

Configurations Module - Detailed Sequence Diagrams

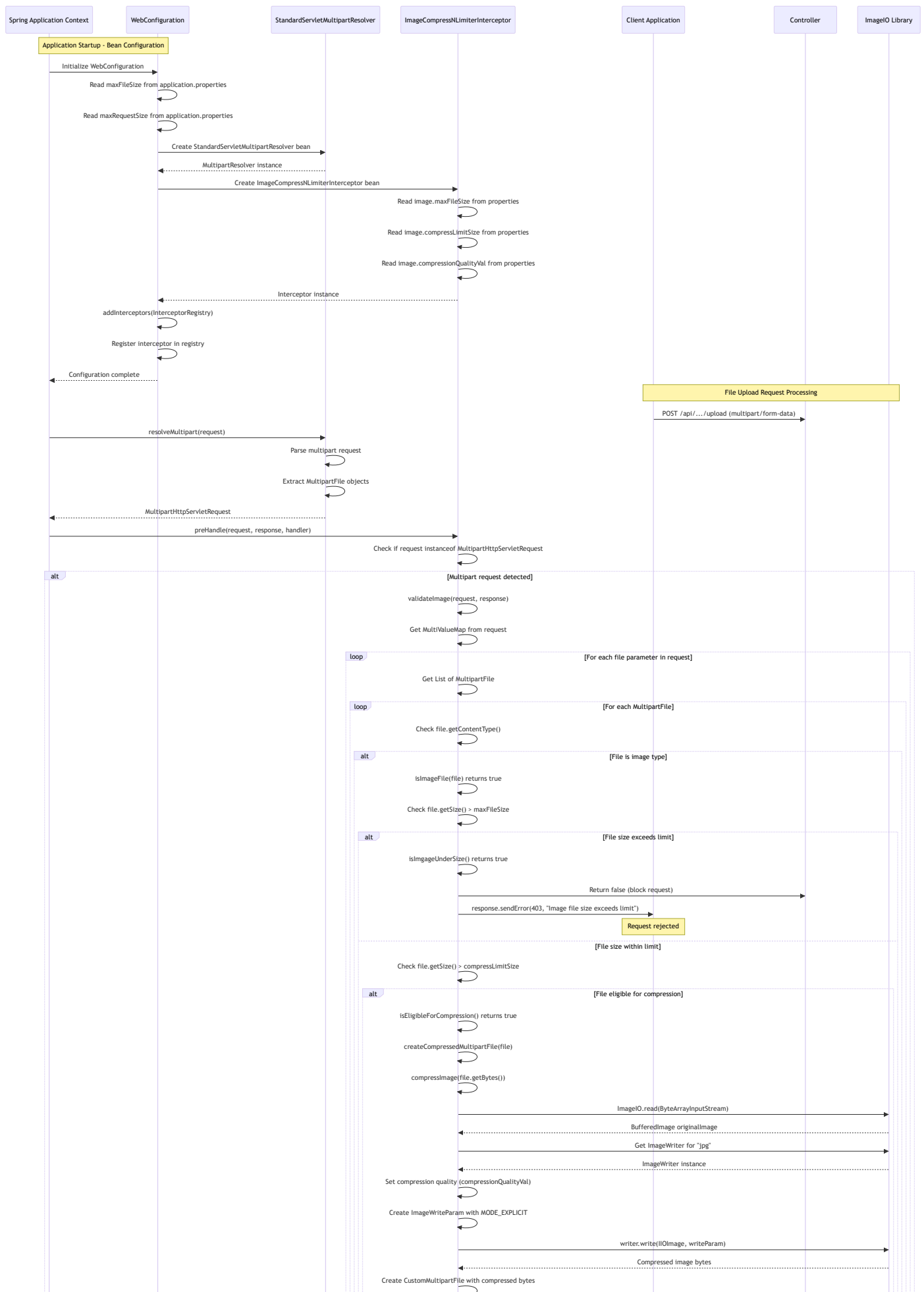
This document describes the **key technical flows** implemented in the `com.i4o.dms.kubota.configurations` module:

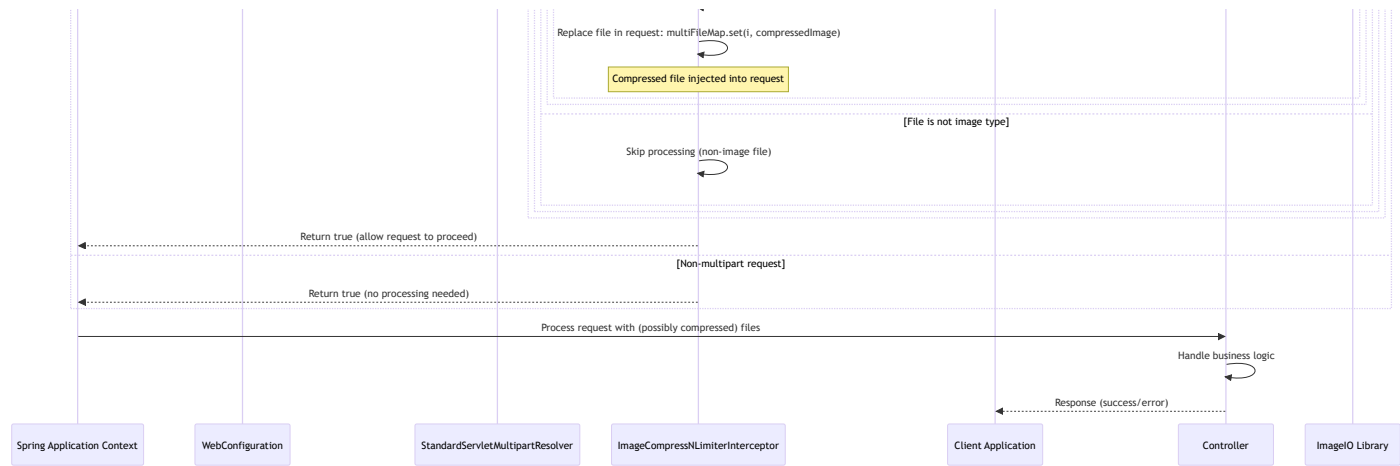
- **Web Configuration** (multipart file upload resolver + image compression interceptor).
- **Swagger API Documentation** (Swagger/OpenAPI configuration with authentication).
- **Global CORS Configuration** (Cross-Origin Resource Sharing filter).
- **Jackson JSON Configuration** (ObjectMapper timezone configuration).
- **Excel Import Manager** (Excel import utility bean configuration).

All diagrams use Mermaid sequence diagrams and reflect the current implementation of the configurations module.

1. Web Configuration - File Upload with Image Compression Interceptor Flow

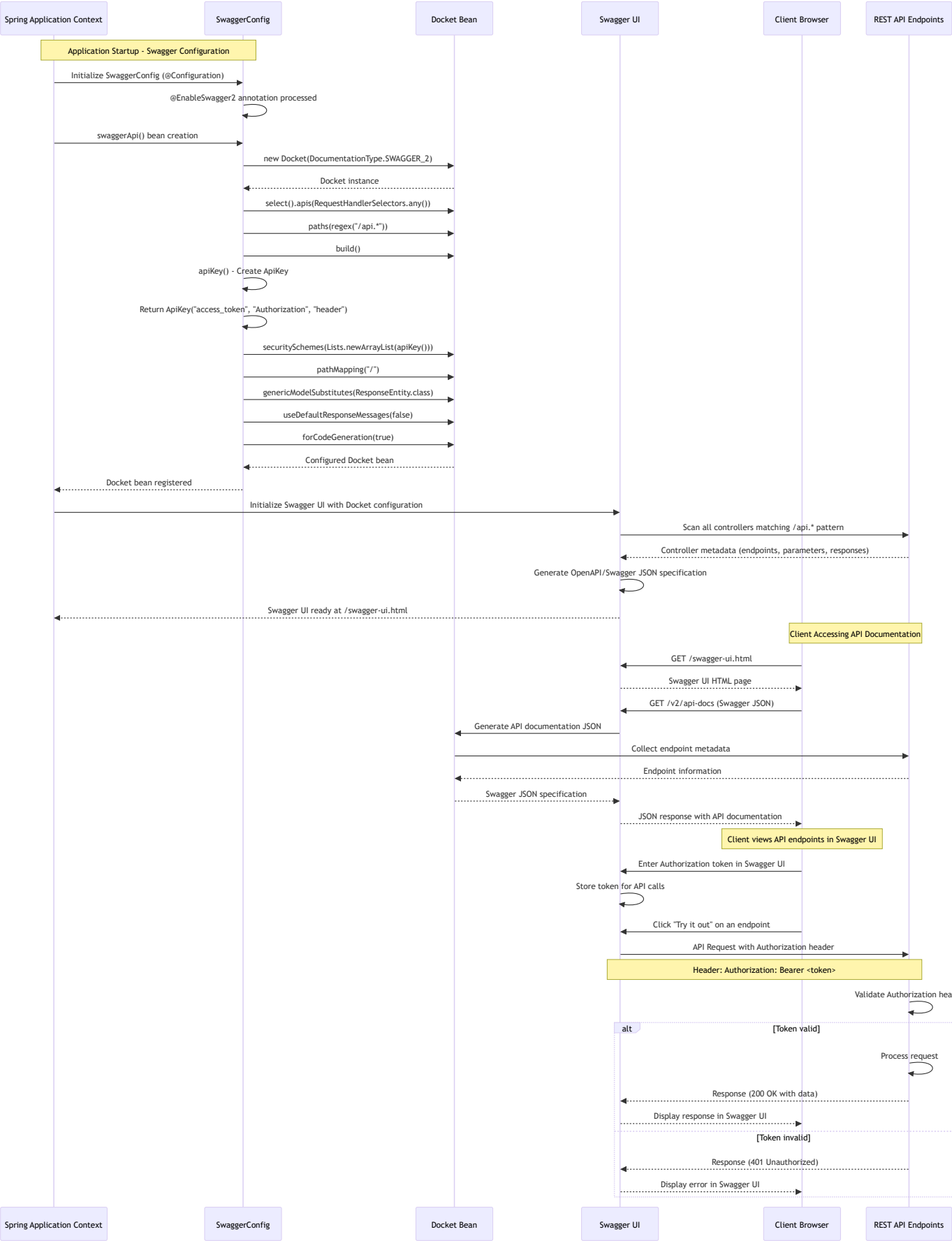
This flow shows how **multipart file uploads** are handled and how the **ImageCompressNLimiterInterceptor** intercepts image uploads to validate size limits and compress images before they reach the controller.





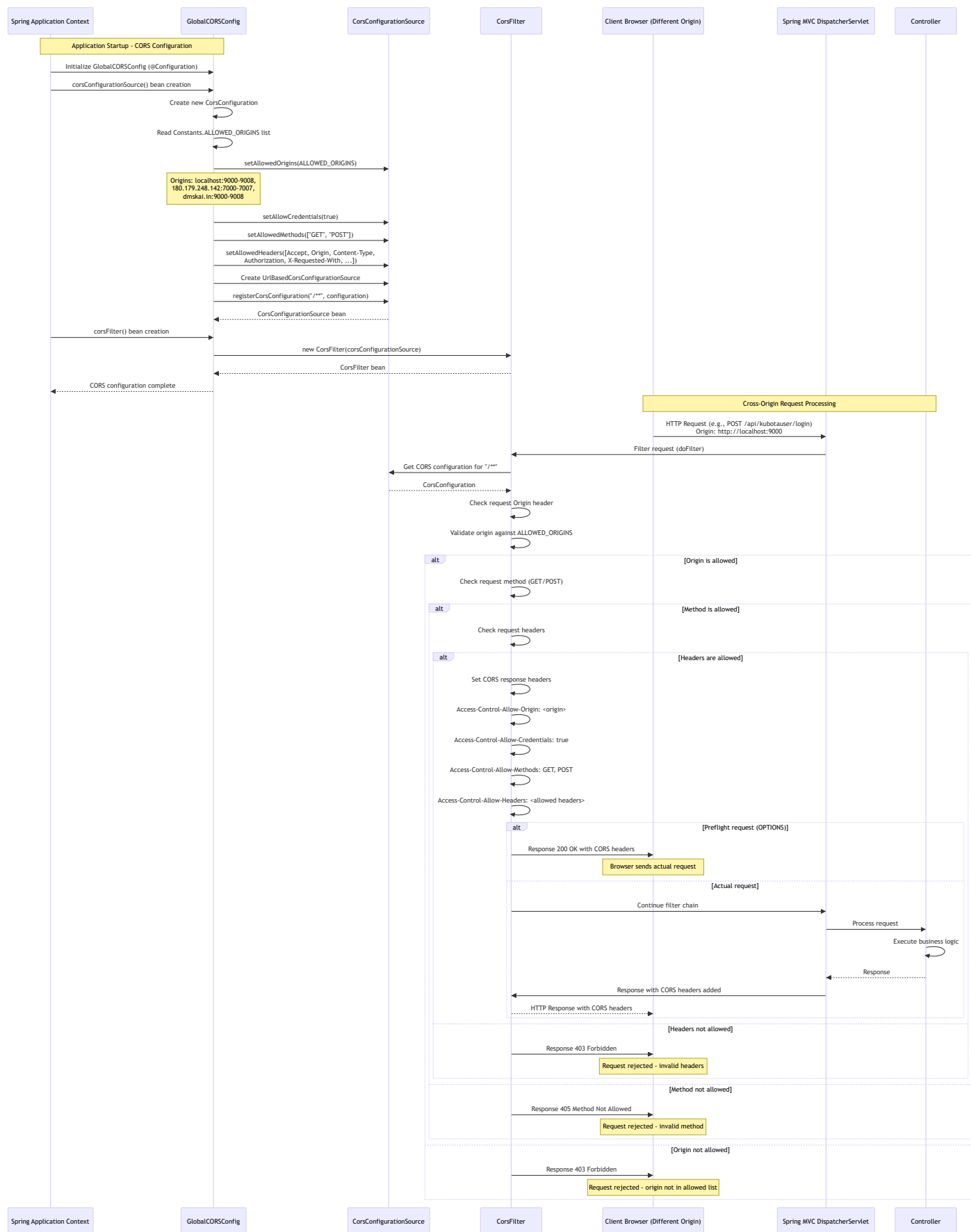
2. Swagger API Documentation - Initialization and Access Flow

This flow shows how **Swagger/OpenAPI documentation** is configured during application startup and how clients access the API documentation with authentication.



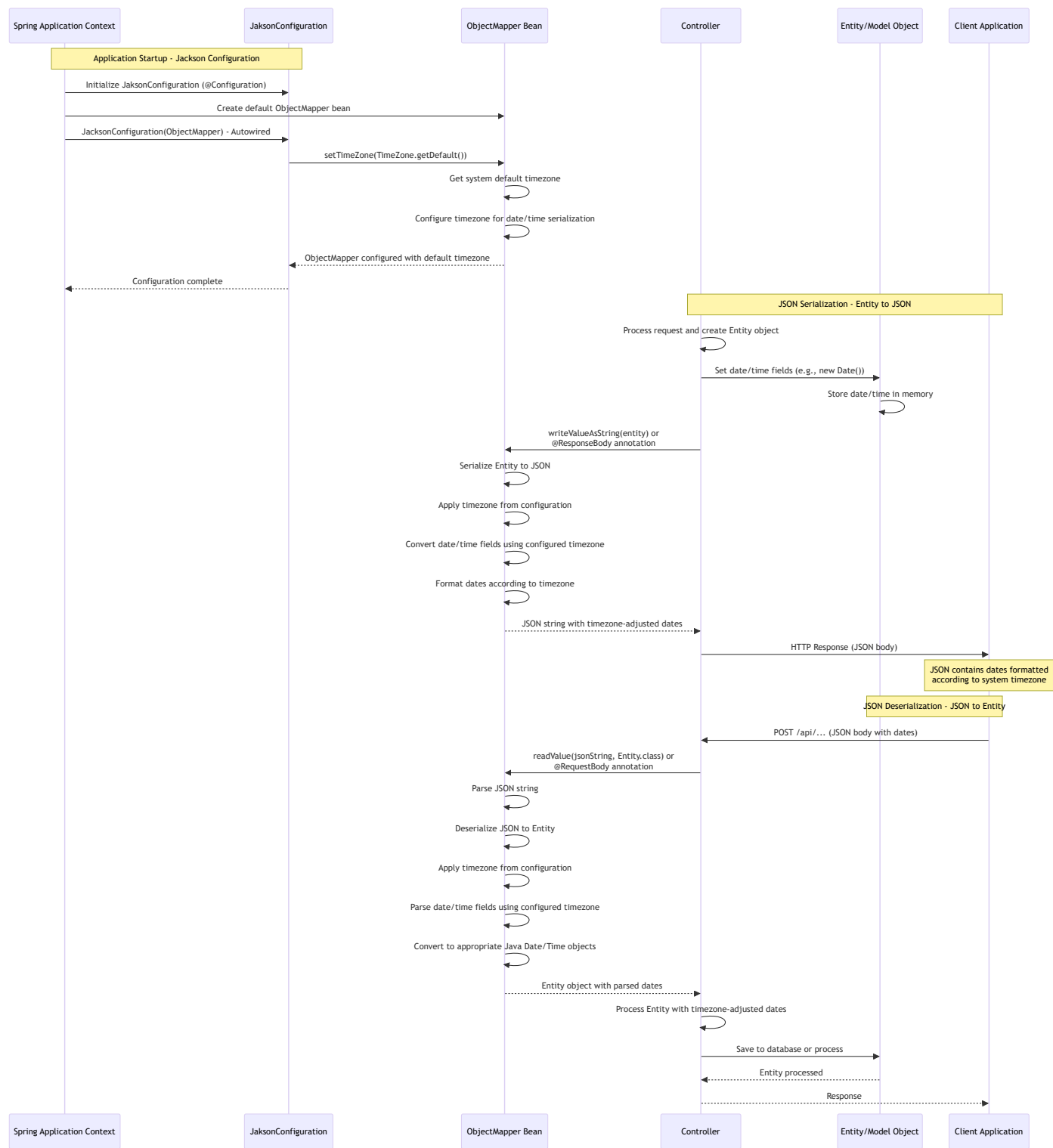
3. Global CORS Configuration - Cross-Origin Request Handling Flow

This flow shows how **CORS (Cross-Origin Resource Sharing)** is configured globally and how the CORS filter intercepts requests to validate origins, headers, and methods.



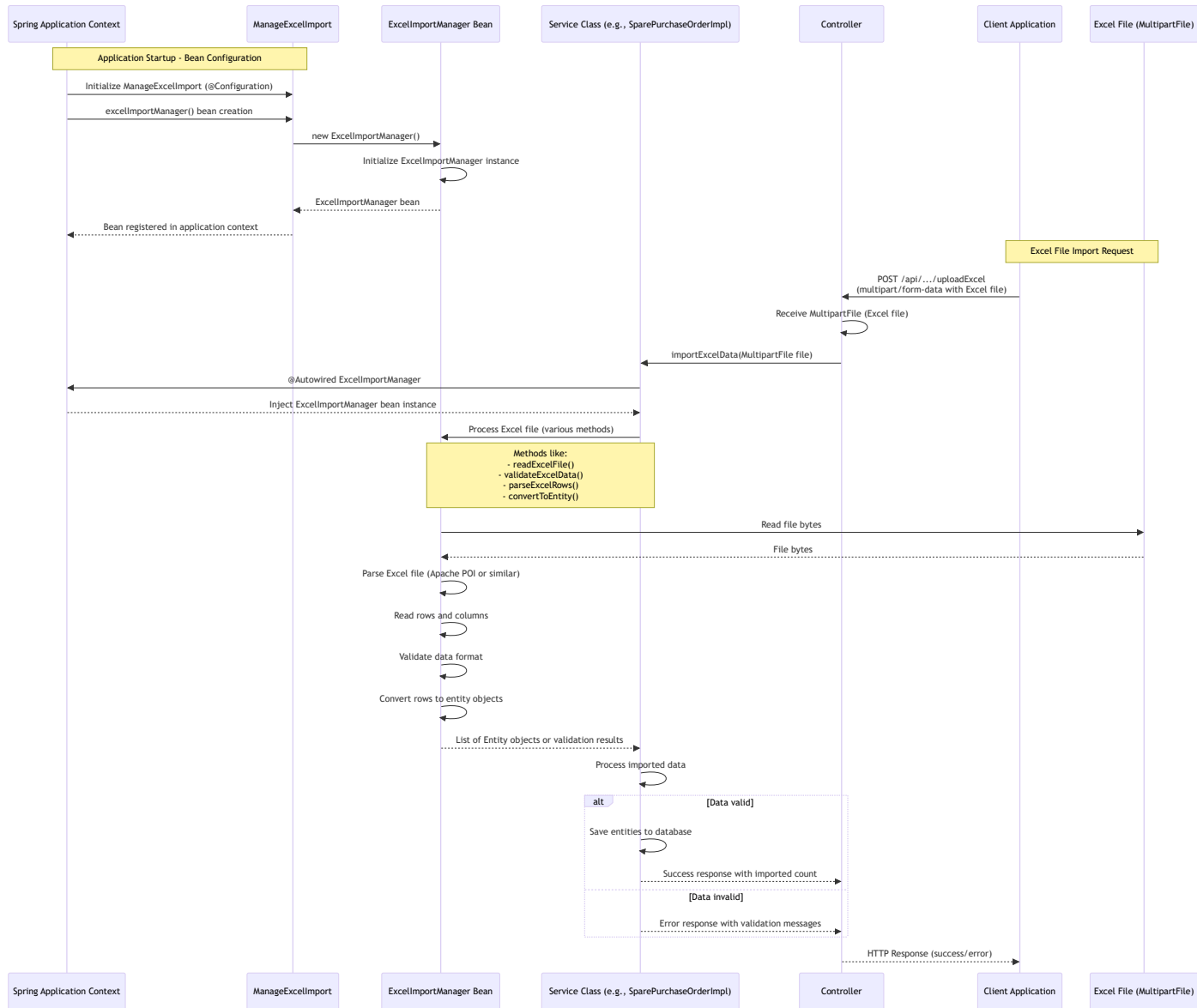
4. Jackson JSON Configuration - ObjectMapper Timezone Configuration Flow

This flow shows how **Jackson ObjectMapper** is configured with timezone settings during application startup and how it affects JSON serialization/deserialization.



5. Excel Import Manager - Bean Configuration and Usage Flow

This flow shows how the **ExcelImportManager** bean is configured during application startup and how it's used by service classes to import Excel files.



Summary

The **configurations** module provides **cross-cutting infrastructure configuration** for the KUBOTA DMS:

- **Web Configuration:**

- Configures `StandardServletMultipartResolver` for handling multipart file uploads.
- Registers `ImageCompressNLimiterInterceptor` to intercept image uploads, validate file sizes, and automatically compress images that exceed the compression threshold before they reach controllers.
- **Swagger API Documentation:**
 - Configures Swagger/OpenAPI documentation with API key authentication.
 - Scans all endpoints matching `/api.*` pattern and generates interactive API documentation accessible at `/swagger-ui.html`.
 - Supports Authorization header-based authentication for testing APIs.
- **Global CORS Configuration:**
 - Configures Cross-Origin Resource Sharing (CORS) filter globally.
 - Validates request origins against an allowed list (localhost ports, production IPs, and domains).
 - Sets appropriate CORS headers for allowed GET/POST requests with specific headers.
- **Jackson JSON Configuration:**
 - Configures Jackson `ObjectMapper` with system default timezone.
 - Ensures consistent date/time serialization and deserialization across all JSON operations.
- **Excel Import Manager:**
 - Provides a centralized `ExcelImportManager` bean for Excel file processing.
 - Used by multiple service classes (spares, warranty, inventory management) for importing Excel data.

These configuration classes ensure **consistent behavior** across the entire application for file uploads, API documentation, cross-origin requests, JSON processing, and Excel imports.