Navigating the CLI

Foreword

The implementation of Huawei devices in an enterprise network requires a level of knowledge and capability in the navigation of the VRP command line interface, and configuration of system settings. The principle command line architecture is therefore introduced as part of this section along with navigation, help functions and common system settings that are required to be understood for the successful configuration of any VRP managed device.

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Objectives

Upon completion of this section, trainees will be able to:

- Navigate the VRP command line interface.

- Configure basic VRP system settings.

- Perform basic VRP interface configuration and management.

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Starting A Device

```
BIOS Creation Date : Jan  5 2013, 18:00:24

DDR DRAM init : OK

Start Memory Test ? ('t' or 'T' is test):skip

Copying Data : Done

Uncompressing : Done

……

Press Ctrl+B to break auto startup ... 1

Now boot from flash:/AR2220E-V200R007C00SPC600.cc,

……

<Huawei>

 Warning: Auto-Config is working. Before configuring the device, stop

Auto-Config. If you perform configurations when Auto-Config is

running, the DHCP, routing, DNS, and VTY configurations will be lost.

Do you want to stop Auto-Config? [y/n]:Y
```
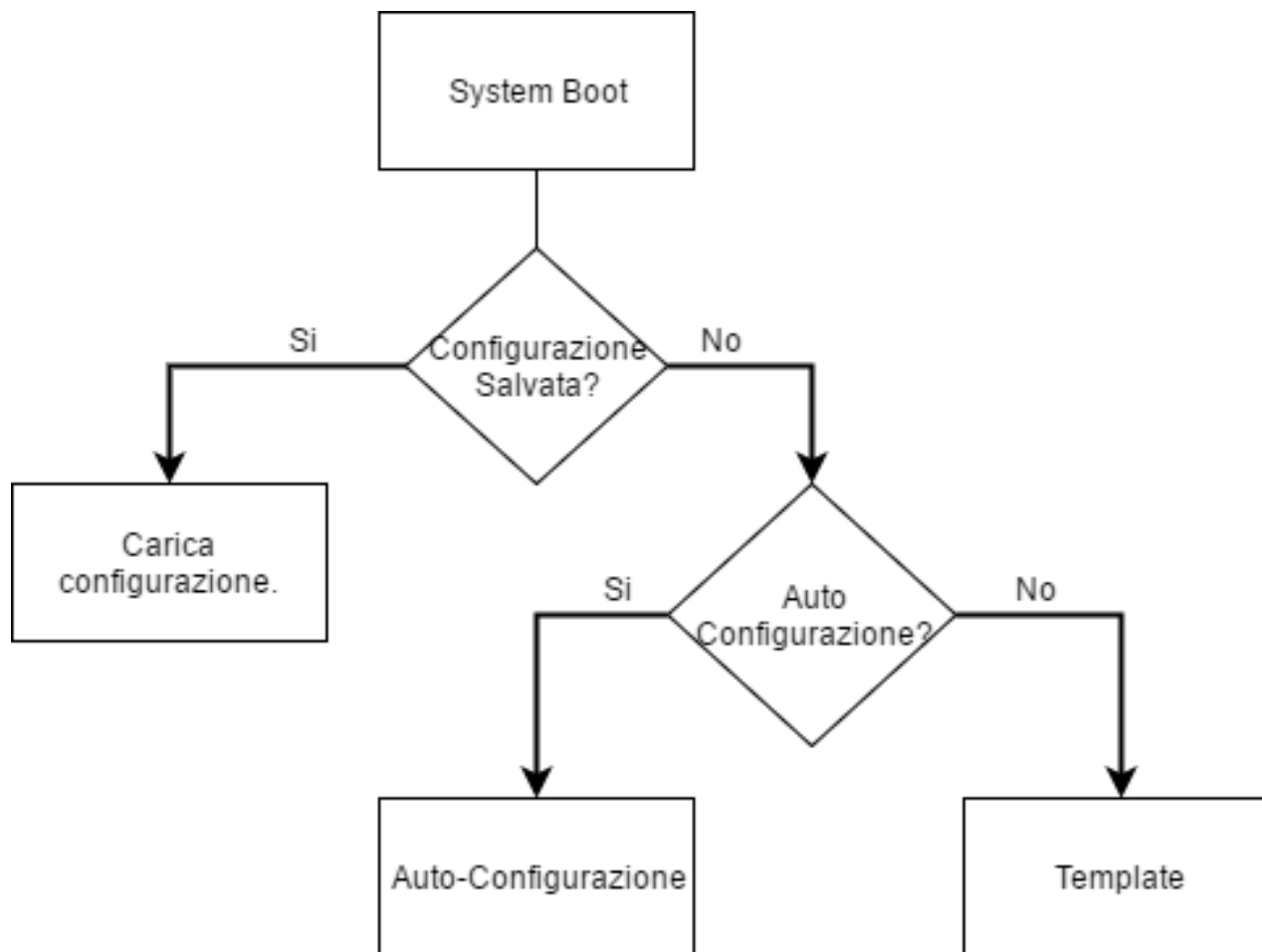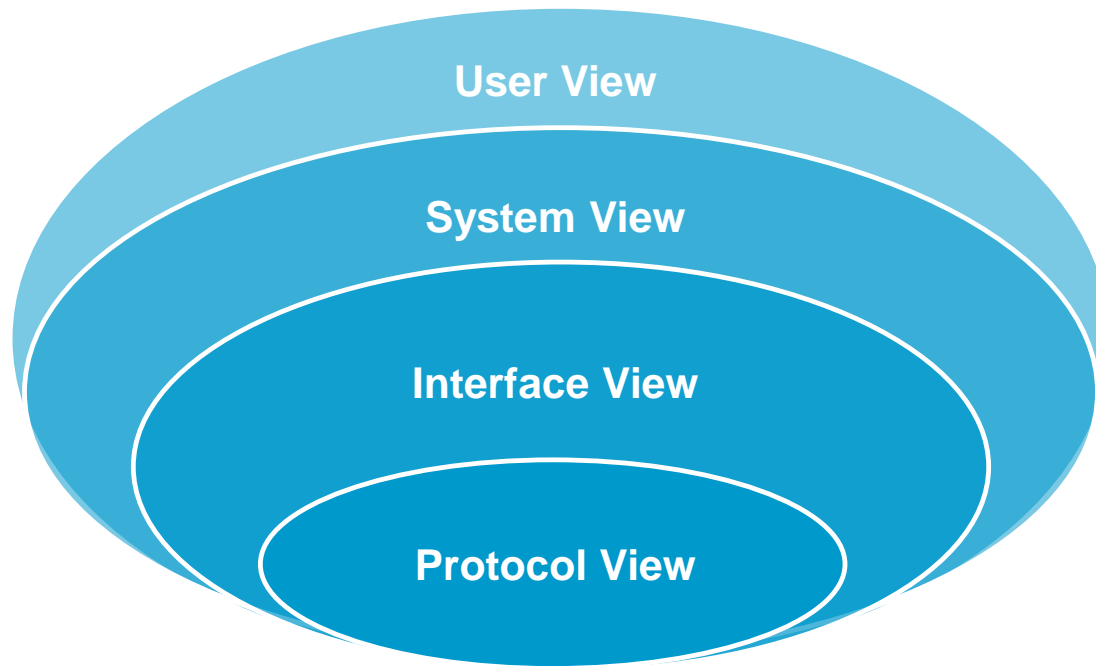
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Starting A Device

CLI Command Line Views

User View

System View

Interface View

Protocol View

View the running status and statistics of the device.

Set the system parameters of the device.

Configure interface parameters.

Configure most routing protocol parameters.

```
<Huawei>system-view
Enter system view, return user view with Ctrl+Z.
[Huawei]interface GigabitEthernet 0/0/0
[Huawei-GigabitEthernet0/0/0]
```

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CLI Functions

Command	Function
CTRL+A	Moves the cursor to the beginning of the current line.
CTRL+C	Stops performing current functions.
CTRL+Z	Returns to the user view.
CTRL+]	Stops incoming connections or redirects the connections.

```
<Huawei>system-view

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

[Huawei]^z   //Ctrl+Z

<Huawei>
```
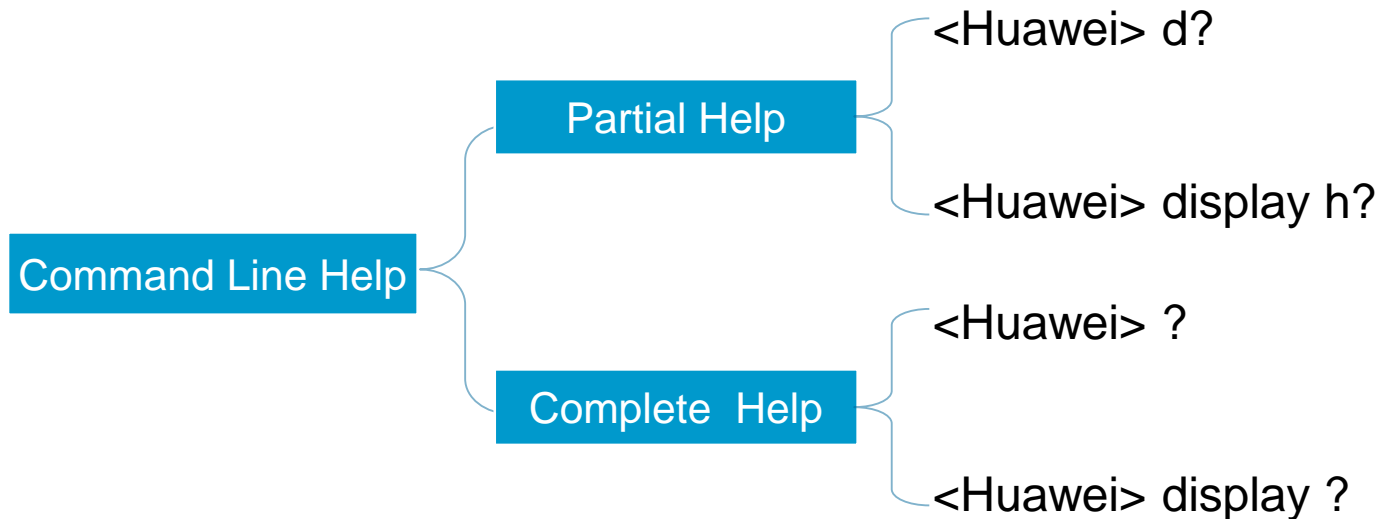
CLI Functions

Command	Function
Backspace	Deletes the character on the left of the cursor, and moves the cursor to the left.
← or Ctrl+B	Moves the cursor a single character space to the left.
→ or Ctrl+F	Moves the cursor a single character space to the right.
TAB	Completes any incomplete keyword that is entered.

```
[Huawei]inter //TAB
[Huawei]interface
```

● The tab key will auto-complete an entered character string.

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CLI Help Features

Partial Help
- <Huawei> d?
- <Huawei> display h?

Command Line Help

Complete Help
- <Huawei> ?
- <Huawei> display ?

```
[Huawei]d?
  ddns                          dhcp
  dhcpv6                        diagnose
  display                       dns
  domain                        dot1x
```

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CLI Basic Device Setup

Command	Function
sysname	Configures the Device Name.

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

● The system name should be assigned to uniquely identify each device within an enterprise network.

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CLI Clock Settings

Command	Function
clock timezone	Sets the time zone.
clock datetime	Sets the current time and date.
clock daylight-saving-time	Sets the daylight saving time.

```
<Huawei>clock timezone BJ add 08:00:00
<Huawei>clock datetime 10:20:29 2016-04-11
<Huawei>display clock
2016-04-11 10:20:48
Thursday
Time Zone(BJ) : UTC+08:00
```

CLI Clock Settings

```
<R1>
<R1>
<R1>
<R1>clock timezone local add 2
<R1>clock datetime 10:22:00 2017-05-21
<R1>clock daylight-saving-time local repeating 02:00 last Sun Mar 02:00 last Sun
 Oct 1
<R1>
```

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CLI Header Messages

Command	Function
header login	Sets the header that is displayed on a terminal when a user is authenticated by a device.
header shell	Sets the header that is displayed on a terminal after the user logs into the device.

```
[Huawei]header login information "welcome to huawei certification!"

[Huawei]header shell information "Please don't reboot the device!"

……

welcome to huawei certification!

Login authentication

Password:

Please don't reboot the device!

<Huawei>
```

CLI Header Messages

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

 Welcome to Header Login

Login authentication


Password:
 Welcome to Header Sheel
<R1>
```

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CLI Command Levels

User Level	Command Level	Name
0	0	Visit level
1	0 and 1	Monitoring level
2	0,1 and 2	Configuration level
3-15	0,1,2 and 3	Management level

```
<Huawei> system-view
[Huawei]command-privilege level 3 view user save
```

● Privilege levels manage user access to commands.

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CLI User Interfaces

User Interface	Relative Number
Console	0
VTY	0-4

```
<Huawei>system-view

[Huawei]user-interface vty 0 4

[Huawei-ui-vty0-4]
```

● The VTY number can be extended to a range of 0-14 for additional Telnet/SSH user connections.

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CLI Terminal Attributes

Command	Function
idle-timeout	Sets the timeout duration of the user connection.
screen-length	Sets the number of lines displayed on each terminal screen after a command is executed.
history-command max-size	Sets the size of the history command buffer.

```
# Set the size of the history command buffer to 20.

<Huawei>system-view

[Huawei]user-interface console 0

[Huawei-ui-console0]history-command max-size 20

# Set the timeout duration to 1 minute and 30 seconds.

[Huawei-ui-console0]idle-timeout 1 30
```

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CLI Interface Permissions

Command	Function
user privilege	Configures the user level.
set authentication password	Configures a local authentication password.

```
# Set the user level on the VTY0 user interface to 2.
<Huawei>system-view
[Huawei]user-interface vty 0
[Huawei-ui-vty0]user privilege level 2
[Huawei-ui-vty0-4]set authentication password cipher
 Enter Password(<8-128>):huawei123
```

CLI Terminal SSH access – server configuration

```
[R1]stelnet server enable

Info: Succeeded in starting the STELNET server.

[R1]rsa local-key-pair create

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]:2048

Generating keys...

................................+++

.......................+++

...........+++++++

..+++++++

[R1]ssh server authentication-retries 3
```

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CLI Terminal SSH access – Login

```
#Creazione utente

[R1-ui-vty0-4]aaa

[R1-aaa]local

[R1-aaa]local-user huawei password cipher huawei123

Info: Add a new user.

[R1-aaa]local-user huawei privilege level 3

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

[R1-aaa]quit

[R1]


#L'utente creato può accedere al Sistema con SSH

[R1]ssh user huawei authentication-type password

 Authentication type setted, and will be in effect next time
```

Mini-Lab_basic:11-ssh_server_01

CLI Terminal SSH access – Login

```
#Le line virtual terminal accettano connessioni ssh

[R1]user-interface vty 0 4

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

[R1-ui-vty0-4]screen-length 40

[R1-ui-vty0-4]idle-timeout 10

[R1-ui-vty0-4]user privilege level 3

[R1-ui-vty0-4]history-command max-size 200

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

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CLI Remote login using SSH from terminal

```
#Usare SSH per accedere ad un altro dispositivo:

<R1>system-view

[R1]rsa local-key-pair create

[R1]ssh client first-time enable
```

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CLI Remote login using SSH from terminal

```
[R2]stelnet 172.16.0.2

Please input the username:huawei

Trying 172.16.0.2 ...

Press CTRL+K to abort

Connected to 172.16.0.2 ...

The server is not authenticated. Continue to access it? (y/n)[n]:y

May 23 2019 14:06:24-08:00 R2 %%01SSH/4/CONTINUE_KEYEXCHANGE(l)[1]:The server

had not been authenticated in the process of exchanging keys. When deciding

whether to continue, the user chose Y.

[R2]

Save the server's public key? (y/n)[n]:y

The server's public key will be saved with the name 172.16.0.2. Please wait...


May 23 2019 14:06:27-08:00 R2 %%01SSH/4/SAVE_PUBLICKEY(l)[2]:When deciding

whether to save the server's public key 172.16.0.2, the user chose Y.

[R2]

Enter password:

<R1>
```

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CLI Interface Summary

Console

```
<R1>
<R1>
<R1>
<R1>
<R1>system-view
Enter system view, return user view with Ctrl+Z.
[R1]user-interface con 0
[R1-ui-console0]authentication-mode password
Please configure the login password (maximum length 16):huawei
[R1-ui-console0]history-command max-size 200
[R1-ui-console0]screen-length 40
[R1-ui-console0]idle-timeout 10
[R1-ui-console0]user privilege level 3
[R1-ui-console0]quit
[R1]
```

Telnet

```
<R1>
<R1>
<R1>system-view
Enter system view, return user view with Ctrl+Z.
[R1]user-interface vty 0 4
[R1-ui-vty0-4]authentication-mode password
Please configure the login password (maximum length 16):huawei
[R1-ui-vty0-4]screen-length 40
[R1-ui-vty0-4]idle-timeout 10
[R1-ui-vty0-4]user privilege level 3
[R1-ui-vty0-4]history-command max-size 200
[R1-ui-vty0-4]quit
[R1]quit
<R1>
```

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CLI Interface Configuration

RTA

RTB

IP network

G0/0/0

10.0.12.1/24

G0/0/0

1.1.1.1/32

```
# Configure an IP address of 10.0.12.1/24 on interface G0/0/0
and an IP address of 1.1.1.1/32 on loopback interface 0.
<Huawei>system-view
[Huawei]interface GigabitEthernet 0/0/0
[Huawei-GigabitEthernet0/0/0]ip address 10.0.12.1 255.255.255.0
[Huawei-GigabitEthernet0/0/0]interface loopback 0
[Huawei-LoopBack0]ip address 1.1.1.1 32
```

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Summary

- How many users are able to connect via the console interface at any given time?

- What is the state of the loopback interface 0 when the command *loopback interface 0* is used?

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Thank you

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