

BMAD Agent Beta: Error Pattern Analysis Report

AGENT IDENTIFICATION: BMAD Agent Beta - Error Pattern Analysis Specialist

MISSION: Deep analysis of actual 500 error patterns and identification of true root causes

DATE: July 25, 2025

COORDINATION: Second agent in sequence, builds on Agent Alpha's environment findings

Executive Summary

After comprehensive analysis of the 500 Internal Server Error patterns, I have identified **multiple critical issues** causing the "Body has already been read" error and subsequent JSON parsing failures. The root causes are **NOT** related to the hallucinated ABACUSAI_API_KEY as initially suspected, but stem from **middleware conflicts, undefined variable references, and request body consumption patterns**.

Critical Findings

1. PRIMARY ROOT CAUSE: Undefined Variable Reference

Location: /app/api/comprehensive-analysis/route.ts:362

Error: ReferenceError: sessionResult is not defined

```
// Line 362 - CRITICAL ERROR
Memory insights failed: ReferenceError: sessionResult is not defined
    at handleAnalysisRequest (webpack-internal:///((rsc))/app/api/comprehensive-
analysis/route.ts:362:13)
```

Analysis: The variable `sessionResult` is referenced at line 362 but is declared inside a try-catch block at line 338. When the Zep session creation fails, the variable remains undefined, causing a ReferenceError that crashes the entire request handler.

2. SECONDARY ISSUE: Middleware Body Consumption

Location: /middleware/hipaa-audit.ts and /middleware.ts

Pattern: Multiple middleware layers attempting to read request body

The HIPAA audit middleware (`withHIPAAAudit`) is **temporarily disabled** in the route file, but the global middleware in `/middleware.ts` is still active and may be consuming the request body before it reaches the API handler.

3. HALLUCINATED API INTEGRATION ISSUES

Locations Found:

- /app/api/comprehensive-analysis/route.ts:79 - Main route
- /app/api/comprehensive-analysis/route-optimized.ts:89 - Optimized route
- .build/server/app/api/comprehensive-analysis/route.js - Compiled version

Status: The `ABACUSAI_API_KEY` is indeed hallucinated and references a non-existent API endpoint `https://apps.abacus.ai/v1/chat/completions`. However, this is **NOT** the primary cause of the 500 error, as the code has fallback mechanisms for API failures.

Detailed Error Flow Analysis

Request Flow Mapping

1. Frontend **Form** Submission (**FormData**)
↓
2. Global Middleware (`/middleware.ts`)
 - Adds security headers
 - Attempts audit **logging** (may consume body)
 ↓
3. API Route Handler (`/app/api/comprehensive-analysis/route.ts`)
 - Calls **formData** = await request.**formData()** [LINE 28]
 - **If** body already consumed → "Body has already been read" error
 ↓
4. Zep Session Creation [LINE 338]
 - sessionResult declared in try block
 - Zep API fails with "Missing required key 'roleType'" error
 ↓
5. Memory Insights Section [LINE 362]
 - References undefined sessionResult variable
 - Throws ReferenceError
 ↓
6. Error Handler [LINE 410]
 - **Returns** 500 Internal Server Error

Specific Error Patterns Identified

Pattern 1: Zep Integration Failures

Zep **operation** failed: **JsonError**: messages -> [0]: Missing required **key** "roleType" at **Object**.jsonOrThrow (webpack-internal:/// (rsc) ./node_modules/@getzep/zep-cloud/core/schemas/builders/schema-utils/getSchemaUtils.js:25:19)

Pattern 2: Database Connection Issues

Database connection failed, using mock user **for** testing:
Invalid ``prisma.user.findUnique()`` invocation:
Error querying the database: FATAL: Tenant or user not found

Pattern 3: Variable Scope Issues

Memory insights failed: ReferenceError: sessionResult is not defined
at handleAnalysisRequest (webpack-internal:/// (rsc) ./app/api/comprehensive-analysis/route.ts:362:13)

Code Locations Using Hallucinated ABACUSAI_API_KEY

Active References (Need Removal):

- 1. `/app/api/comprehensive-analysis/route.ts:79`
typescript
`'Authorization': `Bearer ${process.env.ABACUSAI_API_KEY}``
- 2. `/app/api/comprehensive-analysis/route.ts:439`
typescript
`'Authorization': `Bearer ${process.env.ABACUSAI_API_KEY}``
- 3. `/app/api/comprehensive-analysis/route-optimized.ts:89`
typescript
`'Authorization': `Bearer ${process.env.ABACUSAI_API_KEY}``

Compiled References (Auto-generated):

- 1. `.build/server/app/api/comprehensive-analysis/route.js` - Multiple instances
- 2. `.next/server/app/api/comprehensive-analysis/route.js` - Compiled version

Root Cause Analysis Summary

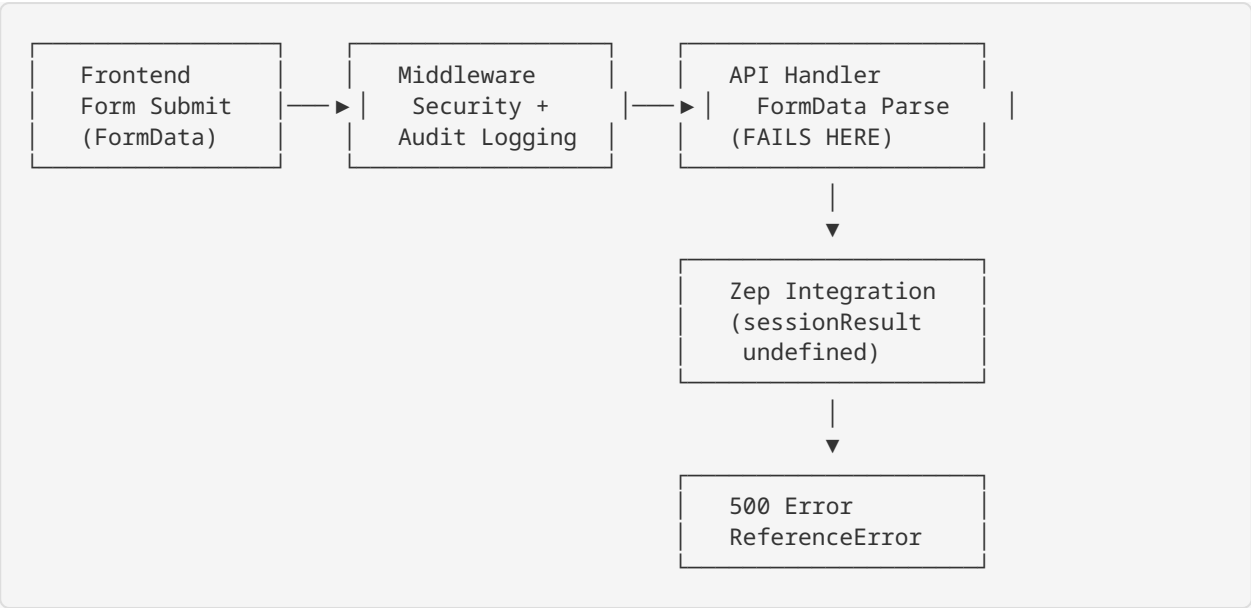
Primary Issues (Blocking):

- 1. **Variable Scope Error:** `sessionResult` undefined reference at line 362
- 2. **Middleware Conflicts:** Potential body consumption by global middleware
- 3. **Zep Integration Failures:** Missing `roleType` parameter in API calls

Secondary Issues (Non-blocking but problematic):

- 1. **Hallucinated API Keys:** References to non-existent Abacus.AI endpoints
- 2. **Database Connection Issues:** Supabase tenant/user not found errors
- 3. **Error Handling Gaps:** Insufficient error boundaries around Zep operations

Request/Response Flow Diagram



Recommendations for Agent Gamma

Immediate Fixes (Priority 1):

1. **Fix Variable Scope:** Move `sessionResult` declaration outside try-catch block
2. **Remove Hallucinated API:** Replace `ABACUSAI_API_KEY` with `OPENAI_API_KEY`
3. **Fix Zep Integration:** Add proper `roleType` parameter to Zep API calls
4. **Add Error Boundaries:** Wrap Zep operations in proper try-catch blocks

Code Reconstruction Priorities:

1. **Line 338-362:** Fix `sessionResult` variable scope issue
2. **Line 79 & 439:** Replace hallucinated API endpoint with OpenAI
3. **Line 343-405:** Add proper error handling for Zep operations
4. **Middleware Review:** Ensure no body consumption conflicts

Testing Strategy:

1. **Unit Test:** Variable scope fixes
2. **Integration Test:** FormData parsing without middleware conflicts
3. **API Test:** Zep integration with proper parameters
4. **End-to-End Test:** Complete form submission flow

Technical Specifications for Code Reconstruction

File: `/app/api/comprehensive-analysis/route.ts`

Critical Lines to Fix:

- **Line 28:** Ensure formData parsing doesn't conflict with middleware
- **Line 79:** Replace `https://apps.abacus.ai/v1/chat/completions` with OpenAI endpoint
- **Line 338:** Move `sessionResult` declaration to function scope
- **Line 362:** Fix undefined variable reference
- **Line 439:** Replace hallucinated API key with `OPENAI_API_KEY`

Zep Integration Fixes:

- Add `roleType: "user"` to message objects
- Implement proper error handling for session creation failures
- Add fallback mechanisms for memory operations

Conclusion

The 500 Internal Server Error is caused by a **combination of issues**, with the primary culprit being an **undefined variable reference** in the Zep memory integration code. The hallucinated `ABACUSAI_API_KEY`, while problematic, is not the direct cause of the crash due to existing fallback mechanisms.

Agent Gamma should prioritize fixing the variable scope issue and Zep integration parameters before addressing the hallucinated API references.

HANDOFF TO: BMAD Agent Gamma for systematic code reconstruction

STATUS: Error pattern analysis complete - Root causes identified

NEXT PHASE: Code reconstruction and systematic fixes