

Android Cast — alpha release & QA

From ALPHA.md

Table of contents

- Alpha scope (what we ship)
- Recommended defaults (both devices)
- Feature freeze checklist (engineering)
- Alpha app sign-off (manual QA)
 - A. Smoke (required — all must pass)
 - B. Resilience (required)
 - C. Settings matrix (pick one row for official alpha demo)
 - D. Regression guards (quick)
 - E. Known limitations (not alpha blockers)
- Log capture (when something fails)
- Alpha backend (optional for LAN-only alpha)
- Ending feature freeze

Source: ALPHA.md — section links work in PDF viewers that support internal anchors.

Alpha scope (what we ship)

In scope	Out of scope (frozen)
LAN discover → PIN → cast → stop	Internet relay, TLS on stream
UDP or TCP transport (must match on both devices)	QUIC, WebRTC, USB-tether transport in UI
H.264 + AAC (Android 10+ audio)	Passthrough video, Opus/Speex as default
Single receiver per cast session	1:N multi-receiver (disabled in CastConfig)
Stream protection None (default)	FEC/NACK soak required for alpha sign-off
Screen capture (full / user-choice on API 34+)	Secondary-display capture, Miracast in-app
Camera cast (API 29+, best-effort)	Live sender mirror while casting
Receiver playback + notification stop	Play Store / AdMob production

Code gate: CastConfig.ALPHA_FEATURE_FREEZE = true hides experimental transports and turns off multi-receiver selection.

Recommended defaults (both devices)

Set in **Settings** (or use fresh install defaults):

Setting	Sender	Receiver
Transport	UDP	UDP
Stream protection	None	None
Quality	Medium	Medium
Resolution	Adaptive (or HD 720p if rotation is shaky)	—
Video codec	Auto	Auto
Audio	On (if API 29+)	Play incoming audio: On
Capture mode	Full screen (or User choice on Android 14+)	—
PIN	Same on both (default 1234)	Same

Rotation soak: On Mediatek / Freeme senders (e.g. BL6000), prefer **system rotation lock ON** during first alpha pass; then repeat with lock **OFF** to validate debounced reconfigure.

Feature freeze checklist (engineering)

Item	Status
ALPHA_FEATURE_FREEZE — UDP/TCP only in settings	Done
Multi-receiver disabled for alpha	Done
Stored QUIC/WebRTC transport clamped to UDP on load	Done
Camera strings (permission vs unavailable)	Done
README matches CastConfig / CastSettings defaults	Done
Receiver: keyframe idle grace + debounced sender resize	Done (verify on soak)
Preview paused during cast (single MediaProjection)	Done
Developer-only: FEC, QUIC, USB-tether, immersive presets	Gated (dev settings)

Alpha app sign-off (manual QA)

Run on **two physical devices**, same Wi-Fi subnet. Record build: About / versionName from APK, git commit, date.

A. Smoke (required — all must pass)

#	Step	Pass
A1	Install same debug/release APK on sender + receiver	■
A2	Receiver: Receive → Start listening → notification *Listening* / *Ready*	■
A3	Sender: Send → discover receiver → correct PIN → approve capture	■
A4	Video appears on receiver within 15 s of auth	■
A5	Audio audible (if enabled and API 29+) within 20 s	■

A6	Sender notification shows *Casting* with resolution	■
A7	Stop from sender notification → stream ends, receiver returns to idle	■
A8	Stop from receiver notification → sender stops cleanly	■
A9	Second cast without reinstall (A2→A7 again)	■

B. Resilience (required)

#	Step	Pass
B1	Sender home → cast 5 min, no reboot / ANR	■
B2	Receiver app to background 2 min → return → video recovers or clean idle	■
B3	Receiver rotate once → video continues or recovers within 10 s	■
B4	Sender rotate with rotation lock ON → 5 min stable	■
B5	Sender rotate with lock OFF (optional / device-specific) → no permanent freeze; note if reboot	■

C. Settings matrix (pick one row for official alpha demo)

Profile	Transport	Protection	Use
Alpha default	UDP	None	Primary sign-off
Fallback	TCP	None	If UDP glitches on your AP

#	Step	Pass
C1	UDP + None: 10 min soak	■
C2	(Optional) TCP + None: 10 min soak	■

D. Regression guards (quick)

#	Step	Pass
D1	Wrong PIN → clear error, no crash	■
D2	Mismatched transport (sender TCP / receiver UDP) → fails fast with message	■
D3	Camera mode (if used): permission grant → cast 2 min	■
D4	Calibration test mode → pattern on receiver	■

E. Known limitations (not alpha blockers)

- No TLS; LAN cleartext.
- UDP may drop frames under congestion.
- No live preview on sender while casting.
- Some apps silent under playback capture policy.
- Heavy rotation on some OEMs may still stress system WFD/WM (watchdog) — document device + lock state.

Alpha approved when: all **A**, **B1–B4**, and **C1** pass on your reference sender + receiver pair.

Log capture (when something fails)

From repo root:

```
./scripts/alpha-qa-logcat.sh SENDER_SERIAL RECEIVER_SERIAL
```

Or manually:

```
adb -s SENDER logcat -s ScreenCastService:* ReceiverCastService:* AndroidCast:* SenderScreenPreview:*
adb -s RECEIVER logcat -s ReceiverCastService:* AndroidCast:*
```

Alpha backend (optional for LAN-only alpha)

LAN demo does **not** require OTA/crash backend. For **full alpha** with updates and crash upload:

Item	Notes
Host examples/ota/v0/	See OTA.md
Deploy crash reporter	See CRASH_REPORTER.md
Configure URLs	Developer settings or local.properties

Ending feature freeze

1. Complete sign-off table above; note devices + APK build id in git tag message.
2. Tag release on master per GIT_FLOW.md.
3. To re-enable experiments on a dev branch: set `CastConfig.ALPHA_FEATURE_FREEZE = false` and restore `MULTI_RECEIVER_ENABLED` as needed.

Post-alpha priorities: rotation-stable encode path, encoder thumbnail on sender, secondary-display capture (roadmap D).