Packer Machine image builder

CONCEPTS

A template is HCL files: a source says what to boot, a build runs provisioners on it and saves an image.

Template *.pkr.hcl
↓ `packer init`
Plugins builders, provisioners
↓ `packer build`
Temp machine source + provisioners
↓ post-processors
Image AMI, box, template

Point commands at a directory (.) to load every *.pkr.hcl in it, not just one file.

INIT & PLUGINS

`packer init <dir>`
Install plugins the template requires

`packer init -upgrade <dir>`
Upgrade plugins within constraints

`packer plugins installed`
List installed plugin binaries

CHECK & FORMAT

`packer validate <dir>`
Check syntax and configuration

`packer validate -syntax-only <dir>`
Check syntax only

`packer fmt <dir>`
Rewrite files in canonical style

`packer fmt -check <dir>`
Fail if unformatted (CI)

`packer fmt -diff <dir>`
Show formatting changes

`packer inspect <dir>`
List variables, sources, provisioners

BUILD

`packer build <dir>`
Build all sources

`packer build <file.pkr.hcl>`
Build from a single file

`packer build -only=<a>,<b> <dir>`
Run only the named builds

VARIABLES

`packer build -var <key>=<value> <dir>`
Set one variable

`packer build -var-file=<file> <dir>`
Load variables from a file

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

`*.auto.pkrvars.hcl`
Variable file loaded automatically

Later wins: environment, then auto files, then -var and -var-file in the order given.

DEBUG & ERRORS

`packer build -on-error=ask <dir>`
Prompt to clean up, abort or retry

`packer build -debug <dir>`
Step by step, pauses between steps

`PACKER_LOG=1`
Verbose logs on stderr

TEMPLATE SKELETON

Plugins and a variable

```
packer {
  required_plugins {
    docker = {
      version = "≥ 1.0.0"
      source  = "github.com/hashicorp/
docker"
    }
  }
}

variable "tag" {
  type    = string
  default = "latest"
}
```

Source and build

```
source "docker" "app" {
  image  = "ubuntu:24.04"
  commit = true
}

build {
  sources = ["source.docker.app"]
  provisioner "shell" {
    inline = ["apt-get update"]
  }
}
```