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Introduction

This document provides examples for upgrading software on an IRF fabric.

Prerequisites

The configuration examples in this document were created and verified in a lab environment, and all the devices were started with the factory default configuration. When you are working on a live network, make sure you understand the potential impact of every command on your network.

This document assumes that you have basic knowledge of IRF.

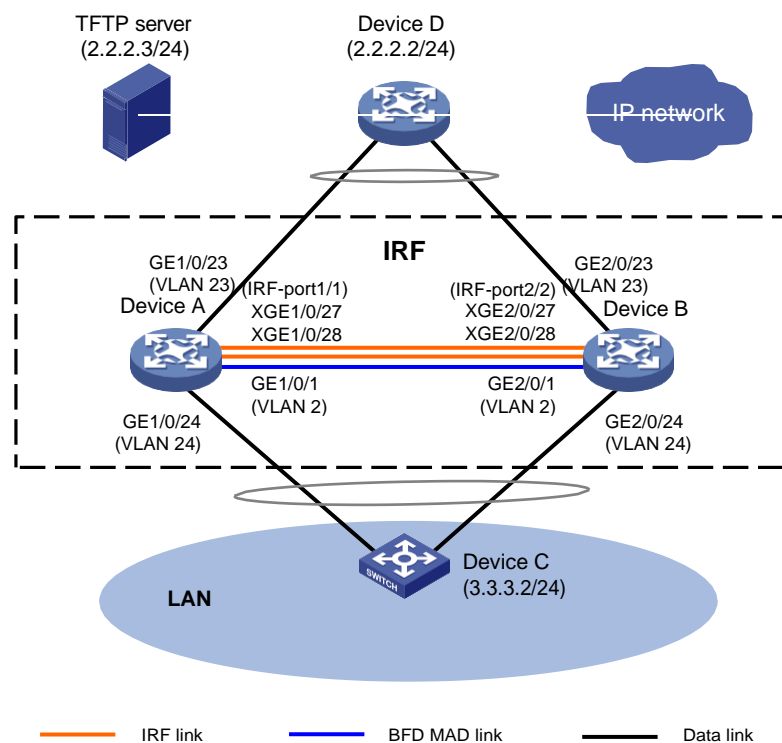
Example: Upgrading software on an IRF fabric

Network configuration

As shown in [Figure 1](#), Device A and Device B have set up an IRF fabric. Device A is the master device and its member ID is 1, and Device B is the standby device and its member ID is 2. BFD MAD is used for multi-active collision detection.

The current software version of the IRF fabric is R2432p06. Upgrade the software version to R2720. After software upgrade, Device A is still the master device.

Figure 1 Network diagram



Analysis

INTELBRAS devices support upgrade methods as shown in [Table 1](#). In this example, software is upgraded from the CLI by using the boot loader method. To reduce service interruption time during the upgrade process, IRF split and IRF merge will be performed during the upgrade process.

Table 1 Software upgrade methods

Upgrade method	Software types	Remarks
Upgrading from the CLI by using the boot loader method	<ul style="list-style-type: none">• BootWare image• Comware images (excluding incremental patches)	This method is disruptive. You must reboot the entire device to complete the upgrade. All models support this method.
Performing an ISSU from the CLI	Comware images	This method enables a software upgrade with a minimum amount of downtime. Some models support this method.
Upgrading from the BootWare menu	<ul style="list-style-type: none">• BootWare image• Comware images	Use this method when the device cannot start up correctly. To use this method, first connect to the console port and power cycle the device. Then, press Ctrl+B at prompt to access the BootWare menu. For more information about upgrading software from the BootWare menu, see the release notes for the software version. All models support this method.

To upgrade software on an IRF fabric from the CLI by using the boot loader method:

1. Shut down all uplink and downlink service interfaces on the master device (Device A) in bulk to switch traffic from Device A to Device B. To enter interface range view, use the **interface range** command.
2. Upgrade software on Device A from the CLI by using the boot loader method and reboot the device. During the reboot, shut down IRF physical interfaces Ten-GigabitEthernet 2/0/27 and Ten-GigabitEthernet 2/0/28 on Device B. The IRF fabric splits.

CAUTION:

To prevent configuration loss from affecting interface status and causing IRF merge failure or service traffic interruption, do not save the running configuration on any IRF member device when the IRF fabric splits.

NOTE:

To split an IRF fabric, you can remove cables from IRF physical interfaces or shut down all IRF physical interfaces on the standby device. The latter method is simpler. In this example, the latter method is used.

3. Shut down all uplink and downlink service interfaces on the standby device (Device B) in bulk. Bring up all uplink and downlink service interfaces on Device A to switch service traffic back to Device A.
4. Upgrade software on Device B. After Device B reboots, Device A and Device B automatically form an IRF fabric.

Applicable hardware and software versions

The following matrix shows the hardware and software versions to which this configuration example is applicable:

Hardware	Software version
SC 3570 switch series	Release 11xx
SC 5525 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 5520 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 3170 switch series	Release 11xx
SC 3130 switch series	Release 63xx

Restrictions and guidelines

Whole upgrade process

As a best practice to discover, locate, and analyze issues in time, record all operations during the whole upgrade process.

Before IRF software upgrade

- Make sure all member devices and cards are in stable state. For this purpose, execute the **display system stable state** command and verify that the value for the **State** field is **Stable**. If a member device or card is not in stable state, identify the reason. Do not upgrade software on the IRF fabric unless all member devices and cards are in stable state.
- Prepare scripts in advance for shutting down and bringing up uplink and downlink service interfaces. To prevent omission of service interfaces from resulting in exceptions in the upgrade process, make sure the scripts contain all service interfaces on the IRF fabric.

During IRF software upgrade

- First upgrade software for the master device. Make sure the master device has a higher member priority than the standby device.
- To avoid configuration loss, do not save the running configuration on any IRF member device when the IRF fabric splits.
- After the master device starts up after software upgrade, make sure all member devices and cards are running correctly. Use the **display interface** command to verify that all interfaces are displayed, and then wait for 2 minutes before you move to the next step.
- After the standby device reboots, reconnect IRF links before the standby device finishes restart. If you reconnect IRF links after the standby device finishes restart, the standby device must reboot again to complete IRF merge with the master device.

After IRF software upgrade

- Make sure all member devices and cards are in stable state. For this purpose, execute the **display system stable state** command and verify that the value for the **State** field is **Stable**.
- Verify that all services on the IRF fabric are running correctly. If a service cannot run correctly, locate and resolve the issue as soon as possible.

Prerequisites

1. Configure NSR settings on the IRF fabric:

During the upgrade process, master/standby switchover will occur. If the IRF fabric runs routing protocols, for example, BGP and OSPF, the switchover issue might cause routing neighbor flapping and affect packet forwarding. For high availability, configure NSR for routing protocols. Before upgrading software on the IRF fabric, configure NSR settings and save the configuration. In this example, OSPF NSR and BGP NSR are configured for illustration.

Enable NSR for OSPF process 100.

```
<IRF> system-view
[IRF] ospf 100
[IRF-ospf-100] non-stop-routing
[IRF-ospf-100] display ospf non-stop-routing status
```

```
OSPF Process 100 with Router ID 1.1.1.1
Non Stop Routing information
```

```
Non Stop Routing capability : Enabled
```

```
Upgrade phase : Normal
```

```
[IRF-ospf-100] quit
```

```
[IRF] quit
```

Enable NSR for BGP process 100.

```
[IRF] bgp 100
```

```
[IRF-bgp-default] non-stop-routing
```

```
[IRF-bgp-default] display bgp non-stop-routing status
```

```
BGP NSR status: Ready
```

```
Location of preferred standby process: Slot 2
```

```
TCP NSR status: Ready
```

```
[IRF-bgp-default] quit
```

```
[IRF-bgp] quit
```

2. Verify that the master device is assigned a higher member priority than the standby device. The higher the priority value, the higher the priority to be the master device. In this example, set the member priority of Device A to 32.

```
[IRF] irf member 1 priority 32
```

3. Check single-armed service links.

IRF split will occur during the upgrade process. In addition, you need to shut down all service interfaces on one member device. For high availability, deploy physical links dual-homed to both member devices for each uplink device and downlink device. That is, connect Device D to both Device A and Device B, and connect Device C to both Device A and Device B. If single-armed services exist, service access exception will occur during the upgrade process. As a best practice, add backup links for single-armed services.

4. Check IRF status and collect information:

Before the upgrade process, you must check the device status, HA status, IRF status, and MAD status.

⚠ IMPORTANT:

Make sure all member devices and cards are in stable state. If a member device or card is not in stable state, identify the reason. Do not upgrade software on an IRF fabric unless all member devices and cards are in stable state.

Display device information.

```
[IRF] display device
```

Slot	Type	State	Subslot	Soft Ver	Patch Ver
1	SC 3130EI	Master	0	2432p06	None
2	SC 3130EI	Standby	0	2432p06	None

Display system stable status.

```
[IRF] display system stable state
```

```
System state : Stable
```

```
Redundancy state : Stable
```

Slot	CPU	Role	State
1	0	Active	Stable
2	0	Standby	Stable

Display brief information about system stability and status, including CPU running status, redundancy status, and NSR status.

```
[IRF] display system stable state summary
```

```
System state      : Stable
Redundancy state  : Stable
NSR state        : Ready
```

Display IRF information.

```
<IRF> display irf
```

MemberID	Role	Priority	CPU-Mac	Description
*+1	Master	32	f010-90db-7402	---
2	Standby	1	f010-90db-0204	---

```
-----
* indicates the device is the master.
+ indicates the device through which the user logs in.
```

```
The bridge MAC of the IRF is: 0000-0001-0002
```

```
Auto upgrade      : yes
Mac persistent    : 12 min
Domain ID         : 0
```

Display IRF configuration on all IRF member devices.

```
<IRF> display irf configuration
```

MemberID	NewID	IRF-Port1	IRF-Port2
1	1	Ten-GigabitEthernet1/0/27	disable
		Ten-GigabitEthernet1/0/28	
2	2	disable	Ten-GigabitEthernet2/0/27
			Ten-GigabitEthernet2/0/28

Display IRF link information.

```
<IRF> display irf link
```

```
Member 1
```

IRF Port	Interface	Status
1	Ten-GigabitEthernet1/0/27	UP
	Ten-GigabitEthernet1/0/28	UP
2	disable	--

```
Member 2
```

IRF Port	Interface	Status
1	disable	--
2	Ten-GigabitEthernet2/0/27	UP
	Ten-GigabitEthernet2/0/28	UP

Display IRF topology information.

```
<IRF> display irf topology
```

```
Topology Info
```

```
-----
```

MemberID	IRF-Port1		IRF-Port2		Belong To
	Link	neighbor	Link	neighbor	
2	DIS	---	UP	1	f010-90db-7402
1	UP	2	DIS	---	f010-90db-7402

Display detailed MAD information.

```
<IRF> display mad verbose
```

```
Multi-active recovery state: No
Excluded ports (user-configured):
Excluded ports (system-configured):
```

```

IRF physical interfaces:
  Ten-GigabitEthernet1/0/25
  Ten-GigabitEthernet1/0/26
  Ten-GigabitEthernet2/0/25
  Ten-GigabitEthernet2/0/26
BFD MAD interfaces:
  Vlan-interface2
MAD ARP disabled.
MAD ND disabled.
MAD LACP disabled.
MAD BFD enabled interface: Vlan-interface2
MAD status : Normal

```

Member ID	MAD IP address	Neighbor	MAD status
1	192.168.2.1/24	2	Normal
2	192.168.2.2/24	1	Normal

Display BFD session information.

```

[IRF] display bfd session
Total Sessions: 1      Up Sessions: 1      Init mode: Active

IPv4 session working in control packet mode:

```

LD/RD	SourceAddr	DestAddr	State	Holdtime	Interface
32833/0	192.168.2.1	192.168.2.2	Down	/	Vlan2

5. Verify that the IRF fabric is running correctly, and collect status information, including status information for protocols, ports, and table entries, for comparing the information with the information collected after the upgrade:

Display system version information.

```

<IRF> display version
INTELBRA Comware Software, Version 7.1.070, Release 2432p06
Copyright (c) 2004-2021 New INTELBRA Technologies Co., Ltd. All rights reserved.
INTELBRA SC 3130EI uptime is 4 weeks, 2 days, 22 hours, 3 minutes
Last reboot reason : User reboot

Boot image: flash:/cmw710-system-r2432p06.bin
Boot image version: 7.1.070, Release 2432p06
  Compiled Sep 29 2021 11:00:00
System image: flash:/cmw710-system-r2432p06.bin
System image version: 7.1.070, Release 2432p06
  Compiled Sep 29 2021 11:00:00
...

```

Display the running configuration.

```

<IRF> display current-configuration
#
version 7.1.070, Release 2432p06
#
sysname IRF
#
irf mac-address persistent timer

```



```

irf auto-update enable
undo irf link-delay
irf member 1 priority 32
irf member 2 priority 1

```

```
#
```

```
ospf 100
non-stop-routing
```

```
#
```

```
...
```

Display brief interface information.

```
<IRF> display interface brief
```

Brief information on interfaces in route mode:

Link: ADM - administratively down; Stby - standby

Protocol: (s) - spoofing

Interface	Link	Protocol	Primary IP	Description
InLoop0	UP	UP(s)	--	
MGE0/0/0	DOWN	DOWN	--	
NULL0	UP	UP(s)	--	
REG0	UP	--	--	
Vlan2	UP	UP	192.168.2.1	

Brief information on interfaces in bridge mode:

Link: ADM - administratively down; Stby - standby

Speed: (a) - auto

Duplex: (a)/A - auto; H - half; F - full

Type: A - access; T - trunk; H - hybrid

Interface	Link	Speed	Duplex	Type	PVID	Description
GE1/0/1	UP	1G(a)	F(a)	A	2	
GE1/0/2	DOWN	auto	A	A	1	
GE1/0/3	DOWN	auto	A	A	1	

```
...
```

Display ARP entries.

```
<IRF> display arp
```

Type: S-Static	D-Dynamic	O-Openflow	R-Rule	M-Multiport	I-Invalid
IP address	MAC address	VLAN/VSI name	Interface	Aging	Type
2.2.2.2	6451-c3f1-0302	20	BAGG1	941	D
3.3.3.2	6451-ccf3-0402	30	BAGG2	1020	D

Display MAC address table information.

```
<IRF> display mac-address
```

MAC Address	VLAN ID	State	Port/Nickname	Aging
a442-f6d0-9344	2	Learned	GE1/0/1	Y
6451-c3f1-0302	23	Learned	BAGG1	Y
6451-ccf3-0402	24	Learned	BAGG2	Y

Display information about OSPF neighbors. In this example, static routing is used. The command does not display any information.

```
<IRF> display ospf peer
```

Display routing table information.

```
<IRF> display ip routing-table
```

Destinations : 21 Routes : 21

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
0.0.0.0/32	Direct	60	0	2.2.2.2	Vlan23
1.1.1.1/32	Direct	0	0	127.0.0.1	InLoop0
2.2.2.0/24	Direct	0	0	2.2.2.1	Vlan23
2.2.2.0/32	Direct	0	0	2.2.2.1	Vlan23
2.2.2.1/32	Direct	0	0	127.0.0.1	InLoop0
2.2.2.255/32	Direct	0	0	2.2.2.1	Vlan23
3.3.3.0/24	Direct	0	0	3.3.3.1	Vlan24
3.3.3.0/32	Direct	0	0	3.3.3.1	Vlan24
3.3.3.1/32	Direct	0	0	127.0.0.1	InLoop0
3.3.3.255/32	Direct	0	0	3.3.3.1	Vlan24
127.0.0.0/8	Direct	0	0	127.0.0.1	InLoop0
127.0.0.0/32	Direct	0	0	127.0.0.1	InLoop0
127.0.0.1/32	Direct	0	0	127.0.0.1	InLoop0
127.255.255.255/32	Direct	0	0	127.0.0.1	InLoop0
192.168.2.0/24	Direct	0	0	192.168.2.1	Vlan2
192.168.2.0/32	Direct	0	0	192.168.2.1	Vlan2
192.168.2.1/32	Direct	0	0	127.0.0.1	InLoop0
192.168.2.255/32	Direct	0	0	192.168.2.1	Vlan2
224.0.0.0/4	Direct	0	0	0.0.0.0	NULL0
224.0.0.0/24	Direct	0	0	0.0.0.0	NULL0
255.255.255.255/32	Direct	0	0	127.0.0.1	InLoop0

Display detailed information about aggregation groups.

<IRF> display link-aggregation verbose

Loadsharing Type: Shar -- Loadsharing, NonS -- Non-Loadsharing
Port Status: S -- Selected, U -- Unselected, I -- Individual
Port: A -- Auto port, M -- Management port, R -- Reference port
Flags: A -- LACP_Activity, B -- LACP_Timeout, C -- Aggregation,
D -- Synchronization, E -- Collecting, F -- Distributing,
G -- Defaulted, H -- Expired

Aggregate Interface: Bridge-Aggregation1

Aggregation Mode: Static

Loadsharing Type: Shar

Management VLANs: None

Port	Status	Priority	Oper-Key
GE1/0/10(R)	S	32768	1
GE2/0/10	S	32768	1

Aggregate Interface: Bridge-Aggregation2

Aggregation Mode: Static

Loadsharing Type: Shar

Management VLANs: None

Port	Status	Priority	Oper-Key
GE1/0/23	S	32768	2

6. Back up the main next-startup configuration file:**# Save the running configuration to the main next-startup configuration file.**

```
<IRF> save
The current configuration will be written to the device. Are you sure? [Y/N]:y
Please input the file name(*.cfg)[flash:/startup.cfg]
(To leave the existing filename unchanged, press the enter key):
Validating file. Please wait...
The startup.cfg file already exists.
Compared with the startup.cfg file, The current configuration adds 0 commands and
deletes 0 commands.
If you want to see the configuration differences, please cancel this operation, and
then use the display diff command to show the details.
If you continue the save operation, the file will be overwritten.
Are you sure you want to continue the save operation? [Y/N]:y
Saving the current configuration to the file. Please wait...
Saved the current configuration to mainboard device successfully.
Slot 2:
Save next configuration file successfully.
```

Display the names of the current startup configuration file and the next-startup configuration files.

```
<IRF> display startup
MainBoard:
  Current startup saved-configuration file: NULL
  Next main startup saved-configuration file: flash:/startup.cfg
  Next backup startup saved-configuration file: NULL
Slot 2:
  Current startup saved-configuration file: NULL
  Next main startup saved-configuration file: flash:/startup.cfg
  Next backup startup saved-configuration file: NULL
```

Back up next-startup configuration file startup.cfg.

```
<IRF> tftp 2.2.2.3 put startup.cfg
Press CTRL+C to abort.
  % Total      % Received % Xferd  Average Speed   Time    Time       Time  Current
                                 Dload  Upload    Total   Spent    Left   Speed
100 8128      0    0 100 8128      0   170k --:--:-- --:--:-- --:-----233k

<IRF>
```

7. Verify that the member devices have sufficient storage space to store the new startup image file:**# On Device A, display information about files and directories in the current directory.**

```
<IRF> dir
Directory of flash:
  1 -rw-      220684 Nov 15 2021 17:37:48  defaultfile.zip
  2 drw-      - Jan 01 2021 00:01:33  diagfile
...
554288 KB total (228880 KB free)
```

On Device B, display information about files and directories in the current directory.

```
<IRF> dir slot2#flash:/
```

Directory of flash:

```
  1 -rw-      220684 Nov 15 2021 17:37:48  defaultfile.zip
  2 drw-          - Jan 01 2011 00:01:33  diagfile
...
```

```
554288 KB total (221104 KB free)
```

8. Upload the new startup image file and validate the file:

Upload image file **r2702.ipe** to Device A, and verify that the size of the uploaded file on Device A is the same as that of the officially released one. If the file sizes are different, upload the file again.

```
<IRF> tftp 2.2.2.3 get r2702.ipe
```

Press CTRL+C to abort.

% Total	% Received	% Xferd	Average Speed	Time	Time	Time	Current
			Dload Upload	Total	Spent	Left	Speed
100	133M	100	133M	0	0	180k	0
				0:12:33	0:12:33	--: -----	177k

Writing file.. Done.

```
<IRF> dir r2702.ipe
```

Directory of flash:

```
  25 -rw-    139699200 Nov 19 2021 12:07:56  r2702.ipe
```

```
524288 KB total (167504 KB free)
```

9. Copy the new startup image file to Device B for backup.

```
<IRF> copy r2702.ipe slot2#flash:/
```

Copy flash:/r2702.ipe to slot2#flash:/r2702.ipe? [Y/N]:y

Copying file flash:/r2702.ipe to slot2#flash:/r2702.ipeDone.

Procedures

Specifying the new startup image file and verifying the configuration

Specifying file **r2702.ipe** as the main startup image file.

```
<IRF> boot-loader file flash:/r2702.ipe all main
Verifying the file flash:/r2702.ipe on slot 1.....
.....Done.
INTELBAS SC 3130EI images in IPE:
  cmw710-boot-r2702.bin
  cmw710-system-r2702.bin
This command will set the main startup software images. Continue? [Y/N]:y
Add images to slot 1.
Decompressing file cmw710-boot-r2702.bin to
flash:/cmw710-boot-r2702.bin. .... Done.
Decompressing file cmw710-system-r2702.bin to
flash:/cmw710-system-r2702.bin.....
.....Done.
Verifying the file flash:/cmw710-boot-r2702.bin on slot 1..... Done.
Verifying the file flash:/cmw710-system-r2702.bin on slot
1. .... Done.
The images that have passed all examinations will be used as the main startup software
images at the next reboot on slot 1.
Loading ..... Done.
Loading.....
.....Done
.
Verifying the file flash:/cmw710-boot-r2702.bin on slot 2... Done.
Verifying the file flash:/cmw710-system-r2702.bin on slot 2..... Done.
The images that have passed all examinations will be used as the main startup software
images at the next reboot on slot 2.
Decompression completed.
Do you want to delete flash:/5560.ipe now? [Y/N]:n
```

Verify that file **r2702.ipe** has been specified as the main startup image file on all slots.

```
<IRF> display boot-loader
Software images on slot 1:
Current software images:
  flash:/cmw710-boot-r2432p06.bin
  flash:/cmw710-system-r2432p06.bin
Main startup software images:
  flash:/cmw710-boot-r2702.bin
  flash:/cmw710-system-r2702.bin
Backup startup software images:
  flash:/cmw710-boot-r2432p06.bin
  flash:/cmw710-system-r2432p06.bin
Software images on slot 2:
Current software images:
  flash:cmw710-boot-r2432p06.bin
```

```

flash:/cmw710-system-r2432p06.bin
Main startup software images:
flash:/cmw710-boot-r2702.bin
flash:/cmw710-system-r2702.bin
Backup startup software images:
flash:/cmw710-boot-r2432p06.bin
flash:/cmw710-system-r2432p06.bin

```

Disabling MAD (BFD MAD in the example)

Disable MAD and remove cables from the interfaces used for MAD. In this example, VLAN-interface 2 is used for BFD MAD.

```

<IRF> system-view
[IRF] interface vlan-interface 2
[IRF-Vlan-interface2] undo mad bfd enable
[IRF-Vlan-interface2] display this
#
interface Vlan-interface2
#
return

```

Shutting down service interfaces on the master device and saving the configuration

Shut down all uplink and downlink interfaces on Device A. Do not shut down IRF physical interfaces and the interfaces used for BFD MAD on Device A.

```

[IRF] interface range name yewu interface gigabitethernet 1/0/2 to gigabitethernet 1/0/22
ten-gigabitethernet 1/0/25 to ten-gigabitethernet 1/0/26
[IRF] interface range name yewu
[IRF-if-range-yewu] shutdown
[IRF-if-range-yewu] quit
[IRF] quit

```

On Device D and Device C, ping each other. If the ping operations succeed, Device C and Device D are reachable. If the ping operations fail, locate and resolve the communication failure issue. (Details not shown.)

Verify that all services have been switched from Device A to Device B. (Details not shown.)

Save the running configuration.

```

<IRF> save
The current configuration will be written to the device. Are you sure? [Y/N]:y
Please input the file name(*.cfg)[flash:/startup.cfg]
(To leave the existing filename unchanged, press the enter key):
Validating file. Please wait...
The startup.cfg file already exists.
Compared with the startup.cfg file, The current configuration adds 0 commands and deletes
0 commands.
If you want to see the configuration differences, please cancel this operation, and then
use the display diff command to show the details.
If you continue the save operation, the file will be overwritten.
Are you sure you want to continue the save operation? [Y/N]:y
Saving the current configuration to the file. Please wait...
Saved the current configuration to mainboard device successfully.
Slot 2:
Save next configuration file successfully.

```

Rebooting the master device and splitting the IRF fabric

Reboot the master device (Device A).

```
<IRF> reboot slot 1
Start to check configuration with next startup configuration file, please wait..
.....DONE!
Current configuration may be lost after the reboot, save current configuration?
[Y/N]:y
Please input the file name(*.cfg)[flash:/startup.cfg]
(To leave the existing filename unchanged, press the enter key):
flash:/startup.cfg exists, overwrite? [Y/N]:y
Validating file. Please wait...
Saved the current configuration to mainboard device successfully.
This command will reboot the device. Continue? [Y/N]:y
Now rebooting, please wait.....
```

Shut down IRF physical interfaces Ten-GigabitEthernet 2/0/27 and Ten-GigabitEthernet 2/0/28 on Device B to cause IRF split.



CAUTION:

The IRF fabric splits after you shut down all IRF physical interfaces on Device B. To prevent configuration loss from affecting interface status and causing IRF merge failure or service traffic interruption, do not save the running configuration on the master device (Device A) when the IRF fabric splits.

```
<IRF> system-view
[IRF] interface range name irf-port interface ten-gigabitethernet 2/0/27 to
ten-gigabitethernet 2/0/28
[IRF-if-range-irf-port] shutdown
```

Shutting down service interfaces on the standby device and bringing up service interfaces on the master device



IMPORTANT:

To reduce the service interruption time, shorten the operation time as much as possible. As a best practice, prepare the required command lines in advance and copy and paste the command lines to the devices.

After Device A finishes startup, verify that all interfaces are displayed.

```
<IRF> display interface
```

Wait for about 2 minutes for forwarding entry convergence on Device A.

Verify that Device A is stable.

```
<IRF> display system stable state
System state      : Stable
Redundancy state  : No redundancy

  Slot    CPU    Role    State
  ---    -
  1        0    Active  Stable
```

Log in to Device B and shut down all service interfaces on the device. Do not shut down IRF physical interfaces and the interfaces used for BFD MAD.

```
<IRF> system-view
[IRF] interface range name yewu-2 interface gigabitethernet 2/0/2 to gigabitethernet
2/0/22 ten-gigabitethernet 2/0/25 to ten-gigabitethernet 2/0/26
```

```
[IRF] interface range name yewu-2
[IRF-if-range-yewu-2] shutdown
```

Log in to Device A and bring up all service interfaces on the device.

```
<IRF> system-view
[IRF] interface range name yewu
[IRF-if-range-yewu] undo shutdown
```

Rebooting the standby device

Verify that services have been switched back to Device A. (Details not shown.)

,Log in to Device B and reboot Device B.

```
<IRF> reboot slot 2
Start to check configuration with next startup configuration file, please wait..
.....DONE!
Current configuration may be lost after the reboot, save current configuration?
[Y/N]:y
Please input the file name(*.cfg) [flash:/startup.cfg]
(To leave the existing filename unchanged, press the enter key):
flash:/startup.cfg exists, overwrite? [Y/N]:y
Validating file. Please wait...
Saved the current configuration to mainboard device successfully.
This command will reboot the device. Continue? [Y/N]:y
Now rebooting, please wait.....
```

After Device B reboots, it acts as a standby device to complete IRF merge with Device A.

Checking the environment after IRF software upgrade

1. Check IRF status and services:

After Device B reboots, check IRF status and service status, collect status information, and compare the status information with that before the upgrade process. If the status information is inconsistent before and after upgrade, locate and resolve the issue.

```
[IRF] display system stable state
[IRF] display irf
[IRF] display irf configuration
[IRF] display irf link
[IRF] display irf topology
```

2. Enable MAD and verify the configuration.

```
[IRF] interface vlan-interface 2
[IRF-Vlan-interface2] mad bfd enable
[IRF-Vlan-interface2] mad ip address 192.168.2.1 24 member 1
[IRF-Vlan-interface2] mad ip address 192.168.2.2 24 member 2
[IRF-Vlan-interface2] quit
[IRF] display mad verbose
Multi-active recovery state: No
Excluded ports (user-configured):
Excluded ports (system-configured):
IRF physical interfaces:
```



```

Ten-GigabitEthernet1/0/27
Ten-GigabitEthernet1/0/28
Ten-GigabitEthernet2/0/27
Ten-GigabitEthernet2/0/28
BFD MAD interfaces:
  Vlan-interface2
MAD ARP disabled.
MAD ND disabled.
MAD LACP disabled.
MAD BFD enabled interface: Vlan-interface2
MAD status                : Normal
Member ID  MAD IP address  Neighbor  MAD status
1          192.168.2.1/24    2         Normal
2          192.168.2.2/24    1         Normal

```

3. Delete unused settings as needed and save the configuration.

```

[IRF] undo interface range yewu
[IRF] undo interface range yewu-2
[IRF] save

```

4. Check the device status, collect device status information, and compare the device status with that before the upgrade process. If the device status information is inconsistent before and after upgrade, locate and resolve the issue.

```

<IRF> display version
<IRF> display current-configuration
<IRF> display interface brief
<IRF> display arp
<IRF> display mac-address
<IRF> displayplay ospf peer
<IRF> display ip routing-table
<IRF> display link-aggregation verbose

```

Verifying the configuration

Display IRF version information. Verify that the software version has been upgraded from R2432p06 to R2720.

```

<IRF> display version
INTELBAS Comware Software, Version 7.1.070, Release 2720
Copyright (c) 2004-2021 New INTELBAS Technologies Co., Ltd. All rights
reserved. INTELBAS SC 3130 uptime is 4 weeks, 5 days, 14 hours, 32 minutes
Last reboot reason : User reboot

Boot image: flash:/cmw710-boot-r2720.bin
Boot image version: 7.1.070, Release 2720
  Compiled Sep 29 2021 11:00:00
System image: flash:/cmw710-system-r2720.bin
System image version: 7.1.070, Release 2720
  Compiled Sep 29 2021 11:00:00

```

Slot 1:
Uptime is 4 weeks,5 days,14 hours,32 minutes
SC 3130 with 1 RMI XLS408 Processor BOARD
TYPE: SC 3130
DRAM: 2048M bytes
FLASH: 512M bytes
PCB 1 Version: VER.A
FPGA Version: NONE
Bootrom Version: 158
CPLD 1 Version: 002
CPLD 2 Version: 001
Release Version: INTELBRAS SC 3130-2720
Patch Version: None
Reboot Cause: UserReboot
[SubSlot 0] 48XGT+6QSFP Plus