



Ensuring the quality, stability and
long-term maintenance of the Linux kernel

About me



gus@collabora.com

 [/guspadovan](#)

 [/guspadovan](#)



Linux kernel community



Linux kernel business



Board member



Above all, there is ecosystem behaviour challenge ahead. It's not only a complex technical challenge for kernel testing. **A cultural shift is necessary!**

Testing & Validation tends to be internal and closed source, but Open Source software should have Open Source testing & validation.

The kernel community should keep evolving upstream testing and integration to achieve the product-level quality expectations of industry.

- Ensuring kernel quality, stability and long-term maintenance
- Consolidating Linux kernel testing and integration stories
- Enable Ecosystem of test systems
- Acting as umbrella for projects, working groups and standards
- Managing resources and core test infrastructure
- Sponsoring key initiatives aligned with KernelCI goals

Member Companies

Premier Members



General Members



Associate Members





"KernelCI is the place where testing needs are consolidating for the entire Linux kernel ecosystem. As a kernel subsystem maintainer, reliable testing is important in catching regressions and bugs in new code sooner before it hits a released kernel. You should consider joining with KernelCI to help collaborate on the unification of the testing efforts to ensure that the kernel community can keep developing and maintaining the codebase which the world relies on to be stable and secure."

- **Greg KH**

Become a **member**

By becoming a member company at the KernelCI Foundation, you get a chance to influence the direction of the KernelCI project efforts and contribute financially to fund key project activities.

The more KernelCI grows to solve real product challenges your company and the Linux kernel community are facing, the more benefits you get in return.



- Add tree to watcher
- **#kcibot** email cmds
- b4 test command
- Patchwork
- GitLabCI

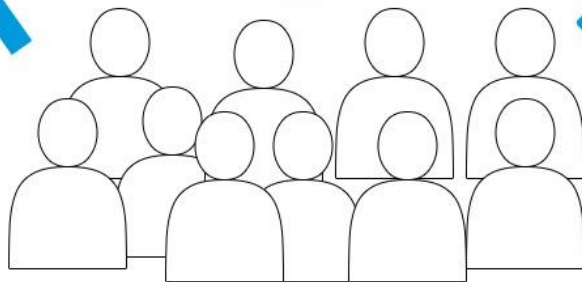
Request testing

- Improve test quality
- Engage with test dev
- Track expected pass/fail
- Add testing gates to process

Add and improve tests

- Receive email notifications
- Use Web Dashboard/patchwork
- Pull results from API
- Integration with tools like b4

Evaluate test results



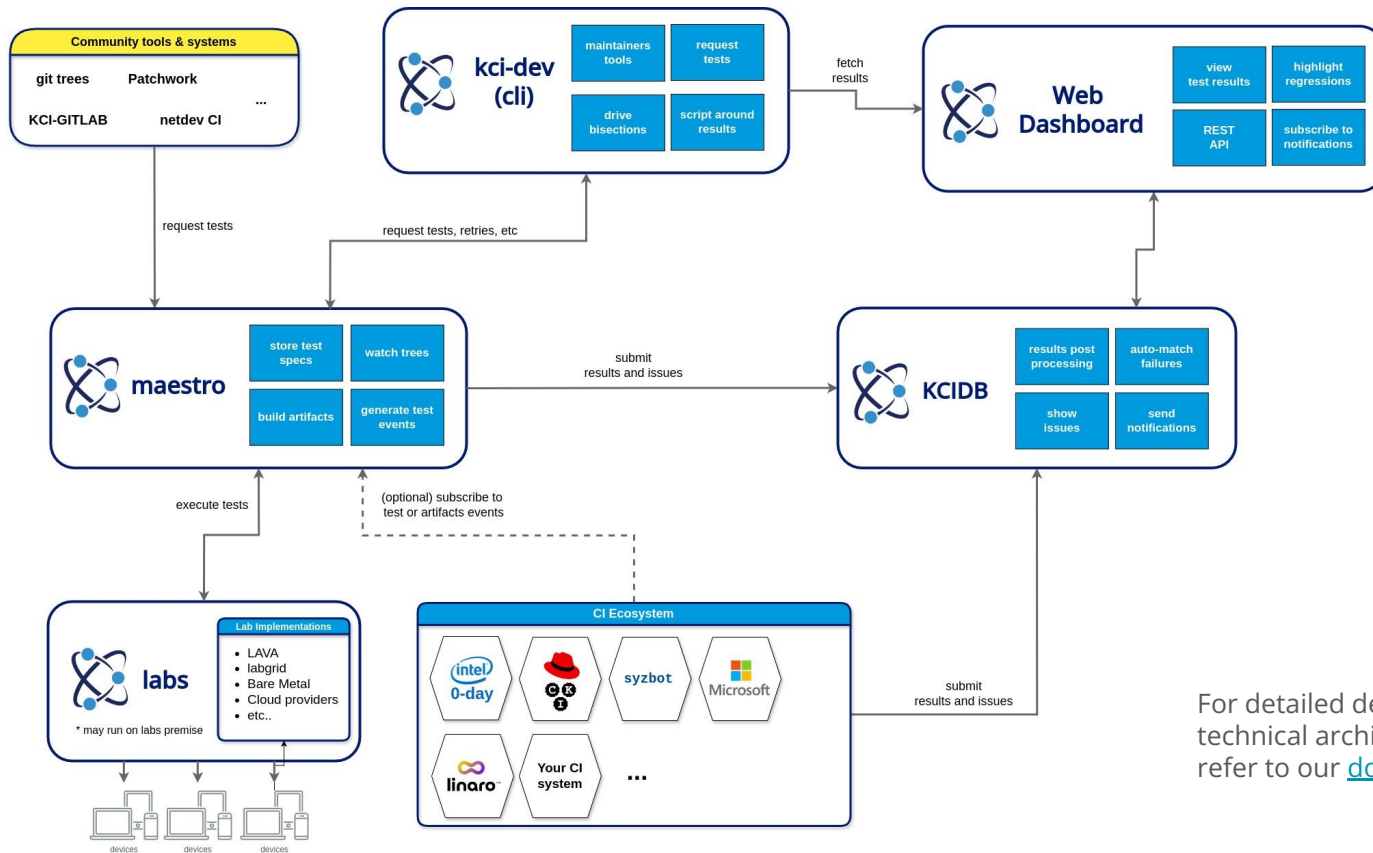
Maintainers

Upstream
Developers

HW vendors

Product
makers

Our audience



For detailed description of the technical architecture please refer to our [documentation](#).

Membership levels

Membership level	Annual fees	Board representative
Premier member	\$50,000	1
General member	Scaling fee: \$5,000 up to 99 employees \$10,000 from 100 to 499 \$15,000 from 500 to 1999 \$20,000 from 2000 to 4999 \$25,000 from 5000 and above	1 every 5 members
Associate member (non-profits, open source projects, and government entities)	\$0	0

If have any inquiries reach out to kernelci-members@groups.io to discuss.

Apply now!



Current community work

- New [Web Dashboard](#) created
- Notifications for regressions and tree status
 - Examples: [regression report](#), [status report](#)
- Still under active development
- Sponsored through KernelCI funds

- kci.dev is our cli to interact with the KernelCI ecosystem
- Send test jobs to our core orchestrator
- Drive retries and bisection
- View results by pulling the Dashboard API
- Allow scripting that interacts with KernelCI

- Proposal to add .kernelci.yml test plan file in each subsystem
 - similar (in concept) to .gitlab-ci files
- Allow CI systems to understand what to test
- Enable maintainers and community to own their testing needs
- PoC [proposal](#)

- Too much test data generated everyday
- We need to support maintainers to test results post processing
- Automatic processing strategies help with maintainers load
- Investing in post-processing layer to achieve our goals:
 - Matching test results failing in the same way
 - Driving bisections more intelligently
 - Automatic filtering and notifications
 - Circling out flakes

- Integrated with [netdev-CI](#) as hardware test executor
- Bring [DRM-CI](#) to execute builds and tests through KernelCI
- Early discussions with [ELISA](#) for functional safety kernel testing
- Working with CI systems to improve quality of the data in KCIDB
- Looking for more collaboration with other CI/test system
- Reduce fragmentation and duplication of efforts
- More common tooling, libraries, services, etc.

- Improving Maestro deployment
- Enabling more labs around Maestro
- Adding more features to Maestro to support testing
- Adding plumbing for code coverage testing
- Expanding KCIDB schema to support more cases
- Revamping project documentation
- ...and more

Thank you!



gus@collabora.com

 /guspadovan

 /guspadovan



 kernelci.org
kernelci-members@groups.io



ELISA
Enabling **Linux** in
Safety Applications

WORKSHOP

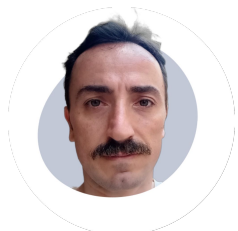
ELISA Workshop
Lund, Sweden

May 7-9, 2025
Co-hosted with Volvo Cars

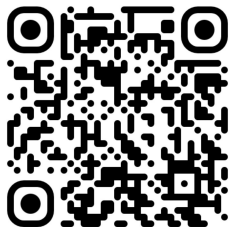
BASIL
The FuSa Spice



Who I am



Luigi Pellecchia
Principal
Software Quality Engineer
Quality Engineering
In-vehicle OS
Red Hat



Agenda

- What is BASIL
- What's new?
- Demo

BASIL The FuSa Spice

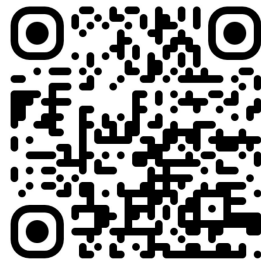
Tool developed to manage software related work items, design their traceability towards specifications and ensure completeness of analysis

Born at Red Hat to support RHIVOS Functional Safety ISO 26262 Compliance Certification

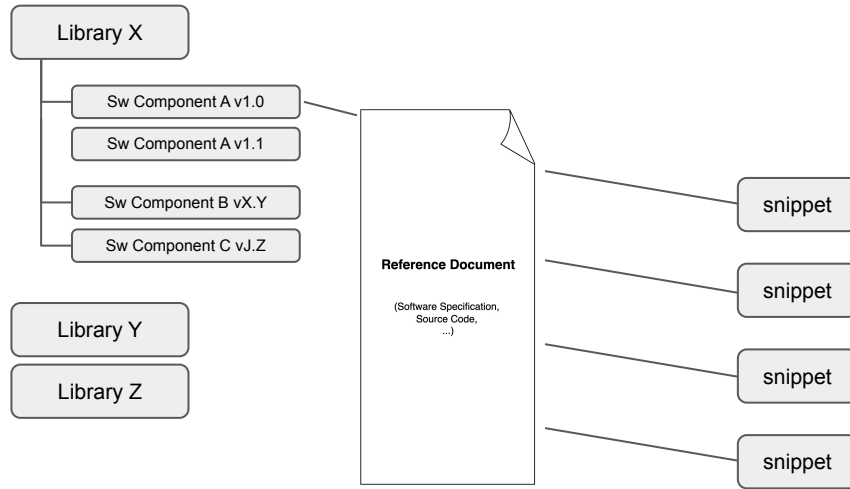
BASIL name comes from ASIL B

Presented to ELISA Project on June 2023 during the Berlin Workshop

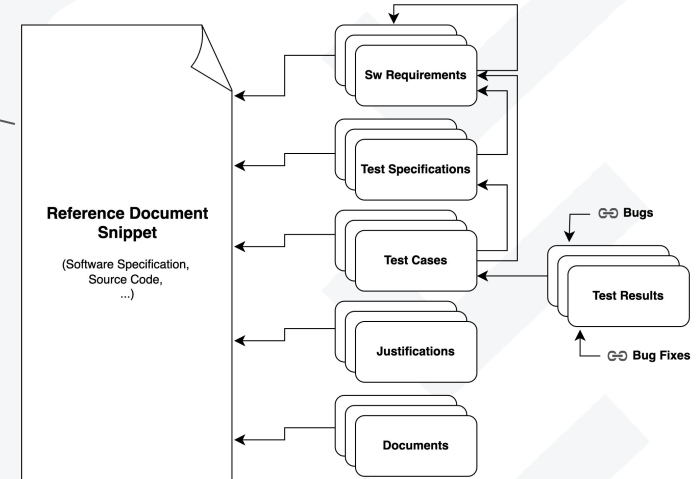
Open Sourced and hosted at ELISA github



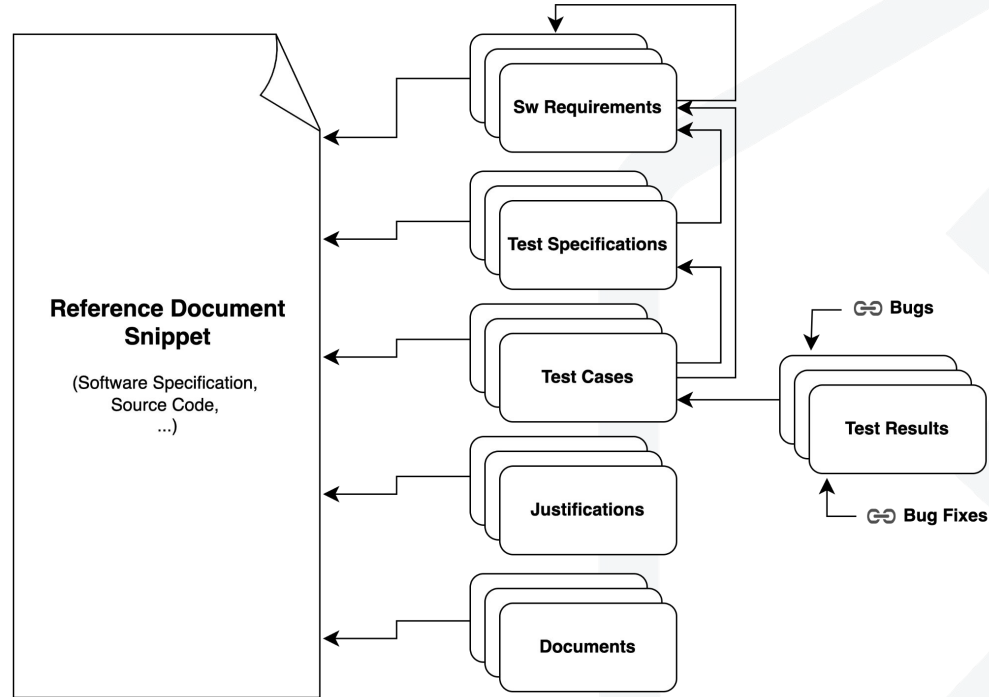
BASIL The FuSa Spice



Define the traceability matrix by creating the work items



BASIL The FuSa Spice

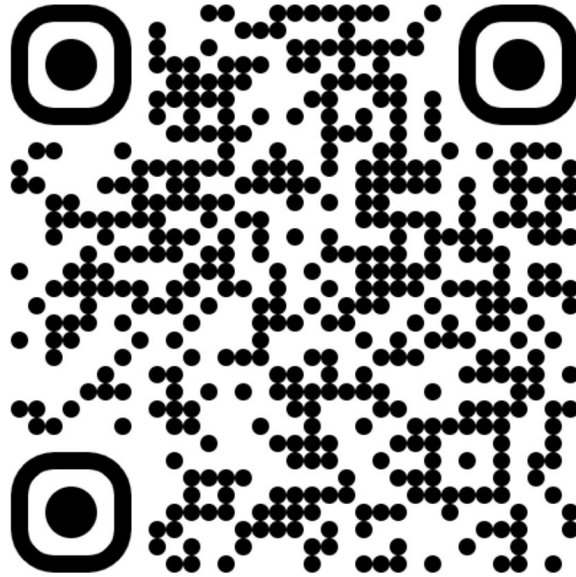


BASIL strengths

- Extended traceability
- Web user interface
- User management and permissions settings
- HTTP API
- Clarifies gaps
- Promotes collaboration
- Keeps track of all changes
- Powerful embedded test infrastructure + support for external testing infrastructures

ELISA BASIL public instance

Create an account and start experimenting with the tool



Where we left off



Dec 2024 ELISA Workshop

Summary of developed features

- Refactoring of the test infrastructure on a plugin based model to supports external tools
 - Testing Farm (Red Hat)
 - KernelCI
 - Gitlab CI
 - Github Actions
- Test plugin preset configuration file

Feb 2025 FOSDEM Recap

Summary of developed features

- Export of Design SBOMs reworked to use SPDX Model 3
- Software Requirements import using BASIL SPDX files

What's new?



Deployment script

Helper script **run_demo.sh** simplifies BASIL deployments

- Build podman container images, volumes, inject environment variable file
- Deployment configuration via script options

User Management

- User profile section
- Admins can configure an email server to support user password reset
- User can set a username to be ready to protect user email information in public instances
- Simplified user permissions configuration (select box and clone between software components)

Software Requirements import

- SPDX Model 3 BASIL

New

- CSV
- YAML
- JSON
- XLSX
- SPDX Model3 StrictDoc

Test Cases import

- Scan remote test repositories based on tmt (generates a JSON)
- Import test cases from scanned repositories (consumes a JSON)

External test infrastructures

Test Infrastructure	Trigger and Trace	Trace pre existing runs	Test Infrastructure	BASIL Version
tmt	✓	✗	Embedded	>= 1.4
Gitlab CI	✓	✓	External	>= 1.5
Github Actions	✓	✓	External	>= 1.5
KernelCI	✗	✓	External	>= 1.5
Testing Farm	✓	✗	External	>= 1.5
→ LAVA (Linaro)	✓	✓	External	>= 1.7

E2E Testing

E2E test was disabled in CI after the introduction of user management.

Test suite has been refactored to consider user management and has been extended to:

- User Login
- Documents mapping
- Test Cases Import
- Software Requirements Import

E2E Testing has been re-enabled in CI

REST API Testing

REST API Testing was disabled in CI after the introduction of user management.

Test suite has been refactored to consider user management and test cases are developed based on specifications defined as github issues (e.g.; [issue 139](#)).

API Testing has been re-enabled in CI.

Browsers support

Snippet selection feature was based on Chrome apis.

The logic has been reworked to support other Browsers.

Demo



Thanks



Licensing of Workshop Results

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ELISA
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Safety Applications



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