



Linux 系统运维之系统管理

UNIXHOT 运维社区

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修订历史记录

[illegible]

内容简介

总结下日常用到的管理经验，此文档会持续更新，咱不确定所有内容。请关注“运维社区”。

第 1 章 版本控制

1.1 Subversion 概述

Subversion，简称 SVN，是一个开放源代码的版本控制系统，相对于的 RCS、CVS，采用了分支管理系统，它的设计目标就是取代 CVS。互联网上越来越多的控制服务从 CVS 转移到 Subversion。

Subversion 的官方网站：<http://subversion.tigris.org/> <http://subversion.apache.org/>

Subversion 官方文档：<http://svnbook.red-bean.com/>

Subversion 1.5 - 中文版本 PDF 下载：<http://i18n-zh.googlecode.com/files/svnbook-1.5-final-zh.pdf>

SVN 服务器可以用两种方式架设：

一种是基于 svnserve，svnserve 作为服务端；

一种是基于 Apache，用 apache 作为服务端。

1.2 在 Linux 下部署 SVN 独立服务器

1.2.1 安装软件包

在 SVN 独立服务器的部署中，我建议采用 rpm 即可，快捷方便易管理，RedHat 和 CentOS 都已经默认安装了该软件包，如果没有安装请安装：

```
[root@UnixHot ~]# mount /dev/cdrom /mnt
```

```
[root@UnixHot ~]# rpm -ivh /mnt/Server/subversion-1.4.2-4.el5.i386.rpm
```

```
[root@UnixHot ~]# svnserve --version
```

```
svnserve, version 1.4.2 (r22196)
```

```
compiled Sep 1 2008, 06:37:46
```

Copyright (C) 2000-2006 CollabNet.

Subversion is open source software, see <http://subversion.tigris.org/>

This product includes software developed by CollabNet (<http://www.Collab.Net/>).

The following repository back-end (FS) modules are available:

* fs_base : Module for working with a Berkeley DB repository.

* fs_fs : Module for working with a plain file (FSFS) repository.

如果执行成功，说明你已经安装成功了 SVN，并且告诉你默认支持两种数据库。

注：对于 SVN 所支持的两种数据库的比较请参阅：<http://doc.iusesvn.com/show-21-1.html>

1.2.2 配置 SVN

1> 建立 SVN 版本库

```
[root@UnixHot ~]# mkdir /opt/svndata/  
[root@UnixHot ~]# svnadmin create --fs-type fsfs /opt/svndata/unixhot  
[root@UnixHot ~]# ls /opt/svndata/unixhot/  
conf  dav  db  format  hooks  locks  README.txt
```

conf 目录下存放了版本库的配置文件，包括用户访问控制和权限控制等内容，文件本身的注释说明十分详细，你可以根据注释自行配置。

dav 目录是提供给 Apache 相关模块的目录，目前为空。

db 目录下存放着 Subversion 所要管理的所有受版本控制的数据，不同的存储方式（Berkeley DB 或者 FSFS）下有着不同的目录结构，不过我们一般不用直接修改和查看这个目录下的内容，Subversion 的命令可以安全的操作这个目录。

hooks 目录存放着钩子脚本及其模版（一种版本库事件触发程序）。

locks 目录存放着 Subversion 版本库锁定数据，format 文件记录了版本库的布局版本号。

2> 修改 SVN 版本库配置文件

```
[root@UnixHot ~]# vim /opt/svndata/unixhot/conf/svnserve.conf  
[general]                #必须的选项
```

```
anon-access = none      #匿名用户的权限
auth-access = write     #验证用户的权限
password-db = passwd    #密码文件的位置（可指定）
authz-db = authz       #用户验证文件的位置（可指定）
```

3>配置用户的账号和密码

```
[root@UnixHot ~]# vi /opt/svndata/unixhot/conf/passwd
```

```
[users]                #必须的选项
unixhot = unixhot      #以行为单位，用户名对应密码
zhaobanzhang = zhaobanzhang
```

注意：多个版本库可以共用 1 个用户配置文件，对用户配置文件的修改立即生效，不必重启 SVN

4> 配置可访问的用户和用户组的权限

```
[root@UnixHot ~]# vim /opt/svndata/unixhot/conf/authz.
```

```
[groups]
admin = unixhot
unixhotuser = user1
[/]
@admin = rw
@unixhotuser = r
```

1>.用户组的写法为：

<用户组名> = <用户 1>,<用户 2>

1 个用户组可以包含 1 个或多个用户，用户之间以逗号分隔。

2>权限的设定有两种，一种是为组设定权限，一种是为用户设定权限

为组设定权限：@<用户组名> = <权限>

为用户设定权限：<用户名> = <权限>

3>多个版本库可以用自己独立的权限配置文件，也可以共用 1 个权限配置文件。

版本库目录格式：

[<版本库>:/项目/目录]

@<用户组名> = <权限>

<用户名> = <权限>

其中，方框号内部分可以有多种写法：

/,表示根目录及以下。根目录是 `svnserve` 启动时指定的，

`unixhot1:/`,表示对版本库 1 设置权限

`unixhot2:/oa,`表示对版本库 2 中的 `oa` 项目设置权限

`unixhot3:/oa/web`,表示对版本库 3 中的 `oa` 项目的 `web` 目录设置权限

注意：权限主体可以是用户组、用户或*

用户组在前面加@，*表示全部用户。权限可以是 `w`、`r`、`wr` 和空，空表示没有任何权限。

示例如下：

[/]

@unixhot = rw

[unixhot2:/oa]

zhao = rw

[unixhot2:/oa/web]

shudong =rw

1.2.3 启动 SVN

启动 SVN 有两种方式：

一种是直接以后台模式启动，因为 Subversion 软件包包含了 svnserve 程序，这个程序可以做为一个守护进程运行并且监听来自 Subversion 客户端的连接。

一种是用 xinetd 管理。xinetd 守护程序可以用来监听 Subversion 的默认 3690 端口，然后发起执行 svnserver 守护进程。本人推荐用 xinetd 管理，在这里详细列出两种启动方式的配置和命令。

1.直接以后台模式启动

```
[root@UnixHot ~]# useradd svn
[root@UnixHot ~]# chown -R svn:svn /opt/svndata
[root@UnixHot ~]# su - svn -c "svnserve -d --listen-port 3690 -r /opt/svndata"
[root@UnixHot ~]# ps -ef | grep svnserve
svn      2890      1  0 22:35 ?        00:00:00 svnserve -d --listen-port 5241 -r /opt/svndata
root     2895    2790  0 22:36 pts/0    00:00:00 grep svnserve
```

已经运行了。

```
[root@UnixHot ~]# netstat -na | grep 5241
tcp      0      0 :::5241          :::*              LISTEN
```

2.使用 xinetd 守护进程管理 SVN 服务

注意：如果你需要使用 xinetd 来管理 svn，请先 kill 掉刚才启动的进程。

```
[root@UnixHot ~]# vim /etc/xinetd.d/svn
service svn
{
    disable = no
    socket_type = stream
    wait = no
    port = 3690
    protocol = tcp
    server = /usr/bin/svnserve
    server_args = -d -i -r /opt/svndata
```

```
user = svn

umask = 002

}

[root@UnixHot ~]# /etc/init.d/xinetd restart
[root@UnixHot ~]# chkconfig --list | grep svn

svn:                                on
```

至此，SVN 独立服务器的配置已经安装完成，如果开发人员使用 TortoiseSVN 客户端连接，你可以直接查看第五章的内容了。

1.3 在 Linux 下部署 SVN+Apache 服务器

1.3.1 安装相应的软件包

```
[root@UnixHot ~]# mount /dev/cdrom /mnt
[root@UnixHot ~]# rpm -ivh /mnt/Server/subversion-1.4.2-4.el5.i386.rpm
[root@UnixHot ~]# rpm -ivh /mnt/Server/httpd-2.2.3-22.el5.i386.rpm
[root@UnixHot ~]# rpm -ivh /mnt/Server/mod_dav_svn-1.4.2-4.el5.i386.rpm
```

通过以下命令可以看到 mod_dav_svn 这个包安装的文件有哪些，主要是创建了 apache 所需要加载的模块和一个 subversion.conf 的配置文件，我们只需要修改该配置文件即可完成 SVN+Apache 的配置。

```
[root@UnixHot ~]# rpm -ql mod_dav_svn

/etc/httpd/conf.d/subversion.conf
/usr/lib/httpd/modules/mod_authz_svn.so
/usr/lib/httpd/modules/mod_dav_svn.so
```

1.3.2 创建版本库

```
[root@UnixHot ~]# mkdir /var/www/svn
[root@UnixHot ~]# cd /var/www/svn
```

```
[root@UnixHot svn]# svnadmin create unixhot  
[root@UnixHot svn]# chown -R apache:apache unixhot
```

1.3.3 修改配置文件

```
[root@UnixHot ~]# vi /etc/httpd/conf.d/subversion.conf  
  
LoadModule dav_svn_module      modules/mod_dav_svn.so  
LoadModule authz_svn_module    modules/mod_authz_svn.so  
  
<Location /svn>  
  
    DAV svn  
  
    SVNParentPath /var/www/svn  
  
    # Limit write permission to list of valid users.  
    # <LimitExcept GET PROPFIND OPTIONS REPORT>  
        # Require SSL connection for password protection.  
        # SSLRequireSSL  
  
    AuthType Basic  
  
    AuthName "Authorization unixhot"  
  
    AuthUserFile /etc/httpd/conf.d/svnpasswdfile  
  
    Require valid-user  
  
    # </LimitExcept>  
</Location>
```

1.3.4 添加 SVN 验证用户

添加两个用户的例子：

```
[root@UnixHot ~]# htpasswd -c /etc/httpd/conf.d/svnpasswdfile unixhot
```

注意：第一次使用要加-c 参数创建密码文件，以后使用，不要加-c，不然会导致所有用户丢失。

```
[root@UnixHot ~]# htpasswd /etc/httpd/conf.d/svnpasswdfile bosshot
```

1.3.5 启动 Apache 并验证

```
[root@UnixHot ~]# /etc/init.d/httpd start
```

输入你的 ip/svn/版本库名称：

<http://192.168.140.130/svn/unixhot/>

如果你对这种 Apache 管理账号密码的方式感觉不符合工作需要，你可以使用 MySQL 来管理用户的账号和密码，下面一个章节会具体演示，用 MySQL 管理用户账号和密码的实例。

1.4 使用 MySQL 进行访问控制

1.4.1 安装 MySQL 和 mod_auth_mysql

```
[root@UnixHot ~]# rpm -ivh /mnt/Server/perl-DBI-1.52-2.el5.i386.rpm
```

```
[root@UnixHot ~]# rpm -ivh /mnt/Server/mysql-5.0.45-7.el5.i386.rpm
```

```
[root@UnixHot ~]# rpm -ivh /mnt/Server/perl-DBD-MySQL-3.0007-2.el5.i386.rpm
```

```
[root@UnixHot ~]# rpm -ivh /mnt/Server/mysql-server-5.0.45-7.el5.i386.rpm
```

```
[root@UnixHot ~]# rpm -ivh /mnt/Server/mysql-devel-5.0.45-7.el5.i386.rpm
```

```
[root@UnixHot ~]# rpm -ivh /mnt/Server/mod_auth_mysql-3.0.0-3.1.i386.rpm
```

```
[root@UnixHot ~]# rpm -ql mod_auth_mysql
```

```
/etc/httpd/conf.d/auth_mysql.conf
```

```
/usr/lib/httpd/modules/mod_auth_mysql.so
```

```
/usr/share/doc/mod_auth_mysql-3.0.0
```

```
/usr/share/doc/mod_auth_mysql-3.0.0/CHANGES
```

/usr/share/doc/mod_auth_mysql-3.0.0/CONFIGURE

/usr/share/doc/mod_auth_mysql-3.0.0/README

1.4.2 创建验证的数据库和表

1.启动 MySQL 数据库并初始化 root 密码

```
[root@UnixHot ~]# /etc/init.d/mysqld start #启动 MySQL 数据库
```

```
[root@UnixHot ~]# mysqladmin -u root password unixhot #初始化 MySQL 密码
```

```
[root@UnixHot ~]# mysql -u root -p #登录数据库
```

2.创建验证数据库和表。

创建数据库

```
mysql> CREATE DATABASE svnauth;
```

```
mysql> use svnauth;
```

创建用户表

```
mysql> CREATE TABLE users (  
    -> user_name CHAR(30) NOT NULL,  
    -> user_passwd CHAR(20) NOT NULL,  
    -> PRIMARY KEY (user_name)  
    -> );
```

创建用户并授权

```
mysql> GRANT SELECT  
    -> ON svnauth.users  
    -> TO authuser@localhost  
    -> IDENTIFIED BY 'unixhot';
```

3.修改配置文件使用 MySQL 验证

```
[root@UnixHot ~]# vi /etc/httpd/conf.d/subversion.conf

LoadModule dav_svn_module      modules/mod_dav_svn.so

LoadModule authz_svn_module    modules/mod_authz_svn.so

<Location /svn>

    DAV svn

    SVNParentPath /var/www/svn

#

# # Limit write permission to list of valid users.

# <LimitExcept GET PROPFIND OPTIONS REPORT>

#     # Require SSL connection for password protection.

#     # SSLRequireSSL

#

#     AuthType Basic

#     AuthName "Authorization unixhot"

#     AuthUserFile /etc/httpd/conf.d/svnpasswdfile

#     Require valid-user

# </LimitExcept>


AuthName "SVN MySQL Auth"

AuthType Basic


AuthMYSQLEnable on #打开 MySQL 验证

AuthMySQLUser authuser    #连接数据库的用户名

AuthMySQLPassword unixhot  #连接数据库的密码

AuthMySQLDB auth    #验证时用的数据库

AuthMySQLUserTable users  #验证时用的表

AuthMySQLNameField user_name  #验证用户名的字段

AuthMySQLPasswordField user_passwd  #验证密码的字段
```

```
AuthzSVNAccessFile /opt/svndata/unixhot/conf/authz #相应的权限管理由文件来指定
```

```
require group user
```

```
</Location>
```

4.重启 Apache 服务器

```
[root@UnixHot ~]# /etc/init.d/httpd restart
```

注意：这时你用刚才 Apache 验证的用户登录，已经无法登录了，因为现在是使用 MySQL 做访问控制了。

5.创建两个测试用户。

```
mysql> INSERT INTO users VALUES ('unixhot', ENCRYPT('unixhot'));
```

```
mysql> INSERT INTO users VALUES ('zhaobanzhang',ENCRYPT('zhaobanzhang'));
```

注意：创建的这两个用户 unixhot 有 rw 权限，zhaobanzhang 只有 r 权限，因为在上面的步骤中我们在 /opt/svndata/unixhot/conf/authz 文件中设置了。大家可以试验一下。这样我们就可以把用户名和密码交给 MySQL 来管理，不会直接写到文件中，而且是明文的。我们使用配置文件做权限的设置，清晰明了。

1.5 Windows 下 svn 客户端 TortoiseSVN 的安装和操作

官方文档：

<http://www.subversion.org.cn/tsvndoc/index.html>

完成了 svn 服务器的安装配置，怎么使用 svn 呢？在 Windows 下，最常用的 svn 客户端 TortoiseSVN，有时简称为 TSVN。

1.5.1 TortoiseSVN 安装

<http://cdnetworks-kr-2.dl.sourceforge.net/project/tortoisesvn/Application/1.6.6/TortoiseSVN-1.6.6.17493-w>

[in32-svn-1.6.6.msi](#)

下载最新版，目前最新版是 TortoiseSVN-1.6.6

下载后，安装。重启机器，使目录图标生效。

在资源管理器中，鼠标右键点击任意位置，右键菜单中出现“SVN Checkout”，即为安装成功。

1.5.2 svn 操作流程

开发人员使用 svn 进行开发的一般流程是：

checkout（检出）项目

——> 更新文件或目录 ——> update

——> 修改文件或目录 ——> commit(提交)变更

——> 增加文件或目录 ——> add(增加) 文件或目录 ——> commit(提交)

——> 删除文件或目录 ——> commit(提交)上一级目录

其中，checkout 只进行一次，update、commit、add 操作根据需要会经常使用。

1.checkout(检出)操作

在资源管理器中，鼠标右键点击任意位置，在菜单中选择” SVN Checkout”。

出现对话框，在” URL of repository:” 中输入 svn 串，格式是” 协议://ip:port/版本库/项目/目录”。根据实际情况输入，如果使用 SVN+Apache 模式是：http://www.unixhot.com/svn。如果是使用 SVN 独立服务器是 svn://www.unixhot.com/svn。

在 “checkout directory” 中输入本地存放代码的目录，请选择空目录或新目录。svn 会清空该目录下的一切文件。输入完毕，点击” ok” 按钮。

如果需要，会提示输入用户名和密码。选上” Save authentication” 后，以后可以自动登录，不必重输密码。

checkout…有时候时间会很长。结束，点” ok”。

2.update(更新)操作

在资源管理器中，选择本地目录或文件，鼠标右键菜单选择” SVN Update”。会提示有无文件需要更新，点” ok” 完成。

3.commit(提交)操作

把本地目录中变化了的文件或目录提交到版本库中，用 commit 操作。增加新文件或目录，要先用 add，再 commit。注意：删除文件或目录，commit 上一级目录。

在资源管理器中，选择本地目录或文件，鼠标右键菜单选择” SVN Commit”。

显示分上下 2 个框的界面。在上框输入说明文字，建议写版本号或变更原因，以便将来查找。下框列出提交的内容。没有可提交的内容，下框中会显示一段说明文字。点 “ok”。

提交结束，显示结果。点 “ok”。

解决代码冲突

如果 commit 时出现 “You have to update your work copy first.” 红色警告，说明版本库中的此文件已经被其他人修改了。请先点 “ok” 按钮退出。执行 update,然后再 commit。

如果修改与 update 得到的代码不冲突，则自动合并。如果冲突（比如对同一行代码进行了修改），则出现” One or more files are in a conflicted state.” 红色警告，并产生几个文件记录冲突。一般情况下，我们不要直接编辑冲突文件。而按照以下操作手工解决冲突。

在资源管理器中，选择 commit 时冲突的那个文件，鼠标右键菜单选择” Edit conficts”。

出现界面，分为” Theirs”、“ Mine” 和” Merged” 3 部分，表示” 别人修改的内容”、“ 我修改的内容” 和” 合并后的结果” 3 部分。我们是要将” 别人修改的内容” 和” 我修改的内容” 有取舍地合并起来，形成” 合并后的结果”。

合并一般分为 4 种情况：

* 保留”我的修改”,舍弃”别人的修改”。鼠标右键点击 Mine 框的相应行,点击” Use this text block”。

* 舍弃”我的修改”,保留”别人的修改”。鼠标右键点击 Theirs 框的相应行,点击” Use this text block”。

* 同时保留”我的修改”和”别人的修改”,并将”我的修改” 放在前面。鼠标右键点击 Mine 框的相应行,点击” Use text block from mine before theirs”。

* 同时保留”我的修改”和”别人的修改”,并将”别人的修改” 放在前面。鼠标右键点击 Mine 框的相应行,点击” Use text block from theirs before mine”。

合并完成, Ctrl+S 存盘, 退出。

然后, 在资源管理器中, 选择冲突文件, 鼠标右键菜单选择” Resolved”, 标记冲突已解决。系统会自动删除因冲突而新建的文件。此时, 就可以继续进行 commit 操作了。

4.add(增加)操作

增加新文件或目录, 要先用 add, 再 commit。

在资源管理器中, 选择新增的目录或文件, 鼠标右键菜单选择” Add”。

提示增加的文件。点 “ok” 继续。结束点 “ok”。

5.删除操作

删除操作比较简单, 可以删除文件或目录, commit 上一级目录。

1.6 部署 USVN 基于 WEB 管理 Subversion

1.6.1 概述

经过上述的使用, 我想你已经对 subversion 的使用比较熟悉了, 但是问题出现了, 对于 svn 的管理却不得心应手, 我们的软件开发人员是没有权限去到我们的 svn 服务器上去修改账号密码的, 而且我们的密码也是明文的, 不够安全。

在这里不用我们自己开发了，目前网络上有很多 SVN web 管理的开源项目，在这里赵班长选择一款比较实用的进行部署，不使用 svnmanager，希望了解 svnmanager 的朋友可以到 svnmanager 官方去了解，不过我相信，你会发现 USVN 会更好用一些：

官方网站：<http://www.usvn.info/>

1.6.2 部署 PHP 环境

如果你是按照本文一直走下来的话，我们仅需要安装 PHP 和 USVN 组件。

```
[root@UnixHot ~]# rpm -ivh /mnt/Server/php-common-5.1.6-23.el5.i386.rpm
[root@UnixHot ~]# rpm -ivh /mnt/Server/php-cli-5.1.6-23.el5.i386.rpm
[root@UnixHot ~]# rpm -ivh /mnt/Server/php-5.1.6-23.el5.i386.rpm
[root@UnixHot ~]# cd /usr/local/src

[root@UnixHot src]# wget http://www.usvn.info/download/get/1.0.1+Boo/tgz.dl
[root@UnixHot src]# chmod +x usvn-1.0.1.tgz
[root@UnixHot src]# tar zxvf usvn-1.0.1.tgz
[root@UnixHot src]# mv usvn-1.0 /var/www/usvn
[root@UnixHot www]# chown -R apache:apache usvn/
[root@UnixHot src]# vi /etc/httpd/conf/httpd.conf

添加以下内容：

Alias /usvn /var/www/usvn/public
<Directory "/var/www/usvn/public">
Options +SymLinksIfOwnerMatch
    AllowOverride All
    Order allow,deny
    Allow from all
</Directory>

[root@UnixHot src]# /etc/init.d/httpd restart
```

1.6.3 安装 USVN

1. 访问安装网址：

<http://192.168.140.130/usvn/install.php>



2. 点击 Next step 进行 system check。如果检测成功请点击 Next step。

3. 选择语言和时区，这里选择“中文”和“亚洲上海”。点击 Next step。

4. 协议，请接受，并点击 Next step。

5. USVN 的设置，您可以使用默认值。

页标题：	<input type="text" value="USVN"/>
Subversion 仓库：	<input type="text" value="/var/www/svn"/>
Subversion password file：	<input type="text" value="/var/www/svn/htpasswd"/>
Subversion 访问控制文件：	<input type="text" value="/var/www/svn/authz"/>
Subversion 连接地址：	<input type="text" value="http://192.168.140.130/svn"/>

6. 数据的设置。

Database Installation

数据库访问设置

数据库类型:

主机:

登录名:

密码:

数据库:

创建数据库? ☒

表前缀:

7.创建用户。注意：密码要 8 位以上。

8.问你是否更新，选择不检查更新即可。

9.需要你把刚才的配置写入到 Apache 的配置文件里去。（本实验为以下内容）

```
[root@UnixHot ~]# vi /etc/httpd/conf/httpd.conf
```

```
<Location /svn/>
```

```
    ErrorDocument 404 default
```

```
    DAV svn
```

```
    Require valid-user
```

```
    SVNParentPath /var/www/svn/svn
```

```
    SVNListParentPath off
```

```
    AuthType Basic
```

```
    AuthName "USVN"
```

```
    AuthUserFile /var/www/svn/htpasswd
```

```
    AuthzSVNAccessFile /var/www/svn/authz
```

```
</Location>
```

10.重启 Apache 服务

```
[root@UnixHot ~]# /etc/init.d/httpd restart
```

11.访问

<http://192.168.140.130/usvn/>

安装成功！



1.6.4 USVN 使用简介

下面开始你的探索之旅吧，我相信 USVN 可以帮助你顺利的配合开发团队做好各项工作。再此致谢 USVN 开发小组。为了大家可以马上入手 USVN，在这里给大家说个思路吧，

1. 使用 admin 用户登录
2. 建立项目 unixhot，建立项目同时默认会帮你建立一个和项目同名的用户组 unixhot。
3. 建立用户 zhaobanzhang，建立用户的时候会让你选择该用户属于哪个用户组 unixhot。
4. 编辑项目 unixhot，在有管理权的用户栏中，选择 zhaobanzhang。
5. 退出 admin，以后这个项目的管理就有 zhaobanzhang 来负责了，包括用户和权限的分配。

1.7 SVN 的日常管理

本来想写一点东西，看了 SVN 的官方文档感觉再写就多余了，工作用使用的朋友可以好好研究一下：下载地址：<http://i18n-zh.googlecode.com/files/svnbook-1.5-final-zh.pdf>

第 2 章 Rsync 同步服务

2.1 Rsync 简介

Rsync 的全称是 remote synchronize，是一款非常优秀的 Unix 系统下的文件同步和传输工具，而且它在同步文件的同时，可以保持原来文件的权限、时间、软硬链接等附加信息，而且可

UNIXHOT 打造中国最专业的运维门户网站 <http://www.unixhot.com> 22

以通过 ssh 方式来传输文件，这样其保密性也非常好，另外它还是免费的软件。

Rsync 的官方网站：<http://rsync.samba.org/>，可以从上面下载最新的版本。当然，因为 rsync 是一款如此有用的软件，所以很多 Linux 发行版本都将它收录在内了，比如 RedHat 就默认安装了，考虑到通用性的问题，今天的实施用官方的源码安装实施。

Rsync 在很多环境都有应用，比如一些下载服务器，和一些集群环境，当然如果传输量很大的话，就要考虑网络传输瓶颈了，这里就不在啰唆了，想更详细的了解 Rsync，我想可以看看官方的文档。

2.2 Rsync 的下载和安装

2.2.1 在官方下载最新的版本

```
[root@UnixHot ~]# wget http://rsync.samba.org/ftp/rsync/src/rsync-3.0.6.tar.gz
```

2.2.2 解压软件包并编译安装

```
[root@UnixHot ~]# tar xvf rsync-3.0.6.tar.gz
[root@UnixHot ~]# cd rsync-3.0.6
[root@UnixHot rsync-3.0.6]# ./configure --prefix=/usr/local/rsync
[root@UnixHot rsync-3.0.6]# make && make install
```

2.2.3 Rsync 的配置文件

1 建立配置文件目录

我们在安装完 Rsync 后，Rsync 并不会生成配置文件，只是做客户端来使用，要把它做成 Rsync 的服务器，就要手动生成三个文件，分别是 Rsync 的主配置文件 rsyncd.conf，Rsync 的密码配置文件 rsyncd.secrets 和 Rsync 的欢迎消息文件 rsyncd.motd。这里有一点要强调的是，Rsync 的密码配置文件权限必须是 600，不然无法进行验证，切记！

```
[root@UnixHot ~]# mkdir /etc/rsyncd
[root@UnixHot ~]# touch /etc/rsyncd/rsyncd.conf
```

```
[root@UnixHot ~]# touch /etc/rsyncd/rsyncd.motd
[root@UnixHot ~]# touch /etc/rsyncd/rsyncd.secrets
[root@UnixHot ~]# chmod 600 /etc/rsyncd/rsyncd.secrets
```

2 配置文件的内容及详细说明

1 rsyncd.secrets 验证配置文件

```
[root@UnixHot ~]# cat /etc/rsyncd/rsyncd.secrets
boss:boss
hack:hack
```

这个配置文件很简单，前边是用户名，后边是密码，中间用冒号分割，注意这里的用户不需要是系统用户，可以自己随便写，有的一些文档说必须是系统用户，通过我的验证，是不正确的。

2 rsyncd.motd 设置欢迎消息

```
[root@UnixHot ~]# cat /etc/rsyncd/rsyncd.motd
-----Welcom to unixhot.com-----
*****This is the rsync server*****
-----http://www.unixhot.com-----
```

这个配置文件怎么写就看你的心情了。

3 rsyncd.conf 主配置文件

当你看到这个配置文件是，你会发现和 samba 得配置文件是一样的，分为全局配置和模块配置两部分：

```
[root@UnixHot ~]# cat /etc/rsyncd/rsyncd.conf
secrets file = /etc/rsyncd/rsyncd.secrets
motd file = /etc/rsyncd/rsyncd.motd
log file = /var/log/rsyncd.log      #日志文件的存放处
pid file = /var/run/rsyncd.pid     #进程 id 的存放处
```



```
read only = yes                #设置为只读
address = 192.168.0.191        #本服务器的 ip 地址
list = yes                     #客户端查看时是否列出内容
uid = nobody
gid = nobody
port = 873                    #默认的端口，也可以自己指定
#hosts allow = 192.168.0.0/24  #设置访问限制，可以写在这里做全局的设置，也可以针对每个
                                #共享模块进行设置。
#hosts deny = 192.168.1.0/24
#max connections = 2          #客户端最大连接数，可以根据需要设置
#....rsync..
[unixhot]
comment = unixhot's directory #描述信息
path = /u3                    #共享的目录
auth users = boss,hack        #哪些用户可以使用
到此为止，服务器的配置已经完成了下面就是服务器的启动与具体的应用方法了。
```

2.3 Rsync 的具体用法

2.3.1 服务器的启动和配置

1.服务器的启动方式一

```
[root@UnixHot ~]# /usr/local/rsync/bin/rsync --daemon --config=/etc/rsyncd/rsyncd.conf
```

OK 了，要开机启动放进/etc/rc.local 即可。

2.服务器的启动方式二

我们可以把 rsync 服务交给 xinetd 来管理，只需修改/etc/xinetd.d/rsync 文件即可实现，修改后如下：

```
[root@UnixHot ~]# cat /etc/xinetd.d/rsync
```

```
# default: off
```

```
# description: The rsync server is a good addition to an ftp server, as it \
```

```
#          allows crc checksumming etc.

service rsync
{
    disable = no
    socket_type      = stream
    wait            = no
    user            = root
    server          = /usr/local/rsync/bin/rsync
    server_args      = --daemon --config=/etc/rsyncd/rsyncd.conf
    log_on_failure   += USERID
}
```

修改完毕后重启 xinetd 服务即可：

```
[root@UnixHot ~]# /etc/init.d/xinetd restart
```

```
Stopping xinetd: [ OK ]
```

```
Starting xinetd: [ OK ]
```

```
[root@UnixHot ~]# netstat -na | grep 873
```

```
tcp        0      0 0.0.0.0:873          0.0.0.0:*            LISTEN
```

3. 防火墙的配置

```
[root@UnixHot ~]# iptables -A INPUT -p tcp -m state --state NEW -m tcp --dport 873 -j ACCEPT
```

```
[root@UnixHot ~]# iptables -L
```

2.3.2 客户端的使用

客户端只需装上 rsync 就可以了，很多发行版本已经默认安装了。

```
[root@UnixHot ~]# which rsync
```

```
/usr/bin/rsync
```

1. 列出服务器上的可以同步的内容

```
[root@UnixHot ~]# rsync --list-only 192.168.0.191::
```

2.列出服务器上同步目录的内容，会要求输入密码，输入 rsyncd.sectets 设置的密码。

```
[root@UnixHot ~]# rsync --list-only boss@192.168.0.191::unixhot
```

3.把服务器同步目录的内容同步到本地

```
[root@UnixHot ~]# rsync -av hack@192.168.0.191::u3 /root
```

4.把服务器同步目录的内容同步到本地，使用密码文件。（我们在写脚本的时候必用的）

```
[root@UnixHot ~]# touch .rsync_passwd
```

```
[root@UnixHot ~]# chmod 600 .rsync_passwd
```

```
[root@UnixHot ~]# echo boss > .rsync_passwd
```

```
[root@UnixHot ~]# cat .rsync_passwd
```

```
boss
```

```
[root@UnixHot ~]# rsync -av --password-file=/root/.rsync_passwd boss@192.168.0.191::unixhot /root/
```

到此为止，Rsync 服务已经搭建完成了，至于大家怎么使用就要看应用了，客户端，可以写脚本并把它放到 cron 计划任务中去执行，由于时间问题，这里就不在啰唆了，有需要的朋友访问 <http://www.unixhot.com> 寻求免费技术支持，欢迎大家共同讨论学习。

2.4 Rsync 命令使用详解

在对 rsync 服务器配置结束以后，下一步就需要在客户端发出 rsync 命令来实现将服务器端的文件备份到客户端来。rsync 是一个功能非常强大的工具，其命令也有很多功能特色选项，我们下面就对它的选项一一进行分析说明。

Rsync 的命令格式可以为以下六种：

```
rsync [OPTION]... SRC DEST
```

```
rsync [OPTION]... SRC [USER@]HOST:DEST
```

```
rsync [OPTION]... [USER@]HOST:SRC DEST
```

```
rsync [OPTION]... [USER@]HOST::SRC DEST
```

```
rsync [OPTION]... SRC [USER@]HOST::DEST
```

```
rsync [OPTION]... rsync://[USER@]HOST[:PORT]/SRC [DEST]
```

对应于以上六种命令格式，rsync 有六种不同的工作模式：

1)拷贝本地文件。当 SRC 和 DES 路径信息都不包含有单个冒号":"分隔符时就启动这种工作模式。

如：rsync -a /data /backup

2)使用一个远程 shell 程序(如 rsh、ssh)来实现将本地机器的内容拷贝到远程机器。当 DST 路径地址包含单个冒号":"分隔符时启动该模式。如：rsync -avz *.c foo:src

3)使用一个远程 shell 程序(如 rsh、ssh)来实现将远程机器的内容拷贝到本地机器。当 SRC 地址路径包含单个冒号":"分隔符时启动该模式。如：rsync -avz foo:src/bar /data

4)从远程 rsync 服务器中拷贝文件到本地机。当 SRC 路径信息包含":"分隔符时启动该模式。如：
rsync -av root@172.16.78.192::www /databack

5)从本地机器拷贝文件到远程 rsync 服务器中。当 DST 路径信息包含":"分隔符时启动该模式。如：rsync -av /databack root@172.16.78.192::www

6)列远程机的文件列表。这类似于 rsync 传输，不过只要在命令中省略掉本地机信息即可。
如：rsync -v rsync://172.16.78.192/www

rsync 参数的具体解释如下：

- v, --verbose 详细模式输出
- q, --quiet 精简输出模式
- c, --checksum 打开校验开关，强制对文件传输进行校验
- a, --archive 归档模式，表示以递归方式传输文件，并保持所有文件属性，等于-rlptgoD
- r, --recursive 对子目录以递归模式处理
- R, --relative 使用相对路径信息
- b, --backup 创建备份，也就是对于目的已经存在有同样的文件名时，将老的文件重新命名为~filename。可以使用--suffix 选项来指定不同的备份文件前缀。
- backup-dir 将备份文件(如~filename)存放在在目录下。
- suffix=SUFFIX 定义备份文件前缀
- u, --update 仅仅进行更新，也就是跳过所有已经存在于 DST，并且文件时间晚于要备份的文件。(不覆盖更新的文件)
- l, --links 保留软链接
- L, --copy-links 想对待常规文件一样处理软链接

--copy-unsafe-links 仅仅拷贝指向 SRC 路径目录树以外的链结

--safe-links 忽略指向 SRC 路径目录树以外的链结

-H, --hard-links 保留硬链结

-p, --perms 保持文件权限

-o, --owner 保持文件属主信息

-g, --group 保持文件属组信息

-D, --devices 保持设备文件信息

-t, --times 保持文件时间信息

-S, --sparse 对稀疏文件进行特殊处理以节省 DST 的空间

-n, --dry-run 现实哪些文件将被传输

-W, --whole-file 拷贝文件，不进行增量检测

-x, --one-file-system 不要跨越文件系统边界

-B, --block-size=SIZE 检验算法使用的块尺寸，默认是 700 字节

-e, --rsh=COMMAND 指定使用 rsh、ssh 方式进行数据同步

--rsync-path=PATH 指定远程服务器上的 rsync 命令所在路径信息

-C, --cvs-exclude 使用和 CVS 一样的方法自动忽略文件，用来排除那些不希望传输的文件

--existing 仅仅更新那些已经存在于 DST 的文件，而不备份那些新创建的文件

--delete 删除那些 DST 中 SRC 没有的文件

--delete-excluded 同样删除接收端那些被该选项指定排除的文件

--delete-after 传输结束以后再删除

--ignore-errors 及时出现 IO 错误也进行删除

--max-delete=NUM 最多删除 NUM 个文件

--partial 保留那些因故没有完全传输的文件，以是加快随后的再次传输

--force 强制删除目录，即使不为空

--numeric-ids 不将数字的用户和组 ID 匹配为用户名和组名

--timeout=TIME IP 超时时间，单位为秒

-I, --ignore-times 不跳过那些有同样的时间和长度的文件

--size-only 当决定是否要备份文件时，仅仅察看文件大小而不考虑文件时间

--modify-window=NUM 决定文件是否时间相同时使用的时间戳窗口，默认为 0

-T --temp-dir=DIR 在 DIR 中创建临时文件

--compare-dest=DIR 同样比较 DIR 中的文件来决定是否需要备份

-P 等同于 --partial

--progress 显示备份过程

-z, --compress 对备份的文件在传输时进行压缩处理

--exclude=PATTERN 指定排除不需要传输的文件模式

--include=PATTERN 指定不排除而需要传输的文件模式

--exclude-from=FILE 排除 FILE 中指定模式的文件

--include-from=FILE 不排除 FILE 指定模式匹配的文件

--version 打印版本信息

--address 绑定到特定的地址

--config=FILE 指定其他的配置文件，不使用默认的 rsyncd.conf 文件

--port=PORT 指定其他的 rsync 服务端口

--blocking-io 对远程 shell 使用阻塞 IO

-stats 给出某些文件的传输状态

--progress 在传输时现实传输过程

--log-format=formAT 指定日志文件格式

--password-file=FILE 从 FILE 中得到密码

--bwlimit=KBPS 限制 I/O 带宽，KBytes per second

-h, --help 显示帮助信息

附录：GFDL 协议

(注：可以参考本协议的中文翻译版本 <http://www.thebigfly.com/gnu/FDLv1.3/>)

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