Deployment Guide

Migration of Access Points from ZoneDirector Wireless Controller to SmartZone Network Controller

July 2022

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Intended Audience

This document provides an overview of how to migrate existing RUCKUS access points from ZoneDirector Wireless Controller to its replacement, SmartZone Network Controller. Step-by-step procedures for configuration and testing are demonstrated.

This document is written for and intended for use by technical engineers who is responsible for installing and setting up SmartZone in replacement of ZoneDirector. Consequently, it assumes a basic working knowledge of local area networking, 802.11 wireless networking, and wireless devices. with some background in ZoneDirector, SmartZone administration, TFTP (Trivial File Transport Protocol), DHCP (Dynamic Host Configuration Protocol), and DNS (Domain Name System).

For more information on how to configure Ruckus Networks products, please refer to the appropriate Ruckus user guide available on the Ruckus support site. https://www.commscope.com/SupportCenter/

Ruckus Support Site	https://support.ruckuswireless.com/
Ruckus Knowledge Base Articles (KBA)	https://support.ruckuswireless.com/answers/
Ruckus Community	https://community.ruckuswireless.com/
Ruckus Documentation	https://docs.commscope.com/
Ruckus Licensing Manager	https://support.ruckuswireless.com/liman
Warranty Programs	https://support.ruckuswireless.com/programs-warranty_registration

Overview

WLAN has become ubiquitous, and organization are growing rapidly. These prompts upgrading current access points and controllers to futuristic controllers proactively with features like Virtualization, more capacity etc.,

RUCKUS announced End of Sale(EoS) and End of Life(EoL) dates for ZoneDirector 1200. The RUCKUS ZoneDirector 1200 will go EoL and will no longer be available for purchase after August 31, 2022. For more information on EoS/EoL milestones and Replacement options, please refer to *RUCKUS End of Sale Announcement for ZoneDirector 1200 -* https://support.ruckuswireless.com/documents/4144-ruckus-end-of-sale-announcement-for-zonedirector-1200

One of the Replacement options available to End customers of RUCKUS ZoneDirector 1200/1205 is SmartZone Network Controller Families. This document describes how to migrate access points from ZoneDirector 1200 to SmartZone Network Controller.
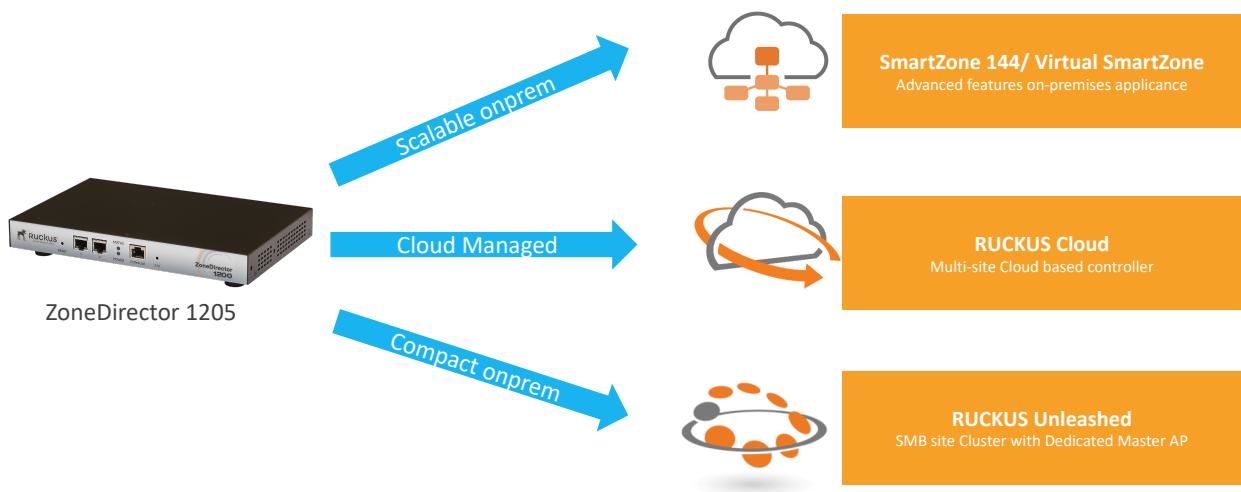

Figure 1: Migration paths available for ZoneDirector 1200/1205
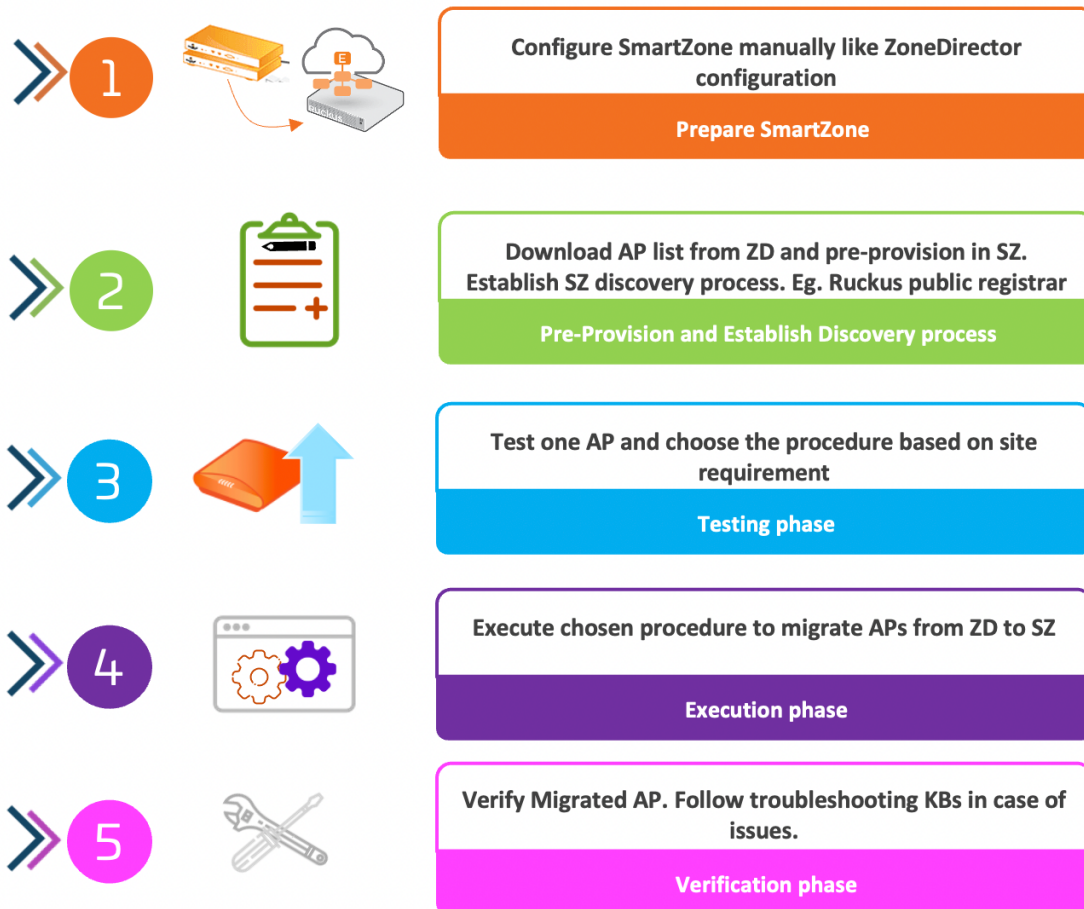
What's Covered Here

This document is not an exhaustive description of all possible solutions. It focuses on migrating access points from ZoneDirector to SmartZone (will be referred to as ZD and SZ respectively from now on). This document does not cover migration of ZD's configuration to SZ. Access Point model supported by SmartZone versions are not covered in this document. Please refer to SmartZone release notes for supported AP models and running multi-AP firmware N-2 Firmware to support older AP models. As of this writing SZOS 6.1.0.0.935 (GA) is the latest firmware and SZOS 5.2.0.0.699 (GA) is the recommended firmware.

Outline of migration process

Migrating RUCKUS access points from ZD to SZ has the following major steps:

- Changing AP's firmware that can work with SZ

- Pointing APs (Access Points) to reach SZ using one of the discovery methods.

1 **Prepare SmartZone**
Configure SmartZone manually like ZoneDirector configuration

2 **Pre-Provision and Establish Discovery process**
Download AP list from ZD and pre-provision in SZ. Establish SZ discovery process. Eg. Ruckus public registrar

3 **Testing phase**
Test one AP and choose the procedure based on site requirement

4 **Execution phase**
Execute chosen procedure to migrate APs from ZD to SZ

5 **Verification phase**
Verify Migrated AP. Follow troubleshooting KBs in case of issues.

Flowchart to illustrate the steps to migrate AP from ZoneDirector to SmartZone Controller

ZoneDirector managed AP runs the same version firmware of ZD firmware version e.g., 10.2.1. Similarly, SmartZone also has firmware versions which are pushed to Access Points upon connecting for the first time. e.g., 5.2.2. To move an AP from ZD to SZ, a firmware change is required. Eg 10.2 to 5.2 either directly or through an intermediate solo firmware e.g. 114.0.

Procedures of Migration

There are three procedures available to migrate APs currently connected in ZD to SZ:

1. SmartZone's ZD Migration tool (Inbuilt in SZ)
2. ZD's Join another controller option (Inbuilt in ZD)
3. Manual AP migration (Optionally with external 3rd party tools)

Note: All the above procedures do not migrate the controller configuration.

Procedure 1: SmartZone's ZD Migration tool

An inbuilt migration tool of SmartZone to move APs from ZoneDirector. This tool was introduced in SmartZoneOS 3.5. For this tool to work ZD must be running firmware v9.13 or above. This tool pulls the AP related information from ZoneDirector after administrator provides ZoneDirector's IP address, Admin username and password.

Allows to migrate 1-50 APs at a time.

It retains AP names, locations, and essential IP related information.

Procedure 2: ZoneDirector's Join another controller function

ZD Managed AP running 9.13 and above has a stale wsgclient process which does not run when it is managed by ZD. When clicking *Join another controller* menu item for an AP, ZD puts that AP in 'blocked state' and initiates wsgclient. Regular SZ discovery process to follow.

Allows to migrate 1 AP at a time.

It retains AP names, locations, and essential IP related information.

Procedure 3: Manual AP Migration

To manually migrate APs, APs are upgraded to an intermediate solo firmware, then factory reset and pointed to SmartZone IP address using any of the SZ discovery process. Regular SZ discovery process to follow.

Allows to migrate multiple APs, depending on TFTP server, DHCP server performance and LAN link speed.

AP details such as names, location, static IP are lost due to factory reset.

General Considerations

The following are general considerations and assumptions applicable for all procedures.

- Access Point should be online and connected by Wired uplink port. For Mesh APs please refer to KB article in reference section.

- Successful communication between SZ's control plane and ZoneDirector & SZ's control plane and APs.

- If ZD AP is connected to Switch with Non-Default VLAN (VLAN ID 1), using procedure 3 will be a challenge as AP reset will disconnect AP from switch.

- If Link Aggregation enabled in Access Point interfaces, it should be disabled before doing migration.

- SmartZone has the required number of Access Point licenses.

Controller discovery agent process

Ruckus APs runs a discovery agent 'wsgclient' to discover new Controller in factory default mode. The discovery agent finds controller via any of the following methods:

- mDNS discovery on local IP subnet
  - o AP will discover and join SZ Controller if it is on same L2 Layer subnet and Domain as of Controller.
  - o Note: L2 discovery is supported by SmartZone 104/124/144 and vSZ-E only.
- DHCP Option 43 sub-option 6 / DHCPv6 Option 17 sub-option 6 / DHCPv6 Option 52
  - o Organization's DHCP Server offering IP addresses to access points will be able to provide instructions to APs. These instructions will be in form of DHCP options and instruct APs to find controller at given IP address.
  - o DHCP Server on Linux - https://support.ruckuswireless.com/articles/000002358
  - o DHCP Server on Windows Server - https://support.ruckuswireless.com/articles/000003197
  - o Ruckus ICX Switch as DHCP Server - https://docs.commscope.com/bundle/fastiron-09000-dhcpguide/page/GUID-F9B2D285-4EB9-46B8-A4AB-AD4FF38CA4EB.html
- DNS entry named "ruckuscontroller.<local domain>"
  - o Organization's DNS server should serve an IP address when APs dig ruckuscontroller.domain.tld by configuring A record in DNS Server. If AP receives a valid response it will join to that controller's IP.
- Ruckus AP Public Registrar
  - o Part of Ruckus Service, Ruckus AP registrar supplies the IP address of SmartZone to APs. APs running discovery can contact the registrar to receive target SZ's IP Address.
- AP CLI command "set scg ip"
  - o AP is told to join given SZ by setting the SZ IP in AP's CLI using the command set scg ip <controller_ip_address> , in case of Cluster set scg ip <controller1_ip_addr> <controller2_ip_addr>.

All the above methods used when AP does not have existing SZ information. After joining the SZ, the SZ (Follower and Leader) IP will be automatically updated by SZ. For more information on these SmartZone discovery methods, refer to the _SmartZone Admin Guide_.
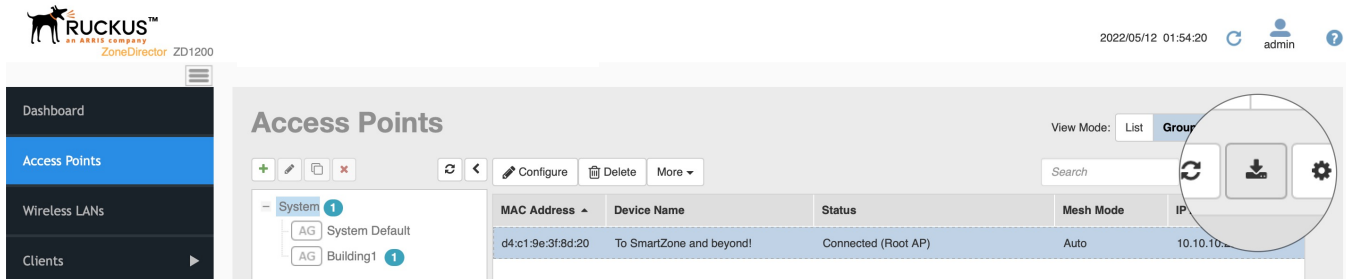
Pre-Provisioning of Access Points to SZ

Pre-provisioning of Access points from ZD to SZ is recommended as the below procedures do not migrate all the details of Access Point.

| Procedure	AP attributes migrated
Procedure 1: SmartZone tool	AP Name, Description, GPS Coordinates, Network Settings (IP), Serial no, Model, Mesh Mode, AP's credentials (ZD credentials)
Procedure 2: ZoneDirector Join another controller function	AP Name, Network Settings as per AP, Serial number auto learned while joining
Procedure 3: Manual	None
Pre-provisioning combined with any above procedure	AP Name, Description, Model, GPS, Location, Network Settings (IP), Serial no, Model, AP's credentials (ZD credentials)

Table 1: AP attributes migrated in each procedure

When pre-provisioning combined with any of the procedures more attributes can be migrated.

1. Download the AP list by clicking Export to CSV. It will download a file *aplist_mmddyy_xx_yy.csv*


2. Visit SmartZone Main menu -> Network -> Wireless -> Access Point. Click More -> Export All Batch Provisioning APs. It will down a file with name *pre-provision.csv*
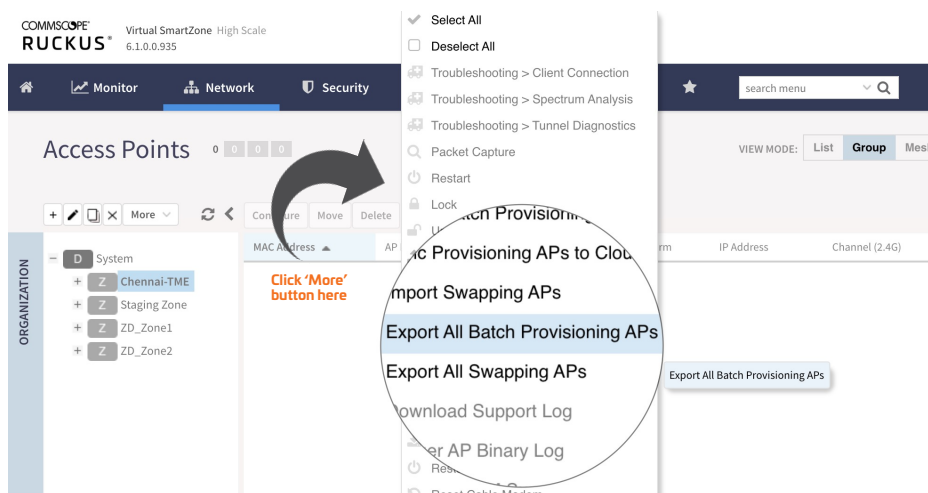

3. Edit both CSV files. Copy fields MAC Address, Device Name, Description, Location, Model, IP Address (If Static IP address), Serial Number from *aplist_mmddyy_xx_yy.csv* to pre-provision.csv fields AP Mac

Address, Model, AP Name, Description, Location, IP Address (For Static IP address), Network Mask, Gateway, Primary DNS, Serial Number. Enter SmartZone's pre-created Zone Name in 'zone' column.
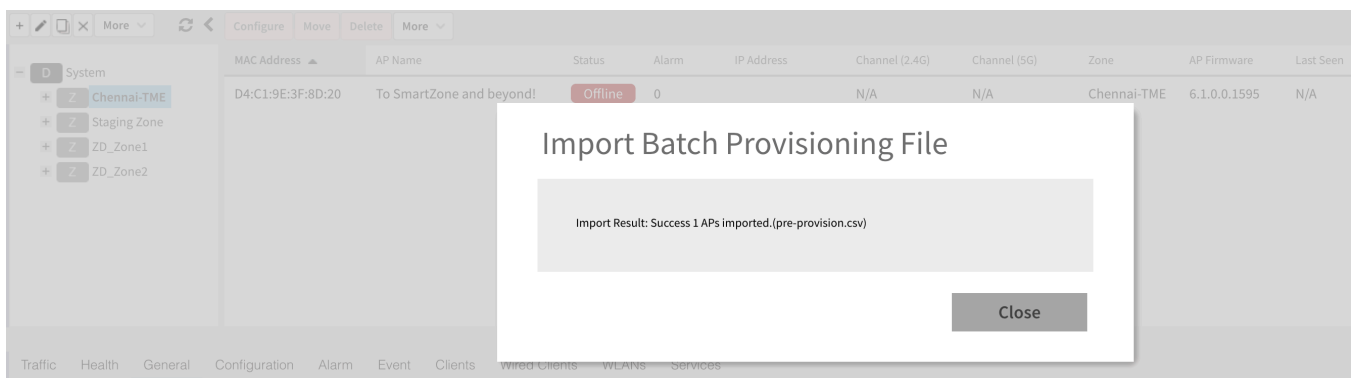
4. Import to SmartZone. Main Menu -> Network -> Access Point. Select Zone, click More -> Import Batch Provisioning APs
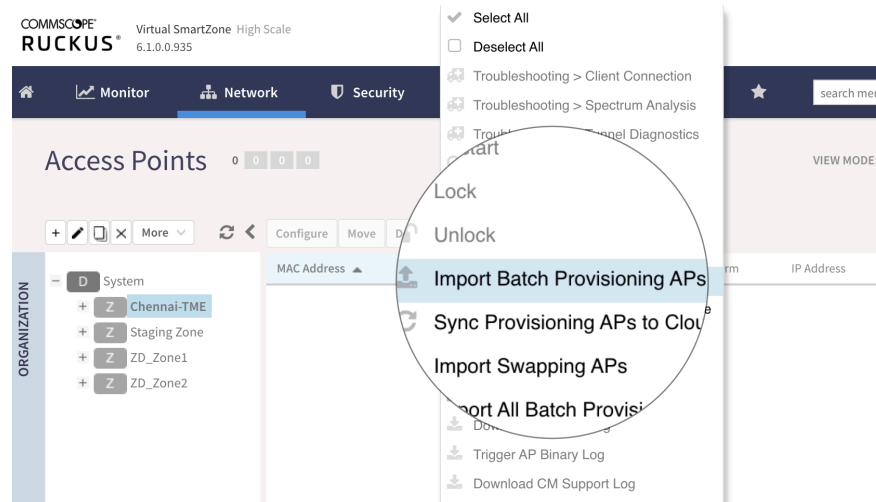
5. Click Browse and select *pre-provision.csv* file in import dialog
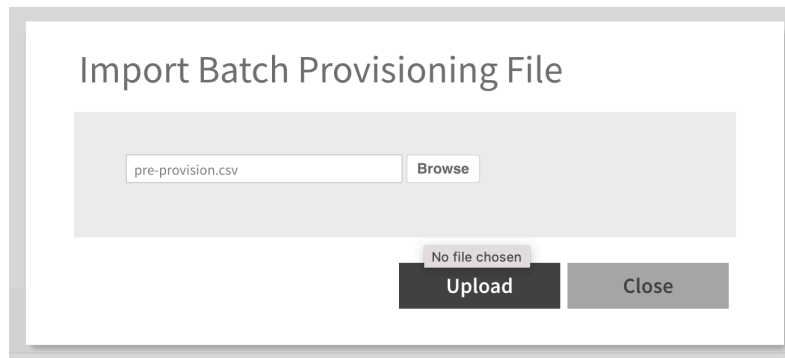

6. Click Upload and wait for Success message.

Now the AP is listed as offline with uploaded provisioned configuration.

Optional Ruckus Registrar sync

Ruckus AP registrar option outlined in the Controller discovery agent process section of this document can be used optionally to onboard APs to SZ in procedure 2 and 3. This optional procedure may be used if the other options are not available. However, this document will outline the set scg command for both procedure 2 and 3. If Ruckus registrar option is possible, skip the set scg commands in upcoming procedures. SZ also supports REST API call.

The following steps are required to synchronize the pre-provisioned AP details to Ruckus AP registrar.

1. Go to SmartZone Web GUI -> *Main menu -> Administration -> Under External Services -> Ruckus Services -> Ruckus Cloud Services*

2. Select *Region* (US/Europe/Asia)

3. Enable *Cloud Authentication*. This is prompt for Cloud account details. Enter your *username* and *password* for Ruckus Support account and login.

4. Now it will show further options. Select *AP Registrar Synchronization*. Click *Refresh* to verify the settings.
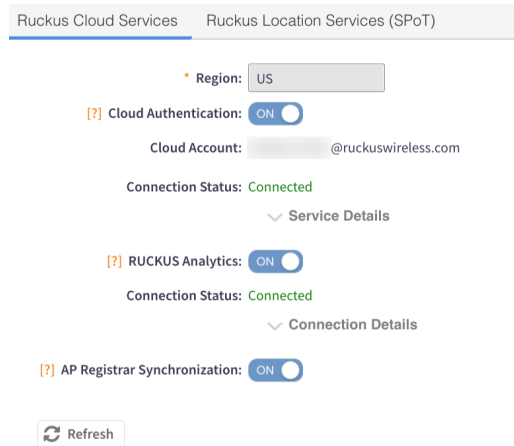
5. Go to Main menu -> *Network -> Under Wireless -> Access Points*

6. Click More under Access Point table. Select '*Sync Provisioning APs to Cloud Service*'
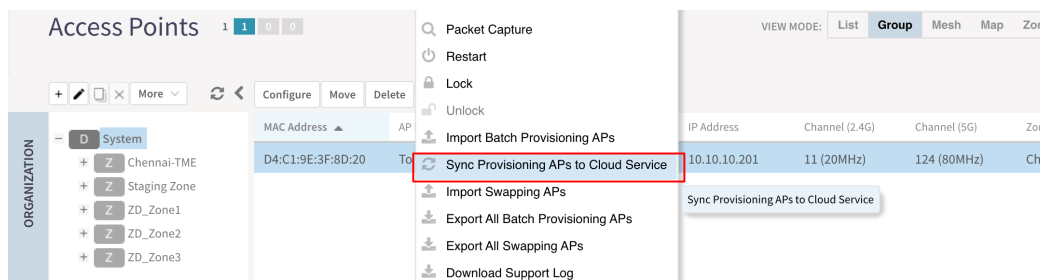
Dependencies

- SmartZone should be running version 6.1 and above.

- Ruckus Support Account with valid support contract.

- AP's firmware should be able to support AP registrar. Verify using get hub command in AP.

- All AP should be able to reach AP registrar through internet.

Procedure 1: SmartZone's ZD migration tool

SmartZone has a built-in web GUI based tool that initiates the migration of access points from ZoneDirector to self. This migration moves AP's name, location, and IP related information to SZ from ZD. No other information is migrated. Please note controller discovery process has no effect in this procedure.
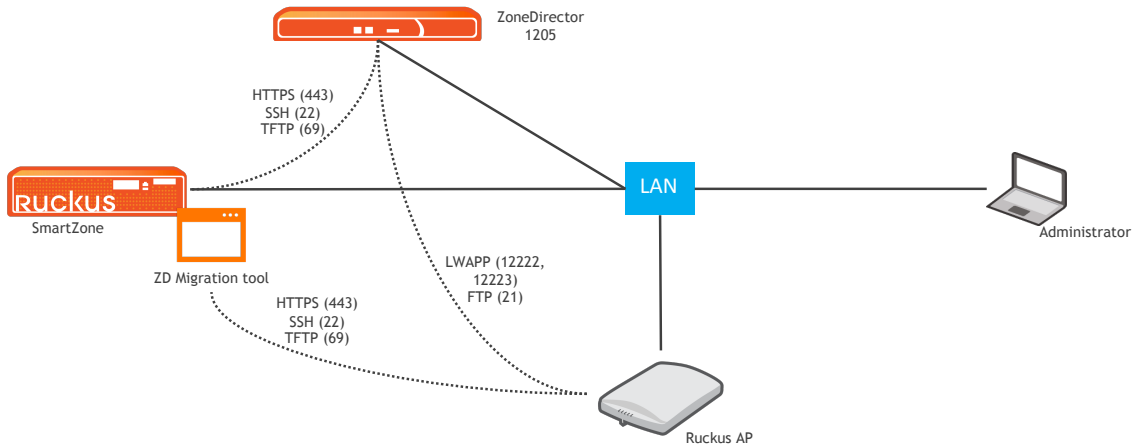
Network Diagram

Figure 2: LAN connectivity for ZD to SZ migration using ZD migration tool

Pre-Requisites for the migration

To successfully follow the steps in this procedure, the following equipment (at a minimum) is required and assumed:

- ZoneDirector (1200) – Verify migration support matrix
  - Minimum Firmware required 9.13. Recommended Firmware: 10.4
- SmartZone Network Controller – Any model in the family
  - o Minimum Firmware required 3.5. Recommended SmartZone OS – 5.2.2 GA
- Verify the Access Point cert status before starting the migration process. Please refer to the Knowledge Base Article (KBA) on Ruckus Support site for procedure to update the cert.
- Verify ZD's admin account provided is local account to ZD and Not an AAA account.
- Verify ZD management ACL is allowing SmartZone's Control plane IP Address.

This migration is a multiple stage process that will be managed by the SmartZone. In order to work successfully, please confirm that the following requirements are met:

- SmartZone and ZoneDirector have IP connectivity with support for the following protocols: HTTPS (TCP port 443), SSH (TCP port 22), and TFTP (UDP port 69)

- ZoneDirector and APs have IP connectivity with support for the following protocols: LWAPP control (should be in place already – UDP ports 12222 and 12223) and FTP (TCP port 21). If Secured AP Image Upgrade is enabled in ZoneDirector, port 11443 is used instead of FTP (port 21).
- SmartZone and APs have IP connectivity with support for the following protocols: HTTPS (TCP port 443), SSH (TCP port 22), and TFTP (UDP port 69)
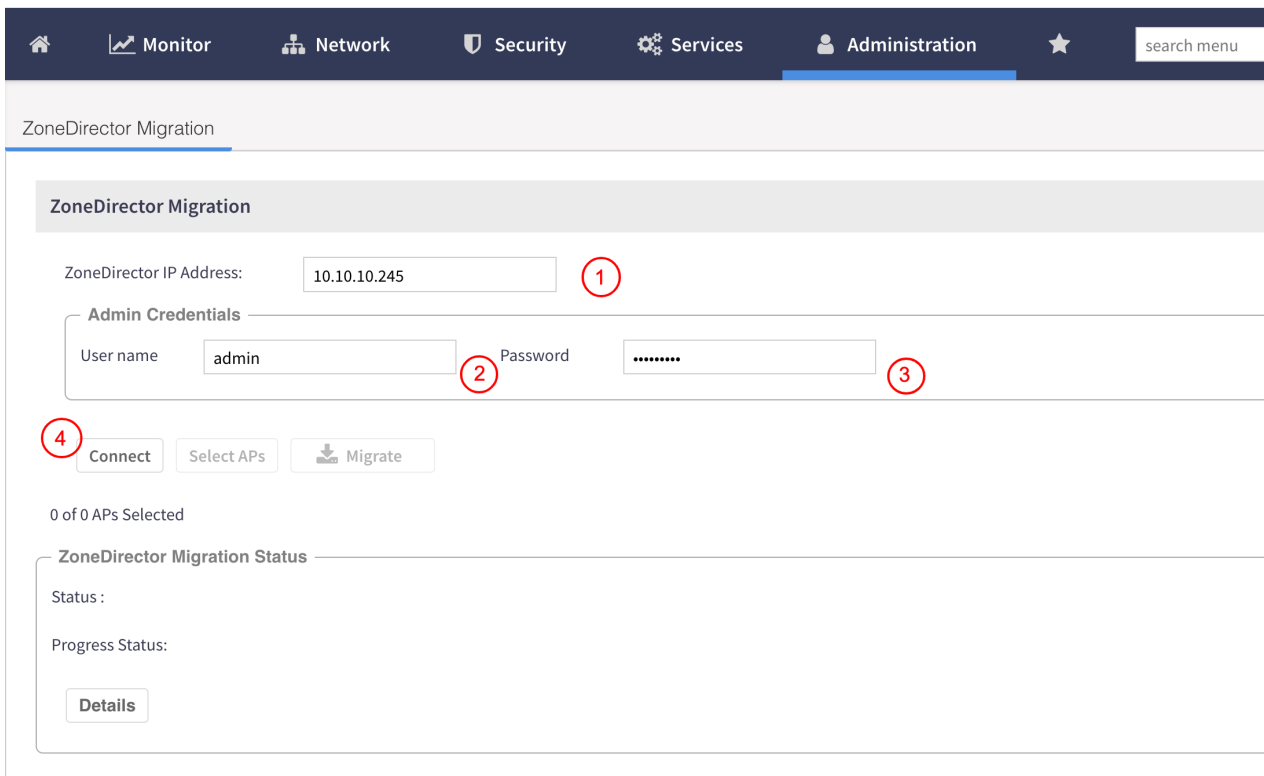
Preparations and Migration

1. Visit SmartZone Main menu -> Administration -> ZD Migration (https://<SZ-IP>:8443/wsg/#m/zdmigration)
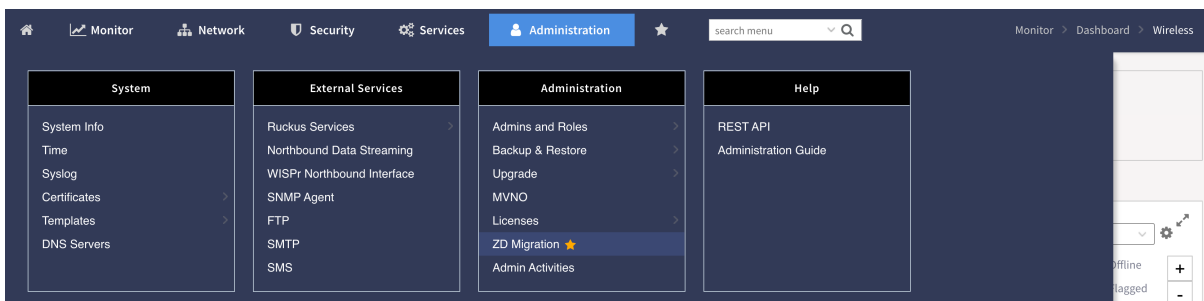
2. Enter the ZoneDirector's IP address, username, and password to connect.
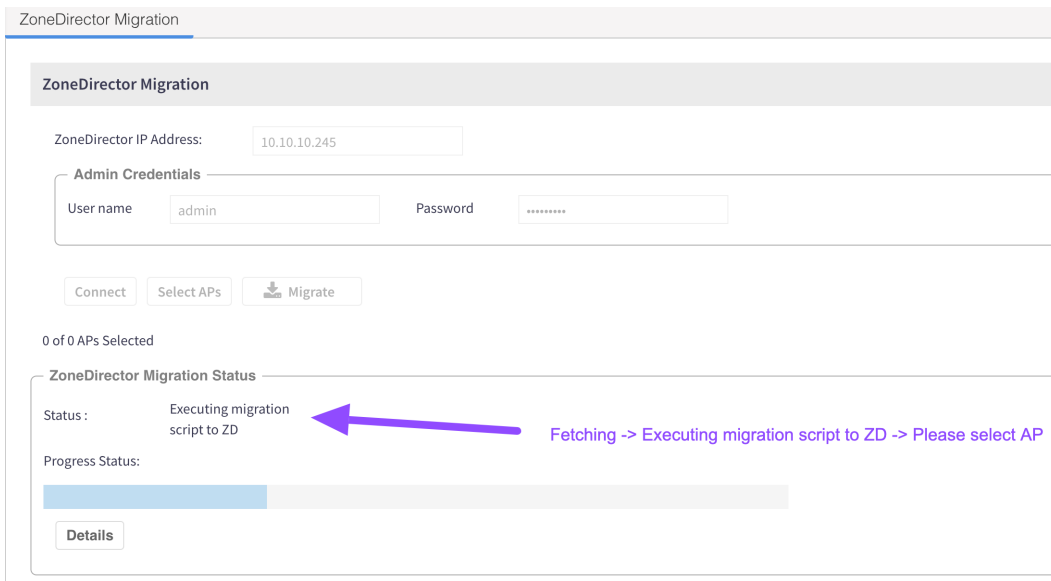
If ZD's password does not meet the SZ's zone password strength requirements, then you might get the following error. Change the ZD's password to match password strength and continue.

*Your ZoneDirector cannot be migrated because its password doesn't meet the password strength of SZ zone setting. Please change your password with the following rule and then proceed with the migration. Password should contain at least one number, one letter, and one special character (` ~ ! @ # $ % ^ & * ( ) - _ = + [ ] { } \ | ; : ' " , . < > / ?)*

3. Watch the migration status here changes from Fetching -> Executing migration script to ZD -> Please select AP

4. Once you see 'Please select AP', click button 'Select APs'

5. Select the APs (Max 50). Please note every time ZD migration tool migrates APs, a new zone will be created. It's recommended to select APs that go into a single zone at a time. If more than 50 APs go into single zone, consider pre-provisioning in which the APs move to target zone during migration.
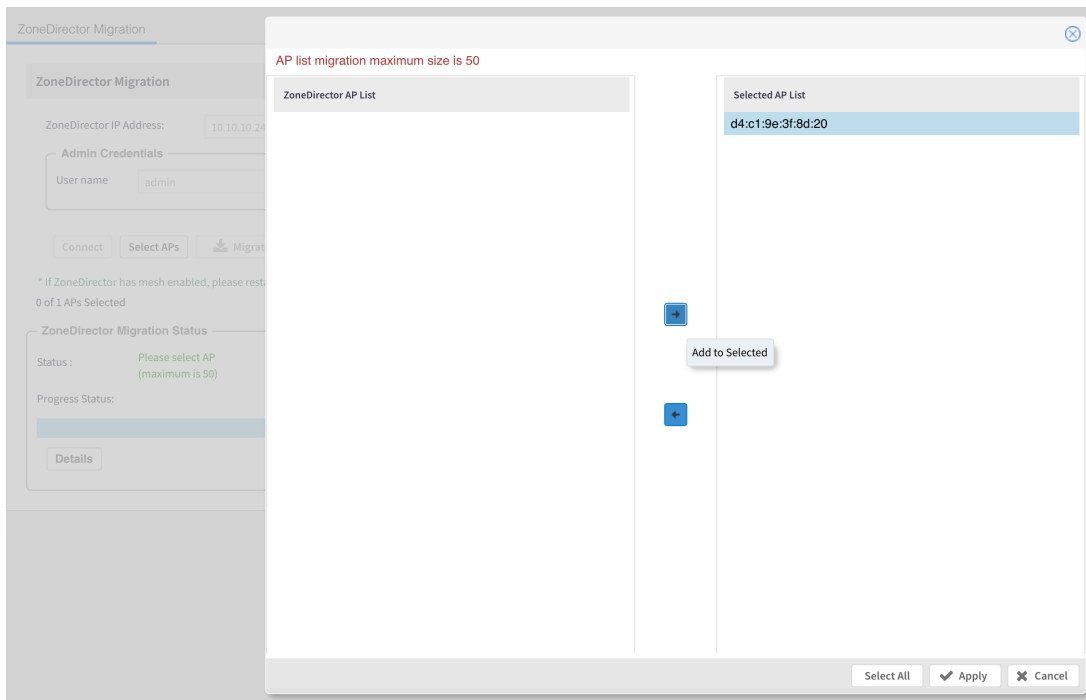
6. Click 'Migrate' button to finish migration.
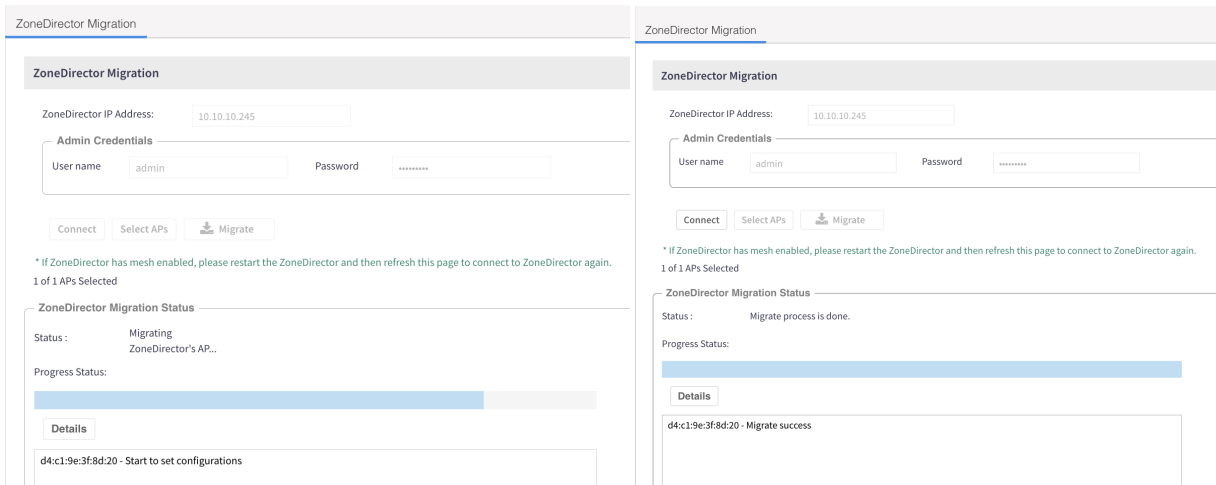
A few messages you may see for a successful migration

d4:c1:9e:3f:8d:20 - Start to upgrade firmware
d4:c1:9e:3f:8d:20 - Upgrade process start!
d4:c1:9e:3f:8d:20 - Migrating to SZ
d4:c1:9e:3f:8d:20 - Migrate success

Verifying migration

Go to Network -> Access Point
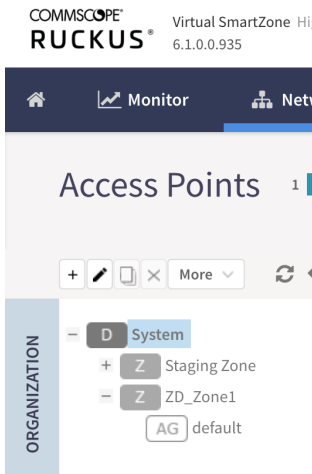
Note a new zone called 'ZD Zone x' where x signifies every time migration runs. If the AP is pre-provisioned, you will find the AP under the pre-provisioned zone instead of ZD Zone X.

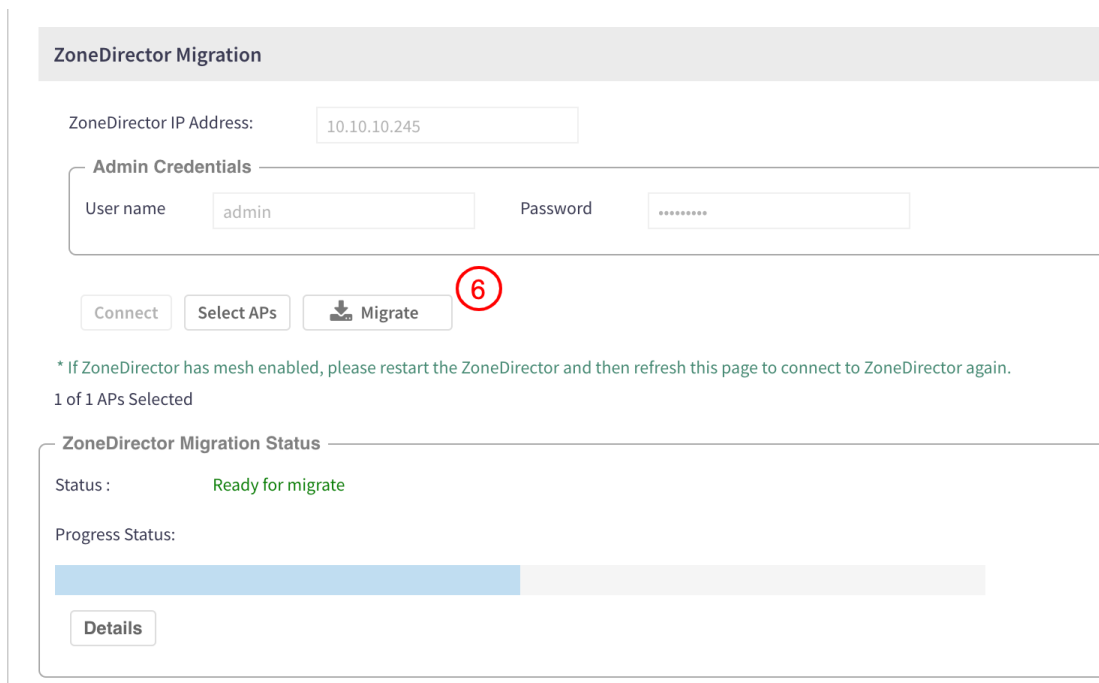| MAC Address	AP Name	Status	Alarm	IP Address	Channel (2.4G)	Channel (5G)	Zone	AP Firmware	Last Seen
D4:C1:9E:3F:8D:20	To SmartZone and beyond!	Online	1	10.10.10.201	Disabled (20...	100 (80MHz)	ZD_Zone1	6.1.0.0.1595	2022/05/09 14:31:07

Check the alarm and events section for information. Notice the IP, Name are kept.

Date and Time	Code	Alarm Type	Severity	Status	Activity
2022/05/09 14:18:18	302	AP rebooted by system	Major	Outstanding	AP [RuckusAP@D4:C1:9E:3F:8D:20] was rebooted by the system because of [/usr…

You may edit Zone configuration as to match with ZD's AP configuration.

Edit Zone: ZD_Zone1
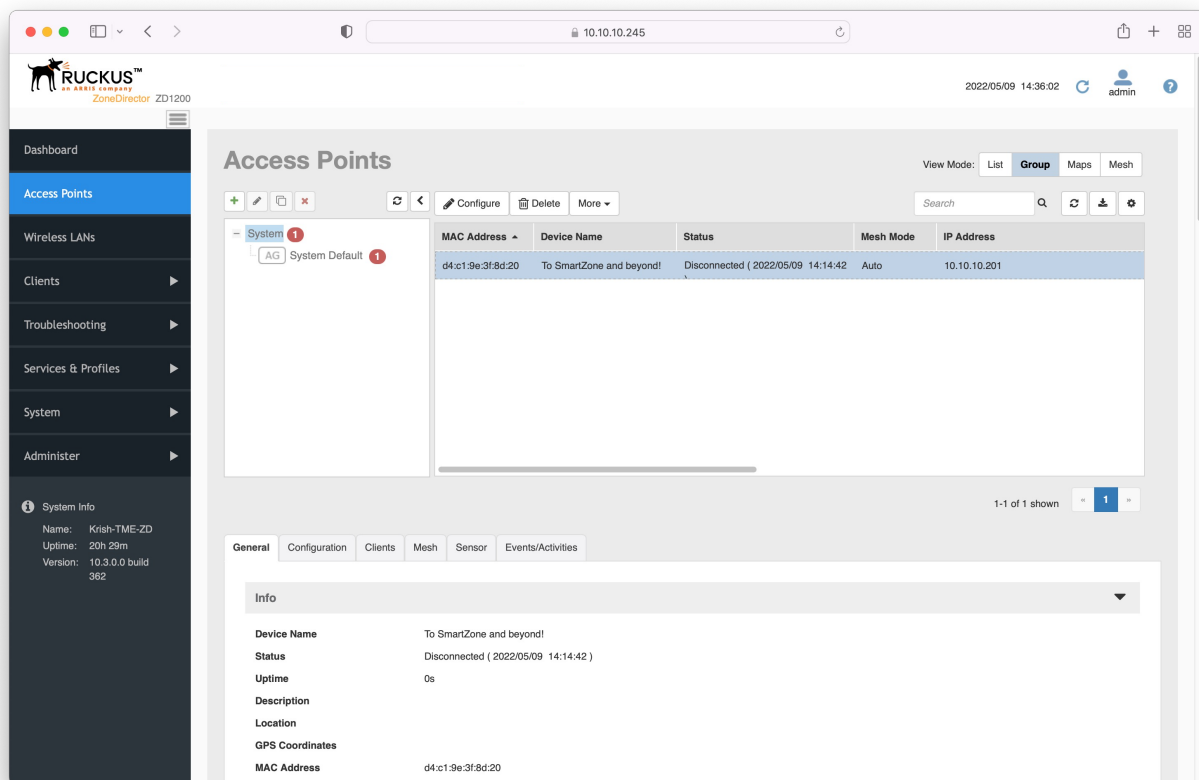
Notice the ZD AP has been Disconnected. Now you may go ahead to remove the AP.

In the AP CLI to verify SZ/SCG settings (wsgclient)

```
Please login: admin
password : <ZD's password set as AP's admin password for the zone by tool>
Copyright(C) 2022 Ruckus Wireless, Inc. All Rights Reserved.
rkscli: get version
Ruckus R610 Multimedia Hotzone Wireless AP
Version: 6.1.0.0.1595
OK
rkscli: get scg

------ SCG Information ------
SCG Service is enabled.
AP is managed by SCG.
State: RUN
Server List: 10.10.10.210
SSH tunnel connected to 10.10.10.210
Failover List: Not found
Failover Max Retry: 2
DHCP Opt43 Code: 6
Server List from DHCP (Opt43/Opt52): Not found
SCG default URL: RuckusController
SCG config|heartbeat intervals: 30|30
SCG gwloss|serverloss timeouts: 1800|7200
Controller Cert Validation : disable
----------------------------
OK
rkscli:
```

After successful migration, you may continue configuring SmartZone. In case of any challenges, refer to the troubleshooting KB section.

Procedure 2: ZoneDirector's Join another controller function

ZoneDirector's *Join another controller function* allows you to migrate ZD-controlled APs to SmartZone or Ruckus Cloud controller. When clicked, the AP is blocked from joining ZoneDirector, enables a SmartZone discovery agent and reboots. After the reboot it begins searching for a new controller, either on premises or in the cloud. SmartZone discovery process will be followed to discover SZ or Cloud.

Network Diagram
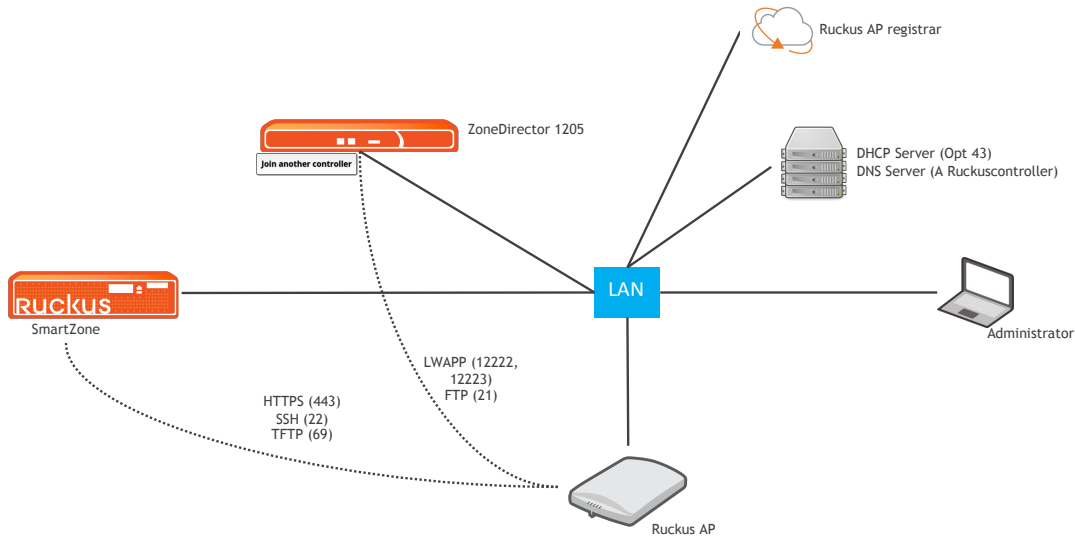
Figure 3: LAN connectivity for ZD to SZ migration using Join function

Pre-Requisites for the migration

To successfully follow the steps in this procedure, the following equipment (at a minimum) is required and assumed:

- ZoneDirector (1200)

  - Minimum Firmware required 9.13. Recommended Firmware: 10.4

- SmartZone Network Controller – Any model in the family

  - Minimum Firmware required 3.5. Recommended SmartZone OS – 5.2.2 GA

- Verify the Access Point cert status before starting the migration process. Please refer to the Knowledge Base Article (KBA) on Ruckus Support site for procedure to update the cert.

This migration is a multiple stage process that will be managed by the SmartZone. In order to work successfully, please confirm that the following requirements are met:

- ZoneDirector and APs have IP connectivity with support for the following protocols: LWAPP control (should be in place already – UDP ports 12222 and 12223) and FTP (TCP port 21). If Secured AP Image Upgrade is enabled in ZoneDirector, port 11443 is used instead of FTP (port 21).

- SmartZone and APs have IP connectivity with support for the following protocols: HTTPS (TCP port 443), SSH (TCP port 22), and TFTP (UDP port 69)

Preparations and Migration

1. Login into SmartZone and create a new Zone. Configuration migration is not covered in this document. Manually copying values from ZD config to SZ config is required.

2. Login into ZD CLI and execute command *remote_ap_cli -A "set scg ip <SZIP>"* in debug mode. This step is optional if a discovery process other than 'static scg ip provisioning' is used e.g., DHCP, mDNS.

```
Please login: admin
Password:
Welcome to the Ruckus Wireless ZoneDirector 1200 Command Line Interface
ruckus> enable
ruckus# debug
You have all rights in this mode.
ruckus(debug)# remote_ap_cli -A "set scg ip 10.10.10.210"
---- Command 'rkscli -c "set scg ip 10.10.10.210 "' executed at
d4:c1:9e:3f:8d:20
OK
---- Command Execution Summary:
        success: 1
        failure: 0
          total: 1
remote_ap_cli set scg ip 10.10.10.210
ruckus(debug)#
```

This command will point the AP to new SmartZone's IP address. This command can also be executed in selective APs only using -d "AP's MAC address" option.

3. In ZD GUI, got to Main menu -> Access Points
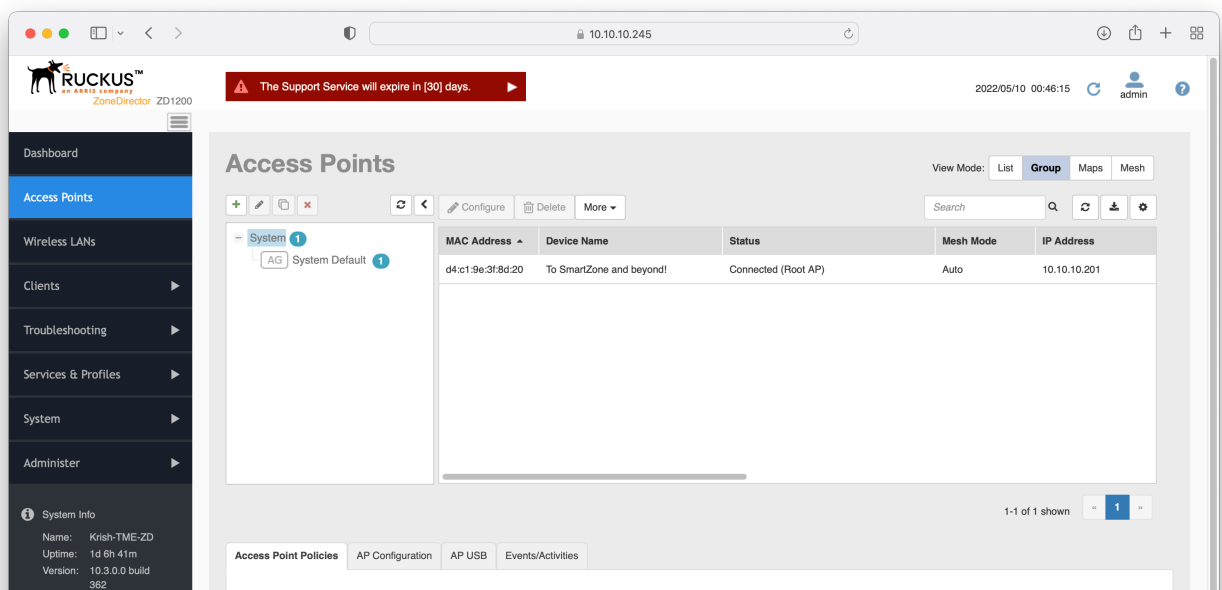
4. Select the required Access Point and click More -> Join another controller

Once the **Join another controller** menu item is clicked, the following two actions will be taken:

1. The AP's controller discovery process will be started.

2. AP will reboot and try to discover SmartZone by any of the discovery method. In the first step if 'set scg <ip>' is set through ZD CLI, then that SZ IP will be used to join.

3. If this AP tries to re-join ZD instead of SZ, ZD will ignore this AP's discovery requests; ZD blocks the AP from joining until the block is manually removed.

Verifying migration

Go to Network -> Access Points

Once AP joined SZ, AP entry will appear at Staging zone(vSZ-H/SZ300) or default zone(vSZ-E/SZ1XX). If any AP registration rules written or pre-provisioning already done in SZ, then AP will appear in designated target zone.

MAC Address ▲	AP Name	Status	Alarm	IP Address	Channel (2.4G)	Channel (5G)	Zone	AP Firmware
D4:C1:9E:3F:8D:20	To SmartZone an…	Online	0	10.10.10.201 / …	N/A	N/A	Staging Zone	10.3.0.0.362

If not pre-provisioned, manually move to required zone.

Check the alarm and events section for information. Notice the IP, Name are retained.

Date and Time ▼	Code	Alarm Type	Severity	Status	Activity
2022/05/09 14:18:18	302	AP rebooted by system	Major	Outstanding	AP [RuckusAP@D4:C1:9E:3F:8D:20] was rebooted by the system because of [/usr…

Note: Join another controller function blocks selected AP, if admin wants to allow it to join ZoneDirector again, go to **Access Points**, select the AP from the AP list, and click the **Allow** menu item.

Now the AP joined to SZ, AP's in ZD can be removed. Note 'Join another controller' function works on one AP at a time.

MAC Address ▲	Device Name	Status	
d4:c1:9e:3f:8d:20	To SmartZone and beyond!	Blocked	

In the AP CLI to verify SZ/SCG settings (wsgclient)

```
Please login: <Designated Zone's AP CLI username>
password : <Designated Zone's AP CLI password>
Copyright(C) 2022 Ruckus Wireless, Inc. All Rights Reserved.
rkscli: get version
Ruckus R610 Multimedia Hotzone Wireless AP
Version: 6.1.0.0.1595
OK
rkscli: get scg

------ SCG Information ------
SCG Service is enabled.
AP is managed by SCG.
State: RUN
Server List: 10.10.10.210
SSH tunnel connected to 10.10.10.210
Failover List: Not found
Failover Max Retry: 2
DHCP Opt43 Code: 6
Server List from DHCP (Opt43/Opt52): Not found
SCG default URL: RuckusController
SCG config|heartbeat intervals: 30|30
SCG gwloss|serverloss timeouts: 1800|7200
Controller Cert Validation : disable
----------------------------
OK
rkscli:
```

After successful migration, you may continue configuring SmartZone. In case of any challenges, refer to the troubleshooting KB section.

Procedure 3: Manual Migration

Manual Migration of ZD to SmartZone involves full upgrade of access points from ZD's firmware to intermediate solo firmware. The solo firmware will then discover SmartZone using one of the discovery methods and join with new SmartZone controller.

Network Diagram
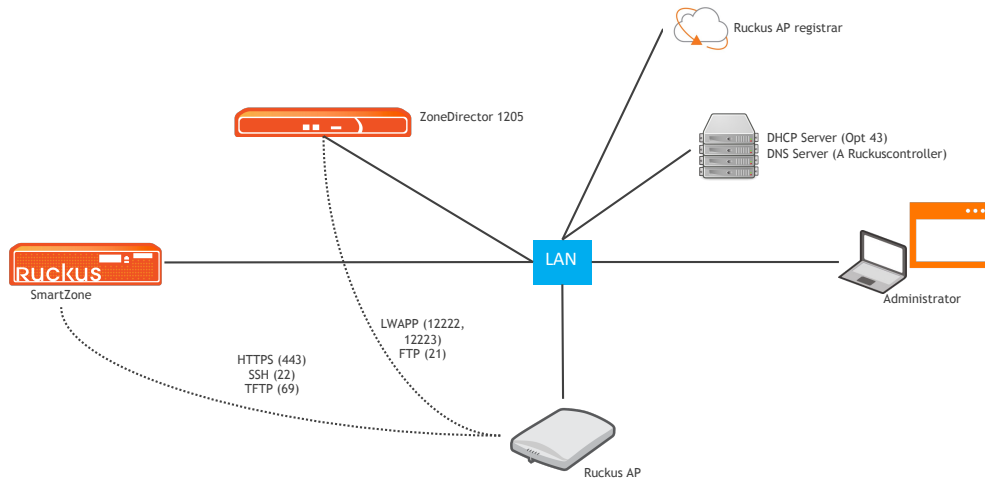
Figure 4: LAN connectivity for ZD to SZ Manual Migration

Pre-Requisites for the migration

To successfully follow the steps in this procedure, the following equipment (at a minimum) is needed and assumed:

- ZoneDirector (1200)

- SmartZone Network Controller – Any model in the family

- Verify the Access Point cert status before starting the migration process. Please refer to the Knowledge Base Article (KBA) on Ruckus Support site for procedure to update the cert.

This migration is a multiple stage process that involves upgrade to solo firmware. In order to work successfully, please confirm that the following requirements are met:

- TFTP Server E.g. https://pjo2.github.io/tftpd64/ or use preferred choice of FTP server. APs support TFTP, FTP, HTTP, HTTPS sources for fw upgrade

- DHCP Server, DNS Server, Ruckus AP registrar as per controller discovery process

- ZoneDirector and APs have IP connectivity with support for the following protocols: LWAPP control (should be in place already – UDP ports 12222 and 12223) and FTP (TCP port 21). If Secured AP Image Upgrade is enabled in ZoneDirector, port 11443 is used instead of FTP (port 21).

- SmartZone and APs have IP connectivity with support for the following protocols: HTTPS (TCP port 443), SSH (TCP port 22), and TFTP (UDP port 69)

Preparations and Migration

1. Download the solo firmware from https://support.ruckuswireless.com/software?query=Ruckus+Solo

2. CLI commands required to be executed in ZoneDirector to push APs to upgrade to solo intermediate firmware.

```
ruckus(debug)# remote_ap_cli "fw set proto tftp/ftp/http/https"
ruckus(debug)# remote_ap_cli "fw set control <Image filename>"
ruckus(debug)# remote_ap_cli "fw set host <IP Address>"
ruckus(debug)# remote_ap_cli "fw set user <FTP username>"
ruckus(debug)# remote_ap_cli "fw set password <FTP password>"
ruckus(debug)# remote_ap_cli "set factory"
ruckus(debug)# remote_ap_cli "fw update"
```

Refer here for list of full commands https://support.ruckuswireless.com/articles/000001551

3. Disconnect ZoneDirector from network once the command completes execution to avoid APs connect back to ZoneDirector.

Execution screengrab

```
Please login: karthik
Password:
Welcome to the Ruckus Wireless ZoneDirector 1200 Command Line Interface
ruckus> en
ruckus# debug
You have all rights in this mode.
ruckus(debug)# remote_ap_cli "fw set proto tftp"
---- Command 'rkscli -c "fw set proto tftp "' executed at d4:c1:9e:3f:8d:20
OK
---- Command Execution Summary:
        success: 1
        failure: 0
          total: 1
remote_ap_cli fw set proto tftp
ruckus(debug)# remote_ap_cli "fw set control 114.0.0.0.6565.bl7"
---- Command 'rkscli -c "fw set control 114.0.0.0.6565.bl7 "' executed at
d4:c1:9e:3f:8d:20
OK
---- Command Execution Summary:
        success: 1
        failure: 0
          total: 1
remote_ap_cli fw set control 114.0.0.0.6565.bl7
ruckus(debug)# remote_ap_cli "fw set host 10.10.10.214"
---- Command 'rkscli -c "fw set host 10.10.10.214 "' executed at
d4:c1:9e:3f:8d:20
OK
---- Command Execution Summary:
```

```
         success: 1
         failure: 0
           total: 1
remote_ap_cli fw set host 10.10.10.214
ruckus(debug)# remote_ap_cli "set factory"
---- Command 'rkscli -c "set factory "' executed at d4:c1:9e:3f:8d:20
Factory defaults will take effect after reboot
OK
---- Command Execution Summary:
         success: 1
         failure: 0
           total: 1
remote_ap_cli set factory
ruckus(debug)# remote_ap_cli "fw update"
---- Command 'rkscli -c "fw update "' executed at d4:c1:9e:3f:8d:20
v54_fw_update: download 10.10.10.214 section=rcks_fw.main image=Image1
ctl_file=114.0.0.0.6565.bl7 (/writable/fw/main.cntl)
net_get_flash_ubi(10.10.10.214, 114.0.0.0.6565.bl7, rcks_wlan.main,, 0)
flash id is 0
imghdr.{hdr_len=160, bin_len=15892320}
fw_flash_read_open: kernel open(/dev/ubi1_0) rootfs open(/dev/ubi1_1)
flash id is 0
bdSave: sizeof(bd)=0x7c, sizeof(rbd)=0xd0
  caching flash data from /dev/mtd14 [ 0x00000000 - 0x00010000 ]
  updating flash data [0x00008000 - 0x000080d0] from [0xbeae7a68 -
0xbeae7b38]
_erase_flash: offset=0x0 count=1
Erasing 64 Kibyte @ 0 -- 100 % complete
  caching flash data from /dev/mtd14 [ 0x00000000 - 0x00010000 ]
  verifying flash data [0x00008000 - 0x000080d0] from [0xbeae7a68 -
0xbeae7b38]
**fw(2525) : Completed
fw: Updating rcks_wlan.main ...

Image1 FW check ...

MD5 = 5A4C0E4BC23EF37937A7D495CA92784F
---- Command Execution Summary:
         success: 1
         failure: 0
           total: 1
remote_ap_cli fw update
ruckus(debug)#
```

4. Make sure SZ discovery methods are in place. Note: If vSZ-H or SZ300 is used, then mDNS L2 discovery is not supported.

Verifying migration

Go to Network -> Access Points.

Once AP joined SZ, AP entry will appear at Staging zone(vSZ-H/SZ300) or default zone(vSZ-E/SZ1XX). If any AP registration rules written or pre-provisioning already done in SZ, then AP will appear in designated target zone.

If not pre-provisioned, manually move to target zone.

Check the alarm and events section for information.

In the AP CLI to verify SZ/SCG settings (wsgclient)

```
Please login: <Designated Zone's AP CLI username> or Default : super
password : <Designated Zone's AP CLI password> or Default : sp-admin
Copyright(C) 2022 Ruckus Wireless, Inc. All Rights Reserved.
rkscli: get version
Ruckus R610 Multimedia Hotzone Wireless AP
Version: 6.1.0.0.1595
OK
rkscli: get scg

------ SCG Information ------
SCG Service is enabled.
AP is managed by SCG.
State: RUN
Server List: 10.10.10.210
SSH tunnel connected to 10.10.10.210
Failover List: Not found
Failover Max Retry: 2
DHCP Opt43 Code: 6
Server List from DHCP (Opt43/Opt52): Not found
SCG default URL: RuckusController
SCG config|heartbeat intervals: 30|30
SCG gwloss|serverloss timeouts: 1800|7200
Controller Cert Validation : disable
----------------------------
OK
rkscli:
```

After successful migration, you may continue configuring SmartZone. In case of any challenges, refer to the troubleshooting KB section.

Crossbreeder

Crossbreeder is troubleshooting and automating some simple commonly used tasks for Ruckus APs such as factory reset, update firmware etc. It does not rely on any controller. Instead, it runs through a list of IP addresses supplied by the user to contact each AP directly via SSH. This utility is built for windows and macOS platforms.

Crossbreeder is a 3rd party tool and it can be downloaded from https://github.com/andreacoppini/crossbreeder and no installation needed.

It can be used for bulk AP firmware upgrade and also for bulk 'set scg ip <ip>' commands provisioning in case mDNS, DHCP, DNS based provisioning options are not available.

Pre-requisites

- Admin's computer running Crossbreeder should be able reach Access point's IP address & SSH port.
- All requirements mentioned in Procedure 3: Manual Migration are applicable here.

How to use Crossbreeder?

1. Download the AP list from ZD.
2. Download Crossbreeder-template from software.
3. Copy the IP addresses from ZD ap list to Crossbreeder template and upload into Crossbreeder.
4. Populate AP username, password and click go. It should fetch AP details.
5. Select Reset AP to factory default and Reboot AP. Make sure ZD is disconnected from APs.
6. After a few minutes, check AP status by step 3.
7. Delete the access point from ZD and disable Auto-approval of APs.
8. Uncheck factory default and reboot AP options, Check Change firmware, fill in Server (TFTP/FTP/HTTP/HTTPS) details, Firmware file name from Server. Click Go.
9. While Crossbreeder upgrading, open another Crossbreeder instance, upload csv file, enter username and password, click Go to verify the status of AP's firmware.
10. APs will follow SZ discovery methods. If set scg command is used, uncheck all items and select "Run AP CLI commands" and enter set scg ip <ip> command, click Go.

Summary

Congratulations! Welcome to the new SmartZone.

SmartZone™ is a family of Network Controller with various models viz, SZ144, SZ300, vSZ-E, vSZ-H (as of this writing) for enterprises and service providers around the world. SmartZone controller arrives with various features that are available in ZD and more. Its unique SmartZone OS architecture allows the SZ controllers of same models to be deployed in a 3+1 Active-Active cluster. With Active-Active clustering all members (up to 4) of a cluster will actively manage APs and switches in the network, providing enhanced resiliency for high availability requirements.

This document outlined the feasible options for AP migration from ZoneDirector to SmartZone.

Ruckus Recommends the combination of Pre-provisioning + Procedure 3 Manual upgrade with factory reset + SmartZone Discovery (Ruckus Public registrar if Internet reachable) for seamless migration from ZD to SZ. Procedure 3 involves full factory reset of AP and it erases all ZD related config and joins SZ like a new AP. Procedure 1 and 2 may have a few challenges in operation with SZ, due to the remnants of ZD configuration in AP. If Procedure 1 or 2 are used, then consider AP factory reset using AP CLI script after successful migration.

Now that you have successfully migrated the ZoneDirector-managed APs to SmartZone, you are ready to manage them from the SmartZone web interface. Log on to the SmartZone web interface, and then verify that they appear on the Network > Access Points page. See the Administrator Guide for the SmartZone for more information about using the web interface at https://docs.commscope.com.

	Procedure 1 SZ's ZD migration tool	Procedure 2 ZD's *f*(Join another controller)	Procedure 3 Manual (Recommended)
Factory reset	Recommended after joining SZ by AP CLI script to remove remnants of ZD in AP	Recommended after joining SZ by AP CLI script to remove remnants of ZD in AP	Required before joining
SZ discovery method requirement (DHCP/DNS/mDNS/ Static/Public registrar)	Although not needed for migration, it is recommended to enable when APs are reset to factory default	Yes	Yes
Ruckus Public registrar	Not needed	Optional	Optional
Pre-provisioning to target zone	Recommended	Recommended	Recommended
AP Attributes migrated	AP Name, Description, GPS Coordinates, Network Settings (IP), Serial no, Model, Mesh Mode, AP's credentials (ZD credentials)	AP Name, Network Settings as per AP, Serial number auto learned while joining	None

APs with Non-default config in WAN port (static IP/Tagged VLAN)	Yes	Yes	No
External Systems required	None. SZ hosts a TFTP server for SZ image	DHCP, DNS, Public registrar servers for SZ discovery. APs discover SZ and downloads image from SZ directly	DHCP, DNS, Public registrar servers for SZ discovery. TFTP/FTP/HTTP/HTTPS server to serve, image file to AP.

Further Reading and References

Ruckus Best Practices, Guides, and TechNotes:
https://support.ruckuswireless.com/product_families/22-ruckus-best-practices-guides-and-technotes

Knowledge base articles:
https://support.ruckuswireless.com/answers?search_format=coveo#sort=relevancy

FAQ Ruckus AP certificate refresh:
https://support.ruckuswireless.com/articles/000005390

SmartZone Firmware Guide:
https://docs.commscope.com/bundle/sz-522-upgradeguide-sz/page/GUID-2B0A71F9-1F3A-4D32-B381-558F0BCBFF37.html

Mesh AP migration:
https://support.ruckuswireless.com/articles/000008069

ZD to SZ Migration tool 3.5 and above:
https://support.ruckuswireless.com/articles/000006351

SZ Firewall ports to open:
https://support.ruckuswireless.com/articles/000003402

Troubleshooting KBs

Smart Zone ZD migration failed with error " Unable to reach ZD due to networking connection issue, Please check network settings" -
https://support.ruckuswireless.com/articles/000010658

ZD 3000/1200 | 10.1.2.0.270/10.2.1.0.147 | ZD to SZ Migration not working -
https://support.ruckuswireless.com/articles/000010123

How to update ZD mode AP firmware to support vSCG or vSZ using LWAPP2SCG -
https://support.ruckuswireless.com/articles/000003377

Not all fields included when migrating APs -
https://support.ruckuswireless.com/articles/000007899

R300 AP is not broadcasting WLANs when connected to vSCG -
https://support.ruckuswireless.com/articles/000003486

Zone Director AP's running 9.13 and above do not require LWAPP2SCG to Migrate to SZ -
https://support.ruckuswireless.com/articles/000011182

APs with Static IP fail to connect to SZ 5.2 Dual-Stack Zones (TSB-2020-008) -
https://support.ruckuswireless.com/articles/000010443

APs with Solo Image 114.0.x SZ SSH connection failure (TSB-2020-007) -
https://support.ruckuswireless.com/articles/000010442

FAQ

Is pre-provisioning mandatory?

It is not mandatory, but it allows admin to move to respective zones while joining. Pre-provisioning is very helpful in multi-zone with previous version scenarios. For example, R600 can be pre-provisioned in 3.6.2 zone. Alternatively, registration rules also can be used as a replacement for pre-provisioning.

Is it possible to migrate Mesh APs?

It is possible through different procedures (may involve reset and configuration from scratch).

To use procedure 1 on Mesh APs, check here https://support.ruckuswireless.com/articles/000008069

What is the best practice to migrate Mesh APs and Root APs?

It is best practice to migrate both Mesh and Root APs together using procedure 1.

My ZD-managed AP has Static IP Address, is it possible for me to migrate to SZ?

In procedure 1 and 2, Static IP of APs are retained, however it is best practice to use DHCP to achieve Zero Touch Provisioning of AP in Controller environments.

I/My customer has a very large network of ZD, Does Ruckus offer Professional Services on migration?

Yes, RUCKUS Professional Services has the expertise to help organizations on migration from an older environment to SmartZone or RUCKUS Cloud. RUCKUS® Network Controller Migration Service https://www.commscope.com/globalassets/digizuite/482108-ruckus-ps-ds-zd-sz-migration-pa-114005-en.pdf

What is SCG/vSCG?

Stands for Smart Cell Gateway, Ruckus has renamed this to SmartZone™. vSCG is vSZ.

I have an older ZD version/model? What is the process for migration?

For older ZD models and version, please refer to this document https://support.ruckuswireless.com/documents/736-zonedirector-to-scg-vscg-sz-access-point-migration-guide

Is it possible to migrate legacy AP that is not supported by SmartZone's current version?

Consider using N-2 Multi-Zone AP firmware where unsupported AP by SZ current version can be supported by zone running previous N-2 versions.

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