

PoC: Terraform Compliance

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Overview

Terraform Compliance is a static code analysis tool that tests Terraform plans against Behavior Driven Development (BDD) Features and Scenarios. The language is based on Gherkin. However, terraform-compliance differs from Gherkin in that it interprets whole Gherkin phrases instead of just the "Given", "When", and "Then" statements.

This Proof of Concept (PoC) verifies the ability of Terraform Compliance to validate terraform code using a feature file.

Files



terraform-docker-demo-2.zip

terraform-docker-demo-2

```
(base) ralph@Alienware17r3L:~/Projects/terraform/terraform-docker-demo-2$ tree
.
├── docker.tf
├── features
│   └── ports_external.feature
└── versions.tf

1 directory, 4 files
```

File	Description
docker.tf	Terraform file to create wordpress and mysql interconnected microservices.
features/ports_external.feature	Terraform Compliance feature file which validates that the Wordpress external port is set to 8081
versions.tf	Terraform file for initializing the provider

Pre-requisite

1. Install [Terraform](#)
2. Install Python3

3. Install pip3
4. Install [Terraform Compliance](#)

Steps

1. Extract the attached zip file (see Files section).
This will create a terraform-docker-demo-2/ folder.
2. Go to the working directory for this project

Go to the working directory for this project

```
cd terraform-docker-demo-2/
```

3. Initialize Terraform

Initialize Terraform

```
terraform init
```

4. Run a Terraform plan, saving the output file

Run a Terraform plan, saving the output file.

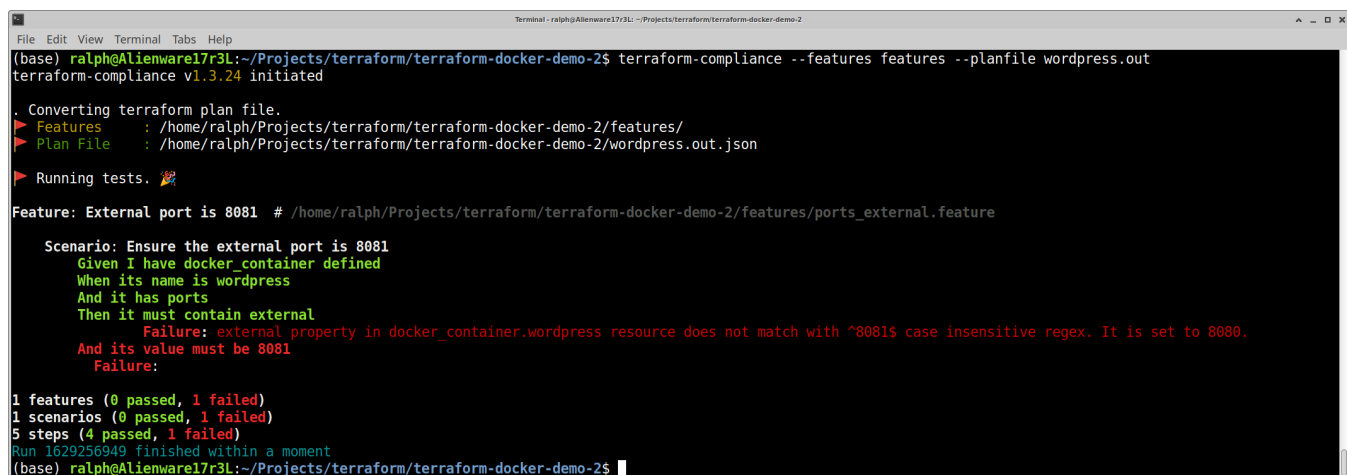
```
terraform plan -out wordpress.out
```

5. Run terraform-compliance to validate that the Wordpress service has an external port set to 8081

Run terraform-compliance to validate Wordpress external port

```
terraform-compliance --features features --planfile wordpress.out
```

Example Output of Failing Test



```
Terminal - ralph@Alienware17r3L: ~/Projects/terraform/terraform-docker-demo-2
File Edit View Terminal Tabs Help
(base) ralph@Alienware17r3L:~/Projects/terraform/terraform-docker-demo-2$ terraform-compliance --features features --planfile wordpress.out
terraform-compliance v1.3.24 initiated

. Converting terraform plan file.
> Features      : /home/ralph/Projects/terraform/terraform-docker-demo-2/features/
> Plan File     : /home/ralph/Projects/terraform/terraform-docker-demo-2/wordpress.out.json

> Running tests. 🚧

Feature: External port is 8081 # /home/ralph/Projects/terraform/terraform-docker-demo-2/features/ports_external.feature

  Scenario: Ensure the external port is 8081
    Given I have docker_container defined
    When its name is wordpress
    And it has ports
    Then it must contain external
      Failure: external property in docker_container.wordpress resource does not match with ^8081$ case insensitive regex. It is set to 8080.
    And its value must be 8081
      Failure:

1 features (0 passed, 1 failed)
1 scenarios (0 passed, 1 failed)
5 steps (4 passed, 1 failed)
Run 1629256949 finished within a moment
(base) ralph@Alienware17r3L:~/Projects/terraform/terraform-docker-demo-2$
```

Example Output of Passing Test

In docker.tf, change the default port to 8081

```
Terminal - ralph@Alienware17r3L: ~/Projects/terraform/terraform-docker-demo-2
File Edit View Terminal Tabs Help
(base) ralph@Alienware17r3L:~/Projects/terraform/terraform-docker-demo-2$ terraform-compliance --features features --planfile wordpress.out
terraform-compliance v1.3.24 initiated

. Converting terraform plan file.
▶ Features      : /home/ralph/Projects/terraform/terraform-docker-demo-2/features/
▶ Plan File     : /home/ralph/Projects/terraform/terraform-docker-demo-2/wordpress.out.json

▶ Running tests. 🚧

Feature: External port is 8081 # /home/ralph/Projects/terraform/terraform-docker-demo-2/features/ports_external.feature

  Scenario: Ensure the external port is 8081
    Given I have docker_container defined
    When its name is wordpress
    And it has ports
    Then it must contain external
    And its value must be 8081

1 features (1 passed)
1 scenarios (1 passed)
5 steps (5 passed)
Run 1629257084 finished within a moment
(base) ralph@Alienware17r3L:~/Projects/terraform/terraform-docker-demo-2$
```

Reference

- [Terraform](#)
- [Terraform Compliance](#)