Testing Report

PANIC was tested using unit testing and system testing. This report will outline how unit and system testing were conducted.

Unit Testing

In unit testing, most of the tests focused on whether the alerter issues the correct alert at the intended severity level whenever an event happens. For example, one of the tests checks that whenever the **number of peers** of a **validator** decreases beneath a specific danger boundary, a **CRITICAL** alert is raised. Multiple variations of such tests were performed.

Unit tests were also written to test the use of Redis and the implemented monitors. For Redis, the tests were mostly targeted towards checking that the **load** and **save** functions work as intended for all the monitors and underlying objects representing nodes and blockchains. For the monitors, the unit tests were focused to check that the monitors update the state of the object they are monitoring correctly, and that the data source for **indirect/archive** monitoring is chosen correctly.

For more details on what has been tested and their results, please refer to the excel sheet **report_unit_testing** located in the **panic_polkadot/alerter/test** folder. Note that this excel sheet and this report only highlights the most important tests. To delve into more detail, the unit tests themselves can be found in the **panic_polkadot/alerter/test** folder and can be run using **run_tests.py**.

A coverage report of the unit tests implemented for the alerter is included in the excel sheet **report_coverage** located in the **panic_polkadot/alerter/test** folder.

System Testing

The aim of the tests in System testing were to check that everything is working as intended as a whole, and that the custom JS API and PANIC are interacting successfully with each other. To delve into more detail about what system tests have been conducted, please refer to the excel sheet **report_system_testing** found in the **panic_polkadot/alerter/test** and **panic_polkadot/api/test** folders.

Apart from performing the tests mentioned in the two excel sheets, the entire system was also tested by running it on multiple nodes (both validators and full nodes) for a whole month. During this period, the logs and alerts were monitored to confirm that PANIC is working as expected.