

Connecting with a PABLO Box

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1 Overview Connecting with a PABLO Box

The Pablo box is a self-contained, portable unit that embodies payload autonomy. The embedded computer runs a back-seat mission inside a waterproof enclosure that is connected to the front-seat controller of a vehicle. Network connection is provided by the host vehicle, or in the case of emulation, the laptop computer.

This document summarizes the steps for how to connect a laptop or desktop computer with a Pablo box. Only a high-level overview is described. It is assumed that the reader can research details unique to the computer's operating system.

2 Pablo Computer Configuration

The Ethernet port on the Pablo unit computer is configured with two different options:

DHCP. Vehicle or computer connected to the Pablo unit will assign an IP address.

Fallback. IP address 192.168.254.100. To connect, the computer connected to the Pablo must have an IP address in the 192.168.254.xxx subnet.

Connected to	Address Assigned to PABLO	Host Address
M200 Evan	192.168.5.100	192.168.5.1
M200 Felix	192.168.6.100	192.168.6.1
Router with DHCP	Next available IP address	router-dependent
Mac with Internet Sharing	192.168.2.2	192.168.2.1
Computer with static IP	192.168.1.100	computer-dependent

3 Preparing the Computer

A computer connected via an Ethernet cable can reach the Pablo unit using the fallback address or by enabling a DHCP server.

3.1 Fallback Connection

The host computer network connection is manually configured onto the fallback subnet.

Step 1. Verify that internet sharing is turned off. In GNU/Linux, verify that a DHCP service is not running.

Step 2. Set the computer IP address to 192.168.254.111 and the subnet mask to 255.255.255.0. Gateway, router, or server addresses can remain blank.

Step 3. Connect the Pablo unit via Ethernet cable, power on the unit, and verify the connection using `ping 192.168.254.100`.

3.2 DHCP Connection

The host computer acts as a DHCP access point, providing network settings to the Pablo unit.

Step 1. Set up internet sharing so that the *from* connection is the computer's internet source and the *to* is the Ethernet port that will connect to the Pablo box. On Apple OS X, a DHCP server is created automatically. In GNU/Linux, the DHCP server may need to be created independently.

Step 2. On OS X, set the Ethernet address on the computer to `ping 192.168.2.1`. For GNU/Linux, use the default DHCP subnet IP address.

Step 3. Connect the Pablo unit via Ethernet cable, power on the unit, and verify the connection using `ping 192.168.254.100`.

4 Troubleshooting

Things to try if `ping` fails.

Cabling. Verify that the Ethernet connection is valid end-to-end. This may require opening the lid on the Pablo unit. On OS X, in the Network Preferences Control Panel, the Ethernet connection should show a green dot and the word "Connected." If not, the cabling is not correct.

Log onto the Pablo. Once cabling is validated, log onto the Pablo unit using a keyboard and screen. Verify the `/etc/network/interfaces` file is correct (see Pablo unit documentation). Try connecting the unit directly to a known working internet connection, bypassing the computer.