



Ruckus Wireless™ SmartPositioning Technology (SPoT)

**Release Notes for SPoT Version 4.1
and vSPoT Version 3.1**

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SPoT 4.1 and vSPoT 3.1 Release Information

1

Introduction

This document provides release information on the Ruckus SmartPositioning Technology (SPoT), release 4.1 and virtual SPoT (vSPoT) release 3.1

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:

- R510
- H510
- T710
- 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.

Supported Pre-Engine API Versions

- 1.0
- 2.0
- 2.1

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
3.0.0	4.0.0
3.1.3	4.1.3

New Features

- 1 Upgraded to MRI Ruby version 2.2.5 for better GC performance.
- 2 Venue and System servers code base are upgraded with RubyGems, in particular **foreman**. This is used to derive the upstart scripts that run the venue server processes and rescue batch jobs.
- 3 Upgraded to Mosquitto broker 1.4.10.
- 4 Added mechanism to purge AWS scaling metrics from command line.
- 5 Added links to Ruckus Wireless support documents in **Settings** tab (vSPoT) and **License** tab (SPoT).

Enhancements

This release includes the following enhancements.

System

- Multiple Ruby Gems upgraded.
- Upgraded MongoDB to version 3.2.9-1.
- Upgraded to passenger version 5.0.30 compiled against MRI ruby-2.2.5.

Venue

- Reduced verbosity of logging to rk-venue server processes.
- Re-factored and standardized MQTT connection to subscribe and publish exception handling and retries.
- Improved processing throughput for computing locations, by reducing TC limit in collator to drop messages with reference to Pas-worker pick up time.
- Improved processing throughput with respect to tessellation generation.

vSPoT

- Upstart scripts generated against upgraded foreman.

- Enhanced the robustness of *vspot_venue_dump.sh* against MongoDB server version prior to version 3.0.0.

CAUTION! Any existing vSPoT installation prior to version 2.4.0 should be first upgraded to vSPoT version 2.4.0. See [Full Upgrade](#) for details to upgrade from version 2.4.0 to 3.x.x. Refer to [Rolling Upgrade for vSPoT 3.0 to 3.x.x](#) for vSPoT 3.0 to 3.x.x.

Resolved Issues

3

- Resolved an issue of spurious Redis client connections when accessing the access points view or management page on SPoT Admin Dashboard.
- Added mechanism to periodically purge or clean AWS scaling metrics (every 10 minutes) to prevent build up of unnecessary data in Redis server.
- Resolved an issue for select floor to return a valid floor selection.
- Resolved an issue where the collator was not restarting properly.
- Resolved an issue where ApStatusUpdater was not terminating correctly because of an error with SignalException.
- Resolved an issue of computation of unique visitors by ensuring sub-locations per minute per mac detected within coverage area to set located_inside to true.
- Resolved an issue of Post Engine API *locations by_date* endpoint, was causing data inconsistency when querying across paginated payloads.

Caveats, Limitations, and Known Issues

4

- None

Upgrading to a New Version

5

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

- [Key Features](#)
- [Backward Compatibility](#)
- [Full Upgrade](#)
- [Rolling Upgrade for vSPoT 3.0 to 3.x.x](#)

Key Features

The following is the distinction between the two upgrade procedures.

Full Upgrade

NOTE: Full upgrade refers to [vSPoT on VMware Upgrade from Pre Version 2.4.0 to 2.4.4](#), [vSPoT on VMware Upgrade from Version 2.4.0 to 3.x](#) or [vSPoT on AWS Upgrade](#).

- 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.

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

Backward Compatibility

- Backward compatibility is not possible with SPoT 3.4.x series and vSPoT 2.4.0 versions.
- US and EU cloud cannot be upgraded to SPoT 4.x unless a data migration exercise similar to LTA Cloud is performed.
- Versions of vSPoT prior to 3.x **must** go through the data migration process as documented in [Full Upgrade](#).

CAUTION! Any existing vSPoT installation prior to version 2.4.0 should be first upgraded to vSPoT version 2.4.0. See [Full Upgrade](#) for details to upgrade from version 2.4.0 to 3.x.x. Refer to [Rolling Upgrade for vSPoT 3.0 to 3.x.x](#) for vSPoT 3.0 to 3.x.x.

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 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. You would need to first upgrade to vSPoT 2.4.4 before upgrading to 3.x.

- 1 [vSPoT on VMware Upgrade from Pre Version 2.4.0 to 2.4.4](#)
- 2 [vSPoT on VMware Upgrade from Version 2.4.0 to 3.x](#)
- 3 [vSPoT on AWS Upgrade](#)

vSPoT on VMware Upgrade from Pre Version 2.4.0 to 2.4.4

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 Host name) 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 VMware Upgrade from Version 2.4.0 to 3.x

The following is the procedure to upgrade a vSPoT deployment from version 2.4.0 to vSPoT 3.x.

NOTE: This upgrading process will result in application downtime due to the need for data migration across different and incompatible storage engines. During the migration, vSPoT should not be running, which could cause loss of data during migration.

Pre-requisite

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.

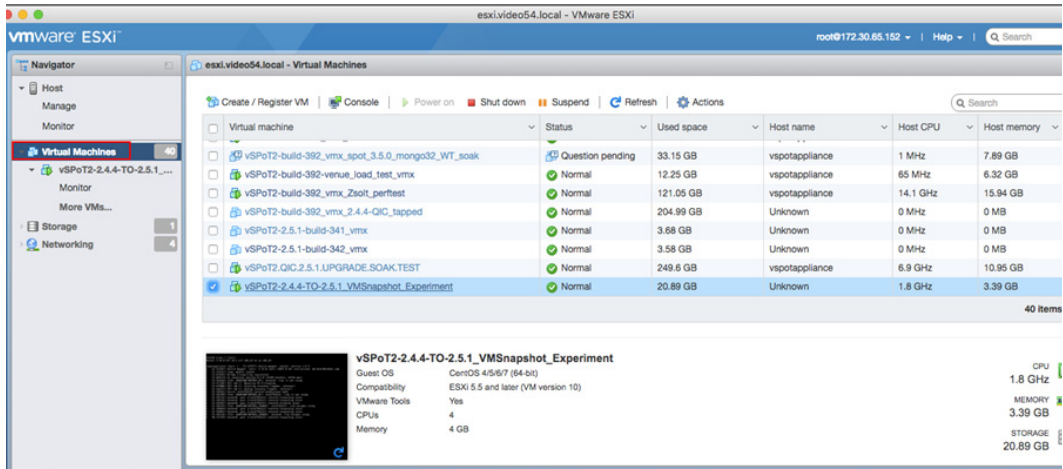
- 1 Backup the current vSPoT
- 2 Venue Identifiers
- 3 Download vSPoT 3.x
- 4 Stop VM server running vSPoT
- 5 Backup the MongoDB Data
- 6 Remove Redis append-only-file (AOF)
- 7 Prepare the Existing MongoDB Data Directories
- 8 Detach storage from vSPoT
- 9 Install and Import the vSPoT 3.x VM Image
- 10 Attach Storage to vSPoT
- 11 Start vSPoT 3.x
- 12 Migrate Data to New Storage Engine Format
- 13 Restore the Data
- 14 Verify Successful Migration
- 15 Start Data Services
- 16 Clean Directories and Backup Snapshots
- 17 Re-Import vSPoT License File

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

1 Backup the current vSPoT

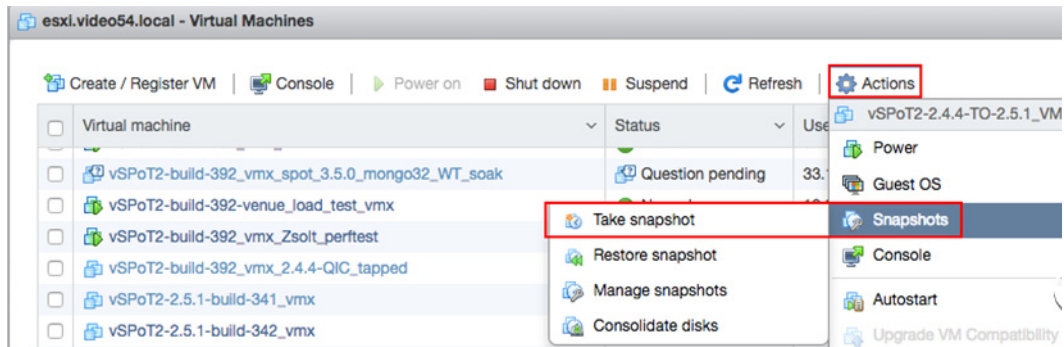
- a Login to the vSPoT vCenter
- b Using the VMWare ESXi web interface navigate to select **Virtual Machines** > **VMware** instance for a backup.

Figure 1. Selecting Virtual Machine Instance



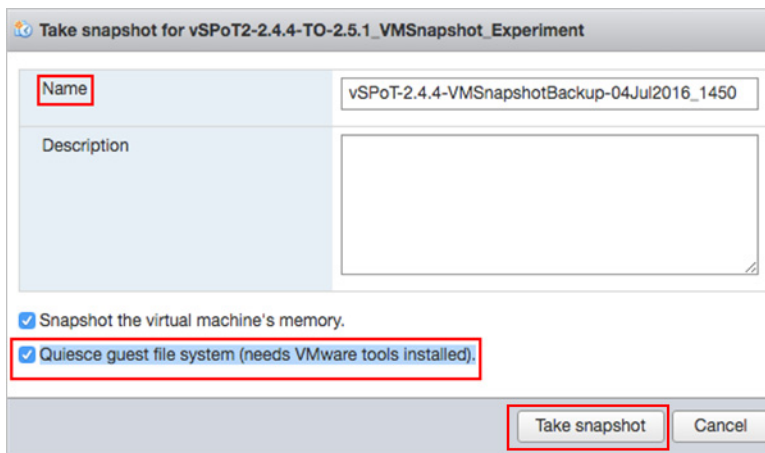
- c Ensure that your shared storage mounted for vCenter or ESXi has sufficient disk space for the snapshot backup. If vSPoT is using around 1TB, ensure you have at least 1TB additional free storage space for the snapshot backup.
- d In the tab menu navigate to select **Actions** > **Snapshots** > **Take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

Figure 2. Selecting the Snapshot Option



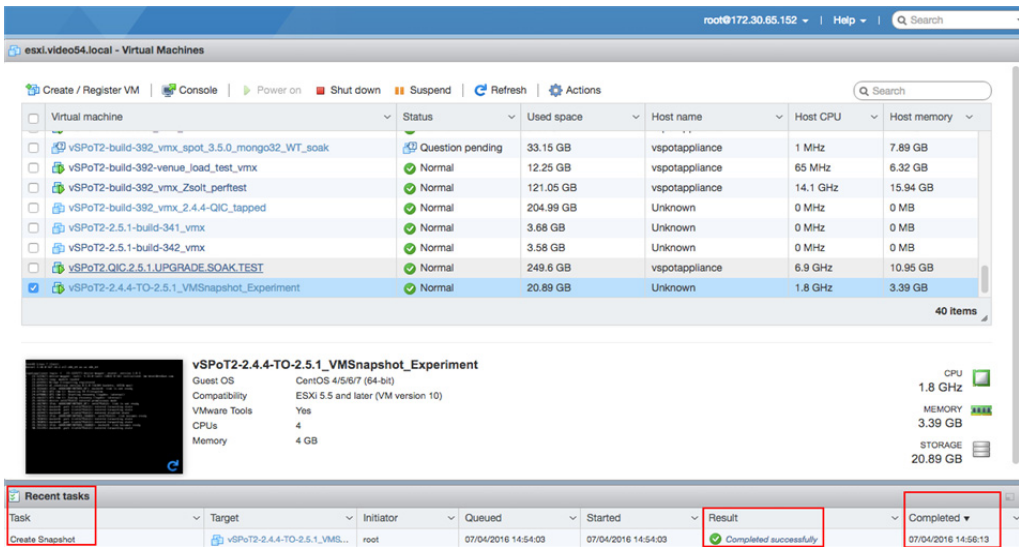
- e Enter a name for snapshot backup. For example, *vSPoT-2.4.4-VMSnapshot-Backup-04Jul2016_1450*. Also, select the option, *Quiesce guest file system (needs VMware tools installed)*.

Figure 3. Snapshot Name



- f Click on the **Take snapshot** button to complete the snapshot.
- g 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



h 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 VM Snapshots](#).

2 Venue Identifiers

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

3 Download vSPoT 3.x

Download the latest vSPoT build version 3.x (example *-VM tarball vSPoT2-3.0.0-build-543.tar*) from the support site (<https://support.ruckuswireless.com>)

4 Stop VM server running vSPoT

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

NOTE: Refer to [SSH Key Based Authentication](#) if you have not yet configured SSH access.

- a SSH to the vSPoT host operating system and to the vSPoT docker container


```
ssh admin@<vspot_host_os_public_ip>
admin@vspotappliance:~$ spot enter
```
- b Shut down all the running services other than Mongod server.


```
root@vspot:~# stop rk-venue
root@vspot:~# stop resque
root@vspot:~# service nginx stop
```
- c Exit from the docker container and return to the vSPoT host operating system (Host OS).

5 Backup the MongoDB Data

Backup the MongoDB data by:

- a 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
```

- b 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.

```
root@vspot:~# bash ./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 ...
```

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_produc-
tion.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_produc-
tion.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_produc-
tion.impressions 28173377
2016-07-26T15:09:21.962+0800    rk-system_produc-
tion.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.

- c Verify the existence of non-empty archive file

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

6 Remove Redis append-only-file (AOF)

Upgraded version of vSPoT does not use Redis AOF, so it must be removed to prevent data corruption during Redis server startup.

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

Exit and return to the vSPoT Host OS.

7 Prepare the Existing MongoDB Data Directories

Prepare existing MongoDB data directories by:

- a From vSPoT Host OS, enter vSPoT docker container and stop the MongoDB server process

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

```
root@vspot:~# service mongod stop
```

- b 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
```

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

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

8 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.

9 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 Pre Version 2.4.0 to 2.4.4](#) but keep in mind that this installation is from vSPoT 2.4.0 to 3.x.

10 Attach Storage to vSPoT

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

11 Start vSPoT 3.x

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

12 Migrate Data to New Storage Engine Format

Migrate MongoDB data to be compatible with the new storage engine used in vSPoT3.x by following the below procedure.

- a Check vSPoT3.x docker container is running by running the command:

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

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

CONTAINER
ID          IMAGE                                     COMMAND
  STATUS          PORTS          NAMES
847391fb7cfb registry.internal.ruckuslbs.com/ruckus/vspot:3.0.0.RC-3-846  "/sbin/init"
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-
0.0.0.0:8883->8883/tcp, 0.0.0.0:60812->60812/tcp  vspot300RC

admin@vspotappliance:~$ spot enter
```

- b Shut down all the running services other than Mongod server.

```
root@vspot:~# stop rk-venue
```

```
root@vspot:~# stop resque
```

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

- c 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 processes.
```

13 Restore the Data

Restore the MongoDB data by:

- a Enter the Docker container

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

- b 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 -f ']'
> + mkdir -p /storage/venue_dump
> .
> Exploding /storage/rksg-dev_dump.tar.gz into /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.meta-
data.json.gz
> dump_mongo/rk-system_production/visits.meta-
data.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.meta-
data.json.gz
> dump_radio_maps/
> dump_radio_maps/rksg-dev/
> dump_radio_maps/rksg-dev/foreground_maps/
> dump_radio_maps/rksg-dev/foreground_maps/pPEVNY51J-
tutq2vW8Yxq2w.png
> dump_radio_maps/rksg-dev/foreground_maps/hjiaM6CtqdqM-
BLb96YkxqA.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_produc-
tion.visits  4.2 GB/393.5 MB  (1100.9%)
> 2016-07-26T16:26:54.940+0800
[#####]  rk-system_production.impres-
sions  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.impres-
sions 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/fore-
ground_maps/xIhaFqAniklXPImRY1dewg.png' -> `/opt/spot/
system/private/venues/rksg-dev/foreground_maps/xIhaFqAn-
iklXPImRY1dewg.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_insid
e.png'
> .
> DONE.
> .
> ALL DONE.
root@vspot:~#
```

14 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.

15 Start Data Services

Start up 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).

16 Clean Directories and Backup Snapshots

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

- a Clean the earlier database directory

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

- b Exit to vSPoT Host OS and from VMWare vCenter web interface.
- c You may want to delete or cleanup your VMWare 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.

17 Re-Import vSPoT License File

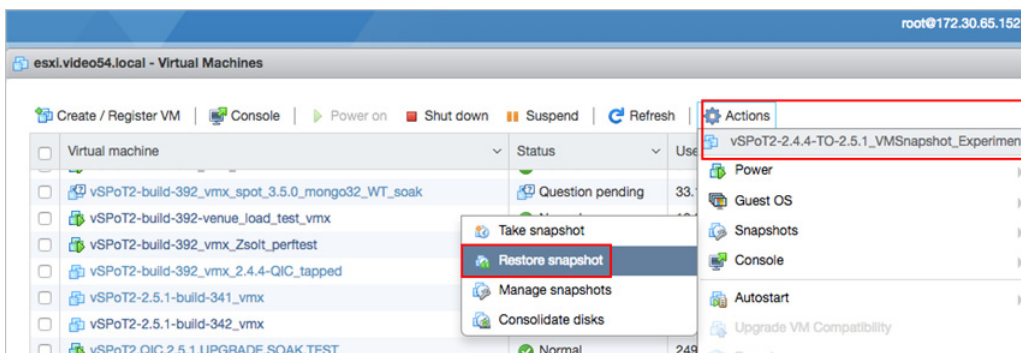
Re-import the vSPoT license to get the full working license purchased for your vSPoT instance.

Procedure to Restore VM Snapshots

Follow the below procedure to restore the vSPoT backup.

- a Login to the vSPoT vCenter
- b 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.
- c In the tab menu navigate to select **Actions > Snapshots > Restore snapshot**

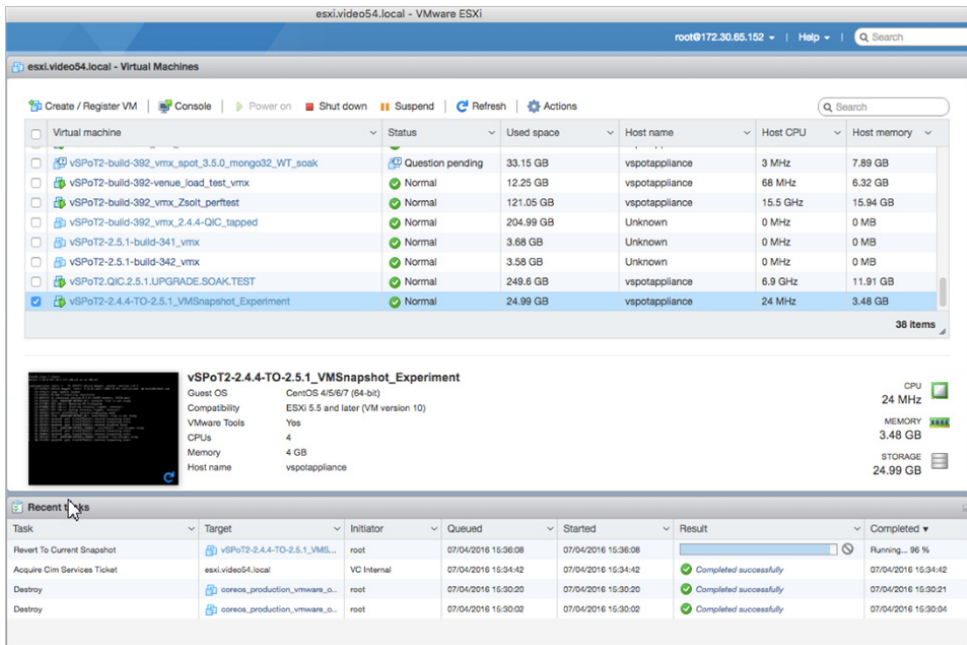
Figure 5. Selecting Restore Snapshot Option



- d To start the restore click the **Restore** button in the pop-up confirmation window.

- e 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



vSPoT on AWS Upgrade

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

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 servers will be shut down and there will be loss of data during the migration period.

Prerequisite

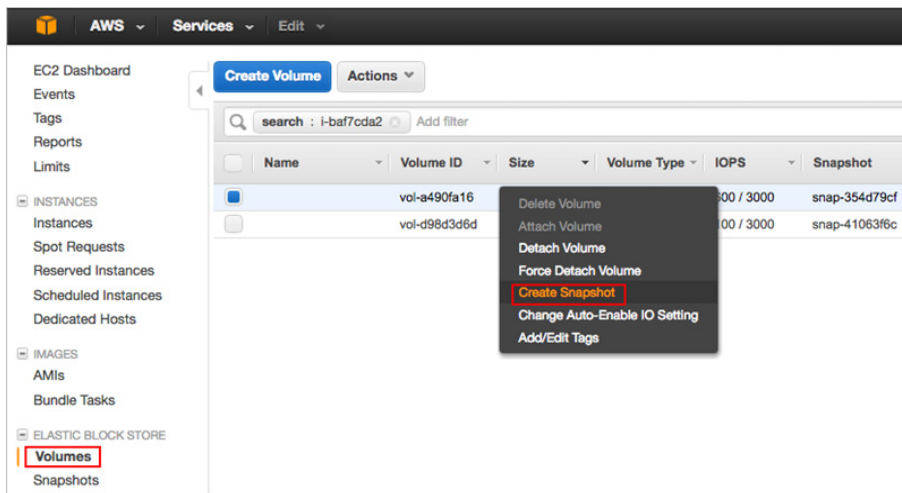
You are required to get full administration access to AWS billing account and management console.

Upgrade Procedure

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

- 5 Ensure that you have an updated list of venue identifiers. This is required during data migration.

Download vSPoT 3.x Template

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

Stop vSPoT Server

- 7 Stop the current vSPoT 2.4.4 server by executing the following CLI commands.

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

- a Refer to [Accessing vSPoT using CLI](#) 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
```

- b 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 Mongo DB Data

- 8 Backup the MongoDB data by:
 - a From the vSPoT docker container, download the Ruckus vSPoT AWS S3 migration scripts, and give it execution rights.

```
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

```

- b Backup the MongoDB data for a specified venue by using the below procedure. For this example, **rksg-dev** is the venue.

NOTE: If you have more than one venue to migrate, repeat this step for each venue as per your list of venue identifiers.

```

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

```

- c Verify the existence of non-empty archive file

```

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

```

Remove Redis Append Only File (AOF)

- 9 Upgraded version of vSPoT does not use Redis AOF, so it must be removed to prevent data corruption during Redis server startup.

```

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

```

Prepare the Existing MongoDB Data Directories

- 10 Prepare existing MongoDB data directories by:

- a From vSPoT Host OS, enter vSPoT docker container and stop the MongoDB server process

```

root@vspot:~# service mongod stop

```

- b 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

```

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

```
centos@ip-addr:~$ spot stop 244
```

Remove vSPoT 2.4.4. Stack Template

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

- 11 Refer to [Deleting vSPoT on AWS](#) 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

- 12 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 **StorageVolumeId** field as seen in the figure below. The identifier is in the format of *vol-ffffff* or *vol-fffffffffffffff*.

Figure 8. Specifying Options in the Template

The screenshot shows the 'Specify Details' section of an AWS CloudFormation console. It includes the following fields and values:

- Stack name:** My-first-vSPoT
- KeyName:** ys_and_zsolt
- StorageVolumeId:** (empty)
- vSPoTInstanceType:** t2.medium

Migrate Data to New Storage Engine Format

- 13 Migrate the MongoDB data to be compatible with the new storage engine used in vSPoT 3.x by following the below procedure.
 - a Check that the vSPoT3.x docker container is running by executing the command:

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

- b 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
```

- c Check that all processes that was stopped in the above step have been terminated. The following should not return any processes.

```
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 Data

- 14 Restore the MongoDB data by:

- a 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

- 15 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

16 Start up 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

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

a Clean the earlier database directory

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

b Exit from the SSH terminal session.

c 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

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

Rolling Upgrade for vSPoT 3.0 to 3.x.x

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.

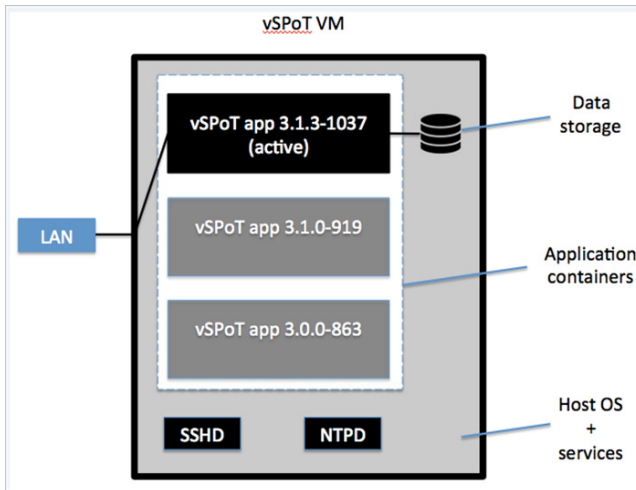
NOTE: Rolling upgrades was introduced from 2.4.0 release and continues to 3.x.x and later releases.

This procedure can be used to upgrade vSPoT3.0 to vSPoT 3.x. However, if you are upgrading from vSPoT 2.4.0 to vSPoT 3.x, Ruckus Wireless highly recommends that you perform a [Full Upgrade](#) to take advantage of the security and performance improvements to the Host OS.

vSPoT VM Architecture

From 2.4.0 releases, the vSPoT internal architecture (as seen in [Figure 9](#)) 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



Prerequisite

The following are the prerequisites for using rolling upgrade.

- This upgrade procedure works with vSPoT version 3.x 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

Rolling Upgrade Procedure

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

- 1 Logout from the vSPoT web application
- 2 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>
```
- 3 Obtain the download URL for the vSPoT application bundle from the Ruckus support website by navigating to <https://support.ruckuswireless.com/>.
 - a Login in with your user credentials (login name and password)
 - b Navigate to vSPoT download section to locate the application bundle image, for example vSPoT 3.1.3 (GA) Rolling Update Software.

Figure 10. File Location

Software Downloads

Search software name, description, product name, etc

[Download Software](#)

vSPoT 2.4.4 (GA) Rolling Upgrade Software

Virtual SmartPositioning Technology SPoT 2.4.4 (GA) Rolling Upgrade Software

Filename: vspot-container-2.4.4-625.tar.bz2

for VBox and ESXi, and AWS.

Rolling Upgrade provides simplified and faster upgrade *for an existing* vSPoT deployment.

New vSPoT installations use vSPoT 2.4.4 (GA) Software Release firmware image.

Added: 2016-06-17 04:02:52 PM
Availability: All Users
File Type: BZ2
File Name: vspot-container-2.4.4-625.t...
File Size: 434 MB
MD5 Checksum: 75818722a663715a0027c35c94abf0dc

vSPoT 2.4.4 (GA) Rolling Upgrade Software

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

[Technical Documents](#)
[Software Downloads](#)
[Knowledge Base Articles](#)
[Forum Discussions](#)

4 Download the vSPoT application bundle. There are two possible approaches:

a Option A - If your vSPoT instance has Internet access

- i. Right-click on the file name or click on the **Download Software** button
- ii. Select **Copy Link Address** in your web browser's pop-up window.
- iii. From within the vSPoT Host OS, download the application bundle using a terminal console

```
admin@vspotappliance:~$ wget '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.

b Option B - If your vSPoT instance does not have Internet access, but your local machine has Internet access:

- iv. Click on the file name or click on **Download Software** button to download the application bundle to your local machine.
- v. 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 vspot-container-3.1.3-1037.tar.bz2 admin@VSPOT_IP_ADDR
```

5 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.

6 Load the vSPoT application image from the new application bundle. This will take quite a few minutes.

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

For example:

```
admin@vspotappliance:~$ spot load vspot-container-3.1.3-1037.tar.bz2
```

Figure 11. SPoT Application Image

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

7 Verify vSPoT images by executing the command:

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

Figure 12. 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

8 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 13. SPoT List

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
826e797fdaId	registry.internal.ruckuslbs.com/ruckus/vspot:3.0.0-863	"/bin/sh -c /sbin/init"	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		vspot300		

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.

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

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

- 10 Start the new vSPoT application

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

- 11 Verify the currently running application version

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

Figure 14. SPoT List

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

- 12 Login to the vSPoT web application Administration user interface and upload the licenses.
- 13 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.
- 14 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}
```

- 15 Verify the current available application images by executing the command:

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

Figure 15. 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

Sub Sections to Upgrade Procedure



- [Enabling SSH Access](#)
- [Accessing vSPoT using CLI](#)
- [Deleting vSPoT on AWS](#)
- [Automated Setup using CloudFormation](#)
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Enabling SSH Access

You have the following options to enable remote SSH access on logging to 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
admin@vspotappliance:~$
```

- 2 Add the SSH private key to the SSH authorized key file. The following are two examples. In both cases you will need to specify your public SSH key.

Example 1:

```
admin@vspotappliance:~$ echo 'ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQcjfXGGdeNsqTPPWdI6Iext/
DhZ5GrewC6yh6HZAYjlgDamdZebbAvzIwWvWJjxsOGHkhdF5eY9qG1KdZih
WVOTaM1oKrUSshAEEPQnYUBa/nF3J3q4nIX4rOiKsBrT44/
sYKbt+TKgeQ9x5RfwqjqlxCQeq4UbV8K2xfojLCjF6if8jRXYoyUNIf4t0S
mRzGkEtQ8UqnYDmOG1gu4N+kewcT1laz3ty0YfM-
K1HToN1+RXL256ZDoLT8w0TAo5h/lpiLthgr8t8+UYHSee-
jEuor+zC2E+37Dr8JVbeTzXAT5zRZhxE7uLkjPCj8HKLekHqyG22251rdKr
dWeYmrK/Xp joe' >> ~/.ssh/authorized_keys
```

Example 2:

```
admin@vspotappliance:~$ curl https://raw.githubusercontent.com/mitchellh/vagrant/master/keys/vagrant.pub >> ~/.ssh/authorized_keys
% Total % Received % Xferd Average Speed Time Time Time Current
          Dload Upload Total Spent Left Speed
100 409 100 409 0 0 841 0 --:--:-- --:--:-- --:--:-- 843
admin@vspotappliance:~$
```

Enabling Password Based Authentication

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

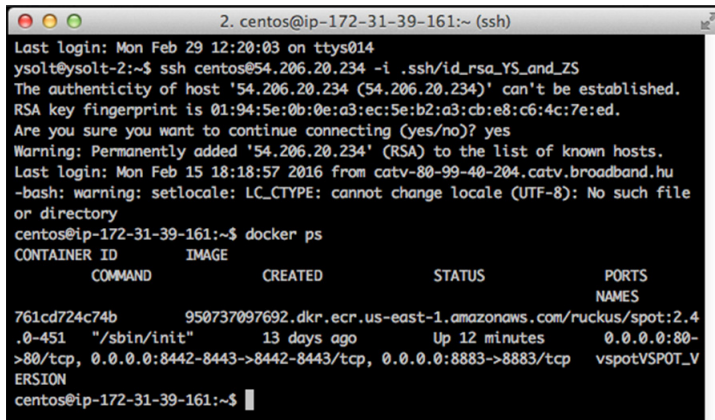
```
admin@vspotappliance:~$ sudo sed -i 's/^PasswordAuthenticati-
tion.*/PasswordAuthentication yes/' /etc/ssh/sshd_config
admin@vspotappliance:~$ sudo service sshd restart
Redirecting to /bin/systemctl restart sshd.service
admin@vspotappliance:~$
```

Accessing vSPoT using CLI

Certain technical operations will require you to log into the vSPoT through the shell console using a SSH client. Follow the step to login using CLI.

- a Use the SSH command with your private key for the vSPoT instance.
- b The generated or imported SSH key is used as the login to the system. Refer to the figure below.

Figure 16. SSH Identifier

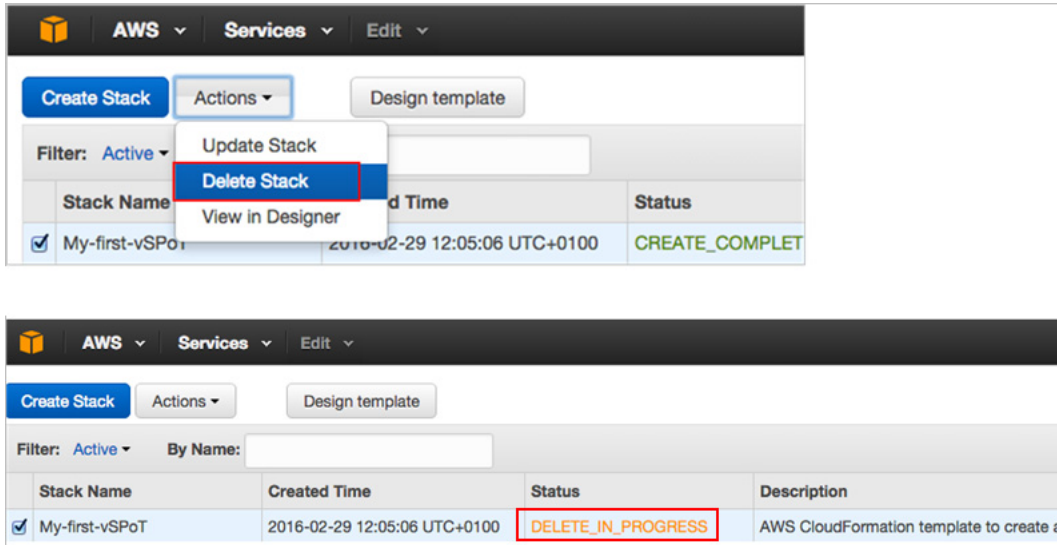


```
2. centos@ip-172-31-39-161:~ (ssh)
Last login: Mon Feb 29 12:20:03 on ttys014
ysolt@ysolt-2:~$ ssh centos@54.206.20.234 -i .ssh/id_rsa_YS_and_ZS
The authenticity of host '54.206.20.234 (54.206.20.234)' can't be established.
RSA key fingerprint is 01:94:5e:0b:0e:a3:ec:5e:b2:a3:cb:e8:c6:4c:7e:ed.
Are 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                                     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 on **Delete Stack** button.

Figure 17. Delete 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 18. Data Storage Volume

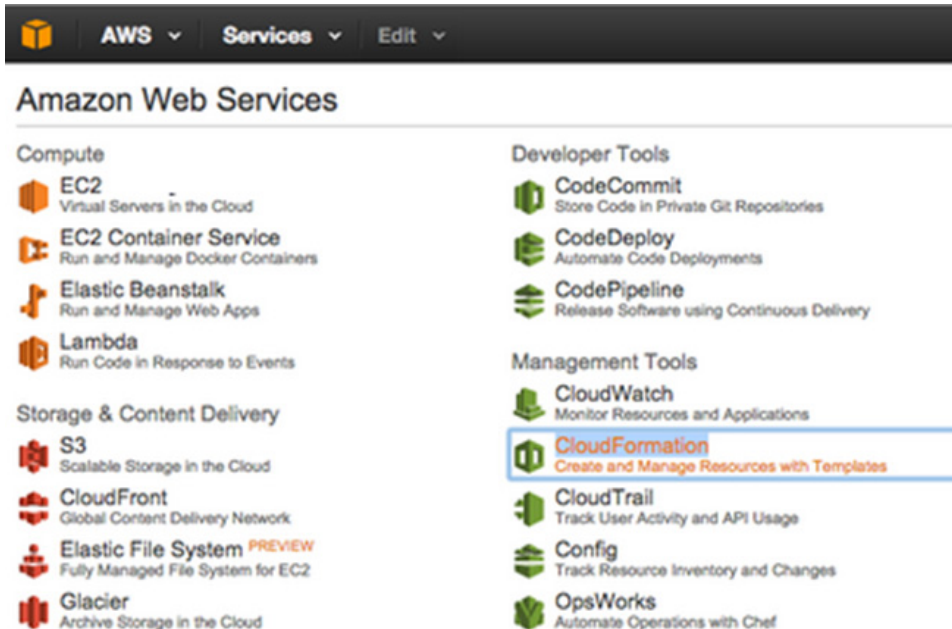


Automated Setup using CloudFormation

Follow the steps to install vSPoT using the AWS web user interface.

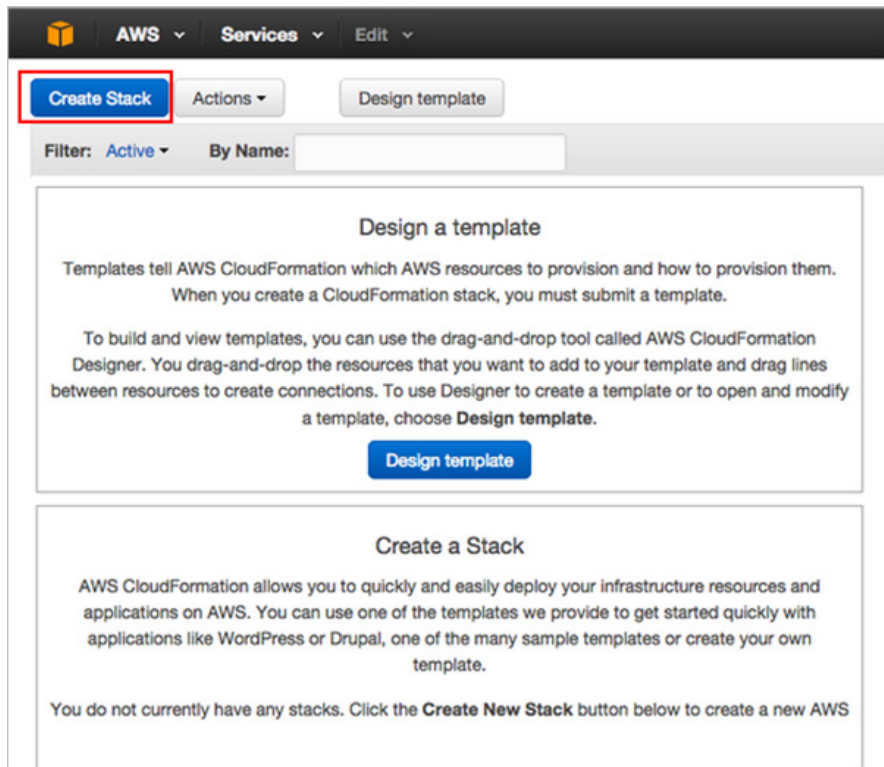
- 1 Log in to your AWS web console. Navigate to **AWS Services > Management Tools > CloudFormation** to create and manage vSPoT.

Figure 19. Select Cloud Formation and Region



- 2 Click on **Create New Stack**.

Figure 20. Create New Stack



In the Select Template page choose the option **Choose a Template > Specify an Amazon S3 template URL**. Retrieve the URL for the vSPoT template from the Ruckus Wireless Support Web site at (<https://support.ruckuswireless.com>) and insert the URL as shown in Figure 21.

Figure 21. Adding vSPoT template

Select Template

Select the template that describes the stack that you want to create. A stack is a group of related resources that you manage as a single unit.

Design a template Use AWS CloudFormation Designer to create or modify an existing template. [Learn more.](#)

Choose a template A template is a JSON-formatted text file that describes your stack's resources and their properties.

Select a sample template

Upload a template to Amazon S3

No file chosen

Specify an Amazon S3 template URL

[View in Designer](#)

- 3 Click **Next**.
- 4 Specify the following in the template.
 - a **Stack Name**: Add a unique template name, which needs to be different from the other vSPoT instances that you would be creating.
 - b **Key Name**: Add a key name required for configuring EC2/keys section
 - c **Storage Volume ID**: Add the volume identifier if you have an existing vSPoT running in AWS to automatically attach and mount to the instance.

Figure 22. Specifying Options in the Template

Specify Details

Specify a stack name and parameter values. You can use or change the default parameter values, which are defined in the template.

Stack name

Parameters

KeyName Name of an existing EC2 KeyPair to enable SSM

StorageVolumeId Optional : Specify existing storage volume ID

vSPoTInstanceType vSPoT EC2 instance type

- 5 Click **Next**.
- 6 Specify tags or advanced stack configuration options, if any.

Figure 23. Specify Tags and Advanced Options

Options

Tags

You can specify tags (key-value pairs) for resources in your stack. You can add up to 10 unique key-value pairs for your stack.

	Key (127 characters maximum)	Value (255 characters maximum)
1	<input type="text"/>	<input type="text"/>

Advanced

You can set additional options for your stack, like notification options and a stack policy. [Learn more.](#)

7 Click **Next** to review the configuration settings.

Figure 24. Specifying Tags

The screenshot shows the 'Review' step of an AWS CloudFormation deployment. On the left, a navigation menu includes 'Select Template', 'Specify Details', 'Options', and 'Review' (which is highlighted with an orange bar). The main content area is titled 'Review' and is divided into three sections: 'Template', 'Stack details', and 'Options'.
The 'Template' section lists:
- Template URL: <https://s3-us-west-2.amazonaws.com/>
- Description: AWS CloudFormation template to create a vSPoT deployment
- Estimate cost: [Cost](#)
The 'Stack details' section lists:
- Stack name: My-first-vSPoT
- KeyName: ys_and_zsolt
- StorageVolumeld
- vSPoTInstanceType: t2.medium
- Create IAM resources: No
The 'Options' section includes:
- Tags: No tags provided
- Advanced options:
 - Notification Timeout: none
 - Rollback on failure: Yes

8 Click **Create** to create the resources required to run a vSPoT instance in the AWS cloud. The system displays the progress and successful completion status. Navigate to the **Events** tab on the lower part of the screen to identify and troubleshoot the reason if the installation fails.

Figure 25. Creating a vSPoT instance

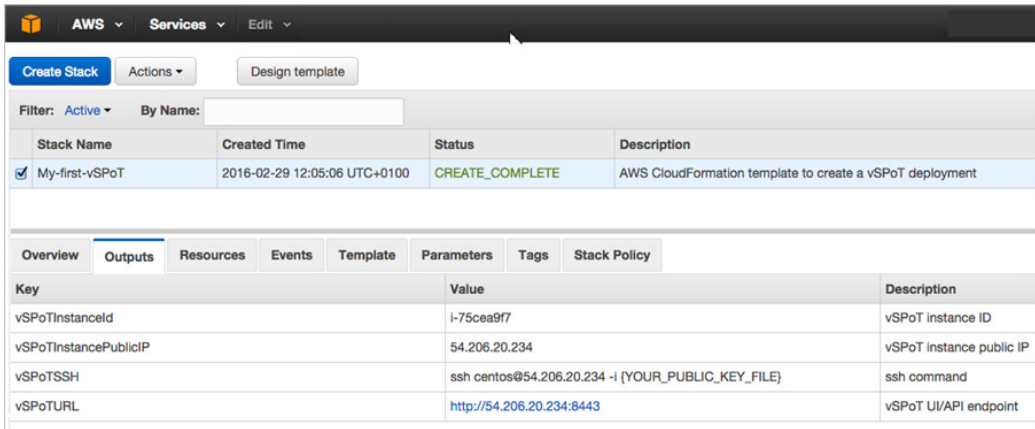
The screenshot shows the AWS CloudFormation console interface. At the top, there are navigation menus for 'AWS', 'Services', and 'Edit'. Below these are buttons for 'Create Stack', 'Actions', and 'Design template'. A filter section shows 'Filter: Active' and 'By Name:'. The main table lists stacks with columns for 'Stack Name', 'Created Time', 'Status', and 'Description'. The stack 'My-first-vSPoT' is highlighted, with its status 'CREATE_COMPLETE' also highlighted. Below the stack list, there are tabs for 'Overview', 'Outputs', 'Resources', 'Events', 'Template', 'Parameters', 'Tags', and 'Stack Policy'. The 'Events' tab is selected, showing a list of events with columns for 'Status', 'Type', and 'Logical ID'. The events include 'CREATE_COMPLETE' for the stack and 'CREATE_IN_PROGRESS' for EC2 instances.

Stack Name	Created Time	Status	Description
<input checked="" type="checkbox"/> My-first-vSPoT	2016-02-29 12:05:06 UTC+0100	CREATE_COMPLETE	AWS CloudFormation t

Overview	Outputs	Resources	Events	Template	Parameters	Tags	Stack Policy
2016-02-29		Status		Type			Logical ID
▶ 12:06:23 UTC+0100		CREATE_COMPLETE		AWS::CloudFormation::Stack			My-first-vSPo
▶ 12:06:22 UTC+0100		CREATE_COMPLETE		AWS::EC2::Instance			vSPoTInstanc
▶ 12:05:35 UTC+0100		CREATE_IN_PROGRESS		AWS::EC2::Instance			e
12:05:34 UTC+0100		CREATE_IN_PROGRESS		AWS::EC2::Instance			vSPoTInstanc

- 9 You now have a running vSPoT instance in your AWS account. You now need to get the IP address of the instance by navigation to the **Outputs** tab. Additional information such as the vSPoT web interface URL and a simple command to SSH into the instance is also displayed.

Figure 26. IP address of vSPoT instance



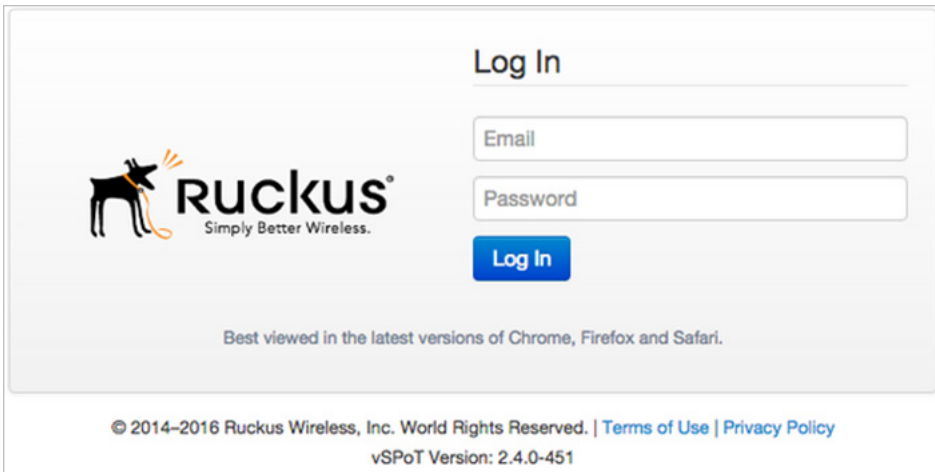
The screenshot shows the AWS CloudFormation console interface. At the top, there are navigation menus for 'AWS', 'Services', and 'Edit'. Below that, there are buttons for 'Create Stack', 'Actions', and 'Design template'. A filter section shows 'Filter: Active' and 'By Name:'. A table lists the stack 'My-first-vSPoT' with a status of 'CREATE_COMPLETE'. Below this, there are tabs for 'Overview', 'Outputs', 'Resources', 'Events', 'Template', 'Parameters', 'Tags', and 'Stack Policy'. The 'Outputs' tab is selected, showing a table with columns 'Key', 'Value', and 'Description'.

Key	Value	Description
vSPoTInstanceId	i-75cea9f7	vSPoT instance ID
vSPoTInstancePublicIP	54.206.20.234	vSPoT instance public IP
vSPoTSSH	ssh centos@54.206.20.234 -i {YOUR_PUBLIC_KEY_FILE}	ssh command
vSPoTURL	http://54.206.20.234:8443	vSPoT UI/API endpoint

10 Login to vSPoT using the vSPoT web interface URL.

vSPoTURL `http://54.206.20.234:8443`

Figure 27. vSPoT login



The screenshot shows the Ruckus vSPoT login page. On the left is the Ruckus logo, which features a stylized dog and the text 'RUCKUS Simply Better Wireless.'. On the right, there is a 'Log In' section with two input fields: 'Email' and 'Password'. Below these fields is a blue 'Log In' button. At the bottom of the page, there is a footer with the text '© 2014–2016 Ruckus Wireless, Inc. World Rights Reserved. | Terms of Use | Privacy Policy' and 'vSPoT Version: 2.4.0-451'.

Using the CLI Console

Follow the steps for allowing remote access using the vSPoT console.

- a Login to the vSPoT CLI using the console access or through SSH using the *admin* user.

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

- b Enable remote SSH support connection by executing the CLI command. By default this option is disabled.

```
admin@vspotappliance:~$ spot support on
```

- c Set up a NAT rule or open port to enable inbound network communication on TCP/22 port.

- d To disable remote SSH support connection execute the CLI command:

```
admin@vspotappliance:~$ spot support off
```



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350 West Java Dr. Sunnyvale, CA 94089. USA
www.ruckuswireless.com