

Secure, agentic operations for experience venues

VERSION 1.0 · 29 OCTOBER 2026

taleor is a secure, agentic operations system for experience venues: content, interactive applications, players and hardware, run from one console. An assistant proposes, a named person approves, and every change is written to an audit log.

THREE PILLARS

Secure by design · set up by an assistant (Oli) · analytics.



Secure by design

PILLAR 01 · SECURITY

IDENTITY Mutual TLS for every player; one certificate authority per venue, sealed at rest

INTEGRITY Ed25519-signed drivers; checksum-verified updates that roll back on a failed health check

APPROVAL Five roles, every route gated; every write in an append-only audit trail

PRIVACY Visitor events carry no identifier, enforced by schema and a build-failing test



Set up by an assistant (Oli)

PILLAR 02 · ASSISTANT

SCOPE Reads exhibits, players, reels, declared inputs and triggers; proposes triggers, reel assignments and enabling a trigger

REVIEW FIRST Plan tools only record steps; nothing executes until a person presses Apply; every change listed, then logged

PERMISSIONS Runs as the signed-in person with their role; audited as applied by Oli for the named user

HONESTY A stale plan is refused, not re-interpreted; proposes only against declared inputs; states what is missing

BY HAND Every control stays available by hand; Oli adds to the console, never replaces it



Analytics (Insights)

PILLAR 03 · ANALYTICS

FOOTFALL, DWELL Visitors per hour, day or month from sensors and touch; average dwell for engaged visits

ZONES, EXHIBITS Busiest zones; zone-by-hour heatmap; exhibits ranked by visits and dwell

PROOF OF PLAY Every item, every play, played through or not; CSV export with the same scope and window

PLAYER HEALTH Uptime from health snapshots; none in a window reads "unknown", never "healthy"

SCOPE, WINDOW Venue, floor, zone or player; today, week, month, year, each with the window before. Unmeasured values read "Not measured", never zero

RETENTION Presence and touches 400 days; proof of play 1825 (floor 365); player logs 30; audit trail 730 (floor 180). Shorten only to the floor

02 Deployment models

Same software in every edition



Cloud

SERVER RUNS `app.taleor.net`

INTERNET **REQUIRED**

NOTES Nothing to install; equipment driven via player agents



Local server

SERVER RUNS One Windows, macOS or Linux machine in the building

INTERNET **OPTIONAL**

NOTES Private PostgreSQL inside the package; no container runtime



Air-gapped

SERVER RUNS As local server, no internet

INTERNET **NONE**

NOTES Runtime and database ship inside; updates carried in by hand

One build, one console; all three editions are the same software

03 Platforms

Release 1.0 · October 2026

COMPONENT	WINDOWS	MACOS	LINUX	RASPBERRY PI	ANDROID	BROWSER
Console Operator console	 App or browser	 App or browser	 App or browser	 Browser	 Browser	 Any current
Player agent Offline-capable, hardware I/O	 Yes	 Yes	 Yes (.deb)	 Browser player	 Browser player	 n/a
Browser player Pairs with a six-digit code	 Yes	 Yes	 Yes	 Yes	 Yes	 Yes
Local / air-gapped server Same package, no internet needed	 x64	 arm64, x64	 x64, arm64	 Player only	 n/a	 n/a

 SUPPORTED  NOT APPLICABLE

04 Content

What the console manages

 Object model	Venue > Floor > Zone > Exhibit > Player > Equipment; a player runs reels and triggers	 Templates	Six built-in interactive templates, a custom-template builder, custom app packages (.zip)
 Reels	Ordered playlists of media and apps; change once, every player that plays it updates	 Scheduling	Opening hours, holidays, special days that revert automatically; content rules by scope with a "what wins" preview
 Triggers	Input + match rule (for example distance ≤ 100 cm) + action + target reel, optional quiet period	 Media	Video, image, audio, PDF, 3D and app packages; 512 MB per file (cloud)
 Bring your own storage	Google Drive (early access). Files stay in your Drive; screens keep a copy for offline playback	 Offline playback	Agent keeps a 4 GB local copy by default; plays through a server outage and a reboot; browser player best effort

05 Hardware and protocols

Driver kit for custom equipment

Drivers are Ed25519-signed packages; the console issues a verb (power, source, volume) and the driver speaks the protocol. We test drivers with your equipment before you open; custom drivers via the driver kit.



Displays

Any screen connected to a computer running the taleor player, or showing the browser player

TALEOR PLAYERBROWSER PLAYERHDMI



Projectors

Any PJLink projector; manufacturer serial protocols

PJLINKESC/VP21RS-232TCP



Sensors and inputs

Presence, distance, radar, RFID, push and air buttons, USB keys, touch

SERIALUSBTCPUDPRS-232



Controllers

Lighting desks and show controllers (OSC in/out), microcontroller boards, pedals, staff handheld

OSCSERIALWEBSOCKET



Sound

Networked audio processors and loudspeakers

RESTTCP



Lighting

DALI / DALI-2 gateways

DALI

OPENSTANDARDSPJLINKRS-232TCPDALIMQTTOSCRESTWEBSOCKETSERIALUSB

06 Security controls

Specification

 Player identity	Mutual TLS; keypair generated on the player, private key never leaves it; certificates clientAuth only, subject set by the server	 Certificate authority	One CA per venue, sealed at rest; no "issue certificate" button; Required mode refused while any device would be locked out
 Certificates	398 days; renew in the final 30 days over the player's own connection; a new certificate revokes the old	 Per-connection checks	Against the database: not revoked, not expired, device exists, device belongs to the venue
 Transport	TLS 1.3 (1.2 accepted for older clients); HTTP redirected to HTTPS; mutual-TLS listener on port 8443 (configurable)	 People sign-in	Email and password (bcrypt, cost 12) or OIDC; 24 h session; 5 attempts/min; lockout 15 min after 10 failures
 Screen pairing	Six-digit code, CSPRNG, 15-minute window, rate limited per IP and per venue	 Driver integrity	Ed25519 signature over a SHA-256 digest of every file; unsigned refused by default; operator trust store
 Update integrity	Checksum-verified (SHA-256 on the player before swap); installs only while closed; per-device opt-out; failed health check within 10 minutes rolls back and blocks	 Access control	Five roles: Network admin, Estate admin, Venue admin, Content manager, Facilities manager; every route gated; Facilities can restart a screen, not delete it
 Audit trail	Every write: user, venue, action, entity, client IP, time; append-only; erasure redacts identity, keeps the action; CSV export with on-screen filters; 730 days default, floor 180	 Visitor privacy	Events carry venue, device, zone, state, time only; no identifier, enforced by schema and a build-failing test; nightly retention sweep, evidenced per run
 Isolation	Local server: own PostgreSQL on loopback, random password nobody types; media and audit log stay in the building	 Monitoring	Heartbeat 60 s; offline, disk-space and not-current alerts; self-clearing; repeated faults update one alert
 Emergency hold	Venue, floor, zone or chosen players; full screen, exhibit audio muted; up to 12 languages; from console or handheld	 Backups	Scheduled full-database export to readable JSON; rolling retention; restore from any backup

07 System requirements

Server and players

SERVER OS	Windows x64; macOS arm64 and x64; Linux x64 and arm64 (Ubuntu 24.04 LTS)
SERVER RUNTIME	Node.js 20 LTS and PostgreSQL 16 bundled; ffmpeg bundled on Windows only (macOS and Linux: install from OS packages, or media is accepted without posters, thumbnails or durations); Windows needs the Visual C++ Redistributable
SERVER SIZING	About 50 MB before runtimes; install under one minute. Minimum: 1 CPU core, 2 GB RAM, 10 GB free disk plus your media library. Recommended for larger venues: 2 cores, 4 GB RAM. Storage grows with your media; measured on a small deployment
WINDOWS AGENT	Windows 10 and 11, x64; runs as a service; Node.js bundled
LINUX AGENT	Ubuntu 24.04 or 26.04 .deb; Wayland or X11 desktop session
RASPBERRY PI SCREENS	Browser player on Raspberry Pi 4 and 5, Raspberry Pi OS, desktop session; a Pi 5 decodes H.264 in software
MACOS SCREENS	taleor player agent on a 64-bit Mac with hardware video decoding. The browser player also runs in Safari 17.6 or later and current Chrome
ANDROID SCREENS	Browser player in current Chrome, including Android signage players
PLAYER CPU, RAM, DISK	64-bit CPU with hardware video decoding for the content's resolution; 8 GB RAM recommended; 4 GB free disk for the media cache. 3D: an integrated GPU of Apple M1 class plays about 1 million splots at 1080p at 30 to 60 fps (measured); 3 million is borderline

PORTS

443 TCP console, API, WebSockets3401 TCP local server direct8443 TCP mutual-TLS player listener

5433 TCP loopback-only PostgreSQL8000 UDP OSC in1883/1884 TCP MQTT, optionaldevice ports per driver

Players need no outbound internet in the local and air-gapped editions.

08 Languages, support and licensing

CONSOLE AND HANDHELD <div>ENDENLPL</div> English, German, Dutch, Polish	DOCUMENTATIONWhite paper (EN); data sheet (EN, DE, NL, PL); user manual (EN)	SUPPORTsupport@taleor.net	LICENSINGLicensing is quoted for each venue or project. Updates are included.	PRIVACY FRAMEWORKTechnical controls implemented to ISO/IEC 27701; certification is organisational and not claimed
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For full media types, trigger inputs, OSC detail, driver internals and retention classes, see the taleor white paper and the user manual.