

From zero to first test in your own LAVA laboratory (in less than 30 minutes)

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Agenda

1. Introduction
2. Laboratory setup
3. Tools
4. Next steps
5. Conclusion

Introduction

What is LAVA?



- Linaro Automated Validation Architecture
- Automation system for deploying operating systems
- Supports both physical and virtual hardware
- Allows running boot, bootloader and system level tests (extra hardware may be required)

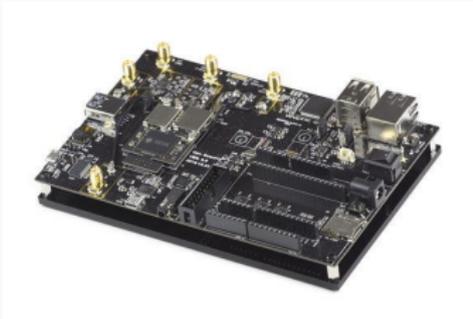
When is it needed? (Single target)



When is it needed? (Single instance)



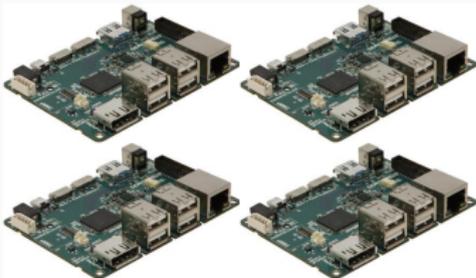
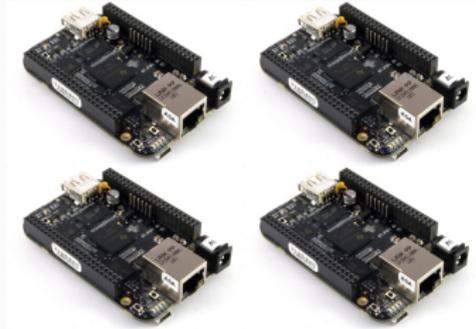
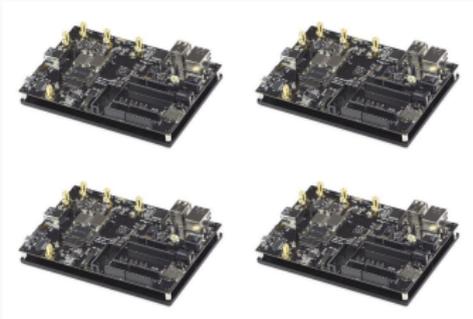
When is it needed? (Multiple targets)



When is it needed? (New architecture)



When is it needed? (Multiple instances)



When is it needed? (Abstraction layer)



What are LAVA use cases?

- Complex device management
- Resource allocation (various capabilities)
- Scheduling and dispatching tasks on numerous devices

How does it help?

- Provides unified device environment
- Allows test execution parallelization
- Collects and tracks results over time
- Supports direct device access
(**Hacking Sessions, Board Overseer**)

Who uses LAVA?



Kernel CI



Laboratory setup

Where to start?

- **Standalone instance**
- **Virtual devices only**
- **Simple tests (health checks)**



- **Reduce** initial complexity
- **Familiarize** with the new workflow
- **Understand** LAVA concepts
- **Postpone** learning how to write tests

Machine with supported Debian release (Ubuntu support **frozen**)

Distribution	Codename	Number	Support
Debian	experimental	n/a	Yes ^[1]
Debian	Sid (unstable)	n/a	Yes
Debian	Stretch (testing)	n/a	Yes ^[2]
Debian	Jessie (stable)	8.0	Yes ^[3]

Necessary files

- System image
- Health check job
- Device type template
- Device dictionary (instance definition):

```
{% extends 'qemu.jinja2' %}  
{% set mac_addr = '52:54:00:12:34:AB' %}  
{% set memory = '1024' %}
```

```
# apt install postgresql
# apt install lava

# a2dissite 000-default.conf
# a2enmod proxy
# a2enmod proxy_http
# a2ensite lava-server.conf
# service apache2 restart
```

```
# lava-server manage createsuperuser

# lava-server manage add-device-type qemu
# lava-server manage add-device
  --device-type qemu qemu01
# lava-server manage device-dictionary
  --hostname qemu01 --import qemu01.dict
```

CLI

```
$ lava-tool submit-job --help
```

Web UI

Submit Job

You can use the [Job Submission Wizard GUI](#) for submitting jobs (used for deprecated V1 only).

Otherwise, paste your job definition here. Alternatively, you can paste a URL to your job definition file.

1	Enter your job definition or link to a job definition here.
2	
3	
4	
5	
6	
7	
8	

Add to my favorite jobs

Validate

Submit

Tools

- Environment reproducibility
- Same on staging and production environment
- Choose personal favourite
- LAVA laboratory roles coming to Ansible Galaxy soon



Virtual machine management



- New machines brought up instantly
- Wide range of prebuilt boxes (careful!)



- Flexible (covers various use cases)
- User-friendly CLI/GUI tools

Next steps

- **Adding new device types to LAVA**

`https://validation.linaro.org/static/docs/v2/first-devices.html#adding-new-device-types`

- **Writing tests**

`https://validation.linaro.org/static/docs/v2/developing-tests.html`

- **Add your lab to Kernel CI**

`https://github.com/kernelci/lava-ci#add-your-lab-to-kernelci`

- **AGL Testframework setup instructions**
<https://wiki.automotivelinux.org/agl-testframework/setup>
- **Civil Infrastructure Platform Testing initiative**
<https://wiki.linuxfoundation.org/civilinfrastructureplatform/ciptesting>

- Getting Started in LAVA V2 – Bill Fletcher (**LAS16-TR05**)
- Building a Bards Farm: Continuous Integration and Remote Control – Antoine Tenart & Quentin Schulz (**ELCE 2016**)
- Testing with volcanoes - Fuego+LAVA – Jan-Simon Möller (**FOSDEM 2017**)

- **Comprehensive documentation**

<https://validation.linaro.org/static/docs/v2>

- **Lava-users mailing list**

<https://lists.linaro.org/mailman/listinfo/lava-users>

- **#linaro-lava on Freenode**

<http://webchat.freenode.net/?channels=linaro-lava>

Conclusion

- Easy installation thanks to package repositories
- Instant setup (once all requirements are met)
- Environment unification for various device types
- No cost test execution parallelization
- Responsibilities division
(farm maintained by its operators)

- Exhaustive documentation has no downsides
- No need to reinvent the wheel in board farm management
- Automation always pays off in the long term

Questions?

Thank you!

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Acknowledgements

- Bill Fletcher's **YouTube channel**
- Senthil Kumaran S – **personal website**
- **Metropolis** – simple, modern Beamer theme

Pictures used

- https://validation.linaro.org/static/docs/v2/_images/lava.svg
- https://c1.staticflickr.com/4/3845/14491195107_80cc27784a_b.jpg
- <http://core0.staticworld.net/images/article/2016/04/3.artik-10-developer-board-100657852-large.jpg>
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