

Ruckus SmartZone Upgrade Guide

Supporting SmartZone 5.1

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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



Data migration from SmartZone (SZ) 5.0 to 5.1 is supported.



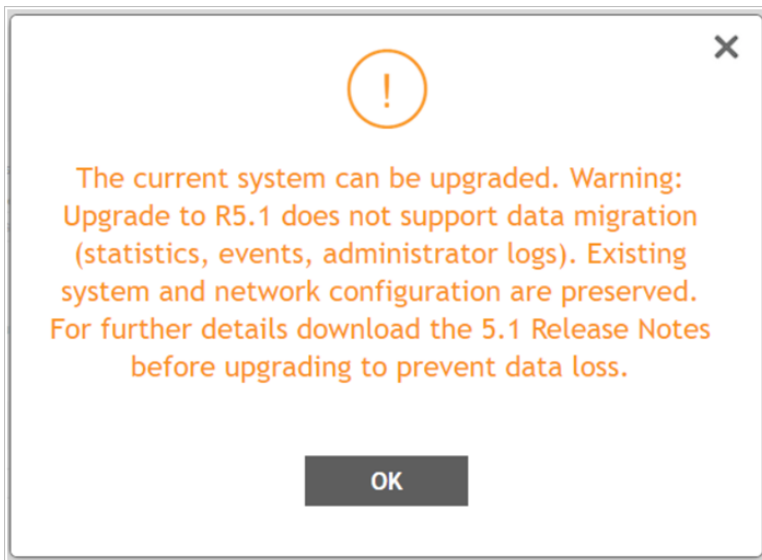
CAUTION

Data migration is not supported if system upgrades from release 3.6.0 or 3.6.1 or 3.6.2 to release 5.0 or to release 5.1 by SmartZone (SZ) release 5.0 and 5.1 upgrade. 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]

ATTENTION

If you are upgrading with a three or four nodes cluster running on version 5.0.0.0.676 with 22500 APs and above refer to caveat [SCG-97442].

- The upgrade path is changed and is now limited to N-2 support. Only 3.6.0 or 3.6.1 or 3.6.2 or 5.0 releases can be upgraded to 5.1.
- When upgrading to the release 5.1 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.



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.
- Ruckus will be able to provide the Data Migration Tool to interested customers (only available to Essential controllers), and the Data Migration Tool Guide is downloadable from the support site.

NOTE

Use of the Data Migration Tool is not recommended for high-scale users running SZ300 or vSZ-H.

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 be unable to perform the upgrade. 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.

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 1 Previous release builds

Platform	Release Build
SZ300	3.6.0.0.510
SZ100	3.6.1.0.227
vSZ	3.6.2.0.78
vSZ-D	5.0.0.0.675
SZ100-D	5.1.0.0.496

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 Required Resources

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 and wireless clients 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.



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 2 vSZ High Scale required resources

AP Count Range		Max Clients	Nodes per Cluster	AP Count per Node (without switch)	AP/Switch Capacity Ratio	Switch Per Node(without AP)
From	To			Max		Max
10,001	30,000	300,000	4	10,000	8 : 1	1,250
	20,000	200,000	3		8 : 1	1,250
5,001	10,000	100,000	1-2	10,000	8 : 1	1,250
2,501	5,000	50,000	1-2	5,000	8 : 1	625
1,001	2,500	50,000	1-2	2,500	8 : 1	312
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 3 vSZ High Scale required resources

AP Count Range		vCPU	RAM	Disk Size	Preserved Events	Concurrent CLI Connection	Resource Level
From	To	Logic Processor ^{[1][2]} _[3]	GB ^[3]	GB	Max	Max (per node not per cluster)	
10,001	30,000	24	48	600	3 M	4	8
	20,000						
5,001	10,000	24	48	600	3 M	4	7

TABLE 3 vSZ High Scale required resources (continued)

AP Count Range		vCPU	RAM	Disk Size	Preserved Events	Concurrent CLI Connection	Resource Level
2,501	5,000	12	28	300	2 M	2	6.5
1,001	2,500	6	22	300	1.5 M	2	6
501	1,000	4	18	100	600 K	2	5
101	500	4	16	100	300 K	2	4
1	100	2	13	100	60 K	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 4 vSZ Essentials required resources

AP Count Range		Maximum Clients	Nodes per Cluster	AP Count per Node	AP/Switch Capacity Ratio	Switch Per Node (without AP)
From	To			Max		Max
1025	3,000	60,000	4	1,024	5 : 1	200
	2,000	40,000	3		5 : 1	200
501	1,024	25,000	1-2	1,024	5 : 1	200
101	500	10,000	1-2	500	5 : 1	100
1	100	2,000	1-2	100	5 : 1	20

TABLE 5 vSZ Essentials required resources

AP Count Range		vCPU	RAM	Disk Size	Preserved Events	Concurrent CLI Connection	Resource Level
From	To	Logic Processor [1][2][3]	GB [3]	GB	Max	Max (per node not per cluster)	
1025	3,000	8	18	250	10 K	2	3
	2,000						
501	1,024	8	18	250	10 K	2	2
101	500	4	16	100	5 K	2	1.5
1	100	2	13	100	1 K	2	1

NOTE

Logic Processor ¹ vCPU requirement is based on Intel Xeon CPU E5- 2630v2 @2.60 GHz.

Logic Processor ² Azure with low CPU throughput unsupported. The vSZ with the lowest resource plan (2 core CPU, 13 GB memory) can NOT be supported due to the low CPU throughput on Azure.

Logic Processor ³ 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 CPU in scaling environment based on the resource level.

Maximum Supported AP and Switch Management

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

This release supports dynamic (linear) AP/Switch capacity based on capacity ratio. No AP/Switch mode and AP/Switch support numbers are based on the total connect of AP/Switch capacity. The capacity ratio is either low footprint profile with higher switch support capacity ratio such as 1:5 or high footprint profile enhancement to 1:8.

For example, for the profile **SZ100/vSZ-E/vSZ-H L1 ~ L5** the ratio is 5:1, which means 1000 APs to 200 Switches and for the profile **vSZ-H L6 ~ L8** the ratio is 8:1, which means 10000 APs to 1250 Switches

Calculating the Total Capacity

- If you have a setup of 200 APs and 100 Switches, where the capacity ratio is 1:5. The total capacity would be $200 \times 1 + 100 \times 5 = 700$. This requirement could use L5, since the total capacity is smaller than 1000.
- If you have a setup of 200 APs and 180 Switches, where the capacity ratio is 1:8. The total capacity would be $200 \times 1 + 180 \times 8 = 1640$. This requirement could use L6, since the total capacity is smaller than 2500.
- If you have a setup of 400 APs and 10 Switches, where the capacity ratio is 1:5. The total capacity would be $400 \times 1 + 10 \times 5 = 450$. 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 6 AP and Switch resource table for 1 and 2 nodes

Profile	1 and 2 Nodes				1 / 2 Nodes
Capacity	AP Mode		Switch Mode		AP/Switch Capacity Ratio
SZ100	1024	0	0	204	5:1
SZ300	10,000	0	0	1250	8:1

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

TABLE 7 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
SZ300	20,000	0	0	2500	8:1	30,000	0	0	3750	8:1

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. In Upload, select the **Run Pre-Upgrade Validations** check box to verify if the data migration was successful. This option allows you to verify data migration errors before performing the upgrade.

NOTE

You can still upgrade even if there are data migration errors.

5. Click **Browse** to select the patch file.
6. Click **Upload** to upload the controller configuration to the configuration in the patch file.
The controller 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. If data migration was unsuccessful, 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.

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 one of the node's command-line interface (CLI) and run the **restore** command. This will start the restore on all the nodes.
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

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.

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.

vSZ support APs starting version 3.4. You must first upgrade vSZ before upgrading vSZ-D, because only a new vSZ can handle an old vSZ-D. There is no order in upgrading the AP zone or vSZ-D. During the vSZ upgrade, all tunnels stay up except the main tunnel which moves to the vSZ. Once the upgrade procedure is completed, allow ten minutes for the vSZ-D to settle.

Upgrade to R5.0 does not support data migration (statistics, events, administrator logs). Only the existing system and the network configuration is preserved. For more information, contact Ruckus support.

Upgrading from earlier versions to R5.1.x

SZ	vSZ-D	Upgrade Procedure
5.0.x	R5.0.x or R3.6.x or R3.5.x	<ol style="list-style-type: none">1. R3.5.x/R3.5.x > R5.0.x2. R5.0.x > R5.1
3.6.x	R3.6.x or R3.5.x or R3.4	<ol style="list-style-type: none">1. R3.5.x/R3.4.x > R3.6.x2. R3.6. > R5.0
3.5.x	R3.5.x or R3.4.x or R3.2.x	<ol style="list-style-type: none">1. R3.4.x/R3.2.x > R3.5.x2. R3.5.x > R3.6.x3. R3.6.x > R5.0.x
3.4.x	R3.4.x or R3.2.x	<ol style="list-style-type: none">1. R3.2.x > R3.4.x2. R3.4.x > R3.6.x3. R3.6. x > R5.0.x

Data migration is not supported if system upgrades from:

- R3.6/3.6.1/3.6.2 to R5.0
- R3.6/3.6.1/3.6.2 to R5.1

System upgrade from R5.0 to R5.1 supports data migration.

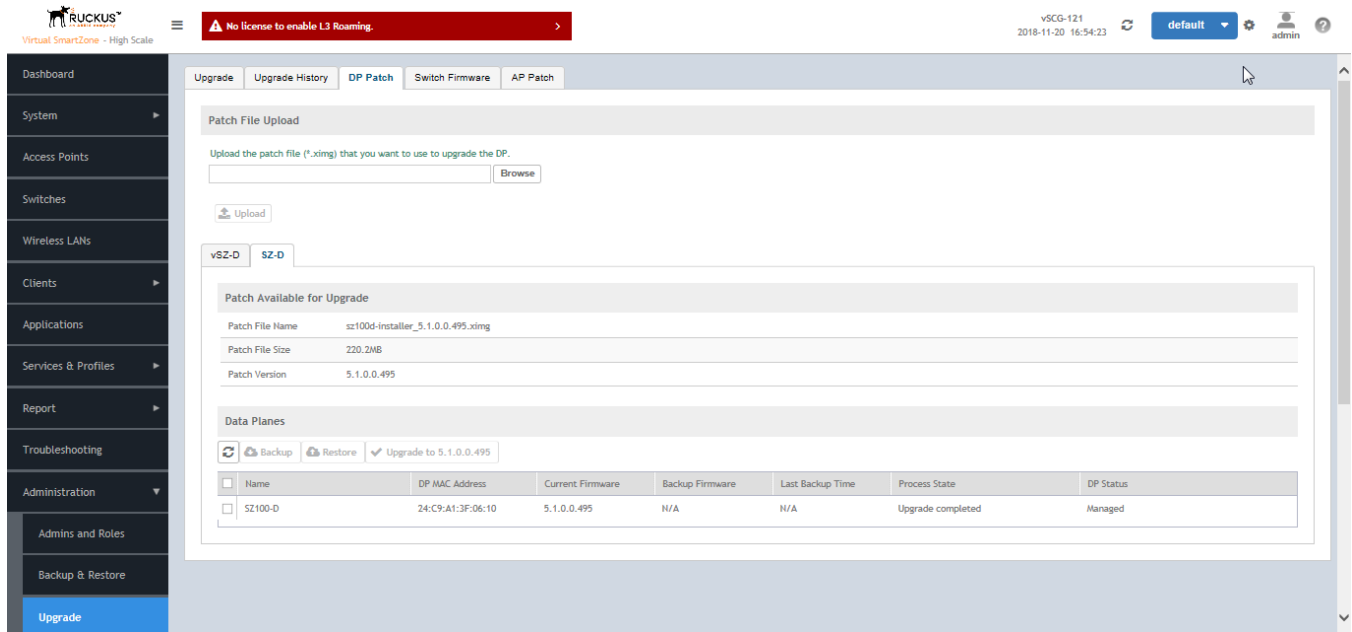
To Upgrade the Data Plane:

1. Select **Administration > Upgrade**.

2. Select the **DP Patch** tab.

The **DP Patch** page appears.

FIGURE 1 Upgrading the Data Plane



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/SCG200-C/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.

ATTENTION

SZ300/SZ100/vSZ-E/vSZ-H is referred as **controller** in this section.



REMEMBER

If you have AP zones that are using 3.4.x or 3.5.x and the AP models that belong to these zones support AP firmware 3.6 (and later), change the AP firmware of these zones to 3.6 (or later) to force these APs to upgrade their firmware. After you verify that all the APs have been upgraded to AP firmware 3.6 (or later), proceed with upgrading the controller software to release 5.1.

ATTENTION

In earlier releases, Essentials controllers (vSZ-E or SZ100) automatically upgraded both the controller firmware and AP firmware when the system is upgraded. In release 3.5, however, the concept of *Multi-Zone* was introduced, which slightly changed the upgrade workflow where the system and the AP zones upgraded independently. When upgrading the controller to 5.1, the AP Zone firmware remains the same.

Up to Three Previous Major AP Releases Supported

Every platform release can support up to three major AP firmware releases, including (1) the latest AP firmware release and (2) two of the most recent major AP firmware releases. This is known as the N-2 (n minus two) firmware policy.

NOTE

A major release version refers to the first two digits of the release number. For example, 3.6.1 and 3.6.2 are considered part of the same major release version, which is 3.6.

The following releases can be upgraded to release 5.1:

- 5.0
- 3.6
- 3.6.x

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

- If you are upgrading the controller from release 5.0, then the AP firmware releases that it will retain after the upgrade will be 5.1 and 5.0.
- If you are upgrading the controller from release 3.6.2, then the AP firmware releases that it will retain after the upgrade will be 5.1 and 3.6.2 (and 3.6.1 if this controller was previously in release 3.6.1).
- If you are upgrading the controller from release 3.6.1, then the AP firmware releases that it will retain after the upgrade will be 5.1 and 3.6.1.

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

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 or downgrade 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 5.1, 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 8 Supported AP Models

11ac-Wave2		11ac-Wave1	
Indoor	Outdoor	Indoor	Outdoor
R720	T710	R700	T504
R710	T710S	R600	T300
R610	T610	R500	T300E
R510	T610S	R310	T301N
H510	T310C		T301S
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**.