Ruckus Cloudpath Upgrade Guide

Supporting Cloudpath 5.2

Contents

Product Upgrade Overview

This document describes how to upgrade your Cloudpath virtual appliance to a newer version of the application.

The intended audience for this publication is a Network Administrator.

The Cloudpath Enrollment System (ES) product upgrades are released periodically, both in the form of a new OVA file (for new installs) and as an update for existing virtual appliances. Each Cloudpath update contains updates and patches for the application and the operating system. The list of available updates is visible on the **Administration** > **System Updates**Administration > tab.

FIGURE 1 System Updates

If you do not see an upgrade version on your **System Updates** page, click the **Check for Updates** button.

> **NOTE**
> If you are upgrading replicated servers, see

Upgrade Process

Upgrade Process Overview

This section describes the processes for upgrading the Cloudpath system.

> **NOTE**
> Certain upgrades, such as those with major operating system changes, require a database import instead of a normal System Update using the Cloudpath Admin UI. Refer to the *Release Notes* for your upgrade version for additional instructions.

Upgrades for Hosted Deployments

After a release, Cloudpath updates the hosted system (onboard.cloudpath.net) to the most current Cloudpath version. You can begin to make use of new Cloudpath features immediately. After making configuration changes on the updated Cloudpath, you must publish your existing workflows. Go to **Configuration** > **Workflows**, and click the **Publish** icon in the top left of the workflows table.

Taking a VM Snapshot of On-Premise Deployments

We recommend that you take a Virtual Machine (VM) snapshot of your deployment before upgrading Cloudpath.

> **NOTE**
> For Hyper-V deployments, refer to *Deploying Cloudpath as a Virtual Appliance Using Microsoft™ Hyper-V Manager*.

To take a snapshot of the VM:

1. From the virtualization software client (VMware vSphere Client), select your virtual image, right-click and select **Snapshot** > **Take Snapshot**.
2. Enter the **Name** and **Description** of the snapshot. Provide enough details in the description so that other administrators can understand what is in each snapshot.
3. Select **Snapshot machine's virtual memory**.
4. (Optional) If VMware Tools is installed, you can also select **Quiesce guest file system** to pause running processes before you take a snapshot.

   See How to Increase the Virtual Appliance Memory on page 15, if needed.

Upgrades for On-Premise Deployments

There are two methods for upgrading your Cloudpath virtual appliance.

- Update your existing system from the Cloudpath Admin UI (**Administration** > **System Updates**). See Upgrading Cloudpath Using the Admin UI on page 8.
- Set up a virtual appliance using the new OVA and import the database from the existing system. See How to Import the Database From An Existing System on page 8.

Upgrading Cloudpath Using the Admin UI

We recommend that you have at least 6GB RAM before you upgrade. Refer to the *Cloudpath virtual appliance configuration* document on the **Support** tab before checking and changing memory.

1. Go to **Administration** > **System Updates**
2. Expand the **Update** section for the upgrade version.
3.   **NOTE**
   Depending on your current version (especially, if you are running a very old version), you might be required to upgrade one version at a time instead of going directly to the new version. This is typically required if there were extensive database changes between versions.

   Click the icon on the right side for the selected update. The button is green for the active build version, and clear for available build version.
4. After several minutes the server restarts. During the initial login, you might be prompted for information.
5. Go to **Administration** > **System Updates** to confirm the update.

   If the Cloudpath Admin UI login page does not appear after you upgrade, try rebooting the system.
6. After upgrading Cloudpath, go to **Administration** > **System Updates**, expand the current update, and click the **Resync** button.
7. After upgrading Cloudpath, you must republish each workflow. Navigate to **Configuration** > **Workflows**, and select the workflow, and click the **Publish** icon in the top left corner of the workflows table.

When you publish your workflow on the Cloudpath system, we recommend that you select the Newest available Wizard version.

How to Import the Database From An Existing System

To import the database from an existing system, you must first deploy a new VM and then import the database of the old system using the CLI.

   NOTE
   We recommend performing a database import during slow network periods. While the RADIUS server can authenticate enrollments during database import, these enrollments will not be migrated over to the new system.

Deploying a New Virtual Machine

Use the following steps to deploy and set up a virtual appliance using the new OVA.

1. Open the VMware client.
2. Select **File** > **Deploy OVF Template**.
3. Enter the file path or URL where the OVA file resides.
4. Accept the EULA.
5. Enter a unique name for the virtual appliance.
6. Select one of the following deployment configurations:
    - Non-Production POC - Deploys using 6GB RAM and 2 vCPUs x 1 Core. Recommended for software trials, feature testing, and other non-production systems.
    - 4,000 or Fewer Users - Deploys using 8GB RAM and 2 vCPUS x 2 Cores. Recommended for production systems with fewer than 4,000 users.
    - 8,000 or Fewer Users - Deploys using 12GB RAM and 2 vCPUS x 4 Cores. Recommended for production systems with fewer than 8,000 users.
    - More than 8,000 Users - Deploys using 16GB RAM and 2 vCPUS x 4 Cores. Recommended for production systems with more than 8,000 users.
    - More than 20,000 Users - Deploys using 20GB RAM and 2 vCPUS x 4 Cores. Recommended for production systems with more than 20,000 users.
7. If you are using VMware vCenter™ Server to manage your virtual environment, select the appropriate data center, cluster, host, and destination storage, as needed.
8. Select one of the following disk formats:
    - Use *Thick* provisioning for a production environment. For a thick provision, the total space required for the virtual disk is allocated during creation.

        > **NOTE**
        > If you are using Fault Tolerance, you must select *Thick* provisioning.

    - Use *Thin* provisioning for testing, or if disk space is an issue. A thin provisioned disk uses only as much datastore space as the disk initially needs. If the thin disk needs more space later, it can grow to the maximum capacity allocated to it.

Continue with the OVA deployment.

For more information about VM settings, refer to *Deploying Cloudpath as a Virtual Appliance on a VMware Server* document on the **Admin UI Support** tab.

Database Import Command

After the OVA has been deployed, network configuration is completed, and the system has rebooted, log into the system command line.

> **NOTE**
> It is no longer necessary to log into the Admin UI and bind the system before importing the database.

Use the following command from the new system CLI shell:

```
# maintenance cannibalize [IP address or hostname of existing system]
```

For example:

```
# maintenance cannibalize 172.16.4.20
```

Example of DB Import Process

The following is an example of the server messages during the db import process.

```
    -------------------------------------------------------------------------

    Cloudpath Configuration Console

    Use of this system signifies your agreement to the Cloudpath EULA.
    Portions of this system utilize open source software. See
    www.cloudpath.net/opensource for related licenses and information.

    -------------------------------------------------------------------------

    Type '?' For Help

    # maintenance cannibalize servername.cloudpath.net

    ------------------------------------------------------------------------------

      WARNINGS:
      1. Before proceeding, create a VM snapshot of ob5clone.cloudpath.net.
      2. Data on the localhost will be deleted and replaced with
         the data currently on ob5clone.cloudpath.net.

    ------------------------------------------------------------------------------

      The data will be retrieved from:
        Remote VM: servername.cloudpath.net:8022
        Remote Username: cpn_service
        * You will be prompted for the password of the remote VM.

      This process may take several minutes.

      Do you want to continue? [y/n] y

      When prompted, enter the password for the remote VM.
      The authenticity of host '[servername.cloudpath.net]:8022 ([17.16.4.20]:8022)'
      can't be established.

    RSA key fingerprint is b5:4e:ae:a5:98:b6:b3:84:fb:da:49:13:36:a7:53:6c.
    Are you sure you want to continue connecting (yes/no)? yes
    cpn_service@ob5clone.cloudpath.net's password:

      Connection established. Processing...
      Will prepare remote system for export...
      Will begin shrinking remote system...
      Will export configuration of remote server...
      Will stop application on local system...
      Will prepare local system for import...
      Will transfer data from remote system to local system...
      [For large tables, this step may take a considerable amount of time.]
        Transferring table 1 (ac)...
        Transferring table 2 (ac)...
        Transferring table 3 (ac)...
        Transferring table 4 (ac)...
        Transferring table 5 (ac)...
        Transferring table 6 (au)...
        Transferring table 7 (au)...
        Transferring table 8 (au)...
        Transferring table 9 (au)...
        Transferring table 10 (ce)...
        Transferring table 11 (ce)...
        Transferring table 12 (ce)...
        Transferring table 13 (ce)...
```

```
     Transferring table 14 (co)...
     Transferring table 15 (co)...
     Transferring table 16 (co)...
     Transferring table 17 (cp)...
     Transferring table 18 (cu)...
     Transferring table 20 (de)...
     Transferring table 21 (de)...
     ....
     ....
     Transferring table 103 (wo)...
     Completed transfer of 100 tables.

Will export config file from remote server...

-------------------------------------------------------------------------------
Data from servername.cloudpath.net has been imported into the local VM.
-------------------------------------------------------------------------------

Do you want to move the IP to this VM and shutdown the other VM? [y/n] y

Will wait for other system to shutdown completely...

Will apply network settings and reboot...
```

Reconfigure New Server With Production IP Address and Hostname

When the database import is finished, you are prompted to move the IP address and shut down the old system.

```
Do you want to move the IP to this VM and shutdown the other VM? [y/n]
```

Enter **y** to have the system automatically move the network configuration to the new server and shut down the old one.

To do this operation manually, at a later time, follow these instructions:

1. Power down the old server to avoid duplicate IP addresses.

2. Enter the following commands:

    ```
    # config hostname [FQDN hostname of old server]
    # config network STATIC ip [IP address of old server] [netmask] [gateway]
    # system restart
    ```

    After the system restarts, you can begin using the new system.

Upgrading Cloudpath Servers in a Replicated Environment

Upgrading Replicated Servers Overview

Cloudpath servers configured in a replicated environment can be upgraded using a database import or through the Administration user interface (UI).

Depending on your network environment and the number of servers in your cluster, this might take some time. The script that updates the database due to an upgrade, and then re-syncs the databases in the cluster, may require more than one pass to complete this process on all servers in the cluster.

> ⚠️ **CAUTION**
> You must disable the replication service on all servers before upgrading your Cloudpath system.

Upgrading Replicated Servers Using DB Import

Certain upgrades require that you deploy a new OVA and import the database of the existing system. This type of upgrade requires new OVAs for all servers.

1. Remove the replication configuration from each system. **Administration** > **Replication** > **Remove Cluster**.
2. Deploy a new OVA for the primary server.
3. During initial system setup, select the **Replacement Server for Existing Server** configuration.
4. Import the database from the old primary server using the following command:

   ```
   # maintenance cannibalize <oldhostname.domain.net>
   ```

5. Finish the database import process for the primary server as described in the How to Import the Database From An Existing System section.
6. Deploy a new OVA for the secondary server. (Repeat for additional servers)
7. During initial system setup, select **Add-on Server for Cluster**.
8. From your primary server (with the imported database), reconfigure replication by selecting **Administration** > **Replication** > **Enable Replication**. See the *How to Set Up Clustering With Cloudpath Servers* configuration guide for more information.

Upgrading Replicated Servers Using Admin UI

1. Remove the replication configuration from each system. **Administration** > **Replication** > **Remove Cluster**.
2. For each server in the cluster, navigate to **Administration** > **System Updates**.
3. Finish the upgrade process as described in the Upgrading Cloudpath Using the Admin UI on page 8 task.
4. Upgrade each server separately and reconfigure replication from your primary server by selecting **Administration** > **Replication** > **Enable Replication**. See the *How to Set Up Clustering With Cloudpath Servers* configuration guide for more information.

How to Export the Cloudpath Database

As a backup, you can export the Cloudpath database to a remote server. The export process dumps the Cloudpath database to a zipped tar.gz file, with a time-stamp, and transfers it using SCP to a remote server.

To export the database, log into the service account and enter the following command from the CLI interface: `# maintenance backup create [IP address or hostname of the remote server] [Port number] [Remote username] [Path to file location on the remote system]`

For example:

```
# maintenance backup create 172.16.4.20 22 username / home/db/file
```

Troubleshooting Upgrades

Troubleshooting Overview

Most upgrade issues revolve around memory and disk space.

To troubleshoot and address memory or disk space upgrade issues, see the following sections.

> **NOTE**
> For Hyper-V deployments, refer to the *Deploying Cloudpath as a Virtual Appliance Using Microsoft Hyper-V Manager* document.

How to Increase the Virtual Appliance Memory

Use these instructions if you want to change the memory configuration of a virtual machine's hardware.

1. From the vCenter client, power off the virtual appliance.
2. Select the VM, and right-click to **Edit Settings**.
3. With the **Hardware** tab selected, select **Memory**.
4. On the right window pane, increase the **Memory Size**.
5. Click **OK**.
6. Power on and reboot the VM.

How to Expand the MySQL Partition Size Using the vCenter Client

Use these instructions to expand size of the partition used for MySQL database operations. using the vCenter Client.

1. With the VM running, select the **VM** and right-click to **Edit Settings**.
2. With the **Hardware** tab selected, select **Hard disk 2**.
3. On the right pane, in the **Disk Provisioning** section, increase the **Provisioned Size** to the desired size and click **OK**.

   If the **Provisioned Size** cannot be selected, try restarting the server using the **sudo halt** command.

How to Expand the MySQL Partition Size from the Console

Use these instructions to expand size of the partition used for MySQL database operations. using the vCenter Client.

1. View the amount of free disk space available.

    ```
    [root@localhost cpn_service]# df -h
    ```

2. Signal to the OS that there has been a hardware change to the disk.

    ```
    [root@localhost cpn_service]# echo '1' > /sys/class/scsi_disk/2\:0\:1\:0/device/ rescan
    ```

3. Expand the physical volume.

    ```
    [root@localhost cpn_service]# pvresize /dev/sdb -v
    ```

4. Extend the size of the logical volume for MySQL operations.

    This example shows that we are extending the size of the logical volume by adding 25GB.

    ```
    [root@localhost cpn_service]# lvextend -L +25G /dev/mapper/application_vg-mysql
    ```

5. Resize the file system.

    This example resizes the file system, writes your changes to disk, and completes the partition expansion process.

    ```
    [root@localhost cpn_service]# resize2fs /dev/mapper/application_vg-mysql
    ```

6. Verify the amount of free disk space available.

    ```
    [root@localhost cpn_service]# df -h
    ```

    The output should indicate the increased partition size.

Firewall Settings

The Cloudpath Admin UI provides a table that lists the inbound and outbound traffic of your Cloudpath. This information is dynamically generated based on the current system configuration and can changes as the system configuration is modified.

Go to **Administration** > **Firewall Requirements** to view the Cloudpath traffic for you network and ensure that your firewall ports have been correctly configured.

FIGURE 2 Firewall Requirements