

Puppet 部署

1. Puppet 服务器端部署

Puppet 服务器端可以安装于常见的 Linux 发行版本中，本例操作系统为 CentOS 5.5 64 位。

主机名设置为

10.0.10.18	drbd-M.mobibal.com
10.0.10.19	drbd-S.mobibal.com
10.0.10.26	img26.mobibal.com
10.0.10.25	schedule.mobibal.com
10.0.10.24	api.mobibal.com
10.0.10.23	admin.mobibal.com
10.0.10.22	www.mobibal.com

Puppet 的安装方式支持源码安装、yum 和 ruby 的 gem 包安装，CentOS 可以直接使用 yum 来安装，CentOS 的默认源中没有 puppet，需要先安装 EPEL 包。

Tips: 什么是 EPEL

EPEL (<http://fedoraproject.org/wiki/EPEL>) 是由 Fedora 社区打造，为 RHEL 及衍生发行版如 CentOS、Scientific Linux 等提供高质量软件包的项目。

安装过程如下：

1. 安装 EPEL:

```
# rpm -Uvh http://dl.fedoraproject.org/pub/epel/5/i386/epel-release-5-4.noarch.rpm
```

2. 安装 puppet 服务端

```
# yum -y install puppet-server
```

3. 启动 puppet Server

```
# service puppetmaster start
```

2. Puppet 客户端安装

Puppet 服务器端对客户端的管理是基于主机名的，所以在安装之前需要为客户端设置唯一的主机名，主机名命令最好能体现出主机的机房、业务系统名称及 IP 信息。

客户端安装的过程如下：

1. 安装 EPEL 包:

```
# rpm -Uvh http://dl.fedoraproject.org/pub/epel/5/i386/epel-release-5-4.noarch.rpm
```

2. 安装 puppet 客户端:

```
# yum -y install puppet
```

3. 证书分发

Puppet 客户端与服务器端是通过 SSL 隧道通信的，客户端安装完成后，需要向服务器端申请证书：

3.1 客户端首次连接服务器端发起证书申请：

```
# puppetd --server drbd-M.mobibal.com --test
warning: peer certificate won't be verified in this SSL session
info: Caching certificate for ca
warning: peer certificate won't be verified in this SSL session
warning: peer certificate won't be verified in this SSL session
info: Creating a new SSL certificate request for drbd-s.mobibal.com
info: Certificate Request fingerprint (md5): E9:79:9F:4D:41:B6:63:EF:E4:43:91:23:9B:61:4C:34
warning: peer certificate won't be verified in this SSL session
warning: peer certificate won't be verified in this SSL session
warning: peer certificate won't be verified in this SSL session
Exiting; no certificate found and waitforcert is disabled
```

客户端如出现以下错误，请检查 puppet 服务器端和客户端的/etc/hosts 文件是否有设置彼此的主机名与 IP 对应关系。

```
# puppetd --server drbd-M.mobibal.com --test
info: Creating a new SSL key for img26.mobibal.com
err: Could not request certificate: getaddrinfo: Name or service not known
Exiting; failed to retrieve certificate and waitforcert is disabled
```

3.2 服务器端查看申请证书的客户端

```
# puppetca -l
drbd-s.mobibal.com (E9:79:9F:4D:41:B6:63:EF:E4:43:91:23:9B:61:4C:34)
```

3.3 服务器端为特定的主机颁发证书

```
# puppetca -s drbd-s.mobibal.com
notice: Signed certificate request for drbd-s.mobibal.com
notice: Removing file Puppet::SSL::CertificateRequest drbd-s.mobibal.com at
'/var/lib/puppet/ssl/ca/requests/drbd-s.mobibal.com.pem'
```

3.4 客户端运行

```
# puppetd --server drbd-M.mobibal.com --test
warning: peer certificate won't be verified in this SSL session
info: Caching certificate for drbd-s.mobibal.com
info: Caching certificate_revocation_list for ca
info: Caching catalog for drbd-s.mobibal.com
info: Applying configuration version '1324894624'
info: Creating state file /var/lib/puppet/state/state.yaml
notice: Finished catalog run in 0.01 seconds
```

若出现如下错误，请注意查看服务器的时间是否同步

```
# puppetd --server drbd-M.mobibal.com --test
warning: peer certificate won't be verified in this SSL session
info: Caching certificate for schedule.mobibal.com
info: Caching certificate_revocation_list for ca
err: Could not retrieve catalog from remote server: certificate verify failed
warning: Not using cache on failed catalog
err: Could not retrieve catalog; skipping run
```

若出现如下错误

```
# puppetd --server drbd-M.mobibal.com --test
err: Could not retrieve catalog from remote server: sslv3 alert bad certificate
warning: Not using cache on failed catalog
err: Could not retrieve catalog; skipping run
```

请按如下方式处理，再次重新申请并生成证书

```
# mv /var/lib/puppet/ /tmp/
# puppetd --server drbd-M.mobibal.com --test
info: Creating a new SSL key for drbd-s.mobibal.com
warning: peer certificate won't be verified in this SSL session
info: Caching certificate for ca
warning: peer certificate won't be verified in this SSL session
info: Caching certificate for drbd-s.mobibal.com
err: Could not request certificate: Retrieved certificate does not match private key; please
remove certificate from server and regenerate it with the current key
Exiting; failed to retrieve certificate and waitforcert is disabled
```

3.5 服务器端撤销和清除证书

```
# puppetca revoke drbd-s
notice: Revoked certificate with serial 5

# puppetca revoke drbd-s.mobibal.com
notice: Revoked certificate with serial 3

# puppetca clean drbd-s.mobibal.com
notice: Revoked certificate with serial 3
notice: Removing file Puppet::SSL::Certificate drbd-s.mobibal.com at
'/var/lib/puppet/ssl/ca/signed/drbd-s.mobibal.com.pem'
notice: Removing file Puppet::SSL::Certificate drbd-s.mobibal.com at
'/var/lib/puppet/ssl/certs/drbd-s.mobibal.com.pem'

# puppetca clean drbd-s
notice: Revoked certificate with serial 5
notice: Removing file Puppet::SSL::Certificate drbd-s at '/var/lib/puppet/ssl/ca/signed/drbd-s.pem'
notice: Removing file Puppet::SSL::Certificate drbd-s at '/var/lib/puppet/ssl/certs/drbd-s.pem'
```

3.6 执行 3.5 操作后请务必重启 puppetmaster

```
# /etc/init.d/puppetmaster restart
Stopping puppetmaster: [ OK ]
Starting puppetmaster: [ OK ]
```

3.7 Debug 调试

客户端运行 debug 进行调试，查看错误所在。

```
# puppetd --server drbd-M.mobibal.com --test --trace --debug
debug: Puppet::Type::User::ProviderPw: file pw does not exist
debug: Puppet::Type::User::ProviderDirectoryservice: file /usr/bin/dscl does not exist
debug: Puppet::Type::User::ProviderUser_role_add: file roleadd does not exist
debug: Failed to load library 'ldap' for feature 'ldap'
debug: Puppet::Type::User::ProviderLdap: feature ldap is missing
debug: Failed to load library 'rubygems' for feature 'rubygems'
debug: Puppet::Type::File::ProviderMicrosoft_windows: feature microsoft_windows is missing
debug: /File[/var/lib/puppet/ssl/certificate_requests]: Autorequiring File[/var/lib/puppet/ssl]
debug: /File[/var/lib/puppet/ssl/crl.pem]: Autorequiring File[/var/lib/puppet/ssl]
debug: /File[/var/lib/puppet/ssl/public_keys]: Autorequiring File[/var/lib/puppet/ssl]
debug: /File[/var/lib/puppet/ssl/certs/ca.pem]: Autorequiring File[/var/lib/puppet/ssl/certs]
debug: /File[/var/lib/puppet/state/graphs]: Autorequiring File[/var/lib/puppet/state]
```

```

debug: /File[/var/lib/puppet/clientbucket]: Autorequiring File[/var/lib/puppet]
debug:      /File[/var/lib/puppet/ssl/private_keys/drbd-s.mobibal.com.pem]:      Autorequiring
File[/var/lib/puppet/ssl/private_keys]
debug:      /File[/var/lib/puppet/ssl/public_keys/drbd-s.mobibal.com.pem]:      Autorequiring
File[/var/lib/puppet/ssl/public_keys]
debug: /File[/var/lib/puppet/state/state.yaml]: Autorequiring File[/var/lib/puppet/state]
debug: /File[/var/lib/puppet/lib]: Autorequiring File[/var/lib/puppet]
debug: /File[/var/lib/puppet/ssl/private_keys]: Autorequiring File[/var/lib/puppet/ssl]
debug: /File[/var/lib/puppet/ssl/private]: Autorequiring File[/var/lib/puppet/ssl]
debug: /File[/var/lib/puppet/ssl/certs]: Autorequiring File[/var/lib/puppet/ssl]
debug: /File[/var/lib/puppet/classes.txt]: Autorequiring File[/var/lib/puppet]
debug: /File[/var/lib/puppet/state]: Autorequiring File[/var/lib/puppet]
debug:      /File[/var/lib/puppet/ssl/certs/drbd-s.mobibal.com.pem]:      Autorequiring
File[/var/lib/puppet/ssl/certs]
debug: /File[/etc/puppet/puppet.conf]: Autorequiring File[/etc/puppet]
debug: /File[/var/lib/puppet/client_data]: Autorequiring File[/var/lib/puppet]
debug:      /File[/var/lib/puppet/state/last_run_summary.yaml]:      Autorequiring
File[/var/lib/puppet/state]
debug: /File[/var/run/puppet/agent.pid]: Autorequiring File[/var/run/puppet]
debug: /File[/var/lib/puppet/facts]: Autorequiring File[/var/lib/puppet]
debug: /File[/var/lib/puppet/ssl]: Autorequiring File[/var/lib/puppet]
debug: /File[/var/lib/puppet/client_yaml]: Autorequiring File[/var/lib/puppet]
debug: Finishing transaction 23973737362880
debug:      /File[/var/lib/puppet/ssl/private_keys/drbd-s.mobibal.com.pem]:      Autorequiring
File[/var/lib/puppet/ssl/private_keys]
debug: /File[/var/lib/puppet/ssl/certificate_requests]: Autorequiring File[/var/lib/puppet/ssl]
debug: /File[/var/lib/puppet/ssl/certs]: Autorequiring File[/var/lib/puppet/ssl]
debug:      /File[/var/lib/puppet/ssl/public_keys/drbd-s.mobibal.com.pem]:      Autorequiring
File[/var/lib/puppet/ssl/public_keys]
debug: /File[/var/lib/puppet/ssl/certs/ca.pem]: Autorequiring File[/var/lib/puppet/ssl/certs]
debug: /File[/var/lib/puppet/facts]: Autorequiring File[/var/lib/puppet]
debug: /File[/var/lib/puppet/ssl/private_keys]: Autorequiring File[/var/lib/puppet/ssl]
debug: /File[/var/lib/puppet/ssl]: Autorequiring File[/var/lib/puppet]
debug: /File[/var/lib/puppet/ssl/private]: Autorequiring File[/var/lib/puppet/ssl]
debug:      /File[/var/lib/puppet/ssl/certs/drbd-s.mobibal.com.pem]:      Autorequiring
File[/var/lib/puppet/ssl/certs]
debug: /File[/var/lib/puppet/ssl/crl.pem]: Autorequiring File[/var/lib/puppet/ssl]
debug: /File[/var/lib/puppet/ssl/public_keys]: Autorequiring File[/var/lib/puppet/ssl]
debug: /File[/var/lib/puppet/lib]: Autorequiring File[/var/lib/puppet]
debug: /File[/var/lib/puppet/state]: Autorequiring File[/var/lib/puppet]
debug: Finishing transaction 23973737831660
debug: Using cached certificate for ca
debug: Using cached certificate for drbd-s.mobibal.com
debug: Finishing transaction 23973737283260

```

```
debug: Loaded state in 0.00 seconds
debug: Using cached certificate for ca
debug: Using cached certificate for drbd-s.mobibal.com
debug: Using cached certificate_revocation_list for ca
debug: catalog supports formats: b64_zlib_yaml dot marshal pson raw yaml; using pson
debug: Puppet::Type::Package::ProviderRpm: Executing '/bin/rpm --version'
debug: Puppet::Type::Package::ProviderUrpmi: Executing '/bin/rpm -ql rpm'
debug: Puppet::Type::Package::ProviderYum: Executing '/bin/rpm --version'
debug: Puppet::Type::Package::ProviderAptrpm: Executing '/bin/rpm -ql rpm'
info: Caching catalog for drbd-s.mobibal.com
debug: Puppet::Type::Package::ProviderZypper: file /usr/bin/zypper does not exist
debug: Puppet::Type::Package::ProviderApt: file /usr/bin/apt-get does not exist
debug: Puppet::Type::Package::ProviderPorts: file /usr/local/sbin/pkg_deinstall does not exist
debug: Puppet::Type::Package::ProviderOpenbsd: file pkg_info does not exist
debug: Puppet::Type::Package::ProviderAix: file /usr/bin/lslpp does not exist
debug: Puppet::Type::Package::ProviderDpkg: file /usr/bin/dpkg does not exist
debug: Puppet::Type::Package::ProviderPkg: file /usr/bin/pkg does not exist
debug: Puppet::Type::Package::ProviderGem: file gem does not exist
debug: Puppet::Type::Package::ProviderPortupgrade: file /usr/local/sbin/pkg_deinstall does not exist
debug: Puppet::Type::Package::ProviderFreebsd: file /usr/sbin/pkg_info does not exist
debug: Puppet::Type::Package::ProviderPortage: file /usr/bin/eix does not exist
debug: Puppet::Type::Package::ProviderNim: file /usr/sbin/nimclient does not exist
debug: Puppet::Type::Package::ProviderSunfreeware: file pkg-get does not exist
debug: Puppet::Type::Package::ProviderRug: file /usr/bin/rug does not exist
debug: Puppet::Type::Package::ProviderSun: file /usr/bin/pkginfo does not exist
debug: Puppet::Type::Package::ProviderAptrpm: file apt-get does not exist
debug: Puppet::Type::Package::ProviderHpx: file /usr/sbin/swlist does not exist
debug: Puppet::Type::Package::ProviderUp2date: file /usr/sbin/up2date-nox does not exist
debug: Puppet::Type::Package::ProviderFink: file /sw/bin/fink does not exist
debug: Puppet::Type::Package::ProviderUrpmi: file urpmq does not exist
debug: Puppet::Type::Package::ProviderAptitude: file /usr/bin/aptitude does not exist
debug: Creating default schedules
debug: Loaded state in 0.00 seconds
debug: Prefetching yum resources for package
debug: Puppet::Type::Package::ProviderYum: Executing '/bin/rpm --version'
debug: Puppet::Type::Package::ProviderYum: Executing '/bin/rpm -qa --nosignature --nodigest --qf "%{NAME} %{EPOCH?{%{EPOCH}}:{0}| %{VERSION} %{RELEASE} %{ARCH}"'
debug: /Stage[main]/Node[default]/File[/tmp/1/2]: Autorequiring File[/tmp/1]
debug: /Stage[main]/Node[default]/File[/tmp/1/2/3]: Autorequiring File[/tmp/1/2]
info: Applying configuration version '1324979204'
debug: Finishing transaction 23973737250740
debug: Storing state
```

```
debug: Stored state in 0.01 seconds
notice: Finished catalog run in 0.27 seconds
```

4. Puppet 目录结构

安装目录默认为/etc/puppet，该目录下的 manifests 存放 manifest 文件

puppet:	用于执行用户所写独立的 manifests 文件
puppetd:	运行在被管理主机上的客户端程序
puppetmasterd:	运行在管理机上的服务器程序
puppetca	Puppet 认证程序，主要用于对客户端进行认证
puppetrun	用于连接客户端，强制运行本地配置文件

配置文件

```
# pwd
/etc/puppet

Master 上代码的目录结构如下：

|-- auth.conf          # client 访问 puppet server 的 ACL 配置文件
|-- fileservers.conf    #puppet 文件服务器配置文件
|-- manifests          #puppet 主文件所在目录
|   |-- modules.pp      #puppet 各个模块汇总
|   |-- nodes           #各个 slave 要处理的模块
|   |   `-- execHello.pp #hello 模块对应由那些 slave 处理
|   `-- site.pp         #puppet 主文件（入口文件）
|-- modules            #puppet 的各个模块所在文件
|   `-- hello          #hello 模块
|       |-- files       #该模块对应的文件资源，可能是要发送给 slave 的配置文件等
|       |   `-- hello.c
|       `-- manifests   #模块的 manifest 文件
|           `-- init.pp  #模块入口文件
```

~ssl	#puppet 的证书文件目录
auth.conf	
fileserver.conf	Puppet server 作为文件服务器的 ACL 配置文件
manifests	Puppet 脚本主文件目录，至少需要包含 site.pp 文件
modules	Puppet 模块目录，存放 Puppet 脚本的功能模块
namespaceauth.conf	命名空间 ACL 配置文件
puppet.conf	Puppet 服务器端配置文件

5. Puppet 使用简介

5.1 文件分发

编辑服务器端上的文件/etc/puppet/fileserver.conf，（添加如下内容）

```
# vi /etc/puppet/fileserver.conf
[tmp]
  path /tmp
  allow *.mobibal.com

[namespace]
  path /etc/puppet
  allow *.mobibal.com
```

编辑服务器端上的文件/etc/puppet/modules/test/manifests/init.pp

```
# vi /etc/puppet/modules/test/manifests/init.pp
file { ["/tmp/hello.sh":
  owner   => root,
  group   => root,
  source => "puppet://drbd-m.mobibal.com/tmp/hello.sh",
  mode    => 755,
]

file { ["/etc/puppet/namespaceauth.conf":
  owner   => root,
  group   => root,
  source => "puppet://drbd-m.mobibal.com/namespace/namespaceauth.conf",
  mode    => 644,
]
```

在服务器端的/tmp/目录下建立 hello.sh 文件，该文件可被分发至客户端。

编辑/tmp/hello.sh 文件

```
# vi /tmp/hello.sh
#!/bin/bash
```

```
touch /root/xxxxx
```

客户端运行命令

```
# puppetd --server drbd-M.mobibal.com --test
```

在客户端上可查看到/tmp/目录下 hello.sh 文件已传送。

5.2 文件执行

编辑服务器端上的文件/etc/puppet/modules/test/manifests/init.pp

```
# vi /etc/puppet/modules/test/manifests/init.pp
exec {
    "/tmp/hello.sh":
        cwd      => "/tmp",
        timeout => 7200,
        user     => root,
        path     => ["/sbin", "/usr/sbin", "/usr/local/sbin", "/usr/local/bin", "/usr/bin", "/bin"],
}
```

客户端运行命令

```
# puppetd --server drbd-M.mobibal.com --test
```

在客户端上可查看到/root/xxxxx 文件已生成。

5.3 自动同步

编辑客户端文件/etc/puppet/puppet.conf（添加如下内容）

```
# vi /etc/puppet/puppet.conf
server = drbd-M.mobibal.com # 指定 puppetd 的服务端
listen = true               # 打开客户端监听，用于监听服务端 puppetrun 命令
runinterval = 900          # 同步时间，默认为 30 分钟 1800
```

客户端运行 puppetd

```
# puppetd
# ps -ef|grep puppet
root      2388      1   0 10:56 ?                00:00:09 /usr/bin/ruby /usr/sbin/puppetd
```

查看日志

```
# tail -f /var/log/messages
Feb 29 10:56:19 drbd-S puppet-agent[2388]: Reopening log files
Feb 29 10:56:20 drbd-S puppet-agent[2388]: Starting Puppet client version 2.6.12
```

5.4 强制同步（服务器端发起）

编辑服务器端和客户端文件/etc/puppet/namespaceauth.conf

```
# vi /etc/puppet/namespaceauth.conf
```

```
[fileserv
```

```
allow *.mobibal.com
```

```
[puppetmaster]
```

```
allow *.mobibal.com
```

```
[pelementserver]
```

```
allow *.mobibal.com
```

```
[puppetrunner]
```

```
allow *.mobibal.com
```

```
[puppetbucket]
```

```
allow *.mobibal.com
```

```
[puppetreports]
```

```
allow *.mobibal.com
```

编辑客户端文件/etc/puppet/auth.conf, 将 path /run 一段添加到 path / 之前

```
# vi /etc/puppet/auth.conf
```

```
path /run
```

```
method save
```

```
allow *
```

```
# this one is not stricly necessary, but it has the merit
```

```
# to show the default policy which is deny everything else
```

```
path /
```

```
auth any
```

重启服务器端进程和客户端进程

```
# /etc/init.d/ puppetmaster stop
```

```
# /etc/init.d/ puppetmaster start
```

```
# killall puppetd
```

```
# puppetd
```

服务器端强制某台客户端立即读取 site.pp

```
# puppetrun --host drbd-S.mobibal.com
```

```
Triggering drbd-S.mobibal.com
```

```
Getting status
```

```
status is success
```

```
drbd-S.mobibal.com finished with exit code 0
```

```
Finished
```

客户端查看日志如下

```
# tail -f /var/log/messages
```

```
Feb 29 13:42:55 drbd-S puppet-agent[2388]: triggered run
```

```
Feb 29 13:42:57 drbd-S puppet-agent[2388]: (/Stage[main]/Test::Test/File[/tmp/hello.sh]/ensure)
defined content as '{md5}bbf657c2db56313c0abdc25782eeb4d'
Feb 29 13:42:57 drbd-S puppet-agent[2388]:
(/Stage[main]/Test::Test/Exec[/tmp/hello.sh]/returns) executed successfully
Feb 29 13:42:58 drbd-S puppet-agent[2388]: Finished catalog run in 2.57 seconds
```

从日志可看出，hello.sh 文件已建立并执行成功。

5.5 crontab 管理

编辑服务器端上的文件/etc/puppet/modules/test/manifests/init.pp

```
# vi /etc/puppet/modules/test/manifests/init.pp
cron {
    logrotate:
    command => "/tmp/hello.sh",
    user    => root,
    hour    => 11,
    minute  => 30
}
```

客户端运行命令

```
# puppetd --server drbd-M.mobibal.com --test
```

在客户端上可使用 crontab 进行查看

```
# crontab -l
# Puppet Name: logrotate
30 11 * * * /tmp/hello.sh
```

参考:

<http://www.mysqlops.com/category/puppet>

http://projects.puppetlabs.com/projects/1/wiki/Certificates_And_Security

http://docs.puppetlabs.com/guides/language_guide.html

<http://opkeep.com/system/linux/puppet-man.html>

<http://code.google.com/p/puppet-manifest-share/downloads/list>

http://blog.sina.com.cn/s/blog_505fbe360100y79s.html

<http://bubbyroom.com/tag/puppetrun/>

<http://dongxicheng.org/cluster-managemant/puppet/>

注:

删除证书步骤

Img26

Server 端

```
puppetca revoke img26
```

```
puppetca revoke img26.mobibal.com
```

```
puppetca clean img26.mobibal.com
```

```
puppetca clean img26
```

```
/etc/init.d/puppetmaster stop
```

```
/etc/init.d/puppetmaster start
```

Client 端

```
puppetd --server drbd-M.mobibal.com --test
```

Server 端

```
puppetca -l
```

```
puppetca -s img26.mobibal.com
```

schedule

Server 端

```
puppetca revoke schedule
puppetca revoke schedule.mobibal.com
puppetca clean schedule.mobibal.com
puppetca clean schedule
/etc/init.d/puppetmaster stop
/etc/init.d/puppetmaster start
```

Client 端

```
puppetd --server drbd-M.mobibal.com --test
```

Server 端

```
puppetca -l
puppetca -s schedule.mobibal.com
```

drbd-s

Server 端

```
puppetca revoke drbd-s
puppetca revoke drbd-s.mobibal.com
puppetca clean drbd-s.mobibal.com
puppetca clean drbd-s
/etc/init.d/puppetmaster stop
/etc/init.d/puppetmaster start
```

Client 端

```
puppetd --server drbd-M.mobibal.com --test
```

Server 端

```
puppetca -l
puppetca -s drbd-s.mobibal.com
```

安装 epel 后，安装 puppet 需要的包如下：

```
# rpm -Uvh http://dl.fedoraproject.org/pub/epel/5/i386/epel-release-5-4.noarch.rpm
```

```
Retrieving http://dl.fedoraproject.org/pub/epel/5/i386/epel-release-5-4.noarch.rpm
```

```
warning: /var/tmp/rpm-xfer.LRX6lZ: Header V3 DSA signature: NOKEY, key ID 217521f6
```

```
Preparing... ##### [100%]
```

```
1:epel-release ##### [100%]
```

```
# yum install -y puppet
```

```
Loaded plugins: fastestmirror
```

```
Loading mirror speeds from cached hostfile
```

```
* epel: mirror.bjtu.edu.cn
```

```
* base: mirror.bit.edu.cn
```

```
* updates: mirror.bit.edu.cn
```

```
* extras: mirror.bit.edu.cn
```

```
epel
| 3.4 kB      00:00
2f36744c0ec6290ba30fc8af8e2d3b774cd1e443-primary.sqlite.bz2
| 3.7 MB      00:19
Setting up Install Process
Parsing package install arguments
Resolving Dependencies
--> Running transaction check
---> Package puppet.noarch 0:2.6.13-2.el5 set to be updated
--> Processing Dependency: ruby(abi) = 1.8 for package: puppet
--> Processing Dependency: ruby >= 1.8.1 for package: puppet
--> Processing Dependency: facter >= 1.5 for package: puppet
--> Processing Dependency: ruby-shadow for package: puppet
--> Processing Dependency: ruby-augeas for package: puppet
--> Processing Dependency: libselinux-ruby for package: puppet
--> Processing Dependency: /usr/bin/ruby for package: puppet
--> Running transaction check
---> Package ruby-libs.x86_64 0:1.8.5-22.el5_7.1 set to be updated
---> Package facter.noarch 0:1.6.5-1.el5 set to be updated
---> Package libselinux-ruby.x86_64 0:1.33.4-5.7.el5 set to be updated
--> Processing Dependency: libselinux = 1.33.4-5.7.el5 for package: libselinux-ruby
---> Package ruby-shadow.x86_64 0:1.4.1-7.el5 set to be updated
---> Package ruby-augeas.x86_64 0:0.4.1-1.el5 set to be updated
--> Processing Dependency: augeas-libs >= 0.8.0 for package: ruby-augeas
--> Processing Dependency: libaugeas.so.0(AUGEAS_0.10.0)(64bit) for package: ruby-augeas
--> Processing Dependency: libaugeas.so.0(AUGEAS_0.1.0)(64bit) for package: ruby-augeas
--> Processing Dependency: libaugeas.so.0(AUGEAS_0.8.0)(64bit) for package: ruby-augeas
--> Processing Dependency: libaugeas.so.0(AUGEAS_0.12.0)(64bit) for package: ruby-augeas
--> Processing Dependency: libaugeas.so.0(AUGEAS_0.11.0)(64bit) for package: ruby-augeas
--> Processing Dependency: libaugeas.so.0()(64bit) for package: ruby-augeas
---> Package ruby.x86_64 0:1.8.5-22.el5_7.1 set to be updated
--> Running transaction check
--> Processing Dependency: libselinux = 1.33.4-5.1.el5 for package: libselinux-python
--> Processing Dependency: libselinux = 1.33.4-5.1.el5 for package: libselinux-devel
--> Processing Dependency: libselinux = 1.33.4-5.1.el5 for package: libselinux-devel
--> Processing Dependency: libselinux = 1.33.4-5.1.el5 for package: libselinux-utils
---> Package libselinux.i386 0:1.33.4-5.7.el5 set to be updated
---> Package libselinux.x86_64 0:1.33.4-5.7.el5 set to be updated
---> Package augeas-libs.x86_64 0:0.10.0-3.el5 set to be updated
--> Running transaction check
---> Package libselinux-utils.x86_64 0:1.33.4-5.7.el5 set to be updated
---> Package libselinux-devel.i386 0:1.33.4-5.7.el5 set to be updated
---> Package libselinux-python.x86_64 0:1.33.4-5.7.el5 set to be updated
---> Package libselinux-devel.x86_64 0:1.33.4-5.7.el5 set to be updated
```

--> Finished Dependency Resolution

Dependencies Resolved

Package	Size	Arch	Version
Repository	Size		
Installing:			
puppet		noarch	2.6.13-2.el5
epel	840 k		
Updating:			
libselinux		x86_64	1.33.4-5.7.el5
base	78 k		
libselinux		i386	1.33.4-5.7.el5
base	77 k		
libselinux-devel		x86_64	1.33.4-5.7.el5
base	149 k		
libselinux-devel		i386	1.33.4-5.7.el5
base	144 k		
libselinux-python		x86_64	1.33.4-5.7.el5
base	74 k		
libselinux-utils		x86_64	1.33.4-5.7.el5
base	56 k		
Installing for dependencies:			
augeas-libs		x86_64	0.10.0-3.el5
epel	375 k		
factor		noarch	1.6.5-1.el5
epel	67 k		
libselinux-ruby		x86_64	1.33.4-5.7.el5
base	61 k		
ruby		x86_64	1.8.5-22.el5_7.1
updates	276 k		
ruby-augeas		x86_64	0.4.1-1.el5
epel	21 k		
ruby-libs		x86_64	1.8.5-22.el5_7.1
updates	1.6 M		
ruby-shadow		x86_64	1.4.1-7.el5
epel	9.6 k		

Transaction Summary

```
=====
Install      8 Package(s)
Update       6 Package(s)
Remove       0 Package(s)
```

Total download size: 3.8 M

Downloading Packages:

```
(1/14): ruby-shadow-1.4.1-7.el5.x86_64.rpm
| 9.6 kB    00:00
(2/14): ruby-augeas-0.4.1-1.el5.x86_64.rpm
| 21 kB     00:00
(3/14): libselinux-utils-1.33.4-5.7.el5.x86_64.rpm
| 56 kB     00:00
(4/14): libselinux-ruby-1.33.4-5.7.el5.x86_64.rpm
| 61 kB     00:00
(5/14): factor-1.6.5-1.el5.noarch.rpm
| 67 kB     00:00
(6/14): libselinux-python-1.33.4-5.7.el5.x86_64.rpm
| 74 kB     00:00
(7/14): libselinux-1.33.4-5.7.el5.i386.rpm
| 77 kB     00:00
(8/14): libselinux-1.33.4-5.7.el5.x86_64.rpm
| 78 kB     00:00
(9/14): libselinux-devel-1.33.4-5.7.el5.i386.rpm
| 144 kB    00:00
(10/14): libselinux-devel-1.33.4-5.7.el5.x86_64.rpm
| 149 kB    00:00
(11/14): ruby-1.8.5-22.el5_7.1.x86_64.rpm
| 276 kB    00:01
(12/14): augeas-libs-0.10.0-3.el5.x86_64.rpm
| 375 kB    00:02
(13/14): puppet-2.6.13-2.el5.noarch.rpm
| 840 kB    00:04
(14/14): ruby-libs-1.8.5-22.el5_7.1.x86_64.rpm
| 1.6 MB    00:09
```

Total

189 kB/s | 3.8 MB 00:20

warning: rpmts_HdrFromFdno: Header V4 DSA signature: NOKEY, key ID 217521f6

Importing GPG key 0x217521F6 "Fedora EPEL <epel@fedoraproject.org>" from
/etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL

Running rpm_check_debug

Running Transaction Test

Finished Transaction Test

Transaction Test Succeeded

Running Transaction

Updating	: libselinux	[1/20]
Installing	: ruby-libs	[2/20]
Installing	: ruby	[3/20]
Installing	: ruby-shadow	[4/20]
Installing	: libselinux-ruby	[5/20]
Updating	: libselinux-utils	[6/20]
Installing	: augeas-libs	[7/20]
Installing	: ruby-augeas	[8/20]
Updating	: libselinux	[9/20]
Updating	: libselinux-python	[10/20]
Installing	: facter	[11/20]
Updating	: libselinux-devel	[12/20]
Updating	: libselinux-devel	[13/20]
Installing	: puppet	[14/20]
Cleanup	: libselinux-utils	[15/20]
Cleanup	: libselinux	[16/20]
Cleanup	: libselinux-devel	[17/20]
Cleanup	: libselinux-devel	[18/20]
Cleanup	: libselinux	[19/20]
Cleanup	: libselinux-python	[20/20]

Installed: puppet.noarch 0:2.6.13-2.el5

Dependency Installed: augeas-libs.x86_64 0:0.10.0-3.el5 facter.noarch 0:1.6.5-1.el5
libselinux-ruby.x86_64 0:1.33.4-5.7.el5 ruby.x86_64 0:1.8.5-22.el5_7.1 ruby-augeas.x86_64
0:0.4.1-1.el5 ruby-libs.x86_64 0:1.8.5-22.el5_7.1 ruby-shadow.x86_64 0:1.4.1-7.el5

Updated: libselinux.x86_64 0:1.33.4-5.7.el5 libselinux.i386 0:1.33.4-5.7.el5
libselinux-devel.x86_64 0:1.33.4-5.7.el5 libselinux-devel.i386 0:1.33.4-5.7.el5
libselinux-python.x86_64 0:1.33.4-5.7.el5 libselinux-utils.x86_64 0:1.33.4-5.7.el5

Complete!