



Ruijie RG-WLAN Series Access Points and Access Controllers

Upgrade Guide

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Preface

Intended Audience

This document is intended for:

- Network engineers
- Technical support and servicing engineers
- Network administrators

Technical Support

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Conventions

1. Signs

The signs used in this document are described as follows:

Danger

An alert that contains important safety instructions. Before you work on any equipment, be aware of the hazards involved and be familiar with standard practices for preventing accidents.

Warning

An alert that calls attention to important rules and information that if not understood or followed can result in data loss or equipment damage.

Caution

An alert that calls attention to essential information that if not understood or followed can result in function failure or performance degradation.

Note

An alert that contains additional or supplementary information that if not understood or followed will not lead to serious consequences.

Specification

An alert that contains a description of product or version support.

2. Note

The manual offers configuration information (including model, port type and command line interface) for indicative purpose only. In case of any discrepancy or inconsistency between the manual and the actual version, the actual version prevails.

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1 Upgrade in Standalone AC Scenarios

1.1 AC Upgrade

1.1.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- To ensure successful upgrade, the free flash size of the AC should be larger than the version size.

1.1.2 Preparation

- (1) Before upgrading the AC, run the **write** command on the AC to save the current configuration.
- (2) Collect the information by running the following commands: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, and **show wlandiag network**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (3) Download the AC version and store it in the TFTP directory of a designated PC (usually on the same LAN as the AC).

1.1.3 CLI-based Upgrade Procedure

1. AC Upgrade

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the file to the flash directory of the AC.

```
copy tftp://xxx.xxx.xxx.xxx/AC_RGOSXXX.bin flash:AC_RGOSXXX.bin
```

For example:

```
Hostname#copy tftp://172.29.25.146/AC_RGOS11.9(6)W3B1_G3C8-01_10201117_install.bin flash:AC_RGOS11.9(6)W3B1_G3C8-01_10201117_install.bin
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the version.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AC_RGOS11.1(5)B30P3_G2C8-01_08181717_install.bin**, run the following commands:

```
Hostname#run-system-shell
~ # md5sum /data/AC_RGOS11.1(5)B30P3_G2C8-01_08181717_install.bin
30dc589ed1f16cccb82c0a05da76c3c4 /data/AC_RGOS11.1(5)B30P3_G2C8-01_08181717_install.bin
```

~ #

Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AC_RGOS11.9(6)W3B1_G2C6-01_10201117_install.bin**, run the following commands:

```
Hostname#debug support
Hostname(support)#execute diagnose-cmd md5sum /data/AC_RGOS11.9(6)W3B1_G2C6-
01_10201117_install.bin
ff916c65a57da14fb3b264452d6bad67 /data/AC_RGOS11.9(6)W3B1_G2C6-
01_10201117_install.bin
```

Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AC_RGOS11.9(6)W3B1_G2C6-01_10201117_install.bin
Description	Upgrade package (official version)
Size	68,632,128 bytes
Applicable Product	RG-W56008-V1.xx RG-W56008-V2.xx RG-W56108-V1.xx RG-W56008(C7)-V1.xx
MD5	ff916c65a57da14fb3b264452d6bad67
Software Version	AC_RGOS11.9(6)W3B1, Release(10201117)

- (5) Perform remote upgrade.

```
Hostname#upgrade flash:acxx.bin
%UPGRADE_COMMAND: Upgrade the device must be auto-reset after finish, are you
sure upgrading now?[Y/n]y
```

Caution

The AC will be upgraded and powered on within 15 minutes. If not, an exception may occur. Contact technical support personnel.

2. Post-Upgrade Check

(1) Checking the Version Number

Use the **show version detail** command to check whether the version number is consistent with that of the upgrade file.

(2) Checking the Configuration

Run the **show run** command before and after upgrade to display the information. Use an online comparison tool to compare the information displayed before and after upgrade.

You can also use an online comparison tool as follows: <https://www.qianbo.com.cn/Tool/Text-Difference/>

Note

The default settings vary with different versions. Therefore, the following commands may differ in other versions.

```
no identify-application enable
no register device
no cwmp
frn
ac-controller
    no ac-control disable
wlan-cap
    forward central
wids
black-white-list
no identify-application enable
no cwmp
mqtt-server enable
tftp-server enable
control-plane
    anti-arp-spoof scan 20
    attack threshold 500
control-plane protocol
    no acpp
control-plane manage
    no port-filter
    no arp-car
    no acpp
control-plane data
    no glean-car
    no acpp
frn
```

(3) Checking the Online Information

Collect information by running the following commands: **show ap-config sum**, **show device-config sum**, **show device-config map sum**, and **show ap-con sum slot**. Compare the information collected before and after upgrade to check whether the number of online devices is consistent.

(4) Checking Remote Authentication of Internet Access

- Run the **show ac-config client** command to check whether there are any users online.
- If 802.1X authentication is enabled, run the **show dot1x summary** command to check whether there are any 802.1X authentication users.
- If web-based authentication is enabled, run the **show web-auth user all** command to check whether there are any web-based authentication users.
- Ping several authentication clients to check whether the ping packets are normal.

1.1.4 Workaround and Procedure

- (1) If there is a replacement AC, replace the AC if upgrade fails.
- (2) If there is no replacement AC, enter the Uboot of the AC and roll it back to the old version if upgrade fails.
- (3) If most APs do not go online within half an hour after the AC is upgraded, contact technical support personnel to perform fault locating. If most APs still fail to go online in one hour, roll back the AC to the old version by taking the CLI-based upgrade procedure.

1.2 i-Share+ AP Upgrade

1.2.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- To ensure successful upgrade, the free flash size of the AC should be larger than the version size.
- Before batch upgrade, perform an upgrade on two APs of the same model to verify the bin file. Repeat this step with all AP models.
- Before batch upgrade, verify that the APs on the same network segment can communicate with each other. To ensure smooth distributed upgrade, the APs on the same network segment must be able to ping each other. If the APs cannot ping each other, network isolation may be enabled on the switch. In this case, Proxy ARP needs to be enabled on the gateway of the APs. Otherwise, the upgrade will be slow.
- Upgrade micro APs before upgrading master APs.
- Do not activate the versions of micro APs and of master APs at the same time. Instead, activate the version of master APs after all micro APs finish upgrade and go online.

1.2.2 Preparation

- (1) Run the **dir** command to check for the available flash space on the device. If flash space is insufficient, delete unnecessary files.

```
WS6108#dir
Directory of flash:/
Number  Properties   Size           Time           Name
-----  -
.....
56      -rw-          1.8M          Sun Dec 13 17:19:30 2020  AP_upgrade.pdf
57      -rw-          1.6k          Tue Aug 14 01:48:50 2018  standalone.text
58      -rw-          106B          Wed Aug 3 13:59:34 2022   ap-config_2022-8-3_13_59_32.text
43 files, 15 directories
281,903,104 bytes data total (52,469,760 bytes free)
536,870,912 bytes flash total (52,469,760 bytes free)
WS6108#
```

- (2) Save the configuration file and back up the **show run** and **show ap-config run** command output.
- (3) Collect information by running the following commands: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, and **show wlandiag network**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (4) Run the **show wlandiag network** command to check for AP models and versions, especially the hardware version number. Download the supported AP version to the PC.
- (5) Ensure that TFTP server is enabled on the AC. This allows the offline APs to perform self-healing after upgrade.

Run the following command to enable TFTP server:

```
Hostname(config)#tftp-server enable
```

Run the following command to display TFTP server status:

```
AC#sh tftp-server
    tftp-server information
=====
enable : Y
topdir  : flash:/tftp-server
```

1.2.3 CLI-based Upgrade Procedure

1. AP Upgrade

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the versions of i-Share+ master APs and of micro APs to the flash directory of the AC.

```
copy tftp://xxx.xxx.xxx.xxx/AP_RGOSXXX.bin flash:AP_RGOSXXX.bin
```

For example:

```
AC6108#copy tftp://172.29.25.146/AP_RGOS11.9(6)W3B1_S2X2-
03_10201119_install.bin flash:AP_RGOS11.9(6)W3B1_S2X2-03_10201119_install.bin
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the versions of master APs and of micro APs.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin**, run the following commands:

```
Hostname#run-system-shell
~ # md5sum /data/AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin
3b7717f81a3b23ad68500423c77eb401 /data/ AP_RGOS11.1(9)B1P8_S1C2-15-C-
FULL_05242018_install.bin
~ #
```

⚠ Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AP_RGOS11.9(6)W3B1_S2X2-03_10201119_install.bin**, run the following commands:

```
Hostname#debug support
Hostname(support)# execute diagnose-cmd md5sum /data/AP_RGOS11.9(6)W3B1_S2X2-
03_10201119_install.bin
6c23de60803e3102eff69c301fba264c /data/AP_RGOS11.9(6)W3B1_S2X2-
03_10201119_install.bin
```

⚠ Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AP_RGOS11.9(6)W3B1_S2X2-03_10201119_install.bin
Description	Upgrade package (official version)
Size	18,234,983 bytes
Applicable Product	RG-MAP852-V1.xx RG-MAP852-V2.xx RG-MAP852-V3.xx
MD5	6c23de60803e3102eff69c301fba264c
Software Version	AP_RGOS11.9(6)W3B1, Release(10201119)

- (5) Upgrade a micro AP.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ac)#no ap-image auto-upgrade
Hostname(config-ac)#active-bin-file AP_RGOSXXX.bin
```

Run the **ap-conig xxx** command to enter the configuration mode of the master AP.

```
Hostname(config)#ap-conig xxx
Hostname(config-ap)#ap-image AP_RGOSXXX.bin
```

Run the following commands:

```
AC(config)#ac-controller
AC(config-ac)#no ap-image auto-upgrade
AC(config-ac)#active-bin-file ap09152120.bin
AC(config)#ap-con am5532
AC(config-ap)#ap-image ap09152120.bin
```

- (6) Run the **show ap-config updating** command to check for the upgrade progress of the micro AP until the upgrade is complete.
- (7) Run the **show version all slot** command to verify that the micro AP goes online with the target version.
- (8) Repeat steps 5 to 7 to upgrade another micro AP. Check whether the micro AP goes online with the target version.
- (9) After the two micro APs are upgraded successfully, proceed with batch upgrade.

Enter the configuration mode of the upgraded AP. Run the **no ap-image** command to delete the upgrade command.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ac)#ap-image auto-upgrade
```

Run the following commands:

```
AC(config)#ap-con am5532
AC(config-ap)#no ap-image
AC(config)#ac-controller
AC(config-ac)#ap-image auto-upgrade
```

- (10) Upgrade a master AP remotely.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ac)#no ap-image auto-upgrade
Hostname(config-ac)#active-bin-file AM_RGOSXXX.bin
```

Run the **ap-conig xxx** command to enter the configuration mode of the master AP.

```
Hostname(config)#ap-conig xxx
Hostname(config-ap)#ap-image AM_RGOSXXX.bin
```

Run the following commands:

```
AC(config)#ac-controller
AC(config-ac)#no ap-image auto-upgrade
AC(config-ac)#active-bin-file am09152120.bin
AC(config)#ap-con am5532
AC(config-ap)#ap-image am09152120.bin
```

- (11) Run the **show ap-config updating** command to check for the upgrade progress of the master AP until the upgrade is complete.
- (12) Run the **show version all** command to verify that the master AP goes online with the target version. Run the **show ap-config sum slot** command to verify that all micro APs connected to the master AP go online.
- (13) Repeat steps 10 to 12 to upgrade another master AP. Check whether the master AP goes online with the target version.
- (14) After two master APs are upgraded successfully, proceed with batch upgrade.

Enter the configuration mode of the upgraded AP. Run the **no ap-image** command to delete the upgrade command.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ac)#ap-image auto-upgrade
```

Run the following commands:

```
AC(config)#ap-con am5532
AC(config-ap)#no ap-image
AC(config)#ac-controller
AC(config-ac)#ap-image auto-upgrade
```

2. Post-Upgrade Check

(1) Checking the Version Number

Run the **show version all** and **show version all slot** commands to check whether the version number is consistent with that of the upgrade file such as **AP_RGOS 11.9(6)W1B1, Release(09181718)**.

(2) Checking the Online Information

Collect the information by running the following commands: **show ap-config sum**, **show device-config sum**, **show device-config map sum**, and **show ap-con sum slot**. Compare the information collected before and after upgrade to check whether the number of online devices is consistent.

(3) Checking Remote Authentication of Internet Access

- o Run the **show ac-config client** command to check whether there are any users online.
- o If 802.1X authentication is enabled, run the **show dot1x summary** command to check whether there are any 802.1X authentication users.
- o If web-based authentication is enabled, run the **show web-auth user all** command to check whether there are any web-based authentication users.
- o Ping several authentication clients to check whether the ping packets are normal.

1.2.4 Workaround and Procedure

If most APs do not go online within an hour after upgrade, contact technical support personnel to perform fault locating. If most APs still fail to go online in two hours, on-site troubleshooting is required.

1.3 O-Share AP Upgrade

1.3.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- To ensure successful upgrade, the free flash size of the AC should be larger than the version size.
- Before batch upgrade, perform an upgrade on two APs of the same model to verify the bin file. Repeat this step with all AP models.
- Before batch upgrade, verify that the APs on the same network segment can communicate with each other. To ensure smooth distributed upgrade, the APs on the same network segment must be able to ping each other. If the APs cannot ping each other, network isolation may be enabled on the switch. In this case, Proxy ARP needs to be enabled on the gateway of the APs. Otherwise, the upgrade will be slow.

- The O-Share master APs with 12.X operating system such as the AM5552-SF(V2) and AM5528-SF will fail upgrade if there is not enough flash space on the master APs. In this case, delete unnecessary files.
- Upgrade the AC using **AC_RGOS 11.9(6)W1B1** or later versions before upgrading master APs and micro APs.
- Bin files are model-specific. Select the bin files as specified in the release notes for different models of APs.
- Do not activate the versions of micro APs and of master APs at the same time. Instead, activate the version of the master APs after all micro APs finish upgrade and go online.

1.3.2 Preparation

- (1) Run the **dir** command to check for the available flash space on the device. If flash space is insufficient, delete unnecessary files.

```
WS6108#dir
Directory of flash:/
Number  Properties  Size           Time                Name
-----  -
.....
56      -rw-        1.8M          Sun Dec 13 17:19:30 2020  AP_upgrade.pdf
57      -rw-        1.6k          Tue Aug 14 01:48:50 2018  standalone.text
58      -rw-        106B          Wed Aug  3 13:59:34 2022  ap-config_2022-8-3_13_59_32.text
43 files, 15 directories
281,903,104 bytes data total (52,469,760 bytes free)
536,870,912 bytes flash total (52,469,760 bytes free)
WS6108#
```

- (2) Save the configuration file and back up the **show run** and **show ap-config run** command output.
- (3) Collect the information by running the following commands: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, and **show wlandiag network**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (4) Run the **show wlandiag network** command to check for AP models and versions, especially the hardware version number. Download the supported AP version to the PC.
- (5) Ensure that TFTP server is enabled on the AC. This allows the offline APs to perform self-healing after upgrade.

Run the following command to enable TFTP server:

```
Hostname(config)#tftp-server enable
```

Run the following command to display TFTP server status:

```
AC#sh tftp-server
      tftp-server information
=====
enable : Y
topdir  : flash:/tftp-server
```

1.3.3 CLI-based Upgrade Procedure

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the versions of O-Share master APs and of micro APs to the flash directory of the AC.

```
copy tftp://xxx.xxx.xxx.xxx/AP_RGOSXXX.bin flash:AP_RGOSXXX.bin flash:
AP_RGOSXXX.bin flash:AP_RGOSXXX.bin
```

For example:

```
AC6108#copy tftp://172.29.25.146/AP_RGOS11.9(6)W3B1_S1X2-
07_10201121_install.bin flash: AP_RGOS11.9(6)W3B1_S1X2-07_10201121_install.bin
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the versions of master APs and of micro APs.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin**, run the following commands:

```
Hostname#run-system-shell
~ # md5sum /data/AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin
3b7717f81a3b23ad68500423c77eb401 /data/ AP_RGOS11.1(9)B1P8_S1C2-15-C-
FULL_05242018_install.bin
~ #
```

 Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AP_RGOS11.9(6)W3B1_S1X2-07_10201121_install.bin**, run the following commands:

```
Hostname#debug support
Hostname(support)# execute diagnose-cmd md5sum /data/AP_RGOS11.9(6)W3B1_S1X2-
07_10201121_install.bin
df38ddc8c0d46f94809286d61107105d /data/AP_RGOS11.9(6)W3B1_S1X2-
07_10201121_install.bin
```

 Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AP_RGOS11.9(6)W3B1_S1X2-07_10201121_install.bin
Description	Upgrade package (official version)
Size	32,673,614 bytes
Applicable Product	RG-MAP852-SF-S-V1.xx
MD5	df38ddc8c0d46f94809286d61107105d
Software Version	AP_RGOS11.9(6)W3B1, Release(10201121)

- (5) Configure the FTP server on the AC.

```

Hostname(config)#ftp-server enable
Hostname(config)#ftp-server topdir flash:/
Hostname(config)#ftp-server username ruijie password ruijie123

```

Run the **show ftp-server** command to check whether the configuration takes effect.

```

AC(config)#sh ftp-server
ftp-server information
=====
enable : Y
topdir : flash:/
timeout: 10min
username:ruijie
password:(PLAINTEXT)ruijie123
connect num[0]

```

- (6) Upgrade a master AP remotely.

Run the **ac-controller** command to enter the configuration mode of the AC.

```

Hostname(config-ac)#device-upgrade mac xxxx.xxxx.xxxx url
ftp://ruijie:ruijie123@x.x.x.x/AM_RGOSXXX.bin

```

xxxx.xxxx.xxxx indicates the MAC address of the master AP and x.x.x.x is the IP address of the AC.

Run the following commands:

```

AC(config)#sh device-config summary
===== show device status =====

Online device number: 1
Offline device number: 2

Mac Address      Device Name      IP Address      Mode      Up/Off time      State
-----
c0b8.e650.08d5   am5552-sf-1       47.12.1.10      smart     0:19:48:14 Run
5416.5139.c28f   am5528-sf         47.12.2.24      smart     0:18:50:39 Run
AC(config)#device-upgrade mac 5416.5139.c28f url ftp://ruijie:ruijie123@47.0.0.1/am.bin

```

- (7) Run the **show device-config upgrading-list** command to check for the upgrade progress until the upgrade is complete.
- (8) Run the **show device-config version summary** command to check whether the version number is consistent with that of the upgrade file.
- (9) After the master AP goes online, run the **show device-config summary** command to display its mode. If it is **smart** mode, run the **show device-config map sum** command to check whether the micro APs go online normally. If it is **normal** mode, run the **show ap-config summary** command to check whether the online APs before and after upgrade are consistent.
- (10) After the master AP is upgraded successfully, proceed with remote batch upgrade.

Remove the command from the AC for standalone-AP upgrade and configure the batch upgrade command:

```

Hostname(config)#no device-upgrade mac xxxx.xxxx.xxxx url
ftp://ruijie:ruijie123@x.x.x.x/am.bin
Hostname(config)#device-upgrade url ftp://ruijie:ruijie123@x.x.x.x/am.bin

```

Run the following commands:

```
AC(config)#no device-upgrade mac 5416.5139.c28f url ftp://ruijie:ruijie123@47.0.0.1/am.bin
AC(config)#device-upgrade url ftp://ruijie:ruijie123@47.0.0.1/am.bin
```

1.3.4 Workaround and Procedure

If most APs do not go online within an hour after upgrade, contact technical support personnel to perform fault locating. If most APs still fail to go online in two hours, on-site troubleshooting is required.

1.4 Common AP Upgrade

1.4.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- To ensure successful upgrade, the free flash size of the AC should be larger than the version size.
- Before batch upgrade, perform an upgrade on two APs of the same model to verify the bin file. Repeat this step with all AP models.
- Before batch upgrade, verify that the APs on the same network segment can communicate with each other. To ensure smooth distributed upgrade, the APs on the same network segment must be able to ping each other. If the APs cannot ping each other, network isolation may be enabled on the switch. In this case, Proxy ARP needs to be enabled on the gateway of the APs. Otherwise, the upgrade will be slow.

1.4.2 Preparation

- (1) Run the **dir** command to check for the available flash space on the device. If flash space is insufficient, delete unnecessary files.

```
WS6108#dir
Directory of flash:/
Number  Properties  Size           Time           Name
-----  -
.....
56      -rw-        1.8M          Sun Dec 13 17:19:30 2020  AP_upgrade.pdf
57      -rw-        1.6k          Tue Aug 14 01:48:50 2018  standalone.text
58      -rw-        106B          Wed Aug 3 13:59:34 2022  ap-config_2022-8-3_13_59_32.text
43 files, 15 directories
281,903,104 bytes data total (52,469,760 bytes free)
536,870,912 bytes flash total (52,469,760 bytes free)
WS6108#
```

- (2) Save the configuration file and back up the **show run** and **show ap-config run** command output.
- (3) Collect the information by running the following commands: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, and **show wlandiag network**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (4) Run the **show wlandiag network** command to check for AP models and versions, especially the hardware version number. Download the supported AP version to the PC.

- (5) Ensure that TFTP server is enabled on the AC. This allows the offline APs to perform self-healing after upgrade.

Run the following command to enable TFTP server:

```
Hostname(config)#tftp-server enable
```

Run the following command to display TFTP server status:

```
AC#sh tftp-server
      tftp-server information
=====
enable : Y
topdir  : flash:/tftp-server
```

1.4.3 CLI-based Upgrade Procedure

1. AP Upgrade

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the file to the flash directory of the AC.

```
copy tftp://xxx.xxx.xxx.xxx/AP_RGOSXXX.bin flash:AP_RGOSXXX.bin
```

For example:

```
AC6108#copy tftp://172.29.25.146/AP_RGOS11.9(6)W3B1_S2X4-
01_10201117_install1.bin flash:AP_RGOS11.9(6)W3B1_S2X4-01_10201117_install1.bin
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the version.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AP_RGOS11.1(9)B1P25_S1C2-43_07151712_install.bin**, perform the following operations.

```
Hostname#run-system-shell
~ # md5sum /data/AP_RGOS11.1(9)B1P25_S1C2-43_07151712_install1.bin
a5c65f976cd65fd1716745a0c9b7f2f3 AP_RGOS11.1(9)B1P25_S1C2-
43_07151712_install1.bin
~ #
```



Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AP_RGOS11.9(6)W3B1_S2X4-01_10201117_install.bin**, perform the following operations.

```
Hostname#debug support
```

```

Hostname(support)# execute diagnose-cmd md5sum /data/AP_RGOS11.9(6)W3B1_S2X4-
01_10201117_install1.bin
8229dee0a37622d967abfd673dc2788a /data/AP_RGOS11.9(6)W3B1_S2X4-
01_10201117_install1.bin

```

Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AP_RGOS11.9(6)W3B1_S2X4-01_10201117_install1.bin
Description	Upgrade package (official version)
Size	28,702,275 bytes
Applicable Product	RG-AP840-I V1.xx
MD5	8229dee0a37622d967abfd673dc2788a
Software Version	AP_RGOS11.9(6)W3B1, Release(10201117)

- (5) Upgrade an AP remotely.

Run the **ac-controller** command to enter the configuration mode of the AC.

```

Hostname(config)#ac-controller
Hostname(config-ac)#no ap-image auto-upgrade
Hostname(config-ac)#active-bin-file AP_RGOSXXX.bin

```

Run the **ap-config apXXX** command to enter the configuration mode of the AP.

```

Hostname(config)# ap-config apXXX
Hostname(config-ap)#ap-image AP_RGOSXXX.bin

```

Run the following commands:

```

AC(config)#ac-controller
AC(config-ac)#no ap-image auto-upgrade
AC(config-ac)#active-bin-file apxx.bin
AC(config)#ap-con ap880
AC(config-ap)#ap-image apxx.bin

```

- (6) Run the **show ap-config updating** command to check for the upgrade progress until the upgrade is complete.
- (7) Run the **show version all** command to verify that the AP goes online with the target version.
- (8) Repeat steps 5 to 7 to upgrade another AP. Check whether the AP goes online with the target version.
- (9) After the two APs are upgraded successfully, proceed with batch upgrade.

Enter the configuration mode of the upgraded AP. Run the **no ap-image** command to delete the upgrade command.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller  
Hostname(config-ac)#ap-image auto-upgrade
```

Run the following commands:

```
AC(config)#ap-con ap880  
AC(config-ap)#no ap-image  
AC(config)#ac-controller  
AC(config-ac)#ap-image auto-upgrade
```

2. Post-Upgrade Check

(1) Checking the Version Number

Run the **show version all** command to check whether the version number is consistent with that of the upgrade file such as **AP_RGOS 11.9(6)W1B1, Release(09181718)**.

(2) Checking the Online Information

Collect the information by running the following commands: **show ap-config sum**, **show device-config sum**, **show device-config map sum**, and **show ap-con sum slot**. Compare the information collected before and after upgrade to check whether the number of online devices is consistent.

(3) Checking Remote Authentication of Internet Access

- o Run the **show ac-config client** command to check whether there are any users online.
- o If 802.1X authentication is enabled, run the **show dot1x summary** command to check whether there are any 802.1X authentication users.
- o If web-based authentication is enabled, run the **show web-auth user all** command to check whether there are any web-based authentication users.
- o Ping several authentication clients to check whether the ping packets are normal.

1.4.4 Workaround and Procedure

If most APs do not go online within an hour after upgrade, contact technical support personnel to perform fault locating. If most APs still fail to go online in two hours, on-site troubleshooting is required.

2 Upgrade in Virtual AC (VAC) Scenarios

2.1 AC Upgrade

2.1.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- To ensure successful VAC upgrade, the flash size of each member AC in a VAC should be larger than the version size.
- During the software upgrade of a VAC, all member ACs will be upgraded automatically. However, if one member AC cannot be upgraded due to lack of flash space or other reasons, the VAC upgrade will fail. In case of any issues, see the [2.1.4 Workaround and Procedure](#).
- Before upgrade, check whether APs are evenly connected to all member ACs in a VAC. If not, see [Ruijie RG-WLAN Implementation Cookbook Chapter 5.2.7 FAQ](#) for handling method. Take the following steps to check the number of APs connected to each AC:

(1) Run the `show virtual-ac balance-info` command on the AC.

- If the return value contains “Invalid input detected at”, there is no risk and the check is aborted.

```
WS6108#show virtual-ac balance-info
^
% Invalid input detected at '^' marker.
```

- If the return value contains “AP Num”, record the AP Num values (a, b, ...) for each AC, and also note the maximum (apNum_max) and minimum (apNum_min) numbers of APs. Add up the matched AP Num values (a, b, ...) and denote it as the total number of APs (apSum).

```
NanHu_VAC_WS7880#sh virtual-ac balance-info
Dev ID      AP Num AP License  STA Num
-----
2           4456   2674.0    5584
1           4461   2679.5    5253
```

(2) Run the **show version detail** command to display and record the AC model.

```
WS6108#show version detail
System description      : Ruijie Gigabit Wireless Switch(WS6108) By Ruijie Networks.
System start time       : 2021-06-07 10:26:14
System uptime           : 9:00:39:53
System hardware version : 1.03
System software version : AC_RGOS 11.1(5)B9P5, Release(04212302)
System patch number     : NA
System software number  : M02120009232017
```

AC Model	Total Number of APs (apSum)	Test Result
WS6108 WS6008	< 128	There is no risk and the check is aborted.
WS6512	< 500	There is no risk and the check is aborted.
M8600E-WS-ED M18000-WS-ED WS6812 WS6816 WS7880	< 600	There is no risk and the check is aborted.

- (3) Check whether APs are evenly connected to all member ACs in a VAC.

If the ratio $(\text{apNum_max} - \text{apNum_min})/\text{apSum}$ in step 1 is greater than 33%, upgrade may fail. Otherwise, there is no risk.

2.1.2 Preparation

- (1) Run the **show virtual-ac resource** command to check for the available flash space on the device. If flash space is insufficient, delete unnecessary files.

```
N18K-WS-VAC#show virtual-ac resource
Device_id CPU(5s) CPU(1m) CPU(5m) Memory Flash
-----
1          0.30%  0.20%  0.30%  40%   26% (206716KB free)
2          0.30%  0.20%  0.20%  40%   51% (137748KB free)
```

- (2) Collect the information by running the following commands: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, **show wlandiag network**, and **show virtual-ac balance-info**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (3) Download the AC version and store it in the TFTP directory of a designated PC (usually on the same LAN as the AC).

2.1.3 Upgrade Procedure

1. CLI-based Upgrade Procedure

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the file to the flash directory of the active AC.

```
copy tftp://xxx.xxx.xxx.xxx/AC_RGOSXXX.bin flash:AC_RGOSXXX.bin
```

For example:

```
Hostname#copy tftp://172.29.25.146/ AC_RGOS11.9(6)W3B1_G3C8-
01_10201117_install1.bin flash:AC_RGOS11.9(6)W3B1_G3C8-01_10201117_install1.bin
```

```
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the version.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AC_RGOS11.1(5)B30P3_G2C8-01_08181717_install.bin**, run the following commands:

```
Hostname#run-system-shell
~ # md5sum /data/AC_RGOS11.1(5)B30P3_G2C8-01_08181717_install.bin
30dc589ed1f16cccb82c0a05da76c3c4 /data/AC_RGOS11.1(5)B30P3_G2C8-
01_08181717_install.bin
~ #
```



Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AC_RGOS11.9(6)W3B1_G2C6-01_10201117_install.bin**, run the following commands:

```
Hostname#debug support
Hostname(support)#execute diagnose-cmd md5sum /data/AC_RGOS11.9(6)W3B1_G2C6-
01_10201117_install.bin
ff916c65a57da14fb3b264452d6bad67 /data/AC_RGOS11.9(6)W3B1_G2C6-
01_10201117_install.bin
```



Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AC_RGOS11.9(6)W3B1_G2C6-01_10201117_install.bin
Description	Upgrade package (official version)
Size	68,632,128 bytes
Applicable Product	RG-WS6008-V1.xx RG-WS6008-V2.xx RG-WS6108-V1.xx RG-WS6008(C7)-V1.xx
MD5	ff916c65a57da14fb3b264452d6bad67
Software Version	AC_RGOS11.9(6)W3B1, Release(10201117)

- (5) Perform remote upgrade.

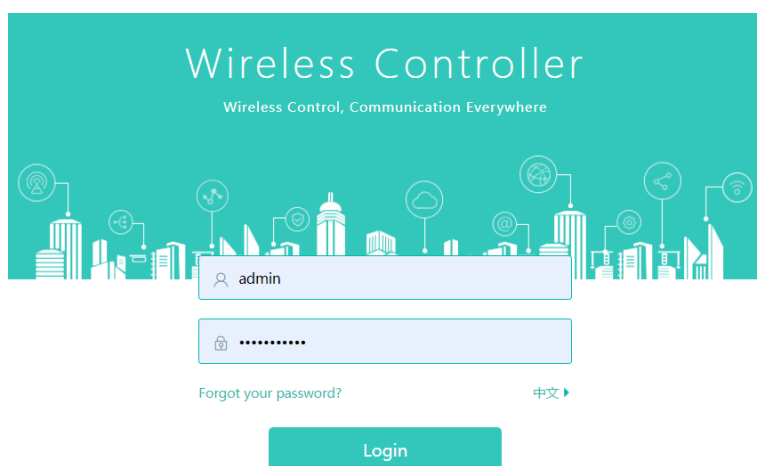
```
Hostname#upgrade flash:acxx.bin
%UPGRADE_COMMAND: Upgrade the device must be auto-reset after finish, are you
sure upgrading now?[Y/n]y
```

 Caution

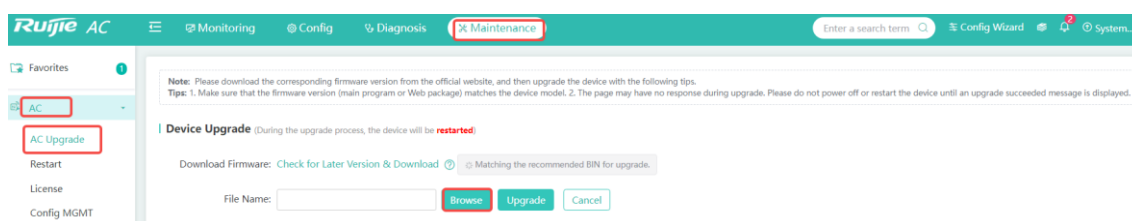
Upgrading two VACs takes up to half an hour. It takes more time to upgrade more VACs. If the VACs do not go online as expected, an exception may occur. Contact the technical support personnel.

2. Web-based Upgrade Procedure

- (1) Download the upgrade file to your PC.
- (2) Input the management IP address of the VAC into the address bar of the browser and press **Enter**. Enter your username and password on the login page.



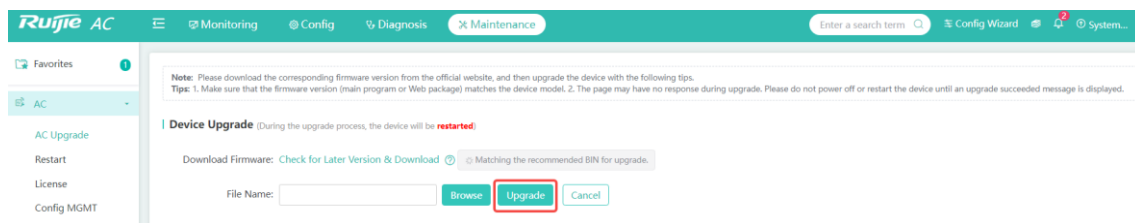
- (3) Choose **Maintenance > AC > AC Upgrade** and click **Browse** to select the upgrade file from your PC.



- (4) After the file is uploaded, click **Upgrade**. Wait until upgrade is complete.

 Caution

Do not close the web page, power off or restart the device, or perform other operation during upgrade.



Caution

Upgrading two VACs takes up to half an hour. It takes more time to upgrade more VACs. If the VACs do not go online as expected, an exception may occur. Contact the technical support personnel.

3. Post-Upgrade Check

(1) Checking the Version Number

Run the **show version detail** command to check whether the version number is consistent with that of the upgrade file such as **AC_RGOS 11.9(6)W1B1, Release(09181718)**.

(2) Checking the Configuration

Run the **show run** command before and after upgrade to display the information. Use an online comparison tool to compare the information displayed before and after upgrade.

You can also use an online comparison tool as follows: <https://www.qianbo.com.cn/Tool/Text-Difference/>

Note

The default settings vary with different versions. Therefore, the following commands may differ in other versions.

```
no identify-application enable
no register device
no cwmp
frn
ac-controller
    no ac-control disable
wlan-cap
    forward central
wids
black-white-list
no identify-application enable
no cwmp
mqtt-server enable
tftp-server enable
control-plane
    anti-arp-spoof scan 20
    attack threshold 500
control-plane protocol
    no acpp
```

```
control-plane manage
  no port-filter
  no arp-car
  no acpp
control-plane data
  no glean-car
  no acpp
frn
```

(3) Checking the Online Information

Collect information by running the following commands: **show ap-config sum**, **show device-config sum**, **show device-config map sum**, and **show ap-con sum slot**. Compare the information collected before and after upgrade to check whether the number of online devices is consistent.

(4) Checking Remote Authentication of Internet Access

- o Run the **show ac-config client** command to check whether there are any users online.
- o If 802.1X authentication is enabled, run the **show dot1x** summary command to check whether there are any 802.1X authentication users.
- o If web-based authentication is enabled, run the **show web-auth user all** command to check whether there are any web-based authentication users.
- o Ping several clients that have logged in and authenticated on the AC to check whether the ping packets are normal.

2.1.4 Workaround and Procedure

- (1) If there is a replacement AC, replace the member AC of a VAC if it fails upgrade.
- (2) If there is no replacement AC, enter the Uboot of the AC and roll it back to the old version if it fails upgrade.
- (3) If most APs do not go online within half an hour after the AC is upgraded, contact technical support personnel to perform fault locating. If most APs still fail to go online in one hour, roll back the AC to the old version by taking the CLI-based upgrade procedure.

2.2 i-Share+ AP Upgrade

2.2.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- Ensure that the flash space of each VAC is sufficient. Otherwise, the AP version may not be copied to the specified VAC, resulting in upgrade failures on some APs.
- Before batch upgrade, perform an upgrade on two APs of the same model to verify the bin file. Repeat this step with all AP models.
- Before batch upgrade, verify that the APs on the same network segment can communicate with each other. To ensure smooth distributed upgrade, the APs on the same network segment must be able to ping each other. If the APs cannot ping each other, network isolation may be enabled on the switch. In this case, Proxy

ARP needs to be enabled on the gateway of the APs. Otherwise, the upgrade will be slow.

- Upgrade micro APs before upgrading master APs.
- Do not activate the versions of micro APs and of master APs at the same time. Instead, activate the version of the master APs after all micro APs finish upgrade and go online.

2.2.2 Preparation

- (1) Run the **show virtual-ac resource** command to check for the available flash space on the device. If flash space is insufficient, delete unnecessary files.

```
N18K-WS-VAC#show virtual-ac resource
Device_id CPU(5s) CPU(1m) CPU(5m) Memory Flash
-----
1          0.30%  0.20%   0.30%  40%   26% (206716KB free)
2          0.30%  0.20%   0.20%  40%   51% (137748KB free)
```

- (2) Save the configuration file and back up the **show run** and **show ap-config run** command output.
- (3) Collect the information by running the following commands: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, **show wlandiag network**, and **show virtual-ac balance-info**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (4) Run the **show wlandiag network** command to check for AP models and versions, especially the hardware version number. Download the supported AP versions to the PC.
- (5) Ensure that TFTP server is enabled on the AC. This allows the offline APs to perform self-healing after upgrade.

Run the following command to enable TFTP server:

```
Hostname(config)#tftp-server enable
```

Run the following command to display TFTP server status:

```
AC#sh tftp-server
      tftp-server information
=====
enable : Y
topdir  : flash:/tftp-server
```

2.2.3 Upgrade Procedure

1. CLI-based Upgrade Procedure

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the versions of i-Share+ master APs and of micro APs to the flash directory of the AC.

```
copy tftp://xxx.xxx.xxx.xxx/AP_RGOSXXX.bin flash:AP_RGOSXXX.bin
```

For example:

```
AC6108#copy tftp://172.29.25.146/AP_RGOS11.9(6)W3B1_S2X2-
03_10201119_install1.bin flash:AP_RGOS11.9(6)W3B1_S2X2-03_10201119_install1.bin
Press Ctrl+C to quit
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the versions of master APs and of micro APs.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin**, run the following commands:

```
Hostname#run-system-shell
~ # md5sum /data/AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin
3b7717f81a3b23ad68500423c77eb401 /data/AP_RGOS11.1(9)B1P8_S1C2-15-C-
FULL_05242018_install.bin
~ #
```

 Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AP_RGOS11.9(6)W3B1_S2X2-03_10201119_install.bin**, run the following commands:

```
Hostname#debug support
Hostname(support)# execute diagnose-cmd md5sum /data/AP_RGOS11.9(6)W3B1_S2X2-
03_10201119_install.bin
6c23de60803e3102eff69c301fba264c /data/AP_RGOS11.9(6)W3B1_S2X2-
03_10201119_install.bin
```

 Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AP_RGOS11.9(6)W3B1_S2X2-03_10201119_install.bin
Description	Upgrade package (official version)
Size	18,234,983 bytes
Applicable Product	RG-MAP852-V1.xx RG-MAP852-V2.xx RG-MAP852-V3.xx
MD5	6c23de60803e3102eff69c301fba264c
Software Version	AP_RGOS11.9(6)W3B1, Release(10201119)

- (5) Upgrade a micro AP.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ac)#no ap-image auto-upgrade
Hostname(config-ac)#active-bin-file AP_RGOSXXX.bin
```

Run the **ap-conig xxx** command to enter the configuration mode of the master AP.

```
Hostname(config)#ap-conig xxx
Hostname(config-ap)#ap-image AP_RGOSXXX.bin
```

Run the following commands:

```
AC(config)#ac-controller
AC(config-ac)#no ap-image auto-upgrade
AC(config-ac)#active-bin-file ap09152120.bin
AC(config)#ap-con am5532
AC(config-ap)#ap-image ap09152120.bin
```

- (6) Run the **show ap-config updating** command to check for the upgrade progress of the micro AP until the upgrade is complete.
- (7) Run the **show version all slot** command to verify that the micro AP goes online with the target version.
- (8) Repeat steps 5 to 7 to upgrade another micro AP. Check whether the micro AP goes online with the target version.
- (9) After the two micro APs are upgraded successfully, proceed with batch upgrade.

Enter the configuration mode of the upgraded AP. Run the **no ap-image** command to delete the upgrade command.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ap)#ap-image auto-upgrade
```

Run the following commands:

```
AC(config)#ap-con am5532
AC(config-ap)#no ap-image
AC(config)#ac-controller
AC(config-ac)#ap-image auto-upgrade
```

- (10) Upgrade a master AP remotely.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ac)#no ap-image auto-upgrade
Hostname(config-ac)#active-bin-file AM_RGOSXXX.bin
```

Run the **ap-conig xxx** command to enter the configuration mode of the master AP.

```
Hostname(config)#ap-conig xxx
Hostname(config-ap)#ap-image AM_RGOSXXX.bin
```

Run the following commands:

```
AC(config)#ac-controller
AC(config-ac)#no ap-image auto-upgrade
AC(config-ac)#active-bin-file am09152120.bin
AC(config)#ap-con am5532
AC(config-ap)#ap-image am09152120.bin
```

- (11) Run the **show ap-config updating** command to check for the upgrade progress of the master AP until the upgrade is complete.
- (12) Run the **show version all** command to verify that the master AP goes online with the target version. Run the **show ap-config sum slot** command to verify that all micro APs connected to the master AP go online.
- (13) Repeat steps 10 to 12 to upgrade another master AP. Check whether the master AP goes online with the target version.
- (14) After the two master APs are upgraded successfully, proceed with batch upgrade.

Enter the configuration mode of the upgraded AP. Run the **no ap-image** command to delete the upgrade command.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ac)#ap-image auto-upgrade
```

Run the following commands:

```
AC(config)#ap-con am5532
AC(config-ap)#no ap-image
AC(config)#ac-controller
AC(config-ac)#ap-image auto-upgrade
```

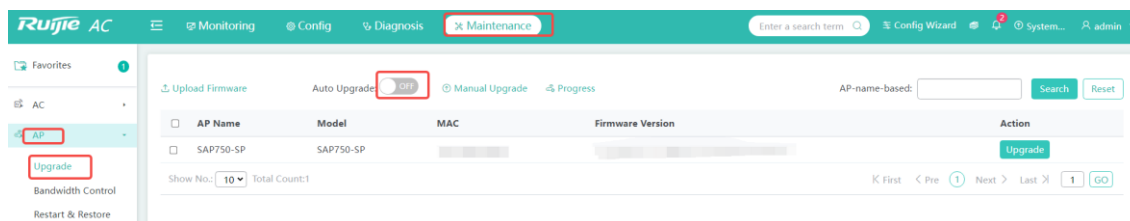
2. Web-based Upgrade Procedure

- Micro AP Upgrade

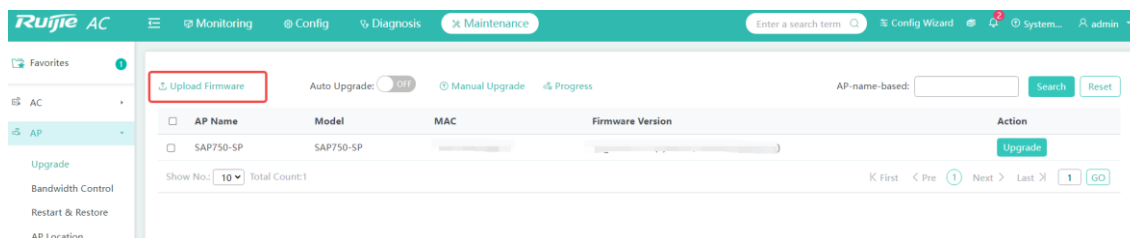
- (1) Download the bin file to your PC.
- (2) Input the management IP address of the VAC into the address bar of the browser and press **Enter**. Enter your username and password on the login page.



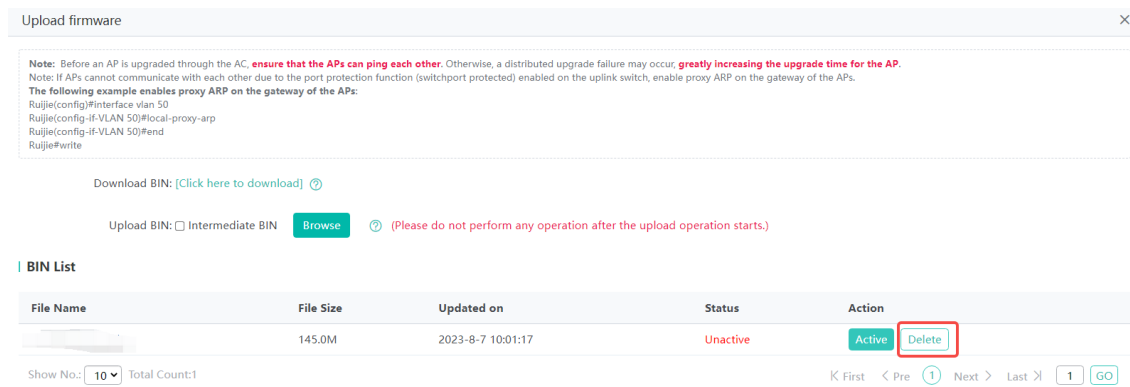
- (3) Choose **Maintenance > AP > Upgrade** and toggle off **Auto Upgrade**.



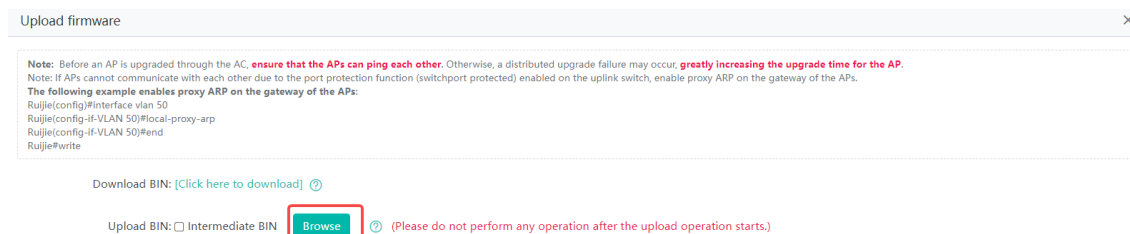
(4) Click **Upload Firmware**.



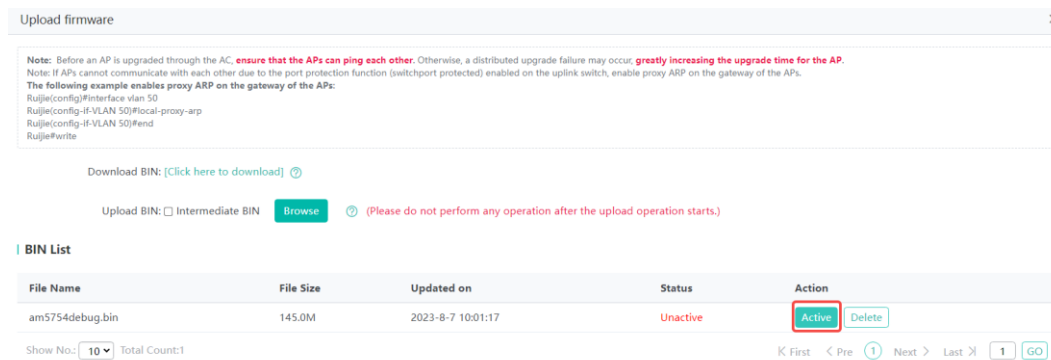
(5) Delete other bin files to avoid upgrade to undesired versions.



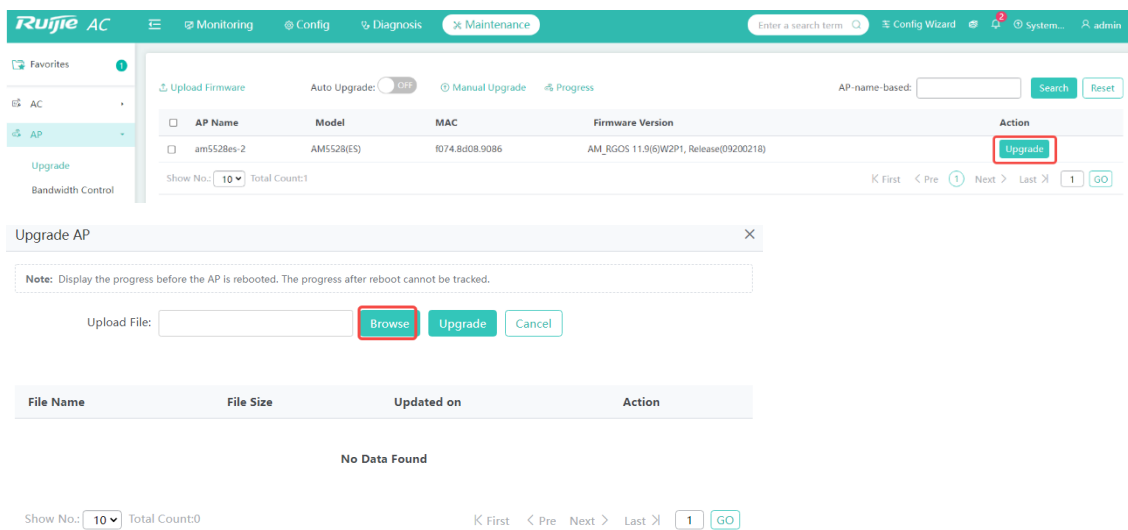
(6) Click **Browse** to select and upload the bin file from your PC and then click **Activate**.



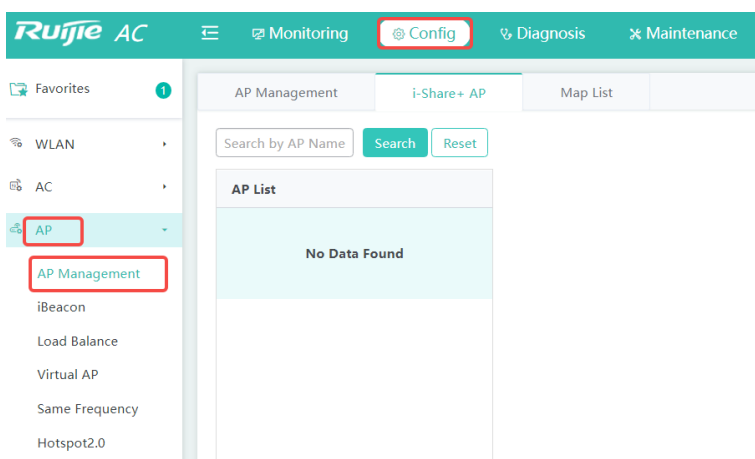
(7) If you click **Cancel** during activation by mistake, click **Activate**.



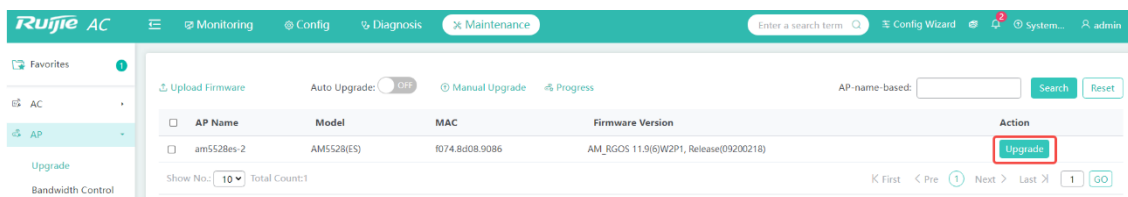
(8) Select a micro AP for upgrade verification.



- (9) Wait for 5-10 minutes until upgrade is complete. Choose **Config > AP > AP Management > i-Share+ AP** and verify that the i-Share+ master AP and the micro AP go online.



- (10) Proceed with batch upgrade.



- (11) Wait until batch upgrade is complete. The more master APs, the longer time it will take. The upgrade process is expected to last at least half an hour. After batch upgrade, verify that all master APs and micro APs go online.

Note

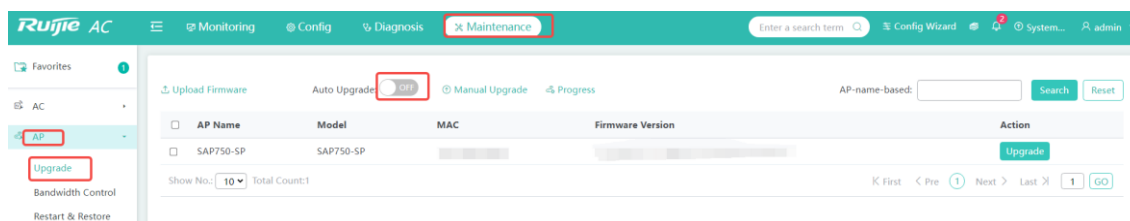
Eweb does not display the version number of the micro AP. Run the CLI command to check for the version number as required.

- Master AP Upgrade

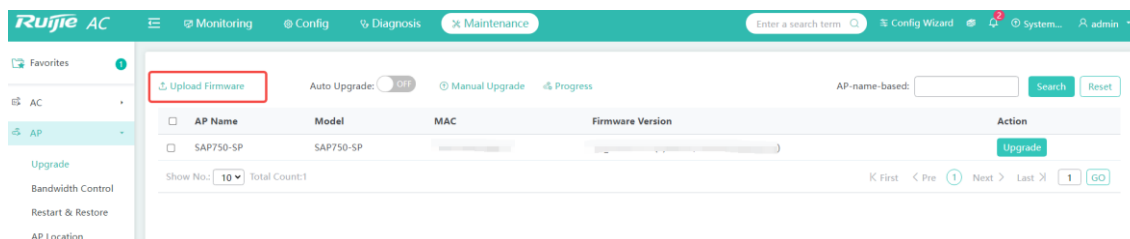
- (1) Download the bin file to your PC.
- (2) Input the management IP address of the VAC into the address bar of the browser and press **Enter**. Enter your username and password on the login page.



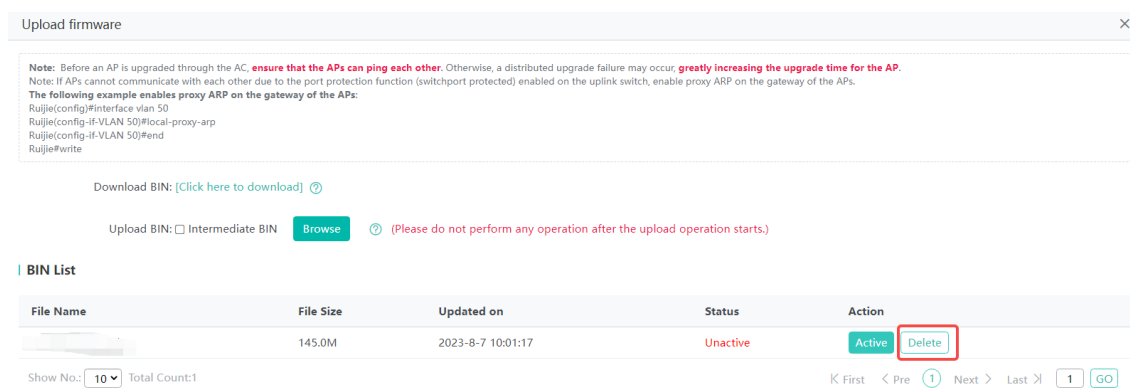
- (3) Choose **Maintenance** > **AP** > **Upgrade** and toggle off **Auto Upgrade**.



- (4) Click **Upload Firmware**.



- (5) Delete other bin files to avoid upgrade to undesired versions.



- (6) Click **Browse** to select and upload the bin file from your PC and then click **Activate**.

Upload firmware

Note: Before an AP is upgraded through the AC, **ensure that the APs can ping each other**. Otherwise, a distributed upgrade failure may occur, **greatly increasing the upgrade time for the AP**.
Note: If APs cannot communicate with each other due to the port protection function (switchport protected) enabled on the uplink switch, enable proxy ARP on the gateway of the APs.
The following example enables proxy ARP on the gateway of the APs:
Ruijie(config)#interface vlan 50
Ruijie(config-if-VLAN 50)#local-proxy-arp
Ruijie(config-if-VLAN 50)#end
Ruijie#write

Download BIN: [\[Click here to download\]](#) ⓘ

Upload BIN: ☐ Intermediate BIN [Browse](#) ⓘ (Please do not perform any operation after the upload operation starts.)

- (7) If you click **Cancel** during activation by mistake, click **Activate**.

Upload firmware

Note: Before an AP is upgraded through the AC, **ensure that the APs can ping each other**. Otherwise, a distributed upgrade failure may occur, **greatly increasing the upgrade time for the AP**.
Note: If APs cannot communicate with each other due to the port protection function (switchport protected) enabled on the uplink switch, enable proxy ARP on the gateway of the APs.
The following example enables proxy ARP on the gateway of the APs:
Ruijie(config)#interface vlan 50
Ruijie(config-if-VLAN 50)#local-proxy-arp
Ruijie(config-if-VLAN 50)#end
Ruijie#write

Download BIN: [\[Click here to download\]](#) ⓘ

Upload BIN: ☐ Intermediate BIN [Browse](#) ⓘ (Please do not perform any operation after the upload operation starts.)

BIN List

File Name	File Size	Updated on	Status	Action
am5754debug.bin	145.0M	2023-8-7 10:01:17	Unactive	Active Delete

Show No.: Total Count:1

First < Pre 1 Next > Last 1 GO

- (8) Select a master AP for upgrade verification.

Ruijie AC

Monitoring Config Diagnosis Maintenance

Enter a search term Config Wizard System... admin

Favorites

AC
AP

Upgrade
Bandwidth Control

Upload Firmware
Auto Upgrade: ☐ Manual Upgrade Progress

AP-name-based: Search Reset

AP Name	Model	MAC	Firmware Version	Action
am552bes-2	AM552B(E)	074.8d08.9086	AM_RIGOS 11.9(5)W2P1, Release(09200218)	Upgrade

Show No.: Total Count:1

First < Pre 1 Next > Last 1 GO

Upgrade AP

Note: Display the progress before the AP is rebooted. The progress after reboot cannot be tracked.

Upload File: [Browse](#) [Upgrade](#) [Cancel](#)

File Name	File Size	Updated on	Action
No Data Found			

Show No.: Total Count:0

First < Pre Next > Last 1 GO

- (9) Wait until upgrade is complete. Choose **Monitoring > AP > AP List**. Click the master AP name to enter its details page. Verify that the master AP is upgraded to the target version and that the master AP and the micro AP are online.

Ruijie AC

Monitoring Config Diagnosis Maintenance

Enter a search term Config Wizard System... admin

Favorites

AC
AP

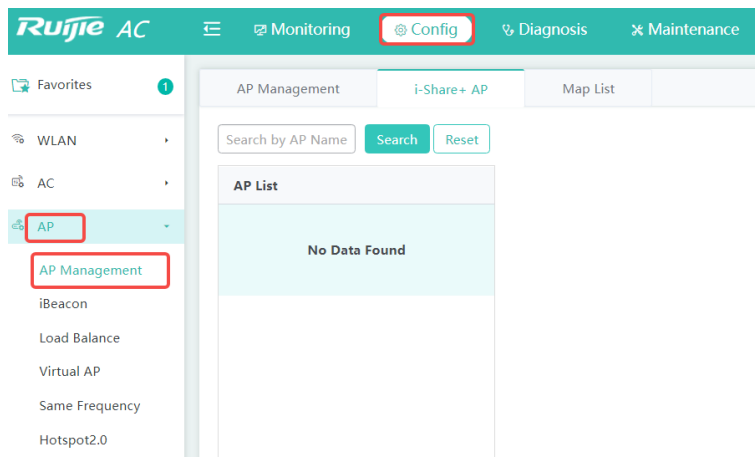
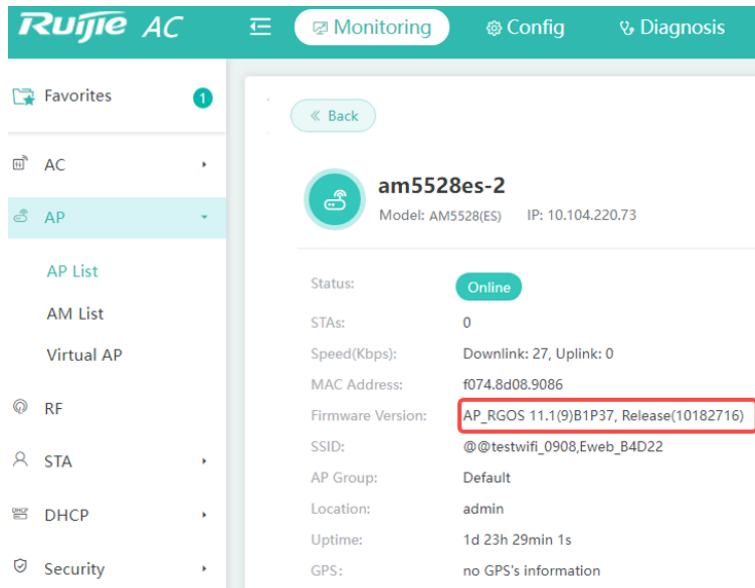
AP List
Virtual AP

Basic Info Model Info

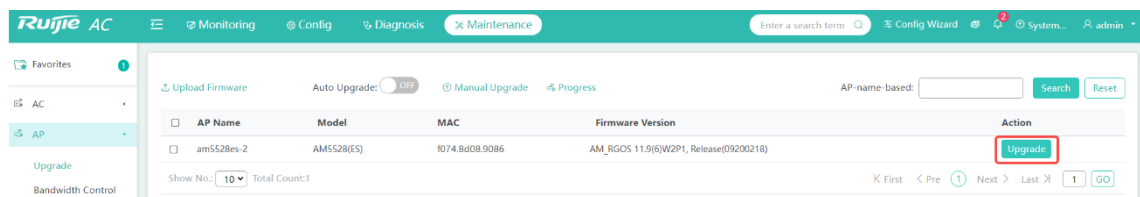
Search by AP Name Search Reset

AP Name	MAC Address	IP Address	Location	Group	Model	Status	Online STAs
SAP750-SP	074.8d08.9086	10.104.220.73	admin	Default	SAP750-SP	Online	0
1082.3dba.3c14	1082.3dba.3c14	10.104.248.79		Default		Online	0
1082.3dba.3e12	1082.3dba.3e12	10.104.199.62		Default		Online	0
AP840-1	0074.9cda.b0d0	10.104.207.243		test_hotspot_loc		Online	0
ap820-2	0082.0019.9151	10.104.255.236		Default		Online	0
ap820-4v311	7042.d332.95a1	192.168.30.8		test_wiFi_loc		Online	0
m8ap852-ef-m2	28d0.f5d0.1b70	10.104.255.228		test_map_loc		Online	0

Total 7 10/page < 1 > Go to 1



(10) Proceed with batch upgrade.



(11) Wait until batch upgrade is complete. The more master APs, the longer time it will take. The upgrade process is expected to last at least half an hour. Verify that all master APs are upgraded to the target version and that all master APs and micro APs go online.

3. Post-Upgrade Check

(1) Checking the Version Number

Run the **show version all** and **show version all slot** commands to check whether the version number is consistent with that of the upgrade file such as **AP_RGOS 11.9(6)W1B1, Release(09181718)**.

(2) Checking the Online Information

Collect the information by running the following commands: **show ap-config sum**, **show device-config sum**, **show device-config map sum**, and **show ap-con sum slot**. Compare the information collected before and after upgrade to check whether the number of online devices is consistent.

(3) Checking Remote Authentication of Internet Access

- o Run the **show ac-config client** command to check whether there are any users online.
- o If 802.1X authentication is enabled, run the **show dot1x summary** command to check whether there are any 802.1X authentication users.
- o If web-based authentication is enabled, run the **show web-auth user all** command to check whether there are any web-based authentication users.
- o Ping several authentication clients to check whether the ping packets are normal.

2.2.4 Workaround and Procedure

If most APs do not go online within an hour after upgrade, contact technical support personnel to perform fault locating. If most APs still fail to go online in two hours, on-site troubleshooting is required.

2.3 O-Share AP Upgrade

2.3.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- Ensure that the flash space of each VAC is sufficient. Otherwise, the AP version may not be copied to the specified VAC, resulting in upgrade failures on some APs.
- Before batch upgrade, perform an upgrade on two APs of the same model to verify the bin file. Repeat this step with all AP models.
- Before batch upgrade, verify that the APs on the same network segment can communicate with each other. To ensure smooth distributed upgrade, the APs on the same network segment must be able to ping each other. If the APs cannot ping each other, network isolation may be enabled on the switch. In this case, Proxy ARP needs to be enabled on the gateway of the APs. Otherwise, the upgrade will be slow.
- The O-Share master APs with 12.X operating system such as the AM5552-SF(V2) and AM5528-SF will fail to be upgraded if there is not enough flash space on the master APs. In this case, delete unnecessary files.
- Upgrade the AC using **AC_RGOS 11.9(6)W1B1** or later versions before upgrading master APs and micro APs.
- Bin files are model-specific. Select the bin files as specified in the release notes for different models of APs.
- Do not activate the versions of micro APs and of master APs at the same time. Instead, activate the version of the master APs after all micro APs finish upgrade and go online.

2.3.2 Preparation

- (1) Run the **show virtual-ac resource** command to check for the available flash space on the device. If flash space is insufficient, delete unnecessary files.

```
N18K-WS-VAC#show virtual-ac resource
Device_id CPU(5s) CPU(1m) CPU(5m) Memory Flash
-----
1          0.30%  0.20%  0.30%  40%   26% (206716KB free)
```

```
2          0.30%   0.20%   0.20%   40%   51%   (137748KB free)
```

- (2) Save the configuration file and back up the **show run** and **show ap-config run** command output.
- (3) Collect the information by running the following commands: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, **show wlandiag network**, and **show virtual-ac balance-info**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (4) Run the **show wlandiag network** command to check for AP models and versions, especially the hardware version number. Download the supported AP version to the PC.
- (5) Ensure that TFTP server is enabled on the AC. This allows the offline APs to perform self-healing after upgrade.

Run the following command to enable TFTP server:

```
Hostname(config)#tftp-server enable
```

Run the following command to display TFTP server status:

```
AC#sh tftp-server
    tftp-server information
=====
enable : Y
topdir  : flash:/tftp-server
```

2.3.3 Upgrade Procedure

1. CLI-based Upgrade Procedure

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the versions of O-Share master APs and of micro APs to the flash directory of the AC.

```
copy tftp://xxx.xxx.xxx.xxx/AP_RGOSXXX.bin flash:AP_RGOSXXX.bin
```

For example:

```
AC6108#copy tftp://172.29.25.146/AP_RGOS11.9(6)W3B1_S1X2-
07_10201121_install.bin flash: AP_RGOS11.9(6)W3B1_S1X2-07_10201121_install.bin
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the versions of master APs and of micro APs.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin**, run the following commands:

```
Hostname#run-system-shell
~ # md5sum /data/AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin
3b7717f81a3b23ad68500423c77eb401 /data/ AP_RGOS11.1(9)B1P8_S1C2-15-C-
FULL_05242018_install.bin
~ #
```

⚠ Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AP_RGOS11.9(6)W3B1_S1X2-07_10201121_install.bin**, run the following commands:

```
Hostname#debug support
Hostname(support)# execute diagnose-cmd md5sum /data/AP_RGOS11.9(6)W3B1_S1X2-
07_10201121_install.bin
df38ddc8c0d46f94809286d61107105d /data/AP_RGOS11.9(6)W3B1_S1X2-
07_10201121_install.bin
```

⚠ Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AP_RGOS11.9(6)W3B1_S1X2-07_10201121_install.bin
Description	Upgrade package (official version)
Size	32,673,614 bytes
Applicable Product	RG-MAP852-SF-S-V1.xx
MD5	df38ddc8c0d46f94809286d61107105d
Software Version	AP_RGOS11.9(6)W3B1, Release(10201121)

- (5) Configure the FTP server on the AC.

```
Hostname(config)#ftp-server enable
Hostname(config)#ftp-server topdir flash:/
Hostname(config)#ftp-server username ruijie password ruijie123
```

Run the **show ftp-server** command to check whether the configuration takes effect.

```
AC(config)#sh ftp-server
ftp-server information
=====
enable : Y
topdir : flash:/
timeout: 10min
username:ruijie
password:(PLAINTEXT)ruijie123
connect num[0]
```

- (6) Upgrade a master AP remotely.

Run the **ac-controller** command to enter the configuration mode of the AC.

```

Hostname(config-ac)#device-upgrade mac xxxx.xxxx.xxxx url
ftp://ruijie:ruijie123@x.x.x.x/am.bin

```

xxxx.xxxx.xxxx indicates the MAC address of the master AP and x.x.x.x is the IP address of the AC.

Run the following commands:

```

AC(config)#sh device-config summary
===== show device status =====

Online device number: 1
Offline device number: 2

Mac Address      Device Name      IP Address      Mode    Up/Off time    State
-----
c0b8.e650.08d5  am5552-sf-1      47.12.1.10      smart   0:19:48:14    Run
5416.5139.c28f  am5528-sf        47.12.2.24      smart   0:18:50:39    Run
AC(config)#device-upgrade mac 5416.5139.c28f url ftp://ruijie:ruijie123@47.0.0.1/am.bin

```

- (7) Run the **show device-config upgrading-list** command to check for the upgrade progress until the upgrade is complete.
- (8) Run the **show device-config version summary** command to check whether the version number is consistent with that of the upgrade file.
- (9) After the master AP goes online, run the **show device-config summary** command to display its mode. If it is **smart** mode, run the **show device-config map sum** command to check whether the micro APs go online normally. If it is **normal** mode, run the **show ap-config summary** command to check whether the online APs before and after upgrade are consistent.
- (10) After the master AP is upgraded successfully, proceed with remote batch upgrade.

Remove the command from the AC for standalone-AP upgrade and configure the batch upgrade command:

```

Hostname(config)#no device-upgrade mac xxxx.xxxx.xxxx url
ftp://ruijie:ruijie123@x.x.x.x/am.bin
Hostname(config)#device-upgrade url ftp://ruijie:ruijie123@x.x.x.x/am.bin

```

Run the following commands:

```

AC(config)#no device-upgrade mac 5416.5139.c28f url ftp://ruijie:ruijie123@47.0.0.1/am.bin
AC(config)#device-upgrade url ftp://ruijie:ruijie123@47.0.0.1/am.bin

```

2. Web-based Upgrade Procedure

- Master AP Upgrade

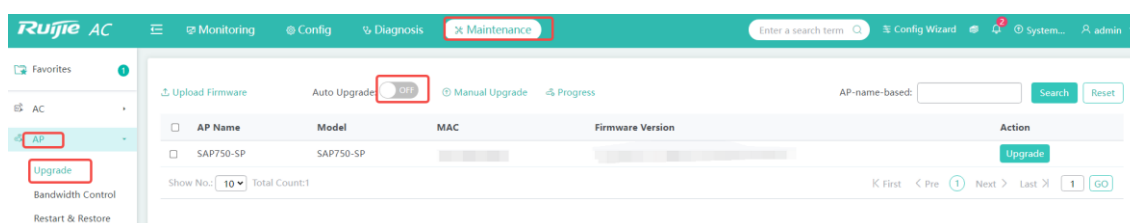
The master AP cannot be upgraded on the web system. Upgrade the master AP through CLI.

- Micro AP Upgrade

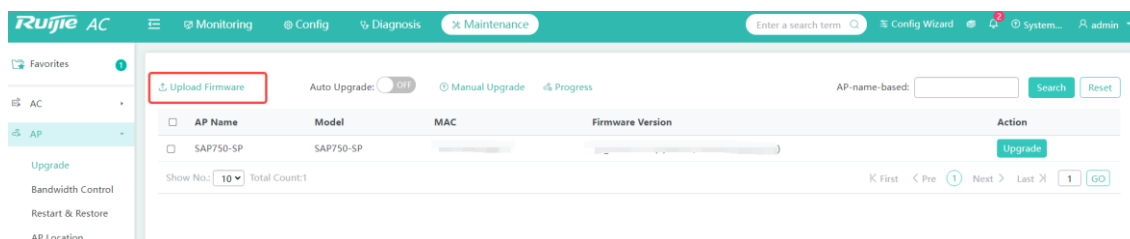
- (1) Download the bin file to your PC.
- (2) Input the management IP address of the VAC into the address bar of the browser and press **Enter**. Enter your username and password on the login page.



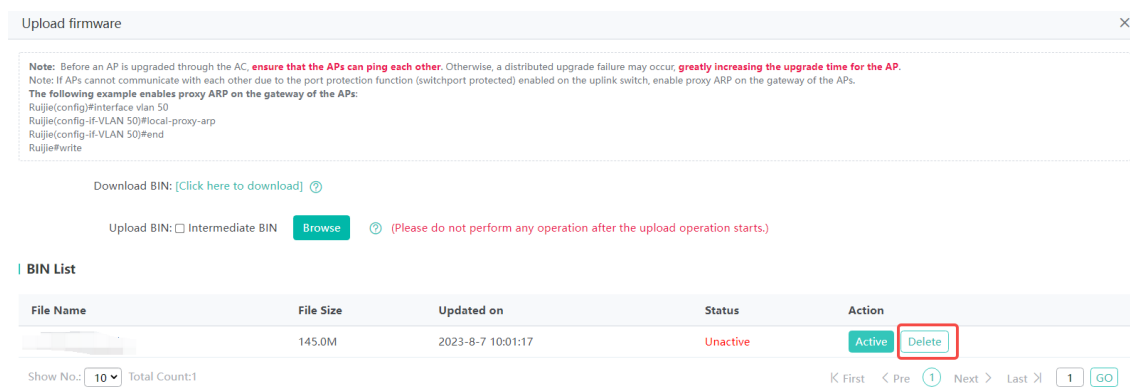
- (3) Choose **Maintenance > AP > Upgrade** and toggle off **Auto Upgrade**.



- (4) Click **Upload Firmware**.



- (5) Delete other bin files to avoid upgrade to undesired versions.



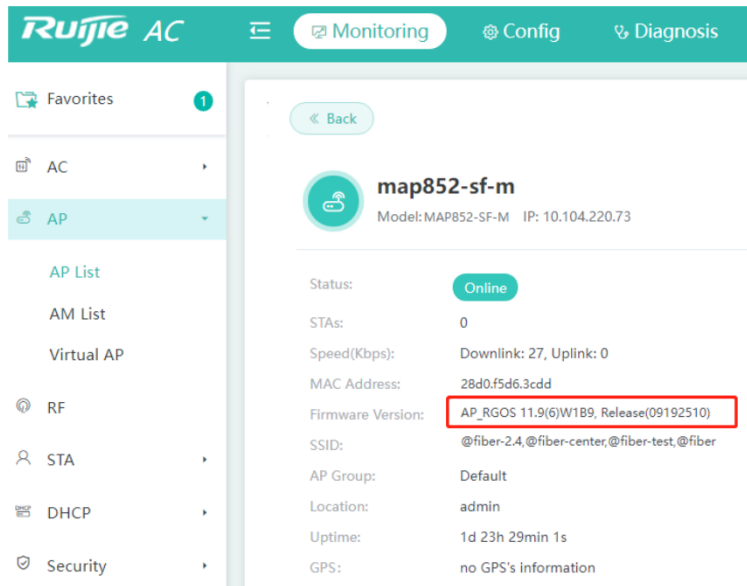
- (6) Click **Browse** to select and upload the bin file from your PC and then click **Activate**.

(7) If you click **Cancel** during activation by mistake, click **Activate**.

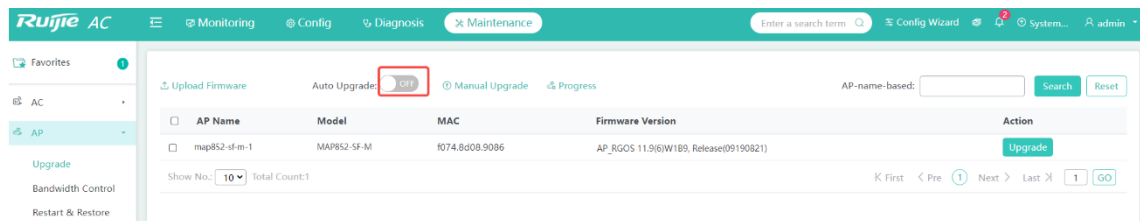
(8) Select a micro AP for upgrade verification.

(9) The upgrade will take about 2 to 5 minutes. Choose **Monitoring > AP > AP List** and click the AP to be upgraded. Ensure that the micro AP is online and the version number is consistent with that of the upgrade file.

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- (10) After the micro AP is upgraded successfully, configure the batch upgrade command.



- (11) After the upgrade is complete, ensure that all common APs are online and that the version numbers are correct.

2.3.4 Workaround and Procedure

If most APs do not go online within an hour after upgrade, contact technical support personnel to perform fault locating. If most APs still fail to go online in two hours, on-site troubleshooting is required.

2.4 Common AP Upgrade

2.4.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- Ensure that the flash space of each VAC is sufficient and greater than the upgrade file size. Otherwise, the AP version may not be copied to the specified VAC, resulting in upgrade failures on some APs.
- Before batch upgrade, perform an upgrade on two APs of the same model to verify the bin file. Repeat this step with all AP models.
- Before batch upgrade, verify that the APs on the same network segment can communicate with each other. To ensure smooth distributed upgrade, the APs on the same network segment must be able to ping each other. If the APs cannot ping each other, network isolation may be enabled on the switch. In this case, Proxy ARP needs to be enabled on the gateway of the APs. Otherwise, the upgrade will be slow.

2.4.2 Preparation

- (1) Run the **show virtual-ac resource** command to check for the available flash space on the device. If flash space is insufficient, delete unnecessary files.

```
N18K-WS-VAC#show virtual-ac resource
Device_id CPU(5s) CPU(1m) CPU(5m) Memory Flash
-----
1          0.30%  0.20%  0.30%  40%   26%  (206716KB free)
2          0.30%  0.20%  0.20%  40%   51%  (137748KB free)
```

- (2) Save the configuration file and back up the **show run** and **show ap-config run** command output.
- (3) Collect the information by running the following commands: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, **show wlandiag network**, and **show virtual-ac balance-info**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (4) Run the **show wlandiag network** command to check for AP models and versions, especially the hardware version number. Download the supported AP version to the PC.
- (5) Ensure that TFTP server is enabled on the AC. This allows the offline APs to perform self-healing after upgrade.

Run the following command to enable TFTP server:

```
Hostname(config)#tftp-server enable
```

Run the following command to display TFTP server status:

```
AC#sh tftp-server
      tftp-server information
=====
enable : Y
topdir  : flash:/tftp-server
```

2.4.3 Upgrade Procedure

1. CLI-based Upgrade Procedure

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the upgrade file of the AP to the flash directory of the active AC.

```
copy tftp://xxx.xxx.xxx.xxx/AP_RGOSXXX.bin flash:AP_RGOSXXX.bin
```

For example:

```
AC6108#copy tftp://172.29.25.146/ AP_RGOS11.9(6)W3B1_S2X4-
01_10201117_install1.bin flash: AP_RGOS11.9(6)W3B1_S2X4-01_10201117_install1.bin
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the version on the active AC.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AP_RGOS11.1(9)B1P25_S1C2-43_07151712_install.bin**, perform the following operations.

```
Hostname#run-system-shell
~ # md5sum /data/AP_RGOS11.1(9)B1P25_S1C2-43_07151712_install.bin
a5c65f976cd65fd1716745a0c9b7f2f3 /data/AP_RGOS11.1(9)B1P25_S1C2-
43_07151712_install.bin
~ #
```

 Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AP_RGOS11.9(6)W3B1_S2X4-01_10201117_install.bin**, perform the following operations.

```
Hostname#debug support
Hostname(support)# execute diagnose-cmd md5sum /data/AP_RGOS11.9(6)W3B1_S2X4-
01_10201117_install.bin
8229dee0a37622d967abfd673dc2788a /data/AP_RGOS11.9(6)W3B1_S2X4-
01_10201117_install.bin
```

 Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AP_RGOS11.9(6)W3B1_S2X4-01_10201117_install.bin
Description	Upgrade package (official version)
Size	28,702,275 bytes
Applicable Product	RG-AP840-I-V1.xx
MD5	8229dee0a37622d967abfd673dc2788a
Software Version	AP_RGOS11.9(6)W3B1, Release(10201117)

- (5) Upgrade an AP remotely.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ac)#no ap-image auto-upgrade
Hostname(config-ac)#active-bin-file AP_RGOSXXX.bin
```

Run the **ap config apXXX** command to enter the configuration mode of the AP.

```
Hostname(config)# ap-config apXXX
```

```
Hostname(config-ap)#ap-image AP_RGOSXXX.bin
```

Run the following commands:

```
AC(config)#ac-controller
AC(config-ac)#no ap-image auto-upgrade
AC(config-ac)#active-bin-file apxx.bin
AC(config)#ap-con ap880
AC(config-ap)#ap-image apxx.bin
```

- (6) Run the **show ap-config updating** command to check for the upgrade progress until the upgrade is complete.
- (7) Run the **show version all** command to verify that the AP goes online with the target version.
- (8) Repeat steps 5 to 7 to upgrade another AP. Check whether the AP goes online with the target version.
- (9) After the two APs are upgraded successfully, proceed with batch upgrade.

Enter the configuration mode of the upgraded AP. Run the **no ap-image** command to delete the upgrade command.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ac)#ap-image auto-upgrade
```

Run the following commands:

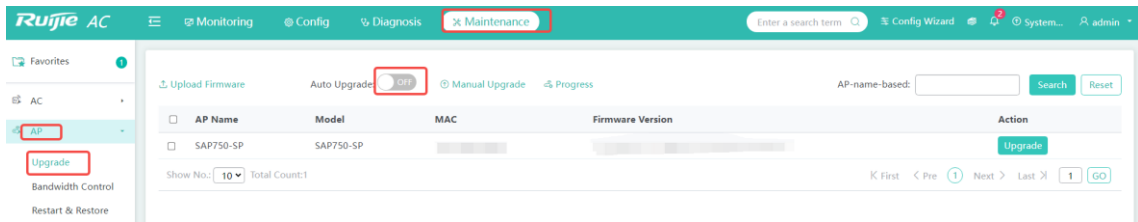
```
AC(config)#ap-con ap880
AC(config-ap)#no ap-image
AC(config)#ac-controller
AC(config-ac)#ap-image auto-upgrade
```

2. Web-based Upgrade Procedure

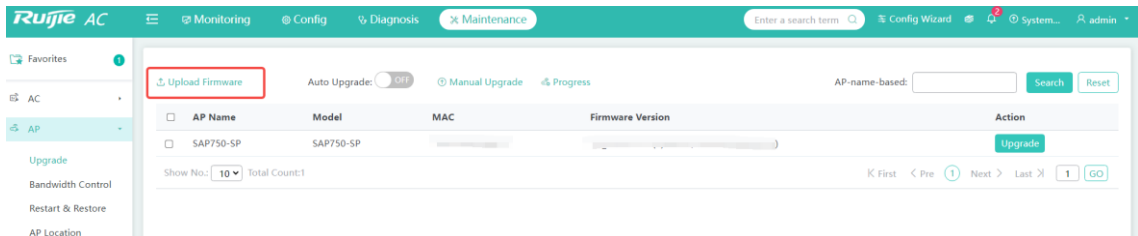
- (1) Download the bin file to your PC.
- (2) Input the management IP address of the VAC into the address bar of the browser and press **Enter**. Enter your username and password on the login page.



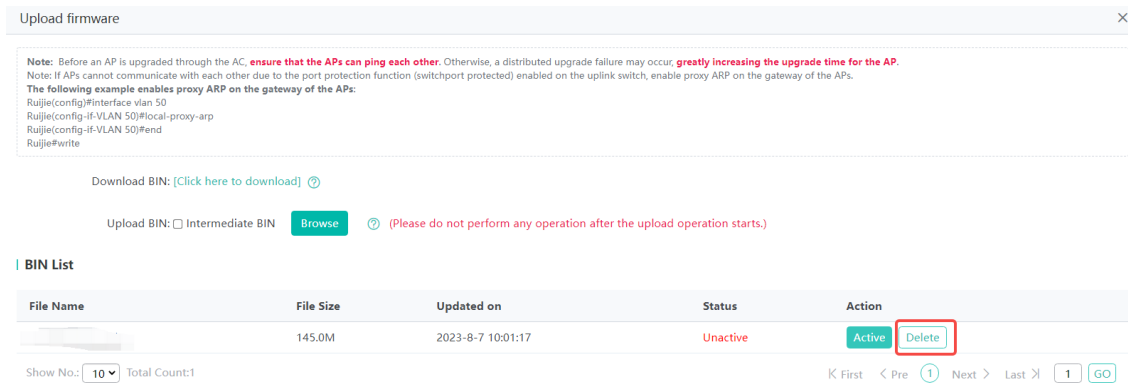
- (3) Choose **Maintenance > AP > Upgrade** and toggle off **Auto Upgrade**.



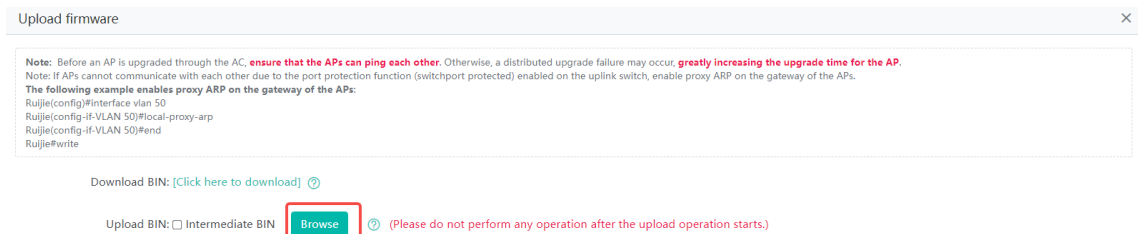
- (4) Click **Upload Firmware**.



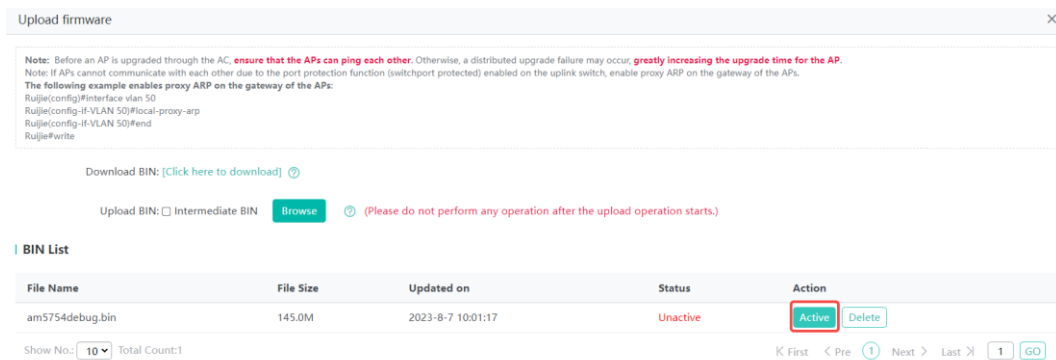
- (5) Delete other bin files to avoid upgrade to undesired versions.



- (6) Click **Browse** to select and upload the bin file from your PC and then click **Activate**.



- (7) If you click **Cancel** during activation by mistake, click **Activate**.



- (8) Select a common AP for upgrade verification.

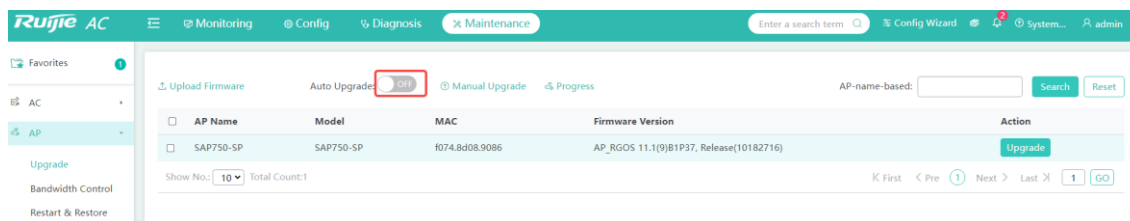
The screenshot shows the Ruijie AC Maintenance page. The 'AP' menu is selected in the left sidebar. The 'Upload Firmware' section is active, showing a table with one entry: SAP750-SP, Model SAP750-SP, MAC f074.8d08.9086, and Firmware Version AP_RGOS 11.1(9)B1P37, Release(10182716). The 'Upgrade' button is highlighted. Below the table, the 'Upgrade AP' dialog is open, showing a note: 'Note: Display the progress before the AP is rebooted. The progress after reboot cannot be tracked.' The 'Upload File' section has a 'Browse' button highlighted. The 'File Name' table is empty, showing 'No Data Found'.

- (9) The upgrade will take about 2 to 5 minutes. Choose **Monitoring > AP > AP List** and click the AP to be upgraded. Ensure that the common AP is online and the version number is consistent with that of the upgrade file.

The screenshot shows the Ruijie AC Monitoring page. The 'Monitoring' menu is selected in the top bar. The 'AP List' is displayed, showing a table with columns: AP Name, MAC Address, IP Address, Location, Group, Model, Status, and Online STAs. The first row is highlighted: SAP750-SP, MAC f074.8d08.9086, IP 10.104.220.73, Location admin, Group Default, Model SAP750-SP, Status Online, and Online STAs 0. The 'AP List' menu item in the left sidebar is highlighted.

The screenshot shows the Ruijie AC Monitoring page with the details of the selected AP, SAP750-SP. The 'Monitoring' menu is selected in the top bar. The 'AP List' is displayed, showing a table with columns: AP Name, MAC Address, IP Address, Location, Group, Model, Status, and Online STAs. The first row is highlighted: SAP750-SP, MAC f074.8d08.9086, IP 10.104.220.73, Location admin, Group Default, Model SAP750-SP, Status Online, and Online STAs 0. The 'AP List' menu item in the left sidebar is highlighted.

- (10) After the micro AP is upgraded successfully, configure the batch upgrade command.



- (11) After the upgrade is complete, ensure that all common APs are online and that the version numbers are correct.

3. Post-Upgrade Check

(1) Checking the Version Number

Run the **show version all** command to check whether the version number is consistent with that of the upgrade file such as **AP_RGOS 11.9(6)W1B1, Release(09181718)**.

(2) Checking the Online Information

Collect the information by running the following commands: **show ap-config sum**, **show device-config sum**, **show device-config map sum**, and **show ap-con sum slot**. Compare the information collected before and after upgrade to check whether the number of online devices is consistent.

(3) Checking Remote Authentication of Internet Access

- o Run the **show ac-config client** command to check whether there are any users online.
- o If 802.1X authentication is enabled, run the **show dot1x summary** command to check whether there are any 802.1X authentication users.
- o If web-based authentication is enabled, run the **show web-auth user all** command to check whether there are any web-based authentication users.
- o Ping several clients that have logged in and authenticated on the AC to check whether the ping packets are normal.

2.4.4 Workaround and Procedure

If most APs do not go online within an hour after upgrade, contact technical support personnel to perform fault locating. If most APs still fail to go online in two hours, on-site troubleshooting is required.

3 Upgrade in Hot Standby Scenarios

3.1 AC Upgrade

3.1.1 Precautions

- Before upgrading the AC, run the **write** command on the AC to save the current configuration.
- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- To ensure successful upgrade, the free flash size of the AC should be larger than the version size.
- Before the upgrade, run the **show run** and **show ap-group aps summary** commands on both ACs in hot standby mode to check that the displayed information and the **ap-group** parameter are consistent. If the configuration are inconsistent, users may fail to access the Internet after the upgrade.
- In Active/Standby hot standby mode, upgrade the standby AC after the active AC is upgraded successfully and sets up connection with all its associated APs over the tunnel. In Active/Active hot standby mode, upgrade another AC after one AC is upgraded successfully and sets up connection with all its associated APs over the tunnel.
- If both ACs have the file used to activate APs and AP upgrade needs to be configured, ensure that the files on both ACs are consistent. Otherwise, APs will be upgraded repeatedly after the tunnel between the AC and APs is established.

3.1.2 Preparation

- (1) Collect the information by running the following commands on the active and standby ACs: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, and **show wlandiag network**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (2) Download the version files of the active and standby ACs and store the files in the TFTP directory on the PC on the same LAN.

3.1.3 CLI-based Upgrade Procedure

1. AC Upgrade

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the upgrade files of the active and standby ACs to the flash directories of the active and standby ACs respectively.

```
copy tftp://xxx.xxx.xxx.xxx/AC_RGOSXXX.bin flash:AC_RGOSXXX.bin
```

For example:

```
Hostname#copy tftp://172.29.25.146/ AC_RGOS11.9(6)W3B1_G3C8-01_10201117_install.bin flash:AC_RGOS11.9(6)W3B1_G3C8-01_10201117_install.bin
```

```
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the versions of the active and standby ACs.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AC_RGOS11.1(5)B30P3_G2C8-01_08181717_install.bin**, run the following commands:

```
Hostname#run-system-shell
~ # md5sum /data/AC_RGOS11.1(5)B30P3_G2C8-01_08181717_install.bin
30dc589ed1f16cccb82c0a05da76c3c4 /data/AC_RGOS11.1(5)B30P3_G2C8-
01_08181717_install.bin
~ #
```

 Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AC_RGOS11.9(6)W3B1_G2C6-01_10201117_install.bin**, run the following commands:

```
Hostname#debug support
Hostname(support)#execute diagnose-cmd md5sum /data/AC_RGOS11.9(6)W3B1_G2C6-
01_10201117_install.bin
ff916c65a57da14fb3b264452d6bad67 /data/AC_RGOS11.9(6)W3B1_G2C6-
01_10201117_install.bin
```

 Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AC_RGOS11.9(6)W3B1_G2C6-01_10201117_install.bin
Description	Upgrade package (official version)
Size	68,632,128 bytes
Applicable Product	RG-WS6008-V1.xx RG-WS6008-V2.xx RG-WS6108-V1.xx RG-WS6008(C7)-V1.xx
MD5	ff916c65a57da14fb3b264452d6bad67
Software Version	AC_RGOS11.9(6)W3B1, Release(10201117)

- (5) Perform remote upgrade on the active AC.

```
Hostname#upgrade flash:acxx.bin
%UPGRADE_COMMAND: Upgrade the device must be auto-reset after finish, are you
sure upgrading now?[Y/n]y
```

 Caution

The AC will be upgraded and powered on within 15 minutes. If not, an exception may occur. Contact technical support personnel.

- (6) After the active AC is upgraded and goes online, run the **show ap-config summary** command to display the number of online APs.

```
Hostname#upgrade flash:acxx.bin
```

- (7) After all APs are online, log in to and upgrade the standby AC through Telnet.

```
Hostname#upgrade flash:acxx.bin
%UPGRADE_COMMAND: Upgrade the device must be auto-reset after finish, are you
sure upgrading now?[Y/n]y
```

 Caution

The AC will be upgraded and powered on within 15 minutes. If not, an exception may occur. Contact technical support personnel.

2. Post-Upgrade Check

- (1) Checking the Version Number

Run the **show version detail** command to check whether the version number is consistent with that of the upgrade file such as **AC_RGOS 11.9(6)W1B1, Release(09181718)**.

- (2) Checking the Configuration

Run the **show run** command before and after upgrade to display the information. Use an online comparison tool to compare the information displayed before and after upgrade.

 Note

The default settings vary with different versions. Therefore, the following commands may differ in other versions.

```
no identify-application enable
no register device
no cwmp
frn
ac-controller
    no ac-control disable
wlan-cap
    forward central
wids
black-white-list
```

```
no identify-application enable
no cwmpp
mgtt-server enable
tftp-server enable
control-plane
    anti-arp-spoof scan 20
    attack threshold 500
control-plane protocol
    no acpp
control-plane manage
    no port-filter
    no arp-car
    no acpp
control-plane data
    no glean-car
    no acpp
frn
```

(3) Checking the Online Information

Collect the information by running the following commands: **show ap-config sum**, **show device-config sum**, **show device-config map sum**, and **show ap-con sum slot**. Compare the information collected before and after upgrade to check whether the number of online devices is consistent.

(4) Checking Remote Authentication of Internet Access

- o Run the **show ac-config client** command to check whether there are any users online.
- o If 802.1X authentication is enabled, run the **show dot1x summary** command to check whether there are any 802.1X authentication users.
- o If web-based authentication is enabled, run the **show web-auth user all** command to check whether there are any web-based authentication users.
- o Ping several clients that have logged in and authenticated on the AC to check whether the ping packets are normal.

3.1.4 Workaround and Procedure

- (1) If there is a replacement AC, replace the AC if upgrade fails.
- (2) If there is no replacement AC, enter the Uboot of the AC and roll it back to the old version if upgrade fails.
- (3) If most APs do not go online within half an hour after the AC is upgraded, contact technical support personnel to perform fault locating. If most APs still fail to go online in one hour, roll back the AC to the old version by taking the CLI-based upgrade procedure.

3.2 i-Share+ AP Upgrade

3.2.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.

- Ensure that the flash space of each AC is sufficient and greater than the AP version size. Otherwise, the AP version may not be copied to the specified AC, resulting in upgrade failures on some APs.
- Before the upgrade, run the **show run** and **show ap-group aps summary** commands on both ACs in hot standby mode to check that the displayed information and the **ap-group** parameter are consistent. If the configuration are inconsistent, users may fail to access the Internet after the upgrade.
- In Active/Standby hot standby mode, upgrade the standby AC after the active AC is upgraded successfully and sets up connection with all its associated APs over the tunnel. In Active/Active hot standby mode, upgrade another AC after one AC is upgraded successfully and sets up connection with all its associated APs over the tunnel.
- If both ACs have the file used to activate APs and AP upgrade needs to be configured, ensure that the files on both ACs are consistent. Otherwise, APs will be upgraded repeatedly after the tunnel between the AC and APs is established.
- Before batch upgrade, perform an upgrade on two APs of the same model to verify the bin file. Repeat this step with all AP models.
- Before batch upgrade, verify that the APs on the same network segment can communicate with each other. To ensure smooth distributed upgrade, the APs on the same network segment must be able to ping each other. If the APs cannot ping each other, network isolation may be enabled on the switch. In this case, Proxy ARP needs to be enabled on the gateway of the APs. Otherwise, the upgrade will be slow.
- Upgrade micro APs before upgrading master APs.
- Do not activate the versions of micro APs and of master APs at the same time. Instead, activate the version of the master APs after all micro APs finish upgrade and go online.

3.2.2 Preparation

- (1) Run the **dir** command to check for the available flash space on the active and standby ACs. If flash space is insufficient, delete unnecessary files.

```
WS6108#dir
Directory of flash:/
Number  Properties   Size           Time           Name
-----  -
.....
 56      -rw-        1.8M          Sun Dec 13 17:19:30 2020  AP_upgrade.pdf
 57      -rw-        1.6k          Tue Aug 14 01:48:50 2018  standalone.text
 58      -rw-       106B          Wed Aug 3 13:59:34 2022  ap-config_2022-8-3_13_59_32.text
43 files, 15 directories
281,903,104 bytes data total (52,469,760 bytes free)
536,870,912 bytes flash total (52,469,760 bytes free)
WS6108#
```

- (2) Save the configuration files of the active and standby ACs and back up the **show run** and **show ap-config run** command output.
- (3) Collect the information by running the following commands on the active and standby ACs: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, and **show wlandiag network**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (4) Run the **show wlandiag network** command on the active and standby ACs to check for AP models and versions, especially the hardware version number. Download the supported AP versions to the PC.

- (5) Ensure that TFTP server is enabled on the active and standby ACs. This allows the offline APs to perform self-healing after upgrade.

Run the following command to enable TFTP server:

```
Hostname(config)#tftp-server enable
```

Run the following command to display TFTP server status:

```
AC#sh tftp-server
      tftp-server information
=====
enable : Y
topdir  : flash:/tftp-server
```

3.2.3 CLI-based Upgrade Procedure

1. AP Upgrade

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the versions of i-Share+ master APs and of micro APs to the flash directory of the AC.

```
copy tftp://xxx.xxx.xxx.xxx/AP_RGOSXXX.bin flash:AP_RGOSXXX.bin
```

For example:

```
AC6108#copy tftp://172.29.25.146/AP_RGOS11.9(6)W3B1_S2X2-
03_10201119_install.bin flash:AP_RGOS11.9(6)W3B1_S2X2-03_10201119_install.bin
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the versions of master APs and of micro APs.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin**, run the following commands:

```
Hostname#run-system-shell
~ # md5sum /data/AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin
3b7717f81a3b23ad68500423c77eb401 /data/AP_RGOS11.1(9)B1P8_S1C2-15-C-
FULL_05242018_install.bin
~ #
```

Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AP_RGOS11.9(6)W3B1_S2X2-03_10201119_install.bin**, run the following commands:

```
Hostname#debug support
Hostname(support)# execute diagnose-cmd md5sum /data/AP_RGOS11.9(6)W3B1_S2X2-
03_10201119_install.bin
```

```
6c23de60803e3102eff69c301fba264c /data/AP_RGOS11.9(6)W3B1_S2X2-
03_10201119_install1.bin
```

 Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AP_RGOS11.9(6)W3B1_S2X2-03_10201119_install1.bin
Description	Upgrade package (official version)
Size	18,234,983 bytes
Applicable Product	RG-MAP852-V1.xx RG-MAP852-V2.xx RG-MAP852-V3.xx
MD5	6c23de60803e3102eff69c301fba264c
Software Version	AP_RGOS11.9(6)W3B1, Release(10201119)

- (5) Upgrade a micro AP on the active AC.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller
Hostname(config-ac)#no ap-image auto-upgrade
Hostname(config-ac)#active-bin-file apxx.bin
```

Run the **ap-conig xxx** command to enter the configuration mode of the master AP.

```
Hostname(config)#ap-conig xxx
Hostname(config-ap)#ap-image apxx.bin
```

Run the following commands:

```
AC(config)#ac-controller
AC(config-ac)#no ap-image auto-upgrade
AC(config-ac)#active-bin-file ap09152120.bin
AC(config)#ap-con am5532
AC(config-ap)#ap-image ap09152120.bin
```

- (6) Run the **show ap-config updating** command to check for the upgrade progress of the micro AP until the upgrade is complete.
- (7) Run the **show version all slot** command to verify that the micro AP goes online with the target version.
- (8) Repeat steps 5 to 7 to upgrade another micro AP. Check whether the micro AP goes online with the target version.
- (9) After the two micro APs are upgraded successfully, proceed with batch upgrade on the active AC.

Enter the configuration mode of the upgraded AP. Run the **no ap-image** command to delete the upgrade command.

Run the **ac-controller** command to enter the configuration mode of the AC.

```

Hostname(config)#ac-controller
Hostname(config-ac)#ap-image auto-upgrade

```

Run the following commands:

```

AC(config)#ap-con am5532
AC(config-ap)#no ap-image
AC(config)#ac-controller
AC(config-ac)#ap-image auto-upgrade

```

(10) Upgrade an i-Share+ AP remotely.

Run the **ac-controller** command to enter the configuration mode of the AC.

```

Hostname(config)#ac-controller
Hostname(config-ac)#no ap-image auto-upgrade
Hostname(config-ac)#active-bin-file AM_RGOSXXX.bin

```

Run the **ap-conig xxx** command to enter the configuration mode of the master AP.

```

Hostname(config)#ap-conig xxx
Hostname(config-ap)#ap-image AM_RGOSXXX.bin

```

Run the following commands:

```

AC(config)#ac-controller
AC(config-ac)#no ap-image auto-upgrade
AC(config-ac)#active-bin-file am09152120.bin
AC(config)#ap-con am5532
AC(config-ap)#ap-image am09152120.bin

```

(11) Run the **show ap-config updating** command to check for the upgrade progress until the upgrade is complete.

(12) Run the **show version all** command to verify that the master AP goes online with the target version. Run the **show ap-config sum slot** command to verify that all micro APs connected to the master AP go online.

(13) Repeat steps 10 to 12 to upgrade another master AP. Check whether the master AP goes online with the target version.

(14) After the two master APs are upgraded successfully, proceed with batch upgrade on the active AC.

Enter the configuration mode of the upgraded AP. Run the **no ap-image** command to delete the upgrade command.

Run the **ac-controller** command to enter the configuration mode of the AC.

```

Hostname(config)#ac-controller
Hostname(config-ac)#ap-image auto-upgrade

```

Run the following commands:

```

AC(config)#ap-con am5532
AC(config-ap)#no ap-image
AC(config)#ac-controller
AC(config-ac)#ap-image auto-upgrade

```

2. Post-Upgrade Check

(1) Checking the Version Number

Run the **show version all** and **show version all slot** commands to check whether the version number is consistent with that of the upgrade file such as **AP_RGOS 11.9(6)W1B1, Release(09181718)**.

(2) Checking the Online Information

Collect the information by running the following commands: **show ap-config sum**, **show device-config sum**, **show device-config map sum**, and **show ap-con sum slot**. Compare the information collected before and after upgrade to check whether the number of online devices is consistent.

(3) Checking Remote Authentication of Internet Access

- o Run the **show ac-config client** command to check whether there are any users online.
- o If 802.1X authentication is enabled, run the **show dot1x summary** command to check whether there are any 802.1X authentication users.
- o If web-based authentication is enabled, run the **show web-auth user all** command to check whether there are any web-based authentication users.
- o Ping several clients that have logged in and authenticated on the AC to check whether the ping packets are normal.

3.2.4 Workaround and Procedure

If most APs do not go online within an hour after upgrade, contact technical support personnel to perform fault locating. If most APs still fail to go online in two hours, on-site troubleshooting is required.

3.3 O-Share AP Upgrade

3.3.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- Ensure that the flash space of each AC is sufficient. Otherwise, the AP version may not be copied to the specified AC, resulting in upgrade failures on some APs.
- Before the upgrade, run the **show run** and **show ap-group aps summary** commands on both ACs in hot standby mode to check that the displayed information and the **ap-group** parameter are consistent. If the configuration are inconsistent, users may fail to access the Internet after the upgrade.
- In Active/Standby hot standby mode, upgrade the standby AC after the active AC is upgraded successfully and sets up connection with all its associated APs over the tunnel. In Active/Active hot standby mode, upgrade another AC after one AC is upgraded successfully and sets up connection with all its associated APs over the tunnel.
- If both ACs have the file used to activate APs and AP upgrade needs to be configured, ensure that the files on both ACs are consistent. Otherwise, APs will be upgraded repeatedly after the tunnel between the AC and APs is established.
- Before batch upgrade, perform an upgrade on two APs of the same model to verify the bin file. Repeat this step with all AP models.
- Before batch upgrade, verify that the APs on the same network segment can communicate with each other. To ensure smooth distributed upgrade, the APs on the same network segment must be able to ping each

other. If the APs cannot ping each other, network isolation may be enabled on the switch. In this case, Proxy ARP needs to be enabled on the gateway of the APs. Otherwise, the upgrade will be slow.

- The O-Share master APs with 12.X operating system such as the AM5552-SF(V2) and AM5528-SF will fail upgrade if there is not enough flash space on the master APs. In this case, delete unnecessary files.
- Upgrade the AC using **AC_RGOS 11.9(6)W1B1** or later versions before upgrading master APs and micro APs.
- Bin files are model-specific. Select the bin files as specified in the release notes for different models of APs.
- Do not activate the versions of micro APs and of master APs at the same time. Instead, activate the version of the master APs after all micro APs finish upgrade and go online.

3.3.2 Preparation

- (1) Run the **dir** command to check for the available flash space on the active and standby ACs. If flash space is insufficient, delete unnecessary files.

```
WS6108#dir
Directory of flash:/
Number  Properties  Size           Time           Name
-----  -
.....
 56      -rw-        1.8M      Sun Dec 13 17:19:30 2020  AP_upgrade.pdf
 57      -rw-        1.6k      Tue Aug 14 01:48:50 2018  standalone.text
 58      -rw-        106B      Wed Aug 3 13:59:34 2022  ap-config_2022-8-3_13_59_32.text
43 files, 15 directories
281,903,104 bytes data total (52,469,760 bytes free)
536,870,912 bytes flash total (52,469,760 bytes free)
WS6108#
```

- (2) Save the configuration files of the active and standby ACs and back up the **show run** and **show ap-config run** command output.
- (3) Collect the information by running the following commands on the active and standby ACs: show version detail, show running-config, show ac-config, show ap-group aps summary, show ap-config summary, show device-config summary, show device-config map summary, show ap-config summary slot, and show wlandiag network. The information will be compared with that collected after upgrade to verify that all devices are online.
- (4) Run the **show wlandiag network** command on the active and standby ACs to check for AP models and versions, especially the hardware version number. Download the supported AP version to the PC.
- (5) Ensure that TFTP server is enabled on the AC. This allows the offline APs to perform self-healing after upgrade.

Run the following command to enable TFTP server:

```
Hostname(config)#tftp-server enable
```

Run the following command to display TFTP server status:

```
AC#sh tftp-server
      tftp-server information
=====
enable : Y
topdir  : flash:/tftp-server
```

3.3.3 CLI-based Upgrade Procedure

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the versions of O-Share master APs and of micro APs to the flash directory of the active AC.

```
copy tftp://xxx.xxx.xxx.xxx/AP_RGOSXXX.bin flash:AP_RGOSXXX.bin
```

For example:

```
AC6108#copy tftp://172.29.25.146/AP_RGOS11.9(6)W3B1_S1X2-
07_10201121_install.bin flash: AP_RGOS11.9(6)W3B1_S1X2-07_10201121_install.bin
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the versions of master APs and of micro APs on the active and standby ACs.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin**, run the following commands:

```
Hostname#run-system-shell
~ # md5sum /data/AP_RGOS11.1(9)B1P8_S1C2-15-C-FULL_05242018_install.bin
3b7717f81a3b23ad68500423c77eb401 /data/ AP_RGOS11.1(9)B1P8_S1C2-15-C-
FULL_05242018_install.bin
~ #
```

Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AP_RGOS11.9(6)W3B1_S1X2-07_10201121_install.bin**, run the following commands:

```
Hostname#debug support
Hostname(support)# execute diagnose-cmd md5sum /data/AP_RGOS11.9(6)W3B1_S1X2-
07_10201121_install.bin
df38ddc8c0d46f94809286d61107105d /data/AP_RGOS11.9(6)W3B1_S1X2-
07_10201121_install.bin
```

Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File-Name	AP_RGOS11.9(6)W3B1_S1X2-07_10201121_install.bin
Description	Upgrade-package (official-version)
Size	32,673,614-bytes
Applicable-Product	RG-MAP852-SF-S-V1.xx
MD5	df38ddc8c0d46f94809286d61107105d
Software-Version	AP_RGOS11.9(6)W3B1, Release(10201121)

- (5) Configure the FTP server on the AC.

```

Hostname(config)#ftp-server enable
Hostname(config)#ftp-server topdir flash:/
Hostname(config)#ftp-server username ruijie password ruijie123

```

Run the **show ftp-server** command to check whether the configuration takes effect.

```

AC(config)#sh ftp-server
ftp-server information
=====
enable : Y
topdir : flash:/
timeout: 10min
username:ruijie
password:(PLAINT)ruijie123
connect num[0]

```

- (6) Upgrade a master AP remotely.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
device-upgrade mac xxxx.xxxx.xxxx url ftp://ruijie:ruijie123@x.x.x.x/am.bin
```

xxxx.xxxx.xxxx indicates the MAC address of the master AP and x.x.x.x is the IP address of the AC.

Run the following commands:

```

AC(config)#sh device-config summary
===== show device status =====

Online device number: 1
Offline device number: 2

Mac Address      Device Name      IP Address      Mode      Up/Off time      State
-----
c0b8.e650.08d5   am5552-sf-1      47.12.1.10      smart     0:19:48:14      Run
5416.5139.c28f   am5528-sf        47.12.2.24      smart     0:18:50:39      Run
AC(config)#device-upgrade mac 5416.5139.c28f url ftp://ruijie:ruijie123@47.0.0.1/am.bin

```

- (7) Run the **show device-config upgrading-list** command to check for the upgrade progress until the upgrade is complete.
- (8) Run the **show device-config version sum** command to check whether the version number is consistent with that of the upgrade file.
- (9) After the master AP goes online, run the **show device-config summary** command to display its mode. If it is **smart** mode, run the **show device-config map sum** command to check whether the micro APs go online normally. If it is **normal** mode, run the **show ap-config summary** command to check whether the online APs before and after upgrade are consistent.
- (10) After the master AP is upgraded successfully, proceed with remote batch upgrade on the AC.

Remove the command from the AC for standalone-AP upgrade and configure the batch upgrade command:

```
Hostname(config)#no device-upgrade mac xxxx.xxxx.xxxx url  
ftp://ruijie:ruijie123@x.x.x.x/am.bin  
Hostname(config)#device-upgrade url ftp://ruijie:ruijie123@x.x.x.x/am.bin
```

Run the following commands:

```
AC(config)#no device-upgrade mac 5416.5139.c28f url ftp://ruijie:ruijie123@47.0.0.1/am.bin  
AC(config)#device-upgrade url ftp://ruijie:ruijie123@47.0.0.1/am.bin
```

3.3.4 Workaround and Procedure

If most APs do not go online within an hour after upgrade, contact technical support personnel to perform fault locating. If most APs still fail to go online in two hours, on-site troubleshooting is required.

3.4 Common AP Upgrade

3.4.1 Precautions

- Perform AP upgrade only after all ACs in the environment have been upgraded. Upgrade the AP after the AC is upgraded successfully and sets up connection with all its associated APs. Otherwise, distributed upgrade may fail, which may prolong the upgrade process.
- To ensure successful upgrade, the free flash size of the AC should be larger than the version size.
- Before the upgrade, run the **show run** and **show ap-group aps summary** commands on both ACs in hot standby mode to check that the displayed information and the **ap-group** parameter are consistent. If the configuration are inconsistent, users may fail to access the Internet after the upgrade.
- In Active/Standby hot standby mode, upgrade the standby AC after the active AC is upgraded successfully and sets up connection with all its associated APs over the tunnel. In Active/Active hot standby mode, upgrade another AC after one AC is upgraded successfully and sets up connection with all its associated APs over the tunnel.
- If both ACs have the file used to activate APs and AP upgrade needs to be configured, ensure that the files on both ACs are consistent. Otherwise, APs will be upgraded repeatedly after the tunnel between the AC and APs is established.
- Before batch upgrade, perform an upgrade on two APs of the same model to verify the bin file. Repeat this step with all AP models.
- Before batch upgrade, verify that the APs on the same network segment can communicate with each other. To ensure smooth distributed upgrade, the APs on the same network segment must be able to ping each other. If the APs cannot ping each other, network isolation may be enabled on the switch. In this case, Proxy ARP needs to be enabled on the gateway of the APs. Otherwise, the upgrade will be slow.

3.4.2 Preparation

- (1) Run the **dir** command on the active and standby ACs to check for the available flash space on the device. If flash space is insufficient, delete unnecessary files.
- (2) Save the configuration files of the active and standby ACs and back up the **show run** and **show ap-config run** command output.

- (3) Collect the information by running the following commands: **show version detail**, **show running-config**, **show ac-config**, **show ap-group aps summary**, **show ap-config summary**, **show device-config summary**, **show device-config map summary**, **show ap-config summary slot**, and **show wlandiag network**. The information will be compared with that collected after upgrade to verify that all devices are online.
- (4) Run the **show wlandiag network** command on the active and standby ACs to check for AP models and versions, especially the hardware version number. Download the supported AP version to the PC.
- (5) Ensure that TFTP server is enabled on the active and standby ACs. This allows the offline APs to perform self-healing after upgrade.

Run the following command to enable TFTP server:

```
Hostname(config)#tftp-server enable
```

Run the following command to display TFTP server status:

```
AC#sh tftp-server
      tftp-server information
=====
enable : Y
topdir  : flash:/tftp-server
```

3.4.3 CLI-based Upgrade Procedure

1. AP Upgrade

- (1) Enable the TFTP server on the PC and ensure that the AC can successfully ping the PC.
- (2) Copy the versions of APs to the flash directory of the active AC.

```
copy tftp://xxx.xxx.xxx.xxx/AP_RGOSXXX.bin flash:AP_RGOSXXX.bin
```

For example:

```
AC6108#copy tftp://172.29.25.146/AP_RGOS11.9(6)W3B1_S2X4-
01_10201117_install.bin flash:AP_RGOS11.9(6)W3B1_S2X4-01_10201117_install.bin
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Copy success.
```

- (3) Perform MD5 check for the versions on the active and standby ACs.

Method 1: Applicable to versions earlier than 11.9 (such as version 11.1)

If the name of the version copied to the AC is **AP_RGOS11.1(9)B1P25_S1C2-43_07151712_install.bin**, perform the following operations.

```
Hostname#run-system-shell
~ # md5sum /data/AP_RGOS11.1(9)B1P25_S1C2-43_07151712_install.bin
a5c65f976cd65fd1716745a0c9b7f2f3 /data/AP_RGOS11.1(9)B1P25_S1C2-
43_07151712_install.bin
~ #
```



Caution

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

Method 2: Applicable to 11.9 or later versions (such as version 11.9 (6))

If the name of the version copied to the AC is **AP_RGOS11.9(6)W3B1_S2X4-01_10201117_install.bin**, perform the following operations.

```

Hostname#debug support
Hostname(support)# execute diagnose-cmd md5sum
/data/data/AP_RGOS11.9(6)W3B1_S2X4-01_10201117_install.bin
8229dee0a37622d967abfd673dc2788a/data/data/AP_RGOS11.9(6)W3B1_S2X4-
01_10201117_install.bin

```

**Caution**

If there are parentheses in the file name, a backslash (\) needs to be added before the parenthesis for correct parsing.

- (4) Compare the MD5 checksum with the one mentioned in the software version release notes. Perform upgrade only when the two values match.

File Name	AP_RGOS11.9(6)W3B1_S2X4-01_10201117_install.bin
Description	Upgrade-package-(official-version)
Size	28,702,275 bytes
Applicable Product	RG-AP840-I-V1.xx
MD5	8229dee0a37622d967abfd673dc2788a
Software Version	AP_RGOS11.9(6)W3B1, Release(10201117)

- (5) Upgrade one AP on the active AC.

Run the **ac-controller** command to enter the configuration mode of the AC.

```

Hostname(config)#ac-controller
Hostname(config-ac)#no ap-image auto-upgrade
Hostname(config-ac)#active-bin-file AP_RGOSXXX.bin

```

Run the **ap-config apXXX** command to enter the configuration mode of the AP.

```

Hostname(config)# ap-config apXXX
Hostname(config-ap)#ap-image AP_RGOSXXX.bin

```

Run the following commands:

```

AC(config)#ac-controller
AC(config-ac)#no ap-image auto-upgrade
AC(config-ac)#active-bin-file apxx.bin
AC(config)#ap-con ap880
AC(config-ap)#ap-image apxx.bin

```

- (6) Run the **show ap-config updating** command to check for the upgrade progress until the upgrade is complete.
- (7) Run the **show version all** command to verify that the AP goes online with the target version.
- (8) Repeat steps 5 to 7 to upgrade another AP. Check whether the AP goes online with the target version.

- (9) After the two APs are upgraded successfully, proceed with batch upgrade on the active AC.

Enter the configuration mode of the upgraded AP. Run the **no ap-image** command to delete the upgrade command.

Run the **ac-controller** command to enter the configuration mode of the AC.

```
Hostname(config)#ac-controller  
Hostname(config-ac)#ap-image auto-upgrade
```

Run the following commands:

```
AC(config)#ap-con ap880  
AC(config-ap)#no ap-image  
AC(config)#ac-controller  
AC(config-ac)#ap-image auto-upgrade
```

2. Post-Upgrade Check

- (1) Checking the Version Number

Run the **show version all** command to check whether the version number is consistent with that of the upgrade file such as **AP_RGOS 11.9(6)W1B1, Release(09181718)**.

- (2) Checking the Online Information

Collect the information by running the following commands: **show ap-config sum**, **show device-config sum**, **show device-config map sum**, and **show ap-con sum slot**. Compare the information collected before and after upgrade to check whether the number of online devices is consistent.

- (3) Checking Remote Authentication of Internet Access

- o Run the **show ac-config client** command to check whether there are any users online.
- o If 802.1X authentication is enabled, run the **show dot1x summary** command to check whether there are any 802.1X authentication users.
- o If web-based authentication is enabled, run the **show web-auth user all** command to check whether there are any web-based authentication users.
- o Ping several clients that have logged in and authenticated on the AC to check whether the ping packets are normal.

3.4.4 Workaround and Procedure

If most APs do not go online within an hour after upgrade, contact technical support personnel to perform fault locating. If most APs still fail to go online in two hours, on-site troubleshooting is required.

4 Fat AP Upgrade

4.1 Precautions

- Before the upgrade, ensure that the available flash space of the AP is greater than the size of the upgrade file. Otherwise, the AP version may not be copied to the specified directory, resulting in an upgrade failure.
- During the upgrade, ensure that services are in off-peak hours or can be interrupted to minimize the impact of the upgrade on services.
- Disable the antivirus software and firewall on the PC, and ensure that the PC can ping the AP.
- Ensure that the TFTP port on the PC is not occupied by other processes.
- Ensure that the software version is up-to-date, and visit Ruijie's official website to download the proper upgrade package.
- Do not power off or restart the AP during the upgrade.

4.2 Preparation

- (1) Run the **dir** command to check the available flash space on the AP. If the flash space is insufficient, delete unnecessary files.

```

Hostname#dir
Directory of flash:/
Number  Properties  Size           Time           Name
-----  -
1       drwx         160B          Thu Jan  1 00:00:07 1970  rep
2       drwx         224B          Thu Jan  1 00:00:07 1970  var
3       drwx         224B          Thu Jan  1 00:00:10 1970  misc
4       -rwx         16B           Fri Jan  9 19:44:56 1970  test
5       ----        12.7k         Mon Feb 26 19:27:30 2024  ap_down.txt
6       -rw-         0B            Thu Jan  1 00:02:09 1970  ft_result_flag
7       -rw-        349B          Mon Mar 11 22:48:11 2024  cnss_diag.conf
8       -rw-        570B          Thu Jan  1 00:00:05 1970  def-config.text
9       -rw-        3.9k          Thu Jan  1 00:03:54 1970  config.text
10      -rw-        110B          Thu Jan  1 00:03:54 1970  black-white-list-
config.text
11      -rw-        110B          Mon Jan  5 22:09:33 1970  black-white-list.csv
12      d---        288B          Thu Jan  1 00:00:44 1970  metrics
13      -rw-        40.0k         Fri Apr  3 01:11:08 1970  webLog.db
14      -rwx         21B           Thu Jan  1 00:03:54 1970  syslog_rfc5424_flag.txt
15      drwx         496B          Thu Jan  1 08:29:10 1970  portal
16      -rw-         34B          Thu Jan  1 12:10:49 1970  dhcp_snp.dat
17      drwx        232B          Thu Jan  1 00:00:06 1970  wlan_bs
18      -rwx        300B          Thu Jan  1 08:26:28 1970  ecc_private.bin
19      -rwx        1.6k          Thu Jan  1 00:00:40 1970  rsa_private.bin

```

```

20      -rw-      0B      Thu Jan 15 00:25:43 1970  portList.json
21      -rwx      600B     Mon Jan  5 21:30:27 1970  dsa_private.bin
22      -rw-      270B     Wed Jan 14 20:55:25 1970  black-white-list-
config.text.old
23      -rwx      1.6k     Thu Jan  1 00:00:40 1970  rsal_private.bin
24      drwx      160B     Thu Jan  1 00:00:39 1970  upgrade
25      drwx      240B     Thu Jan  1 00:01:41 1970  syslog
26      ----      504B     Fri Apr  3 01:13:12 1970  ap_reset.txt
27      -rw-      0B      Wed Mar 13 13:55:06 2024  appList.json
28      -rw-      67B      Fri Mar 29 14:19:03 2024  TokenFile.json
29      -rw-      90B      Thu Mar 26 02:19:22 1970  webPassAuto.json
30      -rw-      7.9k     Thu Jan  1 00:05:14 1970  fakeboar.bin
22 files, 8 directories
17,612,800 bytes data total (16,609,280 bytes free)
268,435,456 bytes flash total (16,609,280 bytes free) //Total flash memory of
268,435,456 bytes, with 16,609,280 bytes available.

```

- (2) Save the configuration file to check whether the version number in the file is consistent with the target version number and whether the network is functioning properly after the upgrade is completed. Select either of the following methods.

- o Enable the TFTP server on the PC and ensure that the AP can successfully ping the PC. Then, download the configuration file of the AP.

```
copy flash:config.text tftp://xxx.xxx.xxx.xxx/config.txt
```

Example:

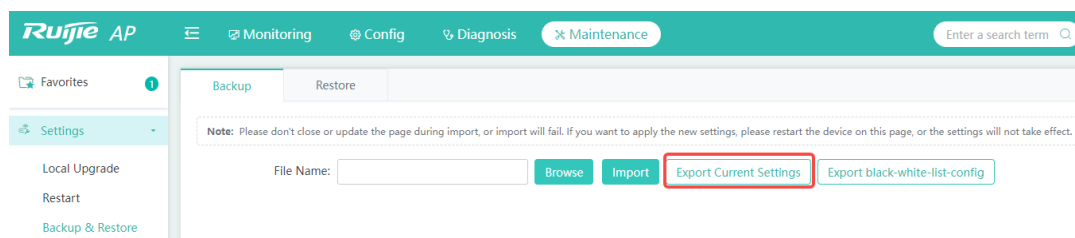
```

Hostname#copy flash:config.text tftp://10.48.40.55/config.txt
Press Ctrl+C to quit
!

Copy success.

```

- o Open a browser, and enter the management IP address of the AP. Then enter the username and password to log in to the web management page. Choose **Maintenance > Settings > Backup & Restore > Backup**. Click **Export Current Settings** to save the configuration file.



4.3 Upgrade Procedure

4.3.1 CLI-based Upgrade Procedure

- (1) Enable the TFTP server on the PC and ensure that the AP can successfully ping the PC.
- (2) Download and install the software upgrade package from the TFTP server.

Caution

The upgrade takes 2–5 minutes. If it is not completed within 15 minutes and you cannot log in to the AP through Telnet, an exception may occur. In this case, contact technical support personnel.

```
upgrade download tftp://xxx.xxx.xxx.xxx/AP_RGOSXXX.bin
```

Example:

```

Hostname#upgrade download tftp://10.48.40.55/AP_RGOS11.9(6)W5_S1E16-
233_11193005_install1.bin
Upgrade the device must be auto-reset after finish, are you sure upgrading
now?[Y/n]y
% Copy to /tmp/vsd/0/AP_RGOS11.9(6)W5_S1E16-233_11193005_install1.bin
Please wait for a moment.....
Press Ctrl+C to quit
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Begin to upgrade the install package AP_RGOS11.9(6)W5_S1E16-
233_11193005_install1.bin...

```

Possible issues and handling methods for CLI-based upgrade are as follows:

- o When the upgrade succeeds, the following prompt is displayed.

```
Upgrade info [OK];
```

- o When the package file is invalid or damaged, the following prompt is displayed. Obtain the package file again and run the upgrade command.

```
Invalid package file
```

- o When the AP does not support the package file, the following prompt is displayed. Obtain the package file again and run the upgrade command.

```
Device don't support
```

- o When the AP does not need to be upgraded, the following prompt is displayed.

```
The version in device is newer or the same
```

- o When the space is insufficient for the upgrade, the following prompt is displayed. Check whether the USB flash drive of the AP is functioning properly.

```
No enough space for decompress
```

- o When the system is damaged, the following prompt is displayed. Contact technical support personnel.

```
No enough space, rootfs been destroyed. Please upgrade in uboot
```

- o When the patch package already exists in the system, the following prompt is displayed. Uninstall the

existing patch package first.

```
Already exist patch, please uninstall before upgrade
```

- o When the patch package is not compatible with the system, the following prompt is displayed. Replace the patch package:

```
Patch compatibility err
```

- o When the AP cannot be upgraded using the patch package, the following prompt is displayed. Obtain a new patch package.

```
Some origin component has change
```

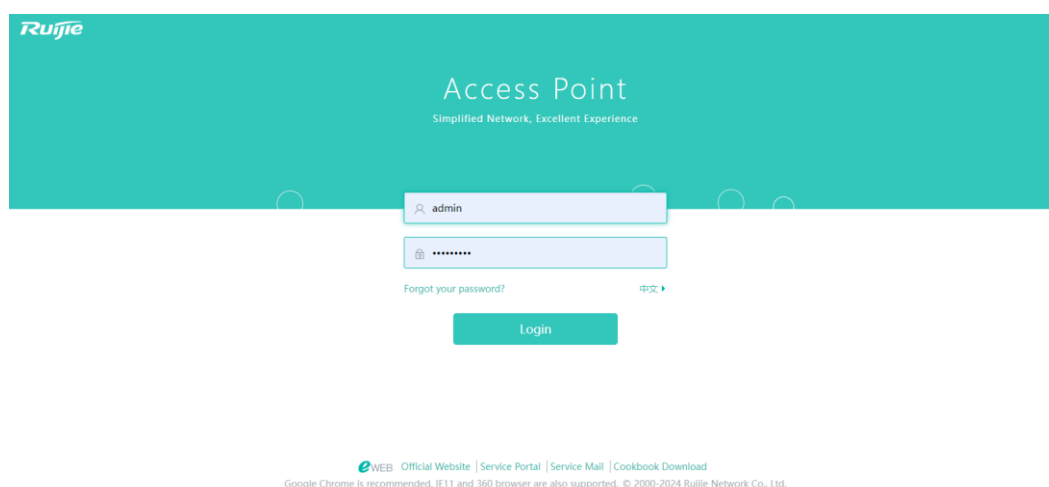
- (3) Run the **show version detail** command to check whether the system is upgraded successfully and whether the target version is consistent with the downloaded one.

```

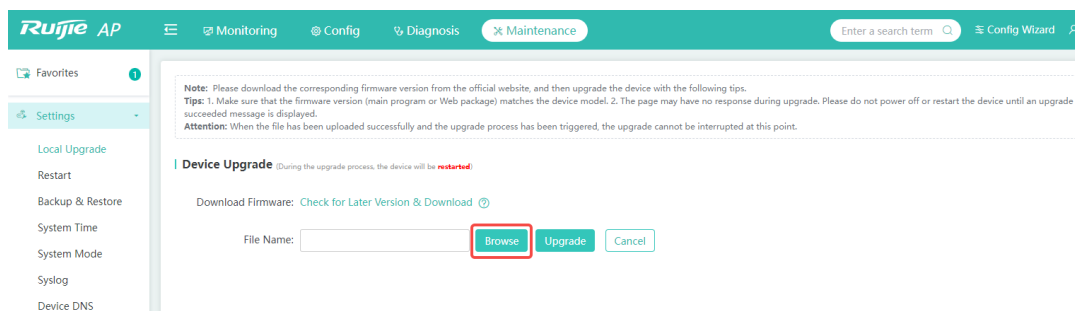
Hostname#show version detail
System description      : Ruijie AP9861-R (802.11a/n/ac/ax/be and
802.11b/g/n/ax/be) By Ruijie Networks.
System start time      : 1970-01-01 00:00:00
System uptime         : 4:21:37:55
System hardware version : 1.00
System software version : AP_RGOS 11.9(6)W5, Release(11193005) //Check whether
the target version is consistent with the downloaded one.
System patch number    : NA
System software number : M06253407302024
System serial number   : G1T02VPxxxxxx
System boot version    : 1.0.5.6d3accaff2(231225)
System core version    : 2.6.32.a10123285baa99
  
```

4.3.2 Web-based Upgrade Procedure

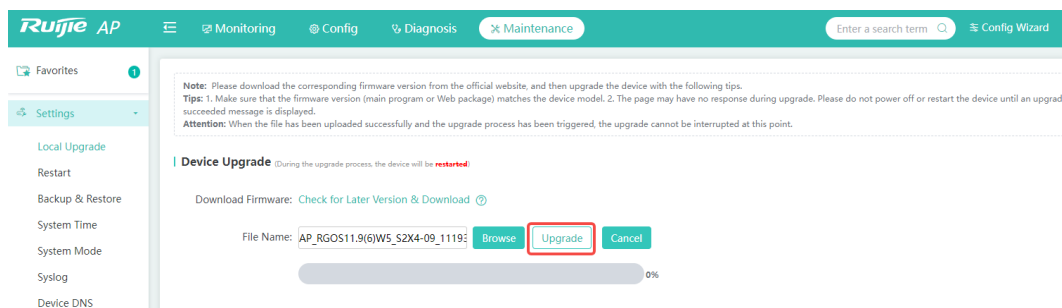
- (1) Download the software upgrade package of the AP to the PC.
- (2) Open a browser, and enter the management IP address of the AP. Then enter the username and password to log in to the web management page.



- (3) Choose **Maintenance > Settings > Local Upgrade**. Click **Browse** to upload the software upgrade package.



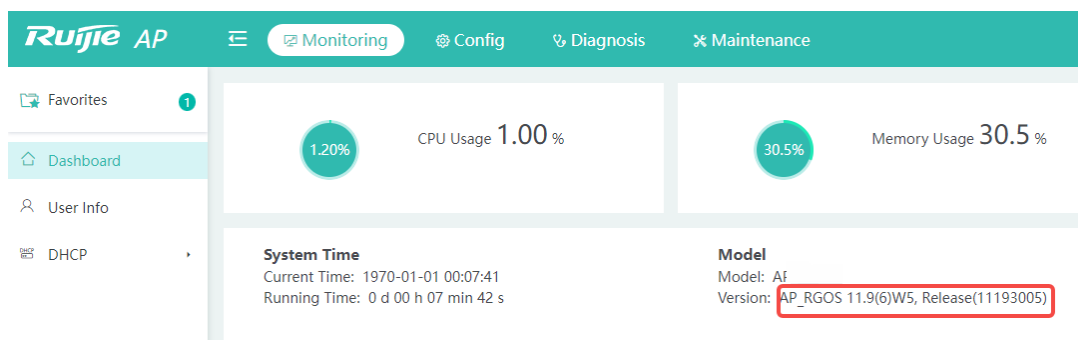
- (4) Click **Upgrade** and perform the upgrade as prompted. The upgrade takes a few minutes.



- (5) After the upgrade is completed, refresh the browser. Choose **Monitoring > Dashboard** to check whether the version number is consistent with that in the upgrade file.

⚠ Caution

- The upgrade takes 2–5 minutes. If the web page does not display within 15 minutes and you cannot log in to the AP through Telnet, an exception may occur. In this case, contact technical support personnel.
- After the upgrade is completed, if you can log in to the AP through Telnet but cannot access the web page, run the **enable service web-server** command to enable the HTTP service, or run the **no web-server http redirect-to-https** command to disable automatic HTTP redirection to HTTPS. If the web page is still inaccessible, contact technical support personnel.



4.3.3 Post-Upgrade Check

(1) Checking the Version Number

Run the **show version detail** command to check whether the version number is consistent with that in the upgrade file such as **AP_RGOS 11.9(6)W5, Release(11193005)**.

(2) Checking the Online Information

Run the **show running-config** command to check whether the configuration is consistent with that in the **config.txt** file downloaded before the upgrade.

(3) Checking Remote Authentication of Internet Access

- o If 802.1X authentication is enabled, run the **show dot1x summary** command to check whether there are any 802.1X authentication users.
- o If web-based authentication is enabled, run the **show web-auth user all** command to check whether there are any web-based authentication users.

4.4 Workaround and Procedure

If the web page does not display within 15 minutes and you cannot log in to the AP though Telnet, an exception may occur. In this case, contact technical support personnel.