

Spring Boot Logging

Let Your Application speak

Logging Dependency

- Spring Boot has dependency on Commons Logging API.
- It is provided by **spring-jcl** module
 - Spring-jcl module need to be included in the classpath.
- It depends on **spring-boot-starter-logging**
 - It is automatically added when you add **spring-boot-starter-web**

```
<dependency>  
    <groupId>org.springframework.boot</groupId>  
    <artifactId>spring-boot-starter-web</artifactId>  
</dependency>
```

Spring Boot Logging System

- Spring Boot has a `LoggingSystem` abstraction.
- It attempts to configure logging based on the content of the classpath.
- If `Logback` is available, it is the first choice.

Spring Boot Logging System

- Logging levels of various loggers can be customized in `application.properties`

`logging.level.org.springframework.web=DEBUG`
`logging.level.org.hibernate=ERROR`

- For file based logging we can set "`logging.file`" in `application.properties` file
- Logging system can be customized by native configuration format supported by the `LoggingSystem` in question.
- By default, Spring Boot picks up the native configuration from its default location for the system (such as `classpath:logback.xml` for Logback).
- But you can set the location of the config file by using the "`logging.config`" property.

Configure Logback for Logging

- If available, `logback.xml` is picked up from root of your **classpath**.
- A **`logback-spring.xml`** is a better choice to take advantage of the templating features provided by Boot.
- Spring Boot provides a default base configuration that you can include if you want to set levels,

```
<?xml version="1.0" encoding="UTF-8"?>
<configuration>
    <include resource="org/springframework/boot/logging/logback/base.xml"/>
    <logger name="org.springframework.web" level="DEBUG"/>
</configuration>
```

Logback base.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<included>
<include resource="org/springframework/boot/logging/logback/defaults.xml"/>
<property value="${LOG_FILE:-${LOG_PATH:-${LOG_TEMP:-${java.io.tmpdir:-/tmp}}}/spring.log}"
name="LOG_FILE"/>
<include resource="org/springframework/boot/logging/logback/console-appender.xml"/>
<include resource="org/springframework/boot/logging/logback/file-appender.xml"/>
<root level="INFO">
<appender-ref ref="CONSOLE"/>
<appender-ref ref="FILE"/>
</root>
</included>
```

`${PID}`: The current process ID.

`${LOG_FILE}`: Whether logging.file was set in Boot's external configuration.

`${LOG_PATH}`: Whether logging.path (representing a directory for log files to live in) was set in Boot's external configuration.

`${LOG_EXCEPTION_CONVERSION_WORD}`: Whether logging.exception-conversion-word was set in Boot's external configuration.

Logback for File-only Output

- Configure a custom `logback-spring.xml`
 - Do not import `console-appender.xml`
 - import `file-appender.xml` only
- A sample Configuration is given below

```
<?xml version="1.0" encoding="UTF-8"?>
<configuration>
    <include resource="org/springframework/boot/logging/logback/defaults.xml" />
    <property name="LOG_FILE" value="${LOG_FILE:-${LOG_PATH:-${LOG_TEMP:-
${java.io.tmpdir:-/tmp}}/}spring.log}"/>
    <include resource="org/springframework/boot/logging/logback/file-appender.xml" />
    <root level="INFO">
        <appender-ref ref="FILE" />
    </root>
</configuration>
```

You also need to add `logging.file` to your `application.properties`

`logging.file=myapplication.log`

Log4j2 for Logging

Configure Log4j2

- Spring Boot Supports log4j2 if it is in the classpath.
- To enable log4j2 as logging system,
 - exclude logback dependency
 - Include log4j2 dependency

Configure Log4j2

```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-web</artifactId>
</dependency>
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter</artifactId>
    <exclusions>
        <exclusion>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-logging</artifactId>
        </exclusion>
    </exclusions>
</dependency>
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-log4j2</artifactId>
</dependency>
```

Log4j2 console appender (log4j2.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<Configuration status="WARN">
  <Appenders>
    <Console name="Console" target="SYSTEM_OUT">
      <PatternLayout pattern="%d{HH:mm:ss.SSS} [%t] %-5level %logger{36} - %msg%n"/>
    </Console>
  </Appenders>
  <Loggers>
    <Logger name="org.springframework" level="DEBUG"/>
    <Root level="error">
      <AppenderRef ref="Console"/>
    </Root>
  </Loggers>
</Configuration>
```