Module 2 Basic Device Navigation and Configuration

Lab 2-1 Basic Device Navigation and Configuration

Learning Objectives

As a result of this lab section, you should achieve the following tasks:

- Configure device system parameters including device name, the system time, and the system time zone.
- Configure the console port idle timeout duration.
- Configure the login information.
- Configure the login password.
- Save configuration files.
- Configure IP addresses for router interfaces.
- Test the connectivity between two directly connected routers.
- Restart a device using VRP.

Topology

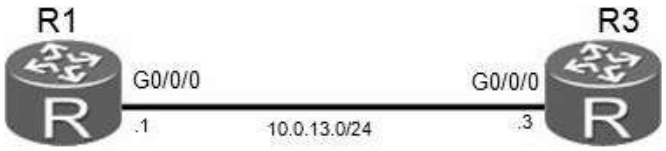

Figure 2.1 Lab topology for basic VRP navigation and operation.

Scenario

A company has purchased two AR G3 routers that require commissioning before they can be used in the enterprise network. Items to be commissioned include setting device names, the system time, and password management.

Tasks

Step 1 View the system information.

Run the **display version** command to view the software version and hardware information for the system.

```
<Huawei>display version
Huawei Versatile Routing Platform Software
VRP (R) software, Version 5.120 (AR2200 V200R003C00SPC200)
Copyright (C) 2011-2013 HUAWEI TECH CO., LTD
Huawei AR2220 Router uptime is 0 week, 3 days, 21 hours, 43 minutes
BKP 0 version information:
......output omitted......
```

The command output includes the VRP operating system version, device model, and startup time.

Step 2 Change the system time parameter.

The system automatically saves the time. If the time is incorrect, run the **clock timezone** and **clock datetime** commands in the user view to change the system time.

```
<Huawei>clock timezone Local add 08:00:00
<Huawei>clock datetime 12:00:00 2013-09-15
```

The keyword *Local* can be exchanged with the current regional timezone name, and **add** replaced with **minus** where the timezone is west of UTC+0.

Run the **display clock** command to check that the new system time has taken effect.

```
<Huawei>display clock
```

```
2013-09-15 12:00:21
Sunday
Time Zone(Default Zone Name) : UTC+00:00
```

Step 3 **Help features & Auto-completion functions.**

The question mark (?) is a wildcard, and the Tab is used as a shortcut to enter commands.

```
<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
    ap-auth-mode            Display AP authentication mode
  ......output omit......
```

To display all the commands that start with a specific letter or string of letters, enter the desired letters and the question mark (?). The system displays all the commands that start with the letters entered. For example, if the string **dis?** is entered, the system displays all the commands that start with **dis**.

If a space exists between the character string and the question mark (?), the system will identify the commands corresponding to the string and display the parameters of the command. For example, if the string **dis ?** is entered and only the **display** command matches the **dis** string, the system displays the parameters of the **display** command. If multiple commands start with **dis**, the system displays an error.

The **Tab** key can also be pressed to complete a command. For example, if **dis** is entered followed by **Tab,** the system completes the **display** command. If multiple commands start with **dis**, the appropriate command can be selected.

If there are no other commands starting with the same letters, **dis** or **disp** can be entered to indicate **display**, and **int** or **inter** to indicate **interface**.

Step 4 Access the system view.

Run the **system-view** command to access the system view to configure interfaces and protocols.

```
<Huawei>system-view
Enter system view, return user view with Ctrl+Z.
[Huawei]
```

Step 5 Change device names.

To more easily identify devices, set device names during the device configuration. Change device names based on the lab topology, as shown below:

Change the name of the R1 router to **R1**.

```
[Huawei]sysname R1
[R1]
```

Change the name of the R3 router to **R3**.

```
[Huawei]sysname R3
[R3]
```

Step 6 Configure the login information.

Configure the login information to indicate the login result.

```
[R1]header shell information "Welcome to the Huawei certification lab."
```

Run the preceding command to configure the login information. To check whether the login information has been changed, exit from the router command line interface, and log back in to view the login information.

```
[R1]quit
<R1>quit
```

```
  Configuration console exit, please press any key to log on
Welcome to the Huawei certification lab.
<R1>
```

Step 7 **Configure console port parameters.**

The console port by default does not have a login password. Users must configure a password for the console port before logging in to the device.

The password can be changed in the password authentication mode to **huawei** in plain text.

If there is no activity on the console port for the period of time specified by the timeout interval, the system will automatically log out the user. When this occurs, log in to the system again using the configured password.

The default timeout interval is set to 10 minutes. If a 10 minutes idle period is not a reasonable amount of time for the timeout interval, change the timeout interval to a more suitable duration, here this is set to 20 minutes.

```
[R1]user-interface console 0
[R1-ui-console0]authentication-mode password
[R1-ui-console0]set authentication password cipher huawei
[R1-ui-console0]idle-timeout 20 0
```

Run the **display this** command to check the configuration results.

```
[R1-ui-console0]display this
[V200R003C01SPC200]
#
user-interface con 0
 authentication-mode password
 set authentication password cipher %$%$fIn'6>NZ6*~as(#J:WU%,#72Uy8cVlN^NXkT51E
^RX;>#75,%$%$
 idle-timeout 20 0
```

Log out of the system and log back in, using the password set. It should be noted that this password is required to be set when the router is first initialized.

```
[R1-ui-console0]return
<R1>quit
```

```
  Configuration console exit, please press any key to log on

Welcome to Huawei certification lab
<R1>
```

Step 8 Configure interface IP addresses and descriptions.

Configure an IP address for the Gigabit Ethernet 0/0/0 interface of R1. The subnet mask can be configured using a dotted decimal format (255.255.255.0), or based on the subnet mask prefix length.

```
[R1]interface GigabitEthernet 0/0/0
[R1-GigabitEthernet0/0/0]ip address 10.0.13.1 24
[R1-GigabitEthernet0/0/0]description This interface connects to R3-G0/0/0
```

Run the **display this** command to check the configuration results at the current interface view.

```
[R1-GigabitEthernet0/0/0]display this
[V200R003C00SPC200]
#
interface GigabitEthernet0/0/0
 description This interface connects to R3-G0/0/0
 ip address 10.0.13.1 255.255.255.0
#
Return
```

Run the **display interface** command to view the interface description.

```
[R1]display interface GigabitEthernet0/0/0
GigabitEthernet0/0/0 current state : UP
Line protocol current state : UP
Last line protocol up time : 2013-10-08 04:13:09
Description:This interface connects to R3-G0/0/0
Route Port,The Maximum Transmit Unit is 1500
Internet Address is 10.0.13.1/24
IP Sending Frames' Format is PKTFMT_ETHNT_2, Hardware address is 5489-9876-830b
Last physical up time   :   2013-10-08 03:24:01
Last physical down time :   2013-10-08 03:25:29
Current system time: 2013-10-08 04:15:30
Port Mode: FORCE COPPER
Speed :  100,  Loopback: NONE
Duplex: FULL,  Negotiation: ENABLE
```

```
Mdi   : AUTO
Last 300 seconds input rate 2296 bits/sec, 1 packets/sec
Last 300 seconds output rate 88 bits/sec, 0 packets/sec
Input peak rate 7392 bits/sec,Record time: 2013-10-08 04:08:41
Output peak rate 1120 bits/sec,Record time: 2013-10-08 03:27:56
Input:  3192 packets, 895019 bytes
  Unicast:              0,      Multicast:              1592
  Broadcast:            1600,   Jumbo:                  0
  Discard:              0,      Total Error:            0
  CRC:                  0,      Giants:                 0
  Jabbers:              0,      Throttles:              0
  Runts:                0,      Symbols:                0
  Ignoreds:             0,      Frames:                 0
Output:  181 packets, 63244 bytes
  Unicast:              0,      Multicast:              0
  Broadcast:            181,    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  : 0.01%
    Output bandwidth utilization :   0%
```

The command output shows that the physical status and protocol status of the interface are **UP**, and the corresponding physical layer and data link layer are functional.

Once the status has been verified, configure the IP address and description for the interface of R3.

```
[R3]interface GigabitEthernet 0/0/0
[R3-GigabitEthernet0/0/0]ip address 10.0.13.3 255.255.255.0
[R3-GigabitEthernet0/0/0]description This interface connects to R1-G0/0/0
```

After completing the configuration, run the **ping** command to test the connection between R1 and R3.

```
<R1>ping 10.0.13.3
  PING 10.0.13.3: 56  data bytes, press CTRL_C to break
    Reply from 10.0.13.3: bytes=56 Sequence=1 ttl=255 time=35 ms
    Reply from 10.0.13.3: bytes=56 Sequence=2 ttl=255 time=32 ms
    Reply from 10.0.13.3: bytes=56 Sequence=3 ttl=255 time=32 ms
    Reply from 10.0.13.3: bytes=56 Sequence=4 ttl=255 time=32 ms
    Reply from 10.0.13.3: bytes=56 Sequence=5 ttl=255 time=32 ms
```

```
  --- 10.0.13.3 ping statistics ---
    5 packet(s) transmitted
    5 packet(s) received
    0.00% packet loss
round-trip min/avg/max = 32/32/35 ms
```

Step 9 View the file list stored on the current device.

Run the **dir** command in the user view to display the list of files in the current directory.

```
<R1>dir
Directory of sd1:/

  Idx  Attr  Size(Byte)  Date        Time(LMT)   FileName
    0  -rw-   1,738,816  Mar 14 2013 11:50:24    web.zip
    1  -rw-  68,288,896  Mar 14 2013 14:17:58    ar2220-v200r003c00spc200.cc
    2  -rw-         739  Mar 14 2013 16:01:17    vrpcfg.zip
1,927,476 KB total (1,856,548 KB free)

<R3>dir
Directory of sd1:/

  Idx  Attr  Size(Byte)  Date        Time(LMT)   FileName
    0  -rw-  1,738,816   Mar 14 2013 11:50:58    web.zip
    1  -rw-  68,288,896  Mar 14 2013 14:19:02    ar2220-v200r003c00spc200.cc
    2  -rw-         739  Mar 14 2013 16:03:04    vrpcfg.zip

1,927,476 KB total (1,855,076 KB free)
```

Step 10 Manage device configuration files.

Attempt to display the saved-configuration file.

```
<R1>display saved-configuration
    There is no correct configuration file in FLASH
```

Since no save-configuration file exists, save the current configuration file.

```
<R1>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
```

Run the following command again to view the saved configuration information:

```
<R1>display saved-configuration
[V200R003C00SPC200]
#
 sysname R1
 header shell information "Welcome to Huawei certification lab"
#
 board add 0/1 1SA
 board add 0/2 1SA
……output omit……
```

Run the following command to view the current configuration information:

```
<R1>display current-configuration
[V200R003C00SPC200]
#
 sysname R1
 header shell information "Welcome to Huawei certification lab"
#
 board add 0/1 1SA
 board add 0/2 1SA
 board add 0/3 2FE
……output omit……
```

A router can store multiple configuration files. Run the following command to view the configuration file to currently be used after the next startup:

```
<R3>display startup
MainBoard:
  Startup system software:                 sd1:/ar2220-v200r003c00spc200.cc
  Next startup system software:            sd1:/ar2220-v200r003c00spc200.cc
  Backup system software for next startup: null
  Startup saved-configuration file:        null
  Next startup saved-configuration file:   sd1:/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
```

Delete configuration files from the flash memory.

```
<R1>reset saved-configuration
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.

<R3>reset saved-configuration
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.
```

Step 11 **Device restart procedure.**

Use the **reboot** command to restart the router.

```
<R1>reboot
Info: The system is now comparing the configuration, please wait.
Warning: All the configuration will be saved to the next startup configuration.
Continue ? [y/n]:n
System will reboot! Continue ? [y/n]:y
Info: system is rebooting ,please wait...

<R3>reboot
Info: The system is now comparing the configuration, please wait.
Warning: All the configuration will be saved to the next startup configuration.
Continue ? [y/n]:n
System will reboot! Continue ? [y/n]:y
```

The system asks to save the current configuration. It is necessary to determine whether the current configuration should be saved based on the requirements for the lab. If unsure as to whether the current configuration should be saved, do not save.

Final Configuration

```
[R1]display current-configuration
[V200R003C00SPC200]
```

```
#
 sysname R1
 header shell information "Welcome to Huawei certification lab"
#
interface GigabitEthernet0/0/0
 description This interface connects to R3-G0/0/0
 ip address 10.0.13.1 255.255.255.0
#
user-interface con 0
 authentication-mode password
 set authentication password
cipher %$%$4D0K*-E"t/I7[{HD~kgW,%dgkQQ!&|;XTDq9SFQJ.27M%dj,%$%$
 idle-timeout 20 0
#
return

[R3]display current-configuration
[V200R003C00SPC200]
#
 sysname R3
#
interface GigabitEthernet0/0/0
 description This interface connect to R1-G0/0/0
 ip address 10.0.13.3 255.255.255.0
#
user-interface con 0
 authentication-mode password
 set authentication password
cipher %$%$M8\HO3:72:ERQ8JLoHU8,%t+lE:$9=a7"8%yMoARB]$B%t.,%$%$
user-interface vty 0 4
#
return
```