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Introduction

This document provides compatible and incompatible ISSU configuration examples.

Before performing an ISSU, use the `display version comp-matrix file` command to view the recommended ISSU method in the **Upgrade Way** field. [Table 1](#) shows a matrix of ISSU types and ISSU methods.

Table 1 Matrix of ISSU types and ISSU methods

ISSU type	ISSU methods
Compatible	The ISSU methods are displayed in the Upgrade Way field. <ul style="list-style-type: none">• Service Upgrade• File Upgrade• ISSU Reboot• Reboot
Incompatible	Only one upgrade method (Incompatible upgrade) is available, which is displayed at the end of command output.

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 ISSU.

General restrictions and guidelines

Before performing an ISSU, you must complete the following preparation tasks:

- Read the software release notes to identify support of the device for ISSU.
- Use the `display device` command to verify that no member devices are in **Fault** state.
- Use the `dir` command to verify that the device has sufficient storage space for the upgrade images. If the storage space is not sufficient, delete unused files.
- For service continuity during an ISSU, verify that the following feature settings are configured:

Feature	Setting requirements
GR/NSR	Enable GR or NSR for protocols including LDP, RSVP, OSPF, ISIS, BGP, and FSPF.
BFD	Disable BFD for protocols including LDP, RSVP, OSPF, ISIS, RIP, BGP, VRRP, and NQA.
Ethernet link aggregation	Use the long LACP timeout interval (the <code>lACP period short</code> command is not configured) on all member ports in dynamic aggregation groups.
IRF	Configure IRF bridge MAC persistence as follows: <ul style="list-style-type: none">• Compatible upgrade—Configure the <code>irf mac-address persistent timer</code> or <code>irf mac-address persistent always</code> command.• Incompatible upgrade<ul style="list-style-type: none">◦ Configure the <code>irf mac-address persistent always</code>

Feature	Setting requirements
	<p>command if the bridge MAC address is the MAC address of the device for which you want to execute the <code>issu load</code> command.</p> <ul style="list-style-type: none"> ○ Disable IRF MAD before the ISSU and enable IRF MAD again after the ISSU.

- Log in to the device through the console port. If you use Telnet or SSH, you might be disconnected from the device before the ISSU is completed.

During an ISSU, use the following guidelines:

- In a multiuser environment, make sure no other administrators access the device while you are performing the ISSU.
- Do not perform any of the following tasks during an ISSU:
 - Reboot, add, or remove member device.
 - Execute commands that are not for ISSU.
 - Modify, delete, or rename image files.

The following describes restrictions and guidelines for an ISSU.

Hardware requirements

- Log in to the device through the console port. If you use Telnet or SSH, you might be disconnected from the device before the ISSU is completed.
- Do not perform an ISSU during hardware upgrade or failure. Otherwise, upgrade failure or system exceptions might occur.

Upgrade restrictions

- Use the `display device` command to verify that no member devices are in **Fault** state.
- Use the `dir` command to verify that the device has sufficient storage space for the upgrade images. If the storage space is not sufficient, delete unused files by using the `delete` command.

Feature restrictions

For service continuity during ISSU, configure the following feature settings:

Feature	Setting requirements
GR or NSR	Enable GR or NSR for protocols including LDP, RSVP, OSPF, ISIS, BGP, and FSPF.
BFD	Disable BFD for protocols including LDP, RSVP, OSPF, ISIS, RIP, BGP, VRRP, and NQA.
Ethernet link aggregation	Use the long LACP timeout interval (the <code>lACP period short</code> command is not configured) on all member ports in dynamic aggregation groups.
IRF	<p>Configure IRF bridge MAC persistence as follows:</p> <ul style="list-style-type: none"> • Compatible upgrade—Configure the <code>irf mac-address persistent timer</code> or <code>irf mac-address persistent always</code> command. • Incompatible upgrade—Configure the <code>irf mac-address persistent always</code> command if the bridge MAC address is the MAC address of the device for which you want to execute the <code>issu load</code> command.

Operation restrictions

- In a multiuser environment, make sure no other administrators access the device while you are performing the ISSU.

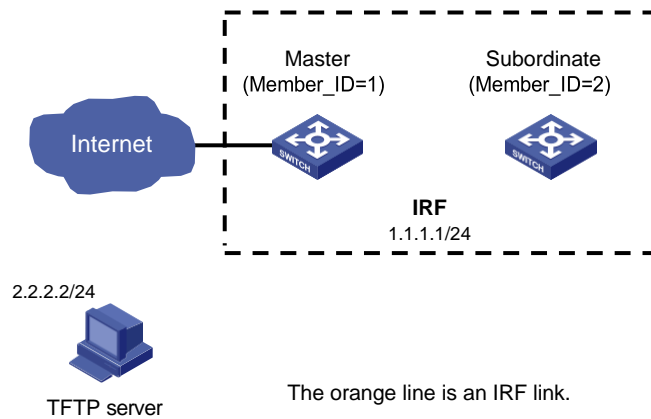
- Do not perform any of the following tasks during an ISSU:
 - Reboot, add, or remove member device.
 - Execute commands that are irrelevant to the ISSU.
 - Modify, delete, or rename image files.

Example: Performing a compatible ISSU

Network configuration

As shown in [Figure 1](#), the two-chassis IRF fabric and the TFTP server can reach each other. Perform a compatible ISSU on the IRF to upgrade startup images from T0001015 to T0001016.

Figure 1 Network diagram



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	Not supported
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	Not supported
SC 3130 switch series	Not supported

Restrictions and guidelines

When you perform the compatible ISSU, follow these restrictions and guidelines:

- The available storage space on each member device must be at least two times the size of the new image.
- Do not execute commands that are irrelevant to the ISSU.
- The automatic rollback timer starts after you execute the **issu run switchover** command. If no exceptions occur, execute the **issu accept** or **issu commit** command to complete the upgrade before this timer expires. If an exception occurs, manually roll back or wait for the system to automatically roll back to the original software images, and then perform a new upgrade.
- After you execute the **issu accept** or **issu commit** command, the system automatically deletes the rollback timer.

Procedures

Download the new image file T0001016.ipe from the TFTP server to the root directory of a file system on the master. The .ipe file includes the boot-t0001016.bin image file and the system-t0001016.bin image file.

```
<Sysname> tftp 2.2.2.2 get T0001016.ipe
% Total      % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total     Spent    Left  Speed
100 52.2M  100 42.8M    0     0  159k      0  0:04:34  0:04:34 --:----- 165
```

Display current software images.

```
<Sysname> display install active
```

```
Active packages on slot 1:
  flash:/boot-t0001015.bin
  flash:/system-t0001015.bin
Active packages on slot 2:
  flash:/boot-t0001015.bin
  flash:/system-t0001015.bin
```

Display the recommended ISSU methods.

```
<Sysname> display version comp-matrix file ipe flash:/T0001016.ipe
Verifying the file flash:/T0001016.ipe on slot 1..... Done.
Identifying the upgrade methods .....Done.
```

Slot	Upgrade Way
1	Reboot
2	Reboot

The output shows the two versions are compatible and a reboot is needed to complete upgrade.

Set the rollback timer to 120 minutes (the default is 45 minutes).

```
<Sysname> system-view
System View: return to User View with Ctrl+Z.
[Sysname] issu rollback-timer 120
<Sysname> quit
```

Upgrade the subordinate member.

```
<Sysname> issu load file ipe flash:/T0001016.ipe slot 2
This operation will delete the rollback point information for the previous upgrade
and maybe get unsaved configuration lost. Continue? [Y/N]:y
Successfully copied flash:/boot-t0001016.bin to slot2#flash:/boot-t0001016.bin.
Successfully copied flash:/system-t0001016.bin to slot2#flash:/system-t0001016.bin.
Upgrade summary according to following table:
```

```
flash:/boot-t0001016.bin
Running Version      New Version
Test 0001015        Test 0001016
```

```
flash:/system-t0001016.bin
Running Version      New Version
Test 0001015        Test 0001016
```

Slot	Upgrade Way
2	Reboot

```
Upgrading software images to compatible versions. Continue? [Y/N]:y
```

After the subordinate member starts up, verify that the ISSU is finished on the subordinate member.

```
<Sysname> display issu state
ISSU state: Loaded
Compatibility: Incompatible
Work state: Normal
Upgrade method: Card by card
Upgraded slot: None
```

Current upgrading slot:

slot 2

Previous version list:

boot: 7.1.070 Test 0001015

system: 7.1.070 Test 0001015

Upgrade version list:

boot: 7.1.070, Test 0001016

system: 7.1.070, Test 0001016

Perform a master/subordinate switchover.

<Sysname> issu run switchover

Upgrade summary according to following table:

flash:/boot-t0001016.bin

Running Version	New Version
Test 0001015	Test 0001016

flash:/system-t0001016.bin

Running Version	New Version
Test 0001015	Test 0001016

Slot	Switchover Way
1	Master subordinate switchover

Upgrading software images to compatible versions. Continue? [Y/N]:y

Verify that the switchover has completed.

<Sysname> display issu state

ISSU state: switchover

Compatibility: Unknown

Work state: Normal

Upgrade method: card by card

Upgraded chassis: None

Current upgrading chassis: None

Current version list:

boot: 7.1.070, Test 0001015

system: 7.1.070, Test 0001015

Current software images:

flash:/boot-t0001015.bin

flash:/system-t0001015.bin

// The ISSU state Switchover indicates the switchover has completed.

Upgrade the original master.

<Sysname> issu commit slot 1

Upgrade summary according to following table:

flash: /boot-t0001016.bin

Running Version	New Version
Test 0001015	Test 0001016

flash: /system-t0001016.bin

```

Running Version          New Version
Test 0001015            Test 0001016

Slot                    Upgrade Way
1                      Reboot
Upgrading software images to compatible versions. Continue? [Y/N]:y
# View ISSU state.
<Sysname> display issu state
ISSU state: Init
Compatibility: Unknown
Work state: Normal
Upgrade method: card by card
Upgraded chassis: None
Current upgrading chassis: None
Current version list:
  boot: 7.1.070, Test 0001016
  system: 7.1.070, Test 0001016
Current software images:
  flash:/boot-t0001016.bin
  flash:/system-t0001016.bin
// The Init state indicates that the ISSU has completed.

```

Verifying the configuration

```

# Verify that startup images have been upgraded to T0001016.
<Sysname> display install active
Active packages on slot 1:
  flash:/boot-t0001016.bin
  flash:/system-t0001016.bin
Active packages on slot 2:
  flash:/boot-t0001016.bin
  flash:/system-t0001016.bin

```

Configuration files

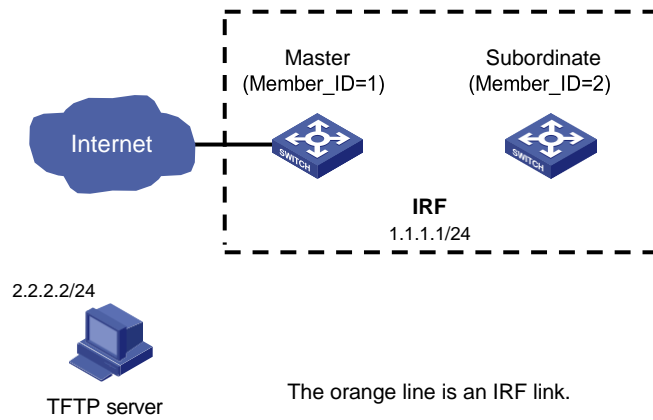
The system does not save the commands used in the configuration procedures to a configuration file.

Example: Performing an incompatible ISSU

Network configuration

As shown in [Figure 2](#), the two-chassis IRF fabric and the TFTP server can reach each other. Perform an incompatible ISSU on the IRF to upgrade startup images from T0001015 to T0001017.

Figure 2 Network diagram



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	Not supported
SC 5525 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 3170 switch series	Not supported
SC 3130 switch series	Not supported

Restrictions and guidelines

When you perform the incompatible ISSU, follow these restrictions and guidelines:

- The available storage space on each member device must be at least two times the size of the new image.
- Do not execute commands that are irrelevant to the ISSU.

Procedures

Download the new image file T0001017.ipe from the TFTP server to the root directory of a file system on the master. The .ipe file includes the boot-t0001017.bin image file and the system-t0001017.bin image file.

```
<Sysname> tftp 2.2.2.2 get T0001017.ipe
  % Total      % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 50.1M  100 42.8M    0     0   159k      0  0:04:34  0:04:34 --:----- 165k
```

Display current software images.

```
<Sysname> display install active
```

Active packages on slot 1:

flash:/boot-t0001015.bin

flash:/system-t0001015.bin

Active packages on slot 2:

flash:/boot-t0001015.bin

flash:/system-t0001015.bin

Display the ISSU method.

```
<Sysname> display version comp-matrix file ipe flash:/T0001017.ipe
```

Verifying the file flash:/T0001017.ipe on slot 1..... Done.

Identifying the upgrade methodsDone.

Incompatible upgrade.

The output shows the two versions are incompatible and a reboot is needed to complete upgrade.

Upgrade the subordinate member.

```
<Sysname> issu load file ipe flash:/T0001017.ipe slot 2
```

This operation will delete the rollback point information for the previous upgrade and maybe get unsaved configuration lost. Continue? [Y/N]:y

Successfully copied flash:/boot-t0001017.bin to slot2#flash:/boot-t0001017.bin.

Successfully copied flash:/system-t0001017.bin to slot2#flash:/system-t0001017.bin.

```
flash:/boot-t0001017.bin
```

Running Version

New Version

```

Test 0001015                                Test 0001017

flash:/system-t0001017.bin
Running Version                               New Version
Test 0001015                                Test 0001017

Slot                                           Upgrade Way
2                                              Reboot

Upgrading software images to incompatible versions. Continue? [Y/N]: y

# Verify that the ISSU is finished on the subordinate member.
<Sysname> display issu state
ISSU state: Loaded
Compatibility: Incompatible
Work state: Normal
Upgrade method: Card by card
Upgraded slot: None
Current upgrading slot:
    slot 2
Previous version list:
    boot: 7.1.070 Test 0001015
    system: 7.1.070 Test 0001015
Upgrade version list:
    boot: 7.1.070, Test 0001017
    system: 7.1.070, Test 0001017

# Perform a master/subordinate switchover to complete upgrade.
<Sysname> issu run switchover
Successfully copied flash:/boot-t0001017.bin to slot2#flash:/boot-t0001017.bin.
Successfully copied flash:/system-t0001017.bin to slot2#flash:/system-t0001017.bin.

flash:/boot-t0001017.bin
Running Version                               New Version
Test 0001015                                Test 0001017

flash:/system-t0001017.bin
Running Version                               New Version
Test 0001015                                Test 0001017

Slot                                           Upgrade Way
2                                              Reboot
1                                              Reboot

Upgrading software images to incompatible versions. Continue? [Y/N]: y

# View ISSU state.
<Sysname> display issu state
ISSU state: Init
Compatibility: Unknown
Work state: Normal
Upgrade method: card by card
Upgraded chassis: None

```

```
Current upgrading chassis: None
Current version list:
  boot: 7.1.070, Test 0001017
  system: 7.1.070, Test 0001017
Current software images:
  flash:/boot-t0001017.bin
  flash:/system-t0001017.bin
// The Init state indicates that the ISSU has completed.
```

Verifying the configuration

```
# Verify that startup images have been upgraded to T0001017.
<Sysname> display install active
Active packages on slot 1:
  flash:/boot-t0001017.bin
  flash:/system-t0001017.bin
Active packages on slot 2:
  flash:/boot-t0001017.bin
  flash:/system-t0001017.bin
```

Configuration files

The system does not save the commands used in the configuration procedures to a configuration file.