Puppet Declarative config management

CONCEPTS

Puppet is declarative: you describe the end state and it only changes what differs, so runs are safe to repeat.

Facts facter on the node
↓ sent to server
Catalog compiled from manifests + Hiera
↓ agent fetches
Agent compares to real state
↓ fixes drift
Report changes and failures

Always --noop first: it prints what would change without touching the system.

APPLY AND AGENT

`puppet apply <file.pp>`
Apply a manifest locally

`puppet apply --noop <file.pp>`
Dry run, show changes only

`puppet apply -e '<code>'`
Run a one-line snippet

`puppet apply --detailed-exitcodes <file.pp>`
Exit code reports changes

`puppet apply --modulepath <dir> <file.pp>`
Use modules from a directory

`puppet agent -t`
One foreground run, verbose

`puppet agent -t --noop`
Preview what the server would change

INSPECT AND CHANGE

`puppet resource <type>`
List all resources of a type

`puppet resource <type> <name>`
Show one resource as code

`puppet describe <type>`
Docs for a resource type

`puppet help <subcommand>`
Help for a subcommand

`puppet --version`
Print Puppet version

FACTS AND CONFIG

`facter`
Print all facts

`facter <fact>`
One fact, e.g. os.family

`puppet config print <setting>`
One setting, e.g. modulepath

HIERA AND LOOKUP

`puppet lookup <key>`
Look up a data value

`puppet lookup <key> --explain`
Show where the value came from

MODULES

`puppet module install <author-name>`
Install from the Forge

`puppet module list`
Installed modules

CHECK AND LINT

`puppet parser validate <file.pp>`
Syntax check only

`puppet-lint <file.pp>`
Style problems

MANIFEST SYNTAX

Resource

```
package { 'nginx':
  ensure ⇒ installed,
}
```

Service and file

```
service { 'nginx':
  ensure ⇒ running,
  enable ⇒ true,
}
file { '/etc/motd':
  ensure  ⇒ file,
  content ⇒ "Managed by Puppet\n",
}
```

Class

```
class web (
  String $port = '80',
) {
  package { 'nginx': ensure ⇒
installed }
}
include web
```