

# BluVal - Akraino blueprint validation framework



This is a draft and work in progress

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## Introduction

BluVal is a diagnostic toolset framework to validate different layers in the Akraino infrastructure developed and used in Akraino edge stack. BluVal integrates different test cases, its development employs a declarative approach that is version controlled in LF Gerrit. They are integrated in CI/CD tool chain where peer Jenkins jobs can run the test cases and the results are reported in LF Repo (Nexus). The test cases cover all blueprint layers in the cluster.

## Requirements

- Support Kubernetes
- Integrate with LF Gerrit
- Run well in an Akraino validation lab
- Store test results in a database

## Technical guidelines

To support python3

To be fully covered by unit tests

To provide docker containers and manifest for both architectures supported: amd64 and arm64

To publish the documentation online

## Test cases bundle for different layers

# Akraino Edge Stack Validation Toolset

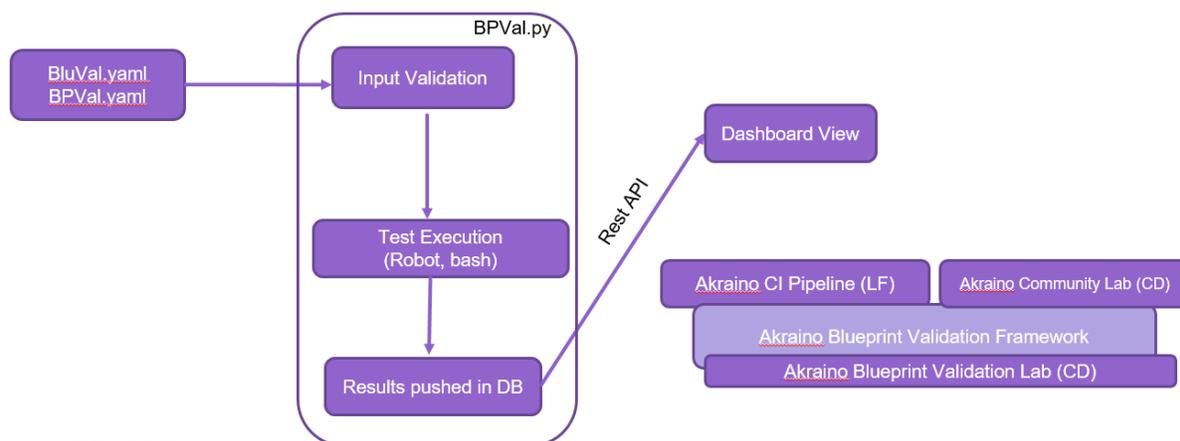
Layers	Test Cases
Hardware <u>Baremetal</u>	IP connectivity validation, MAC data validation, Boot sequence validation, Hardware health validation, RAID configuration validation
BIOS version	Firmware validation, <u>Numa</u> , Drives block devices
OS	Linux Test Project, Linux kernel performance test tool
K8s	<u>Kubetest</u> , Conformance <u>Sonobuoy</u> , K8s High availability
<u>Openstack</u>	Tempest, Rally, Shaker
<u>Ceph</u>	
ONAP	
VNF	VNF SDK, Sample VNF
Application	



## BluVal implementation Overview

bluval.py runs the tool-set to test the REC Akraino validation framework. It performs the following actions:

1. Input validation
2. Test execution
3. Results pushed in DB
4. Dashboard view



## BluVal installation and execution

bluval.py toolset project is from Akraino gerrit (Linux Foundation credentials required). It is to be cloned into /opt/akraino on the designated Regional controller or test host.

For cloning 'git clone' command can be used as shown in the below procedure:

This is how you can validate the bluval engine setup, if you have proper connectivity it should show some testcases in PASS status.

```
ns156u@aknode82:~$ git clone https://gerrit.akraino.org/r/validation.git
ns156u@aknode82:~$ cd validation
ns156u@aknode82:~/validation$ python -m venv .py35 # First time only
ns156u@aknode82:~/validation$ source .py35/bin/activate
(.py35) ns156u@aknode82:~/validation$ pip install -r bluval/requirements.txt # First time only
(.py35) ns156u@aknode82:~/validation$ python bluval/bluval.py -l hardware dummy # this will run
hardware test cases of dummy blue print
(.py35) ns156u@aknode82:~/validation$ deactivate
```

## Distro support

In order to keep the test infra small, only a limited number of distros may be supported. Others can be added easily if needed. At the moment, the Vuls tests support

- Ubuntu 16
- Ubuntu 18
- CentOS 7
- CentOS 8

## Kubernetes and setup details

The pre-requisite for the bluval engine to test kubernetes test cases are listed below:

- Three node setup - With atleast one master and 2 worker nodes
- Testcases executed successfully on Kubernetes 1.18.6 and 1.17.2 versions