

Operational Architecture

Managed documentation for Operational Architecture.

- [Operational Data Flows](#)
- [Timing, Positioning and OpenPNT](#)

Operational Data Flows

Operational Data Flows

Field	Value
Distribution	BSS — OpenSOF
Product	OpenSOF
Release	0.15.1
Deployment	<code>opensof.bss.dev</code>
Source	<code>/srv/bss/releases/OpenSOF-v0.15.0-20app</code>
Evidence	Reference architecture
Source fingerprint	<code>cda583b42f2a0d296b268ab5b174932a378c8be6fb52ffa1af14af896e990f6e</code>
Status	Generated baseline — human review required

“ **Verification boundary:** This page combines platform design guidance with static evidence from the release. It does not prove that every detected interface is enabled, reachable, secure, or operational in the deployed environment.

Reference flow

Producer	Information product	Primary consumer/store
Sensor/device	Raw signal, frame, telemetry or observation	Edge adapter / domain module
Domain module	Typed observation, track, product or alert	OpenBus / OpenData / OpenFiles
OpenKnowledge	Type, relationship and policy context	Analytics, automation and operator applications
Operator/analytic	Decision, annotation, correlation or recommendation	OpenTask / OpenCOP / OpenIIA

Producer	Information product	Primary consumer/store
OpenTask	Assigned action and state transition	Human, robot, service or external system
All stages	Provenance, timestamps, audit and retained artifacts	OpenFiles / OpenData / OpenAAR-MR

Control points

- Validate schema and semantic type at ingestion.
 - Preserve source time separately from processing and receipt time.
 - Carry handling and release policy with the object, not only in the user interface.
 - Reference large imagery/video/files rather than embedding them in high-rate event messages.
 - Make task and effect transitions explicit, acknowledged and auditable.
-

Maintainer Notes

Add human-reviewed deployment notes, corrections, decisions, screenshots, and links here.
Content outside the generated block is preserved on future runs.

Timing, Positioning and OpenPNT

Timing, Positioning and OpenPNT

Field	Value
Distribution	BSS — OpenSOF
Product	OpenSOF
Release	0.15.1
Deployment	<code>opensof.bss.dev</code>
Source	<code>/srv/bss/releases/OpenSOF-v0.15.0-20app</code>
Evidence	Reference architecture and timing term scan
Source fingerprint	<code>cda583b42f2a0d296b268ab5b174932a378c8be6fb52ffa1af14af896e990f6e</code>
Status	Generated baseline — human review required

“ **Verification boundary:** This page combines platform design guidance with static evidence from the release. It does not prove that every detected interface is enabled, reachable, secure, or operational in the deployed environment.

Timing and positioning role

OpenPNT should register and monitor the clocks, coordinate frames and position sources used by sensors, radios, tracks, simulations and analytic products. Accurate correlation requires knowing not only a timestamp and coordinate, but also their source, reference frame, uncertainty and quality.

Required metadata

Area	Minimum context
Time	UTC timestamp, clock source, synchronization method, offset/error estimate and leap/time-scale handling.
Position	Coordinate reference system, datum, origin, axes, units, uncertainty and update time.
Sensor geometry	Platform pose, antenna/camera offsets, orientation and calibration profile.
Simulation	Scenario clock, time acceleration, federation epoch and mapping to wall-clock time.

Observed timing indicators

Indicator	Count/evidence
PTP/PPS	1064
camera/video	362
UHD/USRP	324
AIS	154
FlightGear	121
DIS	85
PlutoSDR	56
HackRF	55
SoapySDR	54
ADS-B	46

Verification tests

- Confirm NTP/PTP/White Rabbit service state and measured offset on every participating host.
- Verify sensor products carry source timestamp and clock-quality metadata end to end.
- Validate coordinate transforms against known control points and record calibration versions.

- Alert when time or position quality falls below mission thresholds instead of silently accepting degraded data.
-

Maintainer Notes

Add human-reviewed deployment notes, corrections, decisions, screenshots, and links here. Content outside the generated block is preserved on future runs.