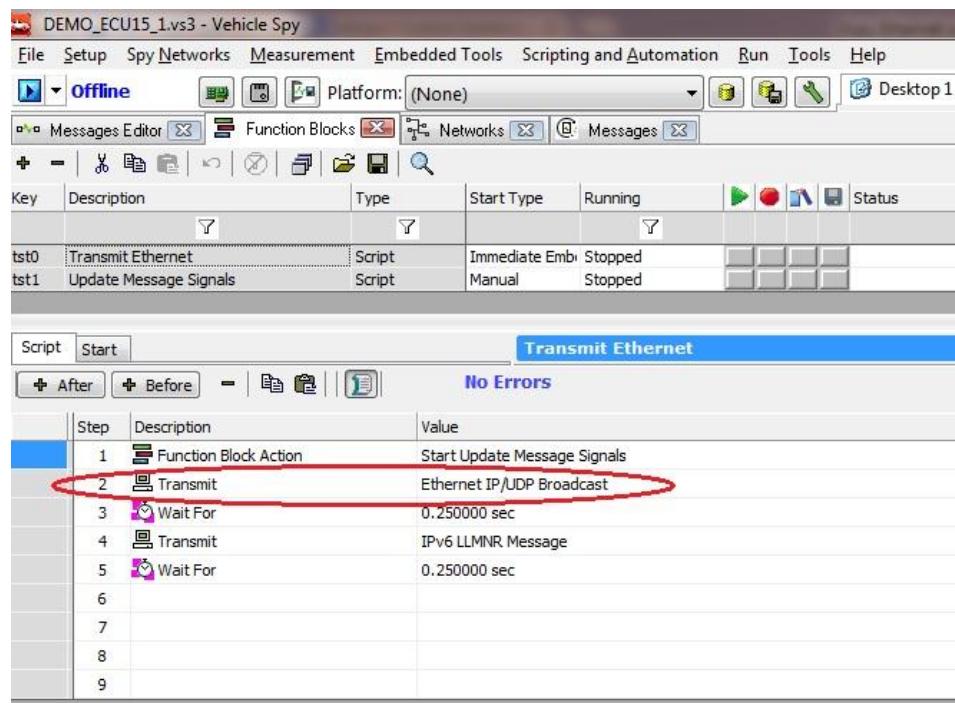


Figure 7: Function Block Script to Transmit Ethernet IPV4 UDP frame in standalone mode (for neoECU15)

Create function blocks to read Analog & Digital input data and transmit over Ethernet IPV 4 UDP type message.

- Refer Example vs3 file. : [DEMO\\_ECU15\\_1.vs3](#)

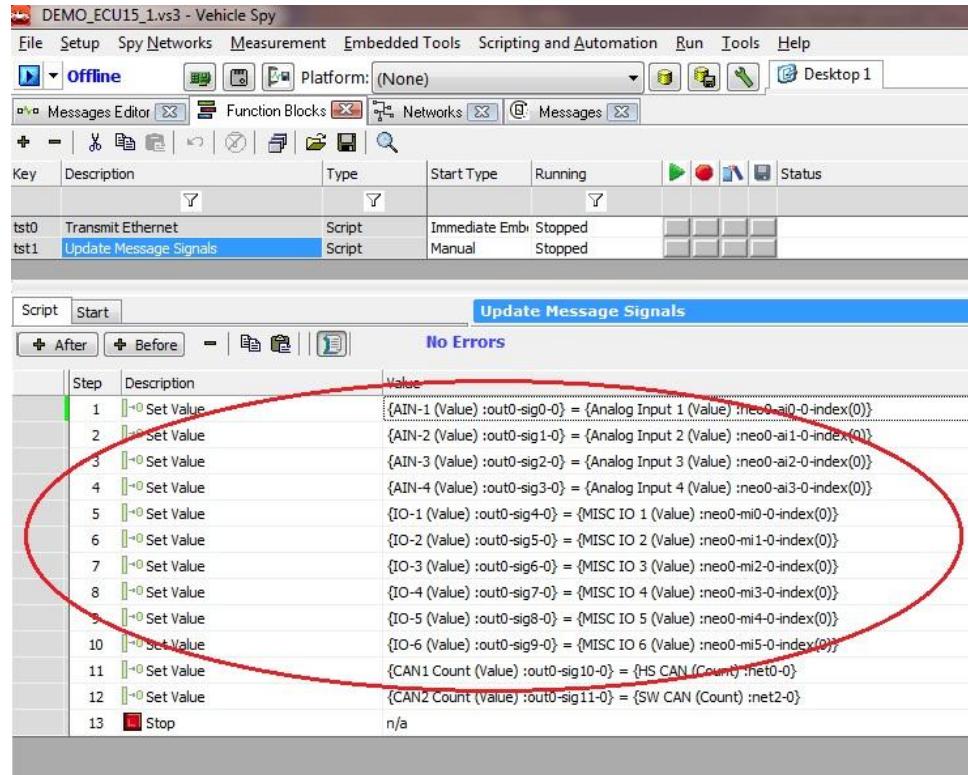


Figure 8: Function block to read Analog & Digital input data and transmit over Ethernet IPV 4 UDP type message

### 2.6.3 CoreMini:

Once Ethernet message is created and Function Block Scripting is done CoreMini function allows to download the script into neoECU15.

Create CoreMini to download created script into neoECU15

- Run Vehicle Spy3
- Go to Tools → Utilities → CoreMini Console
- It will compile the script to download into neoECU-15
- Select neoECU (CAN)
- Select download tool to Communicate with neoECU: (It will detect connected neoVI FIRE with its serial number)
- Select Poll for neoECUs
- It will detect connected neoECU15 with its App Version number

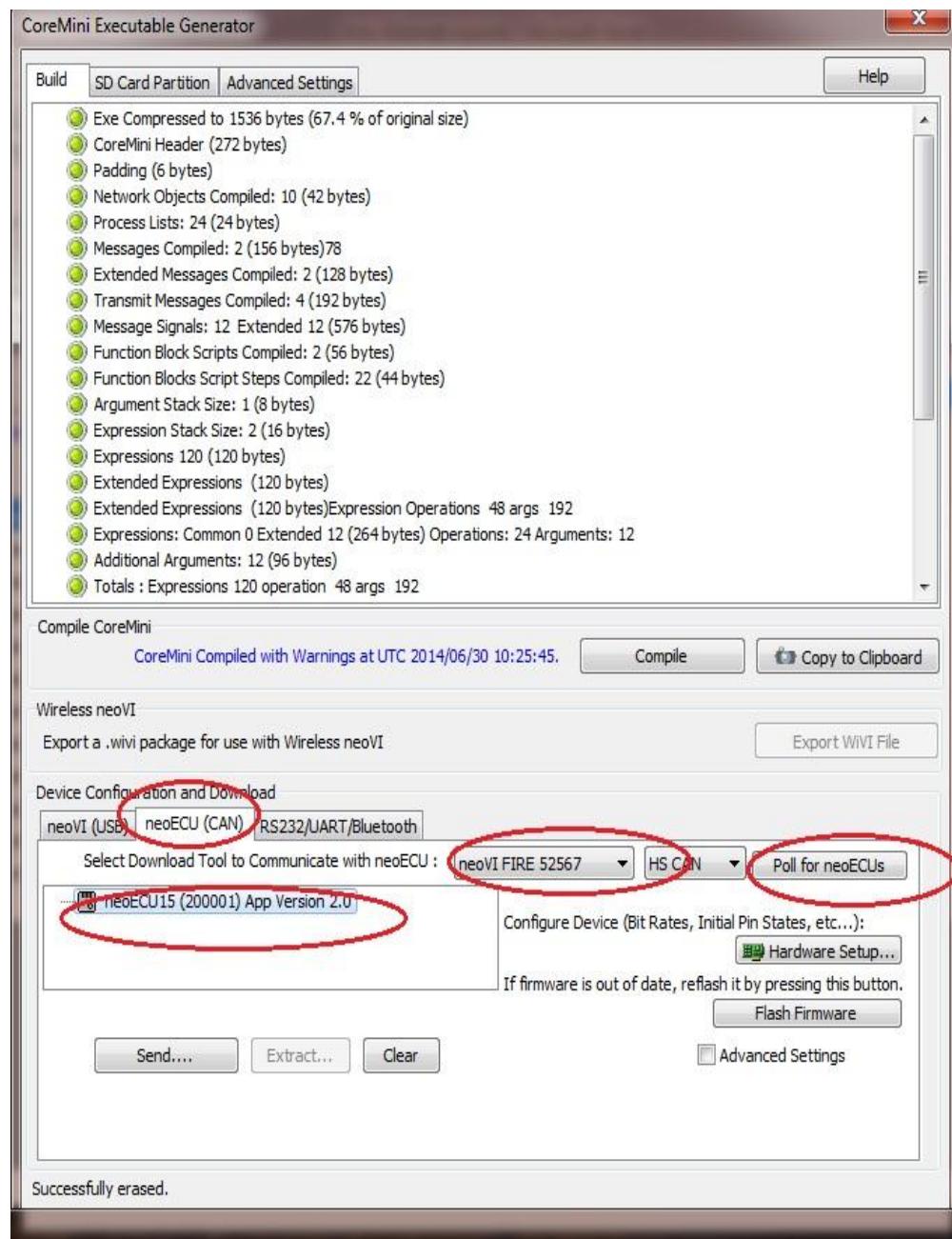


Figure 9: CoreMini to download created script into neoECU15

- Press Send tab to send the CoreMini into neoECU15
- It will show Successfully Downloaded after finishing download

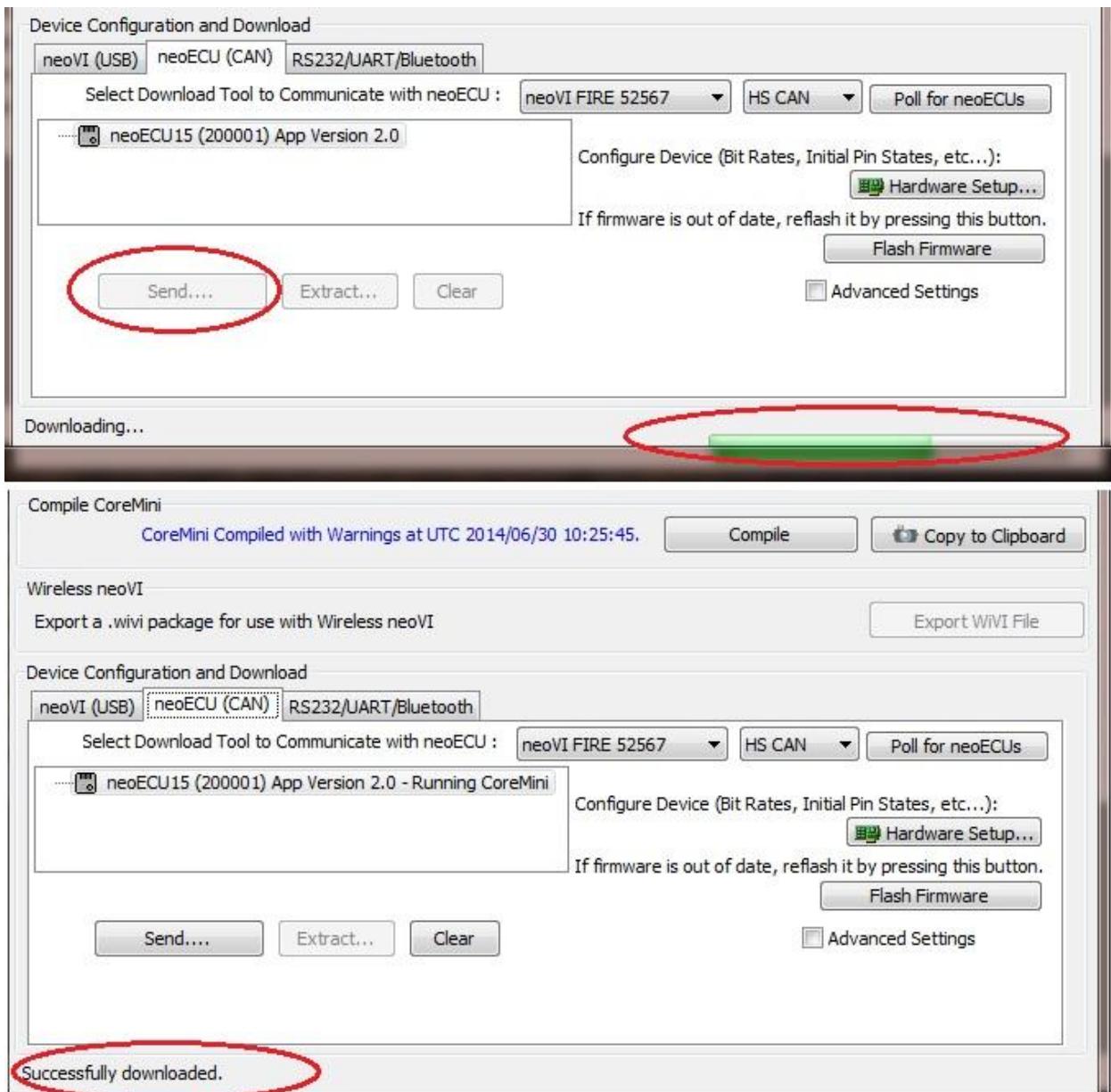


Figure 10: Procedure to download the CoreMini in neoECU15

## 2.6.4 Messages View: Monitor Ethernet IPV4 UDP message from neoECU15

- Open Example vs3 file
- Example file has define Receive Message to decode it

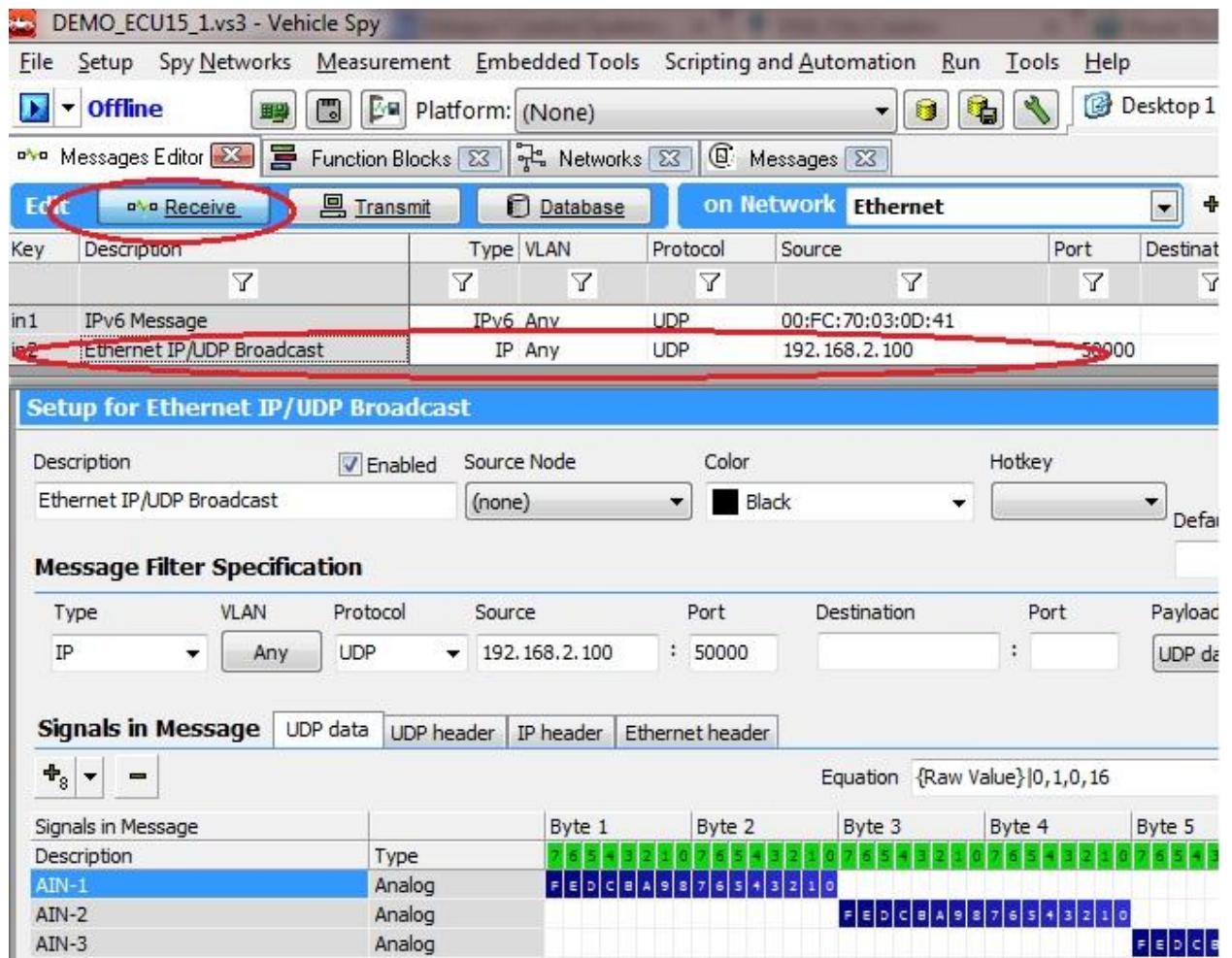


Figure 11: Message added to Receive tab to decode it in the messages view

- Go Online with Run Monitor Only option
- Observe Ethernet IPV4 UDP type message coming from neoECU15 with Analog & Digital input data
- Change Analog/ Digital inputs and observe data in Messages view

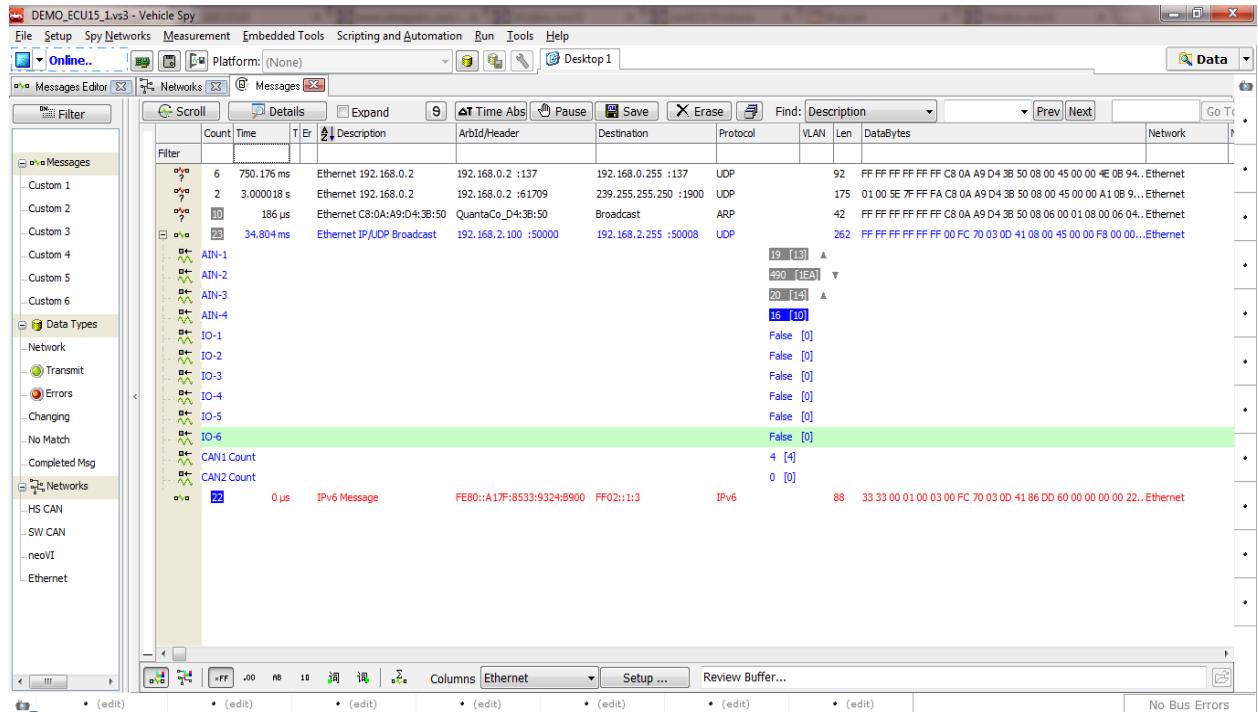
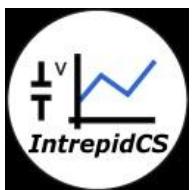


Figure 12: Decoded Ethernet frame in the Messages View.

**Example vs3 file:** [DEMO\\_ECU15\\_1.vs3](#)

### 3. Contact Us:



**Intrepid Control Systems, Inc.**  
Email: [icsindia@intrepidcs.com](mailto:icsindia@intrepidcs.com)  
Website: [www.intrepidcs.com](http://www.intrepidcs.com)