OpenTofu

Open-source infrastructure as code

START HERE

`tofu` **`init`**
Download providers and modules

`tofu` **`fmt`**
Format the files

`tofu` **`validate`**
Check the configuration

`tofu` **`plan -out=`***`<file>`*
Preview and save changes

`tofu` **`apply`** *`<file>`*
Apply the saved plan

`tofu` **`output`**
Show output values

`tofu` **`state list`**
List tracked resources

`tofu` **`destroy`**
Remove everything managed

Config .tf files → `init` → **Working dir** providers, modules → `plan` → **Plan** diff vs. state → `apply` → **Infrastructure** state updated

CONCEPTS

OpenTofu is the open-source fork of Terraform: same HCL and workflow, command is tofu. Configuration and state stay compatible for typical setups.

Always read the plan before applying. Saving it with -out guarantees apply does exactly what you reviewed.

State may hold secrets. Keep it out of git, use a remote backend, and consider OpenTofu's built-in state encryption.

WORKFLOW

`tofu` **`init`**
Prepare the working directory
Run again after adding a provider, module or backend.

`tofu` **`init -upgrade`**
Update providers and modules

`tofu` **`init -reconfigure`**
Ignore saved backend setup

`tofu` **`init -migrate-state`**
Move state to a new backend

`tofu` **`validate`**
Check configuration syntax

`tofu` **`plan`**
Preview changes

`tofu` **`plan -out=`***`<file>`*
Save the plan to a file

WORKFLOW (cont.)

`tofu` **`apply`**
Create or update infrastructure

`tofu` **`apply`** *`<planfile>`*
Apply a saved plan

`tofu` **`apply -auto-approve`**
Skip the confirmation prompt

`tofu` **`destroy`**
Remove all managed resources

`tofu` **`plan -destroy`**
Preview a destroy

`tofu` **`plan -refresh-only`**
Preview drift against reality

`tofu` **`fmt`**
Format files in place

`tofu` **`fmt -recursive -check`**
Check formatting in CI

TARGETING & PLANS

`tofu` **`plan -target=`***`<addr>`*
Limit to one resource

`tofu` **`plan -exclude=`***`<addr>`*
Skip a resource and its dependents
Documented for exceptional cases only.

`tofu` **`apply -replace=`***`<addr>`*
Force recreating a resource

`tofu` **`plan -refresh=false`**
Skip refreshing real state

`tofu` **`plan -parallelism=`***`<n>`*
Limit concurrent operations

TARGETING & PLANS (cont.)

`tofu` **`plan -detailed-exitcode`**
Exit 2 when changes exist

`tofu` **`plan -generate-config-out=`***`<file>`*
Draft HCL for import blocks
Experimental; the file must not exist yet.

`tofu` **`show`** *`<planfile>`*
Read a saved plan

`tofu` **`show -json`** *`<planfile>`*
Plan as JSON

`tofu` **`graph`**
Emit a Graphviz dependency graph

VARIABLES & OUTPUTS

`tofu` **`plan -var`** **`'`***`<name>`***`=`***`<value>`***`'`**
Set one variable

`tofu` **`plan -var-file=`***`<file>`*
Load variables from a file

`TF_VAR_`*`<name>`***`=`***`<value>`**
Set a variable via environment

`terraform.tfvars`
Auto-loaded variable file

`tofu` **`output`**
Show all outputs

`tofu` **`output`** *`<name>`*
Show one output

VARIABLES & OUTPUTS (cont.)

`tofu` **`output -raw`** *`<name>`*
Plain value for scripts

`tofu` **`output -json`**
All outputs as JSON

`tofu` **`console`**
Try expressions interactively

STATE

`tofu` **`state list`**
List tracked resources

`tofu` **`state show`** *`<addr>`*
Show one resource's attributes

`tofu` **`state mv`** *`<src>`* *`<dst>`*
Rename or move in state

`tofu` **`state rm`** *`<addr>`*
Forget a resource, keep the real one

`tofu` **`state pull`**
Print remote state as JSON

`tofu` **`state push`** *`<file>`*
Overwrite state from a file

`tofu` **`import`** *`<addr>`* *`<id>`*
Adopt an existing resource

`tofu` **`taint`** *`<addr>`*
Mark for recreation

`tofu` **`untaint`** *`<addr>`*
Clear the taint mark

`tofu` **`force-unlock`** *`<id>`*
Release a stuck state lock

`tofu` **`refresh`**
Sync state with reality

WORKSPACES

`tofu` **`workspace list`**
List workspaces

`tofu` **`workspace show`**
Show the current workspace

`tofu` **`workspace new`** *`<name>`*
Create and switch

`tofu` **`workspace select`** *`<name>`*
Switch workspace

`tofu` **`workspace delete`** *`<name>`*
Delete an empty workspace

Each workspace has its own state under the same configuration; it is not a strong isolation boundary.

TESTING & MODULES

`tofu` **`test`**
Run *.tftest.hcl test files
Creates real infrastructure, then destroys it.

`tofu` **`test -filter=`***`<file>`*
Run one test file

`tofu` **`test -verbose`**
Print plan or state per run

`tofu` **`test -test-directory=`***`<dir>`*
Use another test folder

`tofu` **`providers`**
Show required providers

TESTING & MODULES (cont.)

`tofu` **`get`**
Fetch remote modules

`tofu` **`metadata functions -json`**
List built-in functions

`tofu` **`login`**
Store credentials for a registry host

`tofu` **`version`**
Show the OpenTofu version

`tofu` **`-chdir=`***`<dir>`* *`<cmd>`*
Run in another directory

RECIPES

Reviewed deploy

```
tofu init
tofu fmt -check && tofu
validate
tofu plan -out=tfplan
tofu show tfplan
tofu apply tfplan
```

Per-environment variables

```
tofu workspace select prod
tofu plan -var-file=prod.tfvars
-out=prod.plan
tofu apply prod.plan
```

Rename without recreating

```
tofu state mv aws_instance.old
aws_instance.new
tofu plan   # expect no changes
```

Replace one broken resource

```
tofu plan -
replace=aws_instance.web -
out=fix.plan
tofu apply fix.plan
```