

RUCKUS SmartZone Upgrade Guide, 6.0.0

Supporting SmartZone 6.0.0

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What's New in this Document

TABLE 1 Summary of Enhancements in SmartZone Release 6.0.0

| Revision Number | Description | Location | Publication Date |
|-----------------|---|--|------------------|
| A | Dynamic Sigpack Supports regular and non-regular signature packs. | Refer to Before Upgrading to This Release on page 7 for more information. | April 2021 |
| A | Change Log of vSZ Resource Plan <ul style="list-style-type: none"> • New support 3000, 6000 APs resource level for more flexibility deployment and better cost effective for customer. • Update the Public Cloud – New AWS Machine type to better cost effective for customer. • Increase the base disk size requirement from 100 GB → 150 GB on low level resource profile, due to vSZ system limitation for the minimum disk requirement. No impact for user to upgrade from previous version. Require new setup vSZ to follow new disk size. • Increase the vSZ-E 1024 APs resource level memory from 18 GB → 20 GB, due to this resource level already hit the system limitation in some case. No impact for user to upgrade from previous version. User only need to change the memory setting when encounter the exceed 90% memory usage alarm. • Adding additional Notes vSZ memory required in extreme vSZ deployment and cases. | Refer to Virtual SmartZone Minimum Requirements on page 11 for more information. | April 2021 |
| A | | | April 2021 |
| A | | | April 2021 |
| A | | | April 2021 |

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) R5.2.0, R5.2.1, and R5.2.2 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]



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 5.2.2, 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>.

| SmartZone Release | System Upgrade directly to SZ 6.0.0 |
|-------------------|-------------------------------------|
| 5.2.2 | Y |
| 5.2.1 | Y |
| 5.2.0 | Y |

Upgrading APs

Refer to the SmartZone 6.0 Release Notes for the updated release information.

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

Upgrading the signature pack from R5.1 or R5.1.1 to R6.0 is not supported.

Do follow this mandatory process before upgrading AP zone firmware:

1. Download Signature package by visiting the RUCKUS support site:
 - Regular Sigpack only for SZ6.0: <https://support.ruckuswireless.com/software/2573>
 - Non-Regular Sigpack for SZ6.0 and older releases: <https://support.ruckuswireless.com/software/2574>
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.



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 | 5.2.0 > 6.0.0, 5.2.1 > 6.0.0 or 5.2.2 > 6.0.0 |
| SZ100 | 5.2.0 > 6.0.0, 5.2.1 > 6.0.0 or 5.2.2 > 6.0.0 |
| vSZ | 5.2.0 > 6.0.0, 5.2.1 > 6.0.0 or 5.2.2 > 6.0.0 |
| vSZ-D | 5.2.0 > 6.0.0, 5.2.1 > 6.0.0 or 5.2.2 > 6.0.0 |
| SZ100-D | 5.2.0 > 6.0.0, 5.2.1 > 6.0.0 or 5.2.2 > 6.0.0 |

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..... 11
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Hypervisor Hardware Performance Requirements

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

- It is not recommended to share hardware server to multiple vSZ instances.
- Suggested deployment of vSZ VM requires 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 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 |
| 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 |
| 1 | 100 | 2,000 | 1-2 | 100 | 5 : 1 | 20 |

TABLE 4 vSZ High Scale required resources

| AP Count Range | | Minimum vCPU | Minimum RAM ^[1] | Minimum Disk Size ^[2] | 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) | |
| 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 ^[4] | 18 | 150 | 20 | 3/7 Days | 2 | 5 |
| 101 | 500 | 4 | 16 | 150 | 15 | 3/7 Days | 2 | 4 |
| 1 | 100 | 2-4 ^[3] | 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 | 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 | | Minimum vCPU | Minimum RAM ^[1] | Minimum Disk Size ^[2] | 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 ^[3] | 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.

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 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 |
| 1,001 | 3,000 | 300 | m5.2xlarge (8 vCPU/32 GB RAM) | D8s_v3 (8 vCPU/32 GB RAM) | 25 |

Virtual SmartZone Minimum Requirements
Public Cloud Platform - Instance Resource Type

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 | | | |
| 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 |

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 6.0 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 | | 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 |

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, 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.

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.

NOTE

Starting SZ6.0, when the controller fails while processing the upgrade flow and automatically triggers the restore action to the previous version, a notification is displayed in the Global Warning section on the Dashboard.

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

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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 R6.0

| vSZ-D | Upgrade Procedure |
|--------|--------------------|
| R5.2.2 | 1. R5.2.2 > R6.0.0 |

Uploading an AP Firmware Bundle

Upgrading the Data Plane

| vsZ-D | Upgrade Procedure |
|--------|--|
| R5.2.1 | 1. R5.2.1 > R6.0.0 |
| R5.2 | 1. R5.2.0 > R6.0.0 |
| R5.1.2 | 1. R5.1.2 > R5.2.0 2. R5.2.0 > R6.0.0 |
| R5.1.1 | 1. R5.1.1 > R5.2.0 2. R5.2.0 > R6.0.0 |
| R5.1.0 | 1. R5.1.0 > R5.2.0 2. R5.2.0 > R6.0.0 |
| R5.0.0 | 1. R5.0 > R5.1 2. R5.1 > R5.2.0 3. R5.2.0 > R6.0.0 |
| R3.6.2 | 1. R3.6.2 > R5.2.0 2. R5.2.0 > R6.0.0 |

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 shows the Ruckus SmartZone web interface. The top navigation bar includes the Ruckus logo, a license warning, and system information (vSG-121, 2018-11-20 16:54:23). The left sidebar shows the navigation menu with 'Administration' expanded to 'Upgrade'. The main content area is titled 'DP Patch' and contains the following sections:

- Patch File Upload:** A section for uploading a patch file (*.ximg). It includes a text input field, a 'Browse' button, and an 'Upload' button.
- Patch Available for Upgrade:** A section showing details for the selected patch file:

| | |
|-----------------|-----------------------------------|
| Patch File Name | sz100d-installer_5.1.0.0.495.ximg |
| Patch File Size | 220.2MB |
| Patch Version | 5.1.0.0.495 |
- Data Planes:** A table showing the status of data plane upgrades. It includes a 'Backup' button, a 'Restore' button, and a dropdown menu set to 'Upgrade to 5.1.0.0.495'.

| 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, 5.2.1 and 5.2.2 are considered part of the same Short-term release version, which is 5.2.0.

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 |
|--------------|------------------------------------|
| 6.0.x | 5.2.x > 6.0.x |

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 6.0.0, 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 16 Supported AP Models

| 11ac-Wave2 | | 11ac-Wave1 | | 11ax | |
|------------|---------|------------|---------|--------|---------|
| Indoor | Outdoor | Indoor | Outdoor | Indoor | Outdoor |
| R720 | T710 | R310 | | R730 | T750 |
| R710 | T710S | | | R750 | T750SE |
| R610 | T610 | | | R650 | |
| R510 | T610S | | | R850 | |
| H510 | T310C | | | R550 | |
| H320 | T310D | | | H550 | |

Upgrade FAQs

How Do I Get Support?

TABLE 16 Supported AP Models (continued)

| 11ac-Wave2 | | 11ac-Wave1 | | 11ax | |
|------------|---------|------------|---------|--------|---------|
| Indoor | Outdoor | Indoor | Outdoor | Indoor | Outdoor |
| C110 | T310N | | | | |
| M510 | T310S | | | | |
| R320 | T811CM | | | | |
| | E510 | | | | |
| | T305i | | | | |
| | T305e | | | | |

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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