

# Before You Begin:

- The DoIP.vs3zip file was written to work with a specific Harley-Davidson ECU at the US Office. Therefore, if you do not have that ECU, you will have to use your own, wire it up and change the DoIP.vs3zip file to include your ECU's diagnostics.
- Remember what DoIP is supposed to do:
  - UDP to find vehicles and get VIN
  - TCP carrying payloads of ISO 14229 Diagnostic Requests/Responses
- You should be able to point out the above, plus:
  - Show the CAN on the edge node simulator with the ISO requests/responses to prove its working
  - Show how the ISO services are being packed
  - Show how to troubleshoot when it goes wrong



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# DoIP Bill of Materials (US Office)

- TWO laptops (one runs DoIP.vs3zip, the other runs edge node sim.vs3)
- TWO neoVI Fire 2s
- TWO ICS Connect Boards
  - One can be any connect board which powers the neoVI Fire 2
  - The second one **MUST** be a v2 or older (**MUST HAVE** a 9-pin connector for Harley Davidson)
- TWO "Pro" Power Supplies (for each connect board)
- TWO Fire 2 Adaptor cables with RJ-45 and DB-**25** (**not DB26, that's for a RG, anyway.**)
- TWO USB cables
- The Harley Davidson ECM (get this from Aws and **RETURN IT WHEN YOU ARE DONE!**)



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# Modifications You Can Make

- Make your own harness for connecting the neoVI Fire 2s and the ECU.
  - To make things clear, you should have complete separation between the neoVI Fire 2s except for the connection between the RJ-45 connectors.
- Use ONE ICS Connect Board Version 2
  - Not a favorite, since it appears that both Fire2s are connected in a manner other than the Ethernet connection
  - You have to filter out CAN on the DoIP.vs3zip file, otherwise you will inadvertently show CAN data coming directly from your ECU
- BONUS: Modify that Connect Board to accommodate connecting the Harley Davidson cluster which you can then control lights via IO Control.
  - You will have to bridge HSCAN and MSCAN.
  - Connect a VCAN Y Cable to the 9-pin Connect Board
  - Then connect the ECM to one side of the Y, the Cluster to the other.



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# DoIP Bill of Materials (Other offices)

- TWO laptops (one runs DoIP.vs3zip, the other runs edge node sim.vs3)
- TWO neoVI Fire 2s
- TWO ICS Connect Boards
  - One can be any connect board which powers the neoVI Fire 2
  - The second one **MUST** be a v2 or older (**MUST HAVE** a 9-pin connector for Harley Davidson)
- TWO "Pro" Power Supplies (for each connect board)
- TWO Fire 2 Adaptor cables with RJ-45 and DB-25 (**not DB26, that's for a RG, anyway.**)
- TWO USB cables
- Any ISO 14229 ECU for which you have diagnostic files, or which you can create diagnostic jobs which can be displayed to general customers).
  - Because you are choosing another ECU, you may need to modify DoIP.vs3zip to accommodate the ECU.



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# Modifications You Can Make (Other Offices)

- Make your own harness for connecting the neoVI Fire 2s and the ECU.
  - To make things clear, you should have complete separation between the neoVI Fire 2s except for the connection between the RJ-45 connectors.
- Use ONE ICS Connect Board Version 2
  - Not a favorite, since it appears that both Fire2s are connected in a manner other than the Ethernet connection
  - You have to filter out CAN on the DoIP.vs3zip computer, otherwise you will inadvertently show CAN data coming directly from your ECU



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# DoIP Software Requirements

- Use VSpy 3.8.0.xx or better.
- Download the DoIP Demo from:

[http://cdn.intrepidcs.net/events/don/demos/DoIP\\_Demo](http://cdn.intrepidcs.net/events/don/demos/DoIP_Demo)

- Download the DoIP.vs3zip and edge node sim.vs3 files.
- NOTE: DoIP.vs3zip may need to be modified for use with your ECU.



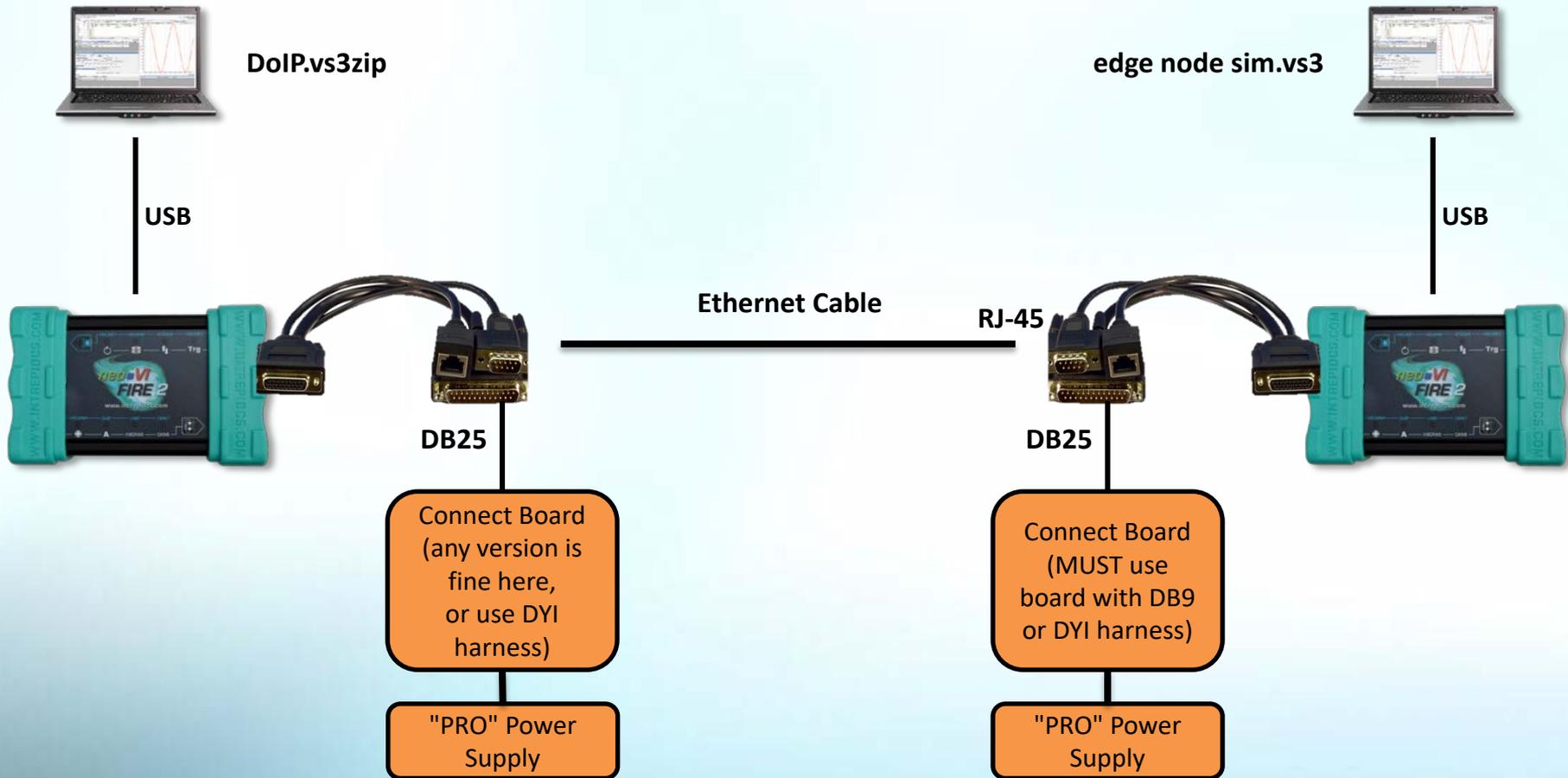
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# DoIP Block Diagram



# DoIP.vs3zip Setup

- On the DoIP.vs3zip computer:
  - Turn off neoVI Server and make sure it is DEAD never to return (as of 3.8.0.111 at least)
  - Go to TCP/IP View
    - Choose Inherit MAC from Hardware (should be 00:FC:70:xx:xx:xx)
    - Choose Manually Assign and put in the following:
      - IP: 192.168.1.1
      - Subnet Mask: 255.255.255.0
      - Gateway: leave blank
    - Check Gratuitous ARP Announce
  - Go to DoIP View
    - For network, choose Ethernet (NOT Ethernet DAQ)
    - Choose Periodically Discover Vehicles
    - Choose Enable Auto Connect, First available vehicle
    - Choose Enable reconnect on error
    - Routing Type: Default Diagnostics



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# edge node sim.vs3 Setup

- On the edge node sim.vs3 computer:
  - Turn off neoVI Server and make sure it is DEAD never to return (as of 3.8.0.111 at least)
  - Go to TCP/IP View
    - Choose Inherit MAC from Hardware (should be 00:FC:70:xx:xx:xx)
    - Choose Manually Assign and put in the following:
      - IP: 192.168.1.2
      - Subnet Mask: 255.255.255.0
      - Gateway: leave blank
    - UNCHECK Gratuitous ARP Announce
  - No need for DoIP View here, this script does the simulator, not the DoIP itself.



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# Running the Demo

- Start VSpy on both machines
- Keep an eye on the TCP View on the DoIP computer
- Wait for several seconds, it takes time for things to happen at first
- You should see ESTABLISHED in the TCP State Column
- Once you see this, attempt to do a diagnostic job in the Diagnostics View
- If you get an answer back, then you are done, start to demonstrate!
- Keep the connection open by setting up a simple script to repeatedly run a diag job.



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# If You Have Problems

- Don't run to Jeff Q or Don yet.
- Give it time, it can sometimes take time to initiate the connection.
- Check the TCP/IP Views on **both** machines. This will give you clues what's going on.
  - Do the IPs and MACs in these views actually match what you're supposed to have here? Some bugs have switched these or filled them with zeroes
  - Pay attention to the State column, it will tell you whether you are establishing a connection, and where the problem may lie.
  - Use Vehicle Spy to troubleshoot the problem! You should be able to do this to demonstrate how VSpy is useful in troubleshooting Ethernet.



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