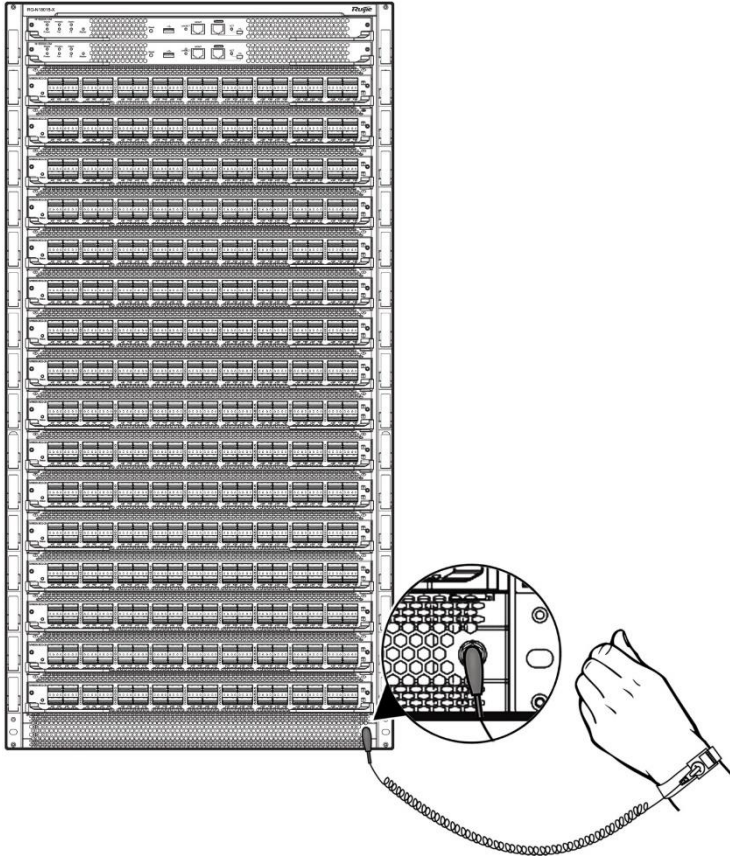


RGOS 11.X High-end Data Center Switches (N18000-X) Management and Software Upgrade

Contents

- Switch Management
- Software Upgrade

Common Switch Management Modes



1. Console Management

Used when the switch is powered on for the first time or during **onsite** commissioning (Most common management mode.)

2. Telnet/SSH Remote Management

Used after initial CLI configurations are completed (This management mode is recommended for **remote** routine maintenance.)

3. SNMP Management

Used after after initial CLI configurations are completed (This mode supports automatic and smart management, and implements graphical management and proactive alarm function.)

Console Management

Building the configuration environment

Starting the device

Managing the device

Upon the first login to a switch, you must use the Console port to manage the switch. One 8-pin shielded cable is required. One end of the cable is an RJ-45 connector, which is inserted to the **Console** port on the primary supervisor engine of the switch. The other end of the cable is a DB-9 (socket) connector, which can be inserted to a 9-pin serial port on the configuration terminal or the COM port of a laptop computer. (If the laptop computer does not have a USB port, use a USB-RS232 cable.)



Configurations required for login through the Console port:

- Use the HyperTerminal or the CRT tool. (Recommended software: SecureCRT)
- Terminal settings: Baud rate: **9600**; Data bit: **8**; Stop bit: **1**; **No** parity check; **No** flow control (taking the HyperTerminal as an example)

Console Management



Check the following items before you power on the switch:

- ① Power cables are connected correctly.
- ② The input voltage complies with the requirement of the switch.
- ③ The serial cable is connected correctly, the terminal (for example, a PC) has started, and parameter settings are completed.

Power on the switch:

Note 1: When the switch is powered on for the first time, fans run at full speed. After the system enters the main program, **the fan speed will automatically decrease** based on the ambient temperature and the noise will be significantly reduced.

Note 2: If a power module has been installed but is not supplying power (for example, the power cable is not connected to a power socket, or the power socket has no power input), the **alarm indicator on the power module will be solid red**.

Console Management

Building the configuration environment

Starting the device

Managing the device

During startup of the switch, the following information is displayed on the HyperTerminal or the CRT software:

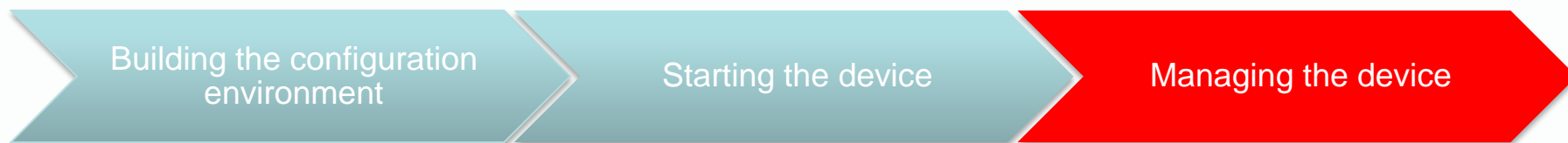
```
Boot 1.2.4-9567cfc (Build time: May 23 2014 - 11:27:43)
DRAM: 4 GiB
NAND: 512 MiB
Flash: 8 MiB
SETMAC: Setmac operation was performed at 2014-03-05 00:23:57 (version: 11.0)
Press Ctrl+C to enter Boot Menu
Bootloader: Done loading app on coremask: 0xf
Starting Devices Initializations... [ OK ]
```

Wait 3-4 minutes without any operation. After a successful start, the message "**Press RETURN to get started**" is displayed.

```
*Jul 21 17:24:27: %OIR-6-INSCARD: Card inserted in slot 1.
*Jul 21 17:24:27: %7: Warning, default install package not exist, auto sync upgrade halt!
*Jul 21 17:24:27: %OIR-6-INSCARD: Card inserted in slot 2.
*Jul 21 17:24:27: %OIR-6-INSCARD: Card inserted in slot FE2.
*Jul 21 17:24:27: %OIR-6-INSCARD: Card inserted in slot FE3.
*Jul 21 17:24:27: %DP-5-PROB: Board probing has completed.
*Jul 21 17:24:27: %DEV_MONITOR-6-DEVICE_INIT: master role init.
*Jul 21 17:24:28: %REDUNDANCY-6-STATES_CHANGE: Redundancy states changed: role master, state alone.
*Jul 21 17:25:12: %LINK-3-UPDOWN: Interface Mgmt 0, changed state to up.
*Jul 21 17:25:12: %LINEPROTO-5-UPDOWN: Line protocol on Interface Mgmt 0, changed state to up.
Press RETURN to get started
```

Press **Enter** to enter the CLI operation window.

| Console Management



Upon the first startup, the switch supports CLI management only through the Console port. After the subsequent basic configurations are performed, the switch supports Telnet/SSH remote login and Web-based management.

The command line interface (CLI) is a text command interaction interface between users and the switch. You can configure and manage the switch or display the outputs to verify the configurations by typing in text commands and pressing **Enter** to execute the commands.

Introduction to the CLI EXEC mode:

Ruijie> //User EXEC mode: Use limited commands to display related configurations.

Ruijie>en

Ruijie# //Privileged EXEC mode: Use commands to display system information, manage files, restart the device, debug the device, and so on.

Ruijie#config

Enter configuration commands, one per line. End with CNTL/Z.

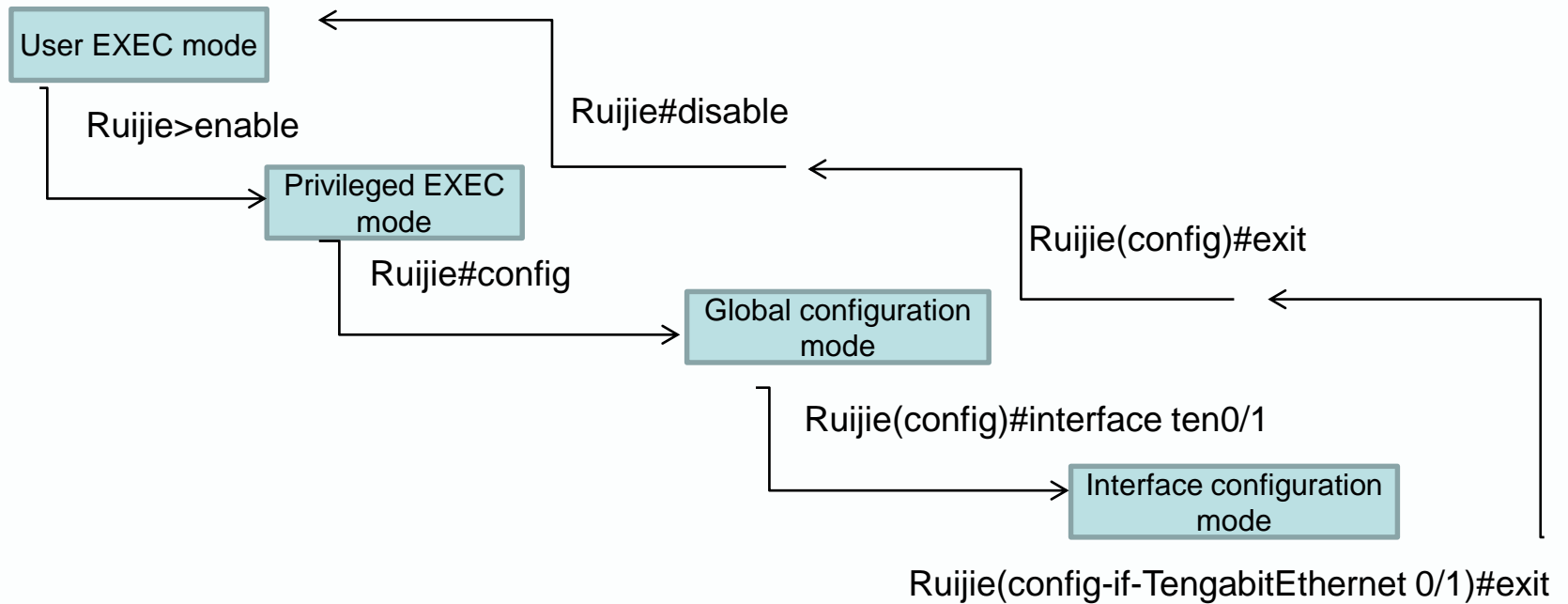
Ruijie(config)# //Global configuration mode: Use commands to configure various parameters.

At the command prompt, you can enter a question mark (?) to list the commands available for each command mode.

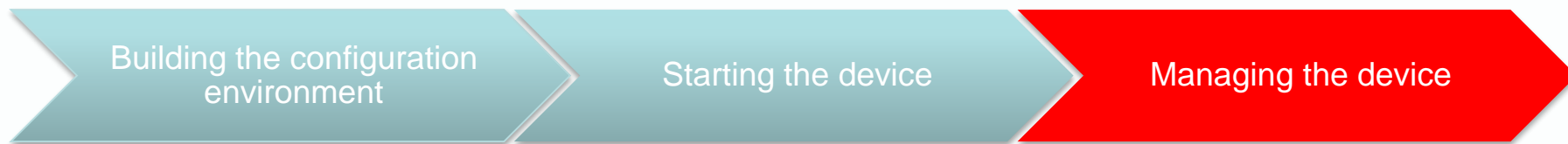
Console Management



Switching Between Different CLI Modes



| Console Management



At the command prompt, you can enter a question mark (?) to list the commands available for each command mode.

Note: The command syntax of RGOS 11.X is the same as that of RGOS 10.X , so you do not need to learn new syntax after the upgrade.

Common commands are listed as follows:

Ruijie#show version /show version slots / show cpu /show memory /show interface status /show ip route /show arp /show fan / show power /show temperature....

Ruijie#show run //Display the current configurations.

Ruijie(config-if-GigabitEthernet 1/1)#**show this** //New function, which is used to display the configuration of the current interface.

Ruijie#wr //Save the configurations.

Ruijie#ping 8.8.8.8 //Conduct a ping test on the device.

Ruijie#traceroute 8.8.8.8 //Conduct a traceroute test on the device.

Ruijie#telnet 192.168.3.254 //Log in to another device from the local device through Telnet.

Ruijie#debug ip icmp //Diagnose functions of the device.

Configuring Remote Telnet Management

Building the configuration environment

Starting the device

Managing the device

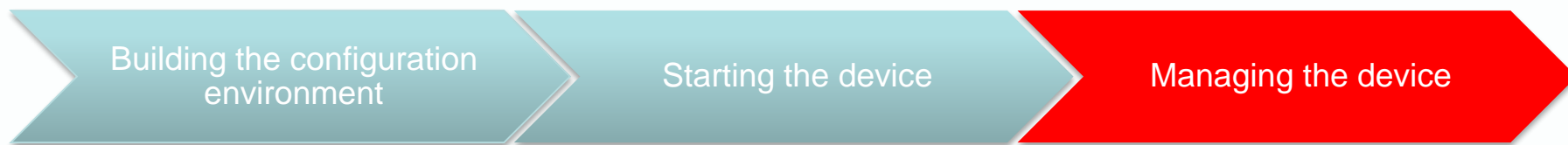
Configuring Remote Telnet Management



```
Ruijie#config terminal
Ruijie(config)#vlan 100          //Create a management VLAN based on your network plan.
Ruijie(config-vlan)#name mgt-vlan
Ruijie(config-vlan)#exit
Ruijie(config)#interface vlan 100
Ruijie(config-if-VLAN 100)#ip address 10.10.10.2 255.255.255.0    //Configure an IP address
for the management VLAN.
Ruijie(config-if-VLAN 100)#exit
Ruijie(config)#ip route 0.0.0.0 0.0.0.0 10.10.10.1                //Configure a static default route.

Ruijie(config)#enable secret ruijie                               //Configure the enable password.
Ruijie(config)#line vty 0 32
Ruijie(config-line)#password ruijie                               //Configure the Telnet login password.
Ruijie(config-line)#login
Ruijie(config-line)#exit
```

| More Configurations



The preceding contents are fundamentals for configuration of a switch.

For details about function configurations and application in various scenarios, see the following documents:

N18000-X Series Switch Configuration Guide

N18000-X Series Switch Command Reference

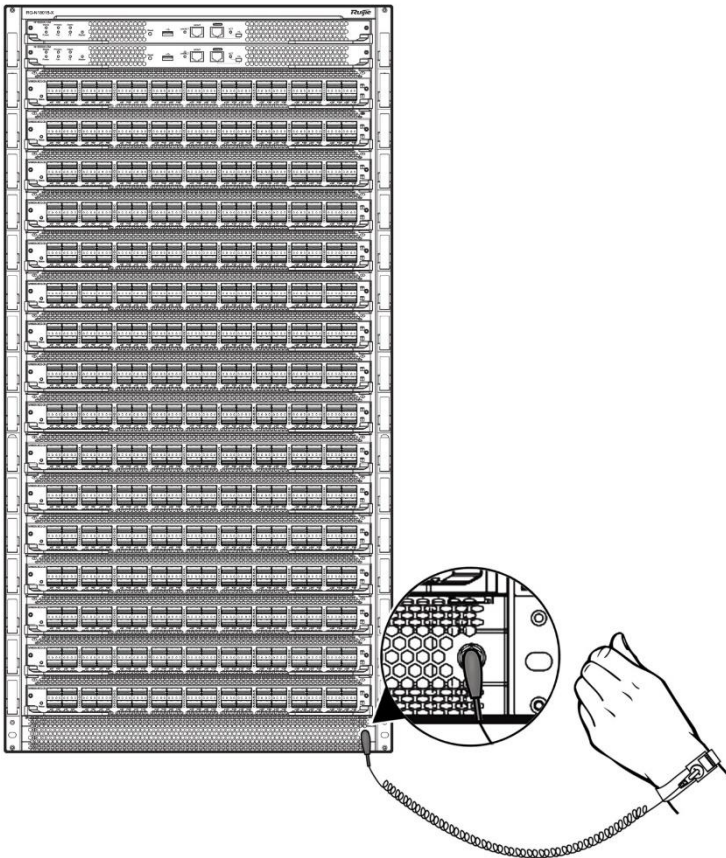
Ruijie Switch Products Typical Configuration Examples

If you have used other Ruijie switches running on RGOS 10.X, for example, S12000, S8600, S5750, and S29 series, you will have no difficulty in operating N18000, S86E, and S78E switches. Although software functions are modularized in RGOS 11.X to improve software reliability and scalability, RGOS 11.X retains the original user habits and introduces innovations to a few functions. (You can learn these innovations from documents describing the new features.)

Contents

- Switch Management
- Software Upgrade

Switch Upgrade Methods



1. Onsite upgrade using a USB flash drive

Most common, simple, and reliable upgrade method

2. **FTP remote upgrade** Recommended when engineers cannot go to the site

3. **TFTP remote upgrade** Simple but the file transfer speed is lower than that in FTP mode

4. **U-boot maintenance upgrade** (Not commonly used and may be needed in case of an upgrade failure. This document does not describe this upgrade method. For details about this method, see the cookbook.)

Upgrade the system in any of the following cases:

1. New functions are added in the new version to meet new requirements.
2. Existing bugs need to be fixed.
3. The latest official release version for deployment should be used to implement a new project.

Onsite Upgrade Using the USB Flash Drive

Prepare

Upgrade

Verify

1. On the CLI, run the upgrade command.

Ruijie#dir usb0: Check whether the upgrade file exists on the USB flash drive.

Ruijie#**upgrade** usb0:/xxxxx_install.bin (**xxxx_install.bin** is the upgrade file copied to the USB flash drive.)

2. Wait until the upgrade progress reaches 100%, or run the show upgrade status command to check the upgrade progress.

```
N18000#show upgrade status ^  
[slot: M1]^  
  dev_type: ca-octeon-cm^  
  status  : upgrading^  
[slot: 1]^  
  dev_type: ca-octeon-lc^  
  status  : transmission^
```

```
[Slot 1]: Upgrade processing is 100%^  
[slot: M1]^  
  device_name: ca-octeon-cm^  
  Status:      SUCCESS^  
[slot: 1]^  
Aug 12 02:07:30: %7:  device_name: ca-octeon-lc^  
Aug 12 02:07:30: %7:  status:      SUCCESS^
```

3. Wait until the upgrade process of all the line cards, FE modules, and supervisor engines reaches 100% and the result is success, and then run the reload command to restart the switch. (The entire upgrade process generally takes 4-5 minutes and does not affect services. This operation upgrades the flash file on line cards, but the earlier version still runs on the memory.) After the switch restarts, the new version runs.

Onsite Upgrade Using a USB Flash Drive

Prepare

Upgrade

Verify

1. Wait 3-5 minutes until the switch restarts successfully.
2. Run the show version detail command to display the version information of the supervisor engines, line cards, FE modules, and line card identification information.

```
Ruijie# show ver detail
System description      : Ruijie High-density IPv6 100G Core Routing Switch(N18010)
System start time      : 2014-07-21 17:23:43
System uptime         : 8:02:28:45
System hardware version : 1.00
System software version : N18000_RGOS 11.0(1)B2
System patch number    : NA
System software number  : M21055007062014
System serial number   : G1HL20H000325
System boot version    : 1.2.4.9567cfc(140523)
System core version    : 2.6.32.eddaea928cf679
System isolcpus        : 2-3
Module information:
  Slot M1 : M18010-CM
    Hardware version    : 1.00
    System start time   : 2014-07-21 17:23:43
    Boot version        : 1.2.4.9567cfc(140523)
    Software version    : N18000_RGOS 11.0(1)B2
    Software number     : M21055007062014
    Serial number       : G1HL20H000325
  Slot 1 : M18000-24GT20SFP4XS-ED
    Hardware version    : 1.00
    System start time   : 2014-07-21 17:23:39
    Boot version        : 1.2.4.9567cfc(140523)
    Software version    : N18000_RGOS 11.0(1)B2
    Software number     : M20153307062014
    Serial number       : G1HL20N0000008
  Slot 2 : M18000-44SFP4XS-ED
    Hardware version    : 1.00
    System start time   : 2014-07-22 21:16:05
```

FTP Upgrade



1. Enable the FTP server on the switch, and specify the USB0 root directory as the FTP root directory.

The reference commands are as follows:

```
Ruijie(config)#ftp-server username admin
```

```
Ruijie(config)#ftp-server password ruijie
```

```
Ruijie(config)#ftp-server topdir usb0:/  
engine in advance.
```

---> The USB flash drive must be installed on the primary supervisor

```
Ruijie(config)#ftp-server timeout 300
```

```
Ruijie(config)#ftp-server enable
```

2. The local PC serves as the FTP client. Start the client software (such as FlashFTP) and connect to the FTP server. (Ensure that the PC can communicate properly with the N18000-X switch).

3. Use the FTP client software on the PC to upload the upgrade file to the FTP server.

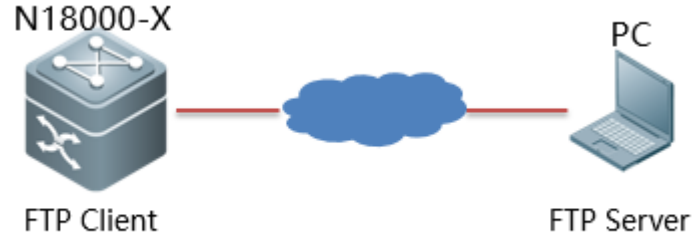
4. Run the upgrade command. (The subsequent steps and methods are the same as those in the USB upgrade mode.)

Summary:

The only difference between the FTP and USB onsite upgrade modes lies in the file transfer method. In FTP upgrade mode, the upgrade file is transferred to the remote device through FTP (remote upgrade). In USB onsite upgrade mode, the upgrade file is directly copied from a PC to the USB flash drive.

The subsequent upgrade method is the same. That is, run the upgrade command to update the file and then restart the switch to finish the upgrade.

FTP Upgrade



1. Enable the FTP server on the PC and specify the directory of the upgrade file. Ensure that the PC can communicate properly with the N18000-X switch.
2. The N18000-X switch serves as the FTP client. Copy the upgrade file to the flash of the switch.
`Ruijie#copy ftp://user:password@192.168.1.1/n18000-x_install.bin flash:/n18000-x_install.bin`
3. Run the upgrade command. (The subsequent steps and methods are the same as those in the USB upgrade mode.)

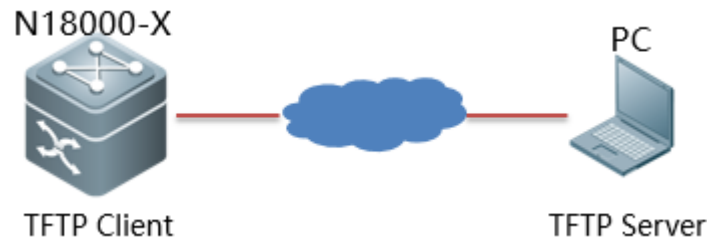
Summary:

The only difference between the FTP and USB onsite upgrade modes lies in the file transfer method. In FTP upgrade mode, the upgrade file is transferred to the remote device through FTP (remote upgrade). In USB onsite upgrade mode, the upgrade file is directly copied from a PC to the USB flash drive.

The subsequent upgrade method is the same. That is, run the upgrade command to update the file and then restart the switch to finish the upgrade.

The FTP mode transfers files faster than the TFTP mode, because FTP uses the TCP protocol for file transfer whereas TFTP uses the UDP protocol. The TFTP mode is easier to use than the FTP mode.

TFTP Upgrade



1. Enable the TFTP server on the PC and specify the directory of the upgrade file. Ensure that the PC can communicate properly with the N18000-X switch.
2. The N18000-X switch serves as the TFTP client. Copy the upgrade file to the flash of the switch.
`Ruijie#copy tftp://192.168.1.1/n18k_20140703_install.bin usb0:/n18k_20140703_install.bin`
3. Run the upgrade command. (The subsequent steps and methods are the same as those in the USB upgrade mode.)

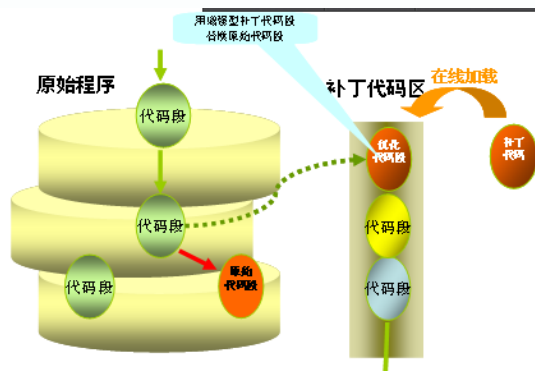
Summary:

The only difference between the TFTP and USB onsite upgrade modes lies in the file transfer method. In TFTP upgrade mode, the upgrade file is transferred to the remote device through TFTP (remote upgrade). In USB onsite upgrade mode, the upgrade file is directly copied from a PC to the USB flash drive.

The subsequent upgrade method is the same. That is, run the upgrade command to update the file and then restart the switch to finish the upgrade.

The TFTP mode transfers files slower than the FTP mode, because FTP uses the TCP protocol for file transfer whereas TFTP uses the UDP protocol. The TFTP mode is easier to use than the FTP mode.

Patch Upgrade



Introduction to patch upgrade:

1. RGOS 11.X is a modular OS and supports fixing of software bugs using patches. After a patch is installed, the switch can fix the bugs and run normally **without the need for a reboot**. Patch upgrade is applicable to scenarios that impose rigid requirements on the network interruption time during maintenance.

2. A patch is in the uninstalled, installed, or activated state, where:

The installed state indicates that the patch has been installed on the memory of the switch but has not taken effect yet.

Only a patch in the activated state is effective.

1. Install a patch.

Copy the patch file to a USB flash drive, and run the upgrade command to install the patch.

The reference command is as follows:

```
Ruijie#upgrade usb0:/N18K-octeon-cm_RGOS11.0(1b2)_20140708_patch.bin
```

2. Activate the patch.

The reference command is as follows:

```
Ruijie#patch running slot all
```

(**active** means that the patch is currently effective and will become ineffective after a reboot. **running** means that the patch is permanently effective.)

3. Display the patch status.

The reference command is as follows:

```
Ruijie#show patch slot all
```