# Terraform Infrastructure as code

## CONCEPTS

> Terraform compares your configuration with its state file, not with the real world alone. Lose the state and it forgets what it manages.

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

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

> Never edit the state file by hand and keep it out of git; use a remote backend for teams.

## WORKFLOW

`terraform init`
Prepare the working directory

`terraform init -upgrade`
Update providers and modules

`terraform validate`
Check syntax and consistency

`terraform plan`
Preview changes

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

`terraform apply`
Plan, confirm, then apply

`terraform apply <planfile>`
Apply a saved plan

`terraform apply -auto-approve`
Skip the confirmation prompt

`terraform destroy`
Destroy all managed resources

`terraform plan -destroy`
Preview a destroy

`terraform apply -refresh-only`
Sync state with reality

`terraform fmt`
Rewrite files in canonical style

## WORKFLOW (cont.)

`terraform fmt -recursive -check`
Check formatting incl. subdirs

## TARGETING & PLANS

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

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

`terraform plan -detailed-exitcode`
Exit 2 when changes exist

`terraform show <planfile>`
Display a saved plan

## VARIABLES & OUTPUTS

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

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

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

`terraform.tfvars`
Loaded automatically

`terraform output`
Show all outputs

`terraform output <name>`
Show a single output

`terraform output -raw <name>`
Plain value, no quotes

`terraform output -json`
Outputs as JSON

`terraform console`
Try expressions interactively

## STATE

`terraform state list`
List tracked resources

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

`terraform state mv <src> <dst>`
Rename or move in state

## STATE (cont.)

`terraform state rm <addr>`
Forget a resource, keep it real

`terraform import <addr> <id>`
Adopt an existing resource

## WORKSPACES

`terraform workspace list`
List workspaces

`terraform workspace show`
Show the current one

`terraform workspace new <name>`
Create and switch

`terraform workspace select <name>`
Switch workspace

> Each workspace has its own state under the same configuration. Use ${terraform.workspace} to vary names.

## PROVIDERS & MODULES

`terraform providers`
List required providers

`terraform version`
Show Terraform version

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

## RECIPES

### Reviewed deploy

```
terraform init
terraform fmt -check
terraform validate
terraform plan -out=tfplan
terraform apply tfplan
```

### Per-environment variables

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

### Rename without recreating

```
terraform state mv
aws_instance.old aws_instance.new
# update the resource name in
the .tf file
terraform plan   # expect no
changes
```