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Why You Shouldn't Fear Upgrading Your ACI Fabric

Part II – Best Practices

Joseph Ristaino, Takuya Kishida

Technical Marketing Engineers – Cloud Networking and Datacenter Business Unit

BRKDCN-2810b



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Agenda

- Best Practices Workflow Review
- Best Practice Configurations
- “Pre-Upgrade Checklist” Review and Execution.
- “Do’s and Don’ts”



Recommended Guides

Cisco ACI Upgrade Checklist – Important Starting Point

ACI Upgrade Checklist:

<https://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/kb/Cisco-ACI-Upgrade-Checklist.html>

Detailed Upgrade Guide (the basis for this presentation)

<https://www.cisco.com/c/en/us/td/docs/dcn/aci/apic/all/apic-installation-aci-upgrade-downgrade/Cisco-APIC-Installation-ACI-Upgrade-Downgrade-Guide.html>

Cisco ACI Upgrade Checklist

	Task
<input type="checkbox"/>	Pick your target APIC and ACI switch versions. <ul style="list-style-type: none">Both APICs and ACI switches must be upgraded to the same version.APIC and ACI switch versions that are compatible to each other are described in the form of x.y(z) and 1x.y(z). For instance, APIC version 5.2(1g) corresponds to ACI switch version 15.2(1g).Check the Release Notes (APIC and ACI switches) for the target version for any open caveats or defects.
<input type="checkbox"/>	See the APIC Upgrade/Downgrade Support Matrix for the supported upgrade paths from your current version. <ul style="list-style-type: none">If your current version and the target version are too far apart, you might need to upgrade both your APICs and switches to an intermediate version suggested in the APIC Upgrade/Downgrade Support Matrix first. See Multistep Upgrades in the Cisco APIC Installation and ACI Upgrade and Downgrade Guide for more information.The APIC Upgrade/Downgrade Support Matrix also shows you which CIMC version you need to use for your target APIC version.
<input type="checkbox"/>	Review the ACI upgrade architecture. See ACI Upgrade Architecture in the Cisco APIC Installation and ACI Upgrade and Downgrade Guide to understand what you should expect along with what you must not perform.
<input type="checkbox"/>	Export your configuration for backup. See the Cisco ACI Configuration Files: Import and Export document for details. Ensure that AES encryption is enabled.
<input type="checkbox"/>	Disable all App Center apps on the APICs. See Guidelines for App Center Apps in the Cisco APIC Installation and ACI Upgrade and Downgrade Guide for details.
<input type="checkbox"/>	Download both APIC and ACI switch firmware to your APICs. See the Downloading APIC and Switch Images on APICs section in the Cisco APIC Installation and ACI Upgrade and Downgrade Guide for each release for details: <ul style="list-style-type: none">Releases prior to 4.x: Downloading APIC and Switch Images on APICsReleases 4.x or 5.0: Downloading APIC and Switch Images on APICsRelease 5.1 or later: Downloading APIC and Switch Images on APICs
<input type="checkbox"/>	Download ACI switch firmware from your APICs to each switch. Starting from switch release 14.1(1), switches can download the image from APICs prior to the upgrade. See Rule 5 - Save time by downloading switch images beforehand in the Cisco APIC Installation and ACI Upgrade and Downgrade Guide for details.
<input type="checkbox"/>	Perform pre-upgrade validations. See Pre-Upgrade Checklists in the Cisco APIC Installation and ACI Upgrade and Downgrade Guide for details.
<input type="checkbox"/>	Upgrade CIMC on your APICs if suggested so by the Support Matrix. See Upgrading the CIMC Software in the Cisco APIC Installation and ACI Upgrade and Downgrade Guide for details.
<input type="checkbox"/>	Upgrade APICs. See the Upgrading the Cisco APIC section in the Cisco APIC Installation and ACI Upgrade and Downgrade Guide for each release for details: <ul style="list-style-type: none">Releases prior to 4.x: Upgrading the Cisco APIC from Releases Prior to Release 4.xReleases 4.x or 5.0: Upgrading the Cisco APIC From Releases 4.x or 5.0Release 5.1 or later: Upgrading the Cisco APIC From Releases 5.1x or Later

ACI Firmware Upgrade Best Practice Checklist



Determine Desired Software and Check Support Matrix



Review and Implement Best Practice Configurations



Discover and Clear any issues raised from “pre-upgrade validations”



Review Upgrade Architecture and “do’s and don’ts”

ACI Firmware Upgrade Best Practice Checklist

- ✓ Determine Desired Software and Check Support Matrix
- ✓ Review and Implement Best Practice Configurations
- ✓ Discover and Clear any issues raised from “pre-upgrade validations”
- ✓ Review Upgrade Architecture and “do’s and don’ts”

ACI Software Life Cycle

1

Cisco Recommended Software Releases

https://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/recommended-release/b_Recommended_Cisco_ACI_Releases.html

2

Cisco ACI Release Notes

<https://www.cisco.com/c/en/us/support/cloud-systems-management/application-policy-infrastructure-controller-apic/tsd-products-support-series-home.html>

3

Cisco ACI Upgrade/Downgrade Support Matrix

<https://www.cisco.com/c/dam/en/us/td/docs/Website/datacenter/apicmatrix/index.html>

4



APIC Upgrade/Downgrade Support Matrix

This page provides Cisco APIC software upgrade and downgrade information based on current and target releases. The provided upgrade paths have been tested and validated by Cisco, Cisco partners, or both.

For an overview of the entire fabric upgrade process, including relevant reference and procedure documents, see the [Cisco ACI Upgrade Checklist](#).

For feedback on this tool, send email to apic-docfeedback@cisco.com.

☒ I am upgrading... ☐ I am downgrading...

From release

To release

Current release: 3.2(10)

Target release: 4.2(7) [^]

Recommended path: Direct path from Current Release. [\[Show All\]](#)

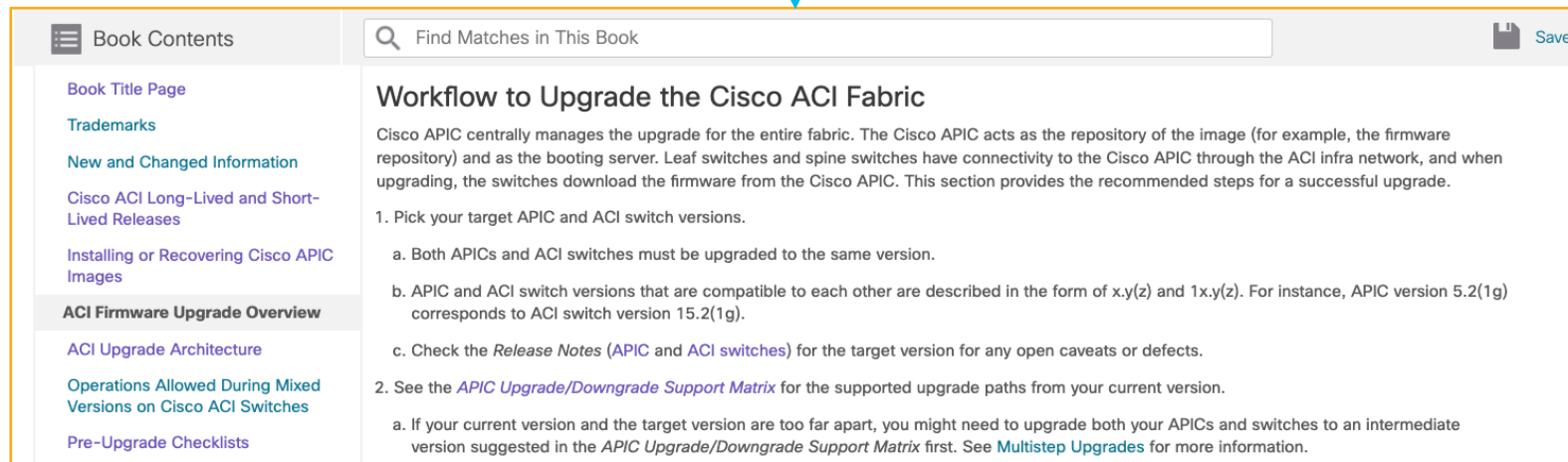
Determines if Multi-Step Upgrade is Required

ACI Software Life Cycle

5

Review the ACI Upgrade/Downgrade Guide!

https://www.cisco.com/c/en/us/td/docs/dcn/aci/apic/all/apic-installation-aci-upgrade-downgrade/Cisco-APIC-Installation-ACI-Upgrade-Downgrade-Guide/m-aci-firmware-upgrade-overview.html#id_48185



Book Contents

Find Matches in This Book

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Book Title Page

Trademarks

New and Changed Information

Cisco ACI Long-Lived and Short-Lived Releases

Installing or Recovering Cisco APIC Images

ACI Firmware Upgrade Overview

ACI Upgrade Architecture

Operations Allowed During Mixed Versions on Cisco ACI Switches

Pre-Upgrade Checklists

Workflow to Upgrade the Cisco ACI Fabric

Cisco APIC centrally manages the upgrade for the entire fabric. The Cisco APIC acts as the repository of the image (for example, the firmware repository) and as the booting server. Leaf switches and spine switches have connectivity to the Cisco APIC through the ACI infra network, and when upgrading, the switches download the firmware from the Cisco APIC. This section provides the recommended steps for a successful upgrade.

1. Pick your target APIC and ACI switch versions.
 - a. Both APICs and ACI switches must be upgraded to the same version.
 - b. APIC and ACI switch versions that are compatible to each other are described in the form of x.y(z) and 1x.y(z). For instance, APIC version 5.2(1g) corresponds to ACI switch version 15.2(1g).
 - c. Check the *Release Notes* (APIC and ACI switches) for the target version for any open caveats or defects.
2. See the *APIC Upgrade/Downgrade Support Matrix* for the supported upgrade paths from your current version.
 - a. If your current version and the target version are too far apart, you might need to upgrade both your APICs and switches to an intermediate version suggested in the *APIC Upgrade/Downgrade Support Matrix* first. See *Multistep Upgrades* for more information.

ACI Firmware Upgrade Best Practice Checklist



Determine Desired Software and Check Support Matrix



Review and Implement Best Practice Configurations



Discover and Clear any issues raised from “pre-upgrade validations”



Review Upgrade Architecture and “do’s and don’ts”

Best Practices Configuration



ACI Firmware Upgrade Configuration Checklist



Ensure there is a Valid Backup Exported with AES Encryption



Validate Switch Upgrade Groups provide redundancy, and have desired settings



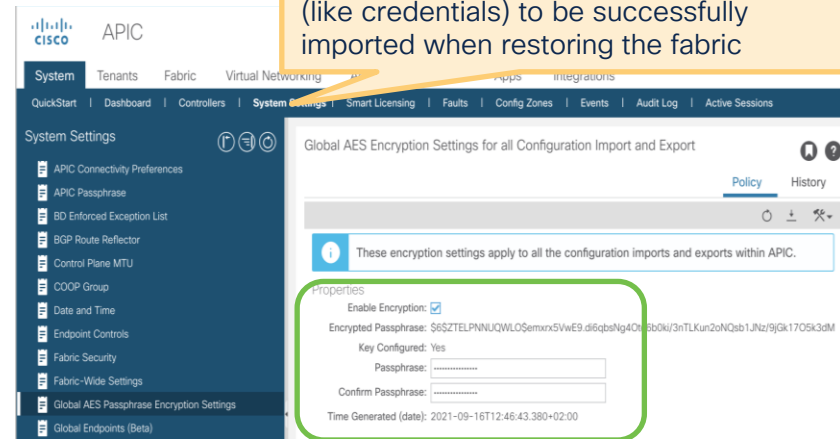
Enable Best Practice Settings for Multi-Pod/Site Deployments.

Back Up Configuration with AES File Encryption



- The AES passphrase that generates the encryption keys cannot be recovered or read by an ACI administrator or any other user. The AES passphrase is not stored. **Copy your passphrase somewhere safe!**
- Setup automatic backups on a scheduler to maintain a consist and up to date backup at all times. **Always export it to a remote location.**
- In case of upgrade failure, AES backup can be used to **recover the system non-disruptively** as worst case scenario.

Setting Global AES Encryption allows all the secure properties of the configuration (like credentials) to be successfully imported when restoring the fabric



Pre ACI v4.0.1 Setting Location:

Admin > AAA > AES Encryption Passphrase and Keys for Config Export (and Import)

ACI v4.0.1 and later Location:

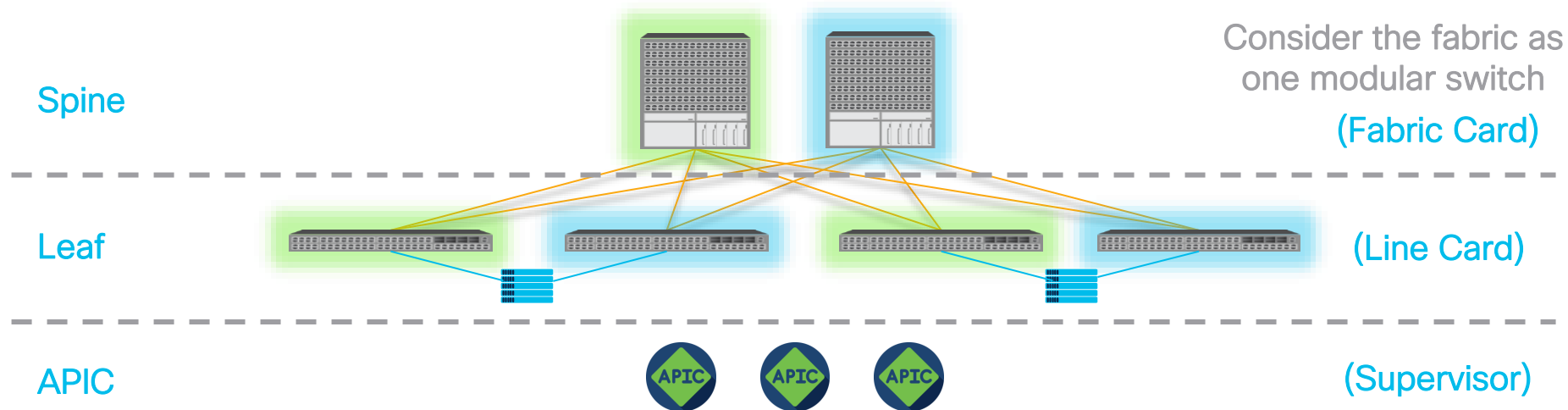
System > System Settings > Global AES Passphrase Encryption Settings

Technote For Import/Export:

https://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/kb/b_KB_Using_Import_Export_to_Recover_Config_States.html

Upgrade Group Configuration Options

ACI Firmware Upgrade Best Practice 101



ACI is a solution to manage multiple switches as if it's one huge switch

- APIC (i.e. SUP of the fabric) can be upgraded non-disruptively.
- Each switch (i.e. modules of the fabric) can intelligently choose appropriate switch nodes for non-disruptive traffic flow

Always keep hardware redundancy to achieve zero-to-minimum traffic disruption

1. Upgrade **Green** switch groups
2. Upgrade **Blue** switch groups

Switch Upgrade Advanced Options

Rule of Thumb

Change defaults only when you must.

Upgrade Group

- Name
- Node ID List
- Target Firmware Version
- Scheduler
- **Ignore Compatibility Check**
- Graceful option
- Run Mode

Advanced Options

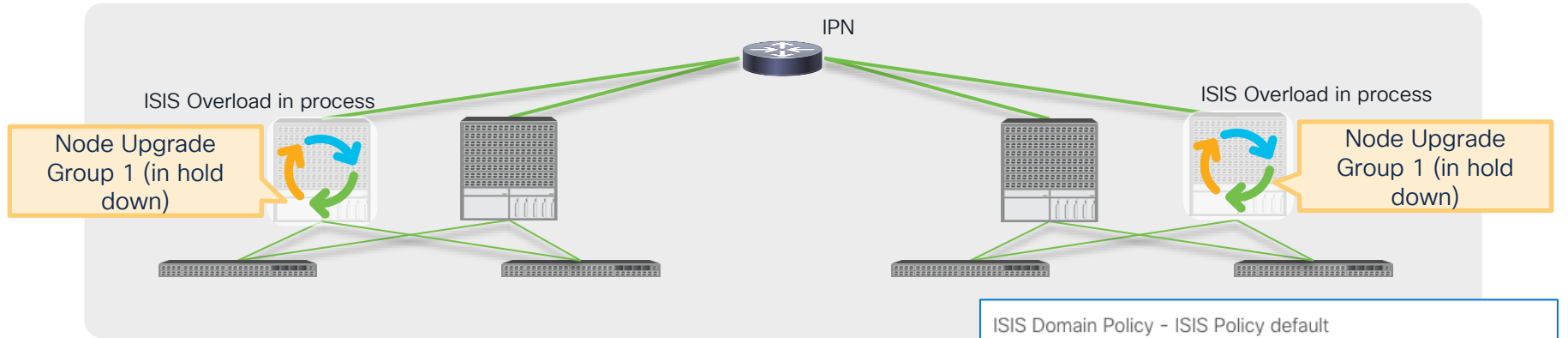
- **Ignore Compatibility Check (default: disabled)**
Enable only in a lab where you would like to ignore the supported upgrade path.
- **Graceful option (default: disabled)**
Only used when sub-100ms routing protocol convergence is required.
Never enable this when hardware redundancy is not ensured. (single spine/leaf pod)
- **Run Mode (default < 5.1: pause upon upgrade failure
default >= 5.1: don't pause upon upgrade failure)**
By default, APIC scheduler will stop putting new switches into queue if
 - a) APIC cluster is not fully-fit
 - b) The upgrade of previous switches in the same upgrade group failed.
Ex.) You have 20 leafs in a group. If 1 fails, it will pause all remaining switches that are queued.

IS-IS Metric Policy for Multi-Pod and Multi-Site

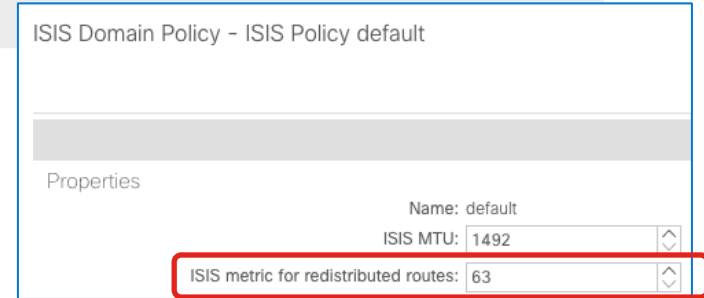


Helpful Tips for Multi-Pod / Multi-Site

ISIS Metric Policy Configuration



- Default fabric wide IS-IS metric is set at 63 (max value)
- During upgrade, spines set the overload mode while policy is being downloaded.
- If fabric-wide value is already at max, the overload functionality is ineffective.
- This can create unexpected traffic interruption if leaf sends traffic to a spine which is not fully upgraded.

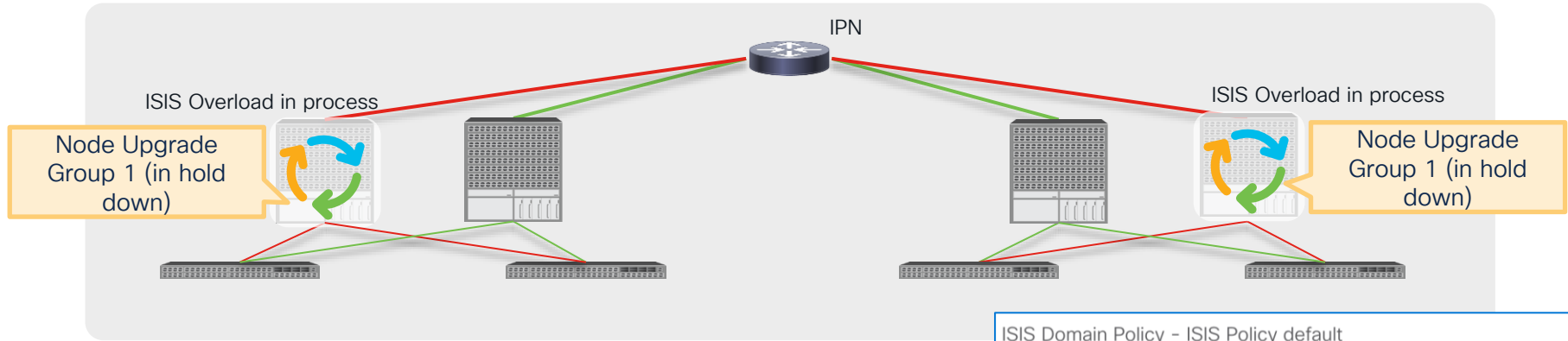


Settings > ISIS Policy (Default Config)

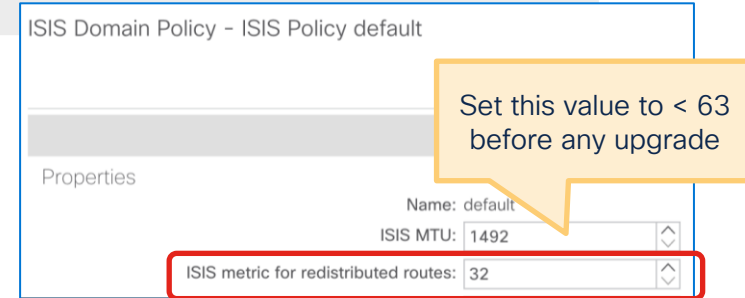


Helpful Tips for Multi-Pod / Multi-Site

ISIS Metric Policy Configuration



- By Lowering the Value, Remote POD TEP Routes will be preferred through the remaining spines in each POD.
- Once Overload is completed, the spine which was upgraded will advertise these routes using the metric configured.
- This results in ECMP between all spines after the upgrade has completed.

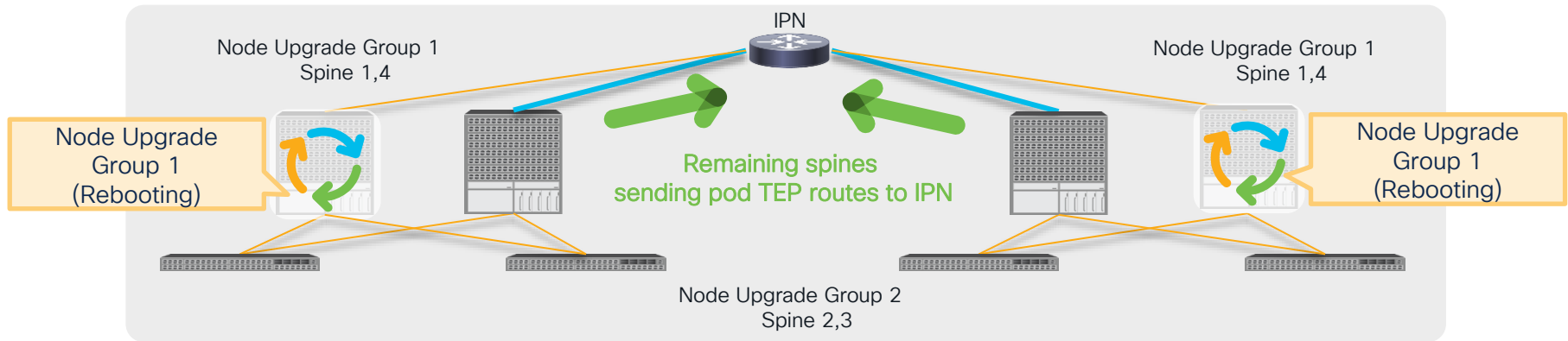


Settings > ISIS Policy



Helpful Tips for Multi-Pod / Multi-Site

Verify Spines are Exchanging Routes to the IPN after upgrade



- When Node Upgrade Group 1 finishes, Spines may show as “completed” in upgrade UI but routes towards IPN/ISN may still be in hold down period (up to 10 min)
- Before starting Spine Node Upgrade Group 2, verify that TEP routes of pods / sites are being sent / received from newly upgraded spines in Group 1



Helpful Tips for Multi-Pod / Multi-Site

Verify Spines are Exchanging Routes to the IPN after upgrade

System Tenants **Fabric** Virtual Networking L4-L7 Service: System Tenants **Fabric** Virtual Networking L4-L7 Services Admin Operations Apps Integrations

Inventory | Fabric Policies | Access Policies

Inventory

- Quick Start
- Topology
- Pod 1
 - s1-pod1-leaf101 (Node-101)
 - s1-pod1-leaf102 (Node-102)
 - s1-pod1-leaf103 (Node-103)
 - s1-pod1-leaf104 (Node-104)
 - s1-pod1-spine201 (Node-201)
 - Chassis
 - Interfaces
 - Protocols
 - BGP
 - COOP
 - IPV4
 - IPV6
 - ISIS
 - LLDP
 - OSPF
 - OSPF for VRF-overlay-1
 - Areas
 - Interfaces
 - Routes

Pod Fabric Setup Policy

Pod ID	TEP Pool	Admin Distance
1	10.0.0.0/16	110
2	14.0.0.0/16	110

Route	IP	Flags	Unicast Cost	
Route 20.0.0.37/32, Flags:in-rib,v4, Unicast Cost: 3	20.0.0.37/32	intra	backbone in-rib,v4 3	110
Route 20.0.0.36/32, Flags:in-rib,v4, Unicast Cost: 3	20.0.0.36/32	intra	backbone in-rib,v4 3	110
Route 20.0.0.1/32, Flags:in-rib,v4, Unicast Cost: 20	20.0.0.1/32	ext2	backbone in-rib,v4 20	110
Route 20.0.0.0/16, Flags:in-rib,v4, Unicast Cost: 20	20.0.0.0/16	ext2	backbone in-rib,v4 20	110
Route 2.2.2.2/32, Flags:direct,v4, Unicast Cost: 1	2.2.2.2/32	intra	backbone direct,v4 1	110
Route 172.16.22.230/32, Flags:v4, Unicast Cost: 20	172.16.22.230/32	ext2	backbone v4 20	110
Route 172.16.22.229/32, Flags:v4, Unicast Cost: 20	172.16.22.229/32	ext2	backbone v4 20	110
Route 172.16.22.225/32, Flags:v4, Unicast Cost: 20	172.16.22.225/32	ext2	backbone v4 20	110
Route 172.16.22.0/24, Flags:v4, Unicast Cost: 20	172.16.22.0/24	ext2	backbone v4 20	110
Route 14.0.240.32/32, Flags:in-rib,v4, Unicast Cost: 3	14.0.240.32/32	intra	backbone in-rib,v4 3	110
Route 14.0.0.35/32, Flags:in-rib,v4, Unicast Cost: 20	14.0.0.35/32	ext2	backbone in-rib,v4 20	110
Route 14.0.0.34/32, Flags:in-rib,v4, Unicast Cost: 20	14.0.0.34/32	ext2	backbone in-rib,v4 20	110
Route 14.0.0.33/32, Flags:in-rib,v4, Unicast Cost: 20	14.0.0.33/32	ext2	backbone in-rib,v4 20	110
Route 14.0.0.0/16, Flags:in-rib,v4, Unicast Cost: 20	14.0.0.0/16	ext2	backbone in-rib,v4 20	110
Route 10.255.6.201/32, Flags:in-rib,v4, Unicast Cost: 3	10.255.6.201/32	intra	backbone in-rib,v4 3	110

ACI Firmware Upgrade Best Practice Checklist



Determine Desired Software and Check Support Matrix



Review and Implement Best Practice Configurations



Discover and Clear any issues raised from “pre-upgrade validations”

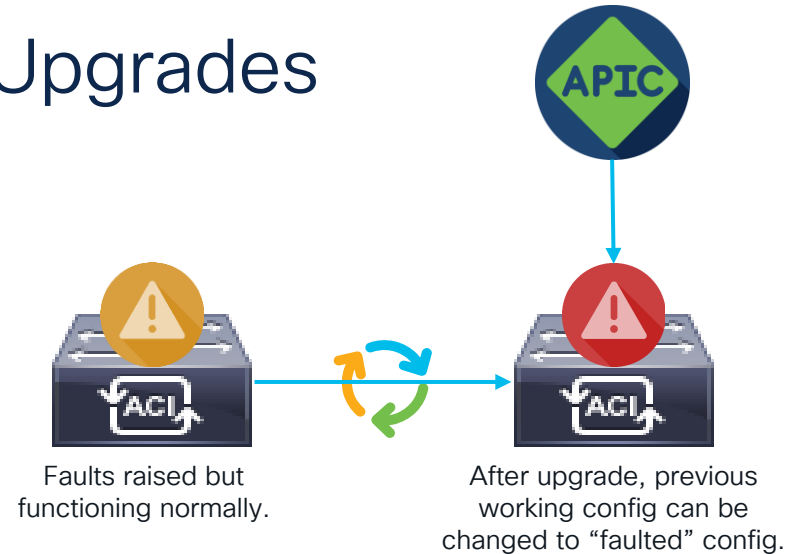


Review Upgrade Architecture and “do’s and don’ts”

Pre-Upgrade Validation

Faults, and the Impact on Upgrades

- Faults can be raised if there is an overlap, or invalid config.
- After an upgrade the switch requests it's configuration “fresh” from APIC. This is the “stateless” behavior of ACI.
- If Logical Config (APIC) has conflicts, the “faulted” config can get pushed before the previously working config.



L2 Port Config (F0467 port-configured-as-13)
L3 Port Config (F0467 port-configured-as-12)
Config On APIC Connected Port (F0467 port-configured-for-apic)
etc . . .


Pre-Upgrade Validation

3.2 - continuing




APIC 3.2, 4.0, 4.1

Schedule Controller Upgrade

 The fabric has **2 Critical Faults and 30 Major Faults**. It's recommended that these faults are resolved before performing a controller upgrade. All unsupported features must be disabled before downgrade to avoid unpredictable behavior.

APIC 4.2(1) – 4.2(3)


Schedule Controller Upgrade

 Migration cannot proceed due to 1 active critical config faults. It's recommended that these faults are resolved before performing a controller upgrade. All unsupported features must be disabled before downgrade to avoid unpredictable behavior. [Click Here](#) for more info.

☐ I understand there are active faults on the system which can lead to unexpected issues, proceed with the upgrade.

APIC 4.2(4)

Schedule Controller Upgrade

 Infra:Following nodes are not in VPC: ['102', '103', '101', '104']

It's recommended that these faults are resolved before performing a controller upgrade. All unsupported features must be disabled before downgrade to avoid unpredictable behavior.

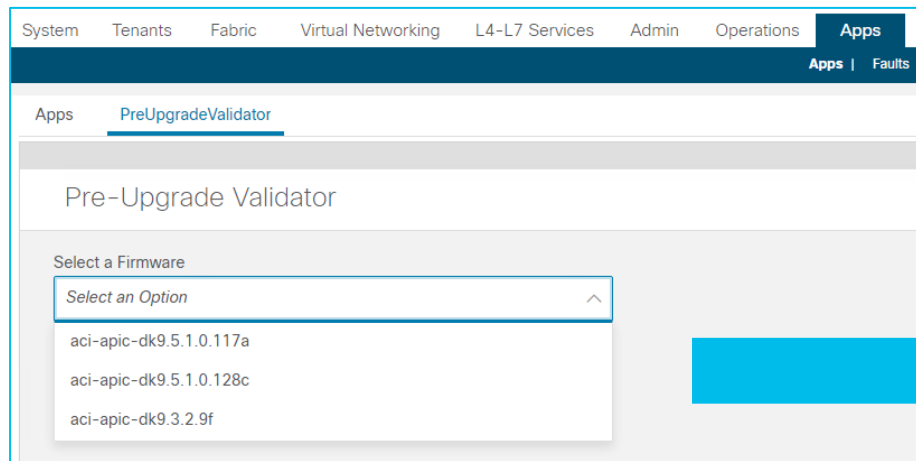
☐ I understand there are active faults on the system which can lead to unexpected issues, proceed with the upgrade.

- Prior to 4.2, the APIC upgrade simply warned about the number of all critical and major faults
- On 4.2(1) – 4.2(3), the APIC upgrade warned about
 - ✓ config related critical faults
 - ✓ some specific faults that are known to cause issues during upgrades.
- On 4.2(4), the APIC upgrade warns about
 - ✓ config related critical faults
 - ✓ some specific faults that are known to cause issues during upgrades
 - ✓ A few nonoptimal configurations that may disrupt traffic during the upgrade.
- Additional validation items are being added on each release.

For older APIC versions to run some of the validations added in later release: <https://dcappcenter.cisco.com/pre-upgrade-validator.html>

Pre-Upgrade Validation (AppCenter App)

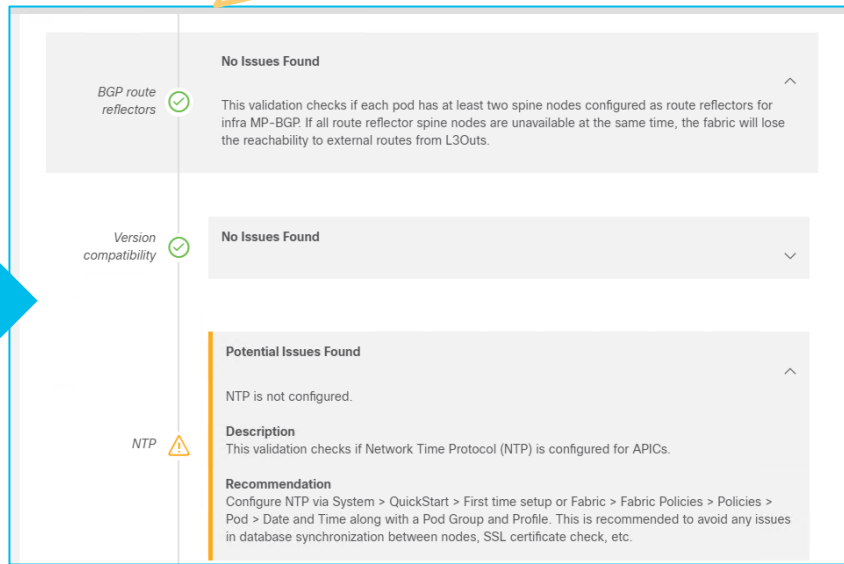
<https://dcappcenter.cisco.com/pre-upgrade-validator.html>



What happens if Cisco adds additional checks? What if I don't allow apps?

The goal of the app

To be able to apply the latest validations on any APIC versions via AppCenter app
(Currently only for APIC upgrade validations)



Pre-Upgrade Validation – Script (Preferred)

<https://github.com/datacenter/ACI-Pre-Upgrade-Validation-Script>

```
[Check 1/36] APIC Target version image and MD5 hash...
Checking f2-apic1.....

[Check 2/36] Target version compatibility...
[Check 3/36] Gen 1 switch compatibility...
[Check 4/36] Remote Leaf Compatibility... No Remote Leaf Found
[Check 5/36] APIC CIMC Compatibility...
[Check 6/36] APIC Cluster is Fully-Fit...
[Check 7/36] Switches are all in Active state...
[Check 8/36] NTP Status...
[Check 9/36] Firmware/Maintenance Groups when crossing 4.0 Release... Versions not applicable
[Check 10/36] Features that need to be Disabled prior to Upgrade...
  Feature      Name      Status  Recommended Action
  -----
App Center    Policy Viewer  active  Disable the app
Config Zone   test         Locked  Change the status to "Open" or remove the zone

[Check 11/36] Switch Upgrade Group Guidelines... No upgrade groups found!
[Check 12/36] APIC Disk Space Usage (F1527, F1528, F1529 equipment-full)...
[Check 13/36] Switch Node /bootflash usage... all below 50%
[Check 14/36] Standby APIC Disk Space Usage... No standby APIC found
[Check 15/36] APIC SSD Health (F2731 equipment-wearout)...
[Check 16/36] Switch SSD Health (F3073, F3074 equipment-flash-warning)...
[Check 17/36] Config On APIC Connected Port (F0467 port-configured-for-apic)...
[Check 18/36] L3 Port Config (F0467 port-configured-as-l2)...
[Check 19/36] L2 Port Config (F0467 port-configured-as-l3)...
[Check 20/36] L3Out Subnets (F0467 prefix-entry-already-in-use)...
[Check 21/36] BD Subnets (F1425 subnet-overlap)...
[Check 22/36] BD Subnets (F0469 duplicate-subnets-within-ctx)...
[Check 23/36] VMM Domain Controller Status...
[Check 24/36] VMM Domain LLDP/CDP Adjacency Status... No LLDP/CDP Adjacency Failed Faults Found
```

The goal of the script

To be able to apply the latest validations on any APIC versions via a script



Both app and script are fully supported by TAC

Why the script may be a better choice?:

- Github script is updated more frequently
- Supports older versions
- With Github account, you can submit issues or features directly

Pre-Upgrade Validation – Script (Preferred)

```
admin@apic1:pre-upgrade> python aci-preupgrade-validation-script.py
==== 2021-11-16T08-45-58-0500 ====
```

```
Enter username for APIC login      : admin
Enter password for corresponding User :
```

User Enters Credentials

Checks that require login leverage this input

```
Checking current APIC version (switch nodes are assumed to be on the same version)...3.2(10e)
```

```
Gathering APIC Versions from Firmware Repository...
```

```
[1]: aci-apic-dk9.4.2.7f.bin
```

User Selects Target Version

Checks that require target version leverage this input.

```
What is the Target Version?      : 1
```

```
You have chosen version "aci-apic-dk9.4.2.7f.bin"
```

```
[Check 1/37] APIC Target version image and MD5 hash...
Checking fab3-apic1.....
```

```
[Check 2/37] Target version compatibility...
```

```
[Check 3/37] Gen 1 switch compatibility...
```

```
. . .
. . .
. . .
. . .
. . .
```

Failure Details are Provided

Issue should be corrected (Script Re-Run to validate) before performing upgrade.

```
[Check 19/37] L2 Port Config (F0467 port-configured-as-l3)...
```

Fault	Pod	Node	Tenant	AP	EPG	Port	Recommended Action
-------	-----	------	--------	----	-----	------	--------------------

----	---	----	-----	--	---	----	-----
------	-----	------	-------	----	-----	------	-------

F0467	pod-1	node-101	jr	ap1	epg1	eth1/6	Resolve the conflict by removing this config or other configs using this port as L3
-------	-------	----------	----	-----	------	--------	---

FAIL - OUTAGE WARNING!!

DONE
PASS
PASS
PASS

Pre-Upgrade Validation – Script (Preferred)

[Check 32/37] BGP Peer Profile at node level without Loopback...	PASS
[Check 33/37] L3Out Route Map import/export direction...	PASS
[Check 34/37] Intersight Device Connector upgrade status... Connector reporting InternalServerError, Non-Upgrade issue	PASS
[Check 35/37] EP Announce Compatibility...	PASS
[Check 36/37] Eventmgr DB size defect susceptibility...	PASS
[Check 37/37] Contract Port 22 Defect Check...	PASS

=== Summary Result ===

PASS	: 28
FAIL - OUTAGE WARNING!!	: 4
FAIL - UPGRADE FAILURE!!	: 2
MANUAL CHECK REQUIRED	: 1
N/A	: 2
ERROR !!	: 0
TOTAL	: 37

Summary is Provided

All “FAIL” Categories need remediation.
Detailed Recommendations to Remediate are
in the Upgrade Guide!

Log Bundle is Created

Upload this to any TAC Case if Necessary.

Pre-Upgrade Check Complete.

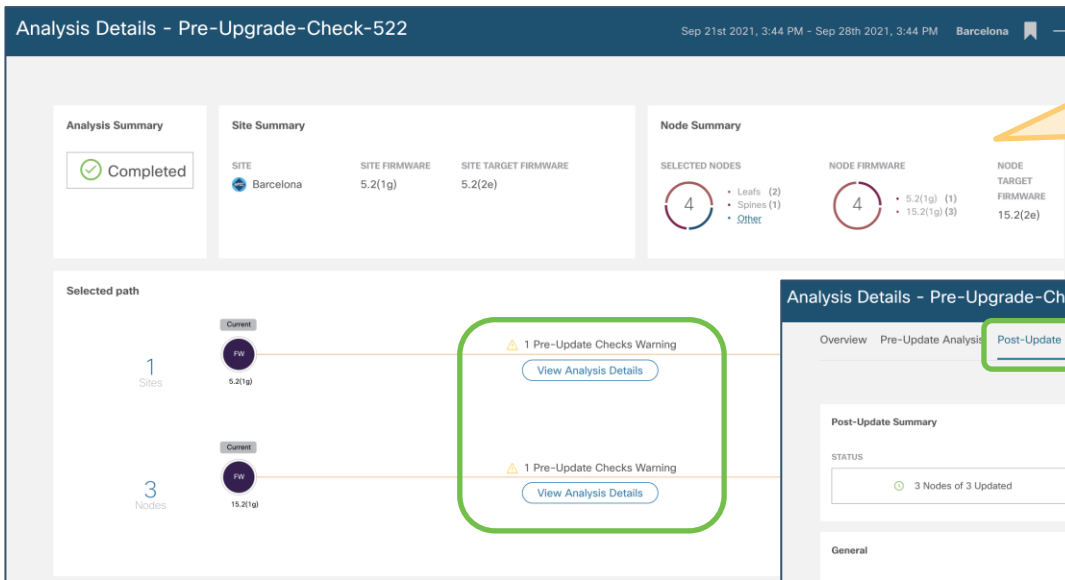
Next Steps: Address all checks flagged as FAIL, ERROR or MANUAL CHECK REQUIRED

Result output and debug info saved to below bundle for later reference.

Attach this bundle to Cisco TAC SRs opened to address the flagged checks.

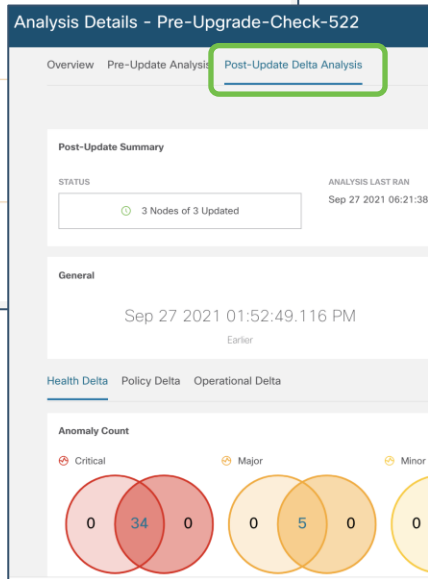
Result Bundle: /data/techsupport/Scripts/pre-upgrade/preupgrade_validator_2021-11-16T08-45-58-0500.tgz

Nexus Dashboard Insights (Optional)



Benefit of Nexus Insights

Does both a pre-check and a post-check to alert on effects and changes in the upgrade window



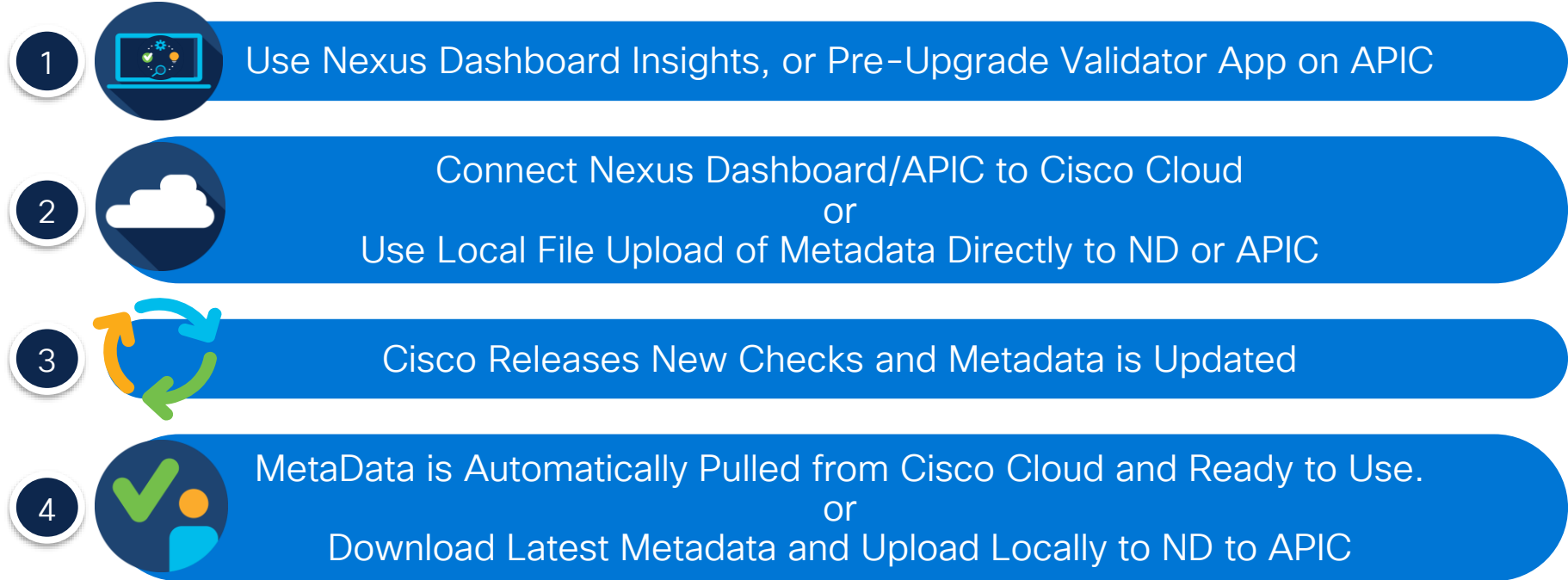
Analysis Details - Pre-Upgrade-Check-522

Potential Release Defects

Severity	Category	Title	Description
Minor	bug	CSCvs97029	All the external prefixes from VRF-A could be leaked to VRF-C even when an inter-VRF ESG leak route is configured for a specific prefix.
Minor	bug	CSCvt99966	A SPAN session with the source type set to "Routed-Outside" goes down. The SPAN configuration is pushed to the anchor or non-anchor nodes, but the interfaces are not pushed due to the following fault: "Failed to configure SPAN with source SpanFL3out due to Source IntfConn not available".

- Pre-Update Verifications and Alerting
- Detailed list of bugs addressed in the upgrade
- Post-upgrade Delta analysis of Anomalies, Edits and Operations changes in the upgrade process

Future* Pre-Upgrade Validation Workflow



* Roadmap Item

ACI Firmware Upgrade Best Practice Checklist



Determine Desired Software and Check Support Matrix



Review and Implement Best Practice Configurations



Discover and Clear any issues raised from “pre-upgrade validations”



Review Upgrade Architecture and “Do’s and Don’ts”

Remember this Guy?



BRKDCN-2810a:
Why You Shouldn't Fear
Upgrading Your ACI Fabric
(Part I - Under the Hood)

ACI Upgrade Architecture

<https://www.cisco.com/c/en/us/td/docs/dcn/aci/apic/all/apic-installation-aci-upgrade-downgrade/Cisco-APIC-Installation-ACI-Upgrade-Downgrade-Guide/m-aci-upgrade-architecture.html>

Do's and Don'ts

If at any point in time you believe the upgrade/downgrade has either stalled or failed, follow the guidelines below:

- Do View the APIC Faults and Installer Logs.
- Do Collect the Tech Support Files.
- Do Contact Cisco TAC if Needed.



```
admin@apic1:logs> pwd
/firmware/logs
admin@apic1:logs> ls -l
2021-04-15T07:42:57-50
2021-05-28T10:18:33-50
admin@apic1:logs> ls -l ./2021-05-28T10:18:33-50
atom_installer.log
insieme_4x_installer.log
```



```
leaf101# pwd
/mnt/pss
leaf102# ls installer_detail.log
installer_detail.log
```



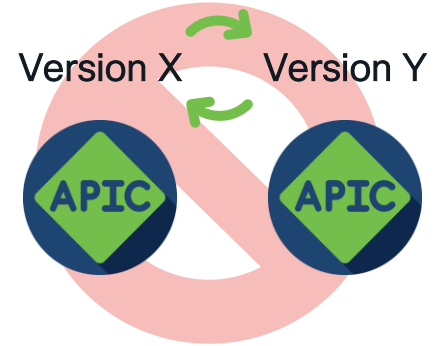
Do's and Don'ts

If at any point in time you believe the upgrade/downgrade has either stalled or failed, it is critical that you do not take any of the actions listed below:

Don't reload any APIC in the cluster manually.

Don't decommission any APIC in the cluster.

Don't change the firmware target version back to the original version.





Final Tip

You've Read the "Do's and Don'ts"...

When in Doubt, Contact
Cisco Support



With Proper Backups, Recovery is Always an Option

ACI Firmware Upgrade Best Practice Checklist



Determine Desired Software and Check Support Matrix



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Discover and Clear any issues raised from “pre-upgrade validations”



Review Upgrade Architecture and “do’s and don’ts”

Key points to remember

- Always make sure you are performing a supported upgrade.
- Best Practice Configuration and Backups are Critical to Success
- ACI Pre-Upgrade Checklist will prevent known issues from impacting the upgrade.
- Never perform a disruptive procedure during an upgrade without help from Cisco.

Reference

- Cisco APIC Installation and ACI Upgrade / Downgrade Guide
<https://www.cisco.com/c/en/us/td/docs/dcn/aci/apic/all/apic-installation-aci-upgrade-downgrade/Cisco-APIC-Installation-ACI-Upgrade-Downgrade-Guide.html>
- Cisco ACI Upgrade Checklist
<https://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/kb/Cisco-ACI-Upgrade-Checklist.html>
- Cisco APIC Release Notes
<https://www.cisco.com/c/en/us/support/cloud-systems-management/application-policy-infrastructure-controller-apic/tsd-products-support-series-home.html>
- Release Notes for Cisco Nexus 9000 Series Switches in ACI Mode
<https://www.cisco.com/c/en/us/support/switches/nexus-9000-series-switches/products-release-notes-list.html>
- Cisco ACI Upgrade Matrix
<https://www.cisco.com/c/dam/en/us/td/docs/Website/datacenter/apicmatrix/index.html>
- Pre-Upgrade Validation Script
<https://github.com/datacenter/ACI-Pre-Upgrade-Validation-Script>

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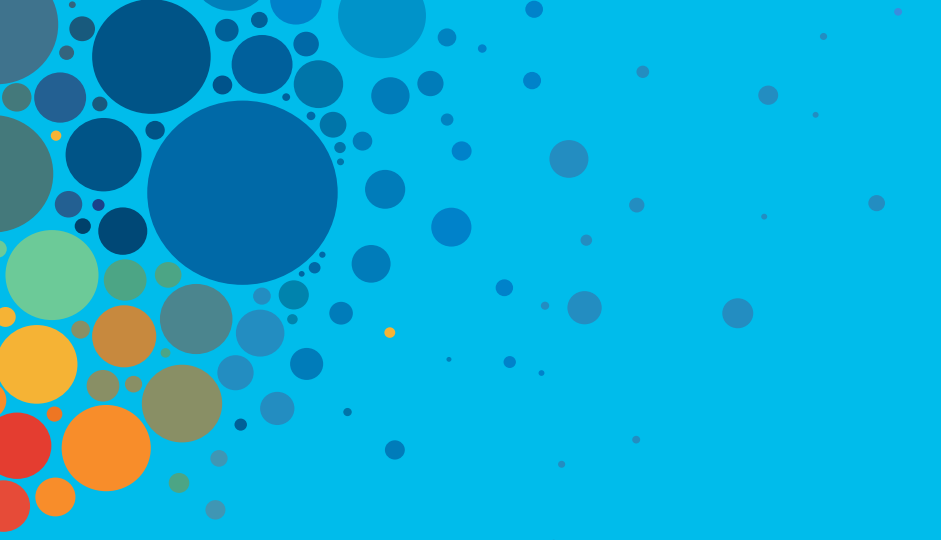
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The bridge to possible

Thank you

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