



¡Virtualízame ésta! Primeros pasos con CloudStack

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XXXV Jornadas Técnicas del
GUL

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Necesidades

Infraestructura

Taller

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Introducción

Virtualización

- Equipo
- Escritorio
- A mano

vmware®



VirtualBox



• Nube

- Público
- Privado



Google Cloud



Necesidades

Actualmente:

- Equipos permiso administrador
- Equipos acceso remoto

Limitaciones:

- Equipo... no ubícuo
- Nube pública... no money

Razones para elegir CloudStack:

- OpenSource
- En constante mantenimiento y con futuro
- Medianamente sencillo
- Potente y escalable
- Sistema abierto (interactuar con otros)
- Apache (Guacamole)



Infraestructura

Mínimo:

- Nodo administración
- Nodo Cómputo
- Almacenamiento

Desarrollo:

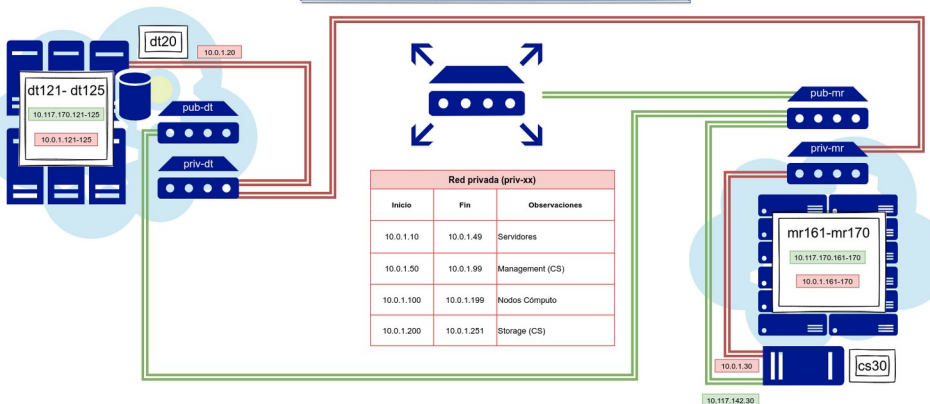
- **Nodo administración**
- **Nodos Cómputo (87GB RAM, 97GHz CPU, 12 cores)**
- **Almacenamiento (7TB)**

Producción:

- Nodo administración
- Nodos Cómputo (1.5TB RAM, 1THz CPU, 368 cores)
- Almacenamiento (14TB)

Infraestructura

CS Laboratorio (CloudStack 4.15)



Taller

Objetivos:

- Poner en marcha una instancia cada uno en esta infraestructura
- Lograr comunicación con dichas instancias con un servicio básico (http)

Prerrequisitos:

- Atención
- Comprensión
- Conocimientos básicos Linux, TCP/IP.
- Uso de Mosaic y similares



Taller: Contacto con la interfaz

Lo primero... vamos a ver la Interfaz cómo es... los sitios más importantes donde actuar.

Interfaz web:



☒ Portal Login

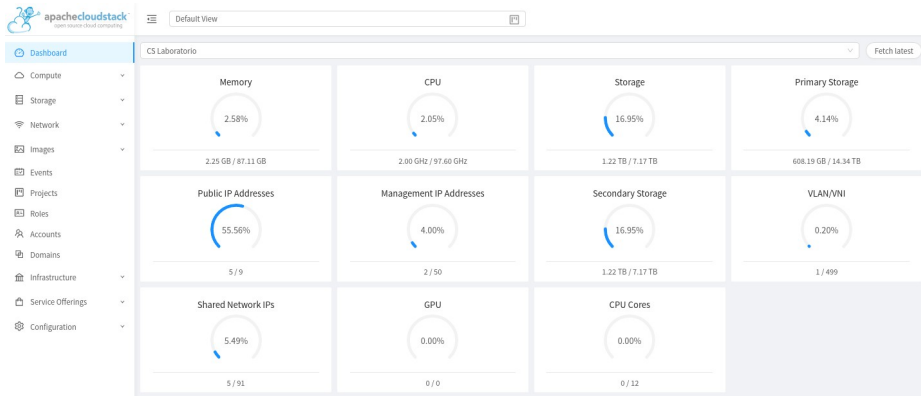
☐ Single Sign-On

Login



Taller: Contacto con la interfaz

DashBoard



Taller: Contacto con la interfaz

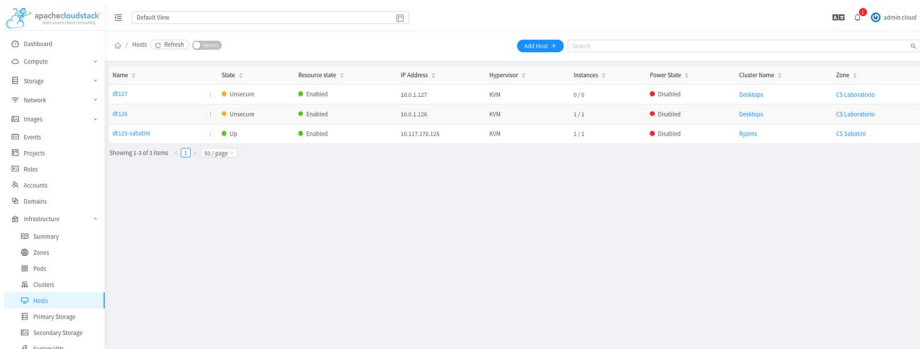
Infrastructure... Summary

The screenshot shows the Apache CloudStack web interface. On the left is a sidebar menu with categories like Dashboard, Compute, Storage, Network, Images, Events, Projects, Roles, Accounts, Domains, and Infrastructure. The 'Infrastructure' category is expanded, and 'Summary' is selected. The main content area displays a 'Default View' of the infrastructure summary. At the top right, there are icons for notifications and a user profile labeled 'admin cloud'. Below the navigation bar, there are buttons for 'Summary', 'Refresh', and 'SSL Certificates'. The summary is presented in a 3x4 grid of tiles, each showing a resource type and its count. The bottom row of the grid is partially obscured by a large grey rectangle.

Zones 2	Pods 2	Clusters 4	Hosts 3
Primary Storage 3	Secondary Storage 3	System VMs 4	Virtual Routers 6
CPU Sockets 3	Management Servers 1	Alerts 92467	Internal LB 0

Taller: Contacto con la interfaz

Infrastructure... Zones... Pods... Clusters...
Infrastructure... Hosts

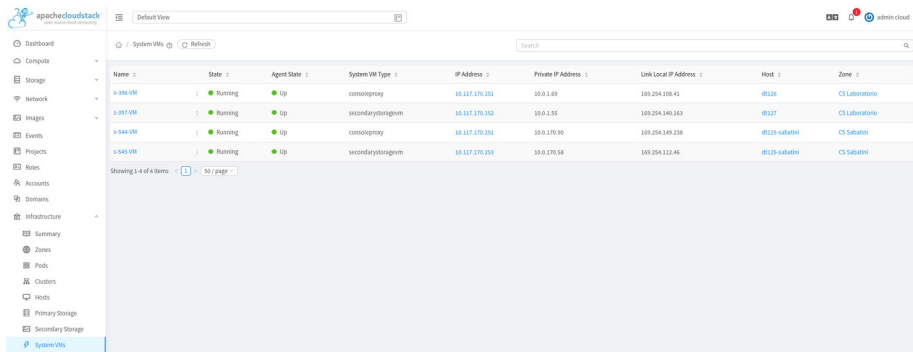


The screenshot displays the Apache CloudStack web interface. On the left is a navigation sidebar with icons for Dashboard, Compute, Storage, Network, Images, Events, Projects, Roles, Accounts, Domains, Infrastructure, Summary, Zones, Pods, Clusters, Hosts (highlighted), Primary Storage, Secondary Storage, and System VMs. The main content area is titled 'Default View' and shows a table of hosts. Above the table are buttons for 'Add Host', 'Refresh', and 'Reset'. A search bar is also present. The table has columns for Name, State, Resource state, IP Address, Hypervisor, Instances, Power State, Cluster Name, and Zone. Three hosts are listed: q1127, q1126, and q1125-sabatin. Below the table, it says 'Showing 1-3 of 3 items' and '50 / page'.

Name	State	Resource state	IP Address	Hypervisor	Instances	Power State	Cluster Name	Zone
q1127	Unsecure	Enabled	10.0.1.127	KVM	0 / 0	Disabled	Desktops	CS Laboratorio
q1126	Unsecure	Enabled	10.0.1.126	KVM	1 / 1	Disabled	Desktops	CS Laboratorio
q1125-sabatin	Up	Enabled	10.117.170.125	KVM	1 / 1	Disabled	Ryans	CS Sabatin

Taller: Contacto con la interfaz

Infrastructure... Storage... primary, secondary
Infrastructure... System Vms

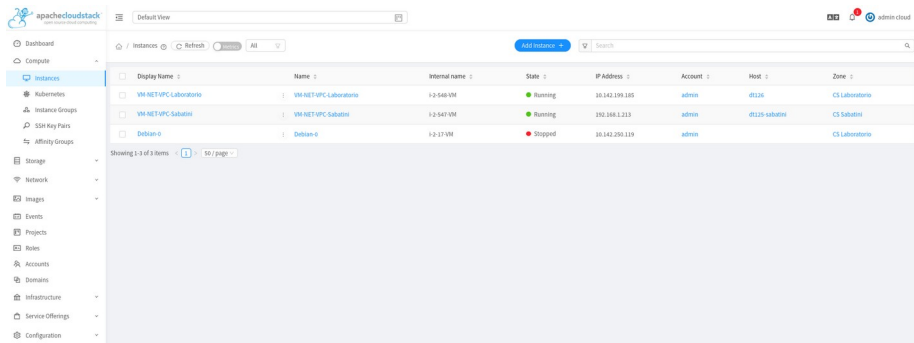


The screenshot displays the Apache CloudStack web interface. On the left is a navigation sidebar with a tree view containing: Dashboard, Compute, Storage, Network, Images, Events, Projects, Roles, Accounts, Domains, Infrastructure (expanded), Summary, Zones, Pods, Clusters, Hosts, Primary Storage, Secondary Storage, and System VMs (selected). The main content area is titled 'System VMs' and includes a 'Default View' dropdown and a 'Refresh' button. Below this is a search bar. A table lists four system VMs, all in a 'Running' state with 'Up' agent states. The table columns are: Name, State, Agent State, System VM Type, IP Address, Private IP Address, Link Local IP Address, Host, and Zone. The rows represent VMs v-396-VM, s-397-VM, v-544-VM, and s-545-VM, which are consoleproxy and secondarystoragevm types respectively, located on hosts dt126 and dt125-sabatinini in the CS Laboratoriorio zone. At the bottom of the table, it indicates 'Showing 1-4 of 4 items' and '50 / page'.

Name	State	Agent State	System VM Type	IP Address	Private IP Address	Link Local IP Address	Host	Zone
v-396-VM	Running	Up	consoleproxy	10.117.170.151	10.0.1.69	169.254.108.41	dt126	CS Laboratoriorio
s-397-VM	Running	Up	secondarystoragevm	10.117.170.152	10.0.1.55	169.254.140.163	dt127	CS Laboratoriorio
v-544-VM	Running	Up	consoleproxy	10.117.170.251	10.0.170.90	169.254.149.238	dt125-sabatinini	CS Sabatinini
s-545-VM	Running	Up	secondarystoragevm	10.117.170.253	10.0.170.58	169.254.112.46	dt125-sabatinini	CS Sabatinini

Taller: Contacto con la interfaz

Compute



The screenshot shows the Apache CloudStack web interface. The left sidebar contains navigation links: Dashboard, Compute, Instances (selected), Kubernetes, Instance Groups, SSH Key Pairs, Affinity Groups, Storage, Network, Images, Events, Projects, Roles, Accounts, Domains, Infrastructure, Service Offerings, and Configuration. The top header displays the Apache CloudStack logo, a 'Default View' dropdown, and the user 'admin cloud'. The main content area is titled 'Instances' and includes a search bar and a table of virtual machines.

Display Name	Name	Internal name	State	IP Address	Account	Host	Zone
VM-NET-UPC-Laboratorio	VM-NET-UPC-Laboratorio	i-2-548-VM	Running	10.142.199.185	admin	dt126	CS Laboratorio
VM-NET-UPC-Sabatini	VM-NET-UPC-Sabatini	i-2-547-VM	Running	192.168.1.213	admin	dt125-sabatini	CS Sabatini
Debian-0	Debian-0	i-2-17-VM	Stopped	10.142.250.119	admin		CS Laboratorio

Showing 1-3 of 3 items | 1 / 50 / page

Taller: Contacto con la interfaz

Storage

apachecloudstack

Default View

admin cloud

/ Volumes Refresh

Create volume

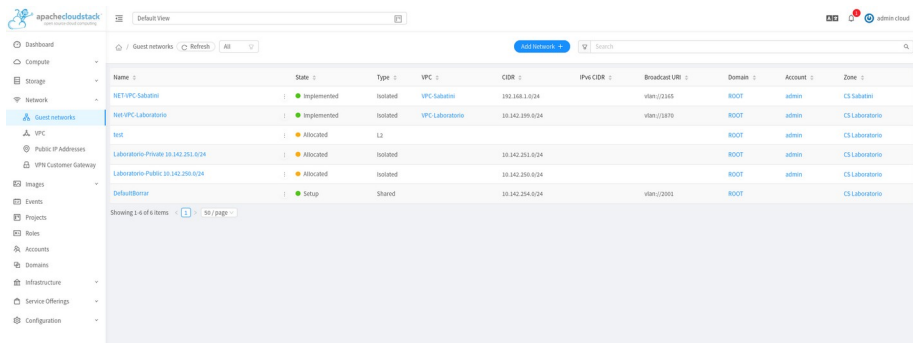
Search

Name	State	Type	VM Name	Size	Account	Storage	Zone
DATA-211	Ready	DATADISK		20.00 GB	admin	PR1-cs30	CS Laboratorio
ROOT-17	Ready	ROOT	Debian-6	21.00 GB	admin	PR1-cs30	CS Laboratorio
ROOT-548	Ready	ROOT	VM-NET-VPC-Laboratorio	20.00 GB	admin	PR1-dk20	CS Laboratorio
ROOT-547	Ready	ROOT	VM-NET-VPC-Sabatini	20.00 GB	admin	PR1-dk25-sabatini	CS Sabatini

Showing 1-4 of 4 items 1 50 / page

Taller: Contacto con la interfaz

Network



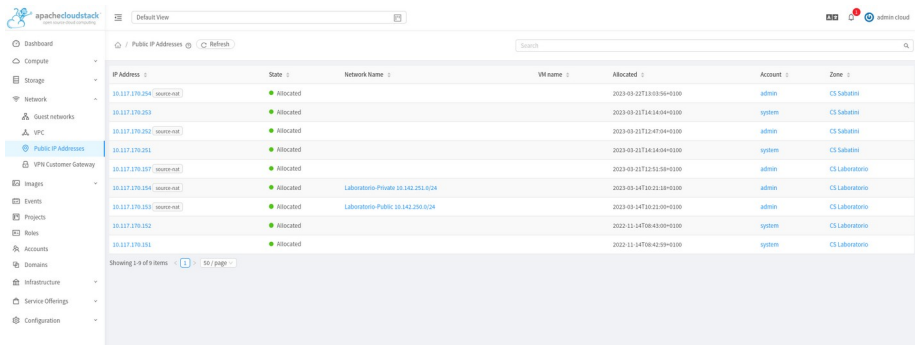
The screenshot displays the Apache CloudStack web interface for the 'Network' section. The left sidebar contains a navigation menu with options: Dashboard, Compute, Storage, Network (selected), Guest networks, VPC, Public IP Addresses, VPN Customer Gateway, Images, Events, Projects, Roles, Accounts, Domains, Infrastructure, Service Offerings, and Configuration. The main content area shows the 'Default View' of 'Guest networks'. At the top, there are filters for 'Guest networks', a 'Refresh' button, and a search bar. Below this is a table listing various network resources.

Name	State	Type	VPC	CIDR	IPv6 CIDR	Broadcast URI	Domain	Account	Zone
NET-VPC-Sabatini	Implemented	Isolated	VPC-Sabatini	192.168.1.0/24		vlan://2365	ROOT	admin	CS Sabatini
NetVPC-Laboratorio	Implemented	Isolated	VPC-Laboratorio	10.142.159.0/24		vlan://1870	ROOT	admin	CS Laboratorio
test	Allocated	L2					ROOT	admin	CS Laboratorio
Laboratorio-Private 10.142.251.0/24	Allocated	Isolated		10.142.251.0/24			ROOT	admin	CS Laboratorio
Laboratorio-Public 10.142.250.0/24	Allocated	Isolated		10.142.250.0/24			ROOT	admin	CS Laboratorio
DefaultBorrar	Setup	Shared		10.142.254.0/24		vlan://2001	ROOT		CS Laboratorio

Showing 1-6 of 6 items | 1 / 50 / page

Taller: Contacto con la interfaz

Public IP Addresses



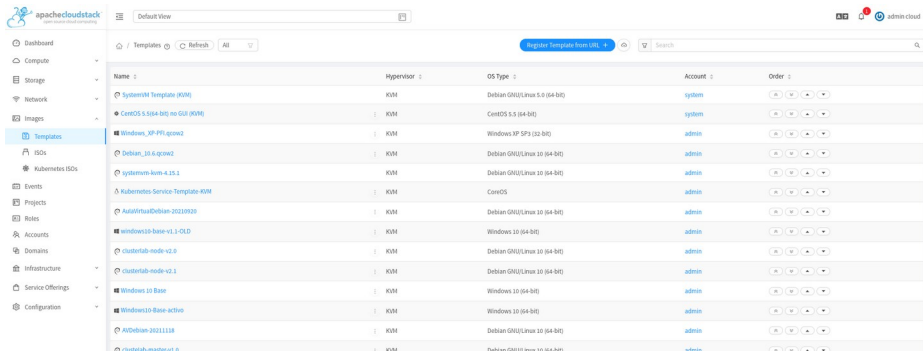
The screenshot shows the Apache CloudStack management console. The left sidebar contains a navigation menu with options: Dashboard, Compute, Storage, Network, Guest networks, VPC, Public IP Addresses (selected), VPN Customer Gateway, Images, Events, Projects, Roles, Accounts, Domains, Infrastructure, Service Offerings, and Configuration. The main content area is titled 'Public IP Addresses' and includes a search bar and a 'Refresh' button. Below this is a table listing allocated public IP addresses.

IP Address	State	Network Name	VM name	Allocated	Account	Zone
10.117.170.254 source-nat	Allocated			2023-03-22T13:03:56+0100	admin	CS Sabatini
10.117.170.253	Allocated			2023-03-21T14:14:04+0100	system	CS Sabatini
10.117.170.252 source-nat	Allocated			2023-03-21T12:47:04+0100	admin	CS Sabatini
10.117.170.251	Allocated			2023-03-21T14:14:04+0100	system	CS Sabatini
10.117.170.157 source-nat	Allocated			2023-03-21T12:51:58+0100	admin	CS Laboratorio
10.117.170.154 source-nat	Allocated	Laboratorio-Private 10.142.251.0/24		2023-03-14T10:21:19+0100	admin	CS Laboratorio
10.117.170.153 source-nat	Allocated	Laboratorio-Public 10.142.250.0/24		2023-03-14T10:21:09+0100	admin	CS Laboratorio
10.117.170.152	Allocated			2022-11-14T08:43:09+0100	system	CS Laboratorio
10.117.170.151	Allocated			2022-11-14T08:42:59+0100	system	CS Laboratorio

Showing 1-9 of 9 items < 1 > 50 / page

Taller: Contacto con la interfaz

Images... Templates



The screenshot displays the Apache CloudStack web interface. The left sidebar contains navigation links: Dashboard, Compute, Storage, Network, Images, Templates (selected), ISOs, Kubernetes ISOs, Events, Projects, Roles, Accounts, Domains, Infrastructure, Service Offerings, and Configuration. The main content area is titled 'Default View' and shows a list of templates. At the top of the list, there are buttons for 'Register Template from URL' and a search bar. The table lists various templates with columns for Name, Hypervisor, OS Type, Account, and Order. The templates include SystemVM Template, CentOS 5.5, Windows XP, Debian 10, systemvm-kvm, Kubernetes Service-Template-KVM, AutoWrtailDebian-20210930, windows10-base-v1.1-OLD, clusterlab-node v2.0, clusterlab-node v2.1, Windows 10 Base, Windows 10 Base-activ, AVDebian-20211118, and clusterlab-miscos-act-0.

Name	Hypervisor	OS Type	Account	Order
SystemVM Template (KVM)	KVM	Debian GNU/Linux 5.0 (64-bit)	system	
CentOS 5.5(64-bit) no GUI (KVM)	KVM	CentOS 5.5 (64-bit)	system	
Windows_XP-PPV-qcow2	KVM	Windows XP SP3 (32-bit)	admin	
Debian_10.6-qcow2	KVM	Debian GNU/Linux 10 (64-bit)	admin	
systemvm-kvm-4.15.1	KVM	Debian GNU/Linux 10 (64-bit)	admin	
Kubernetes Service-Template-KVM	KVM	CoreOS	admin	
AutoWrtailDebian-20210930	KVM	Debian GNU/Linux 10 (64-bit)	admin	
windows10-base-v1.1-OLD	KVM	Windows 10 (64-bit)	admin	
clusterlab-node v2.0	KVM	Debian GNU/Linux 10 (64-bit)	admin	
clusterlab-node v2.1	KVM	Debian GNU/Linux 10 (64-bit)	admin	
Windows 10 Base	KVM	Windows 10 (64-bit)	admin	
Windows10-Base-activ	KVM	Windows 10 (64-bit)	admin	
AVDebian-20211118	KVM	Debian GNU/Linux 10 (64-bit)	admin	
clusterlab-miscos-act-0	KVM	Debian GNU/Linux 10 (64-bit)	admin	

Taller: Contacto con la interfaz

Images... ISOS

apachecloudstack
open source cloud computing

Default View

Register ISO

Search

Name	OS Type	Account
Knoppix 9.1	None	admin
1.14.3-Kubernetes-Binaries-ISO	None	system
vmware-tools.iso	CentOS 4.5 (32-bit)	system
Debian 10.10	Debian GNU/Linux 9 (64-bit)	admin
Windows 10	Windows 10 (64-bit)	admin
ks-tools.iso	CentOS 4.5 (32-bit)	system
Ubuntu-Server-20.04	Ubuntu 20.04 LTS	admin
Ubuntu-Server-18.04.6	Ubuntu 18.04 LTS	admin
Windows 11	Windows 10 (64-bit)	admin
Debian 11 Netinst	Debian GNU/Linux 11 (64-bit)	admin

Showing 1-10 of 10 items 1 / 50 / page

Taller: Creación del entorno

Va... tranquilos... que ya se acabaron las pantallas sin sentido...

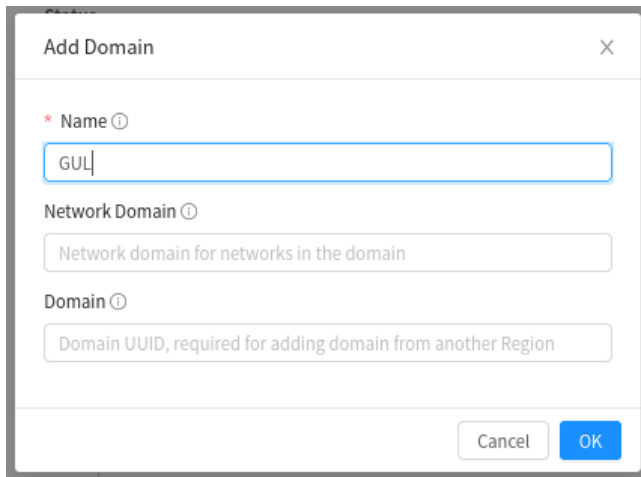
Pero todavía no podéis tocar.... Ahora voy a tocar yo... para crear el entorno sobre el que hacer el taller...

Entro con mi cuenta de administrador...



Taller: Creación del entorno

Creo el dominio GUL



Add Domain ✕

*** Name** ⓘ

GUL

Network Domain ⓘ

Network domain for networks in the domain

Domain ⓘ

Domain UUID, required for adding domain from another Region

Cancel OK

Taller: Creación del entorno

Configuro límites

[Domain](#) [Details](#) [Resources](#) [Configure Limits](#) [Settings](#)

Max. User VMs

Max. Public IPs

Max. Volumes

Max. Snapshots

Max. Templates

Max. Networks

Max. VPCs

Max. CPU Cores

Max. Memory (MiB)

Max. Primary Storage (GiB)

Max. Secondary Storage (GiB)

Taller: Creación del entorno

Creo el usuario “guladmin”

Add Account ⓘ

×

* Role ⓘ

Domain Admin (DomainAdmin) ▾

* Username ⓘ

guladmin

* Password ⓘ

●●●●●●●● ⓘ

* Confirm Password ⓘ

●●●●●●●● ⓘ

* Email ⓘ

oscar@lab.inf.uc3m.es

* First Name ⓘ

Gul

* Last Name ⓘ

admin

* Domain ⓘ

ROOT/GUL ▾

Account ⓘ

guladmin

Timezone ⓘ

Europe/Madrid [Central European Time] ▾

Network Domain ⓘ

Network domain for the account's networks

Cancel

OK

Taller: Creación del entorno

Entro en el entorno...



☒ Portal Login

☐ Single Sign-On

Login



Taller: Creación del entorno

Añado una Red

Add Network ⓘ

×

Isolated

L2

* Name ⓘ

GUL_Ejemplo

* Description ⓘ

GUL_Ejemplo

* Zone ⓘ

CS Laboratorio

Domain ⓘ

ROOT/GUL

* Network Offering ⓘ

Offering for Isolated networks with Source Nat service enabled

External Id ⓘ

External Id

Gateway ⓘ

10.142.10.2

Netmask ⓘ

255.255.255.0

Network Domain ⓘ

Network Domain

Account ⓘ

Account

Cancel

OK

Taller: Creación del entorno

Habilito el acceso a Internet en la Red

 **GUL_Ejemplo**

Isolated

Status
● Implemented

ID
e7bf9a12-5c4c-4af7-a772-9737ee10466d

Network Offering
DefaultIsolatedNetworkOfferingWithSourceNatService

Details Egress rules Public IP Addresses Virtual Routers

Source CIDR

Destination CIDR

Protocol
TCP

Start Port

End Port

+ Add

Source CIDR	Destination CIDR	Protocol	ICMP Type / Start Port	ICMP Code / End Port	Action
10.142.10.0/24	0.0.0.0/0	All	All	All	

Total 1 items < 1 > 10 / page

Taller: Creación del entorno

Registro una ISO

Register ISO ?

X

* URL

https://cdimage.debian.org/debian-cd/current/amd64/iso-cd/debian-11.6.0-amd64-net

* Name

GUL-Debian11-Netinst

* Description

GUL-Debian11-Netinst

* Zone

CS Laboratorio

Bootable



* OS Type

Debian GNU/Linux 11 (64-bit)

Extractable



Public



Featured



Cancel

OK

Details

Zones

Zone	Status	Ready
CS Laboratorio	68% Downloaded	No

Total 1 items

Previous Page

Taller: Ejercicio práctico

Principales pasos...

- Entrar en el entorno
- Crear una instancia
- Instalar una Debian 11 en esa instancia (ISO antes descargada)
(Nombre instancia... GUL-100014841)
- Entrar en esa Debian 11
- Instalar el Nginx... personalizar index.html
- Redirigir puertos en IP Pública de la Red (80 privada de GUL-14841 a 14841 de IP Pública)
- Establecer regla Firewall (Puerto NIA)
- Probar (<http://10.117.170.XXX:14841>)

Yaaaaaa.... Ya podéis tocar!! Vamos al lío!!



Taller: Ejercicio práctico

Entrar en el entorno...

<http://cs30.lab.inf.uc3m.es>

User: guladmin
Pass: gul.2023
Domain: GUL



[Portal Login](#) [Single Sign-On](#)

Login

- Crear una instancia
- Instalar una Debian 11 en esa instancia (ISO antes fijada)(Nombre... GUL-14841)
- Entrar en esa Debian 11
- Instalar el Nginx... personalizar index.html
- Redirigir puertos (80 privada de GUL-14841 a 14841 de IP Pública)
- Establecer regla Firewall (Puerto NIA)
- Probar (<http://10.117.170.XXX:14841>)

Taller: Ejercicio práctico

Crear una nueva instancia...
(ISO..My template)
(Medium Instance)
(DiskSize.. Small)
(Name...
GUL-100014841)

- Crear una instancia
- Instalar una Debian 11 en esa instancia (ISO antes fijada)(Nombre... GUL-14841)
- Entrar en esa Debian 11
- Instalar el Nginx... personalizar index.html
- Redirigir puertos
(80 privada de GUL-14841 a 14841 de IP Pública)
- Establecer regla Firewall (Puerto NIA)
- Probar (<http://10.117.170.XXX:14841>)

New instance

1 Select deployment infrastructure

A zone typically corresponds to a single datacenter. Multiple zones help make the cloud more reliable by providing physical isolation and redundancy.

* Zone

CS Laboratorio

2 Template/ISO

Templates ISOs Search

Disc image containing data or bootable media for OS

Featured Community My templates Shared

GUL-Debian11-Netinst

Total 1 items < 1 > 10 / page

3 Compute Offering

Search

Compute Offering	CPU	Memory
☐ Small Instance	1 CPU x 0.50 GHz	512 MB
☒ Medium Instance	1 CPU x 1.00 GHz	1024 MB
☐ CKS-Minimum	2 CPU x 2.00 GHz	2048 MB

4 Disk Size

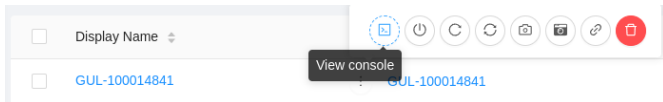
Search

Disk Offering	Disk Size (in GB)	Min IOPS / Max IOPS
☒ Small	5 GB	-
☐ Medium	20 GB	-
☐ Large	100 GB	-
☐ Custom	Custom Disk Size	-

Total 4 items < 1 > 10 / page

Display Name	Name	State	IP Address	Account	Zone
GUL-100014841	GUL-100014841	Starting	10.142.10.107	guladmin	CS Laboratorio

Taller: Ejercicio práctico



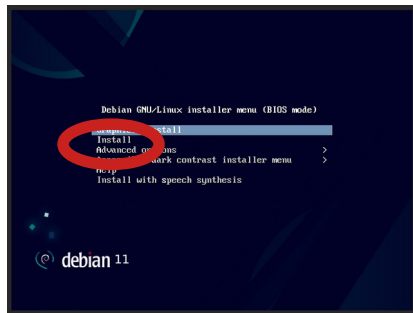
Lanzamos ViewConsole

Instalamos

(No gráfico recomendado)

(Pass... gul.2023)

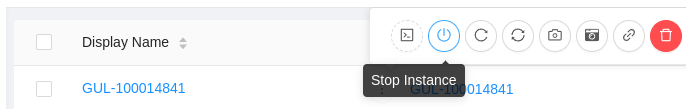
(Taskset... utilidades sistema)



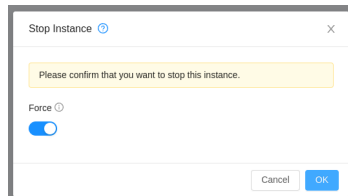
- Crear una instancia
- Instalar una Debian 11 en esa instancia (ISO antes fijada)(Nombre... GUL-14841)
- Entrar en esa Debian 11
- Instalar el Nginx... personalizar index.html
- Redirigir puertos (80 privada de GUL-14841 a 14841 de IP Pública)
- Establecer regla Firewall (Puerto NIA)
- Probar (<http://10.117.170.XXX:14841>)

Taller: Ejercicio práctico

Una vez terminada la instalación
(Cuando vuelva a arrancar con la ISO)
(Apagamos la máquina... con force!!)

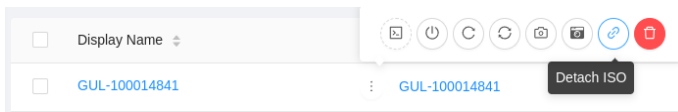


- Crear una instancia
- Instalar una Debian 11 en esa instancia (ISO antes fijada)(Nombre... GUL-14841)
- Entrar en esa Debian 11
- Instalar el Nginx... personalizar index.html
- Redirigir puertos (80 privada de GUL-14841 a 14841 de IP Pública)
- Establecer regla Firewall (Puerto NIA)
- Probar (<http://10.117.170.XXX:14841>)

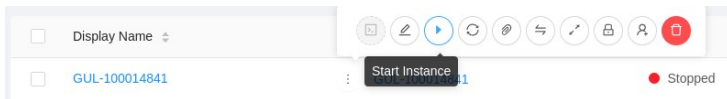


Taller: Ejercicio práctico

Quitamos la ISO que tenemos en la máquina puesta



Arrancamos de nuevo la máquina

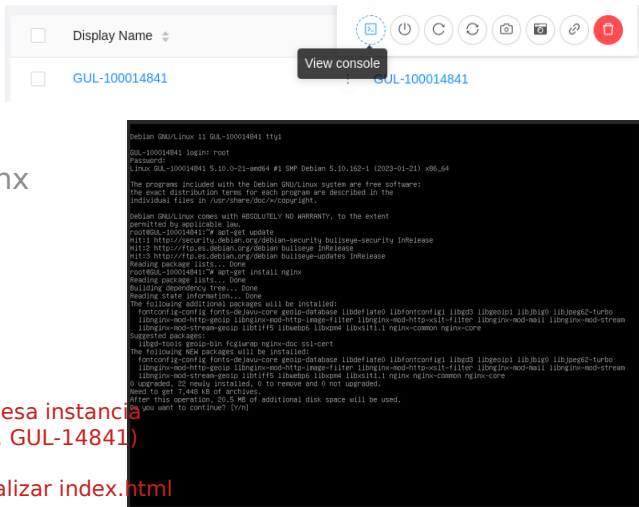


- Crear una instancia
- Instalar una Debian 11 en esa instancia (ISO antes fijada)(Nombre... GUL-14841)
- Entrar en esa Debian 11
- Instalar el Nginx... personalizar index.html
- Redirigir puertos (80 privada de GUL-14841 a 14841 de IP Pública)
- Establecer regla Firewall (Puerto NIA)
- Probar (http://10.117.170.XXX:14841)

Taller: Ejercicio práctico

Accedemos a la máquina

Instalamos el nginx



```
Debian GNU/Linux 11 GUL-100014841 tty1
GUL-100014841 login: root
Password:
Linux GUL-100014841 5.10.0-21-amd64 #1 SMP Debian 5.10.162-1 (2023-01-21) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright*.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
root@GUL-100014841:~# apt-get update
Hit:1 https://security.debian.org/debian-security bullseye-security InRelease
Hit:2 http://ftp.es.debian.org/debian bullseye InRelease
Hit:3 http://ftp.es.debian.org/debian bullseye-updates InRelease
Reading package lists... Done
root@GUL-100014841:~# apt-get install nginx
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core geopip-database libdeflate0 libfontconfig1 libgd3 libgeopip1 libjbig0 libjpeg8-turbo
  libnginx-mod-http-geopip libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream
  libnginx-mod-stream-geopip librtf5 libwebp6 libxpm4 libxslt1.1 nginx-common nginx-core
Suggested packages:
  libgd-tools geopip-bin fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  fontconfig-config fonts-dejavu-core geopip-database libdeflate0 libfontconfig1 libgd3 libgeopip1 libjbig0 libjpeg8-turbo
  libnginx-mod-http-geopip libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream
  libnginx-mod-stream-geopip librtf5 libwebp6 libxpm4 libxslt1.1 nginx-common nginx-core
0 upgraded, 22 newly installed, 0 to remove and 0 not upgraded.
Need to get 7,448 KB of archives.
After this operation, 20.5 MB of additional disk space will be used.
Do you want to continue? [y/n]
```

- Crear una instancia
- Instalar una Debian 11 en esa instancia (ISO antes fijada)(Nombre... GUL-14841)
- Entrar en esa Debian 11
- Instalar el Nginx... personalizar index.html
- Redirigir puertos
- (80 privada de GUL-14841 a 14841 de IP Pública)
- Establecer regla Firewall (Puerto NIA)
- Probar (http://10.117.170.XXX:14841)



Taller: Ejercicio práctico

Personalizamos index.html

```
root@GUL-100014841:~# cat /var/www/html/index.nginx-debian.html
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
  body {
    width: 35em;
    margin: 0 auto;
    font-family: Tahoma, Verdana, Arial, sans-serif;
  }
</style>
</head>
<body>
<h1>Welcome to 10014841!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
root@GUL-100014841:~# _
```

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Taller: Ejercicio práctico

Redireccionamos
puertos

(80 privado)
(14841 publico)

(GUL-10014841)

The screenshot shows the 'Port Forwarding' configuration page in CloudStack. The left sidebar shows the IP address 10.117.170.158, its status as 'Allocated', and its associated network 'GUL_Ejemplo'. The main panel has tabs for 'Details', 'Firewall', 'Port Forwarding' (selected), 'Load Balancing', and 'VPN'. Under 'Port Forwarding', there are input fields for 'Private Port' (80), 'Public Port' (14841), and 'Protocol' (TCP). An 'Add VM' button is visible. Below these fields is a table with columns: Private Port, Public Port, Protocol, State, VM, and Action. The table is currently empty, showing 'No Data'.

The screenshot shows the 'Add VM' dialog box. It has a search bar at the top. Below is a table with columns: Name, State, Display Name, IP Address, Account, Zone, and Select. One VM is listed: 'GUL-100014841' with state 'Running', display name 'GUL-100014841', IP address '10.142.10.107 (Primary)', account 'guladmin', and zone 'CS Laboratorio'. The 'Select' column has a radio button selected for this VM. At the bottom right, there are 'Cancel' and 'OK' buttons. The bottom status bar shows 'Total 1 items' and a page selector.

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Taller: Ejercicio práctico

Firewall

10.117.170.158

Source NAT

Status
Allocated

ID

Details Firewall Port Forwarding Load Balancing VPN

Source CIDR: 0.0.0.0/0 Protocol: TCP Start Port: 14841 End Port: 14841 Add

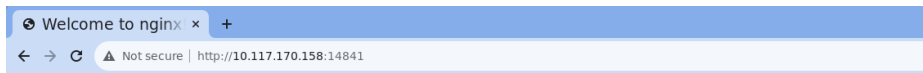
Source CIDR	Protocol	Start Port/CMP Type	End Port/CMP Code	State	Action
-------------	----------	---------------------	-------------------	-------	--------

(habilitar puerto 14841)

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Taller: Ejercicio práctico

Probar desde un navegador...



Welcome to 10014841!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

Conclusiones

Que más se puede hacer:

- Con las instancias lanzadas
 - * Migrar instancias entre nodos
 - * Cambiar las características de la instancia (Scale VM)
 - * Afinidad y grupos de instancias
- Hacer plantillas de máquinas
- Cluster de Kubernetes
- Definir redes privadas en el Cloud y comunicarlas mediante VPNs
- Hacer Snapshots
- Organizar la infraestructura... cuentas, dominios, proyectos...



...Preguntas...

...Ideas...

¡¡Gracias!!

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