



Ruckus Wireless™ SmartPositioning Technology (SPoT)

**Release Notes for SPoT Version 3.5
and vSPoT Version 2.4.4**

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SPoT 3.5 and vSPoT 2.4.4 Release Information

1

Introduction

This document provides release information on the Ruckus SmartPositioning Technology (SPoT), release 3.5 and virtual SPoT (vSPoT) release 2.4.4

SPoT/vSPoT requires a Ruckus Wireless ZoneDirector or SmartZone wireless LAN controller to communicate between the SPoT location server and the access points.

Please refer to the ZoneDirector, SmartZone and Access Point *Release Notes* for information on Ruckus controllers and access points.

Most documents are available in PDF format from the Ruckus Support portal:

<https://support.ruckuswireless.com/>

Supported Controllers

This SPoT release supports the following ZoneDirector and SmartZone Controllers:

- ZoneDirector 9.8 and above (ZD 1100, 1200, 3000, 5000)
- SmartZone 3.0 and above (SZ 100, SCG 200, vSZ)

NOTE To manage multiple vSPoT venues on a single ZoneDirector controller, use firmware 9.12.2 and above. This will allow the controller to manage multiple vSPoT Venue IDs using a single IP.

NOTE To manage multiple vSPoT venues on a single SmartZone controller, use firmware 3.1.1 patch 1 and above. This will allow the controller to manage multiple vSPoT Venue IDs using a single IP.

Supported Access Point Models

This SPoT release supports the following ZoneFlex and SmartZone Access Points:

- H500
- R300
- R500
- R600
- R700
- R710
- R310
- T300
- T301n
- T301s
- SC8800-S
- SC8800-S-AC
- ZF7025
- ZF7055
- ZF7321
- ZF7321-U
- ZF7341
- ZF7343
- ZF7351
- ZF7351-U
- ZF7352
- ZF7363
- ZF7363-U
- ZF7372
- ZF7372-E
- ZF7441
- ZF7761-CM
- ZF7762
- ZF7762-AC

- ZF7762-S
- ZF7762-S-AC
- ZF7762-T
- ZF7781CM
- ZF7782
- ZF7782-E
- ZF7782-N
- ZF7782-S
- ZF7962
- ZF7982

NOTE SPoT support on the 5 GHz radio of 802.11ac APs is available as of ZoneDirector firmware version 9.10 and SmartZone version 3.x

Enhancements and Resolved Issues

This release includes the following enhancements and bug fixes:

Enhancements

System

- Enhancement of starting the archived location job schedules
- Re-provisioned the system application cluster with appropriate size and version
- Enhancement by adding the re-aggregate flag in the aggregate location
- Upgraded MongoDB 3.2.4 with WiredTiger storage engine
- Upgraded Mongo and Mongoid gems for MongoDB 3.2.4 WiredTiger
- Enhanced the system application ability to route locations, visits and impressions analytics collections against Venue database instances
- Upgraded to fog gem version 1.38.0 to fix AWS S3 credentials refresh issue when *rk-deploy* switched to *IAM* roles
- Enhanced the *importLocation rescue* job performance
- Enhanced the *ArchiveLocation rescue* job to prevent potential corruption of the mongodump file and improved the error logging and exception list

- Removed the yearly button from the web user interface and its back end implementation
- Enhanced the feature MetricsDB to toggle as System (default) or Venue MongoDB
- Enhanced the system application bootstrap phase to inject RDS connection parameters
- Enhanced the *DNS_ZONE* for constructing the venue server (fully qualified domain name) URL
- Switch EBS volume/s creation as LVM.
- Reduced the occurrence or deleted the rate limit exceed when using AWS CLI API

Venue

- Enhanced the tessellation generator to write tessellations into Redis and deprecate reading or writing to MongoDB
- Enhanced the Voronoi locator to generate tessellations on demand JIT when outgoing messages are received for location calculation
- Enhanced the number of collator and PAS workers to make it dynamic for proper utilization of large instances associated to the Venue server configuration

vSPoT

- Enhanced the upgrade option by adding the rolling upgrade functionality, which provides a simplified and faster application upgrade procedure for an existing vSPoT deployment. See: [Rolling Upgrade](#) section for details. The upgrade details are also included in the vSPoT Installation Guide.
- vSPoT does not have a corresponding release with SPoT version 3.5

vSPoT Release Info

The following table maps the vSPoT release numbers to the corresponding cloud SPoT releases.

Table 1. vSPoT vs. SPoT release numbering

vSPoT Release	SPoT Release
1.0	2.0
1.0.1	2.0
1.1.0	2.1
1.2	2.2
1.3.1	2.3.1
1.4	2.4
1.5	2.5
1.6	2.6
1.7	2.7
1.7.1	2.7.1
1.8	2.8
2.0	3.0
2.3.4	3.3.4
2.3.7	3.3.7
2.4.0	3.4.0
2.4.2	3.4.2
2.4.3	3.4.3
2.4.4	3.4.4

Resolved Issues

System

- Resolved an issue where only one AP in the outgoing messages for Voronoi tessellations returns the outliers
- Resolved an issue by clearing unused volumes and instances in AWS *ruck-uslbsdev* account

Venue

- Resolved an issue of rationalized the location of archive folders in S3 and triggered the archiving job for removing the locations from the Venue database
- Resolved an issue of Voronoi locator where the detected and located values are not the similar
- Resolved an issue to generate Voronoi tessellations based on incoming or outgoing messages and saving the tessellations to Redis
- Resolved an issue where the collator and mode monitor was hanging
- Resolved an issue where the Voronoi locator was using KDE AP threshold setting and not the Voronoi AP threshold
- Resolved an issue where the AWS private cloud FQDN (fully qualified domain name) for the Venue's MQTT (MosQuitto Telemetry Transport) broker and Redis server URL domain name to *DNS_ZONE*
- Resolved an issue by removing the deprecation notice of *Hash#key* and *Hash#index*

vSPoT

- None

Caveats and Limitations

System

- None

Venue

- None

vSPoT

- None

Supported Pre-Engine API Versions

- 1.0
- 2.0
- 2.1

Upgrading to a New Version

2

This chapter lists important information that you must be aware of when upgrading vSPoT.

- [Key Features](#)
- [Full Upgrade](#)
- [Rolling Upgrade](#)

Key Features

The following is the distinction between the two upgrade procedures.

Full Upgrade

NOTE: Full upgrade refers to [vSPoT on VMware Installation](#) or [vSPoT on AWS Installation](#).

- Provides better security since it contains host operating system improvements and security updates
- Provides a more atomic upgrade since the host operating system and application containers are built and tested together as part of the release process
- Easier for VMware administrators

Rolling Upgrade

- Decreased downtime during the upgrade procedure since there is no switch to virtual disks or having to restart the VM. This saves an enormous amount of downtime
- Easier upgrade procedure since access and storage configuration of VMware is not required
- Decreased manual configuration since networking and NTP server configuration is persisted within the VM, therefore this does not require reconfiguration
- Easier for Linux administrators

Full Upgrade

The following is the upgrade procedure based on the installation type.

- 1 [vSPoT on VMware Installation](#)
- 2 [vSPoT on AWS Installation](#)

vSPoT on VMware Installation

Step-by-step instructions for performing the upgrade are provided.

- 1 Log in to the vSphere Client:
 - a Launch an instance of VMWare vSphere Client (e.g. Windows VMWare vSphere Client).
 - b In the VMWare vSphere Client, enter the IP Address (or Hostname) and administrative credentials to login to your instance of ESXi server running the source and target vSPoT instances where you want to migrate the data storage volume.
- 2 Power Off Source and Target vSPoT instances:
 - a On the left panel, expand the list of installed VM instances, and locate the source and target vSPoT instances that will be swapping data storage volumes.
 - b Right click on each and **Power-Off** each instance successively (shortcut: **Ctrl-E**).
- 3 Detach source vSPoT instance data storage volume:
 - a Once both source and target instances have been Powered Off, navigate to the source VM instance (note the name of the source vSPoT instance - this will be used to relocate and mount the storage from the source to the target vSPoT instance in later steps). Right-click and choose the '**Edit Settings...**' menu item.
 - b On the child window that appears, on the left panel, locate and identify the item under the 'Hardware' column, named '**Hard disk 3**', and click to select it.
 - c From the same child window, with the 'Hard disk 3' item selected, locate the '**Remove**' button at the top of the left panel of the child window.

CAUTION! On the Removal Options displayed on the right panel, select 'Remove from virtual machine' ONLY. (The other option would wipe out the data and therefore make it impossible to migrate the data volume to the new target instance.)

- d Notice that the 'Hard disk 3' item is struck out and the 'Summary' column indicates it as 'Removed'; Click **OK** at the bottom right hand corner of the child window to proceed.
- 4 Remove target vSPoT instance data storage volume:
 - a From the list of VM instances on the parent window left panel, locate the target vSPoT instance item, and select and right click on the **Edit Settings...** menu item.
 - b Repeat Steps (3b) to (3d) above but for the target vSPoT instance, and click **OK** to end the disk removal process, so that the data storage volume to be attached may take its place.
- 5 Attach source vSPoT instance data storage volume to target vSPoT instance:
 - a From the list of VM instances on the parent window left panel, again locate the target vSPoT instance item, right-click and select the **Edit Settings...** menu item.
 - b On the 'Virtual Machine Properties' child window, now locate and click the **Add...** button at the top of the left panel of the child window.
 - c On the new 'Add Hardware' child window, select the **Hard Disk** item in the middle panel of this child window and click on the **Next** button located at the bottom of this child window.
 - d In the 'Select a Disk' option under the 'Add Hardware' child window, select the option **Use an existing virtual disk - Reuse a previously configured virtual disk** in the 'Disk' option, then click on the **Next** button located at the bottom of this child window.
 - e On the 'Select Existing Disk' option under the 'Add Hardware' child window, click on the **Browse...** button next to the 'Disk File Path' text entry field,
 - f From the new Windows file explorer dialog, locate and select the **Data-stores** file type that was created for your ESXi server, (e.g. esxi-local-storage-1), select the item, then click **Open**.
 - g From the expanded list in the 'Browse Datastores' dialog, scroll to and locate the 'Name' identical to your source vSPoT instance that you recorded in Step (3a) above (e.g. vSPoT-version-187_vmx), and select the item, then click **Open**.
 - h From the refreshed 'Browse Datastores' dialog, locate and select the item ending with **_vmx_2.vmdk**, and click **OK**.

- i Back in the parent **'Add Hardware'** -> **'Select Existing Disk'** child window, notice the filled out **'Disk File Path'** file based on your selections from the above steps, then click the **'Next'** button.
- j On the **'Add Hardware'** -> **'Advanced Options'** child window, right side panel, locate the **'Virtual Device Node'** section, and select the item directly beneath the **'SCSI (0:1) Hard disk 2'** item (e.g. **'SCSI (0:2)'**), then click the **'Next'** button.
- k Review the **'Add Hardware'** -> **'Ready to Complete'** -> **'Options'** summary information, and click the **'Finish'** button to complete the data storage volume transfer action, OR, click **'Back'** to alter/edit any previously entered values/choices, OR, click **'Cancel'** to ABORT the operation.
- l Finally, click the **'OK'** button at the bottom right-hand corner of the **'Virtual Machine Properties'** window to finish the VM settings changes applied/changed/aborted.

Power On your target vSPoT instance VM and verify the data volume migration action has successfully completed.

vSPoT on AWS Installation

Virtual SPoT in AWS can be updated with the following steps.

- 1 Delete the current vSPoT installation on AWS. The delete step will automatically keep the storage volume with the collected data
- 2 Install the vSPoT and specify the storage volume identifier during the creation process.

NOTE: Ruckus Wireless ensures that the CloudFormation template contains the AMI identifier of the latest vSPoT release.

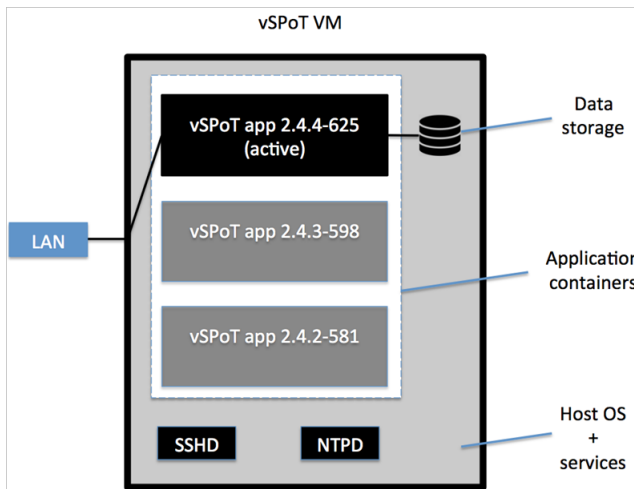
Rolling Upgrade

The rolling upgrade functionality provides a simplified and faster application upgrade procedure for an existing vSPoT deployment. This feature removes the need for any post-configuration steps. For example, IP address or NTP server configuration for a vSPoT upgrade.

vSPoT VM Architecture

The new vSPoT internal architecture featured in the 2.4.x releases (as seen in [Figure 1](#)) relies on docker container technology, which provides a means to decouple the virtual machine (VM) runtime environment from the vSPoT application. Each vSPoT application version is distributed as a separate container image and additional CLI tools are provided to enable switching between different vSPoT application versions. Due to network and storage configurations, at any given time only one application version can be active or running within a single vSPoT VM.

Figure 1. vSPoT VM Architecture



Prerequisite

The following are the prerequisites for using rolling upgrade.

- This upgrade procedure works with vSPoT version 2.4.0 and higher
- This procedure is a CLI based solution, which requires a console or SSH access to the vSPoT VM

- The license file needs to be uploaded after every upgrade

Upgrade Procedure

Follow the steps mentioned below.

- 1 Logout from the vSPoT web application
- 2 Login to the vSPoT console (see: *Using CLI Console* in the vSPoT Installation Guide).
- 3 Upload the vSPoT application bundle to the vSPoT system and load the image to the system by executing the commands.
 - a Use `wget` to download the image from the given URL (Option A) or secure copy it to the local disk (Option B)
 - b Run the following command by targeting your local bundle

```
admin@vspotappliance:~$ spot load vspot-container-2.4.4-625.tar.bz2
```

To retrieve the bundle you have the following options.

- i. **Option A**, download the image from the Ruckus support site.
 - Navigate to the <https://support.ruckuswireless.com/> site
 - Login with your user credentials of login name and password

NOTE: Navigate to vSPoT download section to locate the uploaded image. The file name seen in [Figure 2](#) is an example and not the actual file name. Please check the <https://support.ruckuswireless.com/> for vSPoT 2.4.4 (GA) Rolling Update Software Release.

Figure 2. vSPoT software release

Software Downloads

Search software name, description, product name, etc

[Download Software](#)

vSPoT 2.4.4 (GA) Software Release

Virtual SmartPositioning Technology SPoT 2.4.4 (GA) Software Release


Filename: vSPoT-2.4.4.-build-380.tar

for VBox and ESXi

Added: 2016-04-25 04:00:19 PM
Availability: All Users
File Type: TAR
File Name: vSPoT-2.4.4-build-380.tar
File Size: 1.5 GB
MD5 Checksum: 9d0a4235b00ea72efd89f700bc296302

vSPoT 2.4.4 (GA) Software Release

vSPoT

 vSPoT is a virtualized instance for Ruckus SPoT™ Smart Positioning Technology, managed and deployed on-premise. It gives both carriers/service providers and enterprises the ability to deliver a wide-range of Location Based value added services that can help them increase their profitability while enhancing users' online experiences.

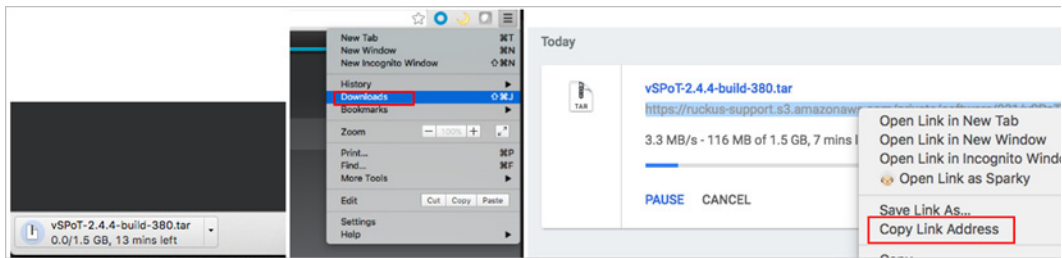
- [Technical Documents](#)
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- Click on download and fetch the temporary download link. Right click and choose **Copy Link Address** using your preferred browser's download manager (Figure 3). The download link is the following format.

```
https://ruckus-support.s3.amazonaws.com/private/software/931/vspot-container-2.4.4-625.tar.bz2?AWSAccessKeyId=AKIAJ3QLNNKLOV235TQ&Expires=1464965029&Signature=k9LS0cENQ5o0Da9HWWmPEdgGSr0%3D
```

NOTE The download image file name mentioned is an example. Please check the <https://support.ruckuswireless.com/> for vSPoT 2.4.4 (GA) Rolling Update Software Release and its corresponding download link.

Figure 3. vSPoT software download



- Log in to the vSPoT using CLI or SSH.

NOTE Refer to the section *Using CLI Console* in the vSPoT Installation Guide.

- Use the following command to download the image. The URL needs to be placed between single quotes. Example:

```
admin@vspotappliance:~$ wget 'https://ruckus-support.s3.amazonaws.com/private/software/931/vspot-container-2.4.4-625.tar.bz2?AWSAccessKeyId=AKIAJMJ3QLNN-KLOV235TQ&Expires=1464965029&Signature=k9LS0cENQ5oo-Da9HWWmPEdGSR0%3D'
```

- ii. **Option B**, upload the image using SCP (Secure Copy) or SFTP (Secure File Transfer Protocol)

- After downloading the image to the local workstation, use your preferred SCP/SFTP application to upload the bundle. If you are using windows you can use WinSCP, example (<https://winscp.net>)

Figure 4. SCP/SFTP application upload

```
ysolt@ysolt-2:~$ scp Downloads/vspot-container-2.4.4-625.tar.bz2 lbs@172.30.65.190:
/etc/profile.d/lang.sh: line 19: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file or directory
vspot-container-2.4.4-625.tar.bz2                                0% 3840KB 259.6KB/s 26:53 ETA
```

- Run the following command by targeting your local bundle

```
admin@vspotappliance:~$ spot load ${ROLLING_UPDATE_BUNDLE_FILE}
```

```
For example: admin@vspotappliance:~$ spot load vspot-container-2.4.4-625.tar.bz2
```

- 4 Use the list command to verify that the new application bundle has been successfully loaded.

```
admin@vspotappliance:~$ spot images
```

Response

REPOSITORY	TAG	IMAGE ID	CREATED	VIRTUAL SIZE
registry.internal.ruckuslbs.com/ruckus/vspot	2.4.4-625	f79f1d6df16d	5 weeks ago	1.459 GB
registry.internal.ruckuslbs.com/ruckus/vspot	2.4.3-598	4a2e98f36098	8 weeks ago	1.464 GB

```
admin@vspotappliance:~$
```

- 5 View the current available application version by executing the following command. As per the below response the current vSPoT application version is 2.4.3-598.

```
admin@vspotappliance:~$ spot list
```

Response

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
78d4b19fadd6	registry.internal.ruckuslbs.com/ruckus/vspot:2.4.3-598	"/sbin/init"	4 minutes ag	Up 4 minutes
	PORTS		NAMES	
	0.0.0.0:80->80/tcp, 0.0.0.0:8442-8443->8442-8443/tcp, 0.0.0.0:8883->8883/tcp		vspot243	

```
admin@vspotappliance:~$
```

- 6 To stop the current vSPoT application execute the command:

```
admin@vspotappliance:~$ spot stop 2.4.3-598 vspot243
admin@vspotappliance:~$
```

- 7 Start the desired vSPoT application version by executing the command:

```
admin@vspotappliance:~$ spot start 2.4.4-625
Starting up vSPOT AIO application container: vspot244
8863cc1d84a8618dbd87960a804f129c8b2e6bdff90f11503c6358e20d4
c3c94
admin@vspotappliance:~$
```

- 8 Login to the vSPoT web application and upload your licenses.
- 9 To list the available images, execute the command:

```
admin@vspotappliance:~$ spot images
```

Response

REPOSITORY	TAG	IMAGE ID	CREATED	VIRTUAL SIZE
registry.internal.ruckuslbs.com/ruckus/vspot	2.4.4-625	f79f1d6df16d	5 weeks ago	1.459 GB
registry.internal.ruckuslbs.com/ruckus/vspot	2.4.3-598	4a2e98f36098	8 weeks ago	1.464 GB

- 10** To remove or delete unused vSPoT application images from the local application repository execute the below command. The image file name mentioned is as per the images listed above.

```
admin@vspotappliance:~$ docker rmi 4a2e98f36098  
admin@vspotappliance:~$
```



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