

# Curso Online de Cloud Computing con Amazon Web Services (AWS)



Escuela Técnica  
Superior de Ingeniería  
Informática

## Práctica Básica de Amazon EC2

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# Resumen

- Esta práctica te permitirá interactuar con el servicio Amazon EC2 para desplegar instancias de máquinas virtuales (basadas en Linux y en Windows).
- Aprenderás los principales conceptos de EC2
  - Tipo de instancia, grupo de seguridad, par de claves, AMI
- Te conectarás vía SSH (a instancias Linux) y Escritorio Remoto (a instancias Windows)
- Podrás aprovisionar capacidad de cómputo fácilmente mediante pago por uso.

# Versiones de las Prácticas

- La misma práctica está disponible en versión AWS CLI y en versión AWS Management Console

The screenshot displays two overlapping windows. The background window is the AWS Management Console, specifically the 'Instances' page. It shows a table of running instances:

Name	Instance ID	Instance Type	Availability Zone	Instance State
aluccloud122	i-ba84cf4b	t1.micro	us-east-1e	running
HadoopCluster-WN	i-15766ff9	m1.small	us-east-1d	running
cursocloudaws	i-f31671a0	t1.micro	us-east-1d	running
HadoopCluster-Master	i-a5687149	m1.small	us-east-1d	running
	i-9482c965	m1.medium	us-east-1e	running
aluccloud122-balanceo	i-54bef5a5	t1.micro	us-east-1e	running

The foreground window is a terminal session on a Linux machine. It shows the command `aws ec2 describe-instances --output json` being executed, with the output of the command displayed in JSON format:

```
{
  "Instances": [
    {
      "InstanceId": "i-ba84cf4b",
      "InstanceType": "t1.micro",
      "AvailabilityZone": "us-east-1e",
      "State": "running",
      "Architecture": "x86_64",
      "KernelId": "aki-88aa75e1",
      "RootDeviceName": "/dev/sda1",
      "VirtualizationType": "paravirtual",
      "Tags": [
        {
          "Value": "aluccloud122-balanceo",
          "Key": "Name"
        }
      ],
      "AmiLaunchIndex": 0
    }
  ]
}
```

# Conexión a la AWS Management Console

- Conéctate a
  - <http://grycap-aws.signin.aws.amazon.com/console>
  - Usa las credenciales que el instructor te mandó.

Germán Moltó Martínez <gmolto@gmail.com>

13 de marzo de 2014 07:34

Para: [Redacted]

[Ocultar detalles](#)

[Curso Cloud] Bienvenida y claves de acceso

[Enviado - Gmail](#) 110



Hola Antonio,

¡Bienvenido/a al Curso Online de Cloud Computing con Amazon Web Services!.

Es para mi un placer poder ser tu instructor durante estas cuatro semanas. Espero que el curso satisfaga tus expectativas y cualquier sugerencia de mejora o crítica que quieras hacer será muy bien recibida para mejorar en próximas ediciones. Me tienes a tu disposición para ayudarte a sacar el máximo provecho del curso.

Mediante este correo te hago llegar las cuentas y claves necesarias para que puedas llevar a cabo las prácticas. Conforme avances en el material del curso entenderás para que sirve cada una de ellas.

- ID alumno: aluccloudXXX
- SSH Password
- AWS Management Console Password



## Amazon Web Services Sign In

Please enter the AWS Identity & Access Management (IAM) User name and password assigned by your system administrator to sign in.

AWS Account: grycap-aws

User Name: aluccloud40

Password: [Redacted]

[Sign in using our secure server](#)

Please contact your system administrator if you have forgotten your user credentials.

[Sign in using AWS Account credentials](#)

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# Conexión al Entorno de Prácticas

- Desde Terminal en OS X y en GNU/Linux.
- Desde un cliente SSH en Windows
  - Putty
- Conectarse a lab.cursocloudaws.net
  - alucloudXXX / SSH password

```
gmlto$ ssh alucloud00@lab.cursocloudaws.net
Welcome to Ubuntu 12.04.4 LTS (GNU/Linux 3.2.0-63-virtual x86_64)

* Documentation:  https://help.ubuntu.com/

System information as of Mon Feb  9 15:47:10 UTC 2015

System load:  0.0                Processes:    78
Usage of /:   44.8% of 7.87GB     Users logged in: 2
Memory usage: 21%                IP address for eth0: 10.178.198.185
Swap usage:   0%

Graph this data and manage this system at:
https://landscape.canonical.com/

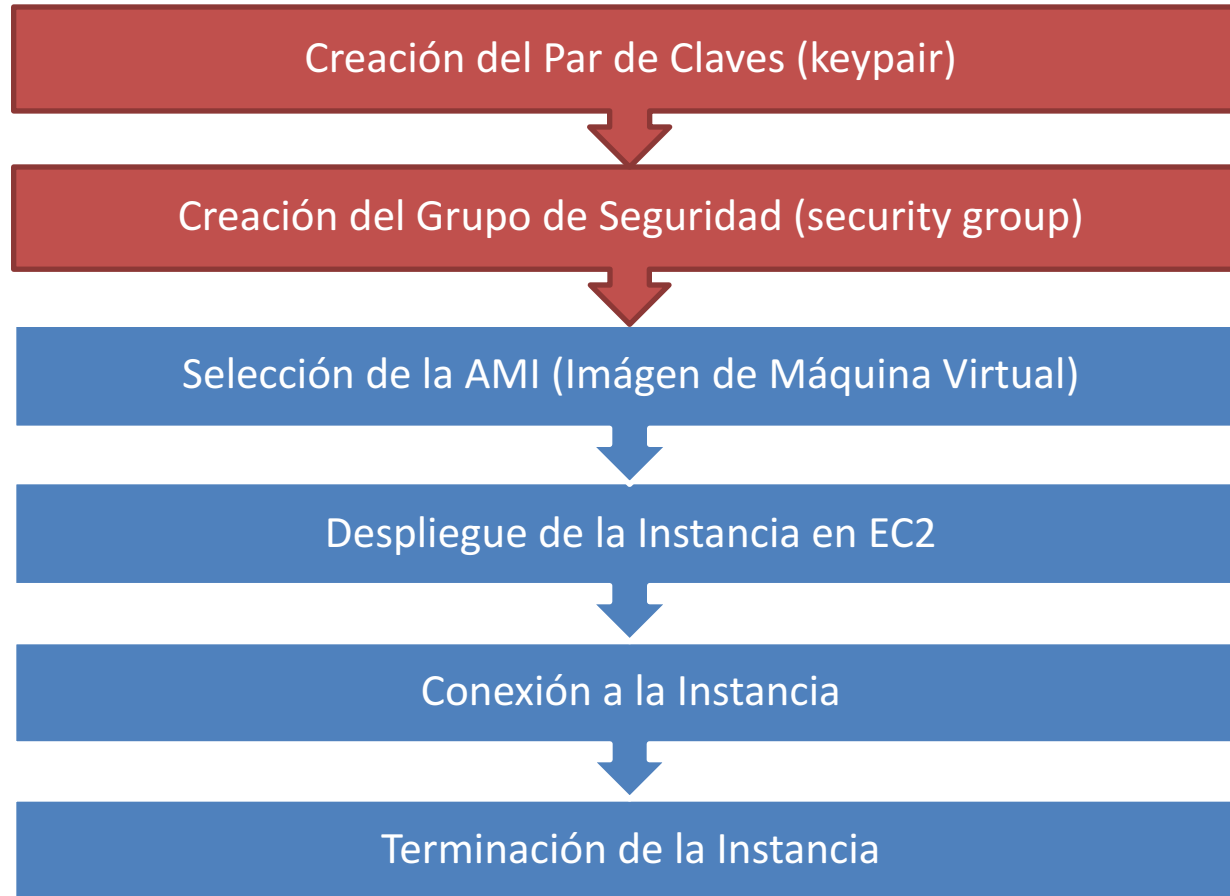
218 packages can be updated.
153 updates are security updates.

New release '14.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Get cloud support with Ubuntu Advantage Cloud Guest
http://www.ubuntu.com/business/services/cloud
*** /dev/xvda1 will be checked for errors at next reboot ***

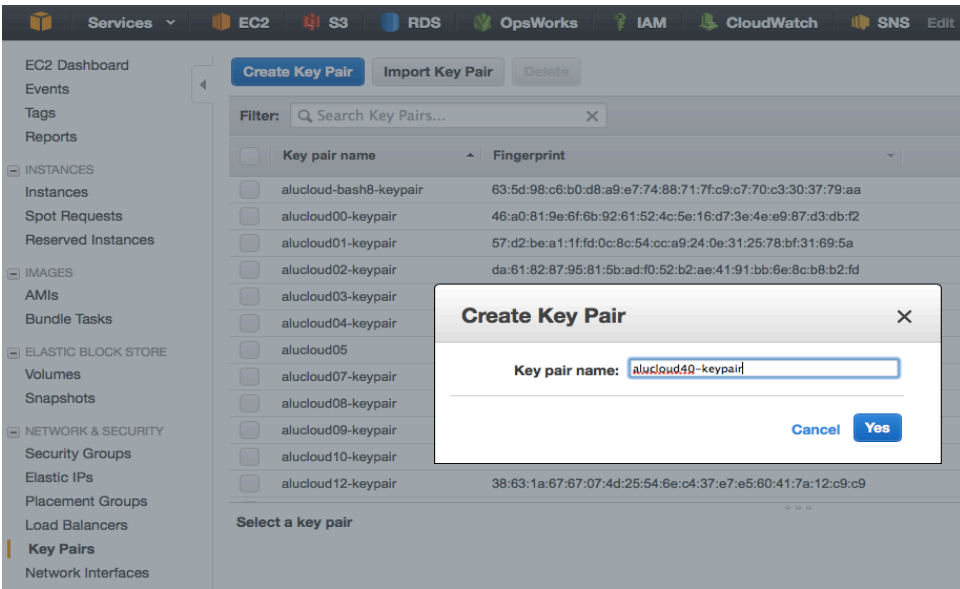
  A  W  S
-----
(c) Automatically configured by Germán Moltó - gmlto@dsic.upv.es
Last login: Mon Feb  9 15:20:17 2015 from felis.i3m.upv.es
alucloud00@ip-10-178-198-185:~$
```

# Despliegue de Instancias en AWS



# Creación del Par de Claves

- El par de claves permite la conexión a las instancias Linux mediante SSH sin necesidad de especificar la contraseña.



```
-----BEGIN RSA PRIVATE KEY-----
MIIEpQIBAACAQEAyX5Pldyk4DNWY/QUsk80XNiSo7WjIjVjcnZl82cM3K0UqIDB00MUjxyK/1Xo
JLoyhsbL/8ICmywdBh0fKzB5/bGsuyRe34FwzjeTQpuucqL648IgJE2q+wfV1uG1j1H03mtwKVAE
kT+05T1sc0T+DmuVD5H2a3P9qj583vhauA2zBMvUc6iZpSA10GCdXsYgzfEzLbvR04AytfgVeqU0
UJu2++isVxsaLTmMrF+mftPqRqVrrmWirAy6LiaRmsSTVXYnkeF4JdIkx3ln9u7vMIInE//uWvC2L
Ya/NKpL4G9Ivx30FE4d04Liz4Dk34Ga7fZ5Z++GVkuiEpWmJ8ocL9wIDAQABAoIBAQCZ6f0KpWi2
j6RQmEM6nrQ1CuaLdgiPXAAt+iuNUXukrJDWYvgAs8H2auFLHhNR1SEBTRD7/LgeF1BbyLNo3AwPd
zs4B/Vx65v4Q9aH64vxc16X4nnh2qff/PiZ+YQhBpFred/FFD0J5If1pDnNm1M8DJf0tMLZGERg
v5U17HHp9vSJPzBBHURpvr7rfQxk3GvkYN0ca/KDmJ6U0x5VwsEdDsybBH/uLMD26FwKy8bhFNS
yM40NhezY+0cFxnRx+zGpKRXIb8oZpA239eE6hknLdmobmuybWwErBz7aYtB5Rh4ytdaVufKXJWE
WG2AkavcYMuV3ggL8bq3D1QZztUJAoGBAPmZLcQYCVg8DErf5xAC+q/JU7eUnSx2m3SHWNX29Th
b9wbj6sLkeEMTKpa0Rf0tck+RHk4vBW9X+tYUGM3PK7M01YPr7/j0sQtQgZ8puotskjkHeo7T6DM
hXiPpziJ6cw+/w7whNoTIkVrnN2zDHj9fJy/jK1BRh6ISjImg23FAoGBANBT89WjvCwplKnU0twb
oo2A+uUNHbPdai/wxkbRJTrbpbrHBTjPdpF5izAsLwK9KJnhf+XF2ZCMFrt+oUp2DsP8KGrG5CLK
VblgKJ5SjL+8mGoEd0Eu6b5u/ve4UkAFQx+x3iBMQKZtHjVVeCKVdLZ5RZNVtZ0Ph/C1+g/AKcQL
AoGBAPTwwTs0iTB1RLJMSN5h9h7yZk+IeIzyuTRLHfIPF7pLXLY4f5mxUaAo63Gq3Ewr4zRS0ip
oZhrDm20/MNOI0rGMat2rwUNMVduVupTZIYjxPWQ09u5RwS7kURmXambLmNbsAOLA2VMYhtfjP
rK7TWMwKwghhamTAJVEvHgtAoGAR4+PAQPrzUqjPPN00y2C+PiFNoj62v4Dq9QZ90v37fzheU3
dfxNzkrh9Po33x6TA8i+XL9JrM1yQZWN8fx7vHaxq4T02Md2aucNDNVu6507HX80PfMwc3Np2o5
VqR4Gj5pAikvS/vPKJ3UenK3YLqz0FRA3UaTSU1cJ0hx2ECgYEAxGRRnIFJ3h7sWCZiHdAd12HI
TbdLsh1HcGAR2Asdr43oR6MIo6C097gSwmJygc3uI57ETLdIH+4a6H72/3pq4G014u/LB0xuogw
9hX4Nqqm1/gAQ3E10R/ENXwz6mG/Co8geoiGqynQ7+r1o+0t4dtioslpMNZE1pfzHD1MgM=
-----END RSA PRIVATE KEY-----
```

# Grupos de Seguridad

- El grupo de seguridad (SG) permite especificar una configuración de puertos abiertos en las instancias desplegadas con dicho SG.
- Ejemplos típicos:
  - Puerto 80:  
Servidor web.
  - Puerto 22:  
Servidor SSH

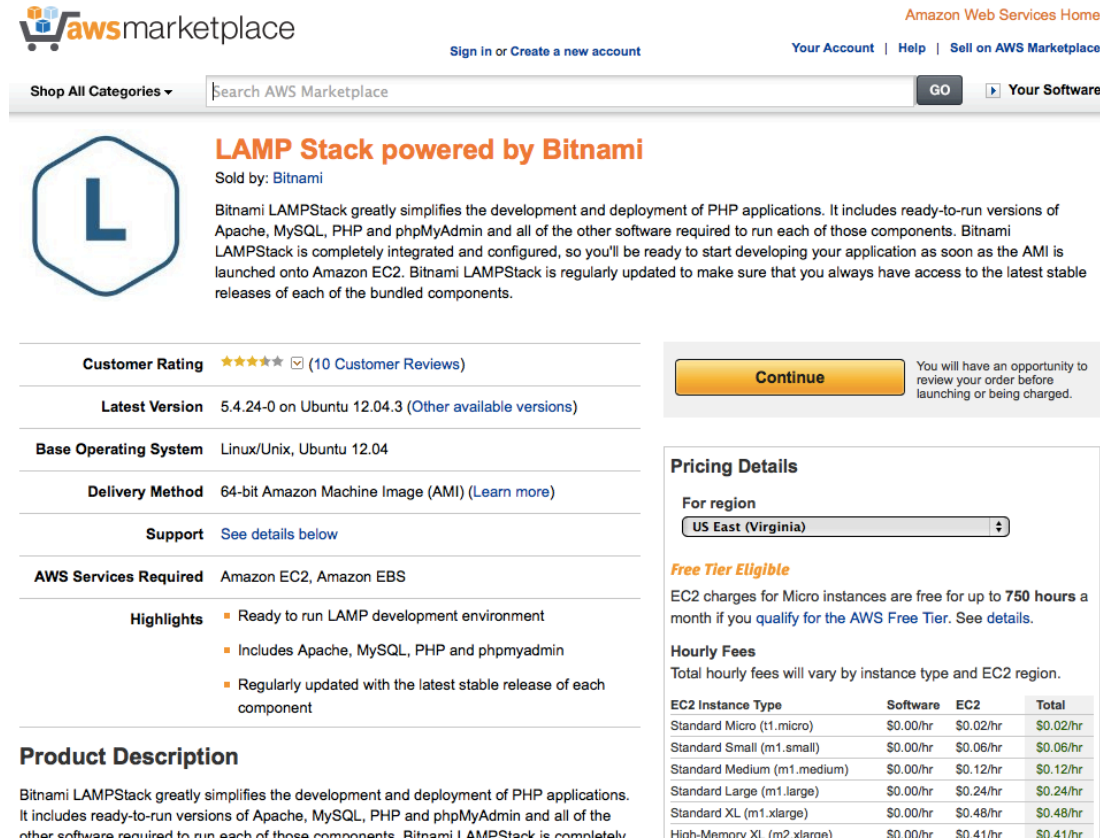
The screenshot shows the 'Create Security Group' interface in the AWS Management Console. The 'Security group name' is 'gs-aws-00', the 'Description' is 'GS del alumno 00', and the 'VPC' is 'No VPC'. Under 'Security group rules', the 'Inbound' tab is active, showing two rules: 'Custom TCP Rule' for port 80 and 'Custom TCP Rule' for port 22, both allowing traffic from 'Anywhere' (0.0.0.0/0). At the bottom right, there are 'Cancel' and 'Create' buttons.

Type	Protocol	Port Range	Source
Custom TCP Rule	TCP	80	Anywhere 0.0.0.0/0
Custom TCP Rule	TCP	22	Anywhere 0.0.0.0/0



# Selección del AMI

- Usará el AWS Marketplace para elegir AMIs.
  - LAMP Stack



The screenshot shows the AWS Marketplace interface for the 'LAMP Stack powered by Bitnami'. The page includes a header with the AWS Marketplace logo, navigation links, and a search bar. The main content area features a large 'L' logo, the product title, and a description. Below this is a table of specifications including Customer Rating, Latest Version, Base Operating System, Delivery Method, Support, and AWS Services Required. A 'Highlights' section lists key features. The 'Product Description' section provides more details about the stack. On the right, there is a 'Continue' button, a 'Pricing Details' section with a region selector, and a table of hourly fees for different EC2 instance types.

**LAMP Stack powered by Bitnami**  
Sold by: Bitnami

Bitnami LAMPStack greatly simplifies the development and deployment of PHP applications. It includes ready-to-run versions of Apache, MySQL, PHP and phpMyAdmin and all of the other software required to run each of those components. Bitnami LAMPStack is completely integrated and configured, so you'll be ready to start developing your application as soon as the AMI is launched onto Amazon EC2. Bitnami LAMPStack is regularly updated to make sure that you always have access to the latest stable releases of each of the bundled components.

<b>Customer Rating</b>	★★★★★ (10 Customer Reviews)
<b>Latest Version</b>	5.4.24-0 on Ubuntu 12.04.3 (Other available versions)
<b>Base Operating System</b>	Linux/Unix, Ubuntu 12.04
<b>Delivery Method</b>	64-bit Amazon Machine Image (AMI) (Learn more)
<b>Support</b>	See details below
<b>AWS Services Required</b>	Amazon EC2, Amazon EBS

**Highlights**

- Ready to run LAMP development environment
- Includes Apache, MySQL, PHP and phpmyadmin
- Regularly updated with the latest stable release of each component

**Product Description**

Bitnami LAMPStack greatly simplifies the development and deployment of PHP applications. It includes ready-to-run versions of Apache, MySQL, PHP and phpMyAdmin and all of the other software required to run each of those components. Bitnami LAMPStack is completely

**Continue** You will have an opportunity to review your order before launching or being charged.

**Pricing Details**

For region: **US East (Virginia)**

**Free Tier Eligible**

EC2 charges for Micro instances are free for up to **750 hours** a month if you qualify for the **AWS Free Tier**. See details.

**Hourly Fees**

Total hourly fees will vary by instance type and EC2 region.

EC2 Instance Type	Software	EC2	Total
Standard Micro (t1.micro)	\$0.00/hr	\$0.02/hr	\$0.02/hr
Standard Small (m1.small)	\$0.00/hr	\$0.06/hr	\$0.06/hr
Standard Medium (m1.medium)	\$0.00/hr	\$0.12/hr	\$0.12/hr
Standard Large (m1.large)	\$0.00/hr	\$0.24/hr	\$0.24/hr
Standard XL (m1.xlarge)	\$0.00/hr	\$0.48/hr	\$0.48/hr
High-Memory XL (m2.xlarge)	\$0.00/hr	\$0.41/hr	\$0.41/hr

# Despliegue de Instancias en EC2

- Desplegarás instancias de AMIs con EC2.
  - En una región
  - De un tipo de instancia.
  - Con un grupo de seguridad
  - Ligadas a un par de claves.

An instance of this software is now deploying on EC2.

- If you would like to check the progress of this deployment, go to the [AWS Management Console](#)
- The software will be ready in 2-3 minutes.

## Usage Instructions

Once the instance is running, you can connect to your using your Amazon private key and the 'bitnami' login via SSH. You can find all the Stack components like Apache, MySQL, etc and the required dependencies in the '/opt/bitnami' folder.

## Software Installation Details

Product	LAMP Stack powered by Bitnami
Version	5.4.24-0 on Ubuntu 12.04.3, released 01/30/2014
Region	US East (Virginia)
EC2 Instance Type	Standard Micro (t1.micro)
Instance ID	Visit the <a href="#">AWS Management Console</a> to see the instance ID
Security Group	gs-aws-40
Key Pair	alucoud40-keypair

# Monitorizar el Ciclo de Vida de las Instancias

- Utilizarás la consola de administración de EC2 para monitorizar y gestionar el ciclo de vida de las instancias.

Services ▾ EC2 S3 RDS VPC IAM CloudWatch Edit gmlto @ grycap-aws N. Virginia Support ▾

EC2 Dashboard  
Events  
Tags  
Reports  
Limits

INSTANCES  
**Instances**  
Spot Requests  
Reserved Instances

We have detected that certain Amazon EC2 instances running Windows Server 2012 R2 lose network connectivity after an instance reboot. [Show more.](#)

Resources

You are using the following Amazon EC2 resources in the US E

6 Running Instances  
13 Volumes  
94 Key Pairs  
0 Placement Groups

3 E  
86 S  
0 L  
214 S

Launch Instance Connect Actions ▾

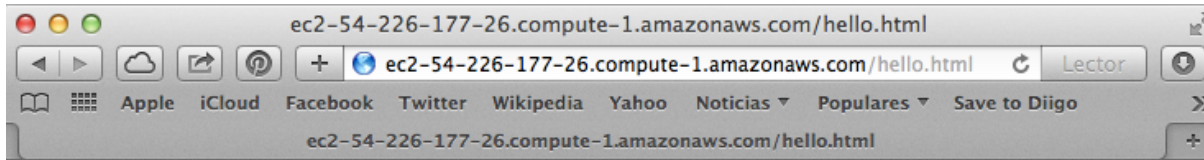
Filter: All instances ▾ All instance types ▾ Search Instances

	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS	Publ	Key Name
<input type="checkbox"/>		i-00bf1464	t1.micro	us-east-1d	stopped		None			im-138600674815
<input type="checkbox"/>		i-3a302d1a	m1.small	us-east-1e	running	2/2 checks...	None	ec2-54-80-...	54...	alucoud22-keypair
<input type="checkbox"/>		i-4cf6aa6d	t1.micro	us-east-1d	running	2/2 checks...	None	ec2-54-21...	54...	cursocloudaws-keypair
<input type="checkbox"/>		i-71632150	t1.micro	us-east-1d	stopped		None			alucoud14
<input type="checkbox"/>	cursocloudaws...	i-73279b5d	t1.micro	us-east-1c	stopped		No Data			alucoud00-keypair
<input type="checkbox"/>	iacaws	i-736d3b0a	t1.micro	us-east-1c	stopped		None			alucoud00-keypair
<input type="checkbox"/>		i-76005b57	t1.micro	us-east-1d	running	Initializing	None	ec2-54-80-...	54...	alucoud40-keypair
<input type="checkbox"/>	im	i-849458aa	t1.micro	us-east-1c	running	2/2 checks...	None	ec2-107-2...	107...	alucoud00-keypair
<input type="checkbox"/>	cursocloudaws	i-88113da8	t1.micro	us-east-1e	running	2/2 checks...	None	ec2-54-22...	54...	alucoud00-keypair
<input type="checkbox"/>	cdmi-ftp	i-89eedee6	m1.small	us-east-1d	stopped		None			micafer

Create status check alarms

# Acceso a las Instancias (Linux)

- Te conectarás por SSH y desplegarás un servidor web Apache en una instancia Linux como prueba de concepto.





## Hello from the Cloud

- Verás la funcionalidad de las instancias desplegadas en AMIs basadas en EBS
  - Pueden detenerse y volver a ser iniciadas.

# Acceso a las Instancias (Windows)

- Obtendrás las credenciales de Administrador
- Te conectarás por Escritorio Remoto

Amazon Web Services Home  
Hello, alucloud00@gryc.... (Sign out) [Your Account](#) | [Help](#) | [Sell on AWS Marketplace](#)  
Shop All Categories ▾ Search AWS Marketplace



## Microsoft Windows Server 2008 R2 Base

Sold by: Amazon Web Services

Amazon EC2 running Microsoft Windows Server is a fast and dependable environment for deploying applications using the Microsoft Web Platform. Amazon EC2 enables you to run any compatible Windows-based solution on AWS' high-performance, reliable, cost-effective, cloud computing platform. Common Windows use cases include Enterprise Windows-based application hosting, website and web-service hosting, data processing, media transcoding, distributed testing, ASP.NET application hosting, and any other application requiring Windows software.

### Retrieve Default Windows Administrator Password

To access this instance remotely (e.g. Remote Desktop Connection), you will need your Windows Administrator password. A default password was created when the instance was launched and is available encrypted in the system log.

To decrypt your password, you will need your key pair for this instance. Browse to your key pair, or copy and paste the contents of your private key file into the text area below, then click Decrypt Password.

The following Key Pair was associated with this instance when it was created.

Key Name	Key Pair Path
alucloud00-keypair	<input type="button" value="Seleccionar archivo"/> nada seleccionado

In order to retrieve your password you will need to specify the path of this Key Pair on your local machine:

Or you can copy and paste the contents of the Key Pair below:

```
-----BEGIN RSA PRIVATE KEY-----
MIIEogIBAAKCAQEAJECEDdTzpyVstHX1u9cIDkdvlaZaDGtPTyCR6gDFzftwUgdX9FUCH/ujup+s
3UUIE2SKGkSs+pzT/2E9M4OMeNR11f4nlQ9IHqFG36Ywmvgc8lLawLCcddEO0BETLWZSCtJE6
N+65cQephWmpM17WxarSp7gdrnv0zDznT31IDdk6urOsDR6o54VcEwyHvT6Ay8nnyNcuTssKEme
U6XBN6AzAUXIWbpSh3D2to4X2XZv4PWFodRSvBvK4xUyW681tonLuraBEHKL1xYQaikV1UKnYoZb
-----
```

You will have an opportunity to review your order before launching or being charged.

### Instance Details

Region: **us-east-1 (Virginia)**

**Free Tier Eligible**

Free tier usage for Micro instances are free for up to **750 hours** a month if you qualify for the **AWS Free Tier**. See details.

### Fees

Hourly fees will vary by instance type and EC2 region.

Instance Type	Total Cost
t2.micro	\$0.018/hr
t2.xlarge	\$0.036/hr
m3.xlarge	\$0.072/hr
m3.xlarge	\$0.02/hr
m3.xlarge	\$0.075/hr
m3.xlarge	\$0.149/hr

# Conclusiones

- En esta práctica utilizarás la funcionalidad básica del servicio Amazon EC2 para aprovisionar instancias de cómputo basadas en Linux y en Windows.
- Gestionarás su ciclo de vida y aprenderás el mecanismo de acceso a las misma.
- Aprenderás los principales conceptos ligados a Amazon EC2.