

惟谨家庭（Family Comms）项目详细报告

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一、项目概述 / Project Overview

惟谨家庭（Family Comms）是为一家四口定制的家庭通讯网站，提供文字、语音与视频通话，支持跨网络使用，并可作为手机桌面快捷方式运行。

Weijin Family (Family Comms) is a private family communications site for four members, supporting text chat, audio, and video calls across networks, and can be used as a home-screen web app.

二、目标与范围 / Goals & Scope

目标：简单稳定、低成本维护、跨设备可用、界面中英文双语。

Goals: simple and stable, low maintenance cost, cross-device access, bilingual UI (CN/EN).

三、主要功能 / Key Features

- 文字聊天（90 天历史记录）
- 语音通话与视频通话（WebRTC）
- 固定房间 family + 固定口令 Sr@20050829（自动进入）
- 成员列表固定显示 weijin / sunran / gyl / syx，便于快速呼叫
- 同名新设备登录会踢下线旧设备
- 管理员 weijin 可强制其他成员下线
- PWA：可添加到桌面，名称“惟谨家庭”
- 呼叫提醒：铃声 + 振动 + 循环提醒
- iOS 音频解锁提示与适配

Features: text chat (90-day history), audio/video calls, fixed room + passcode, fixed roster for quick calling, replace same-name sessions, admin kick, PWA install, ring/vibrate alerts, and iOS audio unlock fixes.

四、系统架构 / Architecture

前端：单页应用（HTML/CSS/JS）。

后端：Cloudflare Workers + Durable Objects，负责信令、在线状态、消息广播。

媒体：WebRTC，跨网使用 TURN 服务器保障连通性。

Frontend: single-page app. Backend: Cloudflare Workers + Durable Objects for signaling, presence, and message broadcast. Media: WebRTC with TURN for cross-network connectivity.

五、部署与运行 / Deployment & Ops

域名：call.qxyx.net

部署：wrangler deploy

仓库：github.com/tuina120/family-comms

TURN 服务器已部署在独立 VPS，用于跨网络通话（凭据不在文档中公开）。

Domain: call.qxyx.net; Deployment via wrangler; Repo: github.com/tuina120/family-comms. TURN server is deployed on a VPS for cross-network calls (credentials are not included here).

六、权限与安全 / Access & Security

仅家庭成员使用，固定口令；管理员权限由 weijin 持有。

Private use for family only with a fixed passcode; admin rights assigned to weijin.

七、已解决问题 / Resolved Issues

- iOS 设备无声或音频解锁失败
- 跨网络无法语音/视频
- 呼叫只响一声
- 远端黑色视频块

Resolved: iOS audio unlock, cross-network media, short ring, and black video tiles.

八、现状与建议 / Current Status & Recommendations

当前系统运行正常，满足家庭沟通需求。建议定期更新浏览器或 PWA，并在更换设备后重新启用通知权限。

System is stable and meets family needs. Keep browsers/PWA updated and re-enable notifications after device changes.