

# SmartZone 6.1.1 (LT-GA) SmartZone Upgrade Guide (SZ100/vSZ-E/SZ300/vSZ-H)

## Supporting SmartZone 6.1.1

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## Contacting RUCKUS Customer Services and Support

The Customer Services and Support (CSS) organization is available to provide assistance to customers with active warranties on their RUCKUS products, and customers and partners with active support contracts.

For product support information and details on contacting the Support Team, go directly to the RUCKUS Support Portal using <https://support.ruckuswireless.com>, or go to <https://www.commscope.com/ruckus> and select **Support**.

### What Support Do I Need?

Technical issues are usually described in terms of priority (or severity). To determine if you need to call and open a case or access the self-service resources, use the following criteria:

- Priority 1 (P1)—Critical. Network or service is down and business is impacted. No known workaround. Go to the **Open a Case** section.
- Priority 2 (P2)—High. Network or service is impacted, but not down. Business impact may be high. Workaround may be available. Go to the **Open a Case** section.
- Priority 3 (P3)—Medium. Network or service is moderately impacted, but most business remains functional. Go to the **Self-Service Resources** section.
- Priority 4 (P4)—Low. Requests for information, product documentation, or product enhancements. Go to the **Self-Service Resources** section.

### Open a Case

When your entire network is down (P1), or severely impacted (P2), call the appropriate telephone number listed below to get help:

- Continental United States: 1-855-782-5871
- Canada: 1-855-782-5871
- Europe, Middle East, Africa, Central and South America, and Asia Pacific, toll-free numbers are available at <https://support.ruckuswireless.com/contact-us> and Live Chat is also available.
- Worldwide toll number for our support organization. Phone charges will apply: +1-650-265-0903

We suggest that you keep a physical note of the appropriate support number in case you have an entire network outage.

## Self-Service Resources

The RUCKUS Support Portal at <https://support.ruckuswireless.com> offers a number of tools to help you to research and resolve problems with your RUCKUS products, including:

- Technical Documentation—<https://support.ruckuswireless.com/documents>
- Community Forums—<https://community.ruckuswireless.com>
- Knowledge Base Articles—<https://support.ruckuswireless.com/answers>
- Software Downloads and Release Notes—[https://support.ruckuswireless.com/#products\\_grid](https://support.ruckuswireless.com/#products_grid)
- Security Bulletins—<https://support.ruckuswireless.com/security>

Using these resources will help you to resolve some issues, and will provide TAC with additional data from your troubleshooting analysis if you still require assistance through a support case or RMA. If you still require help, open and manage your case at [https://support.ruckuswireless.com/case\\_management](https://support.ruckuswireless.com/case_management).

## Document Feedback

RUCKUS is interested in improving its documentation and welcomes your comments and suggestions.

You can email your comments to RUCKUS at [#Ruckus-Docs@commscope.com](mailto:#Ruckus-Docs@commscope.com).

When contacting us, include the following information:

- Document title and release number
- Document part number (on the cover page)
- Page number (if appropriate)

For example:

- RUCKUS SmartZone Upgrade Guide, Release 5.0
- Part number: 800-71850-001 Rev A
- Page 7

## RUCKUS Product Documentation Resources

Visit the RUCKUS website to locate related documentation for your product and additional RUCKUS resources.

Release Notes and other user documentation are available at <https://support.ruckuswireless.com/documents>. You can locate the documentation by product or perform a text search. Access to Release Notes requires an active support contract and a RUCKUS Support Portal user account. Other technical documentation content is available without logging in to the RUCKUS Support Portal.

White papers, data sheets, and other product documentation are available at <https://www.commscope.com/ruckus>.

## Online Training Resources

To access a variety of online RUCKUS training modules, including free introductory courses to wireless networking essentials, site surveys, and products, visit the RUCKUS Training Portal at <https://commscopeuniversity.myabsorb.com/>. The registration is a two-step process described in this [video](#). You create a CommScope account and then register for, and request access for, CommScope University.

# Document Conventions

The following table lists the text conventions that are used throughout this guide.

**TABLE 1** Text Conventions

Convention	Description	Example
monospace	Identifies command syntax examples	<code>device(config)# interface ethernet 1/1/6</code>
<b>bold</b>	User interface (UI) components such as screen or page names, keyboard keys, software buttons, and field names	On the <b>Start</b> menu, click <b>All Programs</b> .
<i>italics</i>	Publication titles	Refer to the <i>RUCKUS Small Cell Release Notes</i> for more information.

## Notes, Cautions, and Safety Warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential hazards.

### NOTE

A NOTE provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

### ATTENTION

An ATTENTION statement indicates some information that you must read before continuing with the current action or task.



### CAUTION

A CAUTION statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.



### DANGER

A DANGER statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

## Command Syntax Conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
<b>bold text</b>	Identifies command names, keywords, and command options.
<i>italic text</i>	Identifies a variable.
[ ]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
{x  y  z}	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.
x y	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, <i>member[member...]</i> .
\	Indicates a "soft" line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.





# New In This Document

**TABLE 2** Key Features and Enhancements in SmartZone 6.1.1 (December 2022)

Feature	Description	Reference
Redesigning the content	<p><b>Updated:</b> Restructuring the guide as follows:</p> <ul style="list-style-type: none"> <li>● Before Upgrading               <ul style="list-style-type: none"> <li>- Upgrade Overview                   <ul style="list-style-type: none"> <li>› Explain upgrades are separate</li> <li>› List devices or components that can be upgraded: SZ, AP, DP, ICX, Sigpack</li> </ul> </li> <li>- vSZ Requirements</li> <li>- Max Supported AP/Switch</li> </ul> </li> <li>● Release Compatibility</li> <li>● Upgrade Tasks               <ul style="list-style-type: none"> <li>- SZ Upgrade                   <ul style="list-style-type: none"> <li>› Performing</li> <li>› Verifying</li> <li>› Rollback</li> </ul> </li> <li>- SigPack Upgrade                   <ul style="list-style-type: none"> <li>› Performing</li> <li>› Verifying</li> <li>› Rollback</li> </ul> </li> <li>- AP Upgrade                   <ul style="list-style-type: none"> <li>› Performing</li> <li>› Verifying</li> <li>› Rollback</li> </ul> </li> <li>- AP Bundle Upgrade                   <ul style="list-style-type: none"> <li>› Performing</li> <li>› Verifying</li> <li>› Rollback</li> </ul> </li> <li>- Data Plane Upgrade                   <ul style="list-style-type: none"> <li>› Performing</li> <li>› Verifying</li> <li>› Rollback</li> </ul> </li> <li>- ICX                   <ul style="list-style-type: none"> <li>› Performing</li> <li>› Verifying</li> <li>› Rollback</li> </ul> </li> </ul> </li> <li>● Geo Redundancy Upgrade Operation Flow</li> <li>● Upgrade FAQs</li> </ul>	



# Before Upgrading to This Release

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## Upgrade overview

One complete SmartZone release includes software for several components in this architecture, such as:

- Control Plane
- Data Plane
- Access Points

Each one may have its own version number, but all of them are grouped in a single Controller version.

Apart from this, you can have other software components also managed from SmartZone controller.

Software upgrades for these components might be done separately as it will be covered in 'Upgrade tasks' section. This is a summary:

- SmartZone controllers: Control and management plane that will be the first devices to upgrade
- Access Points: They are grouped in Zones inside SZ. Once SmartZone controllers are upgraded to a new version or a new AP bundle release is uploaded to SZ, the corresponding AP software release will be available. Then, they can be upgraded per zone.
- Data plane: For this component there are two possible scenarios:
  - SmartZone physical appliances: This component is inside the appliance, and it gets upgraded at the same time as the SmartZone controller.
  - Physical or virtual data planes: This component is an independent device from SmartZone controller. It is upgraded from SmartZone WebUI, after the controllers have been upgraded, and using its own software file. It should not be upgraded before the controller, because management from controller would be lost.
- Application Signature package: This is used by AP Packet inspection features, and it is updated independently from Access Point firmware using its own software file. This update is done from SZ WebUI.
- ICX Switch Management: They are grouped in Groups inside the controller. When a new ICX switch management software release is uploaded to the controller, the corresponding software release will be available. Then, they can be upgraded individually or per group.

### IMPORTANT

SmartZone upgrades are only done to update the current cluster from the current version to a later one if the path is supported, and not to an older one. For that reason, a cluster or data plane backup is strongly recommended as the rollback point.

There are other devices or components that will interact or are included in some of the previous devices like IOT, Cloudpath or SCI. But they have their own management system, so they are out of the scope of this guide.

## Upgrade Considerations



**CAUTION**

Starting SmartZone (SZ) R6.1, vSZ does not support network configuration with Control, Cluster, and Management interfaces to be in the same subnet or VLAN. As a workaround, separate the vSZ's Control, Cluster, and Management interfaces to different subnets or VLANs before upgrading.



**CAUTION**

Data migration is not supported if system upgrades from release 3.6.x. Existing system and network configuration is preserved, but data such as status and statistics, alarms or events, administrator logs, and mesh uplink history is not migrated to the new release. Contact RUCKUS support for concerns or additional clarifications. [SCG-73771]



**CAUTION**

When SZ meets the following conditions before upgrading:

- Access & core separation feature is enabled
- UDI interface exists
- There are static routes for UDI interface

Then, after upgrading to release 6.1.0, static routes for the UDI interface will be placed in an incorrect routing table so these destinations will not be reachable. [ER-9597]

For assistance, contact RUCKUS support team using <https://support.ruckuswireless.com>.

**NOTE**

- Due to change in EAP supplicant timeout from default 12 seconds to 60 seconds (SCG-124967), client fails to get IP when RADIUS proxy switch to secondary server.

It is recommended to change the Radius Option values in WLAN before upgrading the SZ/AP to SZ6.1.

Following are values recommended under Radius option in WLAN configuration:

- NAS Request Timeout = 5
- NAS Max Number of Retries Retry = 6
- DP Zone Affinity is renamed to DP Group and DP Group is renamed as Internal DP Group. Please refer to the Admin Guide for DP Group details on this feature.
- It is recommended to upgrade the controller Virtual SmartZone (vSZ) before updating the data plane version because if the data plane version is higher than controller vSZ version then data plane cannot be managed by vSZ platform.

When upgrading vSZ-E/vSZ-H, if the memory/CPU allocation of the current VM instance does not match the lowest resource level of the new VM instance to which the new vSZ-E/vSZ-H version will be installed, you will lose the capacity for APs. On the other hand, if the new VM instance has insufficient hard disk space, a warning message appears after you upload the upgrade image, but you will still be able to perform the upgrade.

## Virtual SmartZone Minimum Requirements

### Virtual SmartZone Minimum Requirements

**NOTE**

One or more resources can be higher than the specified requirements. For example, if the instance requires 24Gb RAM, assigning 32Gb RAM is supported.

#### NOTE

Supported version of the hypervisor may change for every vSZ release. To know the hypervisor version supported for a specific release, refer to the respective release of the Upgrade Guide.

### Hypervisor Hardware Performance Requirements

vSZ requires enough hardware resources to sustain the service. vSZ cannot support deployment in low performance hypervisor.

- Sharing hardware server to multiple vSZ instances is not recommended.
- vSZ needs to be deployed on dedicated hardware resource to avoid different VM instance grabbing CPU or IO resources, which can impact vSZ stability in a hypervisor, especially in a scenario where thousands of APs per node are deployed.
- vSZ needs to reach both CPU and IO requirement. Measure the hypervisor hardware performance before deploying vSZ.
- Disks IO is most important in vSZ cluster. Disk IO is the slowest subsystem in a server, which means that write-heavy clusters can easily saturate their disks, which in turn become the bottleneck of the cluster. Avoid network-attached storage (NAS). People routinely claim their NAS solution is faster and more reliable than local drives. NAS is often slower, displays larger latencies with a wider deviation in average latency, and is a single point of failure.

### Hypervisor CPU/IO Requirements - Private Hypervisor

#### CPU Performance Requirement

- CPU single core events per second/per core need > 180 events/sec
- Required CPU level is higher than the Intel Xeon CPU E5-4620 v4 with 2.10 GHz

#### IO performance requirement detail

vSZ require high IO performance deploy environment. Measure the hypervisor IO performance before deployment. vSZ IO throughput requirements :

- IO requirement per resource level - Refer to the **Disk IO Requirement** column in the resource table.
- Avoid network-attached storage (NAS/SAN). The general claim is that the NAS/SAN solution is faster and more reliable than the local drives. NAS/SAN is often slower, displays larger latencies with a wider deviation in average latency, and is a single point of failure.
- Virtual Disk - Preallocated/Eager Zeroed/Fixed Size is required to provide good performance and low latency for IO. Avoid using "Thick Provision Lazy Zeroed/Dynamic Expanding" to impact IO performance. [\*].

#### How to benchmark vSZ CPU/IO Performance

- The vSZ setup process will detect the IO performance at first setup step.
- Use the SZ CLI in **debug-tools > system > system performance**. The command will run system benchmark on CPU and IO for vSZ.

### Network Latency Requirement between vSZ nodes

A fast and reliable network is important for performance in a distributed system. Low latency helps ensure that nodes can communicate easily, while high bandwidth helps shared movement and recovery. Avoid clusters that span multiple data centers, even if the data centers are located in close proximity. It is highly recommended to avoid clusters that span large geographic distances.

vSZ requires low network latency between vSZ nodes on the control & cluster interface network. vSZ cannot support deployment in high network latency environment.

vSZ interface network latency between nodes: Cluster Interface network latency need < 60 ms.

Before upgrading vSZ to this release, verify that the virtual machine on which vSZ is installed has sufficient resources to handle the number of APs, wireless clients and ICX Switches that you plan to manage. See the tables below for the **required** virtual machine system resources.

## Before Upgrading to This Release

### Virtual SmartZone Minimum Requirements

The values for vCPU, RAM, and Disk Size are linked together and cannot be changed individually. When changing one of these parameters, all three values need to **match exactly** with an existing Resource Level. Taking vSZ-H Resource Level 5 as an example: when adjusting the number of vCPU from 4 to 6, the amount of RAM needs to be adjusted to 22GB and the Disk Size needs to be adjusted to 300GB, thereby matching all the values of Resource Level 6.

#### NOTE

The vSZ deployed in the Nutanix Hypervisor introduces more overhead on memory. The 10K AP per node is not sustained on 48GB memory setting. [SCG-113477]

**Workaround:** When deploying vSZ on Nutanix it is recommended to allocate more memory for vSZ usage. For a 10K AP resource level, setup needs 24 core CPU and 50 GB (+2GB) memory to control. Alternatively decrease to 25% AP deployment in vSZ resource level. For example, 7500 AP in 10K AP resource level.



#### WARNING

These vSZ required resources may change from release to release. Before upgrading vSZ, always check the required resource tables for the release to which you are upgrading.

#### NOTE

When initially building up the network it can use a higher Resource Level than needed for the number of APs first deployed, if all the three parameters (vCPU, RAM and Disk Size) **match exactly** with that higher Resource Level.

#### ATTENTION

It is recommended that there should be only one concurrent CLI connection per cluster when configuring vSZ.

In the following tables the high scale resources are broken into two tables for easy readability. These tables are based on the *AP Count Range*.

**TABLE 3** vSZ High Scale required resources

AP Count Range		Max Clients	Nodes per Cluster	AP Count per Node (without Switch)	AP/Switch Capacity Ratio	Maximum Switch (w/o AP)
From	To			Max		Max
10,001	30,000	300,000	4	10,000	5 : 1	6,000
	20,000	200,000	3			4,000
10,001	30,000	300,000	4	10,000	5 : 1	6,000
	20,000	200,000	3			4,000
6,001	10,000	100,000	1-2	10,000	5 : 1	2,000
5,001	6,000	60,000	1-2	6,000	5 : 1	1,200
3,001	5,000	50,000	1-2	5,000	5 : 1	1,000
2,501	3,000	30,000	1-2	3,000	5 : 1	600
1,001	2,500	25,000	1-2	2,500	5 : 1	500
501	1,000	20,000	1-2	1,000	5 : 1	200
101	500	10,000	1-2	500	5 : 1	100

**TABLE 3** vSZ High Scale required resources (continued)

AP Count Range		Max Clients	Nodes per Cluster	AP Count per Node (without Switch)	AP/Switch Capacity Ratio	Maximum Switch (w/o AP)
From	To			Max		Max
1	100	2,000	1-2	100	5 : 1	20

**TABLE 4** vSZ High Scale required resources

AP Count Range		Minimum vCPU per node	Minimum RAM per node <sup>[1]</sup>	Minimum Disk Size per node <sup>[2]</sup>	Minimum Disk IO Requirement per node	Preserved Event/Alarm Days	Concurrent CLI Connection	Resource Level
From	To	Logic Processor	GB	GB	MiB/s	Max	Max (per node not per cluster)	
10,001	30,000	24	56	600	45	3/7 Days	4	9 <sup>[5]</sup>
	20,000							
10,001	30,000	24	48	600	45	3/7 Days	4	8
	20,000							
6,001	10,000	24	48	600	45	3/7 Days	4	7
5,001	6,000	16	30	300	35	3/7 Days	2	6.6
3,001	5,000	12	28	300	30	3/7 Days	2	6.5
2,501	3,000	8	24	300	30	3/7 Days	2	6.1
1,001	2,500	6	22	300	25	3/7 Days	2	6
501	1,000	4-6 <sup>[4]</sup>	18	150	20	3/7 Days	2	5
101	500	4	16	150	15	3/7 Days	2	4
1	100	2-4 <sup>[3]</sup>	13	150	15	3/7 Days	2	3

In the following tables the essential scale resources are broken into two tables for easy readability. These tables are based on the AP Count Range.

**TABLE 5** vSZ Essentials required resources

AP Count Range		Maximum Clients	Nodes per Cluster	AP Count per Node	AP/Switch Capacity Ratio	Maximum Switch (w/o AP)
From	To			Max		Max
1025	3,000	60,000	4	1,024	5 : 1	600
	2,000					
501	1,024	25,000	1-2	1,024	5 : 1	204
101	500	10,000	1-2	500	5 : 1	100
1	100	2,000	1-2	100	5 : 1	20

## Before Upgrading to This Release

### Virtual SmartZone Minimum Requirements

#### NOTE

The recommended vCPU core for the vSZ-E with AP Count Range 1 through 100 is 2-4.

**TABLE 6** vSZ Essentials required resources

AP Count Range		Minimum vCPU per node	Minimum RAM per node <sup>[1]</sup>	Minimum Disk Size per node <sup>[2]</sup>	Minimum Disk IO Requirement	Preserved Event/ Alarm Days	Concurrent CLI Connection	Resource Level
From	To	Logic Processor	GB	GB	MiB/s	Max	Max (per node not per cluster)	
1025	3,000	8	20	250	20	7 Days	2	3
	2,000							
501	1,024	8	20	250	20	7 Days	2	2
101	500	4	16	150	15	7 Days	2	1.5
1	100	2-4 <sup>[*3]</sup>	13	150	15	7 Days	2	1

#### NOTE

[1] - vSZ-H and vSZ-E have different report interval. For example, AP sends the status to vSZ-E every 90 seconds but to vSZ-H it is sent every 180 seconds, which means that vSZ-E need more RAM in scaling environment based on the resource level.

[2] - NICs assigned to direct IO cannot be shared. Moreover, VMware features such as vMotion, DRS, and HA are unsupported.

## Public Cloud Platform - Instance Resource Type

In the following tables the high scale resources are broken into two tables for easy readability. These tables are based on the AP Count Range.

**TABLE 7** vSZ High Scale

AP Count Range		Max Clients	Nodes per Cluster	AP Count per Node (without Switch)	Maximum Switch (w/o AP)
From	To			Max	Max
10,001	30,000	300,000	4	10,000	6,000
	20,000	200,000	3		4,000
6,001	10,000	100,000	1-2	10,000	2,000
3,001	6,000	60,000	1-2 <sup>[*4]</sup>	6,000	1,200
1,001	3,000	30,000	1-2	3,000	600
501	1,000	20,000	1-2	1,000	200
101	500	10,000	1-2	500	100
1	100	2,000	1-2	100	20

**TABLE 8** vSZ High Scale

AP Count Range		Minimum Disk Size	Recommended Machine Type for AWS	Recommended Machine type for Azure	Disk IO Requirement
From	To	GB			
10,001	30,000	600	c5.9xlarge (36 vCPU/72 GB RAM)	F32s_v2 (32 vCPU/64 GB RAM)	45
	20,000				
6,001	10,000	600	c5.9xlarge (36 vCPU/72 GB RAM)	F32s_v2 (32 vCPU/64 GB RAM)	45
3,001	6,000	300	c5.4xlarge (16 vCPU/32 GB RAM)	F16s_v2 (16 vCPU/32 GB RAM)	35



**TABLE 8** vSZ High Scale (continued)

AP Count Range		Minimum Disk Size	Recommended Machine Type for AWS	Recommended Machine type for Azure	Disk IO Requirement
From	To	GB			
1,001	3,000	300	m5.2xlarge (8 vCPU/32 GB RAM)	D8s_v3 (8 vCPU/32 GB RAM)	25
501	1,000	150	r5.xlarge (4 vCPU/32GB RAM)	E4s_v3 (4 vCPU/32 GB RAM)	20
101	500	150	m5.xlarge (4 vCPU/16 GB RAM)	D4s_v3 (4 vCPU/16 GB RAM)	15
1	100	150	r5.large (2 vCPU/16 GB RAM)	DS11_v2 (2 vCPU/14 GB RAM) or D4s_v3 (4 vCPU/16 GB RAM)	15

In the following tables the essential scale resources are broken into two tables for easy readability. These tables are based on the *AP Count Range*.

**TABLE 9** vSZ Essentials required resources

AP Count Range		Maximum Clients	Nodes per Cluster	AP Count per Node	Maximum Switch (w/o AP)
From	To			Max	Max
1025	3,000	60,000	4	1,024	600
	2,000	40,000	3		400
501	1,024	25,000	1-2	1,024	204
101	500	10,000	1-2	500	100
1	100	2,000	1-2	100	20

**NOTE**

The recommended vCPU core for the vSZ-E with **AP Count Range** 1 through 100 is 2-4.

**TABLE 10** vSZ Essentials required resources

AP Count Range		Minimum Disk Size	Recommended Machine Type for AWS	Recommended Machine type for Azure	Disk IO Requirement
From	To	GB			
1025	3,000	250	m5.2xlarge (8 vCPU/32 GB RAM)	D8s_v3 (8 vCPU/32 GB RAM)	20
	2,000				
501	1,024	250	m5.2xlarge (8 vCPU/32 GB RAM)	D8s_v3 (8 vCPU/32 GB RAM)	20
101	500	150	m5.xlarge (4 vCPU/16 GB RAM)	D4s_v3 (4 vCPU/16 GB RAM)	15
1	100	150	r5.large (2 vCPU/16 GB RAM)	DS11_v2 (2 vCPU/14 GB RAM) or D4s_v3 (4 vCPU/16 GB RAM)	15

## Before Upgrading to This Release

### Virtual SmartZone Minimum Requirements

#### NOTE

- [1] - Increase the vSZ total memory 2~4 GB when running on special or extreme deploy environment when vSZ raise a memory exceed (90%) alarm. For example:
  - Deploy 4-node vSZ cluster on Nutanix with full 30K AP capacity.
  - One vSZ node down in 4-node vSZ cluster to long term sustain 30K AP in 3 alive vSZ nodes.  
The solution should be recovered the fail vSZ node as soon as possible. But if user need run 3 nodes with 30K AP in long term sustain, it need to increase the vSZ memory to run.
  - All APs with full statistic reports (AVC, HCCD, UE, ...) to SZ on full load stress condition.
- [2] - Required Disk Type
  - AWS: General Purpose SSD (gp2)
  - GCE: SSD
  - Azure: Standard-SSD
- [3] - If deployed hardware CPU computing performance is not good as recommended in 100 AP resource level, the 2 cores CPU setting cannot be supported. Upgrade to 4 cores instead of 2 cores in this case.
- [4] - If deployed hardware CPU computing performance is not good as recommended Hypervisor (like Hyper-V) in 4-CPU setting to support 1000K AP, upgrade to 6 cores instead of 4 cores in this case.
- [5] - Resource level 9 is added for cases that does not sustain the loading with resource level 8.
- The 6000 AP resource profile level could support to 4 nodes cluster. The total supported AP number will be up to 18,000 APs in a 4 node vSZ cluster.
- Workaround if virtualization platform always need Thin Provision/Lazy Zeroed/Dynamic Expanding case.

## Change Log of vSZ Resource Plan

- New support for 3000, 6000 APs resource level for more flexible deployment and better cost effectiveness for customer.
- Due to system limitation for the minimum disk requirement, the base disk size requirement is increased from 100 GB to 150 GB on low level resource profile. No impact for user to upgrade from previous version. Requires new setup vSZ to follow new disk size.
- As the resource level has hit the system limitation in some case, for the vSZ-E 1024 APs resource level memory is increased from 18 GB to 20 GB. No impact for user to upgrade from previous version. User need to change only the memory setting when encountering memory usage alarm exceeding 90%.
- Adding additional notes vSZ memory required in extreme vSZ deployment and cases.
- New session, vSZ-H instance Resource Allocate Instruction, is added.

## Supported Platforms

This section displays summary of platforms supported by vSZ in this release version.

Hypervisors supported by vSCG/vSZ

**TABLE 11** Supported Hypervisors

Vendor	Hypervisor	Version
VMWare	ESXi	5.5 and later (7.0 or later recommended)
Microsoft	Windows Server Hyper-V	Windows Server Hyper-V (2019)
KVM	CentOS	7.5 (1804), 7.7 (1908), 8 (1905), 8.2 (2004), 8.3 (2011), 8.4 (2105), and 8.5 (2111)
OpenStack	Ubuntu	Xena and Yoga
Nutanix	Nutanix	Nutanix Community Edition

**TABLE 12** Supported Public Cloud Platforms

Vendor
AWS (Amazon Web Service)
Google Cloud
Microsoft Azure

**NOTE**

Ruckus only supports usage of vSZ on the above named virtualization platforms.

**TABLE 13** Unsupported Platforms

vSZ
Sangfor HCI
VMWare Workstation/Workstation Player
Oracle VM Virtual Box

**NOTE**

The above mentioned hypervisor platforms are not currently supported by RUCKUS SZ. If vSZ is run on any of the platforms officially not supported or assured by RUCKUS, any errors encountered in vSZ cannot be investigated by RUCKUS support. The above list is not exhaustive, it serves only to clarify the unsupported hypervisors.

## Hypervisor CPU/IO Requirements - Self Own Hypervisor

### Benchmarking vSZ CPU/IO Performance

System Benchmark Tool included in this release can be used to measure Hypervisor performance. It provides the benchmark result and performance measure to run vSZ on CPU (Central Processing Unit) and IO (Input Output).

Command Location:

```
CLI > debug > debug-tools > system-performance
```

### Performance Requirement

CPU	CPU single core events per second/per core need > 180 events/second.
IO	Requirements change per resource level. Refer to resource table for minimum values (column 'Disk IO requirement')

## Maximum Supported AP and Switch Management

The tables below list the maximum supported resources between APs and switches.

SmartZone 6.1.x support dynamic (linear) AP/Switch capacity based on capacity ratio. No AP/Switch mode, only mix mode and AP/Switch support number base on total amount connect AP/Switch capacity.

### Capacity Ratio

High scale profile with higher switch support capacity to 5:1 from 8:1

vSZ-H L6 ~ L8

5:1 (10000 AP : 2000 switches)

**Example: Calculating the Total Capacity**

- 200 APs + 100 switches (1:5)  
(200 x 1) + (100 x 5) = 700 (Total Capacity) This requirement could use L5, since the total capacity is smaller than 1,000.
- 400 APs + 10 switches (1:5)  
(400 x 1) + (10 x 5) = 450 (Total Capacity) This requirement could use L4, since the total capacity is smaller than 500.

**NOTE**

These required resources may change from release to release. Before upgrading, always check the required resource tables for the release to which you are upgrading.

**TABLE 14** AP and Switch resource table for 1 and 2 nodes

Profile	1 and 2 Nodes				1 or 2 Nodes
Capacity	AP Mode		Switch Mode		AP/Switch Capacity Ratio
SZ100	1,024	0	0	204	5:1
SZ144	2,000	0	0	400	5:1
SZ300	10,000	0	0	2,000	5:1
vSZ-E L1	100	0	0	20	5:1
vSZ-E L1.5	500	0	0	100	5:1
vSZ-E L3	1,024	0	0	204	5:1
vSZ-H L3	100	0	0	20	5:1
vSZ-H L4	500	0	0	100	5:1
vSZ-H L5	1,000	0	0	200	5:1
vSZ-H L6	2,500	0	0	500	5:1
vSZ-H L6.5	5,000	0	0	1,000	5:1
vSZ-H L8	10,000	0	0	2,000	5:1

In the following tables for three and four nodes are broken into two tables for easy readability.

**TABLE 15** AP and Switch resource table for 3 and 4 nodes

Profile	3 Nodes					4 Nodes				
Capacity	AP Mode		Switch Mode		AP/Switch Capacity Ratio	AP Mode		Switch Mode		AP/Switch Capacity Ratio
SZ100	2,000	0	0	400	5:1	3,000	0	0	600	5:1
SZ144	4,000	0	0	800	5:1	6,000	0	0	1,200	5:1
SZ300	20,000	0	0	4,000	5:1	30,000	0	0	6,000	5:1
vSZ-E L3	2,000	0	0	400	5:1	3,000	0	0	600	5:1
vSZ-H L8	20,000	0	0	4,000	5:1	30,000	0	0	6,000	5:1

## Data Migration Recommendations

If you need to preserve your data or reports, consider the following recommended options before upgrading:

- Leverage an existing SCI platform to send statistics and reports to SCI before the upgrade.

**NOTE**

SCI comes with a free 90-day evaluation.

- Backup and export existing statistics and reports using Export tools or Streaming API before the upgrade.
- Connect your cluster to Ruckus Analytics platform to send multiple data sources to get reporting and other capabilities.



# Release Compatibility

SmartZone (SZ) provides release compatibility in two forms:

- **Upgradability:** Controller new release can support upgrade from certain previous release trains. This would be limited to software releases (GA, GD or MRs from previous trains) that were already published at the time of new SmartZone release being available.
- **AP zone support:** A new SmartZone release supports AP zone firmware from certain prior releases; different AP zones may use any of the supported firmware releases.

## NOTE

The SmartZone data plane devices follow the AP zone compatibility policy as set forth in this section. Data plane devices are compatible with SZ in the same way APs are compatible with SZ.

The supported paths for Short Term (ST) and Long Term (LT) releases are the same, and maintain the following compatibilities:

- An ST release is compatible with its current release train and the immediate prior LT GD release train for upgradability and AP Zone support.
- An LT release is compatible with its current release train, the immediate prior ST release, and the latest LT GD (General Deployment) release in immediate prior LT train for upgradability and AP Zone support.
- An LT GD release is compatible with its current release train, the immediate prior ST release, and two immediate prior LT GD releases for upgradability and AP Zone support.

For more information on release definition, refer to RUCKUS Support Portal at <https://support.ruckuswireless.com>.

This SmartZone release is a long-term (LT) release. Refer to the following table for a compatibility matrix for all controller platforms.

**TABLE 16** SZ 6.1.1 Compatibility Matrix

Previous releases	6.1.1.0.xxxx (LT GA)
3.6.2.0.78, 3.6.2.0.222, 3.6.2.0.250 (LT GD)	√
5.1.0.0.496, 5.1.1.0.589, 5.1.1.0.598, 5.1.2.0.302 (ST GA)	x
5.2.0.0.699, 5.2.1.0.515 (LT GA)	x
5.2.2.0.317, 5.2.2.0.1161, 5.2.2.0.1562, 5.2.2.0.1563 (LT GD)	√
6.0.0.0.1331 (ST GA)	√
6.1.0.0.935, 6.1.0.0.961 (LT GA)	√

## NOTE

\*- Additional support for this path beyond the base policy has been added due to special requirements.

If you are running an earlier version, you must first upgrade to a compatible version, as shown in the table, before upgrading to this release.



## CAUTION

To help ensure that the cluster firmware upgrade process can be completed successfully, the cluster interfaces of all nodes must be connected and up.

## REMEMBER

Before you proceed with upgrading the controller to this release, ensure that all AP zones are running one of the supported firmware versions. Otherwise, the cluster upgrade will be blocked.





# Upgrade Tasks

- SZ Upgrade..... 25
- SigPack Upgrade..... 27
- AP Upgrade..... 28
- AP Bundle Upgrade..... 32
- Data Plane Upgrade..... 33
- Switch Upgrade..... 35

## SZ Upgrade

### Performing the Upgrade

Consult the RUCKUS Support website on a regular basis for updates that can be applied to your RUCKUS network devices.



#### CAUTION

Although the software upgrade process has been designed to preserve all controller settings, RUCKUS strongly recommends that you back up the controller cluster before performing an upgrade. Having a cluster backup will ensure that you can easily restore the controller system if the upgrade process fails for any reason. Upload the backup files from all the nodes in a cluster to a remote FTP server or download them from SZ WebUI



#### CAUTION

RUCKUS strongly recommends that you ensure that all interface cables are intact during the upgrade procedure.



#### CAUTION

RUCKUS strongly recommends that you ensure that the power supply is not disrupted during the upgrade procedure.

Before starting this procedure, you should have already obtained a valid controller software upgrade file from RUCKUS Support or an authorized reseller.

1. Copy the software upgrade file that you received from RUCKUS to the computer where you are accessing the controller web interface or to any location on the network that is accessible from the web interface.
2. Select **Administration > Administration > Upgrade > Upgrade**.

In **Current System Information**, the controller version information is displayed.

#### NOTE

The **Upgrade History** tab displays information about previous cluster upgrades.

3. From **Upload**, ensure the **Run Pre-Upgrade Validations** check box is selected (enabled by default). It triggers data migration validation during upload process.
4. Click **Browse** to select the patch file.
5. Click **Upload** to upload the new image (.ximg file) to system. The controller uploads the file to its database, and then performs the data migration verification. After the verification is done, the **Patch for Pending Upgrades** section is populated with information about the upgrade file. If verification fails, the following error is displayed:

```
Exception occurred during the validation of data migration. Please apply the system configuration backup and contact system administrator.
```

## Upgrade Tasks

### SZ Upgrade

6. If the controller configuration upload is successful, click **Backup & Upgrade** to back up the controller cluster and system configuration before performing the upgrade.

When the upgrade (or backup-and-upgrade) process is complete, the controller logs you off the web interface automatically. When the controller login page is displayed again, you have completed upgrading the controller.

## Verifying the Upgrade

You can verify the process was successful as follows:

1. Select **Administration > Administration > Upgrade > Upgrade**.
2. In the **Current System Information** section, select the value for **Controller Version**. If the software version is newer than the software version that controller was using before you started the upgrade process, then the upgrade process was completed successfully.
3. You can also go to Upgrade History section and verify there is a new line with State Successful and System version changed to 6.1.1.0.xxx.

**FIGURE 1** Upgrade History

Upgrade History							
Start Time	State	System Version	Control Plane Software Version	Data Plane Software Version	AP Firmware Version	Path File Name	Upgrade Elapsed
2022/12/05 11:28:40	Successful	6.1.1.0.947->6.1.1.0.950	6.1.1.0.440->6.1.1.0.442	6.1.1.0.947->6.1.1.0.950	6.1.1.0.1262->6.1.1.1....	6.1.1.0.950.ximg	33m 13s
2022/12/01 13:12:53	Successful	6.1.1.0.941->6.1.1.0.947	6.1.1.0.436->6.1.1.0.440	6.1.1.0.941->6.1.1.0.947	6.1.1.0.1249->6.1.1.1....	6.1.1.0.947.ximg	43m 57s
2022/11/24 12:34:26	Successful	6.1.1.0.934->6.1.1.0.941	6.1.1.0.436	6.1.1.0.934->6.1.1.0.941	6.1.1.0.1238->6.1.1.1....	6.1.1.0.941.ximg	29m 30s
2022/11/18 10:07:03	Successful	6.1.1.0.924->6.1.1.0.934	6.1.1.0.432->6.1.1.0.436	6.1.1.0.924->6.1.1.0.934	6.1.1.0.1229->6.1.1.1....	6.1.1.0.934.ximg	30m 24s
2022/11/09 13:43:51	Successful	6.1.1.0.867->6.1.1.0.924	6.1.1.0.415->6.1.1.0.432	6.1.1.0.867->6.1.1.0.924	6.1.1.0.1172->6.1.1.1....	6.1.1.0.924.ximg	31m 48s
2022/10/12 13:29:19	Successful	6.1.1.0.839->6.1.1.0.867	6.1.1.0.413->6.1.1.0.415	6.1.1.0.839->6.1.1.0.867	6.1.1.0.1143->6.1.1.1....	6.1.1.0.867.ximg	30m 23s
2022/09/30 09:59:58	Successful	6.1.1.0.809->6.1.1.0.839	6.1.1.0.407->6.1.1.0.413	6.1.1.0.809->6.1.1.0.839	6.1.1.0.1113->6.1.1.1....	6.1.1.0.839.ximg	30m 42s
2022/09/19 14:40:21	Successful	6.1.1.0.745->6.1.1.0.809	6.1.1.0.387->6.1.1.0.407	6.1.1.0.745->6.1.1.0.809	6.1.1.0.1044->6.1.1.1....	6.1.1.0.809.ximg	29m 50s
2022/08/21 23:04:28	Successful	6.1.1.0.718->6.1.1.0.745	6.1.1.0.370->6.1.1.0.387	6.1.1.0.718->6.1.1.0.745	6.1.1.0.1011->6.1.1.1....	6.1.1.0.745.ximg	30m 18s

## Rolling Back to a Previous Software Version

If you encounter issues during the software upgrade process and the controller cannot be upgraded successfully, you may want to roll back the controller software to a previous version.

To be able to restore the software to the previous software version, you must perform a cluster backup before upgrading. To roll back to the previous version, perform either Step 1 or Step 2 depending on the outcome of the software upgrade.

1. If the upgrade fails, access all the node's command-line interface (CLI) and run the **restore** command to the local system simultaneously.
2. If the upgrade succeeded, the restore can be run from either the CLI or through the WebUI.

For details about performing a cluster backup, see the “Backing Up and Restoring Clusters” section of the appropriate product *Administration Guide*.

# SigPack Upgrade

## Upgrading Application Signature Package

AP DPI feature uses an Application Signature Package that in general it can be optionally updated when a new version is available.

### NOTE

As R5.1.x to R6.1 release upgrade is not supported, RUCKUS does not have any signature-package upgrade restrictions during zone upgrade.

There are two types of Application Signature Package files (Sigpack) available in the Support site:

- **Regular Sigpack:** This package can be used for any scenario but is required if you intend to use the Client Virtual Id Extraction feature available in WLAN configuration. This type of file is not supported by 802.11ac Wave 1 AP running firmware prior to 6.0.
- **Non-regular Sigpack:** This package can be used for any other scenario and is compatible with any supported AP model and firmware version.

This package can be updated to the latest available version that is suggested by the controller or to a file downloaded from RUCKUS download center.

To update the signature package in all APs in a cluster:

1. If you choose to update to a specific file available in the RUCKUS support site, download the file as a first step. In other case, you can skip this step.
  - **Regular Sigpack only for SZ6.1.0:** <https://support.ruckuswireless.com/software/3156-smartzone-6-1-0-0-675-sigpack-1-540-1-regularapplication-signature-package>.
  - **Non-Regular Sigpack for SZ6.1.0 and older releases:** <https://support.ruckuswireless.com/software/3157-smartzone-6-1-0-0-675-sigpack-1-540-1-application-signature-package>.
2. From the controller web UI, select **Security > Application Control > Application Signature package**.
  - a. If you choose to install the latest version available in the Support site, go to **Latest available from support site > Check Now > For any latest update > Install**.

### NOTE

If Regular and Non-regular Sigpack files are available in latest version from support site, SZ will offer to download and install the Regular version. If your AP models do not support it, they will fail to download it and stay in their current Sigpack version.

- b. If you choose to install a version downloaded in step 1, go to **Upload Signature Package** section, click **Browse** and select the file the version you intend to install. Then click on **Upload** to install that signature package.

After the signature package file is installed or uploaded successfully, the controller will logoff the users.

### NOTE

More details can be found in Administrator Guide, in section *Working with Application Signature Package*

## Verifying the SigPack Upgrade

You can verify if the upgrade process was successful as follows:

1. Select **Security > Application Control > Application Signature package**.

## Upgrade Tasks

### AP Upgrade

- From the **Current Signature Package Info** section, verify if the filename matches with the one that is uploaded and installed.

**FIGURE 2** Verifying the SigPack

Current Signature Package Info	
File Name	RuckusSigPack v2-1.540.1-reg...
File Size	15.3MB
Version	1.540.1
Support Regular	Yes

## Rolling Back SigPack Upgrade to the Previous Version

You can roll back to a previous SigPack version with these steps.

- Download the desired Sigpack version from the RUCKUS support site.
- From the controller web UI, select **Security > Application Control > Application Signature package**.
- Go to the **Upload Signature Package** section, click **Browse** and select the file and the version you intend to install.
- Click on **Upload** to install that signature package.

After the signature package file is installed or uploaded successfully, the controller will logoff the users.

## AP Upgrade

### Upgrading the APs

When the controller is upgraded, a new software version is available for the APs, which is not upgraded automatically along with the controller. Instead, they are upgraded independently per zone (which can have different software versions) following these steps:

- Manual upgrade per zone or group of zones: Refer, [Changing the AP Firmware Version of the Zone](#) on page 28.
- Scheduled upgrade per zone or group of zones: Refer, [Schedule Zone Firmware Upgrade](#) on page 29.

### Changing the AP Firmware Version of the Zone

The controller supports multiple firmware versions. You can manually upgrade or downgrade the AP firmware version of the zone.

Complete the following to change the AP firmware version of the zone.

- or a single zone, from the **Access Point** page, locate a zone for which you want to upgrade the AP firmware version.

#### NOTE

To upgrade multiple zones, click the **Zone** view mode and select the zones by holding down the Ctrl key and clicking each of the zones.

- Click **More** and select **Change AP Firmware**. The **Change AP Firmware** dialog box displays the current AP firmware version.
- Select the firmware version you need. If you upgrade to a new firmware version, a backup configuration file will be created. You can use this backup file to downgrade to the original firmware version.

**NOTE**

If the multiple zones do not have the same supported firmware version, the dialog box displays the following message: These Zones do not have same supported AP firmware available for upgrade/downgrade.

4. Click **Yes**, and a confirmation message is displayed stating that the firmware version was updated successfully.

**NOTE**

If any zone fails to upgrade, a dialog box displays to download an error CSV list.

5. Click **OK**. You have completed changing the AP firmware version of the zone.

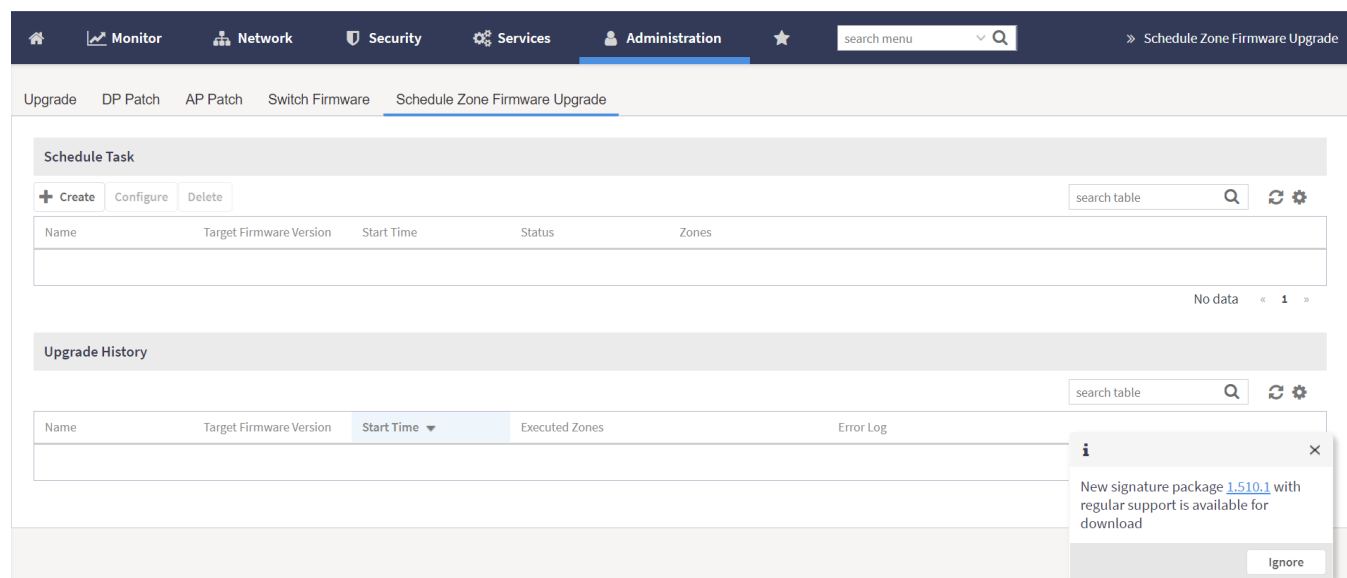
### Schedule Zone Firmware Upgrade

Allows user to setup a schedule time to upgrade/downgrade single or multiple zone firmware.

After a zone firmware upgrade/downgrade task is executed, user can see the zone firmware change history.

1. Go to **Administration > Upgrade > Schedule Zone Firmware Upgrade**.

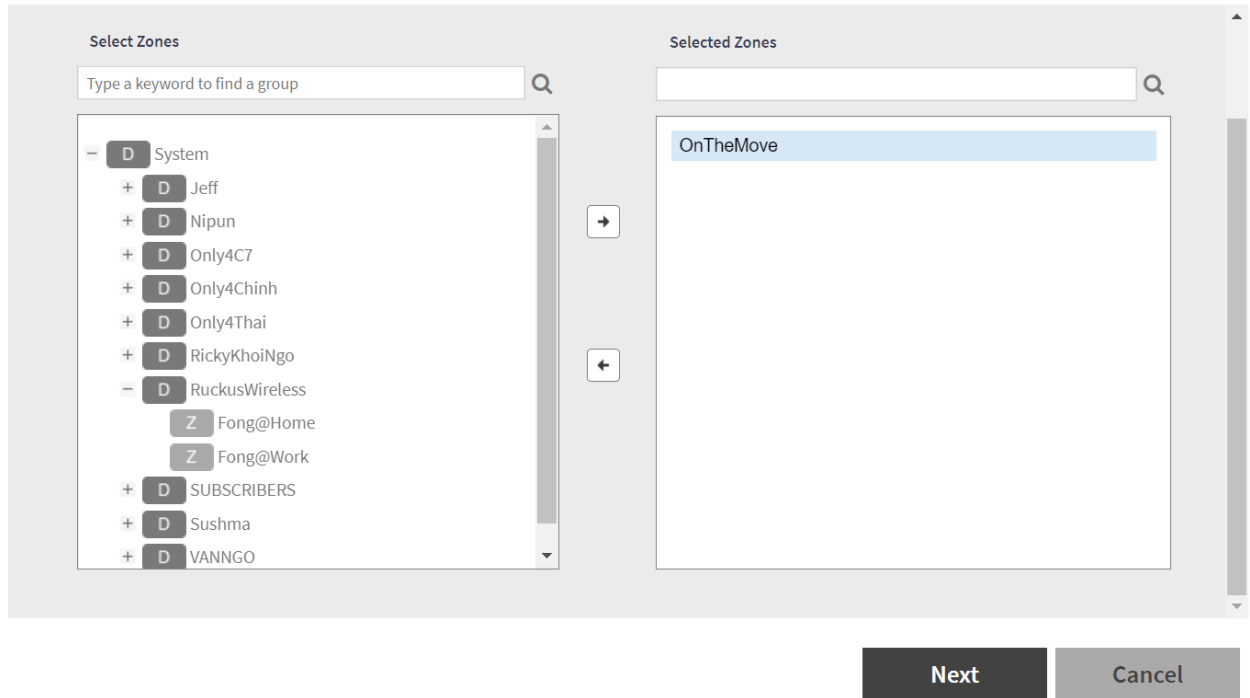
**FIGURE 3** Schedule Zone Firmware Upgrade



- click **Create**, the **Create Schedule Zone Firmware Upgrade Task** page is displayed.

**FIGURE 4** Schedule Zone Firmware Upgrade

## Create Schedule Zone Firmware Upgrade Task



- Select the required zone from the **Select Zones** list and move it to the **Selected Zones** list.

- Click **Next**, the **Schedule** tab page is displayed.

**FIGURE 5** Configuring the Schedule

## Configure Schedule Zone Firmware Upgrade Task

Zone → **Schedule** → Review

It is recommended that AP Firmware version should be same as DP version. The same versions of AP(s) and DP(s) could ensure a consistent agreement on functional communication.

Update to 6.1.0.99.716  
Update to 6.1.0.99.721

Upgrade versions

Please upgrade all DP members of this zone's DP Group. The version that zone can be upgraded is depending on this zone's DP Group version.

\* Name:

\* Change firmware to:

\* Schedule time:

Back Next Cancel

- Enter a **Name**.
- Select the upgrade version from the list. The **Change Firmware to** field will automatically be updated with the selected version.
- Select the **Schedule time**.
- Click **Next**.
- Review the task and click **OK**.

## Verifying the AP Upgrade

You can verify if the upgrade process was successful as follows:

- Select **Network > Access Points**.
- Choose the zone you have upgraded, click **More** and select **Change AP Firmware**. The **Change AP Firmware** dialog displays the current AP firmware version.

## Rolling Back the AP Upgrade

You can rollback to the previous software version that was running in an AP zone as follows:

### NOTE

With this process you will also rollback to the configuration and AP list that this zone had when it was upgraded from the selected version.

1. Select **Network > Access Points**.
2. Choose the zone you have upgraded, click **More** and select **Change AP Firmware**. The **Change AP Firmware** dialog box displays the current AP firmware version and the list of available AP Firmware version to roll back.
3. Select the firmware version you need and click **Yes**.  
A confirmation message is displayed stating that the firmware version was updated successfully.
4. Click **OK**. You have completed changing the AP firmware version of the zone.

## AP Bundle Upgrade

### Uploading an AP Firmware Bundle

An AP Patch is a separate software file only containing a new version for AP component. It can be uploaded into an SZ cluster to add that new version for this component. Main purposes:

- New AP model: Patch is introducing a new AP model not supported into that release version yet.
- Bug fix: Patch containing additional software fixes compared to previous official AP version.

To upload an AP patch in a SmartZone cluster:

1. Select **Administration > Administration > Upgrade > Upgrade**.
2. Select the **AP Patch** tab.
3. In Patch File Upload, click **Browse** to select the patch file (with extension .patch).
4. Click **Open**.
5. Click **Upload**. The upload status bar is displayed, and after the patch file is uploaded, the section is populated with the patch filename, size, firmware version, and supporting AP models.
6. Click **Apply Patch**. The apply patch status bar is displayed.

After the patch file is updated, you will be prompted to log out.

When you login again, the **AP Patch History** section displays information about the patch file such as start time, AP firmware and model.

You have successfully updated the AP models and AP firmware with the patch file, without having to upgrade the controller software.

For upgrading, verifying and rolling back tasks using this AP patch, you can refer to the same steps described in [AP Upgrade](#) on page 28.



# Data Plane Upgrade

## Upgrading the Data Plane

You can view and upgrade the virtual data plane version using patch files. This feature is only supported on vSZ-H and vSZ-E.



### CAUTION

**RUCKUS strongly recommends that you back up the data plane before performing an upgrade. Having this backup will ensure that you can easily restore the data plane if the upgrade process fails for any reason. For this you have Backup and Restore options in the same page where Upgrade is performed.**

### NOTE

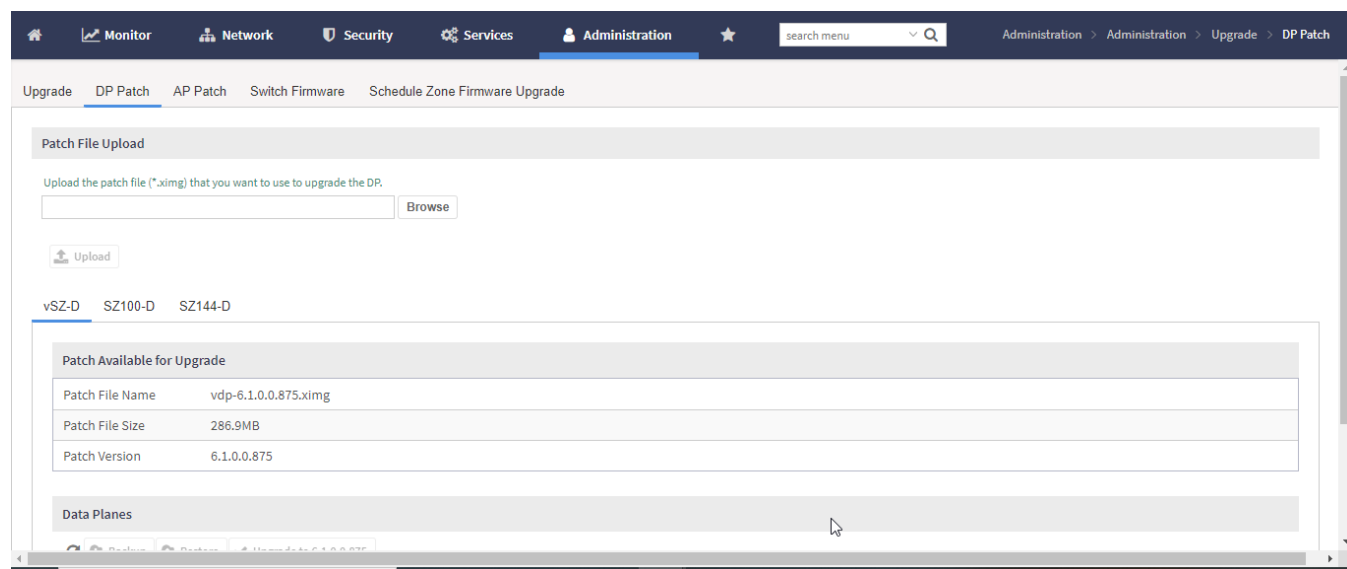
This task is applicable only for external Data planes

To Upgrade the Data Plane:

1. Select **Administration > Administration > Upgrade**.
2. Select the **DP Patch** tab.

The **DP Patch** page appears.

**FIGURE 6** Upgrading the Data Plane



3. In **Patch File Upload**, click **Browse** to select the patch file (.ximg file).

## Upgrade Tasks

### Data Plane Upgrade

#### 4. Click **Upload**.

The controller automatically identifies the Type of DP (vSZ-D or SZ-D) and switches to the specific Tab page. Uploads the file to its database, and then performs file verification. After the file is verified, the **Patch for Pending Upgrade** section is populated with information about the upgrade file.

The following upgrade details are displayed:

- Patch File Name—Displays the name of the patch file.
- Patch File Size—Displays the size of the patch file.
- Patch Version—Displays the version of the patch file.

#### 5. In **Data Planes**, choose a patch file version from the **Select upgrade version**.

#### 6. Click **Apply** to apply the patch file version to the virtual data plane.

A pop-up prompting data plane backup is displayed.

#### 7. Click **Upgrade Anyway** to proceed without a data plane backup or click **Backup** to create a backup.

The following information about the virtual data plane is displayed after the patch file upgrade is completed.

- Name—Displays the name of the virtual data plane.
- DP MAC Address—Displays the MAC IP address of the data plane.
- Current Firmware—Displays the current version of the data plane that has been upgraded.
- Backup Firmware—Displays the backup version of the data plane.
- Last Backup Time—Displays the date and time of last backup.
- Process State—Displays the completion state of the patch file upgrade for the virtual data plane.
- DP Status—Displays the DP status.

You have successfully upgraded the virtual data plane.

## Verifying the DP Upgrade

You can verify if the upgrade process was successful as follows:

1. Select **Administration > Upgrade > DP Patch**.
2. Select the tab for the upgraded data plane model.
3. Look for the Data plane that is upgraded and verify the **Current Firmware** column if its value corresponds to the software version it has been upgraded to.

## Rolling Back the DP Upgrade

To be able to restore the software to the previous software version, you must perform a data plane backup before upgrading. To roll back to the previous version, perform the following steps:

1. Select **Administration > Upgrade > DP Patch**.
2. Select the tab for the data plane model upgraded.
3. Select the Data plane and click on **Restore**.

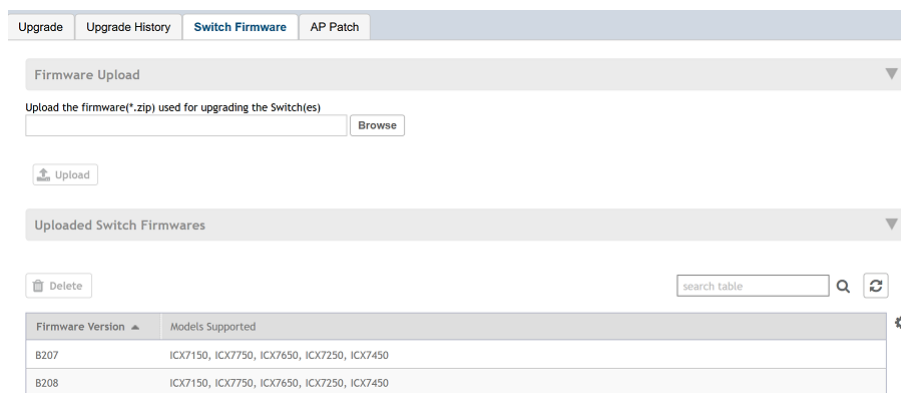
# Switch Upgrade

## Uploading the Switch Firmware to the Controller

You can upload the latest available firmware to a switch from the controller, thereby upgrading the firmware version of the switch.

1. Select **Administration > Administration > Upgrade**.
2. Select the **Switch Firmware** tab.

**FIGURE 7** Upgrading the Switch Firmware



3. In Firmware Upload click **Browse** to select the firmware file for upgrading the switch.
4. Click **Open**.
5. Click **Upload**. The upload status bar is displayed, and after the firmware file is uploaded, the **Uploaded Switch Firmwares** section is populated with the firmware version and switch models it supports.

You have successfully uploaded the switch firmware to the controller.

## Upgrading Switches

RUCKUS switches starting from 08.0.90 releases supports unified images which require two step process from prior releases. The two step process is:

1. Step 1 - Upgrade from **08.0.80 (non- Unified FastIron Image (UFI) or UFI) > 08.0.90 UFI**
2. Step 2 - Upgrade from **08.0.90 UFI > 08.0.90a UFI**

**NOTE**

Refer to RUCKUS FastIron Software Upgrade Guide, 08.0.90 for details.

Ensure that the image version in both primary and secondary partition use 8.0.80 or later version.

You can upgrade switches per switch group or selected switches as explained in the following sections.

## Scheduling a Firmware Upgrade for Switch Group

You can upgrade a switch group on a Level 1 group that has no default firmware setting. The forced upgrade allows the device to remain in the same firmware type (Layer 2 still Layer 2, Layer 3 still Layer 3) with only a change to the version type.

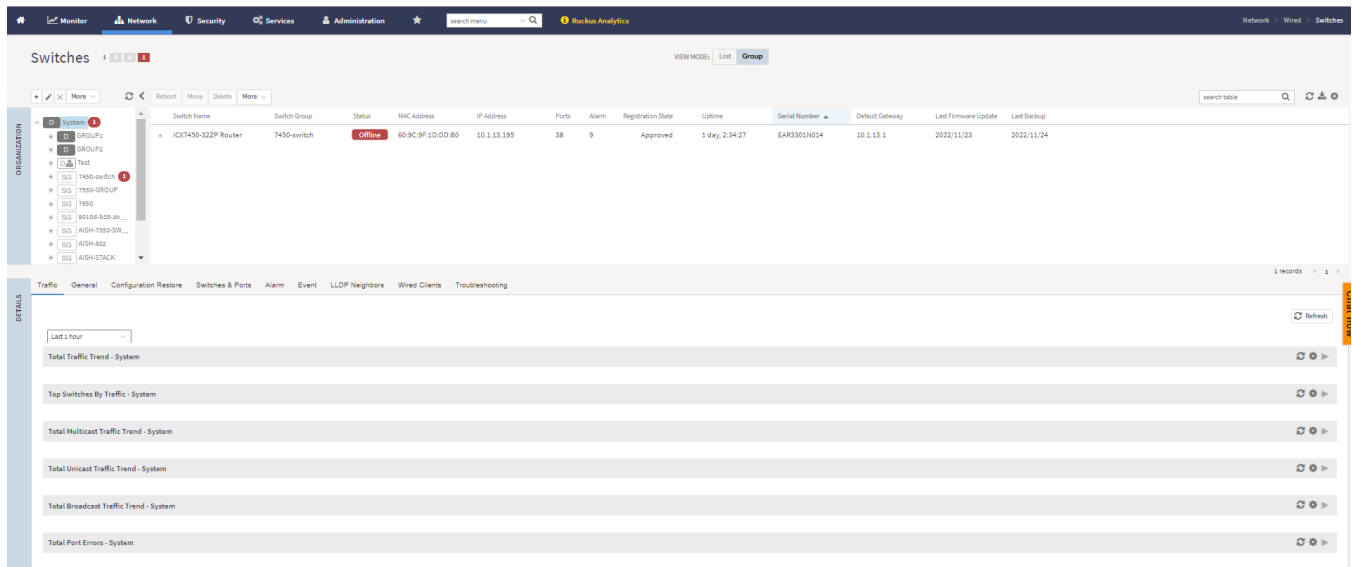
### NOTE

If the switch group has a default firmware selected the **Firmware Upgrade** option is unavailable.

Complete the following steps to perform a firmware upgrade on the switch group.

1. On the menu, click **Network > Wired > Switches** to display the **Switches** window.

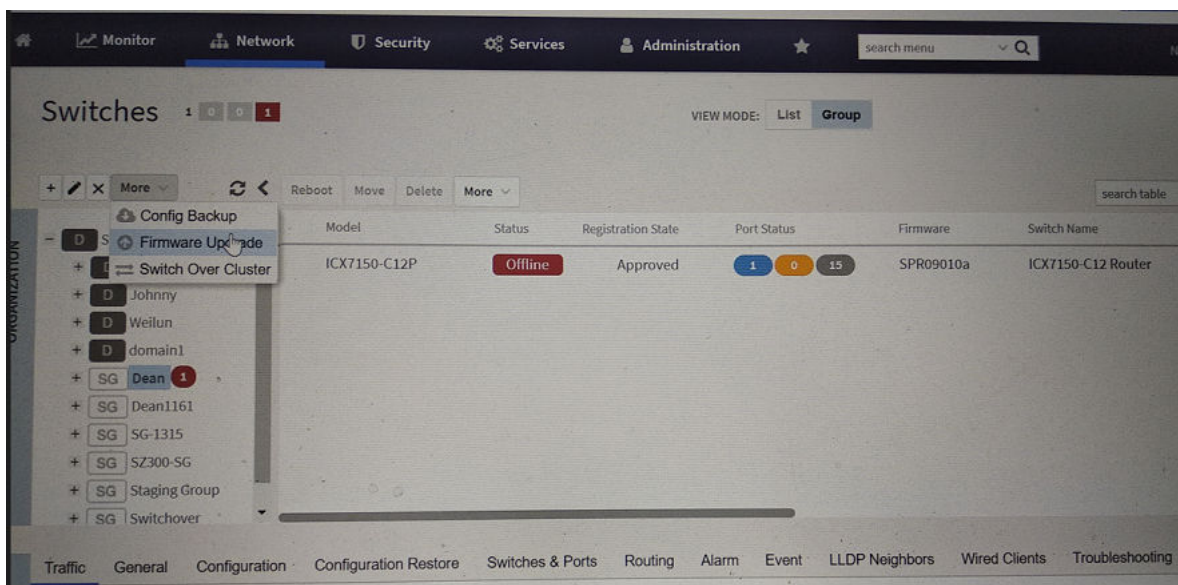
FIGURE 8 Switches



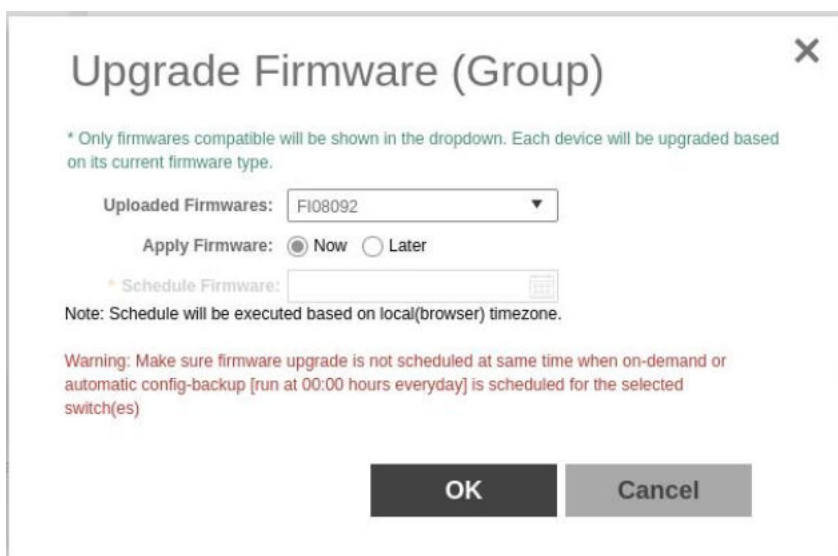
2. In the **Organization** tab, select a **Domain > Switch Group** or **Switch Group**.

3. Click **More > Firmware Upgrade** to display the **Upgrade Firmware (Group)** dialog box.

**FIGURE 9** Selecting Firmware Upgrade for a Switch Group



**FIGURE 10** Scheduling the Upgrade for a Switch Group



4. Complete the following fields:
  - **Uploaded Firmwares:** Select firmware from the list.
  - **Apply Firmware:** Select Now or Later to set the new firmware version to the switch group.
  - **Schedule Firmware:** If you select Later for **Apply Firmware**, you must select the date to schedule the upload.
5. Click **OK**.

## Upgrade Tasks

### Switch Upgrade

### Scheduling a Firmware Upgrade for Selected Switches

You can upgrade or downgrade the firmware version of a switch or multiple switches that you are monitoring. You can upgrade the firmware on demand or schedule a firmware update for a list of selected switches.

Upload a valid firmware which is greater than version 8.0.80 to the controller.

#### NOTE

Ensure you sync the controller to the NTP server during installation. You can also do this from, go to **Administration > System > Time > Switches**.

To upgrade the firmware for a group of switches, you must select multiple switches at the same time and perform steps 3 to 7. For more information on uploading the switch firmware, see [Uploading the Switch Firmware to the Controller](#) on page 35

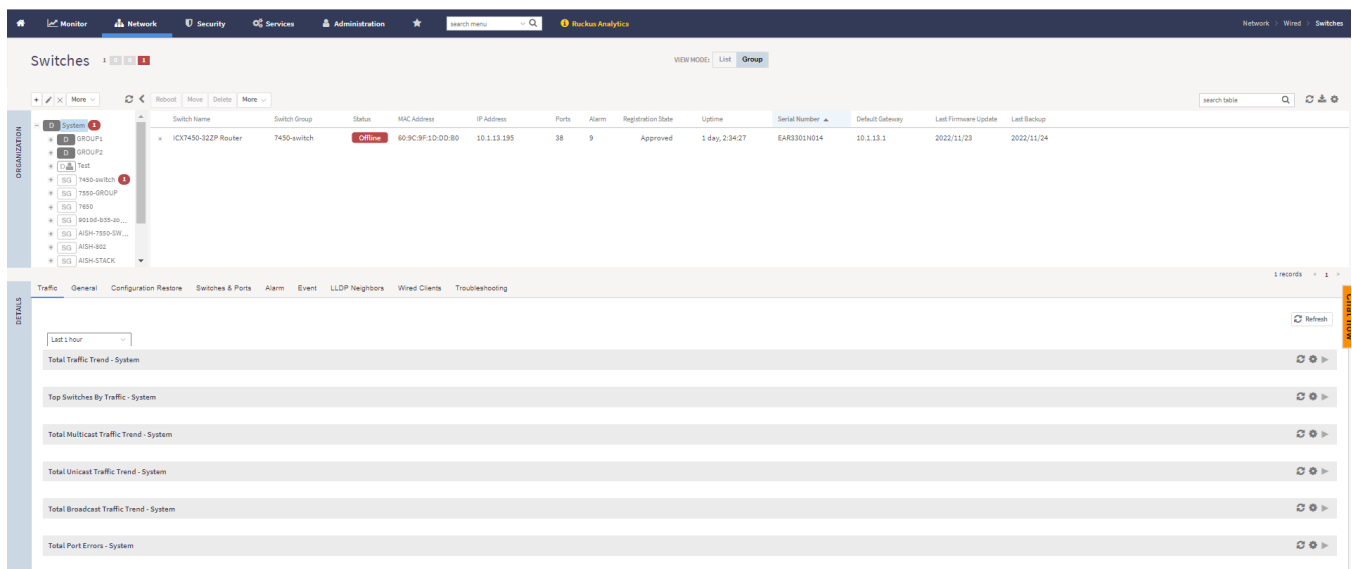
#### NOTE

Only firmware versions later than ICX 8.0.80 are supported.

### Scheduling Firmware Upgrade

1. On the menu, click **Network > Wired > Switches** to display the **Switches** window.

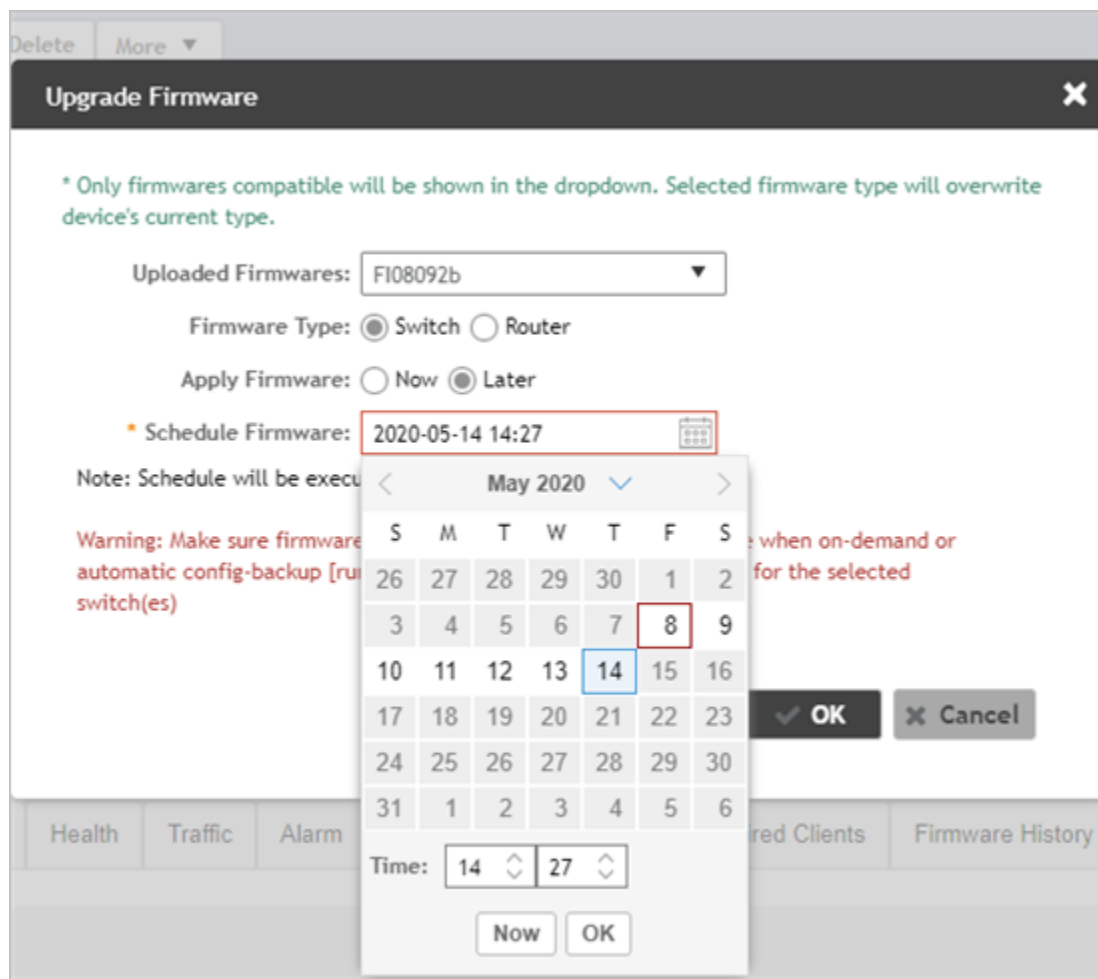
FIGURE 11 Switches



2. In the **Organization** tab, select a **Domain > Switch Group** or **Switch Group** and select the **Switch** that you want to upgrade.

- Click **More** > **Schedule Firmware** to display the **Upgrade Firmware** dialog box.

**FIGURE 12** Scheduling Firmware Upgrade



- Complete the following fields:
  - Uploaded Firmware:** Select the firmware version that you want the switch to be upgraded to.
  - Firmware Type:** Select type of firmware you want to upload to the switch. Options include Switch and Router images.
  - Apply Firmware:** Set when you want to apply the new firmware version to the switch. You can select Now or Later to schedule your upload. If you select Later, then you must select the date from the **Schedule Firmware** field.
- Click **OK**.

#### Delete the Firmware Schedule

If you want to delete the firmware schedule you created, follow the below steps.

- In the **Organization** tab, select a **Domain** > **Switch Group** or **Switch Group** and select the **Switch**.
- Click **More** > **Deleted Firmware Schedule(s)** to display a **Confirmation Message** dialog box.
- Click **Yes** to display a **Delete Successful Message** dialog box.
- Click **OK**.

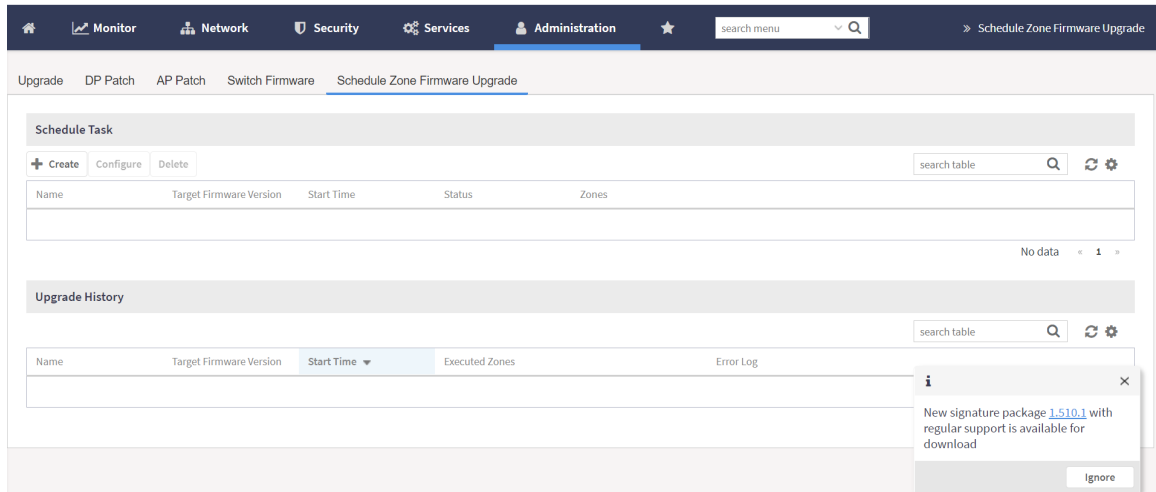
## Upgrade Tasks

### Switch Upgrade

#### Schedule Zone Firmware Upgrade

- Allow user setup a schedule time to upgrade/downgrade single or multiple zone firmware.
  - After a zone firmware upgrade/downgrade task is executed, user can see the zone firmware change history.
1. On the menu, click **Administration > Administration > Upgrade > Schedule Zone Firmware Upgrade** to display the **Schedule Zone Firmware Upgrade** tab.

FIGURE 13 Schedule Zone Firmware Upgrade




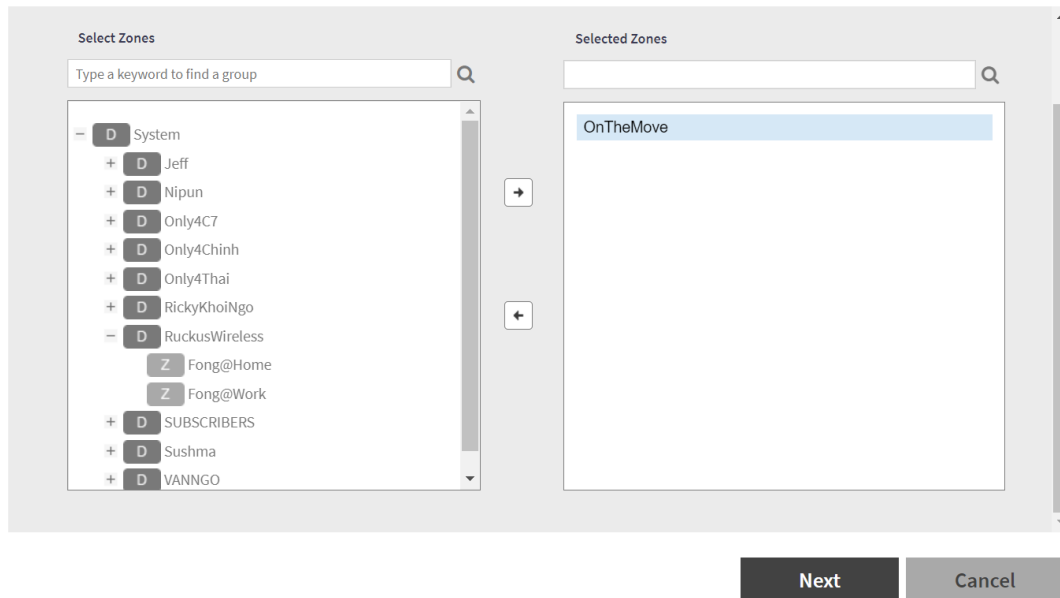
2. Click  icon to display the **Create Schedule Zone Firmware Upgrade Task** dialog box.
3. Select a **Zone** or select many **Zones** by pressing **CTRL** and select the **Zones** that you want to add to the **Selected Zones** tab.



FIGURE 14 Create Schedule Zone Firmware Upgrade Task

## Create Schedule Zone Firmware Upgrade Task





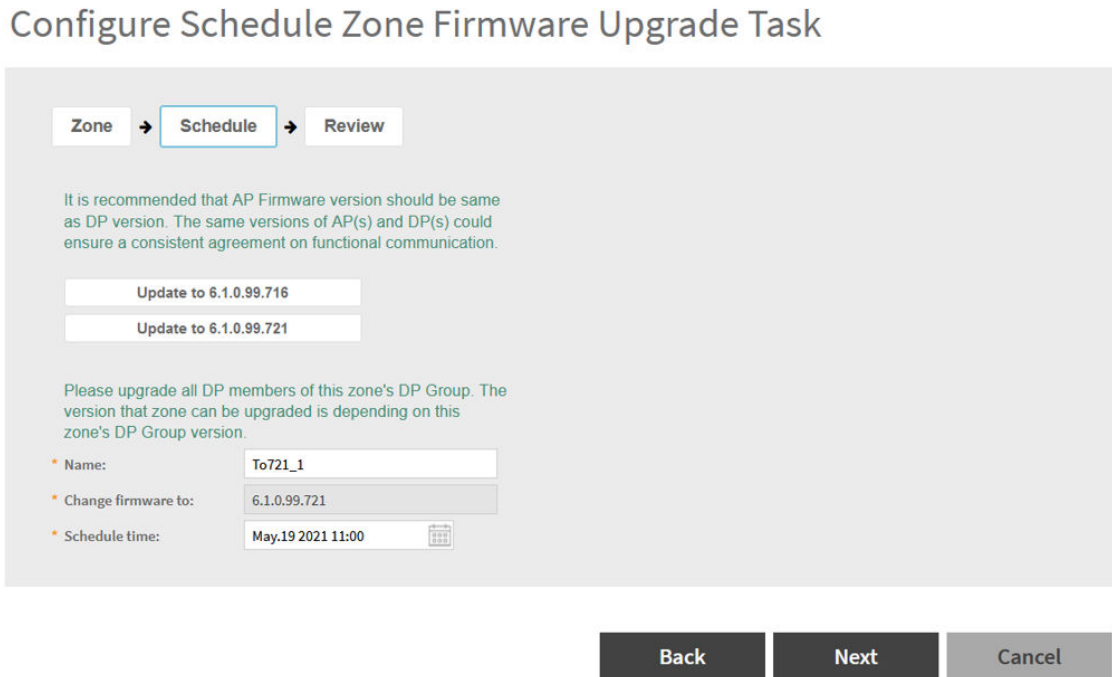
4. Click  icon to move the selected zones to the **Selected Zones** tab. Click  icon to send back the zones to the **Select Zones** from **Selected Zones**.
5. Click **Next** to display the **Schedule** dialog box.

FIGURE 15 Create Schedule Zone Firmware Upgrade Task



6. Complete the following fields:
  - **Name:** Enter the name.
  - **Change Firmware to:** Select the firmware from the list that is available at the beginning of the **Schedule** dialog box.
  - **Scheduled time:** Select the date and time to schedule the upgrade.
7. Click **Next** to display the **Review** dialog box.
8. Review the task and click **OK**.

## Viewing Firmware History of the Switch

You can view the detailed status and result of the firmware update to a switch. You can also view a history of firmware upgrades that were previously carried out on the switch.

You must have upgraded the firmware of the switch as described in [Scheduling a Firmware Upgrade for Selected Switches](#) on page 38

1. From the main menu, go to **Network > Wired > Switches**.  
The **Switches** page appears.

- Select the switch or group. Then select the **Firmware History** tab.  
The **Firmware History** tab is displayed.

**FIGURE 16** Viewing Firmware History

The screenshot displays the 'Firmware History' tab for an ICK7650-48ZP Router. It is divided into two main sections:

**Upgrade Job Status - ICK7650-48ZP Router**

Time	Switch Id	Firmware Version	Image Name	Status	Failure Reason
2021/12/14 13:53:50	D4:C1:9E:1A:04:D3	F109010	TNR09010ufi	Completed	N/A
2021/12/02 11:05:04	D4:C1:9E:1A:04:D3	F109010	TNR09010ufi	Completed	N/A

**Firmware Upgrade History - ICK7650-48ZP Router**

Time	Firmware Version
2021/12/14 13:53:50	TNR09010
2021/12/02 11:05:04	TNR09010_b152 -> TNR09010

You can verify the status of the upgrade from the **Upgrade Job Status** section which displays the time, switch ID, firmware version, image name, status and failure reasons (if any) for the upgrade.

The **Firmware Upgrade History** section displays the time of the previous upgrade operations, and firmware versions to which the upgrade was done.



# Geo Redundancy Upgrade Operation Flow

- [Upgrade Path and Cluster Redundancy Deployment.....](#) 45
- [SOP A.....](#) 46
- [SOP B.....](#) 48
- [SOP C.....](#) 49
- [SOP Z.....](#) 51

When there are multiple clusters on the network, you can configure cluster redundancy to enable APs managed by a particular cluster to fail over automatically to another cluster if the parent cluster goes out of service or becomes unavailable.

## Upgrade Path and Cluster Redundancy Deployment

There are two cluster redundancy deployment modes:

- Active-Standby mode
- Active-Active mode

### Active-Standby Mode

When an active cluster becomes inaccessible for APs, external DPs (vSZ-D and SZ100-D), and ICX switches, a standby cluster restores the latest configuration of the out-of-service (OOS) active cluster, then takes over all external devices (including APs, external DPs, and ICX switches). The AP or ICX switch capacity is limited by the AP or ICX switch High Availability (HA) licenses on the standby cluster and the services license limits from the failed active cluster. When the active cluster returns to the in-service state, the end user can "rehome" all APs, external DPs, and ICX switches back to the active cluster.

The behavior of the standby cluster changes automatically when there is a configuration change in the following deployment types:

- One-to-one (one active cluster to one standby cluster) deployment

The standby cluster restores the configuration from the active cluster after the configuration synchronization is completed. The standby cluster is always in backup mode and ready to receive the APs, external DPs, and ICX switches from the out-of-service active cluster.

- Many-to-one (two or three active clusters to one standby cluster) deployment

The time taken by the standby cluster between detecting the active cluster is out-of-service and being ready to serve APs and external DPs has been enhanced.

**TABLE 17** Upgrade Path

Base Version	Upgrade Version	Topology ("Active Cluster #"-"Standby Cluster #")	Upgrade Flow
3.6.x	5.x	1-to-1	SOP C Only 1-to-1 deployment in R3.6
5.0.x	5.1.x	1-to-1	SOP B
		N-to-1 (N ≥ 2)	SOP A
5.1.x	5.2.x	1-to-1	SOP B
		N-to-1 (N ≥ 2)	SOP A
5.2.x	6.0.x	1-to-1	SOP B
		N-to-1 (N ≥ 2)	SOP A

**TABLE 17** Upgrade Path (continued)

Base Version	Upgrade Version	Topology ("Active Cluster #"-to-"Standby Cluster #")	Upgrade Flow
6.0.x	6.1.x	1-to-1	SOP B
		N-to-1 (N ≥ 2)	SOP A

## Active-Active Mode

When there are multiple clusters, one cluster can be the configuration source cluster, and all other active cluster restores its configuration periodically to make sure the configuration between the clusters are synchronized constantly. When the active cluster becomes inaccessible for APs and external DPs (vSZ-D and SZ100-D), they fail over to the target active cluster with priority. Refer to [SOP Z](#) on page 51 for more information.

## SOP A

This section provides information on upgrade paths/preconditions, the applicable topology, and the upgrade flow for SOP A.

### SZ Upgrade Path

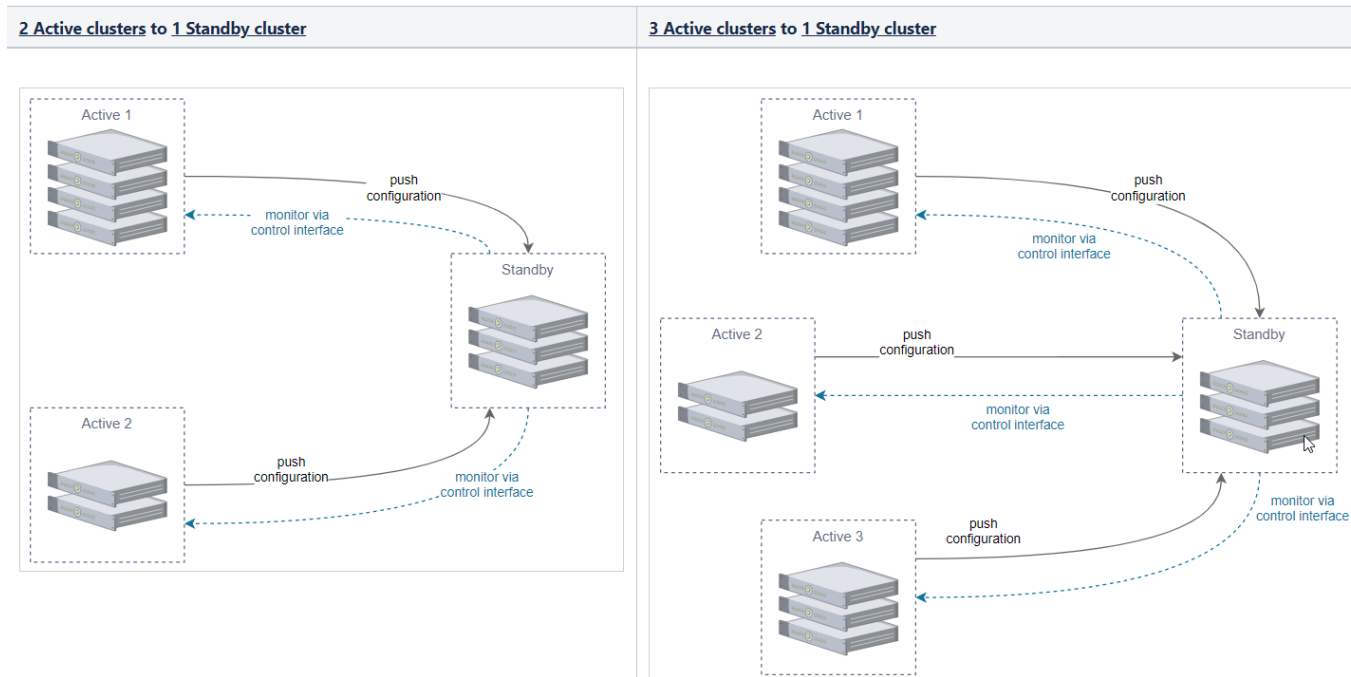
- 5.0.x to 5.1.x
- 5.1.x to 5.2.x
- 5.2.x to 6.0.x

### Precondition

The standby cluster must have the following license in order to be upgraded:

- SZ300: **SUP\_SZ300\_HA\_EU** or **SUP\_SZ300\_HA\_PTNR**
- vSZ-H: **SUPPORT\_HA\_EU** or **SUPPORT\_HA\_PTNR**

FIGURE 17 SOP A Applicable Topology



**Cluster Upgrade Flow**

1. Turn off the monitoring status of each active cluster from the standby cluster. In the standby cluster interface, go to **Network > Data and Control Plane > Cluster**.
  2. Select the cluster root, and click the **Configuration** tab.
- For example, select the active cluster in the table and click **Switch monitor**. Ensure the **Monitoring Status** is set to **Off**.

FIGURE 18 Turning Off Monitoring Status

Summary **Configuration** Alarm Event

Cluster Configuration Configure ▼

IP Support IPv4 and IPv6

---

Cluster Redundancy ▼

Status Enabled (Active-Standby)

Cluster Redundant Role Standby

Mode Backup (gg-c1)

Active Cluster:

Name	Control IPs	Cluster Status	Monitoring Status
gg-c1	10.2.7.202 / 2001:db8:1::fe27	In_Service	Off

## Geo Redundancy Upgrade Operation Flow

### SOP B

3. Upgrade the Active 1 cluster and make sure it is successfully upgraded.
4. From the active cluster, go to **Monitor > Events and Alarms > Eventss** and check the details of event code 814. Refer [Performing the Upgrade](#) on page 25.
5. Repeat [Step 2](#) and [Step 3](#) to upgrade the Active 2 cluster and the Active 3 cluster.
6. Upgrade the standby cluster after all the active clusters are successfully upgraded.
7. Click **Sync Now** in each active cluster after all the active and standby clusters are successfully upgraded.
8. From the active cluster, go to **Monitor > Events and Alarms > Eventss** and check the details of event code 814. Refer [Performing the Upgrade](#) on page 25.
9. Turn on the monitoring status of each active cluster from the standby cluster after the standby cluster is successfully upgraded.
10. If the new SZ version is 5.2.x (including 5.2), and the standby cluster monitors only one active cluster, the standby cluster will automatically switch to Backup mode regardless of the number of nodes of the Active cluster. After cluster redundancy is enabled, the standby cluster will take some time to restore the configuration of the latest active cluster.

## SOP B

This section provides information on upgrade paths, preconditions, the applicable topology, and the upgrade for SOP B.

### SZ Upgrade Path

- 5.0.x to 5.1.x
- 5.1.x to 5.2.x
- 5.2.x to 6.0.x

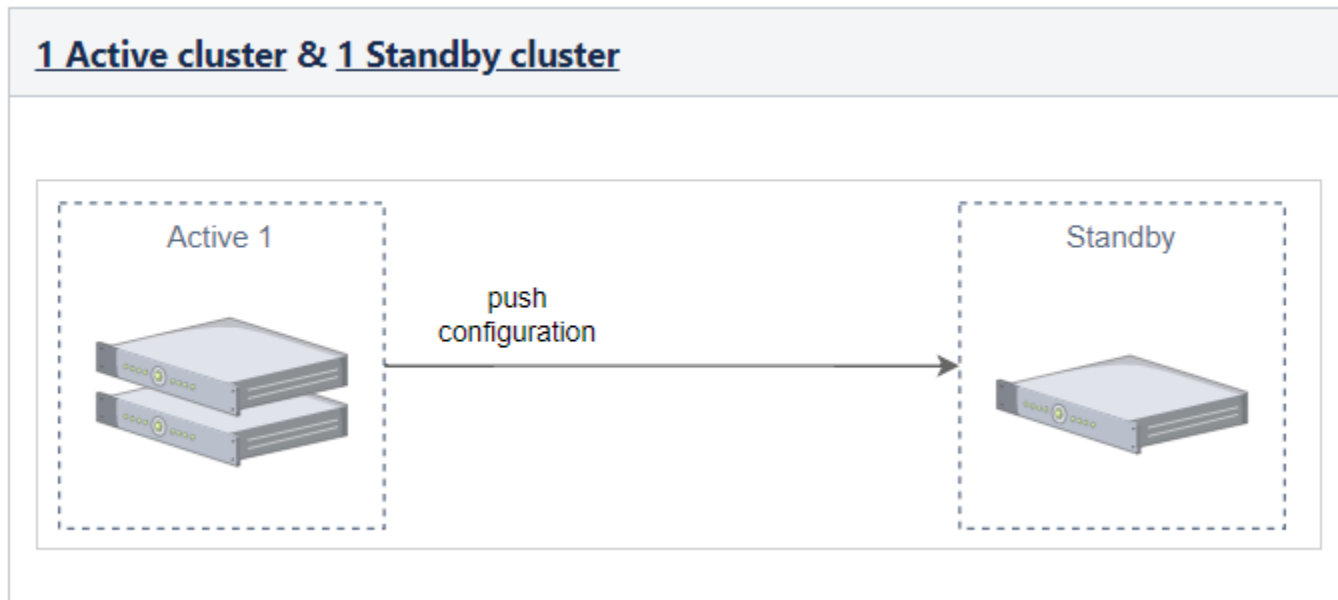
### Preconditions

The standby cluster must have the following license in order to be upgraded:

- SZ300: **SUP\_SZ300\_HA\_EU** or **SUP\_SZ300\_HA\_PTNR**
- vSZ-H: **SUPPORT\_HA\_EU** or **SUPPORT\_HA\_PTNR**



FIGURE 19 SOP B Applicable Topology



#### Cluster Upgrade Flow

1. Rehome any AP from the standby cluster and ensure all the APs are on the active cluster.
2. Disable cluster redundancy from the active cluster and check if all APs are online and up-to-date.
3. Upgrade the active cluster and ensure the active SZ is successfully upgraded.
4. From the Active cluster, go to **Events and Alarms > Events** and check the details of event code 814
5. From the active cluster, go to **Administration > Upgrade > Upgrade History** to verify previous cluster upgrades.
6. Ensure all APs are online and up-to-date after the upgrade.
7. Upgrade the standby cluster, and ensure it is successfully upgraded.
8. Repeat [Step 4](#) and [Step 5](#).
9. Enable cluster redundancy on the active cluster.
10. Verify if the active SZ engages the latest cluster redundancy resource-type admin activities.  
If the new SZ version is 5.2.x (including 5.2), the standby cluster will automatically switch to Backup mode after cluster redundancy is enabled. The standby cluster will take some time to restore the configuration of the latest active cluster.
11. In the standby cluster interface, go to **Network > Data and Control Plane > Cluster**.
12. Repeat [Step 4](#).
13. Select the cluster root, and click the **Configuration** tab.

## SOP C

This section provides information on upgrade paths, preconditions, the applicable topology, and the upgrade flow for SOP C.

#### SZ Upgrade Path

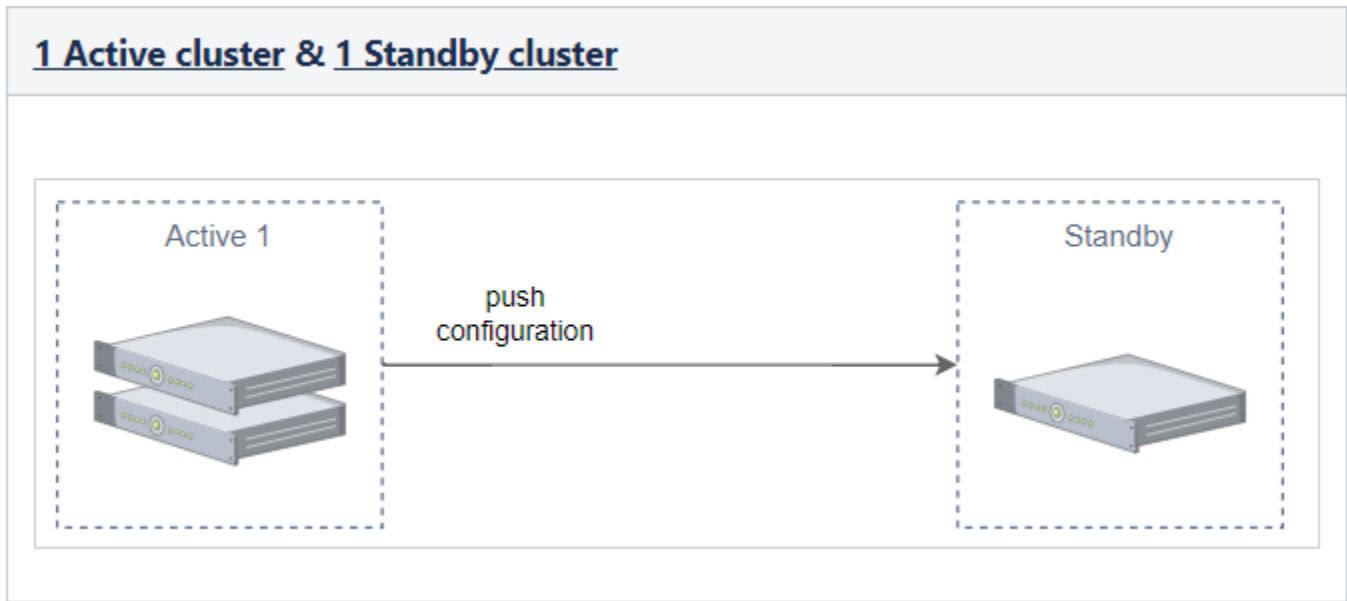
- 3.6.x to 5.x

### Preconditions

The standby cluster must have the following license in order to be upgraded:

- SZ300: SUP\_SZ300\_HA\_EU or SUP\_SZ300\_HA\_PTNR
- vSZ-H: SUPPORT\_HA\_EU or SUPPORT\_HA\_PTNR

FIGURE 20 SOP C Applicable Topology



### Cluster Upgrade Flow

1. From the active cluster, go to **Network > Data and Control Plane > Cluster > Configuration** and disable schedule configuration sync. Do not change the cluster redundancy-enabled settings.
2. Upgrade the active cluster and ensure that the active SZ is successfully upgraded.
3. From the active cluster, go to **Monitor > Events and Alarms > Events** and check the details of event code 814.
4. From the active cluster, go to **Administration > Administration > Upgrade > Upgrade History** to verify previous cluster upgrades.
5. Rehome all APs in the standby cluster to the active cluster and ensure there is no AP on the standby cluster.
6. Ensure all APs are on the Active cluster with **Status** online and **Configuration Status** up-to-date after the upgrade.
7. Upgrade the standby cluster, and ensure it is successfully upgraded.
8. Repeat [Step 3](#) and [Step 4](#).
9. In the active cluster interface, go to **Network > Data and Control Plane > Cluster > Configuration** and disable cluster redundancy.
10. In the standby cluster interface, go to **Network > Data and Control Plane > Cluster > Configuration** and ensure that all active data is deleted.
11. Enable cluster redundancy again from the active cluster.
12. From the active cluster, go to **Administration > Administration > Admin Activities** and check if cluster redundancy is set successfully by investigating admin activities.

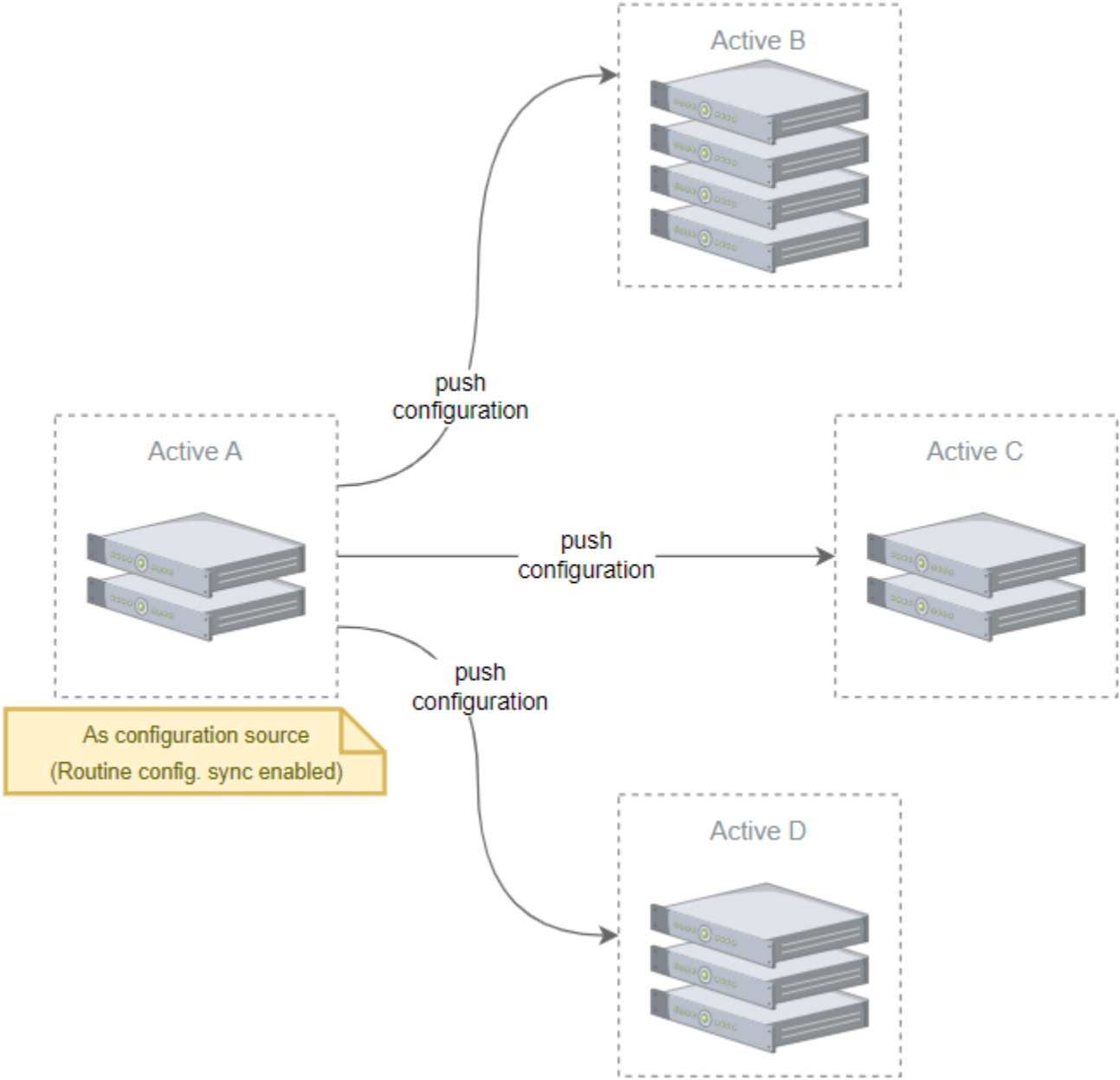
# SOP Z

This section provides information on preconditions, the applicable topology, and the upgrade flow for SOP Z.

### Preconditions

All active cluster should have valid upgrade license.

FIGURE 21 SOP Z Applicable Topology



### Cluster Upgrade Flow

1. Ensure that all the APs, DPs, and switches are at their home clusters before upgrading the active cluster that is selected as the master configuration. The switchover operation can be used to let the APs, DPs, and switches connect to another cluster.
2. From the active cluster, go to **Network > Data and Control Plane > Cluster > Configuration** and disable schedule configuration sync.
3. Upgrade the active cluster A.
4. When the Active A cluster is upgraded, begin to upgrade clusters Active B, Active C, and Active D sequentially.
5. After all the active clusters are upgraded successfully, click **Sync Now** to sync the configuration from the Active A cluster.
6. Select **Configuration Sync** from the scheduler task in the Active A cluster.

# Upgrade FAQs

- [Do I Need a Valid Support Contract to Upgrade Firmware?](#)
- [Is My Controller Supported by the Firmware Upgrade?](#)
- [Is My Access Point Supported by the Firmware Upgrade?](#)
- [How Do I Get Support?](#)

## Do I Need a Valid Support Contract to Upgrade Firmware?

You must have a valid support contract to upgrade the SmartZone software. If you do not have a valid support contract, contact your reseller to purchase an appropriate support contract. After downloading and installing the software, select **Administer > Support** from the WebUI for information on activating your support contract.

### NOTE

By downloading the SmartZone software and subsequently upgrading SmartZone to version 6.1.0, be advised that the software will periodically connect to RUCKUS and RUCKUS will collect the hardware serial number, software version and build number. RUCKUS will transmit a file back to the SmartZone device that will be used to display the current status of your SmartZone support contract. Any information collected from the SmartZone device may be transferred and stored outside of your country of residence where data protection standards may be different.

## Is My Controller Supported by the Firmware Upgrade?

This guide supports the following SmartZone models:

- SmartZone 300 (SZ300)
- SmartZone 100 (SZ100)
- Virtual SmartZone (vSZ)
- Virtual SmartZone Data Plane (vSZ-D)

For information about the specific models and modules supported in a SmartZone model, refer to the appropriate hardware installation guide.

## Is My Access Point Supported by the Firmware Upgrade?

**TABLE 18** Supported AP Models

11ax		11ac-Wave2		11ac-Wave1
Indoor	Outdoor	Indoor	Outdoor	Indoor
R730	T750	R720	T710	R310
R750	T750SE	R710	T710S	
R650	T350C	R610	T610	
R550	T350D	R510	T310C	
R850	T350SE	H510	T310S	
R350		C110	T310N	

## Upgrade FAQs

### How Do I Get Support?

**TABLE 18** Supported AP Models (continued)

11ax		11ac-Wave2		11ac-Wave1
H550		H320	T310D	
H350		M510	T811CM	
		R320	T610S	
			E510	
			T305E	
			T305I	

## How Do I Get Support?

For product support information and details on contacting the Support Team, go directly to the Support Portal using <https://support.ruckuswireless.com>, or go to <https://www.ruckuswireless.com> and select **Support**.



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