



Hiera

Scenario

Use hiera to provide the puppetlabs/ntp module with parameter data instead of setting variables in manifests.

e.g.

- Provide a list of ntp servers
- Set auto update to false
- Set service to enabled

Installing Hieradata (On Master)

```
$ yum install hieradata -y
```

Create /etc/puppet/hiera.yaml

```
---
:backends:
  - yaml
:yaml:
  :datadir: /etc/puppet/hieradata
:hierarchy:
  - "%{clientcert}"
  - common
```

Source: <https://gist.github.com/initcron/990d098b3bc3db2378d6>

Create data sources directory

```
$ mkdir /etc/puppet/hieradata
```

Writing data sources

/etc/puppet/hieradata/agent.example.com.yaml

```
---
ntp::restrict:
  -
ntp::autoupdate: false
ntp::enable: true
ntp::servers:
  - 0.us.pool.ntp.org iburst
  - 1.us.pool.ntp.org iburst
  - 2.us.pool.ntp.org iburst
  - 3.us.pool.ntp.org iburst
```

Source: <https://gist.github.com/initcron/1ac6781699beda5431fb>

/etc/puppet/hieradata/common.yaml

```
---
ntp::restrict:
  - -6 ::1
ntp::autoupdate: true
ntp::enable: true
ntp::servers:
  - agent.example.com iburst
  - agent1.example.com iburst
  - agent2.example.com iburst
```

Source: <https://gist.github.com/initcron/1b34ac49aea7e808b361>

Symlink and Restart

Create Symlink to hiera.yaml

```
$ mv /etc/hiera.yaml /etc/hiera.yaml.bak
```

```
$ ln -s /etc/puppet/hiera.yaml /etc/hiera.yaml
```

Restart Puppet Master

```
$ service puppetmaster restart
```


Validate

```
$ hiera ntp::servers clientcert=agent.example.com
```

```
$ hiera ntp::servers
```

Troubleshooting Steps

Something Went Wrong? If, instead, you get nil, false, or something else completely, you should step back through your Hiera configuration making sure:

- Your hiera.yaml file matches the example
- You've put a symlink to hiera.yaml where the command line tool expects to find it (/etc/hiera.yaml)
- You've saved your agent.example.com data source file with a .yaml extension
- Your data source file's YAML is well formed
- You restarted your puppet master if you modified hiera.yaml

Puppet version older than 3.0

If you are running puppet version older than 3.0, you would need to update your manifest at `/etc/puppet/modules/ntp/manifests/init.pp` with following changes

```
$restrict      = $ntp::params::restrict,  
$servers       = $ntp::params::servers,  
$service_enable = $ntp::params::service_enable,  
+ . . .
```



```
$restrict      = hiera('ntp::restrict'),  
$servers       = hiera('ntp::servers', ''),  
$service_enable = hiera('ntp::enable', ''),  
+ . . .
```

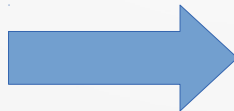
Data Bindings and Hiera

Starting version 3.0, puppet comes with data bindings. With this, hiera values are looked up automatically. This eliminates the need to use `hiera('key')` function in your manifests.

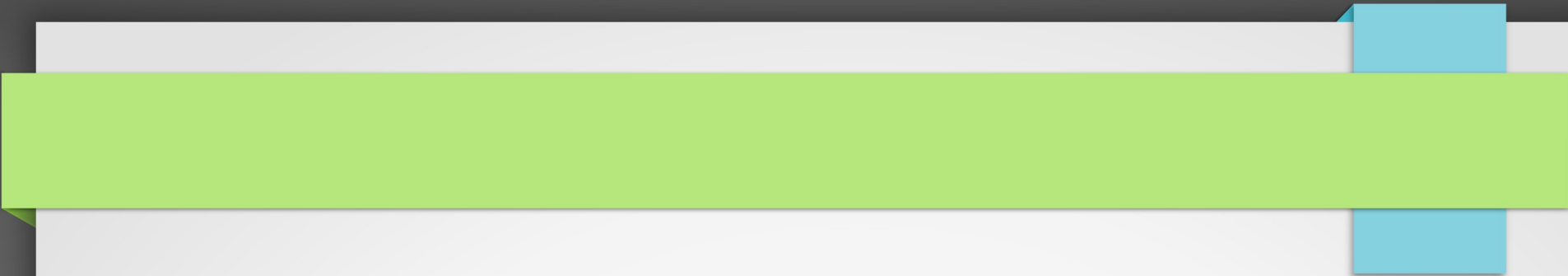
Validate (on agent)

```
$ puppet agent --test
```

```
$ cat /etc/ntp.conf
```



```
# ntp.conf: Managed by puppet.  
#  
# Keep ntpd from panicking in the event of a failure  
# when a VM guest is suspended and the host is not running  
tinker panic 0  
  
# Permit time synchronization with our time source  
# permit the source to query or modify the system clock  
restrict  
  
server 0.us.pool.ntp.org iburst  
server 1.us.pool.ntp.org iburst  
server 2.us.pool.ntp.org iburst  
server 3.us.pool.ntp.org iburst  
  
# Driftfile.  
driftfile /var/lib/ntp/drift
```



That works ! Now we are serving data specific to this node, based on certname, using hiera lookup.

Testing Hierarchical Hierarchy

Lets now see what happens if we remove data source for the node.

Removing data source

On Master

```
$ cd /etc/puppet/hieradata
```

```
$ mv agent.example.com.yaml  
agent.example.com.yaml.bak
```

On Agent

```
$ puppet agent -test
```


Validation

```
# ntp.conf: Managed by puppet.  
#  
# Keep ntpd from panicking in the event of a crash  
# when a VM guest is suspended and ntpd is running  
tinker panic 0
```

```
# Permit time synchronization with our time source  
# permit the source to query or modify the system clock  
restrict
```

```
server 0.us.pool.ntp.org iburst  
server 1.us.pool.ntp.org iburst  
server 2.us.pool.ntp.org iburst  
server 3.us.pool.ntp.org iburst
```

```
# Driftfile.  
driftfile /var/lib/ntp/drift
```

```
# ntp.conf: Managed by puppet.  
#  
# Keep ntpd from panicking in the event of a crash  
# when a VM guest is suspended and ntpd is running  
tinker panic 0
```

```
# Permit time synchronization with our time source  
# permit the source to query or modify the system clock  
restrict -6 ::1
```

```
server agent.example.com iburst  
server agent1.example.com iburst  
server agent2.example.com iburst
```

```
# Driftfile.  
driftfile /var/lib/ntp/drift
```

Hierarchy

As soon as we removed the data source higher in the hierarchy, it fell back to common.yaml, one level below in the hierarchy.

```
[root@master hieradata]# cat /etc/
---
:backends:
  - yaml
:yaml: hiera.yaml
  :datadir: /etc/puppet/hieradata
:hierarchy:
  - "%{clientcert}"
  - common
```

Adding Json Data Source to

- Edit hiera.yaml and add json as data source
- Create directory to hold json data sources
- Add json hiera data

Edit hiera.yaml

```
---
:backends:
  - json
  - yaml
:json:
  :datadir: /etc/puppet/jsondata
:yaml:
  :datadir: /etc/puppet/hieradata
:hierarchy:
  - "%{clientcert}"
  - common
```

<https://gist.github.com/initcron/60414d30c6f6f3dc927c>

Create directory to hold json data source

```
$ mkdir /etc/puppet/jsondata
```

Create Json source

/etc/puppet/jsondata/agent.example.com.json

<https://gist.github.com/initcron/96452194c582cf746436>

```
{  
  
  "ntp::autoupdate" : true,  
  "ntp::enable" : true,  
  "ntp::restrict": [  
    "-7 ::1"  
  ],  
  "ntp::servers" : [  
    "jsondemo.example.com iburst",  
    "jsondemo.example.com iburst",  
    "jsondemo.example.com iburst"  
  ]  
}
```

Test

- Restart puppet master (on master)
\$ sudo service puppetmaster restart
- Run agent (on agent node)
\$ puppet agent -t
- Validate
\$ cat /etc/ntp.conf