华为VRP（2）

学习内容

1. 文件管理
2. 基础配置常用命令
3. telnet操作
4. FTP操作

1 文件管理

- VRP通过文件系统来对设备上的所有文件（包括配置文件、系统软件文件、License文件、补丁文件等）和目录进行有效的管理
- VRP文件系统主要用来创建、删除、修改、复制和显示文件及目录，这些文件和目录都存在于设备的外部存储器中
- 华为路由器支持的外部存储器由flash和sd卡
- 华为交换机支持的外部存储器由flash和cf卡
- 支持U盘

基本查询命令

功能	命令
查看当前目录	pwd
显示当前目录下的文件信息	dir
查看文本文件的具体内容	more

```
<Huawei>dir
Directory of flash:/
  Idx   Attr     Size(Byte)  Date         Time        FileName
    0   drw-              -  Apr 10 2013 09:30:35    src
    1   -rw-             28  Apr 10 2013 09:31:38    private-data.txt
    2   -rw-            120  Apr 10 2013 09:32:38    wzbkl.cfg
.....
32,004 KB total (31,995 KB free)
```

目录 操作

功能	命令
修改用户当前界面的工作目录	cd
创建新的目录	mkdir
删除目录	rmdir

```
<Huawei>mkdir test
Info: Create directory flash:/test......Done.
<Huawei>dir
Directory of flash:
  Idx   Attr     Size(Byte)  Date       Time        FileName
    0   drw-          -      Apr 10 2013 09:30:35    src
    1   -rw-         28      Apr 10 2013 09:31:38    private-data.txt
    2   -rw-         120     Apr 10 2013 09:32:38    wzbkl.cfg
    3   drw-          -      Apr 10 2013 09:53:11    test
.....
32,004 KB total (31,995 KB free)
```

文件操作

功能	命令
复制文件	copy
移动文件	move
重命名文件	rename

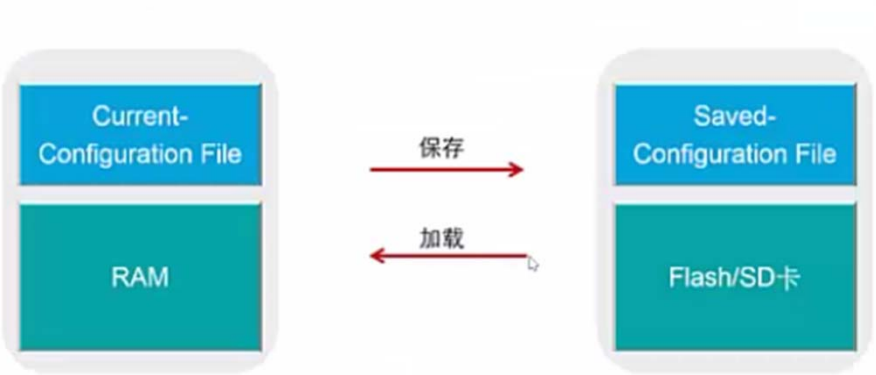
```
<Huawei>rename test.txt huawei.txt
Rename flash:/test.txt to flash:/huawei.txt ?[Y/N]:y
Info: Rename file flash:/test.txt to flash:/huawei.txt ......Done.
<Huawei>dir
Directory of flash:/
  Idx   Attr     Size(Byte)  Date        Time        FileName
    0   drw-          -      Apr 10 2013 09:30:35    src
    1   -rw-         28      Apr 10 2013 09:31:38    private-data.txt
    2   -rw-         120     Apr 10 2013 09:32:38    wzbk1.cfg
    3   -rw-         12      Apr 10 2013 09:53:11    huawei.txt
……
32,004 KB total (31,995 KB free)
```

功能	命令
删除/永久删除文件	delete /unreserved
恢复删除的文件	undelete
彻底删除回收站中的文件	reset recycle-bin

```
<Huawei>delete /unreserved flash:/huawei.txt
<Huawei>dir
Directory of flash:/
  Idx   Attr     Size(Byte)  Date        Time        FileName
    0   drw-          -      Apr 10 2013 09:30:35    src
    1   -rw-         28      Apr 10 2013 09:31:38    private-data.txt
    2   -rw-         120     Apr 10 2013 09:32:38    wzbk1.cfg
……
32,004 KB total (30,995 KB free)
```

配置文件操作

- 当前配置文件 Current-Configuration File
- 已经保存在磁盘中的配置文件 Saved-Configuration File
- 设备启动时，会加载保存的配置文件到RAM，并作为当前的配置文件



查询配置文件

功能	命令
显示当前配置文件	display current-configuration
显示保存的配置文件	display saved-configuration

```
<Huawei>display current-configuration
#
sysname Huawei
……
#
Return
<Huawei>display saved-configuration
#
sysname Huawei
……
#
Return
```

保存配置文件

功能	命令
保存当前配置信息	save

```
<Huawei>save
 The current configuration will be written to the device.
  Are you sure to continue? (y/n)[n]:y
  It will take several minutes to save configuration file, please
  wait..............
  Configuration file had been saved successfully
  Note: The configuration file will take effect after being activated
```

需要在用户模式下保存，才能生效

查询系统启动文件

功能	命令
查看系统启动配置参数	display startup

```
<Huawei>display startup
MainBoard:
  Startup system software:       sdl:/ar2220-v200r003c00spc200.cc
  Next startup system software: sdl:/ar2220-v200r003c00spc200.cc
  Backup system software for next startup:   null
  Startup saved-configuration file:          null
  Next startup saved-configuration file:     sdl:/vrpcfg.zip
  Startup license file:                      null
  Next startup license file:                 null
  Startup patch package:                     null
  Next startup patch package:                null
  Startup voice-files:                       null
  Next startup voice-files:                  null
```

修改系统启动配置文件

功能	命令
配置系统下次启动时使用的配置文件	startup saved-configuration

```
<Huawei>startup saved-configuration huawei.zip
This operation will take several minutes, please wait.....
Info: Succeeded in setting the configuration for booting system.
<Huawei>display startup
MainBoard:
Configured startup system software:sd1:/ar2220-v200r003c00spc200.cc
Startup system software:           sd1:/ar2220-v200r003c00spc200.cc
Next startup system software:            NULL
Startup saved-configuration file:        NULL
Next startup saved-configuration file:   sd1:/huawei.zip
Startup paf file:                        NULL
Next startup paf file:                   NULL
Startup license file:                    NULL
Next startup license file:               NULL
Startup patch package:                   NULL
 Next startup patch package:             NULL
```

比较当前配置与保存的配置

功能	命令
比较当前配置与下次启动的配置	compare configuration

```
<Huawei>compare configuration
====== Current configuration line 36 ======
 ip address 10.1.1.1 255.255.255.0
#
interface GigabitEthernet0/0/2
#
interface GigabitEthernet0/0/3
#
interface NULL0
 ====== Configuration file line 37 ======
interface GigabitEthernet0/0/2
#
interface GigabitEthernet0/0/3
#
……
```

配置文件重置

- 清空已经保存的配置文件，相当于恢复初始设置

功能	命令
清除下次启动时加载的配置文件	reset saved-configuration

```
<Huawei>reset saved-configuration
Warning: The action will delete the saved configuration in the
device.
The configuration will be erased to reconfigure. Continue? [Y/N]:y
Warning: Now clearing the configuration in the device.
Apr 10 2013 14:43:13-08:00 Huawei %%01CFM/4/RST_CFG(l)[2]:The user
chose Y when
deciding whether to reset the saved configuration.
Info: Succeeded in clearing the configuration in the device.
```

常见存储设备

- Flash 存储的是VRP
- SD Card 存储的是VRP
- NVRAM 存储保存的配置文件

- SDRAM
- Flash
- NVRAM
- SD Card
- USB

```
<Huawei>display version
......
SDRAM Memory Size     : 2048     M bytes
Flash Memory Size     : 16       M bytes
NVRAM Memory Size     : 512      K bytes
SD Cardl Memory Size  : 1882     M bytes
......
```

存储设备修复

```
<Huawei>fixdisk flash:
Fixdisk flash: will take long time if needed
%Fixdisk flash: completed.

<Huawei>fixdisk sd1:
sd1:/  - disk check in progress
……
%Fixdisk sd1: completed.
```

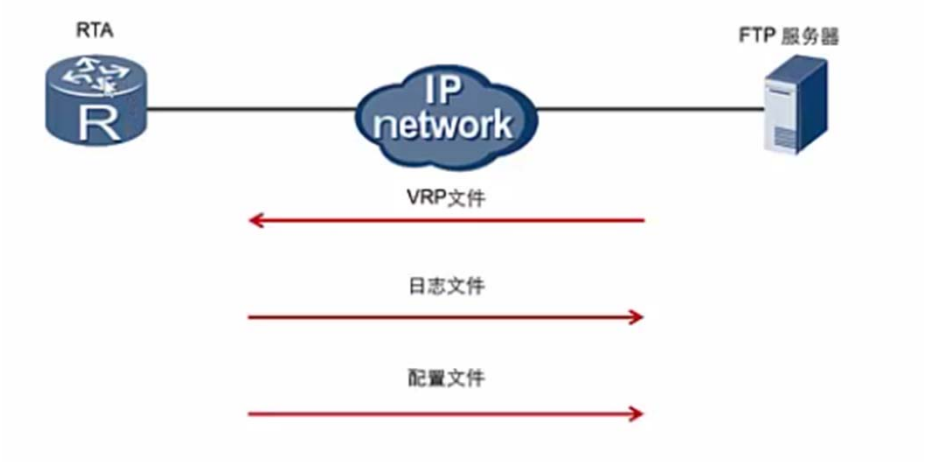
存储设备格式化

- format： 格式化后数据会丢失

```
<Huawei>format flash:
All data(include configuration and system startup file) on flash:
will be lost , proceed with format? (y/n)[n]:

<Huawei>format sd1:
All data(include configuration and system startup file) on sd1: will
be lost , proceed with format? (y/n)[n]:
```

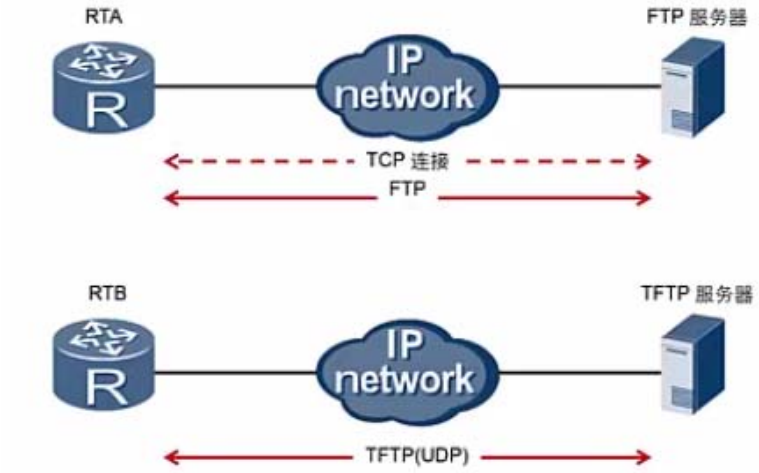
文件传输

- 网络设备可以从服务器获取VRP系统文件，也可以将日志文件、配置文件保存到服务器作为备份



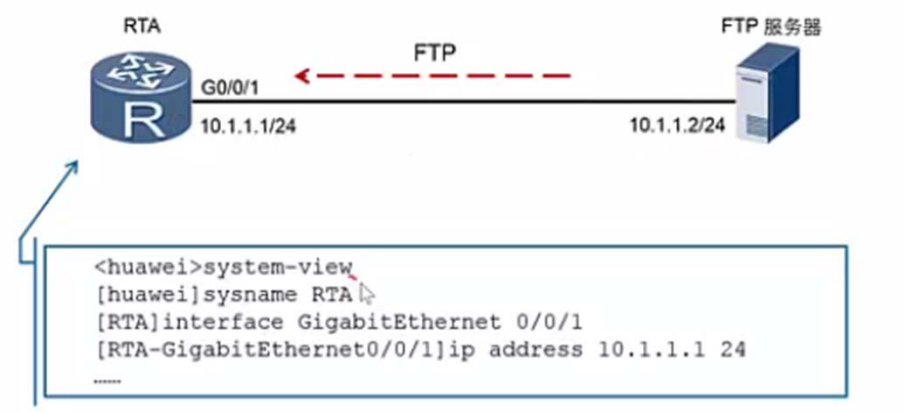
文件传输协议

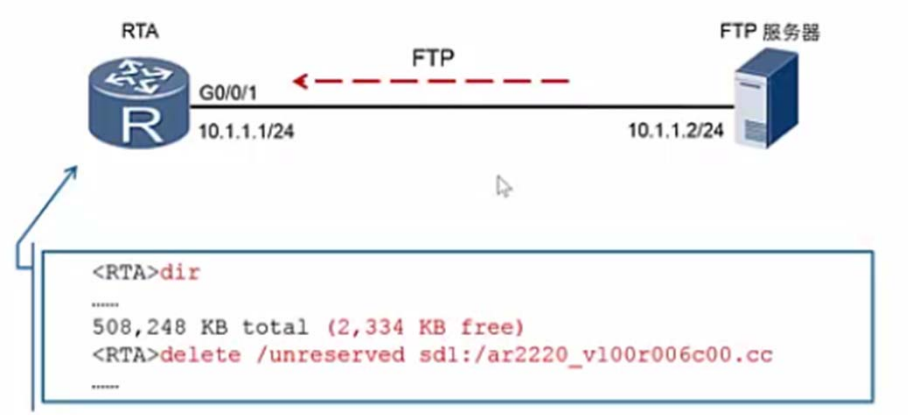
- 常用的文件传输协议有FTP 和TFTP 两种。
- FTP传输：使用的是TCP协议；需要连接，然后上传或者下载文件。稳定性更好，不会出错。
- TFTP传输：使用的是UDP协议。不需要连接，就可以上传或者下载文件。



实例：通过FTP服务器，更新VRP系统文件

- 进行用户视图模式——更改机器名称——进入端口——配置IP
- 查看设备剩余存储空间

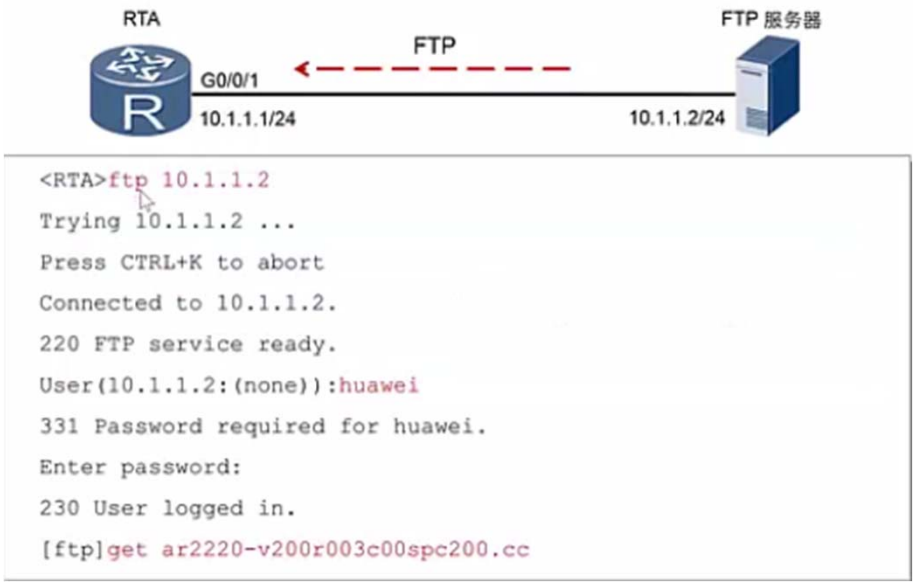




注意：一旦删除VRP文件，一定不能重启设备，否则设备无法启动。

实例：通过FTP服务器，更新VRP系统文件

- 与FTP建立连接，输入账户密码，get VRP文件名。

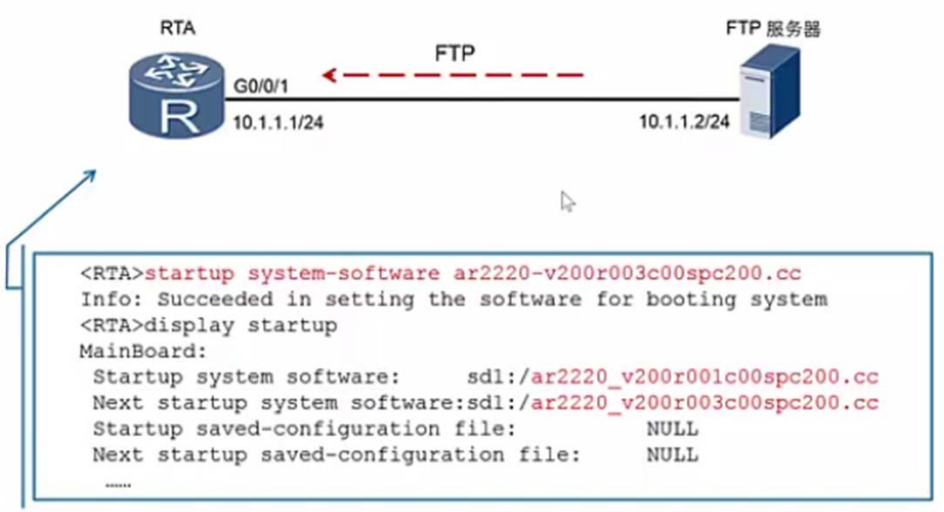


- 通过TFTP 下载，TFTP IP地址 get VRP文件名。

实例：通过FTP服务器，更新VRP系统文件

- VRP文件下载完成之后，通过命令 startup system-software VRP文件名 指定下次启动加载VRP。

- 制定完成之后，输入命令reboot 重启设备即完成更新操作



2 基础配置常用命令

- <huawei>display current-configuration
- 或者简写 <huawei>display cur

- <huawei>display interface
- 或者简写 <huawei>dis int

- <huawei>display vlan
- 或者简写<huawei>dis vl

- [huawei]display saved-configuration

- <huawei>display version

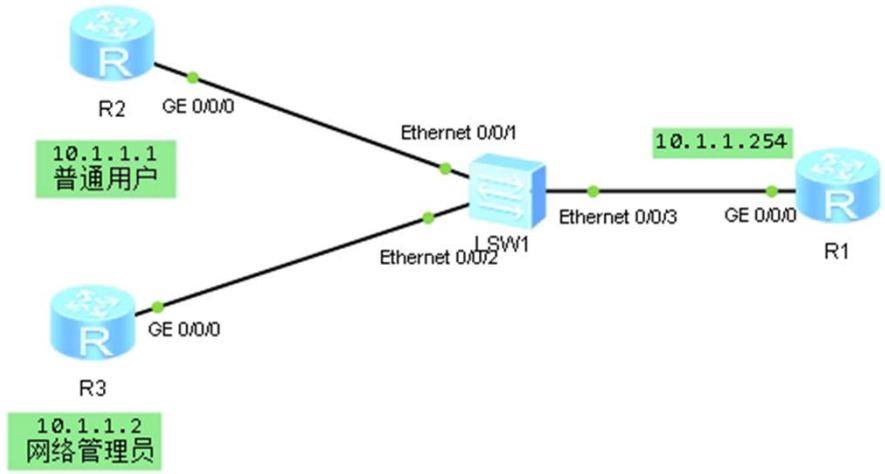
- <huawei>sysname Huawei

- [huawei]interface GigabitEthernet0/0/12
- [huawei-GigabitEthernet0/0/12]
- [huawei-GigabitEthernet0/0/12]shutdown
- [huawei-GigabitEthernet0/0/12]undo shutdown

教材P51

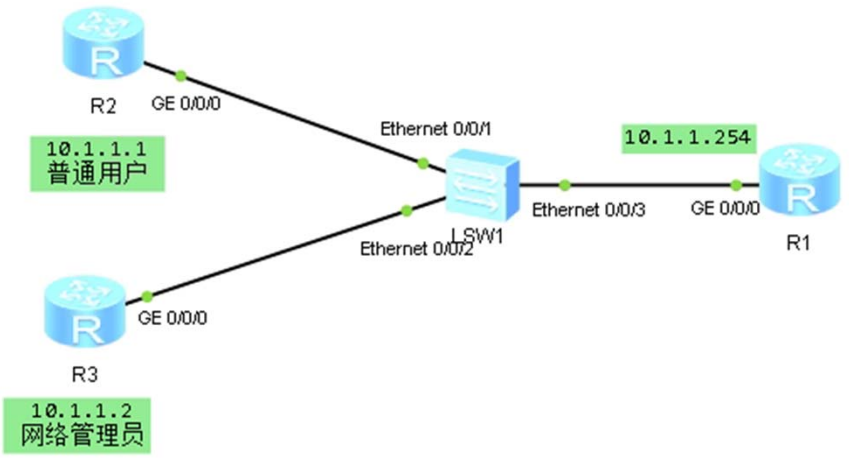
3 telnet操作

- 配置Telnet通过密码直接访问路由器
- R2 R3模拟客户端
- R1模拟服务端



配置Telnet通过密码直接访问路由器

- R1配置



① sys （配置模式）

② sysname R1 （重命名路由器）

③ int g0/0/0 （进入端口模式）

④ ip add 10.1.1.254 24 （配置端口IP地址）

⑤ q （退回到配置模式）

⑥ user-interface vty 0 4

⑦ anthentication-mode password (默认密文保存） (验证模式-密码验证）

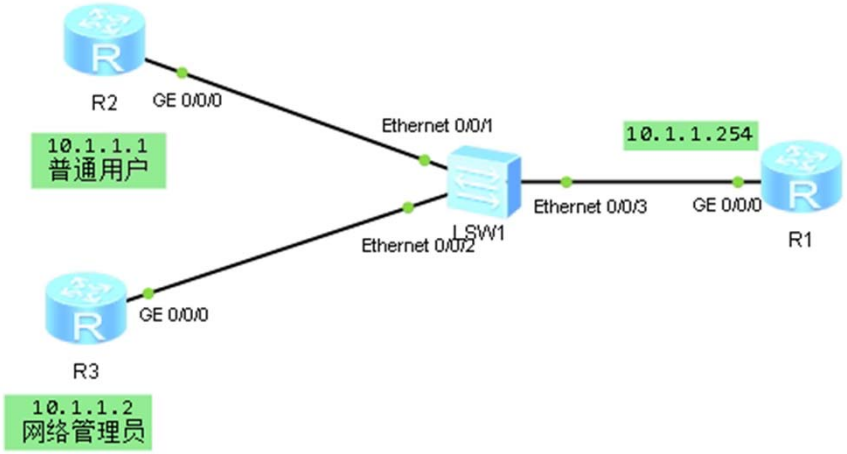
⑧ set authentication password cipher huawei（此命令默认不用输入）

⑨ user privilege level 15(修改用户级别默认为0，可设置0-15数字越高权限越高）

配置Telnet通过密码直接访问路由器

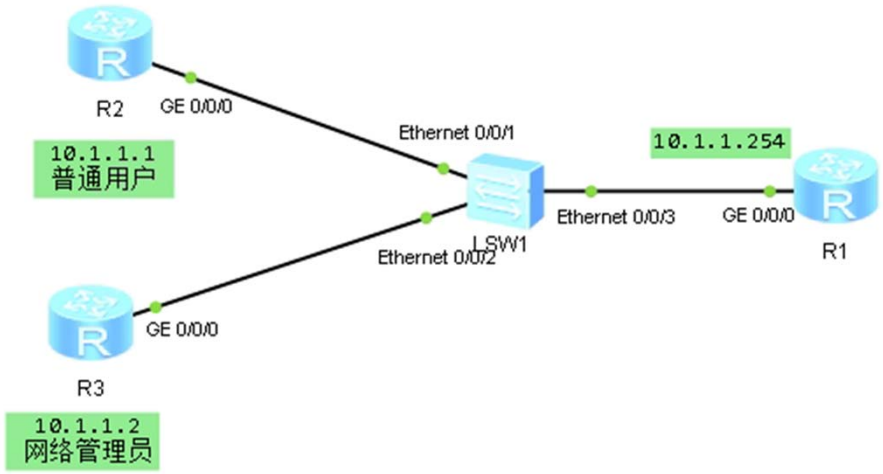
- R2操作

```
<R2>telnet 10.1.1.254
Trying 10.1.1.254 ...
Press CTRL+K to abort
Connected to 10.1.1.254 ...


Login authentication


Password:
Info: The max number of VTY users is 10, and the number
      of current VTY users on line is 1.
      The current login time is 2020-02-17 22:21:40.
<R1>quit
Info: The max number of VTY users is 10, and the number
      of current VTY users on line is 0.
Info: The connection was closed by the remote host.
<R2>
```

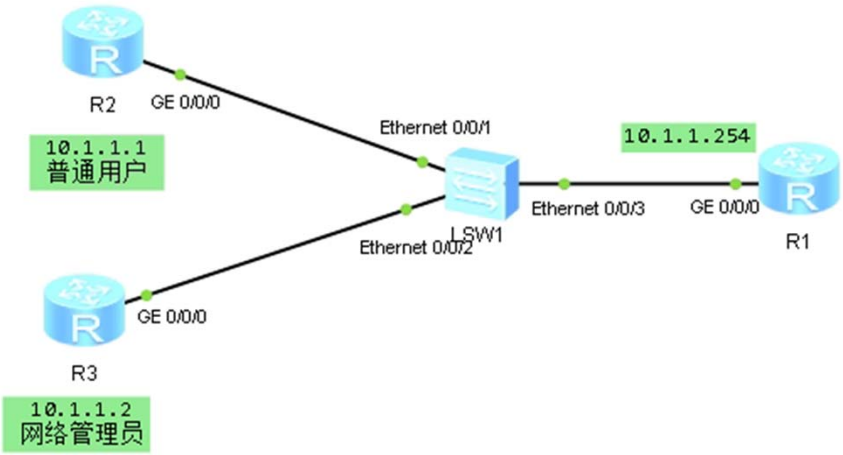


telnet操作

- 配置Telnet通过用户名密码访问路由器



配置Telnet通过用户名密码访问路由器



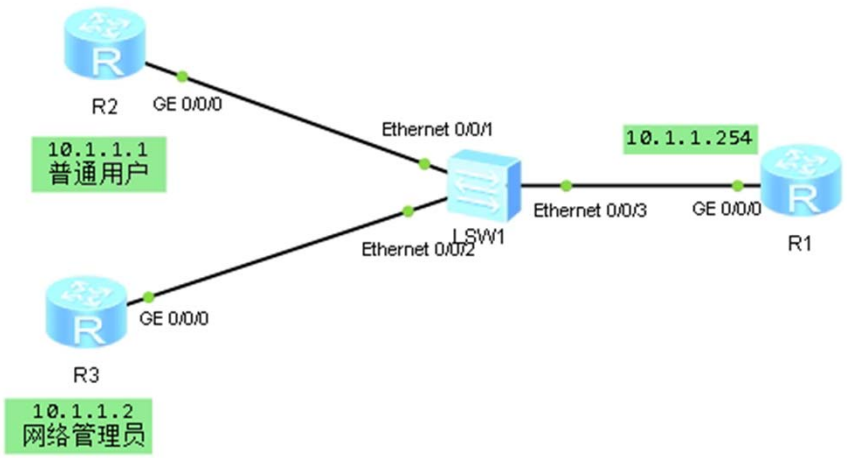
- R1配置

① sys
② int g0/0/0
③ ip add 10.1.1.254
④ q
⑤ aaa
⑥ local-user admin password cipher hello privilege level 3
⑦ local-user admin service-type telnet
⑧ q
⑨ user-interface vty 0 4
⑩ authentication-mode aaa

配置Telnet通过用户名密码访问路由器

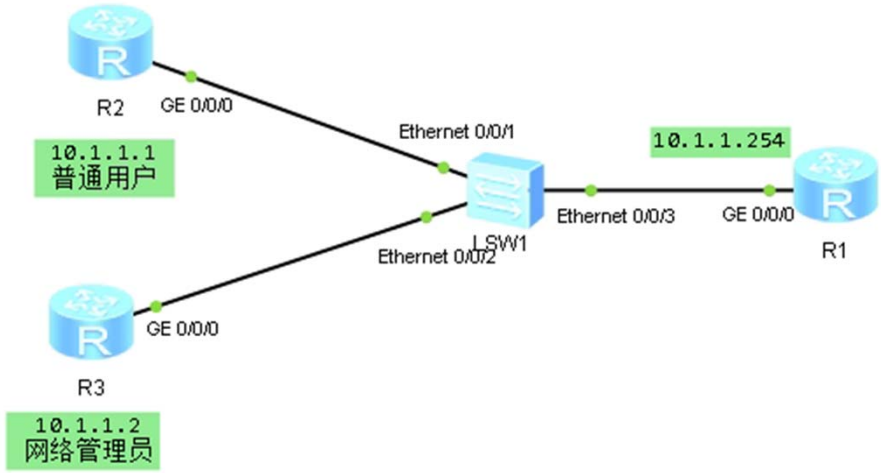
- R2操作

```
<R2>telnet 10.1.1.254
Trying 10.1.1.254 ...
Press CTRL+K to abort
Connected to 10.1.1.254 ...


Login authentication


Username:admin
Password:
Info: The max number of VTY users is 10, and the number
      of current VTY users on line is 1.
      The current login time is 2020-02-17 22:27:09.
<R1>quit
Info: The max number of VTY users is 10, and the number
      of current VTY users on line is 0.
Info: The connection was closed by the remote host.
<R2>
```



4 FTP操作

- R1做为FTP服务器
- R2 R3模拟客户端



FTP操作

R1配置

① aaa　#进入AAA配置视图

② local-user root password cipher hello　#创建本地用户，名称为root,密码为hello (cipher密码表示加密后保存再本地)

③ local-user root privilege level 3　#设置名称为root的用户为3级用户

④ local-user root ftp-directory flash; #设置root用户的ftp目录

⑤ ftp server enable　#开启ftp服务

⑥ user-interface vty 0 4　　#进入虚拟用户0到4远程登陆策略

⑦ authentication-mode aaa　#远程登陆时使用AAA认证策略

FTP操作

- R2操作

```
<R2>ftp 10.1.1.254
Trying 10.1.1.254 ...
Press CTRL+K to abort
Connected to 10.1.1.254.
220 FTP service ready.
User(10.1.1.254:(none)):root
331 Password required for root.
Enter password:
230 User logged in.

[ftp]quit

221 Server closing.

<R2>
```