

Breem Ads Screens System Guide

Full Story from Four Perspectives (Backend • Dashboard •
Android App • Device)

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— Update the TOC in Word to refresh —

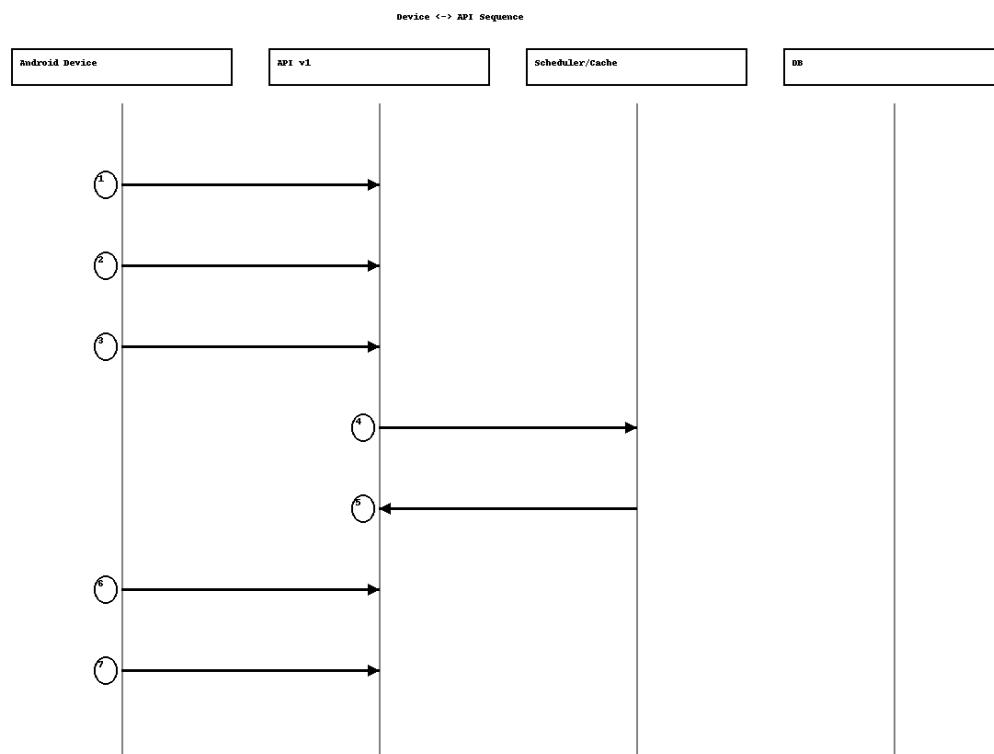
Executive Summary

This guide narrates the operational lifecycle of the Breem Ads Screens system—backend, admin dashboard, and Android TV player—with an auto-generated TOC and sequence diagrams to visualize data flow.

Backend (Laravel) Perspective

- Models: Ad, AdSchedule, Screen, Place, PlaybackLog, ScreenLog.
 - Services: AdSchedulerService (Playlist + Fallback + ETag + Cache), Screen ApiService / HeartbeatService, DeviceConfigService, PlaybackService.
 - Observers: Flush per-screen playlist cache on impactful changes.
 - ffprobe: Auto-detect video duration on upload; otherwise require manual input.
 - Jobs: Screen health (offline) notifications; expiring ads checker.
 - Permissions: ads.* , screens.* , places.* , reports.* , settings.*

Device API v1 Sequence



Legend:

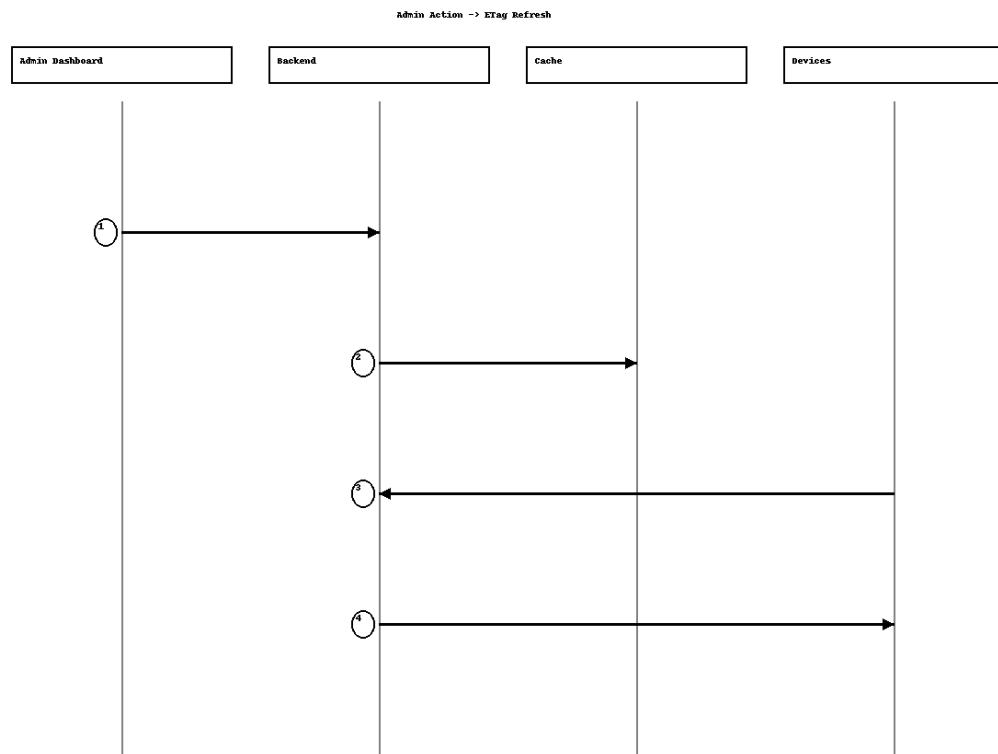
- 1) Handshake: bind device, receive screen_id and config.
 - 2) Config: fetch with ETag.
 - 3) Playlist: GET with If-None-Match (may return 304).
 - 4-5) Scheduler builds playlist and returns ETag and items.

- 6) Playbacks: proof-of-play (single or batch).
- 7) Heartbeat: periodic health update and logging.

Admin Dashboard Perspective

Upload creatives (video/image) with AR/EN titles & descriptions, submit for approval, approve/reject, activate/deactivate, assign ads to screens with play order, and define schedules. Monitor online/offline status and export performance/uptime reports.

Admin Actions -> Device Refresh



Legend:

- 1) Approve/assign/schedule from dashboard.
- 2) Invalidate per-screen cache (ETag refresh).
- 3) Devices poll playlist with If-None-Match.
- 4) Backend responds with new ETag/items.

Android Developer Perspective

- Stable device_uid + OkHttpClient interceptor adding X-Device-UID.
- Room for Config/Playlist/PlaybackQueue.
- ExoPlayer + SimpleCache; prefetch heavy items.

- ETag/304 for playlist/config efficiency.
- Offline: keep playing from cache, queue playbacks, flush later.
- Backoff for 5xx/429; re-handshake on 401/403.

Device User Perspective

- Seamless playback with or without connectivity.
- Dashboard changes appear promptly without manual intervention.
- Fallback ensures no blank screen.

Quick Checklists

Backend

- ETag refreshes on impactful changes.
- Fallback always present.
- ffprobe configured or validation enforced.
- Jobs healthy; Slack optional.

Dashboard

- Create/approve/assign/schedule without errors.
- Monitoring updates statuses; alerts can be acknowledged.
- Reports export to CSV.
- Bilingual UI + RTL for Arabic.

Android

- X-Device-UID on every call.
- ETag/304 handling implemented.
- Prefetch + SimpleCache enabled.
- Playback queue + reliable flush.
- Stable heartbeat; backoff; UTC time.