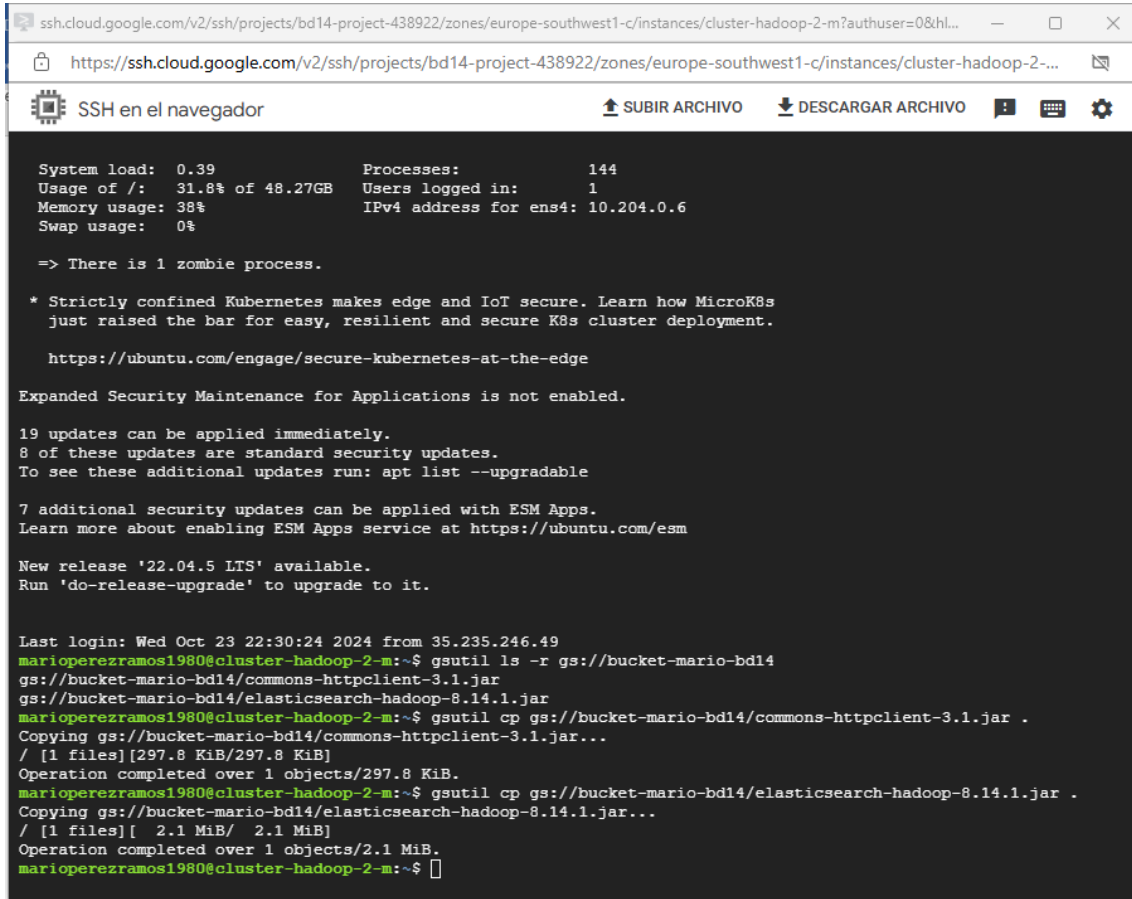


PRÁCTICA ARQUITECTURA

PARTE 1: Captura de pantalla de la consola SSH del cluster Hadoop una vez finalizada la configuración y carga.



```
ssh.cloud.google.com/v2/ssh/projects/bd14-project-438922/zones/europe-southwest1-c/instances/cluster-hadoop-2-m?authuser=0&hl...
https://ssh.cloud.google.com/v2/ssh/projects/bd14-project-438922/zones/europe-southwest1-c/instances/cluster-hadoop-2-...

SSH en el navegador SUBIR ARCHIVO DESCARGAR ARCHIVO

System load: 0.39          Processes:           144
Usage of /:  31.8% of 48.27GB Users logged in:      1
Memory usage: 38%         IPv4 address for ens4: 10.204.0.6
Swap usage:  0%

=> There is 1 zombie process.

* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
  just raised the bar for easy, resilient and secure K8s cluster deployment.

https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

19 updates can be applied immediately.
8 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

7 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

New release '22.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Wed Oct 23 22:30:24 2024 from 35.235.246.49
marioperezramos1980@cluster-hadoop-2-m:~$ gsutil ls -r gs://bucket-mario-bd14
gs://bucket-mario-bd14/commons-httpclient-3.1.jar
gs://bucket-mario-bd14/elasticsearch-hadoop-8.14.1.jar
marioperezramos1980@cluster-hadoop-2-m:~$ gsutil cp gs://bucket-mario-bd14/commons-httpclient-3.1.jar .
Copying gs://bucket-mario-bd14/commons-httpclient-3.1.jar...
/ [1 files][297.8 KiB/297.8 KiB]
Operation completed over 1 objects/297.8 KiB.
marioperezramos1980@cluster-hadoop-2-m:~$ gsutil cp gs://bucket-mario-bd14/elasticsearch-hadoop-8.14.1.jar .
Copying gs://bucket-mario-bd14/elasticsearch-hadoop-8.14.1.jar...
/ [1 files][ 2.1 MiB/ 2.1 MiB]
Operation completed over 1 objects/2.1 MiB.
marioperezramos1980@cluster-hadoop-2-m:~$
```

PARTE 2: Captura de pantalla de la consola del server Elastic donde se ve la configuración de elastic, desde 'Enable security features' hasta el final (el fichero elasticsearch.yml) abierta.

```
#----- BEGIN SECURITY AUTO CONFIGURATION -----
#
# The following settings, TLS certificates, and keys have been automatically
# generated to configure Elasticsearch security features on 28-10-2024 22:05:10
#
# -----

# Enable security features
xpack.security.enabled: false

xpack.security.enrollment.enabled: true

# Enable encryption for HTTP API client connections, such as Kibana, Logstash, and Agents
xpack.security.http.ssl:
  enabled: false
  keystore.path: certs/http.p12

# Enable encryption and mutual authentication between cluster nodes
xpack.security.transport.ssl:
  enabled: true
  verification mode: certificate
  keystore.path: certs/transport.p12
  truststore.path: certs/transport.p12
# Create a new cluster with the current node only
# Additional nodes can still join the cluster later
cluster.initial_master_nodes: ["instance-elasticsearch"]

# Allow HTTP API connections from anywhere
# Connections are encrypted and require user authentication
http.host: 0.0.0.0
# Allow other nodes to join the cluster from anywhere
# Connections are encrypted and mutually authenticated
#transport.host: 0.0.0.0

#----- END SECURITY AUTO CONFIGURATION -----
marioperezramos1980@instance-elasticsearch:~$ sudo cat /etc/elasticsearch/elasticsearch.yml
```

Comprobación para asegurar que el cluster Hadoop con Hive tiene acceso al server de Elastic, desde la máquina del cluster Hadoop:

```
Last login: Tue Oct 29 08:37:44 2024 from 35.235.246.48
marioperezramos1980@cluster-elastic-2-m:~$ curl -I http://34.175.57.137:9200
HTTP/1.1 200 OK
X-elastic-product: Elasticsearch
content-type: application/json
content-length: 546
```

PARTE 3 - Configuración en Cluster Hadoop de Conexión con ES

```
marioperezramos1980@cluster-elastic-2-m:~$ sudo sed -i 's/' /etc/hive/conf/dist/hive-site.xml
marioperezramos1980@cluster-elastic-2-m:~$ sudo sed -i 's/ <property>\n <name>es.nodes</name>\n <value>
34.175.57.137</value>\n </property>\n' /etc/hive/conf/dist/hive-site.xml
marioperezramos1980@cluster-elastic-2-m:~$ sudo sed -i 's/ <property>\n <name>es.port</name>\n <value>9
200</value>\n </property>\n' /etc/hive/conf/dist/hive-site.xml
marioperezramos1980@cluster-elastic-2-m:~$ sudo sed -i 's/ <property>\n <name>es.nodes.wan.only</name>\n
<value>true</value>\n </property>\n' /etc/hive/conf/dist/hive-site.xml
marioperezramos1980@cluster-elastic-2-m:~$ sudo sed -i 's/ <property>\n <name>hive.aux.jars.path</name>\n
<value>/usr/lib/hive/lib/elasticsearch-hadoop-8.14.1.jar,/usr/lib/hive/lib/commons-httpclient-3.1.jar</value>\n
n </property>\n</configuration>' /etc/hive/conf/dist/hive-site.xml
marioperezramos1980@cluster-elastic-2-m:~$ sudo cp elasticsearch-hadoop-8.14.1.jar /usr/lib/hive/lib/
marioperezramos1980@cluster-elastic-2-m:~$ sudo cp commons-httpclient-3.1.jar /usr/lib/hive/lib/
marioperezramos1980@cluster-elastic-2-m:~$ sudo service hive-server2 restart
marioperezramos1980@cluster-elastic-2-m:~$
```

PARTE 4: Captura de pantalla de la consola del cluster Hadoop con el resultado la consulta.

```
marioperezramos1980@cluster-elastic-2-m:~$ curl -X POST "34.175.57.137:9200/_bulk" -H 'Content-Type: application
/json' -d'
> { "index": { "_index": "alumnos", "_id": "3" } }
> { "id": 3, "name": "Carlos", "last_name": "González" }
> { "index": { "_index": "alumnos", "_id": "4" } }
> { "id": 4, "name": "María", "last_name": "López" }
> { "index": { "_index": "alumnos", "_id": "5" } }
> { "id": 5, "name": "Luis", "last_name": "Martínez" }
> { "index": { "_index": "alumnos", "_id": "7" } }
> { "id": 7, "name": "Sofía", "last_name": "Ramírez" }
> { "index": { "_index": "alumnos", "_id": "8" } }
> { "id": 8, "name": "Pedro", "last_name": "Hernández" }
> '
{"errors":false,"took":56,"items":[{"index":{"_index":"alumnos","_id":"3","_version":1,"result":"created","_shar
ds":{"total":2,"successful":1,"failed":0},"_seq_no":1,"_primary_term":1,"status":201}},{"index":{"_index":"alumn
os","_id":"4","_version":1,"result":"created","_shards":{"total":2,"successful":1,"failed":0},"_seq_no":2,"_prim
ary_term":1,"status":201}},{"index":{"_index":"alumnos","_id":"5","_version":1,"result":"created","_shards":{"to
tal":2,"successful":1,"failed":0},"_seq_no":3,"_primary_term":1,"status":201}},{"index":{"_index":"alumnos","_id
":"7","_version":1,"result":"created","_shards":{"total":2,"successful":1,"failed":0},"_seq_no":4,"_primary_term
":1,"status":201}},{"index":{"_index":"alumnos","_id":"8","_version":1,"result":"created","_shards":{"total":2,"
successful":1,"failed":0},"_seq_no":5,"_primary_term":1,"status":201}}]}marioperezramos1980@cluster-elastic-2-m:
~$
```

```

marioperezramos1980@cluster-elastic-2-m:~$ curl -X GET "http://34.175.57.137:9200/alumnos/_search?pretty"
{
  "took" : 60,
  "timed out" : false,
  "_shards" : {
    "total" : 1,
    "successful" : 1,
    "skipped" : 0,
    "failed" : 0
  },
  "hits" : {
    "total" : {
      "value" : 6,
      "relation" : "eq"
    },
    "max_score" : 1.0,
    "hits" : [
      {
        "_index" : "alumnos",
        "_id" : "6",
        "_score" : 1.0,
        "_source" : {
          "title" : "New Document",
          "content" : "This is a new document for the master class",
          "tag" : [
            "general",
            "testing"
          ]
        }
      },
      {
        "_index" : "alumnos",
        "_id" : "3",
        "_score" : 1.0,
        "_source" : {
          "id" : 3,
          "name" : "Carlos",
          "last_name" : "González"
        }
      },
      {
        "_index" : "alumnos",
        "_id" : "4",
        "_score" : 1.0,
        "_source" : {
          "id" : 4,
          "name" : "María",
          "last_name" : "López"
        }
      },
      {
        "_index" : "alumnos",
        "_id" : "5",
        "_score" : 1.0,
        "_source" : {
          "id" : 5,
          "name" : "Luis",
          "last_name" : "Martínez"
        }
      },
      {
        "_index" : "alumnos",
        "_id" : "7",
        "_score" : 1.0,
        "_source" : {
          "id" : 7,
          "name" : "Sofía",
          "last_name" : "Ramírez"
        }
      },
      {
        "_index" : "alumnos",
        "_id" : "8",
        "_score" : 1.0,
        "_source" : {
          "id" : 8,
          "name" : "Pedro",
          "last_name" : "Hernández"
        }
      }
    ]
  }
}
marioperezramos1980@cluster-elastic-2-m:~$ 

```

ENTREGABLE 5: Opcional. Captura de pantalla de la consola de Kibana con alguna visualización sencilla.

En este último caso he utilizado la obra de Shakespeare de clases anteriores, para tener mas contenido para hacer visualizaciones.

Este gráfico muestra la frecuencia de diálogo de los personajes en la obra Anthony and Cleopatra, destacando a los diez personajes principales por el número total de líneas que tienen. Permitiendo identificar rápidamente qué personajes tienen mayor protagonismo en términos de diálogo.

