Managing Clouds with Landscape

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Canonical

• Who we are
  – Commercial sponsor of the Ubuntu project
  – Founded in 2004, 320+ staff in 28 countries

• What we do
  – Ubuntu Desktop
  – Ubuntu Server
  – Ubuntu Enterprise Cloud

• Services we provide
  – Professional services
  – Landscape systems management
  – Launchpad
  – Training, Online services
UBUNTU ADVANTAGE

CLIENT

- Essential
- Workstation
- Hosted Landscape
- Essential support
- Ubuntu Assurance
- Knowledge Base

SERVER

- Essential
- Standard
- Advanced
- Advanced support 24x7
- Ubuntu Enterprise Cloud
- Standard support
- Hosted Landscape
- Essential support
- Ubuntu Assurance
- Knowledge Base

Dedicated Landscape

Premium Service Engineer

CANONICAL
Cloud Computing

Five Characteristics:
- On Demand Service
- Ubiquitous Network Access
- Location Independent Resource Polling
- Rapid Elasticity
- Measured Service

Delivery Models
- Software as a Service (SaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)

Deployment Models
- Private Cloud
- Public Cloud
- Hybrid Cloud
AMI – Amazon Machine Image: A file containing a predefined virtual machine to use as the base of an instance on the Amazon cloud.

AWS – Amazon Web Services: The collection of services that Amazon provides that compose the Amazon cloud offering.

CC – Cluster Controller: The CC operates as the go-between for the node controller and cloud controller.

CLC – Cloud Controller: The CLC provides the interface with which users of the cloud interact.

EC2 – Elastic Cloud Compute: Name of the part of the AWS that handles instantiating AMIs.

EMI – Eucalyptus Machine Images: The functional equivalent of AMI.

Hypervisor – Also called a virtual machine monitor, allows multiple operating systems to be run on a host computer concurrently.

NC – Node Controller: The software on the NC interacts with the Operating System and hypervisor running on the node, as instructed by the CC.

S3 – Simple Storage Service: Amazon S3 is an online storage Web service providing storage through a simple Web services interface and API.

Virtual instances: An instance is a virtual machine running in the cloud.

WS3 – Walrus Storage Controller: Compatible with Amazon’s S3 protocol, this implements a REST (Representational State Transfer) and a SOAP (Simple Object Access Protocol) API. WS3 is used to store machine images and accessing and storing data.
<table>
<thead>
<tr>
<th>Cluster controller</th>
<th>Walrus host</th>
<th>Storage controller</th>
<th>NC node controllers</th>
<th>NC node controller</th>
<th>IN Instances</th>
</tr>
</thead>
<tbody>
<tr>
<td>ubuntu_euca</td>
<td>76.56.32.45</td>
<td>Active</td>
<td></td>
<td>56.87.167.89</td>
<td></td>
</tr>
<tr>
<td>IP range available</td>
<td>207.126.144.0 - 207.126.159.255</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buckets available</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Rich interface

<table>
<thead>
<tr>
<th>Command</th>
<th>Command</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>euca-add-group</td>
<td>euca-delete-snapshot</td>
<td>euca-disassociate-address</td>
</tr>
<tr>
<td>euca-add-keypair</td>
<td>euca-delete-volume</td>
<td>euca-download-bundle</td>
</tr>
<tr>
<td>euca-allocate-address</td>
<td>euca-deregister</td>
<td>euca-get-console-output</td>
</tr>
<tr>
<td>euca-associate-address</td>
<td>euca-describe-addresses</td>
<td>euca-modify-image-attribute</td>
</tr>
<tr>
<td>euca-attach-volume</td>
<td>euca-describe-availability-zones</td>
<td>euca-reboot-instances</td>
</tr>
<tr>
<td>euca-authorize</td>
<td>euca-describe-groups</td>
<td>euca-register</td>
</tr>
<tr>
<td>euca-bundle-image</td>
<td>euca-describe-image-attribute</td>
<td>euca-release-address</td>
</tr>
<tr>
<td>euca-bundle-vol</td>
<td>euca-describe-images</td>
<td>euca-reset-image-attribute</td>
</tr>
<tr>
<td>euca-confirm-product-instance</td>
<td>euca-describe-instances</td>
<td>euca-revoke</td>
</tr>
<tr>
<td>euca-create-snapshot</td>
<td>euca-describe-keypairs</td>
<td>euca-run-instances</td>
</tr>
<tr>
<td>euca-create-volume</td>
<td>euca-describe-regions</td>
<td>euca-terminate-instances</td>
</tr>
<tr>
<td>euca-delete-bundle</td>
<td>euca-describe-snapshots</td>
<td>euca-unbundle</td>
</tr>
<tr>
<td>euca-delete-group</td>
<td>euca-describe-volumes</td>
<td>euca-unbundle</td>
</tr>
<tr>
<td>euca-delete-keypair</td>
<td>euca-detach-volume</td>
<td>euca-version</td>
</tr>
</tbody>
</table>

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[CANONICAL]
Landscape: Built-in web-based management
Registered clouds

This page lets you register your Amazon EC2 accounts or Eucalyptus ones so that Landscape can create and manage virtual machines in them.

<table>
<thead>
<tr>
<th>Title</th>
<th>Endpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon cloud</td>
<td><a href="https://ec2.eu-west-1.amazonaws.com">https://ec2.eu-west-1.amazonaws.com</a></td>
</tr>
<tr>
<td>Brute Robe</td>
<td><a href="https://201.25.31.29:443/services/Eucalyptus">https://201.25.31.29:443/services/Eucalyptus</a></td>
</tr>
<tr>
<td>Landscape Demo Cloud</td>
<td><a href="https://ec2.us-east-1.amazonaws.com">https://ec2.us-east-1.amazonaws.com</a></td>
</tr>
<tr>
<td>Lowtech (andreas)</td>
<td><a href="http://maestro.dyndns.org:443/services/Eucalyptus">http://maestro.dyndns.org:443/services/Eucalyptus</a></td>
</tr>
</tbody>
</table>

Register a new cloud
Register a cloud

Title *(Required)*

A short descriptive title of the cloud. For example, 'Amazon Europe'.

Cloud Provider *(Required)*

- **(no value)**
- Amazon US East
- Amazon US West
- Amazon Europe
- Amazon Asia Pacific
- Other

Cloud endpoint where you're using a custom cloud, select 'Other' and enter your cloud endpoint.

Secret Access Key *(Required)*

Secret associated with your Access Key, used to sign requests to the Query API. This a 40 character ASCII string.

Save
Register a cloud

Title *(Required)*

A short descriptive title of the cloud. For example, 'Amazon Europe'.

Cloud Provider *(Required)*

Amazon Europe

The EC2 server to use. If you're using a custom cloud, select 'Other' and enter your cloud endpoint.

Access Key ID *(Required)*

Access Key Identifier, used to identify your account when using the Query API. This a 20 character ASCII string.

Secret Access Key *(Required)*

Secret associated with your Access Key, used to sign requests to the Query API. This is a 40 character ASCII string.

Save
Details

Amazon cloud

Manage EBS storage

Manage Elastic IPs

Endpoint: https://ec2.eu-west-1.amazonaws.com

Key pairs

<table>
<thead>
<tr>
<th>Key pair name</th>
</tr>
</thead>
<tbody>
<tr>
<td>europe-key</td>
</tr>
</tbody>
</table>

Create a new key pair

Name *(Required)*

Unique name for the key pair.

Instances

Create new instances

No instances found.

Security groups

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ssh</td>
<td>SSH from everywhere</td>
</tr>
<tr>
<td>default</td>
<td>default group</td>
</tr>
</tbody>
</table>

Create a new security group

Name *(Required)*

Unique name for the security group.

Description *(Required)*
Volumes

No volumes found.

Create a volume

Availability zone

**eu-west-1a (available)**

Availability zone your volume will be created in.

Size

Size of the created volume, in GiBs. You can't specify the size if you select a snapshot.

Snapshot

**(no value)**

Snapshot from which to create the volume. You can't choose a snapshot if you specify a size.

Create
## Elastic IPs

<table>
<thead>
<tr>
<th>Address IP</th>
<th>Instance</th>
</tr>
</thead>
<tbody>
<tr>
<td>192.168.100.193</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.194</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.195</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.196</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.197</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.198</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.199</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.200</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.201</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.202</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.203</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.204</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.205</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.206</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.207</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.208</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.209</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.210</td>
<td>nobody</td>
</tr>
<tr>
<td>192.168.100.211</td>
<td>nobody</td>
</tr>
</tbody>
</table>
Security group

Name: ssh
Description: SSH from everywhere

Allowed groups

There are no allowed groups in this security group. Fill out the form below to allow a new group.

Allow a new group

You can allow another security group to have unhindered access to all instances in this security group. All connections that are coming from instances inside the added group will be able to make connections to all instances in this security group, regardless of port or protocol. A group can be added to itself to allow instances within the group to communicate among themselves.

Owner

Owner of the group to allow, in the form of an account number. It defaults to your own account.

Group

Name of the group to allow.

Create

Allowed connections

<table>
<thead>
<tr>
<th>Protocol</th>
<th>From port</th>
<th>To port</th>
<th>IP addresses</th>
</tr>
</thead>
<tbody>
<tr>
<td>tcp</td>
<td>22</td>
<td>22</td>
<td>0.0.0.0/0</td>
</tr>
<tr>
<td>tcp</td>
<td>3389</td>
<td>3389</td>
<td>93.42.64.0/20</td>
</tr>
</tbody>
</table>

Remove

Allow new connections

Protocol

TCP

The protocol to allow.

TCP/UDP Ports

From [ ] to [ ]

The port range to allow, inclusive. Minimum is 0 and maximum is 65535.

CIDR

Allow my current address

Allow all addresses

The network addresses to allow, in the form W.X.Y.Z/N. If the network mask is not specified, defaults to /32.

Create
Create new Landscape-managed instances in 'Amazon cloud'

**Number of instances (Required)**

12

**Instance type (Required)**

- Small (m1.small, 32-bit)
- Small (m1.small, 32-bit)
- Large (m1.large, 64-bit)
- Extra Large (m1.xlarge, 64-bit)
- High-CPU Medium (c1.medium, 32-bit)
- High-CPU Extra Large (c1.xlarge, 64-bit)

Version of Ubuntu to run on your instances. If specified, it overrides the image ID value to use the default image registered in Landscape.

**Image ID**

Identifier for the image you want to run.

**Warning:** If landscape-client is not enabled on this image, landscape will not be able to manage it, even though it will become a registered computer. See the documentation.

**Startup scripts**

Add and enable 256Mb of swap
adjust rc.local for sshguard
adjust syslog.conf for sshguard
chkrootkit
clear tail2ban

Scripts to run when the instances are started. If the script doesn’t specify a user, it will default to root.

**Key pair**

(no Value)

Key pair used to allow SSH access. If none is specified, then SSH access will be denied on your instances.

**Security groups**

- ssh: SSH from everywhere
- default: default group

Access rules defining incoming network traffic to your instances.

**Availability zone**

(no Value)

Availability zone in which your instances will be started. If not specified, a random one will be chosen.

**Tags**

ls5_tag cloud-demo new_tag ls3_tag ls1_tag uae linode eucalyptus

Associate tags, separated by spaces, with the new computers.
Create new Landscape-managed instances in 'Amazon cloud'

**Number of instances (Required)**

12

**Instance type (Required)**

- Small (m1.small, 32-bit)

Type of instance to start, specifying the number of compute units and the amount of memory available.

**Ubuntu version (Required)**

- 10.04 LTS (Lucid)
- 6.06 (Dapper)
- 8.04.3 LTS (Hardy)
- 9.04 (Jaunty)
- 9.10 (Karmic)
- 10.04 LTS (Lucid)
- Other

If specified, it overrides the image ID value to use the default image registered in Landscape.

**Warning:** if landscape-client is not enabled on this image, landscape will not be able to manage it, even though it will become a registered computer. See the documentation for details.

**Startup scripts**

- Add and enable 256Mb of swap
- adjust rc.local for sshguard
- adjust syslog.conf for sshguard
- chkrootkit
- clear fail2ban

Scripts to run when the instances are started. If the script doesn’t specify a user, it will default to root.

**Key pair**

- (no value)

Key pair used to allow SSH access. If none is specified, then SSH access will be denied on your instances.

**Security groups**

- ssh: SSH from everywhere
- default: default group

Access rules defining incoming network traffic to your instances.

**Availability zone**

- (no value)

Availability zone in which your instances will be started. If not specified, a random one will be chosen.

**Tags**

- Is5_tag cloud-demo new_tag Is3_tag Is1_tag uce linode eucalyptus

Associate tags, separated by spaces, with the new computers.
Create new Landscape-managed instances in 'Amazon cloud'

<table>
<thead>
<tr>
<th>Number of instances (Required)</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instance type (Required)</td>
<td>Small (m1.small, 32-bit)</td>
</tr>
<tr>
<td>Type of instance to start, specifying the number of compute units and the amount of memory available.</td>
<td></td>
</tr>
<tr>
<td>Ubuntu version (Required)</td>
<td>10.04 LTS (Lucid)</td>
</tr>
<tr>
<td>Version of Ubuntu to run on your instances. If specified, it overrides the image ID value to use the default image registered in Landscape.</td>
<td></td>
</tr>
<tr>
<td>Image ID</td>
<td>Identifier for the image you want to run.</td>
</tr>
</tbody>
</table>

**Warning**: if landscape-client is not enabled on this image, landscape will not be able to manage it, even though it will become a registered computer. See the document...

**Startup scripts**

- Add and enable 256Mb of swap
- adjust rc.local for sshguard
- adjust syslog.conf for sshguard
- chkrootkit
- clear fail2ban

Scripts to run when the instances are started. If the script doesn’t specify a user, it will default to root.

<table>
<thead>
<tr>
<th>Key pair</th>
</tr>
</thead>
<tbody>
<tr>
<td>europa-key</td>
</tr>
</tbody>
</table>

Key pair used to allow SSH access. If none is specified, then SSH access will be denied on your instances.

<table>
<thead>
<tr>
<th>Security groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>ssh: SSH from everywhere</td>
</tr>
<tr>
<td>default: default group</td>
</tr>
</tbody>
</table>

Access rules defining incoming network traffic to your instances.

<table>
<thead>
<tr>
<th>Availability zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no value)</td>
</tr>
</tbody>
</table>

Availability zone in which your instances will be started. If not specified, a random one will be chosen.

<table>
<thead>
<tr>
<th>Tags</th>
</tr>
</thead>
<tbody>
<tr>
<td>ls5_tag cloud-demo new_tag ls3_tag ls1_tag uec linode eucalyptus</td>
</tr>
</tbody>
</table>

Associate tags, separated by spaces, with the new computers.
Create new Landscape-managed instances in 'Amazon cloud'

**Number of Instances (Required)**

12

**Instance type (Required)**

Small (m1.small, 32-bit)

Type of instance to start, specifying the number of compute units and the amount of memory available.

**Ubuntu version (Required)**

10.04 LTS (Lucid)

Version of Ubuntu to run on your instances. If specified, it overrides the image ID value to use the default image registered in Landscape.

**Image ID**

Identifier for the image you want to run.

***Warning***: if landscape-client is not enabled on this image, landscape will not be able to manage it, even though it will become a registered computer. See the documentation.

**Startup scripts**

Add and enable 256Mb of swap
adjust rc.local for sshguard
adjust syslog.conf for sshguard
chkrootkit
clear /var/log

Scripts to run when the instances are started. If the script doesn’t specify a user, it will default to root.

**Key pair**

(no value)

Key pair used to allow SSH access. If none is specified, then SSH access will be denied on your instances.

**Security groups**

SSH: SSH from everywhere
default: default group

Access rules defining incoming network traffic to your instances.

**Availability zone**

(nc value)

Your instances will be started. If not specified, a random one will be chosen.

**Tags**

cloud-demo
eucalyptus
linode
ls1
ls3
tag	nue
new
uec

Associate tags, separated by spaces, with the new computers.
## Landscape Proposed Roadmap

<table>
<thead>
<tr>
<th>Package Management</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>April (1.3)</td>
<td>Oct (1.4)</td>
</tr>
<tr>
<td>Scheduled package updates</td>
<td></td>
<td>Package profiles</td>
</tr>
<tr>
<td>Administrator roles</td>
<td></td>
<td>Package Mgmt API Server-side Package Pinning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dedicated Server</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta product</td>
<td>Product Release</td>
</tr>
<tr>
<td>Multiple Customer Sites</td>
<td>KVM support</td>
<td>Apt-get server updates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cloud</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public Clouds</td>
<td>Private Clouds – Initial UEC support</td>
</tr>
<tr>
<td>Amazon EC2</td>
<td>EBS, Elastic IPs</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infrastructure</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Custom Graphs</td>
<td>GUI updates</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ubuntu</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.04 Jaunty Jakalope</td>
<td>9.10 Karmic Koala</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Questions ?