

PIM: Browser ↔ Web Server Interaction Flows

1. Login Flow

Browser → Web Server

POST /auth/login

Content-Type: application/json

username: "ritan@gmail.com"

password: "pwd123"

Web Server → Browser (Success)

HTTP 200 OK

status: success

user_id: 42

token: a8f9238af9283af9823af

Web Server → Browser (Failure)

HTTP 401 Unauthorized

status: error

message: Invalid username or password

2. Forgot Password Flow

Browser → Web Server

POST /auth/forgot-password

Content-Type: application/json

email: "ritan@gmail.com"

Web Server → Browser (Success)

HTTP 200 OK

status: success

message: Password reset link sent to ritan@gmail.com

3. Search Flow

Browser → Web Server

GET /particles/search?query=gut&limit=20

Authorization: Bearer a8f9238af9283af9823af

Web Server → Browser (Results Found)

HTTP 200 OK

status: success

results:

- id: 123, date: 2024-05-23, title: Article on gut bacteria
- id: 21, date: 2024-01-12, title: Gut health and the brain
- id: 79, date: 2024-03-11, title: Gut-wrenching story on Gaza
- id: 66, date: 2024-07-10, title: How to pay attention to your gut-feel

Web Server → Browser (Failures)

Validation Error:

HTTP 400 Bad Request

status: error

message: Query cannot be empty

Server Error:

HTTP 500 Internal Server Error

status: error

message: Search service unavailable

Authentication Error:

HTTP 401 Unauthorized

status: error

message: Token expired, please log in again

4. View Full Article Flow

Browser → Web Server

GET /particles/123

Authorization: Bearer a8f9238af9283af9823af

Web Server → Browser (Success)

HTTP 200 OK

status: success

id: 123

title: Article on gut bacteria

content: <p>Full article content with formatting...</p>

date: 2024-05-23

author: Dr. Jane Smith

tags: microbiome, health

Web Server → Browser (Failures)

Not Found:

HTTP 404 Not Found

status: error

message: Item not found

Server Error:

HTTP 500 Internal Server Error

status: error

message: Could not load item

Authentication Error:

HTTP 401 Unauthorized

status: error

message: Token expired, please log in again

5. Load Article for Editing

Browser → Web Server

GET /particles/123?mode=edit

Authorization: Bearer a8f9238af9283af9823af

Web Server → Browser (Success)

HTTP 200 OK

status: success

item:

id: 123
title: Article on gut bacteria
body: current content in markdown format
tags: #microbiome, #health
version: 5

Web Server → Browser (Failures)

Not Found:
HTTP 404 Not Found
status: error
message: Item not found

Authentication Error:

HTTP 401 Unauthorized
status: error
message: Token expired, please log in again

6. Save Changes

Browser → Web Server
PATCH /particles/123
Authorization: Bearer a8f9238af9283af9823af
Content-Type: application/json
title: Article on gut bacteria (updated)
body: ...edited content...
version: 5

Web Server → Browser (Success)

HTTP 200 OK
status: success
id: 123
version: 6
updated_at: 2025-08-14T15:30:00Z

Web Server → Browser (Failures)

Edit Conflict:
HTTP 409 Conflict
status: error
message: Edit conflict—please reload
server_version: 6

Validation Error:

HTTP 422 Unprocessable Entity

status: error

message: Title exceeds 120 characters

Server Error:

HTTP 500 Internal Server Error

status: error

message: Could not save changes

Authentication Error:

HTTP 401 Unauthorized

status: error

message: Token expired, please log in again

HTTP Status Code Reference

200 – OK: Successful request

201 – Created: Successfully created resource

400 – Bad Request: Invalid request data

401 – Unauthorized: Authentication required/failed

404 – Not Found: Resource doesn't exist

409 – Conflict: Edit conflict (version mismatch)

422 – Unprocessable Entity: Validation failed

500 – Internal Server Error: Server-side error