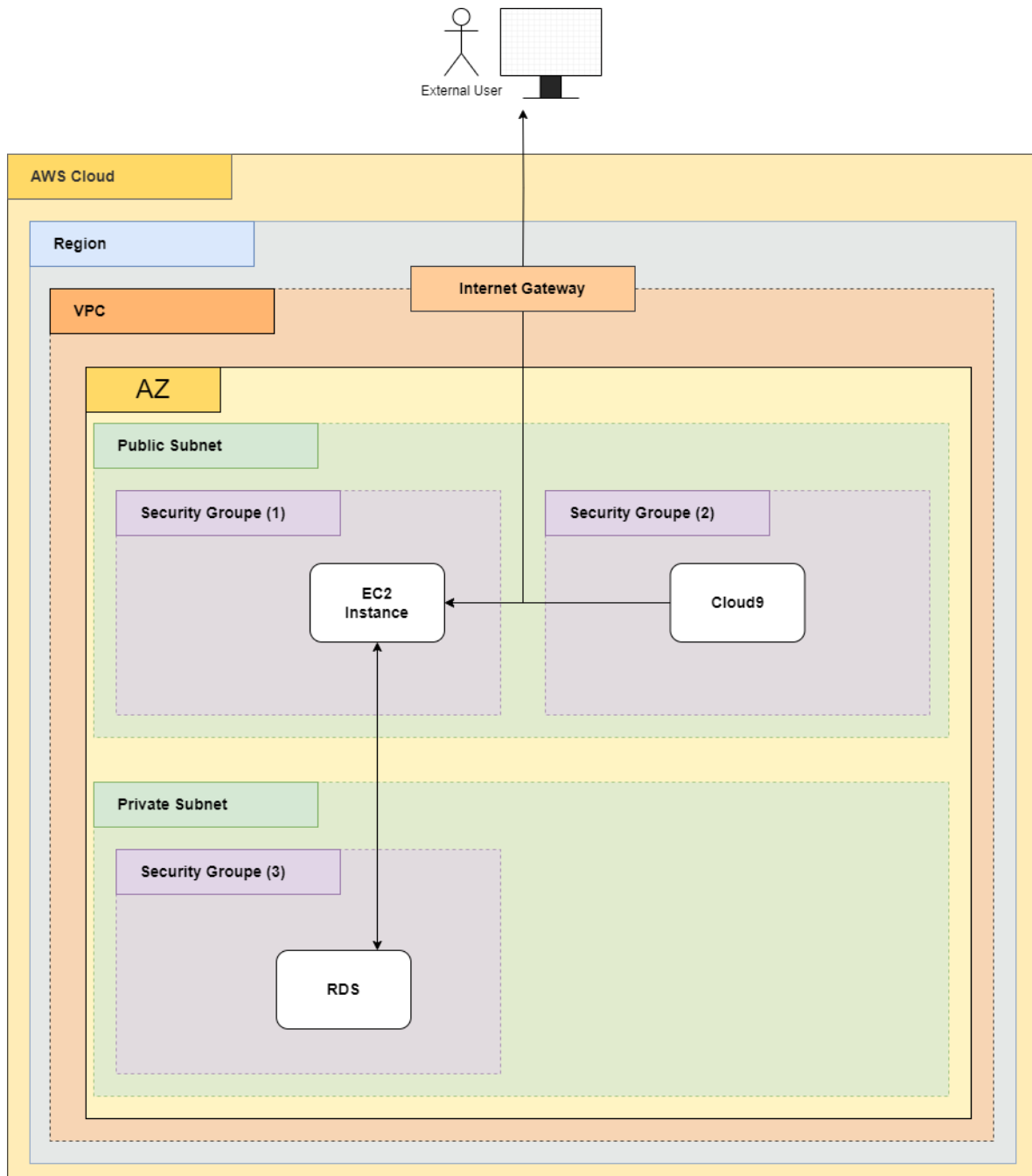


AWS Cloud & Big Data Architectures – Project

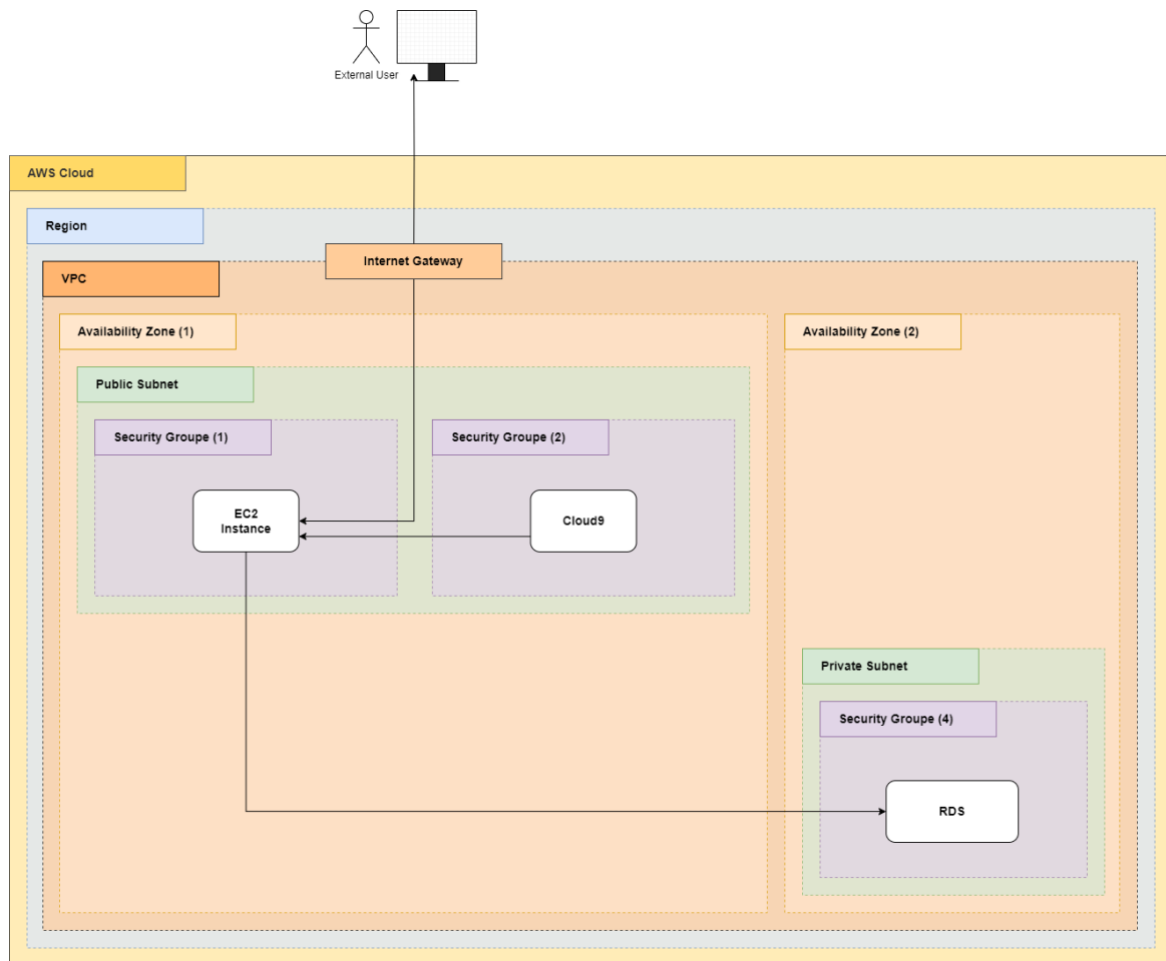
Julie MONNOT – Eléna TELEGA

Architecture Diagram

Before creating RDF

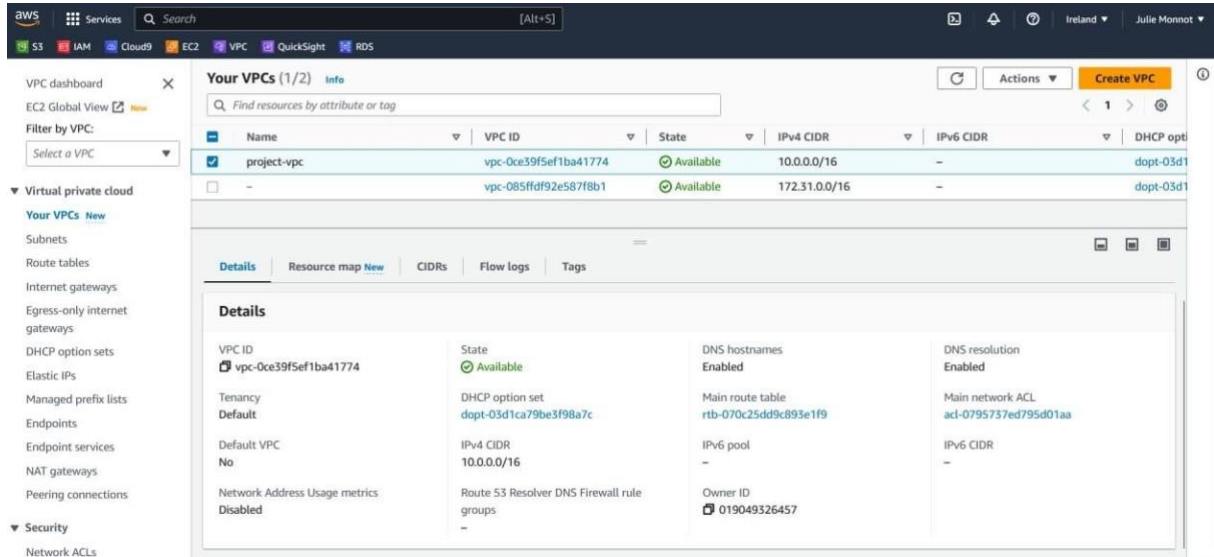


After creating RDF



VPC

VPC



The screenshot shows the AWS Management Console interface for the 'project-vpc' VPC. The left sidebar lists various AWS services, with 'Virtual private cloud' expanded. The main content area displays a table of VPCs and a detailed view of the selected VPC.

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP opt
project-vpc	vpc-0ce39f5ef1ba41774	Available	10.0.0.0/16	-	dopt-03d1
-	vpc-085ffdf92e587f8b1	Available	172.31.0.0/16	-	dopt-03d1

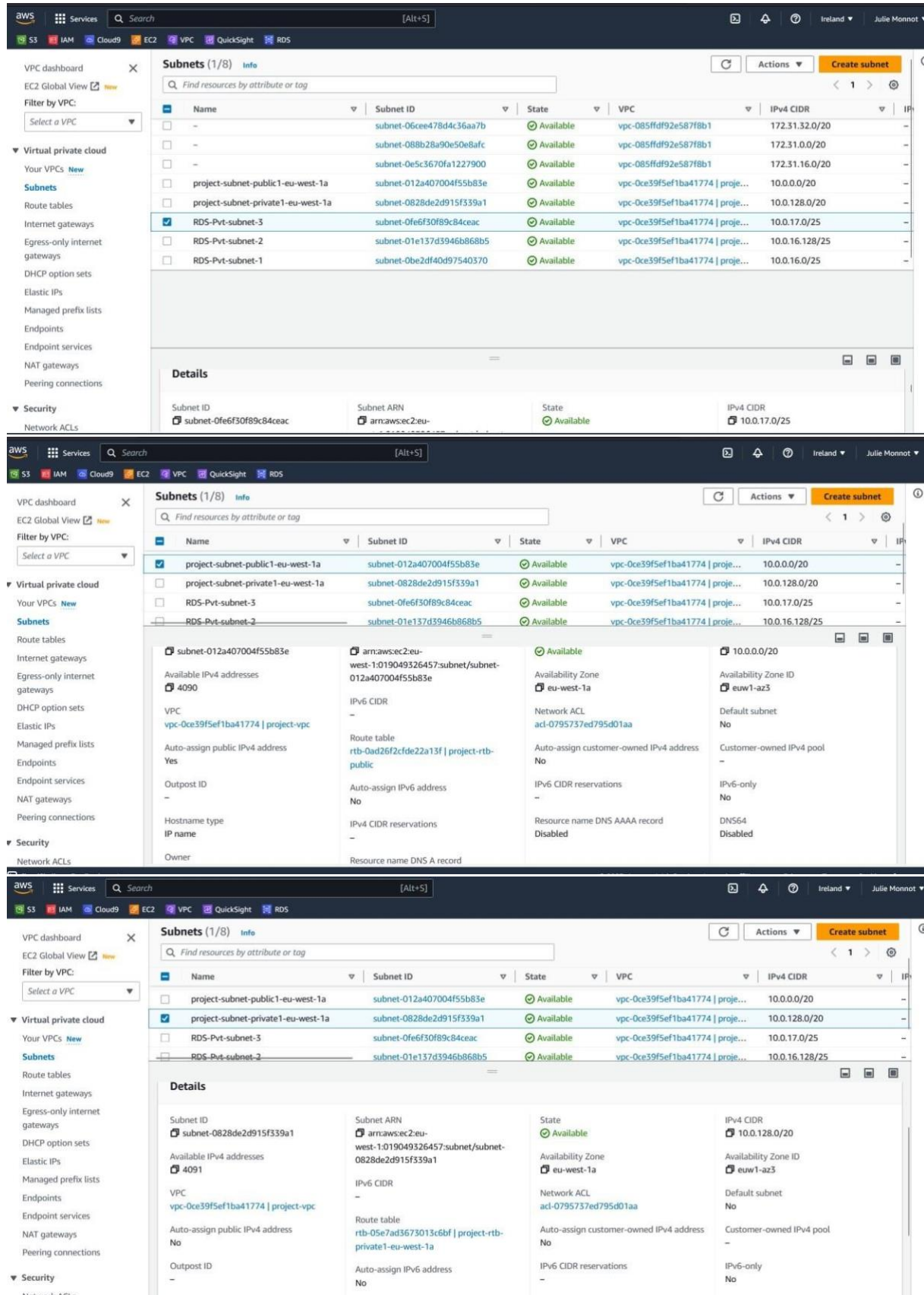
Details

- VPC ID: vpc-0ce39f5ef1ba41774
- State: Available
- Tenancy: Default
- Default VPC: No
- Network Address Usage metrics: Disabled
- DHCP option set: dopt-03d1ca79be3f98a7c
- IPv4 CIDR: 10.0.0.0/16
- Route 53 Resolver DNS Firewall rule groups: -
- DNS hostnames: Enabled
- Main route table: rtb-070c25dd9c893e1f9
- IPv6 pool: -
- Owner ID: 019049326457
- DNS resolution: Enabled
- Main network ACL: acl-0795737ed795d01aa
- IPv6 CIDR: -

Ressource map



Subnets



The screenshot displays the AWS Management Console interface for Subnets. The top navigation bar includes the AWS logo, Services menu, Search bar, and user information (Ireland, Julie Monnot). The left sidebar shows the VPC dashboard and various services like IAM, Cloud9, EC2, VPC, QuickSight, and RDS. The main content area is titled "Subnets (1/8)" and features a search bar and a table of subnets.

Subnets Table:

Name	Subnet ID	State	VPC	IPv4 CIDR
-	subnet-06cee478d4c36aa7b	Available	vpc-085ffdf92e587f8b1	172.31.32.0/20
-	subnet-088b28a90e50e8afc	Available	vpc-085ffdf92e587f8b1	172.31.0.0/20
-	subnet-0e5c3670fa1227900	Available	vpc-085ffdf92e587f8b1	172.31.16.0/20
project-subnet-public1-eu-west-1a	subnet-012a407004f55b83e	Available	vpc-0ce39f5ef1ba41774 proje...	10.0.0.0/20
project-subnet-private1-eu-west-1a	subnet-0828de2d915f339a1	Available	vpc-0ce39f5ef1ba41774 proje...	10.0.128.0/20
RDS-Pvt-subnet-3	subnet-0fe6f30f89c84ceac	Available	vpc-0ce39f5ef1ba41774 proje...	10.0.17.0/25
RDS-Pvt-subnet-2	subnet-01e137d3946b868b5	Available	vpc-0ce39f5ef1ba41774 proje...	10.0.16.128/25
RDS-Pvt-subnet-1	subnet-0be2df40d97540370	Available	vpc-0ce39f5ef1ba41774 proje...	10.0.16.0/25

Details for project-subnet-private1-eu-west-1a:

Property	Value
Subnet ID	subnet-0828de2d915f339a1
Subnet ARN	arn:aws:ec2:eu-west-1:019049326457:subnet/subnet-0828de2d915f339a1
State	Available
IPv4 CIDR	10.0.128.0/20
Available IPv4 addresses	4091
VPC	vpc-0ce39f5ef1ba41774 project-vpc
Auto-assign public IPv4 address	No
Outpost ID	-
Hostname type	IP name
Owner	Resource name DNS A record
Availability Zone	eu-west-1a
Network ACL	acl-0795737ed795d01aa
Auto-assign customer-owned IPv4 address	No
IPv6 CIDR reservations	No
Resource name DNS AAAA record	Disabled
Default subnet	No
Customer-owned IPv4 pool	-
IPv6-only	No
DNS64	Disabled

Route tables

aws Services Search [Alt+S] Ireland Julie Monnot

S3 IAM Cloud9 EC2 VPC QuickSight RDS

Virtual private cloud

Your VPCs New

Subnets

Route tables

Internet gateways

Egress-only internet gateways

DHCP option sets

Elastic IPs

Managed prefix lists

Endpoints

Endpoint services

NAT gateways

Peering connections

Security

Network ACLs

Route tables (1/5) info

Find resources by attribute or tag

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC
-	rtb-070c25dd9c893e1f9	-	-	Yes	vpc-0ce39f5ef1ba41774 pre
project-rtb-private1-eu-west-1a	rtb-05e7ad3673013c6bf	subnet-0828de2d915f33...	-	No	vpc-0ce39f5ef1ba41774 pre
-	rtb-0db22d901566837ea	-	-	Yes	vpc-085ffdf92e587f8b1
<input checked="" type="checkbox"/> project-rtb-public	rtb-0ad26f2cfde22a13f	subnet-012a407004f55b...	-	No	vpc-0ce39f5ef1ba41774 pre
RDS-Pvt-rt	rtb-046503e6b810c8b6e	3 subnets	-	No	vpc-0ce39f5ef1ba41774 pre

Details Routes Subnet associations Edge associations Route propagation Tags

Routes (2)

Filter routes Both

Destination	Target	Status	Propagated
0.0.0.0/0	igw-0967dfe3d08b1d6fd	Active	No
10.0.0.0/16	local	Active	No

aws

Services

Search

[Alt+S]

S3

IAM

Cloud9

EC2

VPC

QuickSight

RDS

Ireland

Julie Monnot

VPC dashboard

EC2 Global View

Filter by VPC:

Select a VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

DHCP option sets

Elastic IPs

Managed prefix lists

Endpoints

Endpoint services

NAT gateways

Peering connections

Security

Network ACLs

Route tables (1/5)

Info

Find resources by attribute or tag

< 1 >

Actions

Create route table

	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-070c25dd9c893e1f9	-	-	Yes	vpc-0ce39f5ef1ba41774 pr
<input type="checkbox"/>	project-rtb-private1-eu-west-1a	rtb-05e7ad3673013c6bf	subnet-0828de2d915f33...	-	No	vpc-0ce39f5ef1ba41774 pr
<input type="checkbox"/>	-	rtb-0db22d901566837ea	-	-	Yes	vpc-085ffdf92e587f8b1
<input checked="" type="checkbox"/>	project-rtb-public	rtb-0ad26f2cfd22a13f	subnet-012a407004f55b...	-	No	vpc-0ce39f5ef1ba41774 pr
<input type="checkbox"/>	RDS-Pvt-rt	rtb-046503e6b810c8b6e	3 subnets	-	No	vpc-0ce39f5ef1ba41774 pr

rtb-0ad26f2cfd22a13f / project-rtb-public

Details

Routes

Subnet associations

Edge associations

Route propagation

Tags

Explicit subnet associations (1)

Find subnet association

Edit subnet associations

< 1 >

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
project-subnet-public-1-eu-west-1a	subnet-012a407004f55b83e	10.0.0.0/20	-

Subnets without explicit associations (0)

Edit subnet associations

The following subnets have not been explicitly associated with any route tables and are therefore associated with the main route table:

Route tables (1/5)

Info

Find resources by attribute or tag

< 1 >

Actions

Create route table

	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-070c25dd9c893e1f9	-	-	Yes	vpc-0ce39f5ef1ba41774 pr
<input checked="" type="checkbox"/>	project-rtb-private1-eu-west-1a	rtb-05e7ad3673013c6bf	subnet-0828de2d915f33...	-	No	vpc-0ce39f5ef1ba41774 pr
<input type="checkbox"/>	-	rtb-0db22d901566837ea	-	-	Yes	vpc-085ffdf92e587f8b1
<input type="checkbox"/>	project-rtb-public	rtb-0ad26f2cfd22a13f	subnet-012a407004f55b...	-	No	vpc-0ce39f5ef1ba41774 pr
<input type="checkbox"/>	RDS-Pvt-rt	rtb-046503e6b810c8b6e	3 subnets	-	No	vpc-0ce39f5ef1ba41774 pr

rtb-05e7ad3673013c6bf / project-rtb-private1-eu-west-1a

Details

Routes

Subnet associations

Edge associations

Route propagation

Tags

Routes (1)

Filter routes

Both

Edit routes

< 1 >

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No

Route tables (1/5)

Info

Find resources by attribute or tag

< 1 >

Actions

Create route table

	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-070c25dd9c893e1f9	-	-	Yes	vpc-0ce39f5ef1ba41774 pr
<input checked="" type="checkbox"/>	project-rtb-private1-eu-west-1a	rtb-05e7ad3673013c6bf	subnet-0828de2d915f33...	-	No	vpc-0ce39f5ef1ba41774 pr
<input type="checkbox"/>	-	rtb-0db22d901566837ea	-	-	Yes	vpc-085ffdf92e587f8b1
<input type="checkbox"/>	project-rtb-public	rtb-0ad26f2cfd22a13f	subnet-012a407004f55b...	-	No	vpc-0ce39f5ef1ba41774 pr
<input type="checkbox"/>	RDS-Pvt-rt	rtb-046503e6b810c8b6e	3 subnets	-	No	vpc-0ce39f5ef1ba41774 pr

rtb-05e7ad3673013c6bf / project-rtb-private1-eu-west-1a

Details

Routes

Subnet associations

Edge associations

Route propagation

Tags

Explicit subnet associations (1)

Find subnet association

Edit subnet associations

< 1 >

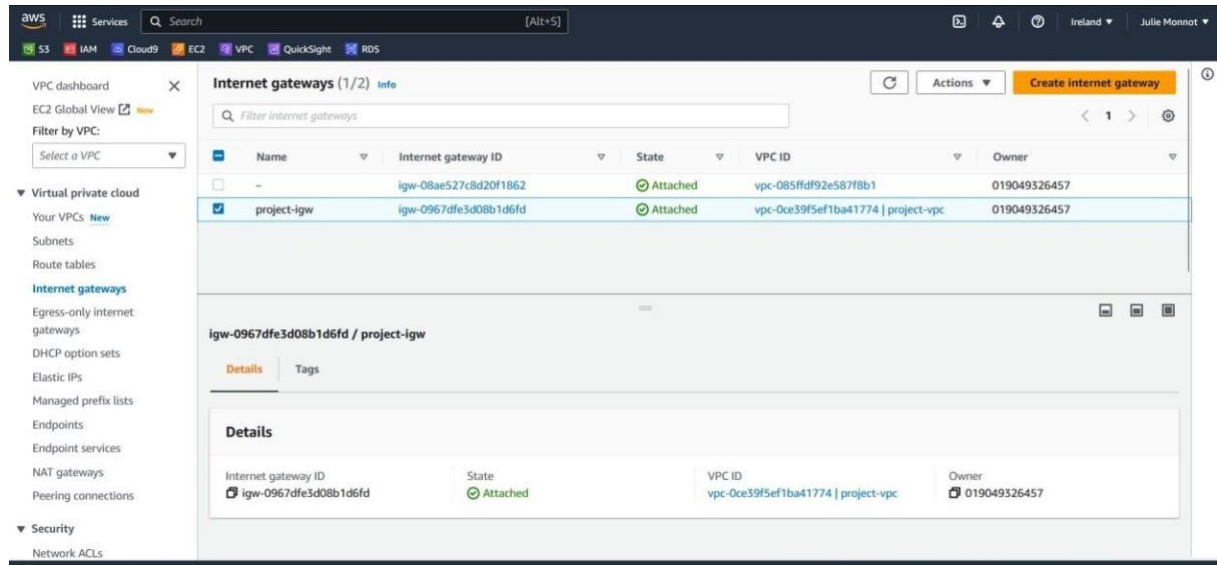
Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
project-subnet-private1-eu-west-1a	subnet-0828de2d915f339a1	10.0.128.0/20	-

Subnets without explicit associations (0)

Edit subnet associations

The following subnets have not been explicitly associated with any route tables and are therefore associated with the main route table:

Internet gateways



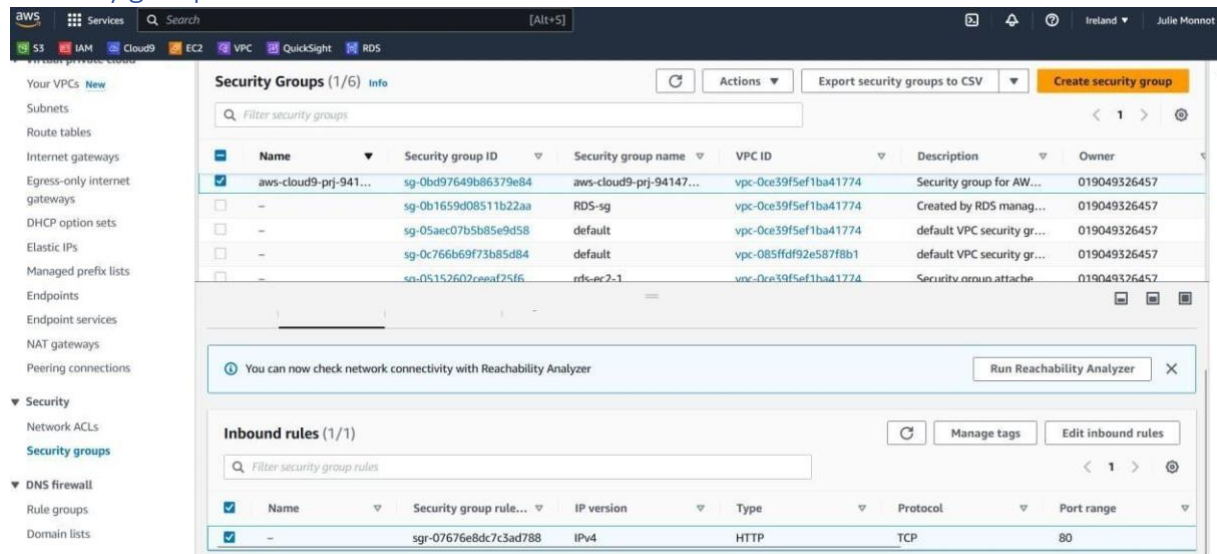
The screenshot shows the AWS Management Console interface for Internet Gateways. The left sidebar contains navigation links for VPC, Subnets, Route tables, Internet gateways, Egress-only internet gateways, DHCP option sets, Elastic IPs, Managed prefix lists, Endpoints, Endpoint services, NAT gateways, and Peering connections. The main content area displays a list of Internet gateways with columns for Name, Internet gateway ID, State, VPC ID, and Owner. Two gateways are listed: 'igw-08ae527c8d20f1862' and 'project-igw' (igw-0967dfe3d08b1d6fd). The 'project-igw' gateway is selected, and its details are shown below, including its ID, state (Attached), VPC ID (vpc-0ce39f5ef1ba41774), and Owner (019049326457).

Name	Internet gateway ID	State	VPC ID	Owner
-	igw-08ae527c8d20f1862	Attached	vpc-085ffd92e587f8b1	019049326457
project-igw	igw-0967dfe3d08b1d6fd	Attached	vpc-0ce39f5ef1ba41774 project-vpc	019049326457

Details for igw-0967dfe3d08b1d6fd / project-igw

Property	Value
Internet gateway ID	igw-0967dfe3d08b1d6fd
State	Attached
VPC ID	vpc-0ce39f5ef1ba41774 project-vpc
Owner	019049326457

Security group

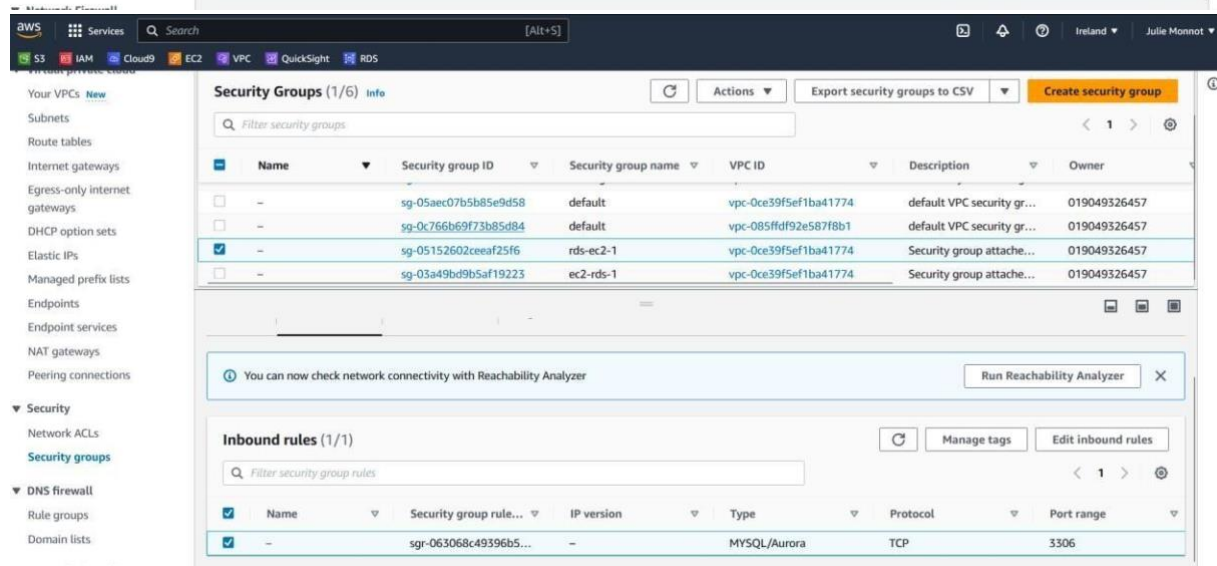


The screenshot shows the AWS Management Console interface for Security Groups. The left sidebar contains navigation links for VPC, Subnets, Route tables, Internet gateways, Egress-only internet gateways, DHCP option sets, Elastic IPs, Managed prefix lists, Endpoints, Endpoint services, NAT gateways, and Peering connections. The main content area displays a list of Security groups with columns for Name, Security group ID, Security group name, VPC ID, Description, and Owner. Five security groups are listed, including 'aws-cloud9-prj-941...', 'RDS-sg', and 'default' groups. Below the list, there is a section for 'Inbound rules (1/1)' showing a single rule for 'sgr-07676e8dc7c3ad788' allowing HTTP traffic on port 80.

Name	Security group ID	Security group name	VPC ID	Description	Owner
aws-cloud9-prj-941...	sg-0bd97649b86379e84	aws-cloud9-prj-94147...	vpc-0ce39f5ef1ba41774	Security group for AW...	019049326457
-	sg-0b1659d08511b22aa	RDS-sg	vpc-0ce39f5ef1ba41774	Created by RDS manag...	019049326457
-	sg-05aec07b5b85e9d58	default	vpc-0ce39f5ef1ba41774	default VPC security gr...	019049326457
-	sg-0c766b69f73b85d84	default	vpc-085ffd92e587f8b1	default VPC security gr...	019049326457
-	sg-05152602ceaf25f6	rds-ec2-1	vpc-0ce39f5ef1ba41774	Security group attache...	019049326457

Inbound rules (1/1)

Name	Security group rule...	IP version	Type	Protocol	Port range
-	sgr-07676e8dc7c3ad788	IPv4	HTTP	TCP	80



The screenshot shows the AWS Management Console interface for Security Groups. The left sidebar contains navigation links for VPC, Subnets, Route tables, Internet gateways, Egress-only internet gateways, DHCP option sets, Elastic IPs, Managed prefix lists, Endpoints, Endpoint services, NAT gateways, and Peering connections. The main content area displays a list of Security groups with columns for Name, Security group ID, Security group name, VPC ID, Description, and Owner. Five security groups are listed, including 'default' groups and 'rds-ec2-1'. Below the list, there is a section for 'Inbound rules (1/1)' showing a single rule for 'sgr-063068c49396b5...' allowing MySQL/Aurora traffic on port 3306.

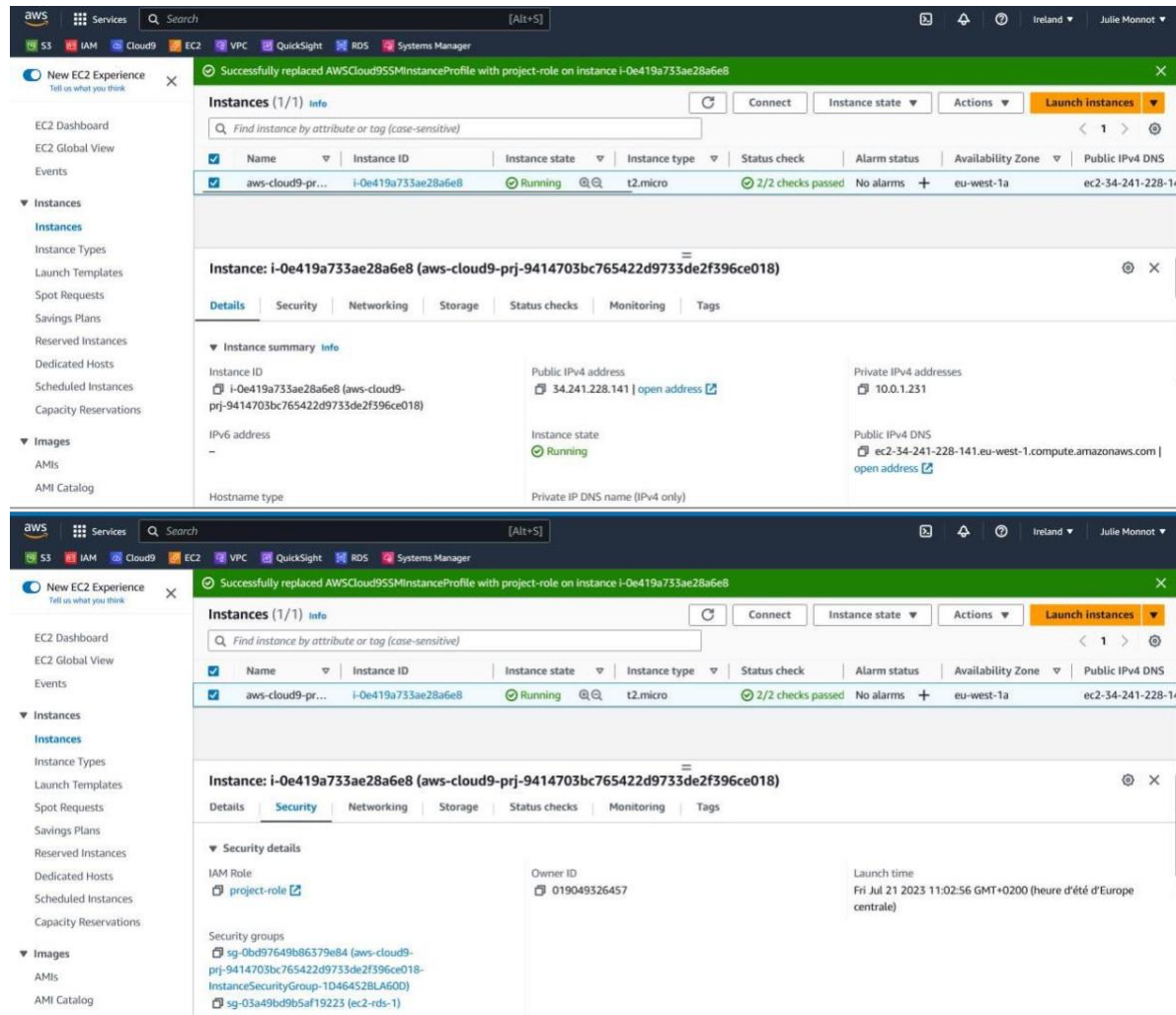
Name	Security group ID	Security group name	VPC ID	Description	Owner
-	sg-05aec07b5b85e9d58	default	vpc-0ce39f5ef1ba41774	default VPC security gr...	019049326457
-	sg-0c766b69f73b85d84	default	vpc-085ffd92e587f8b1	default VPC security gr...	019049326457
-	sg-05152602ceaf25f6	rds-ec2-1	vpc-0ce39f5ef1ba41774	Security group attache...	019049326457
-	sg-03a49bd9b5af19223	ec2-rds-1	vpc-0ce39f5ef1ba41774	Security group attache...	019049326457

Inbound rules (1/1)

Name	Security group rule...	IP version	Type	Protocol	Port range
-	sgr-063068c49396b5...	-	MySQL/Aurora	TCP	3306

EC2

Instances



The screenshot displays the AWS Management Console interface for an EC2 instance. The top navigation bar shows various AWS services, and the left sidebar lists navigation options like EC2 Dashboard, EC2 Global View, and Instances. The main content area shows the details for instance **i-0e419a733ae28a6e8**, which is in a **Running** state. A green banner at the top indicates a successful replacement of the AWS Cloud9 SSM Instance Profile with a project role.

Instances (1/1) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
aws-cloud9-pr...	i-0e419a733ae28a6e8	Running	t2.micro	2/2 checks passed	No alarms	eu-west-1a	ec2-34-241-228-14

Instance: i-0e419a733ae28a6e8 (aws-cloud9-prj-9414703bc765422d9733de2f396ce018)

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

▼ Instance summary info

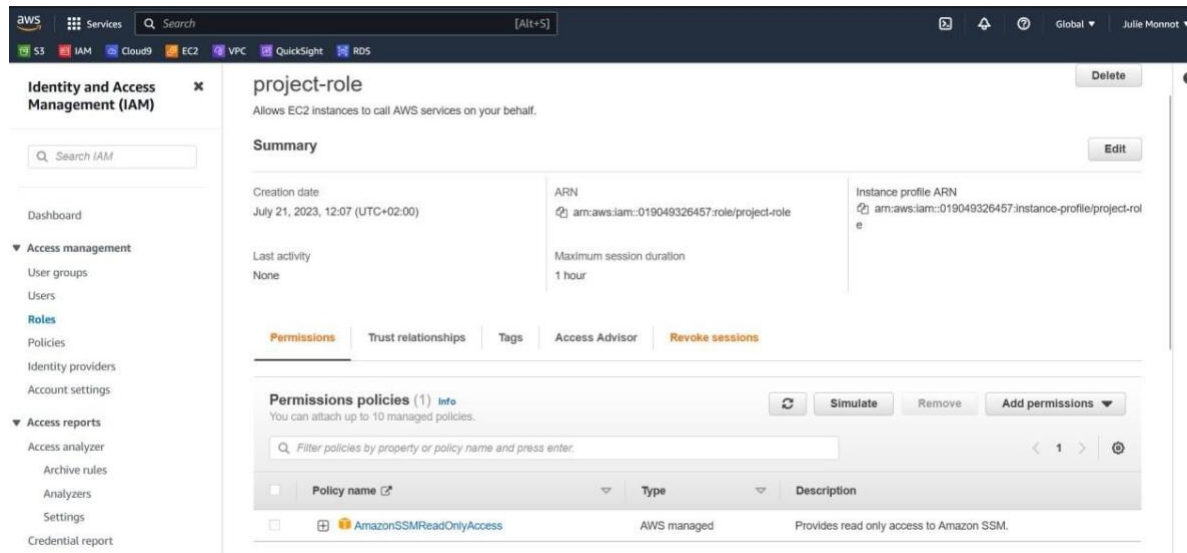
Instance ID i-0e419a733ae28a6e8 (aws-cloud9-prj-9414703bc765422d9733de2f396ce018)	Public IPv4 address 34.241.228.141 open address	Private IPv4 addresses 10.0.1.231
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-34-241-228-141.eu-west-1.compute.amazonaws.com open address
Hostname type	Private IP DNS name (IPv4 only)	

▼ Security details

IAM Role project-role	Owner ID 019049326457	Launch time Fri Jul 21 2023 11:02:56 GMT+0200 (heure d'été d'Europe centrale)
Security groups sg-0bd97649b86379e84 (aws-cloud9-prj-9414703bc765422d9733de2f396ce018-InstanceSecurityGroup-TD464528LA600) sg-03a49bd9b5af19223 (ec2-rds-1)		

IAM

Roles



The screenshot displays the AWS IAM console interface for a role named 'project-role'. The left sidebar shows the 'Identity and Access Management (IAM)' menu with options like Dashboard, Access management, Policies, and Access reports. The main content area shows the role's summary, including its creation date, ARN, and instance profile ARN. Below the summary, there are tabs for Permissions, Trust relationships, Tags, Access Advisor, and Revoke sessions. The 'Permissions policies' section shows a table with one policy attached: 'AmazonSSMReadOnlyAccess'.

project-role Delete

Allows EC2 instances to call AWS services on your behalf.

Summary Edit


Creation date	ARN	Instance profile ARN
July 21, 2023, 12:07 (UTC+02:00)	arn:aws:iam::019049326457:role/project-role	arn:aws:iam::019049326457:instance-profile/project-role
Last activity	Maximum session duration	
None	1 hour	

Permissions Trust relationships Tags Access Advisor Revoke sessions

Permissions policies (1) Info

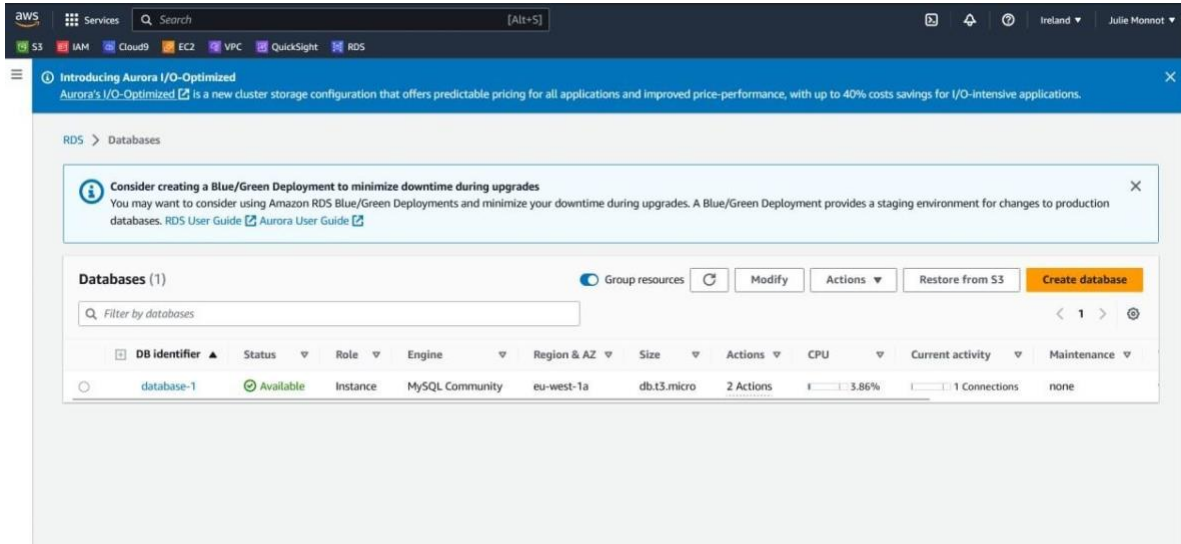
You can attach up to 10 managed policies.

< 1 > ⌕

<input type="checkbox"/>	Policy name ↗	Type	Description
<input type="checkbox"/>	 AmazonSSMReadOnlyAccess	AWS managed	Provides read only access to Amazon SSM.

RDS

Database



The screenshot shows the AWS Management Console interface for Amazon RDS. At the top, there's a navigation bar with the AWS logo, a search bar, and a list of services including S3, IAM, Cloud9, EC2, VPC, QuickSight, and RDS. Below the navigation bar, there's a blue banner for 'Introducing Aurora I/O-Optimized'. The main content area is titled 'RDS > Databases'. It features a notification box about Blue/Green Deployment. Below this, there's a section for 'Databases (1)' with a search filter and a table of database instances. The table has columns for DB identifier, Status, Role, Engine, Region & AZ, Size, Actions, CPU, Current activity, and Maintenance. One instance, 'database-1', is listed with a status of 'Available', role of 'Instance', engine of 'MySQL Community', region of 'eu-west-1a', size of 'db.t3.micro', and 2 actions.

DB identifier	Status	Role	Engine	Region & AZ	Size	Actions	CPU	Current activity	Maintenance
database-1	Available	Instance	MySQL Community	eu-west-1a	db.t3.micro	2 Actions	3.86%	1 Connections	none

Connectivity & security

Endpoint & port	Networking	Security
Endpoint database-1.c4iqgpyzkpnt.eu-west-1.rds.amazonaws.com Port 3306	Availability Zone eu-west-1a VPC project-vpc (vpc-0ce39f5ef1ba41774) Subnet group rds-ec2-db-subnet-group-1 Subnets subnet-0be2df40d97540370 subnet-0fe6f30f89c84ceac subnet-01e137d3946b868b5 Network type IPv4	VPC security groups rds-ec2-1 (sg-05152602ceeaf25f6) ✔ Active RDS-sg (sg-0b1659d08511b22aa) ✔ Active Publicly accessible No Certificate authority info rds-ca-2019 Certificate authority date August 22, 2024, 19:08 (UTC+02:00) DB instance certificate expiration date August 22, 2024, 19:08 (UTC+02:00)

Security group rules (3)

Filter by Security group rules

Security group	Type	Rule
rds-ec2-1 (sg-05152602ceeaf25f6)	EC2 Security Group - Inbound	sg-03a49bd9b5af19223
RDS-sg (sg-0b1659d08511b22aa)	CIDR/IP - Inbound	217.26.204.244/32
RDS-sg (sg-0b1659d08511b22aa)	CIDR/IP - Outbound	0.0.0.0/0

Replication (1)

Filter by Replication

DB identifier	Role	Region & AZ	Replication source	Replication state	Lag
database-1	Instance	eu-west-1a	-	-	-

Proxies (0)

Filter by proxies

No proxies

You don't have any proxies.

Create proxy

Connected compute resources (1) info

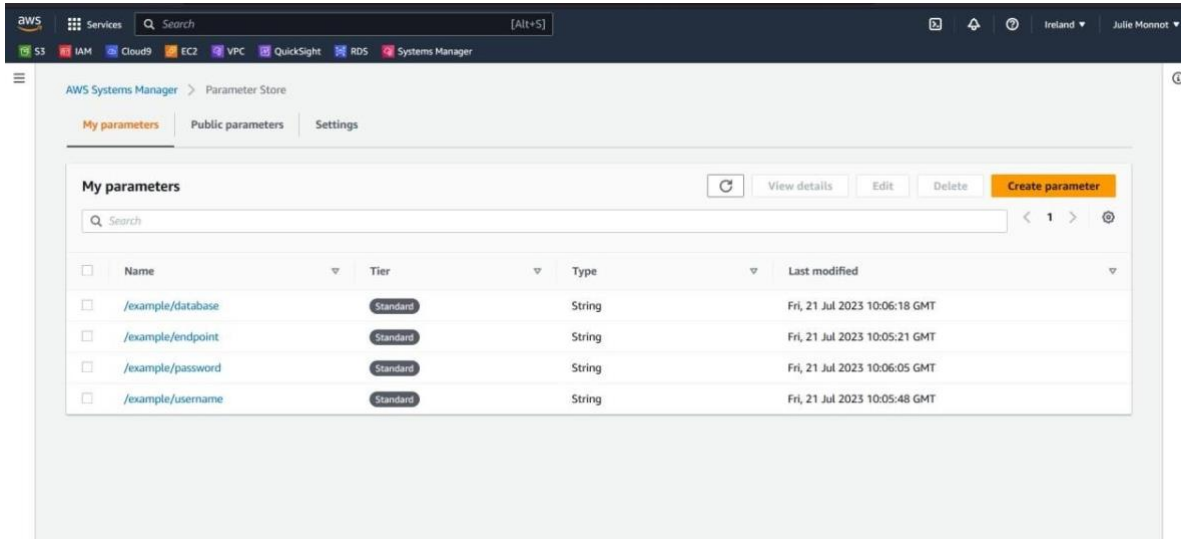
Connections to compute resources that were created automatically by RDS are shown here. Connections to compute resources that were created manually aren't shown.

Filter by compute resources

Resource identifier	Resource type	Availability zone	RDS security group	Compute resource security group
i-0e419a733ae28a6e8	EC2 instance	✔ eu-west-1a	rds-ec2-1	ec2-rds-1

SYSTEM MANAGER

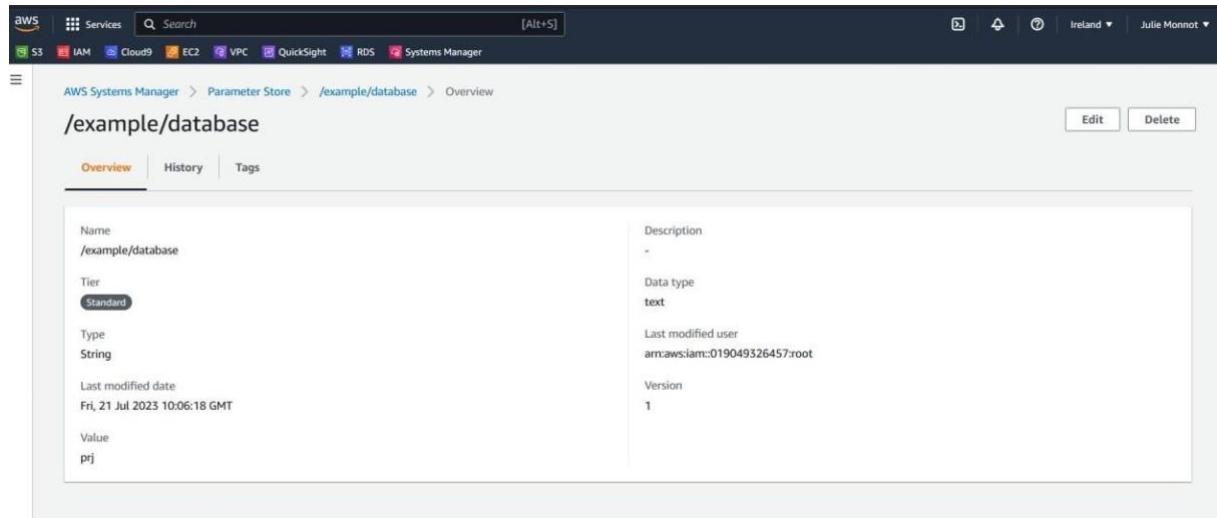
Parameters



The screenshot shows the AWS Systems Manager console interface. The top navigation bar includes the AWS logo, a search bar, and a list of services (S3, IAM, Cloud9, EC2, VPC, QuickSight, RDS, Systems Manager). The main content area is titled "AWS Systems Manager > Parameter Store". Below this, there are tabs for "My parameters", "Public parameters", and "Settings". The "My parameters" tab is active, displaying a table of parameters. The table has columns for Name, Tier, Type, and Last modified. There are four parameters listed, all with a Tier of "Standard" and Type of "String".

Name	Tier	Type	Last modified
/example/database	Standard	String	Fri, 21 Jul 2023 10:06:18 GMT
/example/endpoint	Standard	String	Fri, 21 Jul 2023 10:05:21 GMT
/example/password	Standard	String	Fri, 21 Jul 2023 10:06:05 GMT
/example/username	Standard	String	Fri, 21 Jul 2023 10:05:48 GMT

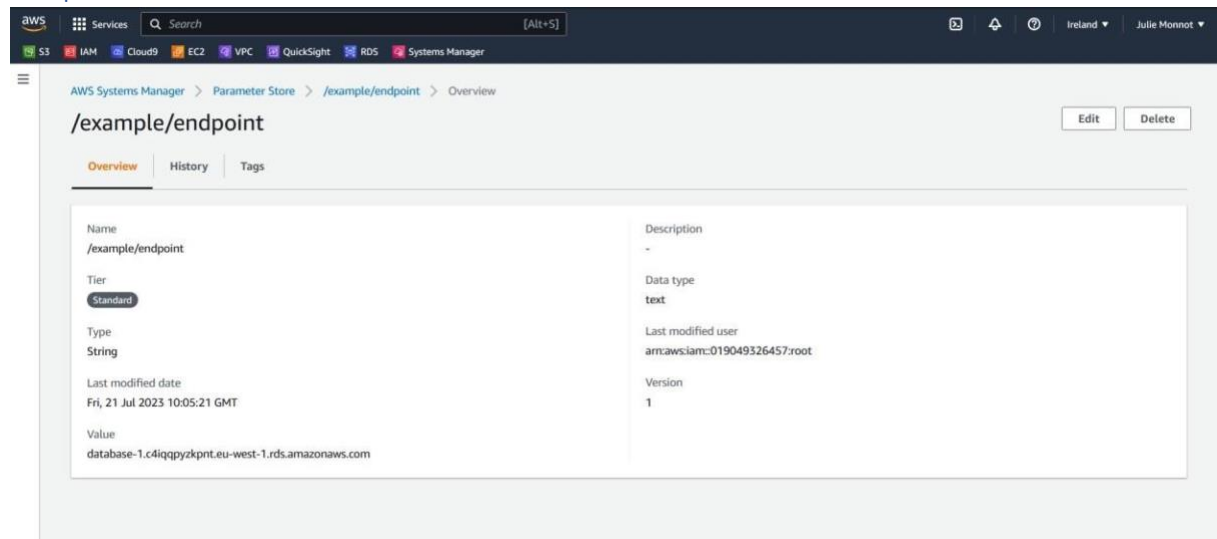
Database



The screenshot shows the AWS Parameter Store console. The breadcrumb navigation is "AWS Systems Manager > Parameter Store > /example/database > Overview". The parameter name is "/example/database". The tier is "Standard". The type is "String". The last modified date is "Fri, 21 Jul 2023 10:06:18 GMT". The value is "prj". The description is "-". The data type is "text". The last modified user is "arn:aws:iam:019049326457:root". The version is "1". There are "Edit" and "Delete" buttons in the top right corner.

Property	Value
Name	/example/database
Tier	Standard
Type	String
Last modified date	Fri, 21 Jul 2023 10:06:18 GMT
Value	prj
Description	-
Data type	text
Last modified user	arn:aws:iam:019049326457:root
Version	1

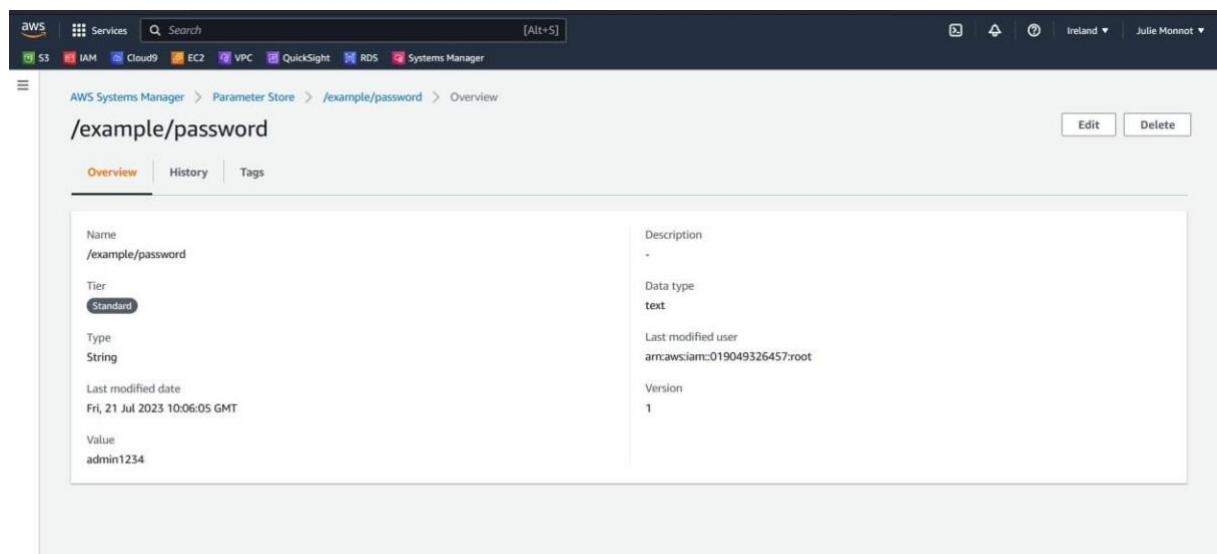
Endpoint



The screenshot shows the AWS Parameter Store console. The breadcrumb navigation is "AWS Systems Manager > Parameter Store > /example/endpoint > Overview". The parameter name is "/example/endpoint". The tier is "Standard". The type is "String". The last modified date is "Fri, 21 Jul 2023 10:05:21 GMT". The value is "database-1.c4iqppzykpnz.eu-west-1.rds.amazonaws.com". The description is "-". The data type is "text". The last modified user is "arn:aws:iam:019049326457:root". The version is "1". There are "Edit" and "Delete" buttons in the top right corner.

Property	Value
Name	/example/endpoint
Tier	Standard
Type	String
Last modified date	Fri, 21 Jul 2023 10:05:21 GMT
Value	database-1.c4iqppzykpnz.eu-west-1.rds.amazonaws.com
Description	-
Data type	text
Last modified user	arn:aws:iam:019049326457:root
Version	1

Password



The screenshot shows the AWS Parameter Store console. The breadcrumb navigation is "AWS Systems Manager > Parameter Store > /example/password > Overview". The parameter name is "/example/password". The tier is "Standard". The type is "String". The last modified date is "Fri, 21 Jul 2023 10:06:05 GMT". The value is "admin1234". The description is "-". The data type is "text". The last modified user is "arn:aws:iam:019049326457:root". The version is "1". There are "Edit" and "Delete" buttons in the top right corner.

Property	Value
Name	/example/password
Tier	Standard
Type	String
Last modified date	Fri, 21 Jul 2023 10:06:05 GMT
Value	admin1234
Description	-
Data type	text
Last modified user	arn:aws:iam:019049326457:root
Version	1

Username

aws Services Search [Alt+S]

S3 IAM Cloud9 EC2 VPC QuickSight RDS Systems Manager

AWS Systems Manager > Parameter Store > /example/username > Overview

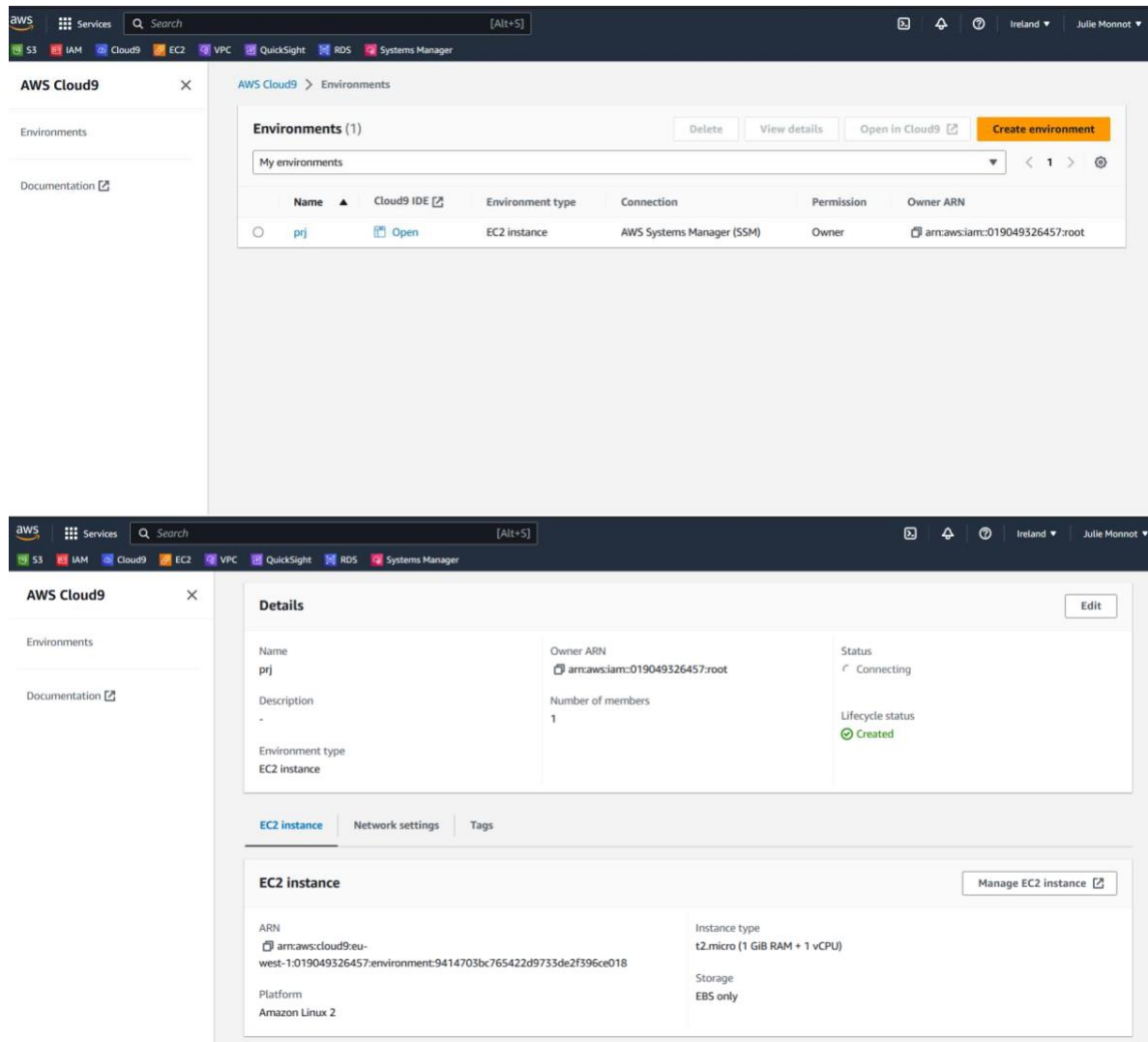
/example/username Edit Delete

Overview History Tags

Name	/example/username
Tier	Standard
Type	String
Last modified date	Fri, 21 Jul 2023 10:05:48 GMT
Value	admin
Description	-
Data type	text
Last modified user	arn:aws:iam::019049326457:root
Version	1

CLOUD 9

Environment



The screenshot displays the AWS Cloud9 console interface. The top navigation bar includes the AWS logo, a search bar, and a list of services (S3, IAM, Cloud9, EC2, VPC, QuickSight, RDS, Systems Manager). The left sidebar shows the 'AWS Cloud9' section with links to 'Environments' and 'Documentation'. The main content area is titled 'Environments (1)' and features a 'Create environment' button. Below this is a table listing the environments.

Name	Cloud9 IDE	Environment type	Connection	Permission	Owner ARN
prj	Open	EC2 instance	AWS Systems Manager (SSM)	Owner	arn:aws:iam::019049326457:root

The 'Details' section for the 'prj' environment is shown below. It includes fields for Name, Description, Environment type, Owner ARN, Number of members, Status, and Lifecycle status. The 'EC2 instance' tab is selected, showing the instance type (t2.micro) and platform (Amazon Linux 2).

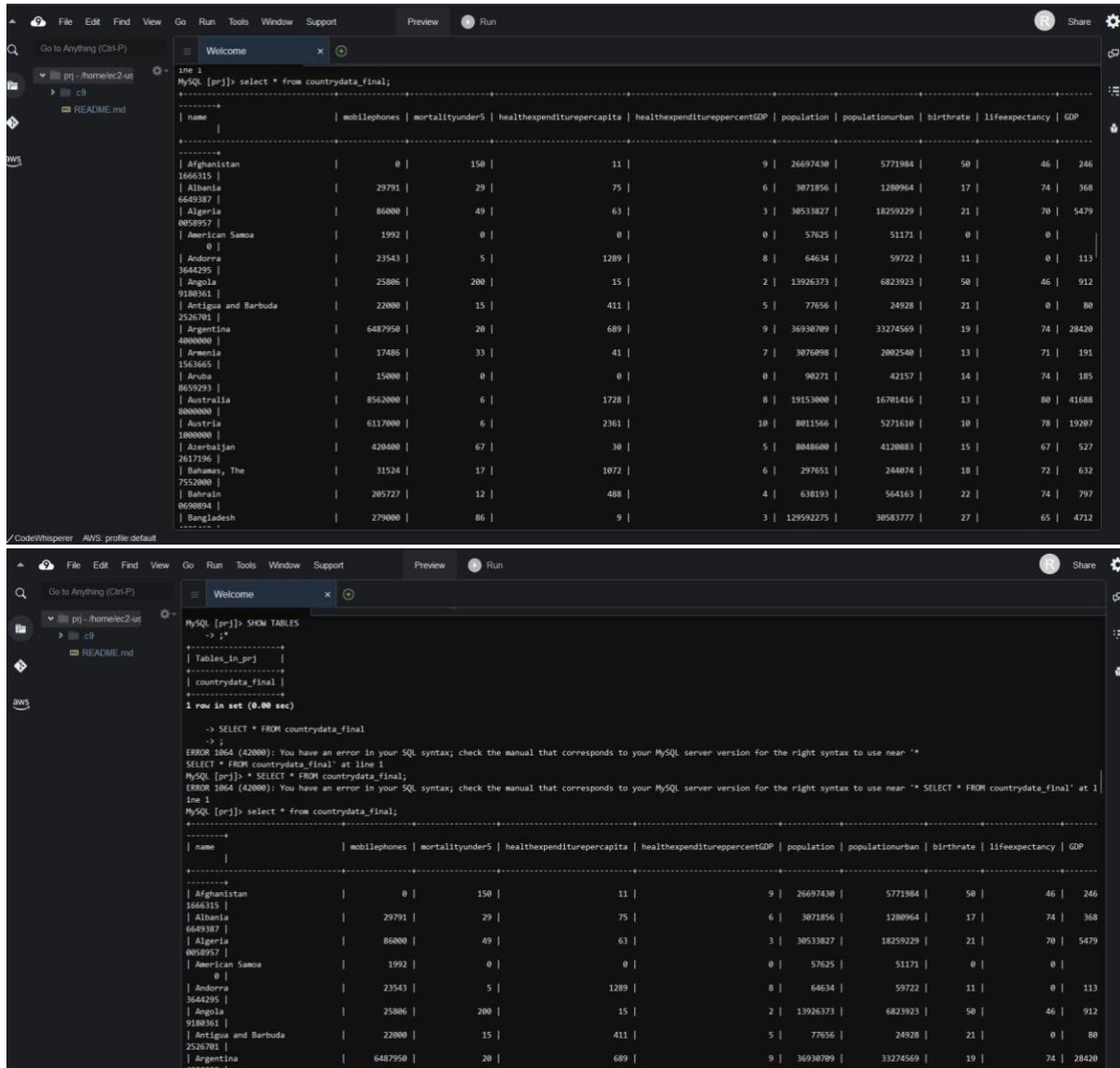
Details

Name: prj
Description: -
Environment type: EC2 instance
Owner ARN: arn:aws:iam::019049326457:root
Number of members: 1
Status: Connecting
Lifecycle status: Created

EC2 instance

ARN: arn:aws:cloud9:eu-west-1:019049326457:environment:9414703bc765422d9733de2f396ce018
Instance type: t2.micro (1 GiB RAM + 1 vCPU)
Storage: EBS only
Platform: Amazon Linux 2

Cloud 9 IDE



The screenshot displays the Cloud 9 IDE interface with two panels. The top panel shows a successful SQL query execution, and the bottom panel shows an error message followed by the same query and result set.

Top Panel: Successful Query

```
MySQL [prj]> select * from countrydata_final;
```

name	mobilephones	mortalityunder5	healthexpenditurepercapita	healthexpenditurepercentGDP	population	populationurban	birthrate	lifeexpectancy	GDP
Afghanistan	0	150	11	9	26697430	5771984	50	46	246
Albania	29791	29	75	6	3071856	1280964	17	74	368
Algeria	86000	49	63	3	30533827	18259229	21	70	5479
American Samoa	1992	0	0	0	57625	51171	0	0	0
Andorra	23543	5	1289	8	64634	59722	11	0	113
Angola	25806	200	15	2	13926373	6823923	50	46	912
Antigua and Barbuda	22000	15	411	5	77656	24928	21	0	80
Argentina	6487950	20	689	9	36930709	33274569	19	74	28420
Armenia	17486	33	41	7	3076098	2002540	13	71	191
Aruba	15000	0	0	0	90271	42157	14	74	185
Australia	8562000	6	1728	8	19153000	16701416	13	80	41688
Austria	6117000	6	2361	10	8011566	5271610	10	78	19207
Azerbaijan	420400	67	30	5	8048600	4120883	15	67	527
Bahamas, The	31524	17	1072	6	297651	244074	18	72	632
Bahrain	205727	12	488	4	638193	564163	22	74	797
Bangladesh	279000	86	9	3	129592275	30583777	27	65	4712

Bottom Panel: Error and Query

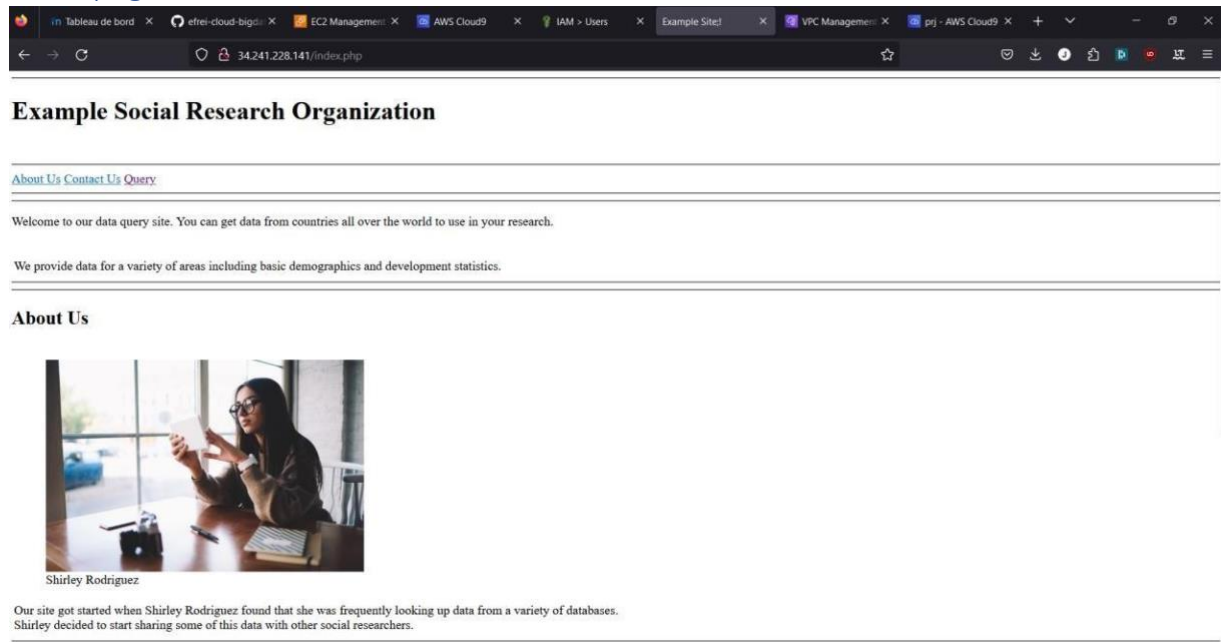
```
MySQL [prj]> SHOW TABLES
-> +-----+
| Tables_in_prj |
+-----+
| countrydata_final |
+-----+
1 row in set (0.00 sec)

-> SELECT * FROM countrydata_final
-> +-----+
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near ''
SELECT * FROM countrydata_final' at line 1
MySQL [prj]> * SELECT * FROM countrydata_final;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near ''* SELECT * FROM countrydata_final' at line 1
MySQL [prj]> select * from countrydata_final;
```

name	mobilephones	mortalityunder5	healthexpenditurepercapita	healthexpenditurepercentGDP	population	populationurban	birthrate	lifeexpectancy	GDP
Afghanistan	0	150	11	9	26697430	5771984	50	46	246
Albania	29791	29	75	6	3071856	1280964	17	74	368
Algeria	86000	49	63	3	30533827	18259229	21	70	5479
American Samoa	1992	0	0	0	57625	51171	0	0	0
Andorra	23543	5	1289	8	64634	59722	11	0	113
Angola	25806	200	15	2	13926373	6823923	50	46	912
Antigua and Barbuda	22000	15	411	5	77656	24928	21	0	80
Argentina	6487950	20	689	9	36930709	33274569	19	74	28420

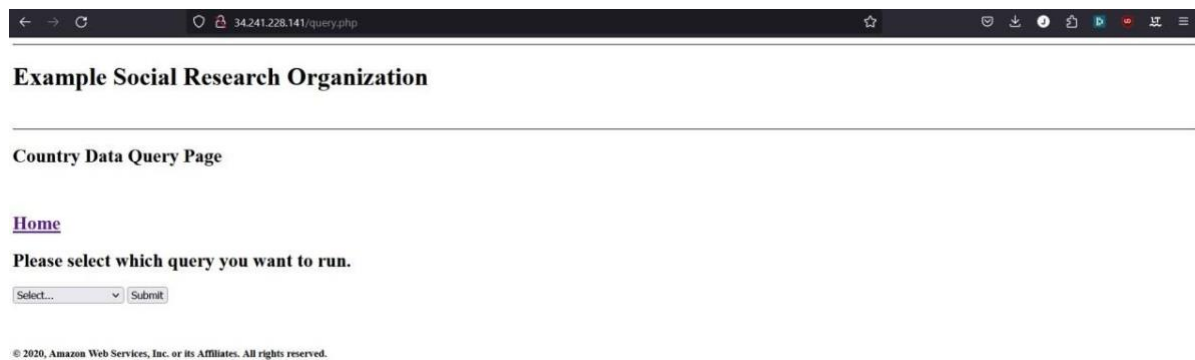
WEBSITE

Homepage



The screenshot shows a web browser window with the URL `34.241.228.141/index.php`. The page title is "Example Social Research Organization". Below the title are links for [About Us](#), [Contact Us](#), and [Query](#). The main content area contains a welcome message: "Welcome to our data query site. You can get data from countries all over the world to use in your research." and "We provide data for a variety of areas including basic demographics and development statistics." Below this is an "About Us" section featuring a photo of Shirley Rodriguez, a woman with glasses sitting at a desk. The text below the photo states: "Our site got started when Shirley Rodriguez found that she was frequently looking up data from a variety of databases. Shirley decided to start sharing some of this data with other social researchers."

Queries



The screenshot shows a web browser window with the URL `34.241.228.141/query.php`. The page title is "Example Social Research Organization". Below the title is the section "Country Data Query Page". There is a link for [Home](#). The main content area contains the text "Please select which query you want to run." followed by a dropdown menu with the text "Select..." and a "Submit" button. At the bottom of the page, there is a copyright notice: "© 2020, Amazon Web Services, Inc. or its Affiliates. All rights reserved."

Mobile phone

in Tableau de bord x efrei-cloud-bigd x EC2 Management x AWS Cloud9 x IAM > Users x 34.241.228.141/query x VPC Management x prj - AWS Cloud9 x

34.241.228.141/query2.php

[Pick another query](#)

This is a Country Name	Number of mobile phone providers
Afghanistan	0
Albania	29791
Algeria	86000
American Samoa	1992
Andorra	23543
Angola	25806
Antigua and Barbuda	22000
Argentina	6487950
Armenia	17486
Aruba	15000
Australia	8562000
Austria	6117000
Azerbaijan	420400
Bahamas, The	31524
Bahrain	205727
Bangladesh	279000
Barbados	28467
Belarus	49353
Belgium	5629000
Belize	16812
Benin	55476
Bermuda	13000
Bhutan	0
Bolivia	582620
Bosnia and Herzegovina	93386
Botswana	222190
Brazil	23188171
Brunei Darussalam	95000
Bulgaria	738000
Burkina Faso	25245

Life expectancy

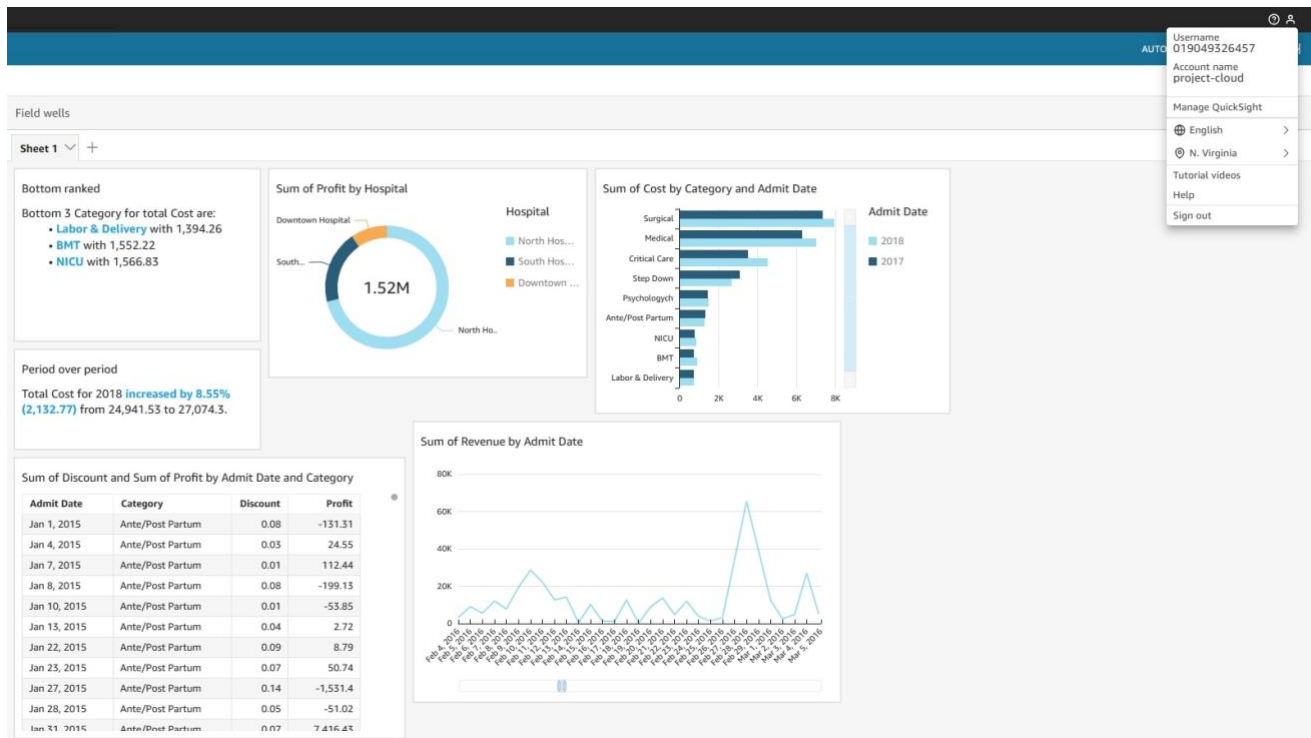
in Tableau de bord x efrei-cloud-bigd x EC2 Management x AWS Cloud9 x IAM > Users x 34.241.228.141/query x VPC Management x prj - AWS Cloud9 x

34.241.228.141/query2.php

[Pick another query](#)

Country Name	Birth Rate	Life Expectancy
Afghanistan	50	46
Albania	17	74
Algeria	21	70
American Samoa	0	0
Andorra	11	0
Angola	50	46
Antigua and Barbuda	21	0
Argentina	19	74
Armenia	13	71
Aruba	14	74
Australia	13	80
Austria	10	78
Azerbaijan	15	67
Bahamas, The	18	72
Bahrain	22	74
Bangladesh	27	65
Barbados	12	76
Belarus	9	69
Belgium	11	78
Belize	30	74
Benin	43	53
Bermuda	14	78
Bhutan	27	62
Bolivia	31	63
Bosnia and Herzegovina	11	75
Botswana	27	51
Brazil	21	70
Brunei Darussalam	23	77
Bulgaria	9	72
Burkina Faso	45	50

Quicksight



Quiz

IAM Quiz

- 1 – Answer 1
- 2 – Answer 1
- 3 – Answer 3 + 5
- 4 – Answer 4
- 5 – Answer 2
- 6 – Answer 3
- 7 – Answer 1

Network quiz

- 1 – Answer 3
- 2 – Answer 3
- 3 – Answer 3 + 5 + 6
- 4 – Answer 4

Policies evaluation

Question: What actions are allowed for EC2 instances and S3 objects based on this policy? What specific resources are included?

We can observe that the rules allow some actions on ec2 and s3 : Running and Terminate Instances in ec2 and Get and Put objects on the s3. This means that it can only be on ec2 instances located in the us-east-1 region or on every s3 bucket named example-bucket.

Question: Under what condition does this policy allow access to VPC-related information? Which AWS region is specified?

This allows access to VPC-related information on the condition that the user accessing it is connected on the us-west-2 region.

Question: What actions are allowed on the "example-bucket" and its objects based on this policy? What specific prefixes are specified in the condition?

We can observe on the Action list that any IAM user with this rule can either get or put an object, or access to the list objects inside the bucket. This rules only applies to the files in the image and documents folders of example-bucket as the prefixes are documents/* and images/* precise.

Question: What actions are allowed for IAM users based on this policy? How are the resource ARNs constructed?

IAM users can create and delete IAM users. The resource ARNs are constructed as an IAM resource with the part: arn:aws:iam::123456789012:user. The placeholder \${aws:username} precise the username of the IAM user making the creation/deletion request.

Questions:

Which AWS service does this policy grant you access to?

This policy grants access to the IAM policies.

Does it allow you to create an IAM user, group, policy, or role?

Does it allow you to create an IAM user, group, policy, or role?

No, we can only access information about one policy or list every policies (indicated by with "Ressource": "*".)

Go to <https://docs.aws.amazon.com/IAM/latest/UserGuide/> and in the left navigation expand Reference > Policy Reference > Actions, Resources, and Condition Keys. Choose Identity And Access Management. Scroll to the Actions Defined by Identity And Access Management list. Name at least three specific actions that the iam:Get* action allows.

- iam/Get* action is a set of actions that permits to access to a lot of data
 - iam/Getuser grants permission to retrieve information about the specified IAM user
 - iam/GetRole grants permission to retrieve information about the specified IAM user
 - iam/GetPolicyGrants grants permission to retrieve information about the specified managed policy, including the policy's default version and the total number of identities to which the policy is attached

Questions:

What actions does the policy allow?

This policy denies the possibility to run and start instances of ec2 t2.micro or t2.small. So it means that it allows everything except this.

How would the policy restrict the access granted to you by this additional statement?

It would remain the same. Here we are just saying that we allow everything on ec2 with this new statement (so it doesn't change anything).

If the policy included both the statement on the left and the statement in question 2, could you terminate a m3.xlarge instance that existed in the account?

If the policy included all the statements, we would be able to terminate a m3.xlarge instance, since there is no restriction on this kind of instance.