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Message Correlation Analysis Tool for NOvA

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A complex running system, such as the NOvA online data acquisition, consists of a large number of distributed but closely interacting components. This paper describes a generic realtime correlation analysis and event identification engine, named Message Analyzer. Its purpose is to capture run time abnormalities and recognize system failures based on log messages from participating components. The initial design of analysis engine is driven by the DAQ of the NOvA experiment. The Message Analyzer performs filtering and pattern recognition on the log messages and reacts to system failures identified by associated triggering rules. The tool helps the system maintain a healthy running state and to minimize data corruption. This paper also describes a domain specific language that allows the recognition patterns and correlation rules to be specified in a clear and flexible way. In addition, the engine provides a plugin mechanism for users to implement specialized patterns or rules in generic languages such as C++.

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