

Spring Actuator features and best practices

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Key Features of Spring Actuator

Health Checks

Spring Actuator provides a health endpoint (`/actuator/health`) that offers insights into the application's health status. Custom health indicators can be added to provide more specific information.

Metrics

The `/actuator/metrics` endpoint exposes various system and application metrics such as memory usage, garbage collection, CPU utilization, and more. It integrates with tools like Micrometer to provide detailed metrics data, which can be exported to monitoring systems like Prometheus, Graphite, or Datadog.

Environment Properties

The `/actuator/env` endpoint displays environment properties such as system properties, environment variables, and configuration properties used by the application.

Thread Dump

The `/actuator/threaddump` endpoint provides a snapshot of the application's thread activity. This can be useful for diagnosing performance issues like thread contention or deadlock.

HTTP Traces

The `/actuator/httptrace` endpoint shows HTTP request and response traces, which is useful for analyzing and troubleshooting application traffic patterns.

Caching Information

The `/actuator/caches` endpoint exposes information about the caches configured in the application. This helps monitor and manage caching strategies and their impact on performance.

Best Practices for Using Spring Actuator

Secure Actuator Endpoints

Since Actuator exposes sensitive information about your application, it's crucial to secure these endpoints. Use Spring Security to restrict access to authorized users only, and enable HTTPS to ensure data is encrypted.

Customize Endpoint Exposure

By default, not all Actuator endpoints are exposed. Customize which endpoints should be exposed in production by modifying the `management.endpoints.web.exposure.include` property in your configuration file. This helps reduce the risk of exposing unnecessary information.

Monitor Application Health

Leverage custom health indicators to provide meaningful application-specific health information beyond default health checks like database connectivity or disk space. Implement custom health checks using the `HealthIndicator` interface.

Integrate with Monitoring Systems

Integrate Spring Actuator with external monitoring systems such as Prometheus, Datadog, or New Relic for continuous monitoring. Exporting metrics and health data to these systems provides real-time insights into application performance and reliability.

Limit Sensitive Information Exposure

Actuator endpoints, such as `/env` or `/configprops`, can expose sensitive application properties. Ensure that only necessary information is exposed, and consider masking or excluding sensitive data.