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# **CloudStack Release Notes Documentation**

**4.3.2**

**Apache CloudStack**

2016 02 20



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: We are in the process of changing documentation format as well as hosting mechanism. Please be patient with us as we migrate our entire documentation to this new setup.

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. For usage and administration instructions, please see the CloudStack Administrator's Guide.

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# Chapter 1

## About this new Release

### 1.1 What's New in 4.3

CloudStack 4.3 includes the following new features.

#### 1.1.1 Optional 64-Bit System VM Template Support

CloudStack now provides 64-bit templates for System VMs. With this support, you will be able to upgrade virtual routers in a zone. The following parameters have been introduced for the same purpose:

- XenServer: `“router.template.xen“`
- KVM: `“router.template.kvm“`
- VMware:
- Hyper-V:

#### 1.1.2 Hyper-V Support

CloudStack 4.3 rolls out support for Hyper-V hosts. For Hyper-V, CloudStack supports SMB-based storage. If you want to run guest VMs on Hyper-V hosts, install CloudStack Agents on each Hyper-V hosts. Before you use Hyper-V, review the following list of supported and non-supported features. For detailed instruction, see Hyper-V Quick Start Guide. You can also see the chapter Installing Hyper-V for CloudStack in the CloudStack 4.3 Installation Guide.

#### Supported Functionalities on Hyper-V

- VM Compute
  - All the VM operations, except VM Snapshots
  - Live Migration
  - Service Offerings (Scale up on stopped VMs)
  - Console access
  - SSH key and resetting SSH key
  - Upload and download templates, volumes, and ISO

- Create VMs from template and ISO
- Create template from volume
- Attach and detach VMs from ISO and password-enabled template
- Copy template across zone
- Storage
  - Primary Storage (SMB and Local)
  - Root and data volumes on Local and SMB
  - Add, delete, attach, detach volumes (one or more volumes per VM)
  - Single and multiple secondary storage (SMB)
- Network
  - VLANs (Isolated and Shared)
  - All VR services: DNS, DHCP, SourceNAT, LB, PF, Firewall, StaticNAT, Userdata, and VPN
  - External device support for both Isolated and Shared networks: Netscaler, SRX, F5
  - Multiple physical networks
  - Dedicated IP range, Public VLANs (to account)
  - Network Offering upgrades and updates
  - L4-L7 services in Shared network
  - Multiple IP ranges and portable IPs
- Host and Storage in maintenance mode

### Unsupported Functionalities on Hyper-V

- Affinity and Anti-Affinity Groups
- Network throttling
- Security groups (Advanced Zone)
- IPv6
- Snapshot: VM and disk
- PVLAN
- VPC
- HA of guest VMs
- Redundant VR
- Object Store
- Mixed hypervisor zone
- Zone-wide Primary storage
- NIC bonding

### 1.1.3 Enhanced Upgrade for Virtual Routers

Upgrading VRs is made flexible. The CloudStack administrators will be able to control the sequence of the VR upgrades. The sequencing is based on Infrastructure hierarchy, such as by Cluster, Pod, or Zone, and Administrative hierarchy, such as by Tenant or Domain. This implies, for example, that you will have the flexibility to upgrade a VR in a specified zone. As an administrator, you can also determine when a particular VR can be upgraded within a specified upgrade interval. Additionally, upgrade operation is enhanced to increase the upgrade speed by allowing as many upgrade operations in parallel as possible. During the entire duration of the upgrade, users cannot launch new services or make changes to an existing service.

To support this feature, a new API, `upgradeRouterTemplate`, has been introduced.

The detailed instruction is provided in the CloudStack 4.3 Administration Guide. See section 17.5.5. Enhanced Upgrade for Virtual Routers.

### 1.1.4 Service Monitoring Tool for Virtual Router

Various services running on the CloudStack virtual routers can be monitored by using a Service Monitoring tool. The tool ensures that services are successfully running until CloudStack deliberately disables them. If a service goes down, the tool automatically performs a restart, and if that does not help bringing up the service, an alert as well as an event is generated indicating the failure.

The following services are monitored in a VR:

- DNS
- HA Proxy
- SSH
- Apache Web Server

Only the services with daemons are monitored.

The following networks are supported:

- Isolated Networks
- Shared Networks in both Advanced and Basic zone

This feature is supported on the following hypervisors: XenServer, VMware, and KVM.

The detailed instruction is provided in the CloudStack 4.3 Administration Guide. See section 17.5.4. Service Monitoring Tool for Virtual Router.

### 1.1.5 Custom Compute Offering

CloudStack provides you the flexibility to specify the desired values for the number of CPU, CPU speed, and memory while deploying a VM. The admin creates a Compute Offering by marking it as custom, and as an user, you will be able to customize this dynamic Compute Offering by specifying the memory, CPU and root disk at the time of VM creation or upgrade.

Custom Compute Offering is same as the normal Compute Offering except that the values of the dynamic parameters will be set to zeros in the given set of templates. Use this offering to deploy VM by specifying custom values for the dynamic parameters. Memory, CPU and number of CPUs are considered as dynamic parameters. Dynamic Compute Offerings can be used in following cases: deploying a VM, changing the compute offering of a stopped VM and running VMs, which is nothing but scaling up. To support this feature a new field, Custom, has been added to the Create Compute Offering page. If the Custom field is checked, the end-user will be able to create a custom Compute Offering by filling in the desired values for number of CPU, CPU speed, and memory.

### 1.1.6 Remote Access VPN for VPC

Support for Remote access VPN in Isolated networks is now extended to VPC networks. Remote users will now be able to initiate a VPN connection to a VPC network. To enable this feature, enable VPN in the Source NAT IP of the VPC.

### 1.1.7 Site to Site VPN Connection Between VPC Networks

CloudStack provides you with the ability to establish a site-to-site VPN connection between CloudStack virtual routers. With this functionality, users can deploy applications in multiple Availability Zones or VPCs, which can communicate with each other by using a secure Site-to-Site VPN Tunnel. Creating a typical Site to Site VPN connection between VPC networks involves the following:

1. Create two VPCs. For example, VPC A and VPC B.
2. Create VPN gateways on both the VPCs you created.
3. Create VPN customer gateway for both the VPCs.
4. Enable a VPN connection on VPC A in passive mode.

Ensure that the customer gateway is pointed to VPC B. The VPN connection is shown in the Disconnected state.

5. Enable a VPN connection on VPC B.

Ensure that the customer gateway is pointed to VPC A. Because virtual router of VPC A, in this case, is in passive mode and is waiting for the virtual router of VPC B to initiate the connection. The virtual router of VPC B should not be in passive mode.

The VPN connection is shown in the Disconnected state.

Creating VPN connection on both the VPCs initiates a VPN connection. Wait for few seconds. The default is 30 seconds for both the VPN connections to show the Connected state.

### 1.1.8 Reporting CPU Sockets

CloudStack now provides an additional infrastructure statistics for CPU sockets managed by CloudStack, which in turn reflects the size of the cloud. The Infrastructure tab has a new tab for sockets. The Socket page will give you the number of hosts and sockets used for each hypervisor type. This feature is not supported in versions prior to XenServer 6.2.

### 1.1.9 Database High Availability

To help ensure high availability of the databases that store the internal data for CloudStack, you can set up database replication. This covers both the main CloudStack database and the Usage database. Replication is achieved using the MySQL connector parameters and two-way replication. Tested with MySQL 5.1 and 5.5. Database replication in CloudStack is provided using the MySQL replication capabilities. The steps to set up replication can be found in the MySQL documentation.

### 1.1.10 LDAP User Provisioning

LDAP user provisioning has been enhanced by allowing user import from the configured LDAP servers. You will be able to add multiple LDAP servers and selectively import LDAP users. You can filter by group name and import all the users within a group. After they have been imported to CloudStack, in contrast to manually adding them in previous releases, users are allowed to directly log in to CloudStack by using the LDAP credentials.

### 1.1.11 Migrating NFS Secondary Storage to Object Store

In an existing zone that is using NFS for secondary storage, you can upgrade the zone to use a region-wide object storage without causing downtime. The existing NFS storage in the zone will be converted to an NFS Staging Store. After migration, the data that was on the NFS storage remains there. CloudStack does not provide a way to automatically migrate all data to the new object storage. The data remaining on the old NFS storage will remain accessible for read and delete operations only. Newly created snapshots and templates will be placed in the newly configured object storage.

### 1.1.12 VXLAN Plugin Support

The VXLAN plugin adds VXLAN as one of the guest network isolation methods in CloudStack. This plugin enables more than 4096 isolated guest networks in a Zone, with almost the same usability as VLAN isolation. This plugin provides no network services. Use virtual router for network services. This plugin is supported on KVM hypervisors.

### 1.1.13 Contrail Network Plugin Support

The Contrail virtual network controller is an open source project that provides an overlay implementation of network virtualization that is interoperable with network devices that support existing network virtualization standards. Support for the Contrail plugin has been added to CloudStack to provide NAT services to the XenServer hosts. The plugin supports isolated networks, Static NAT implemented by the VRouter dataplane, and Source NAT implemented by using a virtual appliance with full NAT functionality.

### 1.1.14 Publishing Alert Using the Web ROOT Admin API

In previous releases of CloudStack code alerts are generated for CloudStack services (Usage service) only if they run on the same host as the Management Server. A new API has been introduced in 4.3, which can be used by the following services to generate and publish. The services need not be running on the same host where the Management Server is running.

- Any new services added to CloudStack.
- Usage service when run on a separate storage host.
- Console Proxy and Secondary Storage VM services.

The main advantage of this feature is that the third party systems integrating with CloudStack will be able to utilize the Alert notification system publish alerts.

### 1.1.15 Support for Palo Alto Firewall Service

CloudStack supports Palo Alto firewall services. Use the Create Network Offering dialog to create an offering which has the Palo Alto firewall services. What is not supported and not supported are given below:

#### Supported Functionalities

- Advanced Network
- Parallel deployment with hardware Load balancer
- Virtual Palo Alto firewall.
- Communication layer with Palo Alto APIs.

- Mapping of CloudStack APIs to corresponding Palo Alto APIs.
- Connectivity status of the firewall service on the CloudStack UI.

### Unsupported Functionalities

- Inline deployment with hardware Load balancer
- Firewall between VLANs within an advanced network
- Firewall between VM instances

For more information, see Palo Alto Firewall Integration.

### 1.1.16 Root Volume Metering

CloudStack supports recording usage events as per the dynamically assigned resources. Usage events are registered when a VM is created from dynamic service offering, and the values of parameters, such as CPU, speed, RAM are recorded. If VM is deployed by using template and dynamic root disk size is mentioned, the same value is recorded in the usage event.

### 1.1.17 Support for SSL Termination

SSL Offloading allows load balancers to handle encryption and decryption of HTTP(s) traffic giving plain text HTTP to the back end servers freeing them from the resource intensive task of handling encryption and decryption. Supported for Citrix NetScaler.

### 1.1.18 Support for Pluggable VM Snapshots

CloudStack implements a plugin to integrate a third-party storage provider. Third party storage providers can integrate with CloudStack to provide either primary storage or secondary storage. The user enables a storage plugin through the UI. A new dialog box choice is offered to select the storage provider. Depending on which provider is selected, additional input fields may appear so that the user can provide the additional details required by that provider, such as a user name and password for a third-party storage account.

### 1.1.19 Enhanced CloudStack UI

A complete UI makeover is implemented to enhance the usability and user experience in modern browsers. The visual look-and-feel has been changed for the Header, Navigation, Buttons, text fields, drop-downs, tables and so on. Consistent color themes has been introduced to match with the Apache branding.

The current UI flow remains the same.

### 1.1.20 Depreciation of realhostip.com DNS and SSL certificate

The realhostip.com dynamic DNS resolution service is being retired this summer. In advance of that, CloudStack 4.3 no longer uses realhostip.com DNS domains or SSL certificates to encrypt Console Proxy or file copy communications.

## 1.2 Issues Fixed in 4.3.2

Apache CloudStack uses Jira to track its issues. All new features and bugs for 4.3 have been tracked in Jira, and have a standard naming convention of “CLOUDSTACK-NNNN” where “NNNN” is the issue number.

Bug ID	Description
CLOUDSTACK-3383	Fetch CPU utilization more reliable....
CLOUDSTACK-3401	Usage records are ordered by start_date which is not unique. While listing lar...
CLOUDSTACK-5785	VM display name cell not updated upon detaching volume from VM...
CLOUDSTACK-5992	default values of configuraiton parameters in configuration table are set NULL...
CLOUDSTACK-6011	When detach is called on a deleted volume, avoid the NPE and throw an appropri...
CLOUDSTACK-6075	Increase the ram size for router service offering...
CLOUDSTACK-6261	remove the forceful timeout setting when login to NetScaler....
CLOUDSTACK-6371	Set snapshot size in copycommand answer during snapshot backup...
CLOUDSTACK-6432	Blocking DHCP server to service DNS outside network...
CLOUDSTACK-6438	XAPI plugins must be copied to XS master first...
CLOUDSTACK-6463	password is not set for VMs created from password enabled template...
CLOUDSTACK-6466	cpu and ram is not getting updated correctly in usage_vm_instance table for us...
CLOUDSTACK-6647	appending instance name with custom supplied info that contains - character ca...
CLOUDSTACK-6652	CLONE - [Automation] Vmware- System's StartCommand failed with "NumberFormatE...
CLOUDSTACK-6669	Support volume resize in usage server...
CLOUDSTACK-6738	Add configs in developer prefill to avoid restart mgmt server...
CLOUDSTACK-6743	Use edge-triggering in MessageDetector to handle bogus wakeup gracefully. Leve...
CLOUDSTACK-6761	Fixed removing proxy arp rule on deleting static nat or PF rule on ip...
CLOUDSTACK-6805	UI > create account > fix a bug that account creation failed when password con...
CLOUDSTACK-6859	Management Server PermGen run out of memory after some time due to class leak...
CLOUDSTACK-6892	use lowercase noredist, as package.sh lowercases build type...
CLOUDSTACK-6970	Protect event interpretation from causing NPE exception...
CLOUDSTACK-7250	[vCenter 5.5] SourceNAT,StaticNAT and Portfowrding is not working with Vmware ...
CLOUDSTACK-7415	Host remains in Alert after vCenter restart....
CLOUDSTACK-7517	loading ftp modules in VR...
CLOUDSTACK-7589	VM not Starting and always stuck in Stopped state after management server rest...
CLOUDSTACK-7633	fix "Provides" in most LSB headers...
CLOUDSTACK-7658	Upgrading debian packages as part of system vm template build...
CLOUDSTACK-7674	throw an exception when encountered...
CLOUDSTACK-7679	bump up the RabbitMQ AMQP java client version from 2.8.7 to 3.3.5...
CLOUDSTACK-7700	Volume Snapshot Async Job returns Success for a failed operation...
CLOUDSTACK-7752	Fixed deployment planner stuck in infinite loop. If we create VM with shared s...
CLOUDSTACK-7822	Fixed SSL Cert Tests and relaxed chain validation...
CLOUDSTACK-7837	[UI] Make the Source CIDR column wide enough to fit the CIDR value without ell...
CLOUDSTACK-7849	Sorting projects alphabetically in drop down menu...
CLOUDSTACK-7855	NIC3 should set MTU and not NIC1 for storage network nic...
CLOUDSTACK-7869	Add simulator support for findHostsForMigration API...
CLOUDSTACK-7871	allow VM and template details update using update APIs...
CLOUDSTACK-7872	network getting shutdown inspite of running VM's in the network...
CLOUDSTACK-7877	The NET.IPRELEASE events are not added to usage_event on IP range deletion fro...
CLOUDSTACK-7884	Cloudstack MS is not responding (happening randomly) after some restart....
CLOUDSTACK-7886	cloudstackoperations like deployvm,deleteNW are failing if CS fail to contact ...
CLOUDSTACK-7917	Validating Load Balancer Rule when updating LB + unit test...
CLOUDSTACK-7937	CloudStack accepts unauthenticated LDAP binds...
CLOUDSTACK-7951	Limit amount of memory used by cloudstack-agent jsvc...

TABLE 1.1 –

Bug ID	Description
CLOUDSTACK-7952	Remove private key from SslCertResponse (listSslCerts)...
CLOUDSTACK-7954	ListTags API is ignoring the resourceID and displaying...
CLOUDSTACK-7966	remove snapshot_store_ref entry, in which role is Primary, during storage GC...

### 1.3 Issues Fixed in 4.3.1

Apache CloudStack uses Jira to track its issues. All new features and bugs for 4.3 have been tracked in Jira, and have a standard naming convention of “CLOUDSTACK-NNNN” where “NNNN” is the issue number.

Bug ID	Description
CLOUDSTACK-7528	When AlertManager fails to sendAlert it does not log the actual issue/error...
CLOUDSTACK-7404	Failed to start an instance when originating template has been deleted...
CLOUDSTACK-7193	Rebooting a VM doesn't update iptables rules...
CLOUDSTACK-7087	[VR] [VPN] Downgrade openswan to previous version for VPN services to fix OSX cl...
CLOUDSTACK-7006	Template ID is missing in ROOT volume usages...
CLOUDSTACK-6892	Database HA Config prevents mgmt server from starting...
CLOUDSTACK-6886	Cannot add SDX Netscaler device...
CLOUDSTACK-6816	cloudstack-setup-management make /root directory's permission 0777 improperly...
CLOUDSTACK-6673	cloudstack-setup-management make a chmod 777 on /root...
CLOUDSTACK-6665	DHCP does not release ip addresses properly on VPC routers (edithosts.sh)...
CLOUDSTACK-6624	Unable to create new Network Offerings via UI with Specify VLAN option set...
CLOUDSTACK-6531	VR starts even if PF rules fails...
CLOUDSTACK-6509	Cannot import multiple LDAP/AD users into a cloudstack account...
CLOUDSTACK-6472	listUsageRecords generates NPEs for expunging instances...
CLOUDSTACK-6471	Add logs to better diagnose failures and errors in LDAP AD integration...
CLOUDSTACK-6464	[KVM:basic zone- upgrade to 4.3],after any vm restart,all the nics are plugg...
CLOUDSTACK-6433	Make sure redundant router would create a pair of routers when implementation...
CLOUDSTACK-6317	[VMware] Tagged VLAN support broken for Management/Control/Storage traffic...
CLOUDSTACK-6299	GetVMPassword decypher instructions are wrong...
CLOUDSTACK-6297	Cloudstack Fails to Launch on Ubuntu missing MySQL Driver...
CLOUDSTACK-6285	Some passwords in the VR would be cleared out by accident due to falsely match i...
CLOUDSTACK-6115	Investigate the use of TravisCI for CloudStack integration testing...
CLOUDSTACK-6099	live migration is failing for vm deployed using dynaic compute offerings with NP...
CLOUDSTACK-4652	ceph:UI:Noticed 2 records for same volume after migrating instance from one prim...
CLOUDSTACK-4557	ceph:Performance:first time operstions taking more time...
CLOUDSTACK-4292	ceph:destroyedvm failed with ArrayIndexexception while expunging...

### 1.4 Issues Fixed in 4.3.0

For the list of issues fixed, see Issues Fixed in 4.3.

Bug ID	Description
CLOUDSTACK-6103	vms with isos attached don't migrate...
CLOUDSTACK-6089	resource tags show up in multiples...
CLOUDSTACK-6046	CreateVolume from snapshot is failing with S3 as secondary storage and zone-wide...
CLOUDSTACK-6040	Failed to configure PF on vm secondary ip for shared network...
CLOUDSTACK-6007	[VMware] RestoreVM API fails with NPE...

TABLE 1.2 –

Bug ID	Description
CLOUDSTACK-5986	dnsmasq racy condition result in dnsmasq failed to handout IP address...
CLOUDSTACK-5971	Templates created from a snapshots can't be copied to other zones...
CLOUDSTACK-5960	Domain admin or user cannot register a template using S3/Swift object store...
CLOUDSTACK-5922	Incorrect handling RHEL guests ...
CLOUDSTACK-5921	S3 security key is stored in DB unencrypted...
CLOUDSTACK-5903	CLONE - OVA files exist for templates created from volumes...
CLOUDSTACK-5895	CreateVolumeFromSnapshot can fail in a multiple pod environment with tagged stor...
CLOUDSTACK-5886	4.2.1 upgrade fails on acl migration...
CLOUDSTACK-5877	listTemplates does not sort based on sort_key...
CLOUDSTACK-5875	No templates in simulator run...
CLOUDSTACK-5864	Simulator profile broken ...
CLOUDSTACK-5813	With S3 as secondary storage, snapshot taken in one zone cannot be used to creat...
CLOUDSTACK-5723	Malfunction agent may block future SSL connection to the server...
CLOUDSTACK-5704	OVA files exist for templates created from volumes...
CLOUDSTACK-5701	size column is not getting updated in snapshot_store_ref table....
CLOUDSTACK-5666	Cant remove a nic when a vm is in the Stopped state ...
CLOUDSTACK-5661	[VMware] DetachIsoCmd succeeds even though cdrom is locked by VM as cdrom is mou...
CLOUDSTACK-5653	S3 object store as Secondary Storage, the template created from different zone i...
CLOUDSTACK-5613	CloudStack 4.2.0 - Usage server is running but tables remain empty...
CLOUDSTACK-5608	HyperV Builtin and System vm template entries missing in 4.3 upgrade setup...
CLOUDSTACK-5534	MySQL exception raised when searching for users with keyword...
CLOUDSTACK-5533	Virtual router in shared network does respond to DNS even when no DNS service is...
CLOUDSTACK-5532	Long tag values are not readable within the UI...
CLOUDSTACK-5519	[VMWARE] Cancel vCenter tasks if the task invoked by CloudStack failes with time...
CLOUDSTACK-5517	NPE observed during "release portable IPs" as part of account cleanup...
CLOUDSTACK-5514	Response of listAccounts API call includes removed users...
CLOUDSTACK-5513	VM can't start after creating snapshot from it (CS4.2 + VMware 5.1)...
CLOUDSTACK-5481	Regular User is unable to use "Add Isolated Network" Button on the UI...
CLOUDSTACK-5466	removeIpFromNic not working properly...
CLOUDSTACK-5453	Site-to-site VPN connection status monitoring is broken in KVM...
CLOUDSTACK-5431	permit 'http' as service type for GSLB rule...
CLOUDSTACK-5428	support NetScaler to be configured exclusively for GSLB service and not used for...
CLOUDSTACK-5426	Cannot deploy instance having multiple volumes that use different storage tags f...
CLOUDSTACK-5422	Changing XenServer Tools Version 6.1 + doesnt work ...
CLOUDSTACK-5417	On network restart for external devices egress rules configured with old CIDR...
CLOUDSTACK-5416	[VMware] Not able to add seventh disk to VM in an upgraded setup...
CLOUDSTACK-5404	Network usages (bytes sent/received) are saved in the wrong timezone...
CLOUDSTACK-5401	VM migration during host maintenance fails if pool.storage.capacity.disablethres...
CLOUDSTACK-5391	Change service offering of a stopped vm and then starting it should check host c...
CLOUDSTACK-5355	addImageStore should not log password in clear text in the log...
CLOUDSTACK-5354	CLONE - UI - normal users are not allowed to edit their own iso...
CLOUDSTACK-5352	CPU cap calculated incorrectly for VMs on XenServer hosts...
CLOUDSTACK-5332	Network offering don't use new system offering for router...
CLOUDSTACK-5303	"snapshot" count and "secondary_storage" count are not correct in resource_coun...
CLOUDSTACK-5302	listHosts API response - value of cpuallocated is always 0%...
CLOUDSTACK-5299	Can not get hypervisor type for volumes...
CLOUDSTACK-5293	Error while collecting vm disk stats from hosts if iso is attached to vm...
CLOUDSTACK-5285	Correct the API command description for removeIpFromNic...
CLOUDSTACK-5261	Ability to publish Alerts via CS Root API...

TABLE 1.2 –

Bug ID	Description
CLOUDSTACK-5260	Vmware 5.1 Deploy Template Error : Read Timeout...
CLOUDSTACK-5228	[API] [EIP/ELB enabled Zone] Need to display EIP address as “Public IP Address” ...
CLOUDSTACK-5227	Cannot pass Japanese characters as parameter values to API...
CLOUDSTACK-5218	CLONE - [Doc] Make VMware vCenter session timeout value configurable....
CLOUDSTACK-5199	Cannot restart VM after taking a VM snapshot of an existing VM or reverting a VM...
CLOUDSTACK-5141	[Automation] Router deployment failed due to failure in SavePasswordCommand, obs...
CLOUDSTACK-5140	A stopped vm cant start after disable threshold has been reached on the storage ...
CLOUDSTACK-5138	[Automation] NPE while create template from snapshot...
CLOUDSTACK-5122	[VMware] System VMs are getting recreated with old template after upgrading to 4...
CLOUDSTACK-5105	Template/ISO download fails cause the object to disappear from UI...
CLOUDSTACK-5098	[UI] Zone view is showing “Add VMware Datacenter” button even though zone is alr...
CLOUDSTACK-5092	[Automation] [BVT] Failed to copy template and ISO between zones in xen ...
CLOUDSTACK-5076	(Upgrade) reboot VM failed after bridge name change...
CLOUDSTACK-5069	Make VMware vCenter session timeout value configurable....
CLOUDSTACK-5066	Existed remote access VPN got dropped when adding new VPN users...
CLOUDSTACK-5062	Deleting Load Balancing Rule fails when generating usage events are enabled...
CLOUDSTACK-5054	vm migration involving storage migration on vmware fails with exception ” The ob...
CLOUDSTACK-5053	No Qemu-KVM module dependency error message is displayed (if not present)while i...
CLOUDSTACK-5042	(Upgrade) Exception when stop VM after upgrade...
CLOUDSTACK-5029	cloud-bugtool isn’t in release package like release notes say...
CLOUDSTACK-5025	display_volume field is set to false by default for VolumeVO object...
CLOUDSTACK-5024	listVolumes: add support to list by storage pool (for admin only)...
CLOUDSTACK-5017	If SSVM is unavailable DownloadCommands will be routed to mgmt server...
CLOUDSTACK-5014	vmware:deployVM with data disk failed with exception...
CLOUDSTACK-5012	Bad data inserted into physical network labels for Zone Create Wizard using VMWa...
CLOUDSTACK-5008	[VMWARE]Failed to start the VM after performing Cold Migration of Volume to Seco...
CLOUDSTACK-5002	unable to destroy vm ;VM destroy failed in Stop i-2-59-VM Command due to You gav...
CLOUDSTACK-4998	assignVirtualMachine API has wrong response string, causing Cloudmonkey to crash...
CLOUDSTACK-4997	OVS integration is broken...
CLOUDSTACK-4973	CLONE - Specified keyboard language is not showing as default in consoleView pas...
CLOUDSTACK-4943	Can’t create cluster in CS 4.2...
CLOUDSTACK-4941	CLONE - Allocation capacity of a cluster during HA...
CLOUDSTACK-4935	Adding same network to VM multiple times resulting in failure, No new NIC is gen...
CLOUDSTACK-4931	observed NPE with new system vm template...
CLOUDSTACK-4913	Disable security group for bridge mode non-security group zone...
CLOUDSTACK-4904	Unable to see a derieved template if the parent template is deleted...
CLOUDSTACK-4886	cloud-setup-databases not escaping password in shell commands...
CLOUDSTACK-4875	VMWARE: vCenter 5.5 - SYSTEM VM: Unable to create deployment for VM...
CLOUDSTACK-4861	[VMware] If Guest traffic spans across multiple physical networks, selection of ...
CLOUDSTACK-4860	[VMware] Vcenter 5.5 ESXi 5.5 hosts SSVM CPVM fail to come up to running state...
CLOUDSTACK-4856	Optimize on the # of control commands sent by MS to HV host...
CLOUDSTACK-4855	Throttle based on the # of outstanding requests to the directly managed HV host ...
CLOUDSTACK-4852	Since upgrade to 4.2 only users at the zone-attached domain level can manipulate...
CLOUDSTACK-4850	[UCS] using template instead of cloning profile...
CLOUDSTACK-4831	Ability for root admin or domain admin to create a network for another user unde...
CLOUDSTACK-4830	Allow creation of users and accounts by domain admin in UI...
CLOUDSTACK-4826	System VMs fail to start...
CLOUDSTACK-4820	TestVPCNetworkGc.test_01_wait_network_gc netacls are not cleared...
CLOUDSTACK-4810	Enable hypervisor snapshots for CloudStack-managed storage (for XenServer and VM...

TABLE 1.2 –

Bug ID	Description
CLOUDSTACK-4768	[Automation] Race condition; delete the template and create VM at same time; dep...
CLOUDSTACK-4750	bond.VLAN mapping in iptables FORWARD chain not created consistently...
CLOUDSTACK-4741	URL of ImageStore not in proper format for XenServer...
CLOUDSTACK-4740	Some vSphere VMs are shutdown when ACS is restarted...
CLOUDSTACK-4734	Creating snapshot from ROOT volume fails with error message - "Failed to create ...
CLOUDSTACK-4724	[Vmware] Deploy VM in designated cluster fail if there is only zone wide primary...
CLOUDSTACK-4697	Not able to delete Primary storage when there are no hosts in the cluster...
CLOUDSTACK-4676	[Baremetal] baremetal hostname should not be fixed in kickstart file ...
CLOUDSTACK-4670	[Baremetal] Cloudplatform BareMetal installation guide for CP 4.2...
CLOUDSTACK-4631	[Automation] Failed to create snapshot from volume due to storage pool missing e...
CLOUDSTACK-4620	Vm failed to start on the host on which it was running due to not having enough ...
CLOUDSTACK-4616	When system Vms fail to start when host is down , link local Ip addresses do no...
CLOUDSTACK-4598	[Performance Testing] High delays during deployVM - both network delay and deplo...
CLOUDSTACK-4597	Complete Exceptions are getting displayed in the UI where there is an operationa...
CLOUDSTACK-4594	[VMWARE] [Upgrade] Failed to revert VM Snapshot which were created before Live S...
CLOUDSTACK-4588	[Automation][Vmware] VM deployment failed while creating Volume with NPE...
CLOUDSTACK-4577	VMWare:Volumes: Unexpected exception while executing org.apache.cloudstack.api.c...
CLOUDSTACK-4543	[Automation] Failed to configure VPC router then reported as deployment failure...
CLOUDSTACK-4542	[Automation] Failed to apply DHCP entry in VR and deployment failed ...
CLOUDSTACK-4540	[Automation] Parallel deployment - Vmware - When deploying 30 parallel Vms , 16 ...
CLOUDSTACK-4506	In a mixed hypervisor setup, destroying a VM whose host has been removed, throws...
CLOUDSTACK-4504	VM creation Is failing using the Ubuntu ISO with Xen 6.1 and 6.2...
CLOUDSTACK-4450	Possibility of /tmp/xapilog filling up the Root disk on Xenserver ...
CLOUDSTACK-4445	[UI]Edit Icon is used for Dedicate host / Add or Remove VMWARE Datacenter with ...
CLOUDSTACK-4428	[UI] "kvm.snapshot.enabled" flag should be taken to account only when snapshot i...
CLOUDSTACK-4402	[deleteStoragePool] There is no way to delete Primary storage if the last host w...
CLOUDSTACK-4371	[Performance Testing] Basic zone with 20K Hosts, management server restart leave...
CLOUDSTACK-4263	Unable to get git number in maven-jgit-buildnumber-plugin, while build cloudstac...
CLOUDSTACK-4207	[upgrade] Exception observed after upgrade "jsonParseException: The JsonDeserial...
CLOUDSTACK-4061	UI issue with Japanese localized ui...
CLOUDSTACK-3806	OS Preference can not be set...
CLOUDSTACK-3664	scaling up vms is not considering parameter "cluster.(memory/cpu).allocated.cap...
CLOUDSTACK-3627	Public IP interface(eth2) is not getting configued with Redundant VR (State = F...
CLOUDSTACK-3577	NPE while downloading the template to secondary storage ...
CLOUDSTACK-3561	When inputting the nfs server in secondary storage, if once it's required, it al...
CLOUDSTACK-3364	normal users are not allowed to edit their own iso...
CLOUDSTACK-3266	[UI] Failed to delete Anti affinitygroup for the first time ...
CLOUDSTACK-3252	An instance deployed using explicit or implicit dedication doesn't generate a us...
CLOUDSTACK-3247	Removing a Disconnected Host throws a NoTransitionException...
CLOUDSTACK-3156	needs proper message for failing Add nic command when vmware tools is not instal...
CLOUDSTACK-3067	UI for Dedicating POD/Cluster/Host is misleading Icons should be changed....
CLOUDSTACK-3027	Object_Store_Refactor - Uploaded template S3 content-type is not appropriate....
CLOUDSTACK-2895	Can't start a VM with 3 volumes attached [VMWare]...
CLOUDSTACK-2766	[VPC] [UI] Firewall service should not be enabled for acquired public IPs in VPC...
CLOUDSTACK-2687	NPE with deploy VM when there are no resources available ...
CLOUDSTACK-2570	[UI]Resource Name is mentioned twice with view VNMC devices ...
CLOUDSTACK-2562	[VMWARE] As per the code, currently CloudStack fails to program PF/NAT/LB rules ...
CLOUDSTACK-2428	HA - When the master host is disconnected , the host status continies to remain i...
CLOUDSTACK-2414	NPE while deleting Cisco VNMC provider...

TABLE 1.2 –

Bug ID	Description
CLOUDSTACK-2396	PVLAN - Should not be allowed to create multiple networks with same Vlan associ...
CLOUDSTACK-2199	ID parameter of UpdateConfiguration API should be changed to a different name...
CLOUDSTACK-2141	During HA process , dead lock is detected - Caused by: com.mysql.jdbc.exception...
CLOUDSTACK-1970	Ubuntu - “cloudstack-setup-management” not available in “/usr/bin”...
CLOUDSTACK-1889	[UI] Consumed Resource usage details are not available for all the resources...
CLOUDSTACK-1868	GetVmStatsCommand throws NullPointerException with VMWare...
CLOUDSTACK-1762	[MultipleIpsToNic] addIpToNic should not let network id or broadcast to be assign...
CLOUDSTACK-1637	LDAP:UI related issues...

## 1.5 Known Issues in 4.3.2

Apache CloudStack uses Jira to track its issues. All new features and bugs for 4.3 have been tracked in Jira, and have a standard naming convention of “CLOUDSTACK-NNNN” where “NNNN” is the issue number.

Bug ID	Description
CLOUDSTACK-6014	Contrail:MS:syncDomain java.net.ConnectException: Connection refused ...
CLOUDSTACK-6070	Contrail:Static NAT: Unable to create virtual-machine-interface ...
CLOUDSTACK-6071	Contrail:MS:DB: DBSync exceptions in MS log ...
CLOUDSTACK-6088	LDAP Server for User Authentication doc doesn’t specify how authenticate a user ...
CLOUDSTACK-6270	show error unable to create a deployment for vm during completely add instance ...
CLOUDSTACK-7151	vmware: Type of vSwitch was not detected correctly while preparing public/guest ...
CLOUDSTACK-7297	HA VM options is disabled for VMs created on CLVM primary storage...

## 1.6 Known Issues in 4.3.1

Apache CloudStack uses Jira to track its issues. All new features and bugs for 4.3 have been tracked in Jira, and have a standard naming convention of “CLOUDSTACK-NNNN” where “NNNN” is the issue number.

Bug ID	Description
CLOUDSTACK-7151	vmware: Type of vSwitch was not detected correctly while preparing public/guest ...
CLOUDSTACK-7578	XenServerInvestigator should do better investigation in case of OVS or other net...
CLOUDSTACK-6485	[vpc] new private gateway network is registered wrong in network table...
CLOUDSTACK-6927	Security group python script has several issues...
CLOUDSTACK-7291	LXC: Mgmt server/agent keeps killing systemvms...
CLOUDSTACK-7297	HA VM options is disabled for VMs created on CLVM primary storage...
CLOUDSTACK-7572	Virtual Console Proxy url domain...

## 1.7 Known Issues in 4.3.0

For the list of known issues, see Known Issues in 4.3.

Bug ID	Description
CLOUDSTACK-4787	Allow selection of scsi controller type in vSphere...
CLOUDSTACK-6024	template copy to primary storage uses a random source secstorage from any zone...
CLOUDSTACK-4912	API docs are missing some APIs...
CLOUDSTACK-5124	Simulator: Virtual Router fails to start because of improper version returned by...

TABLE 1.3 –

Bug ID	Description
CLOUDSTACK-5262	Few of the snapshot creation from ROOT volume fails when there are concurrent s...
CLOUDSTACK-5356	Xenserver - Failed to create snapshot when secondary store was made unavaibale f...
CLOUDSTACK-5357	Xenserver - Failed to create snapshot due to “unable to destroy task(com.xe nsou...
CLOUDSTACK-5358	API: synchronization on the object is broken...
CLOUDSTACK-5372	Xenserver - SR not being recreated when the Primary storage is brought down and ...
CLOUDSTACK-5429	KVM - Primary store down/Network Failure - Hosts attempt to reboot becasue of pr...
CLOUDSTACK-5452	KVM - Agent is not able to connect back if management server was restarted when ...
CLOUDSTACK-5469	Snapshot creation fails with following exception - “Failed to backup snapshot: q...
CLOUDSTACK-5485	Vmware - Whe 10 hourly snapshots are scheduled at the same time , we see only 5 ...
CLOUDSTACK-5494	the dns resolver servers on the VRs are open to the world...
CLOUDSTACK-5499	Vmware -When nfs was down for about 12 hours and then brought back up again , s...
CLOUDSTACK-5501	Unable to create more than one vpnConnection per vpn customer gateway...
CLOUDSTACK-5582	kvm - HA is not triggered when host is powered down since the host gets into “Di...
CLOUDSTACK-5746	[HyperV]Can’t access vm console from IE browser...
CLOUDSTACK-5806	Storage types other than NFS/VMFS can’t overprovision...
CLOUDSTACK-5818	[Hyper-v]Agent status of the System VMs is not updated during Host disconnect...
CLOUDSTACK-5825	Create snapshot API always returns success...
CLOUDSTACK-5882	UI has different fonts and font sizes...
CLOUDSTACK-5899	Contrail:MS: Exceptions in MS logs on a fresh install, syncDomain java.lang.Nul...
CLOUDSTACK-5928	[VM Sync] - Vmware - When a Vm is “suspended” from outside of CloudStack , this ...
CLOUDSTACK-5929	[VM Sync] - Vmware - Even when starting Vm fails, startVirtualMachine async job ...
CLOUDSTACK-5961	CLONE - API: synchronization on the object is broken...
CLOUDSTACK-6050	A limitations on min-max on CPU/RAM for a dynamic offering ...
CLOUDSTACK-6051	VR Rolling upgrade: Make the numbers of Routers parallely being upgraded as conf...
CLOUDSTACK-6063	CLONE - Non windows instances are created on XenServer with a vcpu-max above sup...
CLOUDSTACK-6065	No HA for shutdown VM...
CLOUDSTACK-6079	a broadcast type of a public network is affected by another physical network’s i...
CLOUDSTACK-77	console proxy display issues...
CLOUDSTACK-107	Network domain guest suffix is not getting programmed as part of hostnames on Gu...
CLOUDSTACK-237	StopVMCommand reported success in spite of failing to stop a VM which got stuck ...
CLOUDSTACK-238	vpn:fail to connect to vpnsrver using non-sourceNAT IP..
CLOUDSTACK-252	UpdateNetwork Operation on a guest network that is currently using Virtual Route...
CLOUDSTACK-255	Null pointer exception while creating portforwarding rule after performing Updat...
CLOUDSTACK-317	get xcp 1.5 into an advanced network zone...
CLOUDSTACK-375	Unable to delete physical network - because there are other networks attached...
CLOUDSTACK-425	Check image type is qcow2 before actually installing...
CLOUDSTACK-992	Template creations dies after 2h for no reason...
CLOUDSTACK-1007	Not able to delete Shared network because of not being able to stop the router....
CLOUDSTACK-1091	Fix API server’s parsing mechanism for POST requests...
CLOUDSTACK-1092	Fix API Server’s parsing mechanism to parse GET request as multimap...
CLOUDSTACK-1309	Large guest subnets downgrade performance...
CLOUDSTACK-1389	Interactive Password Prompts during Management Server Startup...
CLOUDSTACK-1413	Need something to concretely identify the version of the code in a particular bu...
CLOUDSTACK-1527	Non-fatal POSTIN scriptlet failure in rpm package cloudstack-management-4.2.0-SN...
CLOUDSTACK-1717	AWS Regions - Local region entry that gets added by default should not include ”...
CLOUDSTACK-1885	Broken testcases in 4.1...
CLOUDSTACK-1990	Docs: Update “Choosing a Hypervisor” feature matrix with new info...
CLOUDSTACK-2004	IPV6 - UI - Router details page - NICs tab - Guest traffic type does not displa...
CLOUDSTACK-2009	IPV6 - listNetwork() command does not return ip6dns1 and ip6dns2 entries...

TABLE 1.3 –

Bug ID	Description
CLOUDSTACK-2022	IPV6 - ListRouter() should return guestip6address parameter similar to guestaddr...
CLOUDSTACK-2023	IPV6 - Dashboard View - System wide Capacity for Shared Network IPs does not inc...
CLOUDSTACK-2026	IPV6 - UI - Provide the ability to turn off all the IPV6 parameters by using a g...
CLOUDSTACK-2099	Not able to add a host after a failed attempt to add the host to a wrong cluster...
CLOUDSTACK-2112	VM went in stopped state after live migration failed while vmscaleup...
CLOUDSTACK-2191	sanity tests for "EIP : Optional public IP" changes ...
CLOUDSTACK-2291	[BasicZone-XenServer] NPE while trying DeleteNetworkCmd...
CLOUDSTACK-2293	[BasicZone-XenServer] DeletePhysicalNetworkCmd is not deleting the external devi...
CLOUDSTACK-2412	[UI]Disable CiscoVnmc provider for PF/SourceNat/StaticNAT/Firewall dropdown list...
CLOUDSTACK-2418	[GSLB] NPE while removing the GSLB enabled Netscaler device...
CLOUDSTACK-2471	test_host_high_availability.py refers to non-existent library method wait_for_vm...
CLOUDSTACK-2501	Scalevm - Need to take care of upgraded vms...
CLOUDSTACK-2790	AWSAPI: packaging includes all .class files bloating size of the RPM...
CLOUDSTACK-2795	Create template failed...
CLOUDSTACK-2845	[DB upgrade] [ExternalLoadBalancer NetworkUsage] Duplicate entries in the databa...
CLOUDSTACK-2853	Cloudstack copies xenserver scripts while adding host even the server is KVM hos...
CLOUDSTACK-2860	Add new host into VMWare Cluster failed...
CLOUDSTACK-2910	SC: Ctrl combined with >. is not working of SC IME...
CLOUDSTACK-2911	KO: Key translation fails for KO keyboard Right Alt, Han/Eng, Hanja keys...
CLOUDSTACK-2919	Snapshot cannot be saved to full Secondary Storage, but doesn't utilize other Se...
CLOUDSTACK-3066	No Error message is popped up on UI when a dedicated resource is dedicated to an...
CLOUDSTACK-3095	[UI][API]Able to add multiple tier networks to a deployed VM using "Add network"...
CLOUDSTACK-3111	[UI] Storage tab is not showing the Hypervisor column as 'KVM' if the (root/data...
CLOUDSTACK-3186	Duplicate entries in /etc/hosts file on VR after reboot...
CLOUDSTACK-3195	cannot view/delete forward rules if underlying/target VM is destroyed first...
CLOUDSTACK-3197	UI: NTier: User is required to scroll down every single time to "Create Network"...
CLOUDSTACK-3212	[Advanced_With_SG]View IP Address Range in Default Guest Network page does not s...
CLOUDSTACK-3272	EventBus: add global config parameters to specify which category of events are p...
CLOUDSTACK-3338	Please provide an icon for "assignVMs" action in internal LB rule detailView...
CLOUDSTACK-3518	G11n: JA,SC: Un translation issue occurred on the strings of different UI Specif...
CLOUDSTACK-3519	G11n: JA,SC: Un translation issue occurred on the strings of different dropdown ...
CLOUDSTACK-3520	G11n: JA,SC: Un translation issue occurred on the strings of different error/war...
CLOUDSTACK-3521	G11n: JA,SC: Un translation issue occurred on the strings of different tooltips....
CLOUDSTACK-3522	G11n: JA,SC: Un translation issue occurred on the strings of different buttons. ...
CLOUDSTACK-3523	G11n: JA,SC: Un translation issue occurred on the strings of different popup mes...
CLOUDSTACK-3528	[UI]list calls are in the processing state forever with invalid name provided wi...
CLOUDSTACK-3579	[DOC]CLONE - Physical Netwok traffic label update requires Management Server res...
CLOUDSTACK-3607	"guest_os_hypervisor" table has values that are not registered in "guest_os" tab...
CLOUDSTACK-3608	"guest_os_hypervisor" table has repeated mappings of hypervisor and guest OS...
CLOUDSTACK-3656	lots of cloud-management should be changed to cloudstack-management...
CLOUDSTACK-3788	[KVM] Weekly Snapshot got stuck in "Allocated State"...
CLOUDSTACK-3813	"Service.provider.create" event doesnt mention about the Service Provider in the...
CLOUDSTACK-3880	/sbin/poweroff et al or ACPID initiated shutdown does not stop cloudstack-[usage...
CLOUDSTACK-3952	Persist VR nic details in DB for additional public ranges...
CLOUDSTACK-3973	[GSLB] [LOGS Message] Improving logs messages for GSLB rule configuration...
CLOUDSTACK-4016	[PortableIP] [VPC] listPublicIpAddresses lists the portable IP that was already ...
CLOUDSTACK-4139	[VMWARE]Failed to resize the volumes which are created from snapshot of root vol...
CLOUDSTACK-4475	[ZWPS] attaching an uploaded volume to a VM is always going to first primary sto...
CLOUDSTACK-4517	[upgrade][Vmware]Deployment of VM using centos 6.2 template registered before up...

TABLE 1.3 –

Bug ID	Description
CLOUDSTACK-4536	[object_store_refactor] Inconsistency in volume store location on secondary stor...
CLOUDSTACK-4568	Need to add this to the release note of 4.2...
CLOUDSTACK-4587	VM is failing to deploy on a Legacy zone after adding zone wide primary storage ...
CLOUDSTACK-4644	Tool Tip information is not provided for the new fields which are added in 4.2 (...
CLOUDSTACK-4789	Fix ResourceMetaDataManagerTest...
CLOUDSTACK-4906	add netaddr to marvin dependency list...
CLOUDSTACK-4918	VR can not be LB service provider without requiring to be source nat service pro...
CLOUDSTACK-4951	[event framework] Action events do not have UUID ...
CLOUDSTACK-4987	Able to add isolated network belonging to an account to a virtual machine belong...
CLOUDSTACK-5043	[DOC] Page number missing and words truncated in PDFs since 4.1.1...
CLOUDSTACK-5044	Configuration Framework Issue...
CLOUDSTACK-5090	Anti-Affinity: VM fails to start on a cluster belonging to a different pod....
CLOUDSTACK-5157	Loadbalancer Response should include stickiness, health check and ssl certs info...
CLOUDSTACK-5243	SSVM responds with timestamp...
CLOUDSTACK-5251	No Error message is displayed when nonexistent NFS secondary storage is added t...
CLOUDSTACK-5296	Add certificate chain support for NS...
CLOUDSTACK-5307	Same router is listed twice in router view of project...
CLOUDSTACK-5324	error message not proper when start VM fails because router reuires upgrade...
CLOUDSTACK-5342	[Automation] Add NIC to virtual machine fails in KVM...
CLOUDSTACK-5359	Failed to add second VMWARE cluster on a standard vSwitch enabled zone when vCen...
CLOUDSTACK-5373	Web UI (non-English) is corrupted by text expansion...
CLOUDSTACK-5395	When backup snapshot fails becasue of backup.snapshot.wait time exceeding , the ...
CLOUDSTACK-5410	Changes for tracking logs using jobid is missing in 4.3...
CLOUDSTACK-5445	DeleteImageStoreCmd does not use storage plugins to delete storage...
CLOUDSTACK-5446	KVM-Secondary Store down-Even after secondary store is brought back up after bei...
CLOUDSTACK-5463	Hyper-V does not report stopped VMs...
CLOUDSTACK-5474	EventBus: RabbitMQ provider expects password to be stored in plain text....
CLOUDSTACK-5475	cluster.cpu/(memory).allocated.capacity.disablethreshold is getting displayed mu...
CLOUDSTACK-5479	Upgrading service offering of stopped vm should release the reserved capacity of...
CLOUDSTACK-5482	Vmware - When nfs was down for about 1 hour , when snapshots were in progress , ...
CLOUDSTACK-5488	KVM:agent is still in stopped state even after host recovered from sudddent powe...
CLOUDSTACK-5504	Vmware-Primary store unavailable for 10 mts - All snapshot tasks reported failur...
CLOUDSTACK-5512	template format name checking is crude and doesn't work with advanced URLs...
CLOUDSTACK-5536	Restarting cloudstack service with template download in progress creates redunda...
CLOUDSTACK-5546	Extra tab for adding rules displayed for non-elb networks...
CLOUDSTACK-5550	UI - Api key and secret key not fully visible in user detail view....
CLOUDSTACK-5561	support of multiple nics for VR running in HyperV...
CLOUDSTACK-5563	path field is set to null in volumes table ...
CLOUDSTACK-5576	RemoteVPNNonVPC : Label needs to be changed to "Enable Remote Access VPN"...
CLOUDSTACK-5583	vmopsSnapshot plug-in (XenServer) does not return an error when it should...
CLOUDSTACK-5600	Xenserver - After HA , CPVM's disk is corrupted resulting in CPVM being stuck in...
CLOUDSTACK-5616	[DBHA]:There is no way to know to which DB is the CS writing in the case of DBHA...
CLOUDSTACK-5632	[Automation] XenServer - Template deletion fails with error "Please specify a te...
CLOUDSTACK-5645	Agent manager doesn't need to be aware of vms and their relationship to resource...
CLOUDSTACK-5673	[Hyper-V] Default IP address never configured on eth0 with default CentOS templa...
CLOUDSTACK-5685	[Vmsync] - When VR is rebooted outside of cloudstack , there is no change in sta...
CLOUDSTACK-5700	[Vmsync] - kvm- "paused" state of Vm is not synced to CS....
CLOUDSTACK-5719	[UI] Not listing shared network offerings tagged on second physical network...
CLOUDSTACK-5724	Console Proxy View - when using ctl c , errors seen on the console proxy view....

TABLE 1.3 –

Bug ID	Description
CLOUDSTACK-5743	Download ROOT Volume when the VM is in stopped state is failing with “Forbidden...
CLOUDSTACK-5744	[Hyper-v] White screen on console window when more than two console sessions are...
CLOUDSTACK-5753	[Hyper-v] ConsoleProxyLoadReportCommand does not honor the default value of cons...
CLOUDSTACK-5762	[dynamic compute offerings]UI change required for select compute offerinngs in ...
CLOUDSTACK-5785	VM display name cell not updated upon detaching volume from VM...
CLOUDSTACK-5794	[Hyper-v] Specify username and domain name together in the username field while ...
CLOUDSTACK-5798	While attaching a disk to WIN2012 VM with xencenter tools installed got error as...
CLOUDSTACK-5800	While creating a VM from template (which is created based on existing newly crea...
CLOUDSTACK-5807	Problem with shared datastore in VMware cluster with only one host...
CLOUDSTACK-5809	Not able to deploy Vm because of crossing pool.storage.allocate d.capacity.disab...
CLOUDSTACK-5822	ssh keypairs are removed after rebooting vm...
CLOUDSTACK-5834	[upgrade]Error while collecting disk stats from : You gave an invalid object ref...
CLOUDSTACK-5836	When tried to reverting back to (disk attached)quiesced vm snapshot, got error a...
CLOUDSTACK-5843	registering templates/isos should be either async or changed to non-blocking...
CLOUDSTACK-5845	[doc] Document Heterogeneous Secondary Storage Not Supported in Region...
CLOUDSTACK-5847	[Hyper-V] [doc] Document creation of external vswitch for Hyper-V 2012 R2 (unlik...
CLOUDSTACK-5855	Contrail: Slave compute host restarts when the master compute host is changed to...
CLOUDSTACK-5862	Template life cycle needs to be changed based on references of existing VMs to t...
CLOUDSTACK-5866	Remove maven profile used to configure zone...
CLOUDSTACK-5876	Contrail: After vrouter restart agent doesnt have info about the Network...
CLOUDSTACK-5879	Document on how to use RabbitMq event bus with spring modularisation done in 4.3...
CLOUDSTACK-5897	Remove OVM in add cluster drop down list...
CLOUDSTACK-5907	KVM/CLVM volumes are shown as Ovm hypervisor...
CLOUDSTACK-5908	Fail to add VXLAN network to instance...
CLOUDSTACK-5910	mark the LDAP user as imported from LDAP...
CLOUDSTACK-5920	CloudStack IAM Plugin feature...
CLOUDSTACK-5926	[Doc] Create 4.3 Release Notes...
CLOUDSTACK-5931	Hyper-V agent does not release logon handle...
CLOUDSTACK-5932	SystemVM scripts: the iso download urls need updating as current ones are obsole...
CLOUDSTACK-5933	Problem with VMware snapshot when datastore has a space in its name...
CLOUDSTACK-5934	Problem with VMware snapshot when datastore has a space in its name...
CLOUDSTACK-5935	Problem with VMware snapshot when datastore has a space in its name...
CLOUDSTACK-5947	Exception for getRootDir.. NFSStorage when running with Simulator...
CLOUDSTACK-5951	Fix base.py for Dynamic compute offerings...
CLOUDSTACK-5954	update-ssl.png missing from docs...
CLOUDSTACK-5955	vm stuck in migrating if mgmt server is restarted...
CLOUDSTACK-5962	Value of Global parameter “custom.diskoffering.size.min” is not reflected in UI ...
CLOUDSTACK-5972	[DOC] Service monitoring enable/disable from global setting...
CLOUDSTACK-5976	[upgrade]Typo in “ssh_keypairs” table’s foreign key constraints on the Upgraded ...
CLOUDSTACK-5982	Fix response name for assign and unassign cert from lb...
CLOUDSTACK-5984	addvmwaredc API call is not documented ...
CLOUDSTACK-5990	[UI]: search by username while importing ldap users...
CLOUDSTACK-5991	[UI]Infinite scrolling should be enabled to the Ldap user add page...
CLOUDSTACK-5992	[Upgrade] default values of configuraiton parameters in configuration table are ...
CLOUDSTACK-6032	[VmScaleup]service offering id is not getting changed in usage_vm_instance table...
CLOUDSTACK-6043	VMware detaching volume fails if volume has snapshots...
CLOUDSTACK-6053	While adding smb as primary or secondary the password should be uri encoded...
CLOUDSTACK-6069	can’t create privatgateway with vlan in a mixed network env...
CLOUDSTACK-6072	vxlan networks not deallocating vnet ids...

TABLE 1.3 –

Bug ID	Description
CLOUDSTACK-6075	Increase the ram size for router service offering ...
CLOUDSTACK-124	NetworkGarbageCollector not cleaning up networks...
CLOUDSTACK-231	Tag creation using special charecters ...
CLOUDSTACK-245	VPC ACLs are not stored and programmed consistently...
CLOUDSTACK-270	Ui should not ask for a vlan range if the physical network isolation type is not...
CLOUDSTACK-300	Creation of compute offering allow combination of local storage + HA...
CLOUDSTACK-310	Failed to add host - Plugin error...
CLOUDSTACK-315	Infrastructure view does not show capacity values...
CLOUDSTACK-338	Unique Names of Disk and Service Offerings in the database are prefixed with “Cl...
CLOUDSTACK-458	xen:snapshots:Storage gc fail to clean the failed snapshot images from secondary...
CLOUDSTACK-469	CloudStack Documentation Landing Page has Alignment Issues...
CLOUDSTACK-963	[cloud.utils.AnnotationHelper] class java.lang.Stringdoes not have a Table anno...
CLOUDSTACK-969	api: zone response lists vlan in it as “vlan range of zone” but the vlan belongs...
CLOUDSTACK-1306	Better Error message when trying to deploy Vm by passing static Ipv4 addresses t...
CLOUDSTACK-1432	[UI] Inconsistent field names in “Add Cluster” dialog...
CLOUDSTACK-1471	Pop up window for host details/(host related operation) are not properly alligne...
CLOUDSTACK-1524	“White-box” effect changes when changing value in combo box...
CLOUDSTACK-1725	publican update_pot might overwrite license headers ...
CLOUDSTACK-1932	AutoScale UI documentation doesn’t mention the option appears only for NetScaler...
CLOUDSTACK-2000	CS4.1 Installation document - cloud-install-sys-tmpl command documented in wron...
CLOUDSTACK-2213	russian language select failure...
CLOUDSTACK-2345	[GSLB] deleting GSLB rules is not cleaning server info from GSLB device...
CLOUDSTACK-2436	Message “You do not have any affinity groups. Please continue to the next step.”...
CLOUDSTACK-2439	“Domain” field under login page should be mandatory for the non root accounts....
CLOUDSTACK-2449	Dropdown menu for action button scaleup System VM shows all service offering inc...
CLOUDSTACK-2453	Select view dropdown under “Network” is listing the options in the absence of ad...
CLOUDSTACK-2464	[GSLB][UI] “Add GSLB” wizard doesn’t prompt for “PersistenceType”...
CLOUDSTACK-2533	Add Network to VM dialog should only show those network in the dropdown which ar...
CLOUDSTACK-2535	Cleanup port-profiles that gets created on Nexus switch as part of network clean...
CLOUDSTACK-2559	[UI]Resource Name should not be present in UI as it is not available in listASA1...
CLOUDSTACK-2605	Add Network to VM Command button should not be displayed for VMs belonging to B...
CLOUDSTACK-2697	cluster id in alert message is null {alertType:: 1 // dataCenterId:: 1 // podId:...
CLOUDSTACK-2714	Setting tab should not be visible for user accounts ...
CLOUDSTACK-2951	[UI][Mixed-Zone-Management] during “add Instance” wizard, listTemplates API is n...
CLOUDSTACK-2993	[PortableIPRange] remove some of the unused columns if they are not required fro...
CLOUDSTACK-3025	The page and pagesize parameters are not working in ListCfgsByCmds with zoneid s...
CLOUDSTACK-3063	[UI]Dedicating a host to non-root domain which has instances of other domain(ro...
CLOUDSTACK-3101	[DR] list* APIs are not working based on the display* flags ...
CLOUDSTACK-3225	Multiple NPEs when cloudstack-management service is restarted with incomplete ta...
CLOUDSTACK-3265	[Health Check for NS LB]Failure to create a lb health check policy returns a API...
CLOUDSTACK-3325	[UI] [GSLB]: add text box to specify weight for each load balancer participating...
CLOUDSTACK-3406	UI: ZWPS: Zone wizard: Primary storage creation failed after “fix error” in “add...
CLOUDSTACK-3477	resizeDataVolume doesn’t return proper error message when trying to shrink volum...
CLOUDSTACK-3553	[UI]UI remains in the processing state forever when it failed to delete primary ...
CLOUDSTACK-3671	Set Host, Management Network and Storage Network Properly when there are multipl...
CLOUDSTACK-3815	“SNAPSHOT.CREATE” event’s states are not registered on the events table ...
CLOUDSTACK-3895	VM Migration across VMWARE clusters which are added with different switches(Stan...
CLOUDSTACK-3896	[PrimaryStorage] deleteStoragePool is not kicking GC for the downloaded system v...
CLOUDSTACK-3994	Wrong error notification is generated when Primary storage (Cluster wide) is add...

TABLE 1.3 –

Bug ID	Description
CLOUDSTACK-3995	No error notification is generated when Primary storage (Zonelevel) is added wit...
CLOUDSTACK-4071	[UI] - Word 'Default' is misspelled in descripton of integration.api.port under...
CLOUDSTACK-4183	[Non-Contiguous VLAN] Typos Appear in an Error Message...
CLOUDSTACK-5033	ipaddress in management-server.log and api.log are wrong if management servers i...
CLOUDSTACK-5309	version number and requires upgrade fields are not displayed for routers when na...
CLOUDSTACK-5383	Multiselect actions are not reset when a multiselect action is performed...
CLOUDSTACK-5524	[UI]"root disk size" field should be removed from the add instance wizard since ...
CLOUDSTACK-5824	Delete snapshot UI always success...
CLOUDSTACK-5885	When process receives error, loading overlay on listView element does not disapp...
CLOUDSTACK-5912	WARN [c.c.h.v.m.HttpNfcLeaseMO] (Thread-28:null) Unexpected exception...
CLOUDSTACK-5522	Need of one more column i.e., "Name" at Home>Storage - Snapshots...
CLOUDSTACK-5904	Small UI bug...

## Chapter 2

# Compatibility Matrix

### 2.1 Supported OS Versions for Management Server

This section describes the operating systems, browsers, and hypervisors that have been newly tested and certified compatible with CloudStack 4.3. Most earlier OS and hypervisor versions are also still supported for use with 4.3. It might work well on other platforms, but the platforms listed below are the ones that are specifically tested against and are more likely to be able to help troubleshoot if you run into any issues.

---

: that specific versions of the operating systems are tested, so compatibility with CentOS 6.3 may not indicate compatibility with CentOS 6.2, 6.1 and so on.

---

- RHEL versions 5.5, 6.2, 6.3, and 6.4
- CentOS versions 6.3, and 6.4
- Ubuntu 12.04 LTS

### 2.2 Supported Hypervisor Versions

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

- Windows Server 2012 R2 (with Hyper-V Role enabled)
- Hyper-V 2012 R2
- CentOS 6.2 with KVM
- Red Hat Enterprise Linux 6.2 with KVM
- XenServer 6.0.2 (with Hotfix)
- XenServer versions 6.1 and 6.2 SPI with latest hotfixes
- VMware versions 5.0, 5.1, and 5.5
- Bare metal hosts are supported, which have no hypervisor. These hosts can run the following operating systems:
  - RHEL or CentOS, v6.2 or 6.3

---

: Use libvirt version 0.9.10 for CentOS 6.3

---

- Fedora 17
- Ubuntu 12.04

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

## 2.3 Supported External Devices

- NetScaler VPX and MPX versions 9.3 and 10.e
- NetScaler SDX version 9.3
- SRX (Model srx100b) versions 10.3 or higher
- F5 10.1.0 (Build 3341.1084)

## 2.4 Supported Browsers

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, one of the following browsers recommended:

- Internet Explorer versions 10 and 11
- Firefox version 26 or lower
- Google Chrome version 31
- Safari 5

# Chapter 3

## General Upgrade Notes

### 3.1 Depreciation of realhostip.com

The realhostip.com dynamic DNS resolution service is being retired on September 30th, 2014. In advance of that, CloudStack 4.4 and later no longer uses realhostip.com DNS domains or SSL certificates to encrypt Console Proxy or file copy communications.

For latest update about realhostip.com follow [Apache CloudStack Blog](#).

### 3.2 Settings Changes

#### 3.2.1 Console Proxy URL

Please use **\*.realhostip.com** (note the asterisk) as `consoleproxy.url.domain` value in global configs if you are using HTTPS for console proxy. Please note that you need to restart the management server when you change the global config value.

If you started with 4.3, you are likely running the console in HTTP mode and the value of the above global config should be blank.

If switching between HTTP / HTTPS, the console proxy VM has to be destroyed and recreated (available via UI)

#### 3.2.2 Cluster Settings

After upgrading to 4.2 and later, Settings `mem.overporvisioning.factor` and `cpu.overporvisioning.factor` are now at the cluster level and be set to 1 which is the default.

If Global Settings `mem.overporvisioning.factor` and `cpu.overporvisioning.factor` have been changed prior the upgrade to 4.2 and later, the upgrade process will be reset them to 1. Values can be changed by editing clusters settings.

All clusters created after the upgrade will get created with the Global Settings values for `mem.overporvisioning.factor` and `cpu.overporvisioning.factor`.

### 3.3 Active-Directory Authentication (LDAP)

If using Active-Directory (LDAP/LDAPs) as user authentication; Upgrading to 4.3 and later require changes in Global Settings. After upgrading CloudStack to 4.3 or latest, following Global Settings must be change:

Global Settings	Default	New
ldap.user.object	inetOrgPerson	user
ldap.username.attribute	uid	sAMAccountName

### 3.4 SystemVM 32bit deprecated

32bit version of systemvm templates are in the process of being deprecated. Upgrade instructions from this Release Notes use 64bit templates. 32bit systemvm-templates are available for this version on <http://cloudstack.apache.org/systemvm/4.4/>. Follow the dev mailing list for further updates.

# Chapter 4

## Upgrade Instructions for 4.3

This section contains upgrade instructions from prior versions of CloudStack to Apache CloudStack 4.3. 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 Validate 4.3 source code tarball

1. Perform the following to verify the artifacts:

- (a) (optional) Install GPG keys if needed:

```
$
```

- (b) Import the GPG keys stored in the source distribution's KEYS file

```
$
```

Alternatively, download the signing keys, the IDs found in the KEYS file, individually by using a keyserver.

For example:

```
$
```

- (c) Get files, refer to [CloudStack Download Archive Page](#) for source package download.

```
$
```

```
$
```

```
$
```

```
ck-4.3.1-src.  
ck-4.3.1-src.  
ck-4.3.1-src.
```

- (d) Verify signatures and hash files:

```
$
```

```
$
```

```
$
```

```
tack-4.3.1-sr  
udstack-4.3.1
```

Each of these commands should return no output. Any output from them implies that there is a difference between the hash you generated locally and the hash that has been pulled from the server.

- (e) Get the commit hash from the VOTE email.

For example: 4cd60f3d1683a3445c3248f48ae064fb573db2a1. The value changes between releases.

- (f) Create two new temporary directories:

```
$  
$
```

- (g) Check out the 4.3 branch:

```
$  
$ cd  
$
```

ack/git  
xf -

- (h) Unpack the release artifact:

```
$ cd  
$
```

- (i) Compare the contents of the release artifact with the contents pulled from the repo:

```
$
```

Ensure that content is the same.

- (j) Verify the Code License Headers:

```
$ cd  
$
```

login:0.8:che

The build fails if any non-compliant files are present that are not specifically excluded from the ASF license header requirement. You can optionally review the target/rat.txt file after the run completes. Passing the build implies that RAT certifies that the files are compliant and this test is passed.

## 4.2 Upgrade from 4.3.1 to 4.3.2

This section will guide you from CloudStack 4.3.1 to CloudStack 4.3.2.

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

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.

---

: The following upgrade instructions should be performed regardless of hypervisor type.

---

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).
2. Create RPM or Debian packages (as appropriate) and a repository from the 4.3 source, or check the Apache CloudStack downloads page at <http://cloudstack.apache.org/downloads.html> for package repositories supplied by community members.

Instructions for creating packages from the CloudStack source are in the CloudStack Installation Guide.

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

```
$
```

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

```
$
```

5. 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.

```
$
```

```
$
```

6. (KVM Only) If primary storage of type local storage is in use, the path for this storage needs to be verified to ensure it passes new validation. Check local storage by querying the cloud.storage\_pool table:

```
$
```

```
"select id,name,path from cloud.storage_pool where pool_type='Filesystem'
```

If local storage paths are found to have a trailing forward slash, remove it:

```
$
```

```
'update cloud.storage_pool set path="/var/lib/libvirt/images" where path='
```

7. If you are using Ubuntu, follow this procedure to upgrade your packages. If not, skip to step *upgrade-rpm-packages-4.3*.

---

**: 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) Now update your apt package list:

```
$
```

- (b) Now that you have the repository configured, it's time to upgrade the cloudstack-management package.

```
$
```

```
$
```

- (c) Now it's time to start the management server

```
$
```

- (d) If you use it, start the usage server

```
$
```

8. (VMware only) Additional steps are required for each VMware cluster. These steps will not affect running guests in the cloud. These steps are required only for clouds using VMware clusters:

- (a) Stop the Management Server:

```
$
```

- (b) Generate the encrypted equivalent of your vCenter password:

```
$
```

Store the output from this step, we need to add this in cluster\_details table and vmware\_data\_center tables in place of the plain text password

(c) Find the ID of the row of cluster\_details table that you have to update:

```
$
```

```
select
```

(d) Update the plain text password with the encrypted one

```
set value = '_ciphertext_from_step_1_' id = _id_from_step
```

(e) Confirm that the table is updated:

```
select
```

(f) Find the ID of the correct row of vmware\_data\_center that you want to update

```
select
```

(g) update the plain text password with the encrypted one:

```
set password = '_ciphertext_from_step_1_' id = _id_fro
```

(h) Confirm that the table is updated:

```
select
```

(i) Start the CloudStack Management server

```
$
```

9. (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 the CloudStack apt repository as detailed above.
- (b) Stop the running agent.

```
$
```

(c) Update the agent software.

```
$
```

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

```
=
```

If not, add the line.

(e) Start the agent.

```
$
```

10. If you are using CentOS or RHEL, follow this procedure to upgrade your packages. If not, skip to step *restart-system-vms-4.3*.

---

**: 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) Now that you have the repository configured, it's time to install the `cloudstack-management` package by upgrading the older `cloudstack-management` package.

```
$
$
```

- (b) Now it's time to restart the management server

```
$
```

- (c) For KVM hosts, upgrade the `cloudstack-agent` package

```
$
```

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

```
=
```

If not, add the line.

- (e) Restart the agent:

```
$
$
$
```

11. Now it's time to restart the management server

```
$
```

12. \_\_\_\_\_  
: **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`.

## 4.3 Upgrade from 4.3.0 to 4.3.1

This section will guide you from CloudStack 4.3.0 to CloudStack 4.3.1.

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

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.

\_\_\_\_\_  
: The following upgrade instructions should be performed regardless of hypervisor type.

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).
2. Create RPM or Debian packages (as appropriate) and a repository from the 4.3 source, or check the Apache CloudStack downloads page at <http://cloudstack.apache.org/downloads.html> for package repositories supplied by community members.  
Instructions for creating packages from the CloudStack source are in the CloudStack Installation Guide.
3. Stop your management server or servers. Run this on all management server hosts:

```
$
```

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

```
$
```

5. 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.

```
$
```

```
$
```

6. (KVM Only) If primary storage of type local storage is in use, the path for this storage needs to be verified to ensure it passes new validation. Check local storage by querying the cloud.storage\_pool table:

```
$
```

```
"select id,name,path from cloud.storage_pool where pool_type='Filesystem'
```

If local storage paths are found to have a trailing forward slash, remove it:

```
$
```

```
'update cloud.storage_pool set path="/var/lib/libvirt/images" where path=
```

7. If you are using Ubuntu, follow this procedure to upgrade your packages. If not, skip to step *upgrade-rpm-packages-4.3*.

---

**: 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) Now update your apt package list:

```
$
```

- (b) Now that you have the repository configured, it's time to upgrade the cloudstack-management package.

```
$
```

```
$
```

- (c) Now it's time to start the management server

```
$
```

- (d) If you use it, start the usage server

```
$
```

8. (VMware only) Additional steps are required for each VMware cluster. These steps will not affect running guests in the cloud. These steps are required only for clouds using VMware clusters:

- (a) Stop the Management Server:

```
$
```

- (b) Generate the encrypted equivalent of your vCenter password:

```
$
```

Store the output from this step, we need to add this in cluster\_details table and vmware\_data\_center tables in place of the plain text password

```
intf.cli.Jasy
```

(c) Find the ID of the row of cluster\_details table that you have to update:

```
$
```

```
select
```

(d) Update the plain text password with the encrypted one

```
set value = '_ciphertext_from_step_1_' id = __id_from_step
```

(e) Confirm that the table is updated:

```
select
```

(f) Find the ID of the correct row of vmware\_data\_center that you want to update

```
select
```

(g) update the plain text password with the encrypted one:

```
set password = '_ciphertext_from_step_1_' id = __id_fro
```

(h) Confirm that the table is updated:

```
select
```

(i) Start the CloudStack Management server

```
$
```

9. (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 the CloudStack apt repository as detailed above.
- (b) Stop the running agent.

```
$
```

(c) Update the agent software.

```
$
```

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

```
=
```

If not, add the line.

(e) Start the agent.

```
$
```

10. If you are using CentOS or RHEL, follow this procedure to upgrade your packages. If not, skip to step *restart-system-vms-4.3*.

---

**: 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) Now that you have the repository configured, it's time to install the `cloudstack-management` package by upgrading the older `cloudstack-management` package.

```
$  
$
```

- (b) Now it's time to restart the management server

```
$
```

- (c) For KVM hosts, upgrade the `cloudstack-agent` package

```
$
```

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

```
=
```

If not, add the line.

- (e) Restart the agent:

```
$  
$  
$
```

11. Now it's time to restart the management server

```
$
```

12. \_\_\_\_\_  
: **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`.

## 4.4 Upgrade from 4.2.x to 4.3

This section will guide you from CloudStack 4.2.x to CloudStack 4.3.

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

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.

\_\_\_\_\_  
: The following upgrade instructions should be performed regardless of hypervisor type.

- (a) While running the existing 4.2.x 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):

Hypervisor	Description
XenServer	Name: systemvm-xenserver-4.3 Description: systemvm-xenserver-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-xen.vhd.bz2">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-xen.vhd.bz2</a> Zone: Choose the zone where this hypervisor is used Hypervisor: XenServer Format: VHD OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes
KVM	Name: systemvm-kvm-4.3 Description: systemvm-kvm-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-kvm.qcow2.bz2">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-kvm.qcow2.bz2</a> Zone: Choose the zone where this hypervisor is used Hypervisor: KVM Format: QCOW2 OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes
VMware	Name: systemvm-vmware-4.3 Description: systemvm-vmware-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-vmware.ova">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-vmware.ova</a> Zone: Choose the zone where this hypervisor is used Hypervisor: VMware Format: OVA OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes

(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. 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).

3. Create RPM or Debian packages (as appropriate) and a repository from the 4.3 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 11.

Instructions for creating packages from the CloudStack source are in the Installation Guide.

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

```
$
```

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

```
$
```

6. 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.

```
$
```

7. (KVM Only) If primary storage of type local storage is in use, the path for this storage needs to be verified to ensure it passes new validation. Check local storage by querying the `cloud.storage_pool` table:

```
$ "select id,name,path from cloud.storage_pool where pool_type='Filesystem'
```

If local storage paths are found to have a trailing forward slash, remove it:

```
$ 'update cloud.storage_pool set path="/var/lib/libvirt/images" where path=
```

8. If you are using Ubuntu, follow this procedure to upgrade your packages. If not, skip to step 11.

---

**: 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:

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

If you're using your own package repository, change this line to read as appropriate for your 4.3 repository.

- (b) Now update your apt package list:

```
$
```

- (c) Now that you have the repository configured, it's time to upgrade the `cloudstack-management` package.

```
$
```

- (d) Now it's time to start the management server

```
$
```

- (e) If you use it, start the usage server

```
$
```

- 9. (VMware only) Additional steps are required for each VMware cluster. These steps will not affect running guests in the cloud. These steps are required only for clouds using VMware clusters:

- (a) Stop the Management Server:

```
$
```

- (b) Generate the encrypted equivalent of your vCenter password:

```
$
```

```
intf.cli.Jasy
```

Store the output from this step, we need to add this in cluster\_details table and vmware\_data\_center tables in place of the plain text password

- (c) Find the ID of the row of cluster\_details table that you have to update:

```
$
```

```
select
```

- (d) Update the plain text password with the encrypted one

```
set value = '_ciphertext_from_step_1_' id = _id_from_step
```

- (e) Confirm that the table is updated:

```
select
```

- (f) Find the ID of the correct row of vmware\_data\_center that you want to update

```
select
```

- (g) update the plain text password with the encrypted one:

```
set password = '_ciphertext_from_step_1_' id = _id_fro
```

- (h) Confirm that the table is updated:

```
select
```

- (i) Start the CloudStack Management server

```
$
```

- 10. (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 the CloudStack apt repository as detailed above.
- (b) Stop the running agent.

```
$
```

- (c) Update the agent software.

```
$
```

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

```
=
```

If not, add the line.

- (e) Start the agent.

```
$
```

11. If you are using CentOS or RHEL, follow this procedure to upgrade your packages. If not, skip to step 14.

---

**: 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:

```
[ name= ]
name=
baseurl=
enabled=
gpgcheck=
```

If you are using the community provided package repository, change the base url to `http://cloudstack.ap-get.eu/rhel/4.3/`

If you're using your own package repository, change this line to read as appropriate for your 4.3 repository.

- (b) Now that you have the repository configured, it's time to install the `cloudstack-management` package by upgrading the older `cloudstack-management` package.

```
$
```

- (c) Now it's time to restart the management server

```
$
```

- (d) For KVM hosts, upgrade the `cloudstack-agent` package

```
$
```

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

```
=
```

If not, add the line.

(f) Restart the agent:

```
$
$
$
```

12. Now it's time to restart the management server

```
$
```

13. Once you've upgraded the packages on your management servers, you'll need to restart the system VMs. 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. Changing this parameter will require management server restart. Also 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:

```
1          ( )
          ( )
1          ( )
          ( )
4          ( )
          ( )
```

14. \_\_\_\_\_  
: **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`.

## 4.5 Upgrade from 4.1.x to 4.3

This section will guide you from CloudStack 4.1.x versions to CloudStack 4.3.

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

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).

2. \_\_\_\_\_  
: The following upgrade instructions should be performed regardless of hypervisor type.

(a) While running the existing 4.1.x 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):

Hypervisor	Description
XenServer	Name: systemvm-xenserver-4.3 Description: systemvm-xenserver-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-xen.vhd.bz2">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-xen.vhd.bz2</a> Zone: Choose the zone where this hypervisor is used Hypervisor: XenServer Format: VHD OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes
KVM	Name: systemvm-kvm-4.3 Description: systemvm-kvm-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-kvm.qcow2.bz2">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-kvm.qcow2.bz2</a> Zone: Choose the zone where this hypervisor is used Hypervisor: KVM Format: QCOW2 OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes
VMware	Name: systemvm-vmware-4.3 Description: systemvm-vmware-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-vmware.ova">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-vmware.ova</a> Zone: Choose the zone where this hypervisor is used Hypervisor: VMware Format: OVA OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes

3. Create RPM or Debian packages (as appropriate) and a repository from the 4.3 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 11.

Instructions for creating packages from the CloudStack source are in the Installation Guide.

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

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

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

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

6. 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
```

7. (KVM Only) If primary storage of type local storage is in use, the path for this storage needs to be verified to ensure it passes new validation. Check local storage by querying the cloud.storage\_pool table:

```
#mysql -u cloud -p -e "select id,name,path from cloud.storage_pool where pool_type='Filesystem'"
```

If local storage paths are found to have a trailing forward slash, remove it:

```
#mysql -u cloud -p -e 'update cloud.storage_pool set path="/var/lib/libvirt/images" where path="/var/lib/libvirt/images/'
```

8. If you are using Ubuntu, follow this procedure to upgrade your packages. If not, skip to step 11.

---

**: 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.apache.org/ubuntu/4.3.2/ubuntu/ main amd64 i386 armel armhf mips mipsel powerpc
```

If you're using your own package repository, change this line to read as appropriate for your 4.3 repository.

- (b) Now update your apt package list:

```
$
```

- (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.

```
$
```

- (d) You will need to manually install the `cloudstack-agent` package:

```
$
```

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:

```
=
```

If not, add the line.

- (f) Restart the agent:

```
[Redacted terminal output]
```

- 9. (VMware only) Additional steps are required for each VMware cluster. These steps will not affect running guests in the cloud. These steps are required only for clouds using VMware clusters:

- (a) Stop the Management Server:

```
[Redacted terminal output]
```

- (b) Generate the encrypted equivalent of your vCenter password:

```
[Redacted terminal output] tf.cli.Jasypt
```

Store the output from this step, we need to add this in `cluster_details` table and `vmware_data_center` tables in place of the plain text password

- (c) Find the ID of the row of `cluster_details` table that you have to update:

```
[Redacted terminal output]
```

```
select
```

- (d) Update the plain text password with the encrypted one

```
set value = '_ciphertext_from_step_1_' id = _id_from_step
```

- (e) Confirm that the table is updated:

```
select
```

- (f) Find the ID of the correct row of `vmware_data_center` that you want to update

```
select
```

- (g) update the plain text password with the encrypted one:

```
set password = '_ciphertext_from_step_1_' id = _id_fr
```

- (h) Confirm that the table is updated:

```
select
```

- (i) Start the CloudStack Management server

```
[Redacted terminal output]
```

- 10. (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 the CloudStack yum repository as detailed above.
- (b) Stop the running agent.

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

- (c) Update the agent software.

```
# yum update cloudstack-agent
```

- (d) Start the agent.

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

- 11. 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.

---

- (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:

```
[ ]
name=
baseurl=
enabled=
gpgcheck=
```

If you are using the community provided package repository, change the base url to `http://cloudstack.ap-get.eu/rhel/4.3/`

If you're using your own package repository, change this line to read as appropriate for your 4.3 repository.

- (b) Now that you have the repository configured, it's time to install the `cloudstack-management` package by upgrading the older `cloudstack-management` package.

```
$
```

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

```
$
```

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

```
=
```

If not, add the line.

- (e) Restart the agent:

- 12. Now it's time to restart the management server

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

- Once you've upgraded the packages on your management servers, you'll need to restart the system VMs. 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. Changing this parameter will require management server restart. Also 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:

```
1          ( )
          ( )
1          ( )
          ( )
4          ( )
          ( )
```

- \_\_\_\_\_
  - : 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`.

## 4.6 Upgrade from 4.0.x to 4.3

This section will guide you from CloudStack 4.0.x versions to CloudStack 4.3.

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.

- 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 4.3 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 9 or step 10.

Instructions for creating packages from the CloudStack source are in the Installation Guide.

---

: The following upgrade instructions should be performed regardless of hypervisor type.

---

(a) While running the existing 4.0.0 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):

Hypervisor	Description
XenServer	<p>Name: systemvm-xenserver-4.3            Description: systemvm-xenserver-4.3            URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-xen.vhd.bz2">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-xen.vhd.bz2</a>            Zone: Choose the zone where this hypervisor is used            Hypervisor: XenServer            Format: VHD            OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown)            Extractable: no            Password Enabled: no            Public: no            Featured: no            Routing: yes</p>
KVM	<p>Name: systemvm-kvm-4.3            Description: systemvm-kvm-4.3            URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-kvm.qcow2.bz2">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-kvm.qcow2.bz2</a>            Zone: Choose the zone where this hypervisor is used            Hypervisor: KVM            Format: QCOW2            OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown)            Extractable: no            Password Enabled: no            Public: no            Featured: no            Routing: yes</p>
VMware	<p>Name: systemvm-vmware-4.3            Description: systemvm-vmware-4.3            URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-vmware.ova">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-vmware.ova</a>            Zone: Choose the zone where this hypervisor is used            Hypervisor: VMware            Format: OVA            OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown)            Extractable: no            Password Enabled: no            Public: no            Featured: no            Routing: yes</p>

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
```

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

```
id="userAuthenticators" class="com.cloud.utils.component.AdapterList"
    name="Adapters"

    bean="PlainTextUserAuthenticator"
    bean="MD5UserAuthenticator"
    bean="LDAPUserAuthenticator"
```

`PlainTextUserAuthenticator` works the same way `MD5UserAuthenticator` worked prior to 4.3.

8. If you are using Ubuntu, 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 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:

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

```
If you're using your own package repository, change this line to read as appropriate for your 4.3 repository.
```

- (b) Now update your apt package list:

```
$
```

- (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.

```
$
```

- (d) You will need to manually install the `cloudstack-agent` package:

```
$
```

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:

```
=
```

If not, add the line.

- (f) Restart the agent:

- (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
```

- (h) Once the agent is running, you can uninstall the old `cloud-*` packages from your system:

9. If you are using CentOS or RHEL, follow this procedure to upgrade your packages. If not, skip to step 11.

---

**: 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:

```
[ ]
name=
baseurl=
enabled=
gpgcheck=
```

If you are using the community provided package repository, change the baseurl to `http://cloudstack.apache.org/repos/centos/4.3/`

If you're using your own package repository, change this line to read as appropriate for your 4.3 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.

```
$
```

- (c) For KVM hosts, you will need to upgrade the `cloud-agent` package, similarly installing the new version as `cloudstack-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:

```
=
```

If not, add the line.

- (e) Restart the agent:

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:

```
1          ( )
1          ( )
4          ( )
          ( )
```

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`.

## 4.7 Upgrade from 3.0.x to 4.3

This section will guide you from Citrix CloudStack 3.0.x to Apache CloudStack 4.3. Sections that are hypervisor-specific will be called out with a note.

---

: The following upgrade instructions should be performed regardless of hypervisor type.

---

1. While running the existing 3.0.x system, log in to the UI as root administrator.
2. In the left navigation bar, click Templates.
3. In Select view, click Templates.
4. Click Register template.  
The Register template dialog box is displayed.
5. In the Register template dialog box, specify the following values (do not change these):

Hypervisor	Description
XenServer	Name: systemvm-xenserver-4.3 Description: systemvm-xenserver-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template-2014-06-23-master-xen.vhd.bz2">http://download.cloud.com/templates/4.3/systemvm64template-2014-06-23-master-xen.vhd.bz2</a> Zone: Choose the zone where this hypervisor is used Hypervisor: XenServer Format: VHD OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes
KVM	Name: systemvm-kvm-4.3 Description: systemvm-kvm-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template-2014-06-23-master-kvm.qcow2.bz2">http://download.cloud.com/templates/4.3/systemvm64template-2014-06-23-master-kvm.qcow2.bz2</a> Zone: Choose the zone where this hypervisor is used Hypervisor: KVM Format: QCOW2 OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes
VMware	Name: systemvm-vmware-4.3 Description: systemvm-vmware-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template-2014-06-23-master-vmware.ova">http://download.cloud.com/templates/4.3/systemvm64template-2014-06-23-master-vmware.ova</a> Zone: Choose the zone where this hypervisor is used Hypervisor: VMware Format: OVA OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes

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

1. (KVM on RHEL 6.0/6.1 only) If your existing CloudStack deployment includes one or more clusters of KVM hosts running RHEL 6.0 or RHEL 6.1, perform the following:

- (a) Ensure that you upgrade the operating system version on those hosts before upgrading CloudStack  
To do that, change the yum repository for each system with CloudStack packages, that implies that all the Management Servers and any hosts that have the KVM agent.
- (b) Open `/etc/yum.repos.d/cloudstack.repo` on any systems that have CloudStack packages installed.
- (c) Edit as follows:

```
[
  name=
  baseurl=
  enabled=
  gpgcheck=
  [
    name=
    baseurl=
    enabled=
    gpgcheck=
```

If you are using the community provided package repository, change the baseurl to `http://cloudstack.apache.org/repos/4.3/`

If you are using your own package repository, change this line to read as appropriate for your 4.3 repository.

- (d) Now that you have the repository configured, upgrade the host operating system from RHEL 6.0 to 6.3:

```
# yum upgrade
```

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

```
# service 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 > cloud-backup.dmp
# mysqldump -u root -pmysql_password cloud_usage > cloud-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 8.

---

**: 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:

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

If you're using your own package repository, change this line to read as appropriate for your 4.3 repository.

(b) Now update your apt package list:

```
$
```

(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.

```
$
```

(d) You will need to manually install the `cloudstack-agent` package:

```
$
```

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:

```
=
```

If not, add the line.

(f) Restart the agent:

(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
```

(h) Once the agent is running, you can uninstall the old `cloud-*` packages from your system:

7. If you are using CentOS or RHEL, 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 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:

```
[
name=
baseurl=
enabled=
gpgcheck=
```

If you are using the community provided package repository, change the baseurl to `http://cloudstack.apache.org/repos/centos/4.3/`

If you're using your own package repository, change this line to read as appropriate for your 4.3 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.

```
$
```

- (c) For KVM hosts, you will need to upgrade the `cloud-agent` package, similarly installing the new version as `cloudstack-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:

```
=
```

If not, add the line.

- (e) Restart the agent:

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 4.2.x.

- (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/cloudstack/management/components.xml
```

---

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

---

9. After upgrading to 4.3, 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 `componentContext.xml`, and make `PlainTextUserAuthenticator` as the default authenticator (1st entry in the `userAuthenticators` adapter list is default)

```
id="userAuthenticators" class="com.cloud.utils.component.AdapterList"
    name="Adapters"

    bean="PlainTextUserAuthenticator"
    bean="MD5UserAuthenticator"
    bean="LDAPUserAuthenticator"
```

`PlainTextUserAuthenticator` works the same way `MD5UserAuthenticator` worked prior to 4.3

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.

---

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

- (e) Upgrade all the existing bridge names to new bridge names by running this script:

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

- (f) Install a libvirt hook with the following commands:

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

- (g) Restart libvirtd.

```
# service libvirtd restart
```

- (h) Start the agent.

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

- (i) 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.

---

: 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.x, 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.

---

: 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 `cloudstack-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 cloudstack-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 4.3. The supported versions are XenServer 5.6 SP2 and 6.0.2. Instructions for upgrade can be found in the CloudStack 4.3 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.

---

: (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/xensource/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`.

```
= 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/N FSSR.py	/opt/xenresource/sm/NFSSR.py
/usr/lib64/cloud/common /scripts/vm/hypervisor/xenserver/setupxenserver.sh	/opt/xenresource/bin/setupxenserver.sh
/usr/lib64/cloud/common /scripts/vm/hypervisor/xenserver/make_migratable.sh	/opt/xenresource/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.xenresource.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.xenresource.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:

---

: 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 ... =false '{print $NF}'; do xe pbo
```

(l) 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.

---

## 4.8 Upgrade from 2.2.14 to 4.3

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 4.3, 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.

**: 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 4.3.

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-4.3 Description: systemvm-xenserver-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-xen.vhd.bz2">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-xen.vhd.bz2</a> Zone: Choose the zone where this hypervisor is used Hypervisor: XenServer Format: VHD OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes
KVM	Name: systemvm-kvm-4.3 Description: systemvm-kvm-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-kvm.qcow2.bz2">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-kvm.qcow2.bz2</a> Zone: Choose the zone where this hypervisor is used Hypervisor: KVM Format: QCOW2 OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes
VMware	Name: systemvm-vmware-4.3 Description: systemvm-vmware-4.3 URL: <a href="http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-vmware.ova">http://download.cloud.com/templates/4.3/systemvm64template2014-06-23-master-vmware.ova</a> Zone: Choose the zone where this hypervisor is used Hypervisor: VMware Format: OVA OS Type: Debian GNU/Linux 7.0 (64-bit) (or the highest Debian release number available in the dropdown) Extractable: no Password Enabled: no Public: no Featured: no Routing: yes

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. (KVM on RHEL 6.0/6.1 only) If your existing CloudStack deployment includes one or more clusters of KVM hosts running RHEL 6.0 or RHEL 6.1, perform the following:

- (a) Ensure that you upgrade the operating system version on those hosts before upgrading CloudStack

To do that, change the yum repository for each system with CloudStack packages, that implies that all the Management Servers and any hosts that have the KVM agent.

- (b) Open `/etc/yum.repos.d/cloudstack.repo` on any systems that have CloudStack packages installed.
- (c) Edit as follows:

```
[ ]
name=
baseurl=
enabled=
gpgcheck=
[ ]
name=
baseurl=
enabled=
gpgcheck=
```

If you are using the community provided package repository, change the baseurl to `http://cloudstack.apache.org/repos/rhel/4.2/`

If you are using your own package repository, change this line to read as appropriate for your 4.2 repository.

- (d) Now that you have the repository configured, upgrade the host operating system from RHEL 6.0 to 6.3:

```
# yum upgrade
```

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

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

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

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

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

11. 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.
12. If you are using Ubuntu, 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 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:

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

If you're using your own package repository, change this line to read as appropriate for your 4.2 repository.

- (b) Now update your apt package list:

```
$
```

- (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.

```
$
```

- (d) On KVM hosts, you will need to manually install the `cloudstack-agent` package:

```
$
```

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:

```
=
```

If not, add the line.

- (f) Restart the agent:

- (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
```

- (h) Once the agent is running, you can uninstall the old `cloud-*` packages from your system:

13. If you are using CentOS or RHEL, follow this procedure to upgrade your packages. If not, skip to step 14.

**: 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:

```
[ ]
name=
baseurl=
enabled=
gpgcheck=
```

If you are using the community provided package repository, change the baseurl to `http://cloudstack.ap-get.eu/rhel/4.2/`

If you're using your own package repository, change this line to read as appropriate for your 4.3 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.

```
$
```

- (c) For KVM hosts, you will need to upgrade the `cloud-agent` package, similarly installing the new version as `cloudstack-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:

```
=
```

If not, add the line.

- (e) Restart the agent:

14. 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.

---

**:** 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:

---

- (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/cloudstack/management/components.xml
```

15. After upgrading to 4.3, API clients are expected to send plain text passwords for login and user creation, instead of MD5 hash. If API client changes are not acceptable, following changes are to be made for backward compatibility:

Modify `componentContext.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 4.2.

16. 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 this version.

- (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/cloudstack/management/db.properties
```

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

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

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

- (Optional) For `encryption_type`, use `file` or `web` to indicate the technique used to pass in the database encryption password. Default: `file`.
  - (Optional) For `management_server_key`, substitute the default key that is used to encrypt confidential parameters in the `properties` file. Default: `password`. It is highly recommended that you replace this with a more secure value
  - (Optional) For `database_key`, substitute the default key that is used to encrypt confidential parameters in the CloudStack database. Default: `password`. It is highly recommended that you replace this with a more secure value.
18. 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.
  19. 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.

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

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

21. (KVM only) Perform the following additional steps on 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) Copy the contents of the `agent.properties` file to the new `agent.properties` file by using the following command

```
's/com.cloud.agent.resource.computing.LibvirtComputingResource/com.cloud.hypervisor.kvm
```

- (e) Upgrade all the existing bridge names to new bridge names by running this script:

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

- (f) Install a libvirt hook with the following commands:

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

- (g) Restart `libvirtd`.

```
# service libvirtd restart
```

(h) Start the agent.

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

(i) 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.

22. 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.

23. 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 cloudstack-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.

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

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

The content should be like the following:

```
1          ( )
          ( )
1          ( )
          ( )
4          ( )
          ( )
```

24. 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:

```
9
```

#### **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:

9

25. 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.
26. 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:

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

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:

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.

---

: (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/xensource/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/share/cloudstack -common/scripts/vm/hype rvisor/xenserver/xenser ver60/NFSSR.py	/opt/xensource/sm/NFSSR.py
/usr/share/cloudstack -common/scripts/vm/hype rvisor/xenserver/setupx ensERVER.sh	/opt/xensource/bin/setupxenserver.s
/usr/lib64/cloudstack -common/scripts/vm/hype rvisor/xenserver/make_m igratable.sh	/opt/xensource/bin/make_migratable.

(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.xensource.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.xensource.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/xensource/bin/setupxenserver.sh
```

---

: 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 ... =false '{print $NF}'; do xe p
```

(l) On each slave host in the Xen pool, repeat these steps, starting from “manually live migrate VMs.”



# Chapter 5

## API Changes

### 5.1 Introduced in 4.3.1

API	Description
importLdapUsers	New parameters: account (optional)

### 5.2 Introduced in 4.3

#### 5.2.1 Hyper-V

API	Description
addPrimaryStorage	To this existing API, the following field has been added: smb
addImageStore	To this existing API, the following field has been added: smb

#### 5.2.2 Reporting CPU Sockets

API	Description
listhost	To this existing API, the following request parameter has been added: hypervisor. The new response parameter added is: cpusockets

#### 5.2.3 Publishing Alerts Using the Web ROOT Admin API

API	Description
generateAlert	A new API has been added to generate and publish alerts for usage services. The usage services can be installed on a different host or the same host where the Management Server is running. This API is available only to the Root Admin.
listAlerts	To this existing API, a new response parameter has been added: name. An alert can be searched on the basis of alert name.

## 5.2.4 Dynamic Compute Offering

API	Description
DeployVM	To this existing API, the following request parameter has been added: details.
ScaleVM	To this existing API, the following request parameter has been added: details.
ScaleSystemVM	To this existing API, the following request parameter has been added: details.
UpgradeVM	To this existing API, the following request parameter has been added: details.
UpgradeSystemVM	To this existing API, the following request parameter has been added: details.

## 5.2.5 Enhanced Upgrade for Virtual Routers

API	Description
upgradeRouterTemplate	<p>This is a new API which has been added in this release. The following are the request parameters:</p> <ul style="list-style-type: none"> <li>• id: Upgrade the specified VR</li> <li>• zone_id : Upgrade the VRs in the specified zone.</li> <li>• pod_id : Upgrade the VRs in the specified pod.</li> <li>• cluster_id : Upgrade the VRs in the specified cluster.</li> <li>• domain_id : Upgrade the VRs belonging to the specified domain.</li> <li>• account_id : Upgrade the VRs belonging to the specified account.</li> </ul>
listRouters	<p>For this existing API, the following request parameters has been added:</p> <ul style="list-style-type: none"> <li>• version: Lists routers by specified version.</li> <li>• zone_id : lists routers in specified zone.</li> <li>• pod_id : Lists routers in the specified pod.</li> <li>• cluster_id : Lists routers in the specified cluster.</li> <li>• domain_id : Lists routers owned by specified domain.</li> <li>• account: Lists routers owned by specified account.</li> </ul> <p>The following response parameters has been added:</p> <ul style="list-style-type: none"> <li>• version : (String) The router version. For example, 4.3.0.</li> <li>• requiresupgrade: (Boolean) The flag to indicate if the router template requires an upgrade.</li> </ul>