

Enxeñaría de Infraestruturas Informáticas

Grao en Enxeñaría Informática



MEMORIA DE PRÁCTICAS DE AWS
SESIÓN 3: ARQUITECTURA DE ALTA
DISPOÑIBILIDADE EN AWS

Alonso Rodriguez Iglesias

SESIÓN 3

Configuración dunha arquitectura de alta dispoñibilidade en AWS.

Paso 1: Crear unha AMI para o servidor web.

- **Captura 1.1:** propiedades da instancia a partir da que se crea a AMI.

The screenshot shows the AWS EC2 Instances page. At the top, there's a search bar and navigation links for 'Instancias' and 'i-031f95ccb5b56163c'. Below the header, a summary card for instance 'i-031f95ccb5b56163c (ari2021-webserver)' is displayed, including its public IP (54.226.167.236), DNS name (ec2-54-226-167-236.compute-1.amazonaws.com), and private IP (172.31.16.198). The instance is in the 'En ejecución' state and is a t2.micro type. A detailed error message from the Compute Optimizer is shown, indicating unauthorized access. The 'Información' tab is selected. Below the summary, there are several tabs: Detalles, Seguridad, Redes, Almacenamiento, Monitoreo, and Etiquetas. Under 'Detalles', various instance properties are listed, such as Platform (Amazon Linux), AMI ID (ami-04d29b6f966df1537), and monitoring status (disabled). Other tabs show host group information, reserved capacity, and accelerator details.

Screenshot of the AWS CloudWatch Metrics interface showing security and network details for an AWS Lambda function.

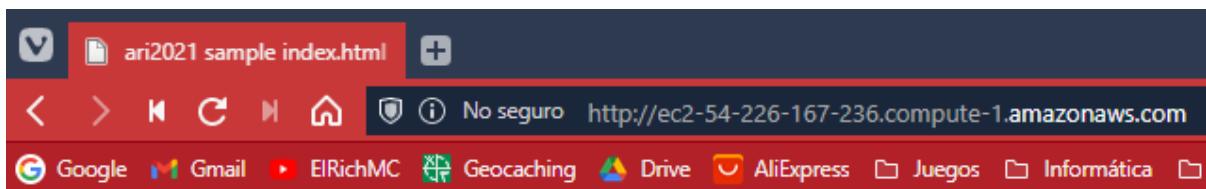
Seguridad (Security) Tab:

- Detalles (Details):** Shows IAM role (lambda-2021-12-17-00001), owner ID (071982259510), and launch time (Thu Dec 17 2020 19:29:27 GMT+0100).
- Reglas de seguridad (Security Rules):** Lists two rules for port 80 (TCP) and port 22 (TCP) allowing traffic from 0.0.0.0/0 to the alonso-rodriguez-secgroup.
- Reglas de salida (Outbound Rules):** Lists one rule for all traffic (Todo) going to 0.0.0.0/0 via TCP.

Redes (Network) Tab:

- Detalles de redes (Network Details):** Shows public IP (54.226.167.236), private IP (172.31.16.198), DNS (ip-172-31-16-198.ec2.internal), and VPC information (vpc-6e7ead13).
- Interfaces de red (Network Interfaces):** Shows one interface (eni-0abb0054d...) attached to the instance.
- Direcciones IP elásticas (Elastic IPs):** Shows no elastic IP addresses assigned to the instance.

- **Captura 1.2:** página web personalizada.



ari2021-index.html

I could write some really interesting things right here...

ari2021 :: Práctica 3 AWS EII2021

- Captura 1.3: propiedades da AMI creada para o servidor web.

The screenshot shows the AWS EC2 Image Builder interface. At the top, there's a search bar and navigation links for 'Launch', 'EC2 Image Builder', and 'Actions'. A message bar at the top right indicates the user is from 'Norte de Virginia' and has a support ticket open. Below the header is a table titled 'Owned by me' showing one item: 'ari2021-webami'. The table columns include Name, AMI ID, Source, Owner, Visibility, Status, Creation Date, Platform, Root Device Type, and Virtualization. The AMI details page shows the following information:

AMI ID	AMI Name	Owner	Status	Creation Date	Platform	Root Device Type	Virtualization	
ami-0761d95c3619c80b0	ari2021-webami	071982259510...	Private	available	December 17, 2020 at 7:43...	Other Linux	ebs	hvm

Below the table, there are tabs for 'Image', 'Details', 'Permissions', and 'Tags'. The 'Details' tab is selected, displaying the following configuration details:

AMI ID	AMI Name	Source	State Reason	Platform details	Usage operation	Virtualization type	Root Device Name	RAM disk ID	Product Codes
ami-0761d95c3619c80b0	ari2021-webami	071982259510/ari2021-webami	-	Linux/UNIX	RunInstances	hvm	/dev/xvda	-	-
Owner	AMI Name	Source	State Reason	Platform details	Usage operation	Virtualization type	Root Device Name	RAM disk ID	Product Codes
071982259510	ari2021-webami	071982259510/ari2021-webami	-	Linux/UNIX	RunInstances	hvm	/dev/xvda	-	-
Status	AMI Name	Source	State Reason	Platform details	Usage operation	Virtualization type	Root Device Name	RAM disk ID	Product Codes
available	ari2021-webami	071982259510/ari2021-webami	-	Linux/UNIX	RunInstances	hvm	/dev/xvda	-	-
Creation date	AMI Name	Source	State Reason	Platform details	Usage operation	Virtualization type	Root Device Name	RAM disk ID	Product Codes
December 17, 2020 at 7:43:37 PM UTC+1	ari2021-webami	071982259510/ari2021-webami	-	Linux/UNIX	RunInstances	hvm	/dev/xvda	-	-
Architecture	AMI Name	Source	State Reason	Platform details	Usage operation	Virtualization type	Root Device Name	RAM disk ID	Product Codes
x86_64	ari2021-webami	071982259510/ari2021-webami	-	Linux/UNIX	RunInstances	hvm	/dev/xvda	-	-
Image Type	AMI Name	Source	State Reason	Platform details	Usage operation	Virtualization type	Root Device Name	RAM disk ID	Product Codes
machine	ari2021-webami	071982259510/ari2021-webami	-	Linux/UNIX	RunInstances	hvm	/dev/xvda	-	-
Description	AMI Name	Source	State Reason	Platform details	Usage operation	Virtualization type	Root Device Name	RAM disk ID	Product Codes
Servidor web de ar2021	ari2021-webami	071982259510/ari2021-webami	-	Linux/UNIX	RunInstances	hvm	/dev/xvda	-	-
Root Device Type	AMI Name	Source	State Reason	Platform details	Usage operation	Virtualization type	Root Device Name	RAM disk ID	Product Codes
ebs	ari2021-webami	071982259510/ari2021-webami	-	Linux/UNIX	RunInstances	hvm	/dev/xvda	-	-
Kernel ID	AMI Name	Source	State Reason	Platform details	Usage operation	Virtualization type	Root Device Name	RAM disk ID	Product Codes
-	ari2021-webami	071982259510/ari2021-webami	-	Linux/UNIX	RunInstances	hvm	/dev/xvda	-	-
Block Devices	AMI Name	Source	State Reason	Platform details	Usage operation	Virtualization type	Root Device Name	RAM disk ID	Product Codes
/dev/xvda=snap-06493dbbd2f2dfb6c 8 true gp2	ari2021-webami	071982259510/ari2021-webami	-	Linux/UNIX	RunInstances	hvm	/dev/xvda	-	-

Paso 2: Crear un balanceador de carga.

- Captura 2.1: propiedades do balanceador de carga.

The screenshot shows the AWS Load Balancer configuration page for 'ari2021-loadbalancer'. At the top, there's a search bar and navigation links for 'Create Load Balancer' and 'Actions'. A message bar at the top right indicates the user is from 'Norte de Virginia' and has a support ticket open. Below the header is a table showing the load balancer details:

Name	DNS name	State	VPC ID	Availability Zones	Type	Created At	Monitoring
ari2021-loadbalancer	ari2021-loadbalancer-21152...	provisioning	vpc-6e7aad13	us-east-1a, us-east-1b	application	December 17, 2020 at 8:03...	disabled

Below the table, there are tabs for 'Description', 'Listeners', 'Monitoring', 'Integrated services', and 'Tags'. The 'Description' tab is selected, displaying the following basic configuration details:

Name	ARN	DNS name	VPC	Availability Zones	Type	Created At	Monitoring
ari2021-loadbalancer	arn:aws:elasticloadbalancing:us-east-1:071982259510:loadbalancer/app/ari2021-loadbalancer/8705974ddbe0b0a	ari2021-loadbalancer-211528334.us-east-1.elb.amazonaws.com	vpc-6e7aad13	(A Record)	provisioning	December 17, 2020 at 8:03...	disabled
					application		
State	ARN	DNS name	VPC	Availability Zones	Type	Created At	Monitoring
provisioning	arn:aws:elasticloadbalancing:us-east-1:071982259510:loadbalancer/app/ari2021-loadbalancer/8705974ddbe0b0a	ari2021-loadbalancer-211528334.us-east-1.elb.amazonaws.com	vpc-6e7aad13	(A Record)	application	December 17, 2020 at 8:03...	disabled
Type	ARN	Name	IP address type	State	Created At		
application	arn:aws:elasticloadbalancing:us-east-1:071982259510:loadbalancer/app/ari2021-loadbalancer/8705974ddbe0b0a	ari2021-loadbalancer	ipv4	provisioning			
Schema	ARN	DNS name	IP address type	Type	Created At		
internet-facing	arn:aws:elasticloadbalancing:us-east-1:071982259510:loadbalancer/app/ari2021-loadbalancer/8705974ddbe0b0a	ari2021-loadbalancer-211528334.us-east-1.elb.amazonaws.com	ipv4	application			
IP address type	ARN	Name	IP address type	Schema	Created At		
ipv4	arn:aws:elasticloadbalancing:us-east-1:071982259510:loadbalancer/app/ari2021-loadbalancer/8705974ddbe0b0a	ari2021-loadbalancer	ipv4	internet-facing			
IPV4	ARN	DNS name	IP address type	Schema	Created At		
Availability Zones	ARN	Name	IPV4	IPV4	Created At		
subnet-0a702647 - us-east-1a	arn:aws:elasticloadbalancing:us-east-1:071982259510:loadbalancer/app/ari2021-loadbalancer/8705974ddbe0b0a	ari2021-loadbalancer	IPv4 address: Assigned by AWS	us-east-1a			
subnet-6736bb38 - us-east-1b	arn:aws:elasticloadbalancing:us-east-1:071982259510:loadbalancer/app/ari2021-loadbalancer/8705974ddbe0b0a	ari2021-loadbalancer	IPv4 address: Assigned by AWS	us-east-1b			
Hosted zone	ARN	Name	Subnets	Availability Zones	Created At		
Z355XDOTRQ7X7K	arn:aws:elasticloadbalancing:us-east-1:071982259510:loadbalancer/app/ari2021-loadbalancer/8705974ddbe0b0a	ari2021-loadbalancer	subnet-0a702647 - us-east-1a, subnet-6736bb38 - us-east-1b	subnet-0a702647 - us-east-1a, subnet-6736bb38 - us-east-1b			
Creation time	ARN	Name	Subnets	Availability Zones	Created At		
December 17, 2020 at 8:03:23 PM UTC+1	arn:aws:elasticloadbalancing:us-east-1:071982259510:loadbalancer/app/ari2021-loadbalancer/8705974ddbe0b0a	ari2021-loadbalancer	subnet-0a702647 - us-east-1a, subnet-6736bb38 - us-east-1b	subnet-0a702647 - us-east-1a, subnet-6736bb38 - us-east-1b			

Below the table, there are tabs for 'Description', 'Listeners', 'Monitoring', 'Integrated services', and 'Tags'. The 'Description' tab is selected, displaying the following security and attributes configuration details:

Security groups	Edit security groups
sg_0ac2d8671d5ecf632, ar2021-elbsecgroup	Edit security groups
• Grupo de Seguridad del ELB	
Attributes	Edit attributes
Deletion protection	Disabled
Idle timeout	60 seconds
HTTP/2	Enabled
Desync mitigation mode	Defensive
Drop invalid header fields	Disabled
Access logs	Disabled
WAF fail open	Disabled

- **Captura 2.2:** regras de entrada do grupo de seguridade do balanceador.

sg-0ac2d8671d6ecfe32 - ari2021-elbsecgroup

Detalles				
Nombre del grupo de seguridad ari2021-elbsecgroup	ID del grupo de seguridad sg-0ac2d8671d6ecfe32	Descripción Grupo de Seguridad del ELB	ID de la VPC vpc-6e7ead13	Acciones
Propietario 071982259510	Número de reglas de entrada 4 Entradas de permisos	Número de reglas de salida 1 Entrada de permiso		

Reglas de entrada | Reglas de salida | Etiquetas

Reglas de entrada				
Tipo	Protocolo	Intervalo de puertos	Origen	Descripción: opcional
HTTP	TCP	80	0.0.0.0/0	-
HTTP	TCP	80	:/0	-
Regla ICMP personalizada - IPv4	Repetir solicitud	N/D	0.0.0.0/0	-
Regla ICMP personalizada - IPv4	Repetir solicitud	N/D	:/0	-

- **Captura 2.3:** propiedades do grupo obxectivo do balanceador.

ari2021-targetgroup

Basic configuration			
Target type Instance	Protocol : Port HTTP : 80	VPC vpc-6e7ead13	Load balancer ari2021-loadbalancer
	Protocol version HTTP1		

Group details | Targets | Monitoring | Tags

Health check settings	
Protocol HTTP	Path /index.html
Port traffic-port	Healthy threshold 5 consecutive health check successes
Unhealthy threshold 2 consecutive health check failures	Timeout 5 seconds
Interval 30 seconds	Success codes 200

Attributes	
Stickiness Disabled	Deregistration delay 300 seconds
Slow start duration 0 seconds	Load balancing algorithm Round robin

- Captura 2.4: regras de entrada do teu grupo de seguridad modificado.

The screenshot shows the AWS EC2 Groups page. The top navigation bar includes 'Buscar servicios, características, productos del Marketplace y documentos [Alt+S]', user information 'vocstartsoft/user1119839=alonso.rodriguez@udc.es @ 0719-8225...', 'Norte de Virginia', and 'Señal'. Below the navigation is a breadcrumb trail: 'EC2 > Grupos de seguridad > sg-026d0614601d3e135 - alonso-rodriguez-secgroup'. The main title is 'sg-026d0614601d3e135 - alonso-rodriguez-secgroup'. On the right, there is an 'Acciones' dropdown menu. The page has a 'Detalles' section with fields: 'Nombre del grupo de seguridad' (sg-026d0614601d3e135 - alonso-rodriguez-secgroup), 'ID del grupo de seguridad' (sg-026d0614601d3e135), 'Descripción' (Grupo de Seguridad de Alonso Rodriguez Elb2021), and 'ID de la VPC' (vpc-6e7ead13). Below this are sections for 'Propietario' (071982259510) and 'Reglas de entrada' (2 Entradas de permisos), 'Reglas de salida' (1 Entrada de permiso), and 'Etiquetas'. The 'Reglas de entrada' section lists two rules: one for HTTP (TCP port 80) and one for SSH (TCP port 22).

- Captura 2.5: propiedades do grupo de autoescalado.

The screenshot shows the AWS Auto Scaling Groups page. The top navigation bar includes 'Buscar servicios, características, productos del Marketplace y documentos [Alt+S]', user information 'vocstartsoft/user1119839=alonso.rodriguez@udc.es @ 0719-8225...', 'Norte de Virginia', and 'Señal'. Below the navigation is a breadcrumb trail: 'EC2 > Grupos de Auto Scaling: (1/1)'. The main title is 'Grupos de Auto Scaling: (1/1)'. On the right, there are buttons for 'Crear grupo de Auto Scaling' (Create Auto Scaling group), 'Editar' (Edit), and 'Eliminar' (Delete). The table lists one group: 'ari2021-autoscalegroup' (ari2021-launchconfig, 0 instances, 1 desired capacity, 1 minimum capacity, 1 maximum capacity, us-east-1a, us-east-1b). Below the table are tabs for 'Detalles', 'Actividad', 'Escalado automático', 'Administración de instancias', 'Monitoreo', and 'Actualización de instancias'. The 'Detalles' tab is selected. It shows details like 'Capacidad deseada' (1), 'Capacidad mínima' (1), 'Capacidad máxima' (1), 'Grupo de Auto Scaling' (ari2021-autoscalegroup), 'Fecha de creación' (Thu Dec 17 2020 20:20:40 GMT+0100), and 'Nombre de recurso de Amazon (ARN)' (arn:aws:autoscaling:us-east-1:071982259510:autoScalingGroup:d6548602-a366-4d86-a8eb-9a9ad29d0b36:autoScalingGroupName/ari2021-autoscalegroup). Other tabs show 'Configuración de lanzamiento' (Launch Configuration settings), 'Opciones de compra y tipos de instancias' (Purchase options and instance types), and a note about the configuration being unavailable without a launch template.

Red		Editar
Zonas de disponibilidad us-east-1a, us-east-1b	ID de subred subnet-673bbb38, subnet-0a702647	
Balance de carga		
Grupos de destino del balanceador de carga ari2021-targetgroup [?] [!]	Classic Load Balancers -	Editar
Comprobaciones de estado		
Tipo de comprobación de estado EC2 & ELB	Periodo de gracia de la comprobación de estado 300	Editar
Configuraciones avanzadas		
Protección de escalado descendente de instancias No protegido desde el escalado descendente	Políticas de terminación Default	Duración máxima de la instancia -
Grupo de ubicación -	Procesos suspendidos -	Recuperación predeterminada 300
		Role vinculado a servicios arn:aws:iam::071982259510:role/aws-service-role/autoscaling.amazonaws.com/AWSServiceRoleForAutoScaling
Etiquetas (0)		
Clave	Valor	Editar
Etiquetar instancias nuevas		

• Captura 2.6: propiedades da configuración de lanzamiento.

Configuraciones de lanzamiento (1/1) Info		Acciones ▾ Crear configuración de lanzamiento																				
<input type="text"/> Buscar configuraciones de lanzamiento																						
<table border="1"> <thead> <tr> <th>Nombre</th> <th>ID de AMI</th> <th>Tipo de instancia</th> <th>Precio de spot</th> <th>Hora de creación</th> </tr> </thead> <tbody> <tr> <td>ari2021-launchc...</td> <td>ami-0761d95c3619c80b0</td> <td>t2.micro</td> <td>-</td> <td>Thu Dec 17 2020 20:15:19 GMT+0100 (hora estándar de Europa central)</td> </tr> </tbody> </table>			Nombre	ID de AMI	Tipo de instancia	Precio de spot	Hora de creación	ari2021-launchc...	ami-0761d95c3619c80b0	t2.micro	-	Thu Dec 17 2020 20:15:19 GMT+0100 (hora estándar de Europa central)										
Nombre	ID de AMI	Tipo de instancia	Precio de spot	Hora de creación																		
ari2021-launchc...	ami-0761d95c3619c80b0	t2.micro	-	Thu Dec 17 2020 20:15:19 GMT+0100 (hora estándar de Europa central)																		
Configuración de lanzamiento: ari2021-launchconfig																						
Detalles																						
ID de AMI ami-0761d95c3619c80b0	Tipo de instancia t2.micro	Perfil de instancia de IAM -																				
ID de Kernel -	Nombre de la clave alonso-rodriguez-keypair	Monitoreo false																				
Optimizada para EBS false	Grupos de seguridad sg-02600614601d5e135	Precio de spot -																				
Hora de creación Thu Dec 17 2020 20:15:19 GMT+0100 (hora estándar de Europa central)	ID de disco de RAM -	Tipo de dirección IP Predeterminado																				
Metadatos accesibles -	Límite de saltos de los tokens -	Versión de los metadatos -																				
Datos de usuario -																						
Almacenamiento (volúmenes)																						
<table border="1"> <thead> <tr> <th colspan="6">Buscar dispositivos de bloques</th> </tr> <tr> <th>Dispositivo de bloques</th> <th>Tamaño (GiB)</th> <th>Tipo</th> <th>IOPS</th> <th>Eliminar al terminar</th> <th>Cifrado</th> </tr> </thead> <tbody> <tr> <td>/dev/xvda</td> <td>8</td> <td>gp2</td> <td>-</td> <td>true</td> <td>false</td> </tr> </tbody> </table>					Buscar dispositivos de bloques						Dispositivo de bloques	Tamaño (GiB)	Tipo	IOPS	Eliminar al terminar	Cifrado	/dev/xvda	8	gp2	-	true	false
Buscar dispositivos de bloques																						
Dispositivo de bloques	Tamaño (GiB)	Tipo	IOPS	Eliminar al terminar	Cifrado																	
/dev/xvda	8	gp2	-	true	false																	

- Captura 2.7: histórico do grupo de autoescalado.

The screenshot shows the AWS Auto Scaling Groups page. At the top, there's a search bar and navigation links. Below it, a table lists the group details:

Nombre	Plantilla de lanzamiento/config...	Instanc...	Estado	Capacidad des...	M...	M...	Zonas de disponibilidad
ari2021-autoscalegroup	ari2021-launchconfig	0	Actualización d...	1	1	1	us-east-1a, us-east-1b

Below the table, tabs for 'Detalles', 'Actividad' (which is selected), 'Escalado automático', 'Administración de instancias', 'Monitoreo', and 'Actualización de instancias' are visible. The 'Actividad' tab displays the following information:

Notificaciones de actividad (0)

Historial de actividad (2)

Estado	Descripción	Causa	Hora de inicio	Hora de finalización
Successful	Launching a new EC2 instance: i-03c2bb5dcab7f7356	At 2020-12-17T19:21:41Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:21:43 PM +01:00	2020 diciembre 17, 08:22:46 PM +01:00
Failed	Launching a new EC2 instance. Status Reason: Access denied when attempting to assume role amawsiam:071982259510:role/svs-service-role/autoscaling.amazon.aws.com/AWSServiceRoleForAutoScaling. Validating load balancer configuration failed.	At 2020-12-17T19:20:40Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 1. At 2020-12-17T19:20:41Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:20:42 PM +01:00	2020 diciembre 17, 08:20:42 PM +01:00

- Captura 2.8: instancia no grupo obxectivo do balanceador.

The screenshot shows the AWS Target Groups page. At the top, there's a search bar and navigation links. Below it, a table lists the target group details:

Target type	Protocol : Port	VPC	Load balancer
Instance	HTTP : 80	vpc-6e7ead13	ari2021-loadbalancer
	Protocol version HTTP1		

Below the table, tabs for 'Group details', 'Targets' (which is selected), 'Monitoring', and 'Tags' are visible. The 'Targets' tab displays the following information:

Registered targets (1)

Instance ID	Name	Port	Zone	Status	Status details
i-03c2bb5dcab7f7356		80	us-east-1a	healthy	

(Propiedades de la instancia en el Panel de EC2)

Resumen de instancia de i-03c2bb3dcab7f7356 (ari2021-INSTANCE1) Información

ID de la instancia: i-03c2bb3dcab7f7356 (ari2021-INSTANCE1)

Estado de la instancia: En ejecución

Tipo de instancia: t2.micro

Dirección IPv4 pública: 54.236.103.199 | dirección abierta

DNS de IPv4 pública: ec2-54-236-103-199.compute-1.amazonaws.com | dirección abierta

Direcciones IP elásticas:

Role de IAM:

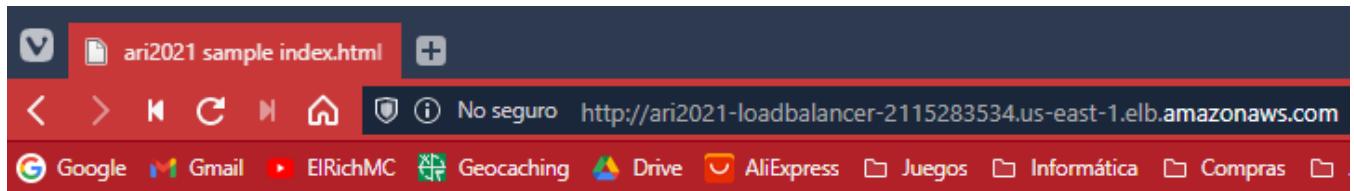
Direcciones IPv4 privadas:

DNS IPv4 privado:

ID de VPC:

ID de subnet:

- Captura 2.9: acceso á páxina web personalizada desde o balanceador.



ari2021-index.html

I could write some really interesting things right here...

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Paso 3: Comprobar o funcionamento do grupo de autoescalado.

NOTA: Al parecer la rueda de mi ratón pasó dos hojas de golpe en la transparencia donde se hablaba de eliminar la instancia1, así que a esta nueva le llamé instancia2 (ya que pensé que debía llamar instancia1 a la que ya tenía).

Estas capturas son de despues de crear la alarma, por si se viese alguna incoherencia temporal.

- Captura 3.1: histórico do grupo de autoescalado.

The screenshot shows the AWS Auto Scaling Groups page. At the top, there is a search bar and navigation links. Below the header, a table lists the group details:

Nombre	Plantilla de lanzamiento/config...	Instanc...	Estado	Capacidad des...	M...	M...	Zonas de disponibilidad
ari2021-autoscalegroup	arn2021-launchconfig	1	-	1	1	1	us-east-1a, us-east-1b

Below the table, a section titled "Historial de actividad (4)" displays the activity log:

Estado	Descripción	Causa	Hora de inicio	Hora de finalización
Successful	Launching a new EC2 instance: i-01d894b6955375a53	At 2020-12-17T19:49:13Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:49:16 PM +01:00	2020 diciembre 17, 08:49:48 PM +01:00
WaitingForELBConnectionDraining	Terminating EC2 instance: i-03c2bb3dcab7f7356 - Waiting For ELB Connection Draining.	At 2020-12-17T19:48:53Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2020 diciembre 17, 08:48:53 PM +01:00	
Successful	Launching a new EC2 instance: i-03c2bb3dcab7f7356	At 2020-12-17T19:21:41Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:21:43 PM +01:00	2020 diciembre 17, 08:22:46 PM +01:00
Failed	Launching a new EC2 instance. Status Reason: Access denied when attempting to assume role arn:aws:iam::07198225910:role/aws-service-role/autoscaling.amazonaws.com/AWSServiceRoleForAutoScaling. Validating load balancer configuration failed.	At 2020-12-17T19:20:40Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 1. At 2020-12-17T19:20:41Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:20:42 PM +01:00	2020 diciembre 17, 08:20:42 PM +01:00

- Captura 3.2: instancia no grupo obxectivo do balanceador.

The screenshot shows the AWS Target Groups page. At the top, there is a search bar and navigation links. Below the header, a table shows the basic configuration:

Target type	Protocol : Port	VPC	Load balancer
Instance	HTTP : 80	vpc-6e7ead13	ari2021-loadbalancer
	Protocol version		
	HTTP1		

Below the configuration table, tabs for "Group details", "Targets" (which is selected), "Monitoring", and "Tags" are visible. The "Targets" tab shows the registered targets:

Instance ID	Name	Port	Zone	Status	Status details
i-01d894b6955375a53	ari2021-instance2	80	us-east-1b	healthy	

- Captura 3.3: acceso á páxina web personalizada desde o balanceador.

The screenshot shows a web browser window with the following details:

- Title Bar:** ari2021 sample index.html
- Address Bar:** http://ari2021-loadbalancer-2115283534.us-east-1.elb.amazonaws.com
- Toolbar:** Back, Forward, Stop, Home, Refresh, No seguro (Not secure), Google, Gmail, YouTube, ElRichMC, Geocaching, Drive, AliExpress, Juegos, Informática, Compras, etc.
- Content Area:**

ari2021-index.html

I could write some really interesting things right here...

ari2021 :: Práctica 3 AWS EII2021

Paso 4: Engadir políticas de escalado ao grupo de autoescalado.

- Captura 4.1: política de escalado horizontal "scaleoutpolicy".

The screenshot shows the AWS CloudWatch Metrics Insights interface with the following details:

- Top Navigation:** Buscar servicios, características, productos del Marketplace y documentos [Alt+S]
- Region:** Norte de Virginia
- Metrics:** CPUUtilization
- Time Range:** 2021-07-01T00:00:00Z - 2021-07-01T01:00:00Z
- Metrics Insights Query:**

```
CloudWatch Metrics Insights Query
SELECT * FROM /aws/lambda/ari2021-lambdafunction WHERE @version = 1 AND @timestamp >= 2021-07-01T00:00:00Z AND @timestamp < 2021-07-01T01:00:00Z
```
- Table Headers:** @version, @timestamp, @label, @metricname, @statistic, @unit, @value
- Data Rows:**

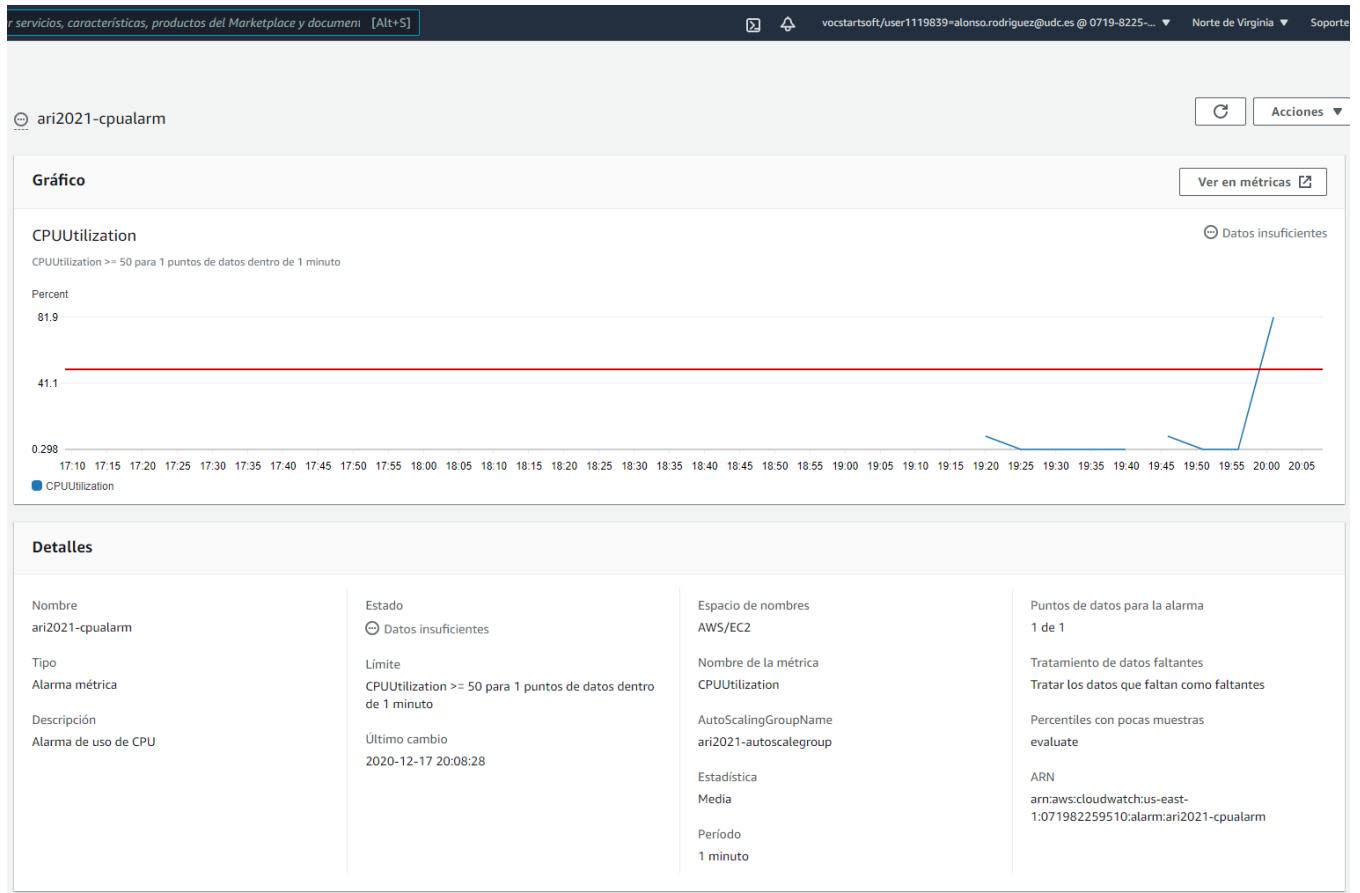
@version	@timestamp	@label	@metricname	@statistic	@unit	@value
1	2021-07-01T00:00:00Z	ARI2021	CPUUtilization	Average	%	50.0

- Captura 4.2: información de monitorización da instancia estresada.

Screenshot of the AWS CloudWatch Metrics dashboard for the 'ari2021' instance. The top section shows the instance list with two entries: 'ari2021-INSTANCE2' and 'ari2021-INSTANCE3'. The bottom section displays various metrics over time (19:15 to 20:00) for 'ari2021-INSTANCE2'.

Metrica	Unidad	Valor
Utilización de la CPU (%)	Percent	99.6
Entrada de red (bytes)	Bytes	8.70k
Lecturas de disco (bytes)	Bytes	1
Uso de créditos de CPU (recuento)	Count	3.14
Comprobación de estado no superada (cualquier...)	Count	1
Salida de red (bytes)	Bytes	106k
Operaciones de lectura de disco (operaciones)	Count	0
Saldo de créditos de CPU (recuento)	Count	31.2
Comprobación de estado no superada (instancia ...)	Count	1
Paquetes de entrada de red (recuento)	Count	109
Escrituras de disco (bytes)	Bytes	0.5
Paquetes de salida de red (recuento)	Count	52.5
Operaciones de escritura de disco (operaciones)	Count	0

- **Captura 4.3:** propiedades da alarma "cpualarm"



- **Captura 4.4:** histórico do grupo de autoescalado.

Recordemos que no terminé la primera instancia de todas cuando se indicó en el pdf, así que los dos eventos **Succesful** encuadrados en naranja son respecto a esa instancia, que no debería estar ahí.

Grupos de Auto Scaling: (1/1)

Nombre	Plantilla de lanzamiento/config...	Instanc...	Estado	Capacidad des...	M...	M...	Zonas de disponibilidad
ari2021-autoscalegroup	ari2021-launchconfig	2	-	2	1	2	us-east-1a, us-east-1b

Historial de actividad (5)

Estado	Descripción	Causa	Hora de inicio	Hora de finalización
Successful	Launching a new EC2 instance: i-09f82ae33b281bf6	At 2020-12-17T20:06:28Z a monitor alarm arি2021-cpualarm in state ALARM triggered policy arি2021-scaleoutpolicy changing the desired capacity from 1 to 2. At 2020-12-17T20:06:36Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 1 to 2.	2020 diciembre 17, 09:06:38 PM +01:00	2020 diciembre 17, 09:07:10 PM +01:00
Successful	Launching a new EC2 instance: i-01d94b6955375a53	At 2020-12-17T19:49:13Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:49:16 PM +01:00	2020 diciembre 17, 08:49:48 PM +01:00
Successful	Terminating EC2 instance: i-03c2bb3dcab7f7356	At 2020-12-17T19:48:53Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2020 diciembre 17, 08:48:53 PM +01:00	2020 diciembre 17, 08:54:15 PM +01:00
Successful	Launching a new EC2 instance: i-03c2bb3dcab7f7356	At 2020-12-17T19:21:41Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:21:43 PM +01:00	2020 diciembre 17, 08:22:46 PM +01:00
Failed	instance. Status Reason: Access denied when attempting to assume role arn:aws:iam::071982259510:role/aws-service-role/autoscaling.amazonaws.com/AWSServiceRoleForAutoScaling. Validating load balancer configuration failed.	At 2020-12-17T19:20:40Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 1. At 2020-12-17T19:20:41Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:20:42 PM +01:00	2020 diciembre 17, 08:20:42 PM +01:00

- **Captura 4.5:** correo de notificación da alarma "cpualarm".

Jeje, en este punto me llamaron de urgencia y tuve que salir de casa casi media hora, y al llegar a casa, a parte de la sesión de aws caducada (para variar), me encuentro con esto:

Así que pues bueno, pondré uno de los avisos...

AWS Notifications
ALARM: "ari2021-cpualarm" i... 21:32
You are receiving this email because your A...

AWS Notifications
ALARM: "ari2021-cpualarm" i... 21:27
You are receiving this email because your A...

AWS Notifications
ALARM: "ari2021-cpualarm" i... 21:22
You are receiving this email because your A...

AWS Notifications
ALARM: "ari2021-cpualarm" i... 21:17
You are receiving this email because your A...

AWS Notifications
ALARM: "ari2021-cpualarm" i... 21:12
You are receiving this email because your A...

AWS Notifications
ALARM: "ari2021-cpualarm" i... 21:06
You are receiving this email because your A...

AWS Notifications
AWS Notification - Subscripti... 20:42
You have chosen to subscribe to the topic: ar...

AN

AWS Notifications <no-reply@sns.amazonaws.com>

Jue 17/12/2020 21:06

Para: Alonso Rodríguez Iglesias



You are receiving this email because your Amazon CloudWatch Alarm "ari2021-cpualarm" in the US East (N. Virginia) region has entered the ALARM state, because "Threshold Crossed: 1 datapoint [81.88642006292069 (17/12/20 20:01:00)] was greater than or equal to the threshold (50.0)." at "Thursday 17 December, 2020 20:06:28 UTC".

View this alarm in the AWS Management Console:

<https://us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#s=Alarms&alarm=ari2021-cpualarm>

Alarm Details:

- Name: ari2021-cpualarm
- Description: Alarma de uso de CPU
- State Change: INSUFFICIENT_DATA -> ALARM
- Reason for State Change: Threshold Crossed: 1 datapoint [81.88642006292069 (17/12/20 20:01:00)] was greater than or equal to the threshold (50.0).
- Timestamp: Thursday 17 December, 2020 20:06:28 UTC
- AWS Account: 071982259510
- Alarm Arn: arnaws:cloudwatch:us-east-1:071982259510:alarm:ari2021-cpualarm

Threshold:

- The alarm is in the ALARM state when the metric is GreaterThanOrEqualToThreshold 50.0 for 60 seconds.

Monitored Metric:

- MetricNamespace: AWS/EC2
- MetricName: CPUUtilization
- Dimensions: [AutoScalingGroupName = ari2021-autoscalegroup]
- Period: 60 seconds
- Statistic: Average
- Unit: not specified

State Change Actions:

- OK:
- ALARM: [arn:aws:sns:us-east-1:071982259510:ari2021-topic] [arn:aws:autoscaling:us-east-1:071982259510:scalingPolicy:87929084-bab1-4d9a-b3c2-50ce34f95ca8:autoScalingGroupName=ari2021-autoscalegroup;policyName=ari2021-scaleoutpolicy]
- INSUFFICIENT_DATA:

--

If you wish to stop receiving notifications from this topic, please click or visit the link below to unsubscribe:

<https://sns.us-east-1.amazonaws.com/unsubscribe.html?SubscriptionArn=arnaws:sns:us-east-1:071982259510:ari2021-topic:b04733fc-091a-4be5-a065-9747ab7b5482&Endpoint=alonso.rodriguez@udc.es>

Please do not reply directly to this email. If you have any questions or comments regarding this email, please contact us at <https://aws.amazon.com/support>

[Responder](#) | [Reenviar](#)

• Captura 4.6: política de escalado horizontal "scaleinpolicy".

ari2021-scaleinpolicy



Tipo de política:

Escalado sencillo

Habilitado o deshabilitado?

Habilitar

Ejecutar la política cuando:

ari2021-cpurelax

superá el umbral de alarma: CPUUtilization <= 20 durante 1 períodos consecutivos de 60 segundos para las dimensiones de métricas:

AutoScalingGroupName = ari2021-autoscalegroup

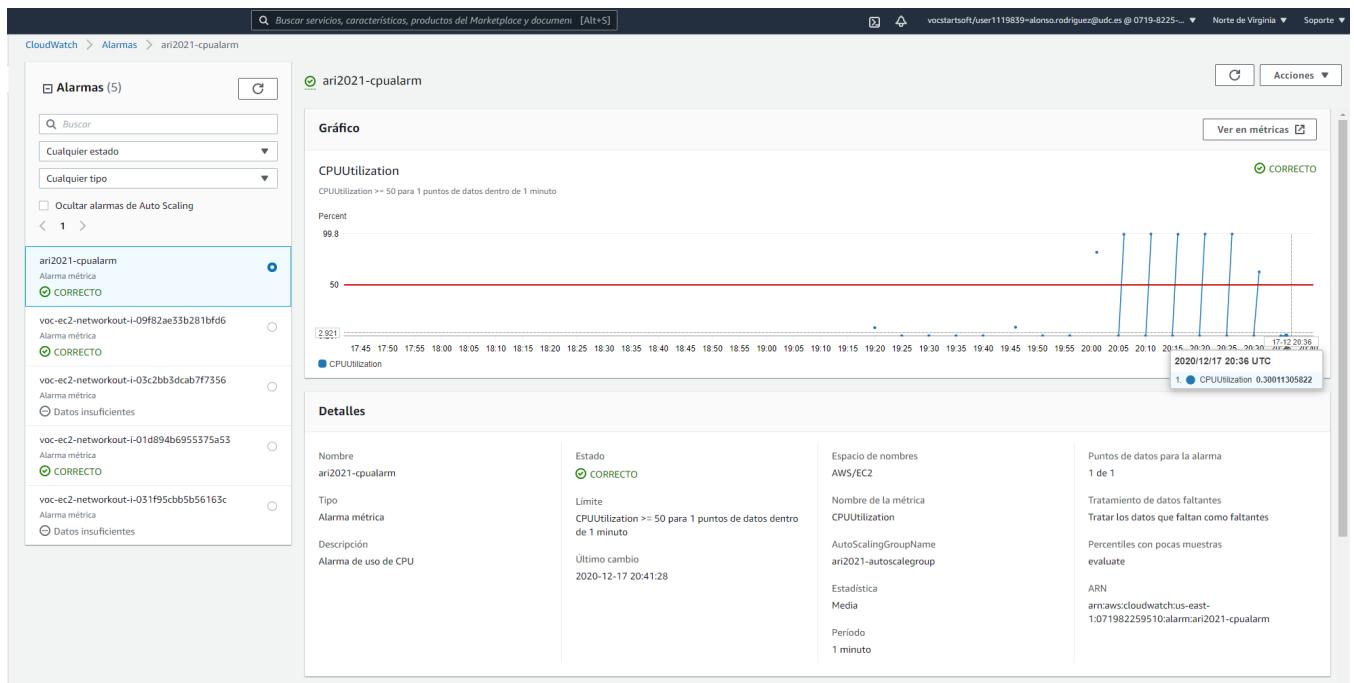
Realizar la acción:

Eliminar 1 unidades de capacidad

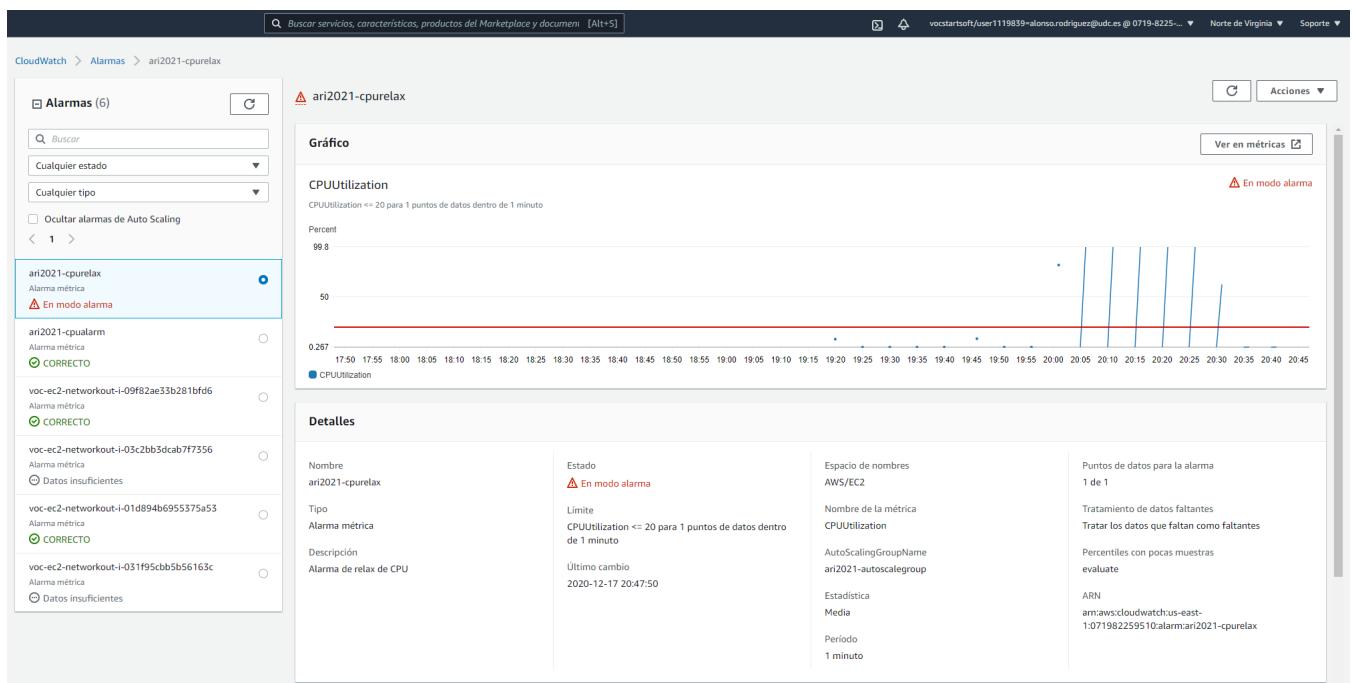
Y luego espere:

300 segundos segundos antes de permitir otra actividad de escalado

- Captura 4.7: información de monitorización da instancia ao parar o estrés.



- Captura 4.8: propiedades da alarma "cpurelax"



• Captura 4.9: histórico do grupo de autoescalado.

The screenshot shows two related AWS Auto Scaling pages:

- Notifications de actividad (0)**: This page lists notifications for the activity history. It includes a search bar, a toolbar with 'Acciones' and 'Crear notificación' buttons, and a table showing no notifications found.
- Historial de actividad (6)**: This page lists the activity history for the last 6 entries. It includes a search bar, a toolbar with 'Acciones' and 'Crear notificación' buttons, and a table with columns: Estado, Descripción, Causa, Hora de inicio, and Hora de finalización. The table data is as follows:

Estado	Descripción	Causa	Hora de inicio	Hora de finalización
Successful	Terminating EC2 instance: i-09f82ae35b281bfd6	At 2020-12-17T20:47:50Z a monitor alarm arl2021-cpurelax in state ALARM triggered policy arl2021-scaleinpolicy changing the desired capacity from 2 to 1. At 2020-12-17T20:48:13Z an instance was taken out of service in response to a difference between desired and actual capacity, shrinking the capacity from 2 to 1. At 2020-12-17T20:48:15Z Instance i-09f82ae35b281bfd6 was selected for termination.	2020 diciembre 17, 09:48:13 PM +01:00	2020 diciembre 17, 09:53:59 PM +01:00
Successful	Launching a new EC2 instance: i-09f82ae35b281bfd6	At 2020-12-17T20:06:28Z a monitor alarm arl2021-cpurelax in state ALARM triggered policy arl2021-scaleoutpolicy changing the desired capacity from 1 to 2. At 2020-12-17T20:06:36Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 1 to 2.	2020 diciembre 17, 09:06:38 PM +01:00	2020 diciembre 17, 09:07:10 PM +01:00
Successful	Launching a new EC2 instance: i-01d994b6955375a53	At 2020-12-17T19:49:13Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:49:16 PM +01:00	2020 diciembre 17, 08:49:48 PM +01:00
Successful	Terminating EC2 instance: i-03c2bb3dcab7f7356	At 2020-12-17T19:48:53Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2020 diciembre 17, 08:48:53 PM +01:00	2020 diciembre 17, 08:54:15 PM +01:00
Successful	Launching a new EC2 instance: i-03c2bb3dcab7f7356	At 2020-12-17T19:21:41Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:21:43 PM +01:00	2020 diciembre 17, 08:22:46 PM +01:00
Failed	Launching a new EC2 instance. Status Reason: Access denied when attempting to assume role arn:aws:iam:071982259510:role/aws-service-role/autoscaling.amazonaws.com/IWSServiceRoleForAutoScaling. Validating load balance configuration failed.	At 2020-12-17T19:20:40Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 1. At 2020-12-17T19:20:41Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 1.	2020 diciembre 17, 08:20:42 PM +01:00	2020 diciembre 17, 08:20:42 PM +01:00

• Captura 4.10: correo de notificación da alarma "cpurelax".

AN AWS Notifications <no-reply@sns.amazonaws.com>

Jue 17/12/2020 21:47
Para: Alonso Rodríguez Iglesias

You are receiving this email because your Amazon CloudWatch Alarm "arl2021-cpurelax" in the US East (N. Virginia) region has entered the ALARM state, because "Threshold Crossed: 1 datapoint [0.33446327683615834 (17/12/20 20:41:00)] was less than or equal to the threshold (20.0)." at "Thursday 17 December, 2020 20:47:50 UTC".

View this alarm in the AWS Management Console:
<https://us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#Alarms&alarm=arl2021-cpurelax>

Alarm Details:

- Name: arl2021-cpurelax
- Description: Alarma de relax de CPU
- State Change: INSUFFICIENT_DATA -> ALARM
- Reason for State Change: Threshold Crossed: 1 datapoint [0.33446327683615834 (17/12/20 20:41:00)] was less than or equal to the threshold (20.0).
- Timestamp: Thursday 17 December, 2020 20:47:50 UTC
- AWS Account: 071982259510
- Alarm Arn: arn:aws:cloudwatch:us-east-1:071982259510:alarm:arl2021-cpurelax

Threshold:

- The alarm is in the ALARM state when the metric is LessThanOrEqualToThreshold 20.0 for 60 seconds.

Monitored Metric:

- MetricNamespace: AWS/EC2
- MetricName: CPUUtilization
- Dimensions: [AutoScalingGroupName = arl2021-autoscalegroup]
- Period: 60 seconds
- Statistic: Average
- Unit: not specified

State Change Actions:

- OK:
- ALARM: [arn:aws:sns:us-east-1:071982259510:arn:aws:lambda:2021-topic] [arn:aws:autoscaling:us-east-1:071982259510:scalingPolicy:486b0153-e1ea-40b2-ad10-b954f900f633:autoScalingGroupName=arl2021-autoscalegroup;policyName=arl2021-scaleinpolicy]
- INSUFFICIENT_DATA:

--
If you wish to stop receiving notifications from this topic, please click or visit the link below to unsubscribe:
<https://sns.us-east-1.amazonaws.com/unsubscribe.html?SubscriptionArn=arn:aws:sns:us-east-1:071982259510:arn:aws:lambda:2021-topic:b04733fc-091a-4be5-a065-9747ab7b5482&Endpoint=alonso.rodriguez@udc.es>

Please do not reply directly to this email. If you have any questions or comments regarding this email, please contact us at <https://aws.amazon.com/support>

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Paso 5: Liberar recursos.

- **Captura 5.1:** consola EC2.

Panel EC2

The screenshot shows the AWS EC2 console with the following details:

Recursos (Information):

- Actualmente, utiliza los siguientes recursos de Amazon EC2 en la región EE.UU. Este (Norte de Virginia):
- Instancias en ejecución: 0
- Balanceadores de carga: 0
- Direcciones IP elásticas: 0
- Grupos de seguridad: 2
- Grupos de ubicación: 0
- Hosts dedicados: 0
- Instancias (todos los estados): 3
- Instantáneas: 0
- Pares de claves: 1
- Volumenes: 0

Atributos de la cuenta:

- Plataformas compatibles: VPC
- VPC predeterminada: vpc-6e7ead13
- Configuración: Cifrado de EBS
- Zonas: Instantáneas
- Especificación de crédito predeterminada: Experiencias de la consola

Instancias

The screenshot shows the AWS EC2 Instances page with the following details:

Instancias (3) (Information):

Name	ID de la instancia	Estado de la instancia	Tipo de inst...	Comprobación de...	Estado de la alarma	Zona de dispon...	DNS de IPv4 pública	Dirección IP...	IP elástica	Direcc...
ari2021-instancia3	i-09f82ae53b281bf06	Terminada	t2.micro	-	1 alarmas ACE...	us-east-1a	-	-	-	-
-	i-0ee7b351bf0378115	Terminada	t2.micro	-	1/1 no tiene d...	us-east-1a	-	-	-	-
ari2021-instancia2	i-01d894b6955375a53	Terminada	t2.micro	-	1 alarmas ACE...	us-east-1b	-	-	-	-

Balanceadores de Carga

The screenshot shows the AWS Load Balancers page with the following details:

Create Load Balancer Actions ▾

Filter by tags and attributes or search by keyword

Name	DNS name	State	VPC ID	Availability Zones	Type	Created At	Monitoring
You do not have any load balancers in this region.							

Select a load balancer

AMI

The screenshot shows the AWS AMI page with the following details:

Launch EC2 Image Builder Actions ▾

Owned by me Filter by tags and attributes or search by keyword

You do not own any Images matching your filter criteria.

Use the filter controls above to view Images owned by Amazon and others.

Find more than 500 AMIs of popular Open Source and commercial software from aws marketplace
Build your own custom AMI using EC2 Image Builder

Snapshots

The screenshot shows the AWS Snapshots page with the following details:

Create Snapshot Actions ▾

Owned By Me Filter by tags and attributes or search by keyword

You do not have any snapshots in this region.

Click the Create Snapshot button to create your first snapshot.

Create Snapshot

Grupos de destino

The screenshot shows the AWS Target Groups page with the following details:

Target groups (0)

Successfully deleted target group: arl2021-targetgroup

EC2 > Target groups

Actions ▾ Create target group

No Target groups

Secgroups

The screenshot shows the AWS Security Groups console. A green banner at the top states: "El grupo de seguridad (sg-0ac2d8671d6ecfe32 | ar12021-elbsecgroup) se ha eliminado correctamente". Below this, there is a table titled "Grupos de seguridad (2) Información" with two rows of data:

Name	ID del grupo de segu...	Nombre del grupo ...	ID de la VPC	Descripción	Propietario	Número de reglas d...	Número de reglas de salida
ari2021-secgroup	sg-026d0614601d3e135	alonso-rodriguez-secg...	vpc-6e7ead13	Grupo de Seguridad de...	071982259510	1 Entrada de permiso	1 Entrada de permiso
ari2021-default	sg-c0585cf5	default	vpc-6e7ead13	default VPC security gr...	071982259510	2 Entradas de permisos	3 Entradas de permisos

Políticas de escalado

The screenshot shows the AWS Auto Scaling Policies console. A green banner at the top states: "Política de escalado eliminada correctamente". Below this, there is a table titled "Políticas de escalado (0) Info" with one row of data:

Actualmente no se especifican políticas de escalado	
Añadir política	

Grupos de auto scaling

The screenshot shows the AWS Auto Scaling Groups console. A green banner at the top states: "No se encontraron grupos de Auto Scaling en la región actual". Below this, there is a table titled "Grupos de Auto Scaling: (0) Información" with one row of data:

No se encontraron grupos de Auto Scaling en la región actual									
Crear grupo de Auto Scaling									

Launchconfigs

The screenshot shows the AWS Launch Configurations console. A green banner at the top states: "No se encontraron configuraciones de lanzamiento en esta región.". Below this, there is a table titled "Configuraciones de lanzamiento (0) Info" with one row of data:

No se encontraron configuraciones de lanzamiento en esta región.						
Crear configuración de lanzamiento						

- Captura 5.2: consola Cloudwatch.

The screenshot shows the AWS CloudWatch Alarms console. There are four alarms listed in the table:

Nombre	Estado	Última actualización del estado	Condiciones	Acciones
voc-ec2-networkout-i-09f82ae33b281bfd6	CORRECTO	2020-12-17 21:11:32	NetworkOut > 1000000000 para 2 puntos de datos dentro de 10 minutos	1 acción/es
voc-ec2-networkout-i-03c2bb5dcab7f7356	Datos insuficientes	2020-12-17 21:01:38	NetworkOut > 1000000000 para 2 puntos de datos dentro de 10 minutos	1 acción/es
voc-ec2-networkout-i-01d894b6955375a3	CORRECTO	2020-12-17 20:51:46	NetworkOut > 1000000000 para 2 puntos de datos dentro de 10 minutos	1 acción/es
voc-ec2-networkout-i-031f95ccb5b56163c	Datos insuficientes	2020-12-17 20:03:41	NetworkOut > 1000000000 para 2 puntos de datos dentro de 10 minutos	1 acción/es

- Captura 5.3: consola SNS.

The screenshot shows the AWS SNS Topics page. At the top, there is a green banner with the message "El tema arl2021-topic se eliminó correctamente." Below the banner, the page title is "Amazon SNS > Temas". A search bar labeled "Buscar" is present. The main table has columns: "Nombre", "Tipo", and "ARN". One row is visible, showing "vocAlarmTopic", "Estándar", and the ARN "arn:aws:sns:us-east-1:071982259510:vocAlarmTopic". Action buttons "Editar", "Eliminar", "Publicar mensaje", and "Crear un tema" are at the top right of the table.

The screenshot shows the AWS SNS Subscriptions page. At the top, there is a green banner with the message "La suscripción se ha eliminado correctamente." Below the banner, the page title is "Amazon SNS > Suscripciones". A search bar labeled "Buscar" is present. The main table has columns: "ID", "Punto de enlace", "Estado", "Protocolo", and "Tema". One row is visible, showing "eda26320-0f96-4f4c-b098-bc9440954f38", "https://event.vocareum.com/cloudwatch/cwalarms.php", "Confirmada", "HTTPS", and "vocAlarmTopic". Action buttons "Editar", "Eliminar", "Solicitar la confirmación", "Confirmar la suscripción", and "Crear una suscripción" are at the top right of the table.