

Readiness report — WeeWX Weather Station

Checked 2026-09-03 18:33 · 10 searches, 4 pages fetched

Readiness: WeeWX Weather Station

Verdict: Ready with caveats · 2026-09-03 · est. parts cost \$135-\$1,765 **Cybersecurity — software & network: Review before networking**

This is the cold check for this lab — there is no previous report, so everything below is the baseline the next check will measure drift against. Every item on the bill of materials is sourceable today from a live seller, and nothing is discontinued in a way that stops the lab running. Three things keep it off a clean "Ready". The cost swings by more than a factor of ten depending on which weather station console you buy (\$100 to \$1,730 in the prices found this run), so it is easy to budget badly. The Davis bundles actually on sale ship with a "WeatherLink Console", and WeeWX's own supported-hardware page requires a serial, USB, or WeatherLinkIP interface — no page read this run says which interface those bundles expose, so console compatibility is unconfirmed. And the cheap Ecowitt alternative is priced but the gateway model inside the kit was not confirmed against WeeWX's supported list. None of these is a sourcing failure; all three are "confirm before you order" items. Note also that this lab has no PCB, schematic, or component-level parts list — the bill of materials is five whole-unit purchases, so no footprint or supply-rail checks apply anywhere in this report.

Action required

Part	Problem	Recommended action
Maxim/ADI DS9490R 1-Wire adapter	DigiKey's catalogue entry for the bare part number DS9490R is Obsolete with zero stock. The snapshot and WeeWX's hardware page both write the part this way, so searching that exact string lands you on a dead listing.	Order the packaging variant DS9490R# instead — Active, 1,587 in stock, \$49.93 at DigiKey . Budget roughly double any older quote: the obsolete entry shows \$26.34.
Davis Vantage Pro2 console	Not unobtainable, but 3×–9× the price of a snapshot-sanctioned alternative (\$625.00–\$1,730.00 against \$199.99 for an Ecowitt Wittboy), and the interface question below is unresolved.	Before ordering, confirm the exact bundle exposes a serial, USB, or WeatherLinkIP interface (WeeWX supports the Vantage Pro2 only through one of those). If budget matters more than the Davis sensor suite, price the Ecowitt route in Substitutes — but verify its gateway model first.

Cybersecurity — software & network

Review before networking — WeeWX 5.5.0 itself is clean and opens no inbound port, but the committed lockfile pins library versions carrying critical advisories, every dependency is declared unpinned, and the documented upload paths include cleartext FTP and MQTT.

Component	Version	How known	Support status
Raspberry Pi OS (Debian 'bookworm' base)	bookworm	inferred (Not pinned anywhere in the project files; the snapshot records the OS version as 'not stated' and its check plan names Raspberry Pi OS Bookworm, whose Debian 12 base was looked up. Any other host OS the instructor picks has a different support status.)	extended/LTS support only until 2028-06-30
Python (lowest runtime the project accepts)	3.7	inferred (requires-python = ">=3.7" in fetched/01-pyproject.toml is a range, not a pin, so 3.7 is the declared floor; the Python actually installed on the host is not determined.)	unsupported since 2023-06-27
weewx	5.5.0	read from project (version = "5.5.0" in fetched/01-pyproject.toml, printed from the fetched file by run_python.)	—
Pillow	8.4.0	read from project (Pinned in fetched/02-poetry.lock (the project's committed lockfile); pyproject.toml declares only Pillow >=5.2 with no upper bound.)	—
PyMySQL	1.0.2	read from project (Pinned in fetched/02-poetry.lock; pyproject.toml declares only PyMySQL >=1.0 with no upper bound.)	—
configobj	5.0.8	read from project (Pinned in fetched/02-poetry.lock; pyproject.toml declares only configobj >=5.0 with no upper bound.)	—
CT3 (Cheetah3 template engine)	3.3.3	read from project (Pinned in fetched/02-poetry.lock; pyproject.toml declares only CT3 >=3.1.)	—
ephem	4.1.5	read from project (Pinned in fetched/02-poetry.lock; pyproject.toml declares only ephem >=4.1.)	—
pyserial	3.5	read from project (Pinned in fetched/02-poetry.lock; pyproject.toml declares only pyserial >=3.4.)	—
pyusb	1.2.1	read from project (Pinned in fetched/02-poetry.lock; pyproject.toml declares only pyusb >=1.0.2.)	—
poetry-core (build backend)	not determined	unpinned (Build requirement requires = ["poetry-core>=2.0.0"] in fetched/01-pyproject.toml: a minimum bound only, and not present in poetry.lock.)	—

Component	Version	How known	Support status
cryptography (dev group)	not determined	unpinned (Listed with no version constraint under dependency-groups.dev in fetched/01-pyproject.toml and absent from fetched/02-poetry.lock.)	—
poetry (dev group)	not determined	unpinned (Listed with no version constraint under dependency-groups.dev in fetched/01-pyproject.toml and absent from fetched/02-poetry.lock.)	—
pytest (dev group)	not determined	unpinned (Listed with no version constraint under dependency-groups.dev in fetched/01-pyproject.toml and absent from fetched/02-poetry.lock.)	—
zensical (dev group)	not determined	unpinned (Listed with no version constraint under dependency-groups.dev in fetched/01-pyproject.toml and absent from fetched/02-poetry.lock.)	—
SQLite (default data store)	not determined	not determined (Bundled with whatever Python the host runs; no version is stated in the project files or the snapshot.)	—
MySQL server (optional data store, reached over the network via PyMySQL)	not determined	not determined (Optional external server; no version stated in the project files or the snapshot.)	—
InfluxDB (optional data store)	not determined	not determined (Mentioned in README.md per the snapshot; no version stated in the project files or the snapshot.)	—

Component	Finding	Severity	Fix available?
Pillow	The Pillow version pinned in the project's committed lockfile (8.4.0) carries 25 known advisories, several of which let a booby-trapped image file run code on the machine that generates the station's plots; six are cited here and the rest are in the evidence. — GHSA-8vj2-vxx3-667w , GHSA-3f63-hfp8-52jq , GHSA-9j59-75qj-795w , GHSA-j7hp-h8jx-5ppr (+2 more)	critical	Yes — update to 12.3.0 or later, which fixes every advisory cited here; pyproject.toml declares only Pillow >=5.2 with no upper bound, so nothing in the project blocks the upgrade.
PyMySQL	The PyMySQL version pinned in the project's committed lockfile (1.0.2) has a SQL injection flaw, so crafted weather data written to a MySQL archive could be executed as database commands rather than stored as values. — GHSA-v9hf-5j83-6xpp	critical	Yes — update to 1.1.1 or later; pyproject.toml declares only PyMySQL >=1.0 with no upper bound, so nothing in the project blocks the upgrade.

Component	Finding	Severity	Fix available?
configobj	The configobj version pinned in the project's committed lockfile (5.0.8) has a denial-of-service flaw in its configuration validation, which pyproject.toml's own inline comment says WeeWX does not use. — GHSA-c33w-24p9-8m24	low	Yes — update to 5.0.9 or later; pyproject.toml declares only configobj >=5.0 with no upper bound, so nothing in the project blocks the upgrade.
Python (lowest runtime the project accepts)	The project declares requires-python >=3.7, and Python 3.7 stopped receiving security fixes on 2023-06-27, so the lowest runtime this lab officially accepts is one that no longer gets patched.	posture	Mitigation only — install on a Python release that is still supported; the project sets no upper bound, so a current Python is allowed.
Report upload and publishing paths	The publishing options the lab documents include plain FTP on port 21 and unencrypted MQTT on port 1883, both of which carry the account credentials and the station data across the network in readable form.	posture	Mitigation only — publish over rsync/SSH (port 22) or FTPS instead of FTP, use MQTT over TLS (port 8883), and leave any upload the class does not need switched off.
WeeWX dependency declarations	Dependencies unpinned: 11 of 11 in pyproject.toml — every runtime and development dependency is declared as a minimum bound or with no constraint at all, so two installations of this lab can end up with different library versions and neither has a checkable security state.	posture	Mitigation only — pin versions / use the lockfile, and regenerate the lockfile so it resolves to current releases rather than the years-old ones it holds today.

What this means for your lab

WeeWX itself came back clean this run: version 5.5.0 has no known published vulnerabilities, and the project's documentation describes no inbound network port opened by the weather daemon, so someone else on the campus network cannot simply connect to it and take it over. The risks are quieter than that. If you install from the project's source repository using its committed lockfile, you get library versions that are several years old — the image library in particular has flaws serious enough that a malformed image file could run code on the Raspberry Pi, and the database library has one that could let crafted data reach a MySQL database as commands; installing with pip, or updating those libraries afterwards, avoids this, and nothing in the project prevents the upgrade. The lab's report-publishing options also include plain FTP and unencrypted MQTT, which put the username and password on the network in readable form for anyone sharing it, so prefer rsync over SSH or FTPS and MQTT over TLS. Finally, this check could not examine the weather station console or gateway at all — that is a network-connected device in its own right. Treat both it and the Pi as untrusted equipment: put them on a segmented or guest network rather than the main campus LAN,

change any default password the console ships with, and check with campus IT before connecting anything permanently.

Not checked

- cryptography, poetry, pytest, zensical (dev group): Declared with no version constraint in pyproject.toml and absent from poetry.lock, so there is no exact version to check.
- poetry-core (build backend): Declared as a minimum bound ($\geq 2.0.0$) only and not present in the lockfile, so there is no exact version to check.
- SQLite: No version stated in the project files or the snapshot; it ships with whichever Python the host runs, which was not determined.
- MySQL server: Optional external database; no version stated in the project files or the snapshot.
- InfluxDB: Optional external database; no version stated in the project files or the snapshot.
- Host operating system as actually installed: Unpinned — the instructor chooses it. Bookworm was assumed from the snapshot's check plan; a different OS or release has a different support status.
- Weather station console and gateway firmware: Not recorded in the snapshot's software section, and no public advisory database covers consumer weather-station firmware — absence of advisories here is not evidence of safety.
- WeeWX source modules (weecfg, weectlib, weedb, weeimport, weeplot, weeutil, weewx, weewx_data): The snapshot notes the src directory was omitted from the uploaded files, so the lab's own code was not available to inspect.

Parts

Part	Spec/Package	Status	Stock	Price	Source
Host computing platform (single-board computer or POSIX workstation)	Raspberry Pi form factor or x86_64 PC; 5.0–5.25 V DC via USB-C/micro-USB, ≥ 2.5 A	readily available	multiple sellers	~~\$35.00~~ (RAM tier not stated in listing) — ~~\$61.05~~ 4GB starter kit	Seed Studio / Vilros (Google Shopping)
External automated weather station console or sensor array	Mast-mounted outdoor ISS + indoor receiver/bridge; outdoor 3.0 V DC cells, indoor 5 V or 9–12 V DC	readily available; interface compatibility unconfirmed	multiple sellers	~~\$625.00~~ – ~~\$1,730.00~~ across Vantage Pro2 configurations	Davis Instruments (Google Shopping)

Part	Spec/Package	Status	Stock	Price	Source
RF telemetry receiver / SDR (optional)	USB Type-A dongle, 5 V USB bus powered, 433/868/915 MHz ISM	readily available	multiple sellers	\$33.24 for the named RTL-SDR Blog V4	eBay - dhamm1ik_0 (Google Shopping)
Dallas/Maxim 1-Wire bus master adapter (optional)	USB to 1-Wire bridge, RJ11; 5 V USB bus power	readily available as DS9490R# (bare DS9490R entry is Obsolete)	1,587	\$49.93	DigiKey (authorized)
Host-to-station interface cable / converter	USB to RS-232 DB9 converter, FTDI or Prolific chipset, 1 m	readily available	702	\$26.80 for FTDI US232R-100-BULK; same part at retail	DigiKey (authorized)

Notes on the table. The \$35.00 Raspberry Pi listing is titled only "Raspberry Pi 4 Model B" and does **not** state its RAM tier, so treat it as the floor of the family rather than a confirmed 2GB/4GB price; a confirmed 4GB kit is \$61.05. A "CM4104000 Raspberry Pi CM4 4GB" result at \$144.00 also came back — that is a Compute Module 4, a different form factor needing a carrier board, and is not the Model B this lab calls for. The manufacturer's own product page could not be read this run (the site blocked the fetch), so no claim is made here about the Pi 4B's remaining production life. For the interface cable, DigiKey's description reads "CABLE USB RS232 PREMIUM 1M DB9" and returned no parametric detail, so the **DB9 connector gender is not verified** — the snapshot asks for a female DB9, and you must match the cable to your console's port before ordering. Cheaper retail cables exist (\$9.99 Sabrent, \$20.99 Valley Enterprises) but most do not state a chipset in the listing, which the snapshot requires.

Substitutes

For part	Substitute	Differences	Verified	Judgment
External weather station console (Davis Vantage Pro2)	Ecowitt GW2001 Wittboy complete wireless system. ~~\$199.99~~ — also Ecowitt GW1201 + WS69 array + GW1200 gateway. ~~\$99.75~~	\$425–\$1,530 cheaper than the Davis configurations priced. 7-in-1 solar-powered outdoor array against the Davis ISS; both meet the snapshot's "mast-mounted outdoor integrated sensor suite" requirement. Vendor family is named in the snapshot's own BOM line (Fine Offset / Ecowitt, incl. GW1000, GW1100, GW2000). Driver compatibility is the open question: WeeWX's supported-hardware page names the Ecowitt/Fine Offset GW1000 gateway and does not name a GW2001, GW1200, or GW3001.	verified: current retail price, seller and product title (Google Shopping this run); WeeWX support for the Ecowitt/Fine Offset GW1000 gateway family (fetched weewx.com/hardware.html). not verified: which gateway model the GW2001 kit actually ships, and therefore whether a WeeWX driver speaks its protocol — no vendor product page could be read this run.	plausible, unverified — excellent value and a snapshot-sanctioned vendor family, but confirm the kit's gateway model appears on WeeWX's supported-hardware page before ordering. Do not treat \$199.99 as a confirmed working configuration.
1-Wire adapter DS9490R (Obsolete catalogue entry, no stock. ~~\$26.34~~)	DS9490R#. ~~\$49.93, 1,587~~ in stock	Identical manufacturer (Analog Devices Inc./Maxim Integrated) and identical DigiKey description, "IC BRIDGE USB TO 1-WIRE RJ11". Only the suffix differs. Price is \$23.59 higher than the dead entry's listed figure.	verified: lifecycle status, stock and price for both entries from DigiKey this run; identical manufacturer and catalogue description. not verified: what the "#" suffix encodes — DigiKey returned no parametric block, so the usual "packaging code" reading is assumed, not evidenced.	acceptable — the same catalogue product under the active packaging SKU, and the only one with stock. WeeWX's hardware page names "DS9490R", which both entries carry.

Verify any substitute against its datasheet — and, for a weather console, against WeeWX's supported-hardware list — before ordering.

Other dependencies

- **Fabrication: none applicable.** The lab has no PCBs, Gerbers, schematics, or mechanical manufacturing files. Physical fabrication is limited to commodity mounting hardware — mast clamps, U-bolts, solar radiation shields, tripod mounts. **Not checked:** the snapshot gives no sourcing plan for these and no lookup was dispatched.

- <https://www.weewx.com/hardware.html> — **live**. Fetched successfully this run (3,202 characters of supported-hardware tables). This is the page to check a console against before buying; it lists roughly 30 supported station families including AcuRite, Fine Offset/Ecowitt, LaCrosse, Oregon Scientific, Peet Bros, RainWise, Hideki, Texas Weather Instruments, Vaisala and WeatherFlow.
- <https://www.raspberrypi.com/products/raspberry-pi-4-model-b/> — **fetch failed**. The page could not be downloaded this run (blocked, timeout, or gone). The site most likely blocks automated fetches; this is **not** evidence the page is gone, but the manufacturer's price tiers and production commitments are not on the record.
- **Not checked**: the remaining external sites the lab links — weewx.com homepage, /docs/ and /docs/quickstarts.html, /downloads, hwcamp.html, showcase.html and stations.html, the GitHub repository and its issue tracker and wiki, and the weewx-user Google Group. No lookups were dispatched for them. The GitHub repository was reachable at the v5.5.0 tag during this run, which is indirect evidence that that URL is live.

Watch list

- **DS9490R# (1-Wire adapter)** — the bare DS9490R catalogue entry is already Obsolete. The packaging variant is Active with healthy stock today, but this is a single-source, end-of-life-adjacent part on one distributor; check its lifecycle status first at the next run.
- **Davis Vantage Pro2 interface** — the unresolved question of which bundles expose a serial, USB, or WeatherLinkIP interface is the most likely thing to strand a purchase. Worth resolving from a Davis product page next run rather than leaving it to the instructor.
- **Ecowitt gateway model** — the low-cost route hinges on a gateway model that WeeWX's page does not name. If the Ecowitt line moves on from the GW1000 family, the cheap path to this lab closes; re-check the supported-hardware page against current Ecowitt SKUs.
- **Raspberry Pi 4 Model B** — the Pi 5 is the current flagship and the 4B's remaining production life could not be established this run. Price spread is already wide (\$35.00 to \$165.00). Watch for the 4B thinning out; the snapshot's high substitution latitude (any Pi or x86_64 PC) means this is a price-and-convenience risk, not a blocker.
- **Weather console prices generally** — this lab's cost is dominated by one purchase that ranged \$99.75 to \$1,730.00 this run. Drift here matters far more to an instructor's budget than any other line.