运维自动化装机篇之 Cobbler 部署指南

文档信息：

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格式约定：

灰色底黑色加粗：为输入的系统命令部分
灰色底：输入的系统命令返回的信息或者配置文件文本信息
绿色底：技巧或需要注意的注释信息
粉色底：需特别注意的地方
蓝色字体：内容注释

《Cobbler 部署指南》系列内容简介：

1、《Cobbler 部署指南之安装篇》
http://dreamway.blog.51cto.com/blog/1281816/1166589

2、《Cobbler 部署指南之配置管理篇[上文]》
http://dreamway.blog.51cto.com/blog/1281816/1166921

3、《Cobbler 部署指南之配置管理篇[下文]》
http://dreamway.blog.51cto.com/blog/1281816/1166932

4、《Cobbler 部署指南之 yum 仓库配置管理篇》
http://dreamway.blog.51cto.com/blog/1281816/1166936

5、《Cobbler 部署指南之 Cobbler 安装操作系统篇》
http://dreamway.blog.51cto.com/blog/1281816/1166947

6、《Cobbler 部署指南之安装虚拟化 Xen 系统篇》
http://dreamway.blog.51cto.com/blog/1281816/1166950

7、《Cobbler 部署指南之电源管理篇》

http://dreamway.blog.51cto.com/blog/1281816/1166957

8、《Cobbler 部署指南之 FAQ 处理篇》
http://dreamway.blog.51cto.com/blog/1281816/1167078

一、Cobbler 介绍

1.1 关于 Cobbler

Cobbler 是一个快速网络安装 linux 的服务，而且在经过调整也可以支持网络安装 windows。该工具使用 python 开发，小巧轻便（才 15k 行 python 代码），使用简单的命令即可完成 PXE 网络安装环境的配置，同时还可以管理 DHCP,DNS,以及 yum 仓库、构造系统 ISO 镜像

Cobbler 支持命令行管理，web 界面管理，还提供了 API 接口，可以方便二次开发使用。

Cobbler 客户端 Koan 支持虚拟机安装和操作系统重新安装，使重装系统更便捷。

Cobbler 提供以下服务集成：
* PXE 服务支持
* DHCP 服务管理
* DNS 服务管理
* 电源管理
* Kickstart 服务支持
* yum 仓库管理

1.2 谁在使用 Cobbler

使用 Cobbler 的组织

```
Dell
Kyntex
Acision
Sony Pictures Imageworks
Pacific Northwest National Labs
Ohio University (Math Dept, IT)
Speakeasy
triple-it
FreeLinuxPC.org
McClatchy Interactive
Carol
WideXS
LinkShare
Puzzle ITC
```

```
Stanford University Libraries
Alstom
Tom Tom
Stone IT
SUNY Potsdam
Bean Town Host
Cisco
Umeng
Ozgur Yazilim A.S.
```

作为服务使用 Cobbler

```
Red Hat
Ubuntu
Open Symbolic
Byte Code
Reliam
Dashwire
```

摘自 https://github.com/cobbler/cobbler/wiki/Who-Uses-Cobbler

1.3 系统版本支持

　　Cobbler 最初是支持系统版本 Fedora, Red Hat 和衍生版本，如 CentOS 和 Scientific Linux.现在对 Debian 和 Ubuntu SuSE 支持也相当强。还支持 FreeBSD、ESXI 等

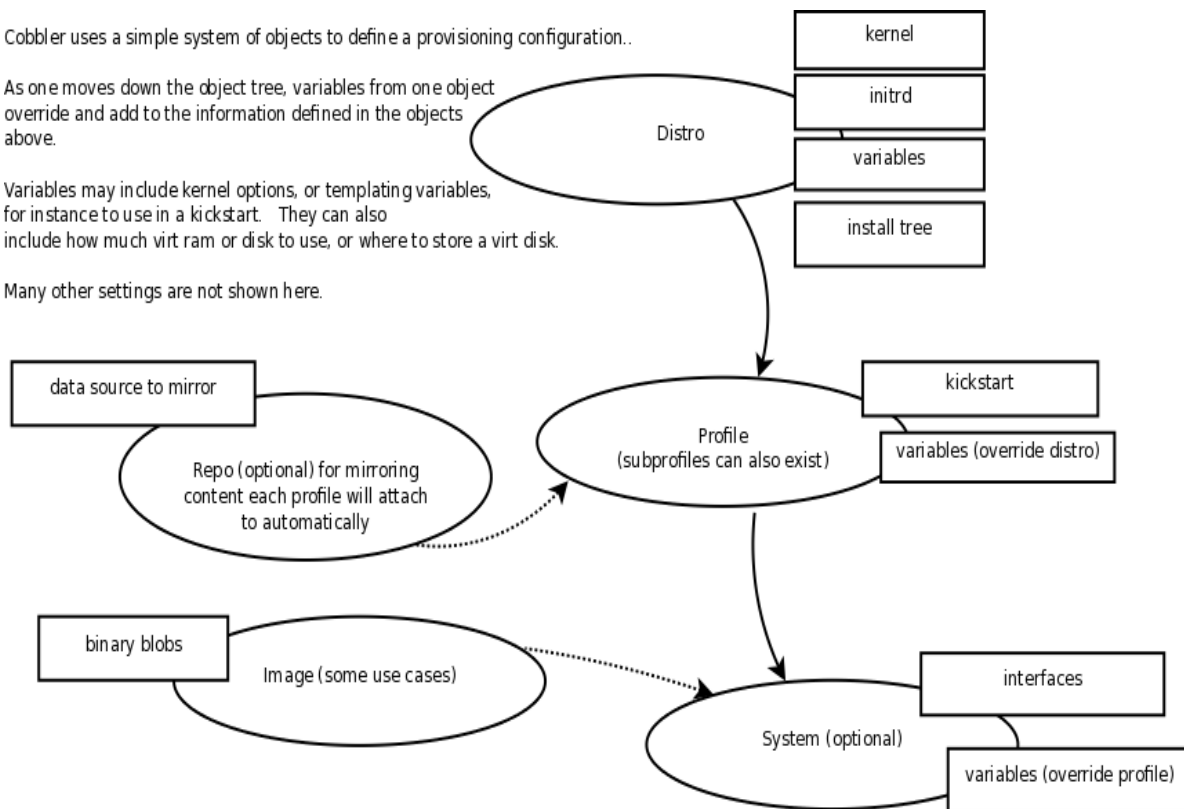　　koan 在 Fedora, Red Hat Enterprise Linux, or CentOS 工作正常，其他 Linux 版本应该也不错。

1.4 Cobbler 模型

摘自
https://github.com/cobbler/cobbler/wiki/How%20We%20Model%20Things

二、Cobbler 服务器环境

2.1 系统版本

```
# lsb_release -a
LSB
Version:    :core-4.0-amd64:core-4.0-ia32:core-4.0-noarch:graphics-4.0-amd64:gr
aphics-4.0-ia32:graphics-4.0-noarch:printing-4.0-amd64:printing-4.0-ia32:printi
ng-4.0-noarch
Distributor ID: CentOS
Description:   CentOS release 5.8 (Final)
Release:       5.8
```

2.2 磁盘分区容量

```
df -h
```

```
Filesystem          Size  Used Avail Use% Mounted on
/dev/sda2            15G  438M   14G   4% /
/dev/sda7            90G  236M   85G   1% /var
/dev/sda6           7.8G  147M  7.3G   2% /opt
/dev/sda5           7.8G  2.0G  5.4G  28% /usr
/dev/sda1           494M   17M  452M   4% /boot
tmpfs               3.9G     0  3.9G   0% /dev/shm
```

2.3 内存配置

```
free -m
             total       used       free     shared    buffers     cached
Mem:          7985        148       7837          0         30         37
-/+ buffers/cache:          80       7905
Swap:        12291          0      12291
```

2.4 软件版本

```
Cobbler 版本： 2.2.3
Koan 版本：koan-1.6.6
cman 版本：cman-2.0.115
```

三、安装 Cobbler

3.1 安装 EPEL 源

```
rpm -ivh http://dl.fedoraproject.org/pub/epel/5/x86_64/epel-release-5-4.noarch.rpm
Retrieving
http://dl.fedoraproject.org/pub/epel/5/x86_64/epel-release-5-4.noarch.rpm
warning: /var/tmp/rpm-xfer.mDDqhT: Header V3 DSA signature: NOKEY, key ID 217521f6
Preparing...                ########################################### [100%]
   1:epel-release           ########################################### [100%]
```

3.2 yum 安装 Cobbler

Cobbler 版本 2.2.3

```
yum install cobbler httpd rsync tftp-server xinetd dhcp python-ctypes
cman pykickstart -y
Loaded plugins: fastestmirror, security
Determining fastest mirrors
 * epel: mirrors.ustc.edu.cn
```

```
CentOS
| 1.3 kB        00:00
CentOS/primary
| 1.2 MB        00:00
CentOS
3595/3595
epel
| 3.6 kB        00:00
epel/primary_db
| 3.7 MB        00:01
……略……
Transaction Summary
================================================================================
===================================================
Install        12 Package(s)
Upgrade         0 Package(s)

Total download size: 3.7 M
……略……

Installed:
  cobbler.noarch  0:2.2.3-2.el5                          dhcp.x86_64  12:3.0.5-31.el5
python-ctypes.x86_64 0:1.0.2-3.el5

Dependency Installed:
  PyYAML.x86_64 0:3.08-4.el5                       createrepo.noarch  0:0.4.11-3.el5
libyaml.x86_64 0:0.1.2-3.el5
  mkisofs.x86_64 9:2.01-10.7.el5                      mod_wsgi.x86_64  0:3.2-2.el5
python-cheetah.x86_64 0:2.0.1-1.el5
  python-netaddr.noarch    0:0.5.2-1.el5                python-simplejson.x86_64
0:2.0.9-8.el5      yum-utils.noarch 0:1.1.16-21.el5.centos

Complete!
```

3.3 配置 Cobbler

```
vim   /etc/cobbler/settings   #Cobbler 主配置文件
sed -i 's/manage_dhcp: 0/manage_dhcp: 1/g' /etc/cobbler/settings
sed -i 's/manage_rsync: 0/manage_rsync: 1/g' /etc/cobbler/settings
```

配置前后内容对比

```
diff   /etc/cobbler/settings /etc/cobbler/settings_2013-03-10 218c218
< manage_dhcp: 1   #启用 cobbler 管理 DHCP 功能
```

```
---
> manage_dhcp: 0
237c237
< manage_rsync: 1 #启用 cobbler 管理 rsync 功能
---
> manage_rsync: 0
248c248
< next_server: 172.17.10.14 # DHCP 服务地址
---
> next_server: 127.0.0.1
360c360
< server: 172.17.10.14 # cobbler 服务地址
---
> server: 127.0.0.1
```

3.4 检查、关闭 SELinux、iptables

```
getsebool
getsebool:  SELinux is disabled

service iptables stop
Flushing firewall rules:                                    [  OK  ]
Setting chains to policy ACCEPT: filter                     [  OK  ]
Unloading iptables modules:                                 [  OK  ]
chkconfig  iptables off
```

3.5 配置 tftp、rsync

设置 'disable' 为 'no'

```
sed -i '/disable/c\\tdisable\t\t\t= no' /etc/xinetd.d/tftp
sed -i  's/\=\ yes/\=\ no/g' /etc/xinetd.d/rsync
```

3.6 启用 wsgi 模块

```
sed  -i 's@#LoadModule@LoadModule@g' /etc/httpd/conf.d/wsgi.conf
```

3.7 生成 Cobbler 安装系统 root 初始密码

这里生成密钥和配置默认密钥，ks 文件引用

```
openssl passwd -1 -salt 'random-phrase-here' 'hexun'
$1$random-p$Q1IN9LaNg7yhRKJuY5OfV1s
```

加入 cobbler 配置

```
vim /etc/cobbler/settings
grep default_password_crypted  /etc/cobbler/settings
default_password_crypted: "$1$random-p$Q1IN9LaNg7yhRKJuY50fV1s"
```

3.8 配置 DHCP

```
cp    /etc/cobbler/dhcp.template    /etc/cobbler/dhcp.template.$(date
+%F) #备份
vim /etc/cobbler/dhcp.template
dhcp.template                dhcp.template.2013-03-10
vim /etc/cobbler/dhcp.template #编辑

diff                                        /etc/cobbler/dhcp.template
/etc/cobbler/dhcp.template.2013-03-10 |grep '<' #配置前后差异对比
< subnet 172.17.0.0 netmask 255.255.0.0 {
<       option routers 172.17.10.119;
<       option domain-name               "sys.hexun";
<       option domain-name-servers 172.17.10.2;
<       option subnet-mask          255.255.0.0;
<       range  dynamic-bootp        172.17.188.60 172.17.188.120;
<       default-lease-time          600;
<       max-lease-time              1200;
```

3.9 配置相关服务开机自启动

```
/sbin/service httpd start
/sbin/service dhcpd start
/sbin/service xinetd start
/sbin/service cobblerd start

/sbin/chkconfig httpd on
/sbin/chkconfig dhcpd on
/sbin/chkconfig xinetd on
/sbin/chkconfig tftp on
/sbin/chkconfig cobblerd on
```

3.10 下载引导操作系统文件

```
cobbler get-loaders
```

3.11 配置 debmiror

安装 debmirror
```
yum -y install debmirror
```
修改 /etc/debmirror.conf 配置文件，注释掉 @dists 和 @arches 两行
```
sed -i 's|@dists=.*|#@dists=|' /etc/debmirror.conf
sed -i 's|@arches=.*|#@arches=|' /etc/debmirror.conf
```

3.12 检查 Cobbler 配置

```
cobbler check
No configuration problems found.  All systems go. #出现此提示即正常

cobblerd does not appear to be running/accessible #此提示是因为 cobbler
服务没启动
```
cobbler check 出现的相关报错处理看下面步骤

3.13 同步配置

```
cobbler sync
```

四、配置管理 Cobbler

4.1 Cobbler 命令说明

命令名称	命令用途
cobbler check	检查 cobbler 配置
cobbler list	列出所有的 cobbler 元素
cobbler report	列出元素的详细信息
cobbler distro	查看导入的发行版系统信息
cobbler system	查看添加的系统信息
cobbler profile	查看配置信息
cobbler sync	同步 Cobbler 配置，更改配置最好都要执行下
cobbler reposync	同步 yum 仓库

命令参考
```
cobbler --help
cobbler distro  --help
cobbler distro  add --help
```

4.2 Cobbler 配置文件说明

Cobbler 配置文件存放在/etc/cobbler 下

配置文件名称	作　用
/etc/cobbler/settings	Cobbler 主配置文件
/etc/cobbler/users.digest	用于 web 访问的用户名密码配置文件
/etc/cobbler/modules.conf	模块配置文件
/etc/cobbler/users.conf	Cobbler WebUI/Web 服务授权配置文件
/etc/cobbler/iso/	Buildiso 模板配置文件
/etc/cobbler/power	电源配置文件
/etc/cobbler/pxe	Pxeprofile 配置模板
/etc/cobbler	此目录也包含 rsync、dhcp、dns、pxe、dnsmasq 等服务的模板配置文件

4.3 系统镜像数据目录/var/www/cobbler

导入的系统发行版，repos 镜像和 kickstart 文件都放置在/var/www/cobbler 目录下。确保/var 目录有足够的空间来存储这些文件。

目录名称	作　用
/var/www/cobbler/images/	存储所有导入发行版的 Kernel 和 initrd 镜像用于远程网络启动
/var/www/cobbler/ks_mirror/	存储导入的发行版系统数据
/var/www/cobbler/repo_mirror/	仓库存储目录
/var/log/cobbler	Cobbler 日志文件 cobbler.log　install.log

4.4 Cobbler 数据目录/var/lib/cobbler

此目录存储和 Cobbler profiles、systems、distros 相关的配置。

目录名称	作　用
/var/lib/cobbler/config/	存放 distros、repos、systems 和 profiles 等信息配置文件，一般都是 json 文件
/var/lib/cobbler/snippets/	存放 ks 文件可以导入的脚本小片段，值得研究
/var/lib/cobbler/triggers	存放用户定义的 cobbler 命令
/var/lib/cobbler/kickstarts/	存放 kickstart 配置文件

4.5 相关日志文件

```
web 日志存放点
/var/log/httpd/access_log
/var/log/httpd/error_log
```

```
/var/log/httpd/ssl_access_log
/var/log/httpd/ssl_error_log

Cobbler 日志
/var/log/cobbler/cobbler.log
/var/log/cobbler/install.log

通过 Cobbler 日志可以获取系统的安装状态
```

4.6 导入系统镜像

4.6.1 上传 ISO 镜像至服务器

```
注意下载的 ISO 文件要核对文件的 md5 值，确保数据完整性
[root@hxinstall x86_64]# md5sum  CentOS-5.8-x86_64-bin-DVD-1of2.iso
8a3bf0030f192022943f83fe6b2cf373  CentOS-5.8-x86_64-bin-DVD-1of2.iso
```

4.6.2 创建 ISO 目录

```
mkdir -p /var/iso/Linux/Centos/x86_64/
mkdir -p  /var/os/Linux/Centos/x86_64/Centos5.8/dvd
mkdir -p  /var/os/Linux/Centos/x86_64/Centos6.3/dvd
mkdir -p  /var/os/Linux/Centos/x86_64/Centos6.4/dvd
```

4.6.3 挂载 ISO 镜像

```
mount -o loop /var/iso/Linux/Centos/x86_64/CentOS-5.8-x86_64-bin-DVD-1of2.iso /var/os/Linux/Centos/x86_64/Centos5.8/dvd
```

4.6.4 从 DVD 中导入 OS 数据

系统版本命名为 centos5.8 架构 x86_64，这时间长，耐性等待。可查看 ls /var/www/cobbler/ks_mirror/centos5.8-x86_64/目录文件生成情况。

```
cobbler import --path=/var/os/Linux/Centos/x86_64/Centos5.8/dvd --name=centos5.8 --arch=x86_64
task started: 2013-03-12_132624_import
task started (id=Media import, time=Tue Mar 12 13:26:24 2013)
Found a redhat compatible signature: CentOS
adding distros
creating new distro: centos5.8-xen-x86_64
```

```
creating new profile: centos5.8-xen-x86_64
creating new distro: centos5.8-x86_64
creating new profile: centos5.8-x86_64
associating repos
traversing distro centos5.8-xen-x86_64
descent into /var/www/cobbler/ks_mirror/centos5.8-x86_64
processing repo at : /var/www/cobbler/ks_mirror/centos5.8-x86_64
need to process repo/comps: /var/www/cobbler/ks_mirror/centos5.8-x86_64
looking                                                    for
/var/www/cobbler/ks_mirror/centos5.8-x86_64/repodata/*comps*.xml
running:    createrepo    -c    cache    -s    sha    --groupfile
/var/www/cobbler/ks_mirror/centos5.8-x86_64/repodata/comps.xml
/var/www/cobbler/ks_mirror/centos5.8-x86_64
3496/3496              -              CentOS/finger-0.17-33.x86_64.rpm
pm6_64.rpm
Saving Primary metadata
Saving file lists metadata
Saving other metadata

received on stderr: This option is deprecated

traversing distro centos5.8-x86_64
descent into /var/www/cobbler/ks_mirror/centos5.8-x86_64
processing repo at : /var/www/cobbler/ks_mirror/centos5.8-x86_64
need to process repo/comps: /var/www/cobbler/ks_mirror/centos5.8-x86_64
looking                                                    for
/var/www/cobbler/ks_mirror/centos5.8-x86_64/repodata/*comps*.xml
running:    createrepo    -c    cache    -s    sha    --groupfile
/var/www/cobbler/ks_mirror/centos5.8-x86_64/repodata/comps.xml
/var/www/cobbler/ks_mirror/centos5.8-x86_64
3496/3496              -              CentOS/finger-0.17-33.x86_64.rpm
pm6_64.rpm
Saving Primary metadata
Saving file lists metadata
Saving other metadata

received on stderr: This option is deprecated

associating kickstarts
*** TASK COMPLETE ***
```

4.6.5 列出导入后的配置

```
cobbler list
```

```
distros:
    centos5.8-x86_64
    centos5.8-xen-x86_64
    centos6.3-x86_64
    centos6.4-x86_64

profiles:
    centos5.8-x86_64
    centos5.8-xen-x86_64
    centos6.3-x86_64
    centos6.4-x86_64

systems:

repos:

images:

mgmtclasses:

packages:

files:
```

列出详细信息可以使用 cobbler report

4.6.6 比对大小，确保数据的完整性

```
du -sh /var/www/cobbler/ks_mirror/centos5.8-x86_64/
4.1G    /var/www/cobbler/ks_mirror/centos5.8-x86_64/
du -sh /var/os/Linux/Centos/x86_64/Centos5.8/dvd/
4.3G    /var/os/Linux/Centos/x86_64/Centos5.8/dvd/
```

4.6.7 CentOS6.3、6.4 导入过程

CentOS6.3
```
mount -o loop    /var/iso/Linux/Centos/x86_64/CentOS-6.3-x86_64-bin-DVD1.iso
/var/os/Linux/Centos/x86_64/Centos6.3/dvd/

cobbler      import         --path=/var/os/Linux/Centos/x86_64/Centos6.3/dvd/
--name=centos6.3 --arch=x86_64
```

CentOS6.4

```
mount -o loop     /var/iso/Linux/Centos/x86_64/CentOS-6.4-x86_64-bin-DVD1.iso
/var/os/Linux/Centos/x86_64/Centos6.4/dvd/
cobbler          import          --path=/var/os/Linux/Centos/x86_64/Centos6.4/dvd/
--name=centos6.4 --arch=x86_64
```

4.7 删除导入的系统

```
cobbler profile find --distro=centos6.3-x64-x86_64 #查看配置是否存在
centos6.3-x64-x86_64
cobbler  profile  remove  --name=centos6.3-x64-x86_64 #删除配置文件

cobbler distro remove --name=centos6.3-x64-x86_64   #删除 distro
cobbler profile find --distro=centos6.3-x64-x86_64 #再查看配置已无
```

4.8 自定义 ks

更改 kickstart 文件，可为 http 等，具体 cobbler --help 查看，这里采用我们自定制 ks 文件

ks 目录位置
```
/var/lib/cobbler/kickstarts/
```
默认的 ks 位置
```
/var/lib/cobbler/kickstarts/sample.ks
```
更改指定系统版本对应的 ks 配置文件
```
cobbler         profile         edit         --name=centos5.8-x86_64
--kickstart=/var/lib/cobbler/kickstarts/centos5u8-x64.cfg

cobbler         profile         edit         --name=centos6.3-x86_64
--kickstart=/var/lib/cobbler/kickstarts/centos6u3-x64.cfg

cobbler         profile         edit         --name=centos6.4-x86_64
--kickstart=/var/lib/cobbler/kickstarts/centos6u4-x64.cfg
```

4.9 配置信息查看

```
cobbler report
distros:
=========
Name                        : centos5.8-xen-x86_64
Architecture                : x86_64
TFTP Boot Files             : {}
Breed                       : redhat
```

```
Comment                       : rhel5.8
Fetchable Files               : {}
Initrd                                                                    :
/var/www/cobbler/ks_mirror/centos5.8-x86_64/images/xen/initrd.img
Kernel                                                                    :
/var/www/cobbler/ks_mirror/centos5.8-x86_64/images/xen/vmlinuz
Kernel Options                : {}
Kernel Options (Post Install) : {}
Kickstart    Metadata                                      :    {'tree':
'http://@@http_server@@/cblr/links/centos5.8-xen-x86_64'}
Management Classes            : []
OS Version                    : rhel5
Owners                        : ['admin']
Red Hat Management Key        : <<inherit>>
Red Hat Management Server     : <<inherit>>
Template Files                : {}

Name                          : centos6.4-x86_64
Architecture                  : x86_64
TFTP Boot Files               : {}
Breed                         : redhat
Comment                       : rhel6.4
Fetchable Files               : {}
Initrd                                                                    :
/var/www/cobbler/ks_mirror/centos6.4-x86_64/images/pxeboot/initrd.img
Kernel                                                                    :
/var/www/cobbler/ks_mirror/centos6.4-x86_64/images/pxeboot/vmlinuz
Kernel Options                : {}
Kernel Options (Post Install) : {}
Kickstart    Metadata                                      :    {'tree':
'http://@@http_server@@/cblr/links/centos6.4-x86_64'}
Management Classes            : []
OS Version                    : rhel6
Owners                        : ['admin']
Red Hat Management Key        : <<inherit>>
Red Hat Management Server     : <<inherit>>
Template Files                : {}

……略……


systems:
==========
```

```
repos:
==========


images:
==========


mgmtclasses:
==========


packages:
==========


files:
==========
```

4.10 系统版本列表

```
cobbler distro list
    centos5.8-x86_64
    centos5.8-xen-x86_64
    centos6.3-x86_64
    centos6.4-x86_64
```

4.11 同步 Cobbler 配置

建议先执行 cobbler check 进行配置检查再执行 cobbler sync，修改 cobbler 配置后都需要执行此步骤

```
cobbler check
No configuration problems found.  All systems go.


cobbler sync
task started: 2013-03-12_171702_sync
task started (id=Sync, time=Tue Mar 12 17:17:02 2013)
running pre-sync triggers
cleaning trees
……略……
rendering Rsync files
running post-sync triggers
running python triggers from /var/lib/cobbler/triggers/sync/post/*
running python trigger cobbler.modules.sync_post_restart_services
running: dhcpd -t -q
received on stdout:
received on stderr:
```

```
running: service dhcpd restart
received on stdout: Shutting down dhcpd: [  OK  ]
Starting dhcpd: [  OK  ]

received on stderr:
running shell triggers from /var/lib/cobbler/triggers/sync/post/*
running python triggers from /var/lib/cobbler/triggers/change/*
running python trigger cobbler.modules.scm_track
running shell triggers from /var/lib/cobbler/triggers/change/*
*** TASK COMPLETE ***
```

4.12 创建 PXE 菜单密码

增加装机安全设置菜单密码

生成 hash 密码
支持两种不同类型的密码：

```
sha1pass mypassword
```
或
```
openssl passwd -1 -salt sXiKzkus mypassword
```
我这里选择后者
```
# openssl passwd -1 -salt sXiKzkus hexun
$1$sXiKzkus$2DoZ6pfTe8rrc0Si60ecB/
```
编辑配置文件 pxedefault，添加如下蓝色部分
```
vim /etc/cobbler/pxe/pxedefault.template

DEFAULT menu
PROMPT 0
MENU TITLE Cobbler | http://fedorahosted.org/cobbler
MENU MASTER PASSWD $1$sXiKzkus$2DoZ6pfTe8rrc0Si60ecB/
TIMEOUT 200
TOTALTIMEOUT 6000
ONTIMEOUT $pxe_timeout_profile

LABEL local
        MENU LABEL (local)
        MENU DEFAULT
        LOCALBOOT -1

$pxe_menu_items

MENU end
```
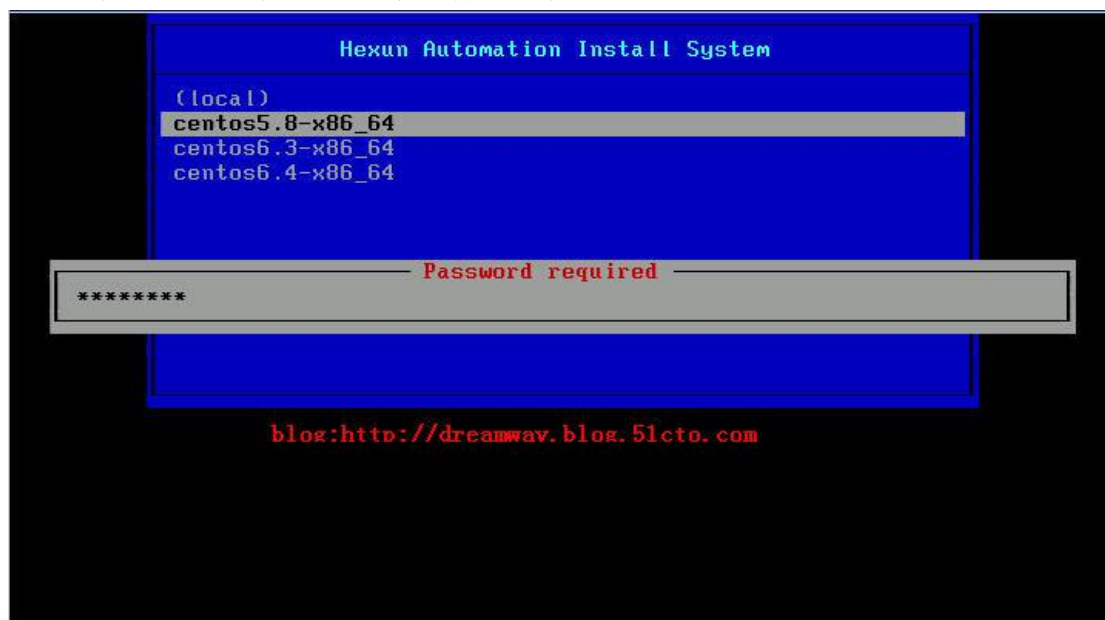
配置 pxeprofile，增加蓝色部分

```
vim /etc/cobbler/pxe/pxeprofile.template
LABEL $profile_name
        MENU PASSWD
        kernel $kernel_path
        $menu_label
        $append_line
        ipappend 2
```

修改完毕注意检查、同步配置使其生效

```
cobbler check
No configuration problems found.  All systems go.
cobbler sync
```

PXE 装机时选择装机系统版本，输入装机密码，效果图

4.13 定制 PXE 菜单 TITLE

编辑 pxedefault 文件，

```
vim /etc/cobbler/pxe/pxedefault.template
MENU TITLE Cobbler │ http://fedorahosted.org/cobbler
```

将原文上面的内容根据自定义进行修改

```
MENU TITLE Hexun Automation Install System
```

修改后的文件

```
DEFAULT menu
PROMPT 0
MENU TITLE Hexun Automation Install System
MENU MASTER PASSWD $1$sXiKzkus$2DoZ6pfTe8rrc0Si60ecB/
```

```
TIMEOUT 200
TOTALTIMEOUT 6000
ONTIMEOUT $pxe_timeout_profile

LABEL local
        MENU LABEL (local)
        MENU DEFAULT
        LOCALBOOT -1


$pxe_menu_items


MENU end
```

修改完毕执行如下两条命令

```
cobbler check
cobbler sync
```

4.14 添加指定客户机系统配置到 Cobbler

4.14.1 指定一个网段使用特定的装机配置

```
cobbler    system    add    --name=network    --ip=172.17.188.0/16
--profile=centos5.8-x86_64
```

4.14.2 添加一个指定服务器的装机配置

   指定服务器就是绑定它的 mac 地址，并设置好 ip、dns、hostname

   定义系统

```
cobbler   system   add   --name=host-188116   --hostname=host-188116
--mac=00:19:B9:E5:34:FE  --interface=eth0  --ip-address=172.17.188.116
--subnet=255.255.0.0          --gateway=172.17.188.1          --static=1
--profile=centos5.8-x86_64
```

   查看定义的系统列表

```
cobbler system list
   host-188116
```

更多参数见 cobbler system add --help

五、Cobbler Web 管理

Cobbler web 界面是一个很好的前端，非常容易管理 Cobbler
可以添加和删除 system distro profile
可以查看、编辑 distros, profiles, subprofiles, systems, repos 、
kickstart 文件

5.1 安装 cobbler_web

```
yum -y install cobbler-web
```

5.2 设置用户名密码

为已存在的用户 cobbler 重置密码
```
htdigest /etc/cobbler/users.digest "Cobbler" cobbler
```
添加新用户
```
htdigest /etc/cobbler/users.digest "Cobbler" your_newname
```

5.3 配置 cobbler web 可以登录

```
sed -i 's/authn_denyall/authn_configfile/g' /etc/cobbler/modules.conf
```

5.4 重启 Cobbler 与 http

```
/etc/init.d/cobblerd restart
/etc/init.d/httpd restart
```

5.5 访问 Cobbler Web 页面

浏览器访问登录页面 https://172.17.10.14/cobbler_web
输入用户名密码

登录后的页面
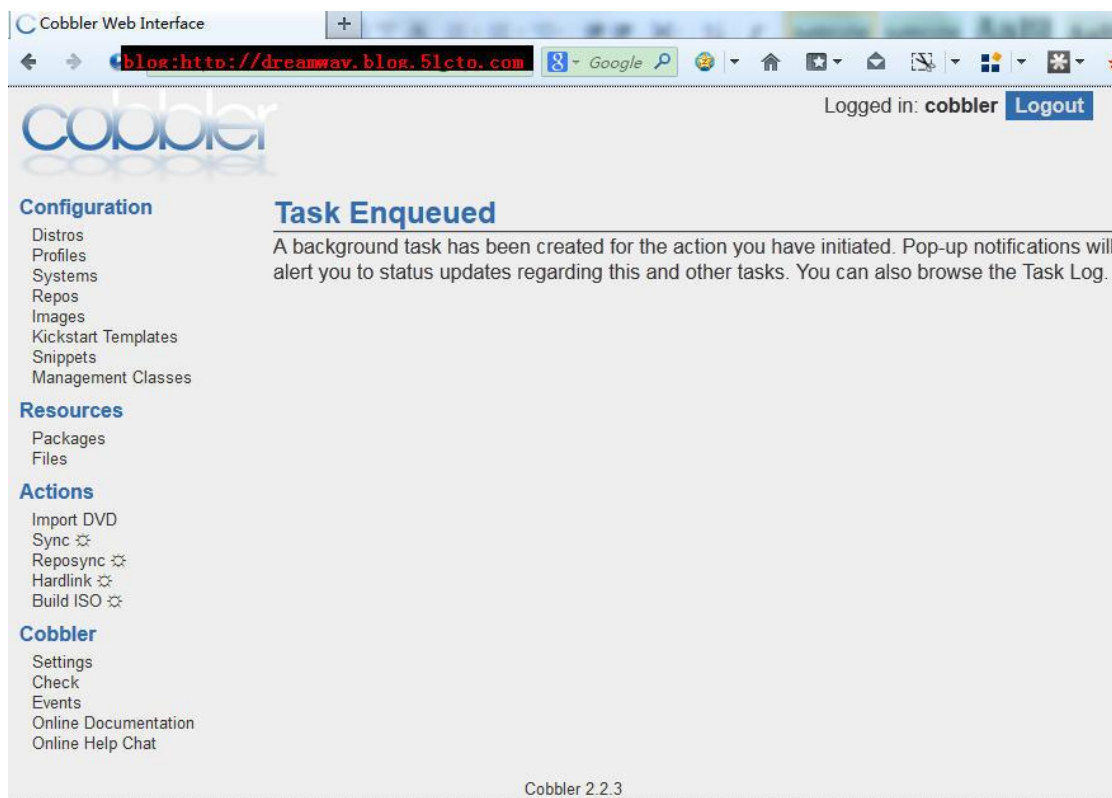
web 管理相对易于使用管理这里这就不再赘述。

六、yum 仓库配置管理

6.1 首先导入系统镜像

参考步骤**四、导入系统镜像**，导入完毕后，进行下面的步骤

6.2 添加镜像

base、updates 库使用 163 的 repo 源并增加 EPEL 库
base

```
cobbler        repo        add        --name=centos5.8-x86_64-Base
--mirror=http://mirrors.163.com/centos/5/os/x86_64/
```

将定义的仓库大写名字 Base 修改为小写 base

```
cobbler        repo        edit        --name=centos5.8-x86_64-base
--mirror=http://mirrors.163.com/centos/5/os/x86_64/        --arch=x86_64
--breed=yum
```

updates

```
cobbler        repo        add        --name=centos5.8-x86_64-updates
--mirror=http://mirrors.163.com/centos/5/updates/x86_64/
--arch=x86_64 --breed=yum
```

添加 EPEL 仓库

```
cobbler        repo        add        --name=centos5.8-x86_64-epel
--mirror=http://mirrors.ustc.edu.cn/epel/5/x86_64/        --arch=x86_64
--breed=yum
```

6.3 同步 yum 仓库内容到本地

时间较长，注意磁盘容量是否满足。

```
cobbler reposync
task started: 2013-03-26_111553_reposync
task started (id=Reposync, time=Tue Mar 26 11:15:53 2013)
hello, reposync
run, reposync, run!
creating:
/var/www/cobbler/repo_mirror/centos5.8-x86_64-updates/.origin/centos5
.8-x86_64-updates.repo
running:        /usr/bin/reposync        -l        -m        -d
--config=/var/www/cobbler/repo_mirror/centos5.8-x86_64-updates/.origi
n/centos5.8-x86_64-updates.repo        --repoid=centos5.8-x86_64-updates
--download_path=/var/www/cobbler/repo_mirror -a x86_64
··················略····························
received on stdout:
received on stderr:
*** TASK COMPLETE ***
```

6.4 repo 添加到 profle，

安装系统时会自动添加仓库配置

```
cobbler         profile         edit         --name=centos5.8-x86_64
--repos="centos5.8-x86_64-base                centos5.8-x86_64-epel
centos5.8-x86_64-updates"               --distro=centos5.8-x86_64
--kickstart=/var/lib/cobbler/kickstarts/centos5u8-x64.cfg
```

6.4 删除仓库配置

```
cobbler repo remove  --name=centos5.8-x86_64- updates
```

6.5 添加更新仓库源计划任务

```
cobbler reposync --tries=3 --no-fail

加入 crontab 每周日更新一次即可
echo  "0 2  * *  0 cobbler reposync --tries=3 --no-fail" >>
/var/spool/cron/root

注意检查 crond 是否启动
/etc/init.d/crond status
crond is stopped
/etc/init.d/crond start
Starting crond:                                        [  OK  ]
chkconfig crond on
```

6.6 装机自动配置 yum

如果你想安装系统时自动配置 yum，请进行以下配置。

```
vim /etc/cobbler/settings
yum_post_install_mirror: 1
```

在装机脚本 ks 文件加入以下内容

```
%post
# Start yum configuration
$yum_config_stanza
# End yum configuration
```

下面的参数 PXE 安装系统是会引用你添加的 cobbler repo 配置
注意可能将系统、应用部署到较新版本，根据情况而配置

```
$yum_repo_stanza
```

这两个参数都来自 Kickstart snippets，很值得研究
https://github.com/cobbler/cobbler/wiki/Kickstart-snippets

系统安装自动配置的 yum

```
cat /etc/yum.repos.d/cobbler-config.repo
[core-0]
name=core-0
baseurl=http://172.17.10.14/cobbler/ks_mirror/centos5.8-x86_64
enabled=1
gpgcheck=0
priority=1


[centos5.8-x86_64-base]
name=centos5.8-x86_64-base
baseurl=http://172.17.10.14/cobbler/repo_mirror/centos5.8-x86_64-base
enabled=1
priority=99
gpgcheck=0


[centos5.8-x86_64-epel]
name=centos5.8-x86_64-epel
baseurl=http://172.17.10.14/cobbler/repo_mirror/centos5.8-x86_64-epel
enabled=1
priority=99
gpgcheck=0


[centos5.8-x86_64-updates]
name=centos5.8-x86_64-updates
baseurl=http://172.17.10.14/cobbler/repo_mirror/centos5.8-x86_64-upda
tes
enabled=1
priority=99
gpgcheck=0
```

七、Cobbler 安装操作系统

7.1 安装完系统后默认的密码是啥呢？

```
这个密码 $default_password_crypted 就是步骤 3.6 使用 openssl passwd -1
生成的密码

grep rootpw /var/lib/cobbler/kickstarts/sample.ks
rootpw --iscrypted $default_password_crypted
```

7.2 PXE 菜单文件

默认菜单文件内容

```
cat /tftpboot/pxelinux.cfg/default
DEFAULT menu
PROMPT 0
MENU TITLE Hexun Automation Install System
TIMEOUT 150
TOTALTIMEOUT 6000
ONTIMEOUT local

LABEL local
        MENU LABEL (local)
        MENU DEFAULT
        LOCALBOOT -1

LABEL centos5.8-x86_64
        kernel /images/centos5.8-x86_64/vmlinuz
        MENU LABEL centos5.8-x86_64
        append            initrd=/images/centos5.8-x86_64/initrd.img
ksdevice=bootif        lang=                kssendmac        text
ks=http://172.17.10.14/cblr/svc/op/
ks/profile/centos5.8-x86_64
        ipappend 2
```
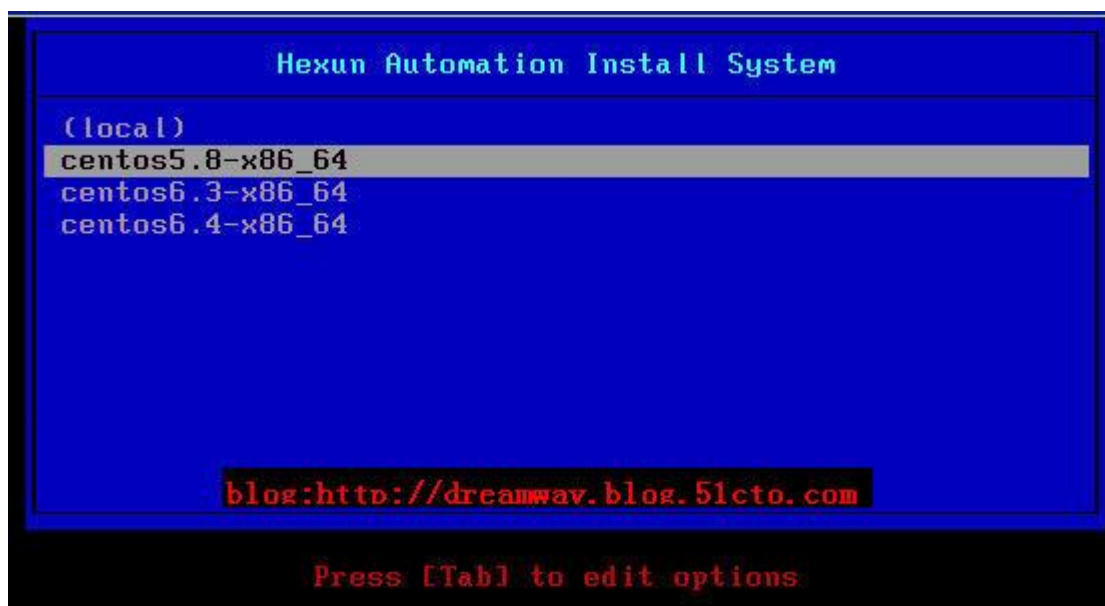
指定系统的菜单文件内容

```
cat /tftpboot/pxelinux.cfg/01-00-19-b9-e5-34-fe
default linux
prompt 0
timeout 1
label linux
        kernel /images/centos5.8-x86_64/vmlinuz
        ipappend 2
        append            initrd=/images/centos5.8-x86_64/initrd.img
ksdevice=bootif        lang=                kssendmac        text
ks=http://172.17.10.14/cblr/svc/op/ks/system/host-188116
```

7.3 安装系统

将需要安装系统的服务器网卡启用 PXE，启动服务器从 PXE 引导
默认从本地硬盘引导，可以修改，建议还是保持此默认。

选择安装系统 centos5.8-x86_64 即可自动安装系统

Tab 键，可以对启动项参数进行编辑

安装源数据说明：

系统 centos5.8-x86_64 的安装系统数据源，其他系统同理

链接

```
https://url/cblr/links/centos5.8-x86_64/
```

目录

```
/var/www/cobbler/links/centos5.8-x86_64/
```

是一个链接目录，实际位置如下

```
ll links/
total 0
lrwxrwxrwx  1  root  root  43  Mar  12  13:41  centos5.8-x86_64  ->
/var/www/cobbler/ks_mirror/centos5.8-x86_64
```

7.4 使用 Koan 重装系统

koan 是 cobbler 的一个辅助工具,koan 是 kickstart-over-a-network 的缩写
安装在客户端的使用，koan 配合 cobbler 实现快速重装 linux。

koan 在 Fedora, Red Hat Enterprise Linux, 和 CentOS 工作正常,其他 Linux
版本应该也不错

koan 的相关脚本在此目录内/usr/lib/python2.4/site-packages/koan/

通过 EPEL 安装的 koan 版本为 koan-2.2.3-2.el5，使用中报错较多，此版本
比较稳定 koan-1.6.6-1.el5，下载链接

```
ftp://rpmfind.net/linux/epel/5/i386/koan-1.6.6-1.el5.noarch.rpm
```

关于 Koan 更多内容见 https://github.com/cobbler/cobbler/wiki/Koan

7.4.1 安装 koan

在重装的机器上安装 koan

```
rpm  -ivh koan-1.6.6-1.el5.noarch.rpm
```

7.4.2 列出远程 cobbler 上的系统版本对象

```
koan --server=172.17.10.14 --list=profiles
- looking for Cobbler at http://172.17.10.14:80/cobbler_api
centos5.8-xen-x86_64
centos6.4-x86_64
centos5.8-x86_64
centos6.3-x86_64
```

```
koan --server=172.17.10.14 --list=systems
- looking for Cobbler at http://172.17.10.14/cobbler_api
host-188116
```

```
koan --server=172.17.10.14 --list=images
```

7.4.3 学习更多关于远程 Cobbler 对象信息

```
koan --server=172.17.10.14 --display --profile=centos5.8-x86_64
- looking for Cobbler at http://172.17.10.14:80/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-x86_64
install_tree: http://172.17.10.14/cblr/links/centos5.8-x86_64
                name  : centos5.8-x86_64
              distro  : centos5.8-x86_64
          kickstart                                                    :
http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-x86_64
              ks_meta  : tree=http://@@http_server@@/cblr/links/centos5.8-x86_64
        install_tree  : http://172.17.10.14/cblr/links/centos5.8-x86_64
                kernel                                                   :
/var/www/cobbler/ks_mirror/centos5.8-x86_64/images/pxeboot/vmlinuz
                initrd                                                   :
/var/www/cobbler/ks_mirror/centos5.8-x86_64/images/pxeboot/initrd.img
        kernel_options                                                  :
ks=http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-x86_64    ksdevice=link
kssendmac lang= text
                repos  :       centos5.8-x86_64-base   centos5.8-x86_64-epel
centos5.8-x86_64-updates
```

```
          virt_ram  : 512
   virt_disk_driver  : raw
        virt_type  : qemu
        virt_path  :
     virt_auto_boot  : 1
```

```
koan --server=172.17.10.14 --display --system=host-188116
- looking for Cobbler at http://172.17.10.14/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/system/host-188116
install_tree: http://172.17.10.14/cblr/links/centos5.8-x86_64
               name  : host-188116
             distro  : centos5.8-x86_64
            profile  : centos5.8-x86_64
          kickstart  : http://172.17.10.14/cblr/svc/op/ks/system/host-188116
            ks_meta  : tree=http://@@http_server@@/cblr/links/centos5.8-x86_64
       install_tree  : http://172.17.10.14/cblr/links/centos5.8-x86_64
             kernel                                                     :
/var/www/cobbler/ks_mirror/centos5.8-x86_64/images/pxeboot/vmlinuz
             initrd                                                     :
/var/www/cobbler/ks_mirror/centos5.8-x86_64/images/pxeboot/initrd.img
      kernel_options                                                    :
ks=http://172.17.10.14/cblr/svc/op/ks/system/host-188116 ksdevice=link kssendmac
lang= text
              repos          :     centos5.8-x86_64-base     centos5.8-x86_64-epel
centos5.8-x86_64-updates
            virt_ram  : 512
           virt_type  : qemu
           virt_path  :

[root@host-d-116   ~]#   koan   --server=172.17.10.14   --display
--system=host-188116
- looking for Cobbler at http://172.17.10.14/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/system/host-188116
install_tree: http://172.17.10.14/cblr/links/centos5.8-x86_64
               name  : host-188116
             distro  : centos5.8-x86_64
            profile  : centos5.8-x86_64
          kickstart                                                     :
http://172.17.10.14/cblr/svc/op/ks/system/host-188116
            ks_meta                                                     :
tree=http://@@http_server@@/cblr/links/centos5.8-x86_64
        install_tree                                                    :
http://172.17.10.14/cblr/links/centos5.8-x86_64
             kernel                                                     :
```

```
/var/www/cobbler/ks_mirror/centos5.8-x86_64/images/pxeboot/vmlinuz
            initrd                                                  :
/var/www/cobbler/ks_mirror/centos5.8-x86_64/images/pxeboot/initrd.img
      kernel_options                                                :
ks=http://172.17.10.14/cblr/svc/op/ks/system/host-188116
ksdevice=link kssendmac lang= text
              repos   : centos5.8-x86_64-base  centos5.8-x86_64-epel
centos5.8-x86_64-updates
            virt_ram  : 512
          virt_type   : qemu
          virt_path   :
```

```
koan --server=172.17.10.14 --display --image=name
```

7.4.4 重新安装客户端系统

```
koan -r  --server=172.17.10.14  --profile=centos5.8-x86_64

- looking for Cobbler at http://172.17.10.14:80/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-x86_64
install_tree: http://172.17.10.14/cblr/links/centos5.8-x86_64
downloading initrd initrd.img to /boot/initrd.img_koan
url=http://172.17.10.14/cobbler/images/centos5.8-x86_64/initrd.img
- reading URL: http://172.17.10.14/cobbler/images/centos5.8-x86_64/initrd.img
downloading kernel vmlinuz to /boot/vmlinuz_koan
url=http://172.17.10.14/cobbler/images/centos5.8-x86_64/vmlinuz
- reading URL: http://172.17.10.14/cobbler/images/centos5.8-x86_64/vmlinuz
-   ['/sbin/grubby',   '--add-kernel',   '/boot/vmlinuz_koan',   '--initrd',
'/boot/initrd.img_koan',                                        '--args',
'"ks=http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-x86_64  ksdevice=link
kssendmac  lang=  text  "',  '--copy-default',  '--make-default',
'--title=kick1364289618']
- reboot to apply changes
```
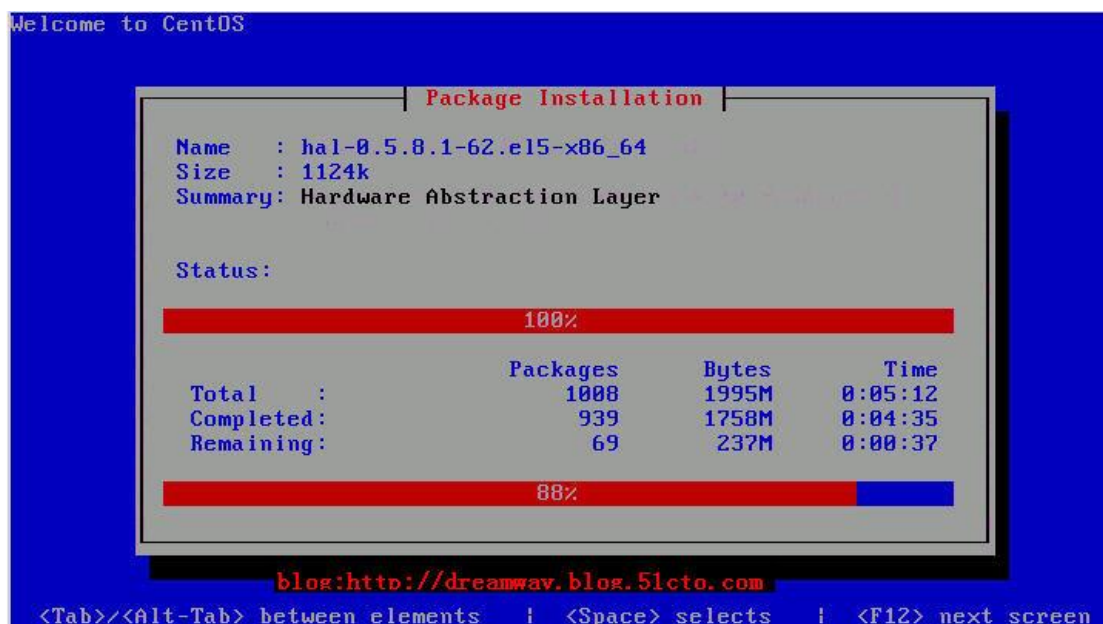
注意：输入此命令重启后，不能再中止重装，重启后自动进入 pxe 装机。

```
reboot
```

执行 reboot 命令重启服务器后，客户端服务器会自动重新安装操作系统，无需
人工干预
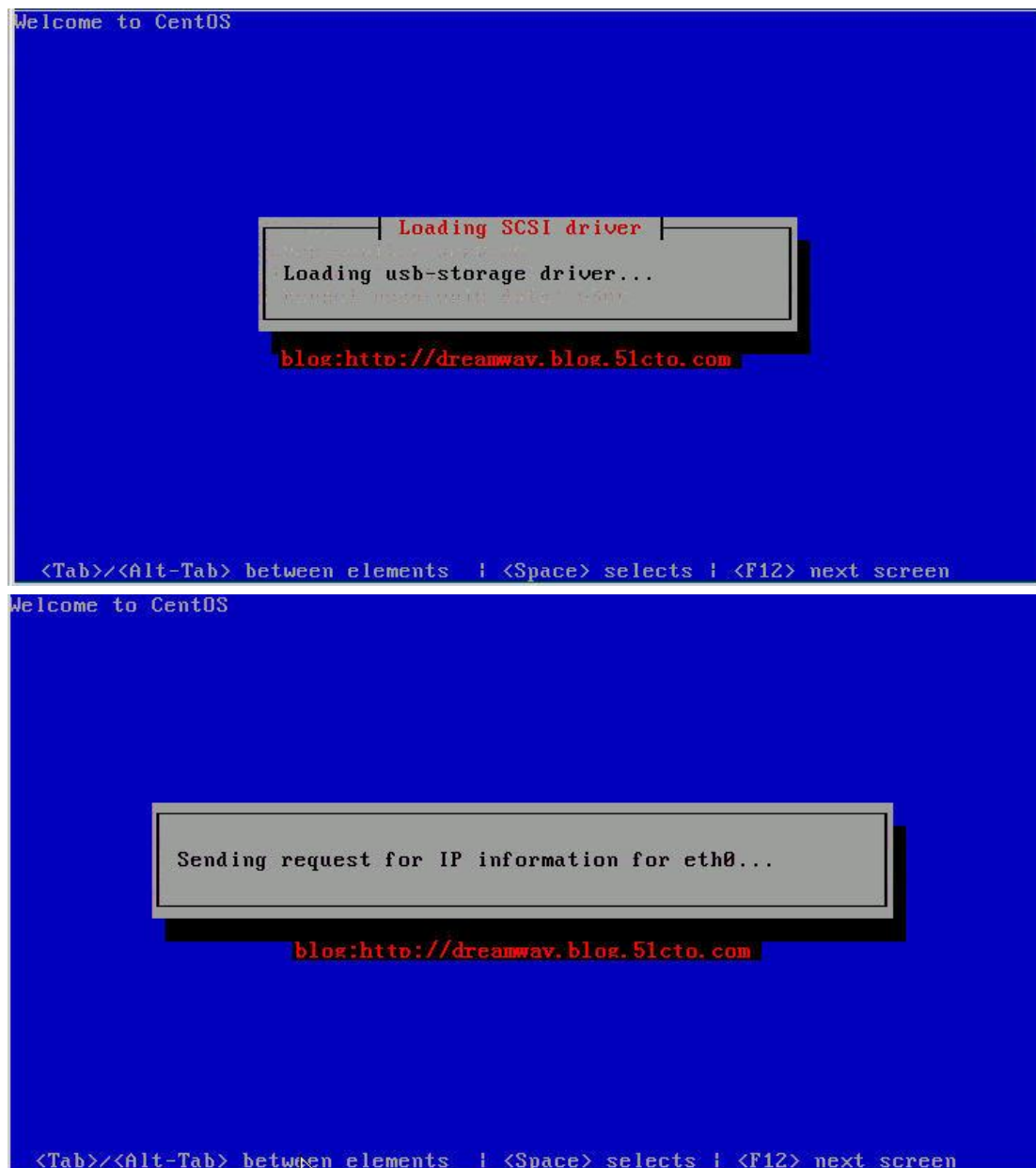
7.4.5 重新安装指定客户机系统

步骤 3.11 已经添加指定客户机配置，在这里使用配置为指定的服务器安装操作系统

```
[root@host-d-116    ~]#    koan    -r        --server=172.17.10.14
--system=host-188116
- looking for Cobbler at http://172.17.10.14/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/system/host-188116
install_tree: http://172.17.10.14/cblr/links/centos5.8-x86_64
downloading initrd initrd.img to /boot/initrd.img
url=http://172.17.10.14/cobbler/images/centos5.8-x86_64/initrd.img
- reading URL: http://172.17.10.14/cobbler/images/centos5.8-x86_64/initrd.img
downloading kernel vmlinuz to /boot/vmlinuz
url=http://172.17.10.14/cobbler/images/centos5.8-x86_64/vmlinuz
- reading URL: http://172.17.10.14/cobbler/images/centos5.8-x86_64/vmlinuz
-    ['/sbin/grubby',    '--add-kernel',    '/boot/vmlinuz',    '--initrd',
'/boot/initrd.img',                                          '--args',
'"ks=http://172.17.10.14/cblr/svc/op/ks/system/host-188116      ksdevice=link
kssendmac  lang=  text  "',  '--copy-default',  '--make-default',  '--title=
kick1364390697']
- reboot to apply changes
[root@host-d-116 ~]# reboot
```

系统重启看到 kick1364390697 与上面命令生成的相同，重装过程同上，

7.5 安装 Xen 宿主机

Cobbler PXE 菜单里没有关于 Xen 虚拟机的系统版本，导入 CentOS5.8 系统镜像时，已经生成一个关于 Xen 的 distros 和 profiles 即 centos5.8-xen-x86_64，因为 Cobbler 知道它不可能 PXE 引导物理硬件。

如果你想安装 Xen 宿主机，需要在安装脚本 ks 文件%packages 部分添加 xen 包名 "kernel-xen"、"xen"。当然这样似乎不太方便，你可以使用命令"cobbler import"再导入一个关于 xenserver 宿主机的配置。

配置好 ks 文件，安装方法同步骤 7.3。

7.6 安装 Xen 虚拟机

7.6.1 Xen 宿主机安装 koan

```
yum install koan -y
```

7.6.2 查看关于 Xen 宿主机的配置信息

```
koan --server=172.17.10.14 --list=profiles
- looking for Cobbler at http://172.17.10.14/cobbler_api
centos5.8-xen-x86_64
centos6.4-x86_64
centos5.8-x86_64
centos6.3-x86_6
```

```
koan --server=172.17.10.14 --display --profile=centos5.8-xen-x86_64
- looking for Cobbler at http://172.17.10.14:80/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
install_tree: http://172.17.10.14/cblr/links/centos5.8-xen-x86_64
                name  : centos5.8-xen-x86_64
              distro  : centos5.8-xen-x86_64
          kickstart                                                         :
http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
           ks_meta                                                          :
tree=http://@@http_server@@/cblr/links/centos5.8-xen-x86_64
```

```
        install_tree  : http://172.17.10.14/cblr/links/centos5.8-xen-x86_64
            kernel                                                          :
/var/www/cobbler/ks_mirror/centos5.8-x86_64/images/xen/vmlinuz
            initrd                                                          :
/var/www/cobbler/ks_mirror/centos5.8-x86_64/images/xen/initrd.img
      kernel_options                                                        :
ks=http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
ksdevice=link kssendmac lang= text
              repos  :
          virt_ram  : 512
    virt_disk_driver  : raw
          virt_type  : xenpv
          virt_path  :
      virt_auto_boot  : 0
```

7.6.3 安装 Xen 虚拟机

```
koan      --server=172.17.10.14    --virt-name=testvm           --virt
--profile=centos5.8-xen-x86_64
- looking for Cobbler at http://172.17.10.14/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
install_tree: http://172.17.10.14/cblr/links/centos5.8-xen-x86_64
libvirtd (pid  2749) is running...
downloading initrd initrd.img to /var/lib/xen/initrd.img
url=http://172.17.10.14/cobbler/images/centos5.8-xen-x86_64/initrd.img
-                               reading                               URL:
http://172.17.10.14/cobbler/images/centos5.8-xen-x86_64/initrd.img
downloading kernel vmlinuz to /var/lib/xen/vmlinuz
url=http://172.17.10.14/cobbler/images/centos5.8-xen-x86_64/vmlinuz
- reading URL: http://172.17.10.14/cobbler/images/centos5.8-xen-x86_64/vmlinuz
Wed, 27 Mar 2013 16:12:17 DEBUG   No conn passed to Guest, opening URI 'None'
libvir: Xen error : Domain not found: xenUnifiedDomainLookupByName
libvir: Xen error : Domain not found: xenUnifiedDomainLookupByUUID
libvir: Xen error : Domain not found: xenUnifiedDomainLookupByName
Wed, 27 Mar 2013 16:12:17 DEBUG   Creating guest from:
<domain type='xen'>
  <name>testvm</name>
  <currentMemory>524288</currentMemory>
  <memory>524288</memory>
  <uuid>b0dee8f5-284b-1622-6191-2443ea10cc1c</uuid>
  <os>
    <type>linux</type>
    <kernel>/var/lib/xen/vmlinuz</kernel>
    <initrd>/var/lib/xen/initrd.img</initrd>
```

```
    <cmdline>ks=http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
ksdevice=link kssendmac lang= text </cmdline>
  </os>
  <on_poweroff>destroy</on_poweroff>
  <on_reboot>destroy</on_reboot>
  <on_crash>destroy</on_crash>
  <vcpu>1</vcpu>
  <devices>
    <disk type='file' device='disk'>
      <source file='/var/lib/xen/images/testvm-disk0'/>
      <target dev='xvda' bus='xen'/>
    </disk>
    <interface type='bridge'>
      <source bridge='xenbr0'/>
      <mac address='00:16:3e:28:12:79'/>
    </interface>
    <input type='mouse' bus='xen'/>
    <graphics type='vnc' port='-1' keymap='en-us'/>
  </devices>
</domain>


Wed, 27 Mar 2013 16:12:18 DEBUG    Created guest, looking to see if it is running
Wed, 27 Mar 2013 16:12:18 DEBUG    Saving XML boot config:
<domain type='xen'>
  <name>testvm</name>
  <currentMemory>524288</currentMemory>
  <memory>524288</memory>
  <uuid>b0dee8f5-284b-1622-6191-2443ea10cc1c</uuid>
  <bootloader>/usr/bin/pygrub</bootloader>
  <on_poweroff>destroy</on_poweroff>
  <on_reboot>restart</on_reboot>
  <on_crash>restart</on_crash>
  <vcpu>1</vcpu>
  <devices>
    <disk type='file' device='disk'>
      <source file='/var/lib/xen/images/testvm-disk0'/>
      <target dev='xvda' bus='xen'/>
    </disk>
    <interface type='bridge'>
      <source bridge='xenbr0'/>
      <mac address='00:16:3e:28:12:79'/>
    </interface>
    <input type='mouse' bus='xen'/>
    <graphics type='vnc' port='-1' keymap='en-us'/>
```

```
  </devices>
</domain>

use virt-manager or reconnect with virsh console testvm
```

7.6.4 列出虚拟机列表

```
xm list
Name                               ID Mem(MiB) VCPUs State   Time(s)
Domain-0                            0     7494     4 r-----     79.0
testvm                             1      512     1 r-----     86.5
```

7.6.5 打开控制台管理虚拟机

```
xm console 1
```
或者
```
xm console testvm
Bootdata              ok            (command              line              is
ks=http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
ksdevice=link kssendmac lang= text )
Linux version 2.6.18-308.el5xen (mockbuild@builder10.centos.org) (gcc version
4.1.2 20080704 (Red Hat 4.1.2-52)) #1 SMP Tue Feb 21 20:47:10 EST 2012
BIOS-provided physical RAM map:
 Xen: 0000000000000000 - 0000000020800000 (usable)
No mptable found.
Built 1 zonelists.  Total pages: 129529
Kernel                        command                        line:
ks=http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
ksdevice=link kssendmac lang= text
Initializing CPU#0
············略············
Write protecting the kernel read-only data: 503k
Restarting system.
```
默认虚拟机配置文件在目录/etc/xen 下

7.6.6 启动虚拟机

```
xm create -c testvm
```

在 SecureCRT 显示的启动、登录内容如下：

```
pyGRUB  version 0.6
 ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ¿
 ³ CentOS (2.6.18-308.el5xen)                                  ³
 ³                                                             ³
 ³                                                             ³
 ³                                                             ³
 ³                                                             ³
 ³                                                             ³
 ³                                                             ³
 ³                                                             ³
 ÀÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÙ
     Use the ˜ and ™ keys to select which entry is highlighted.
     Press enter to boot the selected OS, 'e' to edit the
     commands before booting, 'a' to modify the kernel arguments
     before booting, or 'c' for a command line.


………虚拟机启动过程略……………
```

登录界面

```
CentOS release 5.8 (Final)
Kernel 2.6.18-308.el5xen on an x86_64


host-d-115.sys.hexun login: root
Password:
```

查看虚拟机主机名

```
[root@host-d-115 ~]# hostname
host-d-115.sys.hexun
```

查看 ip

```
[root@host-d-115 ~]# ifconfig eth0
eth0      Link encap:Ethernet  HWaddr 00:16:3E:28:12:79
          inet addr:172.17.188.115  Bcast:172.17.255.255  Mask:255.255.0.0
          inet6 addr: fe80::216:3eff:fe28:1279/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:325 errors:0 dropped:0 overruns:0 frame:0
          TX packets:11 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:25014 (24.4 KiB)  TX bytes:1298 (1.2 KiB)
```

到此 Xen 虚拟机已经通过 Cobbler 安装完毕。

八、电源管理

8.1 测试机环境

```
DELL PE1950
系统 CentOS5.8 64bit
安装 ipmitool
yum install ipmitool -y
```

8.2 安装电源管理工具 cman

```
yum install cman -y
```

Cobbler 代码维护者 jimi 告知：某些系统版本将执行程序安装在/sbin/目录下，通过 rpm -ql cman 查看，CentOS5.8 下如此解决即可

```
ln -s /sbin/fence_* /usr/sbin/
```

8.3 修改电源管理 python 脚本

备份
```
cp                      /usr/lib/python2.4/site-packages/cobbler/action_power.py
/usr/lib/python2.4/site-packages/cobbler/action_power.py.$(date +%F)
```
编辑
vim /usr/lib/python2.4/site-packages/cobbler/action_power.py
删除或注释此文件如下代码
```
utils.die(self.logger,"command succeeded (rc=%s), but output ('%s') was
not understood" % (rc, output))
```
删除文件 action_power.pyo 、 action_power.pyc
这两个文件在目录/usr/lib/python2.4/site-packages/cobbler/下
重启 cobbler，注意一定是重启 cobbler
```
cobbler reboot
```
步骤 8.2、8.3 是我在使用电源管理中发现的问题，后通过 github 与 Cobbler
代码维护者 jimi 沟通解决的，非常感谢他的帮助，详见
https://github.com/cobbler/cobbler/issues/426

8.4 配置电源管理参数

为指定的系统配置 host-188116 增加电源管理参数
```
cobbler system edit --name=host-188116  --power-address=172.17.11.20
--power-type='ipmilan'  --power-user=root  --power-pass=djxxxx
```

8.5 检查、同步配置

```
cobbler check
cobbler sync
```

8.6 查看配置信息

```
cobbler system report | egrep -i "system|profile|power"
Power Management Address      : 172.17.11.20
Power Management ID           :
Power Management Password     : djxxxx
Power Management Type         : ipmilan
Power Management Username     : root
Profile                       : centos5.8-x86_64
```

8.7 Cobbler 默认的电源管理配置

```
/etc/cobbler/settings
# settings for power management features.  optional.
# see https://github.com/cobbler/cobbler/wiki/Power-management to learn
more
# choices (refer to codes.py):
#    apc_snmp bladecenter bullpap drac ether_wake ilo integrity
#    ipmilan ipmitool lpar rsa virsh wti
power_management_default_type: 'ipmitool'

# the commands used by the power management module are sourced
# from what directory?
power_template_dir: "/etc/cobbler/power"
```

8.8 使用电源管理

8.8.1 命令行操作

8.8.1.1 相关命令

```
cobbler system poweroff
cobbler system poweron
cobbler system powerstatus
```

```
cobbler system reboot
```

8.6.1.2 查看服务器电源状态

```
cobbler system powerstatus --name=host-188116
task started: 2013-03-29_095803_power
task started (id=Power management (status), time=Fri Mar 29 09:58:03
2013)
cobbler power configuration is:
     type   : ipmilan
     address: 172.17.11.20
     user   : root
     id     :
running: /usr/sbin/fence_ipmilan
received on stdout: Getting status of IPMI:172.17.11.20...Chassis power
= On
Done

received on stderr:
*** TASK COMPLETE ***
```

8.8.1.3 关闭服务器电源

```
cobbler system poweroff  --name=host-188116
task started: 2013-03-29_100218_power
task started (id=Power management (off), time=Fri Mar 29 10:02:18 2013)
cobbler power configuration is:
     type   : ipmilan
     address: 172.17.11.20
     user   : root
     id     :
running: /usr/sbin/fence_ipmilan
received on stdout: Powering off machine @ IPMI:172.17.11.20...Done

received on stderr:
*** TASK COMPLETE ***
```

8.8.1.4 启动服务器电源

```
cobbler system poweron  --name=host-188116
task started: 2013-03-29_100314_power
task started (id=Power management (on), time=Fri Mar 29 10:03:14 2013)
cobbler power configuration is:
     type   : ipmilan
     address: 172.17.11.20
     user   : root
```

```
      id     :
running: /usr/sbin/fence_ipmilan
received on stdout: Powering on machine @ IPMI:172.17.11.20...Done

received on stderr:
*** TASK COMPLETE ***
启动服务器后再通过查看服务器电源状态为 On
```

8.8.1.5 重启服务器

```
cobbler system  reboot --name=host-188116
task started: 2013-03-29_100508_power
task started (id=Power management (reboot), time=Fri Mar 29 10:05:08
2013)
cobbler power configuration is:
      type   : ipmilan
      address: 172.17.11.20
      user   : root
      id     :
running: /usr/sbin/fence_ipmilan
received on stdout: Powering off machine @ IPMI:172.17.11.20...Done

received on stderr:
cobbler power configuration is:
      type   : ipmilan
      address: 172.17.11.20
      user   : root
      id     :
running: /usr/sbin/fence_ipmilan
received on stdout: Powering on machine @ IPMI:172.17.11.20...Done

received on stderr:
*** TASK COMPLETE ***
```

8.8.1.6 通过电源管理命令自动部署操作系统

重启从 PXE 引导启动，并指定安装的操作系统配置，如下命令，

```
cobbler  system  edit   --name=host-188116   --netboot-enabled=1
--profile=centos5.8-x86_64
```

检查、同步配置

```
cobbler check
cobbler sync
```

测试上面的命令默认还是直接从硬盘启动，功能还不够完善，我们借助 ipmitool

工具设置下次启动从 PXE 引导，原理都是一样的。

```
ipmitool -I lan -H 172.17.11.20 -U root -P djxxxx chassis bootdev pxe
Set Boot Device to pxe
```

更多参数详见

```
cobbler system edit --help
```

重启服务器，重装系统

```
cobbler system  reboot --name=host-188116
```

PXE 引导已经生效，如图

从指定的系统配置引导正常

可以看到引导文件及客户机 MAC 配置文件名

检查依赖关系及格式化过程图略

安装系统软件包如下图

到这里自动部署系统已经基本完成，系统重装启动后会关闭默认从 PXE 引导启动。

8.8.2 Cobbler Web 方式管理电源

参考资料 https://github.com/cobbler/cobbler/wiki/Power-management
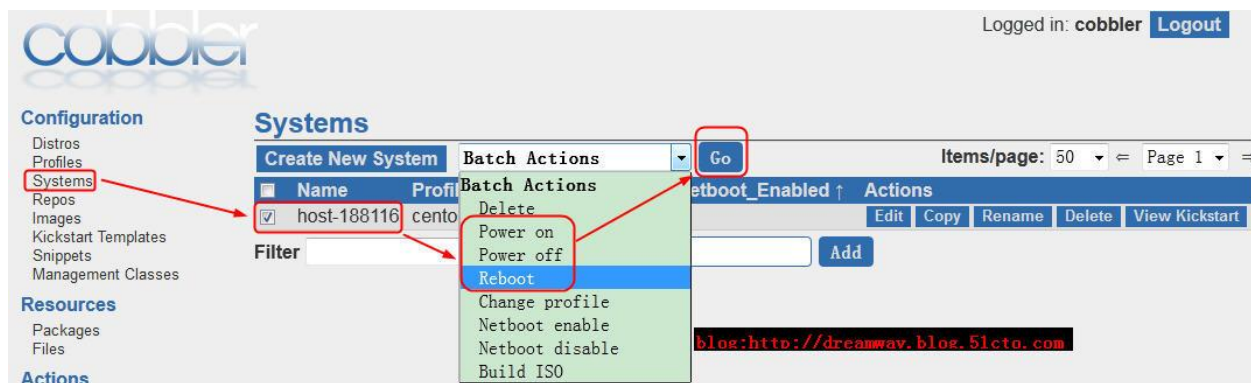
九、Cobbler 报错处理

通过 cobbler check 检查出现的报错

9.1 报错一

```
# cobbler check
httpd does not appear to be running and proxying cobbler, or SELinux is
in the way. Original traceback:
```

```
Traceback (most recent call last):
  File  "/usr/lib/python2.4/site-packages/cobbler/cli.py",  line  184,  in
check_setup
    s.ping()
  File "/usr/lib64/python2.4/xmlrpclib.py", line 1096, in __call__
    return self.__send(self.__name, args)
  File "/usr/lib64/python2.4/xmlrpclib.py", line 1383, in __request
    verbose=self.__verbose
  File "/usr/lib64/python2.4/xmlrpclib.py", line 1129, in request
    self.send_content(h, request_body)
  File "/usr/lib64/python2.4/xmlrpclib.py", line 1243, in send_content
    connection.endheaders()
  File "/usr/lib64/python2.4/httplib.py", line 804, in endheaders
    self._send_output()
  File "/usr/lib64/python2.4/httplib.py", line 685, in _send_output
    self.send(msg)
  File "/usr/lib64/python2.4/httplib.py", line 652, in send
    self.connect()
  File "/usr/lib64/python2.4/httplib.py", line 636, in connect
    raise socket.error, msg
error: (111, 'Connection refused')
```

解决启动 httpd 服务

```
service httpd start
Starting    httpd:    Syntax    error    on    line    10    of
/etc/httpd/conf.d/cobbler.conf:
Invalid command 'WSGIScriptAliasMatch', perhaps misspelled or defined by
a module not included in the server configuration
                                                        [FAILED]  #
启动 httpd 时的报错，解决方法如下
```

解决

```
vim /etc/httpd/conf.d/wsgi.conf
```

去掉注释

```
LoadModule wsgi_module modules/mod_wsgi.so
```

再启动 httpd 服务

```
service httpd start
Starting httpd: httpd: Could not reliably determine the server's fully
qualified domain name, using x.x.x.x for ServerName
                                                        [  OK  ]
```

再进行一些针对 apache ServerName 参数配置的处理

```
egrep "ServerName|Listen" /etc/httpd/conf/httpd.conf |grep -v '#'
Listen 172.17.10.14:80
ServerName 80
```

官方相关资料 https://github.com/cobbler/cobbler/wiki/Cobbler%20web%20interface

9.2 报错二

此步共修复七个需要处理的提示，一个一个解决

cobbler check
The following are potential configuration items that you may want to fix:

1 : service dhcpd is not running

解决：DHCP 先不处理

2 : some network boot-loaders are missing from /var/lib/cobbler/loaders, you may run 'cobbler get-loaders' to download them, or, if you only want to handle x86/x86_64 netbooting, you may ensure that you have installed a *recent* version of the syslinux package installed and can ignore this message entirely. Files in this directory, should you want to support all architectures, should include pxelinux.0, menu.c32, elilo.efi, and yaboot. The 'cobbler get-loaders' command is the easiest way to resolve these requirements.

解决：执行 cobbler get-loaders，系统将自动下载 loader 程序，完成提示 2 的修复工作。
cobbler get-loaders
task started: 2013-03-10_103017_get_loaders
task started (id=Download Bootloader Content, time=Sun Mar 10 10:30:17 2013)
downloading   http://dgoodwin.fedorapeople.org/loaders/README   to /var/lib/cobbler/loaders/README
downloading   http://dgoodwin.fedorapeople.org/loaders/COPYING.elilo   to /var/lib/cobbler/loaders/COPYING.elilo
downloading   http://dgoodwin.fedorapeople.org/loaders/COPYING.yaboot   to /var/lib/cobbler/loaders/COPYING.yaboot
downloading   http://dgoodwin.fedorapeople.org/loaders/COPYING.syslinux   to /var/lib/cobbler/loaders/COPYING.syslinux
downloading   http://dgoodwin.fedorapeople.org/loaders/elilo-3.8-ia64.efi   to /var/lib/cobbler/loaders/elilo-ia64.efi
downloading   http://dgoodwin.fedorapeople.org/loaders/yaboot-1.3.14-12   to /var/lib/cobbler/loaders/yaboot
downloading   http://dgoodwin.fedorapeople.org/loaders/pxelinux.0-3.61   to /var/lib/cobbler/loaders/pxelinux.0
downloading   http://dgoodwin.fedorapeople.org/loaders/menu.c32-3.61   to /var/lib/cobbler/loaders/menu.c32
downloading   http://dgoodwin.fedorapeople.org/loaders/grub-0.97-x86.efi   to /var/lib/cobbler/loaders/grub-x86.efi
downloading   http://dgoodwin.fedorapeople.org/loaders/grub-0.97-x86_64.efi   to /var/lib/cobbler/loaders/grub-x86_64.efi
*** TASK COMPLETE ***

3 : debmirror package is not installed, it will be required to manage debian deployments and repositories

解决：提示说 debmirror 没安装。如果不是安装 debian 之类的系统，此提示可以忽略，如果需要安装，
安装 debmirror
yum -y install debmirror

编辑注释
修改 /etc/debmirror.conf 配置文件，注释掉 @dists 和 @arches 两行
sed -i 's|@dists=.*|#@dists=|' /etc/debmirror.conf
sed -i 's|@arches=.*|#@arches=|' /etc/debmirror.conf

4 : ksvalidator was not found, install pykickstart

解决：安装 ksvalidator
 yum install pykickstart -y

5 : The default password used by the sample templates for newly installed machines (default_password_crypted in /etc/cobbler/settings) is still set to 'cobbler' and should be changed, try: "openssl passwd -1 -salt 'random-phrase-here' 'your-password-here'" to generate new one

解决：修改 cobbler 用户的默认密码，可以使用如下命令生成密码，并使用生成后的密码替换/etc/cobbler/settings 中 default_password_crypted 的密码。
生成密码命令：
#openssl passwd -1 -salt 'random-phrase-here' '[任意密码]'
openssl passwd -1 -salt 'random-phrase-here' 'hexun'
1random-p$Q1IN9LaNg7yhRKJuY50fV1

6 : fencing tools were not found, and are required to use the (optional) power management features. install cman or fence-agents to use them

解决:安装 cman 工具用于电源管理
yum -y install cman

Restart cobblerd and then run 'cobbler sync' to apply changes.
修复完毕重启 cobbler 服务，然后运行 cobbler sync

7：修复完成以上问题后，同步信息再检查

/etc/init.d/cobblerd restart
Stopping cobbler daemon: [OK]
Starting cobbler daemon: [OK]
再次检查，又报错
cobbler check

The following are potential configuration items that you may want to fix:

1 : The default password used by the sample templates for newly installed machines (default_password_crypted in /etc/cobbler/settings) is still set to 'cobbler' and should be changed, try: "openssl passwd -1 -salt 'random-phrase-here' 'your-password-here'" to generate new one

Restart cobblerd and then run 'cobbler sync' to apply changes.

报错原因是上面的第五个问题没解决，仅仅生成了密钥，没有放入 cobbler 主配置文件

```
vim  /etc/cobbler/settings
default_password_crypted: "$1$random-p$Q1IN9LaNg7yhRKJuY50fV1"
```

再重启服务

```
/etc/init.d/cobblerd restart
Stopping cobbler daemon:                                          [  OK  ]
Starting cobbler daemon:                                          [  OK  ]
cobbler check
No configuration problems found.  All systems go.
```

执行 cobbler sync

```
cobbler sync
task started: 2013-03-10_105055_sync
task started (id=Sync, time=Sun Mar 10 10:50:55 2013)
running pre-sync triggers
cleaning trees
removing: /tftpboot/pxelinux.cfg/default
略
received on stdout: Shutting down dhcpd: [  OK  ]
Starting dhcpd: [  OK  ]

received on stderr:
running shell triggers from /var/lib/cobbler/triggers/sync/post/*
running python triggers from /var/lib/cobbler/triggers/change/*
running python trigger cobbler.modules.scm_track
running shell triggers from /var/lib/cobbler/triggers/change/*
*** TASK COMPLETE ***
```

执行 cobbler sync 会重启相关服务，DHCP 服务也会启动了，第一个提示也就解决了，下面也有说明

9.3 报错三


```
[root@cobbler-1014 x86_64]# /etc/init.d/cobblerd restart
Stopping cobbler daemon:                                          [FAILED]
Starting cobbler daemon:                                          [  OK  ]
[root@cobbler-1014 x86_64]# cobbler check
The following are potential configuration items that you may want to fix:
1 : service dhcpd is not running
```

```
Restart cobblerd and then run 'cobbler sync' to apply changes.
```

执行 cobbler sync 即可启动 dhcp 服务

```
[root@cobbler-1014 x86_64]# cobbler sync
```

9.4 报错四

使用 koan 重装系统时报错

```
koan --server=172.17.10.14 --list=profiles
Traceback (most recent call last):
  File "/usr/bin/koan", line 18, in ?
    import koan.app as app
  File "/usr/lib/python2.4/site-packages/koan/app.py", line 64, in ?
    import configurator
  File "/usr/lib/python2.4/site-packages/koan/configurator.py", line
36, in ?
    import simplejson as json
ImportError: No module named simplejson
```

解决：需要安装 simplejson 软件包，

```
最新版下载地址：
http://pypi.python.org/pypi/simplejson/
最新版的 simplejson 要求 python 2.6+以上的
CentOS5.8 是 Python 2.4.3，
所以下载 的 simplejson-2.0.9.tar.gz 版本
https://pypi.python.org/packages/source/s/simplejson/simplejson-2.0.9
.tar.gz
安装步骤，
需要访问外网下载文件 setuptools-0.6c7-py2.4.egg
如 没 有 外 网 可 以 通 过 其 他 机 器 下 载
https://pypi.python.org/packages/2.4/s/setuptools/setuptools-0.6c7-py
2.4.egg
然后上传至客户机再继续安装
tar zxf simplejson-2.0.9.tar.gz
cd simplejson-2.0.9
python setup.py install

建议 CentOS5.8 安装此版本的 koan 使用可以避免此问题
ftp://rpmfind.net/linux/epel/5/i386/koan-1.6.6-1.el5.noarch.rpm
```

9.5 报错五

```
koan        --server=172.17.10.14        --virt-name=testvm                --virt
--profile=centos5.8-xen-x86_64
- looking for Cobbler at http://172.17.10.14:80/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
install_tree: http://172.17.10.14/cblr/links/centos5.8-xen-x86_64
xen package needs to be installed
```

Xen 宿主机安装虚拟机时提示没有安装 xen 软件包

解决：

```
yum install xen -y
```

执行此命令会安装一共 9 个软件包，如下

```
Running Transaction
  Installing    : bridge-utils                              1/9
  Installing    : cyrus-sasl-md5                            2/9
  Installing    : ebtables                                  3/9
  Installing    : e4fsprogs-libs                            4/9
  Installing    : xen-libs                                  5/9
  Installing    : libvirt                                   6/9
  Installing    : libvirt-python                            7/9
  Installing    : python-virtinst                           8/9
  Installing    : xen                                       9/9
```

9.6 报错六

```
koan      --server=172.17.10.14      --virt-name=testvm              --virt
--profile=centos5.8-xen-x86_64
- looking for Cobbler at http://172.17.10.14:80/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
install_tree: http://172.17.10.14/cblr/links/centos5.8-xen-x86_64
xend needs to be started
```

解决：

报错原因是 xend 服务没有启动，执行以下命令处理

```
chkconfig xend on
/etc/init.d/xend start
#注意此过程会自动桥接网卡，可能出现短暂断网
```

9.7 报错七

```
koan      --server=172.17.10.14      --virt-name=testvm              --virt
--profile=centos5.8-xen-x86_64
- looking for Cobbler at http://172.17.10.14:80/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
install_tree: http://172.17.10.14/cblr/links/centos5.8-xen-x86_64
libvirtd is stopped
libvirtd needs to be running
```

解决：

```
chkconfig libvirtd on
/etc/init.d/libvirtd  start
```

9.8 报错八

```
koan        --server=172.17.10.14        --virt-name=testvm                --virt
--profile=centos5.8-xen-x86_64
- looking for Cobbler at http://172.17.10.14:80/cobbler_api
- reading URL: http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
install_tree: http://172.17.10.14/cblr/links/centos5.8-xen-x86_64
libvirtd (pid  3772) is running...
downloading initrd initrd.img to /var/lib/xen/initrd.img_koan
url=http://172.17.10.14/cobbler/images/centos5.8-xen-x86_64/initrd.img
-                                    reading                                    URL:
http://172.17.10.14/cobbler/images/centos5.8-xen-x86_64/initrd.img
downloading kernel vmlinuz to /var/lib/xen/vmlinuz_koan
url=http://172.17.10.14/cobbler/images/centos5.8-xen-x86_64/vmlinuz
- reading URL: http://172.17.10.14/cobbler/images/centos5.8-xen-x86_64/vmlinuz
- warning: old python-virtinst detected, a lot of features will be disabled
- adding disk: /var/lib/xen/images//testvm-disk0 of size 5 (driver type=raw)
- ['virt-install', '--connect', 'xen:///', '--name', 'testvm', '--ram', '512',
'--vcpus', '1', '--uuid', '42559fd2-385f-2435-80f1-9f5005a02a81', '--autostart',
'--vnc',                          '--paravirt',                          '--boot',
'kernel=/var/lib/xen/vmlinuz_koan,initrd=/var/lib/xen/initrd.img_koan,kernel_ar
gs=ks=http://172.17.10.14/cblr/svc/op/ks/profile/centos5.8-xen-x86_64
ksdevice=link  kssendmac  lang=  text ',  '--os-variant',  'rhel5',  '--disk',
'path=/var/lib/xen/images//testvm-disk0,size=5',  '--network',  'bridge=xenbr0',
'--wait', '0', '--noautoconsole']
usage: virt-install --name NAME --ram RAM STORAGE INSTALL [options]

virt-install: error: no such option: --autostart
```

解决

```
我安装的
系统版本:CentOS5.8 64bit
koan 版本:koan-2.2.3-2.el5
xen 版本：xen-3.0.3-142.el5_9.2
通过 EPEL 安装的 koan 版本为 koan-2.2.3-2.el5，使用中报错较多，后更换为
koan-1.6.6-1.el5  此 版 本 比 较 稳 定 ， 下 载 链 接 ：
ftp://rpmfind.net/linux/epel/5/i386/koan-1.6.6-1.el5.noarch.rpm
```

9.9 报错九

```
cobbler check
The following are potential configuration items that you may want to fix:

1 : comment 'dists' on /etc/debmirror.conf for proper debian support
```

```
2 : comment 'arches' on /etc/debmirror.conf for proper debian support

Restart cobblerd and then run 'cobbler sync' to apply changes.
```

解决

```
关于 debmirror 编辑注释
修改 /etc/debmirror.conf 配置文件，注释掉 @dists 和 @arches 两行
sed -i 's|@dists=.*|#@dists=|'  /etc/debmirror.conf
sed -i 's|@arches=.*|#@arches=|'  /etc/debmirror.conf
```

9.10 报错十

```
/usr/bin/ipmitool power status
Could not open device at /dev/ipmi0 or /dev/ipmi/0 or /dev/ipmidev/0: No
such file or directory
Unable to get Chassis Power Status
```

解决

```
/etc/init.d/ipmi start
Starting ipmi drivers:                                         [  OK  ]
/etc/rc.d/init.d/ipmievd start
Starting ipmievd:
ipmievd: using pidfile /var/run/ipmievd.pid0

chkconfig  ipmi on
chkconfig  ipmievd on

再执行正常
/usr/bin/ipmitool power status
Chassis Power is on
```

9.11 报错十一

```
cobbler system edit --name=host-188116  --power-address=172.17.11.20
--power-type='ipmitool'  --power-user=root  --power-pass=djxxxx
usage: cobbler [options]

cobbler: error: option --power-type: invalid choice: 'ipmitool' (choose
from 'ack_manual', 'apc', 'apc_snmp', 'bladecenter', 'brocade',
'bullpap', 'cisco_mds', 'cisco_ucs', 'drac', 'drac5', 'egenera',
'ifmib', 'ilo', 'ilo_mp', 'ipdu', 'ipmilan', 'lpar', 'manual', 'mcdata',
'node', 'rhevm', 'rps10', 'rsa', 'rsb', 'sanbox2', 'scsi', 'scsi_test',
'tool', 'virsh', 'vixel', 'vmware', 'vmware_helper', 'vmware_soap',
```

```
'wti', 'xvm', 'xvmd')
```

解决

```
选择合适的 power 类型，报错后面已经列出可选参数，我这里使用的 DELL PE1950
应该选择 ipmilan
cobbler system edit --name=host-188116  --power-address=172.17.11.20
--power-type='ipmilan'  --power-user=root  --power-pass=djxxxx
```

9.12 报错十二

电源管理相关的报错

```
cobbler  system  edit  --name  host-xxx  --power-address=172.17.11.20
--power-type="ipmitool" --power-user=root --power-pass=passwd
power management type must be one of:
```

```
cobbler system powerstatus --name=host-xx
task started: 2013-03-28_115206_power
task started (id=Power management (status), time=Thu Mar 28 11:52:06 2013)
Exception occured: cobbler.cexceptions.CX
Exception value: 'no power type set for system'
Exception Info:
File "/usr/lib/python2.4/site-packages/cobbler/utils.py", line 126, in die
raise CX(msg)
Exception occured: cobbler.cexceptions.CX
Exception value: 'no power type set for system'
Exception Info:
File "/usr/lib/python2.4/site-packages/cobbler/remote.py", line 89, in run
rc = self._run(self)
File "/usr/lib/python2.4/site-packages/cobbler/remote.py", line 259, in runner
self.remote.power_system(object_id,self.options.get("power",""),token,logger=se
lf.logger)
File  "/usr/lib/python2.4/site-packages/cobbler/remote.py",  line  1919,  in
power_system
rc=self.api.power_status(obj, user=None, password=None, logger=logger)
File  "/usr/lib/python2.4/site-packages/cobbler/api.py",  line  1041,  in
power_status
return action_power.PowerTool(self._config, system, self, user, password, logger
= logger).power("status")
File "/usr/lib/python2.4/site-packages/cobbler/action_power.py", line 74, in
power
utils.die(self.logger,"no power type set for system")
File "/usr/lib/python2.4/site-packages/cobbler/utils.py", line 134, in die
raise CX(msg)
```

!!! TASK FAILED !!!

```
cobbler system powerstatus --name=host-188116
task started: 2013-03-28_124153_power
task started (id=Power management (status), time=Thu Mar 28 12:41:53 2013)
cobbler power configuration is:
type : ipmilan
address: 172.17.11.20
user : root
id :
running: /usr/sbin/fence_ipmilan
received on stdout: Getting status of IPMI:172.17.11.20...Chassis power = On
Done
received on stderr:
Exception occured: cobbler.cexceptions.CX
Exception value: "command succeeded (rc=0), but output ('Getting status of
IPMI:172.17.11.20...Chassis power = On\nDone\n') was not understood"
Exception Info:
File "/usr/lib/python2.4/site-packages/cobbler/utils.py", line 126, in die
raise CX(msg)
Exception occured: cobbler.cexceptions.CX
Exception value: "command succeeded (rc=0), but output ('Getting status of
IPMI:172.17.11.20...Chassis power = On\nDone\n') was not understood"
Exception Info:
File "/usr/lib/python2.4/site-packages/cobbler/remote.py", line 89, in run
rc = self._run(self)
File "/usr/lib/python2.4/site-packages/cobbler/remote.py", line 259, in runner
self.remote.power_system(object_id,self.options.get("power",""),token,logger=se
lf.logger)
File  "/usr/lib/python2.4/site-packages/cobbler/remote.py",  line  1919,  in
power_system
rc=self.api.power_status(obj, user=None, password=None, logger=logger)
File  "/usr/lib/python2.4/site-packages/cobbler/api.py",  line  1041,  in
power_status
return action_power.PowerTool(self._config, system, self, user, password, logger
= logger).power("status")
File "/usr/lib/python2.4/site-packages/cobbler/action_power.py", line 116, in
power
utils.die(self.logger,"command  succeeded  (rc=%s),  but  output  ('%s')  was  not
understood" % (rc, output))
File "/usr/lib/python2.4/site-packages/cobbler/utils.py", line 134, in die
raise CX(msg)
!!! TASK FAILED !!!
```

解决方法详见步骤 9.2、9.3

或者 https://github.com/cobbler/cobbler/issues/426

参考资料：
https://github.com/cobbler/cobbler/wiki
cobbler、koan man 手册及 help 命令帮助
更多内容请一起交流或参考 Cobbler github。