

# Apache CloudStack

## Version 4.1.0 Release Notes



**Apache CloudStack**

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Autore

Apache CloudStack

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Apache CloudStack is an effort undergoing incubation at The Apache Software Foundation (ASF).

Incubation is required of all newly accepted projects until a further review indicates that the infrastructure, communications, and decision making process have stabilized in a manner consistent with other successful ASF projects. While incubation status is not necessarily a reflection of the completeness or stability of the code, it does indicate that the project has yet to be fully endorsed by the ASF.

Release notes for the Apache CloudStack 4.1.0 release.

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# Introduzione

## 1. Convenzioni del documento

Questo manuale utilizza numerose convenzioni per evidenziare parole e frasi, ponendo attenzione su informazioni specifiche.

Nelle edizioni PDF e cartacea questo manuale utilizza caratteri presenti nel set *Font Liberation*<sup>1</sup>. Il set Font Liberation viene anche utilizzato nelle edizioni HTML se il set stesso è stato installato sul vostro sistema. In caso contrario, verranno mostrati caratteri alternativi ma equivalenti. Da notare: Red Hat Enterprise Linux 5 e versioni più recenti, includono per default il set Font Liberation.

### 1.1. Convenzioni tipografiche

Vengono utilizzate quattro convenzioni tipografiche per richiamare l'attenzione su parole e frasi specifiche. Queste convenzioni, e le circostanze alle quali vengono applicate, sono le seguenti.

#### **Neretto monospazio**

Usato per evidenziare l'input del sistema, incluso i comandi della shell, i nomi dei file ed i percorsi. Utilizzato anche per evidenziare tasti e combinazione di tasti. Per esempio:

Per visualizzare i contenuti del file **my\_next\_bestselling\_novel** nella vostra directory di lavoro corrente, inserire il comando **cat my\_next\_bestselling\_novel** al prompt della shell e premere **Invio** per eseguire il comando.

Quanto sopra riportato include il nome del file, un comando della shell ed un tasto, il tutto riportato in neretto monospazio e distinguibile grazie al contesto.

Le combinazioni di tasti possono essere distinte dai tasti tramite il trattino che collega ogni parte della combinazione. Per esempio:

Premere **Invio** per eseguire il comando.

Premere **Ctrl+Alt+F2** per smistarsi sul primo virtual terminal. Premere **Ctrl+Alt+F1** per ritornare alla sessione X-Windows.

Il primo paragrafo evidenzia il tasto specifico singolo da premere. Il secondo riporta due combinazioni di tasti, (ognuno dei quali è un set di tre tasti premuti contemporaneamente).

Se si discute del codice sorgente, i nomi della classe, i metodi, le funzioni i nomi della variabile ed i valori ritornati indicati all'interno di un paragrafo, essi verranno indicati come sopra, e cioè in **neretto monospazio**. Per esempio:

Le classi relative ad un file includono **filesystem** per file system, **file** per file, e **dir** per directory. Ogni classe possiede il proprio set associato di permessi.

#### **Proportional Bold**

Ciò denota le parole e le frasi incontrate su di un sistema, incluso i nomi delle applicazioni; il testo delle caselle di dialogo; i pulsanti etichettati; le caselle e le etichette per pulsanti di selezione, titoli del menu e dei sottomenu. Per esempio:

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<sup>1</sup> <https://fedorahosted.org/liberation-fonts/>

Selezionare **Sistema** → **Preferenze** → **Mouse** dalla barra del menu principale per lanciare **Preferenze del Mouse**. Nella scheda **Pulsanti**, fate clic sulla casella di dialogo **mouse per mancini**, e successivamente fate clic su **Chiudi** per cambiare il pulsante primario del mouse da sinistra a destra (rendendo così il mouse idoneo per un utilizzo con la mano sinistra).

Per inserire un carattere speciale in un file **gedit**, selezionare **Applicazioni** → **Accessori** → **Mappa carattere** dalla barra menu principale. Successivamente, selezionare **Cerca** → **Trova...** dalla barra del menu **Mappa carattere**, inserire il nome del carattere nel campo **Cerca** e cliccare **Successivo**. Il carattere ricercato verrà evidenziato nella **Tabella caratteri**. Fare un doppio clic sul carattere evidenziato per posizionarlo nel campo **Testo da copiare**, e successivamente fare clic sul pulsante **Copia**. Ritornare ora al documento e selezionare **Modifica** → **Incolla** dalla barra del menu di **gedit**.

Il testo sopra riportato include i nomi delle applicazioni; nomi ed oggetti del menu per l'intero sistema; nomi del menu specifici alle applicazioni; e pulsanti e testo trovati all'interno di una interfaccia GUI, tutti presentati in neretto proporzionale e distinguibili dal contesto.

### **Corsivo neretto monospazio** o **Corsivo neretto proporzionale**

Sia se si tratta di neretto monospazio o neretto proporzionale, l'aggiunta del carattere corsivo indica un testo variabile o sostituibile. Il carattere corsivo denota un testo che non viene inserito letteralmente, o visualizzato che varia a seconda delle circostanze. Per esempio:

Per collegarsi ad una macchina remota utilizzando ssh, digitare **ssh** **username@domain.name** al prompt della shell. Se la macchina remota è **example.com** ed il nome utente sulla macchina interessata è john, digitare **ssh john@example.com**.

Il comando **mount -o remount file-system** rimonta il file system indicato. Per esempio, per rimontare il file system **/home**, il comando è **mount -o remount / home**.

Per visualizzare la versione di un pacchetto attualmente installato, utilizzare il comando **rpm -q package**. Esso ritornerà il seguente risultato: **package-version-release**.

Da notare la parola in Corsivo neretto — nome utente, domain.name, file-system, pacchetto, versione e release. Ogni parola racchiude il testo da voi inserito durante l'emissione di un comando o per il testo mostrato dal sistema.

Oltre all'utilizzo normale per la presentazione di un titolo, il carattere Corsivo denota il primo utilizzo di un termine nuovo ed importante. Per esempio:

Publican è un sistema di pubblicazione per *DocBook*.

## 1.2. Convenzioni del documento

Gli elenchi originati dal codice sorgente e l'output del terminale vengono evidenziati rispetto al testo circostante.

L'output inviato ad un terminale è impostato su **tondo monospazio** e così presentato:

```
books      Desktop  documentation  drafts  mss    photos  stuff  svn
books_tests Desktop1  downloads      images  notes  scripts svgs
```

Gli elenchi del codice sorgente sono impostati in **tondo monospazio** ma vengono presentati ed evidenziati nel modo seguente:

```
package org.jboss.book.jca.ex1;

import javax.naming.InitialContext;

public class ExClient
{
    public static void main(String args[])
        throws Exception
    {
        InitialContext iniCtx = new InitialContext();
        Object ref = iniCtx.lookup("EchoBean");
        EchoHome home = (EchoHome) ref;
        Echo echo = home.create();

        System.out.println("Created Echo");

        System.out.println("Echo.echo('Hello') = " + echo.echo("Hello"));
    }
}
```

### 1.3. Note ed avvertimenti

E per finire, tre stili vengono usati per richiamare l'attenzione su informazioni che in caso contrario potrebbero essere ignorate.



#### Nota Bene

Una nota è un suggerimento o un approccio alternativo per il compito da svolgere. Non dovrebbe verificarsi alcuna conseguenza negativa se la nota viene ignorata, ma al tempo stesso potreste non usufruire di qualche trucco in grado di facilitarvi il compito.



#### Importante

Le caselle 'importante' riportano informazioni che potrebbero passare facilmente inosservate: modifiche alla configurazione applicabili solo alla sessione corrente, o servizi i quali necessitano di un riavvio prima di applicare un aggiornamento. Ignorare queste caselle non causa alcuna perdita di dati ma potrebbe causare irritazione e frustrazione da parte dell'utente.



#### Avvertenza

Un Avvertimento non dovrebbe essere ignorato. Se ignorato, potrebbe verificarsi una perdita di dati.

## 2. Submitting Feedback and Getting Help

If you find a typographical error in this manual, or if you have thought of a way to make this manual better, we would love to hear from you! Please submit a bug: <https://issues.apache.org/jira/browse/CLOUDSTACK> against the component **Doc**.

If you have a suggestion for improving the documentation, try to be as specific as possible when describing it. If you have found an error, please include the section number and some of the surrounding text so we can find it easily.

Better yet, feel free to submit a patch if you would like to enhance the documentation. Our documentation is, along with the rest of the CloudStack source code, kept in the project's git repository.

The most efficient way to get help with CloudStack is to ask on the mailing lists.

The Apache CloudStack project has mailing lists for users and developers. These are the official channels of communication for the project and are the best way to get answers about using and contributing to CloudStack. It's a good idea to subscribe to the [users@cloudstack.apache.org](mailto:users@cloudstack.apache.org) mailing list if you've deployed or are deploying CloudStack into production, and even for test deployments.

The CloudStack developer's mailing list ([dev@cloudstack.apache.org](mailto:dev@cloudstack.apache.org)) is for discussions about CloudStack development, and is the best list for discussing possible bugs in CloudStack. Anyone contributing to CloudStack should be on this mailing list.

To posts to the lists, you'll need to be subscribed. See the [CloudStack Web site](http://cloudstack.apache.org/mail-lists.html)<sup>2</sup> for instructions.

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<sup>2</sup> <http://cloudstack.apache.org/mail-lists.html>



# Welcome to CloudStack 4.1

Welcome to the 4.1.0 release of CloudStack, the first major release from the Apache CloudStack project since its graduation from the Apache Incubator.

This document contains information specific to this release of CloudStack, including upgrade instructions from prior releases, new features added to CloudStack, API changes, and issues fixed in the release. For installation instructions, please see the [Installation Guide](#)<sup>1</sup>. For usage and administration instructions, please see the [CloudStack Administrator's Guide](#)<sup>2</sup>. Developers and users who wish to work with the API will find instruction in the [CloudStack API Developer's Guide](#)<sup>3</sup>

If you find any errors or problems in this guide, please see [Sezione 2, «Submitting Feedback and Getting Help»](#). We hope you enjoy working with CloudStack!

---

<sup>1</sup> [http://cloudstack.apache.org/docs/en-US/Apache\\_CloudStack/4.1.0/html/Installation\\_Guide/index.html](http://cloudstack.apache.org/docs/en-US/Apache_CloudStack/4.1.0/html/Installation_Guide/index.html)

<sup>2</sup> [http://cloudstack.apache.org/docs/en-US/Apache\\_CloudStack/4.1.0/html/Admin\\_Guide/index.html](http://cloudstack.apache.org/docs/en-US/Apache_CloudStack/4.1.0/html/Admin_Guide/index.html)

<sup>3</sup> [http://cloudstack.apache.org/docs/en-US/Apache\\_CloudStack/4.0.1-incubating/html/API\\_Developers\\_Guide/index.html](http://cloudstack.apache.org/docs/en-US/Apache_CloudStack/4.0.1-incubating/html/API_Developers_Guide/index.html)



# Compatibility Matrix for 4.1.0

CloudStack is tested against certain operating systems, hypervisors, and other components to ensure that it works on specific platforms. It may work well on other platforms, but the platforms listed below are the ones we specifically test against and are more likely to be able to help troubleshoot if you run into any issues.

## 2.1. Supported Operating Systems

This section lists the operating systems that are supported for running CloudStack's Management Server.

Note that we test against specific versions of the Oses, so compatibility with CentOS 6.3 may not indicate compatibility with CentOS 6.2, etc.

- CentOS 6.3
- Red Hat Enterprise Linux 6.3
- Ubuntu 12.04 LTS

## 2.2. Supported Hypervisors

CloudStack supports three hypervisor families, Xen with XAPI, KVM, and VMware with vSphere.

- CentOS 6.2 with KVM
- Red Hat Enterprise Linux 6.2 with KVM
- XenServer 6.0.2 (with Hotfix)
- XenServer 6.1
- VMware vSphere/Vcenter 5.1



### Bare Metal Support

Bare metal support is not present in this release.

## 2.3. Supported Browsers

The CloudStack Web-based UI should be compatible with any modern browser, but it's possible that some browsers will not render portions of the UI reliably, depending on their support of Web standards. For best results, we recommend one of the following browsers.

- Internet Explorer 8
- Firefox 10+
- Chrome
- Safari

Note that it's difficult to confirm specific browser versions for Firefox and Google Chrome, given the speed of their update cycle.

### 2.4. External Devices

The following external devices are supported in CloudStack 4.1.0.

- F5: 10.1.10 (Build 3341.1084)
- SRX model srx100b: Must be 10.3 or higher -10.4R7.5
- Netscaler VPX 9.3, 10.0(Build 54.7.nc and 54.161)
- Netscaler MPX 10
- Netscaler SDX 10

# Version 4.1.0

## 3.1. What's New in 4.1

Apache CloudStack 4.1.0 includes many new features. This section covers the most prominent new features and changes.

### 3.1.1. Localization

The 4.1.0 release adds partial User Interface (UI) support for Catalan, Chinese, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, and Spanish. Not all languages are complete.

The 4.1.0 release also adds documentation translations for Chinese, Chinese (Taiwan), Italian, Japanese, Korean, and Portuguese.

### 3.1.2. Added Region Support

[CLOUDSTACK-241](https://issues.apache.org/jira/browse/CLOUDSTACK-241)<sup>1</sup>: This feature adds a "region" construct that spans several management servers. The objective of this feature is to add AWS EC2 like Regions implementation into CloudStack. Regions are dispersed and located in separate geographic areas. Availability Zones (or Zones in CloudStack) are distinct locations within a Region that are engineered to be isolated from failures in other Zones and provide inexpensive, low latency network connectivity to other Zones in the same Region.

Regions are expected to add the following benefits

- Higher availability of the services: users can deploy services across AZs and even if one of the AZ goes down the services are still available to the end-user through VMs deployed in other zones.
- Higher availability of the Management Server (MS): Since each MS Cluster only manages a single Region, if that MS Cluster goes down, only that particular Region is impacted. Admin should be able to access all the other Regions.
- Scalability: The scalability limit of CloudStack dramatically improves, as the scalability limit of MS Cluster is limited to a single Region.
- Object Store: With Regions construct, CloudStack would also allow users to define Object Store (Secondary Storage) across AZs. This helps users easily deploy VMs in different AZs using the same template, offerings.
- Geographical Grouping: Regions allow admins to group AZs (that have low latency and are geographically located nearby) into a broader region construct.

Currently the Region feature is exposed in the API, but does not have a UI component.

### 3.1.3. Support for EC2 Query API

[CLOUDSTACK-197](https://issues.apache.org/jira/browse/CLOUDSTACK-197)<sup>2</sup>: This introduces a query API for the AWS APIs that are currently only supported by SOAP. The AWS Java SDK and AWS PHP SDK should now be supported by the AWSAPI in CloudStack.

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<sup>1</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-241>

<sup>2</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-197>

Supported Query APIs in 4.1.0:

- **AllocateAddress**
- **AssociateAddress**
- **AttachVolume**
- **AuthorizeSecurityGroupIngress**
- **CreateImage**
- **CreateKeyPair**
- **CreateSecurityGroup**
- **CreateSnapshot**
- **CreateTags**
- **CreateVolume**
- **DeleteKeyPair**
- **DeleteSecurityGroup**
- **DeleteSnapshot**
- **DeleteTags**
- **DeleteVolume**
- **DeregisterImage**
- **DescribeAddresses**
- **DescribeAvailabilityZones**
- **DescribeImageAttribute**
- **DescribeImages**
- **DescribeInstanceAttribute**
- **DescribeInstances**
- **DescribeKeyPairs**
- **DescribeSecurityGroups**
- **DescribeSnapshots**
- **DescribeTags**
- **DescribeVolumes**
- **DetachVolume**
- **DisassociateAddress**
- **GetPasswordData**

- **ImportkeyPair**
- **ModifyImageAttribute**
- **RebootInstances**
- **RegisterImage**
- **ReleaseAddress**
- **ResetImageAttribute**
- **RevokeSecurityGroupIngress**
- **RunInstances**
- **StartInstances**
- **StopInstances**
- **TerminateInstances**

See the [Feature Specification](#)<sup>3</sup> for more information on the Query API support.

### 3.1.4. Auto-Completing Shell for CloudStack (CloudMonkey)

[CLOUDSTACK-132](#)<sup>4</sup>: Adds a auto-completing shell and command-line tool for CloudStack written in Python, called **CloudMonkey**.

CloudMonkey includes the following features:

- Usable as a command line tool and interactive shell.
- All commands are lowercase unlike API.
- Api Discovery using sync feature, with build time api precaching for failsafe sync.
- Raw api execution support.
- Auto-completion via double **tab**.
- Reverse search using **Ctrl+R**
- Emacs compatible key bindings.
- Output that's "pipeable" to other \*nix programs.
- Unix shell execution.
- Support to handle asynchronous jobs using user defined blocking or non-blocking way.
- Tabular or JSON output with filtering of table columns.
- Colored output.
- API parameter value completion (based on predication, fuzzy results may fail sometimes).

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<sup>3</sup> <https://cwiki.apache.org/CLOUDSTACK/ec2-functional-spec-for-query-api-support.html>

<sup>4</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-132>

CloudMonkey has a few requirements above and beyond CloudStack, and does not need to be run on the same machine as a management server. If you wish to run **CloudMonkey** you'll need Python 2.5 or later, **readline**, **Pygments**, and **prettytable**. CloudMonkey can be installed with **pip**:

```
$ pip install cloudmonkey
```

See the Developer's Guide and [the CloudStack wiki](#)<sup>5</sup> for the latest information on **CloudMonkey** installation and use.

### 3.1.5. API Discovery Service

[CLOUDSTACK-926](#)<sup>6</sup>: CloudStack has more than 300 APIs and more are added in each major release. CloudStack admins can enable or disable APIs, or add plugins which provide more APIs. The API Discovery Service is a plugin which will help users discover the APIs available to them on a CloudStack Management Server.

The discovery service implements a method called **listApis** which will return information about APIs for a user. It currently accepts an `apiName` to list api information of that particular API. The method ensures that user can only list APIs they are entitled to.

All CloudStack APIs are implemented by annotated command class and `PluggableService` is a contract implemented by all the components such as the Management Server and all the plugins which provide an API. During load time, API discovery service asks all the pluggable services to return list of API cmd classes from whose fields and annotations it gathers information about each API, the information consists of name, description, parameter name, parameter description, etc.

For more information on the implementation of the API Discovery Service for 4.1.0, see the [CloudStack wiki](#)<sup>7</sup>.

### 3.1.6. Events Framework

[CLOUDSTACK-820](#)<sup>8</sup>: The event notification framework provides a means for the Management Server components to publish and subscribe to CloudStack events. Event notification is achieved by implementing the concept of event bus abstraction in the Management Server. An event bus is introduced in the Management Server that allows the CloudStack components and extension plugins to subscribe to the events by using the Advanced Message Queuing Protocol (AMQP) client. In CloudStack, a default implementation of event bus is provided as a plug-in that uses the RabbitMQ AMQP client. The AMQP client pushes the published events to a compatible AMQP server. Therefore all the CloudStack events are published to an exchange in the AMQP server.

A new event for state change, resource state change, is introduced as part of Event notification framework. Every resource, such as user VM, volume, NIC, network, public IP, snapshot, and template, is associated with a state machine and generates events as part of the state change. That implies that a change in the state of a resource results in a state change event, and the event is published in the corresponding state machine on the event bus. All the CloudStack events (alerts, action events, usage events) and the additional category of resource state change events, are published on to the events bus.

See the Events Framework section of the Admin Guide for more information on using the events framework.

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<sup>5</sup> <https://cwiki.apache.org/CLOUDSTACK/cloudstack-cloudmonkey-cli.html>

<sup>6</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-926>

<sup>7</sup> <https://cwiki.apache.org/CLOUDSTACK/api-discovery-service.html>

<sup>8</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-820>



### 3.1.7. L3 Router Functionality in Nicira NVP Plugin

[CLOUDSTACK-726](#)<sup>9</sup>: Adds on work done in CloudStack 4.0.x series to add support for the Nicira Network Virtualization Platform (NVP). The 4.0.x releases added L2 (data link layer) support for NVP, but L3 (network layer) support was missing.

With 4.1.0, CloudStack adds support for the following features:

- L3 Routing (Gateway)
- Source NAT
- Static NAT
- Port Forwarding

### 3.1.8. Persistent Networks without Running VM

[CLOUDSTACK-706](#)<sup>10</sup>: Prior to CloudStack 4.1.0, a network had to have at least one instance (VM) running to actually deploy a network. In 4.1.0, we add the ability to deploy physical network devices without having a instance (VM) running on that network.

One use case for this is creating a Virtual Private Cloud (VPC) with a tier consisting only of physical devices. For example, you might create a VPC for a three-tier application, deploy VMs for Web and Application tier, and use physical machines for the Database tier. Another use case is that if you are providing services by using physical hardware, you can define the network as persistent and therefore even if all its VMs are destroyed the services will not be discontinued.

See the *Persistent Networks* section in the Admin Guide for more on this feature.

### 3.1.9. Add/Remove Network on VM

[CLOUDSTACK-645](#)<sup>11</sup>: provides the ability to move VMs between networks and reconfigure a VM's network. You can remove a VM from a physical network and add to a new physical network. You can also change the default physical network of a virtual machine. With this functionality, hybrid or traditional server loads can be accommodated with ease.

This feature is supported on XenServer and KVM hypervisors.

The following APIs have been added to support this feature. These API calls can function only while the VM is in running or stopped state:

- **addNicToVirtualMachine**
- **removeNicFromVirtualMachine**
- **updateDefaultNicForVirtualMachine**

See the Developer's Guide for more on using the new APIs.

<sup>9</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-726>

<sup>10</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-706>

<sup>11</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-645>

### 3.1.10. Resize Volumes Feature

[CLOUDSTACK-644](#)<sup>12</sup>: With 4.1.0 CloudStack now provides the ability to resize data disks. Volumes within the disk offerings with the same storage tag can be resized. For example, if you only want to offer 10GB, 50GB, and 100GB offerings, the allowed resize should stay within those limits. That implies if you define a 10GB, a 50GB and a 100GB disk offerings, a user can upgrade from 10GB to 50GB, or 50GB to 100GB. If you create a custom-sized disk offering, then you have the option to resize the volume by specifying a new, larger size.

This feature is supported on KVM, XenServer, and VMware hosts. However, shrinking volumes is *not* supported on VMware hosts.

Using the **resizeVolume** API, a data volume can be moved from a static disk offering to a custom disk offering with the size specified. This functionality allows those who might be billing by certain volume sizes or disk offerings to stick to that model, while providing the flexibility to migrate to whatever custom size necessary.

### 3.1.11. Autoscale

[CLOUDSTACK-637](#)<sup>13</sup>: AutoScaling allows you to scale your back-end services or application instances up or down automatically according to the conditions you define. With AutoScaling enabled, you can ensure that the number of instances you are using seamlessly scale up when demand increases, and automatically decreases when demand subsides.

Conditions for triggering a scaleup or scaledown action can vary from a simple use case like monitoring the CPU usage of a server to a complex use case of monitoring a combination of server's responsiveness and its CPU usage. For example, you can configure AutoScaling to launch an additional instance whenever CPU usage exceeds 80 percent for 15 minutes, or to remove a VM whenever CPU usage is less than 20 percent for 30 minutes.

AutoScale is supported on NetScaler Release 10 Build 73.e and beyond.

### 3.1.12. API Request Throttling

[CLOUDSTACK-618](#)<sup>14</sup>: Limits the number of API requests per second that can be placed against a management server to avoid DoS attacks via API requests.

The throttling is controlled by the **api.throttling.enabled**, **api.throttling.interval**, and **api.throttling.max** configuration settings. Note that **api.throttling.enabled** is set to *false* by default.

### 3.1.13. S3 Backed Secondary Storage

[CLOUDSTACK-509](#)<sup>15</sup>: This enhancement backs NFS secondary storage with an S3-compatible object store. Periodically, a reaper thread synchronizes the templates, ISOs, and snapshots stored on a NFS secondary storage mount with a configured S3 object store. In addition to permitting the use of commodity or IaaS storage solutions for static assets, it provides a means of automatically synchronizing template and ISO assets across multiple zones.

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<sup>12</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-644>

<sup>13</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-637>

<sup>14</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-618>

<sup>15</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-509>

See the [CloudStack wiki](#)<sup>16</sup> for more information on this feature, currently the [documentation is incomplete](#)<sup>17</sup>.

### 3.1.14. User and Domain Admin Can Create API Key and Secret

[CLOUDSTACK-437](#)<sup>18</sup>: This feature adds the ability for domain admins and users to create their own API Key and Secret. Domain admins can create keys for themselves, subdomain admins, and for regular users, but not for other domain admins.

### 3.1.15. Support Inline Mode for F5 and SRX

[CLOUDSTACK-306](#)<sup>19</sup>: For CloudStack deployments using the Juniper SRX (firewall) and F5 Big IP (load balancer), CloudStack 4.1.0 supports putting the firewall in front of the load balancer, making the firewall device the gateway and putting the load balancer behind the public network.

### 3.1.16. Egress Firewall Rules for Guest Networks

[CLOUDSTACK-299](#)<sup>20</sup>: This feature allows users to create egress (exit) traffic rules from private networks to public networks (e.g. from your internal network to the public Internet). By default all traffic is blocked from internal networks to the public networks, this allows you to open ports as necessary.

Egress traffic rules are supported only on virtual routers at this time, physical devices are not supported.

### 3.1.17. Reset SSH Key to Access VM

[CLOUDSTACK-297](#)<sup>21</sup>: CloudStack 4.1.0 introduces a new API `resetSSHKeyForVirtualMachine`, that can allow them to set or reset the SSH keypair assigned to a virtual machine.

## 3.2. Issues Fixed in 4.1.0

Apache CloudStack uses [Jira](#)<sup>22</sup> to track its issues. All new features and bugs for 4.1.0 have been tracked in Jira, and have a standard naming convention of "CLOUDSTACK-NNNN" where "NNNN" is the issue number.

This section includes a summary of known issues against 4.0.0 that were fixed in 4.1.0. Approximately 470 bugs were resolved or closed in the 4.1.0 cycle.

Defect	Description
CLOUDSTACK-46	Remnants of mycloud remain.
CLOUDSTACK-70	Improve Network Restart Behaviour for Basic Zone: Restarting Network Fail
CLOUDSTACK-94	"API command, listIsos documentation clarity
CLOUDSTACK-95	IP address allocation not working when a user tries to allocate IP addresses in a Project

<sup>16</sup> <https://cwiki.apache.org/CLOUDSTACK/s3-backed-secondary-storage.html>

<sup>17</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-878>

<sup>18</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-437>

<sup>19</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-306>

<sup>20</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-299>

<sup>21</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-297>

<sup>22</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK>

Defect	Description
CLOUDSTACK-97	Vmware network labels are ignored when creating a Zone using basic networking
CLOUDSTACK-108	VM should not be allowed to be deployed on two Isolated Networks of an Account that were created from DefaultNetworkOfferingwithSourceNATService
CLOUDSTACK-118	Status of host resource stuck in "ErrorInMaintenance"
CLOUDSTACK-119	Move Agent-Simulator in to the hypervisor plugin model
CLOUDSTACK-130	Clarify docs on tags parameter in API reference
CLOUDSTACK-152	Routes on the User VM are programmed incorrectly on a VM present on both Isolated and Shared Guest Network
CLOUDSTACK-178	Expose name parameter of VM in list Vm view.
CLOUDSTACK-198	vpn:failto add VPN Users deletes all the existing Vpn user
CLOUDSTACK-222	Admin UI prompts to restart Management server with cancel edit operation
CLOUDSTACK-225	API Docs: Request params repeated with different description
CLOUDSTACK-226	UpdatePhysicalNetworkcommand failed due to java.sql.BatchUpdateException ; Tried to extend the existing Guest VLAN Range of one physical network into the Guest VLAN range of the other physical network
CLOUDSTACK-227	ReconnectHostCmd: NullPointerException: Unable to get host Information for XenServer 6.0.2 host - on intentionally changing the traffic labels on the physical network
CLOUDSTACK-228	UI provides an option to reconnect a disconnected host - ServerApiException is thrown on an attempt
CLOUDSTACK-232	Zone infrastructure chart -- disable resource total display
CLOUDSTACK-235	Network rate can be set in 2 places. Clarify docs on how this works
CLOUDSTACK-249	Add host id to failed VM deploy alerts
CLOUDSTACK-250	Incorrect description of maintenance mode in admin guide
CLOUDSTACK-256	"vpn:As an admin user, not able to delete VPN user which is present in a regular user's network.
CLOUDSTACK-271	updatePhysicalNetwork dies with an NPE when the vlan range is empty
CLOUDSTACK-274	Two error codes mapped to same value in API
CLOUDSTACK-275	hostid not always a UUID
CLOUDSTACK-277	Message during CloudStack management server Installation: cannot access /usr/share/cloud/bridge/lib: No such file or directory
CLOUDSTACK-279	deleteProject fails when executed by the regular user (works fine for root/domain admin)
CLOUDSTACK-284	listVirtualMachines does not return deleted machines when zone is specified
CLOUDSTACK-290	3.0.0 template also needed for 2.2.14 to 3.0.5 direct upgrade.
CLOUDSTACK-293	"We do awful, hacky things in our spec file for client"

Defect	Description
CLOUDSTACK-304	Add synchronization for createSnapshot command per host basis
CLOUDSTACK-309	iptables rules being deleted from wrong VM after a migration
CLOUDSTACK-318	Adding XenServer Host Fails - 6.0.2 fails with 4.0.0
CLOUDSTACK-320	"sessionKey query parameter should be case-insensitive, now only sessionkey is accepted"
CLOUDSTACK-322	During upgrade displays error - a foreign key constraint fails ( <code>cloud/#sql-f34_6e`..</code>
CLOUDSTACK-332	"count" property in list* API response should be equal to how many entries in database, not how many objects in API response
CLOUDSTACK-333	When Datacenter name in VCenter has spaces Primary Storage (VMFS) discovery will fail
CLOUDSTACK-335	KVM VPC load balancer not working
CLOUDSTACK-336	listZones doesn't honour paging
CLOUDSTACK-343	"Document what tools and packages are required to build, package and install CloudStack 4.0
CLOUDSTACK-346	Cannot add Vmware cluster with class loader conflict exception
CLOUDSTACK-347	listNetworks API: return vlan information only when the caller is ROOT admin
CLOUDSTACK-348	deleteNetwork does not clean up network resource count correctly
CLOUDSTACK-354	Display of storage statistics is wrong
CLOUDSTACK-355	"Fix ""count"" in a bunch of API commands
CLOUDSTACK-357	"ISOs can be deleted while still attached to a running VM, and they subsequently cannot be detached from a running VM
CLOUDSTACK-359	PropagateResourceEventCommand fails in cluster configuration
CLOUDSTACK-361	Wrong creation of guest networks on a KVM host in Multiple Physical Networks with guest traffic
CLOUDSTACK-364	Docs point to download.cloud.com for AWS API script
CLOUDSTACK-368	OVM - cannot create guest VM
CLOUDSTACK-369	ASF 4.0 - unable to support XenServer 6.1 host
CLOUDSTACK-373	"static NAT and Firewall is not working on external firewall device SRX, it needs to be implemented
CLOUDSTACK-377	provide deployment config access to marvin's testcase
CLOUDSTACK-378	mavenize marvin on master
CLOUDSTACK-390	Install Guide: Section 4.5.7 (Prepare the System VM Template): Links go to cloud.com
CLOUDSTACK-397	Install Guide: Section 11.1 (Guest Traffic): Diagram is the wrong diagram
CLOUDSTACK-398	Install Guide: Section 11.17.3 (Using VPN with Mac OSX): Not complete
CLOUDSTACK-404	Update docs on the usage of cloud-setup-database
CLOUDSTACK-412	Data truncation: Out of range value for column 'ram' at row

Defect	Description
CLOUDSTACK-415	restartNetwork call causes VM to be unreachable when Nicira based SDN is used
CLOUDSTACK-416	XCP 1.6beta2 (61002c) - can't add a host
CLOUDSTACK-417	Handle password server securely to run on port 8080 on VR
CLOUDSTACK-424	Updated userdata not propagating to the VR
CLOUDSTACK-427	Change hardcoded step number references to dynamic link
CLOUDSTACK-428	Storage capacity shown in UI is incorrect
CLOUDSTACK-435	Vmware network labels are ignored when creating a Zone using basic networking
CLOUDSTACK-441	Running mgmt server using jetty fails to start api server
CLOUDSTACK-446	"Host going to alert state, if you are adding already added host
CLOUDSTACK-448	SSVM bootstrap failure on XenServer hosts with E3 CPU
CLOUDSTACK-456	License tag in SPEC isn't what RPM is expecting
CLOUDSTACK-459	[Optional Public IP assignment for EIP with Basic Zone] Associate IP Checkbox in Create Network Offering Dialog is Displayed When Elastic LB is Selected
CLOUDSTACK-462	A few corrections to make to the 4.0.0 installation guide
CLOUDSTACK-464	"Regression in AWSAPI docs, entire sections removed
CLOUDSTACK-465	French language file quotes are dropping javascript syntax error
CLOUDSTACK-467	Developer's Guide points to cloud.com for API reference
CLOUDSTACK-479	UpdateVirtualMachine api fails to propagate userdata to domr
CLOUDSTACK-481	Installation Guide Doc Error
CLOUDSTACK-493	2.2.x-3.0 DB upgrade support for Advance SG enabled network
CLOUDSTACK-499	cloudmonkey CLI can't accept complex parameter
CLOUDSTACK-500	Passwd-server iptables rules are dropped on domr on fresh start or on reboot.
CLOUDSTACK-501	Apidocs and marvin does not know how to handle Autoscaling docs.
CLOUDSTACK-504	Duplicate guest password scripts in codebase.
CLOUDSTACK-507	fix api docs for listSSHKeyPair
CLOUDSTACK-508	CLVM copies template to primary storage unnecessarily.
CLOUDSTACK-510	Add button not visible when adding public IPs to physical network.
CLOUDSTACK-514	Marvin and Cloudmonkey don't work when an API target uses https or an alternate path.
CLOUDSTACK-518	API refactoring -- change @Parameter annotation and remove the @IdentityMapper annotation.
CLOUDSTACK-520	Dependency jar names mismatch with install-non-oss.sh
CLOUDSTACK-521	Build will hung up when doing test for TestAgentShell
CLOUDSTACK-522	Log requests in cloudmonkey's log file.
CLOUDSTACK-527	List API performance optimization by using DB views and removing UUID conversion.

Defect	Description
CLOUDSTACK-534	Failed to add host
CLOUDSTACK-536	remove citrix cloudplatform from 4.0 build - CloudStack is ASF project.
CLOUDSTACK-539	Cropped Text in UI under Quick View.
CLOUDSTACK-552	]Quick view details for a volume displays scroll bar in place of name of the volume when the name of the volume has more no of characters.
CLOUDSTACK-553	"SRX - When adding SRX device make "Public Network" - default to "untrusted" and "Private Network" - default to "trusted" as un-editable fields.
CLOUDSTACK-556	Erratic window behavior in Quick View tooltip.
CLOUDSTACK-559	source code import problem
CLOUDSTACK-560	Usage server doesn't work in 4.0.0 due to missing db changes
CLOUDSTACK-572	SG Enabled Advanced Zone - Not able to deploy a VM in an account specific shared network
CLOUDSTACK-573	"NPE at com.cloud.network.NetworkManagerImpl.networkOfferingsIsConfiguredForExt when create network from the network offering having NULL provider for the service
CLOUDSTACK-578	The already deleted same hostname is not deleted from /etc/hosts of vRouter
CLOUDSTACK-584	"typos in "Apache_CloudStack-4.0.0-incubating-CloudStack_Nicira_NVP_Guide-en-US"
CLOUDSTACK-590	Incorrect Network Gateways Assigned to System VM
CLOUDSTACK-592	"API bloat, unknown apis cmd classes
CLOUDSTACK-593	"2 guest network, auto create vlan error
CLOUDSTACK-596	DeployVM command takes a lot of time to return job id.
CLOUDSTACK-599	DhcpEntryCommand fails on Router VM on CS4.0 and vSphere5 with Advanced Network Zone.
CLOUDSTACK-600	When rebooting KVM local storage VM host, libvirt definitions deleted
CLOUDSTACK-605	Host physical CPU is incorrectly calculated for Vmware host
CLOUDSTACK-606	Starting VM fails with 'ConcurrentOperationException' in a clustered MS scenario
CLOUDSTACK-614	"ListTemplates API is not returning "Enable SSH Key" attribute for any given template
CLOUDSTACK-617	Unable to edit a Sub domain
CLOUDSTACK-639	API Refactoring: Adapters for ACL
CLOUDSTACK-648	The normal users could change their own login password.
CLOUDSTACK-660	Network Traffic Labels are not functional in Marvin
CLOUDSTACK-683	Image Is Missing in the Accessing VM Section
CLOUDSTACK-689	RVR: Stop pending flag is not cleared when user start the disconnected router from another host

Defect	Description
CLOUDSTACK-691	A warning dialog box shows after reloading the welcome page.
CLOUDSTACK-693	Adding a VPC virtual router to a NiciraNVP enabled network fails.
CLOUDSTACK-694	"Create a new VPC network offering with "connectivity" option needed for SDN networking) is not allowed / VPC support for SDN networks
CLOUDSTACK-717	cloudmonkey fails to parse/print response.
CLOUDSTACK-720	Fail to load a png image when accessing the web console.
CLOUDSTACK-721	Bytes sent/received in user statistics is empty (CloudStack 4.0)
CLOUDSTACK-725	UI: Error when the Egress rules tab is selected for a network.
CLOUDSTACK-734	api_refactoring: CreateAccountCmd fails to send response due to NPE in service layer
CLOUDSTACK-735	Integration smoke tests: Fix expunge vm test on api_refactoring
CLOUDSTACK-736	Integration smoke tests: Fix check for vm name for the deployvm smoke test.
CLOUDSTACK-793	"Create cloudmonkey-helper, a plugin that helps autodiscover and sync api info via an api over some endpoint
CLOUDSTACK-798	Move usage related cmd classes from cloud-server to cloud-api
CLOUDSTACK-799	[Load Test] Check router statistics falls behind in gathering stats by more than 2 times the set value
CLOUDSTACK-819	Create Account/User API logging password in access log
CLOUDSTACK-863	Non-printable characters (ASCII control character) such as %00 or %0025 are getting stored in raw/non encoded form in the database
CLOUDSTACK-870	Client UI: Wrong character encoding for some language
CLOUDSTACK-928	[Simulator] Latency for Agent Commands - change unit of wait from seconds to milliseconds
CLOUDSTACK-938	s2s VPN trouble
CLOUDSTACK-959	Missing sub-sections in document section System Service Offering
CLOUDSTACK-968	marvin: vlan should be an attribute of the physical_network and not the zone
CLOUDSTACK-977	Document how to use openvswitch with KVM hypervisor
CLOUDSTACK-978	TypeError: instance.displayname is undefined while adding VM's to the LB rule
CLOUDSTACK-985	Different MAC address for RvR caused issue in short term network outage
CLOUDSTACK-987	Sections missing in Working With Snapshots
CLOUDSTACK-993	"admin"" user is not getting created when management server is started.
CLOUDSTACK-995	Not able to add the KVM host
CLOUDSTACK-1002	Not able to start VM
CLOUDSTACK-1006	need to disable service libvirt-guests in CentOS packaging RPMs, or in installation docs



Defect	Description
CLOUDSTACK-1008	"Egress" tab should not be presented in the UI for Shared Networks
CLOUDSTACK-1010	Host count and Secondary storage count always shows 1 in UI
CLOUDSTACK-1011	KVM host getting disconnected in cluster environment
CLOUDSTACK-1013	running cloudstack overwrites default public/private ssh key
CLOUDSTACK-1014	Merge ManagementServer and ManagementServerEx
CLOUDSTACK-1016	Not able to deploy VM
CLOUDSTACK-1021	the vlan is not creat to right nic. when i creat multi guest network
CLOUDSTACK-1024	Regression: Unable to add Xenserver host with latest build.
CLOUDSTACK-1027	"Update SSL certificate" button should properly reflect its functionality
CLOUDSTACK-1029	Enter the token to specified project is malfunctioned
CLOUDSTACK-1037	"Make cloudmonkey awesome-er: Online help docs and api discovery, better colored output, parameter value autocompletion
CLOUDSTACK-1050	No Documentation on Adding a Load Balancer Rule
CLOUDSTACK-1051	API dispatcher unable to find objectVO corresponding to DeleteTemplatecmd
CLOUDSTACK-1055	"The overlay still exists when the ""Recurring Snapshots"" dialog is canceled by pressing esc key.
CLOUDSTACK-1056	S3 secondary storage fails to upload systemvm template due to KVMHA directory
CLOUDSTACK-1057	regression of changeServiceForVirtualMachine API - fails to find service offering by serviceOfferingId parameter
CLOUDSTACK-1063	"SG Enabled Advanced Zone - "Add Guest Networks" - When user tries to add a guest Network with scope as "Account" he should NOT be presented with "Offering for shared security group enabled"
CLOUDSTACK-1064	A type error occurs when trying to add account/register template...
CLOUDSTACK-1068	Names in VR list is useless
CLOUDSTACK-1070	javelin: NPE on executing registerIso API
CLOUDSTACK-1071	Netscaler element is not getting loaded as part of LoadBalancing Service Providers
CLOUDSTACK-1078	Not able to start System Vms on Rhel 6.3 KVM host
CLOUDSTACK-1079	Deploying AWSAPI with mvn -pl :cloud-awsapi jetty:run fail
CLOUDSTACK-1082	UI doesn't throw any error message when trying to delete ip range from a network that is in use.
CLOUDSTACK-1083	listUsageRecords api: removed project results in NPE
CLOUDSTACK-1087	Update the Developer Guide for ASFCS 4.1 Release
CLOUDSTACK-1088	EnableStaticNat error will clear the data in database
CLOUDSTACK-1094	Ipv6 - hostname/hostname --fqdn does not return the name of the VM. But i am able to reach the Vm using their names

Defect	Description
CLOUDSTACK-1095	Ipv6 - dhclient command needs to be run manually on the Vms to get the Ipv6 address
CLOUDSTACK-1100	Expunge thread is not kicked off based on global configuration if the global setting is less than 60 seconds
CLOUDSTACK-1103	"IPv6 - listNetwork() command does not retrun gateway,netmask,cidr
CLOUDSTACK-1104	Ipv6 - listVlanIpRanges() returns error 530
CLOUDSTACK-1105	"IPv6 - listVirtualMachines() does not return netmask, gateway,ipaddress.
CLOUDSTACK-1107	Ipv6 - Unable to extend Ip range for a Ipv6 network using craeteVlanIpRange() command - Error code 530 returned
CLOUDSTACK-1108	Ipv6 - Not able to restart Networks
CLOUDSTACK-1109	"Ipv6 - Unable to expunge User Vms that are "Destroyed".
CLOUDSTACK-1111	Ipv6 - listRouters() does not return guestipaddress/
CLOUDSTACK-1112	"Errors in "Prepare the System VM Template"
CLOUDSTACK-1113	"Ipv6 - Not able to deploy a new VM in this network because of "Unable to allocate Unique Ipv6 address"
CLOUDSTACK-1114	unable to execute listgressfirewallrules API due invalid value id
CLOUDSTACK-1115	In multiple shared network unable to login with default nic - KVM
CLOUDSTACK-1123	ListStoragePools API broken by refactor
CLOUDSTACK-1138	"Providing invalid values for gateway, netmask etc in the zoneWizard blocks the VLAN container to load, throwing an error
CLOUDSTACK-1139	"After the Vm is "Expunged" we see the entry still being present in the router in /etc/dhcpdhosts.txt
CLOUDSTACK-1141	"Ipv6 - After network restart (and reboot router), we do not see the existing vms dnsentries not being programmed in the router.
CLOUDSTACK-1152	Missing tag in host-add.xml
CLOUDSTACK-1153	"Ipv6 - Vm deployment fails with "n must be positive" error.
CLOUDSTACK-1154	Account/Users related API failed due to RegionService inject exception.
CLOUDSTACK-1157	No API Documentation on Listing Custom User Templates Using CS4 API
CLOUDSTACK-1160	References to version=3.0.3 4 5 6 in API classes needs to be removed.
CLOUDSTACK-1161	Differences between 4.1 and master in ongoing-config-of-external-firewalls-lb.xml
CLOUDSTACK-1163	Failed with NPE while creating firewall rule
CLOUDSTACK-1168	Create firewall rule broke
CLOUDSTACK-1173	ConsoleProxyResource instantiation exception.
CLOUDSTACK-1174	Snapshots related SQL error.
CLOUDSTACK-1176	Issue with snapshots(create/list)
CLOUDSTACK-1181	mvn deploy db failing with NPE

Defect	Description
CLOUDSTACK-1190	Make APIChecker interface throw a single sensible exception.
CLOUDSTACK-1200	"Unknown column 'vm_instance.disk_offering_id' in table vm_instance, db exception shown in MS log
CLOUDSTACK-1201	"Failed to create ssh key for user "cloud" /var/lib/cloud/management/.ssh/id_rsa and failed to start management server
CLOUDSTACK-1202	Fail to install KVM cloud-agent.
CLOUDSTACK-1203	Fail to create advance zone with SG enabled when UI allows SG enabled option.
CLOUDSTACK-1204	Fail to create advance zone due to fail to add host
CLOUDSTACK-1205	Ipv6 - Ubuntu 12.10 guest Vms loses default route (after it expiration time ~ 30 mts) when ipv6.autoconfig parameters are disabled except for net.ipv6.conf.lo.autoconf which is enabled.
CLOUDSTACK-1206	Failure in Copy of System template
CLOUDSTACK-1210	Make all pluggable services return list of api cmd classes
CLOUDSTACK-1216	UUID is null for admin and failed to register user key with 4.0
CLOUDSTACK-1218	"IPv6: Shared Network - After network restart with clean option, router is assigned a different address. Name resolution for the existing guest Vms in the network fails.
CLOUDSTACK-1219	Ipv6 - Provide better error messages when deploying a Vm with Ip an address that is outside the network's ip range / if the ip address already is assigned to another Vm
CLOUDSTACK-1220	Ipv6 - Better error message when deploy Vm fails to get a free Ip address
CLOUDSTACK-1222	API rate limit configs: removed double quote in upgrade script
CLOUDSTACK-1223	Exception while starting jetty server: org.springframework.beans.factory.BeanCreationException Error creating bean with name 'apiServer'
CLOUDSTACK-1224	Volume snapshot creation failing
CLOUDSTACK-1226	Error while running Cloudstack-setup-database
CLOUDSTACK-1228	Unable to Create System Vm's in the VMware Hypervisor setup
CLOUDSTACK-1229	Incorrect SQL syntax to insert api limit related configuration items in upgrade path script.
CLOUDSTACK-1231	cloud-install-sys-tmplt failed due to missing path
CLOUDSTACK-1232	"Ipv6 - Guest Vms are not able to get Ipaddress when executing dhclient command when using ""/96"" network.
CLOUDSTACK-1233	Veewee configuration files are inappropriately identified as ASLv2 licensed file
CLOUDSTACK-1234	Unable to start KVM agent with 4.1 build.
CLOUDSTACK-1237	"Register Template fails with ""Cannot find template adapter for XenServer""
CLOUDSTACK-1239	Unable to registerISO :unhandled exception executing api command: registerIso

Defect	Description
CLOUDSTACK-1240	Unable to registerTemplate : Cannot find template adapter for XenServer.
CLOUDSTACK-1241	Network apply rules logic is broken.
CLOUDSTACK-1242	[F5-SRX-InlineMode] Failed to create LB rule with F5-SRX inlinemode deployment
CLOUDSTACK-1243	Failed to cleanup account :java.lang.NullPointerException
CLOUDSTACK-1244	fail to push sysvm.iso onto xen host
CLOUDSTACK-1246	"[ ALU beta CS 4.1 build2] ""Guest network"" missing in Add Zone wizard ( step 3, Setup Network \ Physical Network)
CLOUDSTACK-1251	Baremetal zone doesn't need primary/secondary storage in UI wizard.
CLOUDSTACK-1252	Failed to download default template in VMware.
CLOUDSTACK-1260	Failed to register template: Unable to find template adapter
CLOUDSTACK-1261	Cannot find template adapter for XenServer.
CLOUDSTACK-1262	"Failed to Prepare Secondary Storage in VMware,
CLOUDSTACK-1265	logrotate dnsmasq configuration is wrong
CLOUDSTACK-1267	KVM's cloudstack-agent service doesn't log (log4j)
CLOUDSTACK-1269	Failed to start CPVM java.lang.NullPointerException Unable to start SSVM
CLOUDSTACK-1272	Autoscale: createAutoScaleVmProfile fails due to unable to retrieve Service Offering ip
CLOUDSTACK-1274	UpdateNetworkCmd throws NP
CLOUDSTACK-1276	Remove autoscanning for 4.1
CLOUDSTACK-1277	ApiResponseHelper.createUserVmResponse failed to populate password field set from UserVm object
CLOUDSTACK-1278	Improper permissions on injectkeys.sh
CLOUDSTACK-1288	[F5-SRX-InlineMode] classCastException during network restart with cleanup option true
CLOUDSTACK-1289	[F5-SRX-InlineMode] Usage stats are not generated for Juniper SRX Firewall in inlinemode
CLOUDSTACK-1290	listNetworks API takes too long to respond
CLOUDSTACK-1292	"[F5-SRX-InlineMode] Update network from SRX,F5 as service provides to VR as service provider does not delete firewall rules from SRX
CLOUDSTACK-1295	NPE in usage parsers due to missing @Component inject
CLOUDSTACK-1299	Errors in 4.5.5 section of installation guide
CLOUDSTACK-1300	section in wrong order in installation guide
CLOUDSTACK-1303	Ipv6 - java.lang.NullPointerException when executing listnetworks() and deployVirtualMachine() after extending the Ipv4 range of a dual stack network
CLOUDSTACK-1307	Noticed NPE when we put host in maintenance mode in clustered management setup

Defect	Description
CLOUDSTACK-1310	ASF-build-master-nonoss-rhel63 - create advance zone FAIL - CreatePhysicalNetworkCmd FAIL - MySQLIntegrityConstraintViolationException: Duplicate entry '200-Public' for key 'physical_network_id'
CLOUDSTACK-1312	"Fix rolling upgrades from 4.0 to 4.1 in 4.1 release, fix db schemas to be same as 4.0
CLOUDSTACK-1313	Working with Volumes Section Is Missing
CLOUDSTACK-1315	[F5-SRX-InlineMode] Network implement failed with Run time Exception during network upgrade from VR to SRX-F5
CLOUDSTACK-1319	createCustomerVpnGateway response gives TypeError: json.createvpncustomergatewayresponse is undefined
CLOUDSTACK-1320	Routers naming convention is changed to hostname.
CLOUDSTACK-1321	[Site-to-Site VPN] No events are generated in case of status change in site to site vpn connection
CLOUDSTACK-1326	KVM - Failed to start cloud agent from SSVM
CLOUDSTACK-1328	console view unable to connect - CPVM SSVM guest VM
CLOUDSTACK-1329	"API listRouters response returns hostname instead of Virtual Routers, UI displays host entry for each VR
CLOUDSTACK-1330	ec2-run-instances - When -n option is used to deploy multiple Vms API returns error even though few of the Vms have been deployed successfully
CLOUDSTACK-1331	Upgrade fails for a 2.2.14 Zone having multiple guest networks using network_tags and Public Vlan
CLOUDSTACK-1332	IPV6 - Router and guest Vms should be able to use an IPV6 address for external DNS entry
CLOUDSTACK-1334	vmware.root.disk.controller doesn't work
CLOUDSTACK-1337	Zone to zone template/ISO copy fails and template/ISO download also fail
CLOUDSTACK-1338	Deploy VM failed using IS
CLOUDSTACK-1339	ASF 4.1: Management server becomes unresponsive
CLOUDSTACK-1341	URL for the KEYS file is wrong in the installation guide
CLOUDSTACK-1342	Document installation and usage of cloudmonkey for 4.1 docs
CLOUDSTACK-1343	Porting Baremetal related UI changes to ACS
CLOUDSTACK-1344	Typo in use.external.dns setting description
CLOUDSTACK-1345	BigSwitch plugin introduces 'VNS' isolation in UI without backend implementation
CLOUDSTACK-1346	"Check to see if external devices are used in the network, is hardcoded for specific devices
CLOUDSTACK-1347	"Not able to delete network. Error - "Unable to insert queue item into database, DB is full?"
CLOUDSTACK-1348	API/UI: zoneObj is undefined.

Defect	Description
CLOUDSTACK-1349	"VPC network Adding Network ACLs, PF rules - Unable to insert queue item into database, DB is full? PF rules and NW Acls in Add state in DB
CLOUDSTACK-1350	Management server Stop and start causes previously downloaded ISOs and templates to redownload & reinstall.
CLOUDSTACK-1353	KVM 6.3 snapshot Scheduling snapshot failed due to java.lang.NullPointerException
CLOUDSTACK-1357	"Autoscale: Provisioned VMs from Netscaler not being added to lb vserver, provserver fails with provserver_err_asyncpoll
CLOUDSTACK-1360	The clusterid field of the createStoragePool API command should be documented as required.
CLOUDSTACK-1367	NPE noticed in logs while AgentMonitor is monitoring the host ping interval
CLOUDSTACK-1368	Shared network - Not able to delete network because of java.lang.NullPointerException
CLOUDSTACK-1369	"Ipv6 - In dual Stack network, guest VM does not have the Ipv6 address of the router programmed in /etc/resolv.conf for DNS resolution.
CLOUDSTACK-1370	DeployVM Fail - VPC or non-VPC network
CLOUDSTACK-1375	deploydb failing with acs master
CLOUDSTACK-1376	Unable to migrate VM due to internal error process exited while connecting to monitor
CLOUDSTACK-1377	HA fail - when host is shutdown, VMs and SSVMs are not failover to second host in cluster.
CLOUDSTACK-1382	vm deploy fails with Error "cannot find DeployPlannerSelector for vm"
CLOUDSTACK-1383	Deploying basic zone on 4.1 fails in NPE
CLOUDSTACK-1386	BASIC zone SSVM fail to start due to exception
CLOUDSTACK-1388	UI - ListUsers doesnt display any User except the Default Root Admin User
CLOUDSTACK-1391	EventBus is not getting injected after javelin merge
CLOUDSTACK-1394	[F5-SRX-InlineMode] Failure in static nat configuration on SRX does not result in LB configuration error in CS during LB rule configuration
CLOUDSTACK-1397	Static Nat configuration is failing with NPE
CLOUDSTACK-1399	Unhandled exception executing api command: stopVirtualMachine
CLOUDSTACK-1402	listRouters API response doesn't return linklocal IP and public IP details
CLOUDSTACK-1403	Storage and console-proxy related error
CLOUDSTACK-1411	Issues with VMWare Hypervisor host_ids not updated when ESX(i) crashes in instance table
CLOUDSTACK-1414	Redundant router: BACKUP switch cancelled due to lock timeout after a glitch in network.

Defect	Description
CLOUDSTACK-1417	When invalid values are passed to createNetwork(), error message does not indicate the parameter name that has invalid values.
CLOUDSTACK-1418	As regular user, we are not allowed to deploy VM on a shared network.
CLOUDSTACK-1419	Apache-ify and apply trademark logos in the UI
CLOUDSTACK-1420	Ensure trademarks are properly attributed in publican brand
CLOUDSTACK-1423	Unable to launch UI [HTTP Status 404].
CLOUDSTACK-1425	unhandled exception executing api command: migrateVirtualMachine & recoverVirtualMachine
CLOUDSTACK-1427	Failed to delete Guestnetwork which has LB with Netscaler
CLOUDSTACK-1428	[UI] Instance which are created without display name are not visible when added to LB
CLOUDSTACK-1429	single account is unable to use same vnet across multiple physical network
CLOUDSTACK-1436	4.1 management server fails to start from RPM build artifact
CLOUDSTACK-1443	As domain admin we are allowed to create shared network
CLOUDSTACK-1446	[UI]VPC Router type should be of type vpc and not system
CLOUDSTACK-1447	[UI]Persistent Status is not displayed for VPC Tier
CLOUDSTACK-1449	listAccounts and listProjectAccounts API lists all the users not account-specific users for each account returned
CLOUDSTACK-1451	Getting EntityExistsException while creating more than one project in CS 4.1
CLOUDSTACK-1452	Public IP's are assigned to private interface with VPC Restart [PF/ LB rules are not functional
CLOUDSTACK-1461	"Ipv6 - From a Vm that that is part of 2 networks, non default network router's details should not get programmed in the DNS entries of the guest VM.
CLOUDSTACK-1463	IPV6 - Ubuntu 12.10 - Multiple Nic - IPV6 address is assigned automatically for 1 nic only. Need to do a manual dhclient request to get the ipv6 for other nic.
CLOUDSTACK-1464	"IPV6 - Multi nic - Ubuntu 1210 -When Vm is stopped and started/ rebooted, i get multiple global IPV6 addresses being allocated for one of the nics.
CLOUDSTACK-1465	List Zones returns null under create instance when logged is as user
CLOUDSTACK-1467	Failed to create Volume for the System VMs
CLOUDSTACK-1469	kvm agent: agent service fails to start up
CLOUDSTACK-1470	unhandled exception executing api command: deployVirtualMachine
CLOUDSTACK-1472	AssignVirtualMachine API with wrong Virtual Instance ID failed with NPE
CLOUDSTACK-1473	deleteDomain is failing with NPE

Defect	Description
CLOUDSTACK-1481	"IPV6 - When Vm is part of 1 dual network and 1 ipv6 network, name resolution using fqdn fails for the ipv6 network.
CLOUDSTACK-1482	IPV6 - We are not allowed to create a shared IPV6 network with a VLAN which already is associated with a IPV4 network
CLOUDSTACK-1484	API Throttling : api.throttling.enabled, Global setting missing
CLOUDSTACK-1485	Add Baremetal Provider back to 4.1 branch
CLOUDSTACK-1487	cloudstack-setup-agent fails to set private.network.device on KVM host add
CLOUDSTACK-1488	"Ipv6 - When Vm is deployed as part of multiple networks, one of the IPV6 address assigned to guest VM is lost.
CLOUDSTACK-1490	4.1 deb management fails to start due to tomcat dep problem
CLOUDSTACK-1496	List API Performance: listAccounts failing with OOME for high values of pagesize (>1000)
CLOUDSTACK-1499	ListAPI Performance for few APIs not as good as it was before API optimization
CLOUDSTACK-1503	listHypervisor API not getting fired when logged in as User
CLOUDSTACK-1505	Unknown column 'domain.region_id' in 'field list'
CLOUDSTACK-1509	Failed to implement network elements and resources while provisioning for persistent network(createVlanIpRange to an account
CLOUDSTACK-1511	[UI] Instances NIC details does not have Network Name
CLOUDSTACK-1512	[UI] Wrong message[message.configure.all.traffic.types] when trying to create zone with mulitple physical networks without providing the traffic label
CLOUDSTACK-1515	None of the cloudstack packges are marked for upgrade when tried to upgrade from.4.0/4.0.1 to 4.1
CLOUDSTACK-1516	Create documentation in languages that have translations available
CLOUDSTACK-1517	Check UI in languages available
CLOUDSTACK-1521	Redundant router: Services are not stopped when switch to BACKUP state
CLOUDSTACK-1526	Template registration fails in the VMware Setup
CLOUDSTACK-1531	vmware create volume from snapshot will missing date
CLOUDSTACK-1537	Restart network with clean up set to true causes Autoscaled LB rule to get mangled and unusable
CLOUDSTACK-1541	NPE while deleting snapshot :Unexpected exception while executing org.apache.cloudstack.api.command.user.snapshot.DeleteSnapshotCmd
CLOUDSTACK-1542	unhandled exception while creating project
CLOUDSTACK-1544	The description and the response format for the deleteUser command are incorrect
CLOUDSTACK-1550	createaccountresponse returns more than the user you requested for creation



Defect	Description
CLOUDSTACK-1553	AWS Regions-Not able to list accounts from the 2nd region after user/account/domain details have been manually synced up from first region
CLOUDSTACK-1555	"AWS Regions - userapikey and usersecretkey parameters are not returned in the response of addRegion, updateRegion listRegion api calls..
CLOUDSTACK-1557	EC2 REST API : cloudbridge database is missing on the CloudStack Installation
CLOUDSTACK-1562	Replace the short-cut solution of supporting @DB with the formal one
CLOUDSTACK-1565	"Used Master Branch System VM Template: Default Route on the System VMs (SSVM,CPVM and VR) is missing
CLOUDSTACK-1566	Baremetal API addBaremetalPxePingServer fail to add PXE PING server to deployment causing create instance with PING style image to fail
CLOUDSTACK-1569	"AWS Regions - Not able to Edit domain/account/user from a region that is not the owner region." "The content of elements must consist of well-formed character data or markup." - error message presented to the user.
CLOUDSTACK-1571	"AWS Regions - When deleting domain/account/user from a region that is not the owner, the request is not being forwarded to the owner region.
CLOUDSTACK-1574	updateResourceCount API is failed saying to specify valid resource type even after parsing the valid resource type
CLOUDSTACK-1583	AWS Regions - RabbitMQ Server did not receive any event notification during account creation
CLOUDSTACK-1587	Basic zone - CPVM fail to go to running state, Exception while trying to start secondary storage vm
CLOUDSTACK-1588	AWS Regions - When registerUserKeys() is called for a user from a region that is not the owner, it is handled by this region.
CLOUDSTACK-1600	Typo in dpkg-buildpackage command
CLOUDSTACK-1604	deploy VM failed when global setting "vm.allocation.algorithm" is set to "userdispersing
CLOUDSTACK-1615	"VMware Cluster discovery fails with if ESXi version is 5.0 Update 1, build 721882
CLOUDSTACK-1620	Cannot provision CentOS 6 VMs on XenServer 6.1
CLOUDSTACK-1621	listProjectInvitations fails with NPE for valid request
CLOUDSTACK-1624	API is not returning response in details:UI is also not returning any output
CLOUDSTACK-1625	NPE with updateResourceCount when && is passed thru API
CLOUDSTACK-1630	4.0.x cloud-aws-api not properly obsoleted
CLOUDSTACK-1631	4.1 RPM packaging broken
CLOUDSTACK-1636	AWS Regions - Remove the concept of having an owner region for domain/account/user objects

Defect	Description
CLOUDSTACK-1642	Add support CentOS 6.4
CLOUDSTACK-1648	Unable to add KVM host.
CLOUDSTACK-1649	vmware vm os type error
CLOUDSTACK-1651	agent scripts still pointing to /var/log/cloud
CLOUDSTACK-1656	NicResponses in a UserVmResponse are not preserving the natural order
CLOUDSTACK-1663	AWS Regions - Events - There are no events being generated when a new domain is added/edited
CLOUDSTACK-1664	Action Events are not logged due to spring change
CLOUDSTACK-1665	AWS Regions - Events - There are no events being generated when a new user is added/edited/enabled/deleted/password changes/api & secret keys are generated
CLOUDSTACK-1666	KVM VPC NetworkUsage does not work
CLOUDSTACK-1668	IP conflict in VPC tier
CLOUDSTACK-1671	AWS Regions - Events - Domain Delete event does not include the UUID of the domain that was deleted
CLOUDSTACK-1674	AWS Regions - Events - Account Deletion event does not include the UUID of the account deleted
CLOUDSTACK-1681	Upgrade instructions mention incorrect name and description of systemvm-vmware template in registering template section
CLOUDSTACK-1684	"api.throttling.enabled configuration setting should be set to ""false"" in Config.java
CLOUDSTACK-1688	AWS Regions - Domain admin user is not able to use getUser() command to fetch user details
CLOUDSTACK-1690	NPE from API server when starting mgmt server
CLOUDSTACK-1694	Issues to start/access Management Server after upgrade from 4.0 to 4.1
CLOUDSTACK-1697	Six DB tables are not available with upgraded setup(4.0 to 4.1) when compare to 4.1 newly installation
CLOUDSTACK-1706	Failed to deploy VM with error "cannot find DeployPlannerSelector"
CLOUDSTACK-1709	AWS Regions - As part of adding a new region, project related entries should not be synced from accounts table.
CLOUDSTACK-1710	AWS Regions - As part of adding a new region,default_zone_id column for the account entries should not be synced.
CLOUDSTACK-1711	AWS Regions - Include all the details of the API call made in the Events payload when changes in Admin/Account/User objects are made.
CLOUDSTACK-1713	EC2 REST API: AWS API Installation Problem
CLOUDSTACK-1714	Doc section has wrong title: Setting Zone VLAN and Running VM Maximum
CLOUDSTACK-1715	"Missing ""host"" config setting in docs on management server load balancing

Defect	Description
CLOUDSTACK-1716	"AWS Regions - listRegions(),removeRegions(),updateRegions() should accept UUID value instead of id.
CLOUDSTACK-1718	AWS Regions - removeRegion() response returns updateregionresponse
CLOUDSTACK-1719	EC2 REST API: AWS APIs are not getting translated on the CloudStack Management Server
CLOUDSTACK-1720	Have an upgrade path from 4.0.x to 4.1 and 4.0.x to 4.2.0
CLOUDSTACK-1729	Ensure adapter execution order in runtime
CLOUDSTACK-1733	[ACS41][UI] Add guest network is missing ip range fields and missing network offering
CLOUDSTACK-1736	Ubuntu 12.04 cloud-setup-management Failed to configure CloudStack Management Server
CLOUDSTACK-1738	StatsCollector is not running
CLOUDSTACK-1740	Failed to view console
CLOUDSTACK-1746	Cloudstack Usage Server won't start
CLOUDSTACK-1747	"mvn deploydb only creates 4.0 DB, not 4.1
CLOUDSTACK-1750	injectkeys script fails on OSX because cp does not have a -b option (backup of destination file
CLOUDSTACK-1761	Available local storage disk capacity incorrectly reported in KVM to manager
CLOUDSTACK-1764	ListTemplateCommand failed with java.lang.NumberFormatException and failed to create default template.
CLOUDSTACK-1772	the change in vnc listening port will cause live migration doesn't work.
CLOUDSTACK-1773	Disable baremetal functionality
CLOUDSTACK-1776	NPE on listSecondaryStorageHostsInAllZones in Upgraded setup from 4.0 to 4.1.0
CLOUDSTACK-1785	Redundant Router test cases failing during automation run.
CLOUDSTACK-1789	Unable to download templates to Primary Storage if a host is in maintenance.
CLOUDSTACK-1791	Volumes with storage tags can't be attached.
CLOUDSTACK-1792	"AWS Regions - RuntimeException while executing listAccounts(), when the encryption keys are set to different values between regions.
CLOUDSTACK-1793	L10n docs don't build in chinese, portuguese and japanese
CLOUDSTACK-1795	Customize AOP to fully support legacy CloudStack @DB and @ActionEvent semantics.
CLOUDSTACK-1796	Japanese docs don't build.
CLOUDSTACK-1802	Upgrade 4.0 -> 4.1 - Not able to start management server because of missing /etc/cloudstack/management/tomcat6.conf file
CLOUDSTACK-1804	Upgrade 4.0 -> 4.1 - DB upgrade fails

Defect	Description
CLOUDSTACK-1805	com.mysql.jdbc.exceptions.jdbc4.CommunicationsException seen after long time of inactivity resulting in not being able to log in to the management server
CLOUDSTACK-1810	listTemplate API with templatefilter=featured community is not returning any lists
CLOUDSTACK-1811	"Upgrade 4.0->4.1 - When upgrade scripts fail, component loading continues and management server starts.
CLOUDSTACK-1812	create physical network fails while creating basic zone
CLOUDSTACK-1825	EC2 REST API: AWS APIs fail to execute due to BeanCreationException: Error creating bean with name 'SAclDaolImpl'
CLOUDSTACK-1826	"Storage migration not working, seemingly due to uuid vs id
CLOUDSTACK-1827	Redundant router - When VR Master was stopped failover to VR Backup did not occur.
CLOUDSTACK-1834	"Events are not generated for registerUserKeys(), Enabling account and Editing account.
CLOUDSTACK-1836	License header failures for ja-JP .po translation file
CLOUDSTACK-1839	Upgrade 4.0 -> 4.1 - Upgraded DB has lot more keys and indexes for many tables compare to the fresh installed 4.1 DB
CLOUDSTACK-1841	ASF 4.0 to 4.1 Upgrade: Missing Few Global Configuration parameters on the Upgraded Setup.
CLOUDSTACK-1842	ASF 4.0 to 4.1 Upgrade: Missing Ubuntu 12.04 Guest OS Types on the Upgraded Setup.
CLOUDSTACK-1844	Upgrade 4.0 -> 4.1 - KVM host agent.properties is not restored as part of upgrading the binaries from 4.0 to 4.1.
CLOUDSTACK-1845	KVM - storage migration often fails
CLOUDSTACK-1846	"KVM - storage pools can silently fail to be unregistered, leading to failure to register later.
CLOUDSTACK-1848	Cloudstack Packages are not got updated with scenario 4.0 to 4.1 upgrade where MS is on Ubuntu 12.04.
CLOUDSTACK-1856	Upgrade 4.0 -> 4.1 - Fresh install of 4.1 has 3 parameters missing in db.properties compared to an upgraded 4.0 setup
CLOUDSTACK-1873	"Installation : JasyptPBEStrngDecryptionCLI missing, failed to decrypt db password
CLOUDSTACK-1874	AWS Regions - Account table in cloud_usage DB has region_id
CLOUDSTACK-1876	External Devices - network offering for external devices is not returned in API listNetworkOfferings when creating instances.
CLOUDSTACK-1877	Failed to connect to DB while starting Ubuntu management server after upgrading the packages from 4.0 to 4.1.0
CLOUDSTACK-1882	"HTTP Status 404 # The requested resource () is not available.
CLOUDSTACK-1890	listProjects is not listing state in the response
CLOUDSTACK-1900	"Upgrade 4.0 -> 4.1, We do not have a copy of db.properties that comes from a 4.1 installation saved anywhere.

Defect	Description
CLOUDSTACK-1929	ASF 4.1 cloudstack agent fail to install in KVM host CENTOS 6.3 OS: qemu-kvm-0.12.1.2-3.295.el6.10.x86_64 requires libusbredirparser.so.0
CLOUDSTACK-1934	NPE with listSupportedNetworkServices after upgrade from 4.0 to 4.1 (Ubuntu MS)
CLOUDSTACK-1935	Cloud utilities are not renamed to Cloudstack after upgrade from 4.0 to 4.1 [Ubutnu MS]
CLOUDSTACK-1936	On CentOS, after a upgrade from 4.0.1 to 4.1 on a cloud node (cloud-agent), the new cloustack-agent isn't add as a service (chkconfig)
CLOUDSTACK-1951	centos packaging: cloud-install-sys-tmpl can't find jasypt jar.
CLOUDSTACK-1971	VM deployed to incorrect primary storage.
CLOUDSTACK-1972	VM deployed to incorrect primary storage.
CLOUDSTACK-1978	openvswitch - unable to start console session for SSVM CPVM user VM
CLOUDSTACK-1980	"[4.1]cloudstack-setup-bridge, cloudstack-setup-encryption & cloudstack-sysvmadm utilities are not available in Ubuntu 12.04 Management Server.
CLOUDSTACK-1987	Deleted service offerings owned by a domain show up to domain user.
CLOUDSTACK-1988	AWS API using SOAP client - User Registration fails
CLOUDSTACK-1989	"Query service offering by ID returns no result, but querying all returns service offering
CLOUDSTACK-2003	Deleting domain while deleted account is cleaning up leaves VMs expunging forever due to 'Failed to update resource count
CLOUDSTACK-2007	Release Notes failing to build on jenkins.cs.

### 3.3. Known Issues in 4.1.0

Issue ID	Description
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-2492">CLOUDSTACK-2492</a> <sup>23</sup>	<p>System VM Clock Drift</p> <p>Testing of the new S3-backed secondary storage feature identified that the system VM templates offered as part of the 3.x releases (which are still the official templates for 4.1.0) did not contain the necessary configuration to enable time synchronization within the system VM guest operating systems. With 4.1.0, this issue has been corrected for both the VMware vSphere and KVM system VM flavors via post boot configurations. The XenServer system VM template does not have an official fix for this problem. If you choose to take advantage of the new S3-backed secondary storage feature while running your system VMs on XenServer, you may be impacted by time synchronization issues.</p>

<sup>23</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-2492>

Issue ID	Description
<a href="#">CLOUDSTACK-1747</a> <sup>24</sup>	<p>mvn deploydb only creates 4.0 DB, not 4.1</p> <p>Due to tooling changes between 4.1 and 4.2, CloudStack's database is created using the 4.0 schema and updated to the 4.1 schema when the management server starts for the first time. It's OK to see the same schema if the management server has not started yet.</p>
<a href="#">CLOUDSTACK-1824</a> <sup>25</sup>	<p>Service CloudStack-Management is being displayed as cloud-management service</p> <p>Many scripts and text entries have references to cloud-management rather than cloudstack-management due to the changeover between 4.0 and 4.1 to rename services. This is a minor issue and should be corrected by 4.2.</p>
<a href="#">CLOUDSTACK-1824</a> <sup>26</sup>	Service CloudStack-Management is being displayed as cloud-management service
<a href="#">CLOUDSTACK-1510</a> <sup>27</sup>	NPE when primary storage is added with wrong path
<a href="#">CLOUDSTACK-1428</a> <sup>28</sup>	[UI] Instance which are created without display name are not visible when added to LB
<a href="#">CLOUDSTACK-1306</a> <sup>29</sup>	Better Error message when trying to deploy Vm by passing static Ipv4 addresses that are assigned to another VM/IP4 address is outside the iprange.
<a href="#">CLOUDSTACK-1236</a> <sup>30</sup>	Warning while adding Xen 6.1 host [Unable to create local link network]
<a href="#">CLOUDSTACK-969</a> <sup>31</sup>	api: zone response lists vlan in it as "vlan range of zone" but the vlan belongs to physical network
<a href="#">CLOUDSTACK-963</a> <sup>32</sup>	[cloud.utils.AnnotationHelper] class java.lang.String does not have a Table annotation
<a href="#">CLOUDSTACK-458</a> <sup>33</sup>	xen:snapshots:Storage gc fail to clean the failed snapshot images from secondarystorage
<a href="#">CLOUDSTACK-315</a> <sup>34</sup>	Infrastructure view does not show capacity values
<a href="#">CLOUDSTACK-300</a> <sup>35</sup>	Creation of compute offering allow combination of local storage + HA
<a href="#">CLOUDSTACK-282</a> <sup>36</sup>	Virtual Routers do not properly resolve DNS SRV Records

<sup>24</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1747>  
<sup>25</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1824>  
<sup>26</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1824>  
<sup>27</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1510>  
<sup>28</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1428>  
<sup>29</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1306>  
<sup>30</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1236>  
<sup>31</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-969>  
<sup>32</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-963>  
<sup>33</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-458>  
<sup>34</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-315>  
<sup>35</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-300>  
<sup>36</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-282>

Issue ID	Description
<a href="#">CLOUDSTACK-276</a> <sup>37</sup>	SSVM ID is exposed in the Error Message thrown by AddTrafficType API
<a href="#">CLOUDSTACK-270</a> <sup>38</sup>	Ui should not ask for a vlan range if the physical network isolation type is not VLAN
<a href="#">CLOUDSTACK-245</a> <sup>39</sup>	VPC ACLs are not stored and programmed consistently
<a href="#">CLOUDSTACK-231</a> <sup>40</sup>	Tag creation using special charecters
<a href="#">CLOUDSTACK-124</a> <sup>41</sup>	NetworkGarbageCollector not cleaning up networks
<a href="#">CLOUDSTACK-62</a> <sup>42</sup>	console proxy does not support any keymaps besides us, jp
<a href="#">CLOUDSTACK-77</a> <sup>43</sup>	console proxy display issues
<a href="#">CLOUDSTACK-79</a> <sup>44</sup>	CloudStack 3.0.4: firewall rules not restored on KVM host
<a href="#">CLOUDSTACK-105</a> <sup>45</sup>	/tmp/stream-unix.#####.##### stale sockets causing inodes to run out on Xenserver
<a href="#">CLOUDSTACK-107</a> <sup>46</sup>	Network domain guest suffix is not getting programmed as part of hostnames on Guest VMs that are part of Isolated and Shared Guest Networks
<a href="#">CLOUDSTACK-133</a> <sup>47</sup>	Multiple DHCP Servers are being created on the shared network on using multiple Network Ranges from the same shared network.
<a href="#">CLOUDSTACK-155</a> <sup>48</sup>	HA checks lead to unnecessary Compute Node reboot when Primary Storage is in Maintenance Mode
<a href="#">CLOUDSTACK-187</a> <sup>49</sup>	CloudStack reports incorrect CPU & RAM usage values for hosts in Basic zone
<a href="#">CLOUDSTACK-207</a> <sup>50</sup>	"listCapacity API is not able to list clusterwide capacities when used with "sortBy=Usage" parameter"
<a href="#">CLOUDSTACK-234</a> <sup>51</sup>	create/delete firewa/lb/pf rule: send ip assoc command just for the IP for which you are creating the rule
<a href="#">CLOUDSTACK-236</a> <sup>52</sup>	Network Offering IDs are being exposed to the Regular User Account in the UpdateNetworkCmd Error message
<a href="#">CLOUDSTACK-237</a> <sup>53</sup>	StopVMCommand reported success in spite of failing to stop a VM which got stuck during installation from an ISO

<sup>37</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-276>

<sup>38</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-270>

<sup>39</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-245>

<sup>40</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-231>

<sup>41</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-124>

<sup>42</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-62>

<sup>43</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-77>

<sup>44</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-79>

<sup>45</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-105>

<sup>46</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-107>

<sup>47</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-133>

<sup>48</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-155>

<sup>49</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-187>

<sup>50</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-207>

<sup>51</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-234>

<sup>52</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-236>

<sup>53</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-237>

Issue ID	Description
<a href="#">CLOUDSTACK-238</a> <sup>54</sup>	vpn:fail to connect to vpnserver using non-sourceNAT IP
<a href="#">CLOUDSTACK-242</a> <sup>55</sup>	haproxy listens on all interfaces on VR
<a href="#">CLOUDSTACK-243</a> <sup>56</sup>	"On management server, security for remote JMX connections is disabled"
<a href="#">CLOUDSTACK-244</a> <sup>57</sup>	RPC port on SSVM is open on all interfaces
<a href="#">CLOUDSTACK-252</a> <sup>58</sup>	"UpdateNetwork Operation on a guest network that is currently using Virtual Router for Lb services to a network offering that uses "F5" for Lb services Fails due to MySQLIntegrityConstraintViolationException."
<a href="#">CLOUDSTACK-255</a> <sup>59</sup>	Null pointer exception while creating portforwarding rule after performing UpdateNetworkCmd
<a href="#">CLOUDSTACK-272</a> <sup>60</sup>	Delete failure message for network with a VM is not informative
<a href="#">CLOUDSTACK-280</a> <sup>61</sup>	Exception thrown on going to Step 5 of Add VM Instance - CloudRuntimeException: Tags are not defined for physical network in the zone id=1
<a href="#">CLOUDSTACK-281</a> <sup>62</sup>	"On Updating the VMWare Traffic Labels of existing Physical Networks to Invalid Values; Triggering a ReconnectHost Command, successfully reconnected the ESXi host instead of reporting an Alert"
<a href="#">CLOUDSTACK-298</a> <sup>63</sup>	putting host in maintenance mode while creating snapshot ,host resorce state stuck in "ErrorInMaintenance mode" and snapshot creation fail Unable to migrate due to Requested operation is not valid: cannot migrate domain with 1 snapshots
<a href="#">CLOUDSTACK-305</a> <sup>64</sup>	AWS APi - "Rolling back the transaction" seen in management server logs , everytime a soap call is made.
<a href="#">CLOUDSTACK-308</a> <sup>65</sup>	ec2-describe-instances - Instance type is always retuned as "m1.small"
<a href="#">CLOUDSTACK-310</a> <sup>66</sup>	Failed to add host - Plugin error
<a href="#">CLOUDSTACK-324</a> <sup>67</sup>	"Cannot edit default security group rules, default security group blocks all inbound traffic."
<a href="#">CLOUDSTACK-338</a> <sup>68</sup>	Unique Names of Disk and Service Offerings in the database are prefixed with "Cloud.com" String

<sup>54</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-238>

<sup>55</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-242>

<sup>56</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-243>

<sup>57</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-244>

<sup>58</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-252>

<sup>59</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-255>

<sup>60</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-272>

<sup>61</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-280>

<sup>62</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-281>

<sup>63</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-298>

<sup>64</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-305>

<sup>65</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-308>

<sup>66</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-310>

<sup>67</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-324>

<sup>68</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-338>



Issue ID	Description
<a href="#">CLOUDSTACK-425</a> <sup>69</sup>	Check image type is qcow2 before actually installing
<a href="#">CLOUDSTACK-440</a> <sup>70</sup>	create networks in advanced zone with out VLAN isolation
<a href="#">CLOUDSTACK-568</a> <sup>71</sup>	Source template id is recorded incorrectly.
<a href="#">CLOUDSTACK-643</a> <sup>72</sup>	KVM snapshots deleted on UI/API do not physically delete from secondary storage
<a href="#">CLOUDSTACK-797</a> <sup>73</sup>	Remove or fix unknown classes in cloud-api
<a href="#">CLOUDSTACK-970</a> <sup>74</sup>	when a template is deleted and then copied over again , it is still marked as "Removed" in template_zone_ref table.
<a href="#">CLOUDSTACK-989</a> <sup>75</sup>	marvin: jsonHelper deserialization results in unfilled attributes
<a href="#">CLOUDSTACK-1007</a> <sup>76</sup>	Not able to delete Shared network because of not being able to stop the router.
<a href="#">CLOUDSTACK-1187</a> <sup>77</sup>	Handle network creation failures when persistent is set to true
<a href="#">CLOUDSTACK-1199</a> <sup>78</sup>	External DNS not being added to reslov.conf
<a href="#">CLOUDSTACK-1209</a> <sup>79</sup>	VPC VR starts despite NPE
<a href="#">CLOUDSTACK-1304</a> <sup>80</sup>	"mvn -pl :cloud-client-ui jetty:run" strips permission of files in script/
<a href="#">CLOUDSTACK-1352</a> <sup>81</sup>	"KVM 6.3 snapshot - when snapshot of ROOT volume is being created, snapshot of data volume remains in Creating state"
<a href="#">CLOUDSTACK-1393</a> <sup>82</sup>	Install scripts shows wrong path to copy vhd-util
<a href="#">CLOUDSTACK-1413</a> <sup>83</sup>	Need something to concretely identify the version of the code in a particular build
<a href="#">CLOUDSTACK-1424</a> <sup>84</sup>	Failed with NPE while deleting account when there are snapshots created for this account instances
<a href="#">CLOUDSTACK-1439</a> <sup>85</sup>	Baremetal - UI/API security group unable to set egress rule > UI displays args.context.networks is undefined
<a href="#">CLOUDSTACK-1581</a> <sup>86</sup>	IPV6 - UI - IPV6 DNS entries should not be exposed for Basic Zone.
<a href="#">CLOUDSTACK-1638</a> <sup>87</sup>	Network plugins won't be notified VM migration.

<sup>69</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-425>

<sup>70</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-440>

<sup>71</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-568>

<sup>72</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-643>

<sup>73</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-797>

<sup>74</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-970>

<sup>75</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-989>

<sup>76</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1007>

<sup>77</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1187>

<sup>78</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1199>

<sup>79</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1209>

<sup>80</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1304>

<sup>81</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1352>

<sup>82</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1393>

<sup>83</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1413>

<sup>84</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1424>

<sup>85</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1439>

<sup>86</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1581>

<sup>87</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1638>

Issue ID	Description
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1673">CLOUDSTACK-1673</a> <sup>88</sup>	AWS Regions - Events - User disable / Domain Delete event does not include the UUID of the user/domain that was disabled.
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1717">CLOUDSTACK-1717</a> <sup>89</sup>	AWS Regions - 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."
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1752">CLOUDSTACK-1752</a> <sup>90</sup>	IPV6 - Router of a ipv6 network has external ipv4 dns entries programmed in /etc/resolv.conf
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1758">CLOUDSTACK-1758</a> <sup>91</sup>	CloudPlatform CS-17541 SSVM test cases failing in VMware with 4.1 builds
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1771">CLOUDSTACK-1771</a> <sup>92</sup>	"IPv6 - Network restart for a dual network , results in the ipv4 address of the router to be changed. After network restart , name resolution of the Vms fail."
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1775">CLOUDSTACK-1775</a> <sup>93</sup>	"AWS Regions - Events Framework - Events relating to User/ Domain/Account are not being published to the RabbitMQ server expect for USER-DISABLE, DOMAIN-DELETE and ACCOUNT.DISABLE event."
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1794">CLOUDSTACK-1794</a> <sup>94</sup>	We are allowed to create Egress rules for Shared networks.
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1819">CLOUDSTACK-1819</a> <sup>95</sup>	AWS Regions - Issues seen when trying to move a zone from 1 region to another.
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1868">CLOUDSTACK-1868</a> <sup>96</sup>	GetVmStatsCommand throws NullPointerException with VMWare
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1885">CLOUDSTACK-1885</a> <sup>97</sup>	Broken testcases in 4.1
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1899">CLOUDSTACK-1899</a> <sup>98</sup>	SRX firewall external devices - static NAT does not function
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1948">CLOUDSTACK-1948</a> <sup>99</sup>	users can no longer set global limits to -1 (e.g. pagesize)
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1965">CLOUDSTACK-1965</a> <sup>100</sup>	15.8. External Firewalls and Load Balancers Section is Incomplete
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1969">CLOUDSTACK-1969</a> <sup>101</sup>	Ubuntu fresh Install- SystemIntegrityChecker looking for "schema-40to410.sql" wrong location and failed to start MS
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-1970">CLOUDSTACK-1970</a> <sup>102</sup>	Ubuntu - "cloudstack-setup-management" not available in "/usr/bin"
<a href="https://issues.apache.org/jira/browse/CLOUDSTACK-2024">CLOUDSTACK-2024</a> <sup>103</sup>	cloudstack-setup-management with https not works (incorrect path and missing keystore file)

<sup>88</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1673>  
<sup>89</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1717>  
<sup>90</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1752>  
<sup>91</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1758>  
<sup>92</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1771>  
<sup>93</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1775>  
<sup>94</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1794>  
<sup>95</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1819>  
<sup>96</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1868>  
<sup>97</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1885>  
<sup>98</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1899>  
<sup>99</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1948>  
<sup>100</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1965>  
<sup>101</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1969>  
<sup>102</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-1970>  
<sup>103</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-2024>

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Issue ID	Description
<a href="#">CLOUDSTACK-2053</a> <sup>104</sup>	[BUG] userdata.sh on router VM fixes for if else logic and missing meta-data

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<sup>104</sup> <https://issues.apache.org/jira/browse/CLOUDSTACK-2053>



# Upgrade Instructions

This section contains upgrade instructions from prior versions of CloudStack to Apache CloudStack 4.1.0. We include instructions on upgrading to Apache CloudStack from pre-Apache versions of Citrix CloudStack (last version prior to Apache is 3.0.2) and from the releases made while CloudStack was in the Apache Incubator.

If you run into any issues during upgrades, please feel free to ask questions on [users@cloudstack.apache.org](mailto:users@cloudstack.apache.org) or [dev@cloudstack.apache.org](mailto:dev@cloudstack.apache.org).

## 4.1. Upgrade from 4.0.x to 4.1.0

This section will guide you from CloudStack 4.0.x versions to CloudStack 4.1.0.

Any steps that are hypervisor-specific will be called out with a note.

### Package Structure Changes

The package structure for CloudStack has changed significantly since the 4.0.x releases. If you've compiled your own packages, you'll notice that the package names and the number of packages has changed. This is *not* a bug.

However, this *does* mean that the procedure is not as simple as an **apt-get upgrade** or **yum update**, so please follow this section carefully.

We recommend reading through this section once or twice before beginning your upgrade procedure, and working through it on a test system before working on a production system.

1. Most users of CloudStack manage the installation and upgrades of CloudStack with one of Linux's predominant package systems, RPM or APT. This guide assumes you'll be using RPM and Yum (for Red Hat Enterprise Linux or CentOS), or APT and Debian packages (for Ubuntu).

Create RPM or Debian packages (as appropriate) and a repository from the 4.1.0 source, or check the Apache CloudStack downloads page at <http://cloudstack.apache.org/downloads.html> for package repositories supplied by community members. You will need them for step 8 or step 9.

Instructions for creating packages from the CloudStack source are in the [Installation Guide](#)<sup>1</sup>.

2. Stop your management server or servers. Run this on all management server hosts:

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

3. If you are running a usage server or usage servers, stop those as well:

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

<sup>1</sup> <http://cloudstack.apache.org/docs/en-US/index.html>

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4. Make a backup of your MySQL database. If you run into any issues or need to roll back the upgrade, this will assist in debugging or restoring your existing environment. You'll be prompted for your password.

```
# mysqldump -u root -p cloud > cloudstack-backup.sql
```

5. Whether you're upgrading a Red Hat/CentOS based system or Ubuntu based system, you're going to need to stop the CloudStack management server before proceeding.

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

6. If you have made changes to `/etc/cloud/management/components.xml`, you'll need to carry these over manually to the new file, `/etc/cloudstack/management/componentContext.xml`. This is not done automatically. (If you're unsure, we recommend making a backup of the original `components.xml` to be on the safe side.)
7. After upgrading to 4.1, API clients are expected to send plain text passwords for login and user creation, instead of MD5 hash. In case, api client changes are not acceptable, following changes are to be made for backward compatibility:

Modify `componentsContext.xml`, and make `PlainTextUserAuthenticator` as the default authenticator (1st entry in the `userAuthenticators` adapter list is default)

```
<!-- Security adapters -->
<bean id="userAuthenticators" class="com.cloud.utils.component.AdapterList">
  <property name="Adapters">
    <list>
      <ref bean="PlainTextUserAuthenticator"/>
      <ref bean="MD5UserAuthenticator"/>
      <ref bean="LDAPUserAuthenticator"/>
    </list>
  </property>
</bean>
```

`PlainTextUserAuthenticator` works the same way `MD5UserAuthenticator` worked prior to 4.1.

8. If you are using Ubuntu, follow this procedure to upgrade your packages. If not, skip to step 9.



### Community Packages

This section assumes you're using the community supplied packages for CloudStack. If you've created your own packages and APT repository, substitute your own URL for the ones used in these examples.

- a. The first order of business will be to change the sources list for each system with CloudStack packages. This means all management servers, and any hosts that have the KVM agent. (No changes should be necessary for hosts that are running VMware or Xen.)

Start by opening `/etc/apt/sources.list.d/cloudstack.list` on any systems that have CloudStack packages installed.

This file should have one line, which contains:

```
deb http://cloudstack.apt-get.eu/ubuntu precise 4.0
```

We'll change it to point to the new package repository:

```
deb http://cloudstack.apt-get.eu/ubuntu precise 4.1
```

If you're using your own package repository, change this line to read as appropriate for your 4.1.0 repository.

- b. Now update your apt package list:

```
$ sudo apt-get update
```

- c. Now that you have the repository configured, it's time to install the **cloudstack-management** package. This will pull in any other dependencies you need.

```
$ sudo apt-get install cloudstack-management
```

- d. You will need to manually install the **cloudstack-agent** package:

```
$ sudo apt-get install cloudstack-agent
```

During the installation of **cloudstack-agent**, APT will copy your **agent.properties**, **log4j-cloud.xml**, and **environment.properties** from **/etc/cloud/agent** to **/etc/cloudstack/agent**.

When prompted whether you wish to keep your configuration, say Yes.

- e. Verify that the file **/etc/cloudstack/agent/environment.properties** has a line that reads:

```
paths.script=/usr/share/cloudstack-common
```

If not, add the line.

- f. Restart the agent:

```
service cloud-agent stop
killall jsvc
service cloudstack-agent start
```

- g. During the upgrade, **log4j-cloud.xml** was simply copied over, so the logs will continue to be added to **/var/log/cloud/agent/agent.log**. There's nothing *wrong* with this, but if you prefer to be consistent, you can change this by copying over the sample configuration file:

```
cd /etc/cloudstack/agent
mv log4j-cloud.xml.dpkg-dist log4j-cloud.xml
service cloudstack-agent restart
```

- h. Once the agent is running, you can uninstall the old cloud-\* packages from your system:

```
sudo dpkg --purge cloud-agent
```

9. If you are using CentOS or RHEL, follow this procedure to upgrade your packages. If not, skip to step [10](#).



### Community Packages

This section assumes you're using the community supplied packages for CloudStack. If you've created your own packages and yum repository, substitute your own URL for the ones used in these examples.

- a. The first order of business will be to change the yum repository for each system with CloudStack packages. This means all management servers, and any hosts that have the KVM agent. (No changes should be necessary for hosts that are running VMware or Xen.)

Start by opening `/etc/yum.repos.d/cloudstack.repo` on any systems that have CloudStack packages installed.

This file should have content similar to the following:

```
[apache-cloudstack]
name=Apache CloudStack
baseurl=http://cloudstack.ap-get.eu/rhel/4.0/
enabled=1
gpgcheck=0
```

If you are using the community provided package repository, change the baseurl to `http://cloudstack.ap-get.eu/rhel/4.1/`

If you're using your own package repository, change this line to read as appropriate for your 4.1.0 repository.

- b. Now that you have the repository configured, it's time to install the **cloudstack-management** package by upgrading the older **cloud-client** package.

```
$ sudo yum upgrade cloud-client
```

- c. For KVM hosts, you will need to upgrade the **cloud-agent** package, similarly installing the new version as **cloudstack-agent**.

```
$ sudo yum upgrade cloud-agent
```

During the installation of **cloudstack-agent**, the RPM will copy your **agent.properties**, **log4j-cloud.xml**, and **environment.properties** from `/etc/cloud/agent` to `/etc/cloudstack/agent`.



- d. Verify that the file `/etc/cloudstack/agent/environment.properties` has a line that reads:

```
paths.script=/usr/share/cloudstack-common
```

If not, add the line.

- e. Restart the agent:

```
service cloud-agent stop
killall jsvc
service cloudstack-agent start
```

10. Once you've upgraded the packages on your management servers, you'll need to restart the system VMs. Make sure port 8096 is open in your local host firewall to do this.

There is a script that will do this for you, all you need to do is run the script and supply the IP address for your MySQL instance and your MySQL credentials:

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

You can monitor the log for progress. The process of restarting the system VMs can take an hour or more.

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

The output to `sysvm.log` will look something like this:

```
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).
```

11.  **For Xen Hosts: Copy vhd-utils**

This step is only for CloudStack installs that are using Xen hosts.

Copy the file `vhd-utils` to `/usr/share/cloudstack-common/scripts/vm/hypervisor/xenserver`.

## 4.2. Upgrade from 3.0.2 to 4.1.0

This section will guide you from Citrix CloudStack 3.0.2 to Apache CloudStack 4.1.0. Sections that are hypervisor-specific will be called out with a note.

1.



### Nota

The following upgrade instructions apply only if you're using VMware hosts. If you're not using VMware hosts, skip this step and move on to [2](#).

In each zone that includes VMware hosts, you need to add a new system VM template.

- a. While running the existing 3.0.2 system, log in to the UI as root administrator.
- b. In the left navigation bar, click Templates.
- c. In Select view, click Templates.
- d. Click Register template.

The Register template dialog box is displayed.

- e. In the Register template dialog box, specify the following values (do not change these):

Field	Value
Name	systemvm-vmware-4.0
Description	systemvm-vmware-4.0
URL	<a href="http://download.cloud.com/templates/burbank/burbank-systemvm-08012012.ova">http://download.cloud.com/templates/burbank/burbank-systemvm-08012012.ova</a>
Zone	Choose the zone where this hypervisor is used
Hypervisor	VMware
Format	OVA
OS Type	Debian GNU/Linux 5.0 (32-bit)
Extractable	no
Password Enabled	no
Public	no
Featured	no

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

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

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

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

```
# service cloud-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 CloudStack recommended best practice. Substitute your own MySQL root password.

```
# mysqldump -u root -pmysql_password cloud > ccloud-backup.dmp
# mysqldump -u root -pmysql_password cloud_usage > ccloud-usage-backup.dmp
```

5. Either build RPM/DEB packages as detailed in the Installation Guide, or use one of the community provided yum/apt repositories to gain access to the CloudStack binaries.
6. If you are using Ubuntu, follow this procedure to upgrade your packages. If not, skip to step 7.



## Community Packages

This section assumes you're using the community supplied packages for CloudStack. If you've created your own packages and APT repository, substitute your own URL for the ones used in these examples.

- a. The first order of business will be to change the sources list for each system with CloudStack packages. This means all management servers, and any hosts that have the KVM agent. (No changes should be necessary for hosts that are running VMware or Xen.)

Start by opening `/etc/apt/sources.list.d/cloudstack.list` on any systems that have CloudStack packages installed.

This file should have one line, which contains:

```
deb http://cloudstack.apt-get.eu/ubuntu precise 4.0
```

We'll change it to point to the new package repository:

```
deb http://cloudstack.apt-get.eu/ubuntu precise 4.1
```

If you're using your own package repository, change this line to read as appropriate for your 4.1.0 repository.

- b. Now update your apt package list:

```
$ sudo apt-get update
```

- c. Now that you have the repository configured, it's time to install the **cloudstack-management** package. This will pull in any other dependencies you need.

```
$ sudo apt-get install cloudstack-management
```

- d. You will need to manually install the **cloudstack-agent** package:

```
$ sudo apt-get install cloudstack-agent
```

During the installation of **cloudstack-agent**, APT will copy your **agent.properties**, **log4j-cloud.xml**, and **environment.properties** from **/etc/cloud/agent** to **/etc/cloudstack/agent**.

When prompted whether you wish to keep your configuration, say Yes.

- e. Verify that the file **/etc/cloudstack/agent/environment.properties** has a line that reads:

```
paths.script=/usr/share/cloudstack-common
```

If not, add the line.

- f. Restart the agent:

```
service cloud-agent stop
killall jsvc
service cloudstack-agent start
```

- g. During the upgrade, **log4j-cloud.xml** was simply copied over, so the logs will continue to be added to **/var/log/cloud/agent/agent.log**. There's nothing *wrong* with this, but if you prefer to be consistent, you can change this by copying over the sample configuration file:

```
cd /etc/cloudstack/agent
mv log4j-cloud.xml.dpkg-dist log4j-cloud.xml
service cloudstack-agent restart
```

- h. Once the agent is running, you can uninstall the old **cloud-\*** packages from your system:

```
sudo dpkg --purge cloud-agent
```

- 7. If you are using CentOS or RHEL, follow this procedure to upgrade your packages. If not, skip to [step 8](#).



### Community Packages

This section assumes you're using the community supplied packages for CloudStack. If you've created your own packages and yum repository, substitute your own URL for the ones used in these examples.

- a. The first order of business will be to change the yum repository for each system with CloudStack packages. This means all management servers, and any hosts that have the KVM agent. (No changes should be necessary for hosts that are running VMware or Xen.)

Start by opening **/etc/yum.repos.d/cloudstack.repo** on any systems that have CloudStack packages installed.

This file should have content similar to the following:

```
[apache-cloudstack]
name=Apache CloudStack
baseurl=http://cloudstack.appt-get.eu/rhel/4.0/
enabled=1
gpgcheck=0
```

If you are using the community provided package repository, change the baseurl to `http://cloudstack.appt-get.eu/rhel/4.1/`

If you're using your own package repository, change this line to read as appropriate for your 4.1.0 repository.

- b. Now that you have the repository configured, it's time to install the **cloudstack-management** package by upgrading the older **cloud-client** package.

```
$ sudo yum upgrade cloud-client
```

- c. For KVM hosts, you will need to upgrade the **cloud-agent** package, similarly installing the new version as **cloudstack-agent**.

```
$ sudo yum upgrade cloud-agent
```

During the installation of **cloudstack-agent**, the RPM will copy your **agent.properties**, **log4j-cloud.xml**, and **environment.properties** from `/etc/cloud/agent` to `/etc/cloudstack/agent`.

- d. Verify that the file `/etc/cloudstack/agent/environment.properties` has a line that reads:

```
paths.script=/usr/share/cloudstack-common
```

If not, add the line.

- e. Restart the agent:

```
service cloud-agent stop
killall jsvc
service cloudstack-agent start
```

8. If you have made changes to your copy of `/etc/cloud/management/components.xml` 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 4.1.0.

- a. Make a backup copy of `/etc/cloud/management/components.xml`. For example:

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

- b. Copy `/etc/cloud/management/components.xml.rpmnew` to create a new `/etc/cloud/management/components.xml`:

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

- c. Merge your changes from the backup file into the new **components.xml**.

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



### Nota

If you have more than one management server node, repeat the upgrade steps on each node.

9. After upgrading to 4.1, API clients are expected to send plain text passwords for login and user creation, instead of MD5 hash. In case, api client changes are not acceptable, following changes are to be made for backward compatibility:

Modify `componentsContext.xml`, and make `PlainTextUserAuthenticator` as the default authenticator (1st entry in the `userAuthenticators` adapter list is default)

```
<!-- Security adapters -->
<bean id="userAuthenticators" class="com.cloud.utils.component.AdapterList">
  <property name="Adapters">
    <list>
      <ref bean="PlainTextUserAuthenticator"/>
      <ref bean="MD5UserAuthenticator"/>
      <ref bean="LDAPUserAuthenticator"/>
    </list>
  </property>
</bean>
```

`PlainTextUserAuthenticator` works the same way `MD5UserAuthenticator` worked prior to 4.1.

10. 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.

**Nota**

Failing to restart the Management Server indicates a problem in the upgrade. Having the Management Server restarted without any issues indicates that the upgrade is successfully completed.

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

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

- 12.

**Nota**

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.

- a. Configure a yum or apt repository containing the CloudStack packages as outlined in the Installation Guide.

- b. Stop the running agent.

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

- c. Update the agent software with one of the following command sets as appropriate for your environment.

```
# yum update cloud-*
```

```
# apt-get update
```

```
# apt-get upgrade cloud-*
```

- d. Start the agent.

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

- e. Edit `/etc/cloud/agent/agent.properties` to change the resource parameter from `"com.cloud.agent.resource.computing.LibvirtComputingResource"` to `"com.cloud.hypervisor.kvm.resource.LibvirtComputingResource"`.

- f. Start the cloud agent and cloud management services.

- g. When the Management Server is up and running, log in to the CloudStack UI and restart the virtual router for proper functioning of all the features.

13. Log in to the CloudStack 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.



### Nota

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.

14. If you are upgrading from 3.0.2, perform the following:
  - a. Ensure that the admin port is set to 8096 by using the "integration.api.port" global parameter.  
  
This port is used by the cloud-sysvmadm script at the end of the upgrade procedure. For information about how to set this parameter, see "Setting Global Configuration Parameters" in the Installation Guide.
  - b. Restart the Management Server.



### Nota

If you don't want the admin port to remain open, you can set it to null after the upgrade is done and restart the management server.

15. Run the **cloud-sysvmadm** script to stop, then start, all Secondary Storage VMs, Console Proxy VMs, and virtual routers. Run the script once on each 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 **-c** and **-r** arguments. For example:

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

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

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

16. If needed, upgrade all Citrix XenServer hypervisor hosts in your cloud to a version supported by CloudStack 4.1.0. The supported versions are XenServer 5.6 SP2 and 6.0.2. Instructions for upgrade can be found in the CloudStack 4.1.0 Installation Guide under "Upgrading XenServer Versions."
17. Now apply the XenServer hotfix XS602E003 (and any other needed hotfixes) to XenServer v6.0.2 hypervisor hosts.
  - a. Disconnect the XenServer cluster from CloudStack.



In the left navigation bar of the CloudStack UI, select Infrastructure. Under Clusters, click View All. Select the XenServer cluster and click Actions - Unmanage.

This may fail if there are hosts not in one of the states Up, Down, Disconnected, or Alert. You may need to fix that before unmanaging this cluster.

Wait until the status of the cluster has reached Unmanaged. Use the CloudStack UI to check on the status. When the cluster is in the unmanaged state, there is no connection to the hosts in the cluster.

- b. To clean up the VLAN, log in to one XenServer host and run:

```
/opt/xensource/bin/cloud-clean-vlan.sh
```

- c. Now prepare the upgrade by running the following on one XenServer host:

```
/opt/xensource/bin/cloud-prepare-upgrade.sh
```

If you see a message like "can't eject CD", log in to the VM and unmount the CD, then run this script again.

- d. Upload the hotfix to the XenServer hosts. Always start with the Xen pool master, then the slaves. Using your favorite file copy utility (e.g. WinSCP), copy the hotfixes to the host. Place them in a temporary folder such as /tmp.

On the Xen pool master, upload the hotfix with this command:

```
xe patch-upload file-name=XS602E003.xsupdate
```

Make a note of the output from this command, which is a UUID for the hotfix file. You'll need it in another step later.



### Nota

(Optional) If you are applying other hotfixes as well, you can repeat the commands in this section with the appropriate hotfix number. For example, XS602E004.xsupdate.

- e. Manually live migrate all VMs on this host to another host. First, get a list of the VMs on this host:

```
# xe vm-list
```

Then use this command to migrate each VM. Replace the example host name and VM name with your own:

```
# xe vm-migrate live=true host=host-name vm=VM-name
```

Troubleshooting

If you see a message like "You attempted an operation on a VM which requires PV drivers to be installed but the drivers were not detected," run:

```
/opt/xenource/bin/make_migratable.sh  
b6cf79c8-02ee-050b-922f-49583d9f1a14.
```

- f. Apply the hotfix. First, get the UUID of this host:

```
# xe host-list
```

Then use the following command to apply the hotfix. Replace the example host UUID with the current host ID, and replace the hotfix UUID with the output from the patch-upload command you ran on this machine earlier. You can also get the hotfix UUID by running `xe patch-list`.

```
xe patch-apply host-uuid=host-uuid uuid=hotfix-uuid
```

- g. Copy the following files from the CloudStack Management Server to the host.

Copy from here...	...to here
/usr/lib64/cloud/common/scripts/vm/hypervisor/xenserver/xenserver60/NFSSR.py	/opt/xenource/sm/NFSSR.py
/usr/lib64/cloud/common/scripts/vm/hypervisor/xenserver/setupxenserver.sh	/opt/xenource/bin/setupxenserver.sh
/usr/lib64/cloud/common/scripts/vm/hypervisor/xenserver/make_migratable.sh	/opt/xenource/bin/make_migratable.sh

- h. (Only for hotfixes XS602E005 and XS602E007) You need to apply a new Cloud Support Pack.

- Download the CSP software onto the XenServer host from one of the following links:

For hotfix XS602E005: <http://coltrane.eng.hq.xenource.com/release/XenServer-6.x/XS-6.0.2/hotfixes/XS602E005/56710/xe-phase-2/xenserver-cloud-supply.tgz>

For hotfix XS602E007: <http://coltrane.eng.hq.xenource.com/release/XenServer-6.x/XS-6.0.2/hotfixes/XS602E007/57824/xe-phase-2/xenserver-cloud-supply.tgz>

- Extract the file:

```
# tar xf xenserver-cloud-supply.tgz
```

- Run the following script:

```
# xe-install-supplemental-pack xenserver-cloud-supp.iso
```

- If the XenServer host is part of a zone that uses basic networking, disable Open vSwitch (OVS):

```
# xe-switch-network-backend bridge
```

- Reboot this XenServer host.
- Run the following:

```
/opt/xensource/bin/setupxenserver .sh
```



### Nota

If the message "mv: cannot stat `/etc/cron.daily/logrotate': No such file or directory" appears, you can safely ignore it.

- Run the following:

```
for pbd in `xe pbd-list currently-attached=false| grep ^uuid | awk '{print $NF}'`; do
  xe pbd-plug uuid=$pbd ;
```

- On each slave host in the Xen pool, repeat these steps, starting from "manually live migrate VMs."



### 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.

## 4.3. Upgrade from 2.2.14 to 4.1.0

1. Ensure that you query your IPaddress 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 4.1.0, any existing IP address usage records in the old format will no longer be available.

2. 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](#)<sup>2</sup>.



### KVM Hosts

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 4.1.0.

3. While running the 2.2.14 system, log in to the UI as root administrator.
4. 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
  - 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-3.0.0 Description: systemvm-xenserver-3.0.0 URL: <a href="http://download.cloud.com/templates/acton/acton-systemvm-02062012.vhd.bz2">http://download.cloud.com/templates/acton/acton-systemvm-02062012.vhd.bz2</a> Zone: Choose the zone where this hypervisor is used Hypervisor: XenServer Format: VHD OS Type: Debian GNU/Linux 5.0 (32-bit) Extractable: no Password Enabled: no Public: no Featured: no

<sup>2</sup> <http://download.cloud.com/releases/2.2.0/CloudStack2.2.14ReleaseNotes.pdf>

Hypervisor	Description
KVM	<p>Name: systemvm-kvm-3.0.0</p> <p>Description: systemvm-kvm-3.0.0</p> <p>URL: <a href="http://download.cloud.com/templates/acton/acton-systemvm-02062012.qcow2.bz2">http://download.cloud.com/templates/acton/acton-systemvm-02062012.qcow2.bz2</a></p> <p>Zone: Choose the zone where this hypervisor is used</p> <p>Hypervisor: KVM</p> <p>Format: QCOW2</p> <p>OS Type: Debian GNU/Linux 5.0 (32-bit)</p> <p>Extractable: no</p> <p>Password Enabled: no</p> <p>Public: no</p> <p>Featured: no</p>
VMware	<p>Name: systemvm-vmware-4.0</p> <p>Description: systemvm-vmware-4.0</p> <p>URL: <a href="http://download.cloud.com/templates/burbank/burbank-systemvm-08012012.ova">http://download.cloud.com/templates/burbank/burbank-systemvm-08012012.ova</a></p> <p>Zone: Choose the zone where this hypervisor is used</p> <p>Hypervisor: VMware</p> <p>Format: OVA</p> <p>OS Type: Debian GNU/Linux 5.0 (32-bit)</p> <p>Extractable: no</p> <p>Password Enabled: no</p> <p>Public: no</p> <p>Featured: no</p>

5. Watch the screen to be sure that the template downloads successfully and enters the READY state. Do not proceed until this is successful
6. **WARNING:** If you use more than one type of hypervisor in your cloud, be sure you have repeated these steps to download the system VM template for each hypervisor type. Otherwise, the upgrade will fail.
7. Stop all Usage Servers if running. Run this on all Usage Server hosts.

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

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

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

9. 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 CloudStack recommended best practice. Substitute your own MySQL root password.

```
# mysqldump -u root -pmysql_password cloud > ccloud-backup.dmp
# mysqldump -u root -pmysql_password cloud_usage > ccloud-usage-
backup.dmp
```

10. Either build RPM/DEB packages as detailed in the Installation Guide, or use one of the community provided yum/apt repositories to gain access to the CloudStack binaries.
11. If you are using Ubuntu, follow this procedure to upgrade your packages. If not, skip to step [12](#).



### Community Packages

This section assumes you're using the community supplied packages for CloudStack. If you've created your own packages and APT repository, substitute your own URL for the ones used in these examples.

- a. The first order of business will be to change the sources list for each system with CloudStack packages. This means all management servers, and any hosts that have the KVM agent. (No changes should be necessary for hosts that are running VMware or Xen.)

Start by opening `/etc/apt/sources.list.d/cloudstack.list` on any systems that have CloudStack packages installed.

This file should have one line, which contains:

```
deb http://cloudstack.apt-get.eu/ubuntu precise 4.0
```

We'll change it to point to the new package repository:

```
deb http://cloudstack.apt-get.eu/ubuntu precise 4.1
```

If you're using your own package repository, change this line to read as appropriate for your 4.1.0 repository.

- b. Now update your apt package list:

```
$ sudo apt-get update
```

- c. Now that you have the repository configured, it's time to install the **cloudstack-management** package. This will pull in any other dependencies you need.

```
$ sudo apt-get install cloudstack-management
```

- d. You will need to manually install the **cloudstack-agent** package:

```
$ sudo apt-get install cloudstack-agent
```

During the installation of **cloudstack-agent**, APT will copy your **agent.properties**, **log4j-cloud.xml**, and **environment.properties** from **/etc/cloud/agent** to **/etc/cloudstack/agent**.

When prompted whether you wish to keep your configuration, say Yes.

- e. Verify that the file **/etc/cloudstack/agent/environment.properties** has a line that reads:

```
paths.script=/usr/share/cloudstack-common
```

If not, add the line.

- f. Restart the agent:

```
service cloud-agent stop
killall jsvc
service cloudstack-agent start
```

- g. During the upgrade, **log4j-cloud.xml** was simply copied over, so the logs will continue to be added to **/var/log/cloud/agent/agent.log**. There's nothing *wrong* with this, but if you prefer to be consistent, you can change this by copying over the sample configuration file:

```
cd /etc/cloudstack/agent
mv log4j-cloud.xml.dpkg-dist log4j-cloud.xml
service cloudstack-agent restart
```

- h. Once the agent is running, you can uninstall the old cloud-\* packages from your system:

```
sudo dpkg --purge cloud-agent
```

12. If you are using CentOS or RHEL, follow this procedure to upgrade your packages. If not, skip to step 13.



## Community Packages

This section assumes you're using the community supplied packages for CloudStack. If you've created your own packages and yum repository, substitute your own URL for the ones used in these examples.

## Capitolo 4. Upgrade Instructions

---

- a. The first order of business will be to change the yum repository for each system with CloudStack packages. This means all management servers, and any hosts that have the KVM agent. (No changes should be necessary for hosts that are running VMware or Xen.)

Start by opening `/etc/yum.repos.d/cloudstack.repo` on any systems that have CloudStack packages installed.

This file should have content similar to the following:

```
[apache-cloudstack]
name=Apache CloudStack
baseurl=http://cloudstack.appt-get.eu/rhel/4.0/
enabled=1
gpgcheck=0
```

If you are using the community provided package repository, change the baseurl to `http://cloudstack.appt-get.eu/rhel/4.1/`

If you're using your own package repository, change this line to read as appropriate for your 4.1.0 repository.

- b. Now that you have the repository configured, it's time to install the **cloudstack-management** package by upgrading the older **cloud-client** package.

```
$ sudo yum upgrade cloud-client
```

- c. For KVM hosts, you will need to upgrade the **cloud-agent** package, similarly installing the new version as **cloudstack-agent**.

```
$ sudo yum upgrade cloud-agent
```

During the installation of **cloudstack-agent**, the RPM will copy your **agent.properties**, **log4j-cloud.xml**, and **environment.properties** from `/etc/cloud/agent` to `/etc/cloudstack/agent`.

- d. Verify that the file `/etc/cloudstack/agent/environment.properties` has a line that reads:

```
paths.script=/usr/share/cloudstack-common
```

If not, add the line.

- e. Restart the agent:

```
service cloud-agent stop
killall jsvc
service cloudstack-agent start
```

13. If you have made changes to your existing copy of the file `components.xml` in your previous-version CloudStack 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 4.0.0-incubating.



**Nota**

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 `components.xml`, and you need to merge the two files:

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

- a. Make a backup copy of your `/etc/cloud/management/components.xml` file. For example:

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

- b. Copy `/etc/cloud/management/components.xml.rpmnew` to create a new `/etc/cloud/management/components.xml`:

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

- c. Merge your changes from the backup file into the new `components.xml` file.

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

14. After upgrading to 4.1, API clients are expected to send plain text passwords for login and user creation, instead of MD5 hash. In case, api client changes are not acceptable, following changes are to be made for backward compatibility:

Modify `componentsContext.xml`, and make `PlainTextUserAuthenticator` as the default authenticator (1st entry in the `userAuthenticators` adapter list is default)

```
<!-- Security adapters -->
<bean id="userAuthenticators" class="com.cloud.utils.component.AdapterList">
  <property name="Adapters">
    <list>
      <ref bean="PlainTextUserAuthenticator"/>
      <ref bean="MD5UserAuthenticator"/>
      <ref bean="LDAPUserAuthenticator"/>
    </list>
  </property>
</bean>
```

`PlainTextUserAuthenticator` works the same way `MD5UserAuthenticator` worked prior to 4.1.

15. If you have made changes to your existing copy of the `/etc/cloud/management/db.properties` file in your previous-version CloudStack 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 4.0.0-incubating.

## Capitolo 4. Upgrade Instructions

---

- a. Make a backup copy of your file `/etc/cloud/management/db.properties`. For example:

```
# mv /etc/cloud/management/db.properties /etc/cloud/management/db.properties-backup
```

- b. Copy `/etc/cloud/management/db.properties.rpmnew` to create a new `/etc/cloud/management/db.properties`:

```
# cp -ap /etc/cloud/management/db.properties.rpmnew etc/cloud/management/db.properties
```

- c. Merge your changes from the backup file into the new `db.properties` file.

```
# vi /etc/cloud/management/db.properties
```

16. 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.

```
# cloud-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 CloudStack database. Default: `password`. It is highly recommended that you replace this with a more secure value.

17. Repeat steps 10 - 14 on every management server node. If you provided your own encryption key in step 14, use the same key on all other management servers.

18. 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. You should see a message like "Complete! Done." After confirmation, start the other Management Servers one at a time by running the same command on each node.

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

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

20. (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.

- a. Configure your CloudStack package repositories as outlined in the Installation Guide
- b. Stop the running agent.

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

- c. Update the agent software with one of the following command sets as appropriate.

```
# yum update cloud-*
```

```
# apt-get update
# apt-get upgrade cloud-*
```

- d. Start the agent.

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

- e. Copy the contents of the **agent.properties** file to the new **agent.properties** file by using the following command

```
sed -i 's/com.cloud.agent.resource.computing.LibvirtComputingResource/
com.cloud.hypervisor.kvm.resource.LibvirtComputingResource/g' /etc/cloud/agent/
agent.properties
```

- f. Start the cloud agent and cloud management services.
- g. When the Management Server is up and running, log in to the CloudStack UI and restart the virtual router for proper functioning of all the features.

21. Log in to the CloudStack 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.

22. Run the following script to stop, then start, all Secondary Storage VMs, Console Proxy VMs, and virtual routers.

- a. Run the command 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 "-c" and "-r" arguments. For example:

```
# nohup ccloud-sysvmadm -d 192.168.1.5 -u ccloud -p password -c -r > sysvm.log 2>&1 &
# tail -f sysvm.log
```

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

## Capitolo 4. Upgrade Instructions

---

- 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).
```

23. 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 private-key-path link-local-ip -p 3922
# cat /etc/cloudstack-release
```

The output should be like the following:

```
Cloudstack Release 4.0.0-incubating Mon Oct 9 15:10:04 PST 2012
```

### 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 private-key-path private-ip -p 3922
# cat /etc/cloudstack-release
```

The output should be like the following:

```
Cloudstack Release 4.0.0-incubating Mon Oct 9 15:10:04 PST 2012
```

24. If needed, upgrade all Citrix XenServer hypervisor hosts in your cloud to a version supported by CloudStack 4.0.0-incubating. The supported versions are XenServer 5.6 SP2 and 6.0.2. Instructions for upgrade can be found in the CloudStack 4.0.0-incubating Installation Guide.

25. Apply the XenServer hotfix XS602E003 (and any other needed hotfixes) to XenServer v6.0.2 hypervisor hosts.

- a. Disconnect the XenServer cluster from CloudStack.

In the left navigation bar of the CloudStack UI, select Infrastructure. Under Clusters, click View All. Select the XenServer cluster and click Actions - Unmanage.

This may fail if there are hosts not in one of the states Up, Down, Disconnected, or Alert. You may need to fix that before unmanaging this cluster.

Wait until the status of the cluster has reached Unmanaged. Use the CloudStack UI to check on the status. When the cluster is in the unmanaged state, there is no connection to the hosts in the cluster.

- b. To clean up the VLAN, log in to one XenServer host and run:

```
/opt/xensource/bin/cloud-clean-vlan.sh
```

- c. Prepare the upgrade by running the following on one XenServer host:

```
/opt/xensource/bin/cloud-prepare-upgrade.sh
```

If you see a message like "can't eject CD", log in to the VM and umount the CD, then run this script again.

- d. Upload the hotfix to the XenServer hosts. Always start with the Xen pool master, then the slaves. Using your favorite file copy utility (e.g. WinSCP), copy the hotfixes to the host. Place them in a temporary folder such as /root or /tmp.

On the Xen pool master, upload the hotfix with this command:

```
xe patch-upload file-name=XS602E003.xsupdate
```

Make a note of the output from this command, which is a UUID for the hotfix file. You'll need it in another step later.



### Nota

(Optional) If you are applying other hotfixes as well, you can repeat the commands in this section with the appropriate hotfix number. For example, XS602E004.xsupdate.

- e. Manually live migrate all VMs on this host to another host. First, get a list of the VMs on this host:

```
# xe vm-list
```

Then use this command to migrate each VM. Replace the example host name and VM name with your own:

```
# xe vm-migrate live=true host=host-name vm=VM-name
```



### Troubleshooting

If you see a message like "You attempted an operation on a VM which requires PV drivers to be installed but the drivers were not detected," run:

```
/opt/xen-source/bin/make_migratable.sh  
b6cf79c8-02ee-050b-922f-49583d9f1a14.
```

- f. Apply the hotfix. First, get the UUID of this host:

```
# xe host-list
```

Then use the following command to apply the hotfix. Replace the example host UUID with the current host ID, and replace the hotfix UUID with the output from the patch-upload command you ran on this machine earlier. You can also get the hotfix UUID by running `xe patch-list`.

```
xe patch-apply host-uuid=host-uuid uuid=hotfix-uuid
```

- g. Copy the following files from the CloudStack Management Server to the host.

Copy from here...	...to here
<code>/usr/lib64/cloud/common/scripts/vm/hypervisor/xenserver/xenserver60/NFSSR.py</code>	<code>/opt/xen-source/sm/NFSSR.py</code>
<code>/usr/lib64/cloud/common/scripts/vm/hypervisor/xenserver/setupxenserver.sh</code>	<code>/opt/xen-source/bin/setupxenserver.sh</code>
<code>/usr/lib64/cloud/common/scripts/vm/hypervisor/xenserver/make_migratable.sh</code>	<code>/opt/xen-source/bin/make_migratable.sh</code>

- h. (Only for hotfixes XS602E005 and XS602E007) You need to apply a new Cloud Support Pack.

- Download the CSP software onto the XenServer host from one of the following links:

For hotfix XS602E005: <http://coltrane.eng.hq.xen-source.com/release/XenServer-6.x/XS-6.0.2/hotfixes/XS602E005/56710/xe-phase-2/xenserver-cloud-supp.tgz>

For hotfix XS602E007: <http://coltrane.eng.hq.xen-source.com/release/XenServer-6.x/XS-6.0.2/hotfixes/XS602E007/57824/xe-phase-2/xenserver-cloud-supp.tgz>

- Extract the file:

```
# tar xf xenserver-cloud-supp.tgz
```

- Run the following script:

```
# xe-install-supplemental-pack xenserver-cloud-supp.iso
```

- If the XenServer host is part of a zone that uses basic networking, disable Open vSwitch (OVS):

```
# xe-switch-network-backend bridge
```

- i. Reboot this XenServer host.
- j. Run the following:

```
/opt/xen-source/bin/setupxenserver.sh
```



### Nota

If the message "mv: cannot stat `/etc/cron.daily/logrotate': No such file or directory" appears, you can safely ignore it.

- k. Run the following:

```
for pbd in `xe pbd-list currently-attached=false| grep ^uuid | awk '{print $NF}'`; do xe pbd-plug uuid=$pbd ;
```

- l. On each slave host in the Xen pool, repeat these steps, starting from "manually live migrate VMs."





# API Changes in 4.1.0

## 5.1. New API commands in 4.1

- lockAccount (Locks an account)
- lockUser (Locks a user account)
- resetSSHKeyForVirtualMachine (Resets the SSH Key for virtual machine. The virtual machine must be in a "Stopped" state. [async])
- updatePortForwardingRule (Updates a port forwarding rule. Only the private port and the virtual machine can be updated.)
- createCounter (Adds metric counter)
- createCondition (Creates a condition)
- createAutoScalePolicy  

(Creates an autoscale policy for a provision or deprovision action, the action is taken when the all the conditions evaluates to true for the specified duration. The policy is in effect once it is attached to a autscale vm group.)
- createAutoScaleVmProfile  

(Creates a profile that contains information about the virtual machine which will be provisioned automatically by autoscale feature.)
- createAutoScaleVmGroup (Creates and automatically starts a virtual machine based on a service offering, disk offering, and template.)
- deleteCounter (Deletes a counter)
- deleteCondition (Removes a condition)
- deleteAutoScalePolicy (Deletes a autoscale policy.)
- deleteAutoScaleVmProfile (Deletes a autoscale vm profile.)
- deleteAutoScaleVmGroup (Deletes a autoscale vm group.)
- listCounters (List the counters)
- listConditions (List Conditions for the specific user)
- listAutoScalePolicies (Lists autoscale policies.)
- listAutoScaleVmProfiles (Lists autoscale vm profiles.)
- listAutoScaleVmGroups (Lists autoscale vm groups.)
- enableAutoScaleVmGroup (Enables an AutoScale Vm Group)
- disableAutoScaleVmGroup (Disables an AutoScale Vm Group)
- updateAutoScalePolicy (Updates an existing autoscale policy.)

- updateAutoScaleVmProfile (Updates an existing autoscale vm profile.)
- updateAutoScaleVmGroup (Updates an existing autoscale vm group.)
- addS3 (Adds S3)
- listS3s (Lists S3s)
- resizeVolume (Resizes a volume)
- addNicToVirtualMachine (Adds VM to specified network by creating a NIC)
- removeNicFromVirtualMachine (Removes VM from specified network by deleting a NIC)
- updateDefaultNicForVirtualMachine (Changes the default NIC on a VM)
- createEgressFirewallRule (Creates a egress firewall rule for a given network )
- deleteEgressFirewallRule (Deletes an ggress firewall rule)
- listEgressFirewallRules (Lists all egress firewall rules for network id.)
- addBigSwitchVnsDevice (Adds a BigSwitch VNS device)
- deleteBigSwitchVnsDevice ( delete a bigswitch vns device)
- listBigSwitchVnsDevices (Lists BigSwitch Vns devices)
- listApis (lists all available apis on the server, provided by the Api Discovery plugin)
- getApiLimit (Get API limit count for the caller)
- resetApiLimit (Reset api count)
- addRegion (Adds a Region)
- updateRegion (Updates a region)
- removeRegion (Removes specified region)
- listRegions (Lists Regions)

## 5.2. Changed API commands in 4.1

### 5.2.1. Changes in command type (sync versus async)

- deleteNiciraNvpDevice became Async
- addNiciraNvpDevice became Async

### 5.2.2. Changes in command arguments

API Commands	Change Description
<b>copyTemplate</b>	New response parameters: <b>sshkeyenabled</b>
<b>listRouters</b>	New response parameters: <b>ip6dns1, ip6dns2</b>

API Commands	Change Description
<b>listNiciraNvpDeviceNetworks</b>	New response parameters: <b>ip6cidr</b> , <b>ip6gateway</b> , <b>ispersistent</b>
<b>createVlanIpRange</b>	New request parameters: <b>endipv6</b> (optional), <b>ip6cidr</b> (optional), <b>ip6gateway</b> (optional), <b>startipv6</b> (optional)  Changed parameters: <b>startip</b> (old version - required, new version - optional)  New response parameters: <b>endipv6</b> , <b>ip6cidr</b> , <b>ip6gateway</b> , <b>startipv6</b>
<b>listNetworkOfferings</b>	<b>New response parameters:</b> <b>ispersistent</b>
<b>registerTemplate</b>	New response parameters: <b>sshkeyenabled</b>
<b>addTrafficMonitor</b>	New request parameters: <b>excludezones</b> (optional), <b>includezones</b> (optional)
<b>createAccount</b>	New request parameters: <b>accountid</b> (optional), <b>userid</b> (optional)  New response parameters: <b>iscallerchilddomain</b>
<b>listTrafficMonitors</b>	
<b>registerSSHKeyPair</b>	New response parameters: <b>privatekey</b>
<b>createNetwork</b>	New request parameters: <b>endipv6</b> (optional), <b>ip6cidr</b> (optional), <b>ip6gateway</b> (optional), <b>startipv6</b> (optional)  New response parameters: <b>ip6cidr</b> , <b>ip6gateway</b> , <b>ispersistent</b>
<b>getUser</b>	New response parameters: <b>iscallerchilddomain</b>
<b>stopRouter</b>	New response parameters: <b>ip6dns1</b> , <b>ip6dns2</b>
<b>listTemplates</b>	New response parameters: <b>sshkeyenabled</b>
<b>listNetworks</b>	New response parameters: <b>ip6cidr</b> , <b>ip6gateway</b> , <b>ispersistent</b>
<b>prepareTemplate</b>	New response parameters: <b>sshkeyenabled</b>
<b>changeServiceForRouter</b>	New response parameters: <b>ip6dns1</b> , <b>ip6dns2</b>
<b>updateZone</b>	New request parameters: <b>ip6dns1</b> (optional), <b>ip6dns2</b> (optional)  New response parameters: <b>ip6dns1</b> , <b>ip6dns2</b>
<b>createSSHKeyPair</b>	New response parameters: <b>privatekey</b>
<b>listFirewallRules</b>	New response parameters: <b>networkid</b>
<b>updateUser</b>	New response parameters: <b>iscallerchilddomain</b>

API Commands	Change Description
<b>createZone</b>	New request parameters: <b>ip6dns1</b> (optional), <b>ip6dns2</b> (optional) New response parameters: <b>ip6dns1</b> , <b>ip6dns2</b>
<b>createStoragePool</b>	Changed request parameters: <b>podid</b> (old version - optional, new version - required), <b>clusterid</b> (old version - optional, new version - required)
<b>updateTemplate</b>	New response parameters: <b>sshkeyenabled</b>
<b>disableUser</b>	New response parameters: <b>iscallerchilddomain</b>
<b>listSSHKeyPairs</b>	New response parameters: <b>privatekey</b>
<b>listNiciraNvpDevices</b>	New response parameters: <b>hostname</b> , <b>l3gatewayserviceuuid</b> , <b>transportzoneuuid</b>
<b>registerIso</b>	New response parameters: <b>sshkeyenabled</b>
<b>listZones</b>	New request parameters: <b>name</b> (optional) New response parameters: <b>ip6dns1</b> , <b>ip6dns2</b>
<b>startRouter</b>	New response parameters: <b>ip6dns1</b> , <b>ip6dns2</b>
<b>listCapabilities</b>	New response parameters: <b>apilimitinterval</b> , <b>apilimitmax</b>
<b>deployVirtualMachine</b>	New request parameters: <b>ip6address</b> (optional)
<b>addVpnUser</b>	New response parameters: <b>state</b>
<b>destroyRouter</b>	New response parameters: <b>ip6dns1</b> , <b>ip6dns2</b>
<b>enableUser</b>	New response parameters: <b>iscallerchilddomain</b>
<b>addNiciraNvpDevice</b>	New request parameters: <b>l3gatewayserviceuuid</b> (optional) New response parameters: <b>hostname</b> , <b>l3gatewayserviceuuid</b> , <b>transportzoneuuid</b>
<b>createNetworkOffering</b>	New request parameters: <b>ispersistent</b> (optional) New response parameters: <b>ispersistent</b>
<b>copyIso</b>	New response parameters: <b>sshkeyenabled</b>
<b>createDomain</b>	New request parameters: <b>domainid</b> (optional)
<b>updateIso</b>	New response parameters: <b>sshkeyenabled</b>
<b>updateNetwork</b>	New response parameters: <b>ip6cidr</b> , <b>ip6gateway</b> , <b>ispersistent</b>
<b>rebootRouter</b>	New response parameters: <b>ip6dns1</b> , <b>ip6dns2</b>
<b>createFirewallRule</b>	New response parameters: <b>networkid</b>

API Commands	Change Description
<b>createUser</b>	New request parameters: <b>userid</b> (optional) New response parameters: <b>iscallerchilddomain</b>
<b>deleteUser</b>	New response parameters: <b>displaytext</b> , <b>success</b>
<b>listVlanIpRanges</b>	New response parameters: <b>endipv6</b> , <b>ip6cidr</b> , <b>ip6gateway</b> , <b>startipv6</b>
<b>updateNetworkOffering</b>	New response parameters: <b>ispersistent</b>
<b>listVpnUsers</b>	New response parameters: <b>state</b>
<b>listUsers</b>	New response parameters: <b>iscallerchilddomain</b>
<b>listIsos</b>	New response parameters: <b>sshkeyenabled</b>

