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**Research Article**

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# Enhancing Data Visualization: Custom Log File Generation in PEGA

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**Abstract** High-volume applications often struggle with bulky log files, making it challenging for system architects and business teams to analyze specific scenarios. This paper proposes a solution for generating custom log files in Pega to streamline the monitoring and analysis of dedicated business processes. By creating targeted logs, businesses can enhance their monitoring capabilities, improve system performance, and facilitate easier integration with visualization tools like Kibana and monitoring tools such as AppDynamics.

**Keywords** PEGA, Log Monitoring, Data Visualization, Enhanced Performance, Kibana, AppDynamics

## 1. Introduction

Pega's out-of-the-box (OOTB) logging mechanism, primarily the PegaRULES.log file, captures comprehensive details about the entire application. While thorough, this approach can result in voluminous logs that are cumbersome to analyze, especially when focusing on specific business processes. This paper presents a technical solution for generating custom log files in Pega, thereby improving the efficiency of monitoring and analyzing high-volume applications. [1]

### A. Research Objective/Scope

The objective of this research is to develop a solution for generating custom log files in Pega applications, addressing the limitations of the PegaRULES.log file, which often becomes bulky and cumbersome for analyzing specific business processes. By creating dedicated log files, the solution aims to enhance monitoring capabilities, improve system performance, and facilitate integration with data visualization and monitoring tools like Kibana and AppDynamics. The scope includes designing a technical framework, providing implementation steps, evaluating performance impacts, and highlighting business benefits such as targeted monitoring, simplified integration, and improved troubleshooting, ultimately leading to better operational efficiency and insights.

## 2. Business Requirement

In high-volume applications, the extensive data captured in the PegaRULES.log file often includes irrelevant information for specific business process monitoring. This necessitates a custom logging solution that can cater to specific business needs, such as:

- Sending business logs to data visualization tools like Kibana
- Generating detailed logs for particular business requirements.
- Facilitating log analytics for business events through monitoring tools like AppDynamics.

By implementing a custom log file solution, businesses can reduce the time and effort required for health monitoring and operational analysis, thereby enhancing overall efficiency. [2]

### 3. Problem Statement

The current Pega out of the box log file, PegaRULES.log, captures details for the entire application, making it difficult for business and system monitoring teams to isolate relevant information. The following issues arise from this:

- Overhead in processing and analyzing logs for specific business processes.
- Challenges in integrating logs with data visualization and monitoring tools without additional processing.
- Increased burden on PegaRULES.log file, affecting performance and manageability.

This paper proposes a solution to address these issues by creating dedicated log files for specific business events and processes.

### 4. Solution Approach

Since Pega does not offer an out-of-the-box solution for creating custom log files, the PegaRULES.log file and any monitoring systems (such as AppDynamics or ELK) that rely on it for alerts and analysis can become overloaded. Our proposed solution, applicable to any Pega on-premise application, captures specific business events in dedicated log files with relevant data. This approach offers a more streamlined method for monitoring health and business processes, thereby enhancing the performance of DAW systems and benefiting business users.

### 5. Technical Execution

a. **Create a parameterized Activity -** Create an organization-level activity designed to trigger custom log messages. This parameterized activity must be called to invoke the log message.

b. **Create Custom Log Configuration File** - Copy the content of OOTB prlog4j2.xml to Custom-prlog4j2.xml and add the following appender and logger: [3] [4]

```
<Appenders>
<!-- RollingFile Appender for TEST PURGEALERTS logs -->
<RollingRandomAccessFile name="PURGEALERT" fileName="${sys:pega.logdir}/TEST-PURGEALERT.log"
file Pattern="${sys:pega.logdir}/TEST-PURGEALERT-%d{MM-dd-yyyy}-%i.log.gz"> <PatternLayout>
<Pattern>%d [%20.20t] [% 20.20X{tenantid}]
[% 20.20X{app}] (%30.30c{3}) %-5p %X (stack} % X{userid} - %m%n</Pattern> </PatternLayout>
<Filters>
<!--Deny message logged under ALERT log level-->
<ThresholdFilter level="ALERT" onMatch="DENY" onMismatch="NEUTRAL"/>
</Filters>
<Policies>
<TimeBasedTriggeringPolicy interval="1" modulate="true"/>
<SizeBased TriggeringPolicy size="5 MB"/>
</Policies>
</RollingRandomAccessFile>
</Appenders>
```

*Figure 1: Appender Code Snippet*

```
        </Logger>
        <Logger name="com.pega.dsm.dnode.impl.dataflow.service.DataFlowDiagnosticsFileLogger" additivity="false" level="info">
            <AppenderRef ref="DATAFLOW"/>
        </Logger>
        <Logger name="Rule_Obj_Activity.SetCustomLog.HMRC_.Action" additivity="false" level="debug">
            <AppenderRef ref="PEGA"/>
        </Logger>
        <Logger name="Rule_Obj_Activity.TESTPurgeLogMessage.ABC_.Action" additivity="false" level="debug">
            <AppenderRef ref="PURGEALERT"/>
        </Logger>
    </Loggers>
</Configuration>
```

*Figure 2: Logger Code Snippet*

c. **Update Startup File** - Modify setenv.sh to include the new log configuration

d. **Restart Application Nodes** - Restart all application nodes to apply the new log configuration. After restart the new logfiles will be available in the log directory as shown in the below figure.

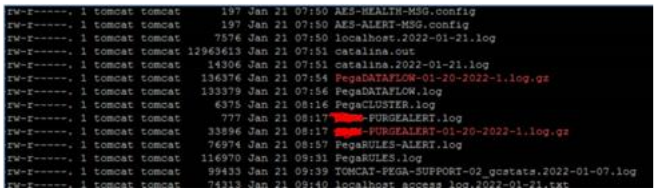


*Figure 3: Log Directory*

e. **Invoke the Custom Log Activity** - Call the custom log activity TESTPurgeLogMessage from the application process

f. **Verify the Log File** - Check TEST-PURGEALERT.log in the log directory to ensure it captures the intended log messages

**6. Business Benefits**

Implementing a custom log file solution offers several significant business benefits, which collectively enhance the efficiency and effectiveness of system monitoring and maintenance:

**Targeted Monitoring**

Business process monitoring teams can concentrate on relevant logs specific to the business events, which minimizes the noise created by unrelated system logs. By having dedicated logs, teams can swiftly access the data they need without sifting through the entire PegaRULES.log file, thereby reducing the time and effort required for log analysis.

**Enhanced Performance**

By diverting business-specific log entries to a custom log file, the load on the primary PegaRULES.log file is significantly reduced. This reduction in log file size and complexity leads to better performance of the Pega system, as it decreases the time needed for log file generation, management, and access.

**Simplified Integration**

Custom log files can be directly integrated with data visualization tools like Kibana, making it straightforward to visualize and analyze business-specific log data. Custom logs facilitate seamless integration with monitoring tools such as AppDynamics, allowing these tools to run log analytics more efficiently and generate alerts based on business events.

**Improved Troubleshooting**

With logs dedicated to specific business processes, system architects and developers can quickly pinpoint and diagnose issues, reducing downtime and improving response times. Having clear and relevant log data at hand enables faster and more accurate problem resolution, which enhances overall system reliability and user satisfaction.

**7. Conclusion**

Custom log file generation in Pega enhances the monitoring and analysis of high-volume applications by providing targeted logging for specific business processes. This solution not only reduces the burden on the PegaRULES.log file but also improves the efficiency and effectiveness of business process monitoring. By adopting this approach, enterprises can achieve better operational insights and maintain a cleaner, more manageable log environment.

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