Offline Learning Readiness Checklist

The two halves of offline learning — packaging content for the device, and syncing the learning record back — with the standards facts that make each one work.

A. Content packaging & download

- [ ] Pick the download path: native app, or PWA (service worker + Background Fetch)
- [ ] Offer quality tiers at download; default to a data- and storage-light tier
- [ ] Show the storage cost up front; cap 'download all' to a storage budget
- [ ] Ship captions and transcripts inside the package — WCAG 2.1 AA applies offline
- [ ] For DRM video, set the persistent-license lifetime to exceed the offline window

B. Offline tracking with xAPI

- [ ] Build on xAPI or cmi5, not SCORM alone, when offline tracking matters
- [ ] Write each event as an xAPI statement to on-device storage (IndexedDB)
- [ ] Set the real timestamp AND a client-side UUID on every statement
- [ ] Capture video watch events with the xAPI Video Profile

C. Sync & token refresh

- [ ] Queue statements locally; flush them to the LRS in batches on reconnect
- [ ] Retry the flush until every statement is acknowledged by the LRS
- [ ] Refresh or re-fetch the auth token on reconnect — it may have expired
- [ ] Trigger the flush with Background Sync (web) or the app's equivalent

D. Conflict reconciliation on reconnect

- [ ] Trust append-only statements: the LRS de-duplicates them by UUID
- [ ] Define a rule for mutable state: last-write-wins by the real timestamp
- [ ] Prefer a 'furthest progress' merge so a learner is never sent backward
- [ ] Test the two-device offline case before you ship



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This checklist covers both halves of offline learning: packaging content for the device and syncing xAPI records back. Our seven-volume handbook covers the video side of it: start with Volume 3 for players, DRM and persistent licenses, then Volume 1 for light encoding tiers and Volume 4 for captions and accessible audio.

WHAT YOU WILL FIND INSIDE

- DRM and persistent licenses for downloads
- Low-bitrate encoding tiers for small storage
- Players that keep working without a network
- Captions and accessibility that travel offline

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Vol. 1 · Video Encoding — pixels and color to H.264, HEVC, AV1, quality metrics and AI

Vol. 2 · Video Streaming I — network transport, contribution and ingest, HLS, MPEG-DASH, CMAF

Vol. 3 · Video Streaming II — ABR, CDNs, players, WebRTC, DRM and the economics of delivery

Vol. 4 · Audio for Video I — PCM, codecs, loudness, accessibility, real-time voice processing

Vol. 5 · Audio for Video II — jitter buffers, lip sync, Atmos, quality metrics, neural codecs

Vol. 6 · AI for Video I — models and inference, computer vision, speech, search, generative video

Vol. 7 · AI for Video II — real-time pipelines, agents, serving, cost, compliance, verticals

Letting learners study offline and sync progress later?

We will design the download, storage and xAPI sync flow for your course app and test the two-device offline case before release. 250+ video products shipped since 2005.

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