

# RUCKUS SmartZone Upgrade Guide, 5.2.1

Supporting SmartZone 5.2.1

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# Contents

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<b>What's New in This Document.....</b>	<b>5</b>
<b>Before Upgrading to This Release .....</b>	<b>7</b>
Upgrading APs.....	8
Upgrading ICX Switches.....	9
Data Migration Recommendations.....	9
Upgrade Considerations.....	9
<b>SmartZone Upgrade Paths.....</b>	<b>11</b>
<b>Virtual SmartZone Minimum Requirements.....</b>	<b>13</b>
Hypervisor Hardware Performance Requirements.....	13
Public Cloud Platform - Instance Resource Type .....	15
Supported Hypervisors.....	17
Hypervisor CPU/IO Requirements - Self Own Hypervisor.....	17
<b>Maximum Supported AP and Switch Management.....</b>	<b>19</b>
<b>Upgrading the Controller.....</b>	<b>21</b>
<b>Performing the Upgrade.....</b>	<b>23</b>
<b>Verifying the Upgrade.....</b>	<b>25</b>
<b>Rolling Back to a Previous Software Version.....</b>	<b>27</b>
<b>Uploading an AP Firmware Bundle.....</b>	<b>29</b>
AP Image Signing.....	29
Upgrading the Data Plane.....	29
<b>Multiple AP Firmware Support in the SZ100/vSZ-E/SZ300/vSZ-H.....</b>	<b>33</b>
Previous Major AP Releases Supported .....	33
<b>EoL APs and APs Running Unsupported Firmware Behavior.....</b>	<b>35</b>
APs Running Unsupported Firmware Releases.....	35
<b>Upgrade FAQs.....</b>	<b>37</b>
Do I Need a Valid Support Contract to Upgrade Firmware?.....	37
Is My Controller Supported by the Firmware Upgrade?.....	37
Is My Access Point Supported by the Firmware Upgrade?.....	37
How Do I Get Support?.....	38



# What's New in This Document

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**TABLE 1** Summary of changes in Release 5.2.1

Feature	Description	Location
SZ144	Supports SZ144 from this release.	Refer to <a href="#">Maximum Supported AP and Switch Management</a> on page 19 for more information.



# Before Upgrading to This Release

Due to underlying changes of the database in this release, data will be dropped during the upgrade. It is recommended that you read the following content carefully before upgrading to this release.

## IMPORTANT

Upgrade from SmartZone (SZ) 3.6, 3.6.1, 3.6.2, 5.1, 5.1.1, 5.1.2, 5.2, and 5.2.1 is supported.





## 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]**

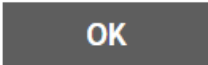
SmartZone Release	System Upgrade directly to SZ 5.2.1	Data Migration to SZ 5.0 or later
3.6	Y	N
3.6.1	Y	N
3.6.2	Y	N
5.1	Y	Y
5.1.1	Y	Y
5.1.2	Y	Y
5.2	Y	Y

- When upgrading to the release 5.2.1 image from release 3.6.0 or 3.6.1 or 3.6.2, the system displays the following warning message about not supporting data migration (statistics, events, administrator logs) during the upgrade process.





**The current system can be upgraded. Warning: Upgrade to R5.2.1 does not support data migration (statistics, events, administrator logs). Existing system and network configuration are preserved. For further details download the 5.2.1 Release Notes before upgrading to prevent data loss.**



## Upgrading APs



### WARNING

If you are or will be using certain AP models in your network do read the TSB posted in <https://support.ruckuswireless.com/articles/000010114>.

Refer to the SmartZone 5.2.1 Release Notes for the updated release information.

### Change AP Firmware


Current AP Firmware 5.1.2.0.373

Downgrade to 5.1.1.0.430	Upgrade to 5.2.0.0.1392
Downgrade to 5.1.1.0.459	Upgrade to 5.2.0.0.1412
Downgrade to 5.1.1.0.503	<b>AP firmware in GA refresh b699</b>
Downgrade to 5.1.1.0.547	
Downgrade to 5.1.1.0.549	
Downgrade to 5.1.1.0.556	
Downgrade to 5.1.1.0.566	
Downgrade to 5.1.1.0.575	
Downgrade to 5.1.1.0.624	

**AP firmware in original GA**

### 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. But in this case, previous packages are not compatible with 5.2.1 AP firmware, and upgrading zone firmware is blocked until the corresponding signature package (**RuckusSigPack-v2-1.430.1.tar.gz**) is installed.



Unable to update the configuration of the AP zone.  
Reason: The signature package version ( 1.380.0-40 )  
does not support the AP firmware version ( 5.2.1.0.575 ). Please upgrade the signature package  
to 1.430 version or later version.

OK



Do follow this mandatory process before upgrading AP zone firmware:

1. Download Signature package by visiting the RUCKUS support site <https://support.ruckuswireless.com/software/2194-smartzone-5-1-2-sigpack-1-430-1-application-signature-package>
2. Manually upgrade the signature package by navigating to **Firewall > Application Control > Signature Package**. (more details can be found in Administrator Guide, in section *Working with Application Signature Package*)

Once this is done, AP zones can be upgraded. **[SCG-108730]**

## Upgrading ICX Switches

RUCKUS ICX 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.

## 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.

## Upgrade Considerations

Before upgrading, consider these additional points.

- Before uploading a new AP patch, RUCKUS strongly recommends that you save a cluster backup, in case you want to restore the previous AP patch.
- Before upgrading the controller, RUCKUS strongly recommends that you back up the entire cluster. In case the upgrade fails, you can use the cluster backup to roll back the cluster to its previous state.
- 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.

**Before Upgrading to This Release**  
Upgrade Considerations

•



**WARNING**

LAG users must go through the following process before upgrade to avoid losing IP connectivity:

1. Disable secondary port of the LAG in the AP.
2. Disable Bonding on the AP using AP CLI.
3. Upgrade the AP Zone.
4. Enable LAG using controller GUI.
5. Enable secondary port on the AP.
6. Disable the secondary port from the switch.

# SmartZone Upgrade Paths

---

Before you upgrade the controller, verify that it is running a release build that can be upgraded to this release.

To help ensure that the cluster firmware upgrade process can be completed successfully, the cluster interfaces of all nodes must be connected and up. **[SCG-34801]**

**TABLE 2** Previous release builds

Platform	Release Build
SZ300	3.6.0 , 3.6.1, 3.6.2, 5.1.0, 5.1.1, 5.1.2 and 5.2
SZ100	3.6.0 , 3.6.1, 3.6.2, 5.1.0, 5.1.1, 5.1.2 and 5.2
vSZ	3.6.0 , 3.6.1, 3.6.2, 5.1.0, 5.1.1, 5.1.2 and 5.2
vSZ-D	3.6.0 , 3.6.1, 3.6.2, 5.1.0, 5.1.1, 5.1.2 and 5.2
SZ100-D	3.6.0 , 3.6.1, 3.6.2, 5.1.0, 5.1.1, 5.1.2 and 5.2

If you are running an earlier version, you must first upgrade to appropriate version for your model, as shown in the above list, before upgrading to this release.



# Virtual SmartZone Minimum Requirements

- Hypervisor Hardware Performance Requirements..... 13
- Public Cloud Platform - Instance Resource Type ..... 15
- Supported Hypervisors..... 17
- Hypervisor CPU/IO Requirements - Self Own Hypervisor..... 17

## Hypervisor Hardware Performance Requirements

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

- 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.
- Virtual Disk - Preallocated/Thick Provision Eager Zeroed/Fixed Size is required to provide good performance and low latency for IO.

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.

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 the 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.

Virtual SmartZone Minimum Requirements  
Hypervisor Hardware Performance Requirements

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
5,001	10,000	100,000	1-2	10,000	5 : 1	2,000
2,501	5,000	50,000	1-2	5,000	5 : 1	1,000
1,001	2,500	50,000	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
1	100	2,000	1-2	100	5 : 1	20

**TABLE 4** vSZ High Scale required resources

AP Count Range		vCPU <sup>[1]</sup>	RAM	Disk Size	MB/s	Preserved Event/Alarm Days	Concurrent CLI Connection	Resource Level
From	To	Logic Processor		GB		Max	Max (per node not per cluster)	
10,001	30,000	24	48	600	45	3/7 Days	4	8
	20,000							
5,001	10,000	24	48	600	45	3/7 Days	4	7
2,501	5,000	12	28	300	30	3/7 Days	2	6.5
1,001	2,500	6	22	300	25	3/7 Days	2	6
501	1,000	4	18	100	20	3/7 Days	2	5
101	500	4	16	100	15	3/7 Days	2	4
1	100	2-4	13	100	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	40,000	3			400
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

**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		vCPU <sup>[1]</sup>	RAM	Disk Size	Disk IO Requirement	Preserved Event/ Alarm Days	Concurrent CLI Connection	Resource Level
From	To	Logic Processor		GB	MB/s	Max	Max (per node not per cluster)	
1025	3,000	8	18	250	20	7 Days	2	3
	2,000							
501	1,024	8	18	250	20	7 Days	2	2
101	500	4	16	100	15	7 Days	2	1.5
1	100	2-4	13	100	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.

## 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	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 GCP	Recommended Machine type for Azure	Disk IO Requirement	Resource Level
From	To	GB					
10,001	30,000	600	c4.8xlarge	Custom Machine Type w/ Skylake or later.  Follow the vCPU/ Memory number based managed AP number.	F32s_v2	45	8
	20,000				F32s_v2		
6,001	10,000	600	c4.8xlarge		F32s_v2	45	7
3,001	6,000	300	c4.4xlarge		F16s_v2	35	6.5
1,001	3,000	300	m4.2xlarge		D8s_v3	25	6
501	1,000	100	r4.xlarge		E4s_v3	20	5
101	500	100	m4.xlarge		D4s_v3	15	4
1	100	100	r4.large	DS11_v2/ D4s_v3	15	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 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 GCP	Recommended Machine type for Azure	Disk IO Requirement	Resource Level
From	To	GB					
1025	3,000	250	m4.2xlarge	Custom Machine Type w/ Skylake or later.	D8s_v3	20	3
	2,000						
501	1,024	250	m4.2xlarge	Follow the vCPU/ Memory number based managed AP number.	D8s_v3	20	2
101	500	100	m4.xlarge		D4s_v3	15	1.5
1	100	100	r4.large		DS11_v2/D4s_v3	15	1

**NOTE**

Required Disk Type

- AWS: General Purpose SSD (gp2)
- GCE: SSD
- Azure: Standard-SSD



## Supported Hypervisors

This section displays summary of hypervisors supported by vSCG/vSZ versions 2.5, 3.4 and above.

Hypervisors supported by vSCG/vSZ

**TABLE 11** Hypervisors supported by vSCG/vSZ

Keywords	Customer Environment
vSCG, KVM, ESXi, Hyper-V	vSZ (AKA vSCG) version 2.5+

**TABLE 12** Supported Platforms

vSZ version 3.4 and above
VMWare ESXi 5.5 and later
Windows Server Hyper-V (2012 R-2)
KVM CentOS 7.0 (64bit)
AWS (Amazon Web Service)
Google Cloud
Microsoft Azure

vSZ (vSCG) Version 2.5
VMWare ESXi 5.1
RHEL KVM 6.5 (See RHEL 6 Hypervisor Deployment Guide)

**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/QA'd 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

## Virtual SmartZone Minimum Requirements

Hypervisor CPU/IO Requirements - Self Own Hypervisor

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 5.2.1 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)  
 $(200 \times 1) + (100 \times 5) = 700$  (Total Capacity) This requirement could use L5, since the total capacity is smaller than 1,000.
- 400 APs + 10 switches (1:5)  
 $(400 \times 1) + (10 \times 5) = 450$  (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
	AP Mode		Switch Mode		
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 L7	10,000	0	0	2,000	5:1

## Maximum Supported AP and Switch Management

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				
	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

# Upgrading the Controller

---

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.



**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.



# Performing the Upgrade

---

RUCKUS strongly recommends backing up the controller cluster before performing the upgrade. If the upgrade process fails for any reason, you can use the latest backup file to restore the controller cluster.

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

Always back up the controller before attempting a software upgrade. If you are managing a multi-node cluster, back up the entire cluster, and then verify that the backup process completes successfully.

If you have an FTP server, back up the entire cluster and upload the backup files from all the nodes in a cluster to a remote FTP server.

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 > Upgrade**.
3. Select the **Upgrade** tab.

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

## NOTE

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

4. From the **Upload** page, ensure the **Run Pre-Upgrade Validations** check box is enabled (enabled by default ). It triggers data migration validation during upload process.
5. Click **Browse** to select the patch file.
6. Click **Upload** to upload 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 is failed, the following error is displayed:

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

7. If the controller configuration upload was successful, perform one of the following:
  - Click **Upgrade** to start the upgrade process without backing up the current controller cluster or its system configuration.
  - 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 log on page appears again, you have completed upgrading the controller.

## NOTE

For remote APs connected over a VPN, the tunnel MTU must be reduced to 1400 (acceptable range is: 850 through 1500) to allow the configuration after upgrade. If there are many WLANs defined, the MTU should be reduced further.

Go to the next task to verify the upgrade.





# Verifying the Upgrade

---

You can verify that the controller upgrade was completed successfully.

1. Go to **Administration > Upgrade**.
2. In the **Current System Information** section, check the value for Controller Version. If the firmware version is newer than the firmware version that controller was using before you started the upgrade process, then the upgrade process was completed successfully.

**NOTE**

APs periodically send scheduled configuration requests to the controller, including the firmware version. If the firmware version is different from that which is configured for the AP zone, the controller responds with a request to upgrade the firmware on the AP.



# 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*.



# Uploading an AP Firmware Bundle

- AP Image Signing..... 29
- Upgrading the Data Plane..... 29

When RUCKUS introduces a new AP model, an AP firmware bundle (also known as a patch) is made available for download from the RUCKUS Support website. Download the AP firmware bundle to a local computer, import it into SmartZone, and the new AP model is now supported.

1. Select **Administration > 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.

## AP Image Signing

AP image signing involves digitally signing the RUCKUS header and body of the AP firmware, and authenticating the firmware as valid to be installed on the AP. AP firmware images are available in the following types:

- Un-Signed Image (USI): Has the capability to sign and verify. It only contains a Header and Body. The Body usually contains both the kernel and file system information.
- Intermediate Signed Image (IUI): Has the capability to sign and verify, and it allows installation of both signed and unsigned images.
- Fully Signed Image (FSI): Allows only RUCKUS-signed firmware to be installed on the AP. It does not allow installation of unsigned or tampered images.

AP image signing is a two step upgrade or downgrade procedure where in the AP firmware can be upgraded from type USI to ISI, ISI to FSI, and vice-versa in the same order.

### NOTE

You cannot upgrade an image from USI to FSI as the formats of these images are different. Attempting such an upgrade triggers an *AP image signing failed* event.

## 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.

Upgrading from earlier versions to R5.2.1

vSZ-D	Upgrade Procedure
R5.2	1. R5.2 > R5.2.1

## Uploading an AP Firmware Bundle

### Upgrading the Data Plane

vSZ-D	Upgrade Procedure
R5.1	1. R5.1 > R5.2.1
R5.0	1. R5.0 > R5.1 2. R5.1 > R5.2.1
R3.6	1. R3.6 > R5.2.1
R3.5	1. R3.5 > R3.6 2. R3.6 > R5.2.1
R3.4	1. R3.4 > R3.6 2. R3.6 > R5.2.1

To Upgrade the Data Plane:

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

The **DP Patch** page appears.

**FIGURE 1** Upgrading the Data Plane

The screenshot displays the RUCKUS SmartZone web interface. At the top, there is a navigation menu with options like Dashboard, System, Access Points, Switches, Wireless LANs, Clients, Applications, Services & Profiles, Report, Troubleshooting, Administration, Admins and Roles, Backup & Restore, and Upgrade. The 'Administration' menu is expanded, and the 'Upgrade' option is selected. The main content area shows the 'DP Patch' tab, which includes a 'Patch File Upload' section with a 'Browse' button and an 'Upload' button. Below this, there is a 'Patch Available for Upgrade' section with the following details:

Field	Value
Patch File Name	sz100d-installer_5.1.0.0.495.ximg
Patch File Size	220.2MB
Patch Version	5.1.0.0.495

Below the patch details, there is a 'Data Planes' section with a table showing the upgrade progress for various data planes. The table has the following columns: Name, DP MAC Address, Current Firmware, Backup Firmware, Last Backup Time, Process State, and DP Status.

Name	DP MAC Address	Current Firmware	Backup Firmware	Last Backup Time	Process State	DP Status
<input type="checkbox"/> SZ100-D	24:C9:A1:3F:06:10	5.1.0.0.495	N/A	N/A	Upgrade completed	Managed

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

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.

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 ungraded the virtual data plane.

**NOTE**

To have a copy of the data plane firmware or move back to the older version, you can select the data plane from the list and click **Backup** or **Restore** respectively. To upgrade the data plane to the latest firmware, select the data plane and click **Upgrade to x.x.x.x**





# Multiple AP Firmware Support in the SZ100/vSZ-E/SZ300/vSZ-H

The AP firmware releases that APs use are configured at the zone level. This means that APs that belong to one zone could use a different AP firmware release from APs that belong to another zone.

## REMEMBER

Before you proceed with upgrading the controller to this release, do ensure that all AP zones are running one the supported firmwares as explained below.

## Previous Major AP Releases Supported

This platform release can support the latest AP firmware release, plus the most recent Short-term (ST) and Long-term (LT) AP firmware releases.

## NOTE

A Short-term (ST) or Long-term (LT) release version refers to the first two digits of the release number. For example, 5.1.1 and 5.1.2 are considered part of the same Short-term release version, which is 5.1.

The following releases can be upgraded to release 5.2.1:

- 5.1, 5.1.1, 5.1.2, 5.2
- 3.6, 3.6.1, 3.6.2

The AP firmware releases that the controller will retain depends on the controller release version from which you are upgrading:

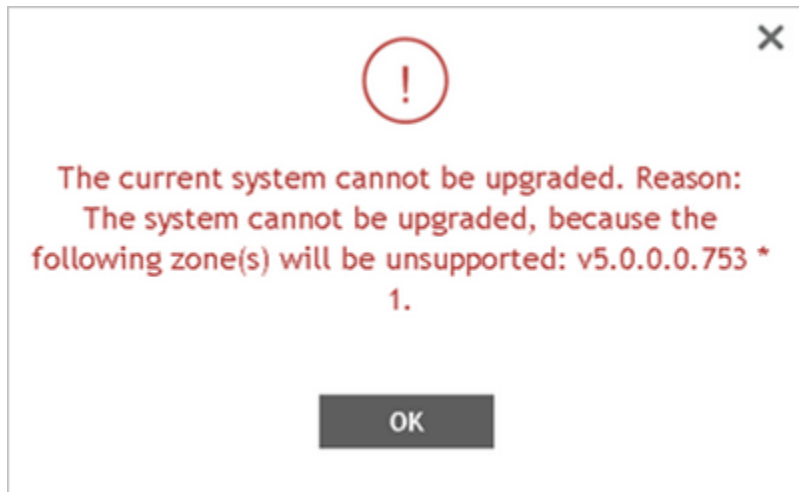
Upgrade path	AP firmware releases in controller
5.1.x > 5.2.x	5.1.x, 5.2.x
3.6.x > 5.0 > 5.1.x > 5.2.x	3.6.x, 5.1.x, 5.2.x
3.6.x > 5.1.x > 5.2.x	3.6.x, 5.1.x, 5.2.x
3.6.x > 5.2.x	3.6.x, 5.2.x

All other AP firmware releases that were previously available on the controller will be deleted automatically. For example:

- If you are upgrading the controller from release 5.1.x, then the AP firmware releases that it will retain after the upgrade will be 5.2.x and 5.1.x (and 3.6.x if this controller was previously in release 3.6).
- If you are upgrading the controller from release 3.6.x, then the AP firmware releases that it will retain after the upgrade will be 5.2.x and 3.6.x.

## NOTE

The following upgrade error is seen when the AP firmware is retained as release 5.0.



# EoL APs and APs Running Unsupported Firmware Behavior

---

Understanding how the SZ300/vSZ-H controllers handle APs that have reached End-of-Life (EoL) status and AP running unsupported firmware can help you design an upgrade plan that will minimize impact on wireless users in your organization.

**NOTE**

SZ300/vSZ-H devices are referred to as controllers in this section.

## APs Running Unsupported Firmware Releases

- APs running AP firmware releases that are unsupported by the controller release can still connect to the controller.
- Once connected to the controller and assigned to a zone, the AP will be upgraded to the AP firmware assigned to the zone to which it belongs.



# 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 5.2, 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 16** Supported AP Models

11ac-Wave2		11ac-Wave1		11ax	
Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor
R720	T710	R600	T504	R730	
R710	T710S	R500	T300	R750	
R610	T610	R310	T300E	R650 (New AP model support)	
R510	T610S		T301N		
H510	T310C		T301S		

## Upgrade FAQs

### How Do I Get Support?

**TABLE 16** Supported AP Models (continued)

11ac-Wave2		11ac-Wave1		11ax	
Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor
H320	T310D		FZM300		
C110	T310N		FZP300		
M510	T310S				
R320	T811CM				
	E510				

## 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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