华为路由交换由浅入深系列（一）带你认识华为 VRP 系统【基本配置，Telnet SSH 查看、保存、清空、重启路由器配置等】

1.如何通过 console 口连接路由器

2.配置设备 console 密码、主机名、时间、时区、banner、Super 密码

3.配置接口地址与 telnet、SSH

4.查看、保存、清空、重启路由器

实验拓扑如下：

一、如何通过 console 口连接路由器

用 console 线缆将笔记本连接到路由器的 Console 口，然后通过 CRT 软件进行连接，如下图：

在输入信息后输入“？”可查看以输入的字母开头的命令。如输入“dis？”，设备将输出所有以 dis 开头的命令。

在输入的信息后增加空格，再输入“？”，这时设备将尝试识别输入的信息对应的命令，然后输出该命令的其他参数。例如输入“dis ？”，如果只有 display 命令是以 dis 开头的，那举设备将输出 display 命令的参数，如上所示；如果以 dis 开头的命令还有其他的，设备将报错。

另外可以使用键盘上 Tab 键补全命令，比如键入“dis”后，按键盘“Tab”键可以将命令补全为“display”。如有多个以“dis”开头的命令存在，则在多个命令间循环切换。

命令在不发生歧的情况下可以使用简写，如“display”可以简写为“dis”或“disp”等，“interface”可以简写为“int”或“inter”等。

<Huawei>?

User view commands:

```
arp-ping                  ARP-ping
autosave                  <Group> autosave command group
backup                    Backup   information
cd                        Change current directory
clear                     <Group> clear command group
clock                     Specify the system clock
cls                       Clear screen
compare                   Compare configuration file
copy                      Copy from one file to another
debugging                 <Group> debugging command group
delete                    Delete a file
dialer                    Dialer
dir                       List files on a filesystem
display                   Display information
factory-configuration     Factory configuration
```

```
<Huawei>display ?
Cellular                  Cellular interface
aaa                       AAA
access-user               User access
accounting-scheme         Accounting scheme
acl                       <Group> acl command group
```

```
  actual                    Current actual
  adp-ipv4                  Ipv4 information
  adp-mpls                  Adp-mpls module
  alarm                     Alarm
  antenna                   Current antenna that outputting radio
  anti-attack               Specify anti-attack configurations
  ap                        <Group> ap command group
```

<Huawei>display version =====显示设备版本号、型号、启动时间

```
Huawei Versatile Routing Platform Software
VRP (R) software, Version 5.130 (AR2200 V200R003C00)
Copyright (C) 2011-2012 HUAWEI TECH CO., LTD
Huawei AR2220 Router uptime is 0 week, 0 day, 0 hour, 7 minute
BKP 0 version information:
1. PCB      Version  : AR01BAK2A VER.NC
2. If Supporting PoE : No
3. Board    Type     : AR2220
4. MPU Slot Quantity : 1
5. LPU Slot Quantity : 6

MPU 0(Master) : uptime is 0 week, 0 day, 0 hour, 0 minute
MPU version information :
```

1. PCB Version : AR01SRU2A VER.A

2. MAB Version : 0

3. Board Type : AR2220

4. BootROM Version : 0

二、配置设备 console 密码、主机名、时间、时区、baner

<Huawei>system-view ====进入系统视图（相当于思科的全局配置模式）

Enter system view, return user view with Ctrl+Z.

[Huawei]

[Huawei]quit or return ====退出系统视图

<Huawei>

[Huawei]sysname R1 ===配置主机名

[R1]header login information "Welcome to R" ====配置登录 banner,如 telnet 等

[R1]header shell information "Welcome to HW" ====配置登录 banner,如 console

<R1>quit

Configuration console exit, please press any key to log on

Welcome to HW

<R1>

[R1]user-interface console 0====进入 console 口，默认无密码

[R1-ui-console0]authentication-mode password

Please configure the login password (maximum length 16):5 ====选择密码长度

[R1-ui-console0]set authentication password cipher cisco ====配置一个密文形式密码（可以选择明文，命令为 simple）

[R1-ui-console0]idle-timeout 3 20 ====配置空闲超时时间 3 分 20 秒，默认 10 分钟

<R1>quit

Configuration console exit, please press any key to log on

Welcome to R

Login authentication

Password:

Welcome to HW

<R1>display clock ====显示系统时间

2014-05-11 20:02:17

Sunday

Time Zone(Indian Standard Time) : UTC-05:13

Daylight saving time :

Name : Day Light Saving Time

Repeat mode : repeat

Start year : 2005

End year : 2005

Start time : 09-01 12:32:05

End time : 11-23 12:32:05

Saving time : 00:00:00

<R1>clock timezone GMT add 08:00:00 ====配置系统时区，中国为+8 区

<R1>clock datetime 22:59:00 2014-05-11 ====配置系统时间

[R1]super password cipher ccieh3c.taobao.com ====配置密文 super 密码，防止非法用户权限提升

[R1]display current-configuration | include super ====显示 super 密码配置

super password level 3 cipher %$%$$#q^6$-.B<#>7NFN%4"D,&Qs%$%$

三、配置接口地址与 telnet、SSH

[R1]display ip interface brief ====查看接口状态

*down: administratively down

^down: standby

(l): loopback

(s): spoofing

The number of interface that is UP in Physical is 1

The number of interface that is DOWN in Physical is 3

The number of interface that is UP in Protocol is 1

The number of interface that is DOWN in Protocol is 3

Interface	IP Address/Mask	Physical	Protocol
GigabitEthernet0/0/0	unassigned	down	down
GigabitEthernet0/0/1	unassigned	down	down

GigabitEthernet0/0/2 unassigned down down

NULL0 unassigned up up(s)

R1]display interface g0/0/0 ====查看接口详细信息

GigabitEthernet0/0/0 current state : DOWN

Line protocol current state : DOWN

Description:HUAWEI, AR Series, GigabitEthernet0/0/0 Interface

Route Port,The Maximum Transmit Unit is 1500

Internet protocol processing : disabled

IP Sending Frames' Format is PKTFMT_ETHNT_2, Hardware address is 00e0-fcb9-1ed3

Last physical up time : -

Last physical down time : 2014-05-11 19:24:17 UTC-05:13

Current system time: 2014-05-11 23:14:22

Port Mode: FORCE COPPER

Speed : 1000, Loopback: NONE

Duplex: FULL, Negotiation: ENABLE

Mdi : AUTO

Last 300 seconds input rate 0 bits/sec, 0 packets/sec

Last 300 seconds output rate 0 bits/sec, 0 packets/sec

Input peak rate 0 bits/sec,Record time: -

Output peak rate 0 bits/sec,Record time: -

```
Input:   0 packets, 0 bytes
  Unicast:                0,  Multicast:              0
  Broadcast:              0,  Jumbo:                  0
  Discard:                0,  Total Error:            0
  CRC:                    0,  Giants:                 0
  Jabbers:                0,  Throttles:              0
  Runts:                  0,  Symbols:                0
  Ignoreds:               0,  Frames:                 0
Output:   0 packets, 0 bytes
  Unicast:                0,  Multicast:              0
  Broadcast:              0,  Jumbo:                  0
  Discard:                0,  Total Error:            0
  Collisions:             0,  ExcessiveCollisions:    0
  Late Collisions:        0,  Deferreds:              0
    Input bandwidth utilization threshold : 100.00%
    Output bandwidth utilization threshold: 100.00%
    Input bandwidth utilization  :    0%
    Output bandwidth utilization :    0%
```

[R1]interface g0/0/0 ====进入接口模式（注：默认接口状态为 UP,可以使用命令 shutdown 关闭接口，用 restart 命令开启）

[R1-GigabitEthernet0/0/0]ip address 202.100.1.1 255.255.255.0

<R1>display ip int bri

```
GigabitEthernet0/0/0                202.100.1.1/24        up          up
GigabitEthernet0/0/1                unassigned            down        down
GigabitEthernet0/0/2                unassigned            down        down
NULL0                               unassigned            up          up(s)

[R1-GigabitEthernet0/0/0]ping 202.100.1.2
  PING 202.100.1.2: 56   data bytes, press CTRL_C to break
    Reply from 202.100.1.2: bytes=56 Sequence=1 ttl=255 time=20 ms
    Reply from 202.100.1.2: bytes=56 Sequence=2 ttl=255 time=10 ms
    Reply from 202.100.1.2: bytes=56 Sequence=3 ttl=255 time=10 ms
    Reply from 202.100.1.2: bytes=56 Sequence=4 ttl=255 time=10 ms
    Reply from 202.100.1.2: bytes=56 Sequence=5 ttl=255 time=20 ms
  --- 202.100.1.2 ping statistics ---
    5 packet(s) transmitted
    5 packet(s) received
    0.00% packet loss
    round-trip min/avg/max = 10/14/20 ms
```

telnet 配置【基于密码与用户名密码 2 种方式】

```
[R1]user-interface vty 0 4   ====进入线下模式
[R1-ui-vty0-4]set authentication password cipher cisco ====配置加密密码为 cisco
```

```
<R1>display telnet server status   ====查看 telnet server 状态

 TELNET IPV4 server                    :Enable

 TELNET IPV6 server                    :Enable

 TELNET server port                    :23


<R2>telnet 202.100.1.1

  Press CTRL_] to quit telnet mode

  Trying 202.100.1.1 ...

  Connected to 202.100.1.1 ...

Welcome to R

Login authentication

Password:

Welcome to HW

<R1>

<R1>super

  Password:

  Now user privilege is level 3, and only those commands whose level is

  equal to or less than this level can be used.

  Privilege note: 0-VISIT, 1-MONITOR, 2-SYSTEM, 3-MANAGE

<R1>system-view

Enter system view, return user view with Ctrl+Z.

[R1]
```

```
<R1>display users ====查看 telnet 会话信息

  User-Intf      Delay      Type     Network Address       AuthenStatus      AuthorcmdFlag

+ 0     CON 0     00:00:00                                    pass

 Username : Unspecified

  129 VTY 0     00:03:10   TEL      202.100.1.2                  pass

 Username : Unspecified
```

配置用户名+密码认证方式

```
[R1]user-interface vty 0 4

[R1-ui-vty0-4]authentication-mode aaa

[R1-ui-vty0-4]quit

[R1]

[R2]aaa

[R2-aaa]local-user cisco password cipher cisco privilege level 15

[R2-aaa]local-user cisco service-type telnet


<R1>telnet 202.100.1.2

  Press CTRL_] to quit telnet mode

  Trying 202.100.1.2 ...

  Connected to 202.100.1.2 ...

Login authentication
```

```
Username:cisco

Password:

<R2>

<R2>display users

  User-Intf     Delay     Type    Network Address      AuthenStatus     AuthorcmdFlag

+ 0    CON 0    00:00:00                                   pass

 Username : Unspecified

  129 VTY 0    00:00:04   TEL     202.100.1.1                pass

 Username : cisco
```

SSH 配置：

```
[R1]rsa local-key-pair create   ====生成 RSA 密钥

The key name will be: Host

% RSA keys defined for Host already exist.

Confirm to replace them? (y/n)[n]:y

The range of public key size is (512 ~ 2048).

NOTES: If the key modulus is greater than 512,

        It will take a few minutes.

Input the bits in the modulus[default = 512]:1024

Generating keys...

.........................................................................

[R1]display rsa local-key-pair public ====查看生成 RSA 密钥

[R1]user-interface vty 0 4
```

```
[R1-ui-vty0-4]authentication-mode aaa

[R1-ui-vty0-4]protocol inbound ssh

[R1-ui-vty0-4]quit

[R1]aaa

[R1-aaa]local-user sshuser password cipher cisco   ====创建 SSH 登陆用户名与密码

Info: Add a new user.

[R1-aaa]local-user sshuser service-type ssh

[R1-aaa]quit

[R1-aaa]local-user sshuser privilege level 15

[R1]stelnet server enable ====启用 Stelnet 功能

Info: Succeeded in starting the STELNET server.

[R1]ssh user sshuser authentication-type password   ====配置 SSH 登陆用户名服务类型

 Authentication type setted, and will be in effect next time


[R1]display ssh server status ====查看 SSH 服务状态

 SSH version                              :1.99

 SSH connection timeout                   :60 seconds

 SSH server key generating interval   :0 hours

 SSH Authentication retries             :3 times

 SFTP Server                              :Disable

 Stelnet server                           :Enable
```

[R1]display ssh user-information ====查看 SSH 登陆用户状态

```
 ------------------------------------------------------------------------------
 Username          Auth-type          User-public-key-name
 ------------------------------------------------------------------------------
 sshuser           password           null
 ------------------------------------------------------------------------------
```

四、查看、保存、清空、重启路由器

[R1]display current-configuration ====查看路由器当前配置信息

```
[V200R003C00]
#
 sysname R1
#
 snmp-agent local-engineid 800007DB03000000000000
 snmp-agent
#
 clock timezone Indian Standard Time minus 05:13:20
 clock daylight-saving-time Day Light Saving Time repeating 12:32 9-1 12:32 11-23 00:00 2005 2005
#
portal local-server load portalpage.zip
#
 drop illegal-mac alarm
```

```
#
super password level 3 cipher %$%$]D2y,T`vUM+R%['e&R+X,$rv%$%$
#
 set cpu-usage threshold 80 restore 75
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user admin password cipher %$%$K8m.Nt84DZ}e#<0`8bmE3Uw}%$%$
 local-user admin service-type http
 local-user sshuser password cipher %$%$b~9\MKg6BVf(QZ$)&iATV6Y1%$%$
 local-user sshuser privilege level 15
 local-user sshuser service-type ssh
#
firewall zone Local
 priority 15
#
interface GigabitEthernet0/0/0
 ip address 10.1.1.1 255.255.255.0
```

```
#
interface GigabitEthernet0/0/1
#
interface GigabitEthernet0/0/2
#
interface NULL0
#
 stelnet server enable
#
user-interface con 0
 authentication-mode password
user-interface vty 0 4
 authentication-mode aaa
 protocol inbound ssh
user-interface vty 16 20
#
wlan ac
#
return
[R1]
```

<R1>save ====保存路由器当前配置信息

```
  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


<R1>startup saved-configuration iascfg.zip   ====配置下次启动加载配置文件

This operation will take several minutes, please wait.........

Info: Succeeded in setting the file for booting system

<R1>


<R1>display startup   ====查看下次启动加载配置文件

MainBoard:

Startup system software: sd1:/ar2220_V200R001C01SPC300.cc

Next startup system software: sd1:/ar2220_V200R001C01SPC300.cc

Backup system software for next startup: null

Startup saved-configuration file: null

Next startup saved-configuration file: sd1:/iascfg.zip

Startup license file: null

Next startup license file: null


<R1>reset saved-configuration ====清空配置
```

This will delete the configuration in the flash memory.

The device configurations will be erased to reconfigure.

Are you sure? (y/n)[n]:y

Clear the configuration in the device successfully.

<R1>reboot ====重启路由器

Info: The system is comparing the configuration, please wait.

Warning: All the configuration will be saved to the next startup configuration. Continue ? [y/n]:n 这里选择不保存，否则配置又存在了

System will reboot! Continue ? [y/n]:y

Info: system is rebooting ,please wait..

博主也只是业余时间写写技术文档，请大家见谅，大家觉得不错的话，可以推荐给朋友哦，博主会努力推出更好的系列文档的。如果大家有任何疑问或者文中有错误跟疏忽的地方，欢迎大家留言指出，博主看到后会第一时间修改，谢谢大家的支持，更多技术文章尽在网络之路博客，http://ccieh3c.com。