

MONITORING SPRING BOOT APPLICATIONS

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AGENDA

- Monitoring Tools
- Spring Boot Admin
- Why ?
- Demo
- Screenshots
- Q & A

MONITORING TOOLS

- Custom monitor !!!
- Spring Boot Actuator
- Spring Boot Admin

SPRING BOOT ADMIN

- Author: Johannes Edmeier
- [Spring boot documentation](#)
- Simple Application to Manage and Monitor
- Apps register with Spring Boot Admin Client (via http) or discovered using Spring Cloud
- UI is in Angular.js and nice

SETUP ADMIN SERVER

Add spring boot admin server and UI as dependencies

```
<dependency>
  <groupid>de.codecentric</groupid>
  <artifactid>spring-boot-admin-server</artifactid>
  <version>1.4.6</version>
</dependency>
<dependency>
  <groupid>de.codecentric</groupid>
  <artifactid>spring-boot-admin-server-ui</artifactid>
  <version>1.4.6</version>
</dependency>
```

SETUP ADMIN SERVER

Pull in the Boot Admin Server configuration

```
@Configuration
@EnableAutoConfiguration
@EnableAdminServer
public class SpringBootAdminApplication {
    public static void main(String[] args) {
        SpringApplication.run(SpringBootAdminApplication.class, args);
    }
}
```

REGISTER CLIENT APPLICATIONS

spring-boot-admin-starter-client

```
<dependency>  
  <groupid>de.codecentric</groupid>  
  <artifactid>spring-boot-admin-starter-client</artifactid>  
  <version>1.4.6</version>  
</dependency>
```

REGISTER CLIENT APPLICATIONS

Trigger the contained AutoConfiguration

```
application.yml
```

```
spring.boot.admin.url: http://localhost:8080
```


DEMO

Spring boot sample application

<https://github.com/rgannu/playground/tree/master/camel/spring-boot-monitoring>

Spring Boot Admin

localhost:8080/#/Apps

spring

APPLICATIONS

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STORES instance is UP
DOWN -> UP
Instance 103cab7e
http://172.18.0.10:8081/health
localhost:8080

Spring Boot applications

Filter

	Application / URL	Version	Info	Status	
+	STORES			1 UP / 1 DOWN	
	CONFIGSERVER (103646f0) http://172.18.0.5:8888			UP	<div>Details</div> <div></div>
	CUSTOMERS (eb135991) http://172.18.0.7:9000		description: Spring Cloud Samples url: 'https://github.com/spring-cloud-samples' git: ...	UP	<div>Details</div> <div></div>
-	CUSTOMERS (ba3fa664) http://172.18.0.11:9000		description: Spring Cloud Samples url: 'https://github.com/spring-cloud-samples' git: ...	UP	<div>Details</div> <div></div>
	CUSTOMERSUI (9611b181) http://172.18.0.9:80		description: Spring Cloud Samples url: 'https://github.com/spring-cloud-samples'	UP	<div>Details</div> <div></div>


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Spring Boot applications

Filter

+	Application ▲ / URL	Version	Info	Status
	spring-boot-monitoring (22357797) http://BEANTNOH351222.emea.lucent.com:8080	1.0-SNAPSHOT	scm-url: 'github.com/rgannu/playground.git/.../spring-boot-monitoring' stage: test git: 	UP  Details 

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View application health, info and details

spring

APPLICATIONS JOURNAL ABOUT

spring-boot-monitoring (22357797)

http://BEANTN0H351222.emea.lucent.com:8080/actuator/health
http://BEANTN0H351222.emea.lucent.com:8080/actuator
http://BEANTN0H351222.emea.lucent.com:8080

Details Log Metrics Environment Logging JMX Threads Audit Trace Heapdump

1 sec

Application

refresh JSON

scm-url	"github.com/rgannu/.../spring-boot-monitoring"
stage	test
git	commit: time: 1490962301000 id: e460bf2 branch: master
build	version: 1.0-SNAPSHOT artifact: spring-boot-monitoring name: Spring Boot Monitoring group: com.utopian time: 1491032855000

Health

refresh JSON

Application	UP
Camel	UP
Version	2.18.3
ContextStatus	Started
DiskSpace	UP
Free	42.7G
Threshold	10M
RefreshScope	UP
Hystrix	UP

Memory

refresh JSON

Memory (432M / 1.7G)	25.43%
Heap Memory (305M / 1.5G)	19.41%
Initial Heap	1G
Maximum Heap	2.7G
Non-Heap Memory (127.1M / 129.4M)	98.20%
Initial Non-Heap	2.4M
Maximum Non-Heap	unbounded

JVM

refresh JSON

Uptime	00:01:28:06 [d:h:m:s]
Systemload	-1.00 (last min. = runq-sz)
Available Processors	4
Classes	current loaded 14616 total loaded 14616 unloaded 0
Threads	current 34 total started 467 daemon 28 peak 36

Garbage Collection

refresh JSON

ps_scavenge	Count 8 Time 273 ms
ps_marksweep	Count 3 Time 754 ms

Servlet Container


refresh JSON

Http sessions	active 311 maximum unbounded
---------------	---------------------------------

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View metrics, counters and gauges

 spring-boot-monitoring (22357797)

<http://BEANTN0H351222.emea.lucent.com:8080/actuator/health> 

<http://BEANTN0H351222.emea.lucent.com:8080/actuator> 

<http://BEANTN0H351222.emea.lucent.com:8080> 

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Counter

[raw JSON](#)

Gauges

[raw JSON](#)

gauge.servo.response.api.applications.22357797.dump.star-star



gauge.servo.rest.totaltime



gauge.servo.rest



gauge.servo.response.actuator.env



gauge.servo.response.actuator.heapdump



gauge.servo.response.api.applications.22357797.metrics.star-star

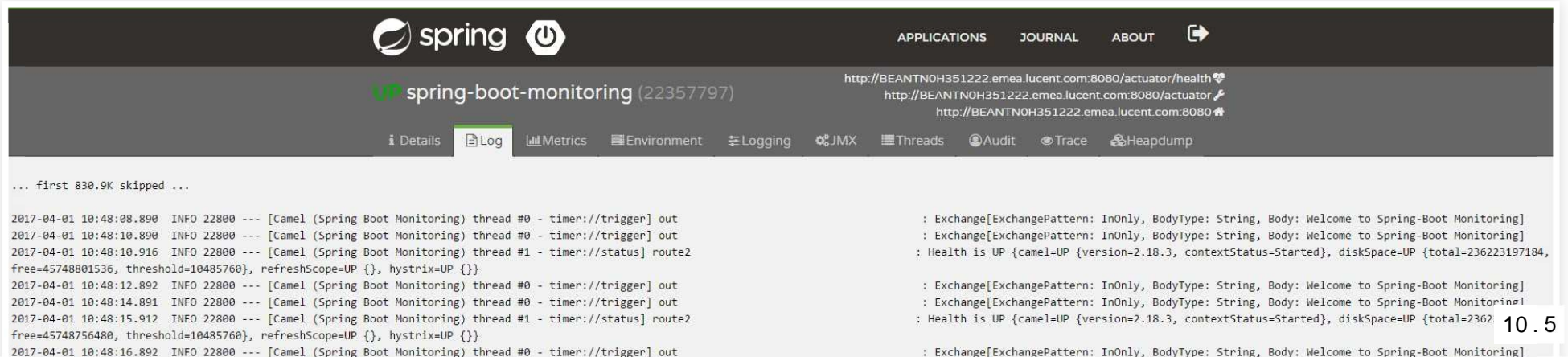


gauge.servo.response.api.journal



31001

View logfile (with follow)



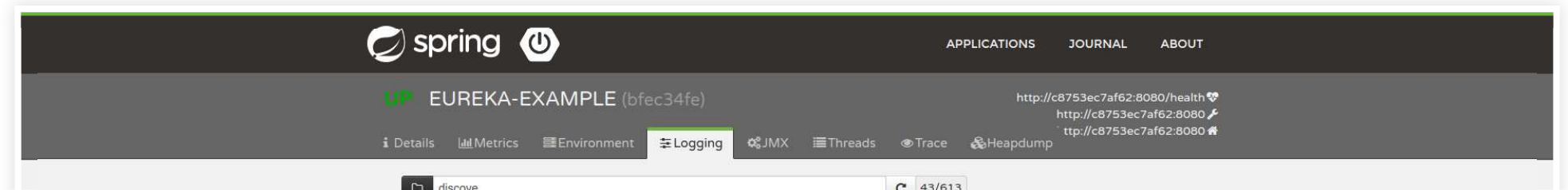
The screenshot displays the Spring Boot Monitoring web application. The top navigation bar includes the Spring logo, a power icon, and links for APPLICATIONS, JOURNAL, and ABOUT. Below this, the application name "spring-boot-monitoring (22357797)" is shown, along with three status URLs: "http://BEANTNOH351222.emea.lucent.com:8080/actuator/health", "http://BEANTNOH351222.emea.lucent.com:8080/actuator", and "http://BEANTNOH351222.emea.lucent.com:8080". The main menu includes Details, Log (selected), Metrics, Environment, Logging, JMX, Threads, Audit, Trace, and Heapdump. The Log tab shows a list of log entries, with the first 830,9K entries skipped. The visible log entries are as follows:

Timestamp	Level	Message
2017-04-01 10:48:08.890	INFO	[Camel (Spring Boot Monitoring) thread #0 - timer://trigger] out
2017-04-01 10:48:10.890	INFO	[Camel (Spring Boot Monitoring) thread #0 - timer://trigger] out
2017-04-01 10:48:10.916	INFO	[Camel (Spring Boot Monitoring) thread #1 - timer://status] route2 free=45748801536, threshold=10485760, refreshScope=UP {}, hystrix=UP {}
2017-04-01 10:48:12.892	INFO	[Camel (Spring Boot Monitoring) thread #0 - timer://trigger] out
2017-04-01 10:48:14.891	INFO	[Camel (Spring Boot Monitoring) thread #0 - timer://trigger] out
2017-04-01 10:48:15.912	INFO	[Camel (Spring Boot Monitoring) thread #1 - timer://status] route2 free=45748756480, threshold=10485760, refreshScope=UP {}, hystrix=UP {}
2017-04-01 10:48:16.892	INFO	[Camel (Spring Boot Monitoring) thread #0 - timer://trigger] out

On the right side of the log entries, there are status messages for the "Health is UP" endpoint, including details about the version (2.18.3), context status (Started), and disk space (UP {total=236223197184}).

10.5

Manage Logback logger levels



View and use JMX beans via jolokia

Domain **ch.qos.logback.classic**

Domain **com.sun.management**

Domain **java.lang**

Domain **java.nio**

Domain **java.util.logging**

Domain **JMImplementation**

Domain **jmx4perl**

Domain **jolokia**

Domain **org.apache.camel**

Domain **org.springframework.boot**

Domain **org.springframework.cloud.context.environment**

Domain **org.springframework.cloud.context.properties**



Domain **org.springframework.cloud.context.restart**


Domain **org.springframework.cloud.context.scope.refresh**


Domain **org.springframework.cloud.endpoint**

Domain **org.springframework.cloud.netflix.zuul**

Domain **Tomcat**


spring


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spring-boot-monitoring (22357797)

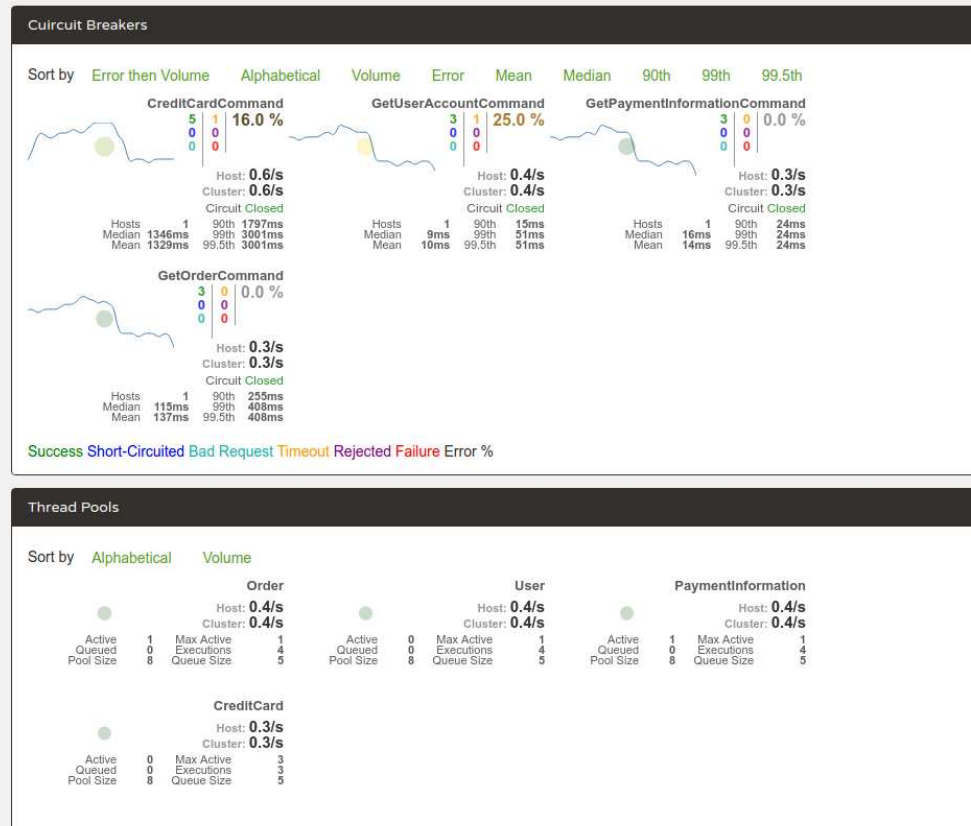
<http://BEANTN0H351222.emea.lucent.com:8080/actuator/health>
<http://BEANTN0H351222.emea.lucent.com:8080/actuator/>
<http://BEANTN0H351222.emea.lucent.com:8080/>

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refresh

Runnable	Waiting	Timed_Waiting
5 Attach Listener		
28 Camel (Spring Boot Monitoring) thread #0 - timer://trigger		
29 Camel (Spring Boot Monitoring) thread #1 - timer://status		
21 container-0		
20 ContainerBackgroundProcessor[StandardEngine[Tomcat]]		
24 cron4j::scheduler[3722609f188d23083b9c0e770000015b287c227c2bc69727]::timer[3722609f188d23083b9c0e770000015b287c2656]		
53 expiringMap-0		
3 Finalizer		
535 ForkJoinPool.commonPool-worker-0		
521 ForkJoinPool.commonPool-worker-1		
520 ForkJoinPool.commonPool-worker-2		
34 http-nio-8080-Acceptor-0		
35 http-nio-8080-AsyncTimeout		
32 http-nio-8080-ClientPoller-0		
33 http-nio-8080-ClientPoller-1		
39 http-nio-8080-exec-1		
50 http-nio-8080-exec-10		

[View Hystrix dashboard](#)



View and change Spring environment (via Spring Cloud)

Active profiles

[raw JSON](#)

secure

Environment manager

[Refresh context](#)
[Update environment](#)
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PropertySource **server.ports**

local.server.port

8080

PropertySource **servletContextInitParams**

-

PropertySource **systemProperties**

java.runtime.name

Java(TM) SE Runtime Environment

sun.boot.library.path

C:\Program Files\Java\jdk1.8.0_66\jre\bin

java.vm.version

25.66-b17

maven.multiModuleProjectDirectory

c:\VIEWS\github\playground\camel\spring-boot-monitoring

java.vm.vendor

Oracle Corporation

java.vendor.url

http://java.oracle.com/

guice.disable.misplaced.annotation.check

true

Q & A

