CumuLogic Installation Guide

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CumuLogic Installer

CumuLogic Installer downloads and installs CumuLogic Controller on the local environment for on-premise (private) cloud. This is currently supported on CentOS and Red Hat Linux (RHEL) operating systems.

System Requirements

1. Hardware requirements: 4 core/8 GB.
2. 100GB free disk space recommended. This space does not include the space required for storing the database backup, binary logs and other artifacts from user deployments. The additional space can be a NFS mount or a separate volume on secondary storage. Size will depend on number and Size of DB instances you are expecting to manage under this controller. You can start with 500GB.
3. Server running the latest versions of CentOS 6.x or Red Hat Linux (RHEL) operating systems.
4. Root access, since the Installer runs as root user on the host machine.
5. Installer requires working Java in PATH. You can run "java –version" to confirm. The installer comes with JDK1.6 bundled. It will update JAVA_HOME if not found.
6. Check and set umask to "022"
7. Update file descriptor limit to 10240 by editing /etc/security/limits.conf and add below entries,

```
*       soft    nofile  64000
*       hard    nofile  64000
*       soft    nproc   32000
*       hard    nproc   32000
```

8. Disable SELinux. Check with "sestatus" command, if it is disabled.
   Edit /etc/selinux/config and set it to 'disabled' & type: 'setenforce disabled' to change it immediately.

9. Install following packages on the VM instance if not already installed:

   # openssh-clients
   # openssh-server
   # openssl library {Example for CentOS 6.2: `openssl098e.x86_64`}
   # java-1.6.0-openjdk
   # libaio
   # zip/unzip/bzip2/gzip

   Example -
   # yum install –y openssh-clients.x86_64 openssh-server.x86_64 openssl098e.x86_64 java-1.6.0-openjdk.x86_64 libaio.x86_64 zip.x86_64 unzip.x86_64 bzip2.x86_64 gzip.x86_64

10. CumuLogic Platform uses MySQL database. You'll need to provide the credentials in the properties file during the install if you already have a working mysql-server. The Installer will install mysql-server from yum repository if it doesn't find a working mysql-server. The MySQL user name specified in the properties file will be ignored in this case.

11. If you are running iptables, make sure to update iptables rules to allow 80, 8080, 7080 at the very minimum. Iptables should allow a connection from its own IP address on all ports. The installer will look for the iptables rules and will update any missing rules. If you choose not to enable iptables, then simply select "No" when prompted during the installation process.

12. Credentials for at least one target cloud, such as Citrix CloudPlatform, Apache CloudStack, OpenStack, Eucalyptus, VMware vCloud, or public clouds such as Amazon EC2, Rackspace, HP Cloud, etc.

Installation

Request CumuLogic Installer download from cumulogic.com/downloads. The Installer requires the host to have Internet access and at least 100GB free disk space.

1) Extract the installer bundle "`tar -zxvf CumuLogic-Installer.tar.gz`"
2) Make sure you meet the system requirements as specified in requirements section.

3) Edit the **cumulogic.properties** file and provide the required information for install location, DB username, password, hostname, SMTP server/user information, etc.

INSTALL_LOCATION=<installation-location> (example /opt/cl; should not be within same directory where the installer is running)

MYSQL_USERNAME=<username> (leave blank if MySQL is not installed)

MYSQL_PASSWORD=<password> (leave it blank if MySQL is not installed)

HOSTNAME=<FQDN or ipaddress> (hostname where you want to install CumuLogic PaaS)

SMTP_HOST=<SMTP_Host name> (CumuLogic PaaS will use this to send email notifications out)

SMTP_USER<smtp user name> (CumuLogic PaaS will use this user name to send notifications emails out)

SMTP_PASSWORD=<password> (password for SMTP user)

ADMIN_EMAIL=<email-id of admin user where the notification emails will be sent>

*** If you do not have MySQL server running, CumuLogic Installer will install MySQL server and configure it. Please leave the MySQL user/password fields empty in the properties file. The Installer will prompt you for the password.*

4) Run "`<path-to-installer>/cumulogic-installer.sh <option> `"

Available Options

Usage: please provide one of the options below:

-install Installs CumuLogic Controller from CumuLogic repository. Requires the system to have Internet access.

-update Updates the previously installed CumuLogic Controller. This option downloads the latest updates from CumuLogic repository.

-download Downloads all required CumuLogic packages to the local repository for offline installation of the CumuLogic Controller. Refer to options –installlocal and –updatelocal.

-installlocal Installs the CumuLogic Controller from the local repository of CumuLogic packages. See options -download to download before using this option.

-updatelocal Updates the CumuLogic Controller with the latest CumuLogic packages. See options -download to download updates before using this option.

-cleanup WARNING: USE THIS OPTION WITH CARE. Removes the previous installation of the Controller. This option removes all internal database and configurations. Use this option to re-install CumuLogic Controller.

-force Override system checks for required CPU, memory and disk space for installing the CumuLogic Controller.

-help Print this help.

Notes:

Running cumulogic-installer.sh without any arguments will produce the usage summary.

The CumuLogic Controller setup requires Internet access as the installer needs to download the required files from CumuLogic repository. The Installer can be run in two different ways depending on network access for the target host on which you are planning to host CumuLogic Controller:

1. If the CumuLogic Controller host has Internet access you can run the cumulogic-installer.sh with the "-install" option, which will download the required packages/files and install them. For example, "<path-to-installer>/cumulogic-installer.sh –install".

2. If your host does not have Internet access, the installation is a two-step process:
    a. Identify a host with Internet access (this is the host where you will download the repository for local install from CumuLogic repository).
    b. Run the installer with the "-download" option. For example, "<path-to-installer>/cumulogic-installer.sh –download". This will download all the required files under <path-to-installer>/repo directory. Once all required files are downloaded, copy the whole "CumuLogic-Installer" directory along with repo directory to the host where you want to setup the CumuLogic controller.
    On the host, run the installer with "–installlocal" option. For example, "<path-to-installer>/cumulogic-installer.sh –installlocal"

    This will install and configure CumuLogic controller on the host server. Once the installation completes successfully, CumuLogic Controller will be up and running.

You are now ready to add image templates to CumuLogic Controller.

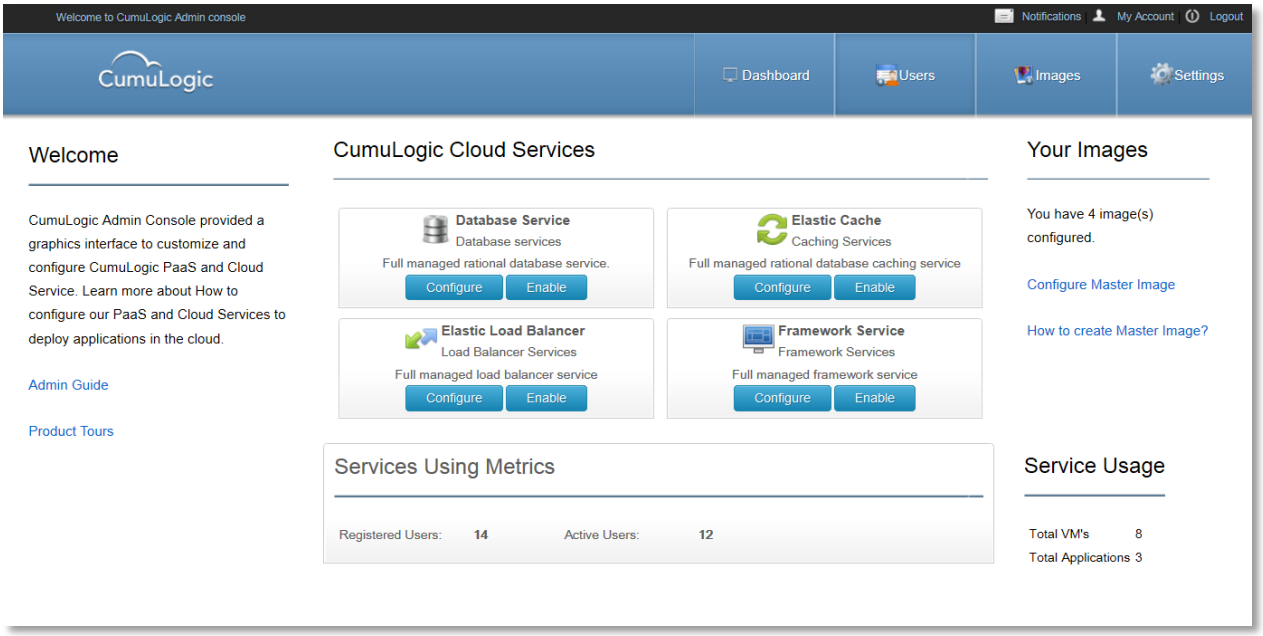
CumuLogic Admin Console

After installing the CumuLogic Platform, login as "admin". The Admin Console is accessible from http://<domain-name>/cl, where the domain-name is the DNS name or the IP address of your PaaS Server.

CumuLogic Installer creates "admin" and "a default "cumulogic user" during installation.

Admin Dashboard

Your landing page is the Admin Dashboard. The dashboard provides information about your images, users and services that are provisioned. The dashboard also provides shortcuts to configure defaults for services, import images etc.



Terminology

- **CumuLogic Image** – Base Centos 6.x that Image contains all the pre-requisite packages defined in this guide.
- **Target Cloud** – refers to one or more Infrastructure-as-a-Service clouds such as Amazon EC2, Rackspace Cloud Servers, VMware vCloud, Eucalyptus, HP Cloud or any other OpenStack- or CloudStack-powered clouds.
- **Services** – application infrastructure services such as databases, load balancers, cache servers, etc. Each tier of infrastructure is delivered "as a service."
- **Email Templates** – templates for emails sent out by the CumuLogic platform that you can customize for your deployment.

- **VM pool** – A dedicated resource pool of pre-provisioned virtual machines, this can be used in absence of one of the supported IaaS to provision service and deploy applications.
- **Subscriptions** – Pre-packaged service bundles created for your users to be able to deploy specific service in few clicks without having to go thru all selection options.

Target Cloud and CumuLogic Controller Interaction Checklist

Follow this checklist to ensure that your cloud is functioning as expected with CumuLogic Platform.

1) Confirm that the target cloud URI is accessible from CumuLogic platform, specifically that there is no network isolation between the end point URI and the Controller. You can verify this by making an API call from the Controller to the target cloud.
2) Check that you are able to launch a VM on the target cloud from the Platform Controller using the APIs on command line.
3) CumuLogic Controller should have network access to the VM provisioned in the target cloud. Controller should have network access to vlans where the VMs are going to be created. Ideally Controller should have full access to the network where the vms are being provisioned. For example, Controller should be able to ssh to vms created, health monitoring agents should be able to communicate with the server , controller should be able to validate application access during deployment etc. Controller will configure appropriate firewall rules Security group/NAT rules on each vm to open specific ports for access.

Image Template Management

CumuLogic controller provisions the application frameworks and services on the target IaaS cloud using the image template. The image template should meet the pre-requisites listed below.

Creating CumuLogic Image

Follow these steps to create CumuLogic image:

1. Launch a VM instance with the base CentOS 6.x or RHEL image template in your cloud. It is recommended that the VM has min 10GB root volume.

2. Install following packages on the VM instance if not already installed,

   - openssh-clients
   - openssh-server
   - openssl library {Example for CentOS 6.2: `openssl098e.x86_64`}
   - java-1.6.0-openjdk
   - libaio
   - zip/unzip/bzip2/gzip
   - perl
   - erlang

   You can install these packages with below command,

   ```
   # yum install -y openssh-clients.x86_64 openssh-server.x86_64
   openssl098e.x86_64 java-1.6.0-openjdk.x86_64 libaio.x86_64
   zip.x86_64 unzip.x86_64 bzip2.x86_64  gzip.x86_64 perl.x86_64
   perl-Time-HiRes.x86_64 perl-Compress-Zlib.x86_64
   ```

   To Install "erlang" you need to add epel-repo,

   a) `rpm -Uvh http://download.fedoraproject.org/pub/epel/6/x86_64/epel-release-6-8.noarch.rpm`

   b) yum install -y erlang

3. Cleanup the instance before taking a snapshot by removing the following files:

   # /etc/udev/rules.d/70-persistent-net.rules (if it exists)
   rm -f /etc/udev/rules.d/70-persistent-net.rules

4. **Disable iptables** – `service iptables stop` & `chkconfig iptables off`
5. Check and set umask to "022"
6. Update file descriptor limit to 10240 by editing /etc/security/limits.conf and add below entries,

   ```
   *      soft    nofile  64000
   *      hard    nofile  64000
   *      soft    nproc   32000
   ```

```
*       hard    nproc  32000
```

7. Disable SELinux. Check with "sestatus" command, if it is disabled.

   Edit /etc/selinux/config and set it to 'disabled' & type: 'setenforce disabled' to change it immediately.

8. Reboot the vm instance and check.
9. Remove the /etc/udev/rules.d/70-persistent-net.rules (if it exists)

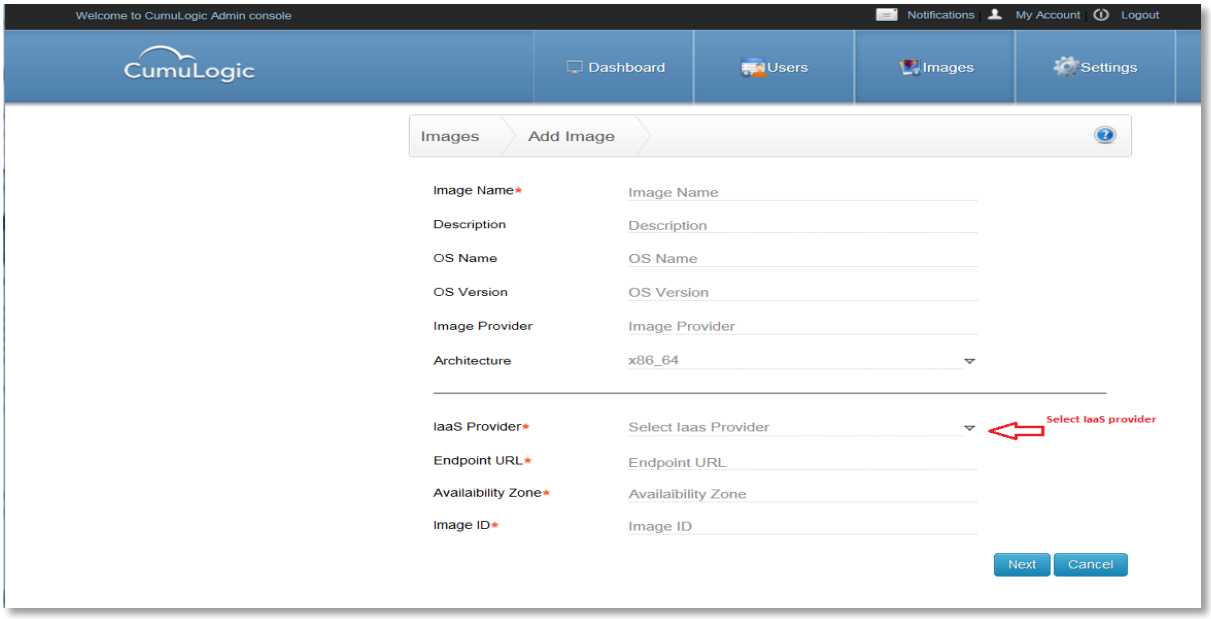
   rm -f /etc/udev/rules.d/70-persistent-net.rules

10. Take a snapshot and create an image.
11. Test the image by launching a VM with this image.
12. Use Image-ID to import the image on the Add Image screen.

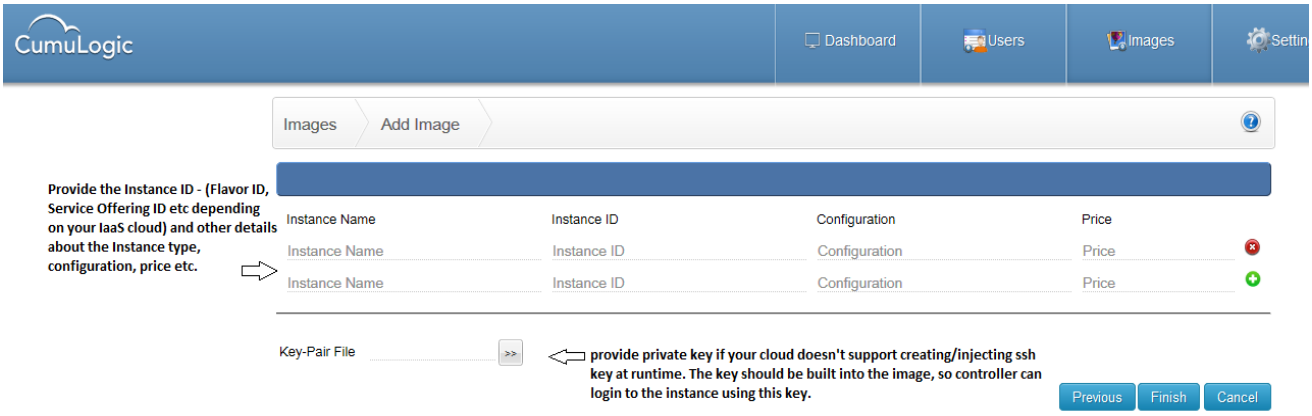
CumuLogic Controller uses ssh to login to the VM to configure during provisioning and it will provision the VM with the ssh key.

If your IaaS cloud does not support **SSH key creation at runtime**, you will need to create a root ssh key and copy the id_rsa to /root/.ssh/authorized_keys in addition to copying the id_rsa.pub file as .pem and importing it along with the image. This key will be used by the CumuLogic Controller to login to the instances created with this image.

Once you have the image created in the target cloud, you can add the image details on "Add Image" screen by clicking on "Images => Add Image."



Click on for details on each field and follow onscreen instructions.



SSH Key Pair File

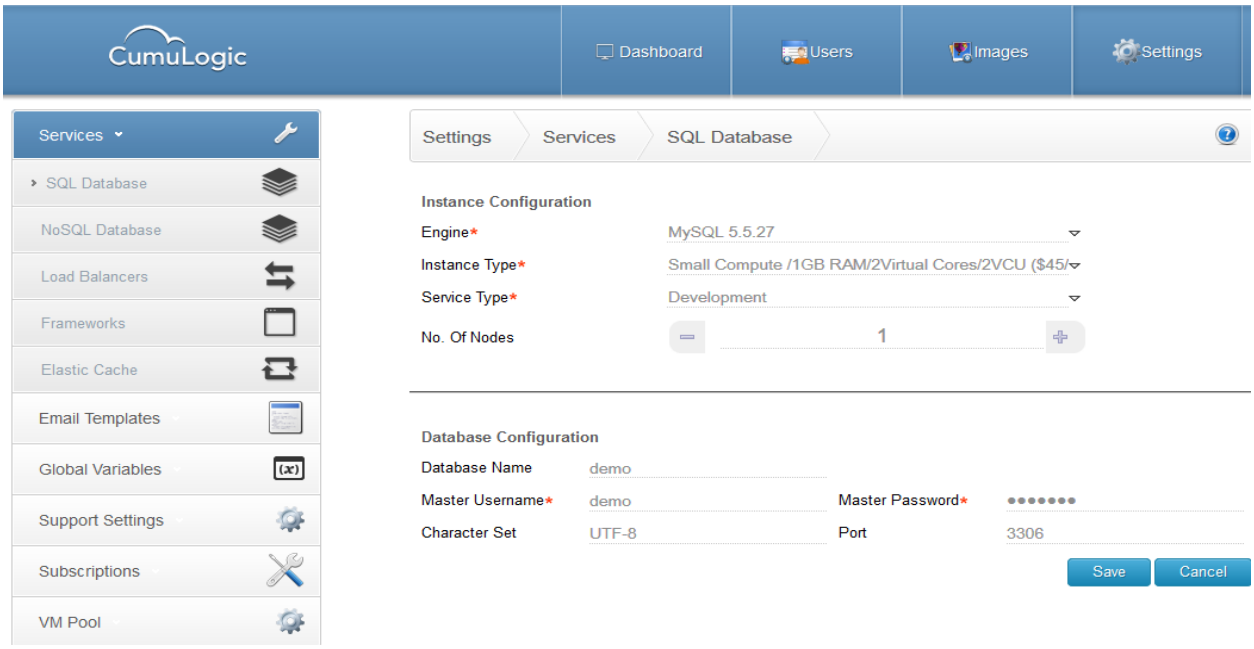
You can import the keypair along with the image from the "Add Image" screen. The SSH key is required for configuring and managing the VMs. You can provide the KeyFile if your image template has a key built-in and your cloud (IaaS) does not provide the capability to create a SSH key via APIs, and your IaaS cloud doesn't allow

to inject the key into the VM during provisioning. Most of the current clouds allow you to create the key at runtime, so you can ignore this field. CumuLogic PaaS will create a keypair and use it during provisioning VMs.

Upon successful import, CumuLogic Controller can now use these images for provisioning with the keypair if you provided one.

Managing Global Settings

In the "Settings" screen within the Admin Console, you can manage some of the global settings and defaults.



- Under Services, you can define the default values for various services, including databases, load balancers, frameworks, elastic cache etc. As Admin you can define the defaults for engine, availability zone, size of the instance, Service Tag, (production/dev/QA etc.), and default number of nodes etc. Users can override the defaults by manually selecting different options from the dropdown menu during a service launch. However, when no values are specified, defaults will be used.

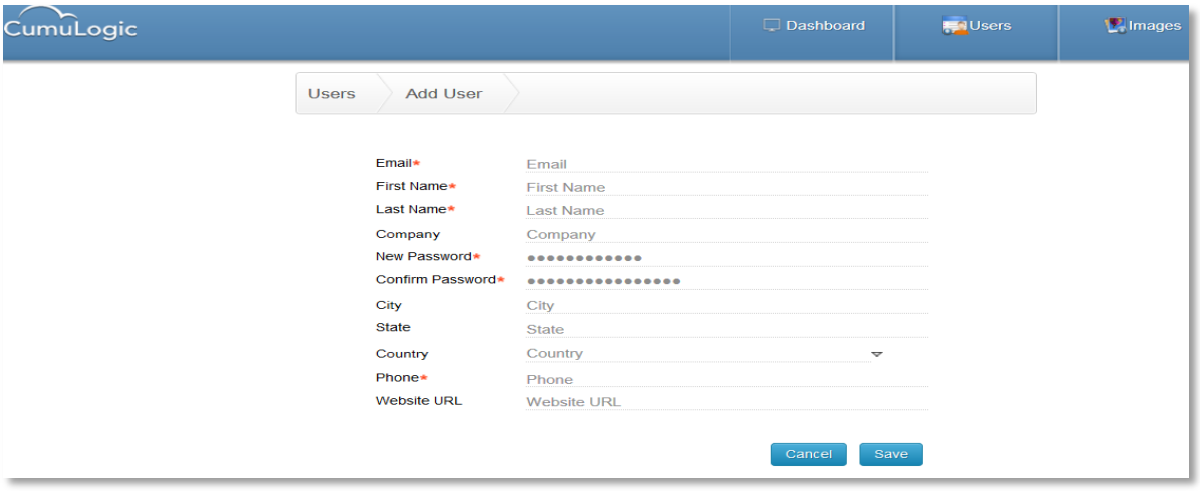
- Under Email Templates, you can customize the templates for emails sent out by the CumuLogic platform.
- Under Global Variables, as the name suggests, you can configure global settings for the platform.
- Under Subscriptions, you can create pre-packaged service bundles for your users to be able to deploy specific service in few clicks without having to go thru all selection options.
- Under VM Pool, you can configure a dedicated resource pool of pre-provisioned virtual machines. This is particularly useful in absence of one of the supported IaaS to provision service and deploy applications.

Refer to the Admin Guide for more details on all the settings.

Managing Users

As Admin you can manage user accounts from the **User Management** screen.

There is a default user "cumulogic" created for your convenience. You can change the password for this user from the Admin Console. You can now register additional users by clicking on "Add User" and follow the on-screen instructions.



You can activate/de-activate user's accounts by clicking on user name and select action from pop-up. You can also monitor status of services provisioned in user accounts by selecting the particular service tab in bottom pane.