ELK Task

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Elastic Stack Setup with Fleet Server and Agent Enrollment

1. SSH Access to Ubuntu Server (Better Utility)

Instead of using VirtualBox console or similar, I used **SSH from Windows PowerShell** for better scrolling, search, and copy/paste capabilities.

Command:

```
ssh username@<Ubuntu_Server_IP>
```

- **username** → Your Ubuntu VM's username.
- **<Ubuntu_Server_IP>** → IP address of the VM (reachable from your host).

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2. Installing Elasticsearch and Kibana

I already downloaded the `.deb` packages to my **Windows host**, transferred them to the Ubuntu server using **WinSCP (SCP Protocol)**, and then installed them.

2.1 Install Elasticsearch

```
sudo dpkg -i elasticsearch-<version>-amd64.deb
```

- Installs Elasticsearch from the `.deb` file.

2.2 Configure Elasticsearch

```
sudo nano /etc/elasticsearch/elasticsearch.yml
```

- Modify

```
network.host: 0.0.0.0
```

This allows accessing the server on all the interfaces (all IPs assigned to the adapters on the server machine)

2.3 Start Elasticsearch

```
sudo systemctl start elasticsearch
sudo systemctl enable elasticsearch
```

- Starts the service and ensures it launches on boot.

2.4 Test Elasticsearch

From your **Windows host browser**:

```
http://<Ubuntu_Server_IP>:9200
```

- If successful, you'll see a **JSON object** with cluster details.
- At installation, Elasticsearch generates a **password** for the default user `elastic` — **memorize or securely store this**.

If you forget the password:

Default `elastic` user

```
sudo /usr/share/elasticsearch/bin/elasticsearch-reset-password -u elastic
```

- Copy the password exactly (avoid typing to prevent mistakes).

2.5 Install Kibana

```
sudo dpkg -i kibana-<version>-amd64.deb
```

2.6 Configure Kibana

```
sudo nano /etc/kibana/kibana.yml
```

- Modify:

```
server.host: 0.0.0.0
```

2.7 Start Kibana

```
sudo systemctl start kibana
sudo systemctl enable kibana
```

2.8 Access Kibana

From your **Windows host browser**:

```
http://<Ubuntu_Server_IP>:5601
```

- Opens the **Kibana GUI**.

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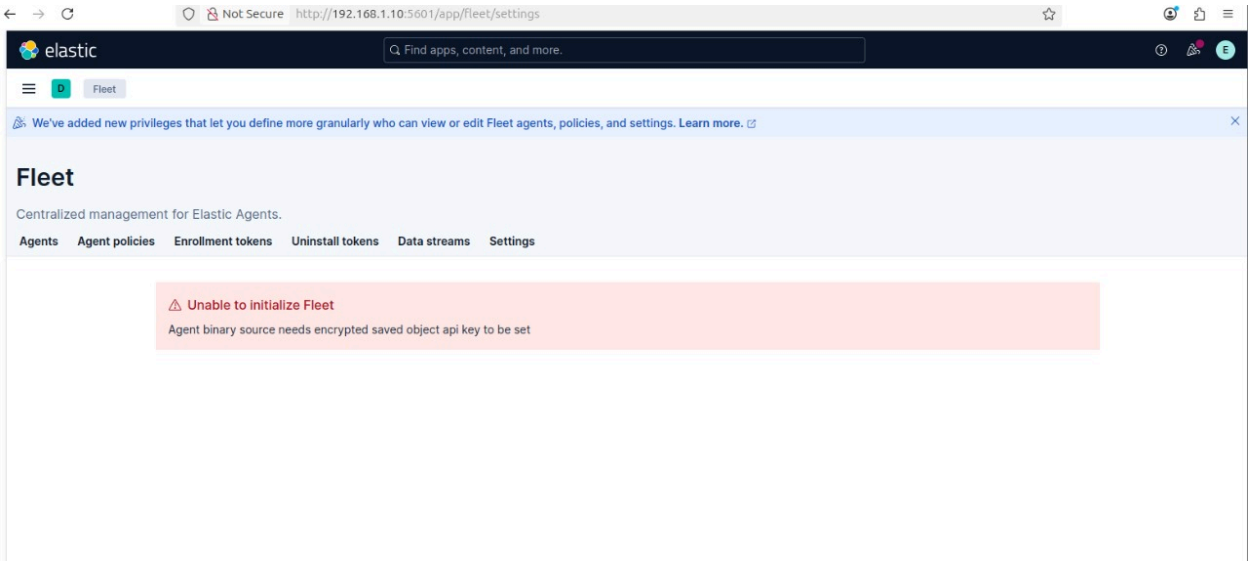
3. Adding Kibana Security Keys

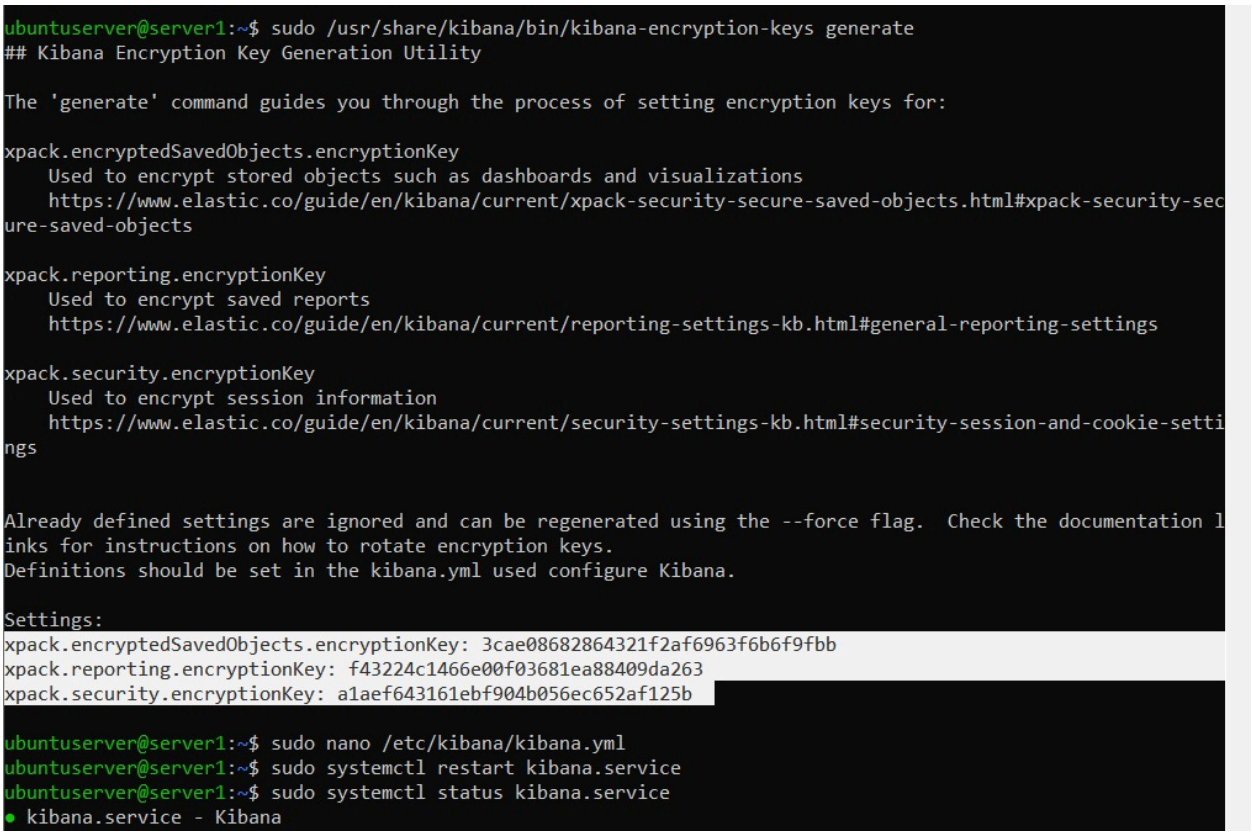


Kibana needs encryption keys for secure features. You won't be able to access it unless you do the following step.

Generate Keys

```
sudo /usr/share/kibana/bin/kibana-encryption-keys generate
```

- Outputs **three keys**: `xpack.encryptedSavedObjects.encryptionKey`, `xpack.reporting.encryptionKey`, and `xpack.security.encryptionKey`.



Add to Config

```
sudo nano /etc/kibana/kibana.yml
```

Copy only the highlighted and paste the keys into the config file under the appropriate fields (anywhere).

Create Kibana Enrollment Token

```
sudo /usr/share/elasticsearch/bin/elasticsearch-create-enrollment-token -s ki
ban
```

- Generates a token to connect Kibana to Elasticsearch.

Get Kibana Verification Code

```
sudo /usr/share/kibana/bin/kibana-verification-code
```

- Used during initial Kibana setup to verify connection.

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4. Fleet Server Installation

In Kibana GUI → **Fleet → Add Fleet Server**, choose:

- **Linux x86_64 TAR (not .deb)** option.
- Follow the commands provided in the GUI.

Example:

```
tar xzvf elastic-agent-<version>-linux-x86_64.tar.gz
cd elastic-agent-<version>-linux-x86_64

sudo ./elastic-agent install \
  --fleet-server-es=https://<Ubuntu_Server_IP>:9200 \
  --fleet-server-service-token=<token> \
  --fleet-server-policy=<policy_id> \
  --fleet-server-insecure-http
```

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5. Enrolling Elastic Agent on Any Machine

You can enroll agents from **Windows, Linux, or Mac.....**. You must follow the instructions when you choose the software.

Example: Windows Enrollment

Open **PowerShell (Run as Administrator)**:

```
cd "C:\elastic-agent-<version>-windows-x86_64"

.\elastic-agent.exe install `
  --url=https://<Fleet_Server_IP>:8220 `
  --enrollment-token=<enrollment_token> `
  --insecure
```

- `--insecure` → bypasses TLS certificate validation if Fleet Server uses a self-signed cert.

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6. Accessing Logs in Kibana

Once agents are connected:

1. Menu → Discover
2. You'll see incoming logs from all enrolled agents.