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 — July 2026 (rev. 1)

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: August 2026 (rev. 14) — Org Admin screens EV-SU-ORG-ACCESS / EV-BUG-ESCALATION; residual Partial A.5.20/31/35

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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).	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 documentation/ops/Access-review-checklist); re-run each quarter.	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
`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).	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-report-and-evidence (signed private PDF 2026-08-13).	Implemented
`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

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
`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 before 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 documentation/hr-security/); extend screening to each new hire.	Implemented
`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

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
`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 and environmental threats	A.7 — Physical controls	Mixed	Fire/flood/power resilience of cloud regions. Home-office environment covered under Home-office-physical-media (signed).	Platform / sub-processor
`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	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
				private PDF 2026-08-13) (no multi-site secure facility).	
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 controls	Company (policy)	Private GitHub + least privilege documented in Asset-config-source-privileges (signed private PDF 2026-08-13).	Implemented
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	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
				Admin (default ON in production), optional Turnstile, org OIDC.	
`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); RPO ≤ 24h and internal RTO ≤ 4h documented in docs/backup-restore.md and signed Backup acknowledgment (Aug 2026); optional PITR add-on; Storage objects not in DB backup (documented).	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
`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

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
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 preview separation: Vercel environments + 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 life cycle	A.8 — Technological controls	Mixed	Secure SDLC policy in Secure-development-pack (signed private PDF 2026-08-13) (migrations, typecheck, smoke, CSP practices).	Implemented
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	A.8 — Technological	App	Browser untrusted; server authz; RLS; defence in depth (documented in	Implemented

ID	Control title	Theme	Ownership	FluxeHRa / Foil Envie note	Status
	engineering principles	controls		whitepaper).	
`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	Vercel preview vs production; non-prod data policy signed + runtime guard assertNonProdSupabaseUrl on Preview when PRODUCTION_SUPABASE_URL is set.	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 systems during audit testing	A.8 — Technological controls	Company (policy)	Rules for customer/vendor audit testing vs production in Audit-testing-IP-outsourcing (signed private PDF 2026-08-13).	Implemented

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, integration HMAC/IP allow-list options, documented EU regions.

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-development-pack, SU Admin Security Watch + Dependabot (A.5.6)	Implemented	EV-SDLC-TESTS, EV-SECURITY-WATCH
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`);	Implemented	EV-PROXY, EV-SU-ORG-ACCESS, EV-RBAC-ROLES

Control theme	Expectation	FluxeHRa implementation	Status	Evidence ID
		proxy only after enter with dual audit attribution		
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

Process	Actors	Routes / APIs	ISO	Test procedure	Evidence
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
Integrations export	Org Admin / M2M	`/api/integrations/export`, SFTP, HMAC, rate limit	27001, 27017, 27018	Regenerate key (once-only plaintext); export with HMAC; 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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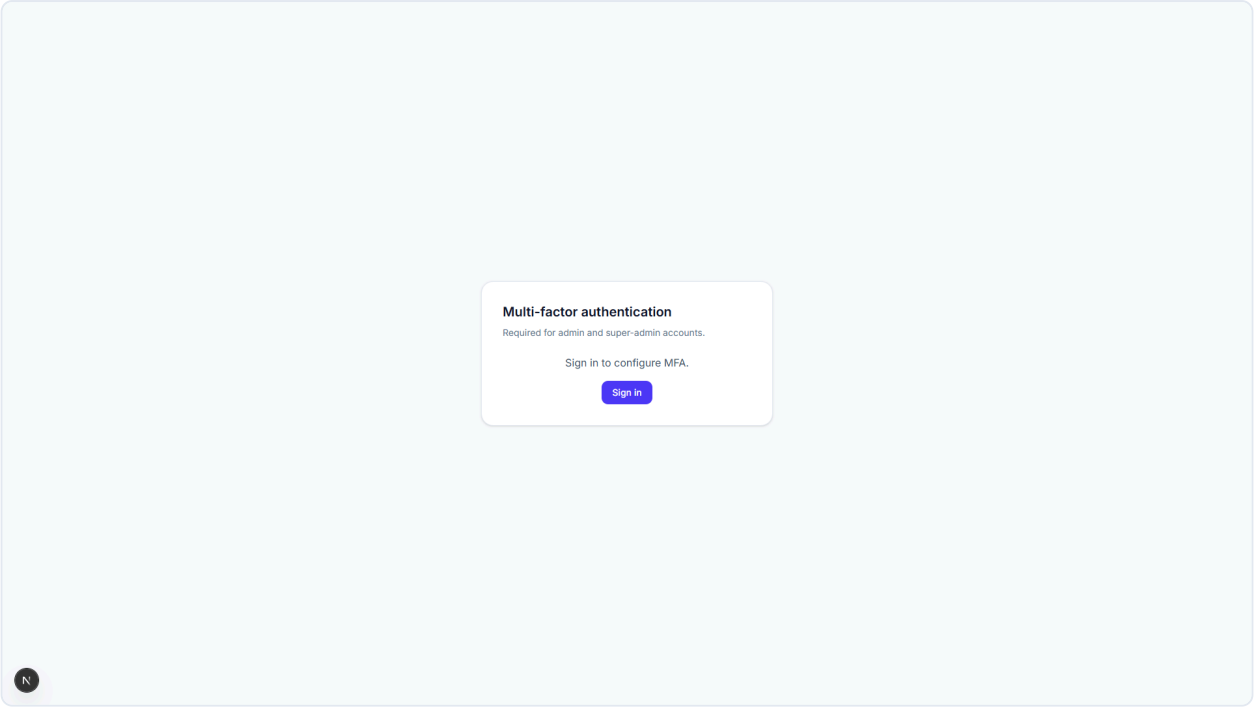
10. Evidence pack — how to prove it

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

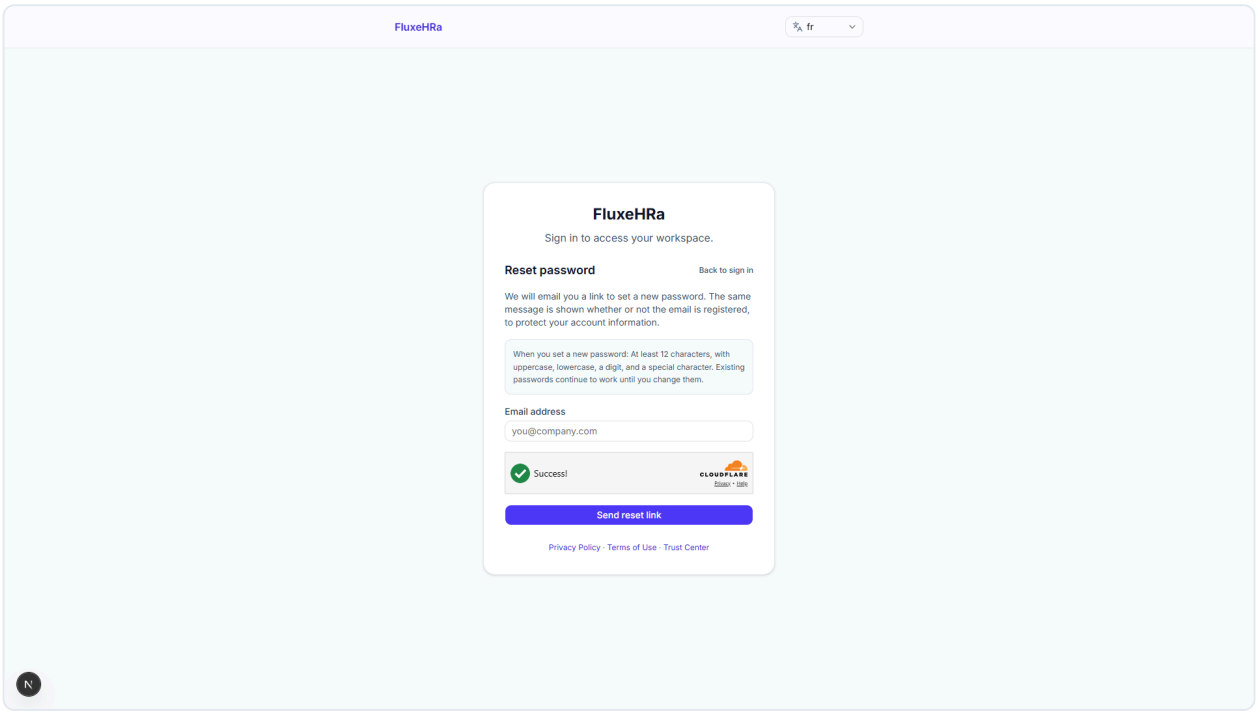
- **Show:** Page `/security/mfa`; login MFA challenge; Vercel env `REQUIRE_MFA_FOR_PRIVILEGED_ROLES`
- **Test:** Enroll authenticator; complete step-up to JWT `aal2`; call privileged API without MFA → 403 `MFA_REQUIRED`
- **Code / config:** `lib/auth-mfa-policy.ts`, `lib/mfa-step-up.ts`, `app/security/mfa/page.tsx`



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

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

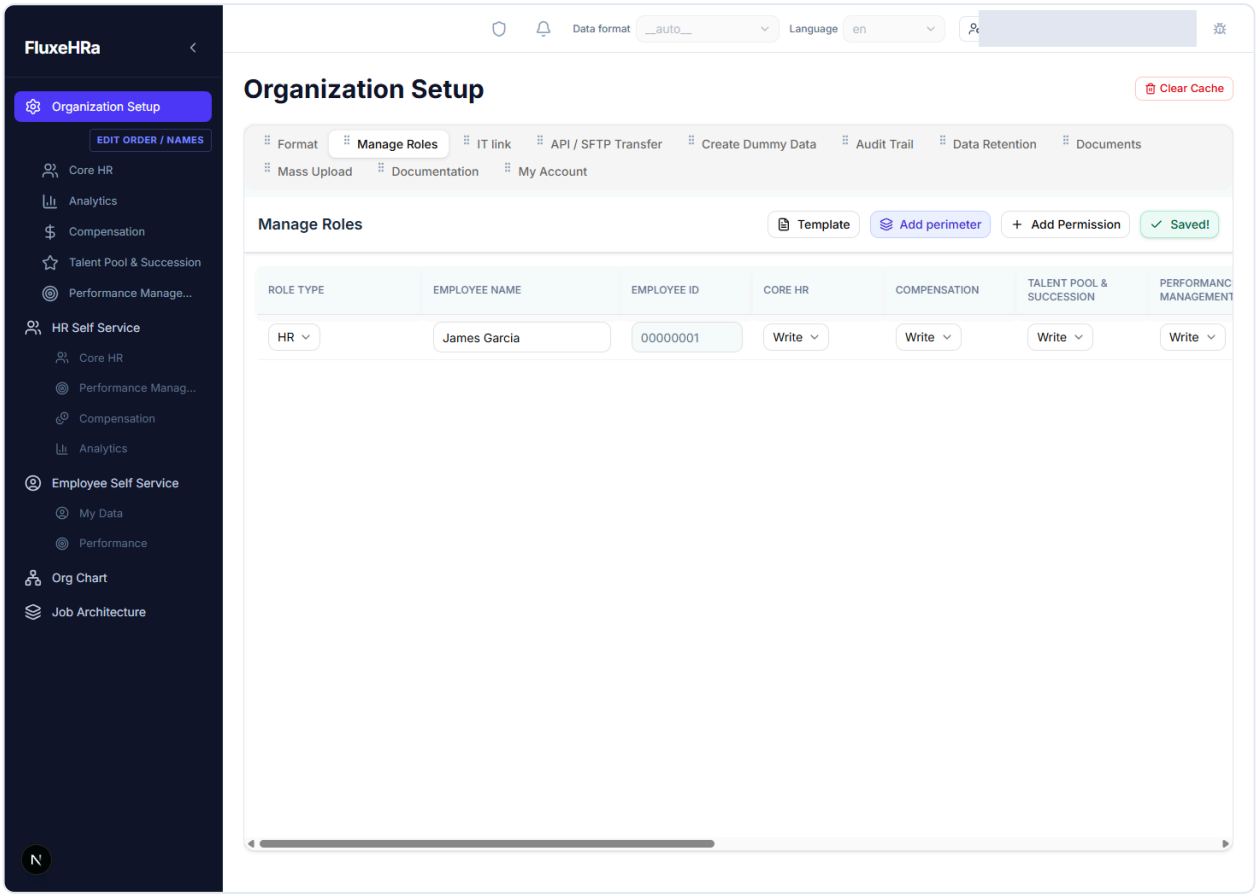
- **Show:** Login → Forgot password notice; `/reset-password` form; welcome/reset emails
- **Test:** Reject short/weak password on set/reset; existing passwords continue to work until changed
- **Code / config:** `lib/password-policy.ts`, `app/reset-password/page.tsx`, `components/sign-in-panel.tsx`,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



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

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

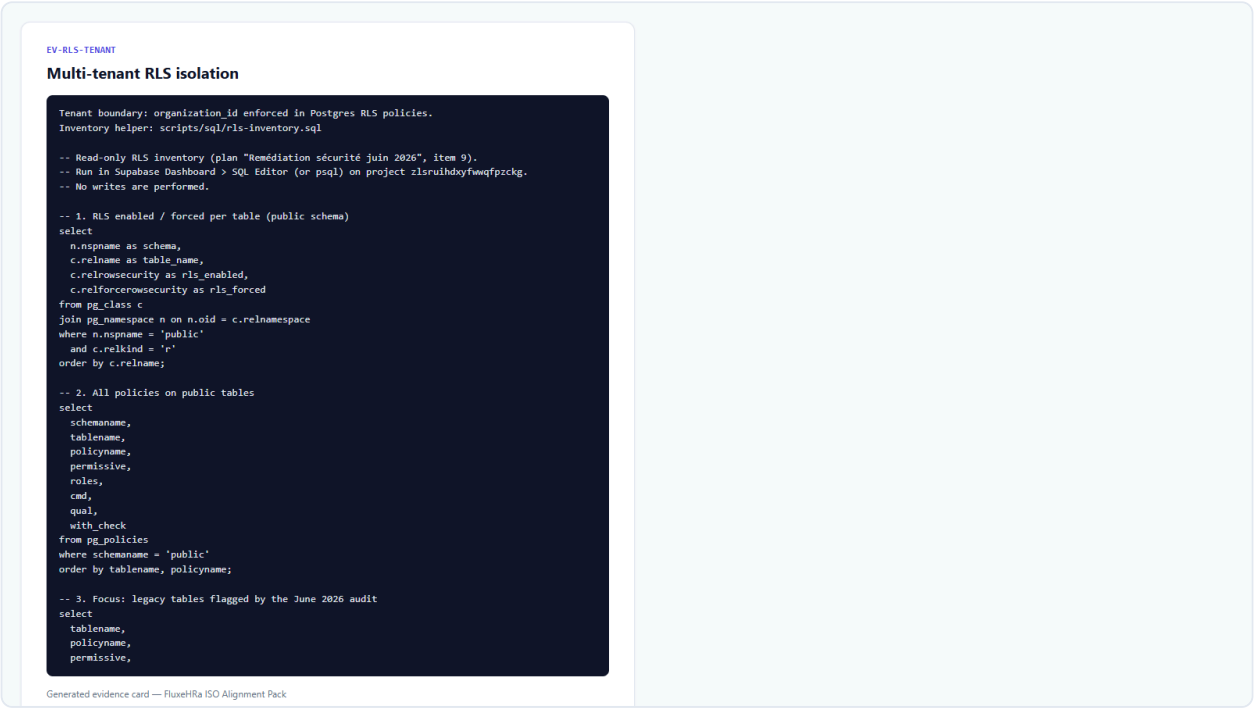
- **Show:** Org-setup → Manage Roles; SU Admin org/admins
- **Test:** Remove module write; confirm UI gate and API 403
- **Code / config:** `lib/org-permissions.ts`, `components/manage-roles-tab.tsx`, `lib/supabase-api-auth.ts`



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

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

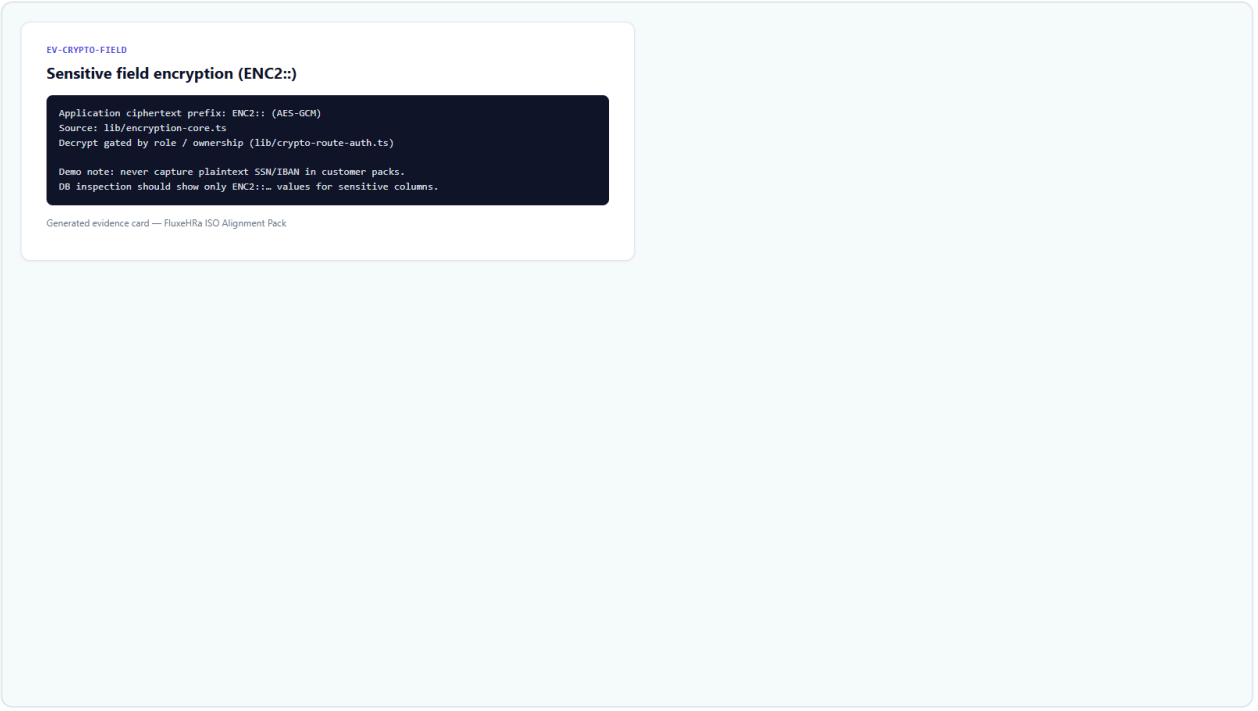
- **Show:** Attempt cross-org data access (second org user)
- **Test:** Query/API against foreign `organization_id` returns empty/denied; review RLS migrations
- **Code / config:** `supabase/migrations/20260606120000_*`, `20260610120000_*`, `scripts/sql/rls-inventory.sql`



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

`EV-CRYPTO-FIELD` — Sensitive field encryption

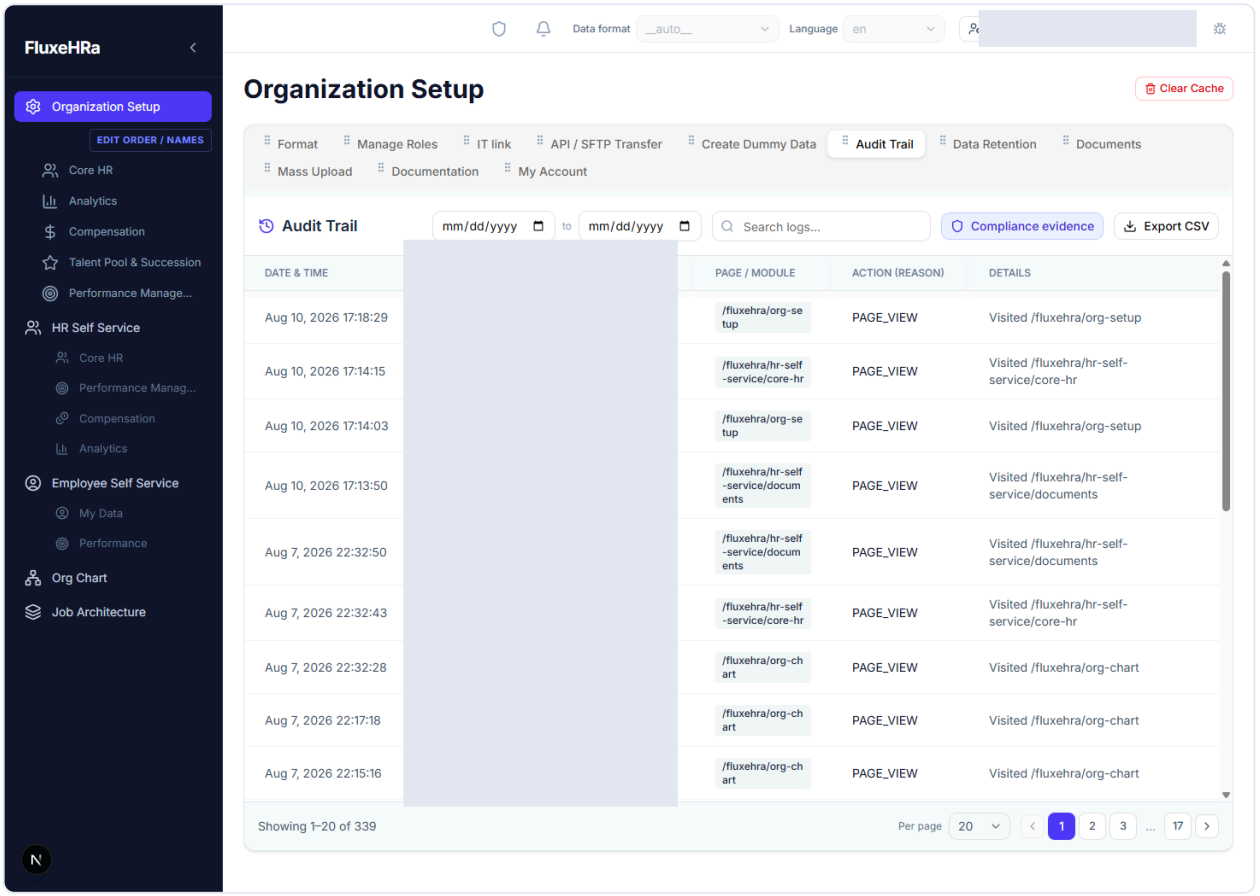
- **Show:** Save SSN/IBAN; inspect DB value prefix `ENC2::`
- **Test:** Encrypt/decrypt via authorized role; non-privileged decrypt limited to own/team ciphertext
- **Code / config:** `lib/encryption-core.ts`, `app/api/crypto/*`, `lib/crypto-route-auth.ts`



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

`EV-AUDIT-TRAIL` — Audit trail UI

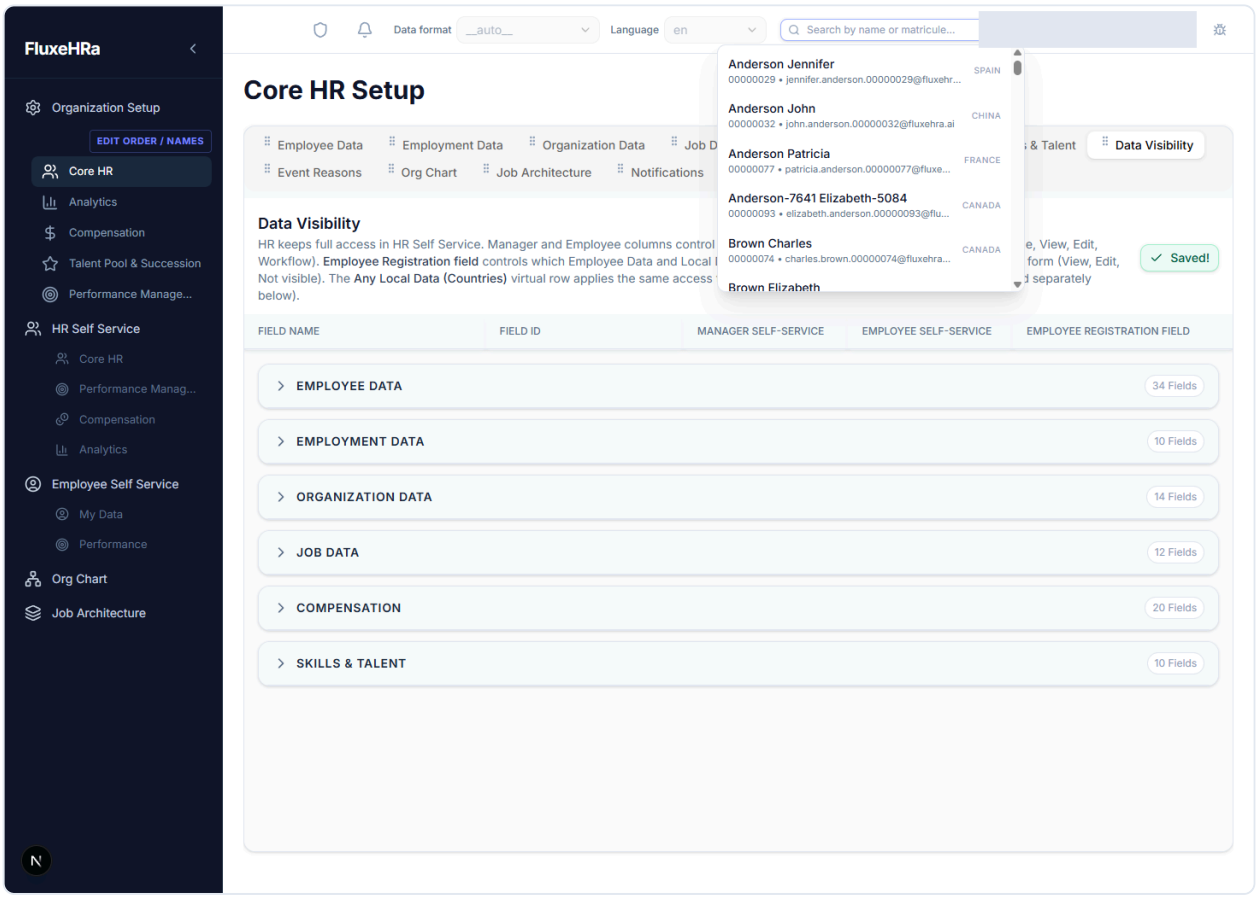
- **Show:** Org-setup / SU → Audit Trail
- **Test:** Perform audited action (mass upload, settings); confirm event row; CSV export
- **Code / config:** `lib/audit-server.ts`, `lib/audit-client.ts`, `components/audit-trail-tab.tsx`



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

`EV-PROXY` — Proxy accountability

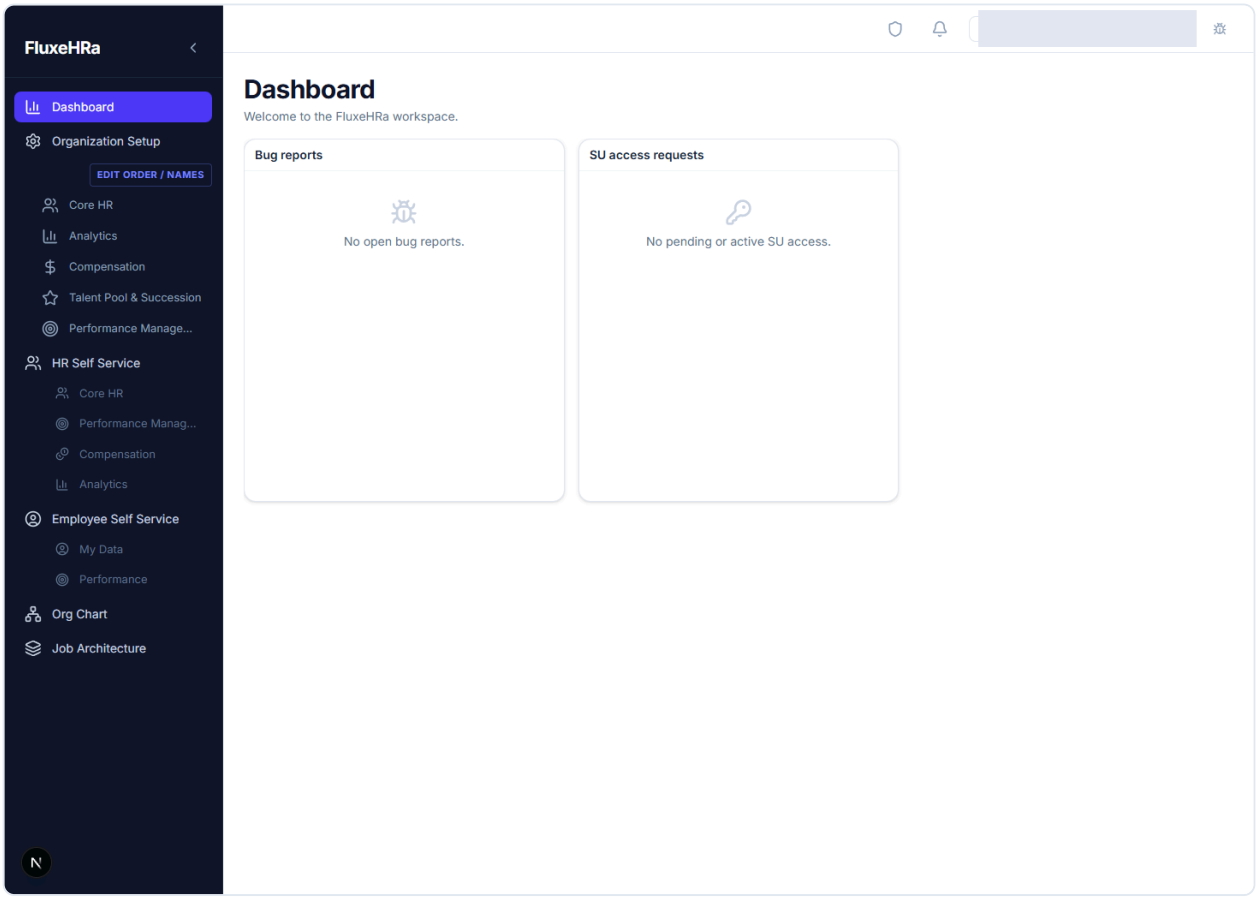
- **Show:** Proxy session banner; audit with proxied identity
- **Test:** With active SU grant (or org privileged role): start/end proxy; confirm continuous eligibility re-check; dual identity in logs
- **Code / config:** `lib/proxy-server.ts`, `lib/proxy-api-guard.ts`, `lib/su-org-access.ts`



`EV-PROXY` — Proxy accountability (screenshot)

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

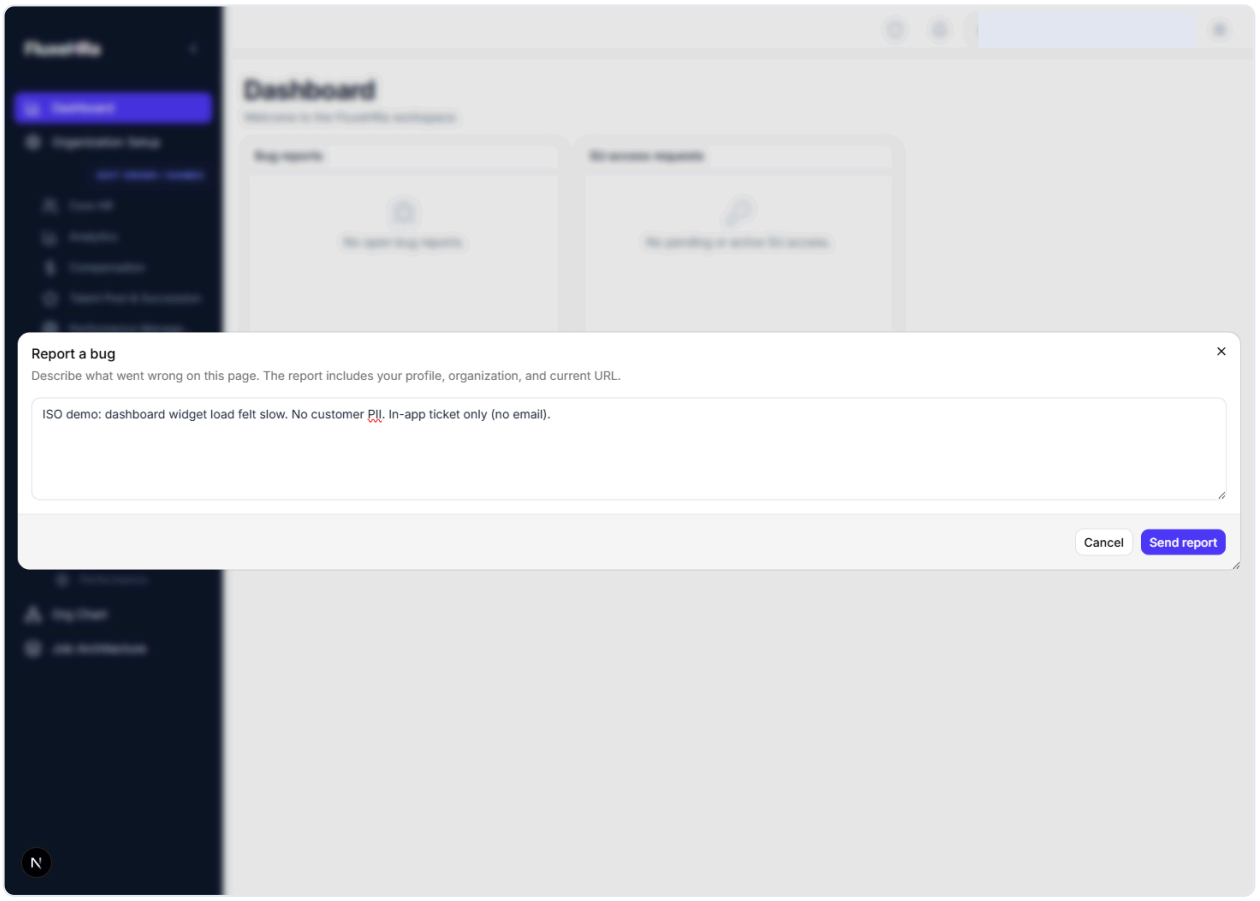
- **Show:** SU Enter Organisation → Request; Org Admin Dashboard → Accept/Deny; emerald authorized orgs
- **Test:** Approve grant; Enter org; confirm middleware/API deny without grant; expire after 48h kicks SU out
- **Code / config:** `su_org_access_grants`, `/api/su-org-access`, `has_active_su_org_grant`



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

`EV-BUG-ESCALATION` — Manual bug escalation

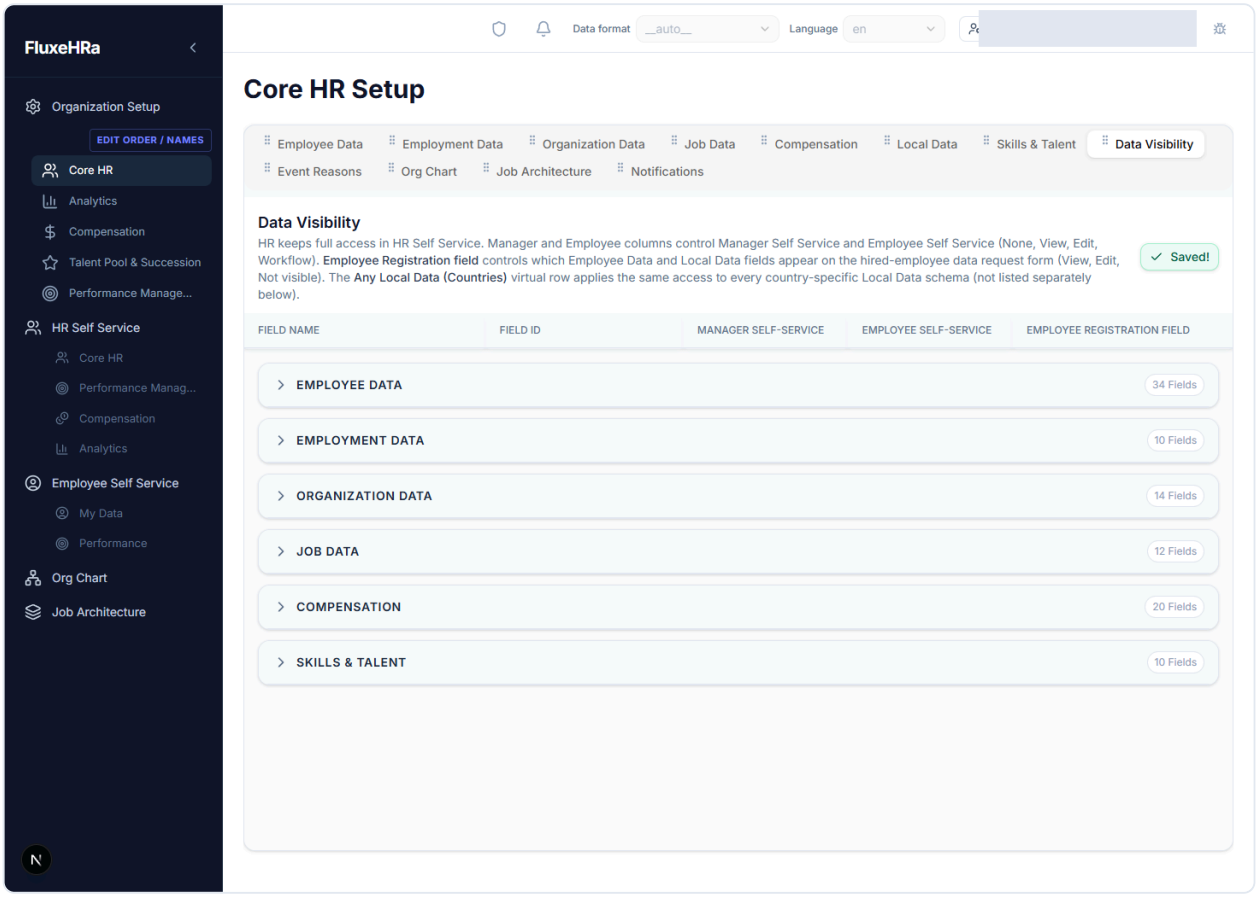
- **Show:** Report a bug → HR / Org Admin / SU Dashboard widgets
- **Test:** Submit manual bug (ticket, no email); Forward HR→Admin→SU; Clear; auto client errors still email SMTP
- **Code / config:** `bug_report_tickets`, `/api/bug-report`, `/api/bug-reports`



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

`EV-VISIBILITY` — Data visibility matrix

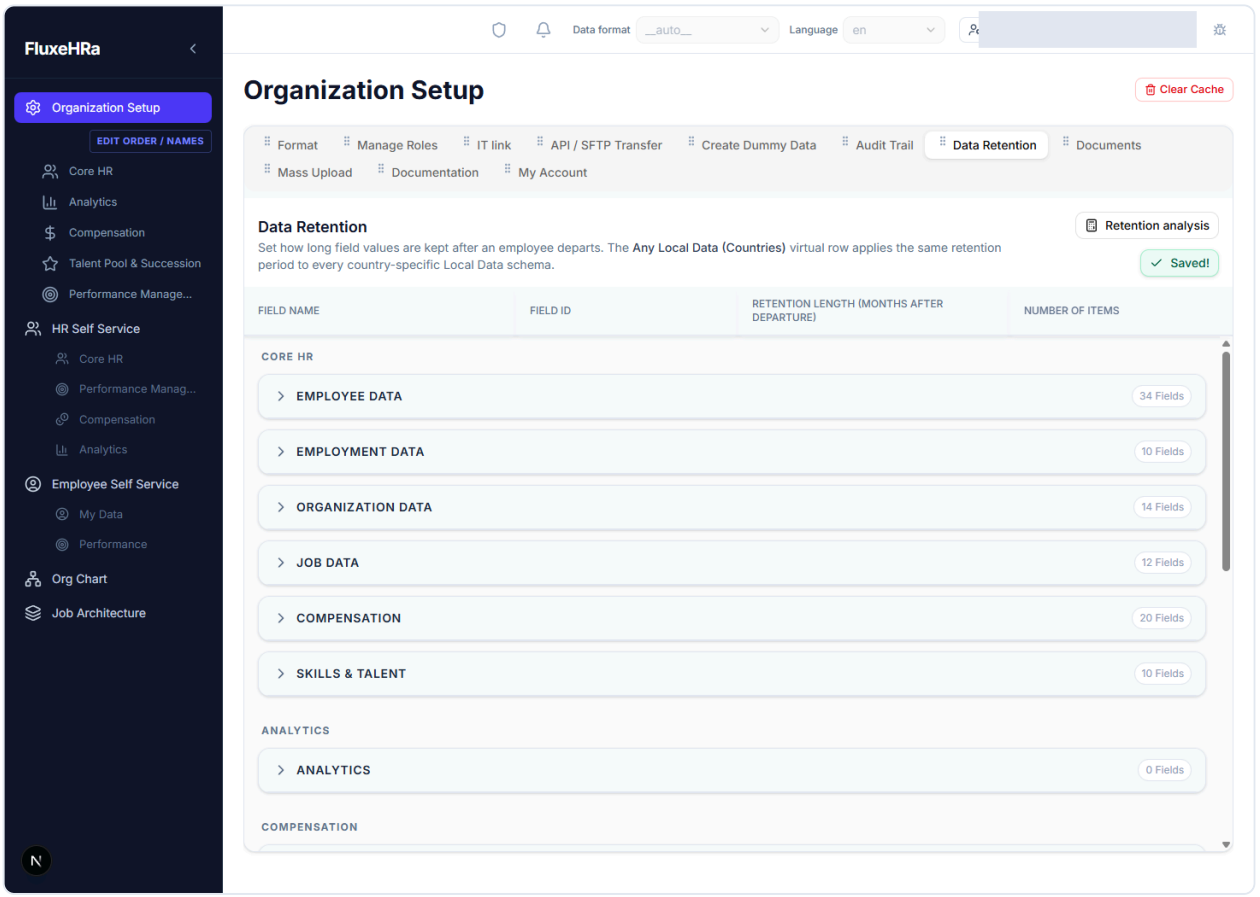
- **Show:** Core HR / Data Visibility; ESS field hidden vs HR visible
- **Test:** Set field to `none` for employee; confirm self-service omit/deny
- **Code / config:** `lib/field-visibility.ts`, `lib/self-service-submit-auth.ts`



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

`EV-RETENTION` — Retention configuration & purge

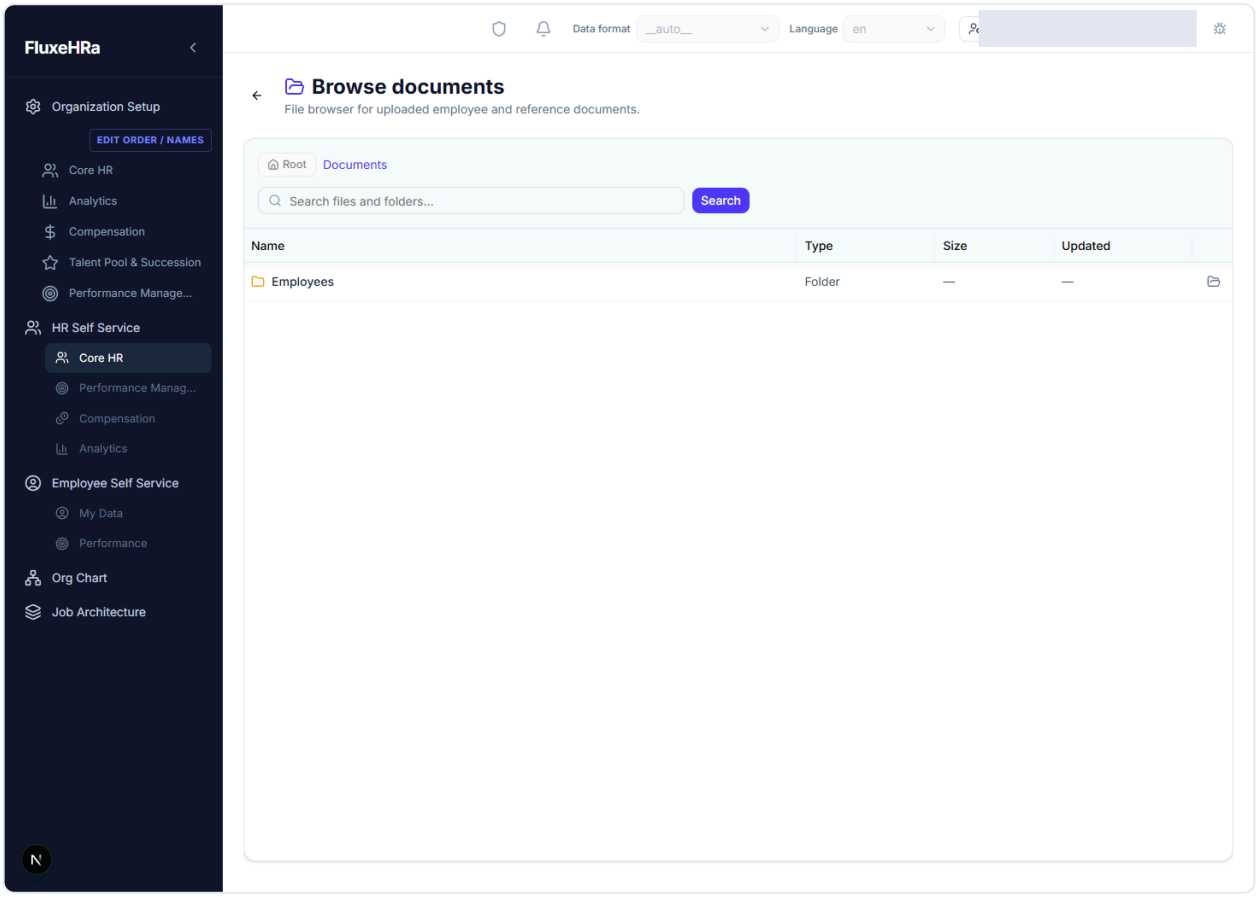
- **Show:** Retention months per field; document type retention; analyze/purge actions
- **Test:** Configure retention; run Retention analysis; purge expired values; confirm RETENTION_* audit events
- **Code / config:** `lib/retention-purge.ts`, `/api/hr/retention`, field-visibility retention tab



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

`EV-DOCUMENTS` — Private document access

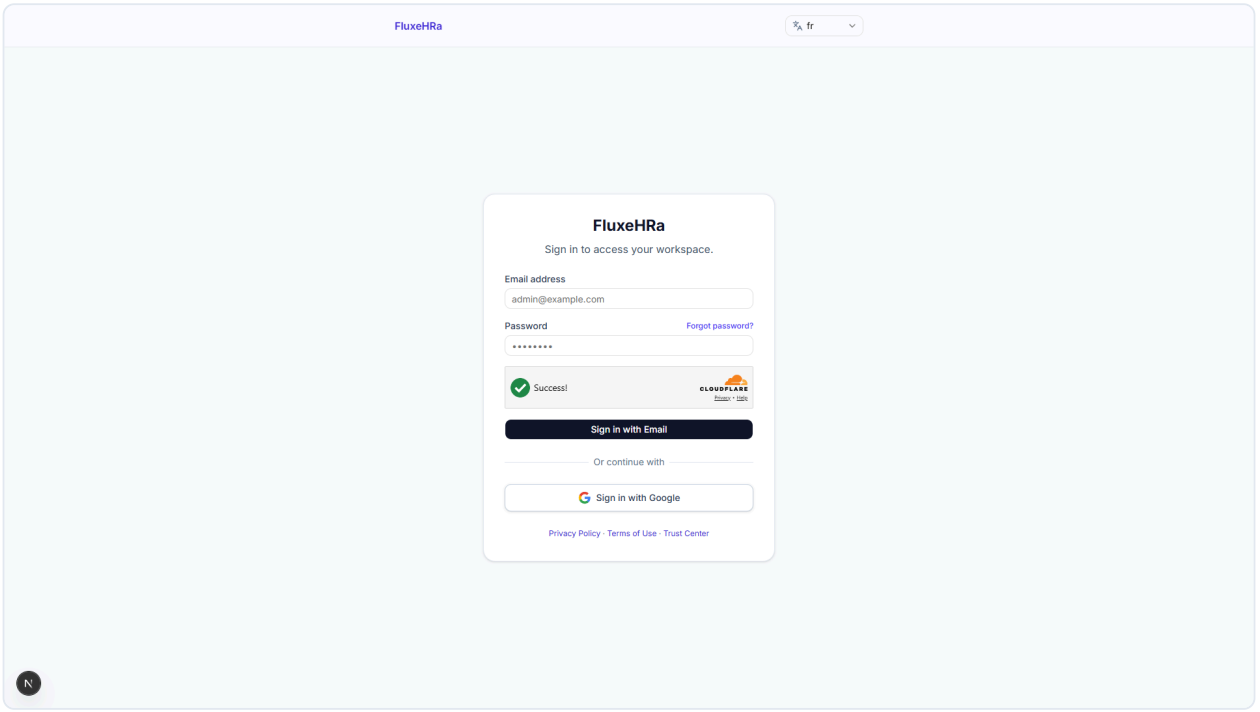
- **Show:** Upload under employee; download via app only
- **Test:** Direct storage URL without auth fails; authorized `/api/documents/file/…` succeeds
- **Code / config:** `lib/document-access.ts`, `lib/storage-ops.ts`, migration documents bucket private



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

`EV-TURNSTILE` — Bot protection (Turnstile)

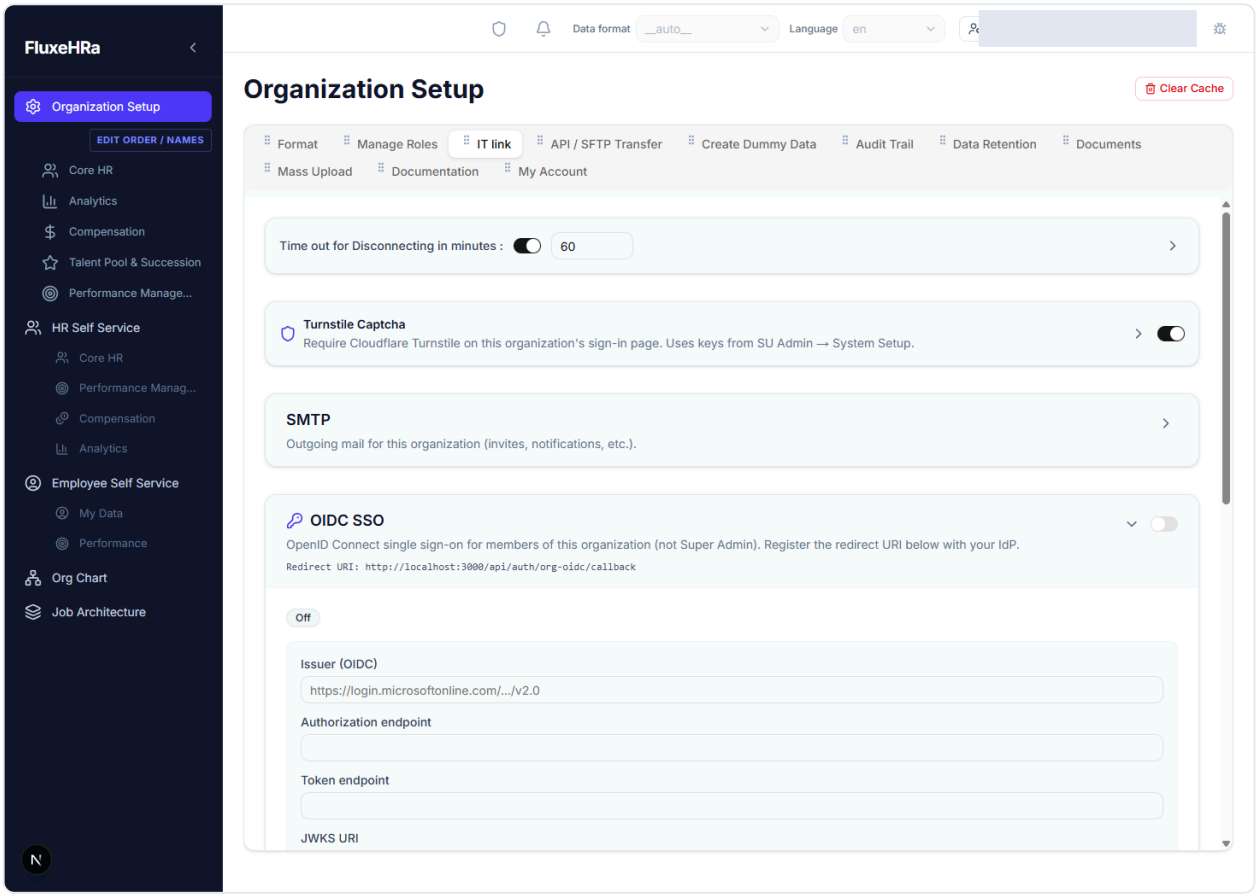
- **Show:** SU System Setup / Org IT Link Turnstile toggle; login challenge
- **Test:** Enable Turnstile; blocked without token on check-email / forgot-password
- **Code / config:** `lib/turnstile-server.ts`, `lib/turnstile-settings.ts`



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

`EV-SSO-OIDC` — Organization OIDC SSO

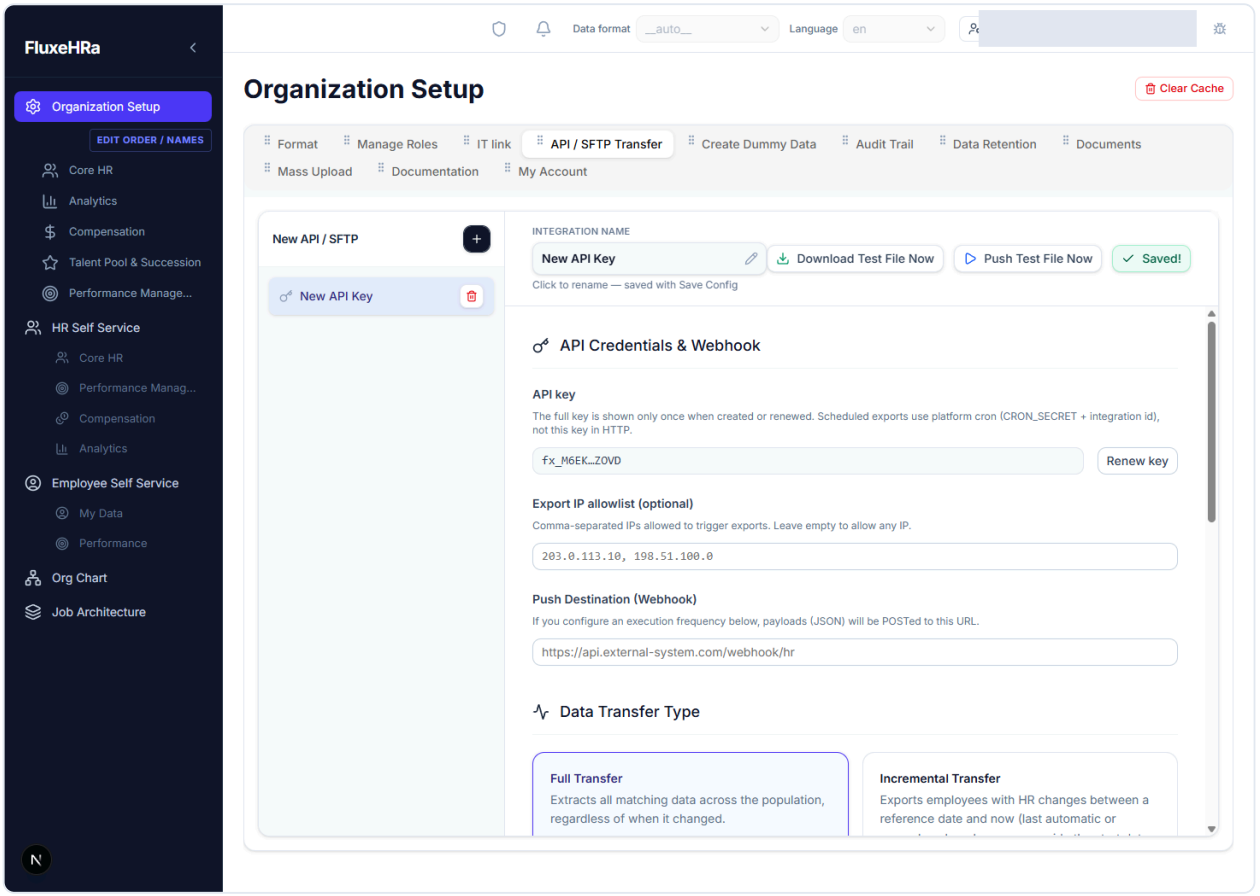
- **Show:** Org-setup → IT Link SSO settings
- **Test:** Authorize + callback with HMAC state; invalid redirect rejected
- **Code / config:** `app/api/auth/org-oidc/*`, `lib/org-oidc-state.ts`, `lib/app-origin.ts`



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

`EV-INTEGRATIONS` — Integration export security

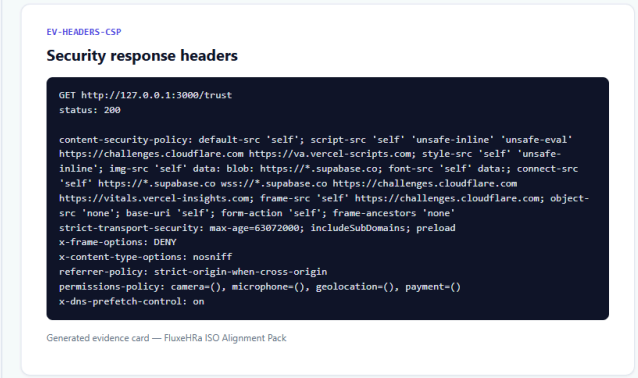
- **Show:** Org-setup → API / SFTP; regenerate key once
- **Test:** Export with optional HMAC; rate limit; audit stores fingerprint not payload
- **Code / config:** `lib/integration-api-key.ts`, `lib/integration-export-*.ts`



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

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

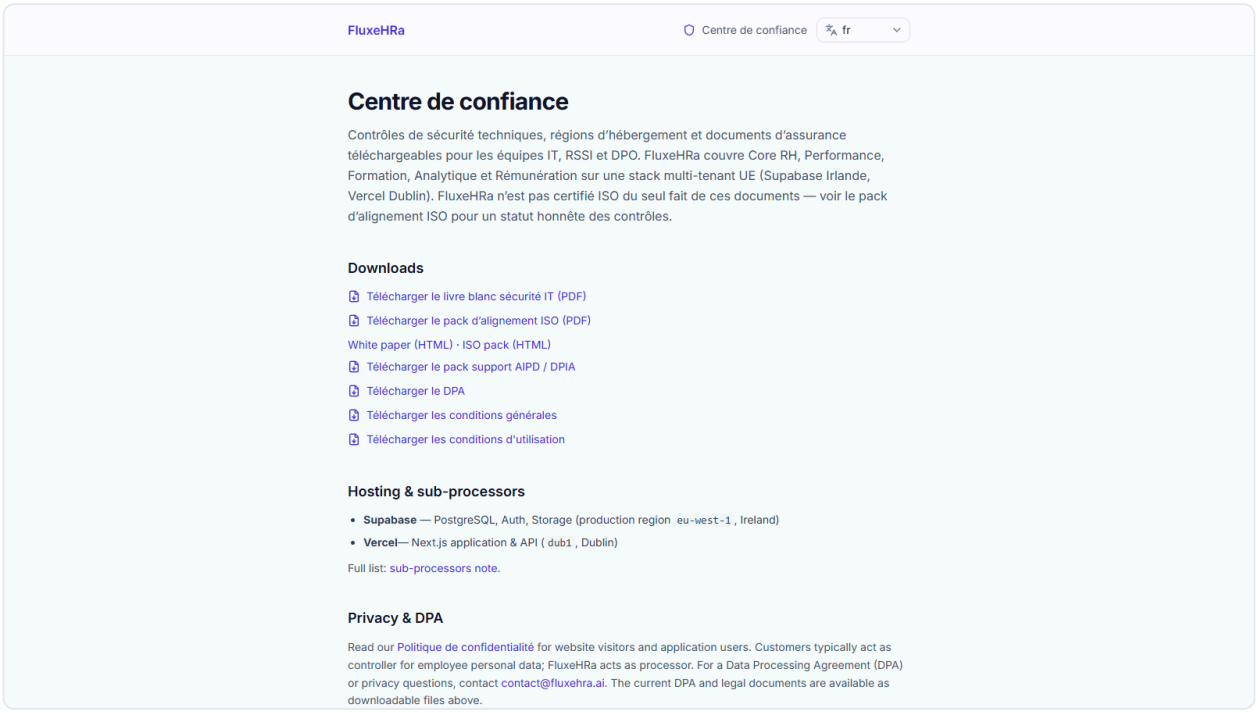
- **Show:** Browser DevTools → Response headers on any authenticated page
- **Test:** Confirm CSP nonce, HSTS, X-Frame-Options DENY, nosniff
- **Code / config:** `lib/csp.ts`, `proxy.ts`, `next.config.js`



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

`EV-HOSTING-REGIONS` — EU hosting alignment

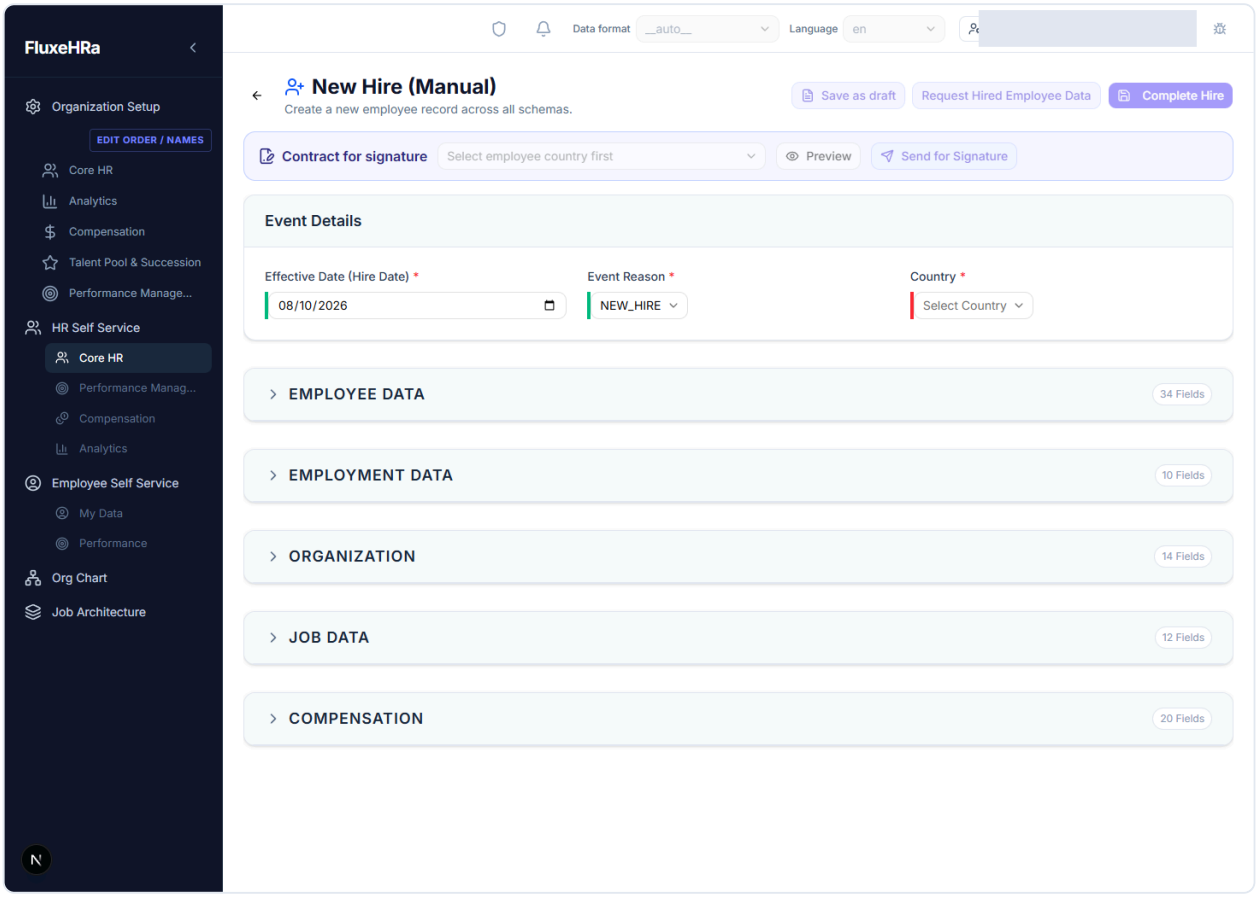
- **Show:** Supabase project region; `vercel.json` region `dub1`
- **Test:** Document eu-west-1 + dub1 in customer processing register
- **Code / config:** `vercel.json`, `.env.example`, security whitepaper § hosting



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

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

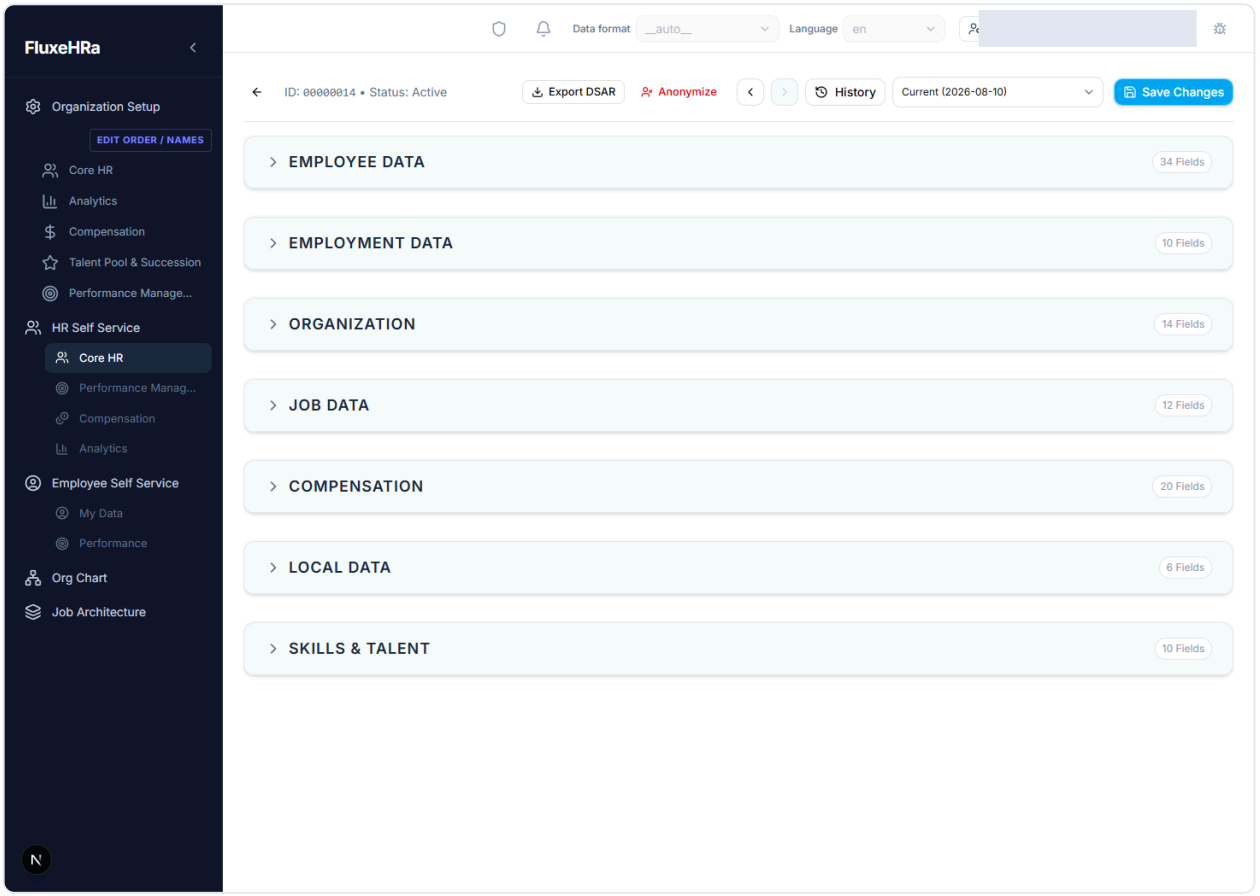
- **Show:** HR Self Service → New Hire; public token page
- **Test:** `npm run test:employee-data-request`; manual 90-day token expiry
- **Code / config:** `lib/employee-data-request-*.ts`, public EDR APIs



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

`EV-PROC-UPDATE` — Bitemporal employee update

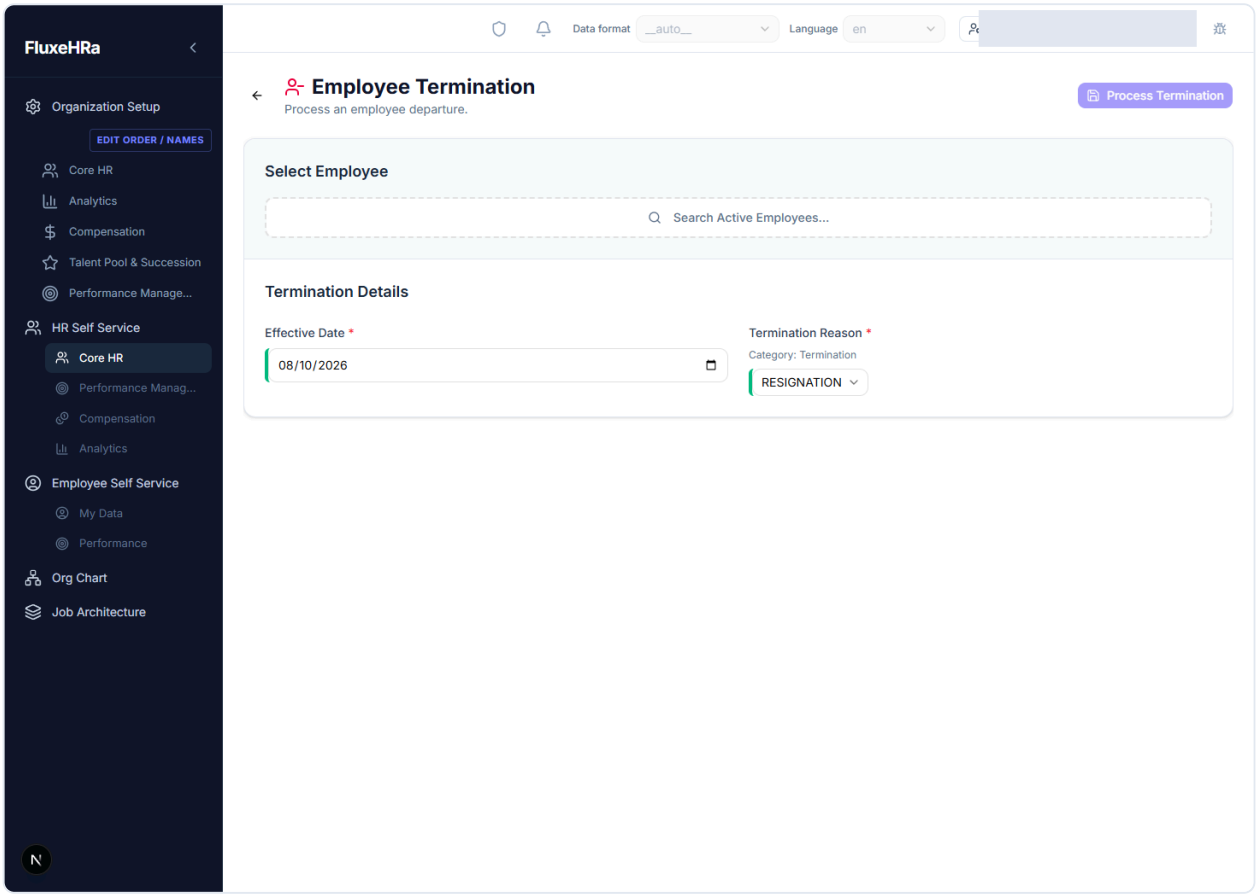
- **Show:** HR employee record with effective dating
- **Test:** Split history on mid-period change; verify prior segment retained
- **Code / config:** `lib/temporal-data.ts`



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

`EV-PROC-TERMINATE` — Termination

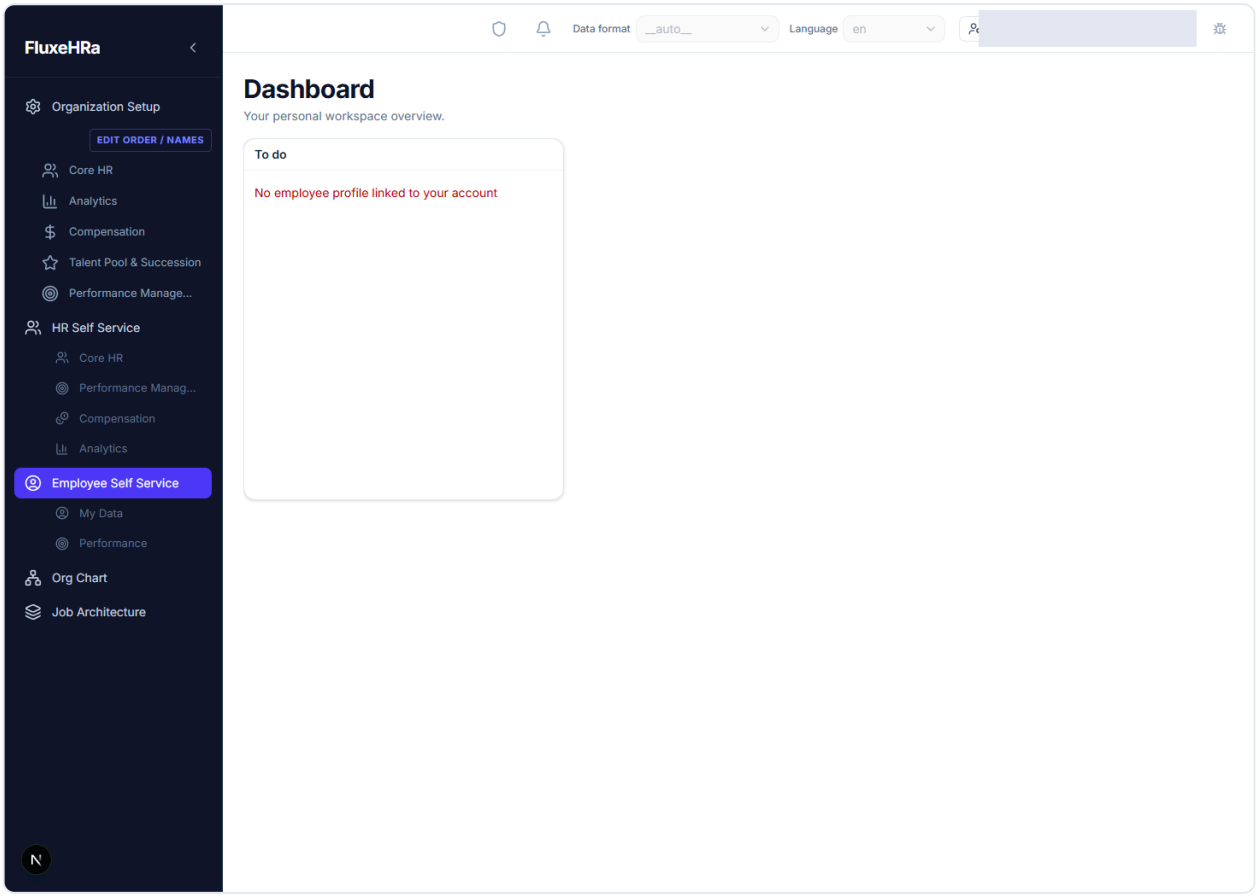
- **Show:** HR Self Service → Termination
- **Test:** Set end dates/status; confirm lifecycle event
- **Code / config:** HR termination route under `hr-self-service/termination`



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

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

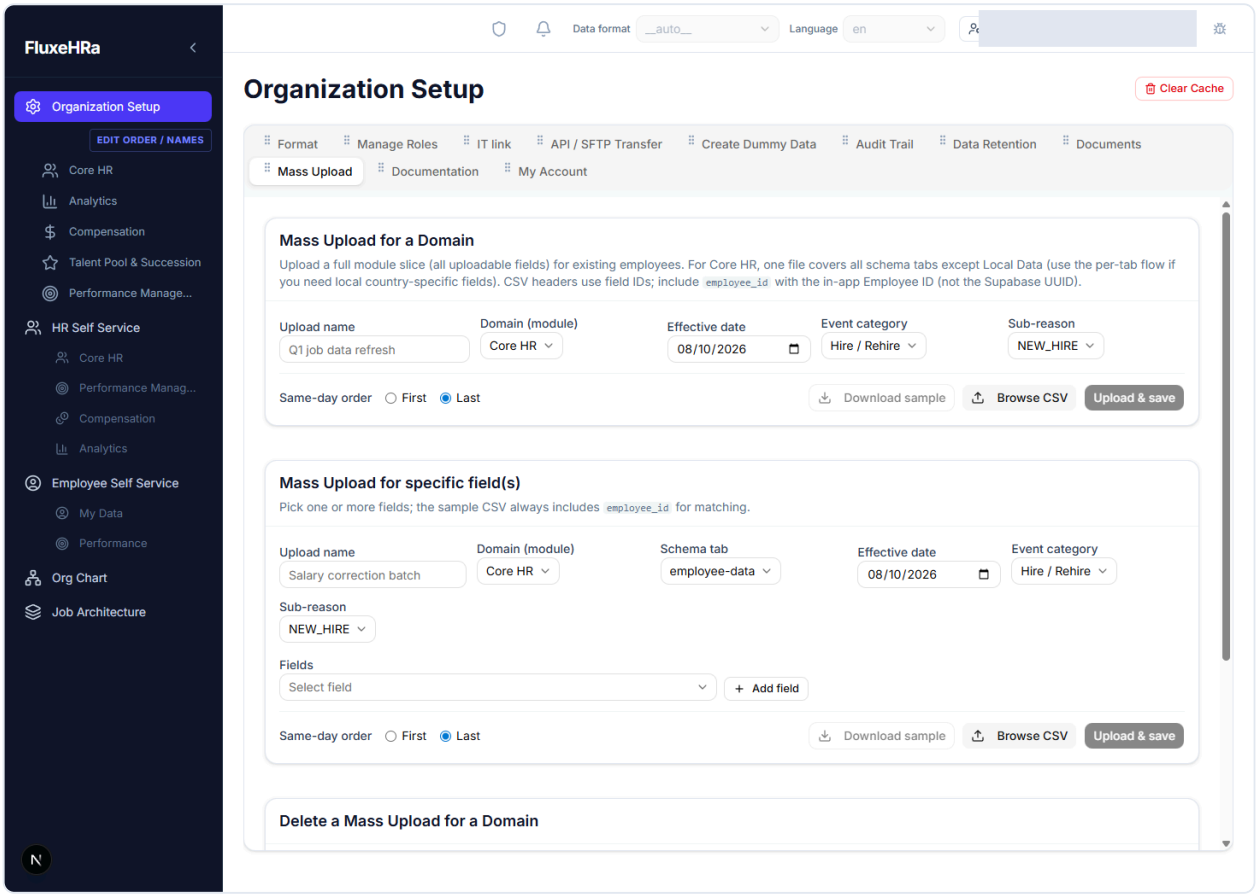
- **Show:** My Data / My Team workflow fields; HR notification
- **Test:** Submit change; approve/apply as HR
- **Code / config:** `lib/self-service-submit-auth.ts`



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

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

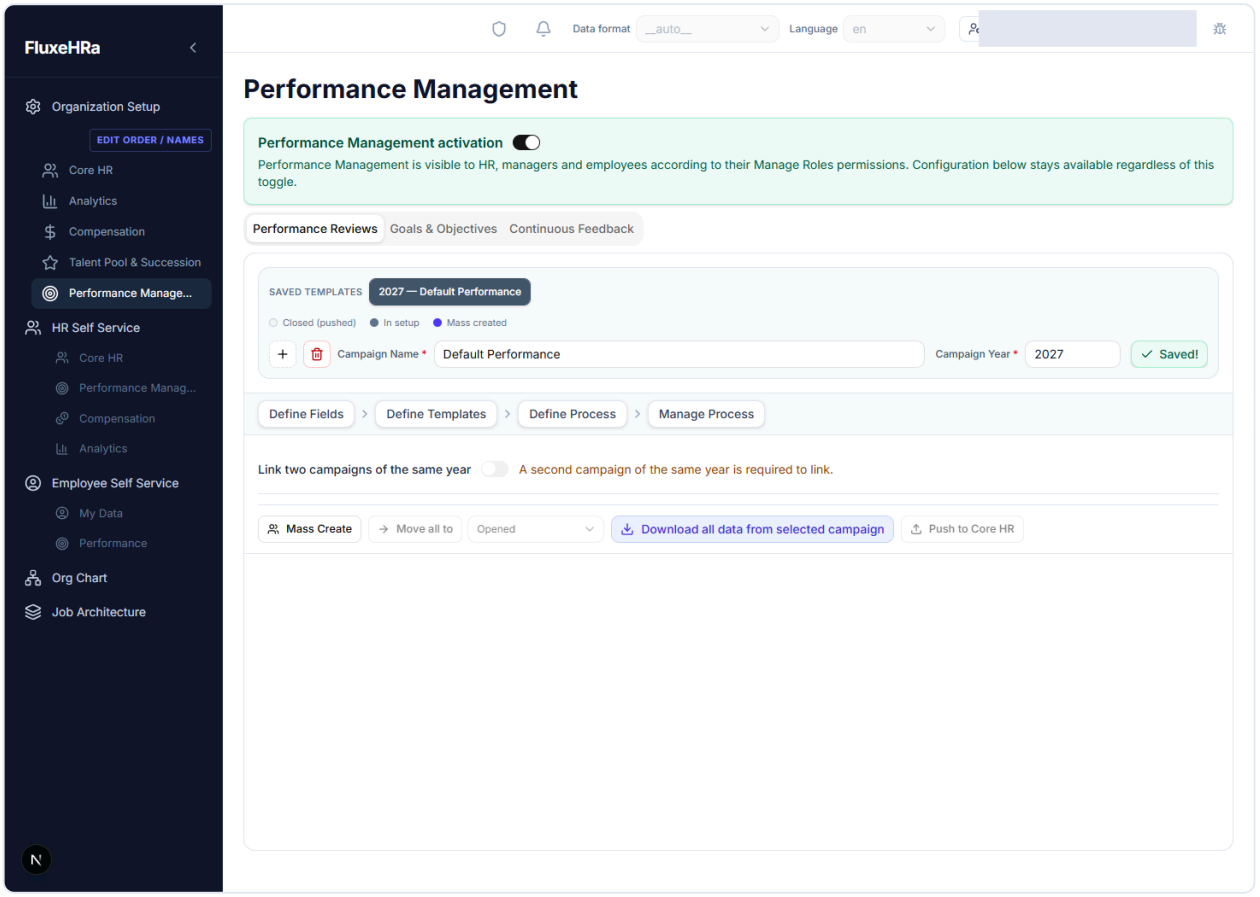
- **Show:** Mass Upload tab; batch list
- **Test:** Commit then delete/rollback batch; audit events present
- **Code / config:** `/api/admin/mass-upload/*`



`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)

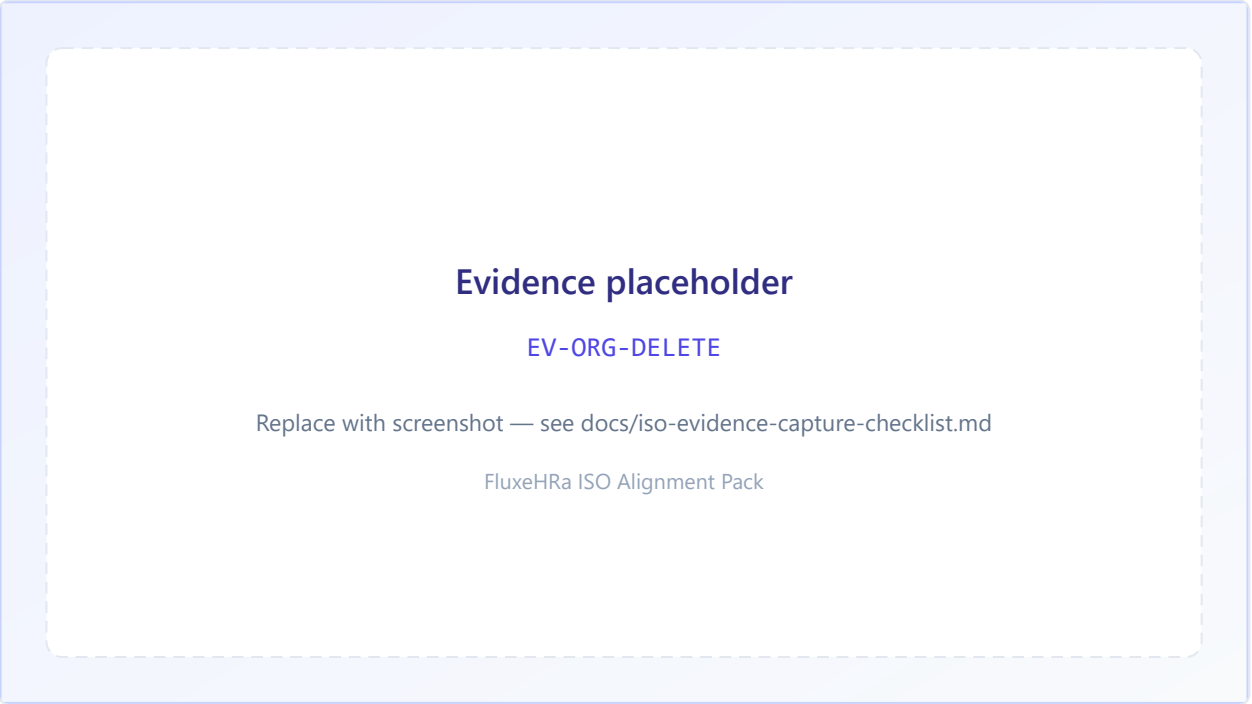
`EV-PROC-LEARNING` — Learning compliance

- **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)

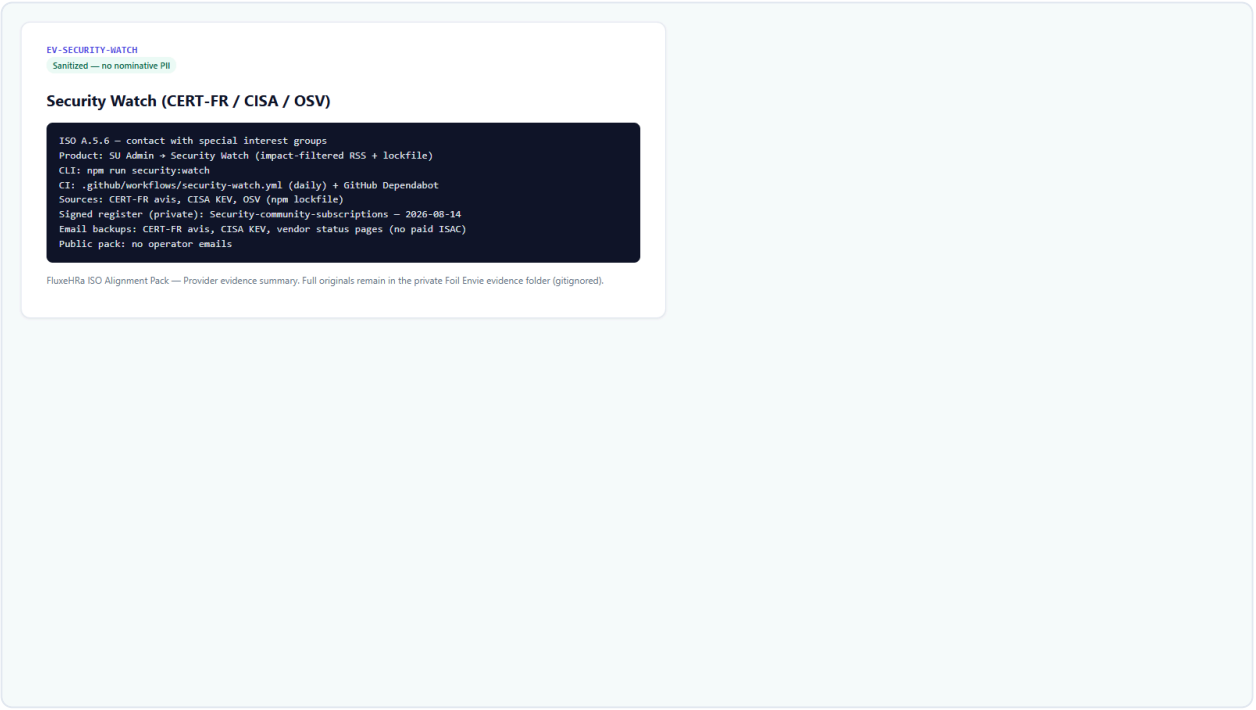
`EV-SDLC-TESTS` — Automated tests & change evidence

- **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)

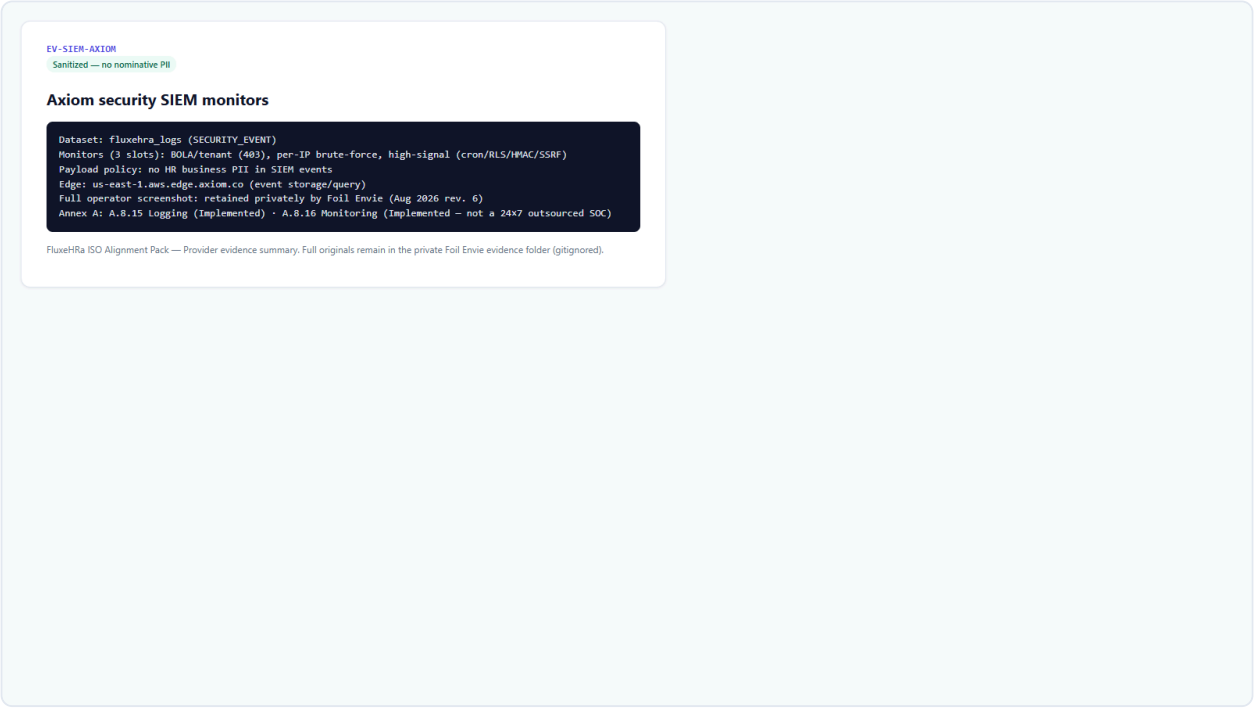
- **Show:** Sanitized card: SU Admin Security Watch sources + daily GitHub Action + Dependabot — no operator emails
- **Test:** Run `npm run security:watch`; open SU Admin → Security Watch; confirm daily `security-watch.yml` + Dependabot
- **Code / config:** `lib/security-watch.ts`, `app/api/su-admin/security-watch/route.ts`,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

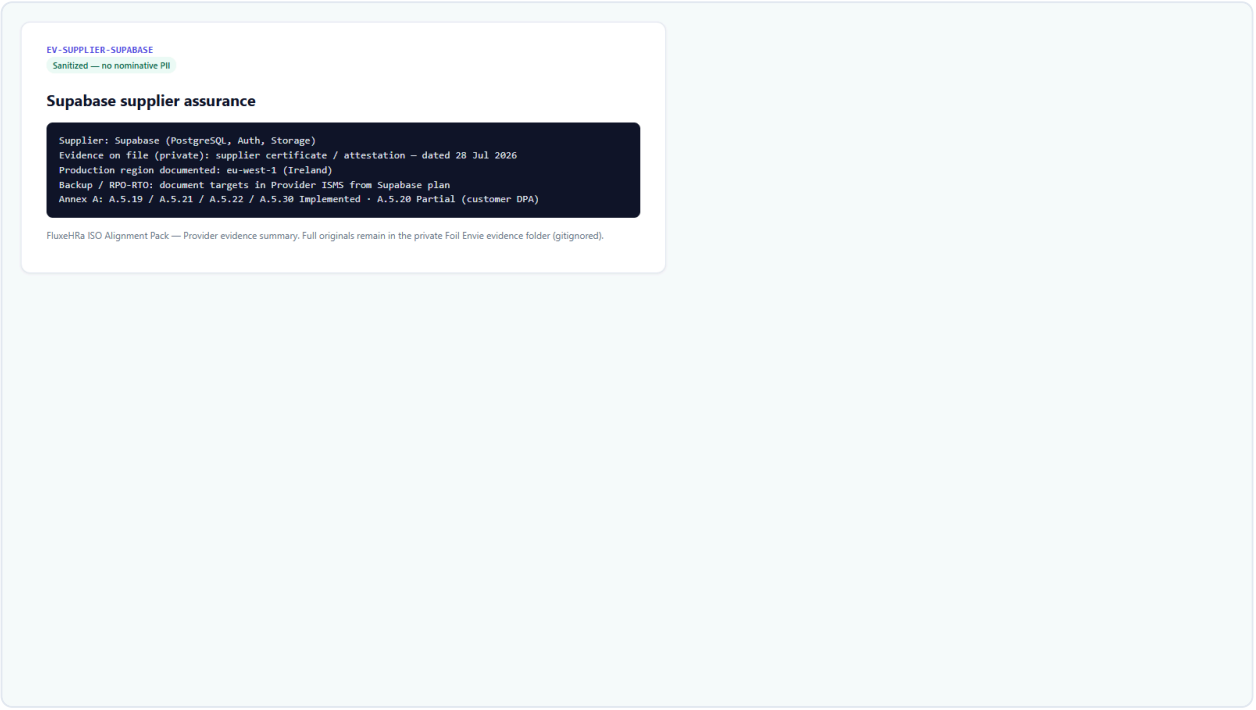
`EV-SUPPLIER-VERCEL` — Vercel supplier assurance summary

- **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

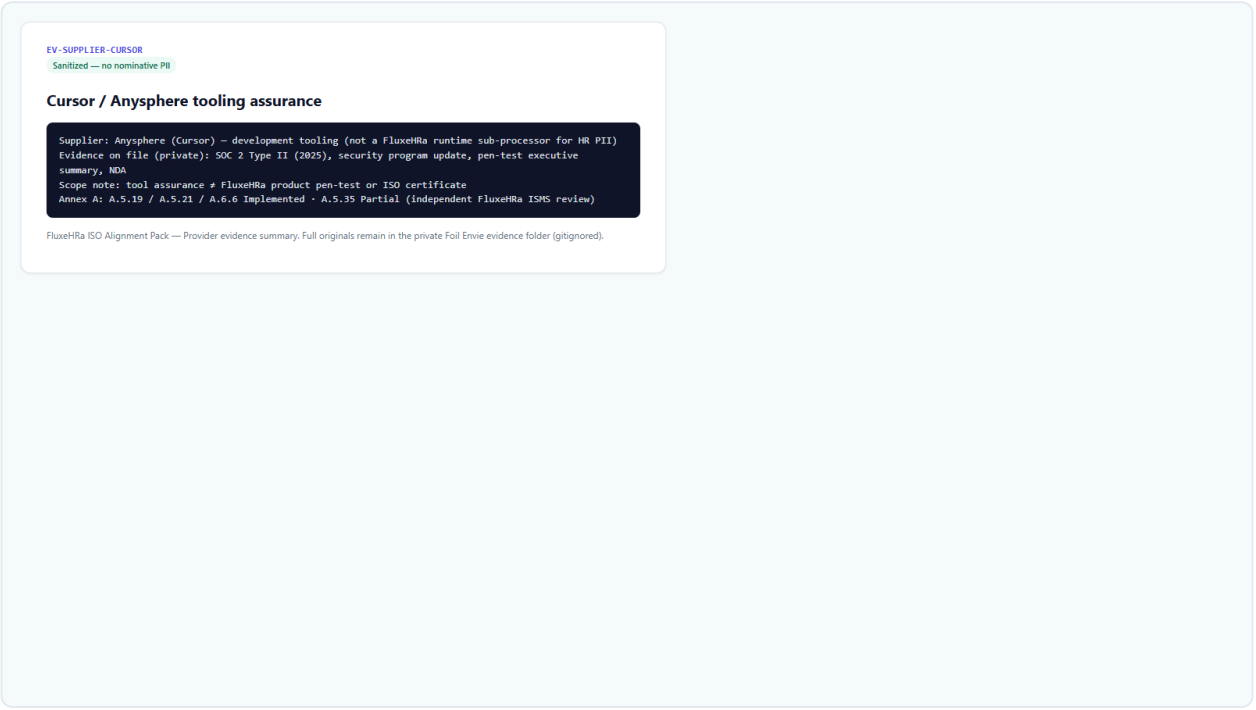
- **Show:** Sanitized evidence card: certificate/attestation on file (Jul 2026) — region eu-west-1
- **Test:** Annual re-review; document backup plan RPO/RTO in Provider ISMS
- **Code / config:** Provider file (private); Trust Center hosting section



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

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

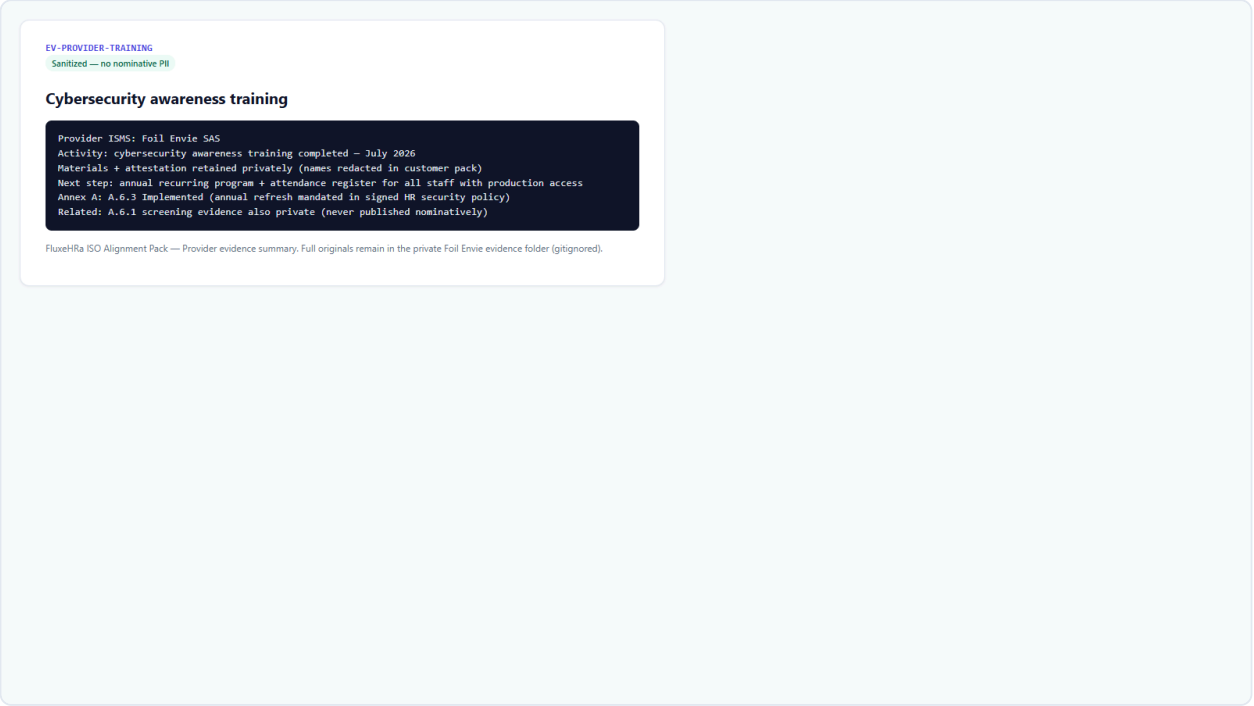
- **Show:** Sanitized card: SOC 2 Type II + security program / NDA on file for development tooling
- **Test:** Does not replace FluxeHRa pen-test; keep tool assurance separate from product SoA
- **Code / config:** Provider file (private)



`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 (Provider ISMS (Foil Envie) rows in §3)

↓ 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.

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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 : août 2026 (rév. 14) — captures Org Admin EV-SU-ORG-ACCESS / EV-BUG-ESCALATION ; Partial restants A.5.20/31/35

Sommaire

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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	A.5 — Contrôles organisationnels	Entreprise (politique)	Jalons sécurité projet dans Secure-development-pack (PDF privé signé	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
	gestion de projet			2026-08-13) (migrations, typecheck, smoke, secrets, SSRF).	
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).	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).	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
`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

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
`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 avant 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
`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

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
`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
`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-	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
				physical-media (PDF privé signé 2026-08-13).	
`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 sécurisée des équipements	A.7 — Contrôles physiques	Entreprise (politique)	Effacement / destruction sécurisée des appareils Foil Envie ; cloud = Platform — Home-office-physical-media (PDF privé signé 2026-08-13).	Implémenté
`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

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
`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.	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 rétention.	Implémenté
`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	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
				déployé (Customer/Provider optionnel).	
`A.8.13`	Sauvegarde de l'information	A.8 — Contrôles technologiques	Mixte	Backups quotidiens Supabase Pro (rétention 7 j) ; RPO ≤ 24 h et RTO interne ≤ 4 h documentés dans docs/backup-restore.md et accusé Backup signé (août 2026) ; PITR optionnel ; objets Storage hors backup BDD (documenté).	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
`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/preview : environnements Vercel + politique non-prod (signée) + assertNonProdSupabaseUrl.	Plateforme / sous-traitant

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
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 privé signé 2026-08-13). Pentest externe reste un engagement futur.	Implémenté
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	Preview Vercel vs production ; politique non-prod signée + garde runtime assertNonProdSupabaseUrl en Preview si PRODUCTION_SUPABASE_URL est défini.	Implémenté
A.8.32	Gestion des changements	A.8 — Contrôles technologiques	Mixte	Gestion du changement = Git + déploiement Vercel pour opérateur unique (Secure-development-pack	Implémenté

ID	Intitulé du contrôle	Thème	Ownership	Note FluxeHRa / Foil Envie	Statut
				(PDF privé signé 2026-08-13)) ; CAB reporté jusqu'à croissance d'équipe.	
`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.*

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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, régions UE documentées.

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.

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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.

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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.

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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.

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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
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
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

Thème	Attente	Implémentation FluxeHRa	Statut	Preuve
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, intégrations — recrutement placeholder	Partiel	EV-PROC-NEWHIRE, EV-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

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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

Processus	Acteurs	Routes / APIs	ISO	Procédure de test	Preuve
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
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 HMAC ; 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

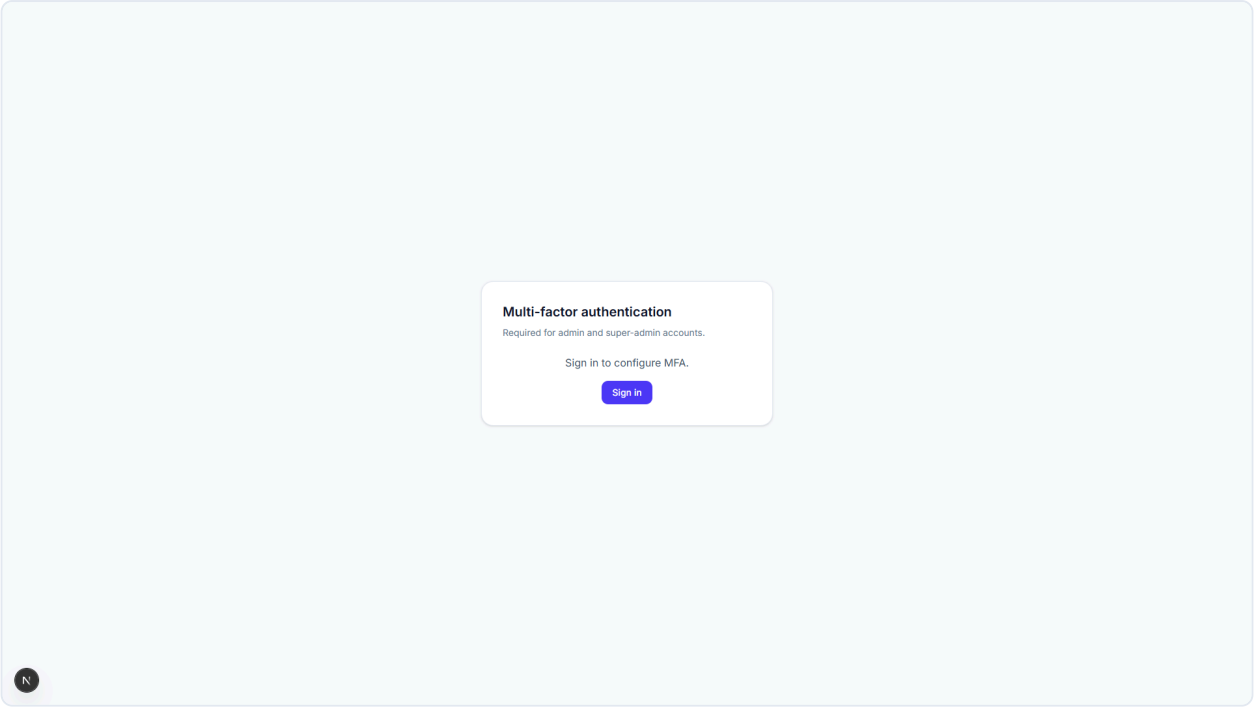
↑ Sommaire · ↑ Languages

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

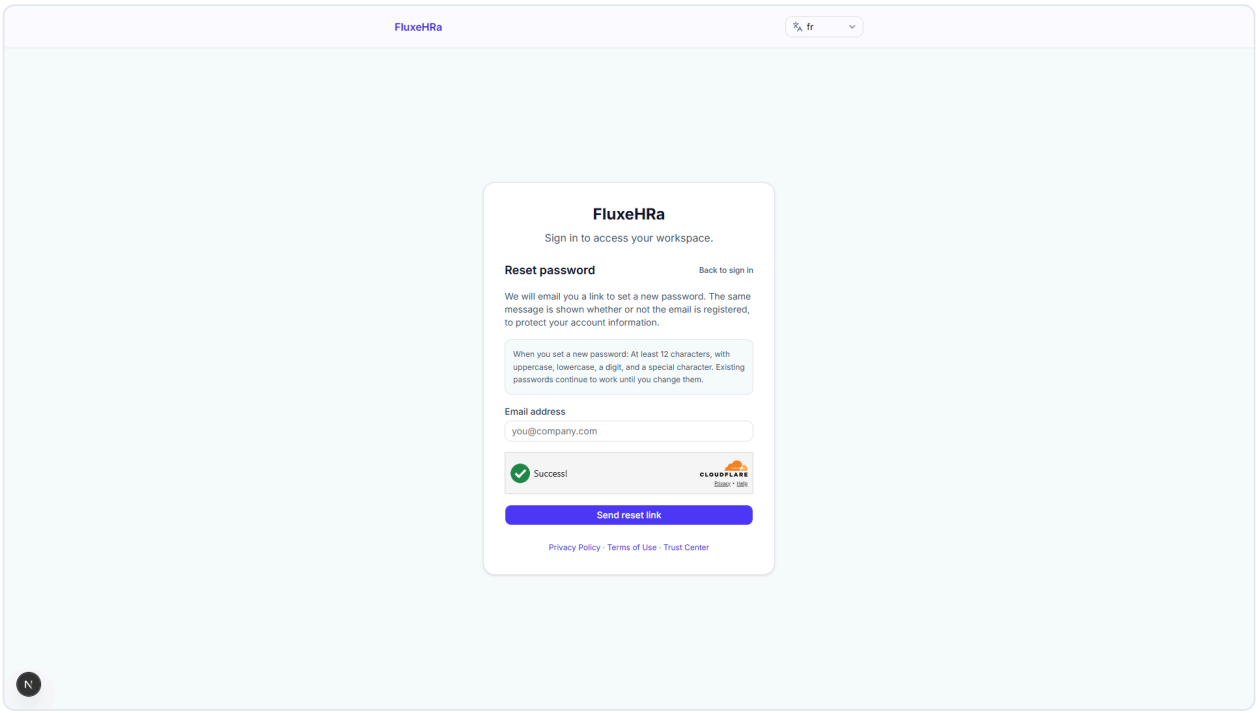
- **Montrer:** Page `/security/mfa`; login MFA challenge; Vercel env `REQUIRE_MFA_FOR_PRIVILEGED_ROLES`
- **Tester:** Enroll authenticator; complete step-up to JWT `aal2`; call privileged API without MFA → 403 `MFA_REQUIRED`
- **Code / config:** `lib/auth-mfa-policy.ts`, `lib/mfa-step-up.ts`, `app/security/mfa/page.tsx`



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

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

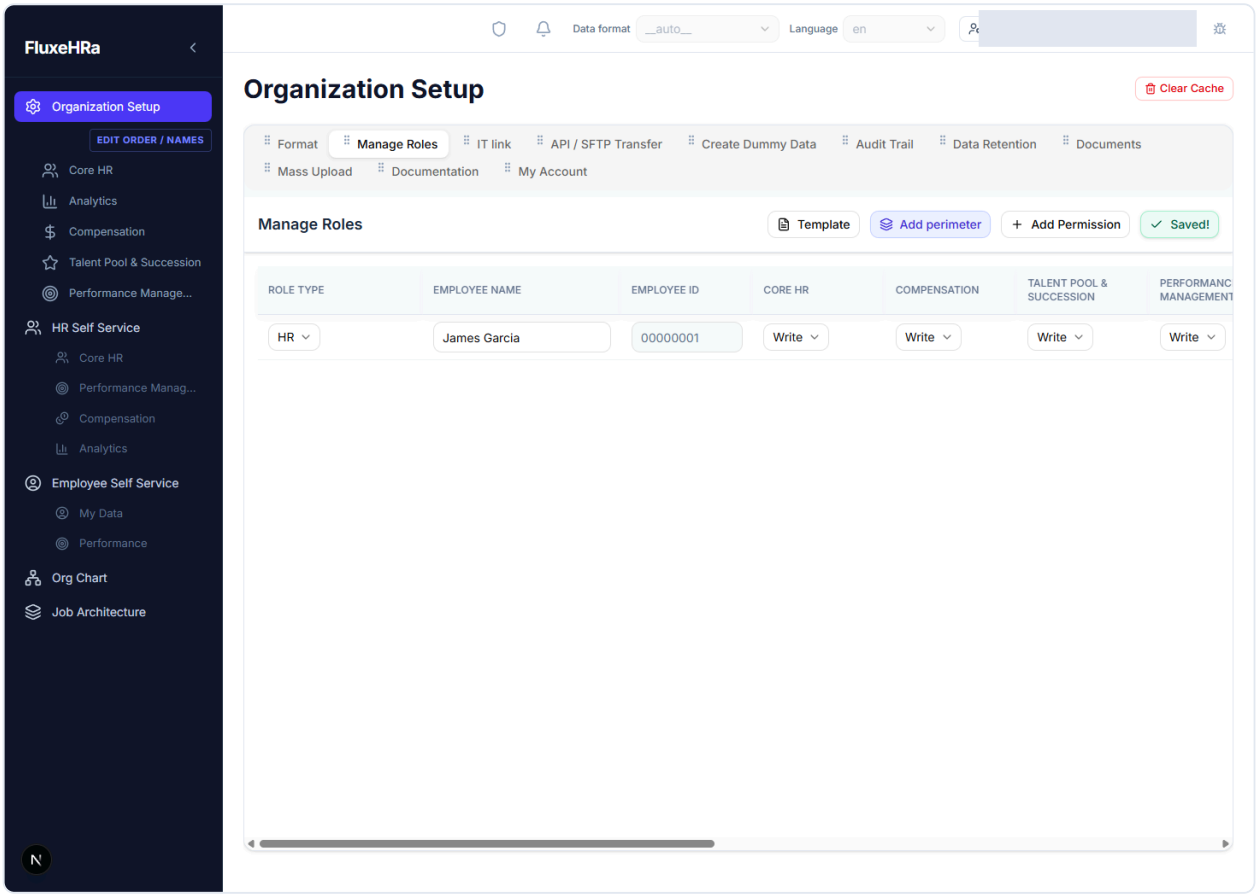
- **Montrer:** Login → Forgot password notice; `/reset-password` form; welcome/reset emails
- **Tester:** Reject short/weak password on set/reset; existing passwords continue to work until changed
- **Code / config:** `lib/password-policy.ts`, `app/reset-password/page.tsx`, `components/sign-in-panel.tsx`,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



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

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

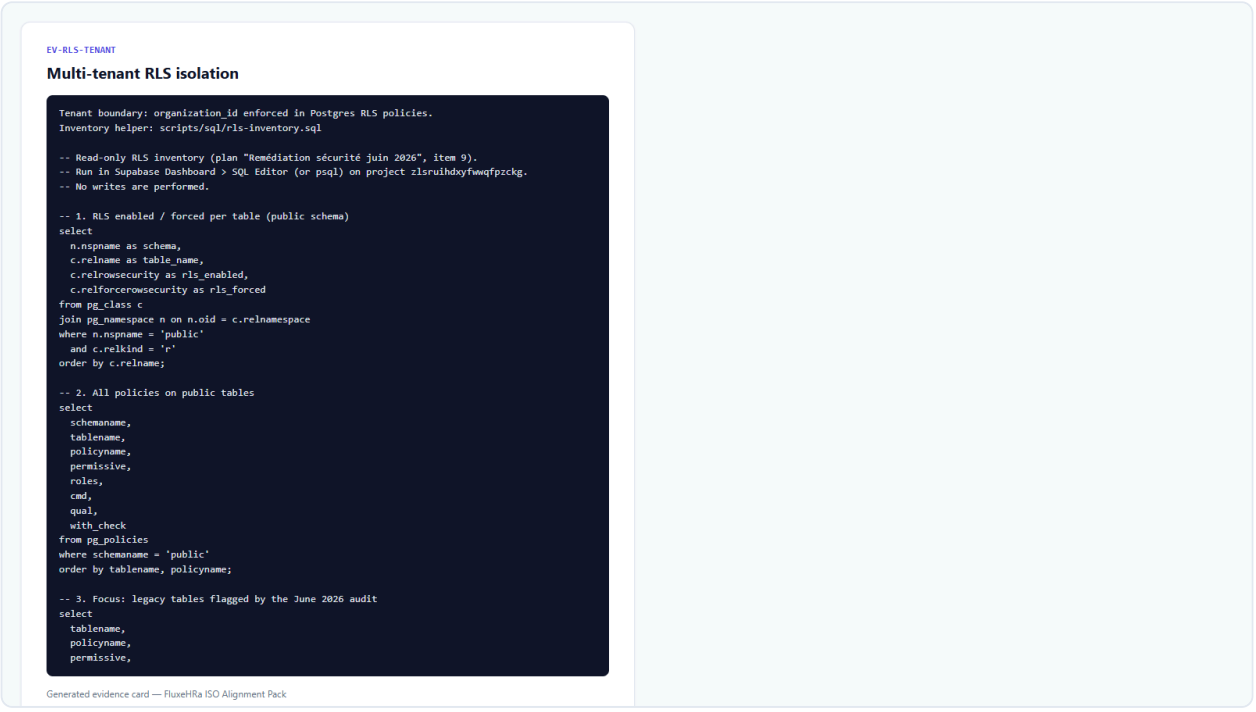
- **Montrer:** Org-setup → Manage Roles; SU Admin org/admins
- **Tester:** Remove module write; confirm UI gate and API 403
- **Code / config:** `lib/org-permissions.ts`, `components/manage-roles-tab.tsx`, `lib/supabase-api-auth.ts`



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

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

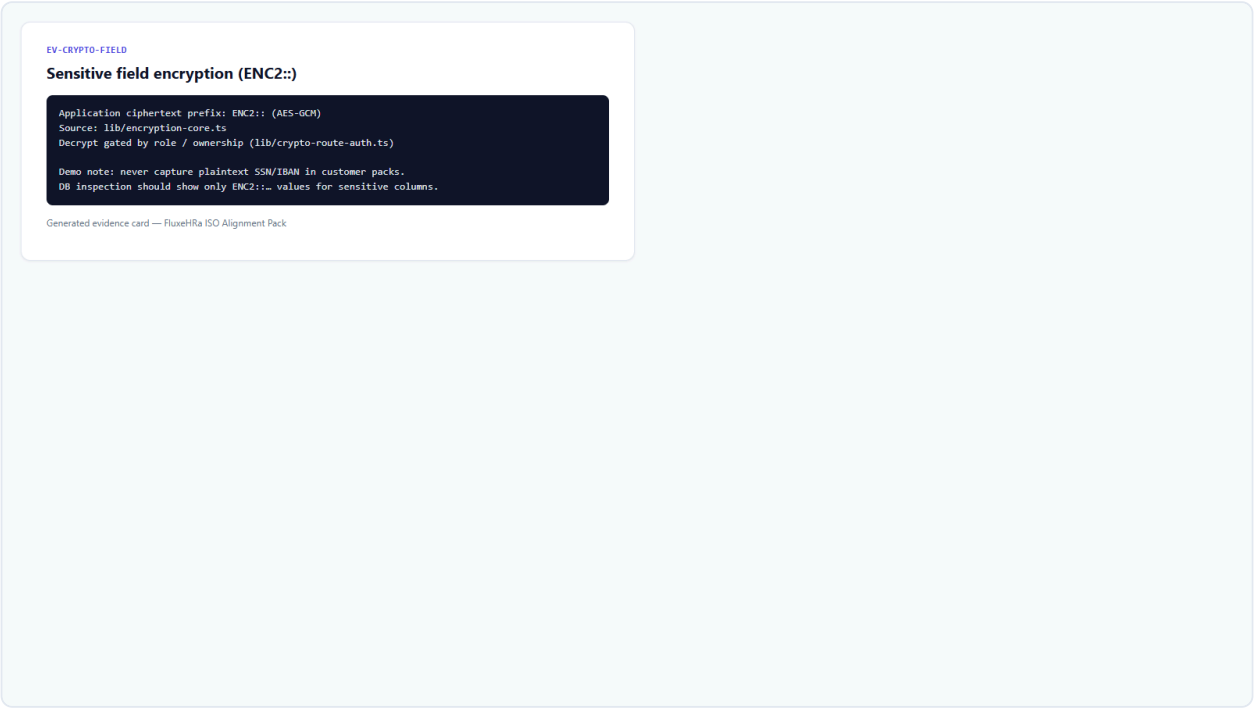
- **Montrer:** Attempt cross-org data access (second org user)
- **Tester:** Query/API against foreign `organization_id` returns empty/denied; review RLS migrations
- **Code / config:** `supabase/migrations/20260606120000_*`, `20260610120000_*`, `scripts/sql/rls-inventory.sql`



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

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

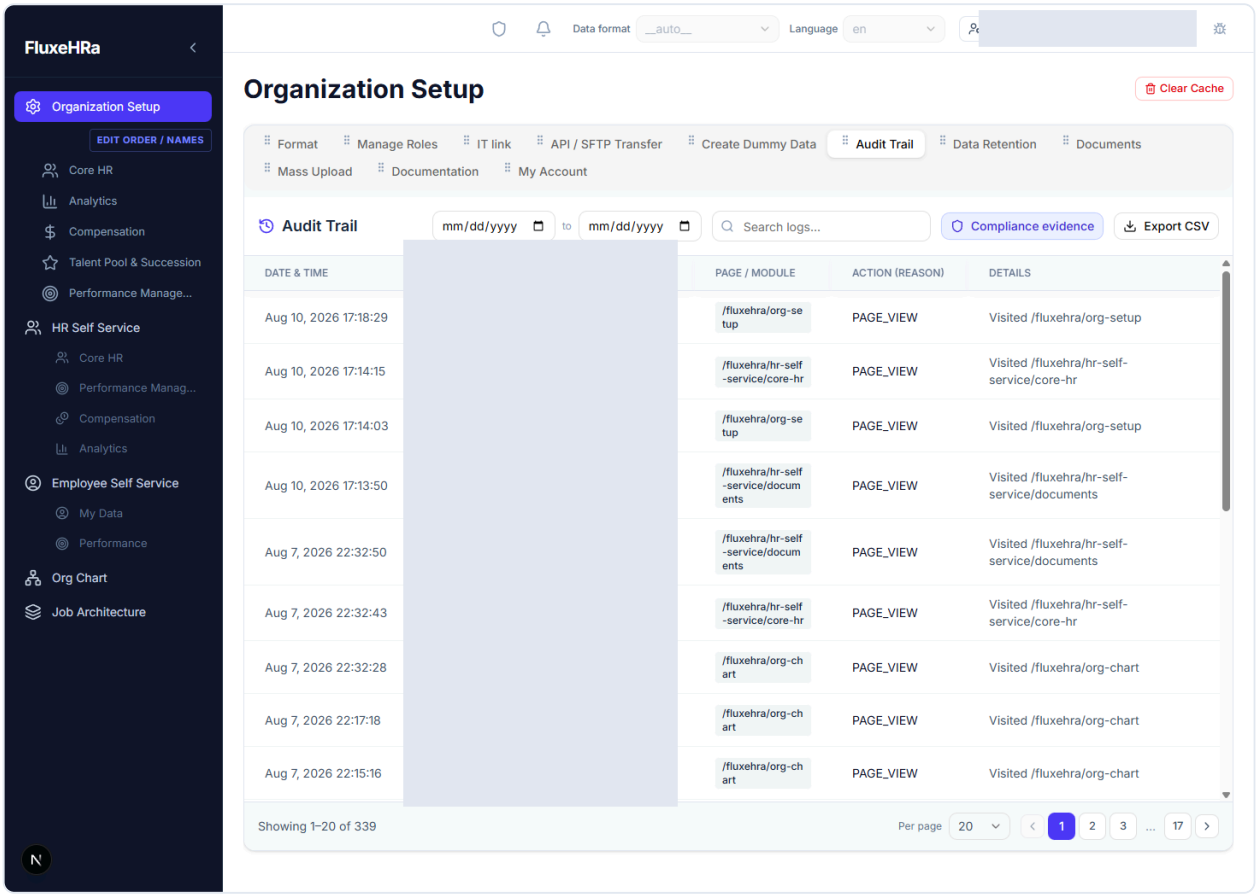
- **Montrer:** Save SSN/IBAN; inspect DB value prefix `ENC2::`
- **Tester:** Encrypt/decrypt via authorized role; non-privileged decrypt limited to own/team ciphertext
- **Code / config:** `lib/encryption-core.ts`, `app/api/crypto/*`, `lib/crypto-route-auth.ts`



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

`EV-AUDIT-TRAIL` — UI journal d'audit

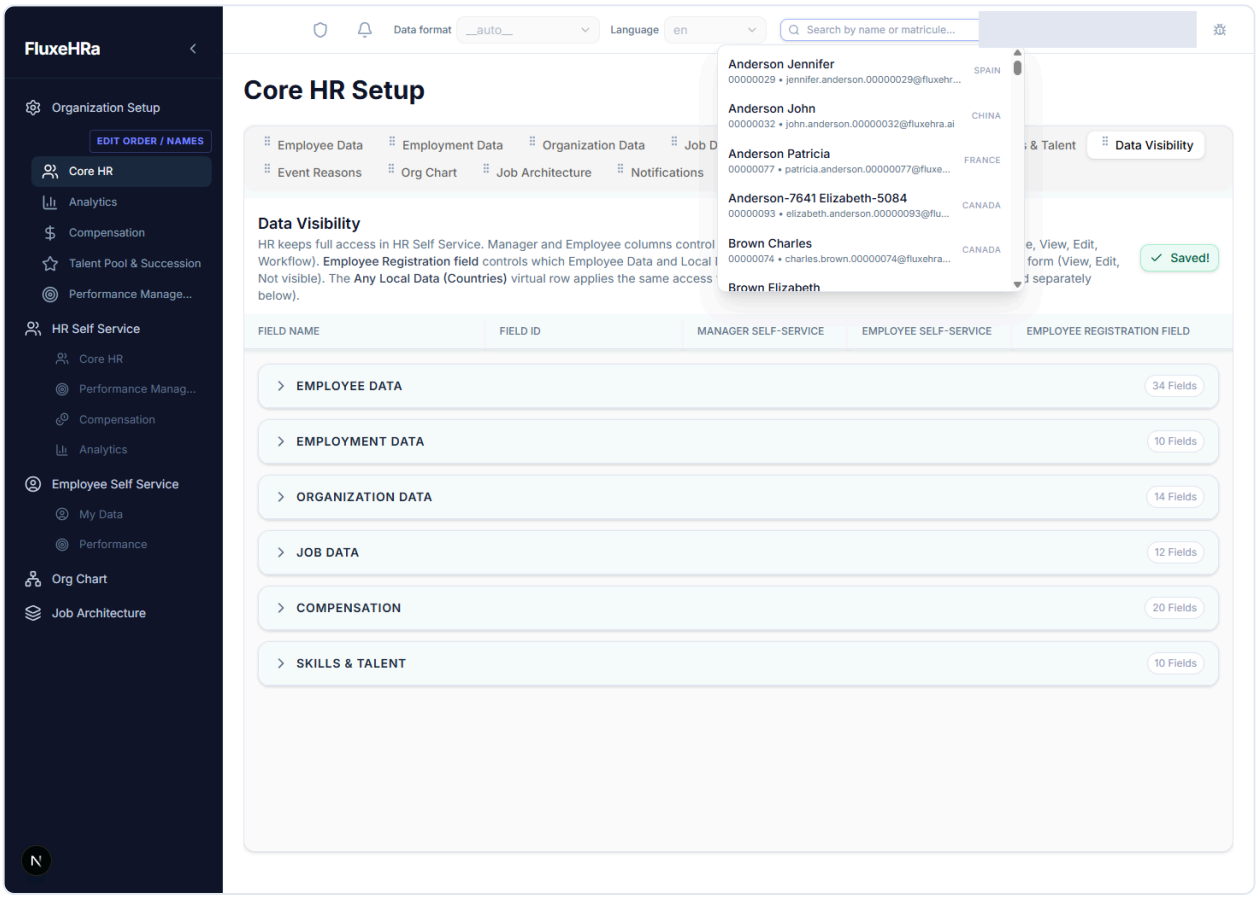
- **Montrer:** Org-setup / SU → Audit Trail
- **Tester:** Perform audited action (mass upload, settings); confirm event row; CSV export
- **Code / config:** `lib/audit-server.ts`, `lib/audit-client.ts`, `components/audit-trail-tab.tsx`



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

`EV-PROXY` — Responsabilité du proxy

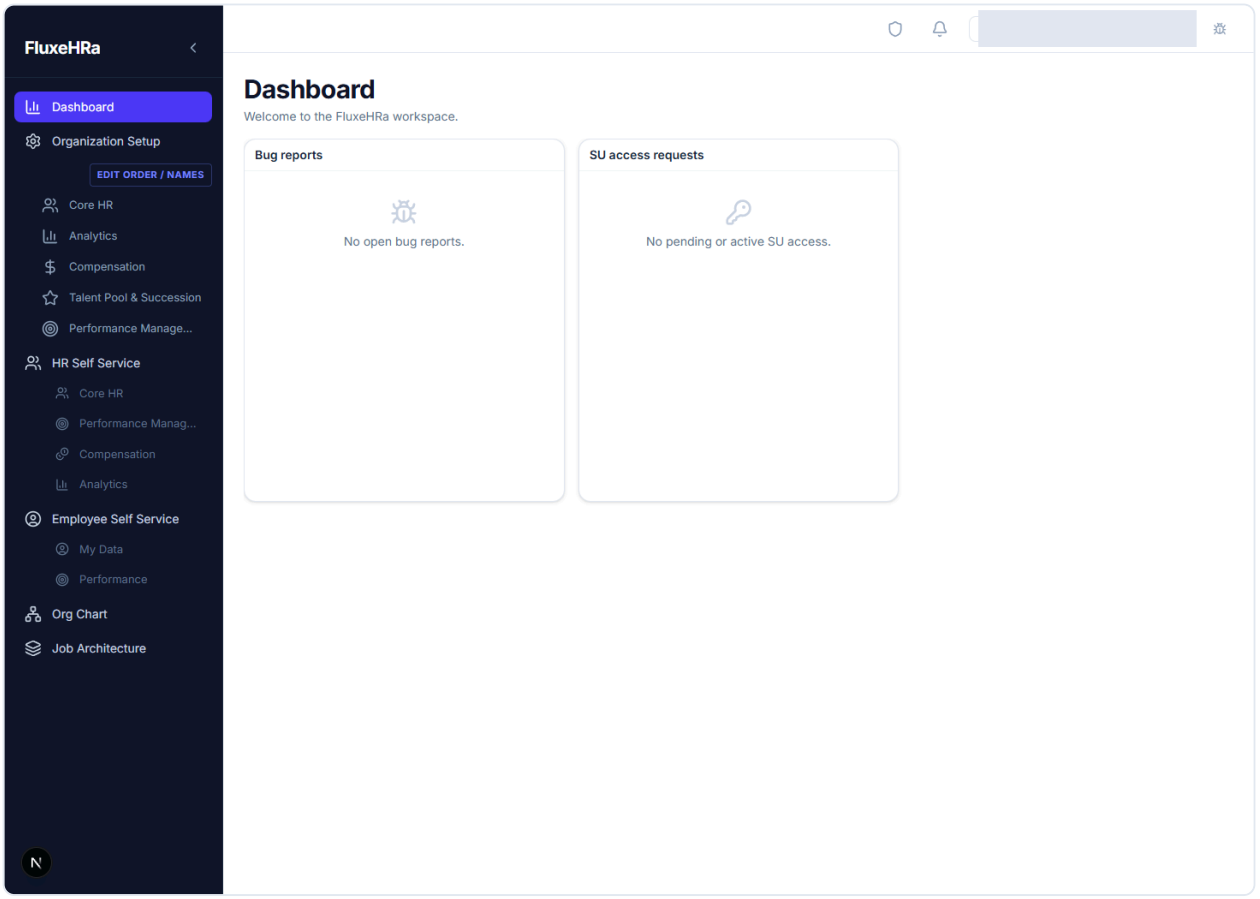
- **Montrer:** Proxy session banner; audit with proxied identity
- **Tester:** With active SU grant (or org privileged role): start/end proxy; confirm continuous eligibility re-check; dual identity in logs
- **Code / config:** `lib/proxy-server.ts`, `lib/proxy-api-guard.ts`, `lib/su-org-access.ts`



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

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

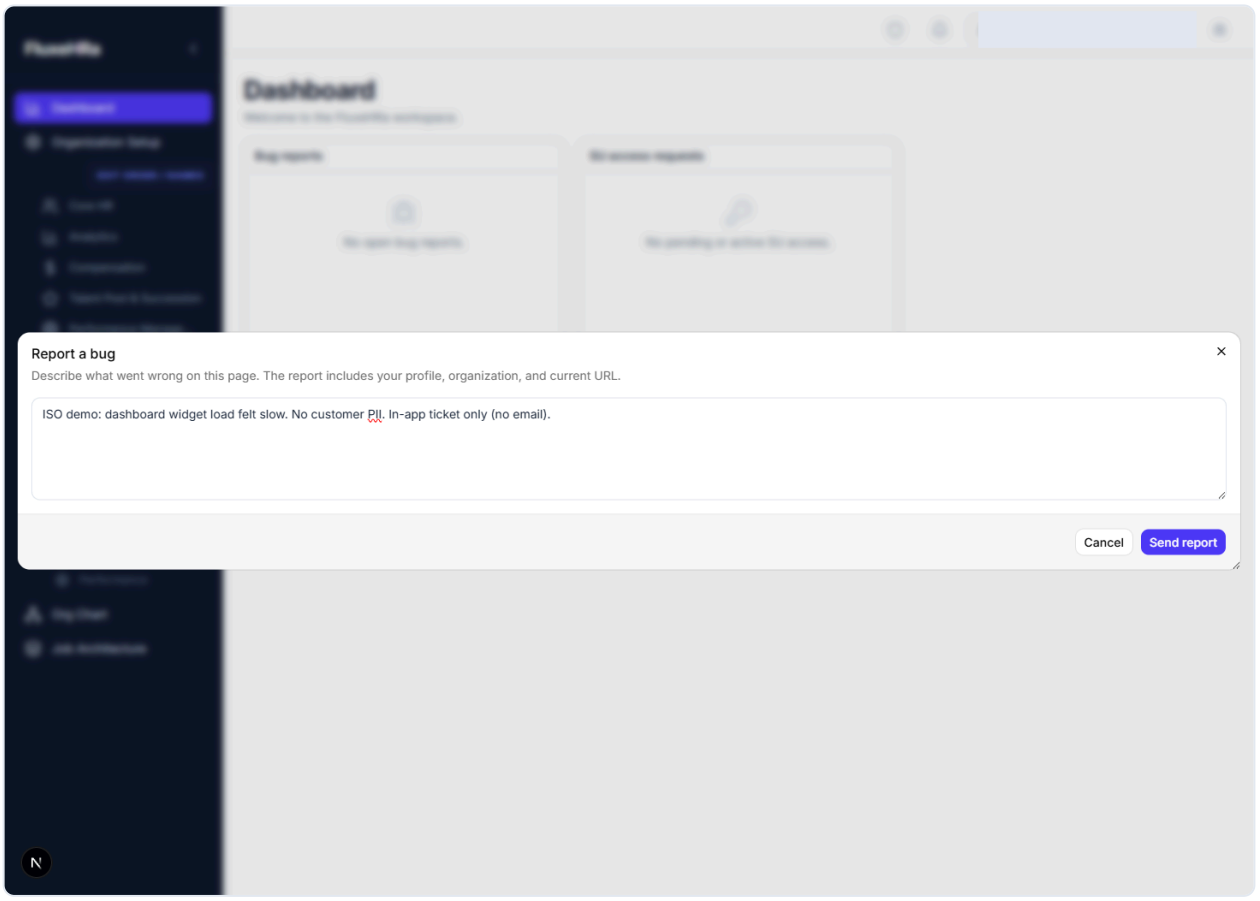
- **Montrer:** SU Enter Organisation → Request; Org Admin Dashboard → Accept/Deny; emerald authorized orgs
- **Tester:** Approve grant; Enter org; confirm middleware/API deny without grant; expire after 48h kicks SU out
- **Code / config:** `su_org_access_grants`, `/api/su-org-access`, `has_active_su_org_grant`



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

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

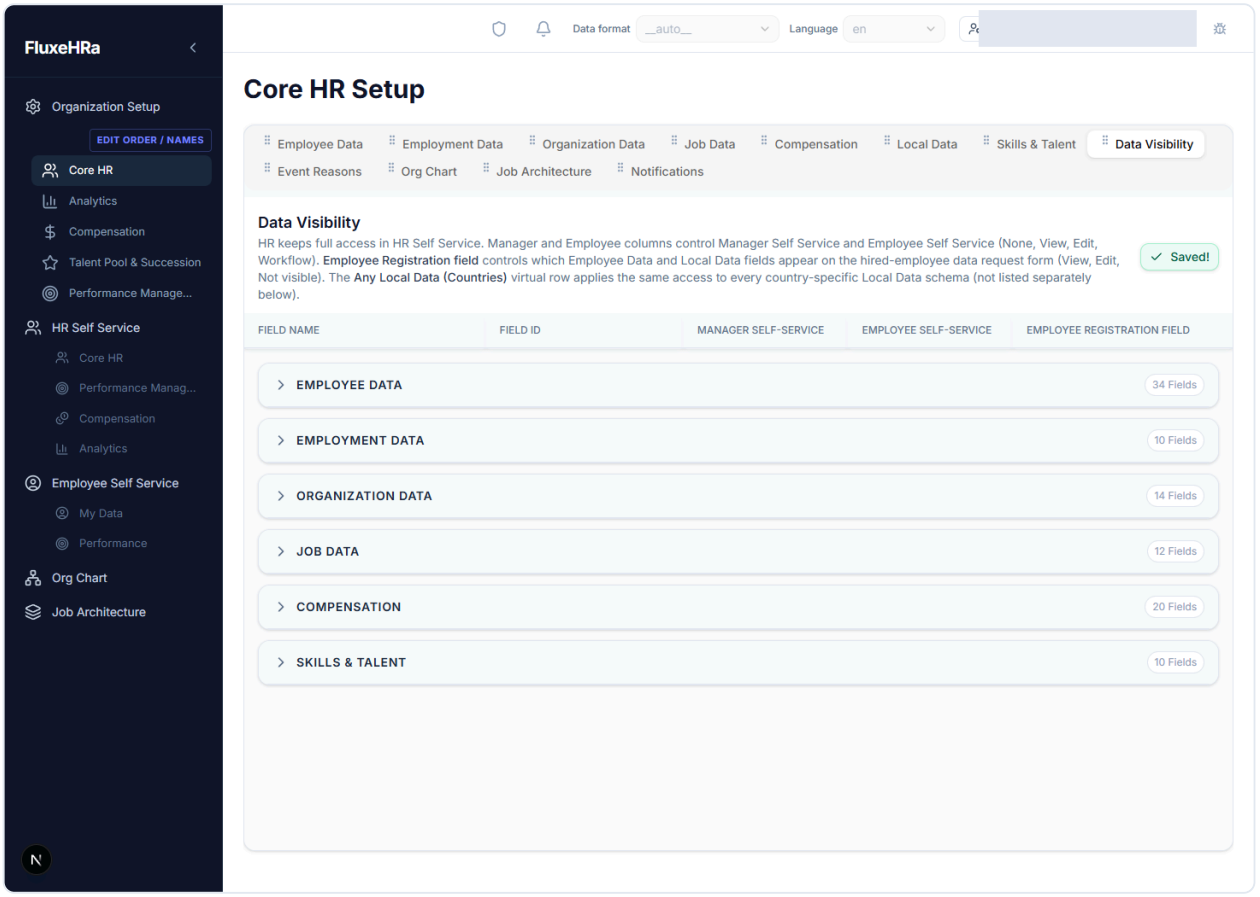
- **Montrer:** Report a bug → HR / Org Admin / SU Dashboard widgets
- **Tester:** Submit manual bug (ticket, no email); Forward HR→Admin→SU; Clear; auto client errors still email SMTP
- **Code / config:** `bug_report_tickets`, `/api/bug-report`, `/api/bug-reports`



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

`EV-VISIBILITY` — Matrice de visibilité des données

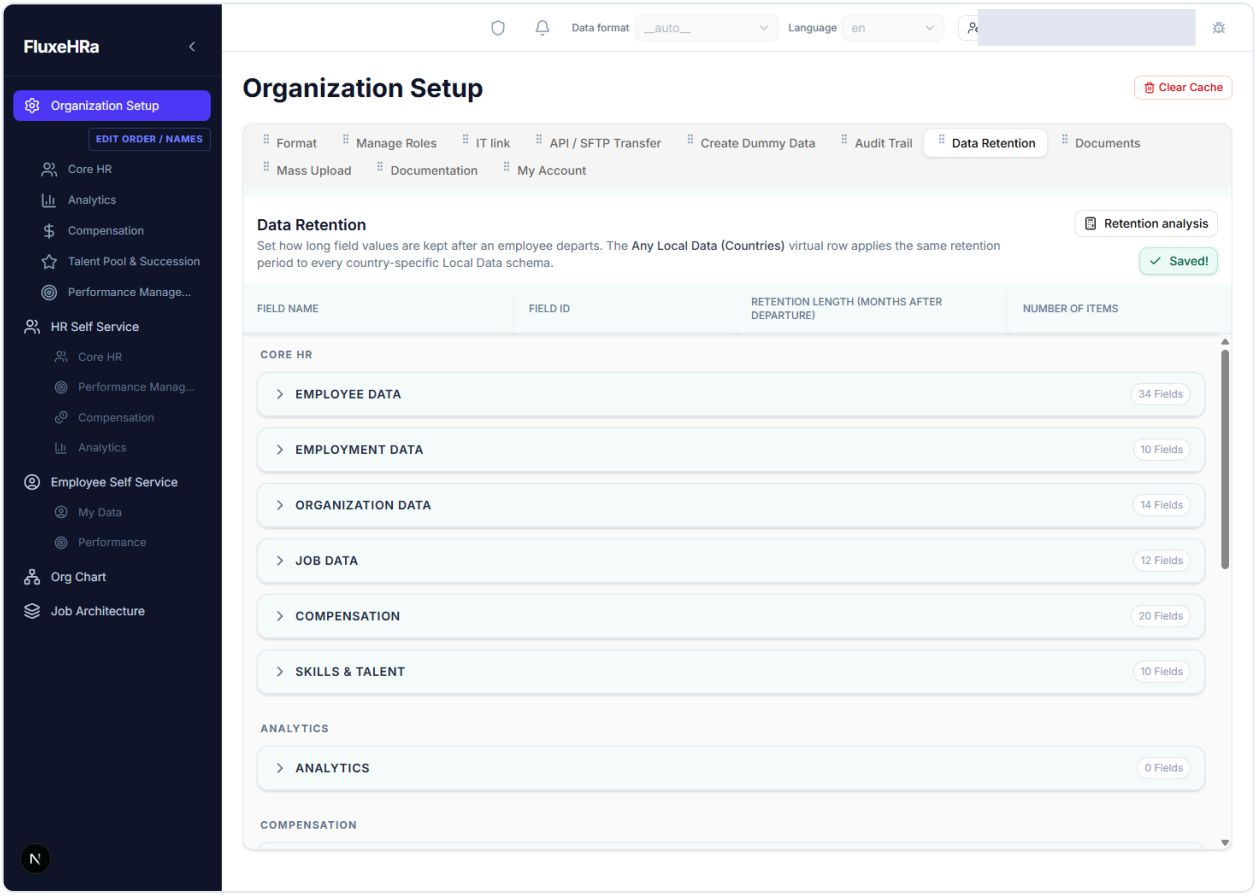
- **Montrer:** Core HR / Data Visibility; ESS field hidden vs HR visible
- **Tester:** Set field to `none` for employee; confirm self-service omit/deny
- **Code / config:** `lib/field-visibility.ts`, `lib/self-service-submit-auth.ts`



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

`EV-RETENTION` — Configuration de rétention & purge

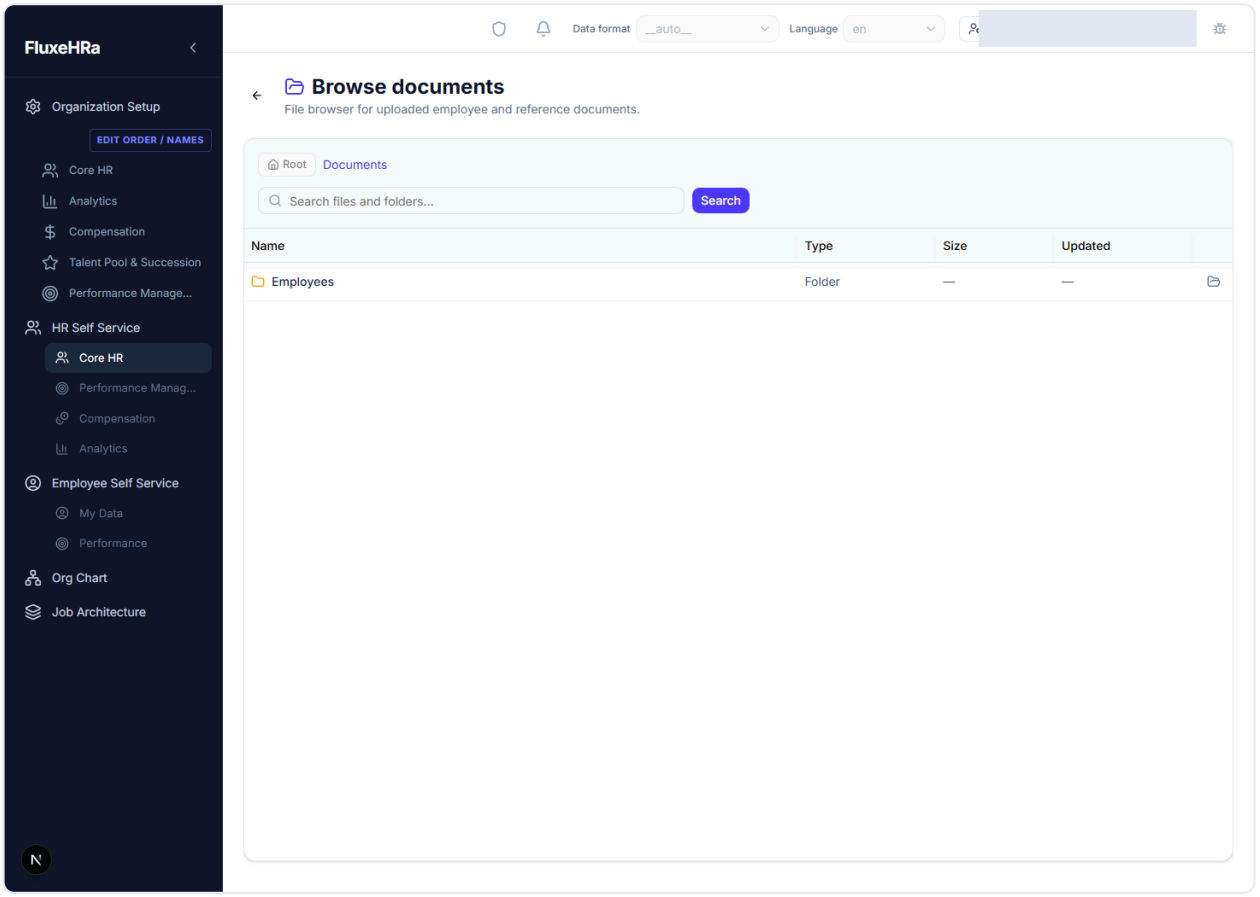
- **Montrer:** Retention months per field; document type retention; analyze/purge actions
- **Tester:** Configure retention; run Retention analysis; purge expired values; confirm RETENTION_* audit events
- **Code / config:** `lib/retention-purge.ts`, `/api/hr/retention`, field-visibility retention tab



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

`EV-DOCUMENTS` — Accès documents privés

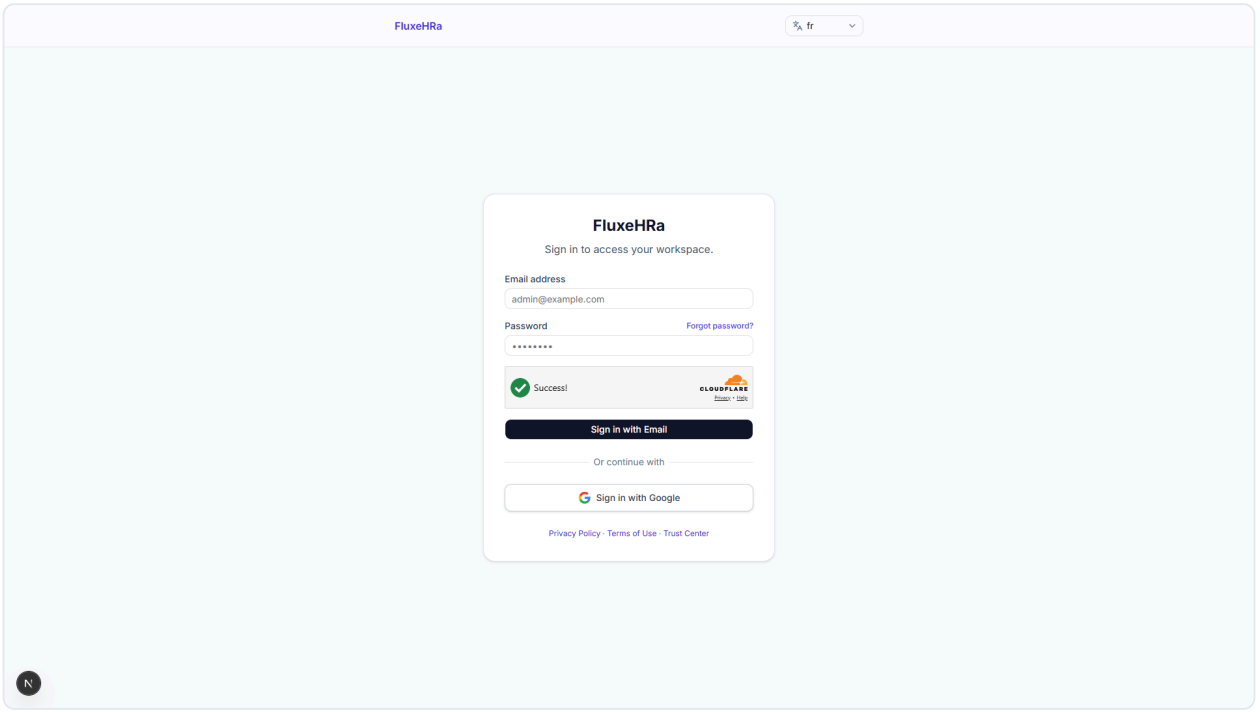
- **Montrer:** Upload under employee; download via app only
- **Tester:** Direct storage URL without auth fails; authorized `/api/documents/file/…` succeeds
- **Code / config:** `lib/document-access.ts`, `lib/storage-ops.ts`, migration documents bucket private



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

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

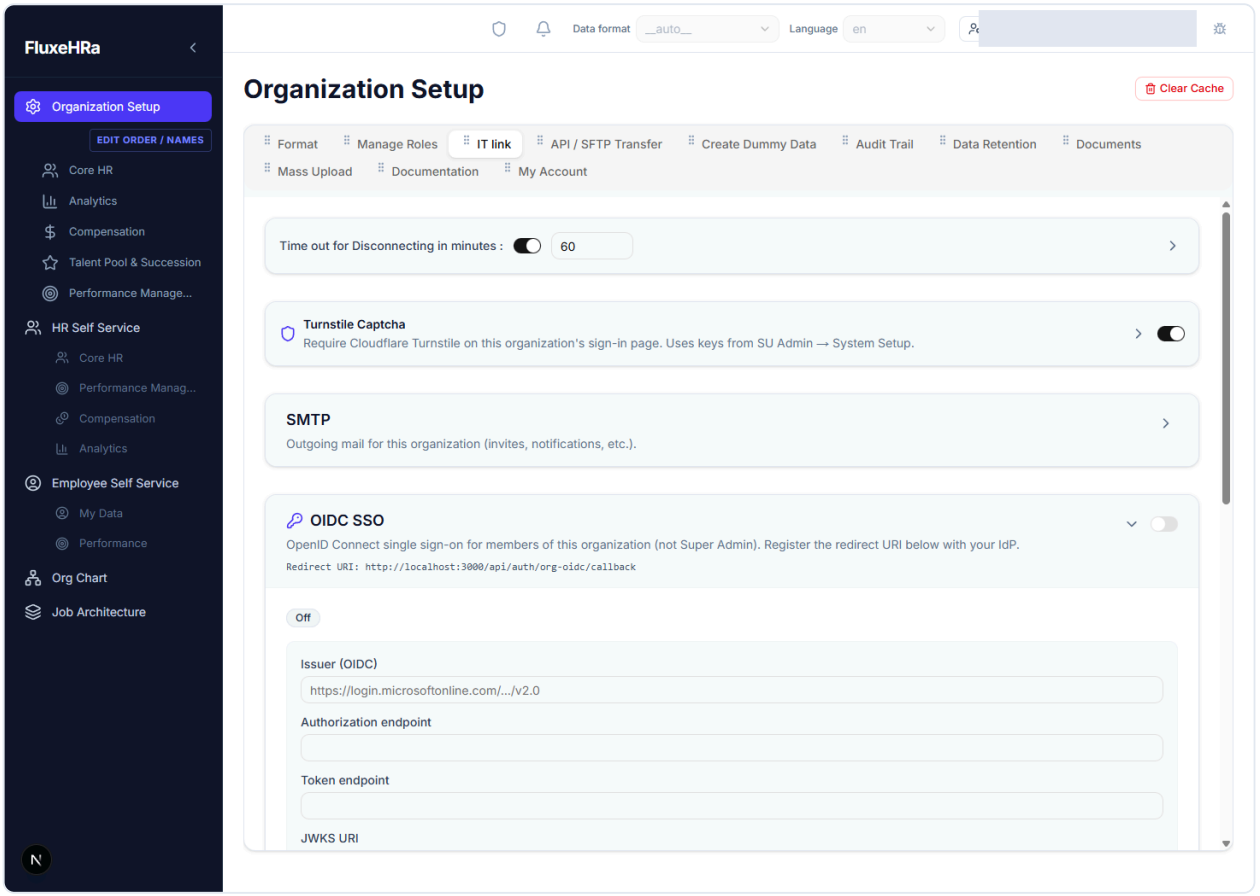
- **Montrer:** SU System Setup / Org IT Link Turnstile toggle; login challenge
- **Tester:** Enable Turnstile; blocked without token on check-email / forgot-password
- **Code / config:** `lib/turnstile-server.ts`, `lib/turnstile-settings.ts`



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

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

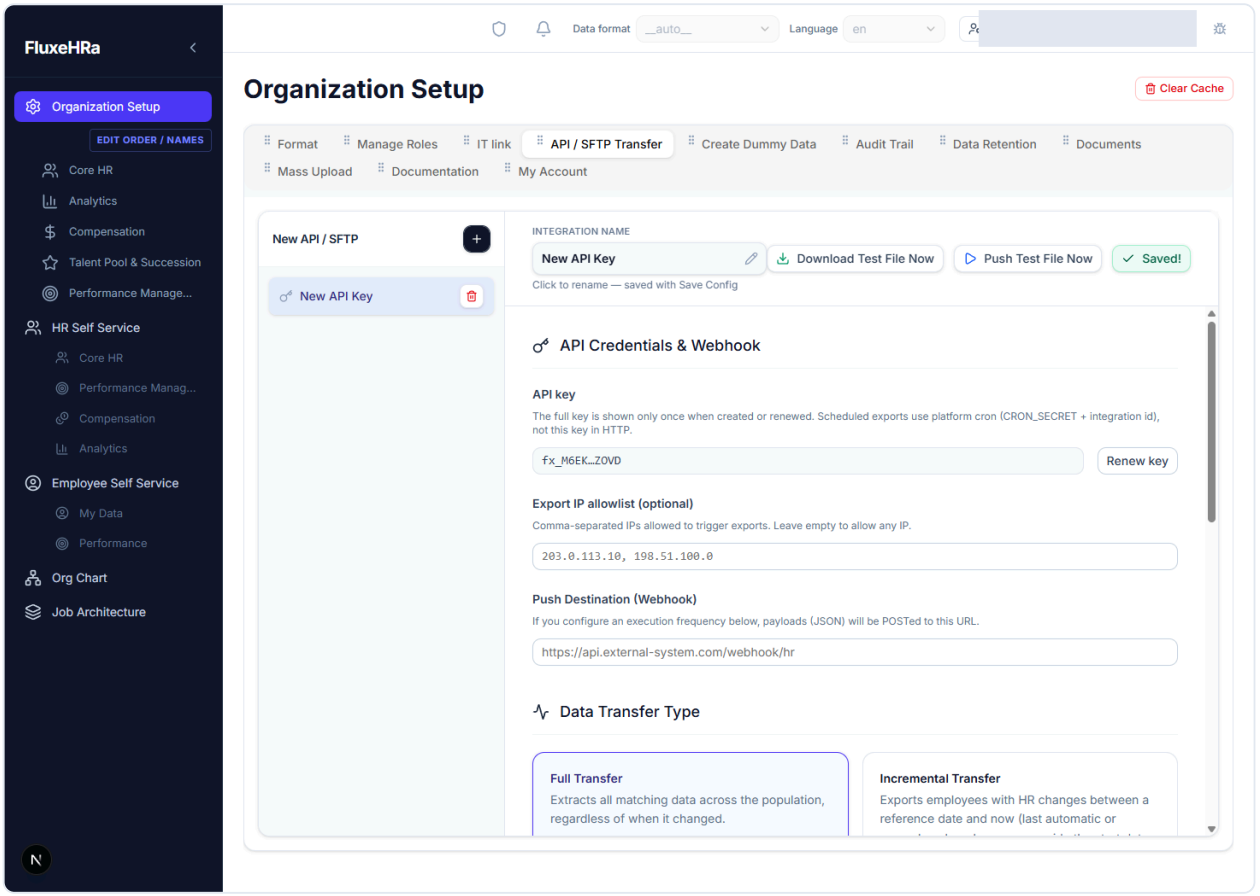
- **Montrer:** Org-setup → IT Link SSO settings
- **Tester:** Authorize + callback with HMAC state; invalid redirect rejected
- **Code / config:** `app/api/auth/org-oidc/*`, `lib/org-oidc-state.ts`, `lib/app-origin.ts`



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

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

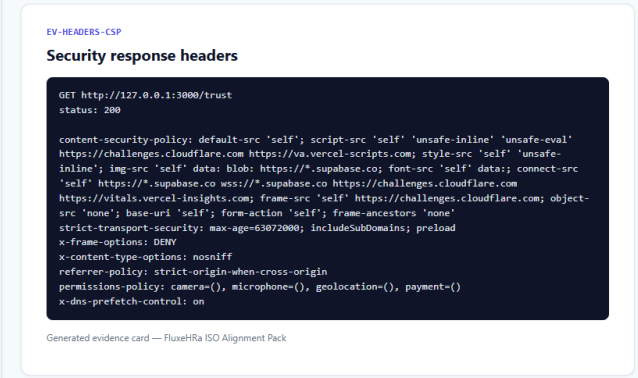
- **Montrer:** Org-setup → API / SFTP; regenerate key once
- **Tester:** Export with optional HMAC; rate limit; audit stores fingerprint not payload
- **Code / config:** `lib/integration-api-key.ts`, `lib/integration-export-*.ts`



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

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

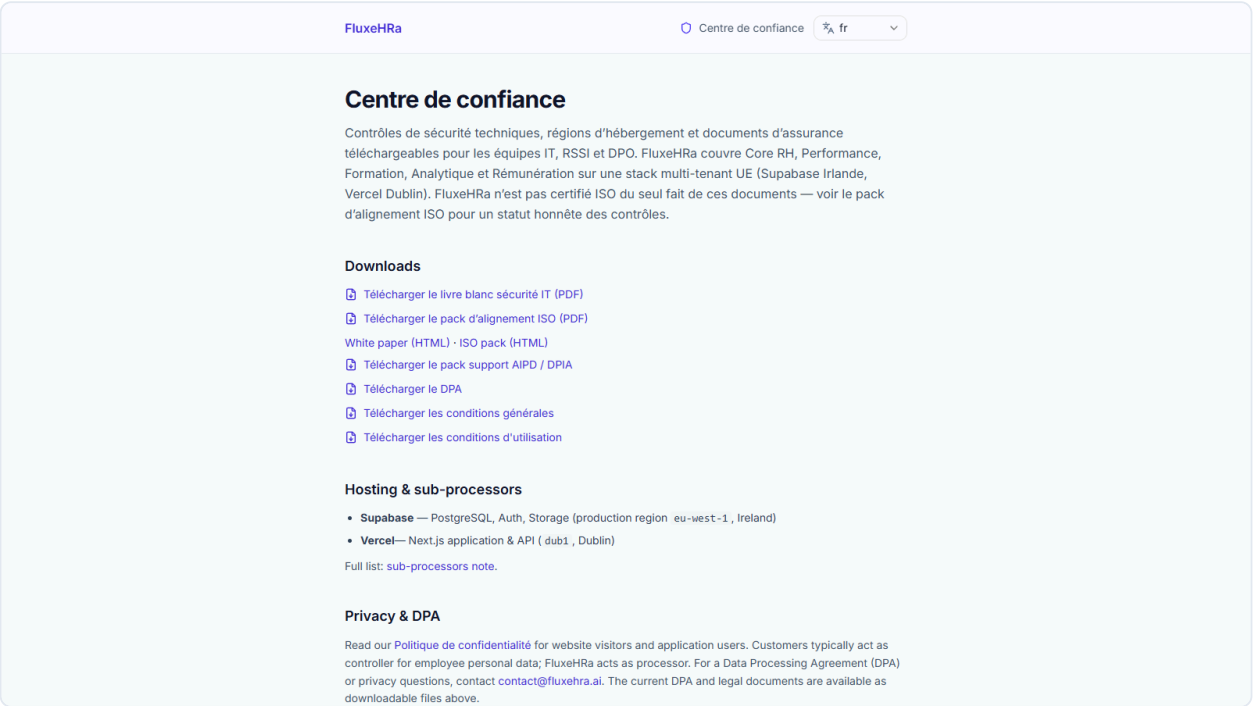
- **Montrer:** Browser DevTools → Response headers on any authenticated page
- **Tester:** Confirm CSP nonce, HSTS, X-Frame-Options DENY, nosniff
- **Code / config:** `lib/csp.ts`, `proxy.ts`, `next.config.js`



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

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

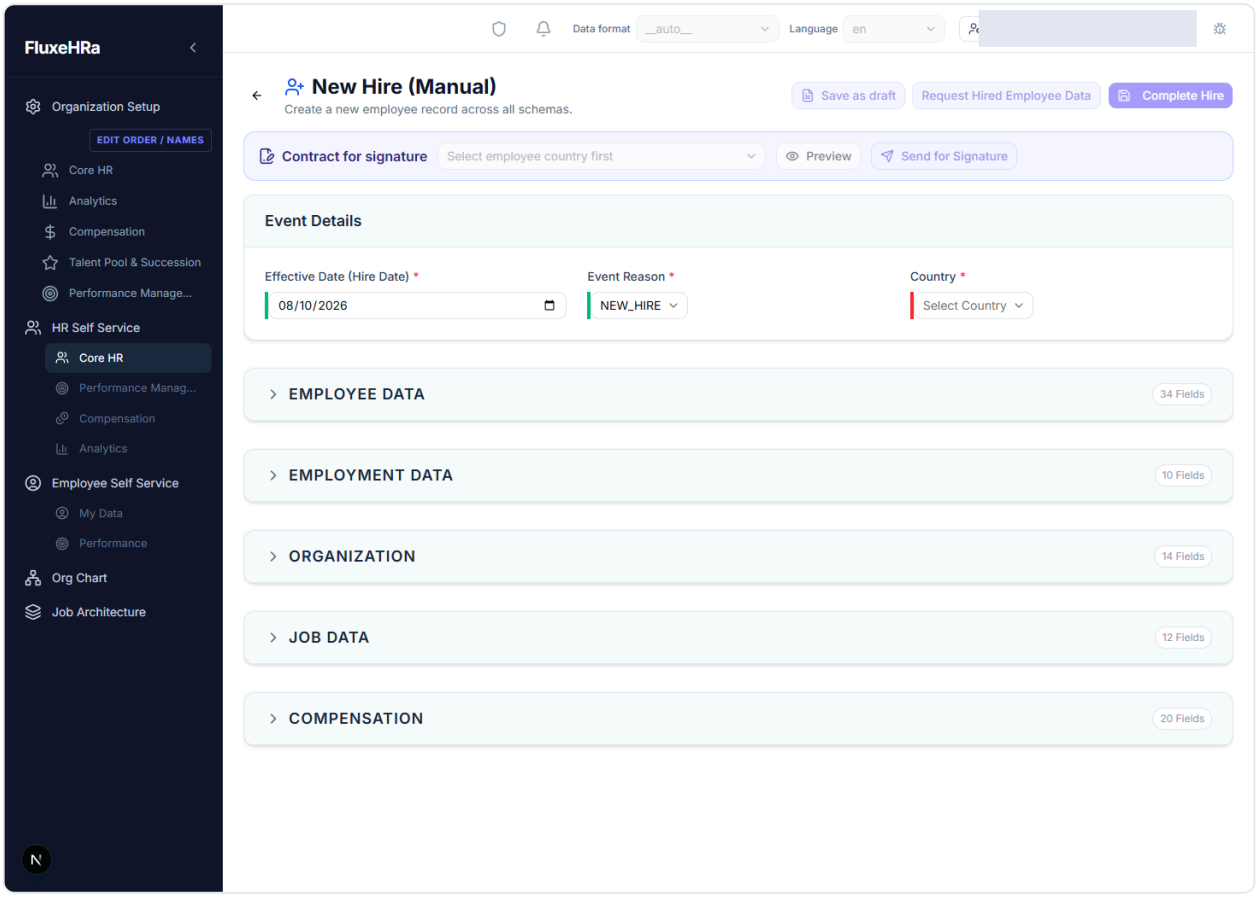
- **Montrer:** Supabase project region; `vercel.json` region `dub1`
- **Tester:** Document eu-west-1 + dub1 in customer processing register
- **Code / config:** `vercel.json`, `.env.example`, security whitepaper § hosting



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

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

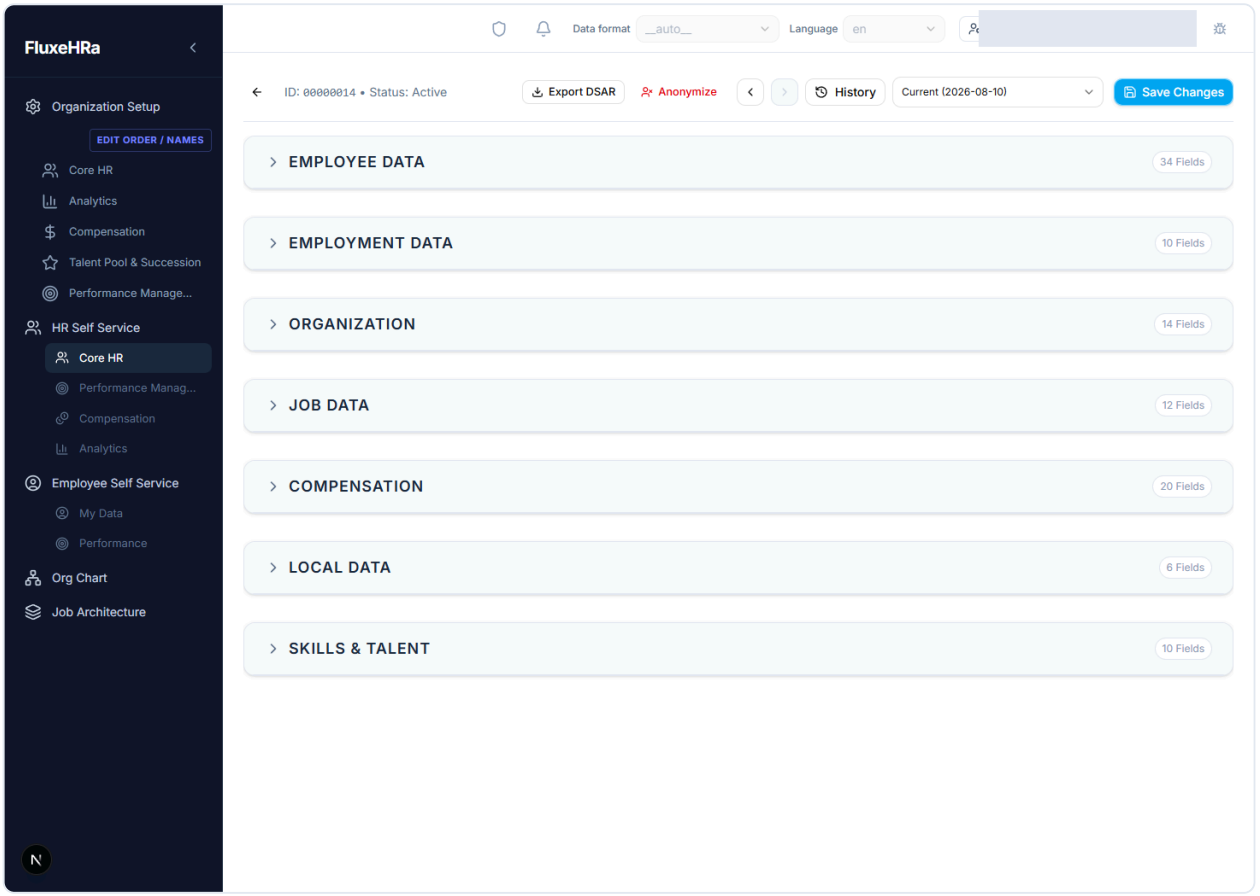
- **Montrer:** HR Self Service → New Hire; public token page
- **Tester:** `npm run test:employee-data-request`; manual 90-day token expiry
- **Code / config:** `lib/employee-data-request-*.ts`, public EDR APIs



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

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

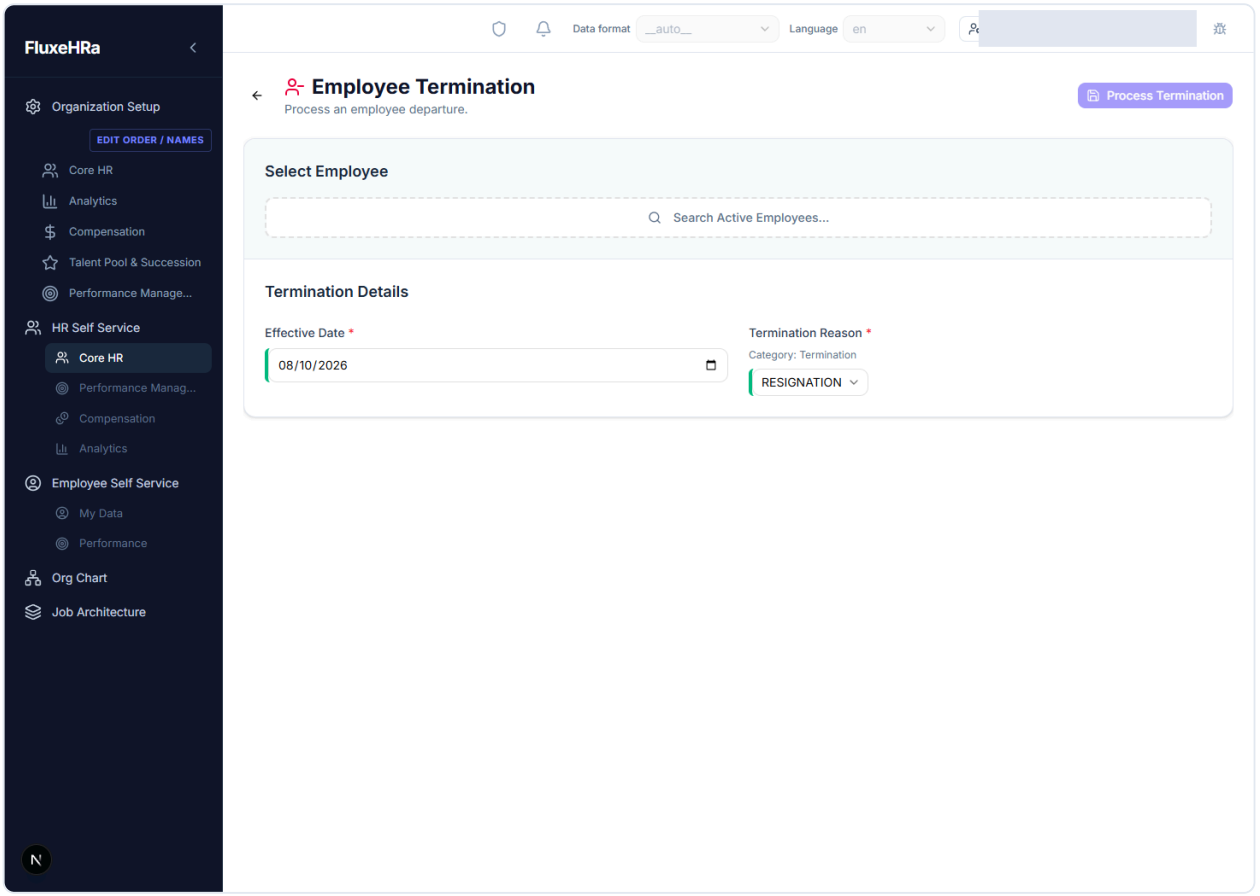
- **Montrer:** HR employee record with effective dating
- **Tester:** Split history on mid-period change; verify prior segment retained
- **Code / config:** `lib/temporal-data.ts`



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

`EV-PROC-TERMINATE` — Sortie / termination

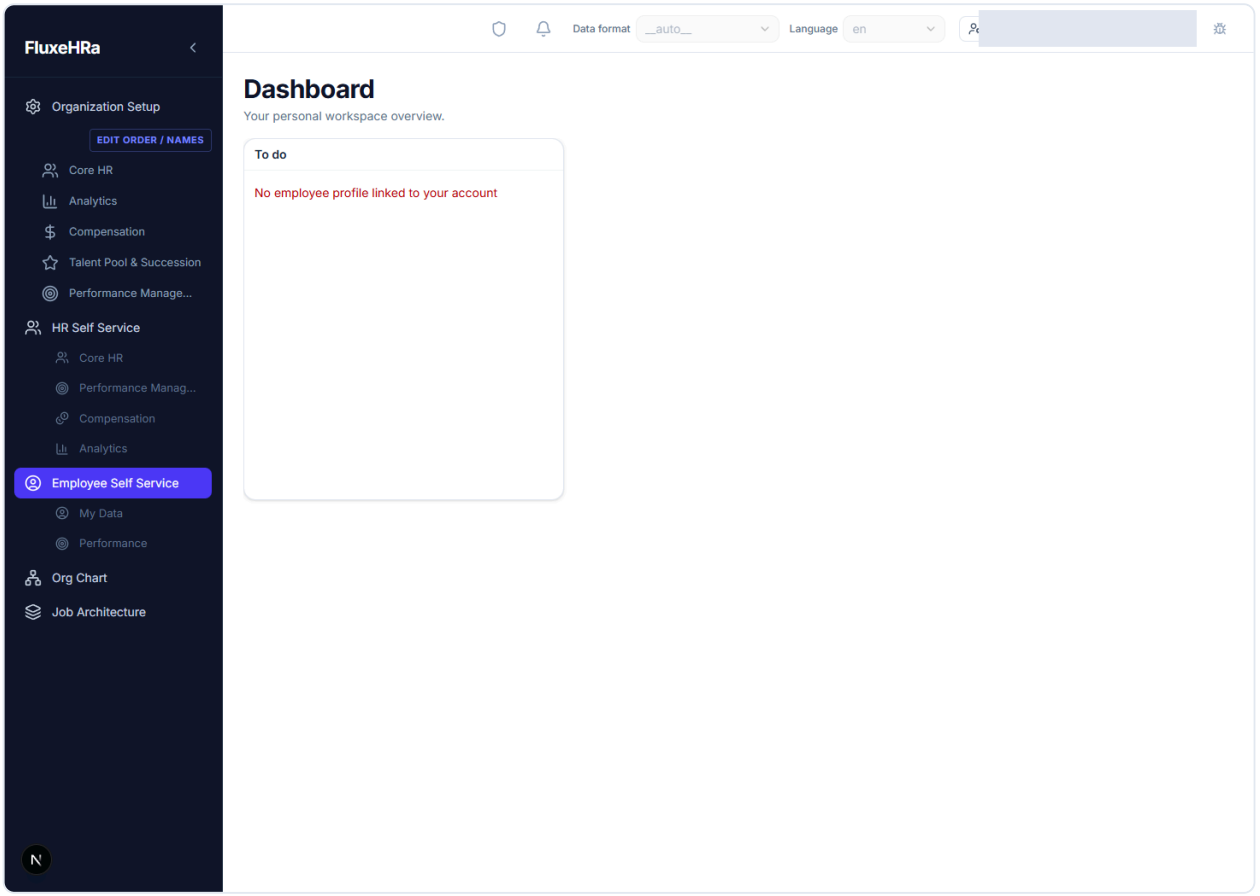
- **Montrer:** HR Self Service → Termination
- **Tester:** Set end dates/status; confirm lifecycle event
- **Code / config:** HR termination route under `hr-self-service/termination`



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

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

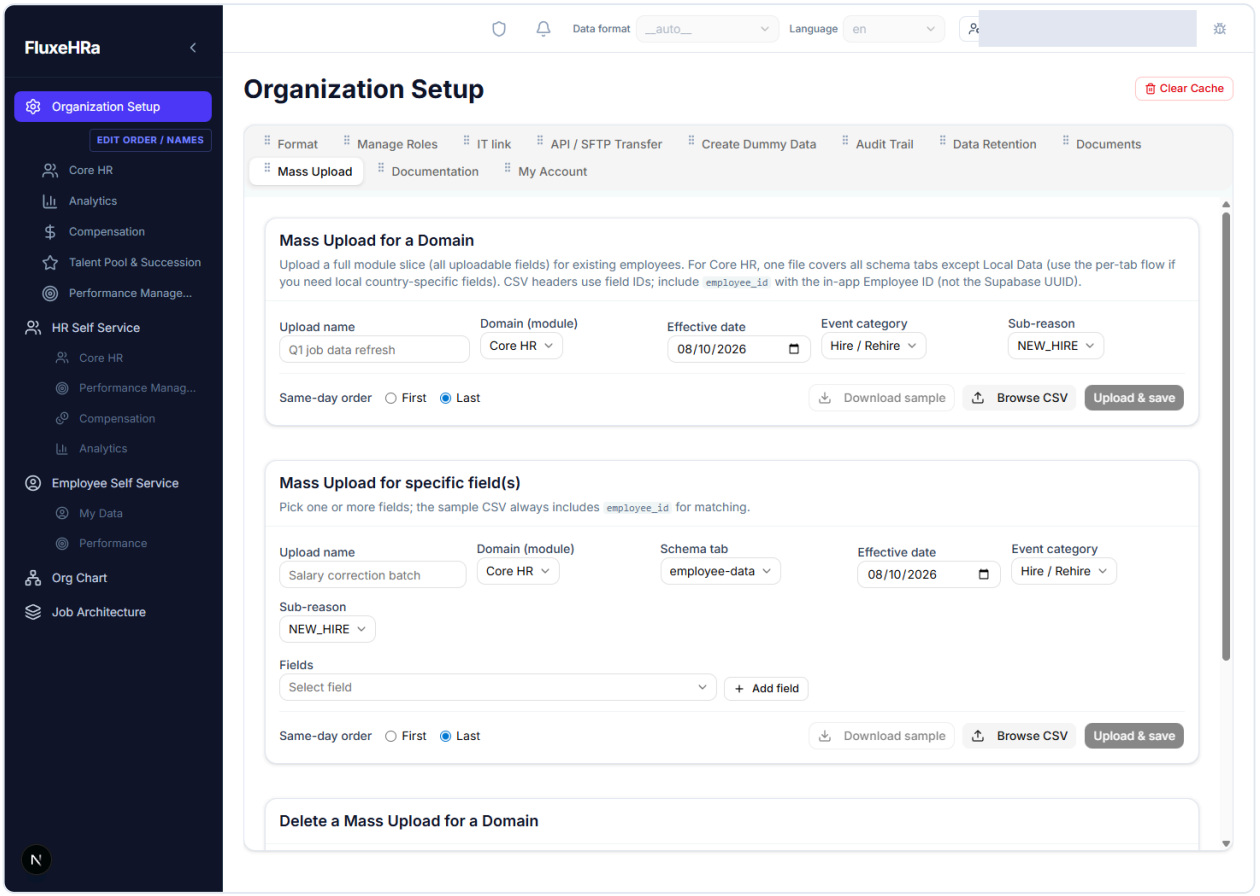
- **Montrer:** My Data / My Team workflow fields; HR notification
- **Tester:** Submit change; approve/apply as HR
- **Code / config:** `lib/self-service-submit-auth.ts`



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

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

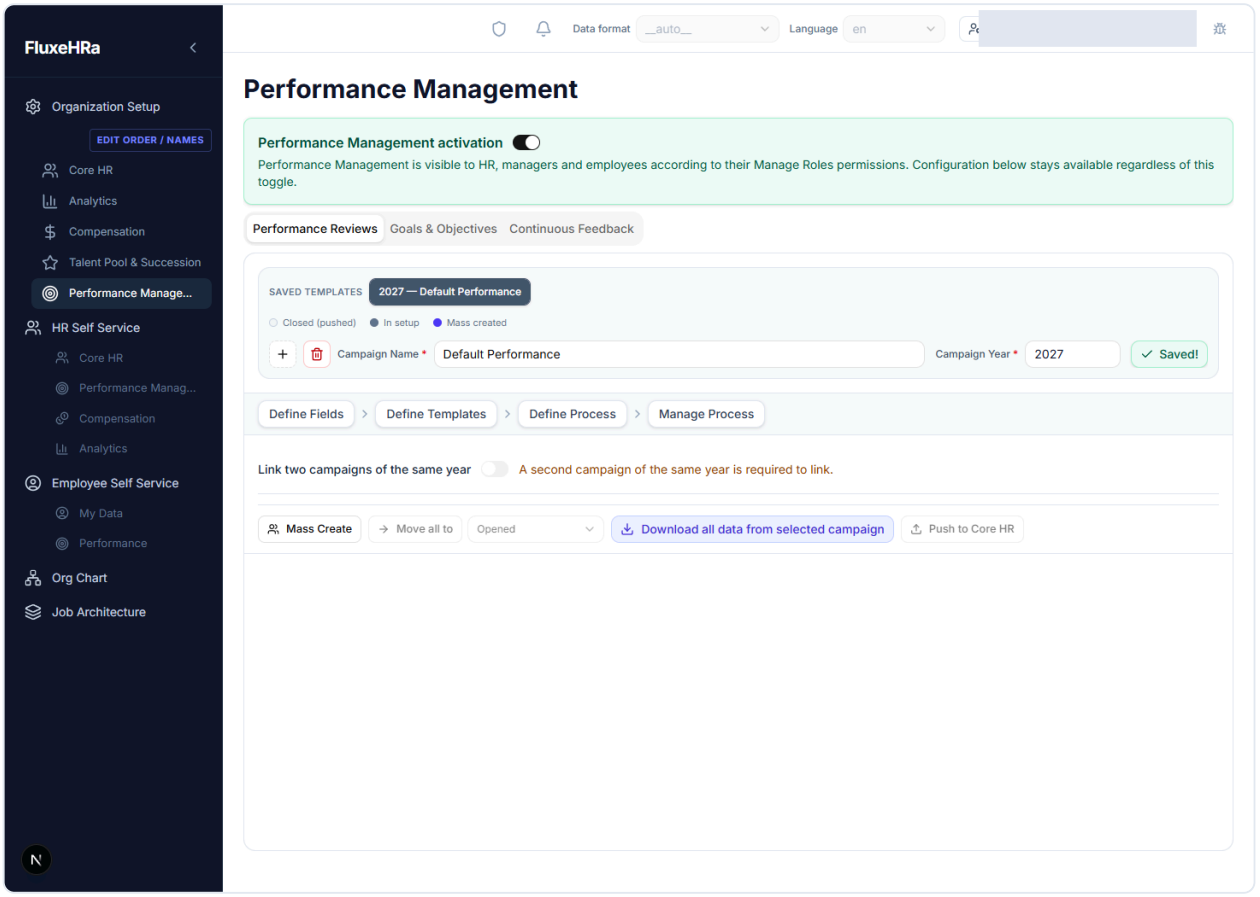
- **Montrer:** Mass Upload tab; batch list
- **Tester:** Commit then delete/rollback batch; audit events present
- **Code / config:** `/api/admin/mass-upload/*`



`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)

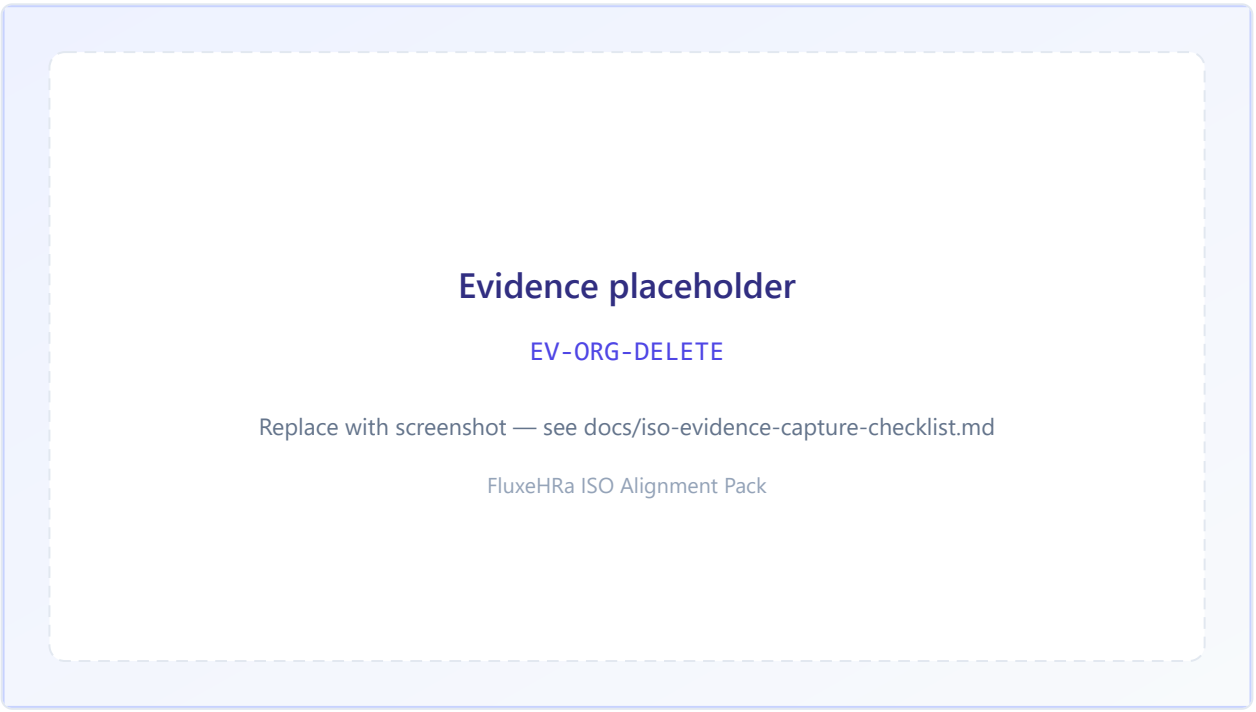
`EV-PROC-LEARNING` — Conformité Learning

- **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

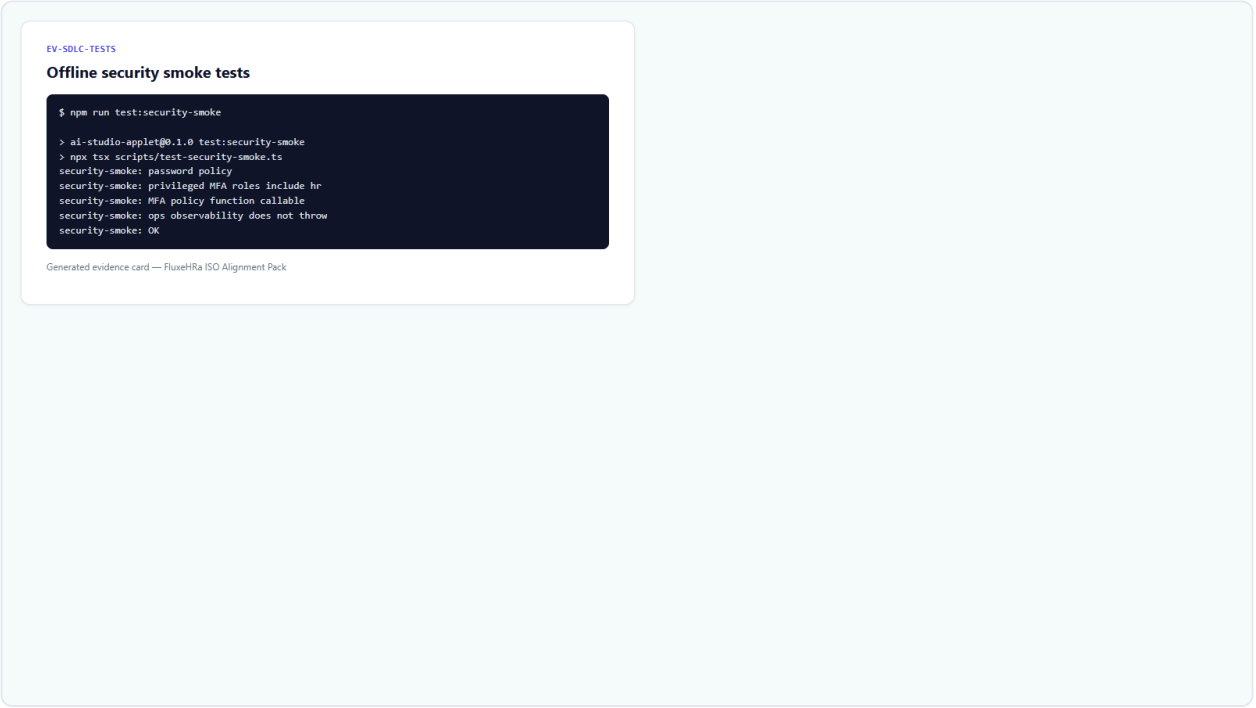
- **Montrer:** SU Admin delete organization (disposable org only)
- **Tester:** Confirm cascade removes org tables, storage prefixes, member auth users
- **Code / config:** `lib/delete-organization-cascade.ts`



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

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

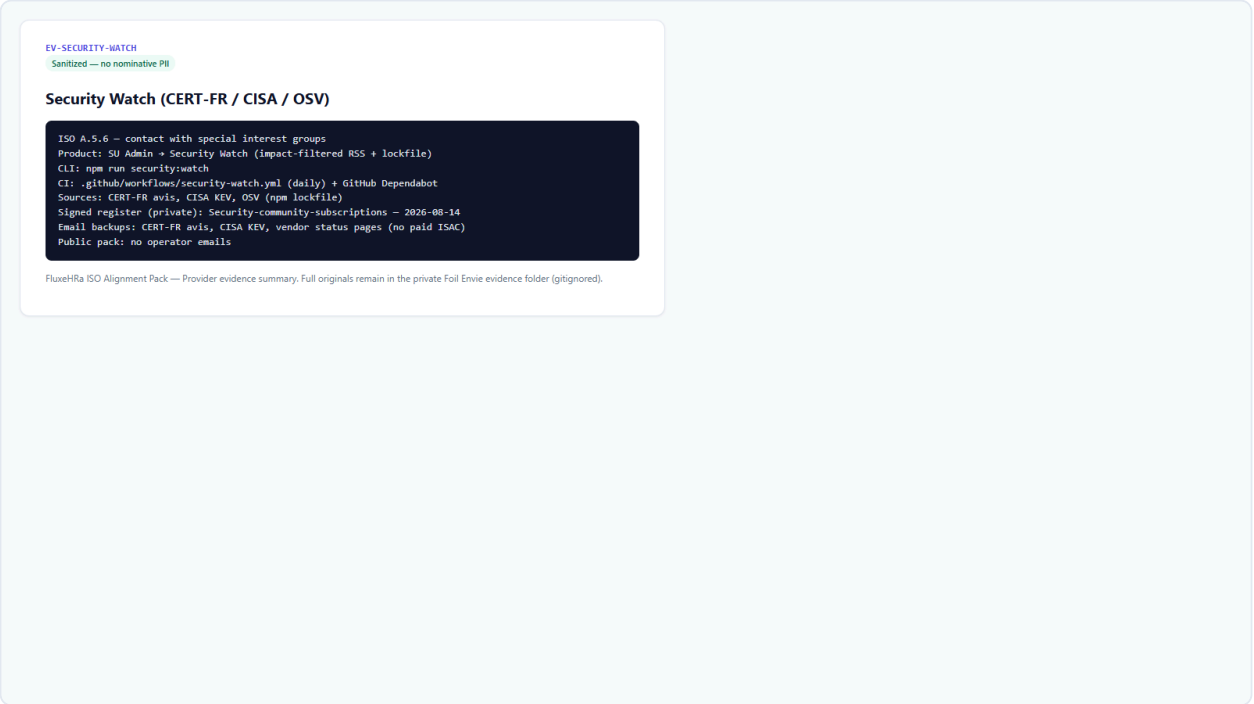
- **Montrer:** CI/local test run output; migration history
- **Tester:** `npm test`; `npm run test:employee-data-request`; `npm run lint`; GitHub `security-tests` workflow
- **Code / config:** `lib/__tests__/`, `lib/performance/__tests__/`, `supabase/migrations/`, `.github/workflows/security-tests.yml`



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

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

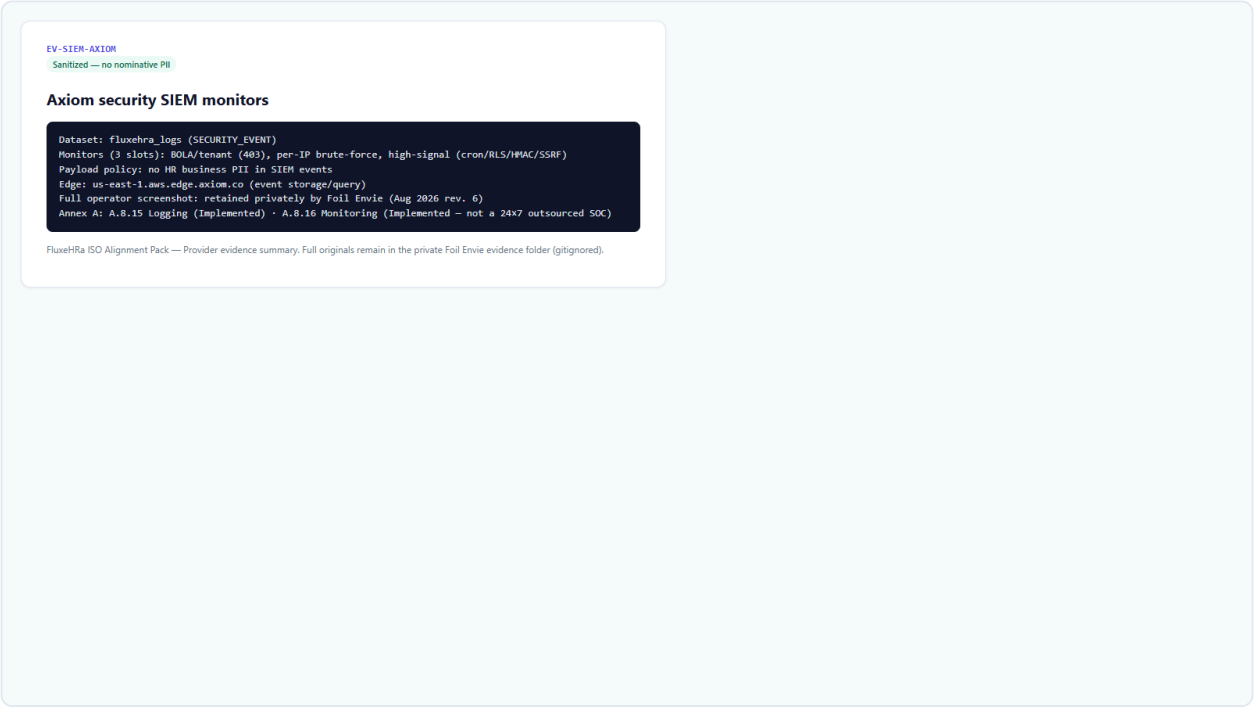
- **Montrer:** Sanitized card: SU Admin Security Watch sources + daily GitHub Action + Dependabot — no operator emails
- **Tester:** Run `npm run security:watch`; open SU Admin → Security Watch; confirm daily `security-watch.yml` + Dependabot
- **Code / config:** `lib/security-watch.ts`, `app/api/su-admin/security-watch/route.ts`,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

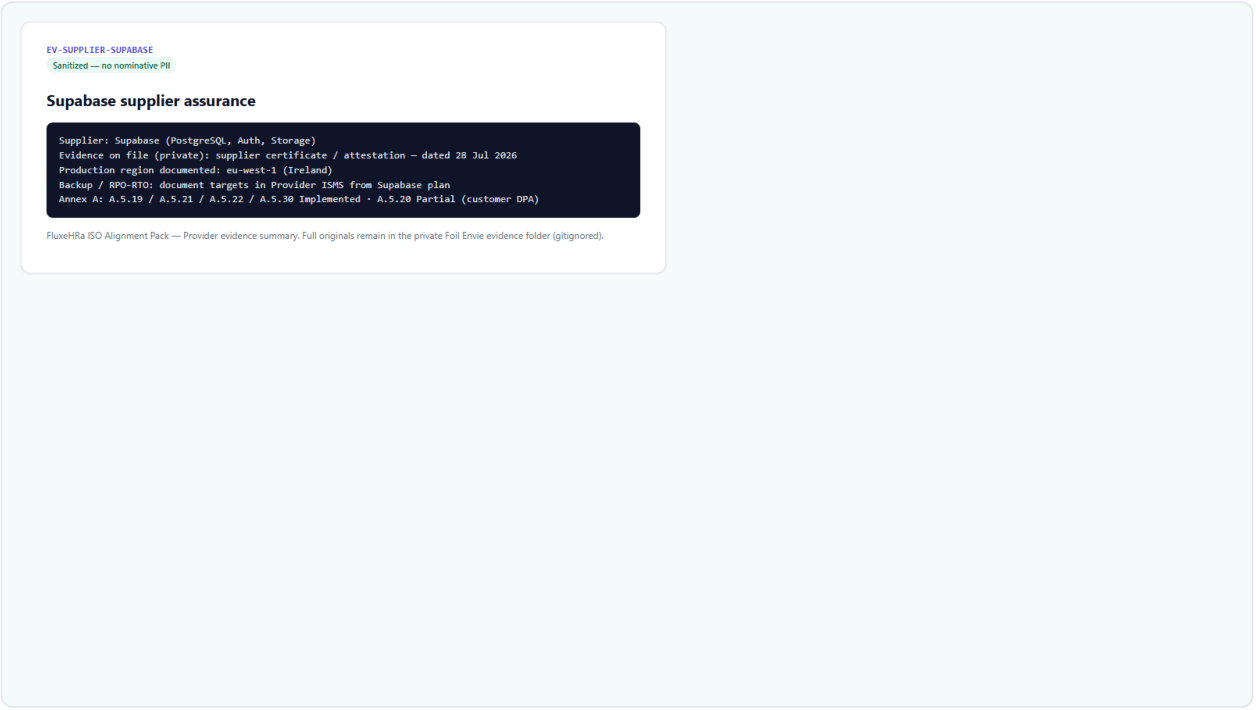
`EV-SUPPLIER-VERCEL` — Assurance fournisseur Vercel (synthèse)

- **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)

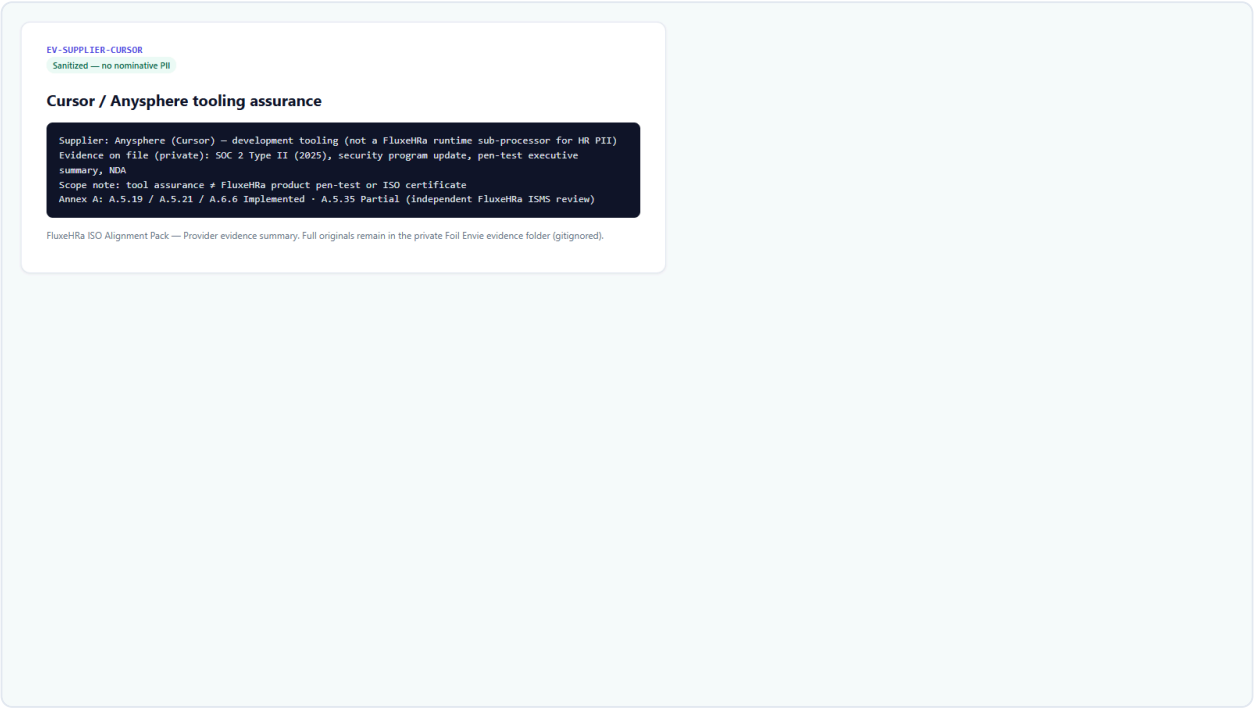
- **Montrer:** Sanitized evidence card: certificate/attestation on file (Jul 2026) — region eu-west-1
- **Tester:** Annual re-review; document backup plan RPO/RTO in Provider ISMS
- **Code / config:** Provider file (private); Trust Center hosting section



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

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

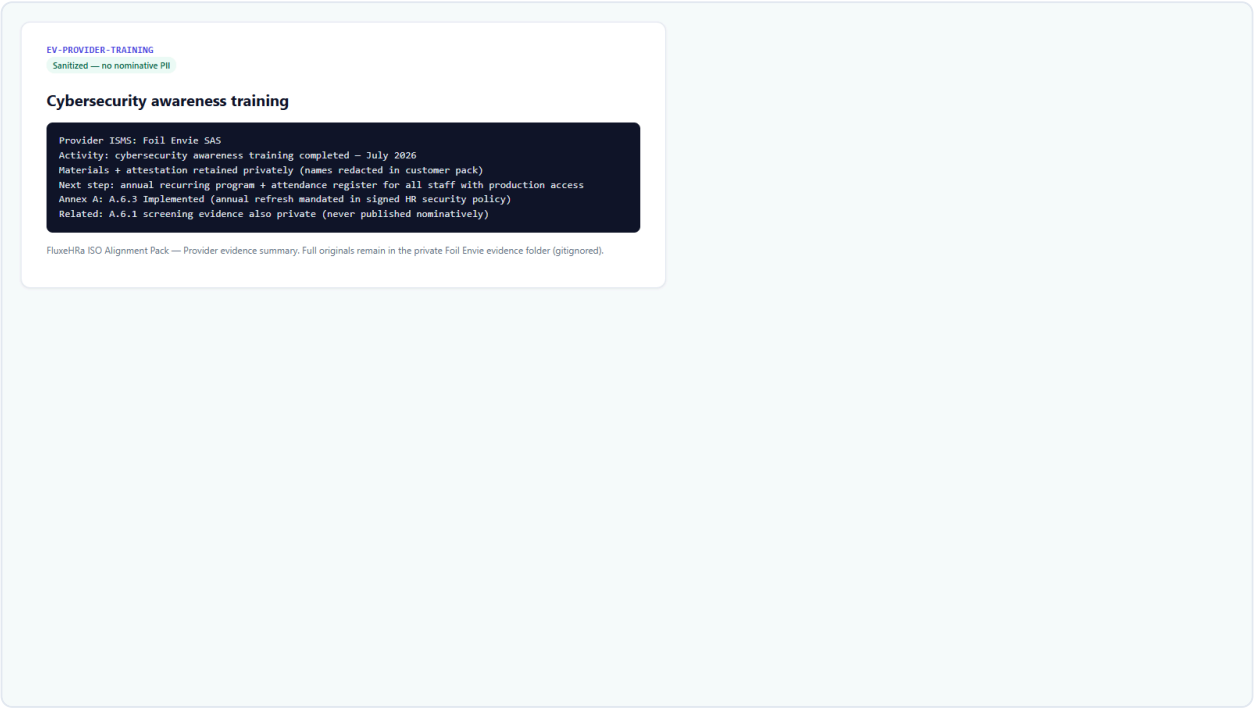
- **Montrer:** Sanitized card: SOC 2 Type II + security program / NDA on file for development tooling
- **Tester:** Does not replace FluxeHRa pen-test; keep tool assurance separate from product SoA
- **Code / config:** Provider file (private)



`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 (lignes `SMSI éditeur (Foil Envie)` du §3)

↓ 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 Vercel.

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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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