Log4j2 Properties Validator – Usage Guideline

This guideline explains how to use the **Log4j2 Properties Validator** to validate a *log4j2.properties* file against Log4j2 v2.25.x.

1. Purpose

This **Log4j2 Properties Validator** validates a *log4j2.properties* file using Log4j2's own parsing and configuration logic. It will,

- Uses Log4j2's internal configuration builder

- Detects invalid syntax based on actual Log4j2 properties extraction behavior

- Reports invalid configuration entries(dangling appenders, loggers or any other invalid references)

This ensures validation aligns exactly with Log4j2 runtime behavior.

2. Requirements

- Java 8 or higher

3. How to Run the Validator

Execute the following command to run the validator:

```Java
java -jar /path/to/log4j2-validator-1.0.0-standalone.jar
/path/to/log4j2.properties
```

The path /path/to/log4j2.properties should point to the Log4j2 properties file you want to validate.

Sample command for APIM,

```Java
java -jar log4j2-validator-1.0.0-standalone.jar
repository/conf/log4j2.properties
```

4. Output Explanation

It may print the invalid references in the current log4j2.properties file as shown below. If those configurations are not used, comment out/remove them.

The thrown exception trace:

```
milanka@Milanka wso2am-4.3.0 % java -jar log4j2-validator-1.0.0-standalone.jar repository/conf/log4j2.properties


  Configuration parse failed (PropertiesConfigurationBuilder):
org.apache.logging.log4j.core.config.ConfigurationException: No type attribute provided for component logger
        at org.apache.logging.log4j.core.config.properties.PropertiesConfigurationBuilder.createComponent(PropertiesConfigurationBuilder.java:362)
        at org.apache.logging.log4j.core.config.properties.PropertiesConfigurationBuilder.processRemainingProperties(PropertiesConfigurationBuilder.java:206)
        at org.apache.logging.log4j.core.config.properties.PropertiesConfigurationBuilder.build(PropertiesConfigurationBuilder.java:190)
        at org.wso2.log4j2.validator.Log4j2Validator.validate(Log4j2Validator.java:69)
        at org.wso2.log4j2.validator.Log4j2Validator.main(Log4j2Validator.java:44)
```

Invalid references in concerned log4j2.properties file:

```
Invalid syntax: These properties are not recognized by Log4j2. If you are not using them, comment or remove these entries.

  appender: CARBON_SYS_LOG
    appender.CARBON_SYS_LOG.facility
    appender.CARBON_SYS_LOG.filter.threshold.level
    appender.CARBON_SYS_LOG.filter.threshold.type
    appender.CARBON_SYS_LOG.host
    appender.CARBON_SYS_LOG.layout.pattern
    appender.CARBON_SYS_LOG.layout.type
    appender.CARBON_SYS_LOG.name
    appender.CARBON_SYS_LOG.type

  category: SERVICE_APPENDER
    category.SERVICE_APPENDER._OpenService_

  logger: org-apache
    logger.org-apache.additivity
    logger.org-apache.appenderRef.CARBON_LOGFILE.ref
    logger.org-apache.level
    logger.org-apache.name

  logger: org-wso2
    logger.org-wso2.level
    logger.org-wso2.name

  logger: synapse-headers
    logger.synapse-headers.level
    logger.synapse-headers.name

  logger: synapse-wire
    logger.synapse-wire.level
    logger.synapse-wire.name
```

Once all issues are resolved, rerun the tool to verify that there are no issues. Sample output is shown below:

```
milanka@Milanka wso2am-4.3.0 % java -jar log4j2-validator-1.0.0-standalone.jar repository/conf/log4j2.properties

  Existing Configurations are valid.
milanka@Milanka wso2am-4.3.0 %
```