

Dell E4310 + E-Port Plus → pfSense Firewall

Reuse Old Hardware • Dual Network Ports • Learn • Secure • Build Your Lab



1. HARDWARE OVERVIEW



Dell Latitude E4310

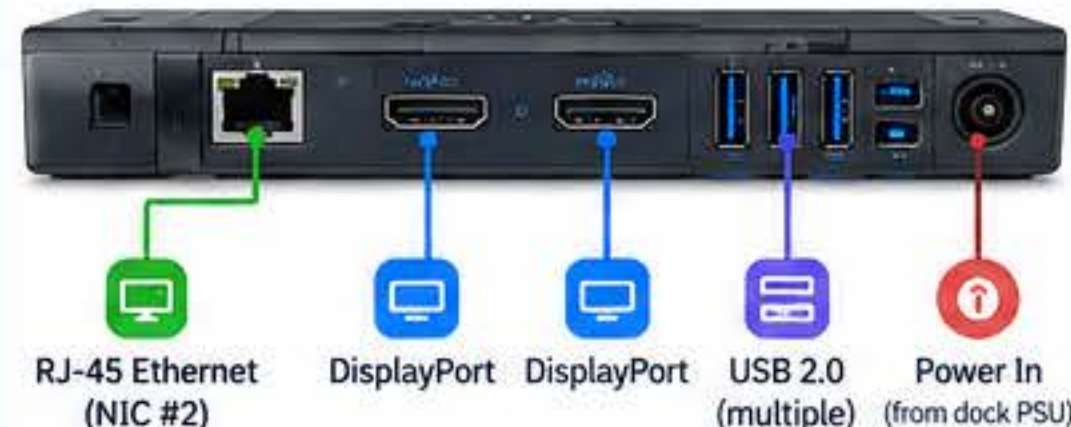
- Intel Core i5 (1st Gen)
- 2–8 GB DDR3 (max 8 GB)
- Built-in Intel 10/100/1000 Ethernet (NIC #1)
- 13.3" Laptop (business class)



Dell E-Port Plus Docking Station

- Model: E-Port Plus (e.g. PR02X, K07A)
- 1 x RJ-45 Ethernet (NIC #2)
- 2 x DisplayPort
- Multiple USB ports
- Connects via Dell E-Family dock connector
- Requires AC power

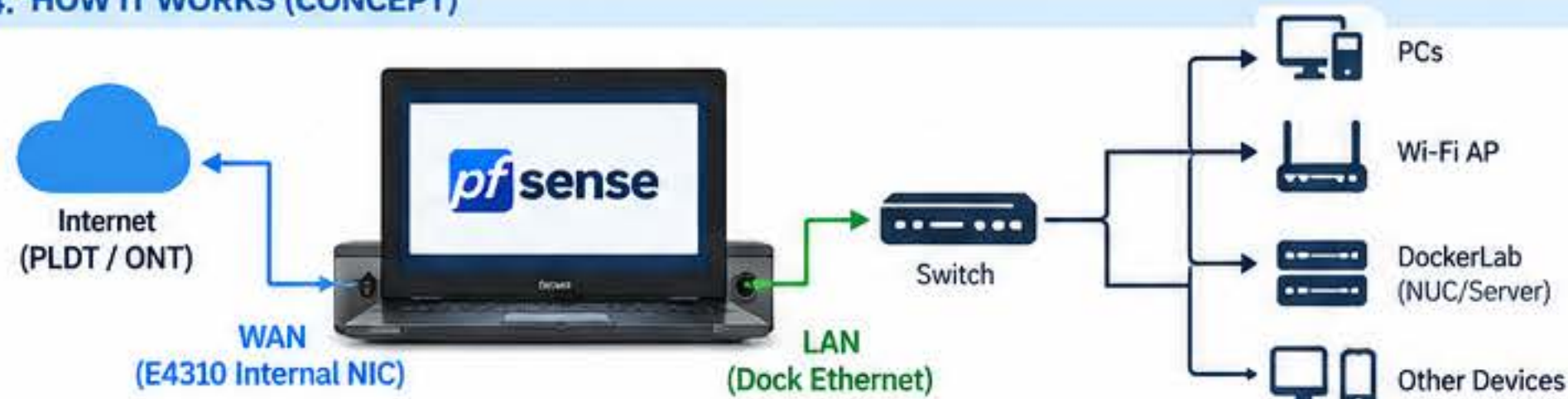
2. DOCKING STATION PORTS (REAR)



3. TWO NETWORK PORTS

- ✓ E4310 internal Ethernet = NIC #1
- ✓ Dock Ethernet = NIC #2 (separate controller)
- ✓ Total: 2 Ethernet interfaces (potential)
- ✓ Can be used as WAN + LAN in pfSense
- ✓ Verify detection and driver support
- ✓ If dock NIC not supported, use USB 3.0 to Gigabit Ethernet adapter (fallback)

4. HOW IT WORKS (CONCEPT)



5. NETWORK TOPOLOGY EXAMPLE



6. TESTING STEPS (BEFORE INSTALLING pfsense)

- 1 Dock the E4310**
 - Shutdown laptop
 - Connect to E-Port Plus
 - Connect dock AC adapter
 - Plug in two Ethernet cables (one to laptop, one to dock)
- 2 Boot Ubuntu (or any Linux)**
 - Run: `ip -br link`
 - or: `nmcli device status`
 - Look for two Ethernet interfaces
 - Unplug cables one at a time to identify which is which
- 3 Check the controller**
 - Run: `lspci -nn | grep -i ethernet`
 - Run: `lsusb`
 - Note the chipset/driver
- 4 Test in pfSense**
 - Install or boot pfSense
 - Should show two interfaces (e.g. em0, em1, igb0, ue0)
 - Assign WAN and LAN
 - Verify link and connectivity

7. EXPECTED INTERFACES (EXAMPLE)

```
# Ubuntu (example)
$ ip -br link
lo          UNKNOWN
enp2s0      UP      (E4310 internal)
enp1s0      UP      (Dock Ethernet)
wlan0       UP

$ lspci -nn | grep -i ethernet
00:19.0 Ethernet controller [8086:10d3]
02:00.0 Ethernet controller [XXXX:YYYY]
```

8. pfsense CONSOLE (EXAMPLE)

```
Valid interfaces are:
em0      (E4310 internal)
em1      (Dock Ethernet)

Enter the WAN interface name: em0
Enter the LAN interface name: em1

Interface assignment complete!
```

9. PERFORMANCE & CAPABILITY

Basic routing/NAT	✓ Good
Stateful firewall	✓ Good
DHCP/DNS	✓ Good
VLANs	✓ Good
Gigabit routing	⚠ Test actual throughput
VPN (OpenVPN/WireGuard)	⚠ Depends on encryption workload
IDS/IPS (Snort/Zenarmor)	⚠ May be limited
10GbE routing	✗ Not realistic
Home lab / learning	✓ Excellent

10. POWER & HARDWARE NOTES

- Use dock AC adapter (required)
- Laptop battery can provide short backup during outages (not a reliable UPS)
- Expect some fan noise and heat
- Check battery health and safety
- Higher power consumption than modern fanless appliances
- Still suitable for home lab and learning

11. pfsense USE CASES

- Firewall / NAT
- DHCP / DNS
- VLAN segmentation
- VPN (Remote access / Site-to-Site)
- Traffic monitoring (ntopng, Suricata)
- Home lab / DockerLab network isolation
- Guest network
- Parental controls
- Future: IDS/IPS (Zenarmor/Snort)

12. PROS & CONS

- Pros**
 - ✓ Free / existing hardware
 - ✓ Two network ports (potential)
 - ✓ Business class reliability
 - ✓ Good for learning and home lab
 - ✓ Supports gigabit (in many cases)
 - ✓ Battery provides short backup
 - ✓ Dual DisplayPort for monitoring
 - ✓ Environmentally friendly (reuse)
- Cons**
 - ✗ Older hardware (age, power draw)
 - ✗ Dock NIC may not be supported in pfSense
 - ✗ Fan noise and heat
 - ✗ Not ideal for high-performance IDS/IPS
 - ✗ Limited CPU for heavy VPN/encryption
 - ✗ Battery health may be poor

13. NEXT STEPS

- 1 Identify your exact dock model (e.g. PR02X, K07A)
- 3 Test both Ethernet ports in Ubuntu
- 4 If both are detected, install pfSense
- 4 Configure WAN and LAN
- 6 Add a switch and test your network
- 6 Optional: Add VLANs, VPN, monitoring
- 7 If dock NIC not supported, use USB 3.0 to Gigabit Ethernet adapter

✓ Turn old hardware into a capable firewall and learning platform!