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Abstract

This document covers



In a multi-threaded environment – and especially when adopting Log4j2's Async Logging feature – contextual meta-information can be leveraged to untangle the interleaved logging statements which arise from Log4j’s async logging functionality.

The need for contextualizing becomes especially applicable/valuable when using thread pools.

This contextual metadata can be used in conjunction with tools like Splunk to transform enmeshed logging statements into something resembling a time-series journal.

There are two classes in Log4j2 which provide Threadlocal contextualization:

The NDC class (stack-based)

The MDC class (map-based)

NDC

The NDC class uses a Threadlocal Stack, along with the %x option of an appender's PatternLayout.

Use any execution context that is deemed necessary.

Utilize the push/pop concept.

Leverage the %x option of an appender's PatternLayout configuration to publish any contextual meta-information that you choose.

MDC

The MDC class uses a Threadlocal Map to accomplish the same thing.



Configuration Examples

src/main/resources/log4j2.xml

<?xml version="1.0" encoding="UTF-8"?>

<Configuration status="WARN">

<Properties>

<Property name="PID">%5X{pid}</Property>

<Property name="LOG\_EXCEPTION\_CONVERSION\_WORD">%xEx</Property>

<Property name="LOG\_LEVEL\_PATTERN">%5p</Property>

<Propertyname="LOG\_PATTERN">%style{%d{yyyy-MM-dd HH:mm:ss.SSS}}{dim}%highlight{${LOG\_LEVEL\_PATTERN}} %style{${sys:PID}}{magenta} %style{---}{dim} %style{[%15.15t]}{dim} %style{%-40.40c{1.}}{cyan} %style{%22.22M}{magenta} %style{:}{faint} %m%n${sys:LOG\_EXCEPTION\_CONVERSION\_WORD}</Property>

</Properties>

<Appenders>

<Console name="ConsoleAppender" target="SYSTEM\_OUT" follow="true">

<PatternLayout pattern="${LOG\_PATTERN}" />

</Console>

</Appenders>

<Loggers>

<logger name="com.github.daggerok" level="ALL" additivity="false">

<appender-ref ref="ConsoleAppender"/>

</logger>

<Root level="ALL">

<AppenderRef ref="ConsoleAppender"/>

</Root>

</Loggers>

</Configuration>

for me next configurations are working well (without includeLocation="true" option enabled):

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<?xml version="1.0" encoding="UTF-8"?>

<Configuration status="WARN">

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<Property name="PID">%5X{pid}</Property>

<Property name="LOG\_EXCEPTION\_CONVERSION\_WORD">%xEx</Property>

<Property name="LOG\_LEVEL\_PATTERN">%5p</Property>

<Property name="LOG\_PATTERN">%style{%d{yyyy-MM-dd HH:mm:ss.SSS}}{dim} %highlight{${LOG\_LEVEL\_PATTERN}} %style{${sys:PID}}{magenta} %style{---}{dim} %style{[%15.15t]}{dim} %style{%-40.40c{1.}}{cyan} %style{%22.22M}{magenta} %style{:}{faint} %m%n${sys:LOG\_EXCEPTION\_CONVERSION\_WORD}</Property>

</Properties>

<Appenders>

<Console name="ConsoleAppender" target="SYSTEM\_OUT" follow="true">

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<appender-ref ref="ConsoleAppender"/>

</logger>

<Root level="ALL">

<AppenderRef ref="ConsoleAppender"/>

</Root>

</Loggers>

</Configuration>

build.gradle

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dependencies {

implementation(platform('org.apache.logging.log4j:log4j-bom:2.12.1'))

implementation 'org.apache.logging.log4j:log4j-api'

implementation 'org.apache.logging.log4j:log4j-core'

// ...

}

Topic | StackWalker (Java 9)

<https://stackoverflow.com/questions/36542487/why-log4j-2-does-not-log-method-name-for-app-and-unit-tests>

<https://bit.ly/3AyKxxs>

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