

Spring Boot Actuator Web API Documentation

Andy Wilkinson

Table of Contents

| | |
|--|----|
| 1. Overview | 2 |
| 1.1. URLs | 2 |
| 1.2. Timestamps | 2 |
| 2. Audit Events (auditevents) | 3 |
| 2.1. Retrieving Audit Events | 3 |
| 2.1.1. Query Parameters | 3 |
| 2.1.2. Response Structure | 3 |
| 3. Beans (beans) | 5 |
| 3.1. Retrieving the Beans | 5 |
| 3.1.1. Response Structure | 6 |
| 4. Caches (caches) | 8 |
| 4.1. Retrieving All Caches | 8 |
| 4.1.1. Response Structure | 8 |
| 4.2. Retrieving Caches by Name | 9 |
| 4.2.1. Query Parameters | 9 |
| 4.2.2. Response Structure | 9 |
| 4.3. Evict All Caches | 10 |
| 4.4. Evict a Cache by Name | 10 |
| 4.4.1. Request Structure | 10 |
| 5. Conditions Evaluation Report (conditions) | 11 |
| 5.1. Retrieving the Report | 11 |
| 5.1.1. Response Structure | 12 |
| 6. Configuration Properties (configprops) | 14 |
| 6.1. Retrieving the @ConfigurationProperties Bean | 14 |
| 6.1.1. Response Structure | 15 |
| 7. Environment (env) | 16 |
| 7.1. Retrieving the Entire Environment | 16 |
| 7.1.1. Response Structure | 17 |
| 7.2. Retrieving a Single Property | 18 |
| 7.2.1. Response Structure | 18 |
| 8. Flyway (flyway) | 20 |
| 8.1. Retrieving the Migrations | 20 |
| 8.1.1. Response Structure | 20 |
| 9. Health (health) | 22 |
| 9.1. Retrieving the Health of the application | 22 |
| 9.1.1. Response Structure | 23 |
| 9.2. Retrieving the Health of a component | 24 |
| 9.2.1. Response Structure | 24 |

| | |
|--|----|
| 9.3. Retrieving the Health of a component instance | 25 |
| 9.3.1. Response Structure | 25 |
| 10. Heap Dump (heapdump) | 26 |
| 10.1. Retrieving the Heap Dump | 26 |
| 11. HTTP Trace (httptrace) | 27 |
| 11.1. Retrieving the Traces | 27 |
| 11.1.1. Response Structure | 27 |
| 12. Info (info) | 29 |
| 12.1. Retrieving the Info | 29 |
| 12.1.1. Response Structure | 29 |
| build Response Structure | 29 |
| git Response Structure | 30 |
| 13. Spring Integration graph (integrationgraph) | 31 |
| 13.1. Retrieving the Spring Integration graph | 31 |
| 13.1.1. Response Structure | 32 |
| 13.2. Rebuilding the Spring Integration graph | 32 |
| 14. Liquibase (liquibase) | 34 |
| 14.1. Retrieving the Changes | 34 |
| 14.1.1. Response Structure | 34 |
| 15. Log File (logfile) | 36 |
| 15.1. Retrieving the Log File | 36 |
| 15.2. Retrieving Part of the Log File | 38 |
| 16. Loggers (loggers) | 39 |
| 16.1. Retrieving All Loggers | 39 |
| 16.1.1. Response Structure | 39 |
| 16.2. Retrieving a Single Logger | 40 |
| 16.2.1. Response Structure | 40 |
| 16.3. Setting a Log Level | 40 |
| 16.3.1. Request Structure | 40 |
| 16.4. Clearing a Log Level | 41 |
| 17. Mappings (mappings) | 42 |
| 17.1. Retrieving the Mappings | 42 |
| 17.1.1. Response Structure | 45 |
| 17.1.2. Dispatcher Servlets Response Structure | 45 |
| 17.1.3. Servlets Response Structure | 47 |
| 17.1.4. Servlet Filters Response Structure | 47 |
| 17.1.5. Dispatcher Handlers Response Structure | 47 |
| 18. Metrics (metrics) | 50 |
| 18.1. Retrieving Metric Names | 50 |
| 18.1.1. Response Structure | 50 |
| 18.2. Retrieving a Metric | 50 |

| | |
|---|----|
| 18.2.1. Query Parameters | 51 |
| 18.2.2. Response structure | 51 |
| 18.3. Drilling Down | 52 |
| 19. Prometheus (prometheus) | 53 |
| 19.1. Retrieving the Metrics..... | 53 |
| 20. Scheduled Tasks (scheduledtasks) | 55 |
| 20.1. Retrieving the Scheduled Tasks | 55 |
| 20.1.1. Response Structure | 56 |
| 21. Sessions (sessions)..... | 57 |
| 21.1. Retrieving Sessions | 57 |
| 21.1.1. Query Parameters | 58 |
| 21.1.2. Response Structure | 58 |
| 21.2. Retrieving a Single Session | 58 |
| 21.2.1. Response Structure | 59 |
| 21.3. Deleting a Session | 59 |
| 22. Shutdown (shutdown)..... | 60 |
| 22.1. Shutting Down the Application | 60 |
| 22.1.1. Response Structure | 60 |
| 23. Thread Dump (threaddump) | 61 |
| 23.1. Retrieving the Thread Dump..... | 61 |
| 23.1.1. Response Structure | 65 |

This API documentation describes Spring Boot Actuators web endpoints.

Chapter 1. Overview

Before you proceed, you should read the following topics:

- [URLs](#)
- [Timestamps](#)



In order to get the correct JSON responses documented below, Jackson must be available.

1.1. URLs

By default, all web endpoints are available beneath the path `/actuator` with URLs of the form `/actuator/{id}`. The `/actuator` base path can be configured by using the `management.endpoints.web.base-path` property, as shown in the following example:

```
management.endpoints.web.base-path=/manage
```

The preceding `application.properties` example changes the form of the endpoint URLs from `/actuator/{id}` to `/manage/{id}`. For example, the URL `info` endpoint would become `/manage/info`.

1.2. Timestamps

All timestamps that are consumed by the endpoints, either as query parameters or in the request body, must be formatted as an offset date and time as specified in [ISO 8601](#).

Chapter 2. Audit Events (auditevents)

The `auditevents` endpoint provides information about the application's audit events.

2.1. Retrieving Audit Events

To retrieve the audit events, make a `GET` request to `/actuator/auditevents`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/auditevents?principal=alice&after=2020-10-29T10%3A02%3A23.163Z&type=logout' -i -X GET
```

The preceding example retrieves `logout` events for the principal, `alice`, that occurred after 09:37 on 7 November 2017 in the UTC timezone. The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 121

{
  "events" : [ {
    "timestamp" : "2020-10-29T10:02:23.164Z",
    "principal" : "alice",
    "type" : "logout"
  } ]
}
```

2.1.1. Query Parameters

The endpoint uses query parameters to limit the events that it returns. The following table shows the supported query parameters:

| Parameter | Description |
|------------------------|---|
| <code>after</code> | Restricts the events to those that occurred after the given time. Optional. |
| <code>principal</code> | Restricts the events to those with the given principal. Optional. |
| <code>type</code> | Restricts the events to those with the given type. Optional. |

2.1.2. Response Structure

The response contains details of all of the audit events that matched the query. The following table describes the structure of the response:

| Path | Type | Description |
|---------------------------------|---------------------|---|
| <code>events</code> | <code>Array</code> | An array of audit events. |
| <code>events[].timestamp</code> | <code>String</code> | The timestamp of when the event occurred. |
| <code>events[].principal</code> | <code>String</code> | The principal that triggered the event. |
| <code>events[].type</code> | <code>String</code> | The type of the event. |

Chapter 3. Beans (beans)

The `beans` endpoint provides information about the application's beans.

3.1. Retrieving the Beans

To retrieve the beans, make a `GET` request to `/actuator/beans`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/beans' -i -X GET
```

The resulting response is similar to the following:

HTTP/1.1 200 OK

Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8

Content-Length: 1128

```
{
  "contexts" : {
    "application" : {
      "beans" : {
        "defaultServletHandlerMapping" : {
          "aliases" : [ ],
          "scope" : "singleton",
          "type" : "org.springframework.web.servlet.HandlerMapping",
          "resource" : "class path resource
[org/springframework/boot/autoconfigure/web/servlet/WebMvcAutoConfiguration$EnableWebM
vcConfiguration.class]",
          "dependencies" : [ ]
        },

"org.springframework.boot.autoconfigure.context.PropertyPlaceholderAutoConfiguration"
: {
          "aliases" : [ ],
          "scope" : "singleton",
          "type" :
"org.springframework.boot.autoconfigure.context.PropertyPlaceholderAutoConfiguration$$
EnhancerBySpringCGLIB$$6f4b66c7",
          "dependencies" : [ ]
        },

"org.springframework.boot.autoconfigure.web.servlet.DispatcherServletAutoConfiguration
" : {
          "aliases" : [ ],
          "scope" : "singleton",
          "type" :
"org.springframework.boot.autoconfigure.web.servlet.DispatcherServletAutoConfiguration
$$EnhancerBySpringCGLIB$$5cf7494b",
          "dependencies" : [ ]
        }
      }
    }
  }
}
```

3.1.1. Response Structure

The response contains details of the application's beans. The following table describes the structure of the response:

| Path | Type | Description |
|---------------------------------|--------|---|
| contexts | Object | Application contexts keyed by id. |
| contexts.*.parentId | String | Id of the parent application context, if any. |
| contexts.*.beans | Object | Beans in the application context keyed by name. |
| contexts.*.beans.*.aliases | Array | Names of any aliases. |
| contexts.*.beans.*.scope | String | Scope of the bean. |
| contexts.*.beans.*.type | String | Fully qualified type of the bean. |
| contexts.*.beans.*.resource | String | Resource in which the bean was defined, if any. |
| contexts.*.beans.*.dependencies | Array | Names of any dependencies. |

Chapter 4. Caches (caches)

The `caches` endpoint provides access to the application's caches.

4.1. Retrieving All Caches

To retrieve the application's caches, make a `GET` request to `/actuator/caches`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/caches' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 435

{
  "cacheManagers" : {
    "anotherCacheManager" : {
      "caches" : {
        "countries" : {
          "target" : "java.util.concurrent.ConcurrentHashMap"
        }
      }
    },
    "cacheManager" : {
      "caches" : {
        "cities" : {
          "target" : "java.util.concurrent.ConcurrentHashMap"
        },
        "countries" : {
          "target" : "java.util.concurrent.ConcurrentHashMap"
        }
      }
    }
  }
}
```

4.1.1. Response Structure

The response contains details of the application's caches. The following table describes the structure of the response:

| Path | Type | Description |
|----------------------------|--------|-----------------------------|
| <code>cacheManagers</code> | Object | Cache managers keyed by id. |

| Path | Type | Description |
|--|--------|--|
| <code>cacheManagers.*.caches</code> | Object | Caches in the application context keyed by name. |
| <code>cacheManagers.*.caches.*.target</code> | String | Fully qualified name of the native cache. |

4.2. Retrieving Caches by Name

To retrieve a cache by name, make a `GET` request to `/actuator/caches/{name}`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/caches/cities' -i -X GET
```

The preceding example retrieves information about the cache named `cities`. The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 113

{
  "target" : "java.util.concurrent.ConcurrentHashMap",
  "name" : "cities",
  "cacheManager" : "cacheManager"
}
```

4.2.1. Query Parameters

If the requested name is specific enough to identify a single cache, no extra parameter is required. Otherwise, the `cacheManager` must be specified. The following table shows the supported query parameters:

| Parameter | Description |
|---------------------------|--|
| <code>cacheManager</code> | Name of the cacheManager to qualify the cache. May be omitted if the cache name is unique. |

4.2.2. Response Structure

The response contains details of the requested cache. The following table describes the structure of the response:

| Path | Type | Description |
|---------------------------|--------|---------------------|
| <code>name</code> | String | Cache name. |
| <code>cacheManager</code> | String | Cache manager name. |

| Path | Type | Description |
|---------------------|---------------------|---|
| <code>target</code> | <code>String</code> | Fully qualified name of the native cache. |

4.3. Evict All Caches

To clear all available caches, make a `DELETE` request to `/actuator/caches` as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/caches' -i -X DELETE
```

4.4. Evict a Cache by Name

To evict a particular cache, make a `DELETE` request to `/actuator/caches/{name}` as shown in the following curl-based example:

```
$ curl
'http://localhost:8080/actuator/caches/countries?cacheManager=anotherCacheManager' -i
-X DELETE
```



As there are two caches named `countries`, the `cacheManager` has to be provided to specify which `Cache` should be cleared.

4.4.1. Request Structure

If the requested name is specific enough to identify a single cache, no extra parameter is required. Otherwise, the `cacheManager` must be specified. The following table shows the supported query parameters:

| Parameter | Description |
|---------------------------|---|
| <code>cacheManager</code> | Name of the <code>cacheManager</code> to qualify the cache. May be omitted if the cache name is unique. |

Chapter 5. Conditions Evaluation Report (conditions)

The `conditions` endpoint provides information about the evaluation of conditions on configuration and auto-configuration classes.

5.1. Retrieving the Report

To retrieve the report, make a `GET` request to `/actuator/conditions`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/conditions' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 3259

{
  "contexts" : {
    "application" : {
      "positiveMatches" : {
        "EndpointAutoConfiguration#endpointOperationParameterMapper" : [ {
          "condition" : "OnBeanCondition",
          "message" : "@ConditionalOnMissingBean (types:
org.springframework.boot.actuate.endpoint.invoke.ParameterValueMapper; SearchStrategy:
all) did not find any beans"
        } ],
        "EndpointAutoConfiguration#endpointCachingOperationInvokerAdvisor" : [ {
          "condition" : "OnBeanCondition",
          "message" : "@ConditionalOnMissingBean (types:
org.springframework.boot.actuate.endpoint.invoker.cache.CachingOperationInvokerAdvisor
; SearchStrategy: all) did not find any beans"
        } ],
        "WebEndpointAutoConfiguration" : [ {
          "condition" : "OnWebApplicationCondition",
          "message" : "@ConditionalOnWebApplication (required) found 'session' scope"
        } ]
      },
      "negativeMatches" : {
        "WebFluxEndpointManagementContextConfiguration" : {
          "notMatched" : [ {
            "condition" : "OnWebApplicationCondition",
            "message" : "not a reactive web application"
          } ],
          "matched" : [ {
```

```

        "condition" : "OnClassCondition",
        "message" : "@ConditionalOnClass found required classes
'org.springframework.web.reactive.DispatcherHandler',
'org.springframework.http.server.reactive.HttpHandler'"
    } ]
},
"GsonHttpMessageConvertersConfiguration.GsonHttpMessageConverterConfiguration"
: {
    "notMatched" : [ {
        "condition" :
"GsonHttpMessageConvertersConfiguration.PreferGsonOrJacksonAndJsonbUnavailableCondition",
        "message" : "AnyNestedCondition 0 matched 2 did not; NestedCondition on
GsonHttpMessageConvertersConfiguration.PreferGsonOrJacksonAndJsonbUnavailableCondition
.JacksonJsonbUnavailable NoneNestedConditions 1 matched 1 did not; NestedCondition on
GsonHttpMessageConvertersConfiguration.JacksonAndJsonbUnavailableCondition.JsonbPreferred
@ConditionalOnProperty (spring.http.converters.preferred-json-mapper=jsonb) did
not find property 'spring.http.converters.preferred-json-mapper'; NestedCondition on
GsonHttpMessageConvertersConfiguration.JacksonAndJsonbUnavailableCondition.JacksonAvai
lable @ConditionalOnBean (types:
org.springframework.http.converter.json.MappingJackson2HttpMessageConverter;
SearchStrategy: all) found bean 'mappingJackson2HttpMessageConverter'; NestedCondition
on
GsonHttpMessageConvertersConfiguration.PreferGsonOrJacksonAndJsonbUnavailableCondition
.GsonPreferred @ConditionalOnProperty (spring.http.converters.preferred-json-
mapper=gson) did not find property 'spring.http.converters.preferred-json-mapper'"
    } ],
    "matched" : [ ]
},
"JsonbHttpMessageConvertersConfiguration" : {
    "notMatched" : [ {
        "condition" : "OnClassCondition",
        "message" : "@ConditionalOnClass did not find required class
'javax.json.bind.Jsonb'"
    } ],
    "matched" : [ ]
}
},
"unconditionalClasses" : [
"org.springframework.boot.autoconfigure.context.PropertyPlaceholderAutoConfiguration",
"org.springframework.boot.actuate.autoconfigure.endpoint.EndpointAutoConfiguration" ]
}
}
}

```

5.1.1. Response Structure

The response contains details of the application's condition evaluation. The following table describes the structure of the response:

| Path | Type | Description |
|--|--------|--|
| <code>contexts</code> | Object | Application contexts keyed by id. |
| <code>contexts.*.positiveMatches</code> | Object | Classes and methods with conditions that were matched. |
| <code>contexts.*.positiveMatches.*.[]condition</code> | String | Name of the condition. |
| <code>contexts.*.positiveMatches.*.[]message</code> | String | Details of why the condition was matched. |
| <code>contexts.*.negativeMatches</code> | Object | Classes and methods with conditions that were not matched. |
| <code>contexts.*.negativeMatches.*.notMatched</code> | Array | Conditions that were matched. |
| <code>contexts.*.negativeMatches.*.notMatched.[]condition</code> | String | Name of the condition. |
| <code>contexts.*.negativeMatches.*.notMatched.[]message</code> | String | Details of why the condition was not matched. |
| <code>contexts.*.negativeMatches.*.matched</code> | Array | Conditions that were matched. |
| <code>contexts.*.negativeMatches.*.matched.[]condition</code> | String | Name of the condition. |
| <code>contexts.*.negativeMatches.*.matched.[]message</code> | String | Details of why the condition was matched. |
| <code>contexts.*.unconditionalClasses</code> | Array | Names of unconditional auto-configuration classes if any. |
| <code>contexts.*.parentId</code> | String | Id of the parent application context, if any. |

Chapter 6. Configuration Properties (configprops)

The `configprops` endpoint provides information about the application's `@ConfigurationProperties` beans.

6.1. Retrieving the `@ConfigurationProperties` Bean

To retrieve the `@ConfigurationProperties` beans, make a `GET` request to `/actuator/configprops`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/configprops' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 1806

{
  "contexts" : {
    "application" : {
      "beans" : {
        "management.endpoints.web.cors-
org.springframework.boot.actuate.autoconfigure.endpoint.web.CorsEndpointProperties" :
{
  "prefix" : "management.endpoints.web.cors",
  "properties" : {
    "allowedHeaders" : [ ],
    "allowedMethods" : [ ],
    "allowedOrigins" : [ ],
    "maxAge" : {
      "units" : [ "SECONDS", "NANOS" ]
    },
    "exposedHeaders" : [ ]
  }
},
    "management.endpoints.web-
org.springframework.boot.actuate.autoconfigure.endpoint.web.WebEndpointProperties" : {
  "prefix" : "management.endpoints.web",
  "properties" : {
    "pathMapping" : { },
    "exposure" : {
      "include" : [ "*" ],
      "exclude" : [ ]
    },
    "basePath" : "/actuator"
```

```

    }
  },
  "spring.resources-
org.springframework.boot.autoconfigure.web.ResourceProperties" : {
    "prefix" : "spring.resources",
    "properties" : {
      "addMappings" : true,
      "chain" : {
        "cache" : true,
        "htmlApplicationCache" : false,
        "compressed" : false,
        "strategy" : {
          "fixed" : {
            "enabled" : false,
            "paths" : [ "/*" ]
          },
          "content" : {
            "enabled" : false,
            "paths" : [ "/*" ]
          }
        }
      },
      "cache" : {
        "cachecontrol" : { }
      },
      "staticLocations" : [ "classpath:/META-INF/resources/",
"classpath:/resources/", "classpath:/static/", "classpath:/public/" ]
    }
  }
}
}
}
}
}
}
}

```

6.1.1. Response Structure

The response contains details of the application's `@ConfigurationProperties` beans. The following table describes the structure of the response:

| Path | Type | Description |
|--|---------------------|---|
| <code>contexts</code> | <code>Object</code> | Application contexts keyed by id. |
| <code>contexts.*.beans.*</code> | <code>Object</code> | <code>@ConfigurationProperties</code> beans keyed by bean name. |
| <code>contexts.*.beans.*.prefix</code> | <code>String</code> | Prefix applied to the names of the bean's properties. |
| <code>contexts.*.beans.*.properties</code> | <code>Object</code> | Properties of the bean as name-value pairs. |
| <code>contexts.*.parentId</code> | <code>String</code> | Id of the parent application context, if any. |

Chapter 7. Environment (env)

The `env` endpoint provides information about the application's `Environment`.

7.1. Retrieving the Entire Environment

To retrieve the entire environment, make a `GET` request to `/actuator/env`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/env' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 788
```

```
{
  "activeProfiles" : [ ],
  "propertySources" : [ {
    "name" : "systemProperties",
    "properties" : {
      "java.runtime.name" : {
        "value" : "OpenJDK Runtime Environment"
      },
      "java.vm.version" : {
        "value" : "25.272-b10"
      },
      "java.vm.vendor" : {
        "value" : "AdoptOpenJDK"
      }
    }
  }, {
    "name" : "systemEnvironment",
    "properties" : {
      "JAVA_HOME" : {
        "value" : "/opt/openjdk",
        "origin" : "System Environment Property \"JAVA_HOME\""
      }
    }
  }, {
    "name" : "applicationConfig: [classpath:/application.properties]",
    "properties" : {
      "com.example.cache.max-size" : {
        "value" : "1000",
        "origin" : "class path resource [application.properties]:1:29"
      }
    }
  }
]
}
```

7.1.1. Response Structure

The response contains details of the application's **Environment**. The following table describes the structure of the response:

| Path | Type | Description |
|--------------------------------------|--------|--|
| <code>activeProfiles</code> | Array | Names of the active profiles, if any. |
| <code>propertySources</code> | Array | Property sources in order of precedence. |
| <code>propertySources.[].name</code> | String | Name of the property source. |

| Path | Type | Description |
|--|--------|---|
| <code>propertySources[].properties</code> | Object | Properties in the property source keyed by property name. |
| <code>propertySources[].properties.*.value</code> | String | Value of the property. |
| <code>propertySources[].properties.*.origin</code> | String | Origin of the property, if any. |

7.2. Retrieving a Single Property

To retrieve a single property, make a `GET` request to `/actuator/env/{property.name}`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/env/com.example.cache.max-size' -i -X GET
```

The preceding example retrieves information about the property named `com.example.cache.max-size`. The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Disposition: inline;filename=f.txt
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 445

{
  "property" : {
    "source" : "applicationConfig: [classpath:/application.properties]",
    "value" : "1000"
  },
  "activeProfiles" : [ ],
  "propertySources" : [ {
    "name" : "systemProperties"
  }, {
    "name" : "systemEnvironment"
  }, {
    "name" : "applicationConfig: [classpath:/application.properties]",
    "property" : {
      "value" : "1000",
      "origin" : "class path resource [application.properties]:1:29"
    }
  } ]
}
```

7.2.1. Response Structure

The response contains details of the requested property. The following table describes the structure of the response:

| Path | Type | Description |
|------------------------------------|-------------|--|
| property | Object | Property from the environment, if found. |
| property.source | String | Name of the source of the property. |
| property.value | String | Value of the property. |
| activeProfiles | Array | Names of the active profiles, if any. |
| propertySources | Array | Property sources in order of precedence. |
| propertySources.[].name | String | Name of the property source. |
| propertySources.[].property | Object | Property in the property source, if any. |
| propertySources.[].property.value | Varies | Value of the property. |
| propertySources.[].property.origin | String | Origin of the property, if any. |

Chapter 8. Flyway (flyway)

The `flyway` endpoint provides information about database migrations performed by Flyway.

8.1. Retrieving the Migrations

To retrieve the migrations, make a `GET` request to `/actuator/flyway`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/flyway' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 515

{
  "contexts" : {
    "application" : {
      "flywayBeans" : {
        "flyway" : {
          "migrations" : [ {
            "type" : "SQL",
            "checksum" : -156244537,
            "version" : "1",
            "description" : "init",
            "script" : "V1__init.sql",
            "state" : "SUCCESS",
            "installedBy" : "SA",
            "installedOn" : "2020-10-29T10:02:26.463Z",
            "installedRank" : 1,
            "executionTime" : 0
          } ]
        }
      }
    }
  }
}
```

8.1.1. Response Structure

The response contains details of the application's Flyway migrations. The following table describes the structure of the response:

| Path | Type | Description |
|--|--------|--|
| <code>contexts</code> | Object | Application contexts keyed by id |
| <code>contexts.*.flywayBeans.*.migrations</code> | Array | Migrations performed by the Flyway instance, keyed by Flyway bean name. |
| <code>contexts.*.flywayBeans.*.migrations[].checksum</code> | Number | Checksum of the migration, if any. |
| <code>contexts.*.flywayBeans.*.migrations[].description</code> | String | Description of the migration, if any. |
| <code>contexts.*.flywayBeans.*.migrations[].executionTime</code> | Number | Execution time in milliseconds of an applied migration. |
| <code>contexts.*.flywayBeans.*.migrations[].installedBy</code> | String | User that installed the applied migration, if any. |
| <code>contexts.*.flywayBeans.*.migrations[].installedOn</code> | String | Timestamp of when the applied migration was installed, if any. |
| <code>contexts.*.flywayBeans.*.migrations[].installedRank</code> | Number | Rank of the applied migration, if any. Later migrations have higher ranks. |
| <code>contexts.*.flywayBeans.*.migrations[].script</code> | String | Name of the script used to execute the migration, if any. |
| <code>contexts.*.flywayBeans.*.migrations[].state</code> | String | State of the migration. (PENDING, ABOVE_TARGET, BELOW_BASELINE, BASELINE, IGNORED, MISSING_SUCCESS, MISSING_FAILED, SUCCESS, UNDONE, AVAILABLE, FAILED, OUT_OF_ORDER, FUTURE_SUCCESS, FUTURE_FAILED, OUTDATED, SUPERSEDED) |
| <code>contexts.*.flywayBeans.*.migrations[].type</code> | String | Type of the migration. (SCHEMA, BASELINE, SQL, UNDO_SQL, JDBC, UNDO_JDBC, SPRING_JDBC, UNDO_SPRING_JDBC, CUSTOM, UNDO_CUSTOM) |
| <code>contexts.*.flywayBeans.*.migrations[].version</code> | String | Version of the database after applying the migration, if any. |
| <code>contexts.*.parentId</code> | String | Id of the parent application context, if any. |

Chapter 9. Health (health)

The `health` endpoint provides detailed information about the health of the application.

9.1. Retrieving the Health of the application

To retrieve the health of the application, make a `GET` request to `/actuator/health`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/health' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 670
```

```
{
  "status" : "UP",
  "details" : {
    "diskSpace" : {
      "status" : "UP",
      "details" : {
        "total" : 194687758336,
        "free" : 74337103872,
        "threshold" : 10485760
      }
    },
    "db" : {
      "status" : "UP",
      "details" : {
        "database" : "HSQL Database Engine",
        "hello" : 1
      }
    },
    "broker" : {
      "status" : "UP",
      "details" : {
        "us1" : {
          "status" : "UP",
          "details" : {
            "version" : "1.0.2"
          }
        },
        "us2" : {
          "status" : "UP",
          "details" : {
            "version" : "1.0.4"
          }
        }
      }
    }
  }
}
```

9.1.1. Response Structure

The response contains details of the health of the application. The following table describes the structure of the response:

| Path | Type | Description |
|--------------------------------|---------------------|---|
| <code>status</code> | <code>String</code> | Overall status of the application. |
| <code>details</code> | <code>Object</code> | Details of the health of the application. Presence is controlled by <code>management.endpoint.health.show-details</code>). |
| <code>details.*.status</code> | <code>String</code> | Status of a specific part of the application. |
| <code>details.*.details</code> | <code>Object</code> | Details of the health of a specific part of the application. |

9.2. Retrieving the Health of a component

To retrieve the health of a particular component of the application, make a `GET` request to `/actuator/health/{component}`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/health/db' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 99

{
  "status" : "UP",
  "details" : {
    "database" : "HSQL Database Engine",
    "hello" : 1
  }
}
```

9.2.1. Response Structure

The response contains details of the health of a particular component of the application. The following table describes the structure of the response:

| Path | Type | Description |
|----------------------|---------------------|--|
| <code>status</code> | <code>String</code> | Status of a specific part of the application |
| <code>details</code> | <code>Object</code> | Details of the health of a specific part of the application. |

9.3. Retrieving the Health of a component instance

If a particular component consists of multiple instances (as the `broker` indicator in the example above), the health of a particular instance of that component can be retrieved by issuing a `GET` request to `/actuator/health/{component}/{instance}`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/health/broker/us1' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 66

{
  "status" : "UP",
  "details" : {
    "version" : "1.0.2"
  }
}
```

9.3.1. Response Structure

The response contains details of the health of an instance of a particular component of the application. The following table describes the structure of the response:

| Path | Type | Description |
|----------------------|---------------------|--|
| <code>status</code> | <code>String</code> | Status of a specific part of the application |
| <code>details</code> | <code>Object</code> | Details of the health of a specific part of the application. |

Chapter 10. Heap Dump (heapdump)

The `heapdump` endpoint provides a heap dump from the application's JVM.

10.1. Retrieving the Heap Dump

To retrieve the heap dump, make a `GET` request to `/actuator/heapdump`. The response is binary data in `HPROF` format and can be large. Typically, you should save the response to disk for subsequent analysis. When using `curl`, this can be achieved by using the `-O` option, as shown in the following example:

```
$ curl 'http://localhost:8080/actuator/heapdump' -O
```

The preceding example results in a file named `heapdump` being written to the current working directory.

Chapter 11. HTTP Trace (`httptrace`)

The `httptrace` endpoint provides information about HTTP request-response exchanges.

11.1. Retrieving the Traces

To retrieve the traces, make a `GET` request to `/actuator/httptrace`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/httptrace' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 503

{
  "traces" : [ {
    "timestamp" : "2020-10-29T10:02:28.096Z",
    "principal" : {
      "name" : "alice"
    },
    "session" : {
      "id" : "7d60013e-d4bd-4701-b35d-2bd0b1eb7512"
    },
    "request" : {
      "method" : "GET",
      "uri" : "https://api.example.com",
      "headers" : {
        "Accept" : [ "application/json" ]
      }
    },
    "response" : {
      "status" : 200,
      "headers" : {
        "Content-Type" : [ "application/json" ]
      }
    },
    "timeTaken" : 1
  } ]
}
```

11.1.1. Response Structure

The response contains details of the traced HTTP request-response exchanges. The following table describes the structure of the response:

| Path | Type | Description |
|---|--------|---|
| <code>traces</code> | Array | An array of traced HTTP request-response exchanges. |
| <code>traces[].timestamp</code> | String | Timestamp of when the traced exchange occurred. |
| <code>traces[].principal</code> | Object | Principal of the exchange, if any. |
| <code>traces[].principal.name</code> | String | Name of the principal. |
| <code>traces[].request.method</code> | String | HTTP method of the request. |
| <code>traces[].request.remoteAddress</code> | String | Remote address from which the request was received, if known. |
| <code>traces[].request.uri</code> | String | URI of the request. |
| <code>traces[].request.headers</code> | Object | Headers of the request, keyed by header name. |
| <code>traces[].request.headers.*.[]</code> | Array | Values of the header |
| <code>traces[].response.status</code> | Number | Status of the response |
| <code>traces[].response.headers</code> | Object | Headers of the response, keyed by header name. |
| <code>traces[].response.headers.*.[]</code> | Array | Values of the header |
| <code>traces[].session</code> | Object | Session associated with the exchange, if any. |
| <code>traces[].session.id</code> | String | ID of the session. |
| <code>traces[].timeTaken</code> | Number | Time, in milliseconds, taken to handle the exchange. |

Chapter 12. Info (*info*)

The *info* endpoint provides general information about the application.

12.1. Retrieving the Info

To retrieve the information about the application, make a *GET* request to */actuator/info*, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/info' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 235

{
  "git" : {
    "commit" : {
      "time" : "+52797-08-26T09:10:57Z",
      "id" : "df027cf"
    },
    "branch" : "master"
  },
  "build" : {
    "version" : "1.0.3",
    "artifact" : "application",
    "group" : "com.example"
  }
}
```

12.1.1. Response Structure

The response contains general information about the application. Each section of the response is contributed by an *InfoContributor*. Spring Boot provides *build* and *git* contributions.

build Response Structure

The following table describe the structure of the *build* section of the response:

| Path | Type | Description |
|-----------------|---------------|---|
| <i>artifact</i> | <i>String</i> | Artifact ID of the application, if any. |
| <i>group</i> | <i>String</i> | Group ID of the application, if any. |
| <i>name</i> | <i>String</i> | Name of the application, if any. |

| Path | Type | Description |
|---------|--------|--|
| version | String | Version of the application, if any. |
| time | Varies | Timestamp of when the application was built, if any. |

git Response Structure

The following table describes the structure of the `git` section of the response:

| Path | Type | Description |
|-------------|--------|------------------------------------|
| branch | String | Name of the Git branch, if any. |
| commit | Object | Details of the Git commit, if any. |
| commit.time | Varies | Timestamp of the commit, if any. |
| commit.id | String | ID of the commit, if any. |

Chapter 13. Spring Integration graph (`integrationgraph`)

The `integrationgraph` endpoint exposes a graph containing all Spring Integration components.

13.1. Retrieving the Spring Integration graph

To retrieve the information about the application, make a `GET` request to `/actuator/integrationgraph`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/integrationgraph' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 668
```

```
{
  "contentDescriptor" : {
    "providerVersion" : "5.1.13.RELEASE",
    "providerFormatVersion" : 1.0,
    "provider" : "spring-integration"
  },
  "nodes" : [ {
    "nodeId" : 1,
    "name" : "nullChannel",
    "componentType" : "null-channel",
    "properties" : { }
  }, {
    "nodeId" : 2,
    "name" : "errorChannel",
    "componentType" : "publish-subscribe-channel",
    "properties" : { }
  }, {
    "nodeId" : 3,
    "name" : "_org.springframework.integration.errorLogger",
    "componentType" : "logging-channel-adapter",
    "properties" : { },
    "input" : "errorChannel"
  } ],
  "links" : [ {
    "from" : 2,
    "to" : 3,
    "type" : "input"
  } ]
}
```

13.1.1. Response Structure

The response contains all Spring Integration components used within the application, as well as the links between them. More information about the structure can be found in the [reference documentation](#).

13.2. Rebuilding the Spring Integration graph

To rebuild the exposed graph, make a **POST** request to `/actuator/integrationgraph`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/integrationgraph' -i -X POST
```

This will result in a 204 - No Content response:

```
HTTP/1.1 204 No Content
```

Chapter 14. Liquibase (liquibase)

The `liquibase` endpoint provides information about database change sets applied by Liquibase.

14.1. Retrieving the Changes

To retrieve the changes, make a `GET` request to `/actuator/liquibase`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/liquibase' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 688

{
  "contexts" : {
    "application" : {
      "liquibaseBeans" : {
        "liquibase" : {
          "changeSets" : [ {
            "author" : "marceloverdijk",
            "changeLog" : "classpath:/db/changelog/db.changelog-master.yaml",
            "comments" : "",
            "contexts" : [ ],
            "dateExecuted" : "2020-10-29T10:01:57.983Z",
            "deploymentId" : "3965717972",
            "description" : "createTable tableName=customer",
            "execType" : "EXECUTED",
            "id" : "1",
            "labels" : [ ],
            "checksum" : "8:46debf252cce6d7b25e28ddeb9fc4bf6",
            "orderExecuted" : 1
          } ]
        }
      }
    }
  }
}
```

14.1.1. Response Structure

The response contains details of the application's Liquibase change sets. The following table describes the structure of the response:

| Path | Type | Description |
|--|--------|---|
| contexts | Object | Application contexts keyed by id |
| contexts.*.liquibaseBeans.*.changeSets | Array | Change sets made by the Liquibase beans, keyed by bean name. |
| contexts.*.liquibaseBeans.*.changeSets[].author | String | Author of the change set. |
| contexts.*.liquibaseBeans.*.changeSets[].changeLog | String | Change log that contains the change set. |
| contexts.*.liquibaseBeans.*.changeSets[].comments | String | Comments on the change set. |
| contexts.*.liquibaseBeans.*.changeSets[].contexts | Array | Contexts of the change set. |
| contexts.*.liquibaseBeans.*.changeSets[].dateExecuted | String | Timestamp of when the change set was executed. |
| contexts.*.liquibaseBeans.*.changeSets[].deploymentId | String | ID of the deployment that ran the change set. |
| contexts.*.liquibaseBeans.*.changeSets[].description | String | Description of the change set. |
| contexts.*.liquibaseBeans.*.changeSets[].execType | String | Execution type of the change set (EXECUTED , FAILED , SKIPPED , RERAN , MARK_RAN). |
| contexts.*.liquibaseBeans.*.changeSets[].id | String | ID of the change set. |
| contexts.*.liquibaseBeans.*.changeSets[].labels | Array | Labels associated with the change set. |
| contexts.*.liquibaseBeans.*.changeSets[].checksum | String | Checksum of the change set. |
| contexts.*.liquibaseBeans.*.changeSets[].orderExecuted | Number | Order of the execution of the change set. |
| contexts.*.liquibaseBeans.*.changeSets[].tag | String | Tag associated with the change set, if any. |
| contexts.*.parentId | String | Id of the parent application context, if any. |

Chapter 15. Log File (logfile)

The `logfile` endpoint provides access to the contents of the application's log file.

15.1. Retrieving the Log File

To retrieve the log file, make a `GET` request to `/actuator/logfile`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/logfile' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Accept-Ranges: bytes
Content-Type: text/plain;charset=UTF-8
Content-Length: 4723

.
/\ / _ _ _ _ ' _ _ _ _ ( _ ) _ _ _ _ \ \ \ \ \
( ( ) \ _ _ | ' _ | ' _ | | ' _ \ _ ' | \ \ \ \ \
\ \ \ \ \ | | ) | | | | | | | ( _ | | ) ) ) )
' | _ _ _ | . _ _ | | | _ | | \ _ _ , | / / / /
=====|_|=====|___/=//_/_/_/

:: Spring Boot ::

2017-08-08 17:12:30.910 INFO 19866 --- [           main]
s.f.SampleWebFreeMarkerApplication      : Starting SampleWebFreeMarkerApplication on
host.local with PID 19866
2017-08-08 17:12:30.913 INFO 19866 --- [           main]
s.f.SampleWebFreeMarkerApplication      : No active profile set, falling back to
default profiles: default
2017-08-08 17:12:30.952 INFO 19866 --- [           main]
ConfigServletWebServerApplicationContext : Refreshing
org.springframework.boot.web.servlet.context.AnnotationConfigServletWebServerApplicati
onContext@76b10754: startup date [Tue Aug 08 17:12:30 BST 2017]; root of context
hierarchy
2017-08-08 17:12:31.878 INFO 19866 --- [           main]
o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat initialized with port(s): 8080
(http)
2017-08-08 17:12:31.889 INFO 19866 --- [           main]
o.apache.catalina.core.StandardService  : Starting service [Tomcat]
2017-08-08 17:12:31.890 INFO 19866 --- [           main]
org.apache.catalina.core.StandardEngine  : Starting Servlet Engine: Apache
Tomcat/8.5.16
2017-08-08 17:12:31.978 INFO 19866 --- [ost-startStop-1]
o.a.c.c.C.[Tomcat].[localhost].[/]      : Initializing Spring embedded
WebApplicationContext
```



```

2017-08-08 17:12:31.978 INFO 19866 --- [ost-startStop-1]
o.s.web.context.ContextLoader      : Root WebApplicationContext: initialization
completed in 1028 ms
2017-08-08 17:12:32.080 INFO 19866 --- [ost-startStop-1]
o.s.b.w.servlet.ServletRegistrationBean : Mapping servlet: 'dispatcherServlet' to [/]
2017-08-08 17:12:32.084 INFO 19866 --- [ost-startStop-1]
o.s.b.w.servlet.FilterRegistrationBean  : Mapping filter: 'characterEncodingFilter'
to: [/*]
2017-08-08 17:12:32.084 INFO 19866 --- [ost-startStop-1]
o.s.b.w.servlet.FilterRegistrationBean  : Mapping filter: 'hiddenHttpMethodFilter'
to: [/*]
2017-08-08 17:12:32.084 INFO 19866 --- [ost-startStop-1]
o.s.b.w.servlet.FilterRegistrationBean  : Mapping filter: 'httpPutFormContentFilter'
to: [/*]
2017-08-08 17:12:32.084 INFO 19866 --- [ost-startStop-1]
o.s.b.w.servlet.FilterRegistrationBean  : Mapping filter: 'requestContextFilter' to:
[/*]
2017-08-08 17:12:32.349 INFO 19866 --- [          main]
s.w.s.m.m.a.RequestMappingHandlerAdapter : Looking for @ControllerAdvice:
org.springframework.boot.web.servlet.context.AnnotationConfigServletWebServerApplicati
onContext@76b10754: startup date [Tue Aug 08 17:12:30 BST 2017]; root of context
hierarchy
2017-08-08 17:12:32.420 INFO 19866 --- [          main]
s.w.s.m.m.a.RequestMappingHandlerMapping : Mapped "{[/error]}" onto public
org.springframework.http.ResponseEntity<java.util.Map<java.lang.String,
java.lang.Object>>
org.springframework.boot.autoconfigure.web.servlet.error.BasicErrorController.error(ja
vax.servlet.http.HttpServletRequest)
2017-08-08 17:12:32.421 INFO 19866 --- [          main]
s.w.s.m.m.a.RequestMappingHandlerMapping : Mapped "{[/error],produces=[text/html]}"
onto public org.springframework.web.servlet.ModelAndView
org.springframework.boot.autoconfigure.web.servlet.error.BasicErrorController.errorHtm
l(javax.servlet.http.HttpServletRequest,javax.servlet.http.HttpServletResponse)
2017-08-08 17:12:32.444 INFO 19866 --- [          main]
o.s.w.s.handler.SimpleUrlHandlerMapping : Mapped URL path [/webjars/**] onto handler
of type [class org.springframework.web.servlet.resource.ResourceHttpRequestHandler]
2017-08-08 17:12:32.444 INFO 19866 --- [          main]
o.s.w.s.handler.SimpleUrlHandlerMapping : Mapped URL path [/**] onto handler of type
[class org.springframework.web.servlet.resource.ResourceHttpRequestHandler]
2017-08-08 17:12:32.471 INFO 19866 --- [          main]
o.s.w.s.handler.SimpleUrlHandlerMapping : Mapped URL path [/**/favicon.ico] onto
handler of type [class
org.springframework.web.servlet.resource.ResourceHttpRequestHandler]
2017-08-08 17:12:32.600 INFO 19866 --- [          main]
o.s.w.s.v.f.FreeMarkerConfigurer      : ClassTemplateLoader for Spring macros added
to FreeMarker configuration
2017-08-08 17:12:32.681 INFO 19866 --- [          main]
o.s.j.e.a.AnnotationMBeanExporter      : Registering beans for JMX exposure on
startup
2017-08-08 17:12:32.744 INFO 19866 --- [          main]
o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8080 (http)

```

```
2017-08-08 17:12:32.750 INFO 19866 --- [          main]
s.f.SampleWebFreeMarkerApplication      : Started SampleWebFreeMarkerApplication in
2.172 seconds (JVM running for 2.479)
```

15.2. Retrieving Part of the Log File



Retrieving part of the log file is not supported when using Jersey.

To retrieve part of the log file, make a **GET** request to `/actuator/logfile` by using the **Range** header, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/logfile' -i -X GET \
-H 'Range: bytes=0-1023'
```

The preceding example retrieves the first 1024 bytes of the log file. The resulting response is similar to the following:

```
HTTP/1.1 206 Partial Content
Accept-Ranges: bytes
Content-Type: text/plain;charset=UTF-8
Content-Range: bytes 0-1023/4723
Content-Length: 1024

.
/\ / _ _ _ _ _ ( _ ) _ _ _ _ _ \ \ \ \ \
( ( ) \ _ _ | ' _ | ' _ | ' _ \ _ ' | \ \ \ \ \
\ \ / _ _ | | _ | | | | | | | ( _ | | ) ) ) )
' | _ _ _ | . _ _ | | _ _ | | \ _ _ , | / / / /
=====|_|=====|___/=/_/_/_/
:: Spring Boot ::

2017-08-08 17:12:30.910 INFO 19866 --- [          main]
s.f.SampleWebFreeMarkerApplication      : Starting SampleWebFreeMarkerApplication on
host.local with PID 19866
2017-08-08 17:12:30.913 INFO 19866 --- [          main]
s.f.SampleWebFreeMarkerApplication      : No active profile set, falling back to
default profiles: default
2017-08-08 17:12:30.952 INFO 19866 --- [          main]
ConfigServletWebServerApplicationContext : Refreshing
org.springframework.boot.web.servlet.context.AnnotationConfigServletWebServerApplicati
onContext@76b10754: startup date [Tue Aug 08 17:12:30 BST 2017]; root of context
hierarchy
2017-08-08 17:12:31.878 INFO 19866 --- [          main]
o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port(
```

Chapter 16. Loggers (loggers)

The `loggers` endpoint provides access to the application's loggers and the configuration of their levels.

16.1. Retrieving All Loggers

To retrieve the application's loggers, make a `GET` request to `/actuator/loggers`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/loggers' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 283

{
  "levels" : [ "OFF", "FATAL", "ERROR", "WARN", "INFO", "DEBUG", "TRACE" ],
  "loggers" : {
    "ROOT" : {
      "configuredLevel" : "INFO",
      "effectiveLevel" : "INFO"
    },
    "com.example" : {
      "configuredLevel" : "DEBUG",
      "effectiveLevel" : "DEBUG"
    }
  }
}
```

16.1.1. Response Structure

The response contains details of the application's loggers. The following table describes the structure of the response:

| Path | Type | Description |
|--|--------|---|
| <code>levels</code> | Array | Levels support by the logging system. |
| <code>loggers</code> | Object | Loggers keyed by name. |
| <code>loggers.*.configuredLevel</code> | String | Configured level of the logger, if any. |
| <code>loggers.*.effectiveLevel</code> | String | Effective level of the logger. |

16.2. Retrieving a Single Logger

To retrieve a single logger, make a **GET** request to `/actuator/loggers/{logger.name}`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/loggers/com.example' -i -X GET
```

The preceding example retrieves information about the logger named `com.example`. The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Disposition: inline;filename=f.txt
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 61

{
  "configuredLevel" : "INFO",
  "effectiveLevel"  : "INFO"
}
```

16.2.1. Response Structure

The response contains details of the requested logger. The following table describes the structure of the response:

| Path | Type | Description |
|------------------------------|---------------------|---|
| <code>configuredLevel</code> | <code>String</code> | Configured level of the logger, if any. |
| <code>effectiveLevel</code> | <code>String</code> | Effective level of the logger. |

16.3. Setting a Log Level

To set the level of a logger, make a **POST** request to `/actuator/loggers/{logger.name}` with a JSON body that specifies the configured level for the logger, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/loggers/com.example' -i -X POST \
  -H 'Content-Type: application/json' \
  -d '{"configuredLevel":"debug"}'
```

The preceding example sets the `configuredLevel` of the `com.example` logger to `DEBUG`.

16.3.1. Request Structure

The request specifies the desired level of the logger. The following table describes the structure of

the request:

| Path | Type | Description |
|------------------------------|---------------------|--|
| <code>configuredLevel</code> | <code>String</code> | Level for the logger. May be omitted to clear the level. |

16.4. Clearing a Log Level

To clear the level of a logger, make a **POST** request to `/actuator/loggers/{logger.name}` with a JSON body containing an empty object, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/loggers/com.example' -i -X POST \  
  -H 'Content-Type: application/json' \  
  -d '{}'
```

The preceding example clears the configured level of the `com.example` logger.

Chapter 17. Mappings (mappings)

The `mappings` endpoint provides information about the application's request mappings.

17.1. Retrieving the Mappings

To retrieve the mappings, make a `GET` request to `/actuator/mappings`, as shown in the following curl-based example:

```
$ curl 'http://localhost:45375/actuator/mappings' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Transfer-Encoding: chunked
Date: Thu, 29 Oct 2020 10:02:31 GMT
Content-Length: 5676

{
  "contexts" : {
    "application" : {
      "mappings" : {
        "dispatcherServlets" : {
          "dispatcherServlet" : [ {
            "handler" : "ResourceHttpRequestHandler [class path resource [META-INF/resources/], class path resource [resources/], class path resource [static/], class path resource [public/], ServletContext resource [/], class path resource []]",
            "predicate" : "/*/favicon.ico"
          }, {
            "handler" : "Actuator web endpoint 'mappings'",
            "predicate" : "{GET /actuator/mappings, produces [application/vnd.spring-boot.actuator.v2+json || application/json]}",
            "details" : {
              "handlerMethod" : {
                "className" :
"org.springframework.boot.actuate.endpoint.web.servlet.AbstractWebMvcEndpointHandlerMapping.OperationHandler",
                "name" : "handle",
                "descriptor" :
"(Ljavax/servlet/http/HttpServletRequest;Ljava/util/Map;)Ljava/lang/Object;"
              },
              "requestMappingConditions" : {
                "consumes" : [ ],
                "headers" : [ ],
                "methods" : [ "GET" ],
                "params" : [ ],
                "patterns" : [ "/actuator/mappings" ],
```

```

    "produces" : [ {
      "mediaType" : "application/vnd.spring-boot.actuator.v2+json",
      "negated" : false
    }, {
      "mediaType" : "application/json",
      "negated" : false
    } ]
  }
}, {
  "handler" : "Actuator root web endpoint",
  "predicate" : "{GET /actuator, produces [application/vnd.spring-
boot.actuator.v2+json || application/json]}",
  "details" : {
    "handlerMethod" : {
      "className" :
"org.springframework.boot.actuate.endpoint.web.servlet.WebMvcEndpointHandlerMapping.Web
MvcLinksHandler",
      "name" : "links",
      "descriptor" :
"(Ljavax/servlet/http/HttpServletRequest;Ljavax/servlet/http/HttpServletResponse;)Ljav
a/lang/Object;"
    },
    "requestMappingConditions" : {
      "consumes" : [ ],
      "headers" : [ ],
      "methods" : [ "GET" ],
      "params" : [ ],
      "patterns" : [ "/actuator" ],
      "produces" : [ {
        "mediaType" : "application/vnd.spring-boot.actuator.v2+json",
        "negated" : false
      }, {
        "mediaType" : "application/json",
        "negated" : false
      } ]
    }
  }
}, {
  "handler" : "public java.lang.String
org.springframework.boot.actuate.autoconfigure.endpoint.web.documentation.MappingsEndp
ointServletDocumentationTests$ExampleController.example()",
  "predicate" : "{POST /, params [a!=alpha], headers [X-Custom=Foo],
consumes [application/json || !application/xml], produces [text/plain]}",
  "details" : {
    "handlerMethod" : {
      "className" :
"org.springframework.boot.actuate.autoconfigure.endpoint.web.documentation.MappingsEnd
pointServletDocumentationTests.ExampleController",
      "name" : "example",
      "descriptor" : "()Ljava/lang/String;"
    }
  }
}
}
}

```

```

    },
    "requestMappingConditions" : {
        "consumes" : [ {
            "mediaType" : "application/json",
            "negated" : false
        }, {
            "mediaType" : "application/xml",
            "negated" : true
        } ],
        "headers" : [ {
            "name" : "X-Custom",
            "value" : "Foo",
            "negated" : false
        } ],
        "methods" : [ "POST" ],
        "params" : [ {
            "name" : "a",
            "value" : "alpha",
            "negated" : true
        } ],
        "patterns" : [ "/" ],
        "produces" : [ {
            "mediaType" : "text/plain",
            "negated" : false
        } ]
    }
}
}, {
    "handler" : "ResourceHttpRequestHandler [\"classpath:/META-INF/resources/webjars/\"]",
    "predicate" : "/webjars/**"
}, {
    "handler" : "ResourceHttpRequestHandler [\"classpath:/META-INF/resources/\", \"classpath:/resources/\", \"classpath:/static/\", \"classpath:/public/\", \"/\"]",
    "predicate" : "/**"
} ]
},
"servletFilters" : [ {
    "servletNameMappings" : [ ],
    "urlPatternMappings" : [ "/"* ],
    "name" : "requestContextFilter",
    "className" :
"org.springframework.boot.web.servlet.filter.OrderedRequestContextFilter"
}, {
    "servletNameMappings" : [ ],
    "urlPatternMappings" : [ "/"* ],
    "name" : "hiddenHttpMethodFilter",
    "className" :
"org.springframework.boot.web.servlet.filter.OrderedHiddenHttpMethodFilter"
}, {

```



```

        "servletNameMappings" : [ ],
        "urlPatternMappings" : [ "/"* ],
        "name" : "formContentFilter",
        "className" :
"org.springframework.boot.web.servlet.filter.OrderedFormContentFilter"
    } ],
    "servlets" : [ {
        "mappings" : [ ],
        "name" : "default",
        "className" : "org.apache.catalina.servlets.DefaultServlet"
    }, {
        "mappings" : [ "/" ],
        "name" : "dispatcherServlet",
        "className" : "org.springframework.web.servlet.DispatcherServlet"
    } ]
    }
}
}
}
}

```

17.1.1. Response Structure

The response contains details of the application's mappings. The items found in the response depend on the type of web application (reactive or Servlet-based). The following table describes the structure of the common elements of the response:

| Path | Type | Description |
|---|--------|---|
| <code>contexts</code> | Object | Application contexts keyed by id. |
| <code>contexts.*.mappings</code> | Object | Mappings in the context, keyed by mapping type. |
| <code>contexts.*.mappings.dispatcherServlets</code> | Object | Dispatcher servlet mappings, if any. |
| <code>contexts.*.mappings.servletFilters</code> | Array | Servlet filter mappings, if any. |
| <code>contexts.*.mappings.servlets</code> | Array | Servlet mappings, if any. |
| <code>contexts.*.mappings.dispatcherHandlers</code> | Object | Dispatcher handler mappings, if any. |
| <code>contexts.*.parentId</code> | String | Id of the parent application context, if any. |

The entries that may be found in `contexts.*.mappings` are described in the following sections.

17.1.2. Dispatcher Servlets Response Structure

When using Spring MVC, the response contains details of any `DispatcherServlet` request mappings beneath `contexts.*.mappings.dispatcherServlets`. The following table describes the structure of this section of the response:

| Path | Type | Description |
|--|--------|---|
| * | Array | Dispatcher servlet mappings, if any, keyed by dispatcher servlet bean name. |
| *.[] .details | Object | Additional implementation-specific details about the mapping. Optional. |
| *.[] .handler | String | Handler for the mapping. |
| *.[] .predicate | String | Predicate for the mapping. |
| *.[] .details.handlerMethod | Object | Details of the method, if any, that will handle requests to this mapping. |
| *.[] .details.handlerMethod.className | Varies | Fully qualified name of the class of the method. |
| *.[] .details.handlerMethod.name | Varies | Name of the method. |
| *.[] .details.handlerMethod.descriptor | Varies | Descriptor of the method as specified in the Java Language Specification. |
| *.[] .details.requestMappingConditions | Object | Details of the request mapping conditions. |
| *.[] .details.requestMappingConditions.consumes | Varies | Details of the consumes condition |
| *.[] .details.requestMappingConditions.consumes.[].mediaType | Varies | Consumed media type. |
| *.[] .details.requestMappingConditions.consumes.[].negated | Varies | Whether the media type is negated. |
| *.[] .details.requestMappingConditions.headers | Varies | Details of the headers condition. |
| *.[] .details.requestMappingConditions.headers.[].name | Varies | Name of the header. |
| *.[] .details.requestMappingConditions.headers.[].value | Varies | Required value of the header, if any. |
| *.[] .details.requestMappingConditions.headers.[].negated | Varies | Whether the value is negated. |
| *.[] .details.requestMappingConditions.methods | Varies | HTTP methods that are handled. |
| *.[] .details.requestMappingConditions.params | Varies | Details of the params condition. |
| *.[] .details.requestMappingConditions.params.[].name | Varies | Name of the parameter. |

| Path | Type | Description |
|---|--------|--|
| *.[] details.requestMappingConditions.params.[] value | Varies | Required value of the parameter, if any. |
| *.[] details.requestMappingConditions.params.[] negated | Varies | Whether the value is negated. |
| *.[] details.requestMappingConditions.patterns | Varies | Patterns identifying the paths handled by the mapping. |
| *.[] details.requestMappingConditions.produces | Varies | Details of the produces condition. |
| *.[] details.requestMappingConditions.produces.[] mediaType | Varies | Produced media type. |
| *.[] details.requestMappingConditions.produces.[] negated | Varies | Whether the media type is negated. |

17.1.3. Servlets Response Structure

When using the Servlet stack, the response contains details of any **Servlet** mappings beneath `contexts.*.mappings.servlets`. The following table describes the structure of this section of the response:

| Path | Type | Description |
|--------------|--------|---------------------------|
| [].mappings | Array | Mappings of the servlet. |
| [].name | String | Name of the servlet. |
| [].className | String | Class name of the servlet |

17.1.4. Servlet Filters Response Structure

When using the Servlet stack, the response contains details of any **Filter** mappings beneath `contexts.*.mappings.servletFilters`. The following table describes the structure of this section of the response:

| Path | Type | Description |
|------------------------|--------|--|
| [].servletNameMappings | Array | Names of the servlets to which the filter is mapped. |
| [].urlPatternMappings | Array | URL pattern to which the filter is mapped. |
| [].name | String | Name of the filter. |
| [].className | String | Class name of the filter |

17.1.5. Dispatcher Handlers Response Structure

When using Spring WebFlux, the response contains details of any **DispatcherHandler** request

mappings beneath `contexts.*.mappings.dispatcherHandlers`. The following table describes the structure of this section of the response:

| Path | Type | Description |
|--|---------|---|
| <code>*</code> | Array | Dispatcher handler mappings, if any, keyed by dispatcher handler bean name. |
| <code>*.[].details</code> | Object | Additional implementation-specific details about the mapping. Optional. |
| <code>*.[].handler</code> | String | Handler for the mapping. |
| <code>*.[].predicate</code> | String | Predicate for the mapping. |
| <code>*.[].details.requestMappingConditions</code> | Object | Details of the request mapping conditions. |
| <code>*.[].details.requestMappingConditions.consumes</code> | Array | Details of the consumes condition |
| <code>*.[].details.requestMappingConditions.consumes.[].mediaType</code> | String | Consumed media type. |
| <code>*.[].details.requestMappingConditions.consumes.[].negated</code> | Boolean | Whether the media type is negated. |
| <code>*.[].details.requestMappingConditions.headers</code> | Array | Details of the headers condition. |
| <code>*.[].details.requestMappingConditions.headers.[].name</code> | String | Name of the header. |
| <code>*.[].details.requestMappingConditions.headers.[].value</code> | String | Required value of the header, if any. |
| <code>*.[].details.requestMappingConditions.headers.[].negated</code> | Boolean | Whether the value is negated. |
| <code>*.[].details.requestMappingConditions.methods</code> | Array | HTTP methods that are handled. |
| <code>*.[].details.requestMappingConditions.params</code> | Array | Details of the params condition. |
| <code>*.[].details.requestMappingConditions.params.[].name</code> | String | Name of the parameter. |
| <code>*.[].details.requestMappingConditions.params.[].value</code> | String | Required value of the parameter, if any. |
| <code>*.[].details.requestMappingConditions.params.[].negated</code> | Boolean | Whether the value is negated. |
| <code>*.[].details.requestMappingConditions.patterns</code> | Array | Patterns identifying the paths handled by the mapping. |

| Path | Type | Description |
|--|-------------|---|
| *. [].details.requestMappingConditions.produces | Array | Details of the produces condition. |
| *. [].details.requestMappingConditions.produces [].mediaType | String | Produced media type. |
| *. [].details.requestMappingConditions.produces [].negated | Boolean | Whether the media type is negated. |
| *. [].details.handlerMethod | Object | Details of the method, if any, that will handle requests to this mapping. |
| *. [].details.handlerMethod.className | String | Fully qualified name of the class of the method. |
| *. [].details.handlerMethod.name | String | Name of the method. |
| *. [].details.handlerMethod.descriptor | String | Descriptor of the method as specified in the Java Language Specification. |
| *. [].details.handlerFunction | Object | Details of the function, if any, that will handle requests to this mapping. |
| *. [].details.handlerFunction.className | String | Fully qualified name of the class of the function. |

Chapter 18. Metrics (*metrics*)

The *metrics* endpoint provides access to application metrics.

18.1. Retrieving Metric Names

To retrieve the names of the available metrics, make a *GET* request to */actuator/metrics*, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/metrics' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 154

{
  "names" : [ "jvm.memory.max", "jvm.memory.used", "jvm.memory.committed",
    "jvm.buffer.memory.used", "jvm.buffer.count", "jvm.buffer.total.capacity" ]
}
```

18.1.1. Response Structure

The response contains details of the metric names. The following table describes the structure of the response:

| Path | Type | Description |
|--------------|--------------|-----------------------------|
| <i>names</i> | <i>Array</i> | Names of the known metrics. |

18.2. Retrieving a Metric

To retrieve a metric, make a *GET* request to */actuator/metrics/{metric.name}*, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/metrics/jvm.memory.max' -i -X GET
```

The preceding example retrieves information about the metric named *jvm.memory.max*. The resulting response is similar to the following:

```

HTTP/1.1 200 OK
Content-Disposition: inline;filename=f.txt
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 474

{
  "name" : "jvm.memory.max",
  "description" : "The maximum amount of memory in bytes that can be used for memory
management",
  "baseUnit" : "bytes",
  "measurements" : [ {
    "statistic" : "VALUE",
    "value" : 2.369257471E9
  } ],
  "availableTags" : [ {
    "tag" : "area",
    "values" : [ "heap", "nonheap" ]
  }, {
    "tag" : "id",
    "values" : [ "Compressed Class Space", "PS Survivor Space", "PS Old Gen",
"Metaspace", "PS Eden Space", "Code Cache" ]
  } ]
}

```

18.2.1. Query Parameters

The endpoint uses query parameters to [drill down](#) into a metric by using its tags. The following table shows the single supported query parameter:

| Parameter | Description |
|------------------|---|
| <code>tag</code> | A tag to use for drill-down in the form <code>name:value</code> . |

18.2.2. Response structure

The response contains details of the metric. The following table describes the structure of the response:

| Path | Type | Description |
|---------------------------|--------|----------------------------|
| <code>name</code> | String | Name of the metric |
| <code>description</code> | String | Description of the metric |
| <code>baseUnit</code> | String | Base unit of the metric |
| <code>measurements</code> | Array | Measurements of the metric |

| Path | Type | Description |
|---------------------------------------|--------|--|
| <code>measurements[].statistic</code> | String | Statistic of the measurement. (TOTAL, TOTAL_TIME, COUNT, MAX, VALUE, UNKNOWN, ACTIVE_TASKS, DURATION). |
| <code>measurements[].value</code> | Number | Value of the measurement. |
| <code>availableTags</code> | Array | Tags that are available for drill-down. |
| <code>availableTags[].tag</code> | String | Name of the tag. |
| <code>availableTags[].values</code> | Array | Possible values of the tag. |

18.3. Drilling Down

To drill down into a metric, make a `GET` request to `/actuator/metrics/{metric.name}` using the `tag` query parameter, as shown in the following curl-based example:

```
$ curl
'http://localhost:8080/actuator/metrics/jvm.memory.max?tag=area%3Aanonheap&tag=id%3ACom
pressed+Class+Space' -i -X GET
```

The preceding example retrieves the `jvm.memory.max` metric, where the `area` tag has a value of `nonheap` and the `id` attribute has a value of `Compressed Class Space`. The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Disposition: inline;filename=f.txt
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 263

{
  "name" : "jvm.memory.max",
  "description" : "The maximum amount of memory in bytes that can be used for memory
management",
  "baseUnit" : "bytes",
  "measurements" : [ {
    "statistic" : "VALUE",
    "value" : 1.073741824E9
  } ],
  "availableTags" : [ ]
}
```


Chapter 19. Prometheus (prometheus)

The `prometheus` endpoint provides Spring Boot application's metrics in the format required for scraping by a Prometheus server.

19.1. Retrieving the Metrics

To retrieve the metrics, make a `GET` request to `/actuator/prometheus`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/prometheus' -i -X GET
```

The resulting response is similar to the following:

HTTP/1.1 200 OK

Content-Type: text/plain;version=0.0.4;charset=utf-8

Content-Length: 2375

HELP jvm_memory_committed_bytes The amount of memory in bytes that is committed for the Java virtual machine to use

TYPE jvm_memory_committed_bytes gauge

jvm_memory_committed_bytes{area="heap",id="PS Survivor Space",} 2.9884416E7

jvm_memory_committed_bytes{area="heap",id="PS Old Gen",} 2.74726912E8

jvm_memory_committed_bytes{area="heap",id="PS Eden Space",} 2.97795584E8

jvm_memory_committed_bytes{area="nonheap",id="Metaspace",} 1.62357248E8

jvm_memory_committed_bytes{area="nonheap",id="Code Cache",} 4.8627712E7

jvm_memory_committed_bytes{area="nonheap",id="Compressed Class Space",} 2.3199744E7

HELP jvm_buffer_count_buffers An estimate of the number of buffers in the pool

TYPE jvm_buffer_count_buffers gauge

jvm_buffer_count_buffers{id="direct",} 15.0

jvm_buffer_count_buffers{id="mapped",} 0.0

HELP jvm_memory_max_bytes The maximum amount of memory in bytes that can be used for memory management

TYPE jvm_memory_max_bytes gauge

jvm_memory_max_bytes{area="heap",id="PS Survivor Space",} 2.9884416E7

jvm_memory_max_bytes{area="heap",id="PS Old Gen",} 7.16177408E8

jvm_memory_max_bytes{area="heap",id="PS Eden Space",} 2.97795584E8

jvm_memory_max_bytes{area="nonheap",id="Metaspace",} -1.0

jvm_memory_max_bytes{area="nonheap",id="Code Cache",} 2.5165824E8

jvm_memory_max_bytes{area="nonheap",id="Compressed Class Space",} 1.073741824E9

HELP jvm_buffer_memory_used_bytes An estimate of the memory that the Java virtual machine is using for this buffer pool

TYPE jvm_buffer_memory_used_bytes gauge

jvm_buffer_memory_used_bytes{id="direct",} 442501.0

jvm_buffer_memory_used_bytes{id="mapped",} 0.0

HELP jvm_buffer_total_capacity_bytes An estimate of the total capacity of the buffers in this pool

TYPE jvm_buffer_total_capacity_bytes gauge

jvm_buffer_total_capacity_bytes{id="direct",} 442500.0

jvm_buffer_total_capacity_bytes{id="mapped",} 0.0

HELP jvm_memory_used_bytes The amount of used memory

TYPE jvm_memory_used_bytes gauge

jvm_memory_used_bytes{area="heap",id="PS Survivor Space",} 1.8615592E7

jvm_memory_used_bytes{area="heap",id="PS Old Gen",} 1.66570224E8

jvm_memory_used_bytes{area="heap",id="PS Eden Space",} 2.29572976E8

jvm_memory_used_bytes{area="nonheap",id="Metaspace",} 1.52721592E8

jvm_memory_used_bytes{area="nonheap",id="Code Cache",} 4.8277504E7

jvm_memory_used_bytes{area="nonheap",id="Compressed Class Space",} 2.131144E7

Chapter 20. Scheduled Tasks (scheduledtasks)

The `scheduledtasks` endpoint provides information about the application's scheduled tasks.

20.1. Retrieving the Scheduled Tasks

To retrieve the scheduled tasks, make a `GET` request to `/actuator/scheduledtasks`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/scheduledtasks' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 629

{
  "cron" : [ {
    "runnable" : {
      "target" : "com.example.Processor.processOrders"
    },
    "expression" : "0 0 0/3 1/1 * ?"
  } ],
  "fixedDelay" : [ {
    "runnable" : {
      "target" : "com.example.Processor.purge"
    },
    "initialDelay" : 5000,
    "interval" : 5000
  } ],
  "fixedRate" : [ {
    "runnable" : {
      "target" : "com.example.Processor.retrieveIssues"
    },
    "initialDelay" : 10000,
    "interval" : 3000
  } ],
  "custom" : [ {
    "runnable" : {
      "target" : "com.example.Processor$CustomTriggeredRunnable"
    },
    "trigger" : "com.example.Processor$CustomTrigger@5ee76fb2"
  } ]
}
```

20.1.1. Response Structure

The response contains details of the application's scheduled tasks. The following table describes the structure of the response:

| Path | Type | Description |
|---|--------|---|
| <code>cron</code> | Array | Cron tasks, if any. |
| <code>cron[].runnable.target</code> | String | Target that will be executed. |
| <code>cron[].expression</code> | String | Cron expression. |
| <code>fixedDelay</code> | Array | Fixed delay tasks, if any. |
| <code>fixedDelay[].runnable.target</code> | String | Target that will be executed. |
| <code>fixedDelay[].initialDelay</code> | Number | Delay, in milliseconds, before first execution. |
| <code>fixedDelay[].interval</code> | Number | Interval, in milliseconds, between the end of the last execution and the start of the next. |
| <code>fixedRate</code> | Array | Fixed rate tasks, if any. |
| <code>fixedRate[].runnable.target</code> | String | Target that will be executed. |
| <code>fixedRate[].interval</code> | Number | Interval, in milliseconds, between the start of each execution. |
| <code>fixedRate[].initialDelay</code> | Number | Delay, in milliseconds, before first execution. |
| <code>custom</code> | Array | Tasks with custom triggers, if any. |
| <code>custom[].runnable.target</code> | String | Target that will be executed. |
| <code>custom[].trigger</code> | String | Trigger for the task. |

Chapter 21. Sessions (sessions)

The `sessions` endpoint provides information about the application's HTTP sessions that are managed by Spring Session.

21.1. Retrieving Sessions

To retrieve the sessions, make a `GET` request to `/actuator/sessions`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/sessions?username=alice' -i -X GET
```

The preceding examples retrieves all of the sessions for the user whose username is `alice`. The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 753

{
  "sessions" : [ {
    "id" : "335cc783-f624-4670-844f-0dc7a862227f",
    "attributeNames" : [ ],
    "creationTime" : "2020-10-28T22:02:33.661Z",
    "lastAccessedTime" : "2020-10-29T10:01:48.661Z",
    "maxInactiveInterval" : 1800,
    "expired" : false
  }, {
    "id" : "4db5efcc-99cb-4d05-a52c-b49acfb7ea9",
    "attributeNames" : [ ],
    "creationTime" : "2020-10-29T05:02:33.661Z",
    "lastAccessedTime" : "2020-10-29T10:01:56.661Z",
    "maxInactiveInterval" : 1800,
    "expired" : false
  }, {
    "id" : "40b25c9e-d9e5-4f0b-b899-9db9dd094cba",
    "attributeNames" : [ ],
    "creationTime" : "2020-10-29T08:02:33.661Z",
    "lastAccessedTime" : "2020-10-29T10:02:21.661Z",
    "maxInactiveInterval" : 1800,
    "expired" : false
  } ]
}
```

21.1.1. Query Parameters

The endpoint uses query parameters to limit the sessions that it returns. The following table shows the single required query parameter:

| Parameter | Description |
|-----------------------|-------------------|
| <code>username</code> | Name of the user. |

21.1.2. Response Structure

The response contains details of the matching sessions. The following table describes the structure of the response:

| Path | Type | Description |
|--|---------|---|
| <code>sessions</code> | Array | Sessions for the given username. |
| <code>sessions.[].id</code> | String | ID of the session. |
| <code>sessions.[].attributeNames</code> | Array | Names of the attributes stored in the session. |
| <code>sessions.[].creationTime</code> | String | Timestamp of when the session was created. |
| <code>sessions.[].lastAccessedTime</code> | String | Timestamp of when the session was last accessed. |
| <code>sessions.[].maxInactiveInterval</code> | Number | Maximum permitted period of inactivity, in seconds, before the session will expire. |
| <code>sessions.[].expired</code> | Boolean | Whether the session has expired. |

21.2. Retrieving a Single Session

To retrieve a single session, make a `GET` request to `/actuator/sessions/{id}`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/sessions/4db5efcc-99cb-4d05-a52c-b49acfb7ea9'
-i -X GET
```

The preceding example retrieves the session with the `id` of `4db5efcc-99cb-4d05-a52c-b49acfb7ea9`. The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 228
```

```
{
  "id" : "4db5efcc-99cb-4d05-a52c-b49acfb7ea9",
  "attributeNames" : [ ],
  "creationTime" : "2020-10-29T05:02:33.661Z",
  "lastAccessedTime" : "2020-10-29T10:01:56.661Z",
  "maxInactiveInterval" : 1800,
  "expired" : false
}
```

21.2.1. Response Structure

The response contains details of the requested session. The following table describes the structure of the response:

| Path | Type | Description |
|----------------------------------|---------|---|
| <code>id</code> | String | ID of the session. |
| <code>attributeNames</code> | Array | Names of the attributes stored in the session. |
| <code>creationTime</code> | String | Timestamp of when the session was created. |
| <code>lastAccessedTime</code> | String | Timestamp of when the session was last accessed. |
| <code>maxInactiveInterval</code> | Number | Maximum permitted period of inactivity, in seconds, before the session will expire. |
| <code>expired</code> | Boolean | Whether the session has expired. |

21.3. Deleting a Session

To delete a session, make a **DELETE** request to `/actuator/sessions/{id}`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/sessions/4db5efcc-99cb-4d05-a52c-b49acfb7ea9'
-i -X DELETE
```

The preceding example deletes the session with the `id` of `4db5efcc-99cb-4d05-a52c-b49acfb7ea9`.

Chapter 22. Shutdown (shutdown)

The `shutdown` endpoint is used to shut down the application.

22.1. Shutting Down the Application

To shut down the application, make a `POST` request to `/actuator/shutdown`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/shutdown' -i -X POST
```

A response similar to the following is produced:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 41

{
  "message" : "Shutting down, bye..."
}
```

22.1.1. Response Structure

The response contains details of the result of the shutdown request. The following table describes the structure of the response:

| Path | Type | Description |
|----------------------|---------------------|---|
| <code>message</code> | <code>String</code> | Message describing the result of the request. |

Chapter 23. Thread Dump (threaddump)

The `threaddump` endpoint provides a thread dump from the application's JVM.

23.1. Retrieving the Thread Dump

To retrieve the thread dump, make a `GET` request to `/actuator/threaddump`, as shown in the following curl-based example:

```
$ curl 'http://localhost:8080/actuator/threaddump' -i -X GET
```

The resulting response is similar to the following:

```
HTTP/1.1 200 OK
Content-Type: application/vnd.spring-boot.actuator.v2+json;charset=UTF-8
Content-Length: 6015

{
  "threads" : [ {
    "threadName" : "Thread-103",
    "threadId" : 555,
    "blockedTime" : -1,
    "blockedCount" : 0,
    "waitedTime" : -1,
    "waitedCount" : 1,
    "lockName" : "java.util.concurrent.CountDownLatch$Sync@3cb98754",
    "lockOwnerId" : -1,
    "inNative" : false,
    "suspended" : false,
    "threadState" : "WAITING",
    "stackTrace" : [ {
      "methodName" : "park",
      "fileName" : "Unsafe.java",
      "lineNumber" : -2,
      "className" : "sun.misc.Unsafe",
      "nativeMethod" : true
    }, {
      "methodName" : "park",
      "fileName" : "LockSupport.java",
      "lineNumber" : 175,
      "className" : "java.util.concurrent.locks.LockSupport",
      "nativeMethod" : false
    }, {
      "methodName" : "parkAndCheckInterrupt",
      "fileName" : "AbstractQueuedSynchronizer.java",
      "lineNumber" : 836,
      "className" : "java.util.concurrent.locks.AbstractQueuedSynchronizer",
      "nativeMethod" : false
    }
  ]
}
```

```

}, {
  "methodName" : "doAcquireSharedInterruptibly",
  "fileName" : "AbstractQueuedSynchronizer.java",
  "lineNumber" : 997,
  "className" : "java.util.concurrent.locks.AbstractQueuedSynchronizer",
  "nativeMethod" : false
}, {
  "methodName" : "acquireSharedInterruptibly",
  "fileName" : "AbstractQueuedSynchronizer.java",
  "lineNumber" : 1304,
  "className" : "java.util.concurrent.locks.AbstractQueuedSynchronizer",
  "nativeMethod" : false
}, {
  "methodName" : "await",
  "fileName" : "CountDownLatch.java",
  "lineNumber" : 231,
  "className" : "java.util.concurrent.CountDownLatch",
  "nativeMethod" : false
}, {
  "methodName" : "lambda$threadDump$0",
  "fileName" : "ThreadDumpEndpointDocumentationTests.java",
  "lineNumber" : 53,
  "className" :
"org.springframework.boot.actuate.autoconfigure.endpoint.web.documentation.ThreadDumpE
ndpointDocumentationTests",
  "nativeMethod" : false
}, {
  "methodName" : "run",
  "lineNumber" : -1,
  "className" :
"org.springframework.boot.actuate.autoconfigure.endpoint.web.documentation.ThreadDumpE
ndpointDocumentationTests$$Lambda$2692/1850864861",
  "nativeMethod" : false
}, {
  "methodName" : "run",
  "fileName" : "Thread.java",
  "lineNumber" : 748,
  "className" : "java.lang.Thread",
  "nativeMethod" : false
} ],
"lockedMonitors" : [ ],
"lockedSynchronizers" : [ {
  "className" : "java.util.concurrent.locks.ReentrantLock$NonfairSync",
  "identityHashCode" : 904065251
} ],
"lockInfo" : {
  "className" : "java.util.concurrent.CountDownLatch$Sync",
  "identityHashCode" : 1018791764
}
}, {
  "threadName" : "Thread-101",

```

```

"threadId" : 553,
"blockedTime" : -1,
"blockedCount" : 0,
"waitedTime" : -1,
"waitedCount" : 1,
"lockOwnerId" : -1,
"inNative" : false,
"suspended" : false,
"threadState" : "TIMED_WAITING",
"stackTrace" : [ {
  "methodName" : "sleep",
  "fileName" : "Thread.java",
  "lineNumber" : -2,
  "className" : "java.lang.Thread",
  "nativeMethod" : true
}, {
  "methodName" : "performShutdown",
  "fileName" : "ShutdownEndpoint.java",
  "lineNumber" : 65,
  "className" : "org.springframework.boot.actuate.context.ShutdownEndpoint",
  "nativeMethod" : false
}, {
  "methodName" : "run",
  "lineNumber" : -1,
  "className" :
"org.springframework.boot.actuate.context.ShutdownEndpoint$$Lambda$2691/541392364",
  "nativeMethod" : false
}, {
  "methodName" : "run",
  "fileName" : "Thread.java",
  "lineNumber" : 748,
  "className" : "java.lang.Thread",
  "nativeMethod" : false
} ],
"lockedMonitors" : [ ],
"lockedSynchronizers" : [ ]
}, {
  "threadName" : "pool-10-thread-1",
  "threadId" : 545,
  "blockedTime" : -1,
  "blockedCount" : 0,
  "waitedTime" : -1,
  "waitedCount" : 0,
  "lockOwnerId" : -1,
  "inNative" : false,
  "suspended" : false,
  "threadState" : "RUNNABLE",
  "stackTrace" : [ {
    "methodName" : "siftDown",
    "fileName" : "ScheduledThreadPoolExecutor.java",
    "lineNumber" : 908,

```

```

    "className" :
"java.util.concurrent.ScheduledThreadPoolExecutor$DelayedWorkQueue",
    "nativeMethod" : false
  }, {
    "methodName" : "finishPoll",
    "fileName" : "ScheduledThreadPoolExecutor.java",
    "lineNumber" : 1055,
    "className" :
"java.util.concurrent.ScheduledThreadPoolExecutor$DelayedWorkQueue",
    "nativeMethod" : false
  }, {
    "methodName" : "take",
    "fileName" : "ScheduledThreadPoolExecutor.java",
    "lineNumber" : 1085,
    "className" :
"java.util.concurrent.ScheduledThreadPoolExecutor$DelayedWorkQueue",
    "nativeMethod" : false
  }, {
    "methodName" : "take",
    "fileName" : "ScheduledThreadPoolExecutor.java",
    "lineNumber" : 809,
    "className" :
"java.util.concurrent.ScheduledThreadPoolExecutor$DelayedWorkQueue",
    "nativeMethod" : false
  }, {
    "methodName" : "getTask",
    "fileName" : "ThreadPoolExecutor.java",
    "lineNumber" : 1074,
    "className" : "java.util.concurrent.ThreadPoolExecutor",
    "nativeMethod" : false
  }, {
    "methodName" : "runWorker",
    "fileName" : "ThreadPoolExecutor.java",
    "lineNumber" : 1134,
    "className" : "java.util.concurrent.ThreadPoolExecutor",
    "nativeMethod" : false
  }, {
    "methodName" : "run",
    "fileName" : "ThreadPoolExecutor.java",
    "lineNumber" : 624,
    "className" : "java.util.concurrent.ThreadPoolExecutor$Worker",
    "nativeMethod" : false
  }, {
    "methodName" : "run",
    "fileName" : "Thread.java",
    "lineNumber" : 748,
    "className" : "java.lang.Thread",
    "nativeMethod" : false
  } ],
"lockedMonitors" : [ ],
"lockedSynchronizers" : [ {

```

```

    "className" : "java.util.concurrent.locks.ReentrantLock$NonfairSync",
    "identityHashCode" : 1193088913
  } ]
} ]
}

```

23.1.1. Response Structure

The response contains details of the JVM's threads. The following table describes the structure of the response:

| Path | Type | Description |
|--|---------|---|
| <code>threads</code> | Array | JVM's threads. |
| <code>threads[].blockedCount</code> | Number | Total number of times that the thread has been blocked. |
| <code>threads[].blockedTime</code> | Number | Time in milliseconds that the thread has spent blocked. -1 if thread contention monitoring is disabled. |
| <code>threads[].daemon</code> | Boolean | Whether the thread is a daemon thread. Only available on Java 9 or later. |
| <code>threads[].inNative</code> | Boolean | Whether the thread is executing native code. |
| <code>threads[].lockName</code> | String | Description of the object on which the thread is blocked, if any. |
| <code>threads[].lockInfo</code> | Object | Object for which the thread is blocked waiting. |
| <code>threads[].lockInfo.className</code> | String | Fully qualified class name of the lock object. |
| <code>threads[].lockInfo.identityHashCode</code> | Number | Identity hash code of the lock object. |
| <code>threads[].lockedMonitors</code> | Array | Monitors locked by this thread, if any |
| <code>threads[].lockedMonitors[].className</code> | String | Class name of the lock object. |
| <code>threads[].lockedMonitors[].identityHashCode</code> | Number | Identity hash code of the lock object. |
| <code>threads[].lockedMonitors[].lockedStackDepth</code> | Number | Stack depth where the monitor was locked. |
| <code>threads[].lockedMonitors[].lockedStackFrame</code> | Object | Stack frame that locked the monitor. |

| Path | Type | Description |
|---|--------|--|
| <code>threads[].lockedSynchronizers</code> | Array | Synchronizers locked by this thread. |
| <code>threads[].lockedSynchronizers[].className</code> | String | Class name of the locked synchronizer. |
| <code>threads[].lockedSynchronizers[].identityHashCode</code> | Number | Identity hash code of the locked synchronizer. |
| <code>threads[].lockOwnerId</code> | Number | ID of the thread that owns the object on which the thread is blocked. <code>-1</code> if the thread is not blocked. |
| <code>threads[].lockOwnerName</code> | String | Name of the thread that owns the object on which the thread is blocked, if any. |
| <code>threads[].priority</code> | Number | Priority of the thread. Only available on Java 9 or later. |
| <code>threads[].stackTrace</code> | Array | Stack trace of the thread. |
| <code>threads[].stackTrace[].classLoaderName</code> | String | Name of the class loader of the class that contains the execution point identified by this entry, if any. Only available on Java 9 or later. |
| <code>threads[].stackTrace[].className</code> | String | Name of the class that contains the execution point identified by this entry. |
| <code>threads[].stackTrace[].fileName</code> | String | Name of the source file that contains the execution point identified by this entry, if any. |
| <code>threads[].stackTrace[].lineNumber</code> | Number | Line number of the execution point identified by this entry. Negative if unknown. |
| <code>threads[].stackTrace[].methodName</code> | String | Name of the method. |
| <code>threads[].stackTrace[].moduleName</code> | String | Name of the module that contains the execution point identified by this entry, if any. Only available on Java 9 or later. |
| <code>threads[].stackTrace[].moduleVersion</code> | String | Version of the module that contains the execution point identified by this entry, if any. Only available on Java 9 or later. |

| Path | Type | Description |
|--|---------|--|
| <code>threads[].stackTrace[].nativeMethod</code> | Boolean | Whether the execution point is a native method. |
| <code>threads[].suspended</code> | Boolean | Whether the thread is suspended. |
| <code>threads[].threadId</code> | Number | ID of the thread. |
| <code>threads[].threadName</code> | String | Name of the thread. |
| <code>threads[].threadState</code> | String | State of the thread (NEW , RUNNABLE , BLOCKED , WAITING , TIMED_WAITING , TERMINATED). |
| <code>threads[].waitedCount</code> | Number | Total number of times that the thread has waited for notification. |
| <code>threads[].waitedTime</code> | Number | Time in milliseconds that the thread has spent waiting. -1 if thread contention monitoring is disabled |