Semester	B.E. Semester VIII – INFT
Subject	DevOps Lab
Subject Professor In –charge	Prof. Rohit Barve

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Roll Number	18101B0030	
Grade and Subject Teacher's Signature		

Experiment Number	6
Experiment Title	To perform Software Configuration Management using Puppet.
Resources / Apparatus Required	Hardware: • Intel Core i3/i5/i7 Processor with Intel VT–X support. • 4 GB RAM • 500 GB Hard disks	Software: Operating systems: Windows
Theory	**Puppet Master and Slave Communication** Puppet Master and Slave communicates through a secure encrypted channel with the help of SSL. The diagram below depicts the same: As you can see from the above Image:

	Request for Master Certificate / *Send Master Certificate* / *Request for Slave Certificate* / *Send Slave Certificate* / *Request for data* / *Send data* — Puppet Slave / Puppet Master — edureka! • Puppet Slave asks for Puppet Master certificate. • After receiving Puppet Master certificate, Master requests for Slave certificate. Once Master has signed the Slave certificate, Slave requests for configuration/data. • Finally, Puppet Master will send the configuration to Puppet Slave.
Steps	**Puppet Slave** cd etc apt install nano nano hosts

```
root@fee3da376acf:/# cd etc
root@fee3da376acf:/etc# apt install nano
Reading package lists ... Done
Building dependency tree
Reading state information ... Done
Suggested packages:
  hunspell
The following NEW packages will be installed:
  nano
0 upgraded, 1 newly installed, 0 to remove and 2 not upgraded.
Need to get 269 kB of archives.
After this operation, 868 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 nano amd64 4.8-1ubuntu1 [269 kB]
Fetched 269 kB in 2s (153 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package nano.
(Reading database ... 11292 files and directories currently installed.)
Preparing to unpack ... /nano_4.8-1ubuntu1_amd64.deb ...
Unpacking nano (4.8-1ubuntu1) ...
Setting up nano (4.8-1ubuntu1) ...
update-alternatives: using /bin/nano to provide /usr/bin/editor (editor) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/editor.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link gro
up editor) doesn't exist
update-alternatives: using /bin/nano to provide /usr/bin/pico (pico) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/pico.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group
 pico) doesn't exist
root@fee3da376acf:/etc# nano hosts
```

Add 172.17.0.2 puppet in last line

```
  GNU nano 4.8                                                hosts
127.0.0.1       localhost
::1     localhost ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
172.17.0.3      fee3da376acf
172.17.0.2 puppet
```

puppet agent –t –debug

```
root@fee3da376acf:/etc# puppet agent -t --debug
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
Debug: Applying settings catalog for sections main, agent, ssl
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
Debug: Caching environment 'production' (ttl = 0 sec)
Debug: Evicting cache entry for environment 'production'
Debug: Caching environment 'production' (ttl = 0 sec)
Debug: Evicting cache entry for environment 'production'
Debug: Caching environment 'production' (ttl = 0 sec)
Debug: Evicting cache entry for environment 'production'
Debug: Caching environment 'production' (ttl = 0 sec)
Debug: Using settings: adding file resource 'confdir': 'File[/etc/puppet]{:path⇒"/etc/puppet", :ensure=>:directory, :loglevel=>:debug, :links=>:
follow, :backup⇒false}'
Debug: Using settings: adding file resource 'codedir': 'File[/etc/puppet/code]{:path⇒"/etc/puppet/code", :ensure=>:directory, :loglevel=>:debug,
 :links=>:follow, :backup⇒false}'
Debug: Evicting cache entry for environment 'production'
Debug: Caching environment 'production' (ttl = 0 sec)
Debug: Evicting cache entry for environment 'production'
Debug: Caching environment 'production' (ttl = 0 sec)
Debug: Failed to load library 'cfpropertylist' for feature 'cfpropertylist': cannot load such file -- cfpropertylist
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
Debug: Puppet::Type::User::ProviderPw: file pw does not exist
Debug: Failed to load library 'ldap' for feature 'ldap': cannot load such file -- ldap
Debug: Puppet::Type::User::ProviderLdap: feature ldap is missing
Debug: Puppet::Type::User::ProviderDirectoryservice: file /usr/bin/uuidgen does not exist
Debug: Puppet::Type::User::ProviderUser_role_add: file roleadd does not exist
Debug: /User[puppet]: Provider useradd does not support features libuser; not managing attribute forcelocal
Debug: Failed to load library 'cfpropertylist' for feature 'cfpropertylist': cannot load such file -- cfpropertylist
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
Debug: Puppet::Type::Group::ProviderPw: file pw does not exist
Debug: Failed to load library 'ldap' for feature 'ldap': cannot load such file -- ldap
Debug: Puppet::Type::Group::ProviderLdap: feature ldap is missing
Debug: Puppet::Type::Group::ProviderDirectoryservice: file /usr/bin/dscl does not exist
Debug: /Group[puppet]: Provider groupadd does not support features libuser; not managing attribute forcelocal
Debug: Using settings: adding file resource 'vardir': 'File[/var/cache/puppet]{:path⇒"/var/cache/puppet", :owner⇒"puppet", :group⇒"puppet", :e
nsure=>:directory, :loglevel=>:debug, :links=>:follow, :backup⇒false}'
Debug: Using settings: adding file resource 'logdir': 'File[/var/log/puppet]{:path⇒"/var/log/puppet", :mode⇒"750", :owner⇒"puppet", :group⇒"p
```

Puppet cert list

```
root@09e4408aeae4:/etc# puppet cert list
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:315: warning: deprecated Object#=~ is called on Puppet::Transaction::Report; it always returns nil
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
Warning: `puppet cert` is deprecated and will be removed in a future release.
  (location: /usr/lib/ruby/vendor_ruby/puppet/application.rb:370:in `run')
  "524941e49907" (SHA256) 6A:56:05:4C:38:BC:1C:2E:C6:E1:0E:24:DF:C4:5A:2D:09:B3:04:D7:E7:AF:90:06:CA:C6:8E:81:B8:F3:D5:A7
  "fee3da376acf" (SHA256) AB:53:39:4B:F2:D5:38:B4:B4:C1:17:C0:5F:DC:33:98:85:EA:E0:14:AF:F8:F1:DA:AC:A4:BF:35:95:91:49:D5
root@09e4408aeae4:/etc#
```

puppet cert sign **fee3da376acf**

puppet cert sign **524941e49907**

```
root@09e4408aeae4:/etc# puppet cert sign fee3da376acf
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:315: warning: deprecated Object#=~ is called on Puppet::Transaction::Report; it always returns nil
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
Warning: `puppet cert` is deprecated and will be removed in a future release.
  (location: /usr/lib/ruby/vendor_ruby/puppet/application.rb:370:in `run')
Signing Certificate Request for:
  "fee3da376acf" (SHA256) AB:53:39:4B:F2:D5:38:B4:B4:C1:17:C0:5F:DC:33:98:85:EA:E0:14:AF:F8:F1:DA:AC:A4:BF:35:95:91:49:D5
Notice: Signed certificate request for fee3da376acf
Notice: Removing file Puppet::SSL::CertificateRequest fee3da376acf at '/var/lib/puppet/ssl/ca/requests/fee3da376acf.pem'
root@09e4408aeae4:/etc# puppet cert sign 524941e49907
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:315: warning: deprecated Object#=~ is called on Puppet::Transaction::Report; it always returns nil
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
/usr/lib/ruby/vendor_ruby/puppet/util.rb:461: warning: URI.escape is obsolete
Warning: `puppet cert` is deprecated and will be removed in a future release.
  (location: /usr/lib/ruby/vendor_ruby/puppet/application.rb:370:in `run')
Signing Certificate Request for:
  "524941e49907" (SHA256) 6A:56:05:4C:38:BC:1C:2E:C6:E1:0E:24:DF:C4:5A:2D:09:B3:04:D7:E7:AF:90:06:CA:C6:8E:81:B8:F3:D5:A7
Notice: Signed certificate request for 524941e49907
Notice: Removing file Puppet::SSL::CertificateRequest 524941e49907 at '/var/lib/puppet/ssl/ca/requests/524941e49907.pem'
root@09e4408aeae4:/etc#
```

Conclusion:	We come to know about how to perform software configuration management using puppet.