EMV Gate — Device Interface (v1.0)Updated: 20250817-174601Z (UTC)

Overview--------This document describes the HTTP interface a gate device must implement to integrate with the Station App. It focuses on three actions:1) Send Heartbeat2) Read Current Operation3) Set New Operation

Base URL--------http://{station\_ip}:{heartbeat\_port}

Defaults- station\_ip: 127.0.0.1- heartbeat\_port: 3070

Data Types----------Device Heartbeat:- id (string, required) — unique device id (e.g., G1-01)- ip (string) — device IPv4 or IPv6- gateId (string) — gate group (e.g., G1)- side (string) — north | south- type (string) — e.g., entry-reader- status (string) — online | maintenance | fault- ts (string, ISO8601 UTC) — timestamp; server will set to current time if omitted- message (string) — optional diagnostic text

Operation:- inservice\_entry | inservice\_exit | inservice\_bidirect | out\_of\_service | station\_close | emergency

Endpoints---------1) POST /hbRequest body: Heartbeat (JSON)Response: {"ok": true}Notes: Send every 5–10 seconds. Use exponential backoff on failures.

2) POST /hb/bulkRequest body: JSON array of heartbeatsResponse: {"ok": true, "count": N}

3) GET /hb (diagnostic)Returns the Station App's current snapshot, including lastHeartbeat.

4) GET /operation/:deviceIdResponse: {"ok": true, "operation": "<value or null>"}

5) POST /operation/:deviceIdBody: {"operation": "<value>"}Response: {"ok": true}Errors: 400 invalid operation

Technical Requirements----------------------- HTTP/1.1, JSON UTF-8 (application/json). Plain HTTP on LAN; TLS optional.- Devices should maintain time within ±2 minutes (prefer UTC).- Heartbeat cadence: 5–10 seconds; retry with backoff (2s → 4s → 8s → ... up to 60s).- Unique device id (id) per physical unit.- Commands should be applied only when device is online; UI may restrict otherwise.- Station App knobs: heartbeatPort (default 3070), deviceProbePort (default 22/2222).- Optional security: IP allowlist; shared secret header; VLAN separation.- Observability: Station logs requests and keeps a JSON store; devices should log hb success/fail.

cURL Examples-------------# Send single heartbeatcurl -sS -X POST "http://{station\_ip}:{heartbeat\_port}/hb" -H "Content-Type: application/json" -d '{"id":"G1-01","ip":"192.168.1.101","status":"online","ts":"$(date -u +%FT%TZ)"}'

# Read current operationcurl -sS "http://{station\_ip}:{heartbeat\_port}/operation/G1-01"

# Set operationcurl -sS -X POST "http://{station\_ip}:{heartbeat\_port}/operation/G1-01" -H "Content-Type: application/json" -d '{"operation":"emergency"}'

Negative Cases--------------- 400 id required (POST /hb without id)- 400 invalid json (malformed JSON body)- 400 invalid operation (bad operation string)