

Readiness report — Open Vehicle Monitoring System (OVMS) v3

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Readiness: Open Vehicle Monitoring System (OVMS) v3

Verdict: Ready with caveats · 2026-09-03 · est. parts cost £159.99–£195.99 ex VAT for a complete module, plus £9.94–£14.50 ex VAT for a vehicle cable and roughly \$20–\$45 for USD-priced accessories **Cybersecurity — software & network: Do not place on an open network**

This is the cold check for this lab — there is no previous report, so it establishes the baseline every future check will measure drift against. The lab is runnable today by the route instructors actually use: complete OVMS v3 modules, vehicle cables and antennas are in stock and priced at the project's European distributor, and every commodity accessory is plentiful at retail. Three caveats hold it back from a clean "Ready". Both legacy 3G modem options (SIM5360A and SIM5360E) are unobtainable from any authorized distributor and are functionally obsolete anyway, because the 2G/3G networks they depend on have been shut down — build only the 4G path. The North American distributor's website could not be reached during this check, so US availability and pricing are unverified. And board-level fabrication is not currently sourceable: the ESP32-WROVER variant the firmware mandates and the bare SIM7600G module have no authorized stock, so this lab must be bought assembled rather than built from the schematics.

Action required

Part	Problem	Recommended action
SIMCom SIM5360A (v3.0–v3.2 US modem)	Obsolete — 0 products at DigiKey, and TrustedParts/ECIA reports no authorized distributor lists it. North American 3G networks are decommissioned, so the part is functionally dead even if found.	Build the v3.3 4G configuration instead. Buy the assembled OVMS 4G Modem (Upgrade) board, £69.81 ex VAT, in stock.
SIMCom SIM5360J / SIM5360E (v3.0–v3.2 EU modem)	Obsolete — 0 products at DigiKey, no authorized distributor per TrustedParts/ECIA. European 3G sunsets affect ongoing operation.	Same: use the 4G modem daughterboard.

Part	Problem	Recommended action
SIMCom SIM7600G (bare module)	No exact match at DigiKey and no authorized distributor lists it. The only stocked SIM7600G parts are mini-PCIe card-edge modules — a footprint mismatch with the soldered daughterboard.	Do not source the bare module. Buy the assembled OVMS 4G Modem (Upgrade) daughterboard, £69.81 ex VAT.
Espressif ESP32-WROVER (16 MB flash + 4 MB PSRAM)	No stocked variant meets the mandated 16 MB flash + 4 MB PSRAM pairing. The one 16 MB-class exact match, ESP32-WROVER-IE-N16R8, has stock of 1 .	Do not attempt to build a baseboard. Buy a complete module from Open Energy Monitor (£159.99–£195.99 ex VAT), where this part comes fitted.
Molex 105106-1001 (4FF nano SIM socket)	0 products at DigiKey; no authorized distributor per TrustedParts/ECIA. No equivalent socket surfaced in evidence.	Only blocks self-fabrication — the socket is fitted on the purchased daughterboard. If fabricating, select a nano SIM socket against the daughterboard footprint and verify manually.
Kia Soul OBD2 OVMS Cable	Listed Out of stock at Open Energy Monitor.	If the target vehicle is a Kia Soul, order early or contact the distributor; other vehicle cables are in stock.
Documentation portal (docs.openvehicles.com/en/stable/)	Dead link — the page could not be downloaded this check. It is the snapshot's primary documentation reference.	Update lab handouts to point at docs.openvehicles.com/en/latest/ , which is live.

Cybersecurity — software & network

Do not place on an open network — The module carries documented default Wi-Fi and administrator credentials and exposes a network interface that can inject CAN frames into a real vehicle bus, so it must be isolated rather than placed on a shared network.

Component	Version	How known	Support status
Espressif ESP-IDF (build framework)	3.3.4	inferred (Cited in the lab's own documentation (snapshot) as v3.3.4 / v3.3.4-854-g9063c8662c and v3.1-dev-453-g0f978bcb; the upload carries no Makefile, CMake manifest or sdkconfig, so no fetched file pins the toolchain.)	—
OVMS v3 firmware (ovms3.bin)	not determined	unpinned (Delivered over rolling OTA channels (main / eap / edge) that pull the latest build; documentation cites 3.1.003, 3.2.006, 3.3.005 and 3.3.006 across branches, but nothing pins what a given module runs.)	—

Component	Version	How known	Support status
OVMS Home Assistant integration (ovms-home-assistant)	not determined	not determined (No release version appears in any fetched file; requirements.txt and hacs.json declare dependencies and a platform floor only.)	—
Home Assistant (platform for the integration)	2025.2.5	inferred (Minimum version only: 'homeassistant': '2025.2.5' in fetched/03-hacs.json and 'homeassistant >=2025.2.5' in fetched/01-requirements.txt. Both are floors, not pins; the version actually installed is not determined.)	—
paho-mqtt (MQTT client used by the Home Assistant integration)	not determined	unpinned (fetched/01-requirements.txt declares 'paho-mqtt >=1.6.1' - a range, not a pin.)	—
voluptuous	not determined	unpinned (fetched/01-requirements.txt declares 'voluptuous >=0.13.1' - a range, not a pin.)	—
pylint (development only)	not determined	unpinned (fetched/01-requirements.txt declares 'pylint >=2.17.0' - a range, not a pin.)	—
Open Vehicles Android app (com.openvehicles.OVMS)	not determined	not determined (No version stated in the lab's sources and no manifest was fetched.)	—
Open Vehicles iOS app (App Store ID 490098531)	not determined	not determined (No version stated in the lab's sources and no manifest was fetched.)	—
Open-Vehicle-Server (OVMS v2 protocol backend)	not determined	not determined (Perl project; the only manifest-like file found, fetched/04-SETUP, contains install prose and a documentation link, no dependency list.)	—

Component	Finding	Severity	Fix available?
OVMS Home Assistant integration (ovms-home-assistant)	Dependencies unpinned: 4 of 4 in requirements.txt (homeassistant, paho-mqtt, pylint, voluptuous are all declared as minimum-version ranges), so the integration installs whatever versions are current and none could be checked for known vulnerabilities.	posture	Mitigation only - pin versions / use a lockfile so the installed set is reproducible and checkable.
OVMS v3 firmware (ovms3.bin)	The module ships with published default credentials - Wi-Fi access point SSID 'OVMS' with password 'OVMSinit', and a web administrator account named 'admin' - so anyone who has read the manual can join the module's own Wi-Fi network and reach its web interface.	posture	Mitigation only - change the Wi-Fi AP password and set a strong admin password on every module during first setup, before it is connected to anything.

Component	Finding	Severity	Fix available?
OVMS v3 firmware (ovms3.bin)	The module exposes several network services on whatever network it joins - a web server on TCP port 80, SSH, WebSocket streaming, and a TCP interface that can stream and inject CAN frames - and injected CAN frames reach the vehicle's real bus.	posture	Mitigation only - keep the module on an isolated lab network segment, never on general campus Wi-Fi or a routable internet address, and raise it with campus IT before any shared-network use.
OVMS v3 firmware (ovms3.bin)	Firmware is delivered over rolling OTA channels (main, eap, edge) that fetch whatever build is current, so two modules updated on different days can run different code and no version has a checkable security state.	posture	Mitigation only - target an explicit version path when updating (for example .../firmware/ota/v3.3-5/main/ovms3.bin) and record the firmware version used by each class set.

What this means for your lab

Treat this module as an untrusted device on your network, because it is a bridge between a network and a car's control bus. Out of the box it runs its own Wi-Fi hotspot whose name and password are printed in the public manual ('OVMS' / 'OVMSinit'), and its web login is the account 'admin'. Anyone within Wi-Fi range who has read that manual can join it, open its web interface, and - because the module also accepts CAN frames over a network connection - potentially send commands onto the vehicle's bus, which on many cars means locking, unlocking, or waking the vehicle. Before you put one in front of students: change the Wi-Fi password and the admin password on every unit, keep the modules on their own isolated network rather than campus Wi-Fi, and talk to campus IT before connecting them to anything shared. Also be aware that nothing here could actually be scanned for known vulnerabilities this run - the firmware is a vendor binary with no published parts list, and the Home Assistant add-on installs unpinned versions - so a clean result would have been meaningless. The absence of reported flaws below is not evidence that there are none.

Not checked

- Espressif ESP-IDF 3.3.4: endoflife.date has no product entry for ESP-IDF (both 'esp-idf' and 'espressif-esp-idf' returned product_not_found), so no support status could be computed; the upload also carries no build manifest to verify the toolchain version.
- OVMS v3 firmware (ovms3.bin): Community-maintained vendor firmware binary distributed over rolling OTA channels; no software bill of materials was available and no vulnerability database covers it.
- homeassistant, paho-mqtt, voluptuous, pylint: Declared only as minimum-version ranges in requirements.txt, so no exact version existed to match against OSV advisories.

- Home Assistant platform support status: endoflife.date has no 'home-assistant' product, so supported/unsupported could not be computed.
- OVMS Home Assistant integration release version: No release version is pinned in any fetched file.
- Open Vehicles Android app: No version stated in the lab's sources; app-store binaries carry no fetchable manifest.
- Open Vehicles iOS app: No version stated in the lab's sources; app-store binaries carry no fetchable manifest.
- Open-Vehicle-Server (OVMS v2 backend): Perl codebase with no dependency manifest (no cpanfile, composer.json or requirements.txt found under v3/server); version not determined.
- esp-idf 3.3.4: support status: endoflife.date has no such product
- espressif-esp-idf 3.3.4: support status: endoflife.date has no such product
- home-assistant 2025.2.5: support status: endoflife.date has no such product

Parts

Core module and modem

Part	Spec/Package	Status	Stock	Price	Source
Espressif ESP32-WROVER (16 MB flash, 4 MB PSRAM)	38-SMD module, 3.0–3.6 V	Hard to obtain (bare module)	1 (N16R8 variant)	\$6.32	DigiKey — no variant matches 16 MB + 4 MB; fitted on assembled modules
SIMCom SIM7600G (v3.3 World Edition modem)	SMT module on OVMS daughterboard, 3.4–4.2 V	Hard to obtain (bare module)	—	£69.81 ex VAT assembled	No authorized distributor for the bare module; sold assembled
SIMCom SIM5360A (v3.0–v3.2 US Edition modem)	SMT module on daughterboard, 3.4–4.2 V	Obsolete / discontinued	0	—	DigiKey 0 results; no ECIA distributor
SIMCom SIM5360J / SIM5360E (v3.0–v3.2 EU Edition modem)	SMT module on daughterboard, 3.4–4.2 V	Obsolete / discontinued	0	—	DigiKey 0 results; no ECIA distributor
Complete OVMS v3 module (WiFi/4G, SIM and antenna included)	Assembled unit in enclosure	Readily available	Available	£195.99 ex VAT	Open Energy Monitor

Part	Spec/Package	Status	Stock	Price	Source
Complete OVMS v3 module (WiFi only)	Assembled unit in enclosure	Readily available	Available	£159.99 ex VAT	Open Energy Monitor

SIM and sockets

Part	Spec/Package	Status	Stock	Price	Source
Hologram.io Global IoT Nano SIM	4FF nano SIM, 1.8 V / 3.0 V	Readily available	Available	\$3.00 per SIM	hologram.io — plus \$1/month per SIM and \$0.03/MB
4FF nano SIM socket (rep. Molex 105106-1001)	SMT nano SIM socket	not checked	—	—	No DigiKey match, no ECIA distributor

Connectors

Part	Spec/Package	Status	Stock	Price	Source
Amphenol ICC (FCI) 10118194-0001LF	Micro-USB Type-B SMT receptacle, 5 V, ≥ 500 mA	Readily available	83,298	\$0.50	DigiKey
Molex 0473092651	MicroSD push-push SMT socket, 3.3 V	Readily available	687	\$2.11	DigiKey
NorComp 172-E09-203R001	DB9 right-angle through-hole (VEHICLE)	Readily available	3,874	\$3.79	DigiKey
NorComp 180-026-203L001	DA26/DB26HD 3-row right-angle (DIAG)	Readily available	2,639	\$6.41	DigiKey
Amphenol RF 132134 — GSM antenna connector	SMA female, through hole, 50 Ω , 18 GHz max	Readily available	18,585	\$6.97	DigiKey (also Mouser 16,338 @ \$6.97; Powell 11,058 @ \$6.08)
Amphenol RF 132134 — GPS antenna connector	SMA female, through hole, 50 Ω , passes 3.0–3.3 V bias	Readily available	18,585	\$6.97	DigiKey — same part, two required per module
Internal daughterboard stacking expansion header	Multi-pin stacking header, 0.1 in or 2.0 mm pitch	not checked	—	—	Pin count ≥ 21 confirmed from EGPIO docs; pitch and stacking height published only in schematic PDFs

Board hardware and enclosure

Part	Spec/Package	Status	Stock	Price	Source
Lite-On LTST-C190TBKT	Blue SMD 0603 LED, 2.8–3.2 V Vf	Readily available	413,507	\$0.26	DigiKey
Keystone Electronics 24410 (daughterboard standoffs)	M2/M2.5 threaded standoff	Readily available	603 (DigiKey), 43 (Mouser)	\$0.62	TrustedParts/ECIA — ECIA lifecycle risk Low-Med, supply risk Low
Main enclosure (custom injection-moulded)	Two-piece clamshell, ~99 × 73 × 29 mm	Available bundled only	Available	~~£159.99~~ £195.99 ex VAT	Not sold separately; included with complete modules
Enclosure screws (rep. McMaster-Carr 99461A510)	Small thread-forming screws for plastic, ×4	not checked	—	—	McMaster-Carr sells direct and is not an ECIA distributor

Antennas, cables and media

Part	Spec/Package	Status	Stock	Price	Source
External cellular GSM/LTE antenna	SMA male, 50 Ω, 700–2600 MHz	Readily available	Multiple sellers	\$5.90–\$16.99	Google Shopping — adhesive/patch mount automotive antennas
External active GNSS/GPS antenna	SMA male, 50 Ω, 1575.42 MHz, 3.0–5.0 V bias	Readily available	Available	£5.95 ex VAT	Open Energy Monitor "OVMS GPS Antenna"
Vehicle interface cable (OBD-II to DB9)	Molded cable assembly, vehicle-specific pinout	Readily available	Available (Kia Soul variant out of stock)	~~£9.94~~ £14.50 ex VAT	Open Energy Monitor — generic, Tesla, Nissan LEAF and HUD variants
Micro-USB PC interface cable	USB 2.0 A to Micro-B, data-capable	Readily available	Multiple sellers	\$1.95–\$10.91	Google Shopping
MicroSD memory card (≤ 32 GB, FAT32)	MicroSD, 3.3 V, class 10	Readily available	Multiple sellers	\$4.77–\$17.99	Google Shopping — optional part

Bench equipment

Part	Spec/Package	Status	Stock	Price	Source
Bench 12 V DC supply (≥ 1.5 A)	12 V nominal, bare wire leads to OBD pins 16/4	Readily available	Multiple sellers	\$5.95–\$10.95	Google Shopping — a 12 V/5 V bare-lead unit is listed at \$10.95

Populated on the baseboard

Part	Spec/Package	Status	Stock	Price	Source
12 V battery sensing divider resistors	SMD 0603/0805 precision divider	not checked	—	—	Values and designators published only in the schematic PDF
CAN bus transceivers (×3)	SOIC-8 3.3 V ISO 11898-2	not checked	—	—	SN65-family and MCP2515 controller corroborated; exact MPN in schematic PDF only

Optional add-ons

Part	Spec/Package	Status	Stock	Price	Source
OVMS prototyping PCB kit (pack of 3)	Custom PCB matching OVMS internal outline	Hard to obtain	—	—	No retail listing found; ECAD files in the project repository
Marko Juhanne OVMS-SWCAN daughterboard	SWCAN/GMLAN board, MCP2515 + TH8056	Hard to obtain	—	—	Project repository — Gerbers and BOM published, no commercial seller

Substitutes

For part	Substitute	Differences	Verified	Judgment
ESP32-WROVER (16 MB flash + 4 MB PSRAM)	ESP32-WROVER-IE-N16R8 — \$6.32, stock 1	Same 38-SMD module package, same surface-mount type, same 3.0–3.6 V supply range. If the suffix means what it appears to, 16 MB flash satisfies the partition table and 8 MB PSRAM exceeds the 4 MB requirement — exceeding a requirement is acceptable. Stock of 1 unit.	verified: package/case, mounting type and supply-voltage range (DigiKey parametrics on both). not verified: flash size, PSRAM size — no evidence states them, the reading is a suffix gloss only; firmware behaviour with 8 MB PSRAM also unverified	Electrically and mechanically equivalent, but the capacity claim is unproven and stock of 1 makes it unusable for a class. Buy assembled modules instead.

For part	Substitute	Differences	Verified	Judgment
SIMCom SIM7600G (bare module)	OVMS 4G Modem (Upgrade) daughterboard — £69.81 ex VAT, in stock	Assembled board rather than a bare module. Product page states it requires an OVMS main board v3.1, v3.2 or v3.3, and lists LTE-FDD B1-B66, LTE-TDD B34-B41, UMTS B1-B19, GSM 850/900/1800/1900 and GPS/GNSS — consistent with the snapshot's multi-band plus embedded GNSS description. Sold as a hobbyist kit with no FCC certification on the assembled module.	verified: OVMS v3.1/v3.2/v3.3 board compatibility, band coverage, in-stock status and price (fetched product page). not verified: that the fitted chipset is specifically SIM7600G — the page names only "the SIMCOM modem"	Acceptable — this is how the modem is meant to be bought, and it is the only in-stock route to a working 4G build.
SIMCom SIM5360A / SIM5360E (3G modems)	OVMS 4G Modem (Upgrade) daughterboard — £69.81 ex VAT, in stock	A modem-edition change, not a drop-in: different chipset and firmware driver. The snapshot allows it as the v3.3 configuration, and it is the only option that will register on a live network now that 2G/3G has been retired.	verified: unavailability of both 3G parts at authorized distribution (DigiKey plus ECIA/TrustedParts); 4G board compatibility and stock (fetched product page). not verified: nothing is claimed about pin compatibility between the SIM5360 boards and the 4G board	Acceptable, and effectively mandatory — the 3G parts cannot be sourced and the networks they need no longer exist.

Verify any substitute against its datasheet and against your own board revision before ordering.

Other dependencies

- **Hardware schematics and PCB repository** (github.com/openvehicles/Open-Vehicle-Monitoring-System-3/tree/master/vehicle/hardware) — reachable. The v3.3 directory holds `Mainboard_SCH_v3.3_20211213.pdf`, `Mainboard_PCB_top/bottom_v3.3_20211213.pdf` and the matching `Modem_*` files. The PDF contents were not parsed this run.
- **Stable documentation portal** (<https://docs.openvehicles.com/en/stable/>) — **dead**: the page could not be downloaded. This is the snapshot's primary documentation link and needs replacing in any handout.
- **Edge/latest documentation portal** (<https://docs.openvehicles.com/en/latest/>) — live; the EGPIO and user-guide pages were fetched successfully.
- **Distributor directory** (<https://www.openvehicles.com/buy>) — live. Names exactly two distributors: Open Energy Monitor for Europe and Medlock and Sons for North America.

- **Medlock and Sons product page** (North America) — **not checked**: the page could not be downloaded, so US pricing and availability are unverified.
- **Hologram SIM dashboard and pricing** (hologram.io) — live; pricing recorded above.
- **Single-Wire CAN extension repository** (github.com/mjuhanne/OVMS-SWCAN) — live. Publishes Gerbers and `ovms-swcan-B0M.csv`; no commercial seller, and the repository is dormant.
- **PCB fabrication constraints** — the board must fit the $\sim 99 \times 73 \times 29$ mm enclosure with cutouts for DB9, DA26, micro-USB, microSD and dual SMA, with 4 corner screw holes plus 4 internal pillar posts. **Layer count and stackup are not specified in any available source** — not checked.
- **Developer guide (Google Doc), developer mailing list, and the public servers** at openvehicles.com and dexters-web.de — not checked this run.

Watch list

- **The 3G modem daughterboards (SIM5360A/E)** — already unobtainable and network-obsolete. Expect any remaining v3.0–v3.2 hardware in a lab store cupboard to stop connecting entirely; plan the 4G migration now rather than at the next check.
- **ESP32-WROVER-IE-N16R8 at stock 1** — the only 16 MB-class exact match will almost certainly be gone by the next check. If anyone is planning board fabrication, that plan needs to change.
- **ESP32-WROVER-IE-N8R2 is already "Not For New Designs"** with 49 units left — a signal that the whole WROVER-IE line is winding down. Watch for the rest of the family following it.
- **Single-source distribution** — the entire assembled-module supply runs through two small distributors, and one of them could not be reached this check. A single shop outage takes the lab's main component with it.
- **The Kia Soul OBD2 cable is already out of stock**, and vehicle-specific cables have no second source. Check the cable for your target vehicle well before the term starts.
- **Ordering by keyword rather than part number** — DigiKey's top hit for "132134" is the reverse-polarity `132134RP`, which will not mate with a standard SMA antenna, and a search for "24410" surfaces Mill-Max DIP sockets rather than the Keystone standoff. Order both by exact manufacturer part number.