

ElevenLabs Outbound Calling Implementation Guide

A step-by-step engineering guide to shipping outbound AI phone calls with ElevenLabs Conversational AI + telephony — architecture, API flow, call-flow design, and a compliance checklist.

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This guide is the field manual I hand to engineers before they build a production outbound voice agent on ElevenLabs Conversational AI. It expands on the blog post with concrete templates, decision tables, and checklists you can lift directly into a build. It assumes you already know why you want an outbound voice agent — reactivation, qualification, reminders, fast first-touch follow-up — and you now need to ship one that a real business can put on a live number without getting spam-flagged or sued.

1. Reference Architecture

Hold three responsibilities separately in your head. Blurring them is the most common cause of a build that works in a demo and falls apart in production.

Layer	Owns	Technology
Agent runtime	Speech-to-text, LLM reasoning, text-to-speech, turn-taking, interruption handling	ElevenLabs Conversational AI
Carrier	Originating the call, media transport, caller ID, recording legs	Twilio (number import or SIP trunk / media stream)
Orchestrator	Who to call, why, with what context, retries, compliance gates, CRM write-back	Your backend (Python/Node)

Choosing your telephony path

Requirement	Native number import	BYO Twilio media stream
Time to first call	Hours	Days
Warm human transfer	Limited	Full control
Recording into your own storage	Limited	Yes
Ops complexity	Low	High
Best for	Straightforward campaigns	Tight CRM/compliance control

Start native. Graduate to the media-stream path only when a specific requirement — usually warm transfer or self-hosted recording — forces it.

2. The Outbound Call API Flow

The whole loop is: your backend decides to call, hits the outbound call API with context, ElevenLabs originates and runs the agent, and a post-call webhook returns the result for CRM logging.

```
POST https://api.elevenlabs.io/v1/convai/twilio/outbound-call
xi-api-key: $ELEVENLABS_API_KEY
Content-Type: application/json

{
  "agent_id": "agent_xxx",
  "agent_phone_number_id": "phnum_xxx",
  "to_number": "+14155550142",
  "conversation_initiation_client_data": {
    "dynamic_variables": {
      "prospect_name": "Jordan",
      "company": "Northgate Dental",
      "reason": "following up on your quote request",
      "crm_contact_id": "cnt_88421",
      "timezone": "America/Chicago",
      "consent_source": "web_form_2026-07-18"
    }
  }
}
```

3. Dynamic Variable Schema

Use this as your standard payload. Keep it small, structured, and consistent across every agent so your webhook handler is uniform.

Variable	Purpose	Required
prospect_name	Personalized opening	Yes
company	Context and credibility	Optional
reason	Specific call purpose in the first line	Yes
crm_contact_id	Thread for post-call write-back	Yes
timezone	Enforce legal calling hours	Yes
consent_source	Proof the call is lawful	Yes
transfer_target	Which human/team to warm-transfer to	Optional

4. Call-Flow Node Template

Model the conversation as nodes, not one mega-prompt. Each node has tight instructions and only the tools it needs.

1. **Greeting** — identify caller and reason; confirm you're speaking to the right person.
2. **Qualify** — one or two questions that route the rest of the call.
3. **Book** — call the availability tool, confirm a slot, call the booking tool.
4. **Objection** — handle "not interested / already bought / call me later" with a graceful exit or callback capture.
5. **Transfer** — warm or cold handoff to a human on trigger.
6. **Close** — summarize the agreed next step and end politely.

If a non-engineer on the client side can't read your flow and find the missing branch, your logic lives somewhere that will surprise you in production.

5. Mid-Call Tool (Function-Calling) Pattern

Tools turn a talking brochure into an agent that transacts. Two hard rules: keep them fast (sub-second), and make them idempotent and validated.

```
{
  "name": "book_appointment",
  "description": "Book a slot once the caller confirms date and time.",
  "type": "webhook",
  "url": "https://api.yourbackend.com/tools/book",
  "method": "POST",
  "parameters": {
    "crm_contact_id": "string, from dynamic variable",
    "slot_iso": "string, ISO 8601 in caller local time",
    "service": "string"
  }
}
```

- Reject duplicate writes — an agent may call a tool twice.
- Validate every argument — never trust LLM-generated input blindly.
- Return a short confirmation string the agent can speak naturally.
- Design so the agent can say "let me check that for you" while the tool runs.

6. Post-Call Webhook Handler

A call that isn't logged might as well not have happened. Verify the signature, parse the outcome, write back to the CRM against the contact ID you passed at dial time.

```
function handlePostCall(req) {
  verifyHmac(req.headers['xi-signature'], req.rawBody); // reject forged calls
  const { transcript, analysis, dynamic_variables, recording_url } = req.body;
  const id = dynamic_variables.crm_contact_id;

  crm.updateContact(id, {
    last_call_outcome: analysis.call_successful, // booked / callback / not_interested
    call_summary: analysis.transcript_summary,
    recording_url,
    next_action: deriveNextAction(analysis)
  });

  if (analysis.call_successful === 'not_interested') suppressFromCampaign(id);
  return 200;
}
```

7. Human Handoff Decision Table

Trigger	Transfer type	Fallback if no human
Explicit request for a person	Warm if available	Book callback + capture time
Detected frustration	Warm	Apologize, book callback
High-value / ready to buy	Warm to closer	Book callback, flag priority
Outside business hours	None	Callback booking only

Warm transfer beats cold transfer on conversion because the rep picks up already briefed — but it requires the media-stream architecture so you control both legs.

8. TCPA / Compliance Gate Checklist

Run these as hard gates in your dialer *before* the outbound API is even called. If any fails, the call never originates. This is engineering guidance, not legal advice — get real legal review before dialing.

- Consent captured and stored — source, timestamp, exact agreed language.
- Prospect not on any DNC or suppression list (checked at dial time, not just import).
- Current local time is within legal calling hours for the prospect's time zone.
- Attempt count under your cap (I use three) with a minimum gap between attempts.
- Agent discloses who is calling, on whose behalf, that the call may be recorded, and — increasingly required — that the voice is AI.
- Instant do-not-call honoring wired into the post-call webhook.
- Every call links to a consent record and a transcript for an auditable trail.

9. Cost Planning

Line item	Charged on
ElevenLabs Conversational AI usage	Per minute of agent talk time
LLM (if bring-your-own)	Per token
Telephony (Twilio)	Per minute + number rental

Model a few cents to low-double-digit cents per minute all-in, and always pilot to get the real number before quoting. The economics work when the agent handles volume a human couldn't justify.

10. Build Order Recap

1. One agent on the native path; make a test call to yourself.
2. Add dynamic variables; prove personalization with real CRM context.
3. Design the flow visually before adding branches.
4. Add one fast, idempotent tool; test the failure paths.
5. Wire the post-call webhook with signature verification.
6. Add handoff — cold first, warm if conversion needs it.
7. Run compliance gates before any real dialing; get legal sign-off.

Work With Me

If you want an outbound voice agent architected, built, and shipped with CRM write-back and compliance gates baked in, [work with Syed Husnain Haider Bukhari](#). I build voice and automation systems for teams in the US, UK, and UAE. And if you need to fill the top of the funnel that this agent will call, that's exactly what [ProLeads](#) is for — generate the pipeline, then let the voice agent do a tireless, consistent, lawful first pass.