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NASA Goddard

# Linking external test results to test cases in BASIL to support pre existing test infrastructures

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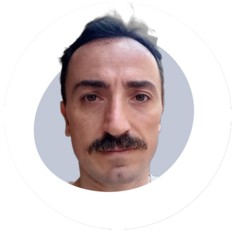
## Who I am



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## Agenda

- What is BASIL
- BASIL Embedded Test Infrastructure
- How to use BASIL with pre existing test infrastructure
  - Gitlab CI
  - Github Actions
  - KernelCI (demo)
  - Testing Farm (demo)

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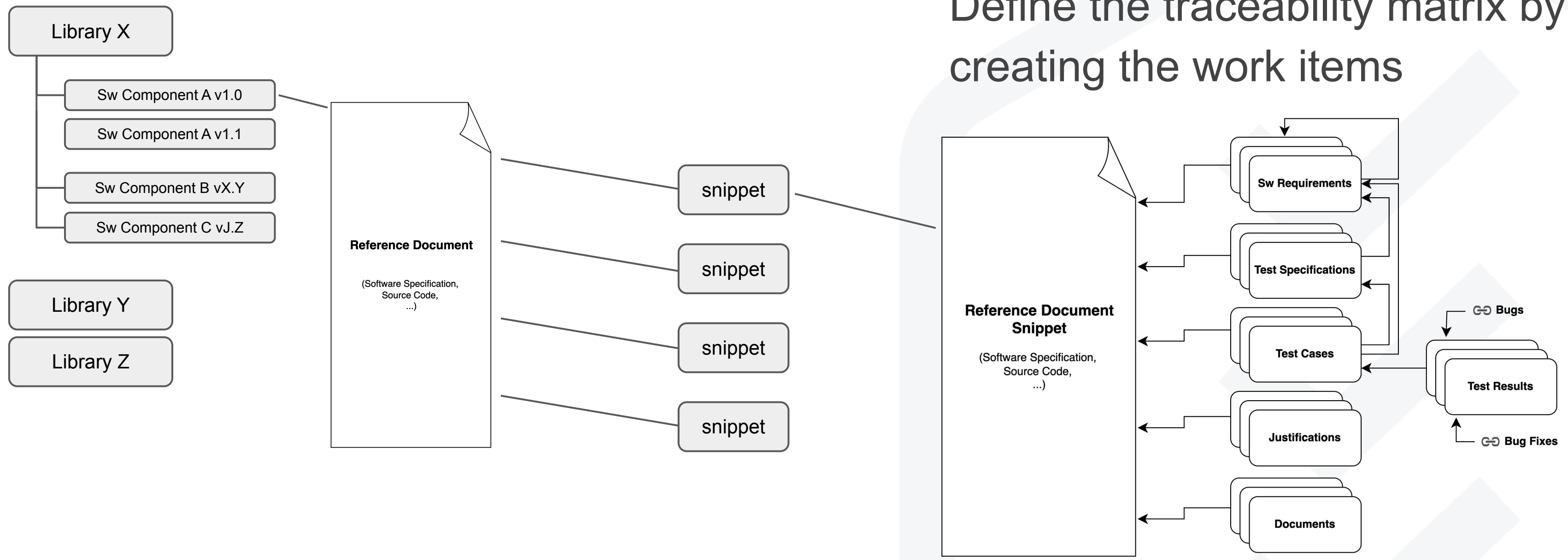
## BASIL The FuSa Spice

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



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## BASIL The FuSa Spice - key points

- Web App with user management
- Clarifies the gaps
- Support collaboration through comments, notifications and work item workflow
- Multiple mapping views to parallelize teams work
- Follow the project evolution
- Allow integration in CI and automated workflows via REST API
- Simplified deployment via containers

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## What we are trying to solve?

- Simplify the introduction of BASIL in companies and projects with pre existing test infrastructures
- Leverage open source and community-oriented test infrastructures initiatives

## KernelCI

KernelCI is a community-based open source distributed test automation system focused on upstream kernel development.

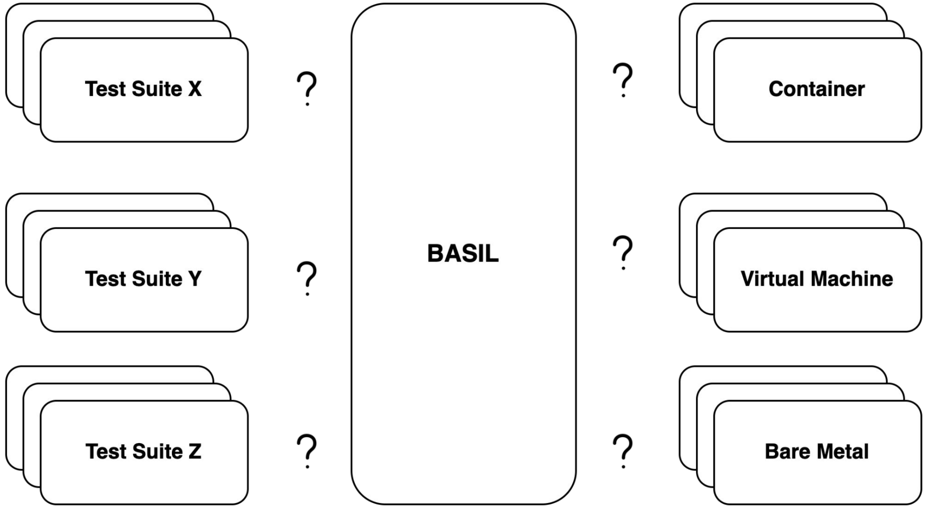
A Linux Foundation project

## Testing Farm

Testing Farm is a reliable and scalable Testing System as a Service.

A Red Hat project

# BASIL Embedded Test Infrastructure



tmt (Test Management Tool)

Python project that uses fmf metadata file (yaml) to abstract test case, test plans and user stories

Can provision different target environments

# BASIL Plugin based Test Infrastructure

| 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 |

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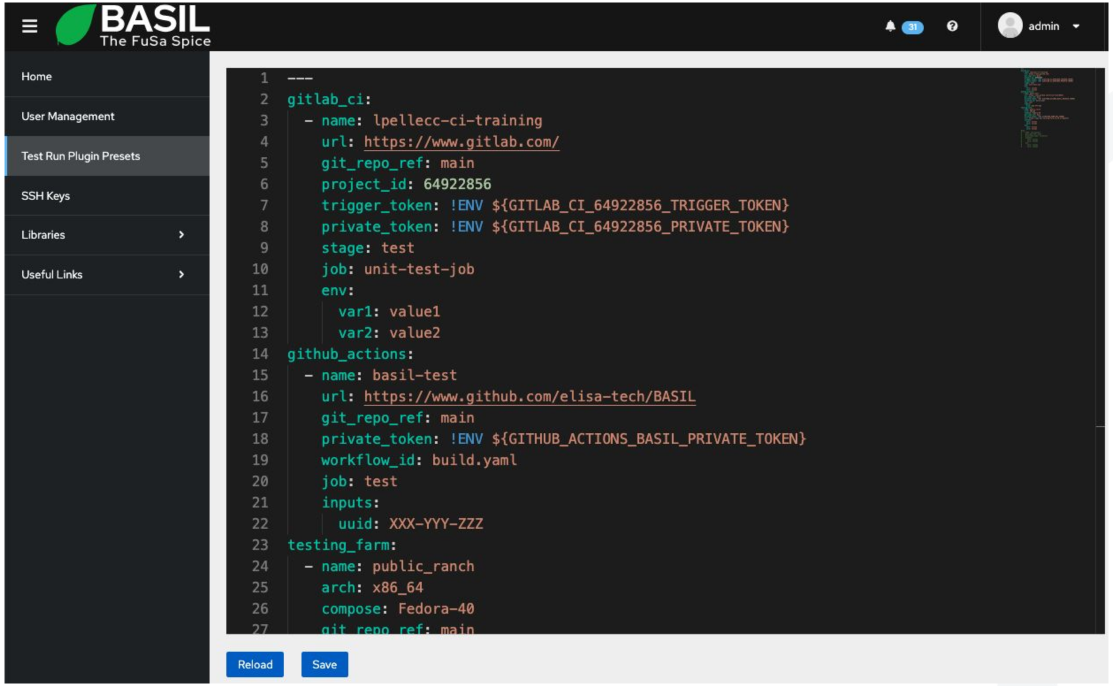
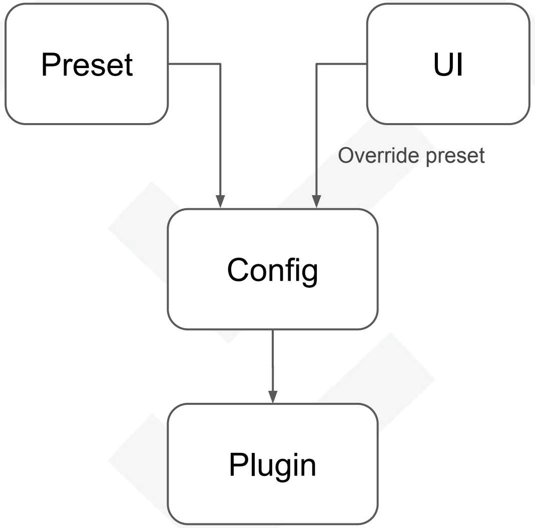
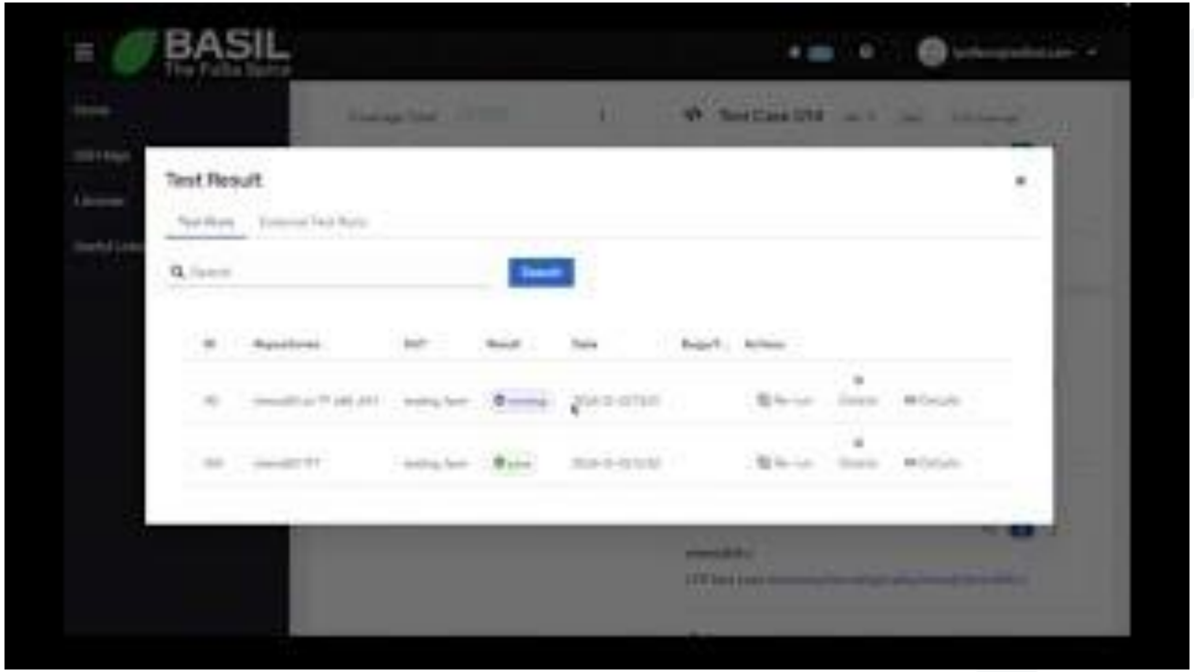
# Plugins Presets



```
---
gitlab_ci:
  - name: lpellecc-ci-training
    url: https://www.gitlab.com/
    git_repo_ref: main
    project_id: 64922856
    trigger_token: !ENV ${GITLAB_CI_64922856_TRIGGER_TOKEN}
    private_token: !ENV ${GITLAB_CI_64922856_PRIVATE_TOKEN}
    stage: test
    job: unit-test-job
    env:
      var1: value1
      var2: value2
github_actions:
  - name: basil-test
    url: https://www.github.com/elisa-tech/BASIL
    git_repo_ref: main
    private_token: !ENV ${GITHUB_ACTIONS_BASIL_PRIVATE_TOKEN}
    workflow_id: build.yaml
    job: test
    inputs:
      uuid: XXX-YYY-ZZZ
testing_farm:
  - name: public_ranch
    arch: x86_64
    compose: Fedora-40
    git_repo_ref: main
```



## Demo: Testing Farm



## Demo: KernelCI

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# Considerations and Next Steps

- KernelCI Plugin is configured to use Maestro API → We should move to a KCIDB oriented implementation

- Some test is configured with not fine granularity (e.g.: ltp syscalls), its up to the user to define the granularity required by its own purpose

## Thanks

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