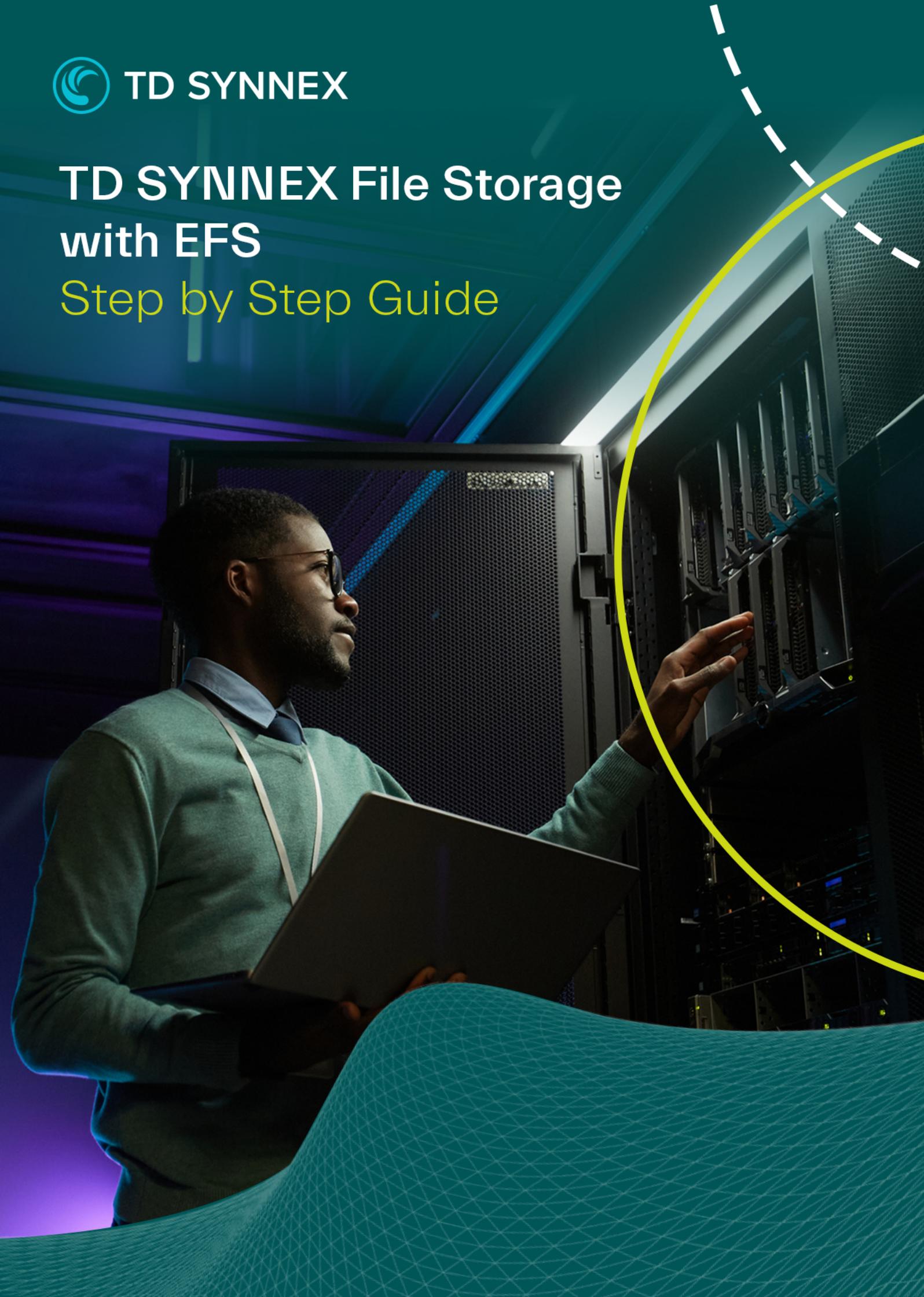




# TD SYNnex File Storage with EFS

## Step by Step Guide



The information below includes detailed pre-deployment requirements, an in depth step by step guide for the AWS Elasticache for Redis Click to Run deployment, and post deployment steps that need to be considered.

[Page 2: Infrastructure Requirements.](#)

[Page 2: Pre-Deployment steps](#)

[Page 4: Solution overview](#)

[Page 6: AWS Elasticache for Redis Click to Run Deployment - Clustering mode enabled.](#)

[Page 12: AWS Elasticache for Redis Click to Run Deployment - Clustering mode disabled.](#)

[Page 17: Post deployment activities](#)

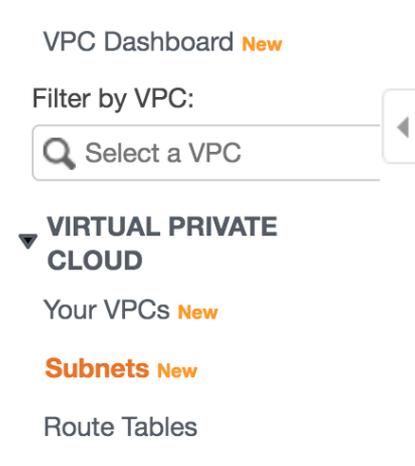
## AWS Elasticache for Redis Pre-Requisites:

### ✓ Infrastructure Requirements

- Existing VPC and subnets - To deploy the click to run solution, a VPC with at least two subnets must already exist in the region. The solution does not perform any configuration out of the scope of the resources deployed with it.

## AWS Elasticache for Redis v2.0 Pre-Deployment Steps

1. To look for the VPC and Subnets where the subnet group will be created:
  - a. Go to the AWS console.
  - b. Once in the console, select the region where you will deploy the solution.
  - c. Look for the service “VPC”.
  - d. Go to the “subnets” section.



e. Then, look at the available subnets and VPCs and note the Ids.

<input type="checkbox"/>	Name	Subnet ID	State	VPC
<input type="checkbox"/>	-	subnet-36698f6f	✔ Available	vpc-8f53acea
<input type="checkbox"/>	-	subnet-482dee3f	✔ Available	vpc-8f53acea
<input type="checkbox"/>	-	subnet-a6c460c3	✔ Available	vpc-8f53acea

f. If no VPCs or subnets are listed, proceed to create a VPC and a subnet as per AWS' instructions.

----- You may now proceed to the solution deployment -----

**Solution Overview:** *“Elasticache for Redis is a solution based on the popular Redis in-memory queue. It is a completely managed implementation, with scalability and elasticity built into it. As part of the deployment process a fully functional cluster is deployed for you, with the configuration options that you chose.”*

### **Parameters & Inputs:**

- Input a Replication Group ID.
- Input a Replication Group Description.
- Select an instance type. All offered instance types are optimized to run Redis.
- Select an available engine version.
- Select clustering mode option. The selection will make you configure these other deployment options:

#### **With clustering enabled**

- Select the number of shards in the cluster.
- Select the number of replica nodes per shard.

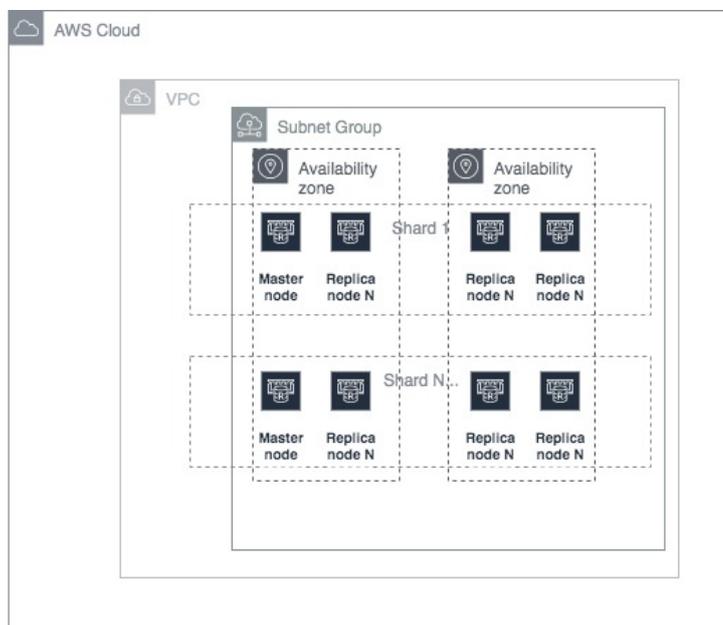
#### **With clustering disabled**

- Select the number of cache nodes.
- Enable or disable multi-AZ deployment mode. (Recommended for production settings)
- Enable or disable Automatic Failover. (Recommended for production settings)
- Select a day to perform maintenance operations. (optional step)
- Select a maintenance time. (optional step)
- Select a retention limit for snapshots. (optional step)
- Select a snapshot window. (optional step)
- Input a CIDR address that is allowed to connect to the cluster.

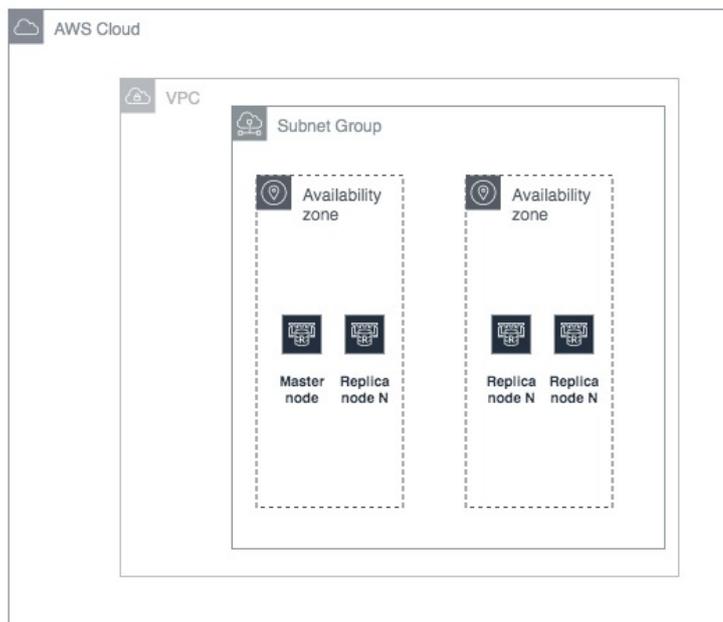
- Input the port Redis will use to communicate.
- Select the VPC in which the solution will be deployed.
- Select the first subnet to create the subnet group hosting the cache nodes.
- Select the second subnet to create the subnet group hosting the cache nodes.

## Deployment Architecture:

**CLUSTER  
MODE  
ENABLED**



**CLUSTER  
MODE  
DISABLED**



## AWS ElastiCache for Redis Deployment and Considerations – Clustering mode enabled

Purchase the AWS ElastiCache for Redis V2 .0 Click to Run Solution through StreamOne Marketplace and proceed to the Digital Locker to configure and deploy the solution.

1. **Select an available AWS Region:** This is the region where the solution will be deployed. Not all regions are available for every solution. When the region is chosen, the configuration of your account will be loaded.

Location

Select data center location

Select an available AWS Region

2. **Input a name for the replication group:** This is the name that will be displayed in the AWS console.

Please, take into the consideration the constraints that apply:

- Must contain 1 to 40 alphanumeric characters or hypens. - Must not contain two consecutive hypens.
- Must begin with a hyphen and not end with a hyphen.

Basic Information

Replication group ID

3. **Input a description for the replication group:** This is the description that will be displayed in the AWS console.

Replication group description

4. **Select an instance size:** The instances displayed in the drop down are a selection of the most common instance types optimized to run Redis.

Instance Type

Burstable - Small (cache.t3.small)

5. **Select a Redis engine:** The most up to date versions of Redis engines are displayed. Unless you have reasons to do otherwise, we advise you to chose the latest version.

Redis engine version

- ✓ 5.0.6
- 5.0.5
- 4.0.10
- 3.2.6

6. **Enable or disable clustering mode:** Clustering mode will drastically affect the deployment, offering sharding options (spreading the data between nodes). To enable clustering, check the box.

Cluster mode



7. **Input the number of shards:** The shards will be used to spread data amongst nodes. Each shard will contain a master node plus a varying number of replica nodes.

The number of shards must be greater than or equal to one and smaller than or equal to six. (For production environments, choose at least two shards).

Number of shards

1

8. **Input the number of replicas per shard:** Within a shard, the solution will create a master node and the number of replicas that you specify in this field. The number of replicas must be greater than or equal to one and smaller than or equal to five. (For production environments, choose at least one replica node)

Number of replica nodes per shard

9. **Enable or disable Multi-AZ mode:** With Multi-AZ mode, whenever a primary node fails a replica in a different Availability Zone will be promoted to primary. (This setting is recommended for production environments)

Multi AZ

10. **Enable or disable automatic failover:** With automatic failover, whenever a failure is detected in a primary node a replica will be promoted to primary. (This setting is recommended for production environments)

Automatic failover enabled

11. **Configure maintenance and snapshot information:** Maintenance and snapshot configuration is pre-populated for you, with default settings. If you wish to override the defaults, please check this box:

Snapshot and maintenance configuration

- Configure maintenance and snapshots

a. **Select a maintenance day:** Maintenance activities by AWS, such as software updates, will be performed on the day you select.

Maintenance day

**Monday**  
 Tuesday  
 Wednesday  
 Thursday  
 Friday  
 Saturday  
 Sunday

b. **Input a maintenance window:** Maintenance activities by AWS will be performed on the time window you specify, on the day that you selected in the previous step.

Snapshot window

c. **Input a snapshot retention limit:** The snapshots of data in the queue will be retained for the number of days you specify.

Snapshot configuration

Snapshot retention limit

d. **Input a snapshot window:** Snapshots of the nodes will be taken daily, at the time specified here. This operation might affect performance. (It must not overlap with the maintenance window)

Snapshot window

12. **Input a remote access network range:** Here you specify the remote address of the systems that will connect to the cluster. To allow universal access, input 0.0.0.0/0 as the allowed access CIDR (not recommended for production workloads).

Network Configuration

Allowed access CIDR

13. **Input a Redis port:** Redis will listen to remote connections in the port you specify here. For most cases, it is safe to leave the default.

Redis port

14. **Select the VPC for the subnet group:** The solution will be deployed in the VPC you specify, within a Subnet Group that will be created for you. In the drop down you will see the list of VPCs in your region. Please select one.

 VPC ID

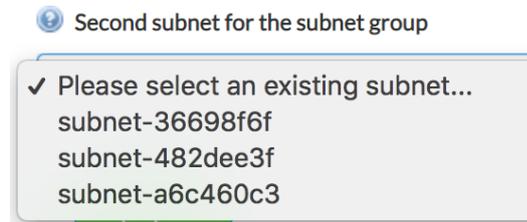
- ✓ Please select an existing VPC...
- vpc-0564ebd733b0953c4
- vpc-0f530cad5016fb501
- vpc-8f53acea

15. **Select the first subnet for the subnet group:** The subnet you select here will be used to create a subnet group, where the nodes will be deployed. Select one of the subnets in the dropdown. (These will be loaded after selecting a VPC)

 First subnet for the subnet group

- ✓ Please select an existing subnet...
- subnet-36698f6f
- subnet-482dee3f
- subnet-a6c460c3

16. **Select the second subnet for the subnet group:** The subnet you select here will be used to create a subnet group, where the nodes will be deployed. Select one of the subnets in the drop down. (These will be loaded after selecting a VPC)



17. **Final check:** Please validate your inputs and click “Deploy”. The button will change to “Deploying...” and then close the window. Thereafter you should then the solution listed as “In Progress” in the digital locker

-- Proceed to the next page for Clustering mode disabled steps --

## AWS ElastiCache for Redis Deployment and Considerations - Clustering mode disabled

Purchase the AWS ElastiCache for Redis V2.0 Click to Run Solution through StreamOne Marketplace and proceed to the Digital Locker to configure and deploy the solution.

1. **Select an available AWS Region:** This is the region where the solution will be deployed. Not all regions are available for every solution.

When the region is chosen, the configuration for your region will be loaded.

Location

Select data center location

Select an available AWS Region

2. **Input a name for the replication group:** This is the name that will be displayed in the AWS console.

Please, take into the consideration the constraints that apply:

- Must contain 1 to 40 alphanumeric characters or hypens. - Must not contain two consecutive hypens.
- Must begin with a hyphen and not end with a hyphen.

Basic Information

Replication group ID

3. **Input a description for the replication group:** is the description that will be displayed in the AWS console.

Replication group description

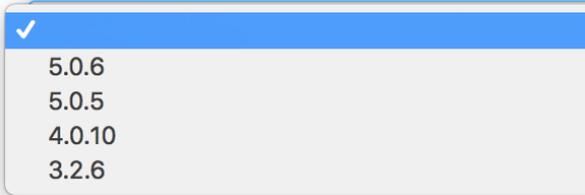
4. **Select an instance size:** The instance displayed are a selection of the most common instance types optimized to run Redis.

Instance Type

Burstable - Small (cache.t3.small)

5. **Select a Redis engine:** The most up to date versions of Redis engines are displayed for you to chose. Unless you have reasons to do otherwise, we advise you to chose the latest version.

Redis engine version



A dropdown menu titled "Redis engine version" is shown. The menu is open, displaying a list of version numbers: 5.0.6, 5.0.5, 4.0.10, and 3.2.6. The top option, 5.0.6, is highlighted with a blue background and a white checkmark in the left margin.

✓	5.0.6
	5.0.5
	4.0.10
	3.2.6

6. **Enable or disable clustering mode:** Clustering mode will drastically affect the deployment, offering sharding options (spreading the data between nodes). To disable clustering, uncheck the box.

Cluster mode

7. **Input the number of nodes:** As part of the deployment, a primary node and a number of replicas will be deployed. The number of nodes must be greater than or equal to one and smaller than or equal to six.

Number of cache nodes

8. **Enable or disable Multi-AZ mode:** With Multi-AZ mode, whenever a primary node fails a replica in a different Availability Zone will be promoted to primary. (This setting is recommended for production environment)

Multi AZ

9. **Enable or disable automatic failover:** With automatic failover, whenever a failure is detected in a primary node a replica will be promoted to primary. (This setting is recommended for production environments)

Automatic failover enabled

10. **Configure maintenance and snapshot information:** Maintenance and snapshot configuration is pre-populated for you, with default settings. If you wish to override the defaults, please check this box:

Snapshot and maintenance configuration

- Configure maintenance and snapshots

a. **Select a maintenance day:** Maintenance activities by AWS, such as software updates, will be performed on the day you select.

Maintenance day

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

b. **Input a maintenance time:** Maintenance activities by AWS will be performed on the time window you specify, on the day that you selected in the previous step.

Snapshot window

21:00-22:00

c. **Input a snapshot retention limit:** The snapshots of the data in the queue will be retained for the number of days you specify.

Snapshot configuration  
Snapshot retention limit

d. **Input a snapshot window:** Snapshots of the nodes will be taken daily, at the time specified here. This operation might affect performance. (It must not overlap with the maintenance window)

Snapshot window

11. **Input a remote access network range:** In order to connect to the cluster, the remote address of the systems that will connect to it must be specified. To allow universal access, input 0.0.0.0/0 as the allowed access CIDR (not recommended for production workloads).

Network Configuration  
Allowed access CIDR

12. **Input a Redis port:** The port Redis will use to accept remote connections. For most cases, it is safe to leave the default.

Redis port

13. **Select the VPC for the subnet group:** The solution will be deployed in the VPC you specify, within a Subnet Group that will be created for you. In the drop down you will see the list of VPCs in your region. Please select one.

 VPC ID

- ✓ Please select an existing VPC...
- vpc-0564ebd733b0953c4
- vpc-0f530cad5016fb501
- vpc-8f53acea

14. **Select the first subnet for the subnet group:** The subnet you select here will be used to create a subnet group, where the nodes will be deployed. Select one of the subnets in the dropdown. (These will be loaded after selecting a VPC)

 First subnet for the subnet group

✓ Please select an existing subnet...  
subnet-36698f6f  
subnet-482dee3f  
subnet-a6c460c3

15. **Select the second subnet for the subnet group:** The subnet you select here will be used to create a subnet group, where the nodes will be deployed. Select one of the subnets in the dropdown. (These will be loaded after selecting a VPC)

 Second subnet for the subnet group

✓ Please select an existing subnet...  
subnet-36698f6f  
subnet-482dee3f  
subnet-a6c460c3

16. **Final check:** Please validate your inputs and click “Deploy”. The button will change to “Deploying...” and then close the window. Thereafter you should then the solution listed as “In Progress” in the digital locker

-- Proceed to the next page for post-deployment steps --

## Post-Deployment activities for AWS Elasticache for Redis v2.0

- Connecting to your Elasticache cluster.
  - Standalone node.
  - Cluster with cluster mode disabled.
  - Cluster with cluster mode enabled.
- Modifying network access permissions of your Elasticache cluster.

### Post Deployment Activities

Connecting to your Elasticache cluster.

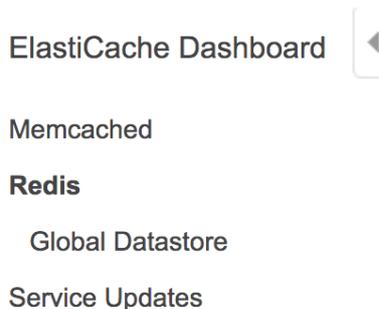
*In order to connect to your newly created Elasticsearch cluster, you need to find the cluster's endpoint. This operation will vary depending on the clustering mode that you selected. All three possibilities are detailed here.*

#### **Standalone mode.**

*The standalone mode applies when a single node with clustering mode disabled has been deployed. In this mode, the node's primary endpoint is used both to write and read from the cluster.*

In order to determine the node's endpoint, follow these steps:

1. Go to your AWS console, and then select the service "Elasticache".
2. Select "Redis" in the left navigation bar.



3. Select your cluster from the list.

Filter:	Search Clusters...						
<input type="checkbox"/>	Cluster Name ^	Mode v	Shards v	Nodes v	Node Type v	Status v	Update Action Status v
<input type="checkbox"/>	▶ testio	Redis	1	1 node	cache.t3.small	available	up to date

4. You can now connect to your cluster’s endpoint using your redis clients. Please note that connections will be restricted to the address range that you specified in the “allowed access CIDR” field.

<b>Name:</b> testio	<b>Global Datastore:</b> -
<b>Global Datastore Role:</b> -	<b>Creation Time:</b> November 27, 2020 at 10:23:19 AM UTC+1
<b>ARN:</b> arn:aws:elasticache:eu-west-1:020779576776:replicationgroup:testio	<b>Configuration Endpoint:</b> -
<b>Status:</b> available	<b>Primary Endpoint:</b> testio.lv6dpg.ng.0001.euw1.cache.amazonaws.com
<b>Update Status:</b> up to date	<b>Engine:</b> Redis

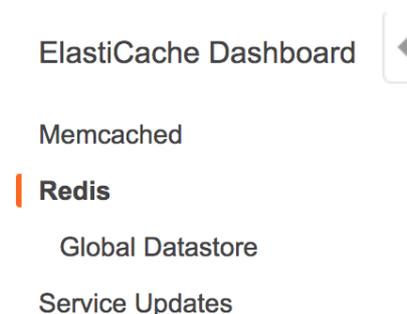
5. Ahora puede conectarse al punto de conexión de su clúster utilizando sus clientes redis. Tenga en cuenta que las conexiones se restringirán al rango de direcciones que especificó en el campo “CIDR de acceso permitido”.

### CCluster with cluster mode disabled.

*This mode applies when there is a master node plus a number of replicas, but the clustering mode is not enabled. In this mode, write operations will be performed against the master node’s connection endpoint, while read operations will be performed against the cluster’s read endpoint.*

*In order to determine these endpoints, follow these instructions:*

1. Go to your AWS console, and then select the service “Elasticache”.
2. Select “Redis” in the left navigation bar.



3. Select your cluster from the list.

Filter: <input type="text" value="Search Clusters..."/>						
<input type="checkbox"/>	Cluster Name ^	Mode ^	Shards ^	Nodes ^	Node Type ^	Status ^ Update Action Status ^
<input type="checkbox"/>	▶ testio	Redis	1	2 nodes	cache.t3.small	available up to date

4. General information will be displayed in a new panel below the cluster. There, look for the “Primary endpoint” field. In the example below, the primary endpoint is “testio.lv6dpg.ng.0001.euw1.cache.amazonaws.com”. This will be your read endpoint.

<b>Name:</b> testio	<b>Global Datastore:</b> -
<b>Global Datastore Role:</b> -	<b>Creation Time:</b> November 27, 2020 at 11:09:12 AM UTC+1
<b>ARN:</b> arn:aws:elasticache:eu-west-1:020779576776:replicationgroup:testio	<b>Configuration Endpoint:</b> -
<b>Status:</b> available	<b>Primary Endpoint:</b> testio.lv6dpg.ng.0001.euw1.cache.amazonaws.com
<b>Update Status:</b> up to date	<b>Engine:</b> Redis

5. To obtain the write endpoint, click on the cluster name. You will be taken to a page similar to this one:

Description		Nodes			
<input type="button" value="Add Node"/>		<input type="button" value="Actions"/>			
<input type="checkbox"/>	Node Name ^	Status	Current Role	Port	Endpoint
<input type="checkbox"/>	testio-001	available	primary	6379	testio-001.lv6dpg.0001.euw1.cache.amazonaws.com
<input type="checkbox"/>	testio-002	available	replica	6379	testio-002.lv6dpg.0001.euw1.cache.amazonaws.com

6. In the new page, look for the node displayed as “primary”. The endpoint is displayed in the “endpoint” field. In the example above, it would be “testio-001.lv6dpg.0001.euw1.cache.amazonaws.com”. This will be your write endpoint.

7. You can now connect to your cluster’s endpoints using your redis clients. Please note that connections will be restricted to the address range that you specified in the “allowed access CIDR” field.

### Cluster with cluster mode enabled.

*This mode applies when the clustering mode has been enabled. In this mode, the cluster’s configuration endpoint will be used for all operations*

In order to determine this endpoint, follow these instructions:

1. Go to your AWS console, and then select the service “Elasticache”.
2. Select “Redis” in the left navigation bar.



3. Select your cluster from the list.

Filter: <input type="text" value="Search Clusters..."/>							
<input type="checkbox"/>	Cluster Name ^	Mode	Shards	Nodes	Node Type	Status	Update Action Status
<input type="checkbox"/>	▶ testio	Clustered Redis	2	4 nodes	cache.t3.small	available	up to date

4. General information will be displayed in a new panel below the cluster. There, look for the “configuration endpoint” field. In the example below, the primary endpoint is “testio.lv6dpg.ng.0001.euw1.cache.amazonaws.com”. This will be your read and write endpoint.

**Name:** testio

**Global Datastore Role:** -

**Configuration Endpoint:** testio.lv6dpg.clustercfg.euw1.cache.amazonaws.com:6379

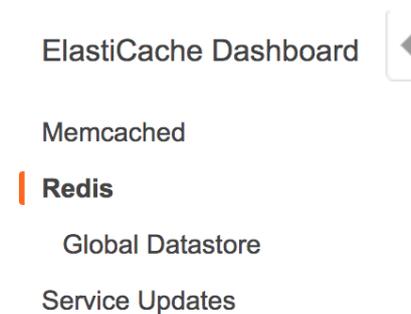
5. You can now connect to your cluster’s endpoints using your redis client. Please note that connections will be restricted to the address range that you specified in the “allowed access CIDR” field.

Modifying network access permissions of your Elasticache cluster.

*Your redis solution is configured with default security options, allowing access from the address range that you selected at solution deployment time. It might happen that access requirements change over time, or that the initial permissions need to be limited or expanded.*

To change the access settings for your Elasticache solution, please follow these steps:

1. Go to your AWS console, and then select the “Elasticache” service.
2. Select “Redis” in the left navigation bar.



ElastiCache Dashboard

Memcached

**Redis**

Global Datastore

Service Updates

3. Select your cluster from the list.

Filter: <input type="text" value="Search Clusters..."/>							
<input type="checkbox"/>	Cluster Name ^	Mode	Shards	Nodes	Node Type	Status	Update Action Status
<input type="checkbox"/>	▶ testio	Clustered Redis	2	4 nodes	cache.t3.small	available	up to date

4. General information will be displayed in a new panel below the cluster. There, look for the “security group(s)” field. Take note of the security group ID displayed there.

**Number of Nodes:** 4 nodes

**Auto-failover:** enabled

**Parameter Group:** default.redis5.0.cluster.on (in-sync)

**Security Group(s):** sg-00053565a760eb93a (VPC) (active)

5. Go to the service “VPC”, using the top left navigation menu~.

6. Navigate to the “Security Groups” section, under “Security”, in the left navigation bar.

## ▼ SECURITY

Network ACLs

Security Groups **New**

7. You will be taken to the “Security Groups” interface. There, select the security group you noted in point 4.

Security Groups (6) [Info](#) Refresh Actions Create security group

< 1 > Settings

<input type="checkbox"/>	Name	Security group ID	Security group name	VPC ID	Descrip
<input type="checkbox"/>	-	sg-00053565a760eb93a	GCI-10000000000021...	vpc-8f53acea	Enable e

8. Click on the security group name. You will be taken to a new interface. There, scroll down until you find the “inbound rules” section at the bottom.

Inbound rules		Outbound rules	Tags	
<p><b>Inbound rules</b> <span style="float: right;">Edit inbound rules</span></p>				
Type	Protocol	Port range	Source	Description - optional
Custom TCP	TCP	6379	0.0.0.0/0	-

9. A rule will be displayed, for the port you selected from the source address you inputted. To edit the rules, click on “Edit inbound rules”.

10. From this page, you can modify the access rules. For example, you might want to change the source address and replace it with a new one.

**Inbound rules** Info

Type <span style="float: right;">Info</span>	Protocol <span style="float: right;">Info</span>	Port range <span style="float: right;">Info</span>	Source <span style="float: right;">Info</span>	Description - optional <span style="float: right;">Info</span>
<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Custom TCP ▼</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">TCP</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">6379</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">           Custom ▼ <input style="width: 100px;" type="text"/> </div> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; margin-top: 2px;">           0.0.0.0/0 ✕         </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 150px; height: 20px;"></div>
<div style="border: 1px solid #ccc; padding: 2px 10px;">Delete</div>				
<div style="border: 1px solid #ccc; padding: 2px 10px; float: left;">Add rule</div>				