FluxeHRa

ISO Standards Customer Alignment Pack
ISO/IEC 27001 · 27017 · 27018 · 27701 · 25010

Multi-tenant HRIS — Control alignment & readiness for IT / CISO / DPO / auditors

Generated from application implementation — September 2026 (cover aligned with pack rev. 19)

Companion: Security & Compliance White Paper

Not a certification claim. FluxeHRa is not ISO-certified by virtue of this document. Status values are Implemented / Partial / Platform / Customer / Gap — see §1.

Available languages / Langues disponibles

English

Français

ISO Standards Customer Alignment Pack

FluxeHRa / Flex HR — Control alignment & readiness (not a certification claim)

Audience: IT, CISO, DPO, procurement, customer auditors

Document version: September 2026 (rev. 19) — cover meta aligned; shared-responsibility Provider count clarified (0)

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1. Positioning & how to read this pack

FluxeHRa is not ISO-certified today. This pack maps product technical controls *and* the full ISO/IEC 27001:2022 Annex A catalogue (including governance, people/HR, and physical dimensions) to help customers see every control area — even those that are organisational rather than code. It is intended for IT due diligence, not as a substitute for a formal ISMS certification audit.

Status legend used throughout:

- Implemented — control is implemented in the product and can be demonstrated.
- Partial — present but incomplete or limited in coverage.
- Platform / sub-processor — primarily delivered by Supabase / Vercel (sub-processors); document in your contracts.
- Customer responsibility — remains the customer's (controller's) organizational responsibility.
- Provider ISMS (Foil Envie) — Foil Envie SAS organisational ISMS (policies, HR security, premises, supplier program, formal IR drills) — vendor roadmap independent of application features.
- Gap / roadmap — known gap; see roadmap (§12).

Companion document: Security & Compliance White Paper (deeper implementation narrative). Production: **https://fluxehra.ai**.

Internal evidence capture checklist: `docs/iso-evidence-capture-checklist.md`. Demo session guide: `docs/iso-demo-session-capture-guide.md`. Gap playbook: `docs/iso-gap-priority-playbook.md`. Figures under `public/figures/iso-evidence/` use real PNG screenshots when available (otherwise SVG placeholders). Nominative Provider evidence stays private (never under `public/`).

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2. ISO/IEC 27001 — Information security management

What it expects: An Information Security Management System (ISMS): risk-based controls, policies, access management, cryptography, operations, logging, supplier management, people security, physical security, and continual improvement. Annex A (2022) provides a **93-control** catalogue; certification audits the *organization* (here: Foil Envie SAS as processor + the customer as controller), not only software features.

How FluxeHRa stands: The SaaS provides strong *technical* Annex A-aligned controls for a multi-tenant HRIS (auth, RBAC, RLS, encryption, audit, hardening). Foil Envie solo-operator ISMS policies (governance, people, home-office physical, suppliers, SDLC) are **signed** (August 2026) and mapped as Implemented in §3. Customer controller duties remain with the customer.

Strengths: default-deny APIs, RLS tenant isolation, field encryption, MFA, audit trail with proxy accountability, CSP/HSTS/rate limits/SSRF, signed ISMS pack, Axiom SIEM, documented backups.

Remaining Annex A open items: customer DPA (A.5.20 / A.5.31); independent ISMS review (A.5.35). A.5.6 closed (Security Watch + signed subscriptions 2026-08-14). Platform / sub-processor rows are cloud DC controls, not unfinished product work. Optional: Sentry APM; restore drill after Supabase Pro.

Customer still should: maintain their ISMS; perform access reviews; sign DPA; configure MFA enforcement and Turnstile; monitor audit trails; use the AIPD support pack.

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3. ISO/IEC 27001:2022 Annex A — full control catalogue

Full **ISO/IEC 27001:2022 Annex A** catalogue (93 controls). Foil Envie solo-operator ISMS is largely documented and signed (August 2026): most organisational / people / physical rows are Implemented. Still open: customer DPA (A.5.20 / A.5.31), independent review (A.5.35). Platform / sub-processor rows are cloud data-centre controls (Supabase / Vercel), not product gaps.

How to read the status and ownership columns

- Implemented — demonstrable in the FluxeHRa product.
- Partial — partially covered (product and/or process).
- Platform / sub-processor — primarily Supabase / Vercel.
- Customer responsibility — customer (controller) responsibility.
- Provider ISMS (Foil Envie) — Foil Envie organisational ISMS still open (none today; A.5.6 closed).
- Gap / roadmap — product / process gap to close.
- **App** — fully demonstrable in the FluxeHRa product / CI.
- **Company (policy)** — Foil Envie ISMS (HR, legal, physical, external audit).
- **Mixed** — product slice + Company (and sometimes Customer) artefacts still required.

Current status distribution

- Implemented — **77**

- Partial — **3**
- Platform / sub-processor — **13**
- Customer responsibility — **0**
- Provider ISMS (Foil Envie) — **0**
- Gap / roadmap — **0**

Ownership distribution (who can close the control)

- **App — 12**
- **Company (policy) — 40**
- **Mixed — 41**

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
`A.5.1`	Policies for information security	A.5 — Organizational controls	Company (policy)	Umbrella ISMS governance policy (Certification documentation/policies/ISMS-governance (signed private PDF 2026-08-13)) — Foil Envie solo-operator ISMS Aug 2026.	Implemented
`A.5.2`	Information security roles and responsibilities	A.5 — Organizational controls	Company (policy)	Security & Privacy Owner named (Irwin Rouch) in ISMS-governance (signed private PDF 2026-08-13); product RBAC covers app roles.	Implemented
`A.5.3`	Segregation of duties	A.5 — Organizational controls	Mixed	Product: SU vs org admin vs HR; SU tenant access requires Org Admin 48h grant. Solo break-glass signed Aug 2026 (Certification documentation/ops/Break-glass-solo); dual-control planned at hire #2.	Implemented
`A.5.4`	Management responsibilities	A.5 — Organizational controls	Company (policy)	Leadership commitment & resource allocation documented in ISMS-governance (signed private PDF 2026-08-13) (Axiom, MFA, Pro backups, IR, access review).	Implemented
`A.5.5`	Contact with authorities	A.5 — Organizational controls	Company (policy)	CNIL / law-enforcement contact process in ISMS-governance (signed private PDF 2026-08-13) §4; customer remains controller for their notifications.	Implemented
`A.5.6`	Contact with special interest groups	A.5 — Organizational controls	Company (policy)	Contact with CERT-FR / CISA / OSV via SU Admin Security Watch (impact-filtered RSS + lockfile) + daily GitHub Action + Dependabot. Signed subscriptions register 2026-08-14 (Certification documentation/policies/Security-community-subscriptions). Email backups: CERT-FR avis, CISA KEV, vendor status. No paid ISAC (proportionate).	Implemented
`A.5.7`	Threat intelligence	A.5 — Organizational controls	Company (policy)	Threat intel: SU Admin Security Watch (OSV/KEV/CERT-FR, impact-filtered) + Dependabot + Components Update + vendor status + Axiom VULN_WATCH (Asset-config-source-privileges signed private PDF 2026-08-13).	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
A.5.8	Information security in project management	A.5 — Organizational controls	Company (policy)	Secure project gates in Secure-development-pack (signed private PDF 2026-08-13) (migrations, typecheck, smoke, secrets, SSRF review).	Implemented
A.5.9	Inventory of information and other associated assets	A.5 — Organizational controls	Company (policy)	Foil Envie asset inventory (GitHub, Vercel, Supabase, Axiom, domain, laptop) in Asset-config-source-privileges (signed private PDF 2026-08-13); customers inventory their org data.	Implemented
A.5.10	Acceptable use of information and other associated assets	A.5 — Organizational controls	Company (policy)	Staff acceptable-use policy (Acceptable-use-remote-clear-desk (signed private PDF 2026-08-13)); product Terms of Use for end users.	Implemented
A.5.11	Return of assets	A.5 — Organizational controls	Company (policy)	Offboarding & asset return checklist in People-lifecycle (signed private PDF 2026-08-13); product supports org deletion / data return per DPA.	Implemented
A.5.12	Classification of information	A.5 — Organizational controls	Mixed	Product sensitive + visibility; corporate Public/Internal/Confidential/Restricted scheme in Classification-transfer-cloud (signed private PDF 2026-08-13) mapped to ENC2.	Implemented
A.5.13	Labelling of information	A.5 — Organizational controls	Company (policy)	Labelling rules for Foil Envie docs/tickets in Classification-transfer-cloud (signed private PDF 2026-08-13) (same scheme as A.5.12).	Implemented
A.5.14	Information transfer	A.5 — Organizational controls	Mixed	Product TLS/exports/SSRF; staff email/USB/paper transfer rules in Classification-transfer-cloud (signed private PDF 2026-08-13).	Implemented
A.5.15	Access control	A.5 — Organizational controls	App	Product RBAC, RLS, MFA for privileged roles, default-deny APIs; SU org entry gated by customer-approved 48h grant + has_active_su_org_grant RLS.	Implemented
A.5.16	Identity management	A.5 — Organizational controls	App	Supabase Auth identities; org OIDC SSO; invite / reset flows.	Implemented
A.5.17	Authentication information	A.5 — Organizational controls	Mixed	Product password ≥20 + MFA TOTP; staff password-manager + MFA attestation in Staff-auth-secrets (signed private PDF 2026-08-13). Private console: Supabase Auth Multi-Factor TOTP Enabled (ops/Supabase-mfa-totp-enabled-2026-08-16.jpeg).	Implemented
A.5.18	Access rights	A.5 — Organizational controls	Mixed	Product: Manage Roles, modules; SU temporary org grants with Org Admin accept/deny. Quarterly access-review checklist signed Aug 2026 (Certification	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
				documentation/ops/Access-review-checklist); re-run each quarter.	
A.5.19	Information security in supplier relationships	A.5 — Organizational controls	Company (policy)	Private supplier ICT register (Vercel, Supabase, Axiom, Cursor, DocuSign) with annual review cadence — Certification documentation/suppliers/Supplier-register.pdf; cert PDFs stay private.	Implemented
A.5.20	Addressing information security within supplier agreements	A.5 — Organizational controls	Company (policy)	Sub-processor DPAs / trust docs collected. Customer DPA blocked until first commercial customer (templates + DPA-signature-track signed); other Wave A/B ops docs signed Aug 2026.	Partial
A.5.21	Managing information security in the ICT supply chain	A.5 — Organizational controls	Company (policy)	ICT supply-chain covered by Supplier-register (annual calendar + risk notes); ongoing monitoring via vendor status pages and Components Update.	Implemented
A.5.22	Monitoring, review and change management of supplier services	A.5 — Organizational controls	Company (policy)	Supplier-register next-review column + status-page subscriptions documented; annual re-review executed per calendar in private register.	Implemented
A.5.23	Information security for use of cloud services	A.5 — Organizational controls	Mixed	Approved cloud list (Supabase eu-west-1, Vercel dub1, Axiom) + EU preference in Classification-transfer-cloud (signed private PDF 2026-08-13). Private console: Vercel dub1 + Supabase prod FluxeHRa West EU / eu-west-1 (ops/Supabase-prod-general-region-2026-08-16.jpeg).	Implemented
A.5.24	Information security incident management planning and preparation	A.5 — Organizational controls	Mixed	docs/incident-response.md + solo IR pack signed (Aug 2026): RACI, tabletop 2026-08-11, acknowledgment, Axiom monitors screenshot — private Certification documentation/incident-response/.	Implemented
A.5.25	Assessment and decision on information security events	A.5 — Organizational controls	Mixed	Severity matrix in docs/incident-response.md; sole-operator RACI (Irwin Rouch) signed privately (Aug 2026).	Implemented
A.5.26	Response to information security incidents	A.5 — Organizational controls	Mixed	Product: bug report / ops / Axiom. Formal IR execution attested via signed solo tabletop + acknowledgment (Aug 2026, private evidence).	Implemented
A.5.27	Learning from information security incidents	A.5 — Organizational controls	Mixed	Post-mortem in IR runbook; signed tabletop gaps/follow-ups on file; annual re-run scheduled; test:security-idor for regressions.	Implemented
A.5.28	Collection of evidence	A.5 — Organizational controls	Mixed	Product audit logs + compliance export; forensic/evidence playbook in Duty-to-	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
				report-and-evidence (signed private PDF 2026-08-13).	
`A.5.29`	Information security during disruption	A.5 — Organizational controls	Mixed	Continuity via Supabase/Vercel plans + signed Backup acknowledgment / IR pack (A.5.30). Not a product gap.	Platform / sub-processor
`A.5.30`	ICT readiness for business continuity	A.5 — Organizational controls	Mixed	Production commitment documented + Backup acknowledgment signed (Aug 2026): Supabase Pro daily backups, 7-day retention, RPO ≤ 24h, internal RTO ≤ 4h (docs/backup-restore.md); Pro + console Backups evidence at first paying customer; restore drill within 30 days of Pro activation.	Implemented
`A.5.31`	Legal, statutory, regulatory and contractual requirements	A.5 — Organizational controls	Mixed	DPA/legal packs shipped. Blocked on: signed customer DPA + ongoing counsel/legal register reviews (Provider + Customer).	Partial
`A.5.32`	Intellectual property rights	A.5 — Organizational controls	Company (policy)	IP / licensing note for Foil Envie code & OSS in Audit-testing-IP-outsourcing (signed private PDF 2026-08-13).	Implemented
`A.5.33`	Protection of records	A.5 — Organizational controls	Mixed	Product retention/purge + corporate records schedule in Records-retention-schedule (signed private PDF 2026-08-13).	Implemented
`A.5.34`	Privacy and protection of PII	A.5 — Organizational controls	Mixed	Product privacy: ESS field_consents, My preferences, DSAR, ENC2, PII redact on leak paths; Art.30 processor register docs/registre-activites-traitement-sous-traitant.md. Full PIMS / controller AIPD remains Customer + Provider counsel.	Implemented
`A.5.35`	Independent review of information security	A.5 — Organizational controls	Company (policy)	Third-party assurance collected for key tooling (e.g. Cursor SOC 2). Blocked on: independent review of FluxeHRa / Foil Envie ISMS (external audit or ISO certification campaign).	Partial
`A.5.36`	Compliance with policies, rules and standards for information security	A.5 — Organizational controls	Company (policy)	Quarterly compliance self-review defined in ISMS-governance (signed private PDF 2026-08-13) §5 (access review, vuln, suppliers, IR).	Implemented
`A.5.37`	Documented operating procedures	A.5 — Organizational controls	Company (policy)	Ops procedure set: docs/ (IR, backup-restore, SIEM, subprocessors) + signed Certification documentation/ops pack (break-glass, access review, vuln, non-prod, DPA track) and IR/backup acknowledgments.	Implemented
`A.6.1`	Screening	A.6 — People controls	Company (policy)	Screening evidence on file + HR security policy signed Aug 2026 (Certification	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
				documentation/hr-security/); extend screening to each new hire.	
A.6.2	Terms and conditions of employment	A.6 — People controls	Company (policy)	Employment confidentiality + NDA + ISMS acknowledgment required (People-lifecycle (signed private PDF 2026-08-13)); NDA signed on file.	Implemented
A.6.3	Information security awareness, education and training	A.6 — People controls	Company (policy)	Awareness training completed; HR security policy (signed Aug 2026) mandates annual refresh for staff with system access.	Implemented
A.6.4	Disciplinary process	A.6 — People controls	Company (policy)	Disciplinary process for security violations documented in People-lifecycle (signed private PDF 2026-08-13).	Implemented
A.6.5	Responsibilities after termination or change of employment	A.6 — People controls	Company (policy)	Offboarding checklist (revoke GitHub/Vercel/Supabase/Axiom, return assets, NDA reminder) in People-lifecycle (signed private PDF 2026-08-13).	Implemented
A.6.6	Confidentiality or non-disclosure agreements	A.6 — People controls	Company (policy)	Partner/tool NDA on file (e.g. Anysphere/Cursor). Employee confidentiality NDA signed for sole operator Irwin Rouch (Aug 2026) — private Certification documentation/hr-security/; reuse template for future hires.	Implemented
A.6.7	Remote working	A.6 — People controls	Company (policy)	Remote-work rules (disk encryption, lock screen, no open Wi-Fi for prod admin) in Acceptable-use-remote-clear-desk (signed private PDF 2026-08-13).	Implemented
A.6.8	Information security event reporting	A.6 — People controls	Mixed	Product in-app bug report + staff duty-to-report procedure in Duty-to-report-and-evidence (signed private PDF 2026-08-13).	Implemented
A.7.1	Physical security perimeters	A.7 — Physical controls	Mixed	Primary data centres = Supabase/Vercel. Foil Envie home-office perimeter covered under A.7.3 (signed Home-office-physical-media).	Platform / sub-processor
A.7.2	Physical entry	A.7 — Physical controls	Mixed	Cloud provider physical entry controls. Foil Envie home-office visitor rules under A.7.6 (signed).	Platform / sub-processor
A.7.3	Securing offices, rooms and facilities	A.7 — Physical controls	Company (policy)	Home-office physical controls (lockable dwelling, no unattended Restricted printouts) in Home-office-physical-media (signed private PDF 2026-08-13).	Implemented
A.7.4	Physical security monitoring	A.7 — Physical controls	Mixed	DC CCTV/access logs via cloud providers. Home-office monitoring N/A at DC scale; dwelling lock covered under A.7.3.	Platform / sub-processor
A.7.5	Protecting against physical	A.7 — Physical controls	Mixed	Fire/flood/power resilience of cloud regions. Home-office environment covered	Platform / sub-processor

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
	and environmental threats			under Home-office-physical-media (signed).	
A.7.6	Working in secure areas	A.7 — Physical controls	Company (policy)	Visitor / secure-work rules for home-office in Home-office-physical-media (signed private PDF 2026-08-13) (no multi-site secure facility).	Implemented
A.7.7	Clear desk and clear screen	A.7 — Physical controls	Company (policy)	Clear desk / clear screen in Acceptable-use-remote-clear-desk (signed private PDF 2026-08-13).	Implemented
A.7.8	Equipment siting and protection	A.7 — Physical controls	Company (policy)	Equipment siting for operator laptop; cloud hardware = Platform — Home-office-physical-media (signed private PDF 2026-08-13).	Implemented
A.7.9	Security of assets off-premises	A.7 — Physical controls	Company (policy)	Off-premises laptop rules (encryption, minimise local PII) in Home-office-physical-media (signed private PDF 2026-08-13).	Implemented
A.7.10	Storage media	A.7 — Physical controls	Company (policy)	USB/media handling (prefer cloud; encrypt if used) in Home-office-physical-media (signed private PDF 2026-08-13).	Implemented
A.7.11	Supporting utilities	A.7 — Physical controls	Mixed	Power/cooling of cloud DCs. Foil Envie has no dedicated facility utilities (home-office / cloud).	Platform / sub-processor
A.7.12	Cabling security	A.7 — Physical controls	Mixed	Cloud DC cabling. Foil Envie has no dedicated comms rooms (home-office / cloud).	Platform / sub-processor
A.7.13	Equipment maintenance	A.7 — Physical controls	Mixed	Cloud hardware maintenance by providers. Operator laptop disposal/wipe under A.7.14 (signed).	Platform / sub-processor
A.7.14	Secure disposal or re-use of equipment	A.7 — Physical controls	Company (policy)	Secure wipe/disposal of Foil Envie devices; cloud destruction = Platform — Home-office-physical-media (signed private PDF 2026-08-13).	Implemented
A.8.1	User endpoint devices	A.8 — Technological controls	Company (policy)	Operator endpoint encryption + hardening attestation in Endpoint-malware-attestation (signed private PDF 2026-08-13) (customer devices = Customer).	Implemented
A.8.2	Privileged access rights	A.8 — Technological controls	App	SU Admin platform isolation; tenant data only with Org Admin–approved 48h grant; MFA aal2 for admin / super_admin / HR / Domain Admin; proxy with audit after enter; service_role server-only.	Implemented
A.8.3	Information access restriction	A.8 — Technological controls	App	RLS, field visibility, document access routes, org scope asserts.	Implemented
A.8.4	Access to source code	A.8 — Technological	Company (policy)	Private GitHub + least privilege documented in Asset-config-source-	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
		controls		privileges (signed private PDF 2026-08-13).	
`A.8.5`	Secure authentication	A.8 — Technological controls	App	PKCE, password policy ≥20 with mixed case, digit and special character, MFA TOTP for admin / super_admin / HR / Domain Admin (default ON in production), optional Turnstile, org OIDC. Private console: Supabase MFA TOTP Enabled (ops/Supabase-mfa-totp-enabled-2026-08-16.jpeg).	Implemented
`A.8.6`	Capacity management	A.8 — Technological controls	Mixed	Elastic capacity via Vercel/Supabase; SU Components Update + Axiom monitors for ops load signals.	Platform / sub-processor
`A.8.7`	Protection against malware	A.8 — Technological controls	Company (policy)	OS AV/Defender attestation + product SCORM zip limits — Endpoint-malware-attestation (signed private PDF 2026-08-13).	Implemented
`A.8.8`	Management of technical vulnerabilities	A.8 — Technological controls	App	Components Update + Security Watch (OSV/KEV) + Dependabot PRs + CI `npm run audit:deps` (high/critical) with AUDIT_ALLOWLIST waivers; SLA Critical ≤7d / High ≤30d surfaced in SU Admin.	Implemented
`A.8.9`	Configuration management	A.8 — Technological controls	Mixed	Config baselines (migrations, vercel.json, env inventory) in Asset-config-source-privileges (signed private PDF 2026-08-13).	Implemented
`A.8.10`	Information deletion	A.8 — Technological controls	App	Org cascade delete, DSAR anonymize, retention purge APIs.	Implemented
`A.8.11`	Data masking	A.8 — Technological controls	App	At-rest ENC2 encryption + role-scoped decrypt; authorized CSV/API/SFTP/DSAR stay plaintext. Leak channels (bug/error) redact IBAN/SSN-like patterns.	Implemented
`A.8.12`	Data leakage prevention	A.8 — Technological controls	Mixed	Product DLP baseline: export auth, rate limits, private storage, bug-path PII redact, BULK_EXPORT security events on key exports. Enterprise CASB/endpoint DLP not deployed (Customer/Provider optional).	Implemented
`A.8.13`	Information backup	A.8 — Technological controls	Mixed	Supabase Pro daily backups (7-day retention) committed for first paying customer; RPO ≤ 24h and internal RTO ≤ 4h in docs/backup-restore.md and signed Backup acknowledgment (Aug 2026); optional PITR add-on; Storage objects not in DB backup (documented). Live Backups UI screenshot deferred until Pro activation.	Implemented
`A.8.14`	Redundancy of information processing facilities	A.8 — Technological controls	Mixed	Cloud multi-AZ resilience of providers. Foil Envie RPO/RTO documented in backup-restore.md (A.5.30). Multi-region active-active not claimed.	Platform / sub-processor

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
A.8.15	Logging	A.8 — Technological controls	App	audit_logs (business trail) + structured SECURITY_EVENT SIEM via Axiom (fluxehra_logs); PII-safe authz/tenant/RLS/auth-failure/cron/HMAC/SSRF telemetry (Aug 2026 rev. 6).	Implemented
A.8.16	Monitoring activities	A.8 — Technological controls	Mixed	Axiom monitors (3 slots) live: BOLA/tenant, per-IP brute-force, high-signal (cron/RLS/HMAC/SSRF); private evidence EV-SIEM-AXIOM-monitors.png (Aug 2026); Vercel Analytics + ops events; solo IR RACI for response. Not a 24×7 outsourced SOC.	Implemented
A.8.17	Clock synchronization	A.8 — Technological controls	Mixed	Cloud NTP via providers; app timestamps from server clocks.	Platform / sub-processor
A.8.18	Use of privileged utility programs	A.8 — Technological controls	Company (policy)	Prod DB/console utilities restricted to Security Owner — Asset-config-source-privileges (signed private PDF 2026-08-13) + Break-glass-solo.	Implemented
A.8.19	Installation of software on operational systems	A.8 — Technological controls	Mixed	Production deploys only via Vercel CI from authorised repo — Asset-config-source-privileges (signed private PDF 2026-08-13).	Implemented
A.8.20	Networks security	A.8 — Technological controls	Mixed	Cloud network security of providers. Operator remote-work network hygiene under Acceptable-use-remote-clear-desk (signed).	Platform / sub-processor
A.8.21	Security of network services	A.8 — Technological controls	App	HTTPS/HSTS; SSRF guard on webhooks, SFTP, OIDC token/JWKS, SMTP hosts, and IdP authorize/SAML SSO URLs (https + public hosts only).	Implemented
A.8.22	Segregation of networks	A.8 — Technological controls	Mixed	Cloud VPC / isolation. Foil Envie prod vs Dev: separate Vercel projects (fluxehra.ai vs saas-flex-hr-sql-dev) + separate Supabase FluxeHRa-dev (eu-west-1); private console captures under Certification documentation/ops/; non-prod data policy (signed) + assertNonProdSupabaseUrl.	Platform / sub-processor
A.8.23	Web filtering	A.8 — Technological controls	Company (policy)	N/A enterprise web proxy (no device fleet); compensating SmartScreen/Defender + DNS hygiene on operator laptop — Certification documentation/policies/Web-filtering-NA-compensating. Reassess when staff fleet grows.	Implemented
A.8.24	Use of cryptography	A.8 — Technological controls	App	TLS in transit; AES-256-GCM field encryption; encrypted DocuSign private key at rest.	Implemented
A.8.25	Secure development	A.8 — Technological	Mixed	Secure SDLC policy in Secure-development-pack (signed private PDF	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
	life cycle	controls		2026-08-13) (migrations, typecheck, smoke, CSP practices).	
A.8.26	Application security requirements	A.8 — Technological controls	Mixed	Application security requirements checklist in Secure-development-pack (signed private PDF 2026-08-13) (RLS, authz, secrets, SSRF, ENC2).	Implemented
A.8.27	Secure system architecture and engineering principles	A.8 — Technological controls	App	Browser untrusted; server authz; RLS; defence in depth (documented in whitepaper).	Implemented
A.8.28	Secure coding	A.8 — Technological controls	Mixed	Secure-coding checklist (escapeHtml/DOMPurify/path gateway/audit:deps) in Secure-development-pack (signed private PDF 2026-08-13).	Implemented
A.8.29	Security testing in development and acceptance	A.8 — Technological controls	Mixed	Acceptance gates: security-smoke, security-idor, audit:deps via GitHub Actions workflow security-tests + Secure-development-pack (signed private PDF 2026-08-13). External pen-test remains future engagement.	Implemented
A.8.30	Outsourced development	A.8 — Technological controls	Company (policy)	No outsourced development currently; contractor rules defined if engaged — Audit-testing-IP-outsourcing (signed private PDF 2026-08-13).	Implemented
A.8.31	Separation of development, test and production environments	A.8 — Technological controls	Mixed	Dedicated dual tracks (Aug 2026): Git main → Vercel saas-flex-hr-sql + Supabase FluxeHRa (prod, eu-west-1); Git dev → Vercel saas-flex-hr-sql-dev + Supabase FluxeHRa-dev (eu-west-1). Private evidence: ops/EV-ENV-SEPARATION-*-2026-08-16.png plus console captures (prod domains, dub1, env names, Deployment Protection, prod region, Auth URLs) — docs/provider-isms-evidence.md. Non-prod data policy signed; assertNonProdSupabaseUrl when PRODUCTION_SUPABASE_URL set on Preview/Dev.	Implemented
A.8.32	Change management	A.8 — Technological controls	Mixed	Change management = Git + Vercel deploy for solo operator (Secure-development-pack (signed private PDF 2026-08-13)); CAB deferred until team growth.	Implemented
A.8.33	Test information	A.8 — Technological controls	Mixed	Dummy-data tooling + non-prod data policy signed Aug 2026 (no prod dumps; redact if copy ever needed) — Certification documentation/ops/Non-prod-data-policy.	Implemented
A.8.34	Protection of information	A.8 — Technological	Company (policy)	Rules for customer/vendor audit testing vs production in Audit-testing-IP-outsourcing	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
	systems during audit testing	controls		(signed private PDF 2026-08-13).	

This catalogue is a living SoA-style view for customer due diligence. Remaining Partial *rows are A.5.20, A.5.31, A.5.35.* Platform / sub-processor *= sub-processor data-centre controls.* Provider ISMS (Foil Envie) *count is 0.*

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4. ISO/IEC 27017 — Cloud services security

What it expects: Cloud-specific guidance extending 27001: shared responsibility, virtualization/admin separation, customer data isolation, cloud logging, and clarity of cloud service customer vs provider duties.

How FluxeHRa stands: Explicit shared-responsibility model (§11): customer (controller) → FluxeHRa app controls → Foil Envie ISMS (Provider ISMS (Foil Envie)) → Supabase/Vercel. Multi-tenant isolation via RLS + API scope; privileged proxy does not elevate JWT/RLS; org admin SSO to customer IdP supported.

Strengths: tenant RLS, org-scoped storage paths, per-integration export HMAC/IP allow-list options, documented EU regions, SU data access gated by 48h Org Admin grant (deploy of default config is separate change-management control).

Residual: customers should retain sub-processor contracts; Foil Envie documents EU regions and Supabase Pro backup RPO≤24h / internal RTO≤4h. Customer DPA signature remains A.5.20 / A.5.31.

Customer still should: configure SSO, roles, session policy; review SU vs org admin privileges; retain cloud contracts and region evidence.

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5. ISO/IEC 27018 — PII protection in public cloud

What it expects: Controls for protecting personally identifiable information (PII) processed by public cloud processors: purpose limitation, transparency, data return/erasure, disclosure, and security of PII.

How FluxeHRa stands: HR PII is core to the product. Technical protections include sensitive-field encryption, visibility minimization, private DMS, EU hosting alignment, hashed public tokens for new-hire data collection. The product does not use customer HR data for advertising or unrelated secondary purposes.

Strengths: encryption + visibility + private documents + org deletion + DSAR export/anonymize + real retention purge.

Residual: special-category ESS consent is persisted via `field_consents` + My preferences withdraw. No ISO/SOC *certificate* is claimed (external campaign = A.5.35).

Customer still should: define lawful basis, retention schedules, DPIA; use in-product DSAR export/anonymize and retention purge; execute signed DPA.

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6. ISO/IEC 27701 — Privacy information management

What it expects: Extension of 27001/27002 for a Privacy Information Management System (PIMS), clarifying controller vs processor obligations and PII processing controls.

How FluxeHRa stands: Typically acts as **processor** for customer employee data; customer is **controller**. Product supplies technical PIMS measures (visibility, DSAR, retention purge, consents, Art.30 processor register, IR). Controller DPIA / lawful basis / signed customer DPA remain Customer (A.5.20 / A.5.31).

Strengths: field-level access control, encryption, auditability of admin actions, tokenized candidate data request, org-wide deletion, AIPD support pack, DSAR export/anonymize, Trust Center.

Residual: signed customer DPA (first commercial customer); independent certification campaign (A.5.35). Core HR write auditing is implemented.

Customer still should: appoint DPO as required; execute DPA; instruct retention; run subject-rights procedures.

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7. ISO/IEC 25010 — Software product quality

What it expects: A quality model: functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, portability.

How FluxeHRa stands:

- **Functional suitability:** Core HR (bitemporal), performance, learning, compensation, analytics, integrations — recruitment still placeholder.
- **Security:** layered controls described in §§2–6 and whitepaper.
- **Usability:** role-based shells (HR / manager / employee / SU); schema-driven forms.
- **Reliability / maintainability:** migrations, `security-tests` CI, Components Update SLA; Axiom SIEM. Optional Sentry APM is extra observability, not an Annex A blocker.

Customer still should: UAT against their HR processes; monitor availability via status/ops agreements.

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8. Control matrix (compact thematic view)

High-level themes (see §3 for the full Annex A dump). Evidence IDs link to §10.

Control theme	Expectation	FluxeHRa implementation	Status	Evidence ID
Access control (27001 A.8)	Authenticate users; enforce least privilege; protect privileged accounts	Supabase Auth (PKCE/JWT), RBAC, HR geo scope, MFA TOTP for admin/super_admin/hr/Domain Admin (default ON in production), idle timeout, default-deny APIs	Implemented	EV-AUTH-MFA, EV-RBAC-ROLES
Cryptography (27001 A.8)	Protect confidentiality of sensitive data in transit and at rest	HTTPS/HSTS; AES-256-GCM field encryption (`ENC2::`) for `sensitive` schema fields; hashed integration keys	Implemented	EV-CRYPTO-FIELD
Logging & monitoring (27001 A.8)	Record security-relevant events with accountable identity	`audit_logs` with real vs proxied user; Audit Trail UI; Core HR hire/update/terminate audited; export fingerprint for integrations	Implemented	EV-AUDIT-TRAIL, EV-PROXY
Secure development (27001 A.8)	Apply secure SDLC, dependency hygiene, change control	TypeScript strict build, migrations, `security-tests` CI (smoke/IDOR/audit:deps), Components Update + SLA, signed Secure-	Implemented	EV-SDLC-TESTS, EV-SECURITY-WATCH, EV-ENV-SEPARATION

Control theme	Expectation	FluxeHRa implementation	Status	Evidence ID
		development-pack, SU Admin Security Watch + Dependabot (A.5.6)		
Network & application hardening	Reduce attack surface (headers, rate limits, SSRF, XSS)	CSP (nonce + strict-dynamic), HSTS, X-Frame-Options, rate limits, SSRF guard, DOMPurify/escapeHtml, Turnstile	Implemented	EV-HEADERS-CSP, EV-TURNSTILE
Supplier / cloud (27001 A.5; 27017)	Manage cloud shared responsibility and sub-processors	Documented sub-processors Supabase (eu-west-1) + Vercel (dub1); Security Watch (CERT-FR / CISA / OSV); customer DPA/contracts outside product	Platform / sub-processor	EV-HOSTING-REGIONS, EV-SECURITY-WATCH, EV-SUPPLIER-VERCEL, EV-SUPPLIER-SUPABASE
Tenant isolation (27017)	Separate customer environments/data in multi-tenant cloud	Shared-schema multi-tenancy with `organization_id` + PostgreSQL RLS; API `assertOrganizationScope`; org-prefixed storage paths	Implemented	EV-RLS-TENANT
Customer admin capabilities (27017)	Secure privileged customer administration and virtualization/proxy	Org Admin / SU Admin roles; SU tenant entry requires Org Admin–approved 48h grant (`su_org_access_grants`); proxy only after enter with dual audit attribution	Implemented	EV-PROXY, EV-SU-ORG-ACCESS, EV-RBAC-ROLES
PII protection in cloud (27018)	Protect personally identifiable information processed in public cloud	Field visibility matrix; ENC2 sensitive encryption; private documents bucket; EU regions; leak-path PII redact; no product secondary use of HR PII	Implemented	EV-VISIBILITY, EV-CRYPTO-FIELD, EV-DOCUMENTS
PII return / erasure (27018 / 27701)	Support return, transfer, or erasure of PII when contract ends or on request	Org deletion cascade; per-employee DSAR export + in-place anonymization (legal-hold gate); retention purge job	Implemented	EV-ORG-DELETE, EV-RETENTION
Privacy technical controls (27701)	Support PIMS technical measures for processors/controllers	Visibility, retention purge, DSAR, Trust Center, ESS field_consents + My preferences, Art.30 processor register. Controller PIMS / AIPD remain Customer (not a product gap)	Implemented	EV-PROC-NEWHIRE, EV-VISIBILITY
Functional suitability (25010)	Provide correct, complete HRIS capabilities for stated needs	Core HR bitemporal lifecycle, performance, learning, compensation, analytics, integrations — recruitment placeholder	Partial	EV-PROC-NEWHIRE, EV-PROC-PERF, EV-PROC-LEARNING
Security & reliability (25010)	Withstand unauthorized access; behave consistently under load/errors	Defense-in-depth authz; rate limits; Axiom SIEM; documented backup RPO≤24h / RTO≤4h. Optional Sentry APM is not required for this control	Implemented	EV-HEADERS-CSP, EV-HOSTING-REGIONS

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9. End-to-end processes catalogue

Key HRIS processes, ISO relevance, how to test, and evidence IDs.

Process	Actors	Routes / APIs	ISO	Test procedure	Evidence
Tenant bootstrap	Super Admin	`/su-admin`, create-organization, deploy-*, module activation	27001, 27017	Create demo org; confirm seed schemas; check audit `MODULE_ACTIVATION`	EV-RBAC-ROLES, EV-AUDIT-TRAIL
Auth & session	All users	`/login`, `/{orgSlug}`, session-policy, Turnstile	27001, 27017	Login; verify idle timeout; inspect security headers (HSTS/CSP)	EV-TURNSTILE, EV-HEADERS-CSP
MFA enrollment & step-up	Admin / Super Admin	`/security/mfa`, MFA step-up at login, `REQUIRE_MFA_FOR_PRIVILEGED_ROLES`	27001, 27017	Enroll TOTP; complete login step-up to `aal2`; with flag on, privileged API returns 403 MFA_REQUIRED without MFA	EV-AUTH-MFA
Org OIDC SSO	Org Admin + IdP	Org-setup IT Link; `/api/auth/org-oidc/*`	27001, 27017	Configure OIDC; login via IdP; confirm open-redirect hardening	EV-SSO-OIDC
RBAC / roles / HR scope	Org Admin	Manage Roles; `RequireOrgPermission`	27001, 27017, 27701	Assign module permissions; verify denied module returns blocked UI/API	EV-RBAC-ROLES
New hire + employee data request	HR + candidate	HR new-hire; `/employee-data-request/{token}`	27018, 27701	Trigger data request; open public link; confirm token hashed at rest; `npm run test:employee-data-request`	EV-PROC-NEWHIRE
Employee update / termination	HR	HR Self Service employee / termination; bitemporal updates	27001, 27701	Update with effective date; terminate; verify history segments	EV-PROC-UPDATE, EV-PROC-TERMINATE
Self-service change → HR approval	Employee / Manager / HR	`/api/self-service/submit-change-request`	27001, 27701	Submit workflow field change; confirm notification; HR applies	EV-PROC-SELFSERVICE
Documents DMS	HR / Manager / Employee	`/api/documents/*`, private `documents` bucket	27001, 27018, 27701	Upload doc; attempt unauthorized download (expect deny); authorized stream via file route	EV-DOCUMENTS
Field visibility & retention	Org Admin / SU	Data Visibility & Retention UI	27018, 27701, 25010	Set manager/employee visibility; set retentionMonths; run analyze/purge	EV-VISIBILITY, EV-RETENTION
Mass upload commit / rollback	HR / Admin	Mass upload APIs; audit events	27001, 25010	Commit CSV batch; rollback; verify audit + temporal restore	EV-PROC-MASSUPLOAD
Performance campaign cycle	HR / Manager / Employee	Performance campaigns, documents, sign, push Core HR	25010, 27001	`npm run test:performance-smoke` (live org) or unit tests under `lib/performance/__tests__`	EV-PROC-PERF
Learning & attestations	Admin / Learner / Manager	Learning admin, player, compliance cron	25010, 27001	Enroll; complete SCORM/attestation; check team compliance dashboard	EV-PROC-LEARNING

Process	Actors	Routes / APIs	ISO	Test procedure	Evidence
Integrations export	Org Admin / M2M	`/api/integrations/export`, SFTP, HMAC, rate limit	27001, 27017, 27018	Regenerate key (once-only plaintext); export with Bearer + HMAC signed by that key; confirm audit fingerprint only	EV-INTEGRATIONS
Proxy / impersonation	SU with active 48h org grant, or Org Admin / HR in scope	`/api/proxy/*`, `/api/su-org-access`	27001, 27017	Request/approve SU access; Enter org; start proxy; JWT remains real user; audit dual identity	EV-PROXY, EV-SU-ORG-ACCESS
Org deletion cascade	Super Admin	`/api/admin/delete-organization`	27701, 27018	On disposable org only: delete; confirm tenant data + audit purged	EV-ORG-DELETE
Audit trail review	Org Admin / SU	Org-setup / SU Audit Trail tab	27001, 27701	Filter events; export CSV; verify proxy dual identity rows	EV-AUDIT-TRAIL

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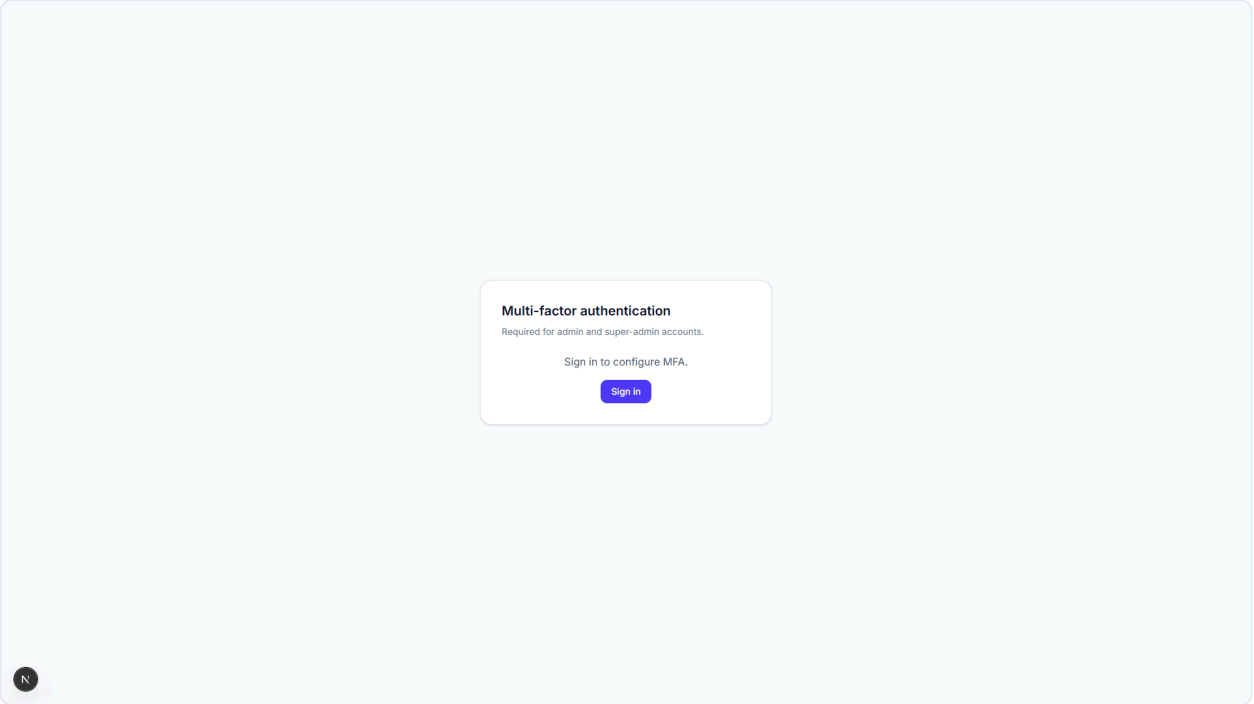
10. Evidence pack — how to prove it

Each Evidence ID: what to show, how to test, code references, and a figure slot (replace SVG placeholders with production screenshots per `docs/iso-evidence-capture-checklist.md`).

`EV-AUTH-MFA` — MFA TOTP & privileged step-up

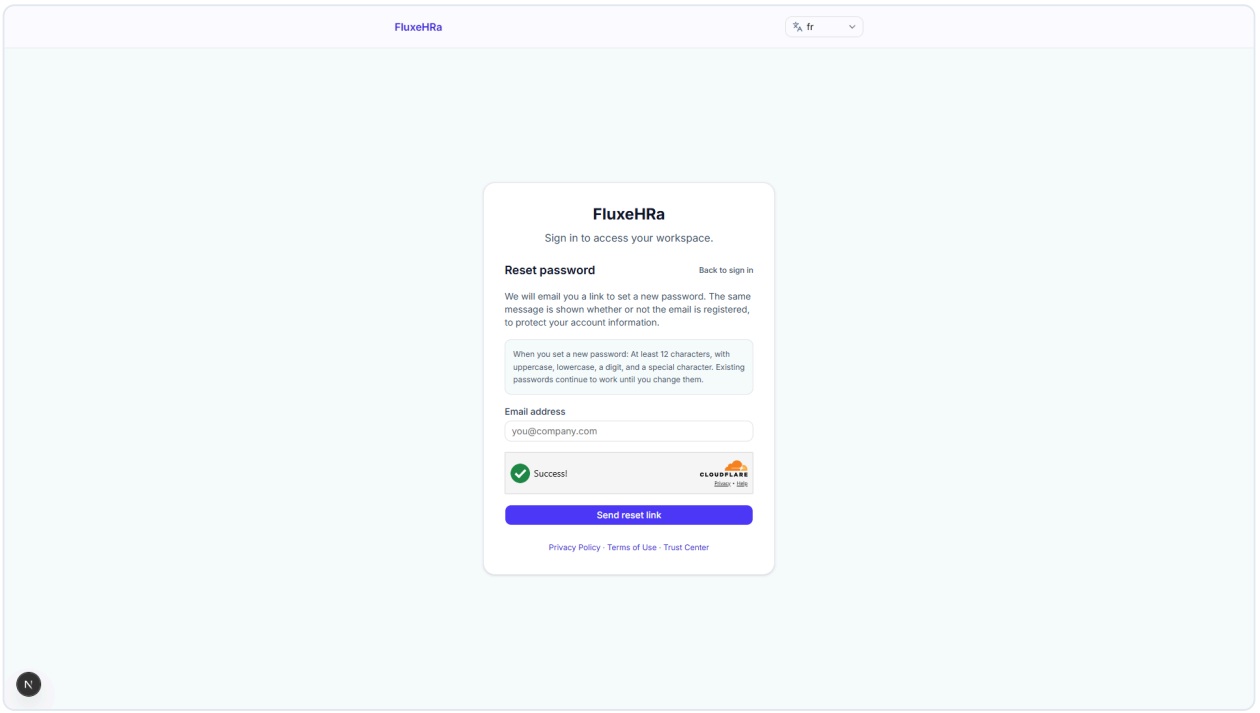
- **Show:** Page `/security/mfa`; login MFA challenge; Vercel env `REQUIRE_MFA_FOR_PRIVILEGED_ROLES`
- **Test:** Enroll authenticator; complete step-up to JWT `aal2`; call privileged API without MFA → 403 `MFA_REQUIRED`
- **Code / config:** `lib/auth-mfa-policy.ts`, `lib/mfa-step-up.ts`, `app/security/mfa/page.tsx`



`EV-AUTH-MFA` — MFA TOTP & privileged step-up (screenshot)

`EV-PASSWORD-POLICY` — Password length & complexity messaging

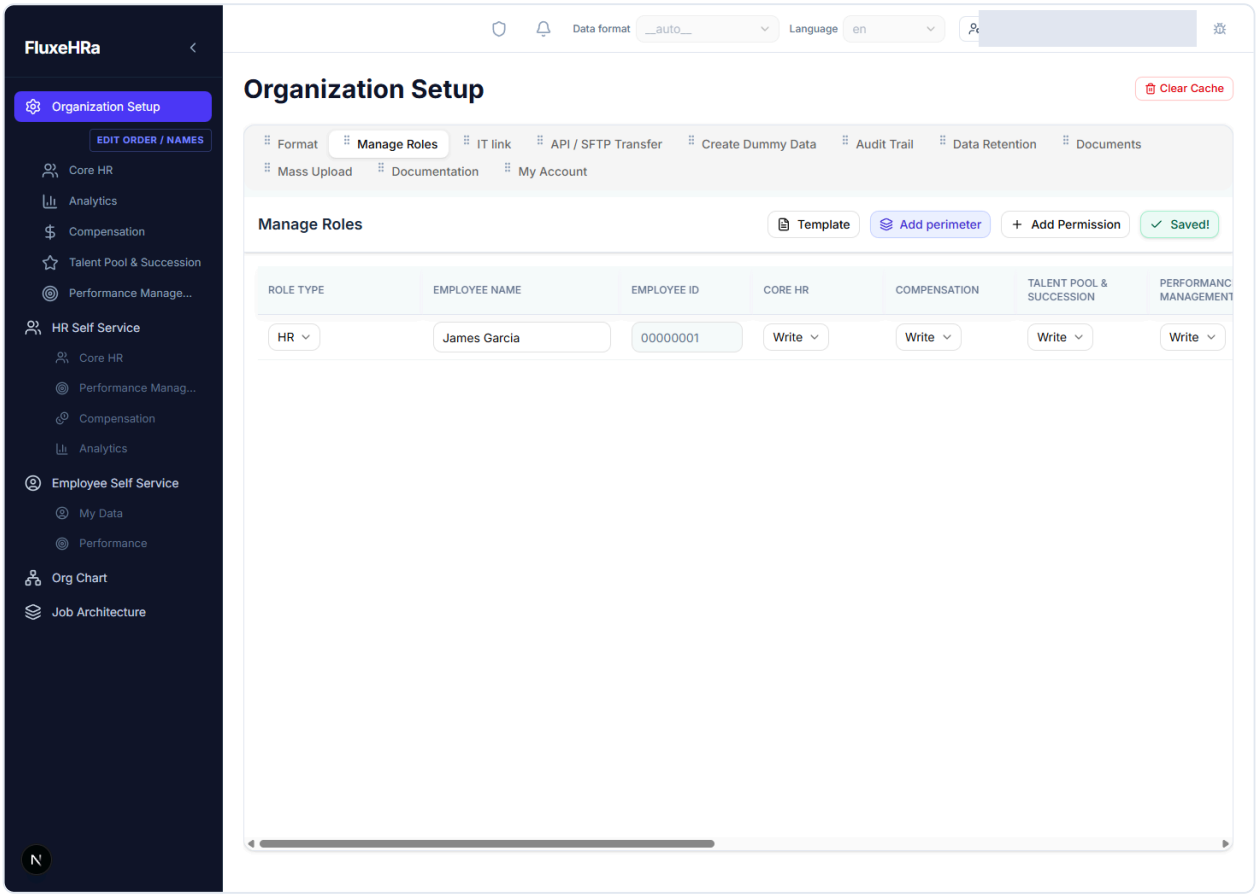
- **Show:** Login → Forgot password notice; `/reset-password` form; welcome/reset emails
- **Test:** Reject short/weak password on set/reset; existing passwords continue to work until changed
- **Code / config:** `lib/password-policy.ts`, `app/reset-password/page.tsx`, `components/sign-in-panel.tsx`, `lib/templated-auth-email.ts`



`EV-PASSWORD-POLICY` — Password length & complexity messaging (screenshot)

`EV-RBAC-ROLES` — Role & permission matrix

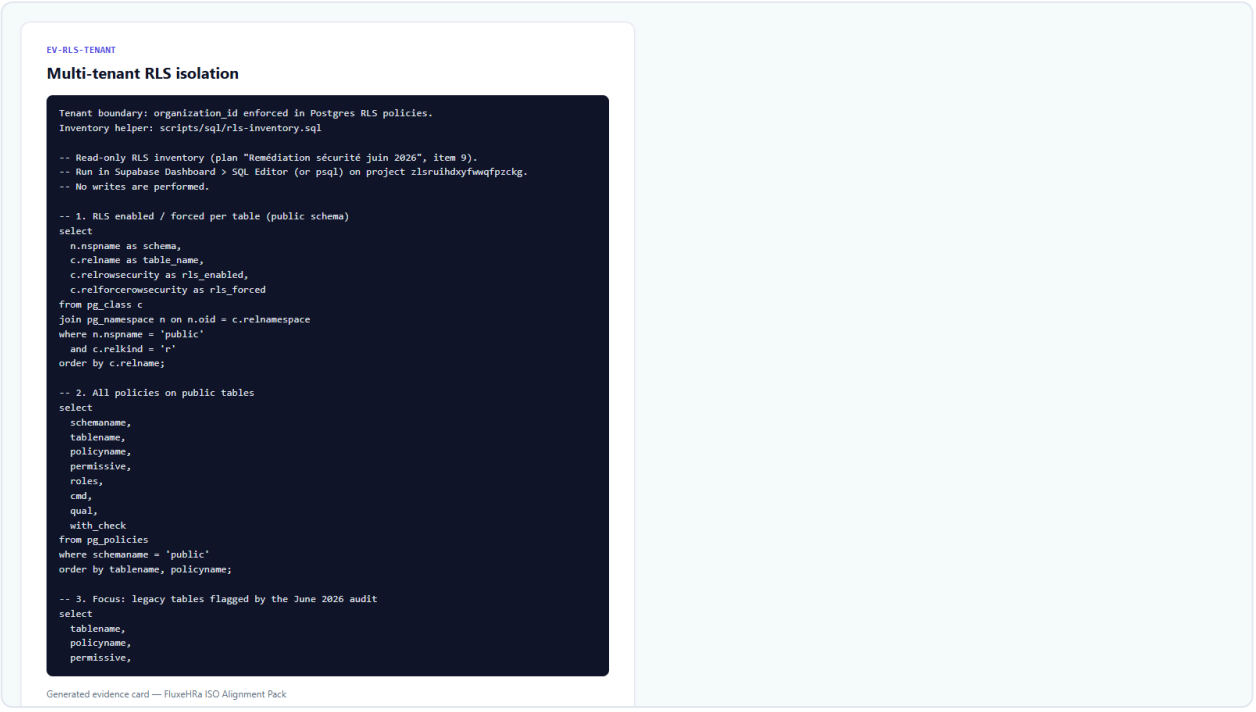
- **Show:** Org-setup → Manage Roles; SU Admin org/admins
- **Test:** Remove module write; confirm UI gate and API 403
- **Code / config:** `lib/org-permissions.ts`, `components/manage-roles-tab.tsx`, `lib/supabase-api-auth.ts`



`EV-RBAC-ROLES` — Role & permission matrix (screenshot)

`EV-RLS-TENANT` — Multi-tenant RLS isolation

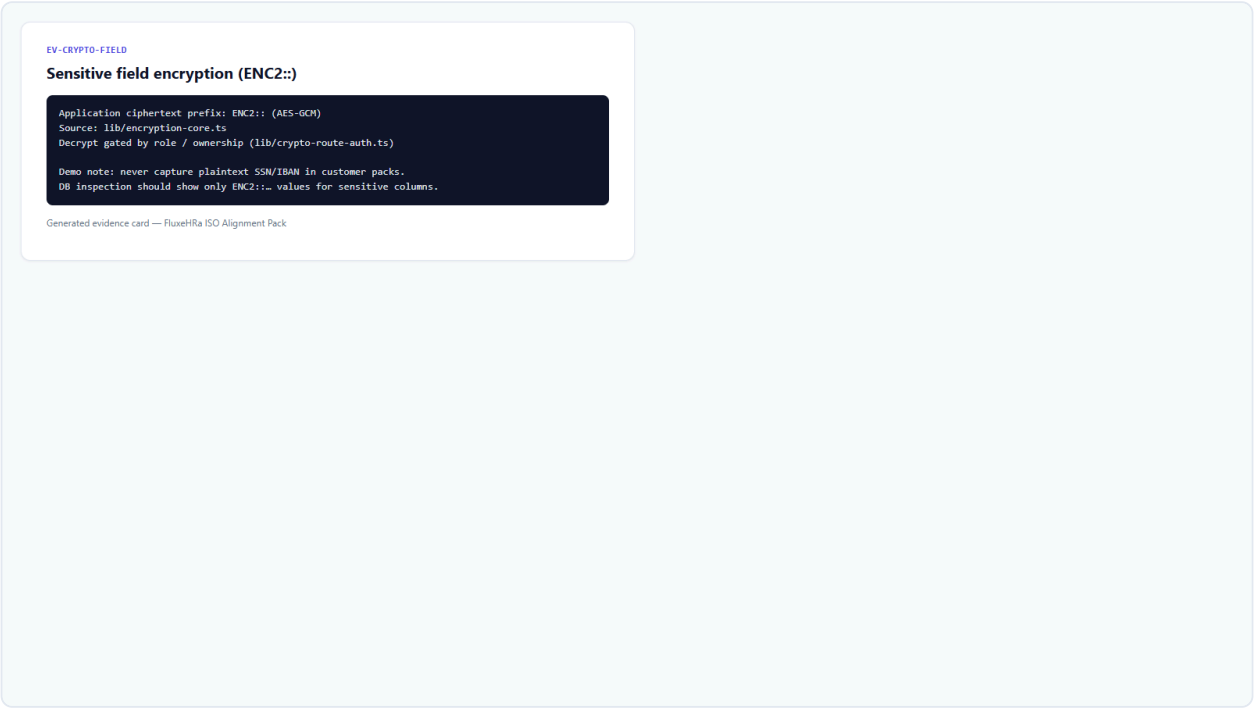
- **Show:** Attempt cross-org data access (second org user)
- **Test:** Query/API against foreign `organization_id` returns empty/denied; review RLS migrations
- **Code / config:** `supabase/migrations/20260606120000_*`, `20260610120000_*`, `scripts/sql/rls-inventory.sql`



`EV-RLS-TENANT` — Multi-tenant RLS isolation (screenshot)

`EV-CRYPTO-FIELD` — Sensitive field encryption

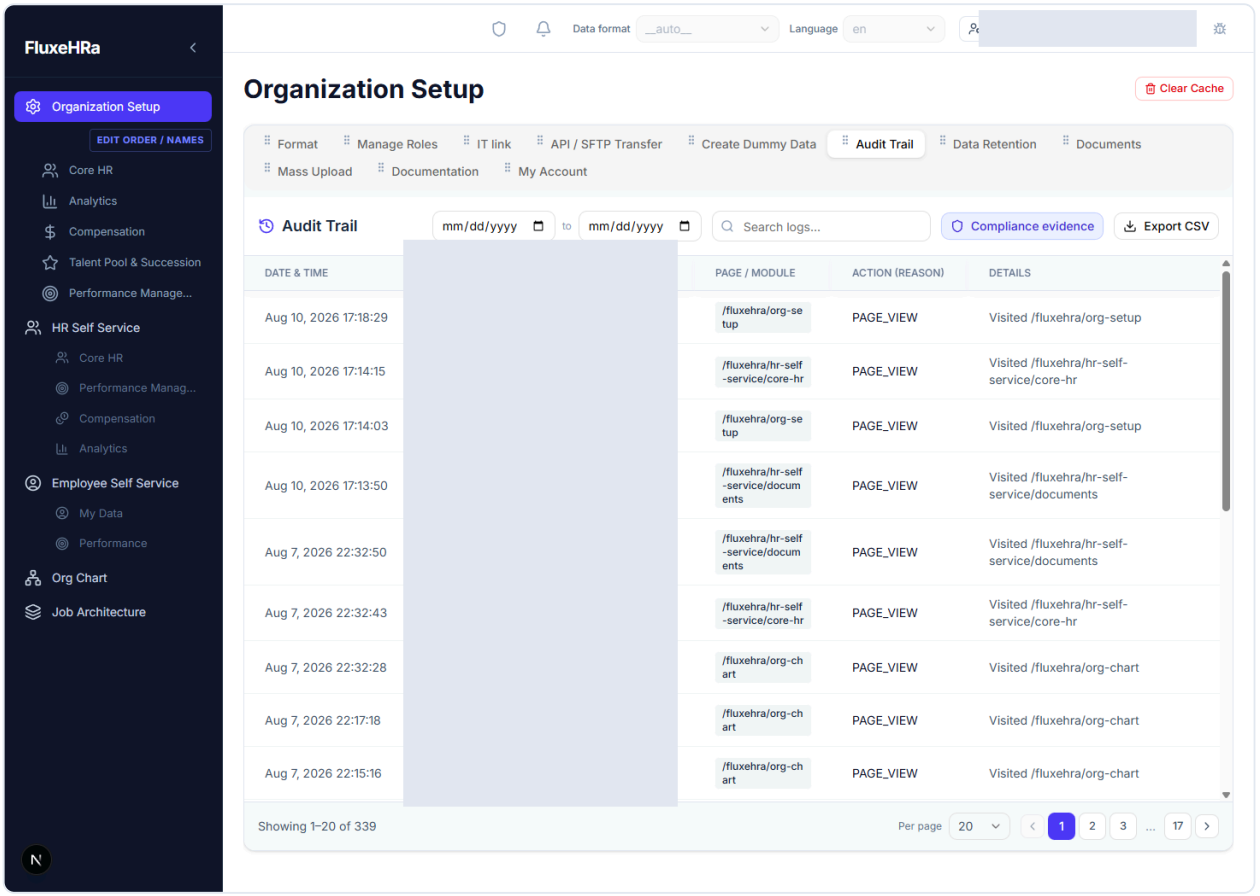
- **Show:** Save SSN/IBAN; inspect DB value prefix `ENC2::`
- **Test:** Encrypt/decrypt via authorized role; non-privileged decrypt limited to own/team ciphertext
- **Code / config:** `lib/encryption-core.ts`, `app/api/crypto/*`, `lib/crypto-route-auth.ts`



`EV-CRYPTO-FIELD` — Sensitive field encryption (screenshot)

`EV-AUDIT-TRAIL` — Audit trail UI

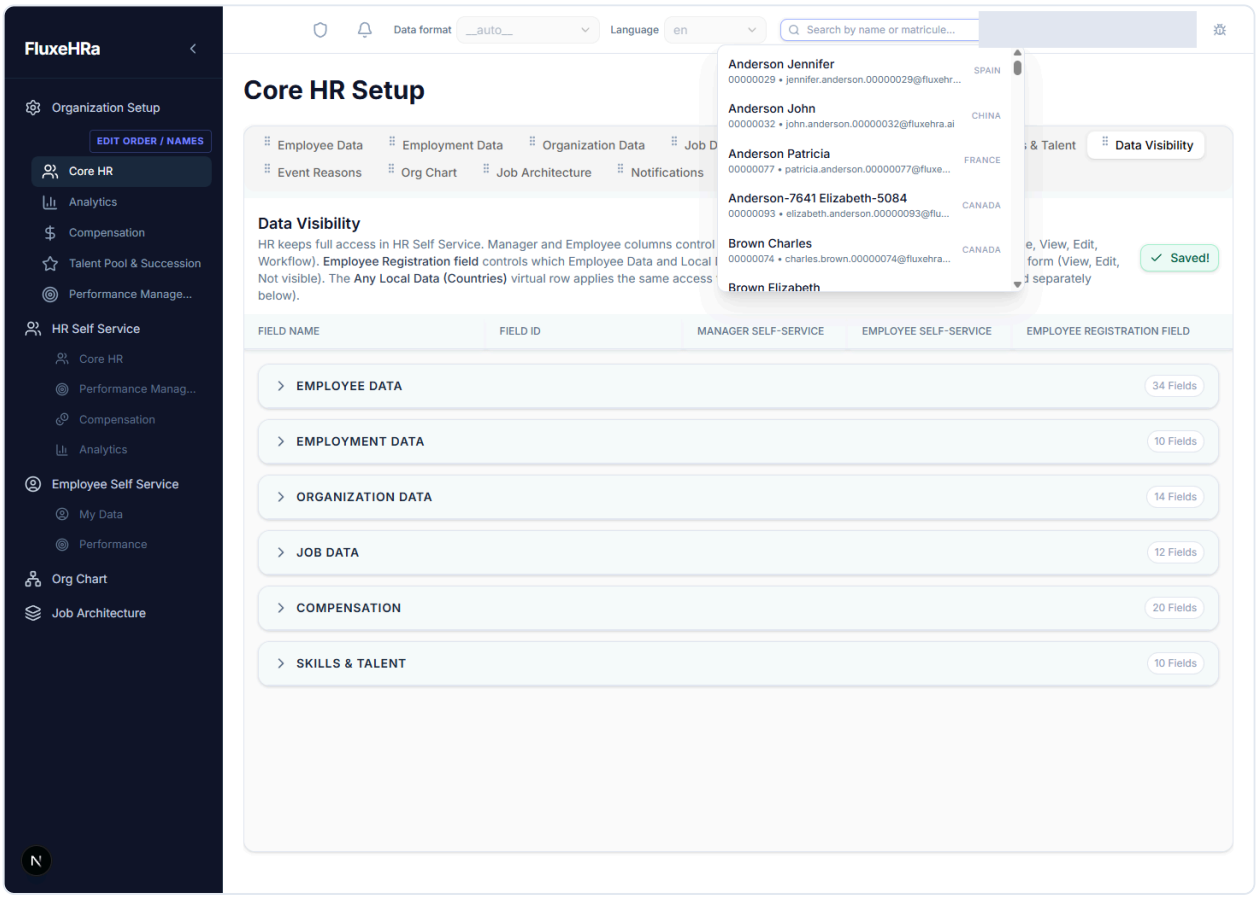
- **Show:** Org-setup / SU → Audit Trail
- **Test:** Perform audited action (mass upload, settings); confirm event row; CSV export
- **Code / config:** `lib/audit-server.ts`, `lib/audit-client.ts`, `components/audit-trail-tab.tsx`



`EV-AUDIT-TRAIL` — Audit trail UI (screenshot)

`EV-PROXY` — Proxy accountability

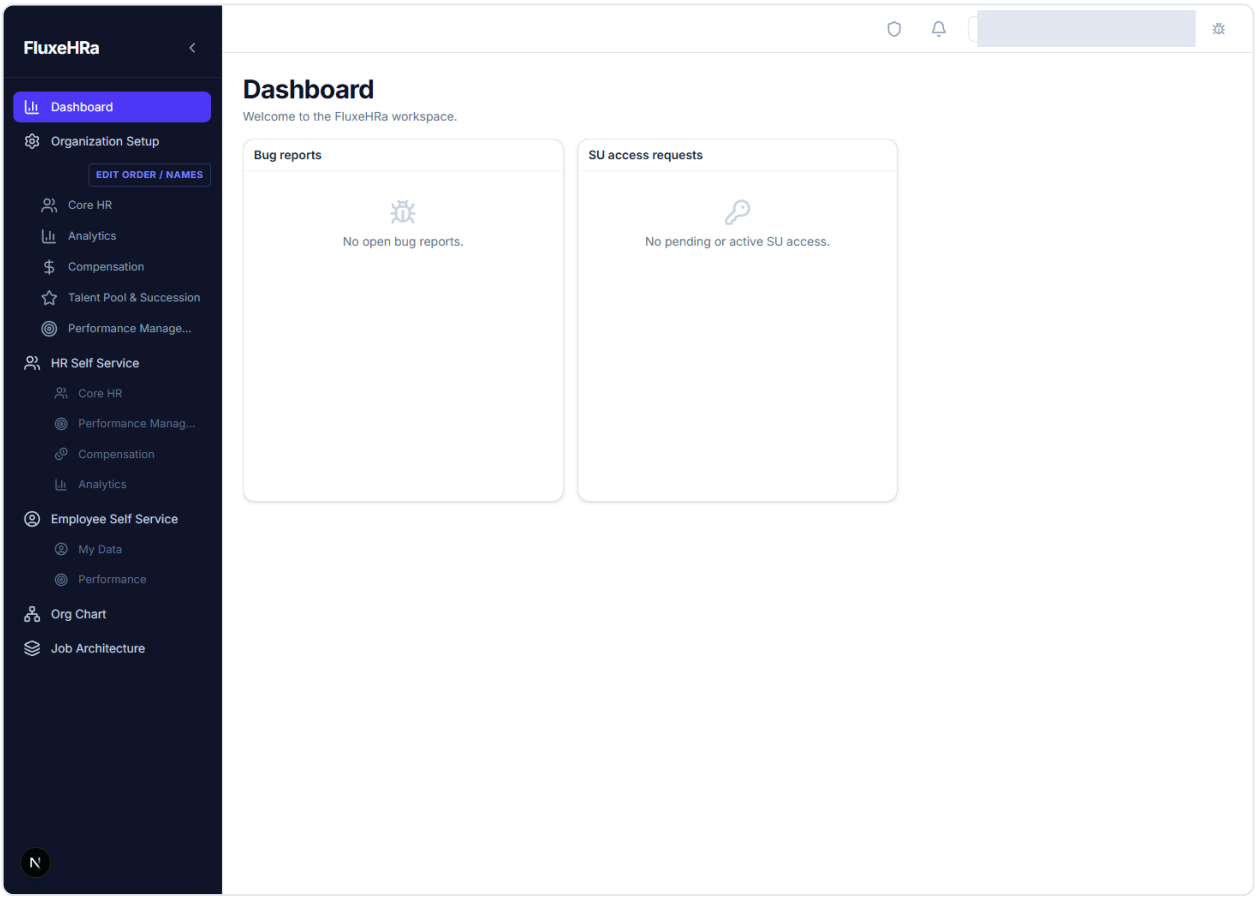
- **Show:** Proxy session banner; audit with proxied identity
- **Test:** With active SU grant (or org privileged role): start/end proxy; confirm continuous eligibility re-check; dual identity in logs
- **Code / config:** `lib/proxy-server.ts`, `lib/proxy-api-guard.ts`, `lib/su-org-access.ts`



`EV-PROXY` — Proxy accountability (screenshot)

`EV-SU-ORG-ACCESS` — SU org access grants (48h)

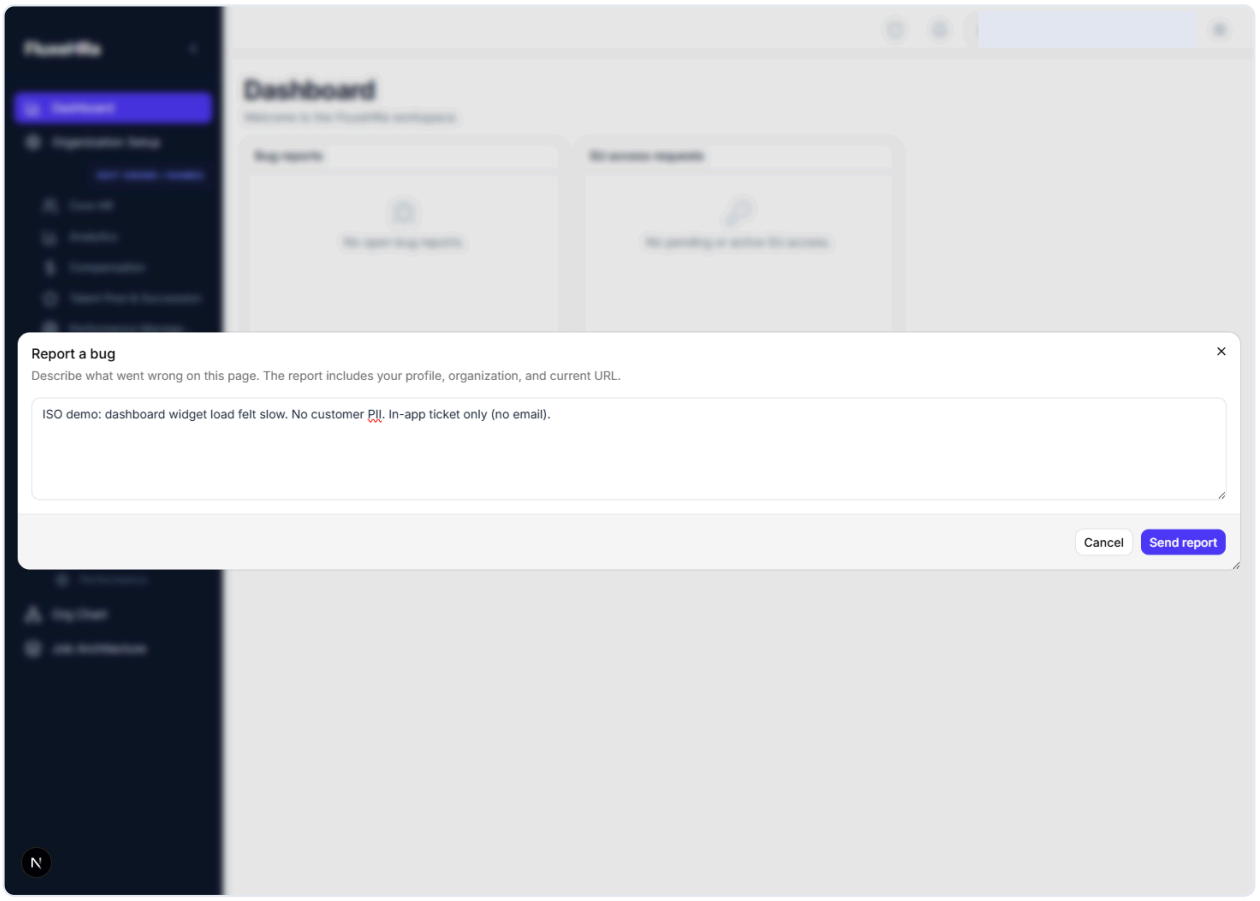
- **Show:** SU Enter Organisation → Request; Org Admin Dashboard → Accept/Deny; emerald authorized orgs
- **Test:** Approve grant; Enter org; confirm middleware/API deny without grant for data paths; expire after 48h kicks SU out. Deploy-schema to orgs does NOT require grant (config only, no PII read).
- **Code / config:** `su_org_access_grants`, `/api/su-org-access`, `has_active_su_org_grant`



`EV-SU-ORG-ACCESS` — SU org access grants (48h) (screenshot)

`EV-BUG-ESCALATION` — Manual bug escalation

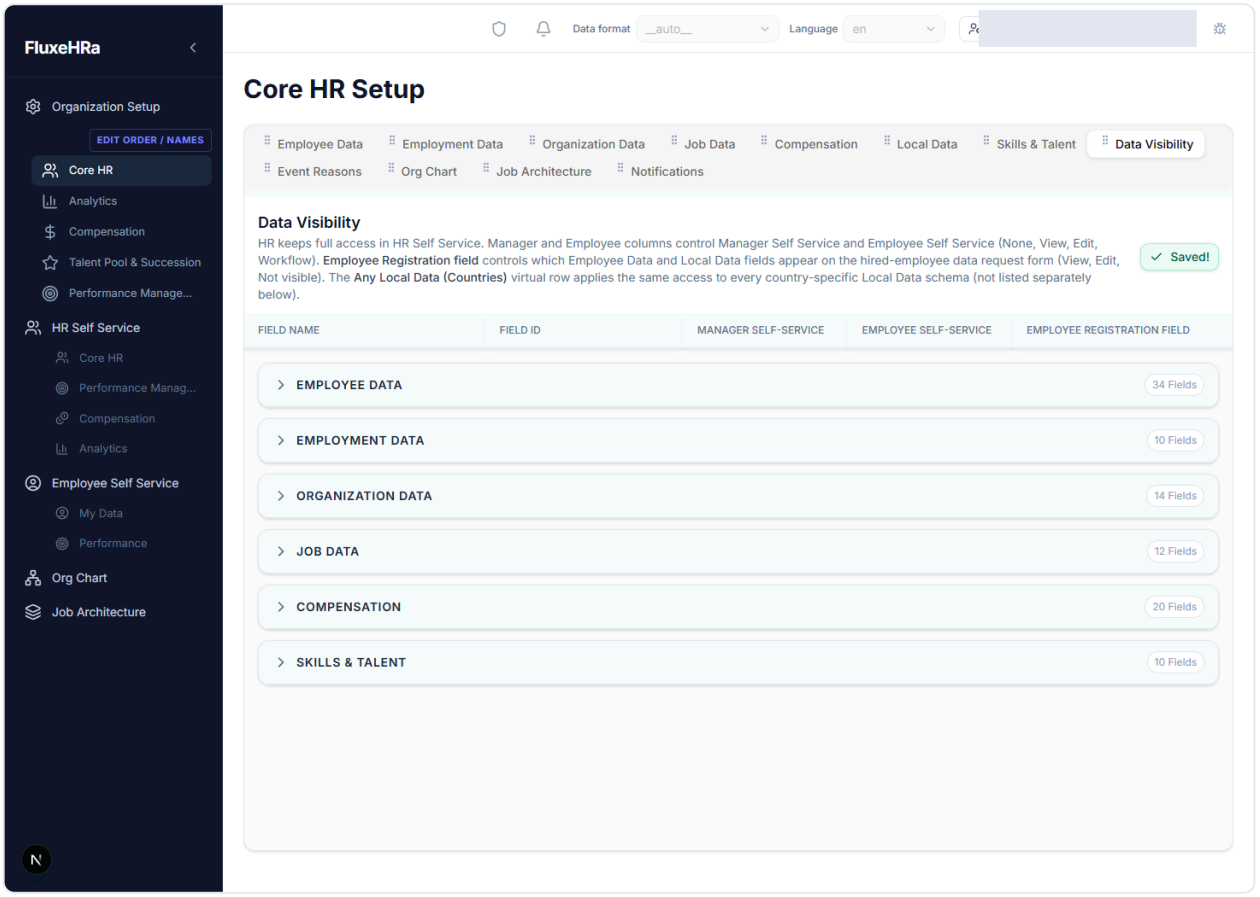
- **Show:** Report a bug → HR / Org Admin / SU Dashboard widgets
- **Test:** Submit manual bug (ticket, no email); Forward HR→Admin→SU; Clear; auto client errors still email SMTP
- **Code / config:** `bug_report_tickets`, `/api/bug-report`, `/api/bug-reports`



`EV-BUG-ESCALATION` — Manual bug escalation (screenshot)

`EV-VISIBILITY` — Data visibility matrix

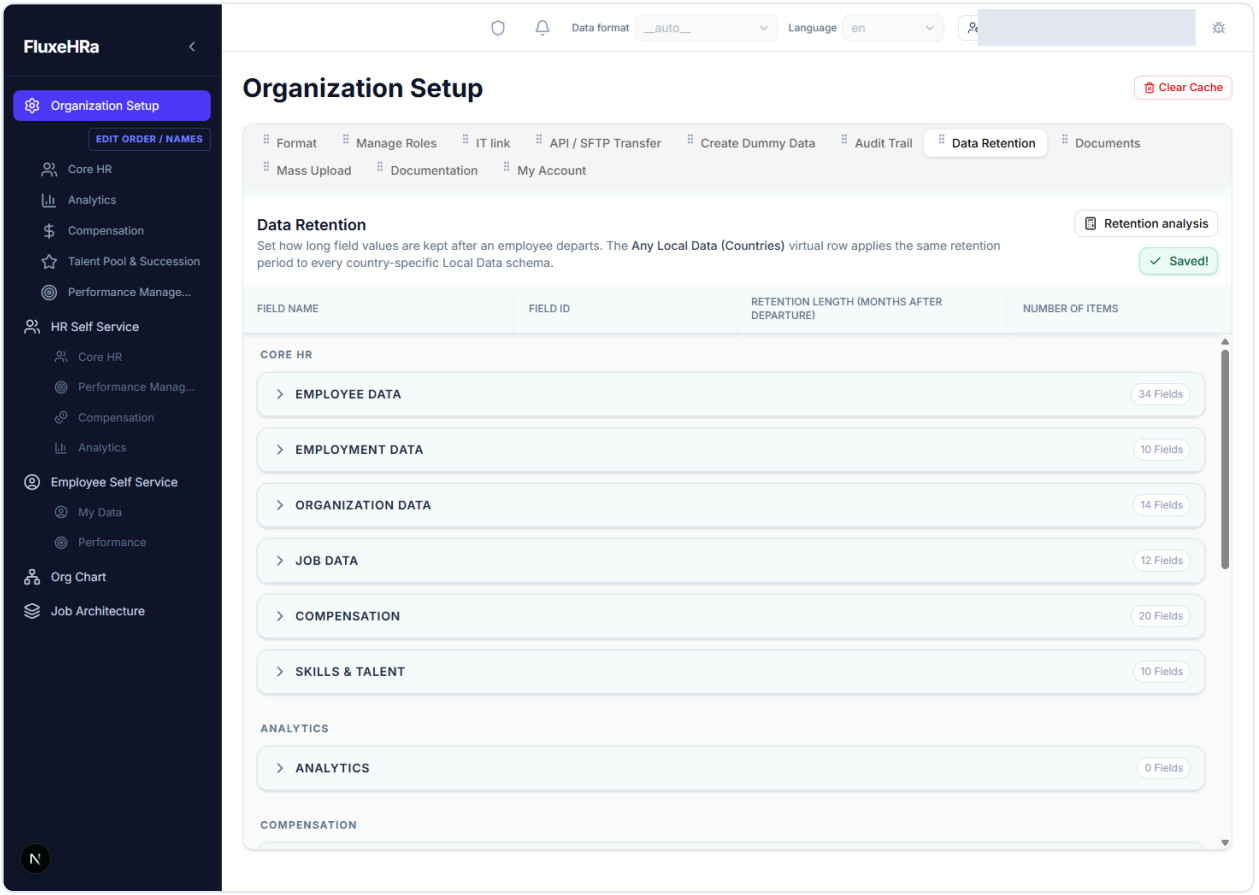
- **Show:** Core HR / Data Visibility; ESS field hidden vs HR visible
- **Test:** Set field to `none` for employee; confirm self-service omit/deny
- **Code / config:** `lib/field-visibility.ts`, `lib/self-service-submit-auth.ts`



`EV-VISIBILITY` — Data visibility matrix (screenshot)

`EV-RETENTION` — Retention configuration & purge

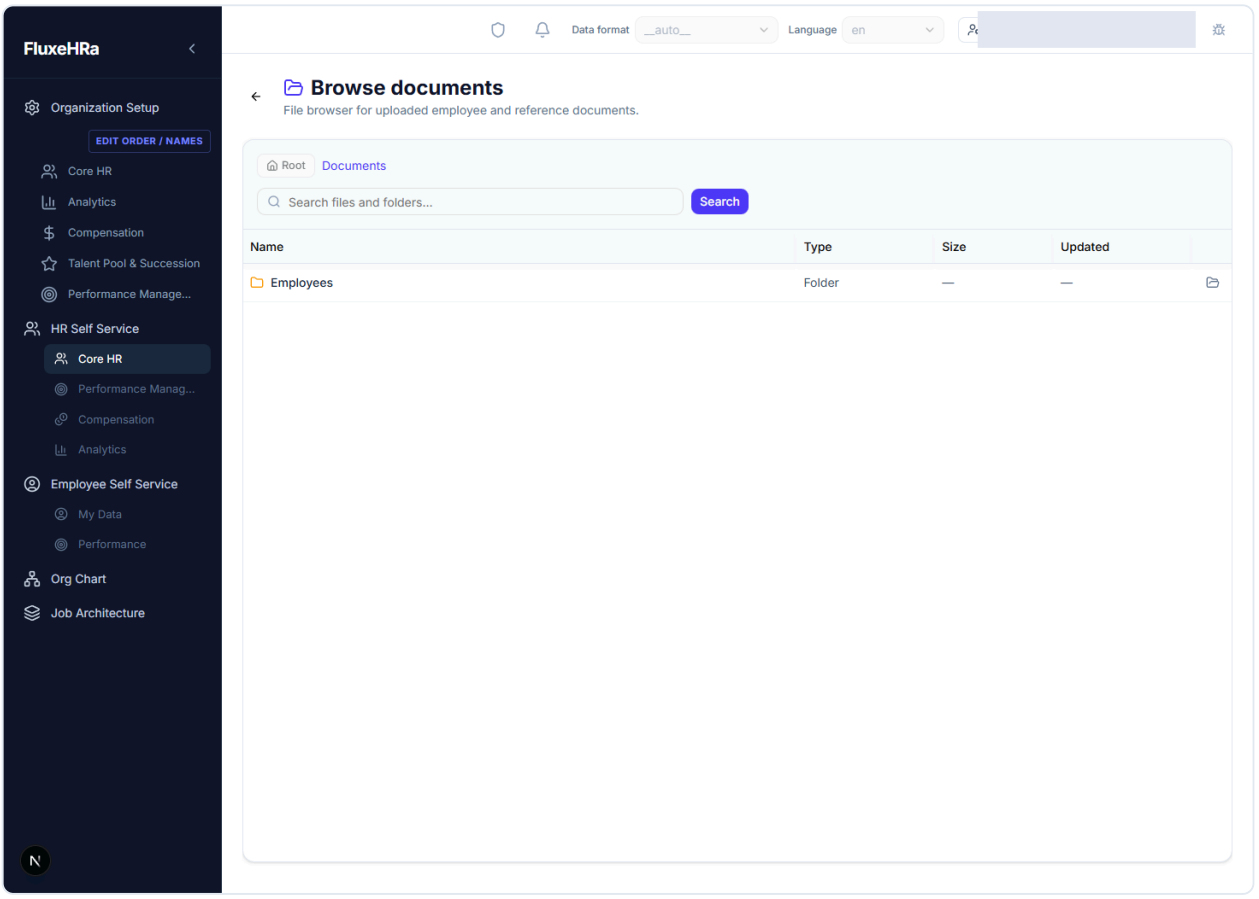
- **Show:** Retention months per field; document type retention; analyze/purge actions
- **Test:** Configure retention; run Retention analysis; purge expired values; confirm RETENTION_* audit events
- **Code / config:** `lib/retention-purge.ts`, `/api/hr/retention`, field-visibility retention tab



`EV-RETENTION` — Retention configuration & purge (screenshot)

`EV-DOCUMENTS` — Private document access

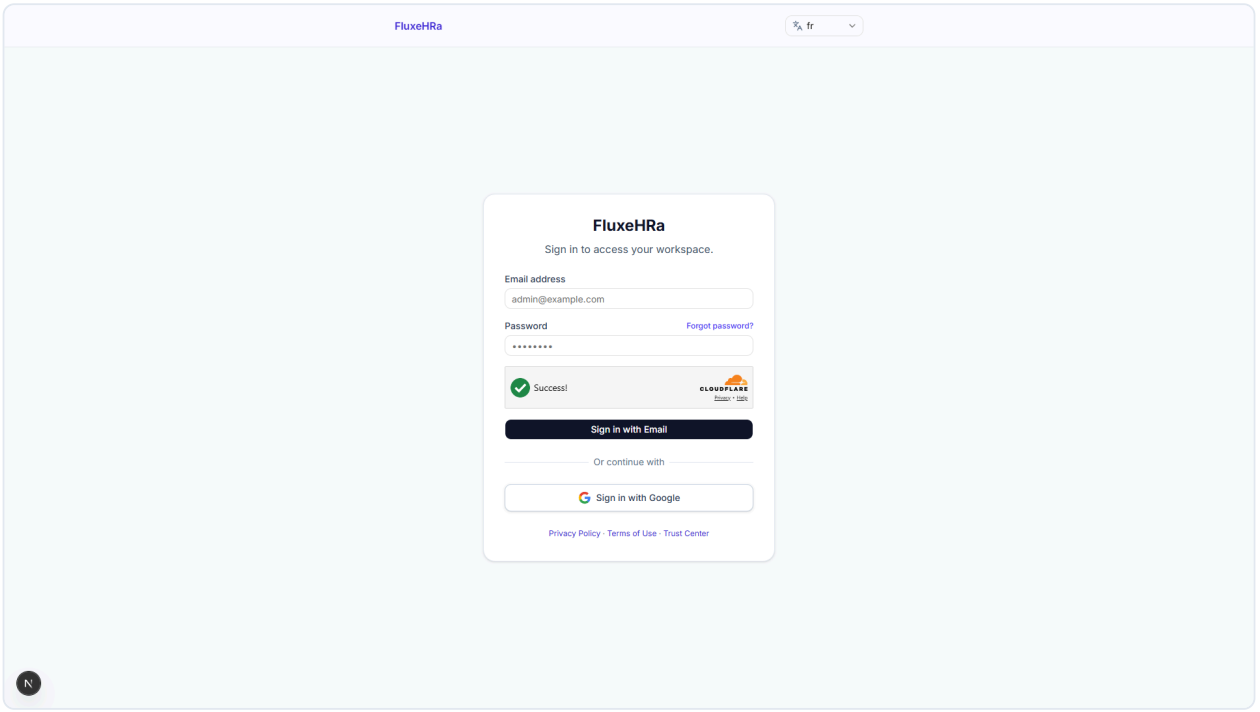
- **Show:** Upload under employee; download via app only
- **Test:** Direct storage URL without auth fails; authorized `/api/documents/file/…` succeeds; scoped HR denied outside regional perimeter on direct URL
- **Code / config:** `lib/document-access.ts`, `lib/storage-ops.ts`, migration documents bucket private



`EV-DOCUMENTS` — Private document access (screenshot)

`EV-TURNSTILE` — Bot protection (Turnstile)

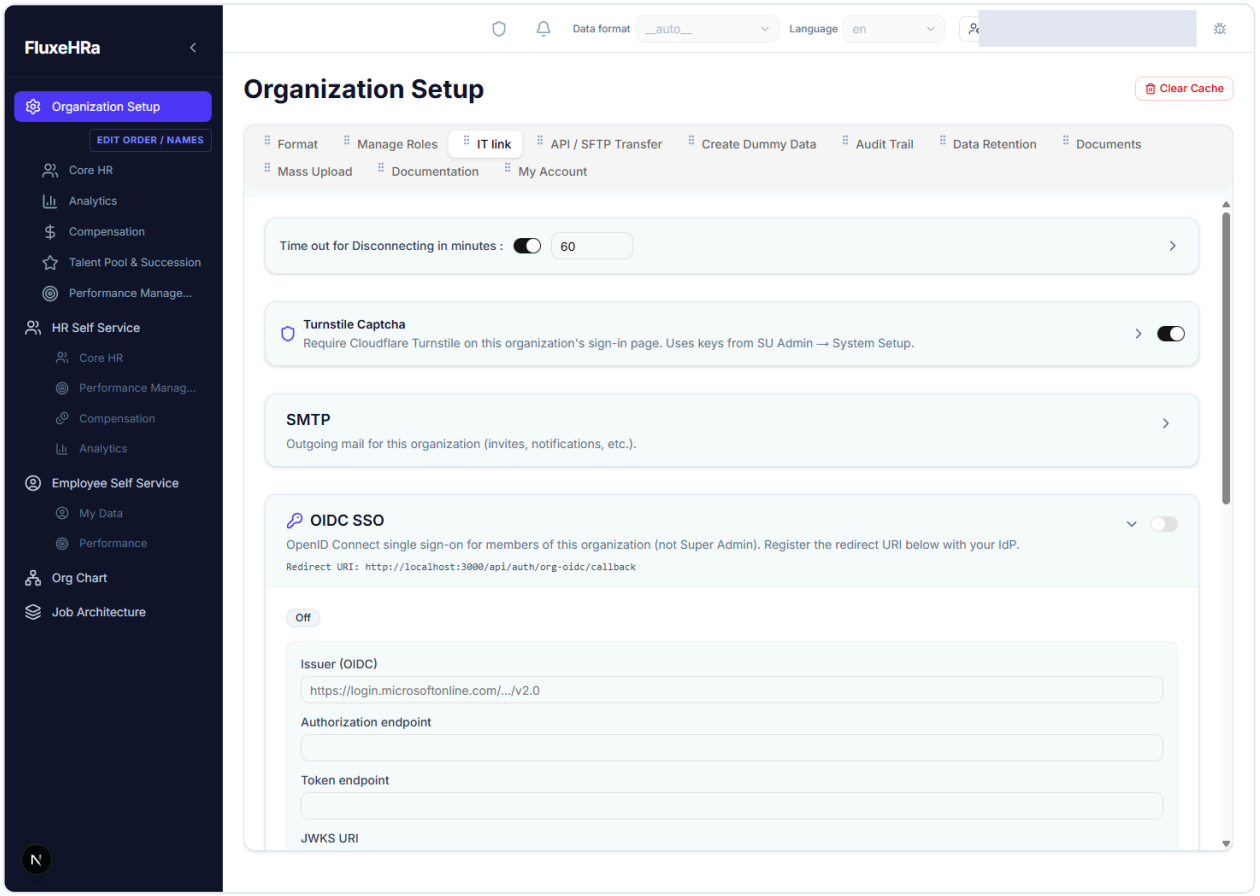
- **Show:** SU System Setup / Org IT Link Turnstile toggle; login challenge
- **Test:** Enable Turnstile; blocked without token on check-email / forgot-password
- **Code / config:** `lib/turnstile-server.ts`, `lib/turnstile-settings.ts`



`EV-TURNSTILE` — Bot protection (Turnstile) (screenshot)

`EV-SSO-OIDC` — Organization OIDC SSO

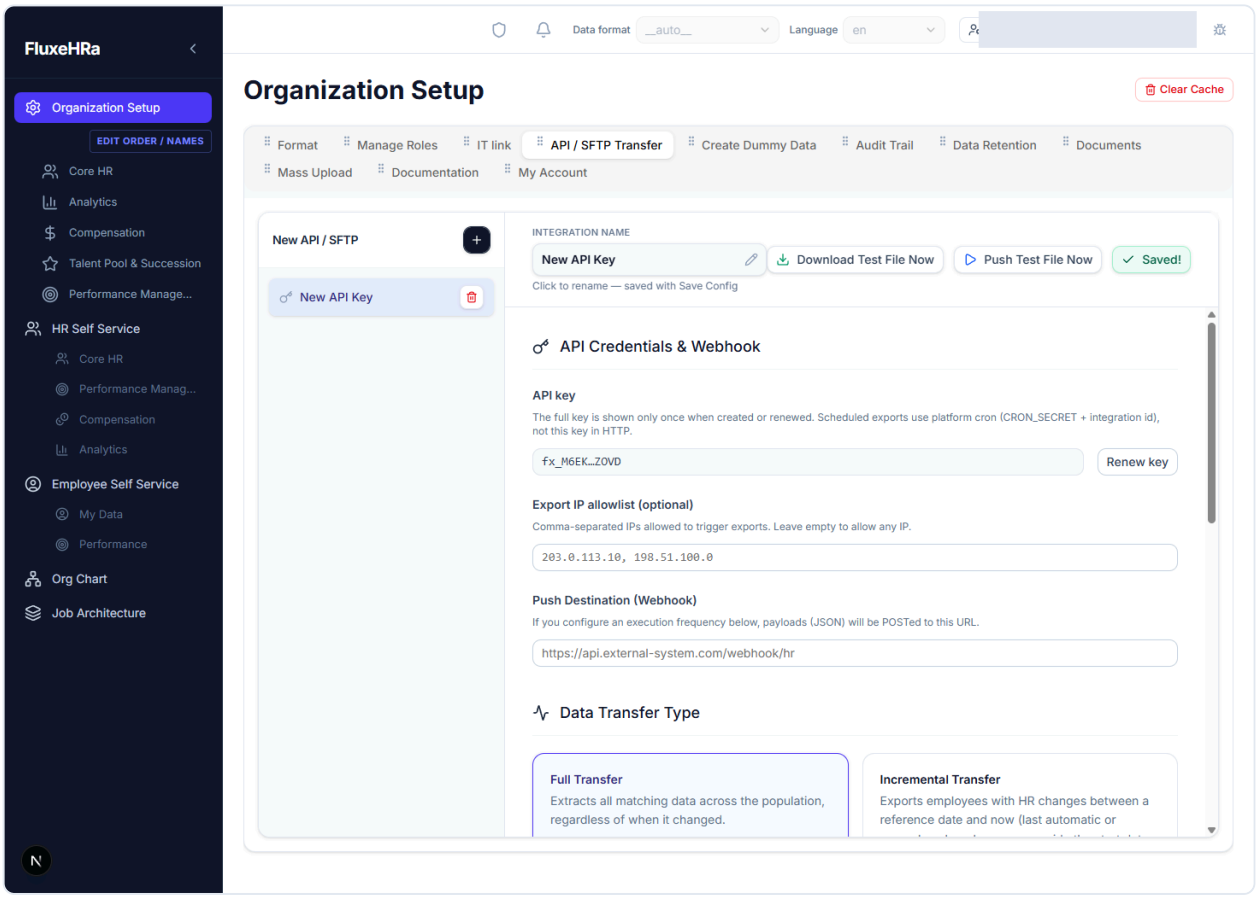
- **Show:** Org-setup → IT Link SSO settings
- **Test:** Authorize + callback with HMAC state; invalid redirect rejected
- **Code / config:** `app/api/auth/org-oidc/*`, `lib/org-oidc-state.ts`, `lib/app-origin.ts`



`EV-SSO-OIDC` — Organization OIDC SSO (screenshot)

`EV-INTEGRATIONS` — Integration export security

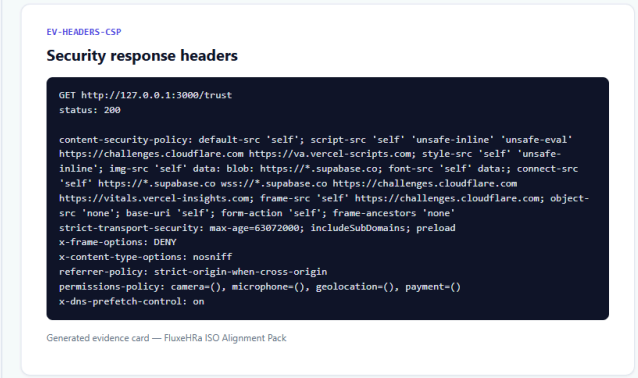
- **Show:** Org-setup → API / SFTP; regenerate key once
- **Test:** Export with Bearer integration key + HMAC headers (per-key secret); rate limit; audit stores fingerprint not payload
- **Code / config:** `lib/integration-api-key.ts`, `lib/integration-export-*.ts`



`EV-INTEGRATIONS` — Integration export security (screenshot)

`EV-HEADERS-CSP` — Security headers & CSP

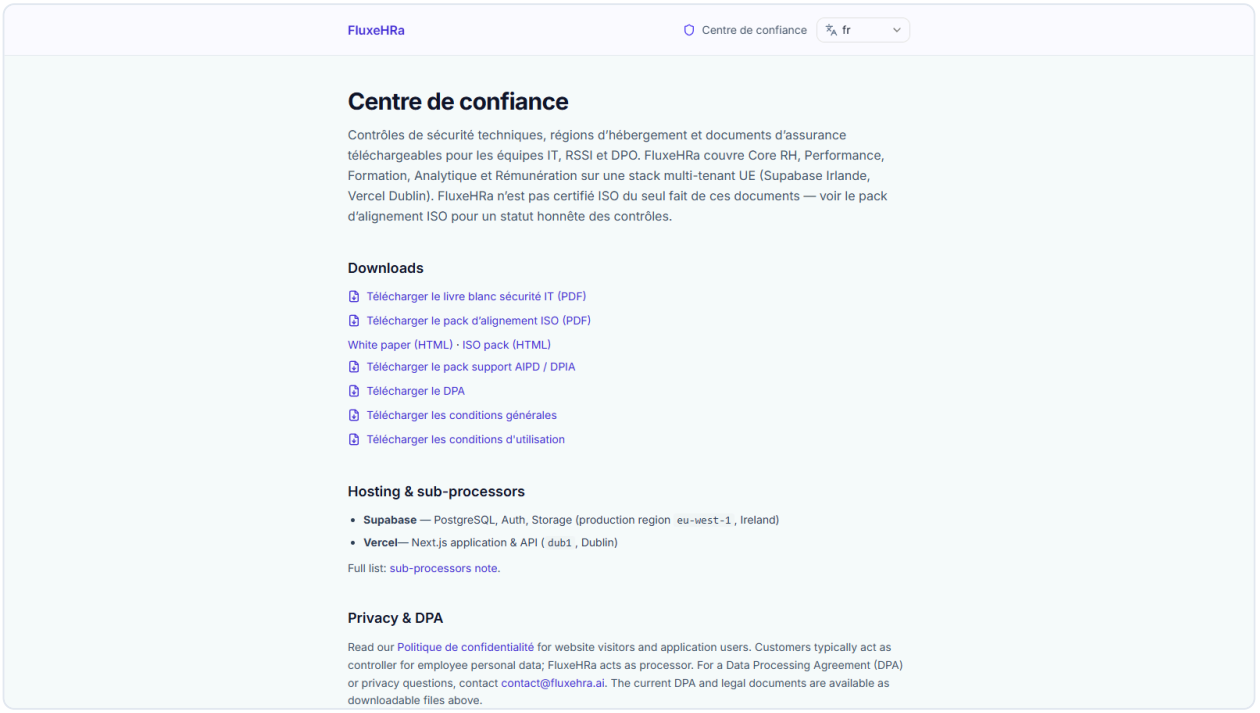
- **Show:** Browser DevTools → Response headers on any authenticated page
- **Test:** Confirm CSP nonce, HSTS, X-Frame-Options DENY, nosniff
- **Code / config:** `lib/csp.ts`, `proxy.ts`, `next.config.js`



`EV-HEADERS-CSP` — Security headers & CSP (screenshot)

`EV-HOSTING-REGIONS` — EU hosting alignment

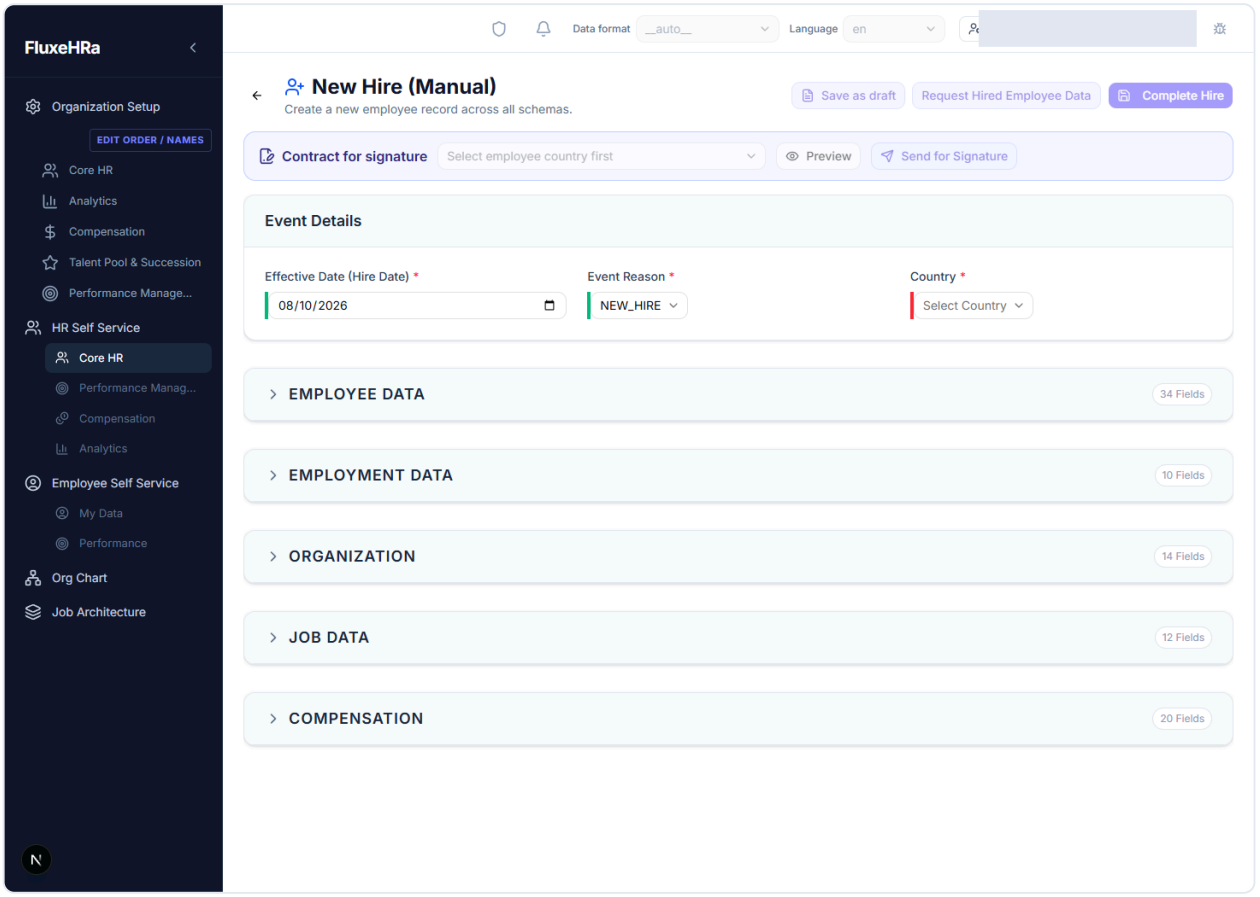
- **Show:** Supabase project region; `vercel.json` region `dub1`
- **Test:** Document eu-west-1 + dub1 in customer processing register
- **Code / config:** `vercel.json`, `.env.example`, security whitepaper § hosting



`EV-HOSTING-REGIONS` — EU hosting alignment (screenshot)

`EV-PROC-NEWHIRE` — New hire & data request

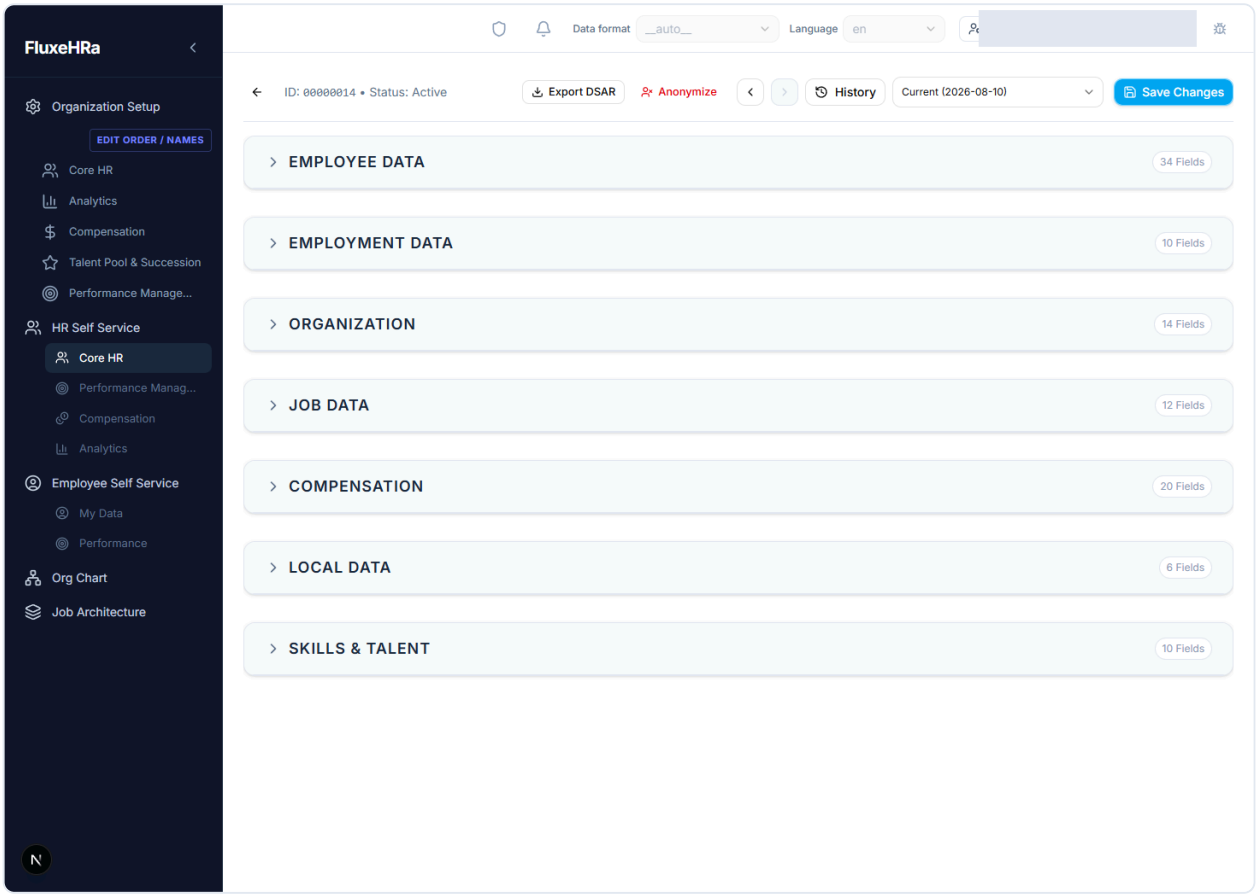
- **Show:** HR Self Service → New Hire; public token page
- **Test:** `npm run test:employee-data-request`; manual 90-day token expiry
- **Code / config:** `lib/employee-data-request-*.ts`, public EDR APIs



`EV-PROC-NEWHIRE` — New hire & data request (screenshot)

`EV-PROC-UPDATE` — Bitemporal employee update

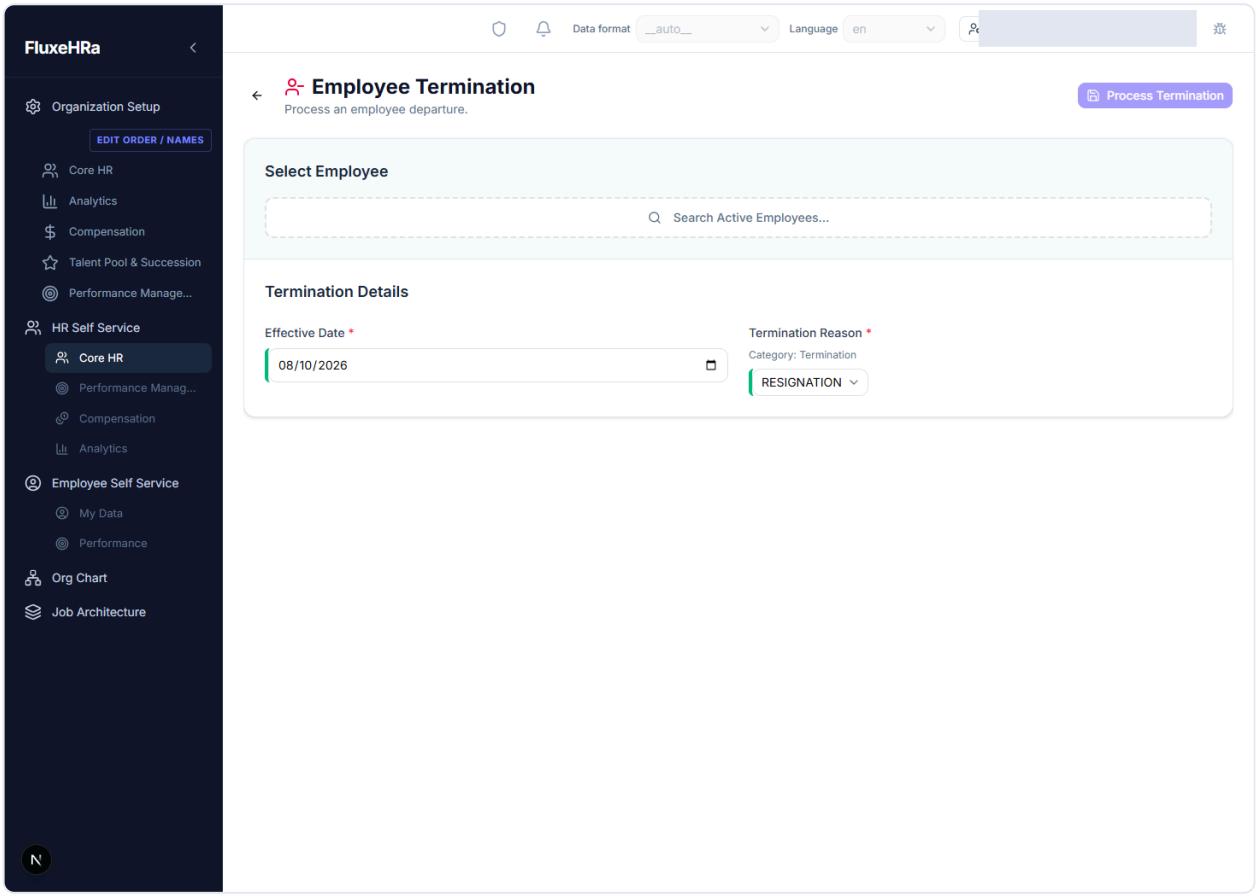
- **Show:** HR employee record with effective dating
- **Test:** Split history on mid-period change; verify prior segment retained
- **Code / config:** `lib/temporal-data.ts`



`EV-PROC-UPDATE` — Bitemporal employee update (screenshot)

`EV-PROC-TERMINATE` — Termination

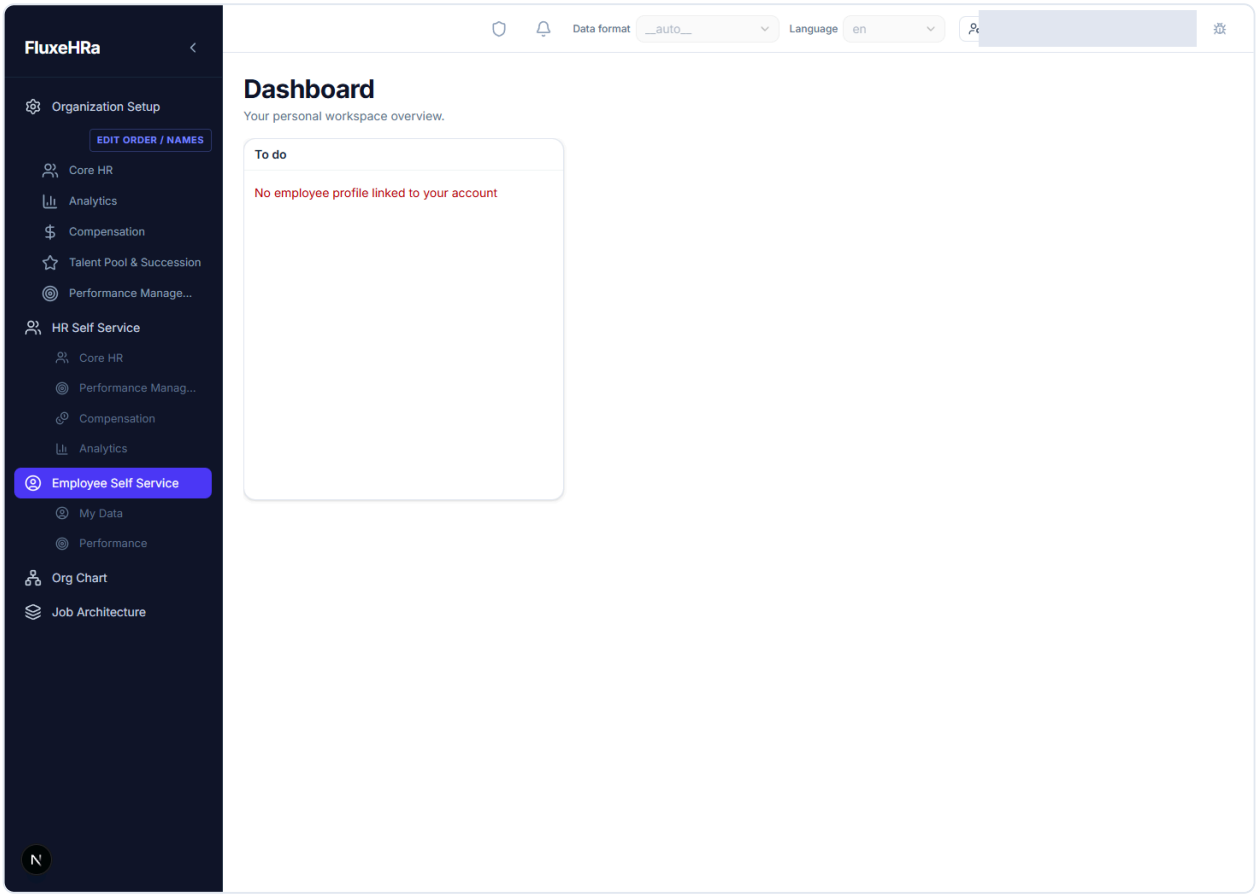
- **Show:** HR Self Service → Termination
- **Test:** Set end dates/status; confirm lifecycle event
- **Code / config:** HR termination route under `hr-self-service/termination`



`EV-PROC-TERMINATE` — Termination (screenshot)

`EV-PROC-SELFSERVICE` — Self-service change request

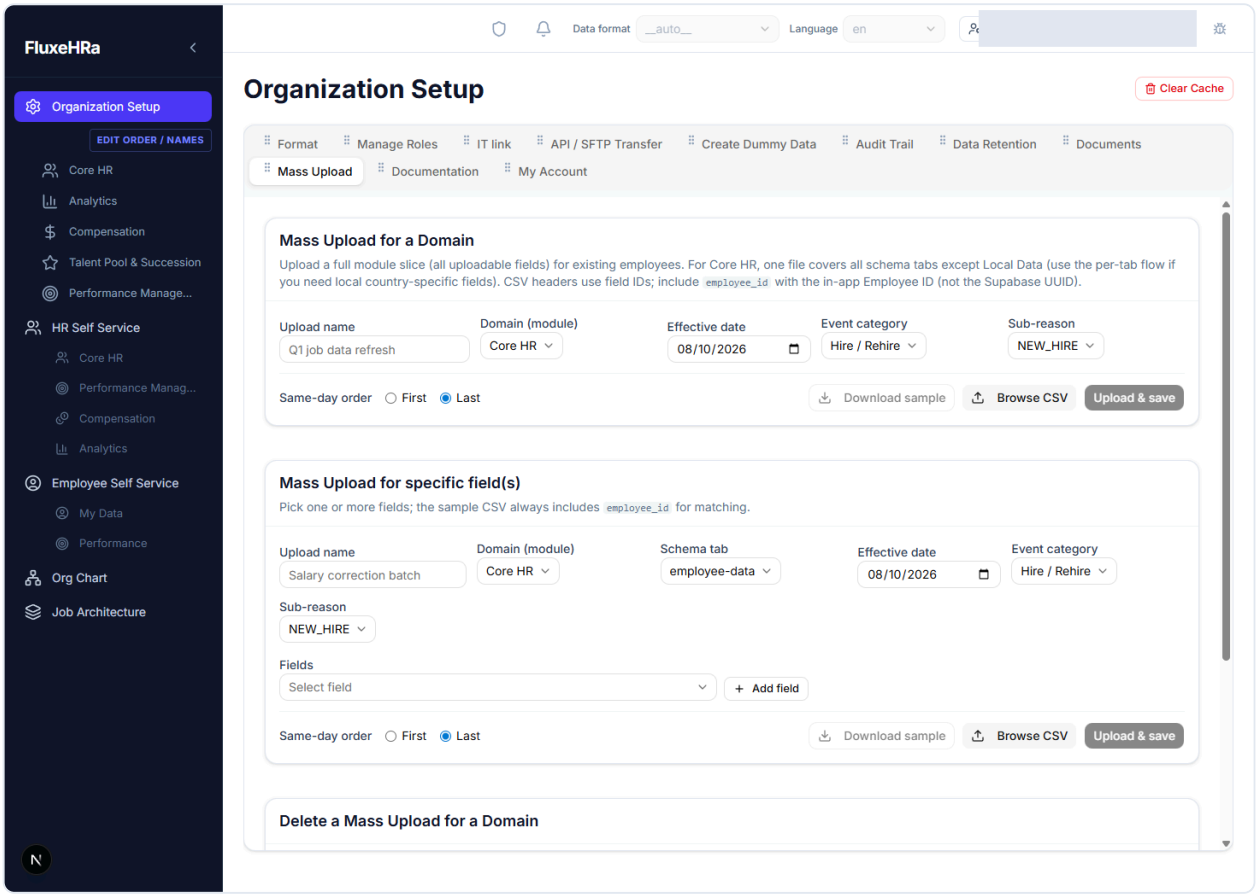
- **Show:** My Data / My Team workflow fields; HR notification
- **Test:** Submit change; approve/apply as HR
- **Code / config:** `lib/self-service-submit-auth.ts`



`EV-PROC-SELFSERVICE` — Self-service change request (screenshot)

`EV-PROC-MASSUPLOAD` — Mass upload & rollback

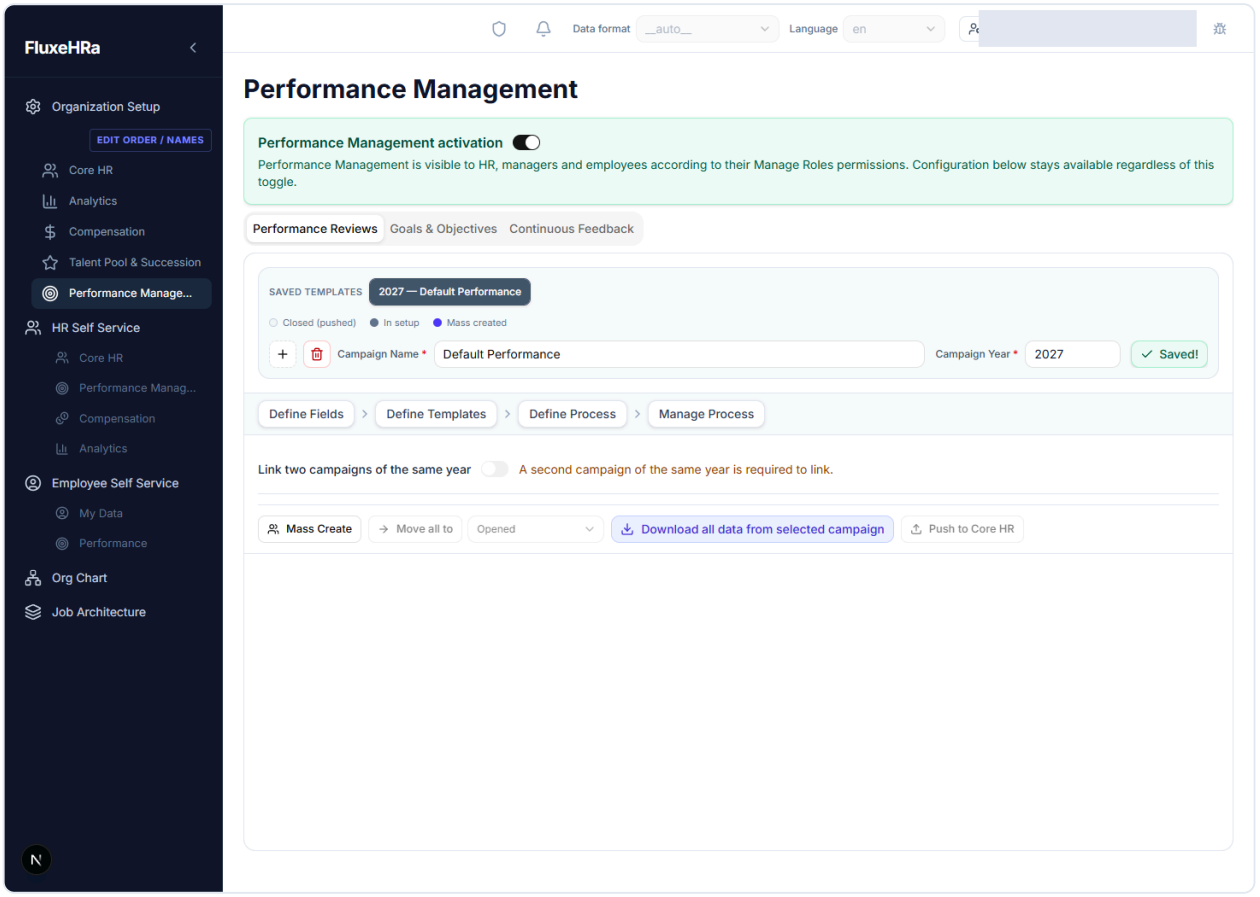
- **Show:** Mass Upload tab; batch list
- **Test:** Commit then delete/rollback batch; audit events present
- **Code / config:** `/api/admin/mass-upload/*`



`EV-PROC-MASSUPLOAD` — Mass upload & rollback (screenshot)

`EV-PROC-PERF` — Performance campaign

- **Show:** Performance Management campaign → document → sign
- **Test:** `npm test` (performance unit tests); optional `npm run test:performance-smoke`
- **Code / config:** `lib/performance/`, `app/api/performance/`



`EV-PROC-PERF` — Performance campaign (screenshot)

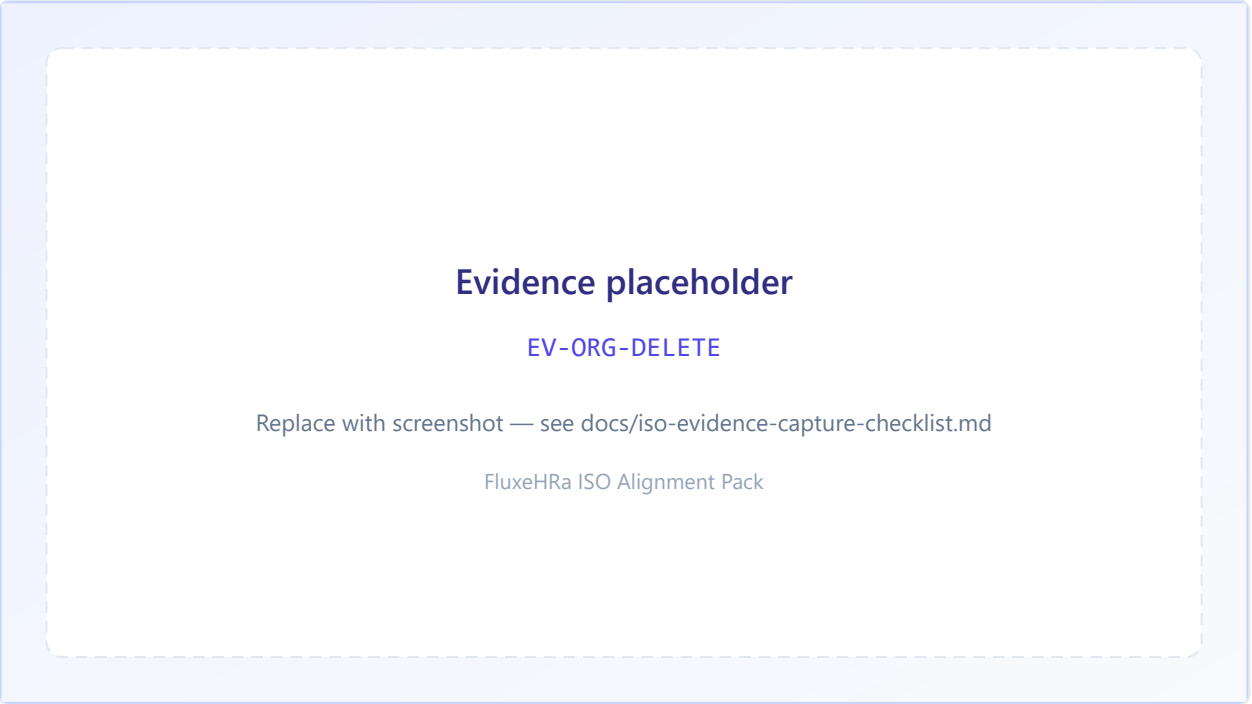
`EV-PROC-LEARNING` — Learning compliance

- **Show:** Learning admin + team compliance tab
- **Test:** Enroll; progress; attestation; compliance dashboard
- **Code / config:** `app/api/learning/`, `/api/cron/learning-compliance`

`EV-PROC-LEARNING` — Learning compliance (placeholder)

`EV-ORG-DELETE` — Organization deletion cascade

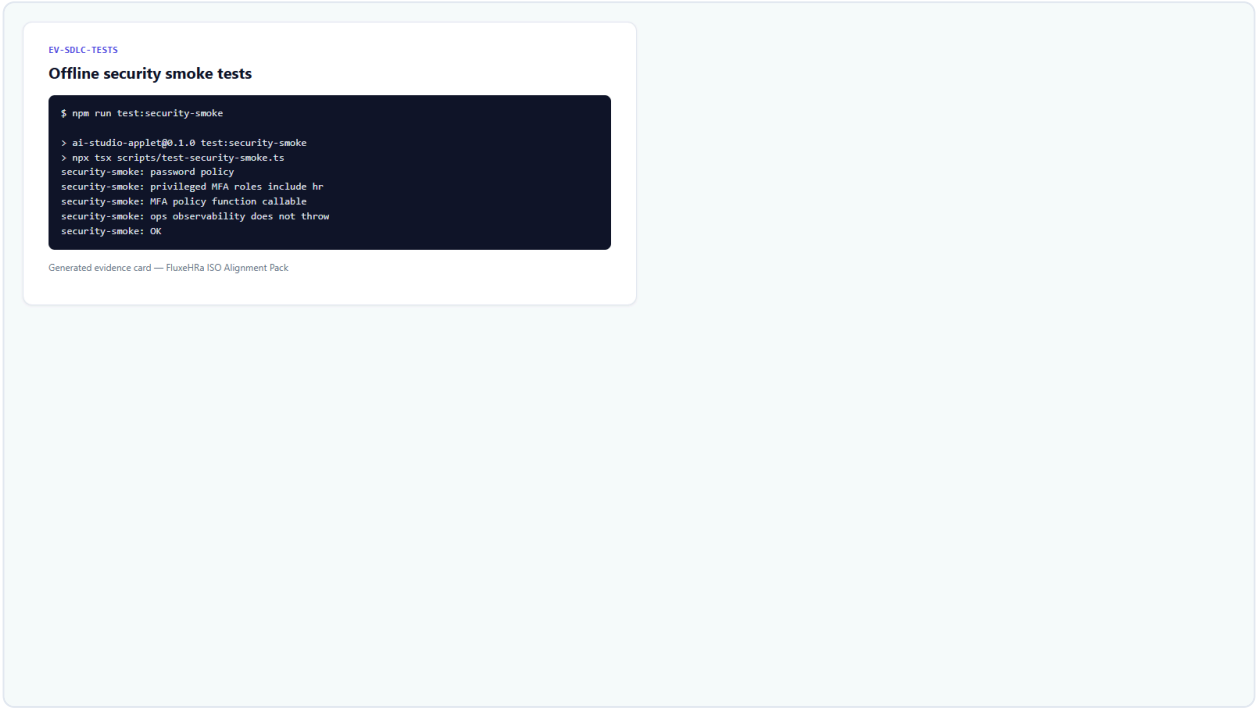
- **Show:** SU Admin delete organization (disposable org only)
- **Test:** Confirm cascade removes org tables, storage prefixes, member auth users
- **Code / config:** `lib/delete-organization-cascade.ts`



`EV-ORG-DELETE` — Organization deletion cascade (placeholder)

`EV-SDLC-TESTS` — Automated tests & change evidence

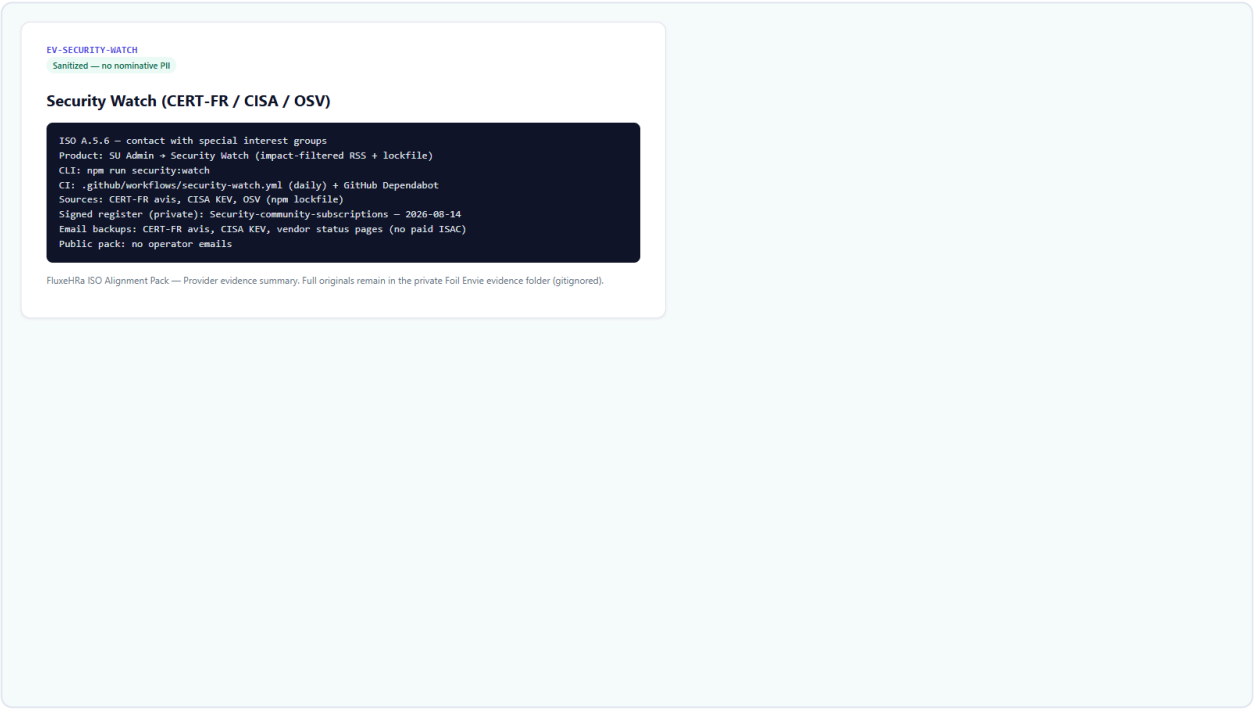
- **Show:** CI/local test run output; migration history
- **Test:** `npm test`; `npm run test:employee-data-request`; `npm run lint`; GitHub `security-tests` workflow
- **Code / config:** `lib/__tests__/`, `lib/performance/__tests__/`, `supabase/migrations/`, `.github/workflows/security-tests.yml`



`EV-SDLC-TESTS` — Automated tests & change evidence (screenshot)

`EV-SECURITY-WATCH` — Security Watch (CERT-FR / CISA / OSV)

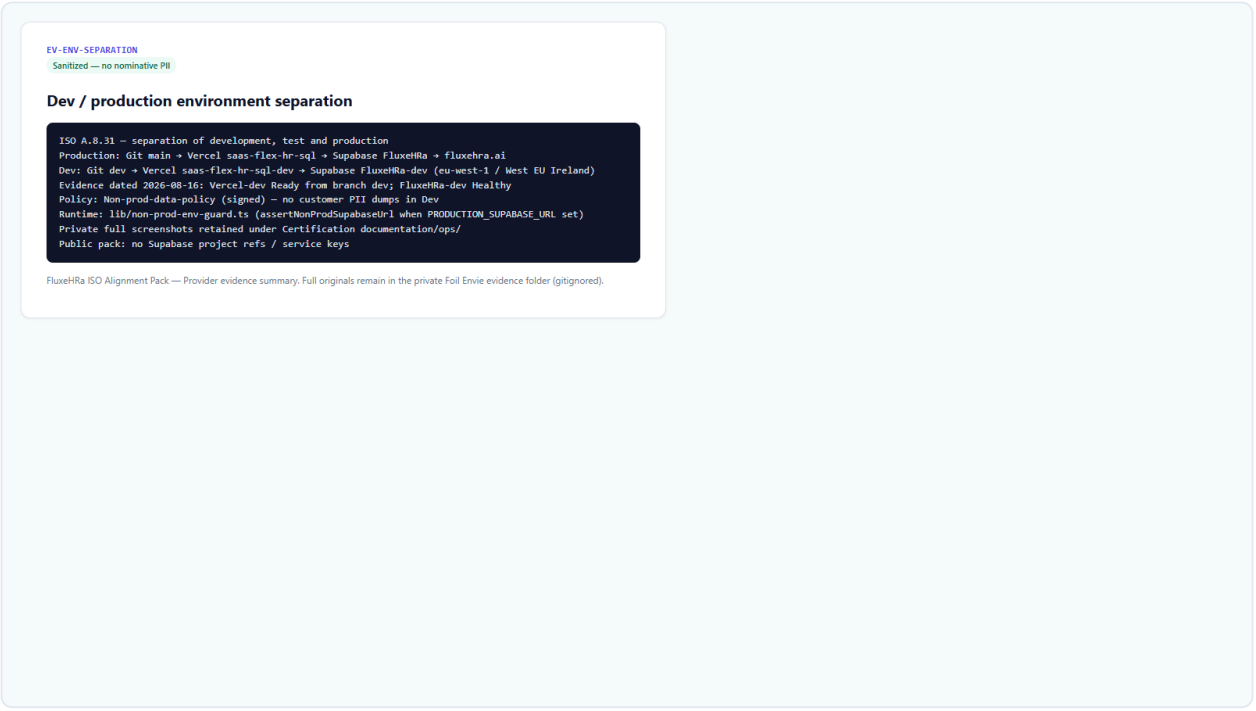
- **Show:** Sanitized card: SU Admin Security Watch sources + daily GitHub Action + Dependabot — no operator emails
- **Test:** Run `npm run security:watch`; open SU Admin → Security Watch; confirm daily `security-watch.yml` + Dependabot
- **Code / config:** `lib/security-watch.ts`, `app/api/su-admin/security-watch/route.ts`, `.github/workflows/security-watch.yml`; signed register (private) `Certification documentation/policies/Security-community-subscriptions`



`EV-SECURITY-WATCH` — Security Watch (CERT-FR / CISA / OSV) (screenshot)

`EV-ENV-SEPARATION` — Dev / production environment separation

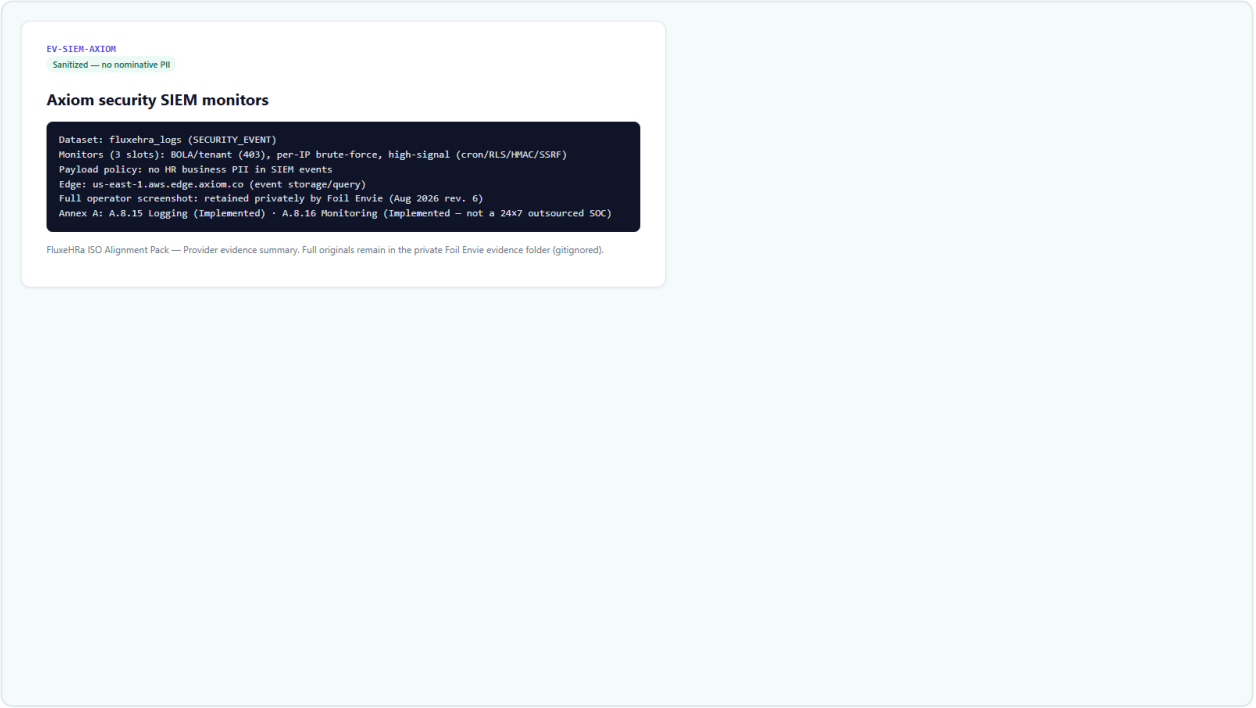
- **Show:** Sanitized card: Git main→prod vs Git dev→Vercel saas-flex-hr-sql-dev + Supabase FluxeHRa-dev (eu-west-1) — no project API keys or full refs
- **Test:** Confirm Vercel-dev Production deployment from `dev`; Supabase FluxeHRa-dev Healthy in West EU; no customer PII in Dev
- **Code / config:** `README.md` deploy tracks; `lib/non-prod-env-guard.ts`; private screenshots `Certification documentation/ops/EV-ENV-SEPARATION-*-2026-08-16.png`



`EV-ENV-SEPARATION` — Dev / production environment separation (screenshot)

`EV-SIEM-AXIOM` — Axiom security SIEM monitors

- **Show:** Sanitized dashboard card: fluxehra_logs SECURITY_EVENT monitors — BOLA/tenant, per-IP brute-force, high-signal (cron/RLS/HMAC/SSRF); no query payloads with PII
- **Test:** Confirm three monitors + ingest smoke; private full screenshot retained by Foil Envie
- **Code / config:** `lib/security-logger.ts`, `docs/siem-security-operations.md` (internal), `docs/subprocessors.md` (Axiom)



`EV-SIEM-AXIOM` — Axiom security SIEM monitors (screenshot)

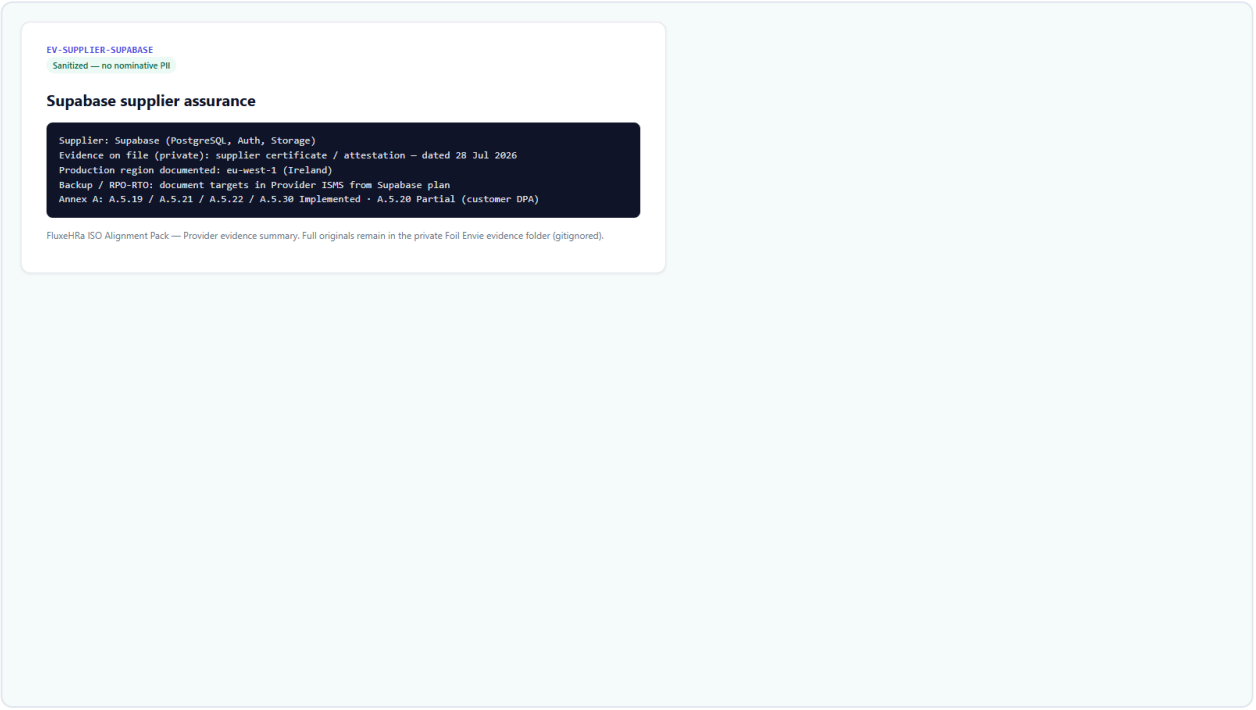
`EV-SUPPLIER-VERCEL` — Vercel supplier assurance summary

- **Show:** Sanitized evidence card: certificate/attestation on file (Jul 2026) — no account secrets
- **Test:** Annual re-review; align with Trust Center hosting regions
- **Code / config:** Provider file (private); `vercel.json` region `dub1`

`EV-SUPPLIER-VERCEL` — Vercel supplier assurance summary (screenshot)

`EV-SUPPLIER-SUPABASE` — Supabase supplier assurance summary

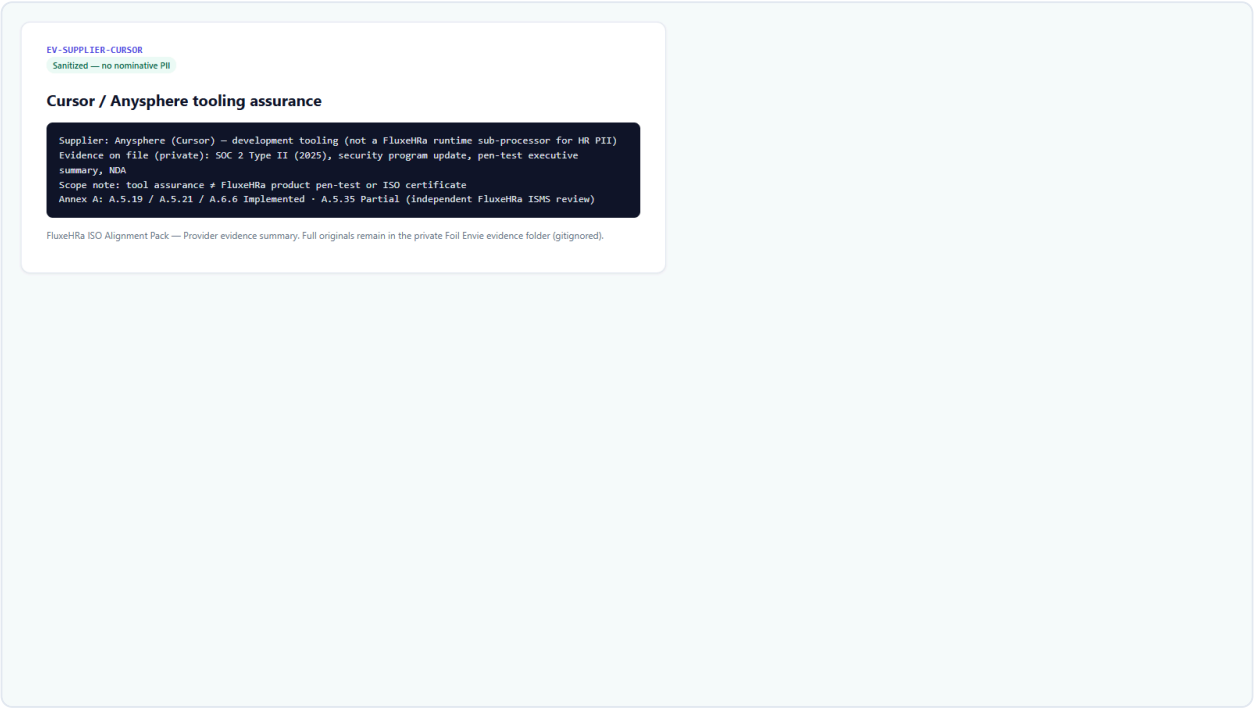
- **Show:** Sanitized evidence card: certificate/attestation on file (Jul 2026) — region eu-west-1
- **Test:** Annual re-review; document backup plan RPO/RTO in Provider ISMS
- **Code / config:** Provider file (private); Trust Center hosting section



`EV-SUPPLIER-SUPABASE` — Supabase supplier assurance summary (screenshot)

`EV-SUPPLIER-CURSOR` — Cursor / Anysphere supplier assurance summary

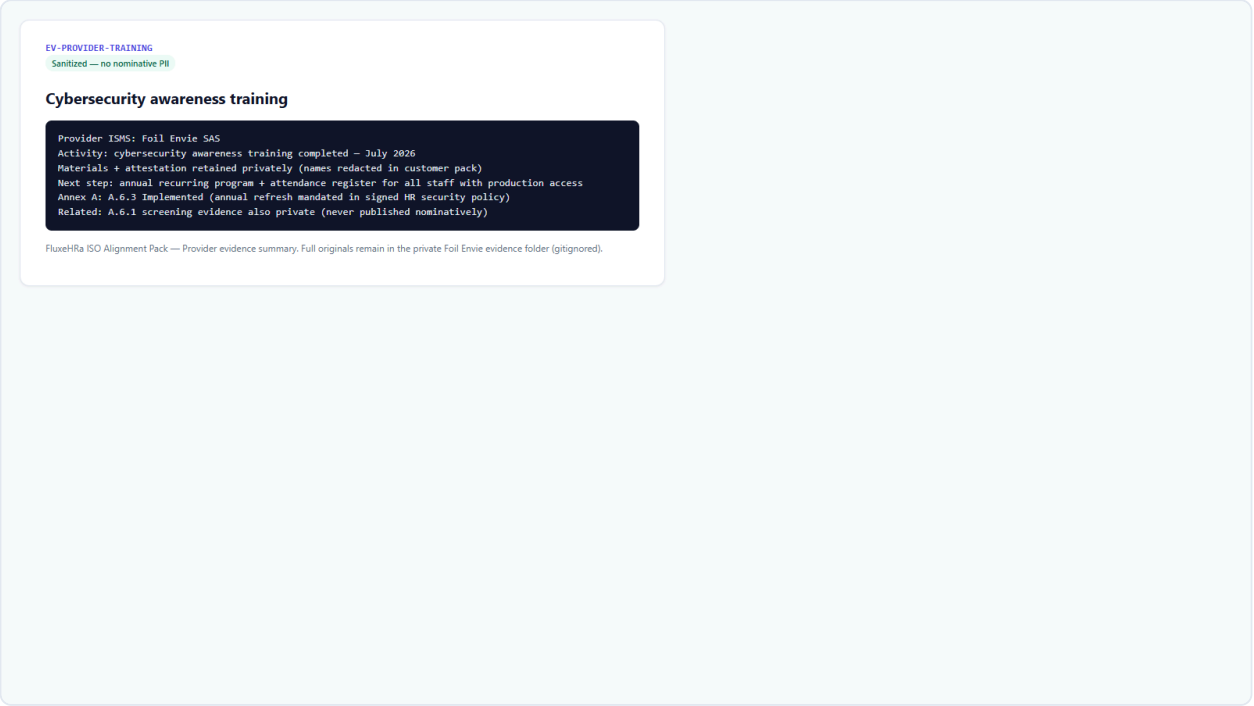
- **Show:** Sanitized card: SOC 2 Type II + security program / NDA on file for development tooling
- **Test:** Does not replace FluxeHRa pen-test; keep tool assurance separate from product SoA
- **Code / config:** Provider file (private)



`EV-SUPPLIER-CURSOR` — Cursor / Anysphere supplier assurance summary (screenshot)

`EV-PROVIDER-TRAINING` — Cybersecurity awareness training (Provider)

- **Show:** Sanitized card: training completed Jul 2026 — no personal names in customer pack
- **Test:** Retain full attestation privately; extend to annual all-staff program
- **Code / config:** Provider ISMS (private folder)



`EV-PROVIDER-TRAINING` — Cybersecurity awareness training (Provider) (screenshot)

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11. Shared responsibility model (ISO 27017)

Customer (Controller)
Policies, DPIA, DPA, lawful basis, user lifecycle & access reviews, retention instructions, DSAR legal decisions

↓ instructs / configures

FluxeHRa (Processor — Application)
RBAC, RLS, MFA, audit, encryption, visibility, HR processes, integration controls

↓ operated by

Foil Envie SAS (Provider ISMS)
Corporate policies, HR security, physical/office, supplier program, IR drills, SoA / risk register (signed Aug 2026 — §3 maps these as `Implemented`; `Provider ISMS (Foil Envie)` count is 0)

↓ runs on

Sub-processors
Supabase (PostgreSQL, Auth, Storage — eu-west-1) · Vercel (app/API — dub1) · Axiom (security SIEM — US East edge)

Customers should record sub-processor regions and contracts in their processing register. Foil Envie ISMS artefacts for solo-operator scope are signed (August 2026); legal ISO/SOC *certification* remains an external engagement (A.5.35).

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12. Recommendations — more auditable & customer-reassuring

1. **Signed customer DPA** (A.5.20 / A.5.31) — legal finalize of `public/legal/dpa*.md` with the first commercial customer (track already signed).
2. **Independent ISMS review** (A.5.35) — external audit or ISO certification campaign when budgeted.
3. **Restore drill** — within 30 days of Supabase Pro activation (A.5.30 already Implemented with commitment).
4. **Optional:** Sentry APM; live browser E2E IDOR against a demo org; set `PRODUCTION_SUPABASE_URL` on Vercel Preview/Dev to harden the non-prod URL guard.

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13. Known gaps (honest summary)

- No ISO / SOC *certificate* claimed by the product (company certification remains external).
- Provider ISMS artefacts (Jul–Aug 2026): supplier certificates, training, screening, **signed** IR/Backup/NDA Wave A/B, plus **signed** maximize pack (2026-08-13): ISMS-governance, acceptable use, classification/cloud, staff secrets, home-office physical, people lifecycle, duty-to-report/evidence, records retention, asset/config/source, endpoint attestation, audit-testing/IP, Secure-development-pack — private under `Certification documentation/`. Annex A refreshed to Implemented where evidence is complete.
- Few Annex A rows remain open: A.5.20 / A.5.31 (customer DPA), A.5.35 (independent review). A.5.6 closed — see `EV-SECURITY-WATCH` (Security Watch + signed subscriptions). A.8.23 closed (web-filter N/A + compensating).
- Retention analyze/purge is implemented server-side (no longer UI theatre).
- DSAR portable export + in-place anonymization available to HR/Admin (legal-hold aware).
- MFA for privileged roles (admin / super_admin / hr / Domain Admin) defaults **ON** in production.
- Core HR hire / update / terminate emit audit events.
- Password set/reset UI and welcome/reset emails display the ≥20 + complexity rule; existing passwords keep working until changed.
- Trust Center at `/trust`; vulnerability contact `contact@fluxehra.ai`; `SECURITY.md`, IR, backup/restore, sub-processors, AIPD support pack shipped.
- Compliance evidence JSON export; `npm run test:security-smoke`, `test:security-idor`, GitHub `security-tests` workflow.
- Remaining honest gaps: optional Sentry APM; **customer DPA** (A.5.20/A.5.31); **independent review** (A.5.35); restore drill after Supabase Pro. A.5.6 closed via `EV-SECURITY-WATCH`. A.8.23 closed via web-filter N/A compensating controls.
- Authenticated UI evidence screens may still show placeholders until a disposable demo org session is captured — see `docs/iso-demo-session-capture-guide.md`.

This pack reflects application state at generation time. Questions: contact@fluxehra.ai

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Pack d’alignement normes ISO (clients)

FluxeHRa / Flex HR — Alignement & préparation des contrôles (pas une certification)

Destinataires : IT, RSSI, DPO, achats, auditeurs clients

Version document : septembre 2026 (rév. 19) — couverture alignée ; clarif. responsabilité partagée (Provider = 0)

Sommaire

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2. 2. ISO/IEC 27001 — Management de la sécurité de l’information
3. 3. ISO/IEC 27001:2022 Annexe A — catalogue complet des contrôles
4. 4. ISO/IEC 27017 — Sécurité des services cloud
5. 5. ISO/IEC 27018 — Protection des PII dans le cloud public
6. 6. ISO/IEC 27701 — Management de la protection de la vie privée
7. 7. ISO/IEC 25010 — Qualité du produit logiciel
8. 8. Matrice de contrôles (vue thématique compacte)
9. 9. Catalogue des processus de bout en bout
10. 10. Pack de preuves — comment démontrer
11. 11. Modèle de responsabilité partagée (ISO 27017)
12. 12. Recommandations — plus auditable & rassurant
13. 13. Écarts connus (synthèse honnête)

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1. Positionnement & lecture du pack

FluxeHRa n’est pas certifié ISO à ce jour. Ce pack cartographie les contrôles techniques produit *et* le catalogue complet de l’annexe A ISO/IEC 27001:2022 (gouvernance, RH, physique inclus) pour donner aux clients une vue de *toutes* les dimensions — y compris hors code. Il sert à la due diligence IT, pas de substitut à un audit de certification SMSI.

Légende des statuts :

- `Implémenté` — contrôle implémenté et démontrable.
- `Partiel` — présent mais incomplet.
- `Plateforme / sous-traitant` — principalement fourni par Supabase / Vercel ; à documenter contractuellement.
- `Responsabilité client` — responsabilité organisationnelle du client (responsable de traitement).
- `SMSI éditeur (Foil Envie)` — SMSI organisationnel Foil Envie SAS (politiques, sécurité RH, locaux, programme fournisseurs, exercices IR) — feuille de route éditeur, indépendante des features applicatives.
- `Écart / feuille de route` — écart connu ; voir feuille de route (§12).

Document compagnon : Livre blanc sécurité & conformité. Production : **https://fluxehra.ai**.

Check-list interne de captures : `docs/iso-evidence-capture-checklist.md`. Guide session démo : `docs/iso-demo-session-capture-guide.md`. Playbook gaps : `docs/iso-gap-priority-playbook.md`. Preuves nominatives Provider hors `public/`.

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2. ISO/IEC 27001 — Management de la sécurité de l'information

Attentes clés : un SMSI fondé sur les risques (politiques, accès, crypto, exploitation, journalisation, fournisseurs, sécurité des personnes, sécurité physique, amélioration continue). L'annexe A (2022) catalogue **93 contrôles** ; la certification audit l'*organisation* (Foil Envie en tant que sous-traitant + le client en tant que responsable), pas seulement le logiciel.

Position FluxeHRa : contrôles techniques solides pour un SIRH multi-tenant. Le SMSI Foil Envie (opérateur unique) est **signé** (août 2026) et cartographié Implémenté au §3. Les devoirs du responsable de traitement restent côté client.

Forces : API refus par défaut, RLS, chiffrement, MFA, audit (proxy), CSP/HSTS/rate limits/SSRF, pack SMSI signé, SIEM Axiom, backups documentés.

Ouverts Annexe A : DPA client (A.5.20 / A.5.31) ; revue indépendante (A.5.35). A.5.6 clos (Security Watch + abonnements signés 2026-08-14). Les lignes Plateforme / sous-traitant sont des datacenters cloud, pas du travail produit inachevé. Optionnel : APM Sentry ; restore drill après Pro.

Le client doit encore : tenir son SMSI ; revues d'accès ; DPA ; MFA/Turnstile ; superviser l'audit ; utiliser le pack support AIPD.

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3. ISO/IEC 27001:2022 Annexe A — catalogue complet des contrôles

Catalogue complet de l'**annexe A ISO/IEC 27001:2022** (93 contrôles). Le SMSI Foil Envie (opérateur unique) est largement documenté et signé (août 2026) : la plupart des lignes organisationnelles / RH / physiques sont Implémenté . Restent ouverts : DPA client (A.5.20 / A.5.31), revue indépendante (A.5.35). Les lignes Plateforme / sous-traitant sont des datacenters cloud (Supabase / Vercel), pas des écarts produit.

Comment lire les colonnes statut et ownership

- Implémenté — démontrable dans le produit FluxeHRa.
- Partiel — partiellement couvert (produit et/ou processus).
- Plateforme / sous-traitant — surtout Supabase / Vercel.
- Responsabilité client — responsabilité du client (responsable de traitement).
- SMSI éditeur (Foil Envie) — SMSI organisationnel Foil Envie encore ouvert (aucun à ce jour ; A.5.6 clos).
- Écart / feuille de route — écart produit / processus à traiter.
- **App** — entièrement démontrable dans le produit / CI FluxeHRa.
- **Entreprise (politique)** — SMSI Foil Envie (RH, juridique, physique, audit externe).
- **Mixte** — tranche produit + artefacts Entreprise (et parfois Client) encore requis.

Répartition actuelle des statuts

- Implémenté — **77**
- Partiel — **3**
- Plateforme / sous-traitant — **13**
- Responsabilité client — **0**
- SMSI éditeur (Foil Envie) — **0**
- Écart / feuille de route — **0**

Répartition par ownership (qui peut clôturer le contrôle)

- **App — 12**
- **Entreprise (politique) — 40**
- **Mixte — 41**

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
`A.5.1`	Politiques de sécurité de l'information	A.5 — Contrôles organisationnels	Entreprise (politique)	Politique SMSI cadre (Certification documentation/policies/ISMS-governance (PDF privé signé 2026-08-13)) — opérateur unique Foil Envie août 2026.	Implémenté
`A.5.2`	Rôles et responsabilités en matière de sécurité	A.5 — Contrôles organisationnels	Entreprise (politique)	Responsables sécurité & privacy nommés (Irwin Rouch) dans ISMS-governance (PDF privé signé 2026-08-13) ; RBAC produit pour les rôles app.	Implémenté
`A.5.3`	Séparation des tâches	A.5 — Contrôles organisationnels	Mixte	Produit : SU / org admin / HR ; grant SU 48 h Org Admin. Break-glass solo signé août 2026 (Certification documentation/ops/Break-glass-solo) ; double contrôle prévu à l'embauche #2.	Implémenté
`A.5.4`	Responsabilités de la direction	A.5 — Contrôles organisationnels	Entreprise (politique)	Engagement direction & ressources documentés dans ISMS-governance (PDF privé signé 2026-08-13) (Axiom, MFA, backups Pro, IR, revue d'accès).	Implémenté
`A.5.5`	Contact avec les autorités	A.5 — Contrôles organisationnels	Entreprise (politique)	Processus contact CNIL / autorités dans ISMS-governance (PDF privé signé 2026-08-13) §4 ; le client reste responsable de traitement.	Implémenté
`A.5.6`	Contact avec des groupes d'intérêt spéciaux	A.5 — Contrôles organisationnels	Entreprise (politique)	Contact CERT-FR / CISA / OSV via SU Admin Security Watch (RSS + lockfile, filtré impact) + Action GitHub quotidienne + Dependabot. Registre d'abonnements signé 2026-08-14 (Certification documentation/policies/Security-community-subscriptions). Sauvegardes e-mail : avis CERT-FR, CISA KEV, statuts vendors. Pas d'ISAC payant (proportionné).	Implémenté
`A.5.7`	Veille sur les menaces	A.5 — Contrôles organisationnels	Entreprise (politique)	Veille : SU Admin Security Watch (OSV/KEV/CERT-FR, filtré impact) + Dependabot + Components Update + statuts vendors + Axiom VULN_WATCH (Asset-config-source-privileges PDF privé signé 2026-08-13).	Implémenté
`A.5.8`	Sécurité de l'information dans la gestion de projet	A.5 — Contrôles organisationnels	Entreprise (politique)	Jalons sécurité projet dans Secure-development-pack (PDF privé signé 2026-08-13) (migrations, typecheck, smoke, secrets, SSRF).	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
`A.5.9`	Inventaire des informations et autres actifs associés	A.5 — Contrôles organisationnels	Entreprise (politique)	Inventaire actifs Foil Envie (GitHub, Vercel, Supabase, Axiom, domaine, laptop) dans Asset-config-source-privileges (PDF privé signé 2026-08-13) ; le client inventorie ses données org.	Implémenté
`A.5.10`	Usage acceptable des informations et autres actifs associés	A.5 — Contrôles organisationnels	Entreprise (politique)	Charte d'usage staff (Acceptable-use-remote-clear-desk (PDF privé signé 2026-08-13)) ; CGU produit pour les utilisateurs.	Implémenté
`A.5.11`	Restitution des actifs	A.5 — Contrôles organisationnels	Entreprise (politique)	Check-list sortie & restitution dans People-lifecycle (PDF privé signé 2026-08-13) ; produit : suppression org / restitution selon DPA.	Implémenté
`A.5.12`	Classification de l'information	A.5 — Contrôles organisationnels	Mixte	Produit sensitive + visibilité ; schéma Public/Interne/Confidentiel/Restreint dans Classification-transfer-cloud (PDF privé signé 2026-08-13) aligné ENC2.	Implémenté
`A.5.13`	Étiquetage de l'information	A.5 — Contrôles organisationnels	Entreprise (politique)	Règles d'étiquetage docs/tickets Foil Envie dans Classification-transfer-cloud (PDF privé signé 2026-08-13) (même schéma que A.5.12).	Implémenté
`A.5.14`	Transfert d'information	A.5 — Contrôles organisationnels	Mixte	Produit TLS/exports/SSRF ; règles e-mail/USB/papier staff dans Classification-transfer-cloud (PDF privé signé 2026-08-13).	Implémenté
`A.5.15`	Contrôle d'accès	A.5 — Contrôles organisationnels	App	RBAC produit, RLS, MFA rôles privilégiés, API refus par défaut ; entrée org SU conditionnée à un grant client 48 h + RLS has_active_su_org_grant.	Implémenté
`A.5.16`	Gestion des identités	A.5 — Contrôles organisationnels	App	Identités Supabase Auth ; SSO OIDC org ; invitations / reset.	Implémenté
`A.5.17`	Informations d'authentification	A.5 — Contrôles organisationnels	Mixte	Produit mot de passe ≥20 + MFA TOTP ; coffre / MFA staff dans Staff-auth-secrets (PDF privé signé 2026-08-13). Console privée : Supabase Auth Multi-Factor TOTP Enabled (ops/Supabase-mfa-totp-enabled-2026-08-16.jpeg).	Implémenté
`A.5.18`	Droits d'accès	A.5 — Contrôles organisationnels	Mixte	Produit : Manage Roles, modules ; grants SU temporaires avec accept/refus Org Admin. Checklist revue d'accès signée août 2026 (Certification documentation/ops/Access-review-checklist) ; rejeu trimestriel.	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
`A.5.19`	Sécurité de l'information dans les relations avec les fournisseurs	A.5 — Contrôles organisationnels	Entreprise (politique)	Registre TIC fournisseurs privé (Vercel, Supabase, Axiom, Cursor, DocuSign) + cadence annuelle — Certification documentation/suppliers/Supplier-register.pdf ; PDF certs en privé.	Implémenté
`A.5.20`	Prise en compte de la sécurité dans les accords fournisseurs	A.5 — Contrôles organisationnels	Entreprise (politique)	DPA / trust docs sous-traitants collectés. DPA client bloqué jusqu'au premier client commercial (templates + DPA-signature-track signé) ; autres docs ops Wave A/B signés août 2026.	Partiel
`A.5.21`	Gestion de la sécurité dans la chaîne d'approvisionnement TIC	A.5 — Contrôles organisationnels	Entreprise (politique)	Chaîne TIC couverte par Supplier-register (calendrier annuel + risques) ; suivi via status pages fournisseurs et Components Update.	Implémenté
`A.5.22`	Suivi, revue et gestion des changements des services fournisseurs	A.5 — Contrôles organisationnels	Entreprise (politique)	Colonne prochaine revue + abonnements status pages dans Supplier-register ; revue annuelle selon calendrier privé.	Implémenté
`A.5.23`	Sécurité de l'information pour l'utilisation des services cloud	A.5 — Contrôles organisationnels	Mixte	Cloud approuvés (Supabase eu-west-1, Vercel dub1, Axiom) + préférence UE dans Classification-transfer-cloud (PDF privé signé 2026-08-13). Console privée : Vercel dub1 + Supabase prod FluxeHRa West EU / eu-west-1 (ops/Supabase-prod-general-region-2026-08-16.jpeg).	Implémenté
`A.5.24`	Planification et préparation de la gestion des incidents de sécurité	A.5 — Contrôles organisationnels	Mixte	docs/incident-response.md + pack IR solo signé (août 2026) : RACI, tabletop 2026-08-11, accusé, capture moniteurs Axiom — privé Certification documentation/incident-response/.	Implémenté
`A.5.25`	Évaluation et décision concernant les événements de sécurité	A.5 — Contrôles organisationnels	Mixte	Matrice de sévérité dans docs/incident-response.md ; RACI opérateur unique (Irwin Rouch) signé en privé (août 2026).	Implémenté
`A.5.26`	Réponse aux incidents de sécurité de l'information	A.5 — Contrôles organisationnels	Mixte	Produit : bug report / ops / Axiom. Exécution IR attestée via tabletop solo + accusé signés (août 2026, preuves privées).	Implémenté
`A.5.27`	Apprentissage à partir des incidents de sécurité	A.5 — Contrôles organisationnels	Mixte	Post-mortem dans la trame IR ; écarts/suivis du tabletop signé au dossier ; rejeu annuel prévu ; test:security-idor pour régressions.	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
`A.5.28`	Collecte des preuves	A.5 — Contrôles organisationnels	Mixte	Journaux d'audit + export preuves ; playbook forensique dans Duty-to-report-and-evidence (PDF privé signé 2026-08-13).	Implémenté
`A.5.29`	Sécurité de l'information pendant une perturbation	A.5 — Contrôles organisationnels	Mixte	Continuité via forfaits Supabase/Vercel + accusé Backup / pack IR signés (A.5.30). Pas un écart produit.	Plateforme / sous-traitant
`A.5.30`	Préparation des TIC pour la continuité d'activité	A.5 — Contrôles organisationnels	Mixte	Engagement production documenté + accusé Backup signé (août 2026) : backups quotidiens Supabase Pro, rétention 7 j, RPO ≤ 24 h, RTO interne ≤ 4 h (docs/backup-restore.md) ; Pro + capture console Backups au premier client payant ; exercice restore sous 30 j après activation Pro.	Implémenté
`A.5.31`	Exigences légales, réglementaires et contractuelles	A.5 — Contrôles organisationnels	Mixte	Packs DPA/légaux livrés. Bloqué sur : DPA client signé + registre légal / revue conseil (Provider + Customer).	Partiel
`A.5.32`	Droits de propriété intellectuelle	A.5 — Contrôles organisationnels	Entreprise (politique)	Note PI / licences Foil Envie & OSS dans Audit-testing-IP-outsourcing (PDF privé signé 2026-08-13).	Implémenté
`A.5.33`	Protection des enregistrements	A.5 — Contrôles organisationnels	Mixte	Rétention/purge produit + calendrier archivage corporate dans Records-retention-schedule (PDF privé signé 2026-08-13).	Implémenté
`A.5.34`	Vie privée et protection des PII	A.5 — Contrôles organisationnels	Mixte	Privacy produit : field_consents ESS, My preferences, DSAR, ENC2, redact PII fuites ; registre Art.30 docs/registre-activites-traitement-sous-traitant.md. PIMS / AIPD responsable = Customer + conseil Provider.	Implémenté
`A.5.35`	Revue indépendante de la sécurité de l'information	A.5 — Contrôles organisationnels	Entreprise (politique)	Assurance tierce collectée pour outils clés (ex. Cursor SOC 2). Bloqué sur : revue indépendante FluxeHRa / SMSI Foil Envie (audit externe ou campagne ISO).	Partiel
`A.5.36`	Conformité aux politiques, règles et normes de sécurité	A.5 — Contrôles organisationnels	Entreprise (politique)	Auto-revue trimestrielle définie dans ISMS-governance (PDF privé signé 2026-08-13) §5 (accès, vulnérabilités, fournisseurs, IR).	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
`A.5.37`	Procédures d'exploitation documentées	A.5 — Contrôles organisationnels	Entreprise (politique)	Procédures ops : docs/ (IR, backup-restore, SIEM, sous-traitants) + pack signé Certification documentation/ops (break-glass, revue d'accès, vulnérabilités, non-prod, suivi DPA) et accusés IR/backup.	Implémenté
`A.6.1`	Vérification des antécédents	A.6 — Contrôles portant sur les personnes	Entreprise (politique)	Preuve de screening au dossier + politique RH sécurité signée août 2026 (Certification documentation/hr-security/) ; étendre à chaque embauche.	Implémenté
`A.6.2`	Modalités et conditions d'emploi	A.6 — Contrôles portant sur les personnes	Entreprise (politique)	Confidentialité contrat + NDA + accusé SMSI (People-lifecycle (PDF privé signé 2026-08-13)) ; NDA signé au dossier.	Implémenté
`A.6.3`	Sensibilisation, éducation et formation à la sécurité	A.6 — Contrôles portant sur les personnes	Entreprise (politique)	Formation réalisée ; politique RH sécurité (signée août 2026) impose un rappel annuel pour le personnel à accès systèmes.	Implémenté
`A.6.4`	Processus disciplinaire	A.6 — Contrôles portant sur les personnes	Entreprise (politique)	Processus disciplinaire sécurité documenté dans People-lifecycle (PDF privé signé 2026-08-13).	Implémenté
`A.6.5`	Responsabilités après cessation ou changement d'emploi	A.6 — Contrôles portant sur les personnes	Entreprise (politique)	Check-list de sortie (révoquer GitHub/Vercel/Supabase/Axiom, restituer, rappeler NDA) dans People-lifecycle (PDF privé signé 2026-08-13).	Implémenté
`A.6.6`	Accords de confidentialité ou de non-divulgation	A.6 — Contrôles portant sur les personnes	Entreprise (politique)	NDA partenaire/outil au dossier (ex. Anysphere/Cursor). NDA salarié signé pour l'opérateur unique Irwin Rouch (août 2026) — privé Certification documentation/hr-security/ ; modèle réutilisable pour futurs recrutements.	Implémenté
`A.6.7`	Travail à distance	A.6 — Contrôles portant sur les personnes	Entreprise (politique)	Règles télétravail (chiffrement disque, verrouillage, pas de Wi-Fi ouvert pour admin prod) dans Acceptable-use-remote-clear-desk (PDF privé signé 2026-08-13).	Implémenté
`A.6.8`	Notification des événements de sécurité	A.6 — Contrôles portant sur les personnes	Mixte	Bug report in-app + devoir de signalement staff dans Duty-to-report-and-evidence (PDF privé signé 2026-08-13).	Implémenté
`A.7.1`	Périmètres de sécurité physique	A.7 — Contrôles physiques	Mixte	Datacenters = cloud Supabase/Vercel. Périmètre home-office Foil Envie couvert par A.7.3 (Home-office-physical-media signé).	Plateforme / sous-traitant

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
`A.7.2`	Contrôle d'accès physique	A.7 — Contrôles physiques	Mixte	Contrôles d'entrée datacenter cloud. Visiteurs home-office Foil Envie sous A.7.6 (signé).	Plateforme / sous-traitant
`A.7.3`	Sécurisation des bureaux, salles et installations	A.7 — Contrôles physiques	Entreprise (politique)	Contrôles physiques home-office (logement verrouillable, pas d'impressions Restreintes sans surveillance) dans Home-office-physical-media (PDF privé signé 2026-08-13).	Implémenté
`A.7.4`	Surveillance de la sécurité physique	A.7 — Contrôles physiques	Mixte	Surveillance DC via cloud. Home-office : pas de CCTV DC ; verrouillage logement sous A.7.3.	Plateforme / sous-traitant
`A.7.5`	Protection contre les menaces physiques et environnementales	A.7 — Contrôles physiques	Mixte	Résilience régions cloud. Environnement home-office couvert par Home-office-physical-media (signé).	Plateforme / sous-traitant
`A.7.6`	Travail dans des zones sécurisées	A.7 — Contrôles physiques	Entreprise (politique)	Règles visiteurs / zone de travail home-office dans Home-office-physical-media (PDF privé signé 2026-08-13) (pas de site multi-employés dédié).	Implémenté
`A.7.7`	Bureau et écran dégagés	A.7 — Contrôles physiques	Entreprise (politique)	Bureau / écran dégagés dans Acceptable-use-remote-clear-desk (PDF privé signé 2026-08-13).	Implémenté
`A.7.8`	Emplacement et protection des équipements	A.7 — Contrôles physiques	Entreprise (politique)	Placement équipement laptop opérateur ; hardware cloud = Platform — Home-office-physical-media (PDF privé signé 2026-08-13).	Implémenté
`A.7.9`	Sécurité des actifs hors site	A.7 — Contrôles physiques	Entreprise (politique)	Règles hors site laptop (chiffrement, minimiser PII locales) dans Home-office-physical-media (PDF privé signé 2026-08-13).	Implémenté
`A.7.10`	Supports de stockage	A.7 — Contrôles physiques	Entreprise (politique)	Supports amovibles (préférer cloud ; chiffrer si USB) dans Home-office-physical-media (PDF privé signé 2026-08-13).	Implémenté
`A.7.11`	Services généraux de support	A.7 — Contrôles physiques	Mixte	Énergie/froid datacenters cloud. Pas d'utilités de site dédié Foil Envie (home-office / cloud).	Plateforme / sous-traitant
`A.7.12`	Sécurité du câblage	A.7 — Contrôles physiques	Mixte	Câblage DC cloud. Pas de salle comms dédiée Foil Envie (home-office / cloud).	Plateforme / sous-traitant
`A.7.13`	Maintenance des équipements	A.7 — Contrôles physiques	Mixte	Maintenance matérielle cloud. Effacement laptop opérateur sous A.7.14 (signé).	Plateforme / sous-traitant
`A.7.14`	Mise au rebut ou réutilisation	A.7 — Contrôles physiques	Entreprise (politique)	Effacement / destruction sécurisée des appareils Foil Envie ; cloud =	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
	sécurisée des équipements			Platform — Home-office-physical-media (PDF privé signé 2026-08-13).	
`A.8.1`	Terminaux utilisateurs	A.8 — Contrôles technologiques	Entreprise (politique)	Chiffrement / durcissement endpoint opérateur attesté dans Endpoint-malware-attestation (PDF privé signé 2026-08-13) (appareils clients = Customer).	Implémenté
`A.8.2`	Droits d'accès privilégiés	A.8 — Contrôles technologiques	App	Isolation plateforme SU Admin ; données tenant seulement avec grant Org Admin 48 h ; MFA aal2 pour admin / super_admin / HR / Domain Admin ; proxy audité après entrée ; service_role serveur uniquement.	Implémenté
`A.8.3`	Restriction d'accès à l'information	A.8 — Contrôles technologiques	App	RLS, visibilité champs, accès documents, assert périmètre org.	Implémenté
`A.8.4`	Accès au code source	A.8 — Contrôles technologiques	Entreprise (politique)	Repo GitHub privé + moindre privilège documentés dans Asset-config-source-privileges (PDF privé signé 2026-08-13).	Implémenté
`A.8.5`	Authentification sécurisée	A.8 — Contrôles technologiques	App	PKCE, politique mot de passe ≥20 avec majuscule, minuscule, chiffre et caractère spécial, MFA TOTP pour admin / super_admin / HR / Domain Admin (défaut ON en production), Turnstile optionnel, OIDC org. Console privée : Supabase MFA TOTP Enabled (ops/Supabase-mfa-totp-enabled-2026-08-16.jpeg).	Implémenté
`A.8.6`	Gestion de la capacité	A.8 — Contrôles technologiques	Mixte	Capacité élastique Vercel/Supabase ; Components Update + moniteurs Axiom pour signaux de charge.	Plateforme / sous-traitant
`A.8.7`	Protection contre les logiciels malveillants	A.8 — Contrôles technologiques	Entreprise (politique)	Attestation AV/Defender OS + limites zip SCORM produit — Endpoint-malware-attestation (PDF privé signé 2026-08-13).	Implémenté
`A.8.8`	Gestion des vulnérabilités techniques	A.8 — Contrôles technologiques	App	Components Update + Security Watch (OSV/KEV) + PRs Dependabot + CI `npm run audit:deps` (élevé/critique) avec waivers AUDIT_ALLOWLIST ; SLA Critique ≤7 j / Élevé ≤30 j affiché dans SU Admin.	Implémenté
`A.8.9`	Gestion de configuration	A.8 — Contrôles technologiques	Mixte	Baselines config (migrations, vercel.json, inventaire env) dans Asset-config-source-privileges (PDF privé signé 2026-08-13).	Implémenté
`A.8.10`	Suppression d'information	A.8 — Contrôles technologiques	App	Cascade suppression org, anonymisation DSAR, APIs de purge	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
				rétention.	
`A.8.11`	Masquage des données	A.8 — Contrôles technologiques	App	Chiffrement ENC2 au repos + déchiffrement selon rôle ; CSV/API/SFTP/DSAR autorisés restent en clair. Canaux de fuite (bug/erreur) : rédaction IBAN/SSN.	Implémenté
`A.8.12`	Prévention des fuites de données	A.8 — Contrôles technologiques	Mixte	Baseline DLP produit : auth export, rate limits, storage privé, redact PII bugs, événements BULK_EXPORT. DLP CASB/endpoint entreprise non déployé (Customer/Provider optionnel).	Implémenté
`A.8.13`	Sauvegarde de l'information	A.8 — Contrôles technologiques	Mixte	Backups quotidiens Supabase Pro (rétention 7 j) engagés pour le premier client payant ; RPO ≤ 24 h et RTO interne ≤ 4 h dans docs/backup-restore.md et accusé Backup signé (août 2026) ; PITR optionnel ; objets Storage hors backup BDD (documenté). Capture UI Backups différée jusqu'à activation Pro.	Implémenté
`A.8.14`	Redondance des installations de traitement	A.8 — Contrôles technologiques	Mixte	Résilience multi-AZ cloud. RPO/RTO Foil Envie documentés (A.5.30). Pas de multi-région active-active revendiqué.	Plateforme / sous-traitant
`A.8.15`	Journalisation	A.8 — Contrôles technologiques	App	audit_logs (piste métier) + SIEM SECURITY_EVENT via Axiom (fluxehra_logs) ; télémétrie authz/tenant/RLS/échecs d'auth/cron/HMAC/SSRF sans PII (août 2026 rév. 6).	Implémenté
`A.8.16`	Activités de surveillance	A.8 — Contrôles technologiques	Mixte	Moniteurs Axiom (3 slots) actifs : BOLA/tenant, force brute par IP, high-signal (cron/RLS/HMAC/SSRF) ; preuve privée EV-SIEM-AXIOM-monitors.png (août 2026) ; Vercel Analytics + ops ; RACI IR solo pour la réponse. Pas un SOC 24×7 externalisé.	Implémenté
`A.8.17`	Synchronisation des horloges	A.8 — Contrôles technologiques	Mixte	NTP cloud ; horodatage applicatif côté serveur.	Plateforme / sous-traitant
`A.8.18`	Utilisation de programmes utilitaires privilégiés	A.8 — Contrôles technologiques	Entreprise (politique)	Utilitaires prod DB/console réservés au Security Owner — Asset-config-source-privileges (PDF privé signé 2026-08-13) + Break-glass-solo.	Implémenté
`A.8.19`	Installation de logiciels sur les systèmes opérationnels	A.8 — Contrôles technologiques	Mixte	Déploiements prod uniquement via CI Vercel depuis le repo autorisé — Asset-config-source-privileges (PDF privé signé 2026-08-13).	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
`A.8.20`	Sécurité des réseaux	A.8 — Contrôles technologiques	Mixte	Sécurité réseau cloud. Hygiène réseau télétravail sous Acceptable-use-remote-clear-desk (signé).	Plateforme / sous-traitant
`A.8.21`	Sécurité des services réseau	A.8 — Contrôles technologiques	App	HTTPS/HSTS ; garde SSRF sur webhooks, SFTP, OIDC token/JWKS, hôtes SMTP et URLs IdP authorize/SAML SSO (https + hôtes publics).	Implémenté
`A.8.22`	Séparation des réseaux	A.8 — Contrôles technologiques	Mixte	Isolation VPC cloud. Séparation prod/Dev Foil Envie : projets Vercel distincts (fluxehra.ai vs saas-flex-hr-sql-dev) + Supabase FluxeHRa-dev (eu-west-1) ; captures console privées sous Certification documentation/ops/ ; politique non-prod (signée) + assertNonProdSupabaseUrl.	Plateforme / sous-traitant
`A.8.23`	Filtrage web	A.8 — Contrôles technologiques	Entreprise (politique)	N/A proxy web entreprise (pas de parc) ; compensations SmartScreen/Defender + hygiène DNS laptop opérateur — Certification documentation/policies/Web-filtering-NA-compensating. Réévaluer si parc staff grandit.	Implémenté
`A.8.24`	Utilisation de la cryptographie	A.8 — Contrôles technologiques	App	TLS en transit ; AES-256-GCM champs ; clé privée DocuSign chiffrée au repos.	Implémenté
`A.8.25`	Cycle de vie de développement sécurisé	A.8 — Contrôles technologiques	Mixte	Politique SDLC sécurisé dans Secure-development-pack (PDF privé signé 2026-08-13) (migrations, typecheck, smoke, CSP).	Implémenté
`A.8.26`	Exigences de sécurité des applications	A.8 — Contrôles technologiques	Mixte	Check-list exigences sécurité applicative dans Secure-development-pack (PDF privé signé 2026-08-13) (RLS, authz, secrets, SSRF, ENC2).	Implémenté
`A.8.27`	Principes d'architecture et d'ingénierie des systèmes sécurisés	A.8 — Contrôles technologiques	App	Navigateur non fiable ; authz serveur ; RLS ; défense en profondeur (livre blanc).	Implémenté
`A.8.28`	Codage sécurisé	A.8 — Contrôles technologiques	Mixte	Check-list coding sécurisé (escapeHtml/DOMPurify/path gateway/audit:deps) dans Secure-development-pack (PDF privé signé 2026-08-13).	Implémenté
`A.8.29`	Tests de sécurité en développement et en recette	A.8 — Contrôles technologiques	Mixte	Gates d'acceptation : security-smoke, security-idor, audit:deps via workflow GitHub security-tests + Secure-development-pack (PDF	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
				privé signé 2026-08-13). Pentest externe reste un engagement futur.	
`A.8.30`	Développement externalisé	A.8 — Contrôles technologiques	Entreprise (politique)	Pas de développement externalisé actuellement ; règles contractors si engagement — Audit-testing-IP-outsourcing (PDF privé signé 2026-08-13).	Implémenté
`A.8.31`	Séparation des environnements de développement, de test et de production	A.8 — Contrôles technologiques	Mixte	Pistes dédiées (août 2026) : Git main → Vercel saas-flex-hr-sql + Supabase FluxeHRa (prod, eu-west-1) ; Git dev → Vercel saas-flex-hr-sql-dev + Supabase FluxeHRa-dev (eu-west-1). Preuves privées : ops/EV-ENV-SEPARATION-*-2026-08-16.png + captures console (domaines, dub1, noms d'env, Deployment Protection, région prod, URLs Auth) — docs/provider-isms-evidence.md. Politique non-prod signée ; assertNonProdSupabaseUrl si PRODUCTION_SUPABASE_URL sur Preview/Dev.	Implémenté
`A.8.32`	Gestion des changements	A.8 — Contrôles technologiques	Mixte	Gestion du changement = Git + déploiement Vercel pour opérateur unique (Secure-development-pack (PDF privé signé 2026-08-13)) ; CAB reporté jusqu'à croissance d'équipe.	Implémenté
`A.8.33`	Informations de test	A.8 — Contrôles technologiques	Mixte	Outil dummy-data + politique non-prod signée août 2026 (pas de dumps prod ; redacter si copie exceptionnelle) — Certification documentation/ops/Non-prod-data-policy.	Implémenté
`A.8.34`	Protection des systèmes d'information lors des tests d'audit	A.8 — Contrôles technologiques	Entreprise (politique)	Règles pour tests d'audit client/vendor vs production dans Audit-testing-IP-outsourcing (PDF privé signé 2026-08-13).	Implémenté

Catalogue vivant de type DdA. Les lignes Partiel *restantes sont A.5.20, A.5.31, A.5.35.* Plateforme / sous-traitant *=* *datacenters sous-traitants.* SMSI éditeur (Foil Envie) *= 0.*

↑ Sommaire · ↑ Languages

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4. ISO/IEC 27017 — Sécurité des services cloud

Attentes clés : guidance cloud (responsabilité partagée, isolation, admin, journalisation cloud).

Position FluxeHRa : modèle §11 ; isolation RLS + périmètre API ; proxy sans élévation JWT ; SSO IdP client ; couche SMSI éditeur (SMSI éditeur (Foil Envie)).

Forces : RLS, chemins Storage org, HMAC/export par clé d'intégration, régions UE documentées, accès SU aux données client via grant 48 h (deploy config = gestion des changements distincte).

Résiduel : PRA/PCA datacenter = Plateforme / sous-traitant (Supabase/Vercel). DPA client = A.5.20 / A.5.31.

Le client doit encore : configurer SSO/rôles ; conserver preuves régionales et contrats sous-traitants.

↑ Sommaire · ↑ Languages

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5. ISO/IEC 27018 — Protection des PII dans le cloud public

Attentes clés : protection des données à caractère personnel chez un processeur cloud (finalité, transparence, restitution/effacement, sécurité).

Position FluxeHRa : chiffrement sensible, visibilité, DMS privé, hébergement UE, jetons d'embauche hachés ; pas d'usage secondaire publicitaire des PII RH.

Résiduel : consentement catégories particulières via `field_consents` + My preferences. Pas de *certificat* ISO/SOC (campagne externe = A.5.35).

Le client doit encore : base légale, DPIA, calendrier de conservation, procédures droits des personnes.

↑ Sommaire · ↑ Languages

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6. ISO/IEC 27701 — Management de la protection de la vie privée

Attentes clés : extension 27001 pour un PIMS (responsable vs sous-traitant).

Position FluxeHRa : typiquement **sous-traitant** ; le client est **responsable de traitement**. Mesures techniques PIMS livrées (visibilité, DSAR, rétention, consentements, registre Art.30, IR). DPIA / base légale / DPA client signé restent Customer (A.5.20 / A.5.31).

Résiduel : DPA client (premier client commercial) ; revue indépendante (A.5.35). Audit Core HR implémenté.

↑ Sommaire · ↑ Languages

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7. ISO/IEC 25010 — Qualité du produit logiciel

Attentes clés : modèle de qualité (adéquation fonctionnelle, performance, utilisabilité, fiabilité, sécurité, maintenabilité…).

Position FluxeHRa : Core HR bitemporel, performance, learning, compensation, analytics, intégrations — recrutement encore placeholder (seul Partial thématique 25010) ; sécurité en couches ; SIEM Axiom + Analytics Vercel. APM Sentry optionnel, non bloquant Annexe A.

↑ Sommaire · ↑ Languages

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8. Matrice de contrôles (vue thématique compacte)

Thèmes de synthèse (voir §3 pour le catalogue Annexe A complet). Les ID de preuve renvoient au §10.

Thème	Attente	Implémentation FluxeHRa	Statut	Preuve
Contrôle d'accès (27001 A.8)	Authentifier ; moindre privilège ; protéger les comptes privilégiés	Supabase Auth (PKCE/JWT), RBAC (`role_permissions`), périmètre HR, MFA TOTP (défaut ON en production pour rôles privilégiés), idle timeout, API refus par défaut	Implémenté	EV-AUTH-MFA, EV-RBAC-ROLES

Thème	Attente	Implémentation FluxeHRa	Statut	Preuve
Cryptographie (27001 A.8)	Protéger la confidentialité des données sensibles en transit et au repos	HTTPS/HSTS ; chiffrement AES-256-GCM (`ENC2::`) des champs `sensitive` ; clés d'intégration hachées	Implémenté	EV-CRYPTO-FIELD
Journalisation (27001 A.8)	Enregistrer les événements de sécurité avec identité accountable	`audit_logs` (réel vs proxy) ; UI Audit Trail ; hire/update/terminate Core HR audités	Implémenté	EV-AUDIT-TRAIL, EV-PROXY
Développement sécurisé (27001 A.8)	SDLC sécurisé, hygiène des dépendances, maîtrise du changement	Build TypeScript strict, migrations, CI `security-tests` (smoke/IDOR/audit:deps), Components Update + SLA, pack SDLC signé, SU Admin Security Watch + Dependabot (A.5.6)	Implémenté	EV-SDLC-TESTS, EV-SECURITY-WATCH, EV-ENV-SEPARATION
Durcissement réseau / applicatif	Réduire la surface d'attaque	CSP, HSTS, rate limits, garde SSRF, escape HTML, Turnstile	Implémenté	EV-HEADERS-CSP, EV-TURNSTILE
Fournisseurs / cloud (27001 A.5 ; 27017)	Gérer la responsabilité partagée et les sous-traitants	Sous-traitants documentés Supabase (eu-west-1) + Vercel (dub1) ; Security Watch (CERT-FR / CISA / OSV) ; DPA client hors produit	Plateforme / sous-traitant	EV-HOSTING-REGIONS, EV-SECURITY-WATCH, EV-SUPPLIER-VERCEL, EV-SUPPLIER-SUPABASE
Isolation locataire (27017)	Séparer les données clients en multi-tenant	Schéma partagé + `organization_id` + RLS PostgreSQL ; périmètre API ; chemins Storage préfixés org	Implémenté	EV-RLS-TENANT
Administration client (27017)	Sécuriser l'administration privilégiée et le proxy	Rôles Org/SU Admin ; entrée tenant SU après grant Org Admin 48 h (`su_org_access_grants`) ; proxy uniquement après entrée avec double attribution d'audit	Implémenté	EV-PROXY, EV-SU-ORG-ACCESS, EV-RBAC-ROLES
Protection des PII cloud (27018)	Protéger les données à caractère personnel dans le cloud public	Matrice de visibilité ; chiffrement ENC2 ; bucket documents privé ; régions UE ; redact PII chemins de fuite	Implémenté	EV-VISIBILITY, EV-CRYPTO-FIELD, EV-DOCUMENTS
Restitution / effacement PII (27018 / 27701)	Permettre restitution ou effacement des PII	Cascade de suppression d'organisation ; export DSAR + anonymisation ; purge de rétention réelle	Implémenté	EV-ORG-DELETE, EV-RETENTION
Contrôles techniques privacy (27701)	Soutenir les mesures techniques d'un PIMS	Visibilité, purge rétention, DSAR, Trust Center, field_consents ESS + My preferences, registre Art.30. PIMS / AIPD du responsable = Client (pas un écart produit)	Implémenté	EV-PROC-NEWHIRE, EV-VISIBILITY
Adéquation fonctionnelle (25010)	Fournir les capacités SIRH adaptées	Core HR bitemporel, performance, learning, compensation, analytics,	Partiel	EV-PROC-NEWHIRE, EV-

Thème	Attente	Implémentation FluxeHRa	Statut	Preuve
		intégrations — recrutement placeholder		PROC-PERF, EV-PROC-LEARNING
Sécurité & fiabilité (25010)	Résister aux accès non autorisés ; comportement stable	Authz en profondeur ; rate limits ; SIEM Axiom ; backup RPO≤24h / RTO≤4h documentés. APM Sentry optionnel, non requis pour ce contrôle	Implémenté	EV-HEADERS-CSP, EV-HOSTING-REGIONS

↑ Sommaire · ↑ Languages

9. Catalogue des processus de bout en bout

Processus SIRH clés, lien ISO, tests et preuves.

Processus	Acteurs	Routes / APIs	ISO	Procédure de test	Preuve
Bootstrap locataire	Super Admin	`/su-admin`, create-organization, deploy-*, activation modules	27001, 27017	Créer org démo ; vérifier schémas ; audit `MODULE_ACTIVATION`	EV-RBAC-ROLES, EV-AUDIT-TRAIL
Auth & session	Tous	`/login`, `/{orgSlug}`, session-policy, Turnstile	27001, 27017	Connexion ; idle timeout ; en-têtes HSTS/CSP	EV-TURNSTILE, EV-HEADERS-CSP
MFA inscription & step-up	Admin / Super Admin	`/security/mfa`, step-up login, `REQUIRE_MFA_FOR_PRIVILEGED_ROLES`	27001, 27017	Enrôler TOTP ; obtenir `aal2` ; sans MFA, API privilégiée → 403 MFA_REQUIRED	EV-AUTH-MFA
SSO OIDC org	Admin org + IdP	IT Link ; `/api/auth/org-oidc/*`	27001, 27017	Configurer OIDC ; se connecter via IdP	EV-SSO-OIDC
RBAC / rôles / périmètre HR	Admin org	Manage Roles ; `RequireOrgPermission`	27001, 27017, 27701	Attribuer permissions ; vérifier refus module	EV-RBAC-ROLES
Embauche + data request	HR + candidat	New hire ; `/employee-data-request/{token}`	27018, 27701	Déclencher data request ; lien public ; `npm run test:employee-data-request`	EV-PROC-NEWHIRE
MàJ employé / sortie	HR	HR Self Service employé / termination	27001, 27701	MàJ datée ; sortie ; vérifier segments historiques	EV-PROC-UPDATE, EV-PROC-TERMINATE
Self-service → validation HR	Employé / Manager / HR	`/api/self-service/submit-change-request`	27001, 27701	Soumettre changement workflow ; notification ; application HR	EV-PROC-SELFSERVICE
DMS documents	HR / Manager / Employé	`/api/documents/*`, bucket privé	27001, 27018, 27701	Upload ; téléchargement non autorisé refusé ; stream via route fichier	EV-DOCUMENTS
Visibilité & rétention	Admin org / SU	UI Data Visibility & Retention	27018, 27701, 25010	Régler visibilité et `retentionMonths` ; lancer analyse/purge rétention	EV-VISIBILITY, EV-RETENTION

Processus	Acteurs	Routes / APIs	ISO	Procédure de test	Preuve
Mass upload / rollback	HR / Admin	APIs mass upload ; audit	27001, 25010	Commit CSV ; rollback ; vérifier audit	EV-PROC-MASSUPLOAD
Cycle campagne performance	HR / Manager / Employé	Campagnes, documents, signature, push Core HR	25010, 27001	`npm run test:performance-smoke` ou tests `lib/performance/__tests__`	EV-PROC-PERF
Learning & attestations	Admin / Apprenant / Manager	Learning admin, player, cron compliance	25010, 27001	Inscrire ; terminer SCORM/attestation ; dashboard conformité	EV-PROC-LEARNING
Export intégrations	Admin org / M2M	`/api/integrations/export`, SFTP, HMAC	27001, 27017, 27018	Régénérer clé ; export Bearer + HMAC signé avec cette clé ; empreinte d'audit seulement	EV-INTEGRATIONS
Proxy / impersonation	SU avec grant org 48 h actif, ou Org Admin / HR dans le périmètre	`/api/proxy/*`, `/api/su-org-access`	27001, 27017	Demander/approuver accès SU ; Enter org ; démarrer proxy ; JWT = utilisateur réel ; audit dual	EV-PROXY, EV-SU-ORG-ACCESS
Suppression organisation	Super Admin	`/api/admin/delete-organization`	27701, 27018	Sur org jetable uniquement : supprimer ; vérifier purge	EV-ORG-DELETE
Revue audit trail	Admin org / SU	Onglet Audit Trail	27001, 27701	Filtrer ; exporter CSV ; vérifier lignes proxy	EV-AUDIT-TRAIL

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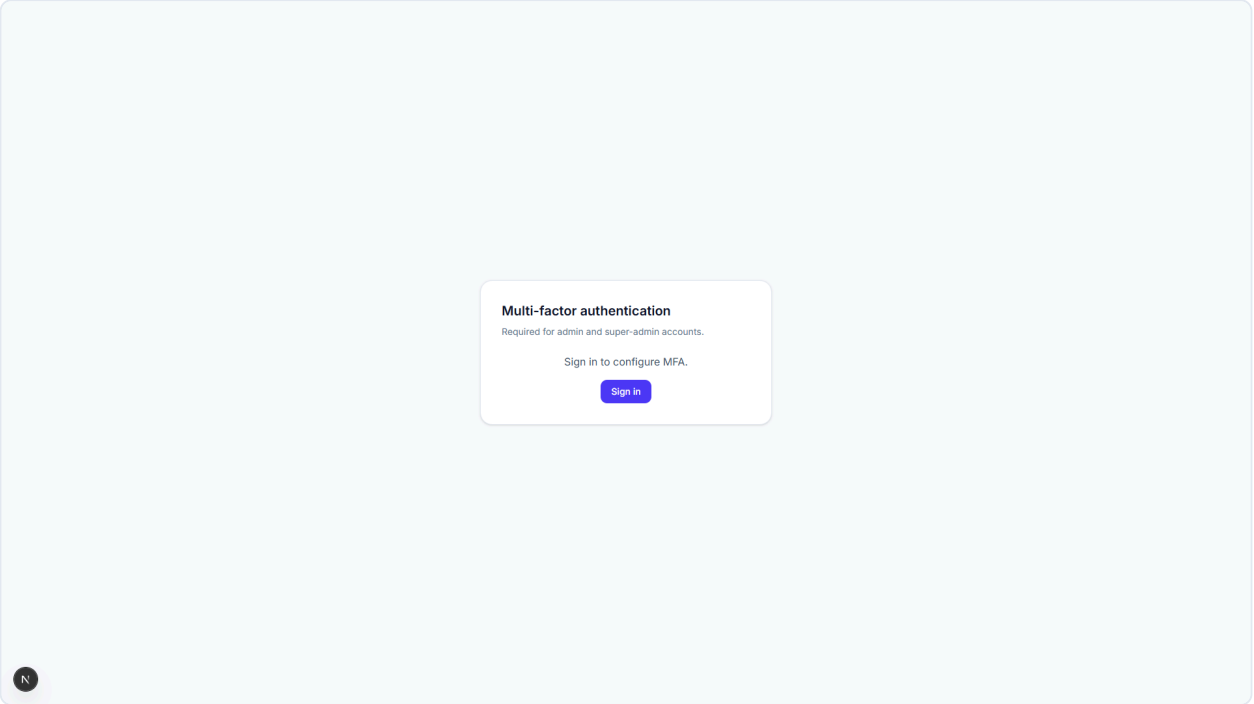
10. Pack de preuves — comment démontrer

Pour chaque ID : quoi montrer, comment tester, références code, et emplacement figure (remplacer les SVG par des captures réelles — voir `docs/iso-evidence-capture-checklist.md`).

`EV-AUTH-MFA` — MFA TOTP & step-up privilégié

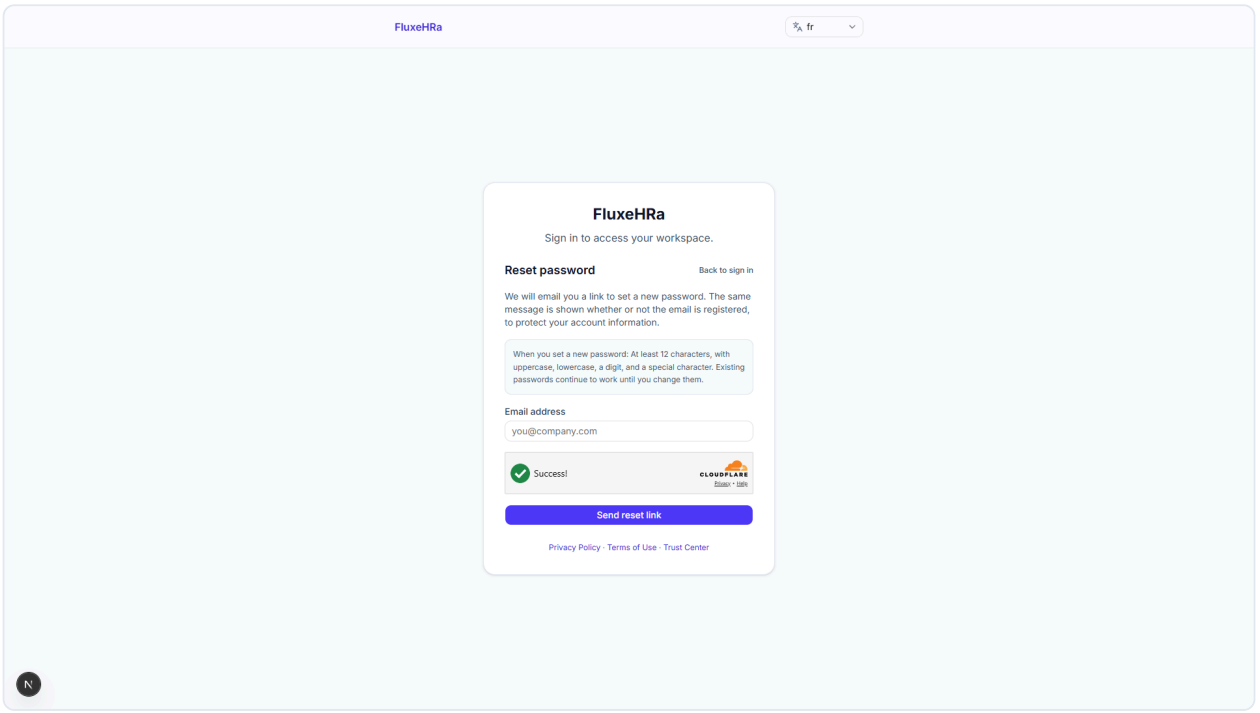
- **Montrer:** Page `/security/mfa`; login MFA challenge; Vercel env `REQUIRE_MFA_FOR_PRIVILEGED_ROLES`
- **Tester:** Enroll authenticator; complete step-up to JWT `aal2`; call privileged API without MFA → 403 `MFA_REQUIRED`
- **Code / config:** `lib/auth-mfa-policy.ts`, `lib/mfa-step-up.ts`, `app/security/mfa/page.tsx`



`EV-AUTH-MFA` — MFA TOTP & step-up privilégié (screenshot)

`EV-PASSWORD-POLICY` — Règles & messages de mot de passe

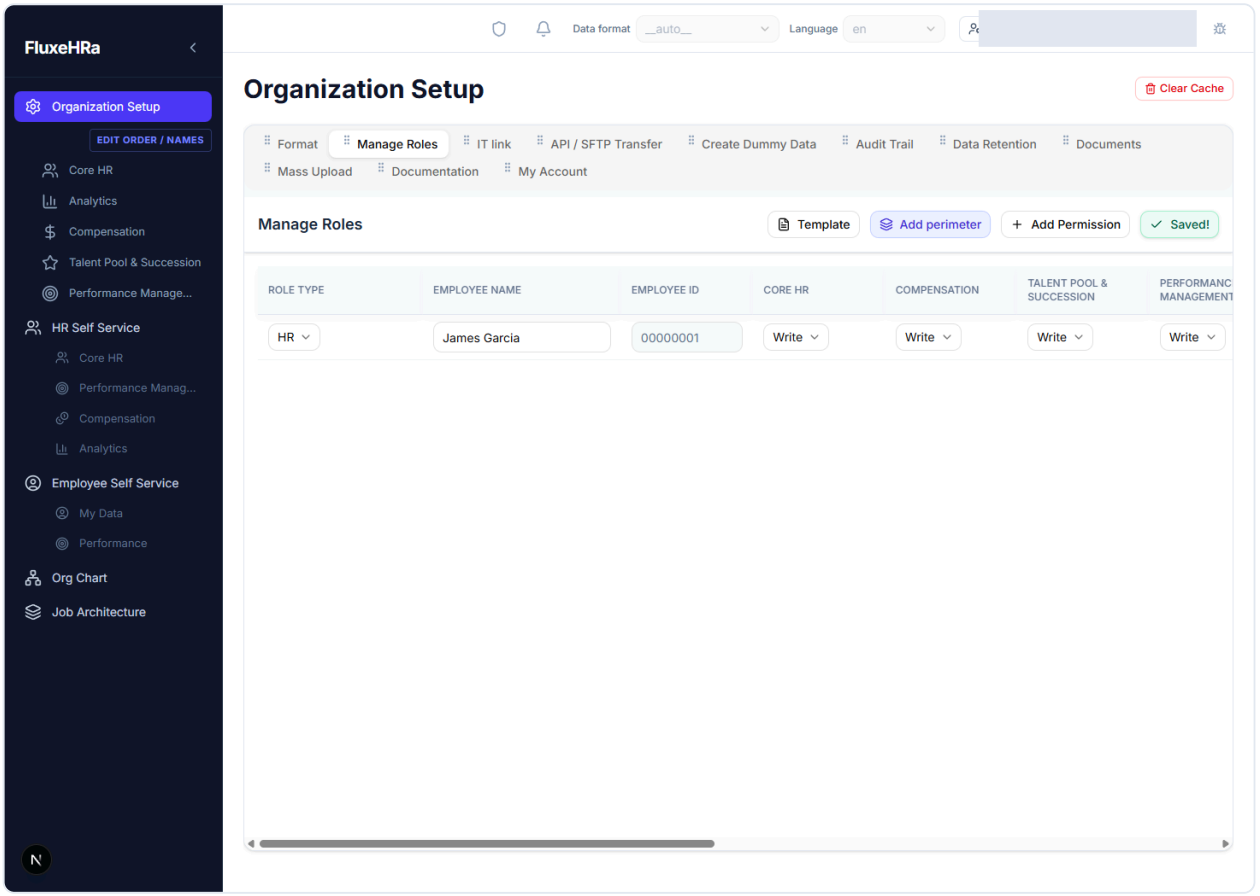
- **Montrer:** Login → Forgot password notice; `/reset-password` form; welcome/reset emails
- **Tester:** Reject short/weak password on set/reset; existing passwords continue to work until changed
- **Code / config:** `lib/password-policy.ts`, `app/reset-password/page.tsx`, `components/sign-in-panel.tsx`, `lib/templated-auth-email.ts`



`EV-PASSWORD-POLICY` — Règles & messages de mot de passe (screenshot)

`EV-RBAC-ROLES` — Matrice rôles & permissions

- **Montrer:** Org-setup → Manage Roles; SU Admin org/admins
- **Tester:** Remove module write; confirm UI gate and API 403
- **Code / config:** `lib/org-permissions.ts`, `components/manage-roles-tab.tsx`, `lib/supabase-api-auth.ts`



`EV-RBAC-ROLES` — Matrice rôles & permissions (screenshot)

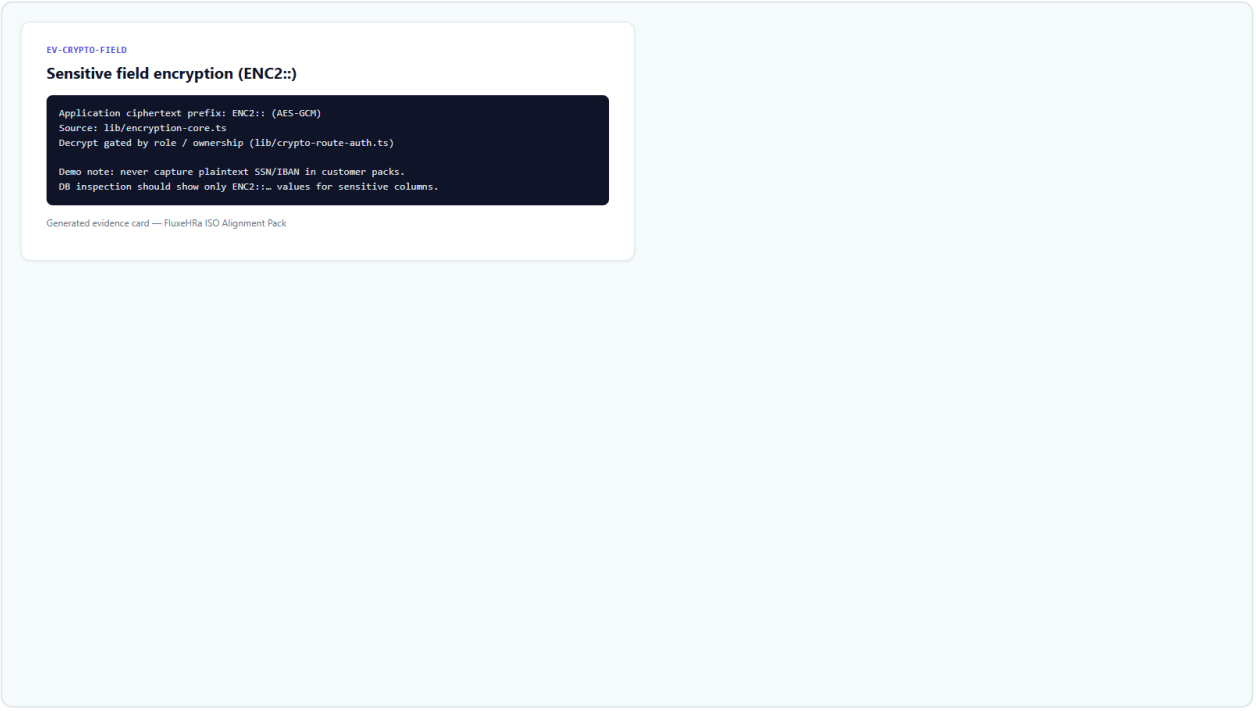
`EV-RLS-TENANT` — Isolation multi-tenant RLS

- **Montrer:** Attempt cross-org data access (second org user)
- **Tester:** Query/API against foreign `organization_id` returns empty/denied; review RLS migrations
- **Code / config:** `supabase/migrations/20260606120000_*`, `20260610120000_*`, `scripts/sql/rls-inventory.sql`

`EV-RLS-TENANT` — Isolation multi-tenant RLS (screenshot)

`EV-CRYPTO-FIELD` — Chiffrement des champs sensibles

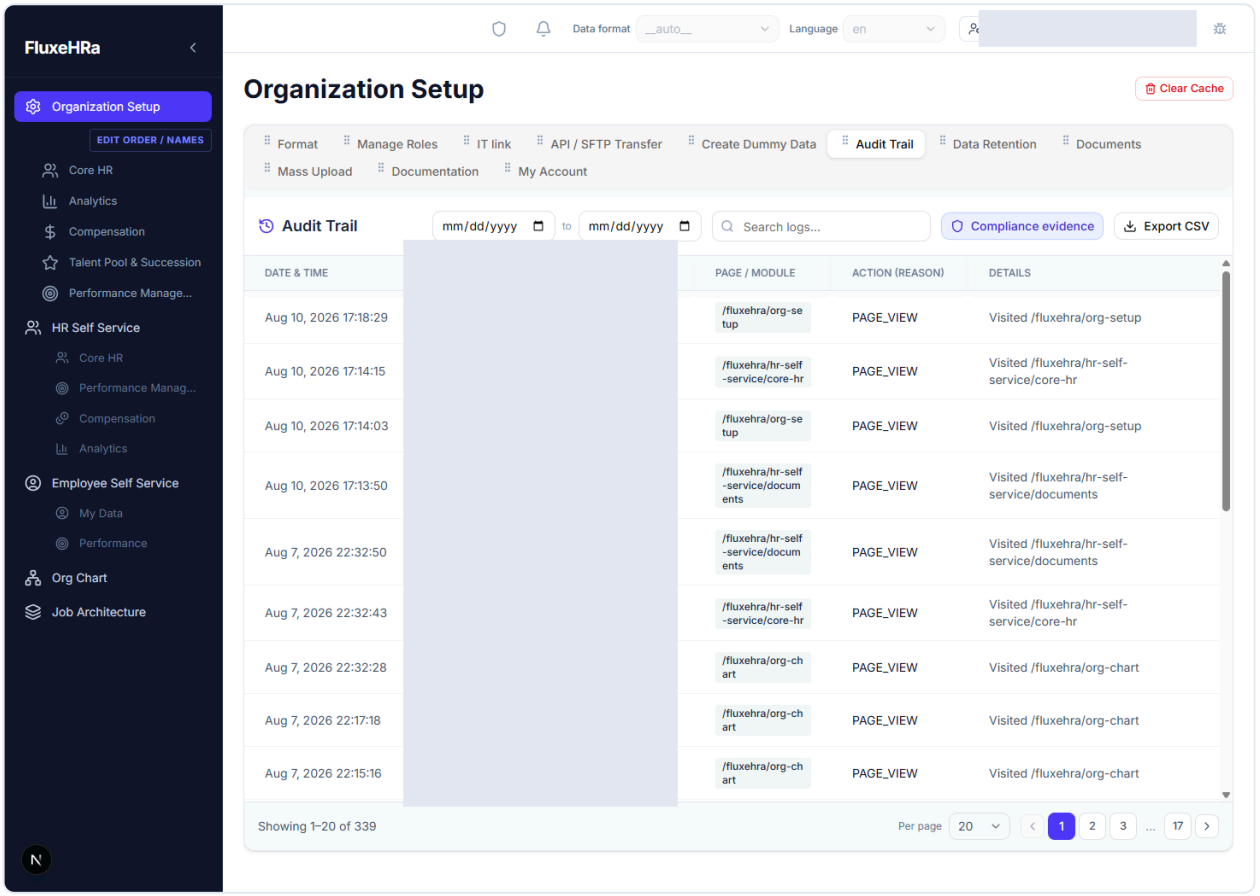
- **Montrer:** Save SSN/IBAN; inspect DB value prefix `ENC2::`
- **Tester:** Encrypt/decrypt via authorized role; non-privileged decrypt limited to own/team ciphertext
- **Code / config:** `lib/encryption-core.ts`, `app/api/crypto/*`, `lib/crypto-route-auth.ts`



`EV-CRYPTO-FIELD` — Chiffrement des champs sensibles (screenshot)

`EV-AUDIT-TRAIL` — UI journal d'audit

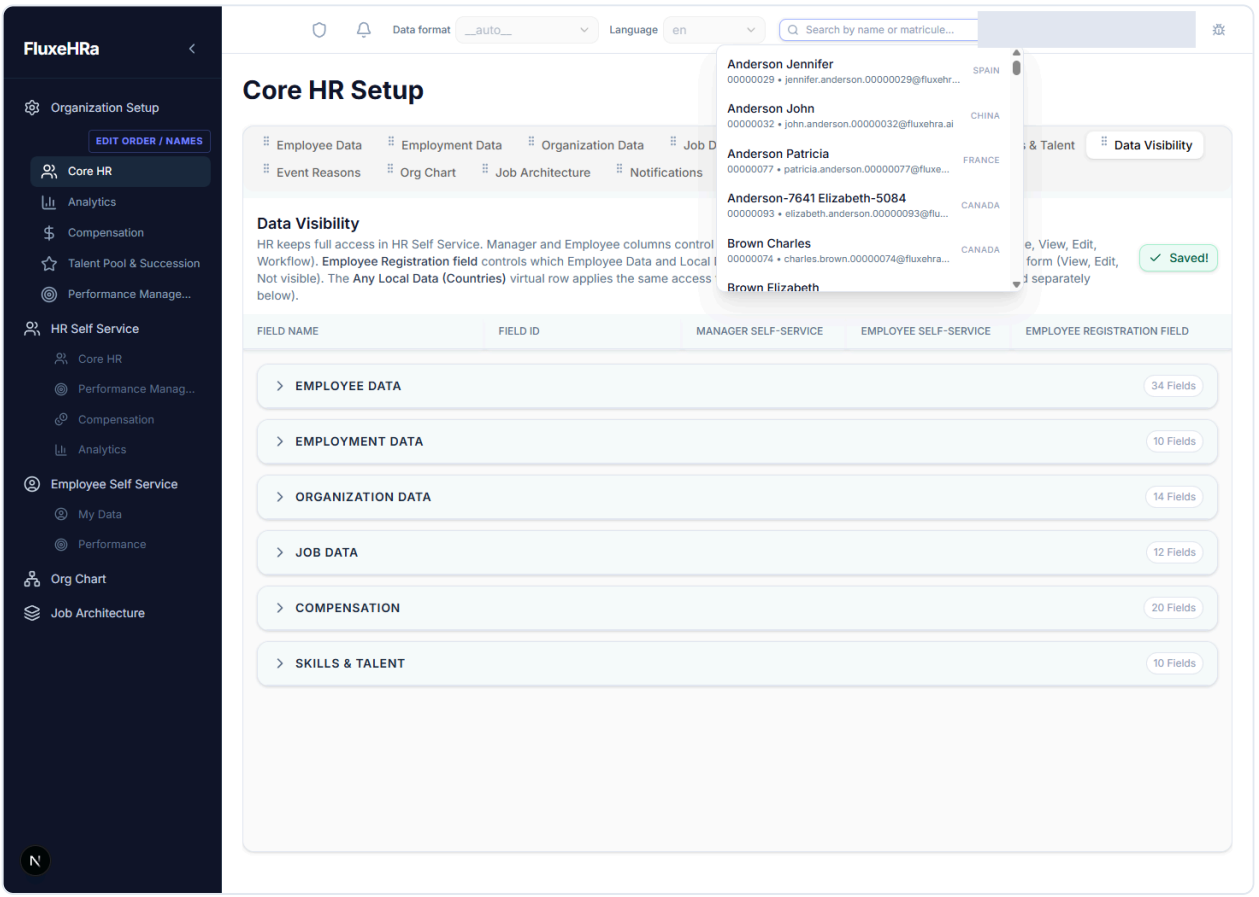
- **Montrer:** Org-setup / SU → Audit Trail
- **Tester:** Perform audited action (mass upload, settings); confirm event row; CSV export
- **Code / config:** `lib/audit-server.ts`, `lib/audit-client.ts`, `components/audit-trail-tab.tsx`



`EV-AUDIT-TRAIL` — UI journal d'audit (screenshot)

`EV-PROXY` — Responsabilité du proxy

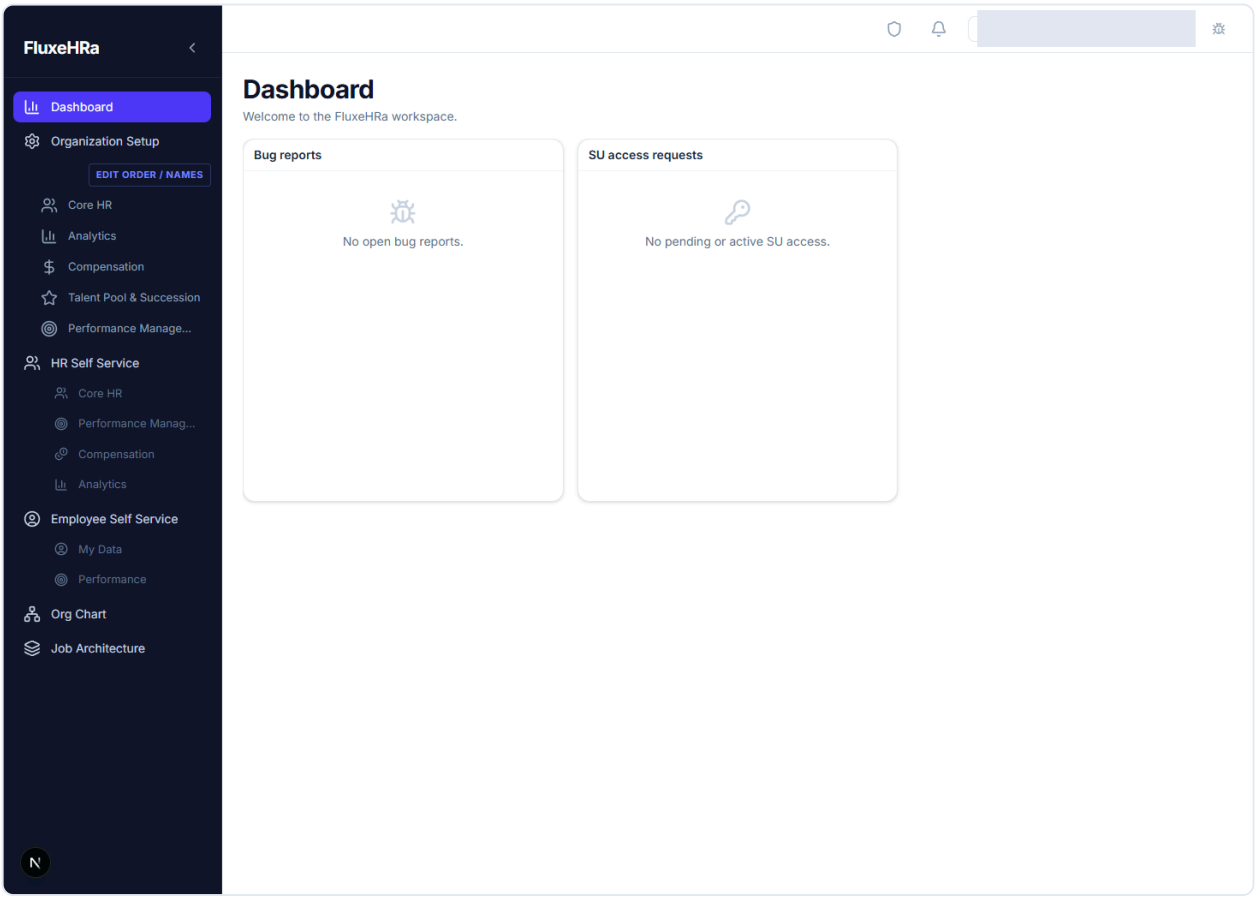
- **Montrer:** Proxy session banner; audit with proxied identity
- **Tester:** With active SU grant (or org privileged role): start/end proxy; confirm continuous eligibility re-check; dual identity in logs
- **Code / config:** `lib/proxy-server.ts`, `lib/proxy-api-guard.ts`, `lib/su-org-access.ts`



`EV-PROXY` — Responsabilité du proxy (screenshot)

`EV-SU-ORG-ACCESS` — Grants d’accès SU aux orgs (48 h)

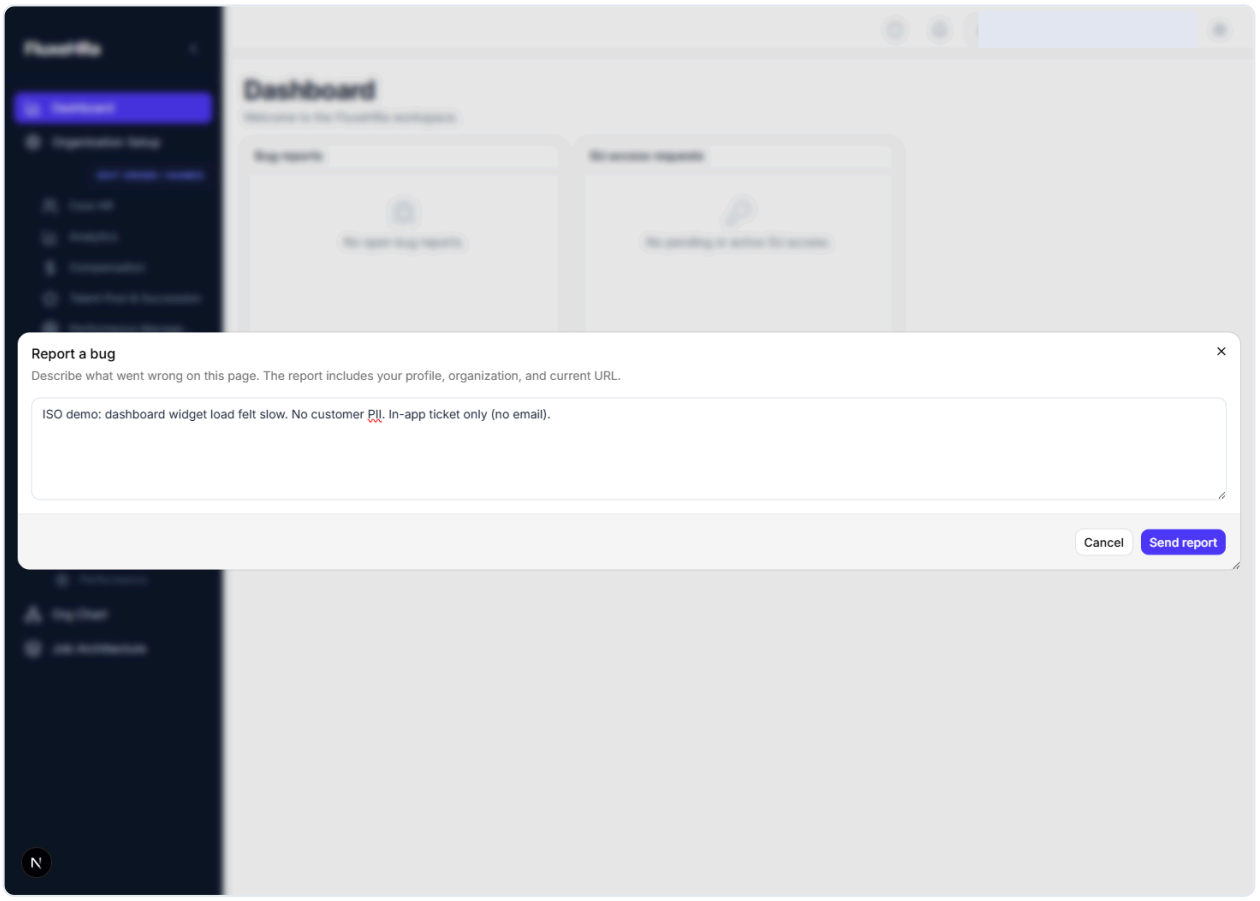
- **Montrer:** SU Enter Organisation → Request; Org Admin Dashboard → Accept/Deny; emerald authorized orgs
- **Tester:** Approve grant; Enter org; confirm middleware/API deny without grant for data paths; expire after 48h kicks SU out. Deploy-schema to orgs does NOT require grant (config only, no PII read).
- **Code / config:** `su_org_access_grants`, `/api/su-org-access`, `has_active_su_org_grant`



`EV-SU-ORG-ACCESS` — Grants d’accès SU aux orgs (48 h) (screenshot)

`EV-BUG-ESCALATION` — Escalade des bugs manuels

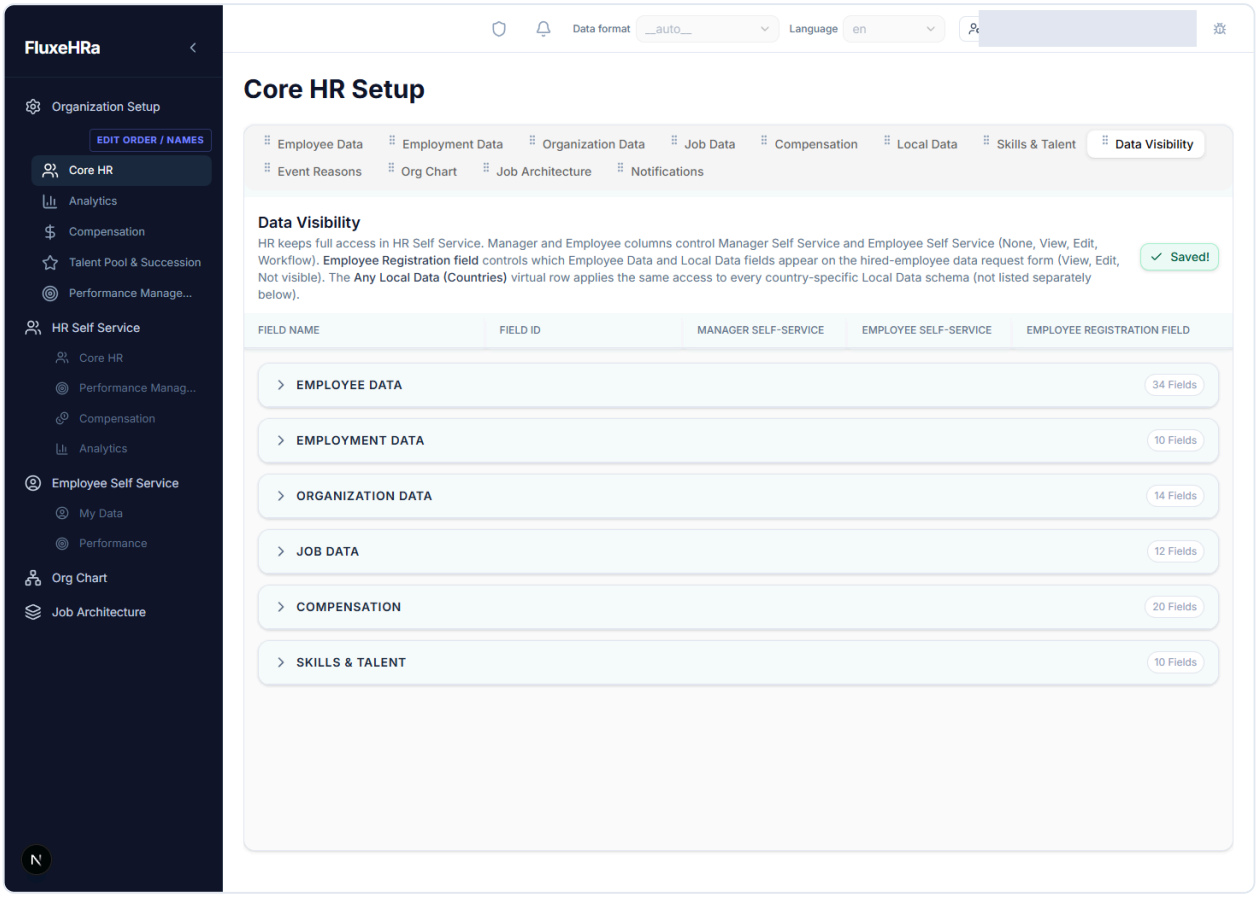
- **Montrer:** Report a bug → HR / Org Admin / SU Dashboard widgets
- **Tester:** Submit manual bug (ticket, no email); Forward HR→Admin→SU; Clear; auto client errors still email SMTP
- **Code / config:** `bug_report_tickets`, `/api/bug-report`, `/api/bug-reports`



`EV-BUG-ESCALATION` — Escalade des bugs manuels (screenshot)

`EV-VISIBILITY` — Matrice de visibilité des données

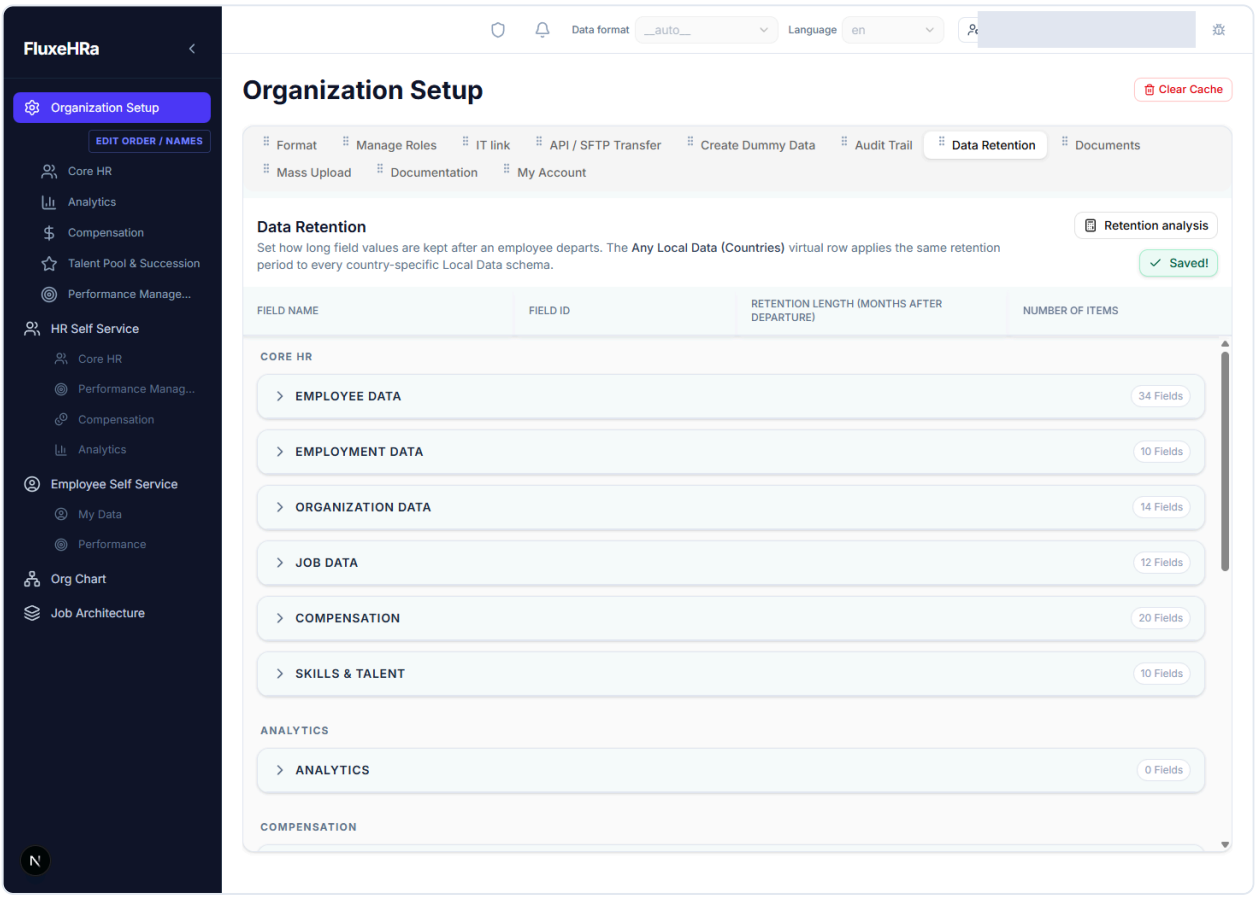
- **Montrer:** Core HR / Data Visibility; ESS field hidden vs HR visible
- **Tester:** Set field to `none` for employee; confirm self-service omit/deny
- **Code / config:** `lib/field-visibility.ts`, `lib/self-service-submit-auth.ts`



`EV-VISIBILITY` — Matrice de visibilité des données (screenshot)

`EV-RETENTION` — Configuration de rétention & purge

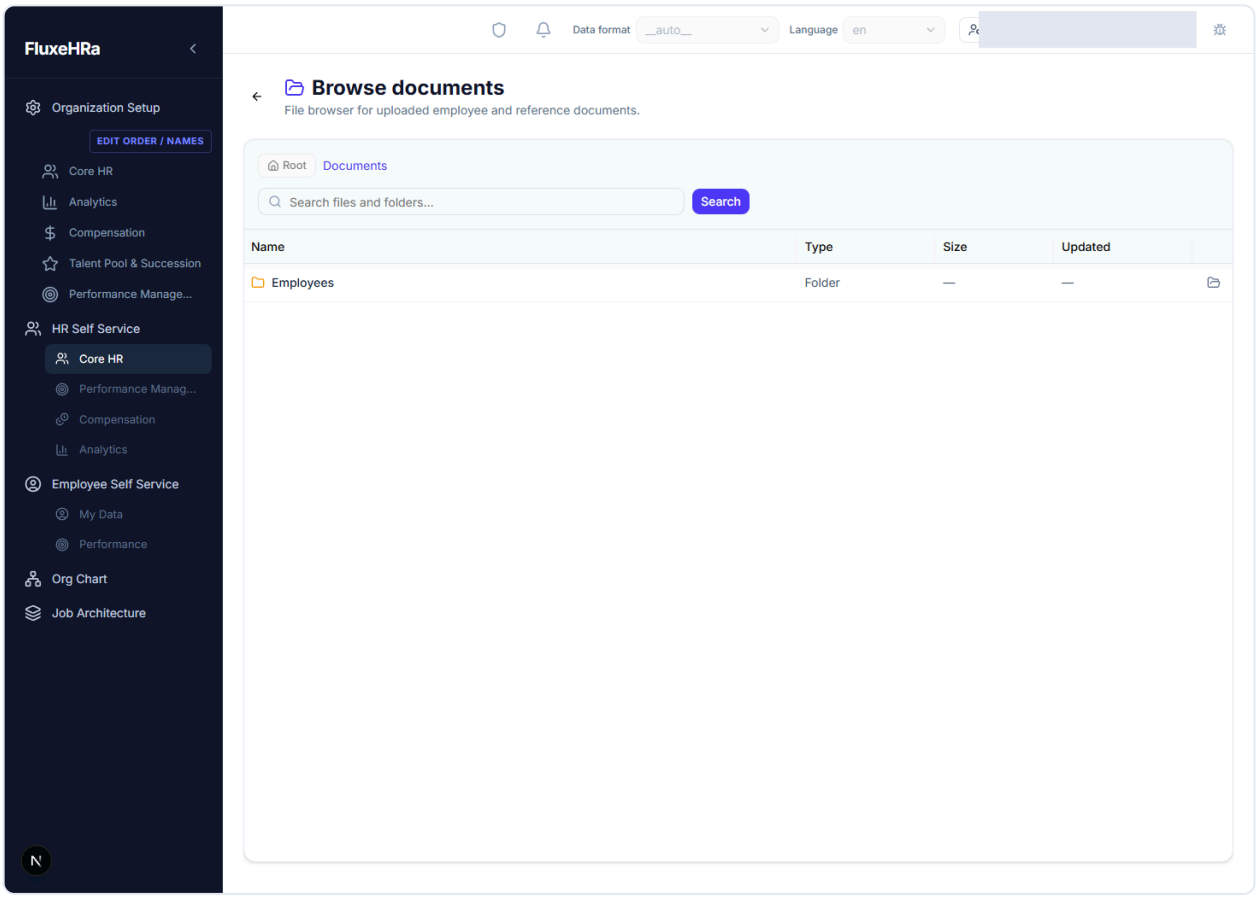
- **Montrer:** Retention months per field; document type retention; analyze/purge actions
- **Tester:** Configure retention; run Retention analysis; purge expired values; confirm RETENTION_* audit events
- **Code / config:** `lib/retention-purge.ts`, `/api/hr/retention`, field-visibility retention tab



`EV-RETENTION` — Configuration de rétention & purge (screenshot)

`EV-DOCUMENTS` — Accès documents privés

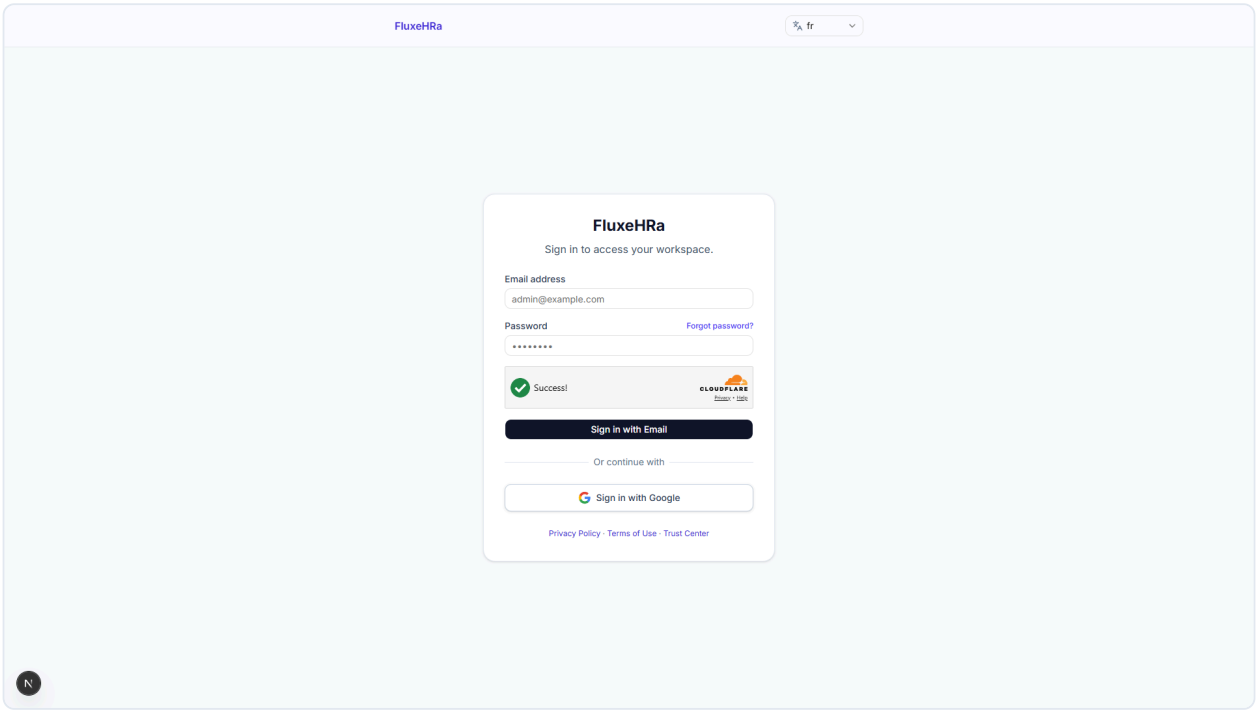
- **Montrer:** Upload under employee; download via app only
- **Tester:** Direct storage URL without auth fails; authorized `/api/documents/file/…` succeeds; scoped HR denied outside regional perimeter on direct URL
- **Code / config:** `lib/document-access.ts`, `lib/storage-ops.ts`, migration documents bucket private



`EV-DOCUMENTS` — Accès documents privés (screenshot)

`EV-TURNSTILE` — Protection anti-bot (Turnstile)

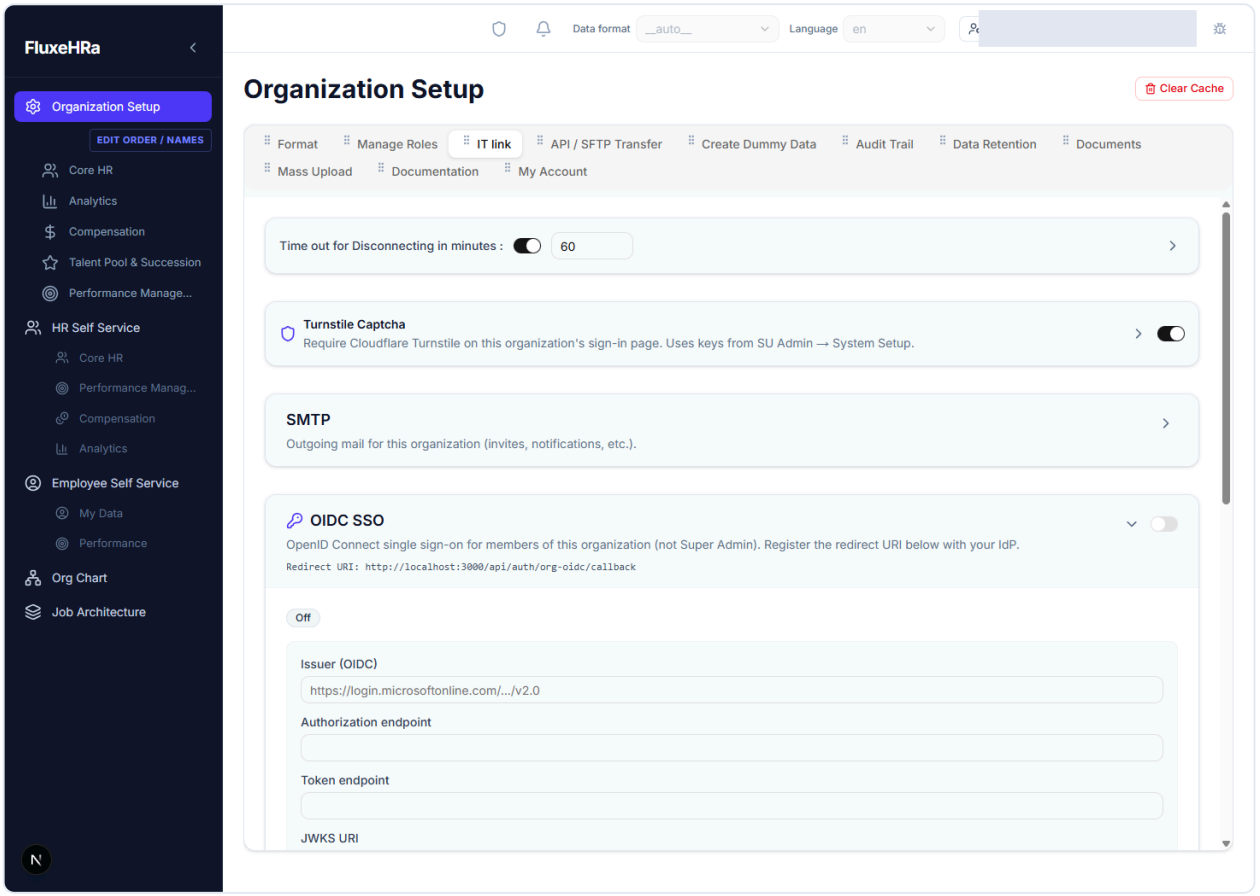
- **Montrer:** SU System Setup / Org IT Link Turnstile toggle; login challenge
- **Tester:** Enable Turnstile; blocked without token on check-email / forgot-password
- **Code / config:** `lib/turnstile-server.ts`, `lib/turnstile-settings.ts`



`EV-TURNSTILE` — Protection anti-bot (Turnstile) (screenshot)

`EV-SSO-OIDC` — SSO OIDC par organisation

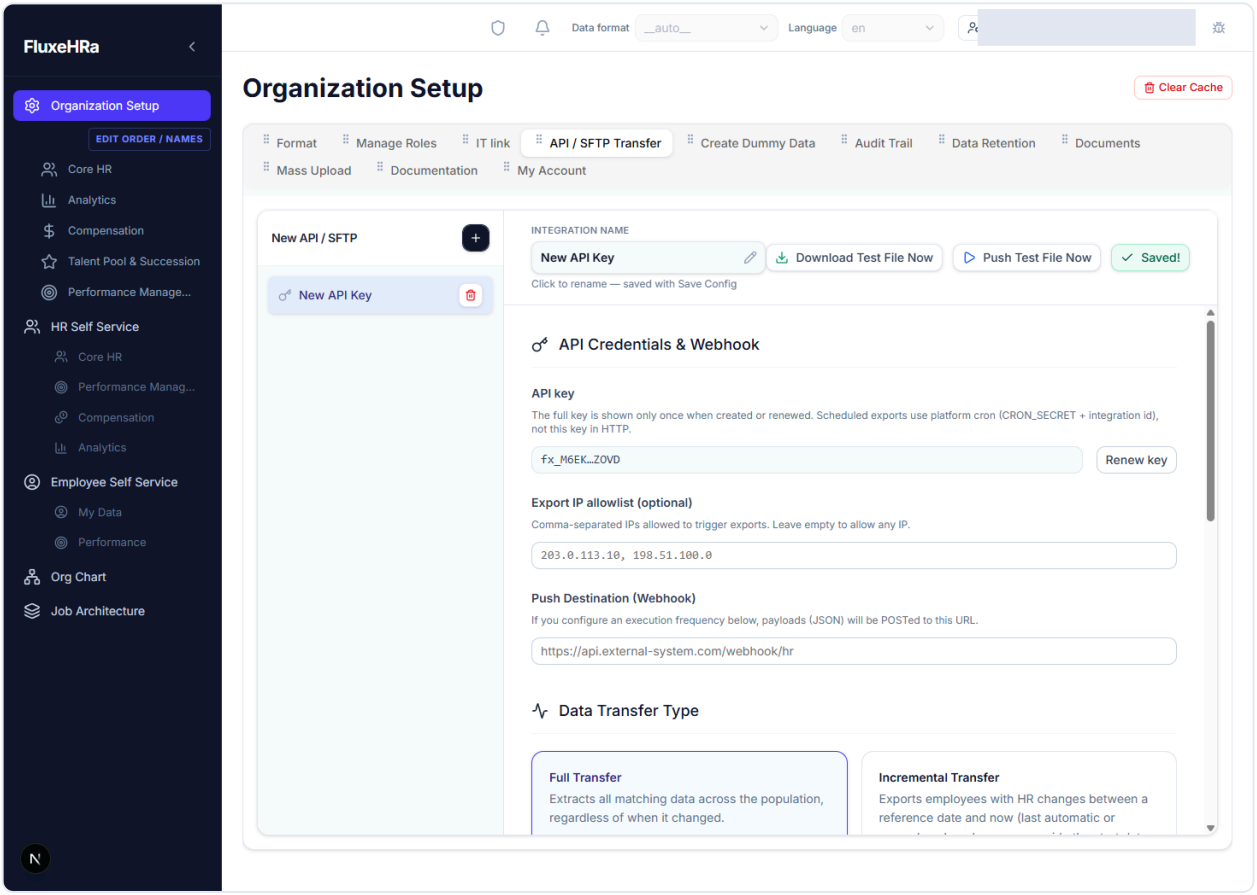
- **Montrer:** Org-setup → IT Link SSO settings
- **Tester:** Authorize + callback with HMAC state; invalid redirect rejected
- **Code / config:** `app/api/auth/org-oidc/*`, `lib/org-oidc-state.ts`, `lib/app-origin.ts`



`EV-SSO-OIDC` — SSO OIDC par organisation (screenshot)

`EV-INTEGRATIONS` — Sécurité des exports d'intégration

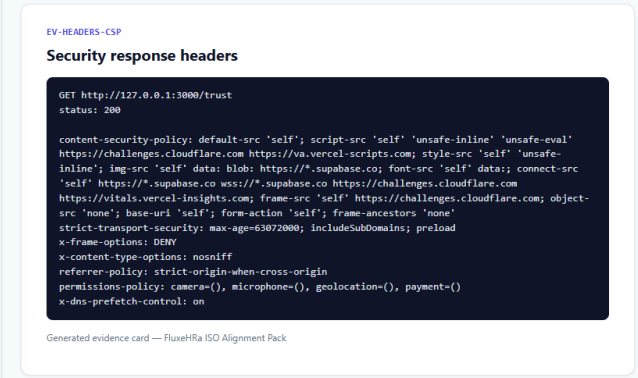
- **Montrer:** Org-setup → API / SFTP; regenerate key once
- **Tester:** Export with Bearer integration key + HMAC headers (per-key secret); rate limit; audit stores fingerprint not payload
- **Code / config:** `lib/integration-api-key.ts`, `lib/integration-export-*.ts`



`EV-INTEGRATIONS` — Sécurité des exports d'intégration (screenshot)

`EV-HEADERS-CSP` — En-têtes de sécurité & CSP

- **Montrer:** Browser DevTools → Response headers on any authenticated page
- **Tester:** Confirm CSP nonce, HSTS, X-Frame-Options DENY, nosniff
- **Code / config:** `lib/csp.ts`, `proxy.ts`, `next.config.js`



`EV-HEADERS-CSP` — En-têtes de sécurité & CSP (screenshot)

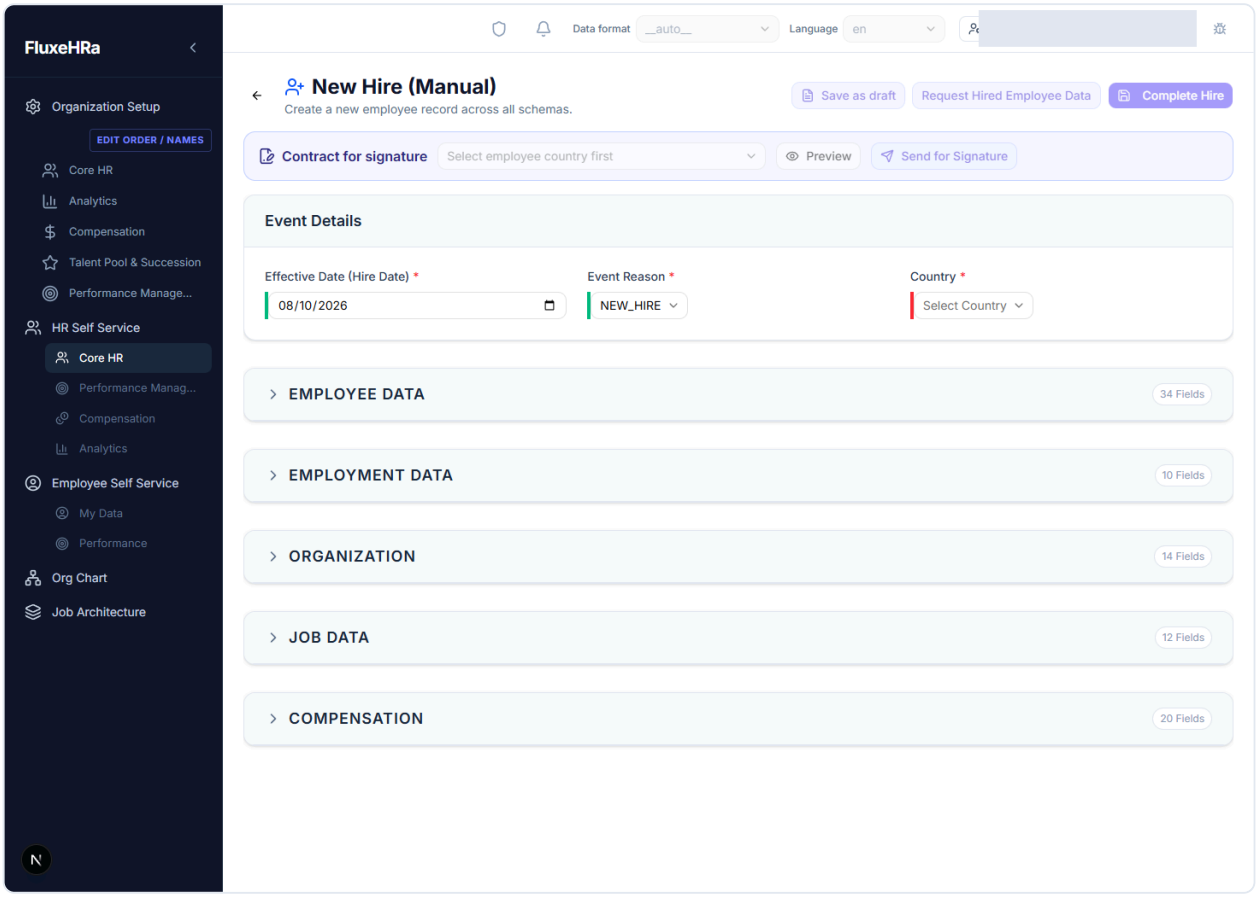
`EV-HOSTING-REGIONS` — Alignement d’hébergement UE

- **Montrer:** Supabase project region; `vercel.json` region `dub1`
- **Tester:** Document eu-west-1 + dub1 in customer processing register
- **Code / config:** `vercel.json`, `.env.example`, security whitepaper § hosting

`EV-HOSTING-REGIONS` — Alignement d’hébergement UE (screenshot)

`EV-PROC-NEWHIRE` — Embauche & data request

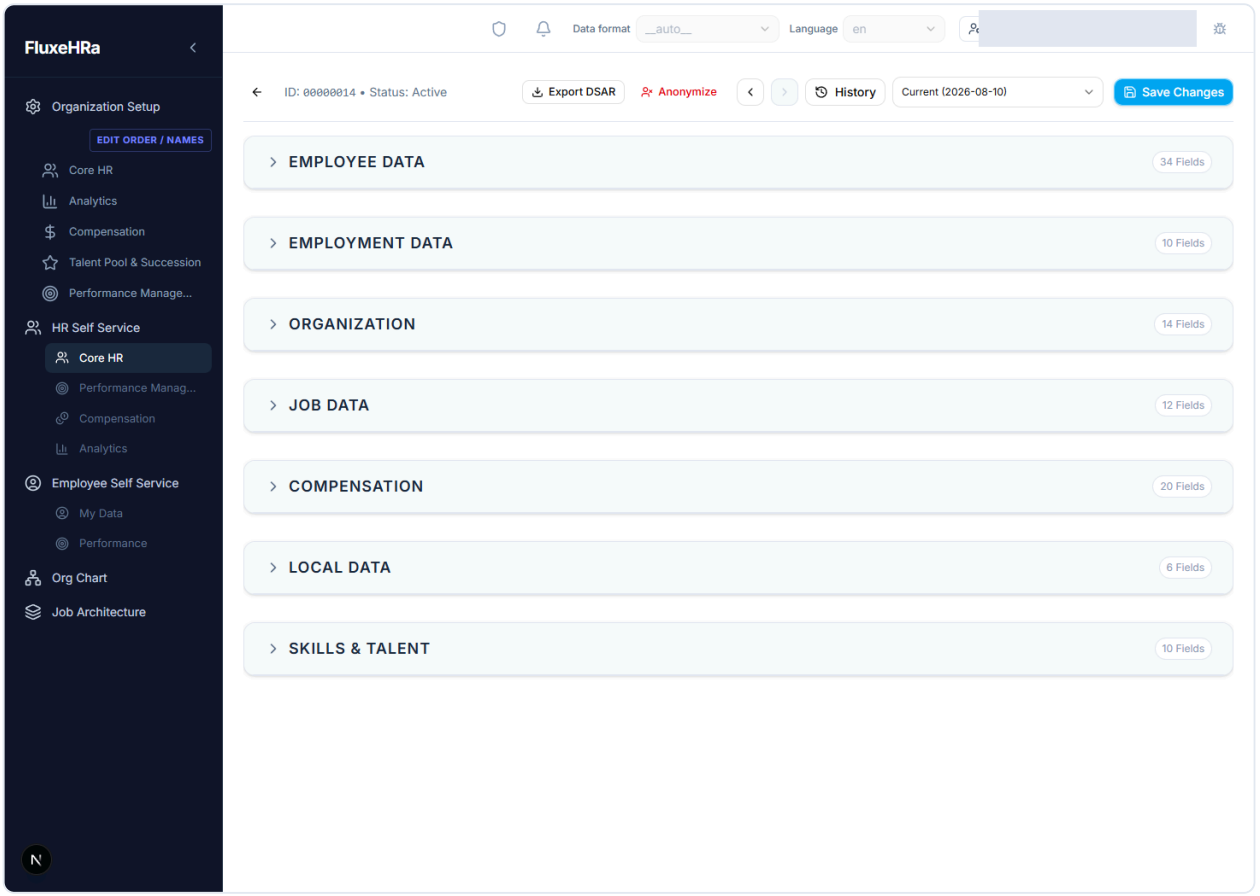
- **Montrer:** HR Self Service → New Hire; public token page
- **Tester:** `npm run test:employee-data-request`; manual 90-day token expiry
- **Code / config:** `lib/employee-data-request-*.ts`, public EDR APIs



`EV-PROC-NEWHIRE` — Embauche & data request (screenshot)

`EV-PROC-UPDATE` — Mise à jour bitemporelle employé

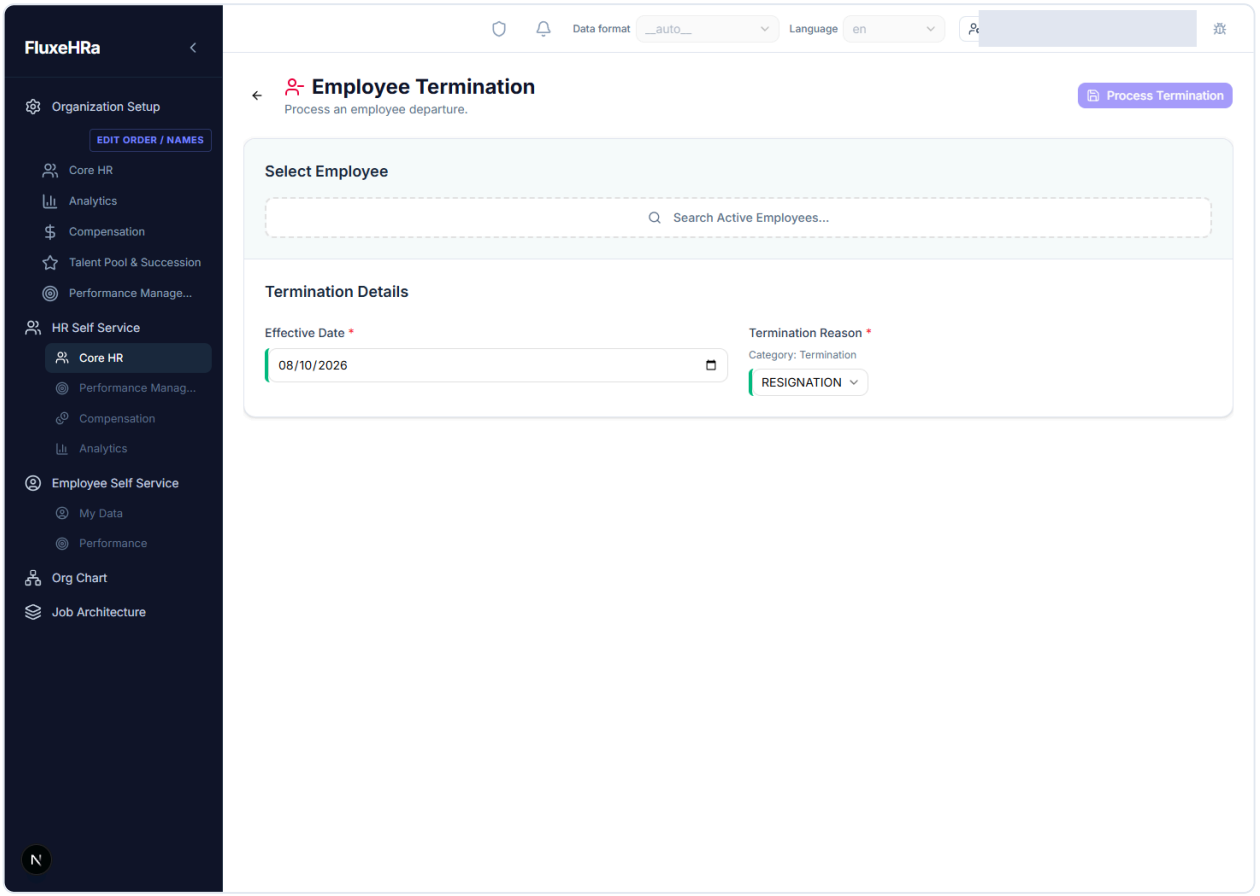
- **Montrer:** HR employee record with effective dating
- **Tester:** Split history on mid-period change; verify prior segment retained
- **Code / config:** `lib/temporal-data.ts`



`EV-PROC-UPDATE` — Mise à jour bitemporelle employé (screenshot)

`EV-PROC-TERMINATE` — Sortie / termination

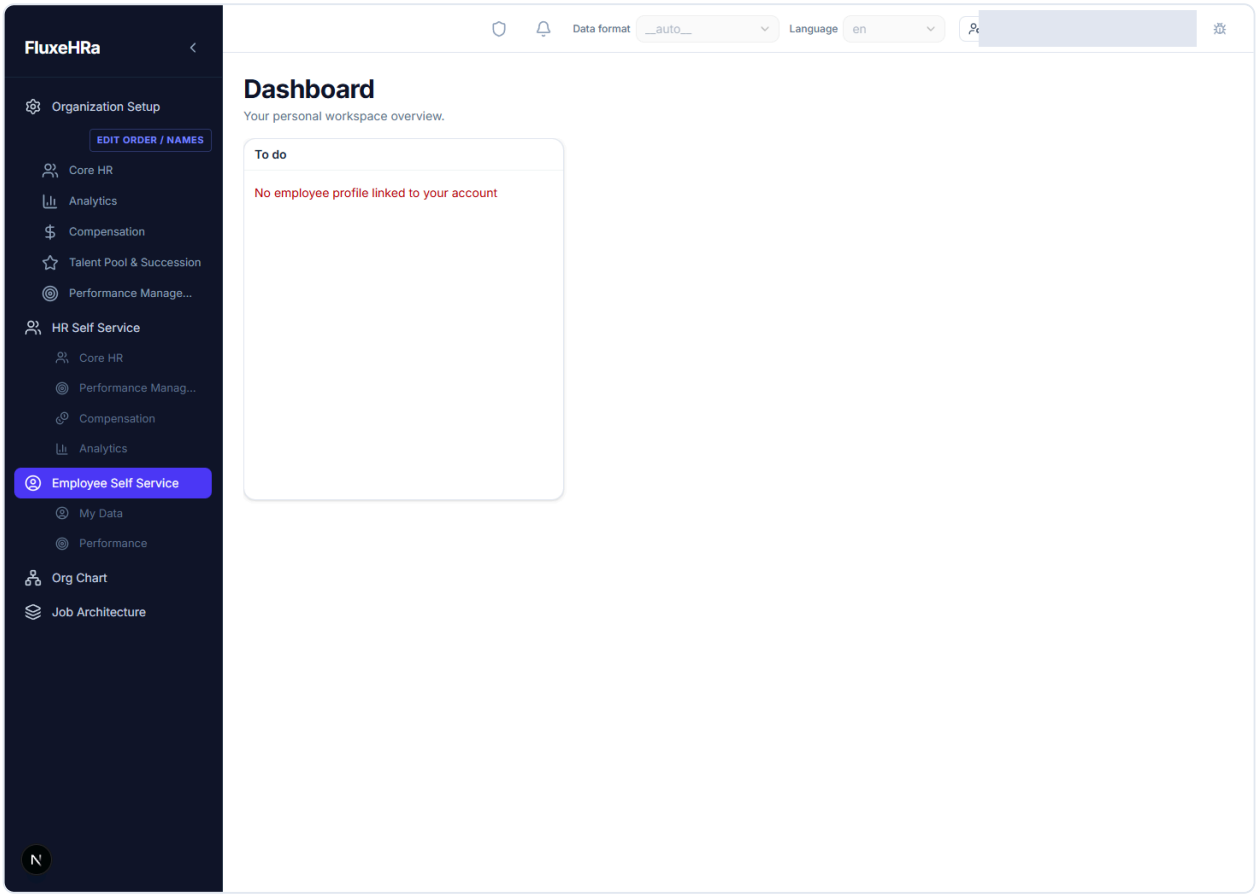
- **Montrer:** HR Self Service → Termination
- **Tester:** Set end dates/status; confirm lifecycle event
- **Code / config:** HR termination route under `hr-self-service/termination`



`EV-PROC-TERMINATE` — Sortie / termination (screenshot)

`EV-PROC-SELFSERVICE` — Demande de changement self-service

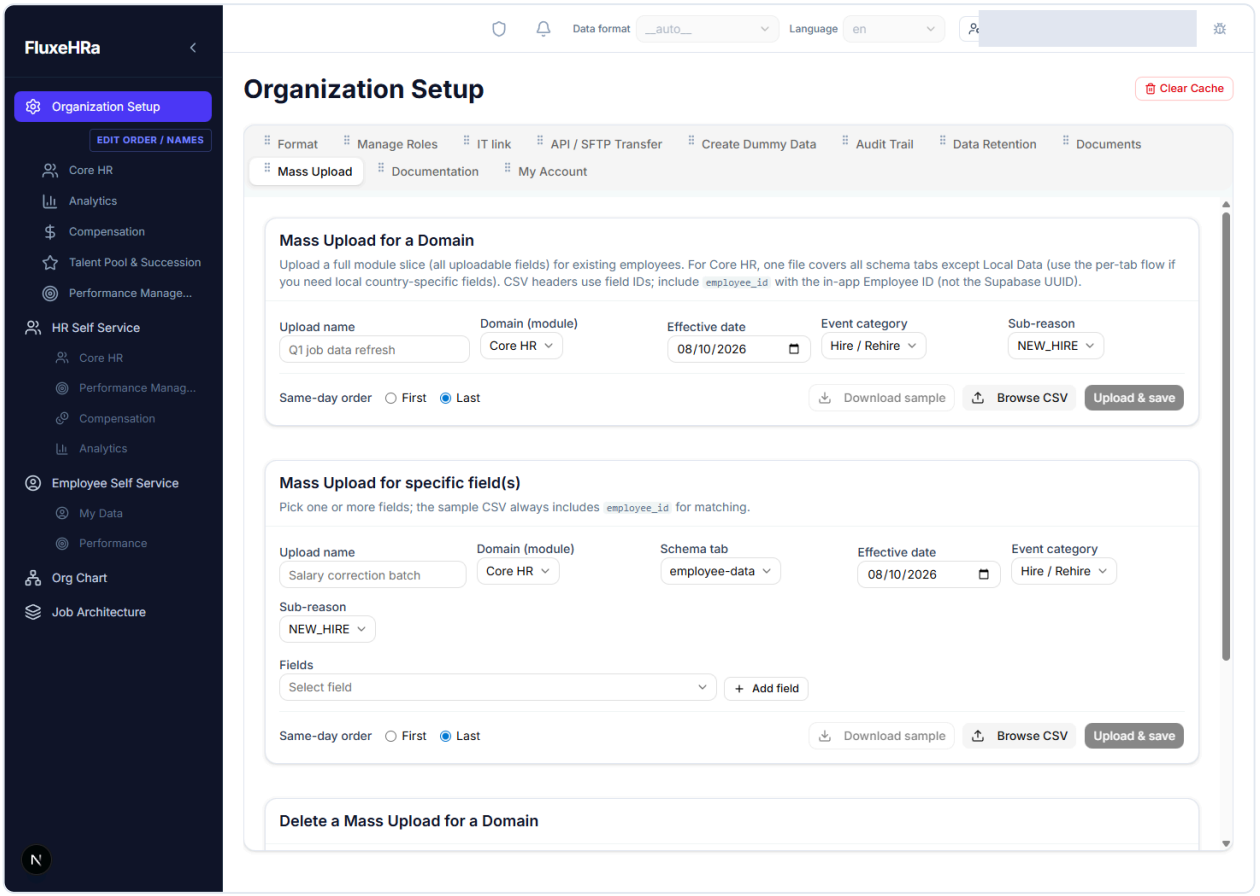
- **Montrer:** My Data / My Team workflow fields; HR notification
- **Tester:** Submit change; approve/apply as HR
- **Code / config:** `lib/self-service-submit-auth.ts`



`EV-PROC-SELFSERVICE` — Demande de changement self-service (screenshot)

`EV-PROC-MASSUPLOAD` — Mass upload & rollback

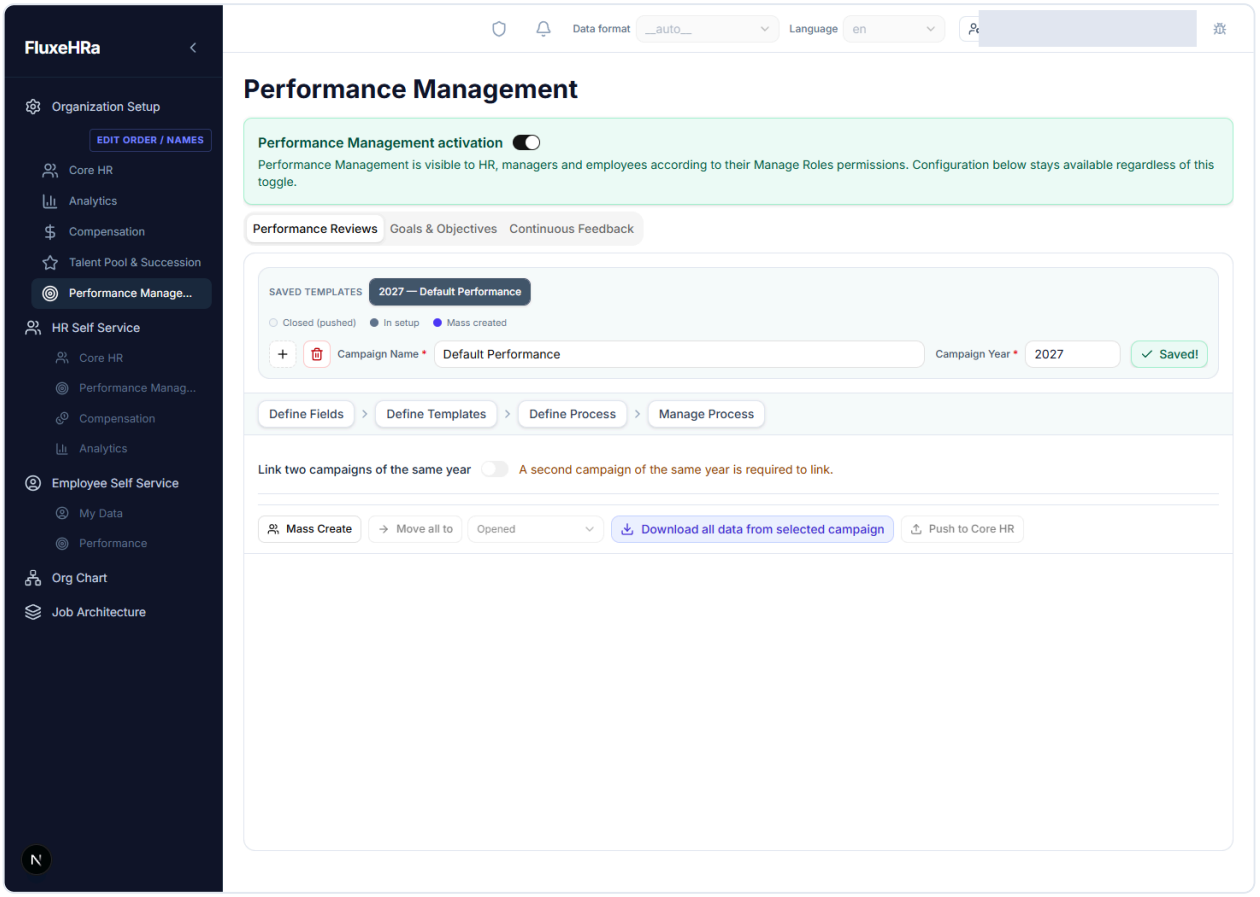
- **Montrer:** Mass Upload tab; batch list
- **Tester:** Commit then delete/rollback batch; audit events present
- **Code / config:** `/api/admin/mass-upload/*`



`EV-PROC-MASSUPLOAD` — Mass upload & rollback (screenshot)

`EV-PROC-PERF` — Campagne performance

- **Montrer:** Performance Management campaign → document → sign
- **Tester:** `npm test` (performance unit tests); optional `npm run test:performance-smoke`
- **Code / config:** `lib/performance/`, `app/api/performance/`



`EV-PROC-PERF` — Campagne performance (screenshot)

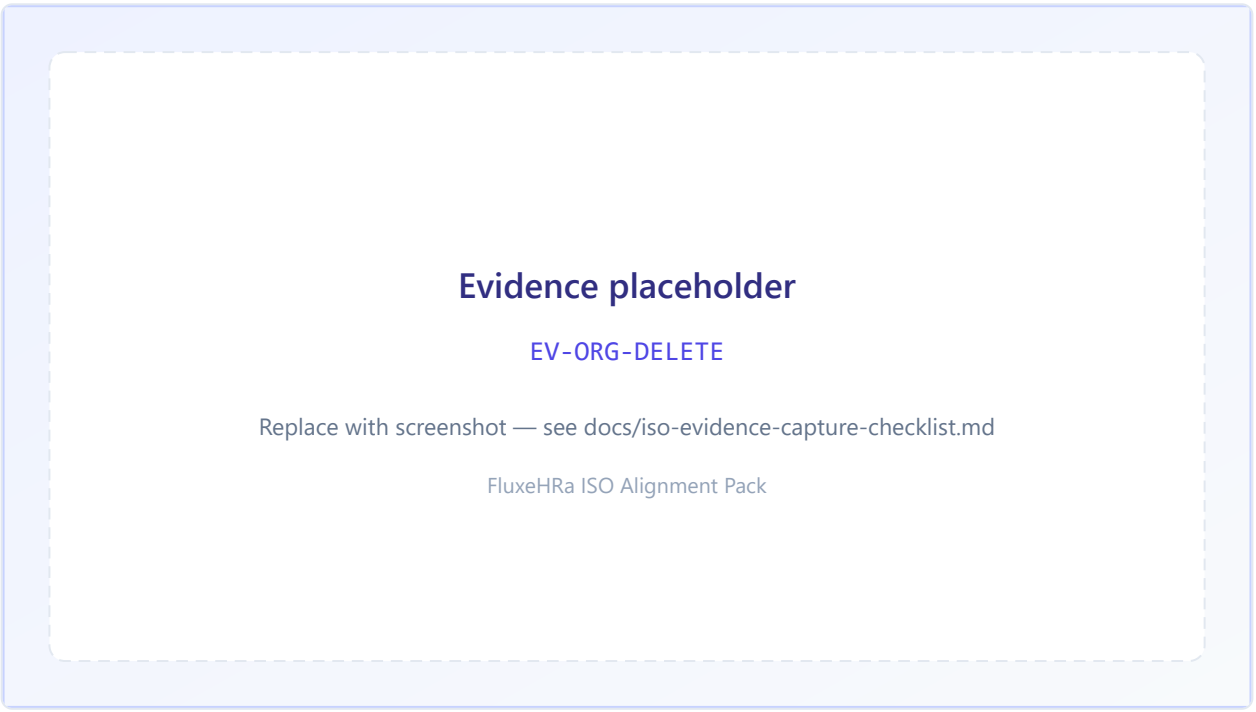
`EV-PROC-LEARNING` — Conformité Learning

- **Montrer:** Learning admin + team compliance tab
- **Tester:** Enroll; progress; attestation; compliance dashboard
- **Code / config:** `app/api/learning/`, `/api/cron/learning-compliance`

`EV-PROC-LEARNING` — Conformité Learning (placeholder)

`EV-ORG-DELETE` — Cascade de suppression d’organisation

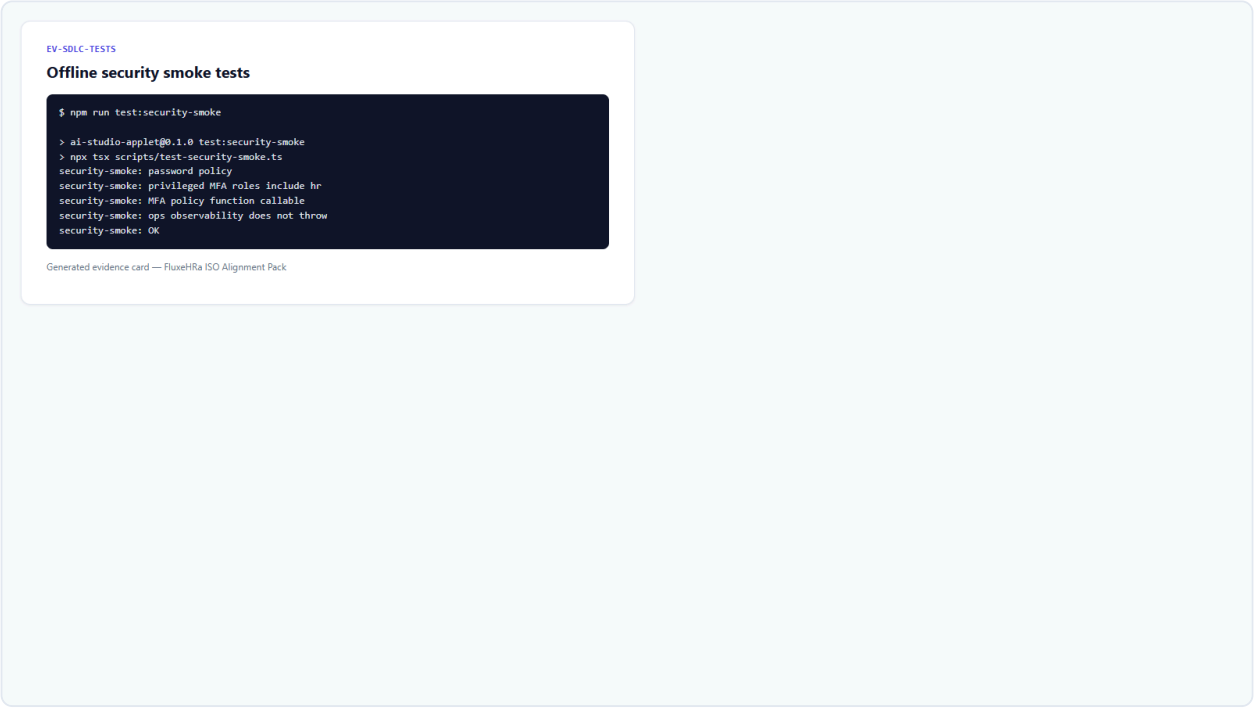
- **Montrer:** SU Admin delete organization (disposable org only)
- **Tester:** Confirm cascade removes org tables, storage prefixes, member auth users
- **Code / config:** `lib/delete-organization-cascade.ts`



`EV-ORG-DELETE` — Cascade de suppression d’organisation (placeholder)

`EV-SDLC-TESTS` — Tests automatisés & preuves de changement

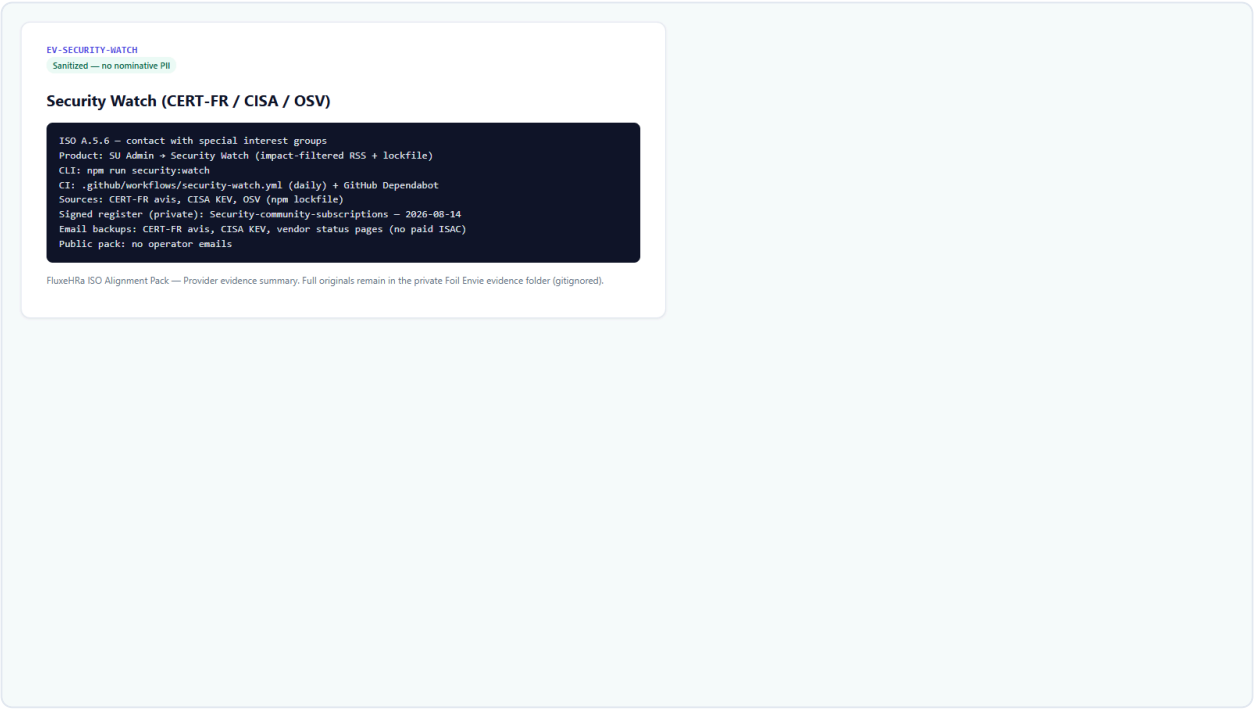
- **Montrer:** CI/local test run output; migration history
- **Tester:** `npm test`; `npm run test:employee-data-request`; `npm run lint`; GitHub `security-tests` workflow
- **Code / config:** `lib/__tests__/`, `lib/performance/__tests__/`, `supabase/migrations/`, `.github/workflows/security-tests.yml`



`EV-SDLC-TESTS` — Tests automatisés & preuves de changement (screenshot)

`EV-SECURITY-WATCH` — Veille sécurité (CERT-FR / CISA / OSV)

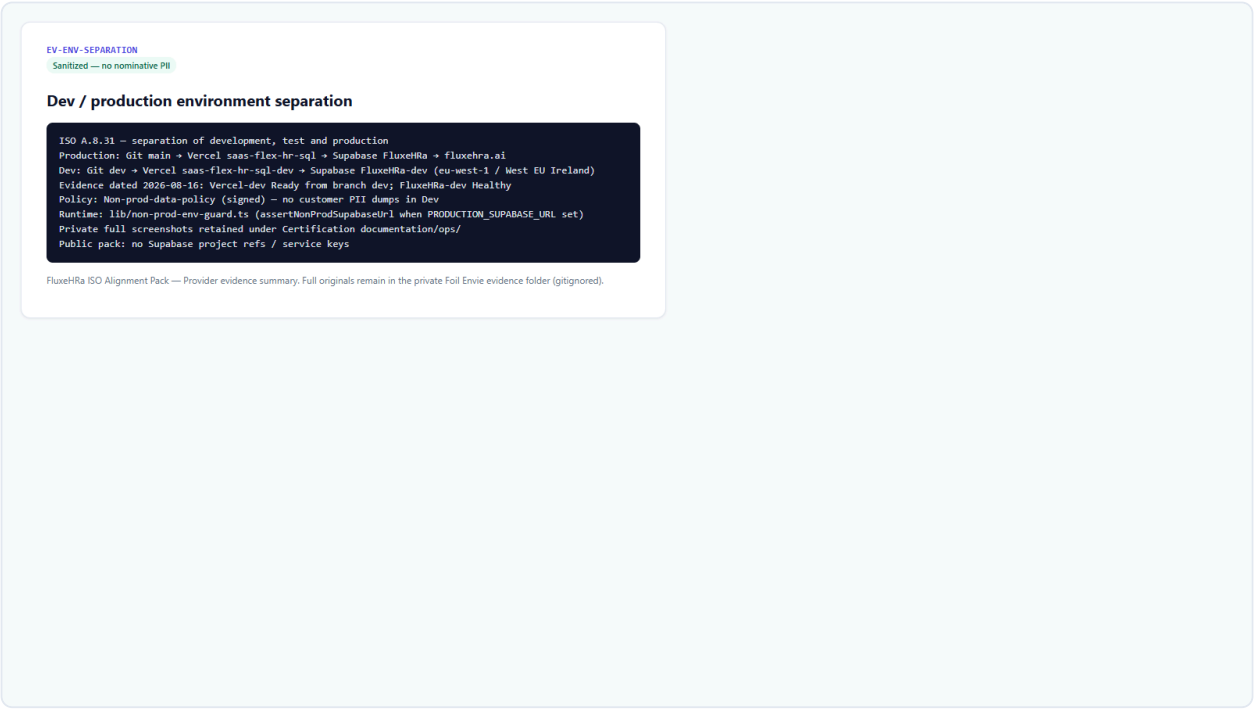
- **Montrer:** Sanitized card: SU Admin Security Watch sources + daily GitHub Action + Dependabot — no operator emails
- **Tester:** Run `npm run security:watch`; open SU Admin → Security Watch; confirm daily `security-watch.yml` + Dependabot
- **Code / config:** `lib/security-watch.ts`, `app/api/su-admin/security-watch/route.ts`, `.github/workflows/security-watch.yml`; signed register (private) `Certification documentation/policies/Security-community-subscriptions`



`EV-SECURITY-WATCH` — Veille sécurité (CERT-FR / CISA / OSV) (screenshot)

`EV-ENV-SEPARATION` — Séparation environnements Dev / production

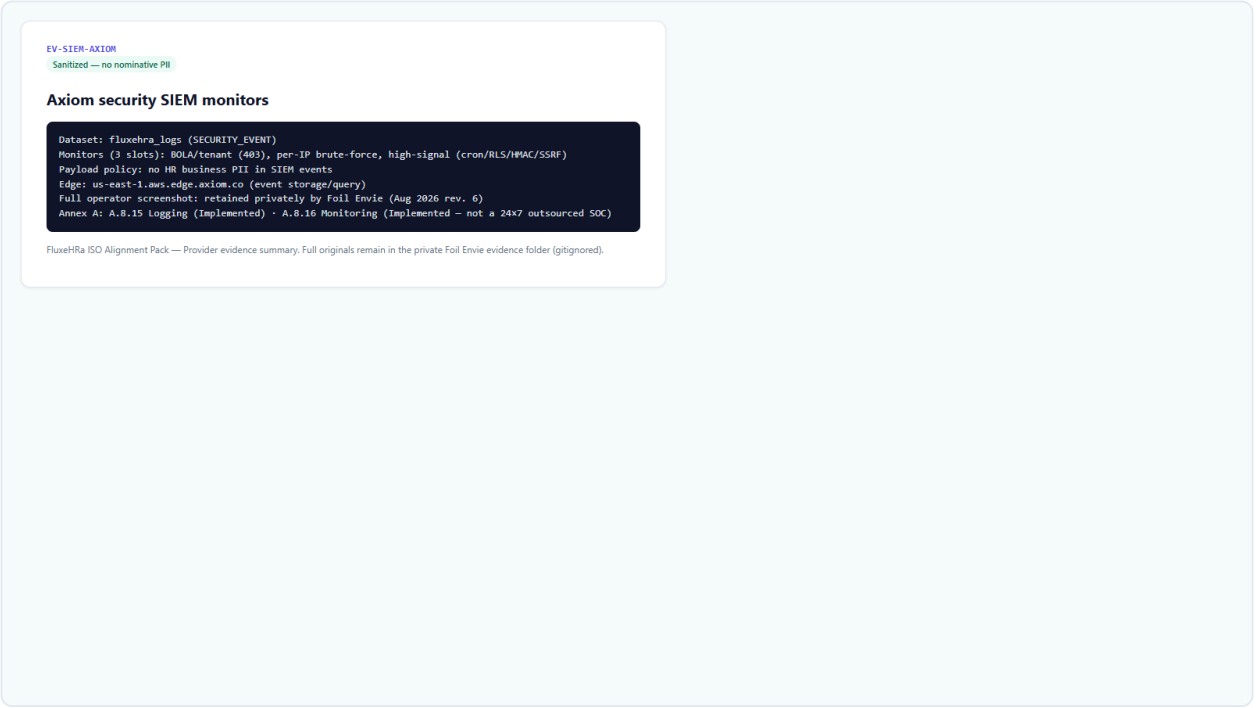
- **Montrer:** Sanitized card: Git main→prod vs Git dev→Vercel saas-flex-hr-sql-dev + Supabase FluxeHRa-dev (eu-west-1) — no project API keys or full refs
- **Tester:** Confirm Vercel-dev Production deployment from `dev`; Supabase FluxeHRa-dev Healthy in West EU; no customer PII in Dev
- **Code / config:** `README.md` deploy tracks; `lib/non-prod-env-guard.ts`; private screenshots `Certification documentation/ops/EV-ENV-SEPARATION-*-2026-08-16.png`



`EV-ENV-SEPARATION` — Séparation environnements Dev / production (screenshot)

`EV-SIEM-AXIOM` — Moniteurs SIEM Axiom (sécurité)

- **Montrer:** Sanitized dashboard card: fluxehra_logs SECURITY_EVENT monitors — BOLA/tenant, per-IP brute-force, high-signal (cron/RLS/HMAC/SSRF); no query payloads with PII
- **Tester:** Confirm three monitors + ingest smoke; private full screenshot retained by Foil Envie
- **Code / config:** `lib/security-logger.ts`, `docs/siem-security-operations.md` (internal), `docs/subprocessors.md` (Axiom)



`EV-SIEM-AXIOM` — Moniteurs SIEM Axiom (sécurité) (screenshot)

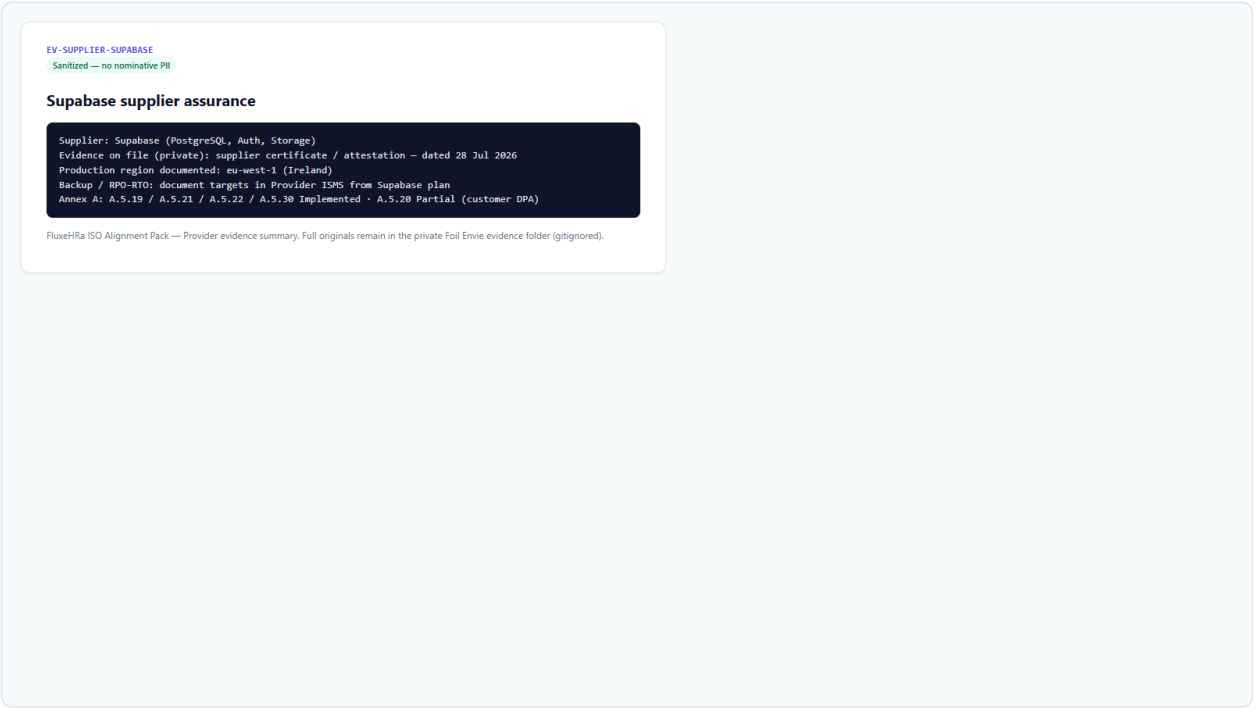
`EV-SUPPLIER-VERCEL` — Assurance fournisseur Vercel (synthèse)

- **Montrer:** Sanitized evidence card: certificate/attestation on file (Jul 2026) — no account secrets
- **Tester:** Annual re-review; align with Trust Center hosting regions
- **Code / config:** Provider file (private); `vercel.json` region `dub1`

`EV-SUPPLIER-VERCEL` — Assurance fournisseur Vercel (synthèse) (screenshot)

`EV-SUPPLIER-SUPABASE` — Assurance fournisseur Supabase (synthèse)

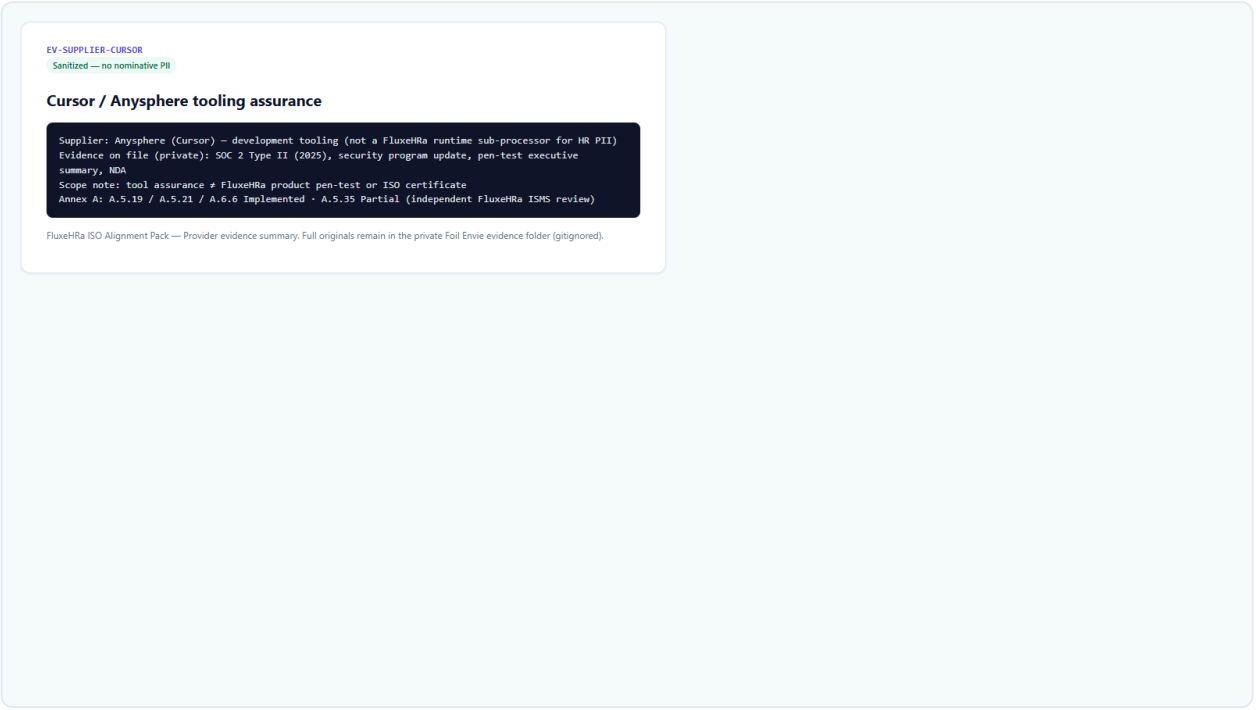
- **Montrer:** Sanitized evidence card: certificate/attestation on file (Jul 2026) — region eu-west-1
- **Tester:** Annual re-review; document backup plan RPO/RTO in Provider ISMS
- **Code / config:** Provider file (private); Trust Center hosting section



`EV-SUPPLIER-SUPABASE` — Assurance fournisseur Supabase (synthèse) (screenshot)

`EV-SUPPLIER-CURSOR` — Assurance fournisseur Cursor / Anysphere (synthèse)

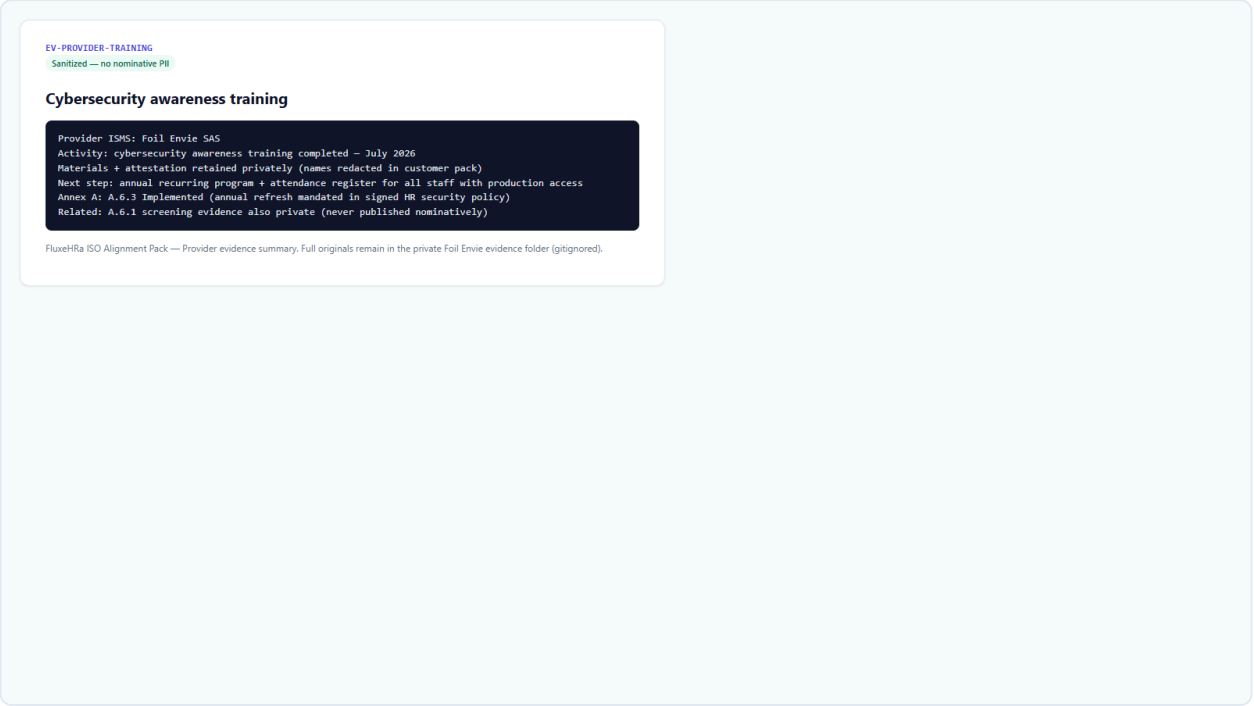
- **Montrer:** Sanitized card: SOC 2 Type II + security program / NDA on file for development tooling
- **Tester:** Does not replace FluxeHRa pen-test; keep tool assurance separate from product SoA
- **Code / config:** Provider file (private)



`EV-SUPPLIER-CURSOR` — Assurance fournisseur Cursor / Anysphere (synthèse) (screenshot)

`EV-PROVIDER-TRAINING` — Formation sensibilisation cybersécurité (Provider)

- **Montrer:** Sanitized card: training completed Jul 2026 — no personal names in customer pack
- **Tester:** Retain full attestation privately; extend to annual all-staff program
- **Code / config:** Provider ISMS (private folder)



`EV-PROVIDER-TRAINING` — Formation sensibilisation cybersécurité (Provider) (screenshot)

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11. Modèle de responsabilité partagée (ISO 27017)

Client (Responsable de traitement)
Politiques, DPIA, DPA, base légale, cycle de vie utilisateurs & revues d'accès, instructions de rétention, décisions DSAR

↓ instruct / configure

FluxeHRa (Sous-traitant — Application)
RBAC, RLS, MFA, audit, chiffrement, visibilité, processus RH, contrôles d'intégration

↓ opéré par

Foil Envie SAS (SMSI éditeur)
Politiques corporate, sécurité RH, locaux, programme fournisseurs, exercices IR, DdA / registre des risques (signés août 2026 — §3 les cartographie en `Implémenté` ; compteur `SMSI éditeur (Foil Envie)` = 0)

↓ s'exécute sur

Sous-traitants techniques
Supabase (PostgreSQL, Auth, Storage — eu-west-1) · Vercel (app/API — dub1) · Axiom (SIEM sécurité — edge US East)

Enregistrer régions et contrats des sous-traitants dans le registre de traitements.

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12. Recommandations — plus auditable & rassurant

1. **DPA client signé** (A.5.20 / A.5.31) — finaliser `public/legal/dpa*.md` avec le premier client commercial (suivi déjà signé).
2. **Revue indépendante SMSI** (A.5.35) — audit externe ou campagne ISO quand budgété.
3. **Exercice restore** — sous 30 j après activation Supabase Pro (A.5.30 déjà Implemented avec engagement).
4. **Optionnel :** APM Sentry ; E2E IDOR navigateur ; `PRODUCTION_SUPABASE_URL` sur Preview/Dev Vercel pour durcir la garde non-prod.

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13. Écarts connus (synthèse honnête)

- Aucune *certification* ISO / SOC revendiquée par le produit (processus d'entreprise).
- Artefacts SMSI Provider (juil.–août 2026) : certificats fournisseurs, formation, screening, pack IR/Backup/NDA Wave A/B **signés**, plus pack maximize **signé** (2026-08-13) : gouvernance, usage acceptable, classification/cloud, secrets staff, physique home-office, cycle de vie RH, signalement/preuves, rétention, actifs/config, endpoints, audit/IP, Secure-development-pack — privés sous `Certification documentation/`. Annexe A mise à jour Implemented là où la preuve est complète.
- Peu de lignes Annexe A restent ouvertes : A.5.20 / A.5.31 (DPA client), A.5.35 (revue indépendante). A.5.6 clos — voir `EV-SECURITY-WATCH` (Security Watch + abonnements signés). A.8.23 clos (filtrage N/A compensé).
- Analyse/purge de rétention implémentées côté serveur.
- Export DSAR portable + anonymisation in-place (prise en compte legal hold).
- MFA pour rôles privilégiés (admin / super_admin / hr / Domain Admin) **ON** par défaut en production.
- Embauche / màj / sortie Core HR journalisées.
- UI / e-mails de définition et réinitialisation du mot de passe affichent la règle ≥20 + complexité ; les mots de passe existants restent valides jusqu'au changement.
- Trust Center `/trust` ; contact vulnérabilités `contact@fluxehra.ai` ; `SECURITY.md`, IR, sauvegarde/restauration, sous-traitants, pack AIPD.
- Export preuves de conformité JSON ; `npm run test:security-smoke`, `test:security-idor`, workflow GitHub `security-tests`.
- Écarts honnêtes restants : APM Sentry optionnel ; **DPA client** (A.5.20/A.5.31) ; **revue indépendante** (A.5.35) ; restore drill après Pro. A.5.6 clos via `EV-SECURITY-WATCH`. A.8.23 clos via filtrage web N/A compensé.
- Écrans d'évidence UI authentifiés peuvent encore être des placeholders jusqu'à capture sur org démo — voir `docs/iso-demo-session-capture-guide.md`.

Ce pack reflète l'état de l'application à la génération. Contact : contact@fluxehra.ai

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