WebRTC Audio Troubleshooting - Field Runbook

Fora Soft Learn

Five ordered checks, the number to read at each, and the fix - on one page.

Step 0 - classify before you touch anything

One-way or two-way?	Isolates the failing direction - a send path or a receive path.
Silence / distortion / echo?	Silence -> Check 1. Distortion -> Check 2 or 4. Echo -> Check 3.

The five checks - run top to bottom, stop at the first that fires

1 Device & permissions

Read: sender audioLevel ~ 0; permission 'denied'
Fix: Unmute OS; re-grant; pick the right input device.

2 Network path

Read: packetsLost rate; jitter; concealedSamples rate
Fix: Enable FEC/RED; let the jitter buffer adapt.

3 Echo cancellation

Read: echoCancellation = false? on speakerphone?
Fix: Enable AEC; the reliable fix is headphones.

4 Sample-rate mismatch

Read: rate at capture vs codec (48 kHz) vs AudioContext
Fix: Insert a resampler at the boundary; never force a rate.

5 Packet capture

Read: webrtc-internals dump; Wireshark RTP stream
Fix: Find dropped/mismatched media on the wire (TURN, SDP).

The dashboard: which getStats field is which

audioLevel	Sender media-source. 0 = silence, 1.0 = 0 dBov. Flat 0 while talking = dead mic.
packetsReceived	Inbound. Not climbing = no media arriving at all (firewall/NAT).
packetsLost / jitter	Inbound. Loss rate + arrival-timing spread (RFC 3550 A.8, seconds).
jitterBufferDelay	Inbound. / jitterBufferEmittedCount = avg time audio waited.
concealedSamples	Inbound. Synthesized audio covering gaps; climbing fast = distortion.

Remember

- [ ] Classify first: one-way vs two-way, and silence / distortion / echo.
- [ ] Run the five checks in order - ~7 in 10 tickets end at Check 1 or 2.
- [ ] Sample every getStats value TWICE a second apart; use the rate of change, not the total.
- [ ] Flat sender audioLevel while speaking = muted/wrong device - the network is irrelevant.
- [ ] Loss < 1% inaudible; 2-5% noticeable clicks; > 5% severe without redundancy.
- [ ] Echo with AEC on? Ask 'speakerphone or Bluetooth?' before touching code.
- [ ] Wrong pitch/speed with CLEAN network stats = sample-rate mismatch, not loss.
- [ ] Reach for Wireshark LAST, not first - it is the most expensive check.