# Configure Elasticsearch to Use MinIO as a Snapshot Repository

This document describes the steps to configure Elasticsearch to use MinIO as a snapshot repository and how to create and verify snapshots.

## Step 1: Install the S3 Plugin for Elasticsearch

extraInitContainers:  
 - name: install-s3-plugin  
 image: docker.elastic.co/elasticsearch/elasticsearch:7.17.3   
 command:  
 - sh  
 - -c  
 - |  
 bin/elasticsearch-plugin install --batch repository-s3  
 volumeMounts:  
 - name: plugins  
 mountPath: /usr/share/elasticsearch/plugins

extraVolumeMounts:  
 - name: plugins  
 mountPath: /usr/share/elasticsearch/plugins

extraVolumes:  
 - name: plugins  
 emptyDir: {}

Ensure that the repository-s3 plugin is installed on all Elasticsearch nodes. Use an init container to install the plugin during pod initialization. Update the Elasticsearch Helm chart values with the following:

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## Step 2: Install MinIO Using Helm

Deploy MinIO to your Kubernetes cluster using Helm with the following values:

helm repo add minio <https://charts.min.io/>

helm install minio minio/minio

--set accessKey=minioadmin

--set secretKey=minioadmin

--set resources.requests.memory=512Mi

--set replicas=1

--set persistence.enabled=false

--set mode=standalone

--set rootUser=rootuser,rootPassword=rootpass123

## Retrieve the MinIO service information

kubectl get svc

## Step 3: Create a MinIO Bucket and Access key

**Log in to your MinIO instance and create a bucket for storing Elasticsearch snapshots. For example:**

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mc alias set myminio http://<minio-ip>:9000 <access-key> <secret-key>  
mc mb myminio/elasticsearch-snapshots  
  
**Alternatively, you can create the bucket using the MinIO console:**  
  
1. Access the MinIO console via the service URL.  
2. Log in using the root credentials provided during installation.  
3. Click **Buckets** and then **Create Bucket.**  
4. Name the bucket `elasticsearch-snapshots` and save.  
  
**To generate access keys using the console:**  
  
1. Navigate to **Identity > Users.**  
2. Create or select a user.  
3. Generate a new access key and secret key.

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## Step 4: Configure the Snapshot Repository

Use the following API request to register a snapshot repository in Elasticsearch:

PUT /\_snapshot/minio-s3-repo  
{  
 "type": "s3",  
 "settings": {  
 "bucket": "elasticsearch-snapshots",  
 "endpoint": "http://<minio-ip>:9000",  
 "protocol": "http",  
 "path\_style\_access": "true",  
 "access\_key": "<minio-access-key>",  
 "secret\_key": "<minio-secret-key>"  
 }  
}

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## Step 5: Verify Repository Configuration

GET /\_snapshot/\_all

Check the registered repositories to ensure your repository is listed

## Step 6: Test the Repository with Snapshots

PUT /test-index  
{  
 "settings": {  
 "number\_of\_shards": 1,  
 "number\_of\_replicas": 1  
 },  
 "mappings": {  
 "properties": {  
 "name": {  
 "type": "text"  
 },  
 "timestamp": {  
 "type": "date"  
 }  
 }  
 }  
}

**### Create an Index  
  
Run the following API query to create an index:**

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POST /test-index/\_doc  
{  
 "name": "Document 1",  
 "timestamp": "2025-01-24T12:00:00"  
}  
  
POST /test-index/\_dock  
{  
 "name": "Document 2",  
 "timestamp": "2025-01-24T13:00:00"  
}  
  
  
**### Create a Snapshot**  
  
**Take a snapshot of the test-index using the following API:**  
  
  
PUT /\_snapshot/minio-s3-repo/snapshot-test  
{  
 "indices": "test-index",  
 "ignore\_unavailable": true,  
 "include\_global\_state": false  
}  
  
  
**### Verify the Snapshot  
  
Check the status of the snapshot using this API:**  
  
  
GET /\_snapshot/minio-s3-repo/snapshot-test

**### Add Documents to the Index  
  
Add some sample data to the index:**

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**Troubleshooting**  
**### Common Errors and Solutions**  
**1- Error:** path [snapshots] is not accessible on master node - Ensure that MinIO is reachable from all Elasticsearch nodes.  
 - Verify network connectivity using:  
   
 curl http://<minio-ip>:9000  
   
  
**2- Error:** access denied  
  
 - Ensure that the correct access and secret keys are configured.