

Voice Pipeline

Overview

The home runs a fully local, cloud-independent voice pipeline using HA's Assist framework. The pipeline is anchored by a **Home Assistant Voice PE** device in the Bedroom and composed of four add-on components. An Ollama LLM provides conversational AI beyond basic HA commands.

Pipeline Components

1. Wake Word — openWakeWord

Property	Value
Add-on	core_openwakeword v2.1.0
Protocol	Wyoming
Entity	<code>wake_word.openwakeword</code>
Purpose	Passively listens for wake phrase on the HA Voice PE microphone

2. Speech-to-Text

Two local STT options:

Option	Add-on	Version	Best For
Speech-to-Phrase	core_speech-to-phrase	1.4.3	Fast home control commands
Whisper	core_whisper	3.2.0	Free-form speech, better accuracy
HA Cloud	—	—	Fallback cloud STT

Recommendation: Use Speech-to-Phrase as primary for HA commands — it's significantly faster than Whisper for intent-matched phrases.

3. Conversation / Intent Processing

Option	Entity	Notes
Home Assistant	<code>conversation.home_assistant</code>	Built-in intent matching for HA commands
Ollama	<code>conversation.ollama_conversation</code>	Local LLM (qwen3:4b-instruct at 192.168.1.85:11434)

4. Text-to-Speech

Option	Add-on	Version	Notes
Piper	core_piper	2.2.2	Local neural TTS (offline)
Google Translate	—	—	Cloud TTS (requires internet)
HA Cloud	—	—	Nabu Casa cloud TTS

Hardware — HA Voice PE

Property	Value
Device	Home Assistant Voice 0919e8
Model	Home Assistant Voice PE
Manufacturer	Nabu Casa
Firmware	ESPHome 2026.3.2
Area	Bedroom

The Voice PE connects to HA via the ESPHome integration over local LAN.

Controls:

- Physical button on device
- LED ring (color/pattern indicates pipeline state)
- Mute switch
- Wake sound toggle

- Pipeline selector (`select.home_assistant_voice_0919e8_assistant_2`)

Conversation Pipelines

HA supports multiple named pipelines. The Voice PE's `assistant_2` select entity allows switching between pipelines at runtime.

Typical pipelines:

1. **Default** — Speech-to-Phrase → Home Assistant Assist → Piper
2. **LLM** — Whisper → Ollama → Piper
3. **Cloud** — HA Cloud STT → HA Cloud TTS

Announcement Targets

Beyond the Voice PE, TTS announcements can be pushed to any `media_player` entity. Key announcement targets:

Target	Entity	Notes
HA Voice PE	<code>media_player.home_assistant_voice_0919e8</code>	Primary
Bedroom Echo Show 5	<code>media_player.bedroom</code>	Alexa
VLC	<code>media_player.vlc_telnet</code>	Local fallback
Everywhere (MA group)	<code>media_player.everywhere</code>	All speakers

Notes / Gotchas

- The Ollama server runs on a separate machine at `192.168.1.85:11434`. If that machine is off, the Ollama conversation agent will be unavailable — HA Assist built-in handles fallback.
- Whisper model size affects accuracy vs. speed. Check the Whisper add-on configuration for the selected model (tiny/base/small/medium).
- Speech-to-Phrase requires a custom vocabulary configuration to recognize non-standard commands — check add-on settings for custom phrase lists.

- The Voice PE LED ring color indicates pipeline state: idle (off/dim), listening (blue), processing (yellow), error (red) — exact colors depend on ESPHome firmware version.

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