1. File Management

- Create, delete, or modify files and directories.

- Set permissions, ownership, and content.

Example:

puppet

file { '/tmp/hello.txt':

ensure => 'file',

content => 'Hello from Puppet!',

owner => 'root',

group => 'root',

mode => '0644',

}

To check output

ls -l /tmp/hello.txt

cat /tmp/hello.txt

2. Package Management

- Install, uninstall, or manage software packages using system package managers (like `apt`, `yum`, `dnf`).

Example (Install Nginx):

package { 'nginx':

ensure => 'installed',

}

To check output

dpkg -l | grep nginx

3. Service Management

- Start, stop, restart, or enable services.

Example (Manage Nginx Service):

puppet

service { 'nginx':

ensure => 'running',

enable => true,

}

To check output

systemctl status nginx

systemctl is-enabled nginx

4. User and Group Management

- Create, delete, or modify users and groups.

Example (Create a User and Group):

puppet

user { 'devuser':

ensure => 'present', (use absent to delete the user/group)

shell => '/bin/bash',

managehome => true, /*/Ensures a* ***home directory*** *is created in home/devuser if it doesn't already exist.*

}

group { 'devgroup':

ensure => 'present',

}

To check output

cat /etc/passwd | grep devuser

cat /etc/group | grep devgroup

ls -ld /home/devuser

Creating user inside group

# Create a group named 'devgroup'

group { 'devgroup':

ensure => 'present',

}

# Create a user named 'devuser' and add to 'devgroup'

user { 'devuser':

ensure => 'present',

managehome => true,

shell => '/bin/bash',

home => '/home/devuser',

gid => 'devgroup', # Primary group

groups => ['devgroup'], # Additional group membership

password => '$1$X7UTeQ4M$D0JxBzU5Z2DhEiLffxT7E.', # Optional hashed password

}

5. Cron Job Management -- Schedule tasks using cron.

Example (Schedule a Backup Script):

puppet

cron { 'backup\_script':

command => '/usr/local/bin/backup.sh',

user => 'root',

hour => '2',

minute => '0',

}

To check output

crontab -l -u root

6. Networking Management

- Manage network interfaces, IP addresses, firewall rules, and routes.

Example (Manage Network Interface):

puppet

network\_config { 'eth0':

ensure => present,

ipaddress => '192.168.1.100',

netmask => '255.255.255.0',

}

To check output

ip addr show eth0

7. Environment Management

- Set environment variables for applications.

Example (Set Environment Variables):

puppet

file { '/etc/profile.d/myenv.sh':

ensure => 'file',

content => 'export MY\_APP\_HOME=/opt/myapp',

}

To check output

cat /etc/profile.d/myenv.sh

8. Configuration Management

- Manage configuration files using templates and variables.

Example (Use a Template to Configure Nginx):

puppet

file { '/etc/nginx/nginx.conf':

ensure => 'file',

content => template('nginx/nginx.conf.erb'),

}

To check output

cat /etc/nginx/nginx.conf

9. Module Management

- Reuse configurations using Puppet modules.

Example (Apply a Module):

puppet

include apache

To check output

systemctl status apache2

10. Conditional Execution and Loops

- Use conditional statements and loops to apply resources selectively.

Example (Conditional Installation Based on OS):

puppet

if $facts['os']['family'] == 'RedHat' {

package { 'httpd': ensure => 'installed' }

} else {

package { 'apache2': ensure => 'installed' }

}

To check output

rpm -q httpd || dpkg -l | grep apache2

11. Resource Dependencies

- Ensure resources are applied in a particular order using `require`, `before`, `notify`, or `subscribe`.

Example (Ensure File Before Service Restart):

puppet

file { '/etc/nginx/nginx.conf':

ensure => 'file',

}

service { 'nginx':

ensure => 'running',

enable => true,

require => File['/etc/nginx/nginx.conf'],

}

To check output

Notice: Configuration applied successfully!

12. Logging and Monitoring

- Log events or manage monitoring configurations.

Example (Log Creation):

puppet

notify { 'Configuration applied successfully!': }

Output: Notice: Configuration applied successfully! (output is displayed once manifest is applied)

13. Execute Shell Commands

- Run custom shell commands using `exec`.

Example (Clear Cache Using Exec):

puppet

exec { 'clear\_cache':

command => '/usr/bin/systemctl restart nginx',

onlyif => 'test -f /tmp/cache.flag',

}

To check output

systemctl status nginx