**Huawei VRP and Configuration Basics**

Student Version



Huawei Technologies Co., Ltd.

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# Huawei VRP and Configuration Basics

## Background

The Versatile Routing Platform (VRP) is a universal operating system (OS) platform for Huawei datacom products. It is based on IP and adopts a component-based architecture. It provides rich features and functions, including application-based tailorable and extensible functions, greatly improving the running efficiency of the devices that use this OS. To efficiently manage such devices, you must be familiar with VRP and VRP-based configuration.

In this lab activity, you will learn the basic operations of Huawei VRP system by configuring Huawei devices.

## Objectives

Upon completion of this task, you will be able to:

Understand the meaning of command line views and how to access and exit command line views

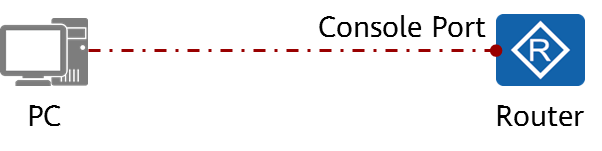
Understand common commands

Understand how to use the command line online help

Learn how to negate a command

Learn how to use command line shortcut keys

## Topology

Lab topology 

As shown in the networking diagram, the router is a new router without any configuration. The PC is connected to the console port of the router through a serial cable. You need to initialize the router.

## Implementation

### Roadmap

1. Complete basic configurations, such as device name and router interface IP address.
2. Save the configurations.
3. Restart the device.

### Procedure

Log in to the CLI of the router through the console port.

The details are not provided here.

Display the basic device information.

# Display device version information.

<Huawei>display version

Huawei Versatile Routing Platform Software

VRP (R) software, **Version 5.160 (AR651C V300R019C00SPC100**)

Copyright (C) 2011-2016 HUAWEI TECH CO., LTD

**Huawei AR651C Router uptime is 0 week, 0 day, 0 hour, 53 minutes**

BKP 0 version information:

1. PCB Version : AR01BAK2C VER.B

2. If Supporting PoE : No

3. Board Type : AR651C

4. MPU Slot Quantity : 1

5. LPU Slot Quantity : 1

Complete basic device configurations.

# Change the router name to **Datacom-Router**.

<Huawei>system-view

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

[Huawei]

*You have entered the system view from the user view.*

[Huawei]sysname Datacom-Router

[Datacom-Router]

*The device name has been changed to* ***Datacom-Router****.*

Huawei devices provide a wide variety of functions and related configuration and query commands. The commands are available in different command views based on the functions of the commands. To use a function, enter the corresponding command view first and then run corresponding commands.

# Enter the interface view and configure the IP address of the interface.

[Datacom-Router]inter //Press Tab to complete the command.

[Datacom-Router]interface //"interface" is the only optional keyword.

[Datacom-Router]interface g //Press Tab to complete the command.

[Datacom-Router]interface GigabitEthernet //"GigabitEthernet" is the only optional keyword.

[Datacom-Router]interface GigabitEthernet 0/0/1 //Enter the complete command.

Enter the first several letters of a keyword in a command and press Tab to display a complete keyword. The first several letters, however, must uniquely identify the keyword. If they do not identify a specific keyword, press Tab continuously until the desired keyword is displayed. For example:

When you enter **inter** and press Tab, only the **interface** command starts with **inter**. Therefore, the command is autocompleted as **interface**. The command does not change if you press Tab multiple times.

[Datacom-Router-GigabitEthernet0/0/1]

*The GigabitEthernet0/0/1 interface view is displayed.*

[Datacom-Router-GigabitEthernet0/0/1]i?

icmp <Group> icmp command group

igmp Specify parameters for IGMP

ip <Group> ip command group

ipsec Specify IPSec(IP Security) configuration information

ipv6 <Group> ipv6 command group

isis Configure interface parameters for ISIS

If you enter only the first or first several characters of a command keyword, you can use the context-sensitive help function to obtain all the keywords that begin with a character or character string. The meaning of each keyword will also be displayed. For example:

In the GigabitEthernet0/0/1 interface view, enter **i** and a question mark (?) to display the options of all commands starting with **i** in the current view. You can press Tab to complete the command of manually enter the complete command based on the help information. In the preceding information, **icmp** and **igmp** are keywords, **<Group> icmp command group**, and **Specify parameters for IGMP** are the descriptions of the keywords.

[Datacom-Router-GigabitEthernet0/0/1]ip ?

accounting <Group> accounting command group

address <Group> address command group

binding Enable binding of an interface with a VPN instance

fast-forwarding Enable fast forwarding

forward-broadcast Specify IP directed broadcast information

netstream IP netstream feature

verify IP verify

When you enter some keywords of a command and a question mark (?) separated by a space, all keywords associated with this command, as well as simple descriptions, are displayed. For example:

If you enter **ip**, a space, and a question mark (?), all commands containing keyword **ip** and the corresponding descriptions are displayed.

[Datacom-Router-GigabitEthernet0/0/1]ip address ?

IP\_ADDR<X.X.X.X> IP address

bootp-alloc IP address allocated by BOOTP

dhcp-alloc IP address allocated by DHCP

unnumbered Share an address with another interface

[Datacom-Router-GigabitEthernet0/0/1]ip address 192.168.1.1 ?

INTEGER<0-32> Length of IP address mask

IP\_ADDR<X.X.X.X> IP address mask

[Datacom-Router-GigabitEthernet0/0/1]ip address 192.168.1.1 24 ?

sub Indicate a subordinate address

<cr> Please press ENTER to execute command

**<cr>** indicates that no keyword or parameter exists in this position. You can press Enter to run the command.

[Datacom-Router-GigabitEthernet0/0/1]dis this

#

interface GigabitEthernet0/0/1

ip address 192.168.1.1 255.255.255.0

#

The **display this** command displays the running configuration in the current view. Effective arguments set to their defaults are not displayed. Configured arguments that are not committed successfully are not displayed, either. This command is used to check the configuration.

You do not need to enter complete keywords if the entered characters can match a unique keyword in the current view. This function improves efficiency. For example:

The **dis this** command can be executed on an interface because only the **display this** command matches the entered characters in the current view. Similarly, the **dis cu** or **d cu** command can also be executed because they are equivalent to **display current-configuration** command.

[Datacom-Router-GigabitEthernet0/0/1]quit

The **quit** command returns a device from the current view to a lower-level view. If the current view is the user view, this command exits from the system.

# Negate the IP address configuration because the IP address should be signed to interface GigabitEthernet 0/0/2.

[Datacom-Router]interface GigabitEthernet 0/0/1

[Datacom-Router-GigabitEthernet0/0/1]undo ip address

To do so, you must negate the IP address configuration of GigabitEthernet0/0/1. Otherwise, an IP address conflict occurs and the configuration fails.

To negate a command, use the **undo** keyword with the command. An undo command is generally used to restore a default configuration, disable a function, or delete a configuration. Almost each command line has a corresponding undo command.

[Datacom-Router]interface GigabitEthernet 0/0/2

[Datacom-Router-GigabitEthernet0/0/2]ip address 192.168.1.1 24

[Datacom-Router-GigabitEthernet0/0/2]quit

# Display the current device configuration.

[Datacom-Router]display current-configuration

[V200R003C00]

#

sysname Datacom-Router

#

snmp-agent local-engineid 800007DB03000000000000

snmp-agent

#

clock timezone China-Standard-Time minus 08:00:00

#

portal local-server load portalpage.zip

#

drop illegal-mac alarm

#

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

#

**---- More ----**

When the information cannot be completely displayed on one screen, the system will pause for you can view the information. If **---- More ----** is displayed at the bottom of the command output, you can

1. Press Ctrl+C or Ctrl+Z to stop the display or command execution.
2. Press the space bar to display the next screen.
3. Press Enter to display the next line.

Save the current configuration of the device.

# Return to the user view.

[Datacom-Router]quit

<Datacom-Router>

In addition to the **quit** command, you can also:

1. Run the **return** command to return to the user view from any view.
2. Press Ctrl+Z to return to the user view from any view.

# Save the configuration.

<Datacom-Router>save

The current configuration will be written to the device.

Are you sure to continue? .(y/n)[n]**:y**  *//Enter y to confirm.*

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

*The current configuration is saved successfully.*

Configuration changes must be saved in the configuration file to survive system restart. You can run the **save** command to save the current configuration to the default path and overwrite the original configuration file. You can also run the **save** *configuration-file* command to save the current configuration to a specified file in the storage device. This command does not affect the current startup configuration file of the system.

# Compare the running configuration with the configuration in the startup configuration file.

<Datacom-Router>compare configuration

The current configuration is the same as the next startup configuration file.

*The running configuration is the same as the configuration in the startup configuration file.*

Perform operations on the file system.

# List all the files in the current directory.

<Datacom-Router>dir

Directory of flash:/

Idx Attr Size(Byte) Date Time(LMT) FileName

**0 -rw- 126,538,240 Jul 04 2016 17:57:22 ar651c- v300r019c00Sspc100.cc**

1 -rw- 22,622 Feb 20 2020 10:35:18 mon\_file.txt

**2 -rw- 737 Feb 20 2020 10:38:36 vrpcfg.zip**

3 drw- - Jul 04 2016 18:51:04 CPM\_ENCRYPTED\_FOLDER

4 -rw- 783 Jul 10 2018 14:46:16 default\_local.cer

5 -rw- 0 Sep 11 2017 00:00:54 brdxpon\_snmp\_cfg.efs

6 drw- - Sep 11 2017 00:01:22 update

7 drw- - Sep 11 2017 00:01:48 shelldir

8 drw- - Sep 21 2019 17:14:24 localuser

9 drw- - Sep 15 2017 04:35:52 dhcp

10 -rw- 509 Feb 20 2020 10:38:40 private-data.txt

11 -rw- 2,686 Dec 19 2019 15:05:18 mon\_lpu\_file.txt

12 -rw- 3,072 Dec 18 2019 18:15:54 Boot\_LogFile

510,484 KB total available (386,456 KB free)

vrpcfg.zip: configuration file The filename extension of a configuration file must be .cfg or .zip.

ar651c- v300r019c00Sspc100.cc: system software The filename extension of system software must be .cc.

# Save the running configuration and name the configuration file test.cfg.

<Datacom-Router>save test.cfg

Are you sure to save the configuration to test.cfg? (y/n)[n]:**y**  *//Enter y to confirm.*

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

# List all the files in the current directory again.

<Datacom-Router>dir

Directory of flash:/

Idx Attr Size(Byte) Date Time(LMT) FileName

0 -rw- 126,538,240 Jul 04 2016 17:57:22 ar651c- v300r019c00Sspc100.cc

1 -rw- 22,622 Feb 20 2020 10:35:18 mon\_file.txt

2 -rw- 737 Feb 20 2020 10:38:36 vrpcfg.zip

3 drw- - Jul 04 2016 18:51:04 CPM\_ENCRYPTED\_FOLDER

4 -rw- 783 Jul 10 2018 14:46:16 default\_local.cer

5 -rw- 0 Sep 11 2017 00:00:54 brdxpon\_snmp\_cfg.efs

6 drw- - Sep 11 2017 00:01:22 update

7 drw- - Sep 11 2017 00:01:48 shelldir

8 drw- - Sep 21 2019 17:14:24 localuser

9 drw- - Sep 15 2017 04:35:52 dhcp

**10 -rw- 1,404 Feb 20 2020 11:55:17 test.cfg**

11 -rw- 509 Feb 20 2020 11:55:18 private-data.txt

12 -rw- 2,686 Dec 19 2019 15:05:18 mon\_lpu\_file.txt

13 -rw- 3,072 Dec 18 2019 18:15:54 Boot\_LogFile

510,484 KB total available (386,452 KB free)

*The configuration file is saved successfully.*

# Set the file as the startup configuration file.

<Datacom-Router>startup saved-configuration test.cfg

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

Info: Succeeded in setting the file for booting system

# Display the startup configuration file.

<Datacom-Router>display startup

MainBoard:

Startup system software: flash:/ ar651c- v300r019c00Sspc100.cc

Next startup system software: flash:/ ar651c- v300r019c00Sspc100.cc

Backup system software for next startup: null

Startup saved-configuration file: flash:/vrpcfg.zip

Next startup saved-configuration file: flash:/test.cfg

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

The **display startup** command displays the system software and configuration, license, patch, and voice files.

# Clear the configuration file.

<Datacom-Router>reset saved-configuration

This will delete the configuration in the flash memory.

The device configuratio

ns will be erased to reconfigure.

Are you sure? (y/n)[n]:y *//Enter y to confirm.*

Clear the configuration in the device successfully.

Restart the device.

<Datacom-Router>reboot

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

System will reboot! Continue ? [y/n]**:y** *//Enter y to confirm.*

Info: system is rebooting ,please wait...

*The system is restarting.*

<Datacom-Router>

*The device is restarted.*

**----End**

* 1. **Verification**

The details are not provided here.

* 1. **Configuration Reference**

The details are not provided here.

## Appendix

System function keys

| Key | **Function** |
| --- | --- |
| <Ctrl+A> | Moves the cursor to the beginning of the current line. |
| <Ctrl+B> | Moves the cursor back one character. |
| <Ctrl+C> | Stops performing current functions. |
| <Ctrl+D> | Deletes the character where the cursor is located at. |
| <Ctrl+E> | Moves the cursor to the end of the last line. |
| <Ctrl+F> | Moves the cursor forward one character. |
| <Ctrl+H> | Deletes the character to the left of the cursor. |
| <Ctrl+K> | Terminates the connection of an outgoing call during connection establishment. |
| <Ctrl+N> or the down arrow key | Displays the next command in the command history. |
| <Ctrl+N> or the up arrow key | Displays the previous command in the command history. |
| <Ctrl+T> | Enters a question mark (?). |
| <Ctrl+W> | Deletes the character string (word) to the left of the cursor. |
| <Ctrl+X> | Deletes all characters on the left of the cursor. |
| <Ctrl+Y> | Deletes the character at the cursor and all characters to the right of the cursor. |
| <Ctrl+Z> | Returns to the user view. |
| <Ctrl+]> | Stops or redirects incoming connections. |
| <Esc+B> | Moves the cursor back one character string (word). |
| <Esc+D> | Deletes one character string (word) to the right of the cursor. |
| <Esc+F> | Moves the cursor forward one character string (word). |