Citrix CloudPlatform (powered by Apache CloudStack) 4.2.1-3 Maintenance Release Notes

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Release notes for Citrix CloudPlatform version 4.2.1-3 Maintenance Release.

Submitting Feedback and Getting Help

The support team is available to help customers plan and execute their installations. To contact the support team, log in to *the Support Portal*[1] by using the account credentials you received when you purchased your support contract.

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[1] http://support.citrix.com/cms/kc/cloud-home/

Support Matrix

This section describes the operating systems, browsers, and hypervisors that have been newly tested and certified compatible with CloudPlatform 4.2.1-3 Maintenance Release. Most earlier OS and hypervisor versions are also still supported for use with 4.2.1-3 Maintenance Release For a complete list, see the System Requirements section of the CloudPlatform 4.2.1-3 Maintenance Release Installation Guide.

2.1. Supported OS Versions for Management Server

- RHEL versions 5.5, 6.2, 6.3, and 6.4

- CentOS versions 5.5, 6.2, 6.3, and 6.4

2.2. Supported Hypervisor Versions

The following new hypervisor support has been added:

- XenServer 6.2

- XenServer versions 5.6 SP2, 6.0, 6.0.2, and 6.1

- KVM versions 5.5, 5.6, 5.7, 6.1, and 6.3

- VMware versions 4.1, 5.0.1 Update B, 5.0, and 5.1

- Bare metal hosts are supported, which have no hypervisor. These hosts can run the following operating systems:

  - RHEL or CentOS, v6.2 or 6.3

    > **Note**
    >
    > Use libvirt version 0.9.10 for CentOS 6.3

  - Fedora 17

  - Ubuntu 12.04

For more information, see the Hypervisor Compatibility Matrix in the CloudPlatform Installation Guide.

2.3. Supported External Devices

- Netscaler VPX and MPX versions 9.3 and 10.e

- Netscaler SDX version 9.3

- SRX (Model srx100b) versions 10.3 or higher

- F5 10.1.0 (Build 3341.1084)

2.4. Supported Browsers

- Internet Explorer versions 8 and 9

- Firefox version 25

- Google Chrome versions 17 and 20.0.1132.47m

- Safari 5

Upgrade Instructions

3.1. Upgrading from 4.2.x-x to 4.2.1-3

Perform the following to upgrade from version 4.2.x-x to version 4.2.1-3.

1. (KVM on RHEL 6.0/6.1 only) If your existing CloudPlatform deployment includes one or more clusters of KVM hosts running RHEL 6.0 or RHEL 6.1, you must first upgrade the operating system version on those hosts before upgrading CloudPlatform itself.

    Run the following commands on every KVM host.

    a. Download the CloudPlatform 4.2.1-3 RHEL 6.3 binaries from *https://www.citrix.com/English/ ss/downloads/*.

    b. Extract the binaries:

        ```
        # cd /root
        # tar xvf CloudPlatform-4.2.1-3-rhel6.3.tar.gz
        ```

    c. Create a CloudPlatform 4.2.1-3 qemu repo:

        ```
        # cd CloudPlatform-4.2.1-3-rhel6.3/6.3
        # createrepo
        ```

    d. Prepare the yum repo for upgrade. Edit the file /etc/yum.repos.d/rhel63.repo. For example:

        ```
        [upgrade]
        name=rhel63
        baseurl=url-of-your-rhel6.3-repo
        enabled=1
        gpgcheck=0
        [cloudstack]
        name=cloudstack
        baseurl=file:///root/CloudPlatform-4.2.1-3-rhel6.3/6.3
        enabled=1
        gpgcheck=0
        ```

    e. Upgrade the host operating system from RHEL 6.0 to 6.3:

        ```
        yum upgrade
        ```

2. Stop all Usage Servers if running. Run this on all Usage Server hosts.

    ```
    # service cloudstack-usage stop
    ```

3. Stop the Management Servers. Run this on all Management Server hosts.

    ```
    # service cloudstack-management stop
    ```

4. On the MySQL master, take a backup of the MySQL databases. We recommend performing this step even in test upgrades. If there is an issue, this will assist with debugging.

In the following commands, it is assumed that you have set the root password on the database, which is a CloudPlatform recommended best practice. Substitute your own MySQL root password.

```
# mysqldump -u root -p<mysql_password> cloud >> cloud-backup.dmp
# mysqldump -u root -p<mysql_password> cloud_usage > cloud-usage-backup.dmp
```

5. (RHEL/CentOS 5.x) If you are currently running CloudPlatform on RHEL/CentOS 5.x, use the following command to set up an Extra Packages for Enterprise Linux (EPEL) repo:

```
rpm -Uvh http://mirror.pnl.gov/epel/5/i386/epel-release-5-4.noarch.rpm
```

6. Download CloudPlatform 4.2.1 onto the management server host where it will run. Get the software from the following link:

    https://www.citrix.com/English/ss/downloads/.

    You need a *My Citrix Account*[1].

7. Upgrade the CloudPlatform packages. You should have a file in the form of "CloudPlatform-4.2.1-N-OSVERSION.tar.gz". Untar the file, then run the install.sh script inside it. Replace the file and directory names below with those you are using:

```
# tar xzf CloudPlatform-4.2.1-N-OSVERSION.tar.gz
# cd CloudPlatform-4.2.1-N-OSVERSION
# ./install.sh
```

    You should see a few messages as the installer prepares, followed by a list of choices.

8. Choose "U" to upgrade the package

```
>U
```

    You should see some output as the upgrade proceeds, ending with a message like "Complete! Done."

9. If you have made changes to your existing copy of the configuration files components.xml, db.properties, or server.xml in your previous-version CloudPlatform installation, the changes will be preserved in the upgrade. However, you need to do the following steps to place these changes in a new version of the file which is compatible with version 4.2.1.

    > **Note**
    >
    > How will you know whether you need to do this? If the upgrade output in the previous step included a message like the following, then some custom content was found in your old file, and you need to merge the two files:

---

[1] http://www.citrix.com/lang/English/publicindex.asp?destURL=%2FEnglish%2FmyCitrix%2Findex.asp%3F#

```
warning: /etc/cloud.rpmsave/management/components.xml created as /etc/cloudstack/
management/components.xml.rpmnew
```

a. Make a backup copy of your previous version file. For example: (substitute the file name components.xml, db.properties, or server.xml in these commands as needed)

```
# mv /etc/cloudstack/management/components.xml /etc/cloudstack/management/
components.xml-backup
```

b. Copy the *.rpmnew file to create a new file. For example:

```
# cp -ap /etc/cloudstack/management/components.xml.rpmnew /etc/cloudstack/management/
components.xml
```

c. Merge your changes from the backup file into the new file. For example:

```
# vi /etc/cloudstack/management/components.xml
```

10. Repeat steps *5* - *9* on each management server node.

11. Start the first Management Server. Do not start any other Management Server nodes yet.

```
# service cloudstack-management start
```

Wait until the databases are upgraded. Ensure that the database upgrade is complete. After confirmation, start the other Management Servers one at a time by running the same command on each node.

> **Note**
>
> Failing to restart the Management Server indicates a problem in the upgrade. Restarting the Management Server without any issues indicates that the upgrade is successfully completed.

12. Start all Usage Servers (if they were running on your previous version). Perform this on each Usage Server host.

```
# service cloudstack-usage start
```

13. (VMware only) If you have existing clusters created in CloudPlatform 3.0.6, additional steps are required to update the existing vCenter password for each VMware cluster.

These steps will not affect running guests in the cloud. These steps are required only for clouds using VMware clusters:

a. Stop the Management Server:

```
service cloudstack-management stop
```

b. Perform the following on each VMware cluster:

    i.   Encrypt the vCenter password:

```
java -classpath /usr/share/cloudstack-common/lib/jasypt-1.9.0.jar
 org.jasypt.intf.cli.JasyptPBEStringEncryptionCLI encrypt.sh
 input=<_your_vCenter_password_> password="`cat /etc/cloudstack/management/key`"
 verbose=false
```

        Save the output from this step for later use. You need to add this in the cluster_details and vmware_data_center tables in place of the existing password.

    ii.   Find the ID of the cluster from the cluster_details table:

```
mysql -u <username> -p<password>
```

```
select * from cloud.cluster_details;
```

    iii.   Update the existing password with the encrypted one:

```
update cloud.cluster_details set value = <_ciphertext_from_step_i_> where id =
 <_id_from_step_ii_>;
```

    iv.   Confirm that the table is updated:

```
select * from cloud.cluster_details;
```

    v.   Find the ID of the VMware data center that you want to work with:

```
select * from cloud.vmware_data_center;
```

    vi.   Change the existing password to the encrypted one:

```
update cloud.vmware_data_center set password = <_ciphertext_from_step_i_> where
 id = <_id_from_step_v_>;
```

    vii.   Confirm that the table is updated:

```
select * from cloud.vmware_data_center;
```

  c.   Start the CloudPlatform Management server

```
service cloudstack-management start
```

14. (KVM only) Additional steps are required for each KVM host. These steps will not affect running guests in the cloud. These steps are required only for clouds using KVM as hosts and only on the KVM hosts.

> **Note**
>
> After the software upgrade on a KVM machine, the Ctrl+Alt+Del button on the console view of a VM doesn't work. Use Ctrl+Alt+Insert to log in to the console of the VM.

a. Copy the CloudPlatform 4.2.1-3.tgz download to the host, untar it, and change to the resulting directory.

b. Stop the running agent.

```
# service cloudstack-agent stop
```

c. Update the agent software.

```
# ./install.sh
```

d. Choose "U" to update the packages.

e. Upgrade all the existing bridge names to new bridge names by running this script:

```
# cloudstack-agent-upgrade
```

f. Install a libvirt hook with the following commands:

```
# mkdir /etc/libvirt/hooks
# cp /usr/share/cloudstack-agent/lib/libvirtqemuhook /etc/libvirt/hooks/qemu
# chmod +x /etc/libvirt/hooks/qemu
```

g. Restart libvirtd.

```
# service libvirtd restart
```

h. Start the agent.

```
# service cloudstack-agent start
```

15. Log in to the CloudPlatform UI as administrator, and check the status of the hosts. All hosts should come to Up state (except those that you know to be offline). You may need to wait 20 or 30 minutes, depending on the number of hosts.

> **Note**
>
> Troubleshooting: If login fails, clear your browser cache and reload the page.

Do not proceed to the next step until the hosts show in Up state. If the hosts do not come to the Up state, contact support.

16. (VMware only) Log in to the CloudPlatform UI.

17. Destroy both the Secondary Storage VM (SSVM) and Console Proxy VM (CPVM).

18. (VMware) Run the following script to destroy and re-create all remaining System VMs.

    a. Run the script once on one management server. Substitute your own IP address of the MySQL instance, the MySQL user to connect as, and the password to use for that user. In addition to those parameters, provide the "-n" and "-v" arguments. For example:

    ```
    # nohup cloudstack-sysvmadm -d 192.168.1.5 -u cloud -p password -n -v > sysvm.log
     2>&1 &
    ```

    This might take up to an hour or more to run, depending on the number of accounts in the system.

    b. After the script terminates, check the log to verify correct execution:

    ```
    # tail -f sysvm.log
    ```

    The content should be like the following:

    ```
    nohup: ignoring input
    Restarting 4 networks...
    Done restarting networks.
    Restarting 2 vpcs...
    INFO: Restarting vpc with id 2
    INFO: Restarting vpc with id 1
    INFO: Successfully restarted vpc with id 1
    INFO: Successfully restarted vpc with id 2
    Done restarting vpcs.
    ```

19. (XenServer or KVM) Run the following script to stop, then start, all System VMs including Secondary Storage VMs, Console Proxy VMs, and virtual routers.

    a. Run the script once on one management server. Substitute your own IP address of the MySQL instance, the MySQL user to connect as, and the password to use for that user. In addition to those parameters, provide the "-a" argument.

    For example:

    ```
    # nohup cloudstack-sysvmadm -d 192.168.1.5 -u cloud -p password -a > sysvm.log 2>&1 &
    ```

    This might take up to an hour or more to run, depending on the number of accounts in the system.

    b. After the script terminates, check the log to verify correct execution:

    ```
    # tail -f sysvm.log
    ```

    The content should be like the following:

    ```
    Stopping and starting 1 secondary storage vm(s)...
    Done stopping and starting secondary storage vm(s)
    Stopping and starting 1 console proxy vm(s)...
    Done stopping and starting console proxy vm(s).
    ```

```
Stopping and starting 4 running routing vm(s)...
Done restarting router(s).
```

20. (XenServer only) If needed, upgrade all Citrix XenServer hypervisor hosts in your cloud to a version supported by CloudPlatform 4.2.1 and apply any required hotfixes. Instructions for upgrading XenServer software and applying hotfixes can be found in *Section 3.6, "Upgrading and Hotfixing XenServer Hypervisor Hosts"*.

21. (VMware only) After upgrade, if you want to change a Standard vSwitch zone to a VMware dvSwitch Zone, perform the following:

    a. Ensure that the Public and Guest traffics are not on the same network as the Management and Storage traffic.

    b. Set vmware.use.dvswitch to true.

    c. Access the physical network for the Public and guest traffic, then change the traffic labels as given below:

    ```
    <dvSwitch name>,<VLANID>,<Switch Type>
    ```

    For example: dvSwitch18,,vmwaredvs

    VLANID is optional.

    d. Stop the Management server.

    e. Start the Management server.

    f. Add the new VMware dvSwitch-enabled cluster to this zone.

> **Note**
>
> Troubleshooting tip: If passwords which you know to be valid appear not to work after upgrade, or other UI issues are seen, try clearing your browser cache and reloading the UI page.

> **Note**
>
> (VMware only) After upgrade, whenever you add a new VMware cluster to a zone that was created with a previous version of CloudPlatform, the fields vCenter host, vCenter Username, vCenter Password, and vCenter Datacenter are required. The Add Cluster dialog in the CloudPlatform user interface incorrectly shows them as optional, and will allow you to proceed with adding the cluster even though these important fields are blank. If you do not provide the values, you will see an error message like "Your host and/or path is wrong. Make sure it's of the format http://hostname/path".

3.2. Upgrading from 3.0.x to 4.2.1-3

Perform the following to upgrade from version 3.0.5, 3.0.6, or 3.0.7 Patch C to version 4.2.1-3.

1. While running the 3.0.x system, log in to the UI as root administrator.

2. Using the UI, add a new System VM template for each hypervisor type that is used in your cloud. In each zone, add a system VM template for each hypervisor used in that zone.

> **Note**
>
> You might notice that the size of the system VM template has increased compared to previous CloudPlatform versions. This is because the new version of the underlying Debian template has an increased disk size.

   a. In the left navigation bar, click Templates.

   b. In Select view, click Templates.

   c. Click Register template.

      The Register template dialog box is displayed.

   d. In the Register template dialog box, specify the following values depending on the hypervisor type (do not change these):

Hypervisor	Description
XenServer	Name: systemvm-xenserver-4.2
	Description: systemvm-xenserver-4.2
	URL (if using 32-bit system VM template): *http://download.cloud.com/templates/4.2/ systemvmtemplate-2013-07-12-master-xen.vhd.bz2*
	URL (if using 64-bit system VM template): *http://download.cloud.com/templates/4.2/64bit/ systemvmtemplate64-2013-07-15-master-xen.vhd.bz2*
	Zone: Choose the zone where this hypervisor is used. If your CloudPlatform deployment includes multiple zones running XenServer, choose All Zones to make the template available in all the XenServer zones.
	Hypervisor: XenServer
	Format: VHD
	OS Type: Debian GNU/Linux 7.0 (32-bit and 64-bit) (or the highest Debian release number available in the dropdown)
	Extractable: no
	Password Enabled: no
	Public: no
	Featured: no
KVM	Name: systemvm-kvm-4.2

Hypervisor	Description
	Description: systemvm-kvm-4.2
	URL (if using 32-bit system VM template): *http://download.cloud.com/templates/4.2/ systemvmtemplate-2013-06-12-master-kvm.qcow2.bz2*
	URL (if using 64-bit system VM template): *http://download.cloud.com/templates/4.2/64bit/ systemvmtemplate64-2013-07-15-master-kvm.qcow2.bz2*
	Zone: Choose the zone where this hypervisor is used. If your CloudPlatform deployment includes multiple zones running KVM, choose All Zones to make the template available in all the KVM zones.
	Hypervisor: KVM
	Format: QCOW2
	OS Type: Debian GNU/Linux 7.0 (32-bit and 64-bit) (or the highest Debian release number available in the dropdown)
	Extractable: no
	Password Enabled: no
	Public: no
	Featured: no
VMware	Name: systemvm-vmware-4.2
	Description: systemvm-vmware-4.2
	URL (if using 32-bit system VM template on ESX 5.*): *http:// download.cloud.com/templates/4.2/systemvmtemplate-4.2- vh8.ova*
	URL (if using 32-bit system VM template on earlier VMware version): *http://download.cloud.com/templates/4.2/ systemvmtemplate-4.2-vh7.ova*
	URL (if using 64-bit system VM template): *http://download.cloud.com/templates/4.2/64bit/ systemvmtemplate64.ova*
	Zone: Choose the zone where this hypervisor is used. If your CloudPlatform deployment includes multiple zones running VMware, choose All Zones to make the template available in all the VMware zones.
	Hypervisor: VMware
	Format: OVA

Hypervisor	Description
	OS Type: Debian GNU/Linux 7.0 (32-bit) (or the highest Debian release number available in the dropdown)
	Extractable: no
	Password Enabled: no
	Public: no
	Featured: no

e. Watch the screen to be sure that the template downloads successfully and enters the READY state. Do not proceed until this is successful

f. If you use more than one type of hypervisor in your cloud, repeat these steps to download the system VM template for each hypervisor type.

> ⚠ **Warning**
>
> If you do not repeat the steps for each hypervisor type, the upgrade will fail.

3. (KVM on RHEL 6.0/6.1 only) If your existing CloudPlatform deployment includes one or more clusters of KVM hosts running RHEL 6.0 or RHEL 6.1, you must first upgrade the operating system version on those hosts before upgrading CloudPlatform itself.

Run the following commands on every KVM host.

a. Download the CloudPlatform 4.2.1-3 RHEL 6.3 binaries from *https://www.citrix.com/English/ss/downloads/*.

b. Extract the binaries:

```
# cd /root
# tar xvf CloudPlatform-4.2.1-3-rhel6.3.tar.gz
```

c. Create a CloudPlatform 4.2.1-3 qemu repo:

```
# cd CloudPlatform-4.2.1-3-rhel6.3/6.3
# createrepo
```

d. Prepare the yum repo for upgrade. Edit the file /etc/yum.repos.d/rhel63.repo. For example:

```
[upgrade]
name=rhel63
baseurl=url-of-your-rhel6.3-repo
enabled=1
gpgcheck=0
[cloudstack]
name=cloudstack
baseurl=file:///root/CloudPlatform-4.2.1-3-rhel6.3/6.3
enabled=1
gpgcheck=0
```

e. Upgrade the host operating system from RHEL 6.0 to 6.3:

```
yum upgrade
```

4. Stop all Usage Servers if running. Run this on all Usage Server hosts.

```
# service cloudstack-usage stop
```

5. Stop the Management Servers. Run this on all Management Server hosts.

```
# service cloudstack-management stop
```

6. On the MySQL master, take a backup of the MySQL databases. We recommend performing this step even in test upgrades. If there is an issue, this will assist with debugging.

In the following commands, it is assumed that you have set the root password on the database, which is a CloudPlatform recommended best practice. Substitute your own MySQL root password.

```
# mysqldump -u root -p<mysql_password> cloud >> cloud-backup.dmp
# mysqldump -u root -p<mysql_password> cloud_usage > cloud-usage-backup.dmp
```

7. (RHEL/CentOS 5.x) If you are currently running CloudPlatform on RHEL/CentOS 5.x, use the following command to set up an Extra Packages for Enterprise Linux (EPEL) repo:

```
rpm -Uvh http://mirror.pnl.gov/epel/5/i386/epel-release-5-4.noarch.rpm
```

8. Download CloudPlatform 4.2.1 onto the management server host where it will run. Get the software from the following link:

https://www.citrix.com/English/ss/downloads/.

You need a *My Citrix Account*[2].

9. Upgrade the CloudPlatform packages. You should have a file in the form of "CloudPlatform-4.2.1-N-OSVERSION.tar.gz". Untar the file, then run the install.sh script inside it. Replace the file and directory names below with those you are using:

```
# tar xzf CloudPlatform-4.2.1-N-OSVERSION.tar.gz
# cd CloudPlatform-4.2.1-N-OSVERSION
# ./install.sh
```

You should see a few messages as the installer prepares, followed by a list of choices.

10. Choose "U" to upgrade the package

```
>U
```

You should see some output as the upgrade proceeds, ending with a message like "Complete! Done."

---

[2] http://www.citrix.com/lang/English/publicindex.asp?destURL=%2FEnglish%2FmyCitrix%2Findex.asp%3F#

11. If you have made changes to your existing copy of the configuration files components.xml, db.properties, or server.xml in your previous-version CloudPlatform installation, the changes will be preserved in the upgrade. However, you need to do the following steps to place these changes in a new version of the file which is compatible with version 4.2.1.

> **Note**
>
> How will you know whether you need to do this? If the upgrade output in the previous step included a message like the following, then some custom content was found in your old file, and you need to merge the two files:

```
warning: /etc/cloud.rpmsave/management/components.xml created as /etc/cloudstack/
management/components.xml.rpmnew
```

  a. Make a backup copy of your previous version file. For example: (substitute the file name components.xml, db.properties, or server.xml in these commands as needed)

```
# mv /etc/cloudstack/management/components.xml /etc/cloudstack/management/
components.xml-backup
```

  b. Copy the *.rpmnew file to create a new file. For example:

```
# cp -ap /etc/cloudstack/management/components.xml.rpmnew /etc/cloudstack/management/
components.xml
```

  c. Merge your changes from the backup file into the new file. For example:

```
# vi /etc/cloudstack/management/components.xml
```

12. Repeat steps *7* - *11* on each management server node.

13. Start the first Management Server. Do not start any other Management Server nodes yet.

```
# service cloudstack-management start
```

Wait until the databases are upgraded. Ensure that the database upgrade is complete. After confirmation, start the other Management Servers one at a time by running the same command on each node.

> **Note**
>
> Failing to restart the Management Server indicates a problem in the upgrade. Restarting the Management Server without any issues indicates that the upgrade is successfully completed.

14. Start all Usage Servers (if they were running on your previous version). Perform this on each Usage Server host.

```
# service cloudstack-usage start
```

15. (VMware only) If you are upgrading from 3.0.6 or beyond and you have existing clusters created in 3.0.6, additional steps are required to update the existing vCenter password for each VMware cluster.

These steps will not affect running guests in the cloud. These steps are required only for clouds using VMware clusters:

a. Stop the Management Server:

```
service cloudstack-management stop
```

b. Perform the following on each VMware cluster:

i. Encrypt the vCenter password:

```
java -classpath /usr/share/cloudstack-common/lib/jasypt-1.9.0.jar
  org.jasypt.intf.cli.JasyptPBEStringEncryptionCLI encrypt.sh
  input=<_your_vCenter_password_> password="`cat /etc/cloudstack/management/key`"
  verbose=false
```

Save the output from this step for later use. You need to add this in the cluster_details and vmware_data_center tables in place of the existing password.

ii. Find the ID of the cluster from the cluster_details table:

```
mysql -u <username> -p<password>
```

```
select * from cloud.cluster_details;
```

iii. Update the existing password with the encrypted one:

```
update cloud.cluster_details set value = <_ciphertext_from_step_i_> where id =
  <_id_from_step_ii_>;
```

iv. Confirm that the table is updated:

```
select * from cloud.cluster_details;
```

v. Find the ID of the VMware data center that you want to work with:

```
select * from cloud.vmware_data_center;
```

vi. Change the existing password to the encrypted one:

```
update cloud.vmware_data_center set password = <_ciphertext_from_step_i_> where
  id = <_id_from_step_v_>;
```

vii. Confirm that the table is updated:

```
select * from cloud.vmware_data_center;
```

   c.   Start the CloudPlatform Management server

```
service cloudstack-management start
```

16. (KVM only) Additional steps are required for each KVM host. These steps will not affect running guests in the cloud. These steps are required only for clouds using KVM as hosts and only on the KVM hosts.

> **Note**
>
> After the software upgrade on a KVM machine, the Ctrl+Alt+Del button on the console view of a VM doesn't work. Use Ctrl+Alt+Insert to log in to the console of the VM.

   a.   Copy the CloudPlatform 4.2.1-3.tgz download to the host, untar it, and cd into the resulting directory.

   b.   Stop the running agent.

```
# service cloudstack-agent stop
```

   c.   Update the agent software.

```
# ./install.sh
```

   d.   Choose "U" to update the packages.

   e.   Edit **/etc/cloudstack/agent/agent.properties** to change the resource parameter from **com.cloud.agent.resource.computing.LibvirtComputingResource** to **com.cloud.hypervisor.kvm.resource.LibvirtComputingResource**.

   f.   Upgrade all the existing bridge names to new bridge names by running this script:

```
# cloudstack-agent-upgrade
```

   g.   Install a libvirt hook with the following commands:

```
# mkdir /etc/libvirt/hooks
# cp /usr/share/cloudstack-agent/lib/libvirtqemuhook /etc/libvirt/hooks/qemu
# chmod +x /etc/libvirt/hooks/qemu
```

   h.   Restart libvirtd.

```
# service libvirtd restart
```

   i.   Start the agent.

```
# service cloudstack-agent start
```

17. Log in to the CloudPlatform UI as administrator, and check the status of the hosts. All hosts should come to Up state (except those that you know to be offline). You may need to wait 20 or 30 minutes, depending on the number of hosts.

> **Note**
>
> Troubleshooting: If login fails, clear your browser cache and reload the page.

Do not proceed to the next step until the hosts show in Up state. If the hosts do not come to the Up state, contact support.

18. (VMware only) Log in to the CloudPlatform UI. Destroy both the Secondary Storage VM (SSVM) and Console Proxy VM (CPVM).

19. (VMware) Run the following script to destroy and re-create all remaining System VMs.

    a. Run the script once on one management server. Substitute your own IP address of the MySQL instance, the MySQL user to connect as, and the password to use for that user. In addition to those parameters, provide the "-n" and "-v" arguments. For example:

    ```
    # nohup cloudstack-sysvmadm -d 192.168.1.5 -u cloud -p password -n -v > sysvm.log
      2>&1 &
    ```

    This might take up to an hour or more to run, depending on the number of accounts in the system.

    b. After the script terminates, check the log to verify correct execution:

    ```
    # tail -f sysvm.log
    ```

    The content should be like the following:

    ```
    nohup: ignoring input
    Restarting 4 networks...
    Done restarting networks.
    Restarting 2 vpcs...
    INFO: Restarting vpc with id 2
    INFO: Restarting vpc with id 1
    INFO: Successfully restarted vpc with id 1
    INFO: Successfully restarted vpc with id 2
    Done restarting vpcs.
    ```

20. (XenServer or KVM) Run the following script to stop, then start, all System VMs including Secondary Storage VMs, Console Proxy VMs, and virtual routers.

    a. Run the script once on one management server. Substitute your own IP address of the MySQL instance, the MySQL user to connect as, and the password to use for that user. In addition to those parameters, provide the "-a" argument. For example:

```
# nohup cloudstack-sysvmadm -d 192.168.1.5 -u cloud -p password -a > sysvm.log 2>&1 &
```

This might take up to an hour or more to run, depending on the number of accounts in the system.

b. After the script terminates, check the log to verify correct execution:

```
# tail -f sysvm.log
```

The content should be like the following:

```
Stopping and starting 1 secondary storage vm(s)...
Done stopping and starting secondary storage vm(s)
Stopping and starting 1 console proxy vm(s)...
Done stopping and starting console proxy vm(s).
Stopping and starting 4 running routing vm(s)...
Done restarting router(s).
```

21. If you would like additional confirmation that the new system VM templates were correctly applied when these system VMs were rebooted, SSH into the System VM and check the version.

    Use one of the following techniques, depending on the hypervisor.

XenServer or KVM:

SSH in by using the link local IP address of the system VM. For example, in the command below, substitute your own path to the private key used to log in to the system VM and your own link local IP.

Run the following commands on the XenServer or KVM host on which the system VM is present:

```
# ssh -i /root/.ssh/id_rsa.cloud <link-local-ip> -p 3922
# cat /etc/cloudstack-release
```

The output should be like the following:

```
Cloudstack Release 4.2.1-3 Mon Feb 24 15:10:04 PST 2014
```

ESXi

SSH in using the private IP address of the system VM. For example, in the command below, substitute your own path to the private key used to log in to the system VM and your own private IP.

Run the following commands on the Management Server:

```
# ssh -i /var/cloudstack/management/.ssh/id_rsa <private-ip> -p 3922
# cat /etc/cloudstack-release
```

The output should be like the following:

```
Cloudstack Release 4.2.1-3 Mon Feb 24 15:10:04 PST 2014
```

22. If you want to close the admin port again (recommended in production systems), set integration.api.port to null. Then restart the Management Server. For information about how to set integration.api.port, see "Setting Configuration Parameters" in the Installation Guide.

23. (XenServer only) If needed, upgrade all Citrix XenServer hypervisor hosts in your cloud to a version supported by CloudPlatform 4.2.1-3 and apply any required hotfixes. Instructions for upgrading XenServer software and applying hotfixes can be found in *Section 3.6, "Upgrading and Hotfixing XenServer Hypervisor Hosts"*.

24. (VMware only) After upgrade, if you want to change a Standard vSwitch zone to a VMware dvSwitch Zone, perform the following:

    a. Ensure that the Public and Guest traffics are not on the same network as the Management and Storage traffic.

    b. Set vmware.use.dvswitch to true.

    c. Access the physical network for the Public and guest traffic, then change the traffic labels as given below:

    ```
    <dvSwitch name>,<VLANID>,<Switch Type>
    ```

    For example: dvSwitch18,,vmwaredvs

    VLANID is optional.

    d. Stop the Management server.

    e. Start the Management server.

    f. Add the new VMware dvSwitch-enabled cluster to this zone.

> **Note**
>
> Troubleshooting tip: If passwords which you know to be valid appear not to work after upgrade, or other UI issues are seen, try clearing your browser cache and reloading the UI page.

> **Note**
>
> (VMware only) After upgrade, whenever you add a new VMware cluster to a zone that was created with a previous version of CloudPlatform, the fields vCenter host, vCenter Username, vCenter Password, and vCenter Datacenter are required. The Add Cluster dialog in the CloudPlatform user interface incorrectly shows them as optional, and will allow you to proceed with adding the cluster even though these important fields are blank. If you do not provide the values, you will see an error message like "Your host and/or path is wrong. Make sure it's of the format http://hostname/path".

3.3. Upgrading from 2.2.x to 4.2.1-3

Direct upgrade from 2.2.x to 4.2.1-3 is not supported. You must first upgrade to 4.2.1:

1. Upgrade to 4.2.1:

   a. Ensure that you query your IP address usage records and process them; for example, issue invoices for any usage that you have not yet billed users for.

      Starting in 3.0.2, the usage record format for IP addresses is the same as the rest of the usage types. Instead of a single record with the assignment and release dates, separate records are generated per aggregation period with start and end dates. After upgrading to 4.2.1, any existing IP address usage records in the old format will no longer be available.

   b. If you are using version 2.2.0 - 2.2.13, first upgrade to 2.2.14 by using the instructions in the *2.2.14 Release Notes*[3].

      > **Note**
      >
      > (KVM only) If KVM hypervisor is used in your cloud, be sure you completed the step to insert a valid username and password into the host_details table on each KVM node as described in the 2.2.14 Release Notes. This step is critical, as the database will be encrypted after the upgrade to 4.2.1.

   c. While running the 2.2.x system (which by this step should be at version 2.2.14 or greater), log in to the UI as root administrator.

   d. Using the UI, add a new System VM template for each hypervisor type that is used in your cloud. In each zone, add a system VM template for each hypervisor used in that zone.

      > **Note**
      >
      > You might notice that the size of the system VM template has increased compared to previous CloudPlatform versions. This is because the new version of the underlying Debian template has an increased disk size.

      a. In the left navigation bar, click Templates.

      b. In Select view, click Templates.

      c. Click Register template.

         The Register template dialog box is displayed.

      d. In the Register template dialog box, specify the following values depending on the hypervisor type (do not change these):

Hypervisor	Description
XenServer	Name: systemvm-xenserver-4.2
	Description: systemvm-xenserver-4.2

---

[3] http://download.cloud.com/releases/2.2.0/CloudStack2.2.14ReleaseNotes.pdf

Hypervisor	Description
	URL (if using 32-bit system VM template): *http://download.cloud.com/templates/4.2/ systemvmtemplate-2013-07-12-master-xen.vhd.bz2*
	URL (if using 64-bit system VM template): *http://download.cloud.com/templates/4.2/64bit/ systemvmtemplate64-2013-07-15-master-xen.vhd.bz2*
	Zone: Choose the zone where this hypervisor is used. If your CloudPlatform deployment includes multiple zones running XenServer, choose All Zones to make the template available in all the XenServer zones.
	Hypervisor: XenServer
	Format: VHD
	OS Type: Debian GNU/Linux 7.0 (32-bit and 64-bit) (or the highest Debian release number available in the dropdown)
	Extractable: no
	Password Enabled: no
	Public: no
	Featured: no
KVM	Name: systemvm-kvm-4.2
	Description: systemvm-kvm-4.2
	URL (if using 32-bit system VM template): *http://download.cloud.com/templates/4.2/ systemvmtemplate-2013-06-12-master-kvm.qcow2.bz2*
	URL (if using 64-bit system VM template): *http://download.cloud.com/templates/4.2/64bit/ systemvmtemplate64-2013-07-15-master-kvm.qcow2.bz2*
	Zone: Choose the zone where this hypervisor is used. If your CloudPlatform deployment includes multiple zones running KVM, choose All Zones to make the template available in all the KVM zones.
	Hypervisor: KVM
	Format: QCOW2
	OS Type: Debian GNU/Linux 7.0 (32-bit and 64-bit) (or the highest Debian release number available in the dropdown)
	Extractable: no
	Password Enabled: no

Hypervisor	Description
	Public: no
	Featured: no
VMware	Name: systemvm-vmware-4.2
	Description: systemvm-vmware-4.2
	URL (if using 32-bit system VM template on ESX 5.*): *http://download.cloud.com/templates/4.2/systemvmtemplate-4.2-vh8.ova*
	URL (if using 32-bit system VM template on earlier VMware version): *http://download.cloud.com/templates/4.2/systemvmtemplate-4.2-vh7.ova*
	URL (if using 64-bit system VM template): *http://download.cloud.com/templates/4.2/64bit/systemvmtemplate64.ova*
	Zone: Choose the zone where this hypervisor is used. If your CloudPlatform deployment includes multiple zones running VMware, choose All Zones to make the template available in all the VMware zones.
	Hypervisor: VMware
	Format: OVA
	OS Type: Debian GNU/Linux 7.0 (32-bit) (or the highest Debian release number available in the dropdown)
	Extractable: no
	Password Enabled: no
	Public: no
	Featured: no

    e.   Watch the screen to be sure that the template downloads successfully and enters the READY state. Do not proceed until this is successful

    f.   If you use more than one type of hypervisor in your cloud, repeat these steps to download the system VM template for each hypervisor type.

> ⚠️ **Warning**
>
> If you do not repeat the steps for each hypervisor type, the upgrade will fail.

    e.   (KVM on RHEL 6.0, 6.1) If your existing CloudPlatform deployment includes one or more clusters of KVM hosts running RHEL 6.0 or RHEL 6.1, you must first upgrade the operating system version on those hosts before upgrading CloudPlatform itself.

Run the following commands on every KVM host.

a. Download the CloudPlatform 4.2.1 RHEL 6.x binaries from *https://www.citrix.com/English/ ss/downloads/*.

b. Extract the binaries:

```
# cd /root
# tar xvf CloudPlatform-4.2.1-3-rhel6.x.tar.gz
```

c. Create a CloudPlatform 4.2.1 qemu repo:

```
# cd CloudPlatform-4.2.1-3-rhel6.x
# createrepo .
```

d. Prepare the yum repo for upgrade. Edit the file /etc/yum.repos.d/rhel6x.repo. For example:

```
[upgrade]
name=rhel6x
baseurl=url-of-your-rhel6.x-repo
enabled=1
gpgcheck=0
[cloudstack]
name=cloudstack
baseurl=file:///root/CloudPlatform-4.2.1-3-rhel6.x/6.x
enabled=1
gpgcheck=0
```

e. Upgrade the host operating system from RHEL 6.0 to 6.3:

```
yum upgrade
```

f. Stop all Usage Servers if running. Run this on all Usage Server hosts.

```
# service cloud-usage stop
```

g. Stop the Management Servers. Run this on all Management Server hosts.

```
# service cloud-management stop
```

h. On the MySQL master, take a backup of the MySQL databases. We recommend performing this step even in test upgrades. If there is an issue, this will assist with debugging.

In the following commands, it is assumed that you have set the root password on the database, which is a CloudPlatform recommended best practice. Substitute your own MySQL root password.

```
# mysqldump -u root -p<mysql_password> cloud >> cloud-backup.dmp
# mysqldump -u root -p<mysql_password> cloud_usage > cloud-usage-backup.dmp
```

i. (RHEL/CentOS 5.x) If you are currently running CloudPlatform on RHEL/CentOS 5.x, use the following command to set up an Extra Packages for Enterprise Linux (EPEL) repo:

```
rpm -Uvh http://mirror.pnl.gov/epel/5/i386/epel-release-5-4.noarch.rpm
```

j. Download CloudPlatform 4.2.1 onto the management server host where it will run. Get the
    software from the following link:

    https://www.citrix.com/English/ss/downloads/

    You need a *My Citrix Account*[4].

k. Upgrade the CloudPlatform packages. You should have a file in the form of
    "CloudPlatform-4.2.1-N-OSVERSION.tar.gz". Untar the file, then run the install.sh script inside
    it. Replace the file and directory names below with those you are using:

```
# tar xzf CloudPlatform-4.2.1-N-OSVERSION.tar.gz
# cd CloudPlatform-4.2.1-N-OSVERSION
# ./install.sh
```

    You should see a few messages as the installer prepares, followed by a list of choices.

l. Choose "U" to upgrade the package.

```
> U
```

m. If you have made changes to your existing copy of the configuration files components.xml,
    db.properties, or server.xml in your previous-version CloudPlatform installation, the changes
    will be preserved in the upgrade. However, you need to do the following steps to place these
    changes in a new version of the file which is compatible with version 4.2.1.

    > **Note**
    >
    > How will you know whether you need to do this? If the upgrade output in the previous
    > step included a message like the following, then some custom content was found in your
    > old file, and you need to merge the two files:
    >
    > ```
    > warning: /etc/cloud.rpmsave/management/components.xml created as /etc/cloudstack/
    > management/components.xml.rpmnew
    > ```

    a. Make a backup copy of your previous version file. For example: (substitute the file name
        components.xml, db.properties, or server.xml in these commands as needed)

```
# mv /etc/cloudstack/management/components.xml /etc/cloudstack/management/
components.xml-backup
```

    b. Copy the *.rpmnew file to create a new file. For example:

---

[4] http://www.citrix.com/lang/English/publicindex.asp?destURL=%2FEnglish%2FmyCitrix%2Findex.asp%3F#

```
# cp -ap /etc/cloudstack/management/components.xml.rpmnew /etc/cloudstack/
management/components.xml
```

c. Merge your changes from the backup file into the new file. For example:

```
# vi /etc/cloudstack/management/components.xml
```

n. On the management server node, run the following command. It is recommended that you use the command-line flags to provide your own encryption keys. See Password and Key Encryption in the Installation Guide.

```
# cloudstack-setup-encryption -e <encryption_type> -m <management_server_key> -k
 <database_key>
```

When used without arguments, as in the following example, the default encryption type and keys will be used:

- (Optional) For encryption_type, use file or web to indicate the technique used to pass in the database encryption password. Default: file.

- (Optional) For management_server_key, substitute the default key that is used to encrypt confidential parameters in the properties file. Default: password. It is highly recommended that you replace this with a more secure value

- (Optional) For database_key, substitute the default key that is used to encrypt confidential parameters in the CloudPlatform database. Default: password. It is highly recommended that you replace this with a more secure value.

o. Repeat steps *i* - *n* on every management server node. If you provided your own encryption key in step *n*, use the same key on all other management servers.

p. Start the first Management Server. Do not start any other Management Server nodes yet.

```
# service cloudstack-management start
```

Wait until the databases are upgraded. Ensure that the database upgrade is complete. After confirmation, start the other Management Servers one at a time by running the same command on each node.

q. Start all Usage Servers (if they were running on your previous version). Perform this on each Usage Server host.

```
# service cloudstack-usage start
```

r. (KVM only) Additional steps are required for each KVM host. These steps will not affect running guests in the cloud. These steps are required only for clouds using KVM as hosts and only on the KVM hosts.

> **Note**
>
> After the software upgrade on a KVM machine, the Ctrl+Alt+Del button on the console view of a VM doesn't work. Use Ctrl+Alt+Insert to log in to the console of the VM.

a. Copy the CloudPlatform 4.2.1 .tgz download to the host, untar it, and cd into the resulting directory.

b. Stop the running agent.

```
# service cloud-agent stop
```

c. Update the agent software.

```
# ./install.sh
```

d. Choose "U" to update the packages.

e. Edit **/etc/cloudstack/agent/agent.properties** to change the resource parameter from **com.cloud.agent.resource.computing.LibvirtComputingResource** to **com.cloud.hypervisor.kvm.resource.LibvirtComputingResource**.

f. Upgrade all the existing bridge names to new bridge names by running this script:

```
# cloudstack-agent-upgrade
```

g. Install a libvirt hook with the following commands:

```
# mkdir /etc/libvirt/hooks
# cp /usr/share/cloudstack-agent/lib/libvirtqemuhook /etc/libvirt/hooks/qemu
# chmod +x /etc/libvirt/hooks/qemu
```

h. Restart libvirtd.

```
# service libvirtd restart
```

i. Start the agent.

```
# service cloudstack-agent start
```

s. Log in to the CloudPlatform UI as admin, and check the status of the hosts. All hosts should come to Up state (except those that you know to be offline). You may need to wait 20 or 30 minutes, depending on the number of hosts.

Do not proceed to the next step until the hosts show in the Up state. If the hosts do not come to the Up state, contact support.

t. (VMware only) Log in to the CloudPlatform UI. Destroy both the Secondary Storage VM (SSVM) and Console Proxy VM (CPVM).

u. (VMware) Run the following script to destroy and re-create all remaining System VMs.

   a. Run the script once on one management server. Substitute your own IP address of the MySQL instance, the MySQL user to connect as, and the password to use for that user. In addition to those parameters, provide the "-n" and "-v" arguments. For example:

   ```
   # nohup cloudstack-sysvmadm -d 192.168.1.5 -u cloud -p password -n -v > sysvm.log
    2>&1 &
   ```

   This might take up to an hour or more to run, depending on the number of accounts in the system.

   b. After the script terminates, check the log to verify correct execution:

   ```
   # tail -f sysvm.log
   ```

   The content should be like the following:

   ```
   nohup: ignoring input
   Restarting 4 networks...
   Done restarting networks.
   Restarting 2 vpcs...
   INFO: Restarting vpc with id 2
   INFO: Restarting vpc with id 1
   INFO: Successfully restarted vpc with id 1
   INFO: Successfully restarted vpc with id 2
   Done restarting vpcs.
   ```

v. (XenServer or KVM) Run the following script to stop, then start, all System VMs including Secondary Storage VMs, Console Proxy VMs, and virtual routers.

   a. Run the script once on one management server. Substitute your own IP address of the MySQL instance, the MySQL user to connect as, and the password to use for that user. In addition to those parameters, provide the "-a" argument. For example:

   ```
   # nohup cloudstack-sysvmadm -d 192.168.1.5 -u cloud -p password -a > sysvm.log
    2>&1 &
   ```

   This might take up to an hour or more to run, depending on the number of accounts in the system.

   b. After the script terminates, check the log to verify correct execution:

   ```
   # tail -f sysvm.log
   ```

   The content should be like the following:

   ```
   Stopping and starting 1 secondary storage vm(s)...
   Done stopping and starting secondary storage vm(s)
   Stopping and starting 1 console proxy vm(s)...
   Done stopping and starting console proxy vm(s).
   Stopping and starting 4 running routing vm(s)...
   ```

```
Done restarting router(s).
```

w. If you would like additional confirmation that the new system VM templates were correctly applied when these system VMs were rebooted, SSH into the System VM and check the version.

Use one of the following techniques, depending on the hypervisor.

XenServer or KVM:

SSH in by using the link local IP address of the system VM. For example, in the command below, substitute your own path to the private key used to log in to the system VM and your own link local IP.

Run the following commands on the XenServer or KVM host on which the system VM is present:

```
# ssh -i /root/.ssh/id_rsa.cloud <link-local-ip> -p 3922
# cat /etc/cloudstack-release
```

The output should be like the following:

```
Cloudstack Release 4.2.1 Mon Nov 12 15:10:04 PST 2013
```

ESXi

SSH in using the private IP address of the system VM. For example, in the command below, substitute your own path to the private key used to log in to the system VM and your own private IP.

Run the following commands on the Management Server:

```
# ssh -i /var/cloudstack/management/.ssh/id_rsa <private-ip> -p 3922
# cat /etc/cloudstack-release
```

The output should be like the following:

```
Cloudstack Release 4.2.1 Fri Nov 8 15:10:04 PST 2012
```

x. (XenServer only) If needed, upgrade all Citrix XenServer hypervisor hosts in your cloud to a version supported by CloudPlatform 4.2.1 and apply any required hotfixes. Instructions for upgrading and applying hotfixes can be found in *Section 3.6, "Upgrading and Hotfixing XenServer Hypervisor Hosts"*.

> **Note**
>
> (VMware only) After upgrade, whenever you add a new VMware cluster to a zone that was created with a previous version of CloudPlatform, the fields vCenter host, vCenter Username, vCenter Password, and vCenter Datacenter are required. The Add Cluster dialog in the CloudPlatform user interface incorrectly shows them as optional, and will allow you to proceed with adding the cluster even though these important fields are blank. If you do not provide the values, you will see an error message like "Your host and/or path is wrong. Make sure it's of the format http://hostname/path".

2. Upgrade from 4.2.1 to 4.2.1-3.

   For more information, see *Section 3.1, "Upgrading from 4.2.x-x to 4.2.1-3"*.

3.4. Upgrading from 2.1.x to 4.2.1-3

Direct upgrades from version 2.1.0 - 2.1.10 to 4.2.1-3 are not supported. CloudPlatform must first be upgraded to version 2.2.14, then to 4.2.1. From 4.2.1, you can upgrade to 4.2.1-3. For information on how to upgrade from 2.1.x to 2.2.14, see the CloudPlatform 2.2.14 Release Notes.

3.5. Upgrading CloudPlatform Baremetal Agent on PXE and DHCP Servers

If you installed bare metal clusters using a previous version of CloudPlatform, use the following steps to upgrade the baremetal agent in order to get the latest bug fixes for 4.2.1.

1. Log in as root to the host or virtual machine running the Baremetal PXE server and DHCP server.

2. Download CloudPlatform 4.2.1 onto the PXE or DHCP server. Get the software from the following link:

   https://www.citrix.com/English/ss/downloads/.

   You need a *My Citrix Account*[5].

3. Upgrade the CloudPlatform packages. You should have a file in the form of "CloudPlatform-4.2.1-N-OSVERSION.tar.gz". Untar the file, then run the install.sh script inside it. Replace the file and directory names below with those you are using:

   ```
   # tar xzf CloudPlatform-4.2.1-N-OSVERSION.tar.gz
   # cd CloudPlatform-4.2.1-N-OSVERSION
   # ./install.sh
   ```

   You should see a few messages as the installer prepares, followed by a list of choices.

4. Choose "U" to upgrade the package

---

[5] http://www.citrix.com/lang/English/publicindex.asp?destURL=%2FEnglish%2FmyCitrix%2Findex.asp%3F#

```
>U
```

You should see some output as the upgrade proceeds, ending with a message like "Complete! Done."

5. Run the bare metal setup script:

```
cloudstack-setup-baremetal
```

3.6. Upgrading and Hotfixing XenServer Hypervisor Hosts

In CloudPlatform 4.2.1, you can upgrade XenServer hypervisor host software without having to disconnect the XenServer cluster. You can upgrade XenServer 5.6 GA, 5.6 FP1, or 5.6 SP2 to any newer version that is supported by CloudPlatform. The actual upgrade is described in XenServer documentation, but there are some additional steps you must perform before and after the upgrade.

3.6.1. Upgrading to a New XenServer Version

To upgrade XenServer hosts when running CloudPlatform 4.2.1:

1. Edit the file /etc/cloudstack/management/environment.properties and add the following line:

```
manage.xenserver.pool.master=false
```

2. Restart the Management Server to put the new setting into effect.

```
# service cloudstack-management start
```

3. Find the hostname of the master host in your XenServer cluster (pool):

   a. Run the following command on any host in the pool, and make a note of the host-uuid of the master host:

   ```
   # xe pool-list
   ```

   b. Now run the following command, and find the host that has a host-uuid that matches the master host from the previous step. Make a note of this host's hostname. You will need to input it in a later step.

   ```
   # xe host-list
   ```

4. On CloudPlatform, put the master host into maintenance mode. Use the hostname you discovered in the previous step.

> **Note**
>
> In the latest XenServer upgrade procedure, even after putting the master host into maintenance mode, the master host continues to stay as master.

Any VMs running on this master will be automatically migrated to other hosts, unless there is only one UP host in the cluster. If there is only one UP host, putting the host into maintenance mode will stop any VMs running on the host.

5. Disconnect the XenServer cluster from CloudPlatform. It will remain disconnected only long enough to upgrade one host.

    a. Log in to the CloudPlatform UI as root.

    b. Navigate to the XenServer cluster, and click Actions – Unmanage.

    c. Watch the cluster status until it shows Unmanaged.

6. Upgrade the XenServer software on the master host:

    a. Insert the XenXerver CD.

    b. Reboot the host.

    c. Upgrade to the newer version of XenServer. Use the steps in XenServer documentation.

7. Cancel the maintenance mode on the master host.

8. Reconnect the XenServer cluster to CloudPlatform.

    a. Log in to the CloudPlatform UI as root.

    b. Navigate to the XenServer cluster, and click Actions – Manage.

    c. Watch the status to see that all the hosts come up.

9. Upgrade the slave hosts in the cluster:

    a. Put a slave host into maintenance mode.

       Wait until all the VMs are migrated to other hosts.

    b. Upgrade the XenServer software on the slave.

    c. Cancel maintenance mode for the slave.

    d. Repeat steps *a* through *c* for each slave host in the XenServer pool.

10. You might need to change the OS type settings for VMs running on the upgraded hosts, if any of the following apply:

    - If you upgraded from XenServer 5.6 GA to XenServer 5.6 SP2, change any VMs that have the OS type CentOS 5.5 (32-bit), Oracle Enterprise Linux 5.5 (32-bit), or Red Hat Enterprise Linux 5.5 (32-bit) to Other Linux (32-bit). Change any VMs that have the 64-bit versions of these same OS types to Other Linux (64-bit).

    - If you upgraded from XenServer 5.6 SP2 to XenServer 6.0.2 or higher, change any VMs that have the OS type CentOS 5.6 (32-bit), CentOS 5.7 (32-bit), Oracle Enterprise Linux 5.6 (32-bit), Oracle Enterprise Linux 5.7 (32-bit), Red Hat Enterprise Linux 5.6 (32-bit) , or Red Hat Enterprise Linux 5.7 (32-bit) to Other Linux (32-bit). Change any VMs that have the 64-bit versions of these same OS types to Other Linux (64-bit).

    - If you upgraded from XenServer 5.6 to XenServer 6.0.2 or higher, do all of the above.

3.6.2. Applying Hotfixes to a XenServer Cluster

1. Edit the file /etc/cloudstack/management/environment.properties and add the following line:

```
manage.xenserver.pool.master=false
```

2. Restart the Management Server to put the new setting into effect.

```
# service cloudstack-management start
```

3. Find the hostname of the master host in your XenServer cluster (pool):

   a. Run the following command on any host in the pool, and make a note of the host-uuid of the master host:

   ```
   # xe pool-list
   ```

   b. Now run the following command, and find the host that has a host-uuid that matches the master host from the previous step. Make a note of this host's hostname. You will need to input it in a later step.

   ```
   # xe host-list
   ```

4. On CloudPlatform, put the master host into maintenance mode. Use the hostname you discovered in the previous step.

   Any VMs running on this master will be automatically migrated to other hosts, unless there is only one UP host in the cluster. If there is only one UP host, putting the host into maintenance mode will stop any VMs running on the host.

5. Disconnect the XenServer cluster from CloudPlatform. It will remain disconnected only long enough to hotfix one host.

   a. Log in to the CloudPlatform UI as root.

   b. Navigate to the XenServer cluster, and click Actions – Unmanage.

   c. Watch the cluster status until it shows Unmanaged.

6. Hotfix the master host:

   a. Add the XenServer hot fixes to the master host.

      i. Assign a UUID to the update file:

      ```
      xe patch-upload file-name=XS602E015.xsupdate
      ```

      The command displays the UUID of the update file:

      ```
      33af688e-d18c-493d-922b-ec51ea23cfe9
      ```

      ii. Repeat the xe patch-upload command for all other XenServer updates: XS602E004.xsupdate, XS602E005.xsupdate.

Take a note of the UUIDs of the update files. The UUIDs are required in the next step.

b. Apply XenServer hot fixes to master host:

```
xe patch-apply host-uuid=<master uuid> uuid=<hotfix uuid>
```

c. Repeat xe patch-apply command for all the hot fixes.

d. Install the required CSP files.

```
xe-install-supplemental-pack <csp-iso-file>
```

e. Restart the master host.

7. Cancel the maintenance mode on the master host.

8. Reconnect the XenServer cluster to CloudPlatform.

a. Log in to the CloudPlatform UI as root.

b. Navigate to the XenServer cluster, and click Actions – Manage.

c. Watch the status to see that all the hosts come up.

9. Hotfix the slave hosts in the cluster:

a. Put a slave host into maintenance mode.

Wait until all the VMs are migrated to other hosts.

b. Apply the XenServer hot fixes to the slave host:

```
xe patch-apply host-uuid=<master uuid> uuid=<hotfix uuid>
```

c. Repeat Step a through b for each slave host in the XenServer pool.

d. Install the required CSP files.

```
xe-install-supplemental-pack <csp-iso-file>
```

e. Restart the slave hosts.

Wait until all the slave hosts are up. It might take several minutes for the hosts to come up.

10. Cancel the maintenance mode on the slave hosts.

11. You might need to change the OS type settings for VMs running on the upgraded hosts, if any of the following apply:

• If you upgraded from XenServer 5.6 SP2 to XenServer 6.0.2, change any VMs that have the OS type CentOS 5.6 (32-bit), CentOS 5.7 (32-bit), Oracle Enterprise Linux 5.6 (32-bit), Oracle Enterprise Linux 5.7 (32-bit), Red Hat Enterprise Linux 5.6 (32-bit) , or Red Hat Enterprise Linux 5.7 (32-bit) to Other Linux (32-bit). Change any VMs that have the 64-bit versions of these same OS types to Other Linux (64-bit).

- If you upgraded from XenServer 5.6 GA or 5.6 FP1 to XenServer 6.0.2, change any VMs that have the OS type CentOS 5.5 (32-bit), CentOS 5.6 (32-bit), CentOS 5.7 (32-bit), Oracle Enterprise Linux 5.5 (32-bit), Oracle Enterprise Linux 5.6 (32-bit), Oracle Enterprise Linux 5.7 (32-bit), Red Hat Enterprise Linux 5.5 (32-bit), Red Hat Enterprise Linux 5.6 (32-bit) , or Red Hat Enterprise Linux 5.7 (32-bit) to Other Linux (32-bit). Change any VMs that have the 64-bit versions of these same OS types to Other Linux (64-bit).

About This New Release

CloudPlatform 4.2.1-3 Maintenance release is a defect fix release.

4.1. What's New in 4.2.1-3 Maintenance Release

CloudPlatform 4.2.1-3 Maintenance release includes no new features.

4.1.1. Fixed Issues in 4.2.1-3 Maintenance Release

Issue ID	Description
CS-18122	JVM not working if maximum heap memory size is over 2666m.
CS-18271	Help link points to nonexistent docs site.
CS-18531	Template deletion fails if template status is connection refused or no route to host
CS-18578	Duplicate entries for router VMs in the UI under project view when logged in as root admin.
CS-18604	Secondary Storage server attempting to mount wrong Secondary Storage NAS.
CS-18606	Ability to start Virtual Router on Guest VM reboot from CloudPlatform.
CS-18607	Instance display name is not returned.
CS-18634	CPU cap calculated incorrectly for VMs on XenServer hosts.
CS-18644	Cannot start instance with disk offering of DATA_DISK storage tag.
CS-18645	Firewall rules are not restored on Virtual Router when it is restarted.
CS-18651	Null pointer exception while running the usage job.
CS-18660	Request to narrow down listHosts API command in UI on System VMs page.
CS-18711	A template or an ISO that is failed to download cannot be deleted.
CS-18713	Unable to use login API with API key and signature.
CS-18722	Local disk usage on host does not show up in the UI for the administrators.
CS-18723	Guest OS support for Windows 8.1.
CS-18724	When migrating SystemVMs browser keeps showing progress icon for ever.
CS-18725	Non-owned NetworkACL rule can be listed or deleted by another Accounts.
CS-18726	CloudPlatform does not accept 2-byte code for Account First and last name.

Issue ID	Description
CS-18728	Re-copying templates to other zones doesn't work.
CS-18729	Templates created from a snapshots can't be copied to other zones.
CS-18730	The OVA/OVF files are created for templates through inconsistent ways.
CS-18732	Public templates are not visible outside of the domain tree.
CS-18754	Unable to delete snapshot in Error state from the CloudPlatform UI.
CS-18753	Search box for VMs doesn't work on Enable Static NAT page.
CS-18757	S3 object store as Secondary Storage and a template created from different zone is not available for the other zones.
CS-18784	XenServer Tools version is set to xenserver56 for the templates which are created from ROOT volume.
CS-18787	Create volume from custom disk offering does not work as expected.
CS-18800	Response of the listAccounts API call includes removed users.
CS-18801	Calling the createPod API with certain invalid values causes the API call to apparently hang and never returns.
CS-18807	JSVC package missing in the RHEL 6.4 builds.
CS-18808	System VMs page does not support partial match search.
CS-18820	VMs are to be migrated in parallel when hosts are switched to Maintenance mode.
CS-18927	Introduce SSL handshake timeout to prevent HA occurrence.
CS-18860	Capacity calculation is incorrect when a host which has HA enabled guest VMs goes down.
CS-18861	Clicking View host option for stopped VM instances results in error message.
CS-18929	Virtual router gets deployed in disabled Pod.
CS-18871	Value of CPU Allocated for VMs is 0%.
CS-18896	CreateVolumeFromSnapshot skips using the suitable storage pool found, and keeps searching for another pool and eventually operation fails.
CS-18930	Incorrect handling of RHEL guests.
CS-18941	AWS API behaviour is not stable on instance creation with official ec2 tools and boto script.

Issue ID	Description
CS-19042	The dnsmasq race condition results in dnsmasq failing to hand out IP addresses.
CS-18979	When publishing events are enabled using RabbitMQEventBus, certain operations like LB rule deletion fails.
CS-19101	Creating new shared network with overlapping CIDR of another shared network fails even when a different VLAN ID is used.
CS-19124	Cluster addition fails when VMWare data center name contains space in between.
CS-19140	System Offering id is not set for virtual Router when creating Network Offering.
CS-19180	Console proxy connects to a different VM instance under certain timeout conditions.

4.1.2. Known Issues in 4.2.1-3 Maintenance Release

Issue ID	Description

CS-16008	In a clustered management server deployment, hosts are not load balanced across management servers in cluster. This is by design.
	
	Workaround: All Management server in cluster must be synced by running:
	
	```# ntpdate 0.xenserver.pool.ntp.org```
	
	```# service ntpd start```

CS-17509	VM deployment fails with the Unable to acquire lock on VMTemplateStoragePool error. **Workaround**: Increase the default value of *storage.pool.max.waitseconds* as per the performance of your storage device. In this case, copying templates took more than 60 minutes due to slow storage. Increasing the value of the global parameter to more than 60 minutes would solve the issue.
CS-18409	(KVM) When a KVM cluster is taken to the Unmanaged state, then returned to the Managed state, the hosts do not come into the UP state. **Workaround**: To bring up the hosts, manually restart cloud-agent on the KVM hosts.
CS-18535	(VMware) After every cold migration of a volume to another primary store, start the VM associated with that volume before you move another volume. This is to ensure that the data structures

Issue ID	Description
	between CloudPlatform and VMware vCenter are better aligned. Workaround: **Workaround**: Restart the VM.
CS-18561	(VMware) After upgrading from 3.0.x to 4.2 and higher versions, restoring the existing VM which has an additional disk fails to boot. **Workaround**: If the `vmware.root.disk.controller` global parameter is set to `ide` in 3.0.x setup, after upgrade perform following: • Before performing any VM operations, such as start and restore, set `vmware.root.disk.controller` to `scsi`. • Restart the Management Server. If `vmware.root.disk.controller` is set to `scsi` in 3.0.x setup, you need not change anything, because the controller setting is consistent across upgrade operations.
CS-18605	Order of templates and ISOs not honored by UI or API.
CS-18752	In a Basic zone, an API error is thrown when you click the Add guest network option.
CS-18865	Copying a template to primary storage fails due to the Java version in SSVM.
CS-18869	Value of cpuallocated is twice the expected value.
CS-18788	Creating volume from a custom disk offering does not work as expected.
CS-18789	The listAsyncJobs API does not parse `startdate` parameter for some timezones.
CS-19067, CS-19066	DeleteRemoteAccessVpnCmd does not disable remote VPN access on an IP address.
CS-19110	Async response from addAccountToProject doesn't contain useful information.
CS-19105	No check to prevent invalid IP getting assigned to virtual router.
CS-19164	Storage migration between cluster-wide and zone-wide storage does not work as expected.
CS-19165	Local data disk with tag goes to the wrong local storage pool
CS-19177	Private interface of a external LB devices and guest VMs are on the same network.

Issue ID	Description
CS-19248	Upgrading to 4.2 leave cloud-agent-scripts on system without getting removed.
CS-19300	Restarting VPC is not programming the router correctly.
CS-19363	The listnetworkacls API when called with a networkid of a network that was created without selecting an ACL list returns all the ACL rules from the default ACL list of the VPC.
CS-19388	If you have set vmware.root.disk.controller to scsi in your current environment, user VMs cannot be started after upgrading to 4.2.1-3. Apply CloudPlatform 4.2.1-3 HotFix_01.
CLOUDSTACK-1717	Local region entry that gets added by default should not include "/api" for its end_point. Also the endpoint should have the actual hostname instead of localhost.
CLOUDSTACK-1960	The euro symbol € does not work while accessing the guest virtual machine consoles on a UK keyboard by using console proxy.
CLOUDSTACK-1964	In Simplified Chinese, some combination keys used to switch IME cannot work well. **Workaround**: For "Ctrl+Shift" and "Ctrl+Space", click the input style of IME to select the input style and switch keyboard layout. For "Ctrl+Dot", click the "Chinese/Western Punctuation (Ctrl +.)" in the IME Toolbar to switch the punctuation between full-width and half-width.
CLOUDSTACK-1986	The Japanese keyboard keys ¥_,\ |, Muhenkan, Henkan, and Hiragana/Katakana are not working even after possible key translations tried. **Workaround**: For keys: | _ Set the console proxy keyboard layout to "Standard (US) Keyboard". Add English Keyboard layout to the Japanese guest VM from "Regional Setting" option from Control Panel (in case of Windows). Set the Japanese guest OS keyboard layout to "EN". Try the keyboard keys | _ using Japanese keyboard in localized environment. For Muhenkan key: You can use F6, F7 and F8 instead of the Muhenkan key. F6 key converts the string into Hiragana. F7 key converts the string into

Issue ID	Description
	Katakana. F8 key converts the string into Hankaku-Katakana. Muhenkan keys toggles the string Hiragana, Katakana and Hankaku-Katakana. Henkan key: You can use space bar (key) instead of the Henkan key. Hiragana/Katakana key: We have to use IME menu below to change IME input mode in case the Hiragana/Katakana key is unavailable.
CLOUDSTACK-2112	VM will go into stopped state after live migration failed during a scale up VMs operation. Need to be manually restarted.
CLOUDSTACK-2293	DeletePhysicalNetworkCmd is not deleting the external devices.
CLOUDSTACK-2646	When firewall and LB service providers are different, CloudPlatform incorrectly allows both the rules on the same public IP. Workaround: Admin should not create network offering with different service providers for firewall and LB, while keeping conserve mode on.
CLOUDSTACK-2910	Ctrl combined with > is not working on SC IME. **Workaround**: Click the "Chinese/Western Punctuation(Ctrl+.)" in the IME tool bar to switch the punctuation between full-width and half-width.
CLOUDSTACK-3111	Volume listing screen shows Hypervisor column as empty if the volumes are attached to instances runninng in KVM Hypervisor.
CLOUDSTACK-3212	Default guest network can now have multiple subnets per VLAN, but the IP range list page does not display the netmask and gateway for each subnet. **Workaround**: Use the API listVlanIPRanges to get the complete details.
CLOUDSTACK-3317	Management and storage network traffic cannot be configured to use VMware Distributed vSwitch (DVS). Continue to use standard vSwitch.
CLOUDSTACK-3466	VM Migration across VMware clusters which are added with different switches (Standard Switch,VMware DVS, Cisco Nexus 1000v) is not supported.

Issue ID	Description
CLOUDSTACK-3680	(KVM on CentOS 5.5, 5.6) While accessing console view of a guest virtual machine, the keystrokes tab, ctrl, \, tilde, single quote, double quote, and caret ^ do not work on CentOS 5.5\5.6 running on KVM. This is due to a known bug in CentOS (see *http://www.centos.org/modules/newbb/viewtopic.php?topic_id=33233&forum=55*[1].
CLOUDSTACK-3968	Distributed port groups on DV Switch are not removed when the associated account from CloudPlatform is removed.
CLOUDSTACK-4016	The listPublicIpAddresses API lists the portable IP that was already transferred to a different Isolated network.
CLOUDSTACK-4139	(VMware) The volumes created from snapshots on VMware deployments cannot be resized when attached to a running VM. The volume is created with IDE disk instead of SCSCI disk which cannot be resized. **Workaround**: Detach the volume created from a snapshot and resize it, and then reattach it to the VM.

CLOUDSTACK-4207	The following exception is observed when the Management Server is started after upgrade from any older versions to CloudPlatform 4.2.
	
	`jsonParseException:`
	`The JsonDeserializer`
	`com.cloud.agent.transport.ArrayTypeAdaptor@242`
	`failed to deserialize json object`
	
	Ignore this exception, this would stop after you upgrade the System VM. However, if you want to prevent this, stop system VM from the hypervisor before upgrade.

CLOUDSTACK-4364	Restore VM needs to log usage event for volume so that it is correctly charged for usage.
CLOUDSTACK-4402	Cannot delete primary storage if the associated host is already removed. **Workaround**: Unmount the primary storage first before deleting the host.
CLOUDSTACK-4475	If cluster-wide and zone-wide primary storage are mixed together, the data disk by default will be created on cluster wide primary storage.

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[1] http://www.centos.org/modules/newbb/viewtopic.php?topic_id=33233&forum=55

Issue ID	Description
	Workaround: If admin wants data disk to be created on zone-wide primary storage, then create a disk offering with the tag on zone-wide primary storage.
CLOUDSTACK-4492	Uploaded volume state was not set to "Uploaded" in CloudPlatform 3.0.6. After upgrade to 4.x, volume attach fails because of volume being in incorrect state. Workaround: Upload and attach volume after the upgrade.
CLOUDSTACK-4517	Deployment of VM using CentOS 6.2 template registered before upgrade is failing.
CLOUDSTACK-4578	(VMware) If the host where the SSVM is running goes down, the SSVM is not being recreated on another host in the cluster.

Workaround: Forcefully stop the SSVM through the CloudPlatform API call stopSystemVm. Then the new SSVM will be created on a second host. |
| CLOUDSTACK-4593 | Live Storage Migration and VM Snapshot features are not fully functional after upgrade.

Workaround: Stop and then start the VM post upgrade. |
| CLOUDSTACK-4622 | If a VM from a guest network is added to a network tier of a VPC, then IP reservation allows the CIDR to be the superset of Network CIDR for that VPC tier. |

4.2. API Changes from 3.0 to 4.2.1-3 Maintenance Release

No API changes are introduced in 4.2.1-3 Maintenance Release.