

Constellation — Analysis API

Integration Guide for External Teams

Version 0.1.0 — Confidential

Base URL

```
https://constellations-api.proudrock-fe5ed166.westus3.azurecontainerapps.io
```

Interactive Documentation

URL Path	Description
/api/v1/docs/public/swagger	Swagger UI — browse and try endpoints live
/api/v1/docs/public	ReDoc — read-friendly API reference
/api/v1/docs/public/openapi.json	Raw OpenAPI 3.1 spec (for code generation)

Authentication

All analysis endpoints require a Bearer JWT token.

Step 1 — Obtain a token

```
curl -X POST $BASE_URL/api/v1/auth/login \  
-H "Content-Type: application/json" \  
-d '{"username": "YOUR_USERNAME", "password": "YOUR_PASSWORD"}'
```

Response:

```
{  
  "access_token": "eyJhbGciOiJIUzI1NiIs...",  
  "refresh_token": "dGhpcyBpcyBhIHJlZnJl...",  
  "token_type": "bearer",  
  "expires_in": 900  
}
```

Step 2 — Use the token

Include the access_token in every request header:

```
Authorization: Bearer eyJhbGciOiJIUzI1NiIs...
```

Step 3 — Refresh when expired

Access tokens expire after 15 minutes. Use the refresh token to get a new pair:

```
curl -X POST $BASE_URL/api/v1/auth/refresh \  
-H "Content-Type: application/json" \  
-d '{"refresh_token": "dGhpcyBpcyBhIHJlZnJl..."}'
```

 Security: Each refresh token is single-use. Reusing a consumed token revokes ALL active tokens for the user.

Endpoints

POST /api/v1/analyze — Run Analysis

Submits biometric KPI data and returns structured results with a scientific narrative.

Request body:

```
{
  "kpi_data": {
    "coherence": 72.5,
    "cognitive_effort": 45.3,
    "rejection": 28.1,
    "frustration": 55.0,
    "stress_intensity": 62.8
  },
  "context_phrase": "consumer product evaluation"
}
```

Request fields:

Field	Type	Req	Description
kpi_data	object	yes	5 biometric KPIs, each 0-100 scale
kpi_data.coherence	float	yes	Speech coherence percentage
kpi_data.cognitive_effort	float	yes	Cognitive effort percentage
kpi_data.rejection	float	yes	Rejection percentage
kpi_data.frustration	float	yes	Frustration percentage
kpi_data.stress_intensity	float	yes	Stress intensity percentage
context_phrase	string	no	Free-text phrase describing the scenario. Auto-generates a contextual dimension profile that directly influences the analysis.
context_text	string	no	Session transcript or notes (max 50k chars). Reserved for future versions — currently accepted but does not influence the analysis.
context_ps	string	no	Context identifier (e.g. "product-evaluation"). Reserved for future versions — currently accepted but does not influence the analysis.
kpi_data.extra_kpis	object	no	Additional KPIs as key-value pairs (0-100). Reserved for future versions — currently accepted but does not influence the analysis.

i About [CLASSIFIED] fields: Some response fields contain the literal string "[CLASSIFIED]". This is expected behavior, not an error. These fields hold internal identifiers that are redacted in the public access tier. All actionable data — emotion names, coordinates, summaries, confidence scores, recommended actions, and the full narrative — is delivered in full.

Response example:

```
{
  "structured_data": {
    "triage": {
      "phase1_classification": "Pattern B",
      "phase2_case": "[CLASSIFIED]",
      "technical_interpretation": "[CLASSIFIED]",
      "coherence_level": "High",
      "cognitive_effort_level": "Low"
    },
    "emotion": {
      "canonical_id": "[CLASSIFIED]",
      "term": "Interest",
      "coordinates": {
        "quadrant": 1, "subquadrant": 2,
        "valence_score": 65.0, "intensity_score": 58.0
      },
      "cognitive_summary": "Active curiosity and focused attention.",
      "emotional_summary": "Positive engagement with moderate arousal.",
      "behavioral_summary": "Sustained eye contact, verbal elaboration.",
      "adaptive_context": "Facilitates learning and exploration."
    },
    "governance": {
      "action_flags": {"flag_1": false, "flag_2": false},
      "policy_applied": "[CLASSIFIED]",
      "rationale": "KPIs within normal parameters.",
      "confidence": 0.92,
      "recommended_actions": ["Continue current approach."],
      "proactive_actions": [{
        "action": "Maintain conversational flow to sustain engagement.",
        "mode": "assist_and_do",
        "action_type": "support",
        "effort_level": "low"
      }]
    },
    "scientific_context": "Behavioral patterns consistent with positive engagement."
  },
  "interpretation": "The participant demonstrates genuine engagement...",
  "metadata": {"model_version": "0.1.0", "latency_ms": 9823.5},
  "warnings": []
}
```

Key response fields:

Field	What you get
structured_data.triage	Pattern classification (coherence_level, cognitive_effort_level)
structured_data.emotion	Detected emotion (term), position in emotion space (coordinates), behavioral summaries
structured_data.governance	Action flags, confidence score, recommended actions, proactive interventions
structured_data.scientific_context	Scientific evidence summary
structured_data.ps_quad.dimensions	4 HCI dimensions with importance scores and rationale
interpretation	Human-readable scientific narrative
metadata.latency_ms	End-to-end processing time in milliseconds

Error responses:

Status	Meaning	Action
401	Invalid or expired JWT token	Re-authenticate via /auth/login
422	Validation error (invalid KPI values, missing fields)	Check request body against schema
429	Analysis queue full	Retry after 5 seconds
504	Analysis timeout (>45s)	Retry — consider simpler input

POST /api/v1/analyze/stream — Stream via SSE

Same request body as /analyze, but streams results as Server-Sent Events. Each analysis component emits an event as it completes.

```
curl -N -X POST $BASE_URL/api/v1/analyze/stream \  
-H "Authorization: Bearer $TOKEN" \  
-H "Content-Type: application/json" \  
-d '{"kpi_data": {"coherence": 72.5, "cognitive_effort": 45.3, ...}}'
```

Event types (in order of emission):

Event	Payload	Description
triage	TriageResult	Pattern classification
ps	PSQuad	Contextual profile — only emitted when context_phrase is provided
emotional	EmotionResult	Emotion identification
governance	GovernanceResult	Policy evaluation
scientific	{scientific_context: ...}	Scientific evidence summary
synthesis	{interpretation: ...}	Final narrative
done	{metadata: ...}	Stream complete — aggregated metadata
error	{error: ..., detail: ...}	Analysis failed

i Each data: line contains a single JSON object. Events arrive as they complete. The done event always arrives last.

POST /api/v1/ps/generate — Generate Contextual Profile

Generates a contextual dimension profile (4 HCI dimensions) from a free-text phrase.

i You don't need to call this separately — passing context_phrase in /analyze generates the profile automatically. Use this endpoint only to inspect the profile independently before running an analysis.

```
curl -X POST $BASE_URL/api/v1/ps/generate \  
-H "Authorization: Bearer $TOKEN" \  
-H "Content-Type: application/json" \  
-d '{"context_phrase": "consumer product evaluation session"}'
```

Response:

```
{  
  "dimensions": [  
    {"hci": "rejection", "importance_score": 85,  
     "rationale": "Direct impact on purchase decision signals.",  
     "failure_description": "Misread buying resistance as disinterest."},  
    {"hci": "stress", "importance_score": 78, ...},  
    {"hci": "coherence", "importance_score": 72, ...},  
    {"hci": "interest", "importance_score": 65, ...}  
  ],  
  "context_profile": "Product evaluation focusing on rejection signals..."  
}
```

Full Example (copy-paste ready)

```
BASE_URL=https://constellations-api.proudrock-fe5ed166.westus3.azurecontainerapps.io  
  
# 1. Authenticate  
TOKEN=$(curl -s -X POST $BASE_URL/api/v1/auth/login \  
-H "Content-Type: application/json" \  
-d '{"username": "YOUR_USERNAME", "password": "YOUR_PASSWORD"}' \  
)
```

```

| jq -r '.access_token')

echo "Token: ${TOKEN:0:20}..."

# 2. Run analysis
curl -s -X POST $BASE_URL/api/v1/analyze \
  -H "Authorization: Bearer $TOKEN" \
  -H "Content-Type: application/json" \
  -d '{
    "kpi_data": {
      "coherence": 72.5,
      "cognitive_effort": 45.3,
      "rejection": 28.1,
      "frustration": 55.0,
      "stress_intensity": 62.8
    },
    "context_phrase": "consumer product evaluation"
  }' | jq .

```

KPI Reference

KPI	Range	Description
coherence	0–100	How logically organized the speech is
cognitive_effort	0–100	Mental effort required to produce speech
rejection	0–100	Degree of rejection or resistance signals
frustration	0–100	Frustration level detected in speech
stress_intensity	0–100	Stress intensity detected in speech

Rate Limits & Timeouts

Limit	Value	What happens
Concurrent analyses	2 at a time	HTTP 429 — retry after 5 seconds
Analysis timeout	45 seconds	HTTP 504 — retry with simpler input
Token lifetime	15 minutes	Use /auth/refresh to renew
Refresh token	Single-use	Reuse revokes all tokens

Support

For API issues, contact the Constellation team directly.