



Ruckus Wireless™ SPoT™ Release 4.1.7 and vSPoT Release 3.1.7

Release Notes

Part Number: 800-71417-001 Rev B
Published: 04 January 2017

www.ruckuswireless.com

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Release Information

This section contains release information for SPoT 4.1.7 and vSPoT 3.1.7

Introduction

This document provides release information on the Ruckus SmartPositioning Technology (SPoT), release 4.1.7 and virtual SPoT (vSPoT) release 3.1.7.

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 ZoneDirector and SmartZone controllers.

The list is as follows:

- 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 ZoneFlex and SmartZone Access Points.

Supported Access Point Models

This supported ZoneFlex and SmartZone Access Points are as follows:

- 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

vSPoT Release Information

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
3.0.0	4.0.0
3.1.3	4.1.3
3.1.7	4.1.7

New Features

This section lists the new features and enhancements in this release.

1. Added Admin user interface customization of venue configuration parameters for:
 - a. Number of days to cache locations (default 7 days).
 - b. Number of days to cache detected devices (default 1 day)
2. Enabled customization of storage tenure of detected device locations in cache, which can be used to reduce the running memory footprint of the venue Redis server.

Enhancements

This section describes the enhancements for this release.

System

- **None**

Venue

- Data format for storing tessellations is changed from JSON to MessagePack for performance improvement.
- Included a mechanism to migrate stored tessellations data, while maintaining backward compatibility.
- Improved robustness of *rk-venue* server processes, to automatically recover from a Redis server restart or crash.
- Upgraded *redis-rb gem* to 3.3.1 for both **System** and **Venue**, to patch a bug, which could result in leaking resources.
- Improved location calculation throughput, by batching pas worker processing and calculation of incoming **Observation Matrices** (pre-engine Kalman filter, floor selection, location algorithm, etc), as well as batching collators and pas workers requests to venue cache server.
- Migrated some processing from application into venue cache to reduce round-trip latency.

vSPoT

- Removed persistence storage of mosquito data since only QoS0 is used.
- Upgraded Redis server to 3.2.4.
- Support for CentOS7 *systemd init system* to ensure compatibility with *upstart init system* for foreman gem when exporting server processes.
- Upgraded MongoDB server, client and tooling to 3.2.10.
- Added a kernel patch for Linux kernel *Dirty COW* (Copy-on-Write) security vulnerability.

Resolved Issues

This section contains the list of resolved issues.

- Improved the pre-engine Kalman filter processing logic for better accuracy and performance improvement.
- Resolved an issue in tessellation generation, in the scenario where an AP has no neighbors.
- Resolved an issue where the KDE locator was selecting the wrong default floor.
- Resolved an issue with *ScaleMeManager* in vSPoT, when periodically purging time-check metrics from Redis, across multiple venues.
- Improved the validation logic for saving AP data. Response time for changing AP MAC has been significantly reduced for venues with large numbers of APs.
- Increased the query interval of the JS query on AP status page from 2 seconds to 60 seconds, to reduce data loading and processing bottlenecks.
- Reduced the response time for queries on AP status through the API, by caching the associated data.

Caveats, Limitations and Known Issues

This section lists the caveats, limitations and known issues in this release, along with workarounds if applicable.

- A full upgrade is required for vSPoT 3.1.7 as it contains a kernel patch for critical security vulnerabilities, which requires a Host OS upgrade.
- A user can now customize the number of days to store detected device locations in cache. This can be set in the **Venue Configuration** page in the **Admin** user interface page.

These parameters affect the memory performance of SPoT and vSPoT. Large configuration values provide a large data buffer, which significantly increases the memory usage and reduces the performance of SPoT and vSPoT.

- **Number of days to cache locations** (default 7 days): Locations stored in cache provides a backup in the event that *ImportLocations Resque* jobs fails to execute correctly, or fails to restart through the **Resque** user interface. Up to 7 days of locations can be recovered. Changing the configuration to 1 day will help reduce the memory usage.
- **Number of days to cache detected devices** (default 1 day): Stores last known detected devices, which are shown in the device tracking user interface. Setting to 1 day implies that device tracking will only show devices last detected to one day ago. This is configurable up to 7 days.

Before changing these parameters, do consult with your operations and system administrators teams to ensure that the necessary monitoring tools and processes are in place.

Upgrading to a New Version

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

- [Key Features](#) on page 10
- [Full Upgrade](#) on page 11

NOTE A full upgrade is required for vSPoT 3.1.7 as it contains a kernel patch for critical security vulnerabilities, which requires a Host OS upgrade.

- [Rolling Upgrade for vSPoT 3.x to latest](#) on page 35

Key Features

The following is the distinction between the two upgrade procedures.

Full Upgrade

NOTE Full upgrade refers to [vSPoT on VMware Upgrade from Version 3.x to Latest](#) on page 12, [vSPoT on VMware Upgrade Version 2.4.x to 3.x \(Latest\)](#) on page 15 or [vSPoT on AWS Upgrade](#) on page 29

- 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

NOTE If you are upgrading to vSPoT 3.x from vSPoT 2.4.0 or earlier versions, Ruckus Wireless highly recommends that you do a full upgrade to take advantage of the security and performance improvements to the Host OS.

NOTE vSPoT upgrades from version 3.x onwards can be performed via rolling upgrades.

- 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.

CAUTION! In order to upgrade to vSPoT version 3.x, you need to first ensure that the existing vSPoT is on version 2.4.0 and above. If your vSPoT version is below 2.4.0, you **cannot directly upgrade** to vSPoT 3.x. Do refer to *vSPoT 2.4.4 Installation Guide* on the support website (<https://support.ruckuswireless.com>) to **first** upgrade to vSPoT 2.4.4 before upgrading to 3.x.

1. [vSPoT on VMware Upgrade from Version 3.x to Latest](#) on page 12
2. [vSPoT on VMware Upgrade Version 2.4.x to 3.x \(Latest\)](#) on page 15
3. [vSPoT on AWS Upgrade](#) on page 29

vSPoT on VMware Upgrade from Version 3.x to Latest

The following is the procedure for a full upgrade of vSPoT from version 3.x to the latest version.

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:

NOTE As an example, the source instance is vSPoT 3.0.0 and the target instance is vSPoT 3.1.7.

- 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 **Removal Options** displayed on the right panel, select '**Remove from virtual machine**' **ONLY**. (Do Not use the other option, as this 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.

vSPoT on VMware Upgrade Version 2.4.x to 3.x (Latest)

The following is the procedure to upgrade a vSPoT deployment from version 2.4.x to vSPoT 3.x (latest).

NOTE This upgrade process will result in application downtime due to the need for migrating data across different and incompatible storage engines. During the migration process, vSPoT should not be running, otherwise data could be lost during migration.

CAUTION! In order to upgrade to vSPoT version 3.x, you need to first ensure that the existing vSPoT is on version 2.4.0 and above. If your vSPoT version is below 2.4.0, you **cannot directly upgrade** to vSPoT 3.x. Do refer to *vSPoT 2.4.4 Installation Guide* on the support website (<https://support.ruckuswireless.com>) to **first** upgrade to vSPoT 2.4.4 before upgrading to 3.x.

Prerequisites

- You are required to open port 22 of your vSPoT host operating system (Host OS) on a public facing IP address.

Upgrade Procedure

The upgrade procedure has the following list of instructions.

NOTE Ruckus Wireless recommends that you follow the procedure for a successful upgrade.

Backup the Current vSPoT

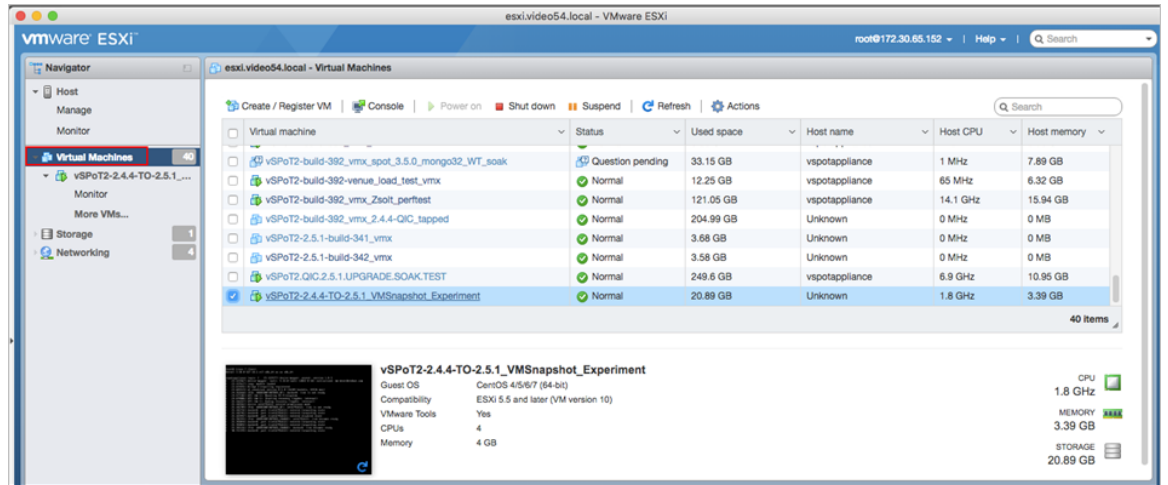
This section describes the procedure to backup the current vSPoT.

1. Login to the vSPoT vCenter
2. Using the VMWare ESXi web interface navigate to select **Virtual Machines > VMware** instance for a backup.

Figure 1: Selecting Virtual Machine Instance

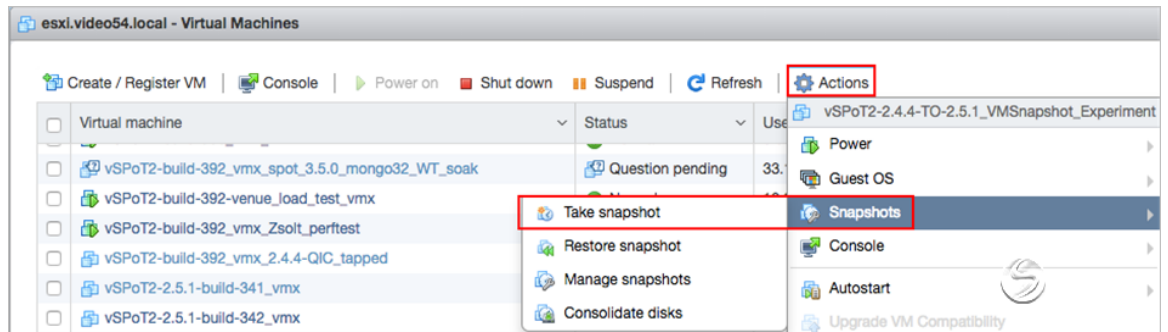
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3. Ensure that your shared storage mounted for vCenter or ESXi has sufficient disk space for the snapshot backup. If vSPoT is using around 1TB, ensure you have at least 1TB additional free storage space for the snapshot backup.
4. In the tab menu navigate to select **Actions > Snapshots > Take snapshot**

Figure 2: Selecting the Snapshot Option



5. Enter a name for snapshot backup.

For example, `vSPoT-2.4.4-VMSnapshotBackup-04Jul2016_1450`.

Also, select the option, *Quiesce guest file system (needs VMware tools installed)*.

Figure 3: Snapshot Name

Take snapshot for vSPoT2-2.4.4-TO-2.5.1_VMSnapshot_Experiment

Name: vSPoT-2.4.4-VMSnapshotBackup-04Jul2016_1450

Description:

Snapshot the virtual machine's memory.

Quiesce guest file system (needs VMware tools installed).

Take snapshot Cancel

6. Click on the **Take snapshot** button to complete the snapshot.
7. Check the **Recent tasks** tab at the bottom panel to ensure that the snapshot is complete. This could potentially be a long running task from 5 minutes to around 30 minutes depending on the size of your Vmdk, mounted storage, storage type and performance.

Figure 4: Check Status of Snapshot

Upgrading to a New Version

Full Upgrade

The screenshot shows the vSphere Web Client interface. At the top, the user is logged in as 'root@172.30.65.152'. The main area displays a list of virtual machines with columns for 'Virtual machine', 'Status', 'Used space', 'Host name', 'Host CPU', and 'Host memory'. The selected VM is 'vSPoT2-2.4.4-TO-2.5.1_VMSnapshot_Experiment', which is in a 'Normal' status and uses 20.89 GB of space. Below the list, a detailed view of the selected VM is shown, including its Guest OS (CentOS 4/5/6/7), Compatibility (ESXi 5.5 and later), and hardware specifications (4 CPUs, 4 GB Memory). At the bottom, the 'Recent tasks' table shows a task 'Create Snapshot' for the selected VM, which was completed successfully on 07/04/2016 at 14:56:13.

Virtual machine	Status	Used space	Host name	Host CPU	Host memory
vSPoT2-build-392-vmx_spot_3.5.0_mongo32_WT_soak	Question pending	33.15 GB	vspotappliance	1 MHz	7.89 GB
vSPoT2-build-392-venue_load_test_vmx	Normal	12.25 GB	vspotappliance	65 MHz	6.32 GB
vSPoT2-build-392-vmx_Zsoit_perftest	Normal	121.05 GB	vspotappliance	14.1 GHz	15.94 GB
vSPoT2-build-392-vmx_2.4.4-QIC_tapped	Normal	204.99 GB	Unknown	0 MHz	0 MB
vSPoT2-2.5.1-build-341_vmx	Normal	3.68 GB	Unknown	0 MHz	0 MB
vSPoT2-2.5.1-build-342_vmx	Normal	3.58 GB	Unknown	0 MHz	0 MB
vSPoT2.QIC.2.5.1.UPGRADE.SOAK.TEST	Normal	249.6 GB	vspotappliance	6.9 GHz	10.95 GB
vSPoT2-2.4.4-TO-2.5.1_VMSnapshot_Experiment	Normal	20.89 GB	Unknown	1.8 GHz	3.39 GB

Task	Target	Initiator	Queued	Started	Result	Completed
Create Snapshot	vSPoT2-2.4.4-TO-2.5.1_VMS...	root	07/04/2016 14:54:03	07/04/2016 14:54:03	Completed successfully	07/04/2016 14:56:13

8. Check that your created snapshot is visible in the list of snapshots by navigating to Actions > Snapshots > Manage snapshots. You should be able to see your created snapshot in the list pop-up window.

In the event that you need to restore a previous snapshot, follow the [Procedure to Restore VMWare Snapshots \(Optional\)](#) on page 27

Venue Identifiers

After a successful backup of the vSPoT instance, ensure you have an updated list of Venue identifiers. This is required during migration.

Download vSPoT 3.x

Download the latest vSPoT build version 3.x (example `-vspot-container-3.1.3-1037.tar.bz2`) from the support site (<https://support.ruckuswireless.com>)

Stop VM Server Running vSPoT

Stop the existing VM server running vSPoT version 2.4.4 by running the following CLI commands.

1. SSH to the vSPoT host operating system and to the vSPoT docker container.

NOTE Refer to [Enabling SSH Access](#) on page 42 if you have not yet configured SSH access.

```
ssh admin@<vspot_host_os_public_ip>
admin@vspotappliance:~$ spot enter
```

2. Shut down all the running services other than Mongod server.

NOTE Keep the Mongod server process up and running.

```
root@vspot:~# stop rk-venue
root@vspot:~# stop rescue
root@vspot:~# service nginx stop
```

3. Exit from the docker container and return to the vSPoT host operating system (Host OS).

Backup the MongoDB

Backup the MongoDB data directory and clean the existing MongoDB data directory contents with the following steps.

1. From vSPoT Host OS, enter the container and download the scripts *vspot_venue_dump.sh* and *vspot_venue_restore.sh* from Ruckus vSPoT AWS S3 migration_scripts, and give the scripts execution rights.

```
admin@vspotappliance:~$ spot enter
root@vspot:~# wget -O /storage/vspot_venue_dump.sh
https://s3-us-west-2.amazonaws.com/ruckuslbs/public/vspot/vspot_venue_dump.sh
root@vspot:~# wget -O /storage/vspot_venue_restore.sh
https://s3-us-west-2.amazonaws.com/ruckuslbs/public/vspot/vspot_venue_restore.sh
root@vspot:~# wget -O /usr/bin/mongodump32
https://s3-us-west-2.amazonaws.com/ruckuslbs/public/vspot/mongodump32
root@vspot:~# chmod +x
/storage/{vspot_venue_dump.sh,vspot_venue_restore.sh}
/usr/bin/mongodump32
```

2. Backup the MongoDB data for a specified venue (example *rksg-dev*) by using the below procedure.

NOTE If you have more than one venue to migrate, repeat this step for each venue as per your list of [Venue Identifiers](#) on page 18.

```
root@vspot:~# bash /storage/vspot_venue_dump.sh rksg-dev
--full-dump
```

```
Response:
THIS SCRIPT MUST BE RUN IN vSPoT docker container!
IT IS MEANT TO DO A vSPoT MongoDB and radio maps dump for
a vSPoT data migration purpose!
+ '[' '!' -f /etc/envvars ']'
+ source /etc/envvars
```

```
Creating /storage/venue_dump/dump_mongo and
/storage/venue_dump/dump_radio_maps directories ...
```

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```
DONE.

Proceed to dump groups ...
+ /usr/bin/mongodump32 --gzip --port 27017 --db
rk-system_production --query '{\'_id\':
ObjectId("562677639180054fd7000002")}' --collection groups
--out /storage/venue_dump/dump_mongo
2016-07-26T14:52:43.841+0800    writing
rk-system_production.groups to
2016-07-26T14:52:43.843+0800    done dumping
rk-system_production.groups (1 document)

DONE.

Proceed to dump venue rksg-dev ...
+ /usr/bin/mongodump32 --gzip --port 27017 --db
rk-system_production --query '{\'_id\':
\'rksg-dev\'}' --collection venues --out
/storage/venue_dump/dump_mongo
2016-07-26T14:52:43.862+0800    writing
rk-system_production.venues to
2016-07-26T14:52:43.863+0800    done dumping
rk-system_production.venues (1 document)

DONE.

Proceed to dump venue rksg-dev access_points ...
2016-07-26T15:09:20.821+0800
rk-system_production.impressions 28173377
2016-07-26T15:09:21.962+0800
rk-system_production.impressions 28285371
2016-07-26T15:09:21.963+0800    done dumping
rk-system_production.impressions (28285371 documents)

DONE.

Analytics data dump completed DONE.

Copying radio maps for rksg-dev into
/storage/venue_dump/dump_radio_maps ...
+ cp -rpfv /opt/spot/system/private/venues/rksg-dev
/storage/venue_dump/dump_radio_maps
`/opt/spot/system/private/venues/rksg-dev' ->
`/storage/venue_dump/dump_radio_maps/rksg-dev'
`/opt/spot/system/private/venues/rksg-dev/foreground_maps'
_
`/storage/venue_dump/dump_radio_maps/rksg-dev/foreground_maps'

DONE.
+ cd /storage/venue_dump

Creating gzip tarball at /storage/rksg-dev_dump.tar.gz of
above mongodumps and radio maps ...
```

```
+ tar -zcvf /storage/rksg-dev_dump.tar.gz dump_mongo
dump_radio_maps
dump_mongo/
dump_mongo/rk-system_production/
dump_mongo/rk-system_production/groups.metadata.json.gz

dump_radio_maps/rksg-dev/radio_maps/56383dbb3d6ae907d7000012/floor_6.png
dump_radio_maps/rksg-dev/radio_maps/56383dbb3d6ae907d7000012/floor_3.png
dump_radio_maps/rksg-dev/radio_maps/56383dbb3d6ae907d7000012/floor_6_annotated.png

DONE.
Deleting mongodumps and radio maps dump temp dir
/storage/venue_dump ...
+ rm -rf /storage/venue_dump
+ ls -alrth /storage/rksg-dev_dump.tar.gz
-rw-r--r-- 1 root root 919M Jul 26 15:10
/storage/rksg-dev_dump.tar.gz

ALL DONE.
```

3. Verify the existence of non-empty archive file.

```
root@vspot:~#ls -lah /storage/rksg-dev_dump.tar.gz
```

Remove Redis Append Only File (AOF)

Upgraded version of vSPoT does not use Redis AOF.

1. This must be removed to prevent data corruption during Redis server startup by executing the following command:

```
admin@vspotappliance:~$ sudo rm -f
/storage/redis/data/rk_venue.aof
```

2. Exit and return to the vSPoT Host OS.

Prepare the Existing MongoDB Data Directories

Prepare existing MongoDB data directories by executing the following commands.

1. From vSPoT Host OS, enter vSPoT docker container and stop the MongoDB server process.

```
admin@vspotappliance:~$ spot enter
root@vspot:~# service mongod stop
```

2. Prepare a new MongoDB data directory from the vSPoT docker container and a new working directory.

```
root@vspot:~# mv /storage/mongo /storage/mongo24
root@vspot:~# mkdir -p /storage/mongo/{data,log}
root@vspot:~# chown mongod:mongod -R /storage/mongo
```

3. Exit back to vSPoT Host OS and shut down vSPoT docker container.

```
admin@vspotappliance:~$ spot stop 244
```

Detach Storage from vSPoT

From vSphere user interface, detach the storage volume for the current VM running vSPoT version 2.4.4.

CAUTION! Do not delete the detached storage volume.

Install and Import the vSPoT 3.x VM Image

Install and import the VMDK image into your existing vSphere.

The procedure is similar to that described in [vSPoT on VMware Upgrade from Version 3.x to Latest](#) on page 12 but keep in mind that this installation is for vSPoT 3.x.

Attach Storage to vSPoT

From vSphere user interface, attach the storage volume to the current VM running the installed vSPoT 3.x.

Start vSPoT 3.x

Start the vSPoT 3.x VM after the storage volume has been successfully attached.

Migrate Data to New Storage Engine Format

Migrate MongoDB data to be compatible with the new storage engine used in vSPoT 3.x by following the below procedure.

1. Check vSPoT 3.x docker container is running by running the command:

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

```
admin@vspotappliance:~$ spot list
CONTAINER
ID          IMAGE          PORTS          COMMAND          CREATED
STATUS          NAMES
847391fb7cfb registry.internal.ruckuslbs.com/ruckus/vspot:3.0.0.RC-3-846 "/sbin/init"    2 weeks
ago          Up 18 hours    0.0.0.0:80->80/tcp, 0.0.0.0:1883->1883/tcp, 0.0.0.0:8442-8443->8442-8443/tcp,
0.0.0.0:8883->8883/tcp, 0.0.0.0:60812->60812/tcp  vspot300RC
admin@vspotappliance:~$ spot enter
```

2. Shut down all the running services other than Mongod server.

```
root@vspot:~# stop rk-venue
root@vspot:~# stop rescue
root@vspot:~# service nginx stop
```

3. Check that all processes that was stopped in the above step have been terminated

```
#The following should not return any lines

root@vspot:~# ps -ef | grep -E 'ruby|redis|mosquitto|nginx'
| grep -v grep

# If any process is returned, repeat the commands to shutdown
the respective process.
```

Restore the Data

Restore the MongoDB data with the following steps.

1. Enter the Docker container

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

2. Run the data restore script to first restore the MongoDB data, then subsequently create database indexes.

NOTE This may take a long time to complete, based on the migration data set.

```
root@vspot:~# bash /storage/vspot_venue_restore.sh
/storage/rksg-dev_dump.tar.gz
```

NOTE If you had previously exported more than one venue, you will need to repeat this data restore step for each venues as per your list of [venue identifiers](#).

Response

```
> THIS SCRIPT MUST BE RUN IN vSPoT docker container!
> .
> ONLY A MongoDB and radio maps restore from a valid vSPoT
venue dump will be performed from
/storage/rksg-dev_dump.tar.gz file.
> .
> ADDITIONAL MONGODB DATA CHANGES MUST BE PERFORMED FOR AN
AWS SPoT to vSPoT data restoration!
> .
> .
> Deleting any previous /storage/venue_dump dir and
contents...
> + rm -rf /storage/venue_dump
> .
> DONE.
> + cd /storage
> + '[' -f /storage/rksg-dev_dump.tar.gz ']'
> + mkdir -p /storage/venue_dump
> .
> Exploding /storage/rksg-dev_dump.tar.gz into
```

Upgrading to a New Version
Full Upgrade

```
/storage/venue_dump ...
> + tar -zxvf /storage/rksg-dev_dump.tar.gz -C
/storage/venue_dump
> dump_mongo/
> dump_mongo/rk-system_production/
> dump_mongo/rk-system_production/groups.metadata.json.gz
> dump_mongo/rk-system_production/visits.metadata.json.gz
> dump_mongo/rk-system_production/locations.bson.gz
> .
> .
> dump_mongo/rk-system_production/groups.bson.gz
>
dump_mongo/rk-system_production/access_points.metadata.json.gz
> dump_radio_maps/
> dump_radio_maps/rksg-dev/
> dump_radio_maps/rksg-dev/foreground_maps/
>
dump_radio_maps/rksg-dev/foreground_maps/pPEVNY51Jtutq2vW8Yxq2w.png
>
dump_radio_maps/rksg-dev/foreground_maps/hjiaM6CtqdqMBLb96YkxqA.jpg
> .
> .
>
dump_radio_maps/rksg-dev/radio_maps/56383dbb3d6ae907d7000012/floor_6_annotated.png
> .
> DONE.
> .
> Restoring DB data dump ...
> + mongorestore --gzip --port 27017 --noIndexRestore
/storage/venue_dump/dump_mongo
> 2016-07-26T16:11:54.938+0800    building a list of dbs
and collections to restore from
/storage/venue_dump/dump_mongo dir
> 2016-07-26T16:11:54.940+0800    reading metadata for
rk-system_production.visits from
/storage/venue_dump/dump_mongo/rk-system_production/visits.metadata.json.gz
> .
> .
> 2016-07-26T16:26:54.940+0800    [#####]
rk-system_production.visits  4.2 GB/393.5 MB
(1100.9%)
> 2016-07-26T16:26:54.940+0800    [#####]
rk-system_production.impressions  7.4 GB/267.1 MB
(2848.0%)
> 2016-07-26T16:26:54.940+0800
> 2016-07-26T16:26:57.356+0800    [#####]
rk-system_production.impressions  7.4 GB/267.1 MB
(2853.7%)
> 2016-07-26T16:26:57.356+0800    no indexes to restore
> 2016-07-26T16:26:57.356+0800    finished restoring
rk-system_production.impressions (28285371 documents)
> 2016-07-26T16:26:57.939+0800    [#####]
rk-system_production.visits  4.2 GB/393.5 MB  (1104.0%)
```



```
> .
> .
> 2016-07-26T16:48:15.702+0800 [#####]
rk-system_production.visits 7.9 GB/393.5 MB (2062.0%)
> 2016-07-26T16:48:15.702+0800 no indexes to restore
> 2016-07-26T16:48:15.702+0800 finished restoring
rk-system_production.visits (28138897 documents)
> 2016-07-26T16:48:15.702+0800 done
> .
> DONE.
> + cd /opt/spot/system
> .
> Create indexes for Analytics DB ...
> + bundle exec rake mi:create_indexes
> Run options: --seed 10490
> # Running:
> .
> Finished in 0.002529s, 0.0000 runs/s, 0.0000 assertions/s.
> 0 runs, 0 assertions, 0 failures, 0 errors, 0 skips
> .
> DONE.
> .
> Restoring radio maps dump ...
> + cp -rpfv /storage/venue_dump/dump_radio_maps/rksg-dev
/opt/spot/system/private/venues/
>
`/storage/venue_dump/dump_radio_maps/rksg-dev/foreground_maps/xIhaFqAniklXPImRY1dewg.png'
->
`/opt/spot/system/private/venues/rksg-dev/foreground_maps/xIhaFqAniklXPImRY1dewg.png'
> .
> .
>
`/storage/venue_dump/dump_radio_maps/rksg-dev/radio_maps/56383dbb3d6ae907d7000012/venue.svg'
->
`/opt/spot/system/private/venues/rksg-dev/radio_maps/56383dbb3d6ae907d7000012/venue.svg'
>
`/storage/venue_dump/dump_radio_maps/rksg-dev/radio_maps/56383dbb3d6ae907d7000012/floor_3_inside.png'
->
`/opt/spot/system/private/venues/rksg-dev/radio_maps/56383dbb3d6ae907d7000012/floor_3_insi
de.png'
> .
> DONE.
> .
> ALL DONE.
root@vspot:~#
```

Verify Successful Migration

Start the web service for verification.

```
root@vspot:~# service nginx start
```

View and validate application state from <http://<vSPoT VM IP>:8443>. Check the application version, and its ability to login to vSPoT version 3.x administration dashboard using a valid user account and admin account.

Start Data Services

Start the data services background services.

```
root@vspot:~# start rk-venue  
root@vspot:~# start resque
```

NOTE This will begin to receive live data from the access points.

From the Admin pages, validate the data presence of radio maps, access points, venues, etc. From the analytics page, verify real-time and historical data (heat maps and daily visit counts).

Clean Directories and Backup Snapshots

After successfully migrating to vSPoT version 3.x follow the below procedure

1. Clean the earlier database directory by running the below command.

```
admin@vspotappliance:~$ sudo rm -fr /storage/mongo24
```

2. Exit to vSPoT Host OS and from VMWare vCenter web interface.
3. You may want to delete or cleanup your VMWare snapshots after you have ascertained that the upgrade is successful. You may no longer need to revert to the previous version of vSPoT VM.

Re-Import vSPoT License File

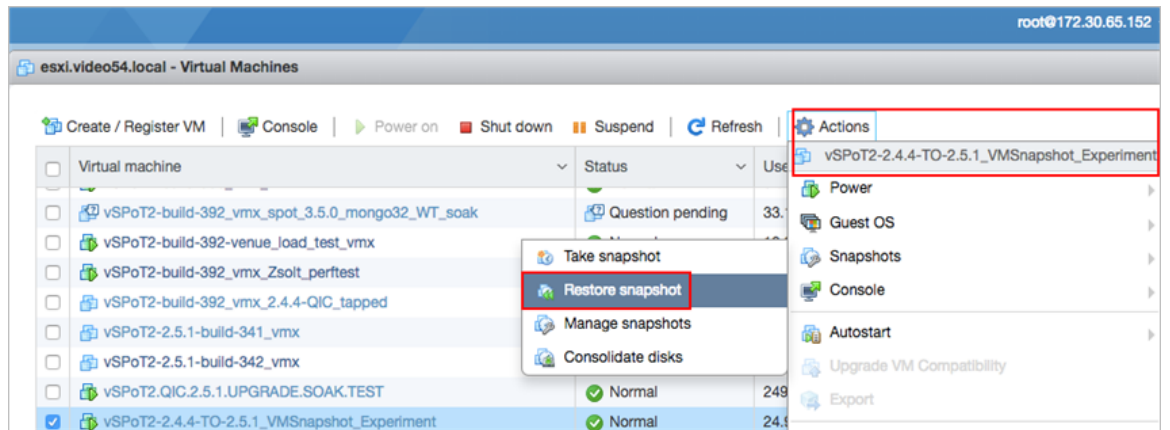
Re-import the vSPoT license to get the full working license purchased for your vSPoT instance.

Procedure to Restore VMWare Snapshots (Optional)

Follow the below procedure to restore the vSPoT backup.

1. Login to the vSPoT vCenter.
2. Using the VMWare ESXi web interface navigate to select **Virtual Machines > VMware** backup instance for restoration. Ensure that the backup is a good valid working snapshot.
3. In the tab menu navigate to select **Actions > Snapshots > Restore snapshot**.

Figure 5: Selecting Restore Snapshot Option



4. To start the restore click the **Restore** button in the pop-up confirmation window.
5. Check the state of the snapshot restoration from the **Recent tasks** panel at the bottom panel. Your vSPoT restored instance should be up and running on successful completion.

Figure 6: View the Restored Snapshot

Upgrading to a New Version

Full Upgrade

The screenshot displays the VMware vSphere interface for the host 'esxi.video54.local'. The main view shows a list of virtual machines with columns for name, status, used space, host name, host CPU, and host memory. The VM 'vSPoT2-2.4.4-TO-2.5.1_VMSnapshot_Experiment' is selected and highlighted in blue.

Virtual machine	Status	Used space	Host name	Host CPU	Host memory
vSPoT2-build-392_vmox_spot_3.5.0_mongo32_WT_soak	Question pending	33.15 GB	vspotappliance	3 MHz	7.89 GB
vSPoT2-build-392-venue_load_test_vmox	Normal	12.25 GB	vspotappliance	68 MHz	6.32 GB
vSPoT2-build-392_vmox_Zsoif_perftest	Normal	121.05 GB	vspotappliance	15.5 GHz	15.94 GB
vSPoT2-build-392_vmox_2.4.4-QIC_tapped	Normal	204.99 GB	Unknown	0 MHz	0 MB
vSPoT2-2.5.1-build-341_vmox	Normal	3.68 GB	Unknown	0 MHz	0 MB
vSPoT2-2.5.1-build-342_vmox	Normal	3.58 GB	Unknown	0 MHz	0 MB
vSPoT2.QIC.2.5.1.UPGRADE.SOAK.TEST	Normal	249.6 GB	vspotappliance	6.9 GHz	11.91 GB
vSPoT2-2.4.4-TO-2.5.1_VMSnapshot_Experiment	Normal	24.99 GB	vspotappliance	24 MHz	3.48 GB

Below the VM list, the details for the selected VM are shown:

- Guest OS:** CentOS 4/5/6/7 (64-bit)
- Compatibility:** ESXi 5.5 and later (VM version 10)
- VMware Tools:** Yes
- CPUs:** 4
- Memory:** 4 GB
- Host name:** vspotappliance

On the right side, resource usage is displayed:

- CPU:** 24 MHz
- MEMORY:** 3.48 GB
- STORAGE:** 24.99 GB

The bottom section shows the 'Recent Tasks' table:

Task	Target	Initiator	Queued	Started	Result	Completed
Revert To Current Snapshot	vSPoT2-2.4.4-TO-2.5.1_VMS...	root	07/04/2016 15:36:08	07/04/2016 15:36:08	Running... 96 %	
Acquire Cim Services Ticket	esxi.video54.local	VC Internal	07/04/2016 15:34:42	07/04/2016 15:34:42	Completed successfully	07/04/2016 15:34:42
Destroy	coreos_production_vmware_s...	root	07/04/2016 15:30:20	07/04/2016 15:30:20	Completed successfully	07/04/2016 15:30:21
Destroy	coreos_production_vmware_s...	root	07/04/2016 15:30:02	07/04/2016 15:30:02	Completed successfully	07/04/2016 15:30:04

vSPoT on AWS Upgrade

Virtual SPoT in AWS can be upgraded with the following steps for version 2.4.4 to 3.x latest.

CAUTION! This upgrade process will result in application downtime due to the need for data migration across different and incompatible storage engines. During the migration process, vSPoT should not be running, otherwise data could be lost during migration.

Prerequisite

You are required to get full administration access to AWS billing account and management console.

Upgrade Procedure

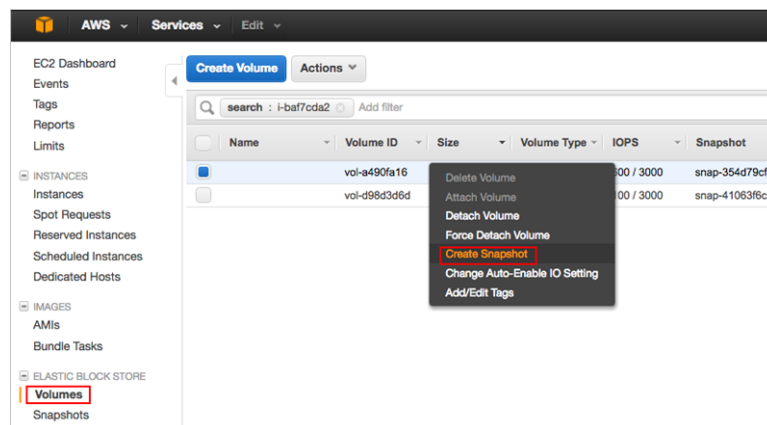
The following are the steps for upgrading vSPoT in AWS for version 2.4.4 to 3.x.

Backup the Current vSPoT

This section describes the procedure to backup the current vSPoT.

1. Login to the AWS EC2 management console and obtain the identifier **INSTANCE ID** of your vSPoT instance, which is in the format *i-ffffff*.
2. Navigate to **Elastic Block Store > Volumes** to search for volumes using the identifier **INSTANCE ID** obtained in Step 1. In this example, the identifier is *i-baf7cda2*.

Figure 7: Create Snapshot



3. Select the vSPoT instance and right-click to select **Create Snapshot**.
4. After snapshot creation is triggered, the process will run in the background. You can proceed to the next step.

Venue Identifiers

After a successful backup of the vSPoT instance, ensure you have an updated list of Venue identifiers. This is required during migration.

Download vSPoT 3.x Template

Download the latest **Ruckus vSPoT Software Release** template for AWS from (<https://support.ruckuswireless.com>)

Stop vSPoT Server

Stop the existing server running vSPoT version 2.4.4 by using the following CLI commands.

NOTE Ensure you have the IP address and SSH private key file for accessing your AWS EC2 instance.

1. Refer to [Accessing vSPoT using AWS CLI](#) on page 43 to login using SSH to the vSPoT AWS EC2 instance host operating system (Host OS). Enter the vSPoT docker container.

```
ssh centos@IP_ADDR -i $SSH_PRIVATE_KEY_FILE
centos@ip-addr:~$ spot enter
```

2. Shut down all the running services other than Mongod server.

```
root@vspot:~# stop rk-venue
root@vspot:~# stop resque
root@vspot:~# service nginx stop
```

Backup the MongoDB

Backup the MongoDB data directory and clean the existing MongoDB data directory contents with the following steps.

1. From the vSPoT docker container, download the Ruckus vSPoT AWS S3 migration scripts, and give it execution rights..

```
admin@vspotappliance:~$ spot enter
root@vspot:~# wget -O /storage/vspot_venue_dump.sh
https://s3-us-west-2.amazonaws.com/ruckuslbs/public/vspot/vspot_venue_dump.sh
root@vspot:~# wget -O /storage/vspot_venue_restore.sh
https://s3-us-west-2.amazonaws.com/ruckuslbs/public/vspot/vspot_venue_restore.sh
root@vspot:~# wget -O /usr/bin/mongodump32
https://s3-us-west-2.amazonaws.com/ruckuslbs/public/vspot/mongodump32
root@vspot:~# chmod +x
/storage/{vspot_venue_dump.sh,vspot_venue_restore.sh}
/usr/bin/mongodump32
```

2. Backup the MongoDB data for a specified venue (example *rksg-dev*) by using the below procedure.

NOTE If you have more than one venue to migrate, repeat this step for each venue as per your list of [Venue Identifiers](#) on page 18.

```
root@vspot:~# bash /storage/vspot_venue_dump.sh rksg-dev  
--full-dump
```

3. Verify the existence of non-empty archive file.

```
root@vspot:~#ls -lah /storage/rksg-dev_dump.tar.gz
```

Remove Redis Append Only File (AOF)

Upgraded version of vSPoT does not use Redis AOF.

1. This must be removed to prevent data corruption during Redis server startup by executing the following command:

```
root@vspot:~# rm -f /storage/redis/data/rk_venue.aof
```

Prepare the Existing MongoDB Data Directories

Prepare existing MongoDB data directories by executing the following commands.

1. From vSPoT Host OS, enter vSPoT docker container and stop the MongoDB server process.

```
admin@vspotappliance:~$ spot enter  
root@vspot:~# service mongod stop
```

2. Prepare a new MongoDB data directory from the vSPoT docker container and a new working directory.

```
root@vspot:~# mv /storage/mongo /storage/mongo24  
root@vspot:~# mkdir -p /storage/mongo/{data,log}  
root@vspot:~# chown mongod:mongod -R /storage/mongo
```

3. Exit back to vSPoT Host OS and shut down vSPoT docker container.

```
admin@vspotappliance:~$ spot stop 244
```

Remove vSPoT 2.4.4. Stack Template

CAUTION! Do not delete the detached storage volume from AWS EC2 management console.

1. Refer to [Deleting vSPoT on AWS](#) on page 44 to remove the vSPoT 2.4.4 stack. This will also detach the storage volume. Do make a note of the storage volume identifier for later use.

Create a new EC2 Instance with vSPoT 3.x Stack Template

To create a new EC2 instance:

1. Refer to [Automated Setup using CloudFormation](#) to install vSPoT 3.x using the vSPoT 3.x stack template downloaded . You will also need to specify the StorageVolumeld field as seen in the figure below. The identifier is in the format of `vol-ffffff` or `vol-ffffffffffffff`.

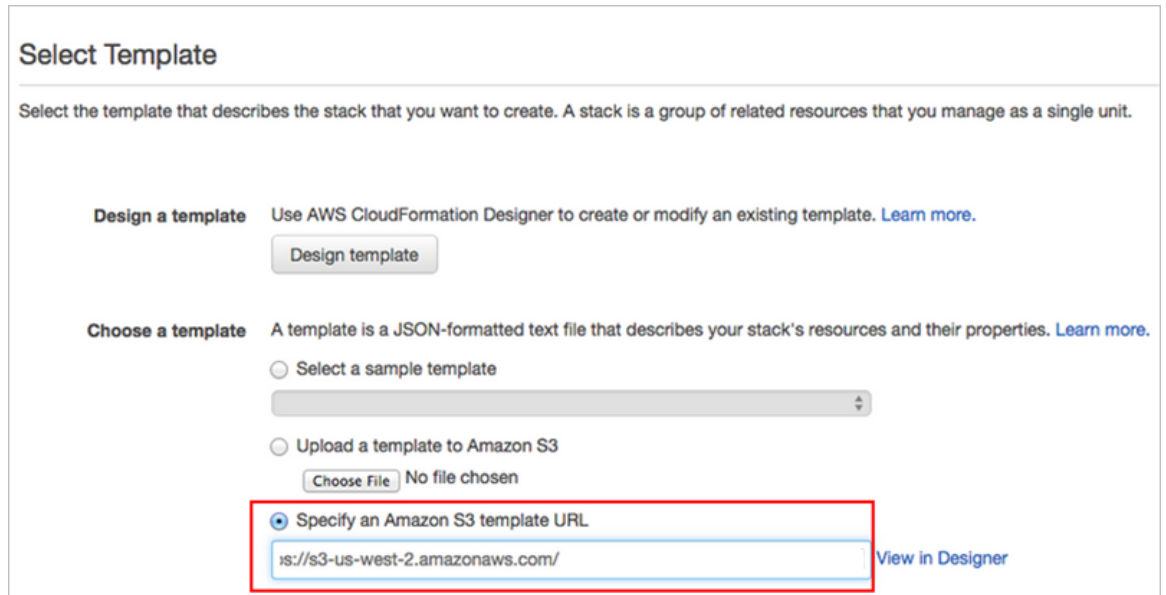


Figure 8: Specifying Options in the Template

Migrate Data to New Storage Engine Format

Migrate MongoDB data to be compatible with the new storage engine used in vSPoT 3.x by following the below procedure.

1. Check vSPoT 3.x docker container is running by running the command:

```
centos@ip-addr:~$ spot list
```

2. Shut down all the running services other than Mongod server.

```
centos@ip-addr:~# spot enter
root@vspot:~# stop rk-venue
root@vspot:~# stop resque
root@vspot:~# service nginx stop
```

3. Check that all processes that was stopped in the above step have been terminated.

```
root@vspot:~# ps -ef | grep -E 'ruby|redis|mosquitto|nginx'
| grep -v grep
```

NOTE If any process is returned, repeat the commands to shutdown the processes.

Restore the Data

Restore the MongoDB data with the following steps.

1. Run the data restore script to first restore the MongoDB data, then subsequently create database indexes.

NOTE This may take a long time to complete, based on the migration data set.

```
root@vspot:~# bash /storage/vspot_venue_restore.sh  
/storage/rksg-dev_dump.tar.gz
```

NOTE If you had previously exported more than one venue, you will need to repeat this data restore step for each venues as per your list of [venue identifiers](#).

Verify Successful Migration

Start the web service for verification.

```
root@vspot:~# service nginx start
```

View and validate application state from <http://<vSPoT VM IP>:8443>. Check the application version, and its ability to login to vSPoT version 3.x administration dashboard using a valid user account and admin account.

Start Data Services

Start the data services background services.

```
root@vspot:~# start rk-venue  
root@vspot:~# start resque
```

NOTE This will begin to receive live data from the access points.

From the Admin pages, validate the data presence of radio maps, access points, venues, etc. From the analytics page, verify real-time and historical data (heat maps and daily visit counts).

Clean Directories and Backup Snapshots

After successfully migrating to vSPoT version 3.x follow the below procedure.

1. Clean the earlier database directory by running the below command.

```
admin@vspotappliance:~$ sudo rm -fr /storage/mongo24
```

2. Exit from the SSH terminal session.

Upgrading to a New Version

Full Upgrade

3. You may want to delete or cleanup your EC2 EBS snapshots after you have ascertained that the upgrade is successful and you may no longer need to revert to the previous version of vSPoT VM.

Re-Import vSPoT License File

Re-import the vSPoT license to get the full working license purchased for your vSPoT instance.

Rolling Upgrade for vSPoT 3.x to latest

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. For example, IP address or NTP server configuration for a vSPoT upgrade.

NOTE Rolling upgrades was introduced from 2.4.0 release and continues to 3.x.x and later releases.

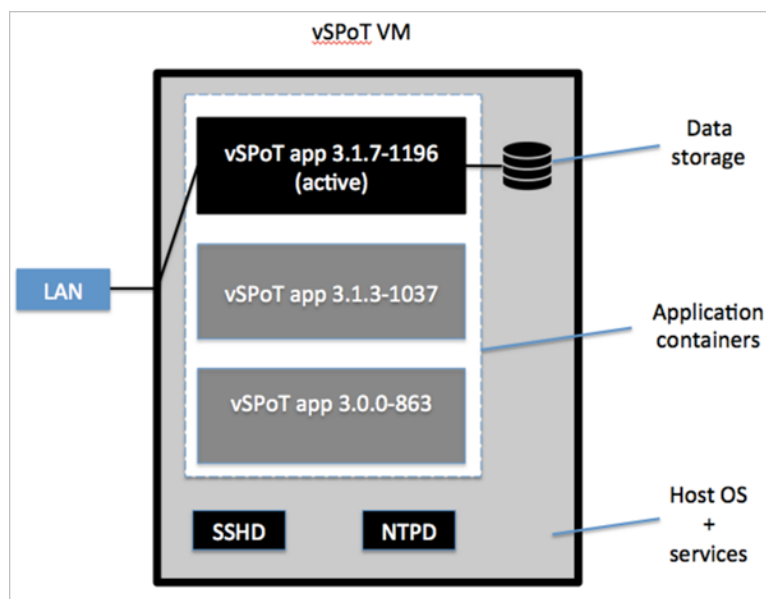
This procedure can be used to upgrade vSPoT 3.x to the latest version of vSPoT. However, if you are upgrading from vSPoT 2.4.0 to vSPoT 3.x, Ruckus Wireless highly recommends that you perform a [Full Upgrade](#) on page 11 to take advantage of the security and performance improvements to the Host OS.

NOTE To upgrade to vSPoT 3.1.7, perform a full upgrade.

vSPoT Architecture

From 2.4.x releases, the new vSPoT internal architecture (as seen in the figure below) 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 9: vSPoT VM Architecture



Prerequisites

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

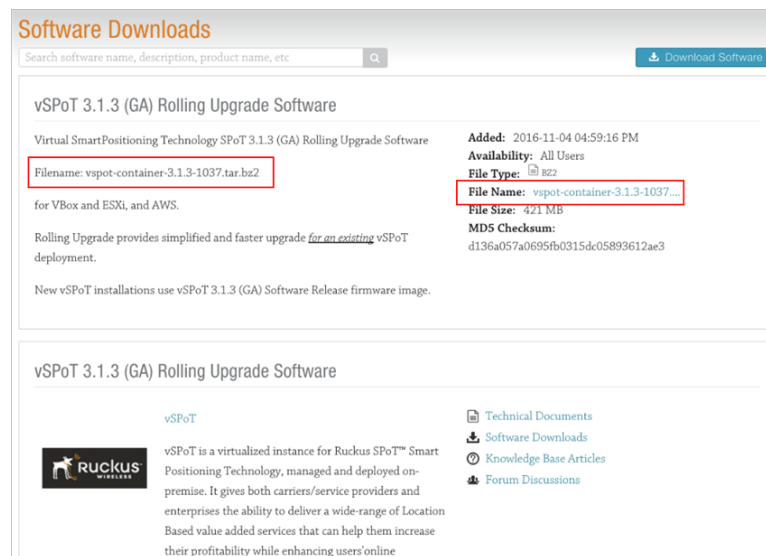
Ensure you have a running vSPoT instance and follow these steps to upgrade vSPoT.

1. Login to the vSPoT console (see: [Using the CLI Console](#)). SSH to the vSPoT host operating system (Host OS) to execute the below command:

```
ssh admin@<vspot_host_os_public_ip>
```

2. Logout from the vSPoT web application.
3. Navigate to the Ruckus support website <https://support.ruckuswireless.com/> to obtain the download URL for the vSPoT application bundle.
 - a. Login in with your user credentials (login name and password)
 - b. Navigate to vSPoT download section to locate the download URL for the application bundle image. For example, rolling upgrade for vSPoT 3.1.3 requires `${APPLICATION_BUNDLE_FILE} 'vspot-container-3.1.3-1037.tar.bz2` as seen in the figure below.

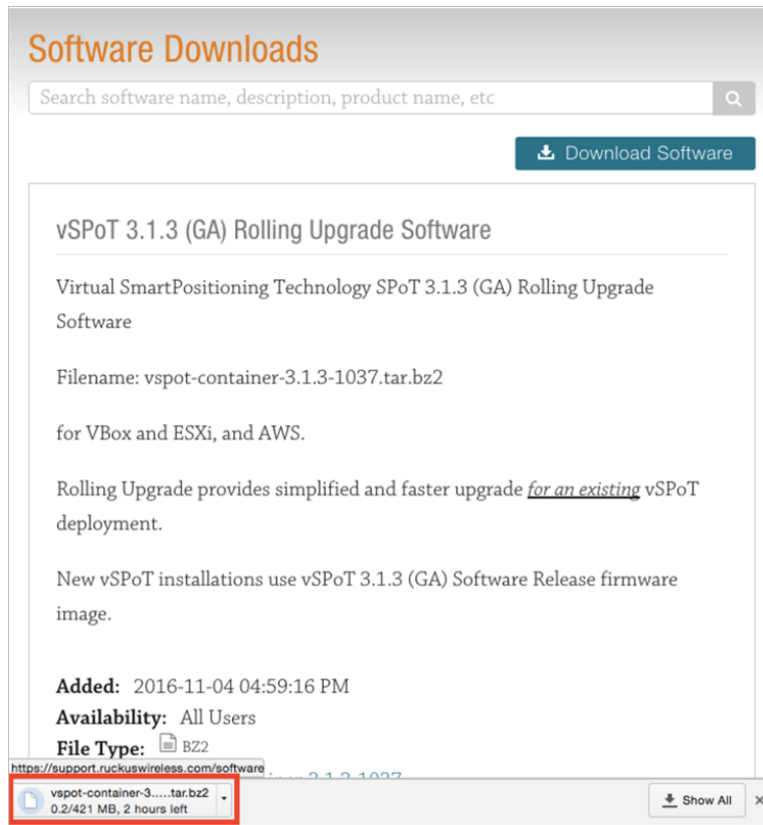
Figure 10: File Location



4. Click on the file name or the **Download Software** button to begin the application bundle download. Depending on your web browser, the download progress indicator will show up in the lower left corner, or appear as a pop-up window.

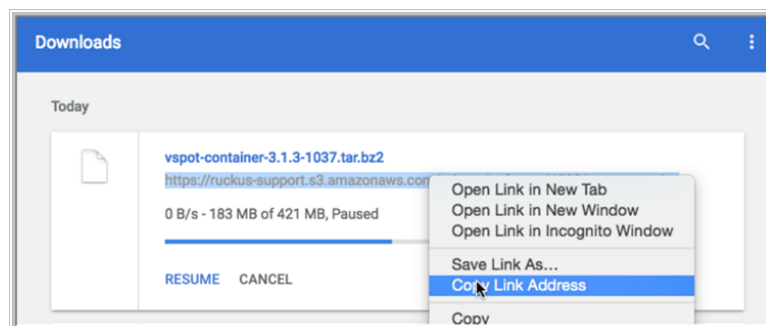
Figure 11: Software Download

Upgrading to a New Version
Rolling Upgrade for vSPoT 3.x to latest



5. Transfer the application bundle to your vSPoT instance. There are two possible approaches:
 - a. **Option A**, If your vSPoT instance has Internet access
 - a. Open your web browser's download manager. You will see the download in progress.

Figure 12: Download Progress



- b. Right-click on the download URL and select **Copy Link Address** from the pop-up menu.
- c. In a terminal console within the vSPoT Host OS, use the `wget` command and paste the download URL (using `Ctrl+V` or `Cmd+V`) within single-quotes. This will download the application bundle from within vSPoT Host OS.

```
admin@vspotappliance:~$ wget '${FILE_DOWNLOAD_URL}'
```

The `FILE_DOWNLOAD_URL` should look similar to:
'https://ruckus-support.s3.amazonaws.com/private/software/931/vspot-container-3.1.3-1037.tar.bz2?AWSAccessKeyId=AKIAJM3QLNNK-LOV235TQ&Expires=1464965029&Signature=k9LS0cENQ5ooDa9HWW-mPEdgGSr0%3D'

NOTE The download URL needs to be placed within single quotes in the command line. An incorrect download URL will result in a '403 Forbidden' error.

NOTE As a security feature, the download URL is only valid for the next 15 minutes from the time of starting the download. You should download the application bundle immediately.

If you encounter an expiry notification, you will need to restart the download process from Step 4, which is to press the 'Download Software' button again to generate a new download URL

- b. **Option B**, If your vSPoT instance does not have Internet access, but your local machine has Internet access
 - a. Wait for the file download (initiated in Step 4) to complete.
 - b. Use a file transfer client (SCP or SFTP) to copy the application bundle to your vSPoT instance home directory. If you are using Windows, you can use WinSCP (<https://winscp.net>)

```
$ scp ${APPLICATION_BUNDLE_FILE} admin@VSPOT_IP_ADDR
```

6. Verify vSPoT application bundle by navigating to the home directory of your vSPoT Host OS. The application bundle file should be present in this directory.
7. Load the vSPoT application image from the new application bundle. This will take quite a few minutes.

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

Figure 13: SPoT Application Image

Upgrading to a New Version
Rolling Upgrade for vSPoT 3.x to latest

```
e192ed93fce9: Loading layer [=====] 1.532 GB/1.532 GB
Loaded image: registry.internal.ruckuslbs.com/ruckus/vspot:3.1.3-1037
```

- Verify vSPoT images by executing the command:

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

Figure 14: SPoT Images

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
registry.internal.ruckuslbs.com/ruckus/vspot	3.1.3-1037	9076f4c70a63	7 days ago	1.463 GB
registry.internal.ruckuslbs.com/ruckus/vspot	3.0.0-863	9cf108e16fd7	5 weeks ago	1.483 GB

- Verify the current running vSPoT application version. This should be lower than the new vSPoT application version that you have just loaded.

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

Figure 15: SPoT List

CONTAINER ID	IMAGE	COMMAND	NAMES	CREATED	STATUS
826e797fda1d	registry.internal.ruckuslbs.com/ruckus/vspot:3.0.0-863	"/bin/sh -c /sbin/ini"	vspot300	6 minutes ago	Up 6 minutes
0.0.0.0:80->80/tcp, 0.0.0.0:8442-8443->8442-8443/tcp, 0.0.0.0:8883->8883/tcp					

In this example, the current running vSPoT application version number is 3.0.0-863, and the most recent application version is 3.1.3-1037.

- Stop the current running vSPoT application by using the application version number.

```
admin@vspotappliance:~$ spot stop 3.0.0-863
```

- Start the new vSPoT application.

```
admin@vspotappliance:~$ spot start 3.1.3-1037
```

- Verify the currently running application version.

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

Figure 16: SPoT List

CONTAINER ID	IMAGE	COMMAND	NAMES	CREATED	STATUS
e130d7133493	registry.internal.ruckuslbs.com/ruckus/vspot:3.1.3-1037	"/bin/sh -c /sbin/ini"	vspot313	7 seconds ago	Up 5 seconds
0.0.0.0:80->80/tcp, 0.0.0.0:8442-8443->8442-8443/tcp, 0.0.0.0:8883->8883/tcp					

13. Login to the vSPoT web application Administration user interface and upload the licenses.
14. Verify that the new vSPoT application works correctly by ensuring that the:
 - a. Access Points on the Administration user interface indicate a green status
 - b. Analytics user interface shows real-time heat maps and historical charts such as unique visitors.
15. Delete any outdated vSPoT application images based on the image identifier. In this example, the outdated application image tag is 3.0.0-863 and the image identifier to remove it is 9cf108e16fd7.

```
admin@vspotappliance:~$ docker rmi ${IMAGE_ID}
```

16. Verify the current available application images by executing the command:

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

Sub Sections to Upgrade Procedure

Enabling SSH Access

The options in this section help you enable remote SSH access on logging to the vSPoT CLI console.

- SSH key based authentication
- Enabling password based authentication

SSH Key Based Authentication

This is a preferred and secure option. Execute the following CLI commands for enabling SSH access.

1. After logging in to vSPoT CLI, create the SSH directory in the administrator's home directory.

```
admin@vspotappliance:~$ mkdir -p ~/.ssh
```

2. Obtain the SSH public key for your local machine. If you do not have a SSH public key, generate it by following Step 1 of the below reference.

```
https://www.centos.org/docs/5/html/5.2/Deployment\_Guide/s3-openssh-rsa-keys-v2.html
```

3. Add your local machine's SSH public key to your vSPoT instance's SSH *authorized_keys* file. This can be done in either of the following two ways:

Example 1: Copy your local machine's SSH public key into the vSPoT instance

```
admin@vspotappliance:~$ echo 'ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQBAQCjfxGGdeNsqTPPWdI6Iext/
DhZ5GrewC6yh6HZAYjlgDamdZebbAvzIwWvWJjxsOGHkhdf5eY9qG1KdZih
WVOTaM1oKkrUSshAEEPQnYUBa/nF3J3q4nIX4rOiKsBrT44/
sYKbt+TKgeQ9x5Rfwqjq1xCQeq4UbV8K2xfojLCjF6if8jRXYoyUNIf4t0S
mRzGkEtQ8UqnYDmOglgu4N+kewcT1laz3ty0YfMK1HToN1+
RXL256ZDoLT8w0TAo5h/lpiLthgr8t8+UYHSeejEuoR+
zC2E+37Dr8JVbeTzXAT5zRZhxE7uLkjPCj8HKLekHqyG22251rdKr
dWeYmrK/Xp joe' >> ~/.ssh/authorized_keys
```

Example 2: From your vSPoT instance, download your SSH public key from a publicly accessible URL

```
admin@vspotappliance:~$
curl ${SSH_KEY_PUBLIC_URL} >> ~/.ssh/authorized_keys
```

```
Example: SSH_KEY_PUBLIC_URL  
https://raw.githubusercontent.com/mitchellh/vagrant/master/keys/vagrant.pub
```

Enabling Password Based Authentication

This is a less secure option. Execute the following CLI commands for enabling SSH access.

```
admin@vspotappliance:~$ sudo sed  
-i's/^PasswordAuthentication.*/PasswordAuthentication yes/'  
/etc/ssh/sshd_config  
  
admin@vspotappliance:~$ sudo service sshd restart  
  
Redirecting to /bin/systemctl restart sshd.service  
  
admin@vspotappliance:~$
```

Accessing vSPoT using AWS CLI

This section describes certain technical operations that will require you to log into vSPoT through the shell console using a SSH client.

Follow these steps to login using CLI.

1. Use the SSH command with your private key for the vSPoT instance.
2. The generated or imported SSH key is used as the login to the system as seen in the figure below.

Figure 17: SSH Identifier

Sub Sections to Upgrade Procedure

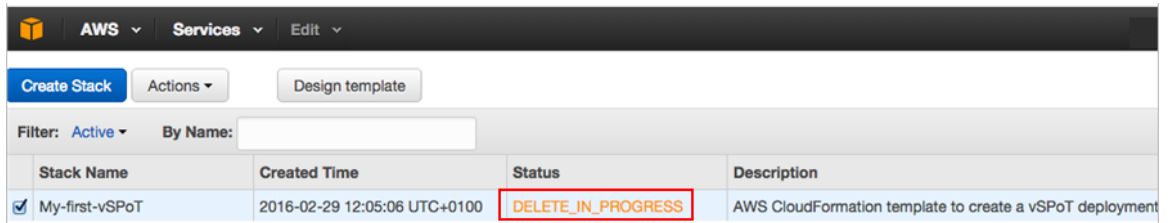
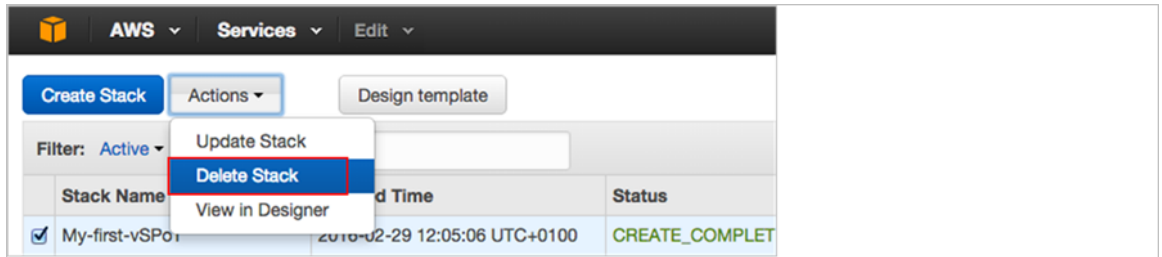
Deleting vSPoT on AWS

```
2. centos@ip-172-31-39-161:~ (ssh)
Last login: Mon Feb 29 12:20:03 on ttys014
ysolt@ysolt-2:~$ ssh centos@54.206.20.234 -i .ssh/id_rsa_YS_and_ZS
The authenticity of host '54.206.20.234 (54.206.20.234)' can't be established.
RSA key fingerprint is 01:94:5e:0b:0e:a3:ec:5e:b2:a3:cb:e8:c6:4c:7e:ed.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '54.206.20.234' (RSA) to the list of known hosts.
Last login: Mon Feb 15 18:18:57 2016 from catv-80-99-40-204.catv.broadband.hu
-bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file
or directory
centos@ip-172-31-39-161:~$ docker ps
CONTAINER ID        IMAGE                                     COMMAND                  CREATED              STATUS              PORTS
761cd724c74b       950737097692.dkr.ecr.us-east-1.amazonaws.com/ruckus/spot:2.4
.0-451              "/sbin/init"              13 days ago           Up 12 minutes       0.0.0.0:80-
>80/tcp, 0.0.0.0:8442-8443->8442-8443/tcp, 0.0.0.0:8883->8883/tcp   vspotVSPOT_V
ERSION
centos@ip-172-31-39-161:~$
```

Deleting vSPoT on AWS

To delete a vSPoT instance navigate to **Actions** drop down and click the **Delete Stack** button.

Figure 18: Delete AWS CloudFormation Stack



Delete stack retains data storage volume that has been created. To retain the previous historical data navigate to **Amazon Web Services > Compute > EC2 > Elastic Block Store > Volumes** to store or delete the vSPoT data storage volume.

Figure 19: AWS Data Storage Volume





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