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# SpeechMiner Administration Guide

Install and Configure Elasticsearch

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# Install and Configure Elasticsearch

## Elasticsearch 5.x

1. Download and run **java x64 JVM** version 8 or later.
2. Set the **JAVA\_HOME** system environment variable:
  - a. Enter the Variable name **JAVA\_HOME**.
  - b. Enter the Variable value. That is, the location of the **Destination Folder** in which you installed **java x64 JVM** version **8** or later. For example, C:\Program Files\Java\jre1.8.0\_161
3. Download the **Elasticsearch Installer** from <https://artifacts.elastic.co/downloads/elasticsearch/elasticsearch-5.6.16.msi>.
4. Run **Elasticsearch.msi**.
5. Click **Next** in the **Locations** tab.
6. Click **Next** in the **Services** tab.
7. Set the **Configuration** tab as follow:
  - **Cluster Name:** Select a unique name.

### Important

Use the same name in all the **ES Nodes** you install.

- **Node Name:** Enter your computer name.
- **Role:** Select **Master** or **Data** as needed and deselect **Ingest**.

### Important

Elasticsearch should include at least one Data node and one Master node.

- **Memory:** Select ~40% of your available RAM memory and mark **Lock JVM** memory to prevent the **Elasticsearch** memory from being swapped.
- **Network host:** Enter the server's **Hostname** or **IP Address**.
- **Discovery:** Enter the **(number of master nodes) / 2 + 1**.  
For example, set **2** if there are 3 master nodes in your cluster.
- **Unicast Hosts:** Add all the **master nodes host:port** to your cluster.

### Important

If you choose to first create Data node, you can configure **Unicast Hosts** later in **C:\ProgramData\Elastic\Elasticsearch\config\elasticsearch.yml**

8. Click **Next > Install**.
9. Verify that Elasticsearch is functioning successfully:
  - a. Open your Browser and in the **Address** field type **http://<ElasticsearchMachineName>:9200/\_cluster/health**. **Elasticsearch** is working as expected if the page opens and the **Status** attribute is green or yellow.  
If the page does not open or the Status attribute is red, contact **Genesys Customer Care** for assistance.
10. Install **SpeechMiner**. For details refer to [installation#Installing SpeechMiner](#).
11. Configure **SpeechMiner**. For details refer to [configuration#Configuring SpeechMiner](#).
12. Verify that the Indexer is running and is able to connect to Elasticsearch:
  - a. Enter **http://<IndexerHostName>/indexer/api/v1/status**. The Indexer is running and is able to connect to Elasticsearch if you see **isAvailable:true**.

## Configure Elasticsearch on Windows

### Important

- Edit your Elasticsearch configuration only in rare cases. For example, when adding an additional Master node to the system.
- You can change the Data nodes indexer after the Indexer installation is complete. To do this, change the **esNodes Environment** value in the Indexer machine. You must use the following format: **http://ES1:9200;http://ES2:9200;http://smithES2:9200**
- The number of shards and replicas are configured in the SpeechMiner database in the **indexParamsTbl** table in the **numberOfShards** and **numberOfReplicas** columns. You must configure the number of shards and replicas before you run UPlatform for the first time.
- If the customer runs a Migration process, the number of shards and replicas should also be configured in the **LuceneToESMigration** tool configuration file.

1. Open **C:\ProgramData\Elastic\Elasticsearch\config\elasticsearch.yml**.
  - a. Change the following settings:
    - **cluster.name**
    - **node.name**
    - Set **bootstrap.memory\_lock** to **true**.

- Set **network.host** as the hostname or the server IP address.
  - Set **discovery.zen.minimum\_master\_nodes** to (number of master-eligible nodes / 2 + 1). For example, if there are three **Master-Eligible** nodes, then **discovery.zen.minimum\_master\_nodes** should be set to 2.
  - Set **discovery.zen.ping.unicast.hosts** to a list of **Master-Eligible** nodes.
- b. By default, a node is a **Master-Eligible** node, a **Data** node and an **Ingest** node.
- To create a dedicated **Master-Eligible** node, add the following settings to the **[node]** section:  
**node.master:** true  
**node.data:** false  
**node.ingest:** false
  - To create a dedicated **Data** node, add the following settings to the node section:  
**node.master:** false  
**node.data:** true  
**node.ingest:** false
2. Open **C:\ProgramData\Elastic\Elasticsearch\config\jvm.options**.
- a. Change the **JVM heap' size to ~40% of your RAM memory. For example, if you have 32 GB RAM, ensure that both -Xmx and -Xms values are set to 12g. For example, -Xms12g and -Xmx12g.**
3. Restart the **Elasticsearch** service from the **Services** window to update the settings.

## Elasticsearch 7.x

### Important

Elasticsearch is built using Java and includes a bundled version of OpenJDK. To use your own version of Java, set the **ES\_JAVA\_HOME** environment variable. If you use a version of Java that is different from the bundled JVM, we recommend using a **supported** version of Java. Elasticsearch will not run if an unsupported version of Java is used. You may remove the bundled JVM directory when using your own JVM.

## Install Elasticsearch 7.17.6

To download Elasticsearch,

1. Download **elasticsearch-7.17.6-windows-x86\_64.zip** from **Elasticsearch 7.17.6**. **Note:** Select the **Windows** option to download a zip package.
2. Unzip it with your unzip tool. This creates a folder called **elasticsearch-7.17.6**.

To install Elasticsearch as a Windows service, do the following steps:

1. Open **Command Prompt** and navigate to the **elasticsearch-7.17.6 > bin** folder.
2. Run the command, **elasticsearch-service.bat install**. This command installs Elasticsearch as a

Windows service.

3. Press **Windows+R** and type **services.msc**, and press **Enter**. This opens the **Services** window that lists all Windows services.
4. Verify that Elasticsearch 7.17.6 service is available and then start the service.

### Important

You can also refer to the [official Elasticsearch documentation](#) on how to install it on Windows.

After the installation is completed, proceed to the **Configure Elasticsearch on Windows** section below for instructions on configuring Elasticsearch.

## Install Elasticsearch 7.16.3

1. Download the **Elasticsearch Installer** from <https://artifacts.elastic.co/downloads/elasticsearch/elasticsearch-7.16.3.msi>.
2. Run **Elasticsearch.msi**.
3. Click **Next** in the **Locations** tab.
4. Click **Next** in the **Services** tab.
5. Set the **Configuration** tab as follow:
  - **Cluster Name:** Select a unique name, for example **elasticsearch**.

### Important

Use the same name in all the **ES Nodes** you install.

- **Node Name:** Enter your computer name.
- **Role:** Select **Master** or **Data** as needed and deselect **Ingest**.

### Important

Elasticsearch should include at least one Data node and one Master node.

- **Memory:** Select **~40%** of your available RAM memory and mark **Lock JVM** memory to prevent the **Elasticsearch** memory from being swapped.
- **Network host:** Enter the server's **Hostname** or **IP Address**.
- **HTTP port:** Set as **9200**.

- **Transport port:** Set as **9300**.
- (Optional) **This is the first master in a new cluster:** Leave it empty.
- **Seed Hosts:** Add all the **master nodes host:port** to your cluster.

### Important

If you choose to first create Data node, you can configure **Seed Hosts** later in `C:\ProgramData\Elastic\Elasticsearch\config\elasticsearch.yml`

6. Click **Next > Install**.
7. Verify that Elasticsearch is functioning successfully:
  - a. Open your Browser and in the **Address** field type **`http://<ElasticsearchMachineName>:9200/_cluster/health`**. **Elasticsearch** is working as expected if the page opens and the **Status** attribute is green or yellow.  
If the page does not open or the Status attribute is red, contact [Genesys Customer Care](#) for assistance.
8. Install **SpeechMiner**. For details refer to [installation#Installing SpeechMiner](#).
9. Configure **SpeechMiner**. For details refer to [configuration#Configuring SpeechMiner](#).
10. Verify that the Indexer is running and is able to connect to Elasticsearch:
  - a. Enter **`http://<IndexerHostName>/indexer/api/v1/status`**. The Indexer is running and is able to connect to Elasticsearch if you see **`isAvailable:true`**.

## Configure Elasticsearch on Windows

### Important

- Edit your Elasticsearch configuration only in rare cases. For example, when adding an additional Master node to the system.
- You can change the Data nodes indexer after the Indexer installation is complete. To do this, change the **esNodes Environment** value in the Indexer machine. You must use the following format: `;http://ES1:9200/`
- The number of shards and replicas are configured in the SpeechMiner database in the **indexParamsTbl** table in the **numberOfShards** and **numberOfReplicas** columns. You must configure the number of shards and replicas before you run UPlatform for the first time.
- If the customer runs a Migration process, the number of shards and replicas should also be configured in the **LuceneToESMigration** tool configuration file.

1. Open `C:\ProgramData\Elastic\Elasticsearch\config\elasticsearch.yml`.

- a. Change the following settings:
    - **cluster.name**
    - **node.name**
    - Set **bootstrap.memory\_lock** to **true**.
    - Set **network.host** as the hostname or the server IP address.
    - Set **cluster.initial\_master\_nodes** as the name of the master nodes. This name is the host name that you provided during the installation of Elasticsearch.
    - Set **discovery.seed\_hosts** to a list of **Master-Eligible** nodes.
  - b. By default, a node is a **Master-Eligible** node, a **Data** node and an **Ingest** node.
    - To create a dedicated **Master-Eligible** node, add the following settings to the **[node]** section:  
**node.master:** true  
**node.data:** false  
**node.ingest:** false
    - To create a dedicated **Data** node, add the following settings to the node section:  
**node.master:** false  
**node.data:** true  
**node.ingest:** false
2. Open **C:\ProgramData\Elastic\Elasticsearch\config\jvm.options**.
    - a. Change the **JVM heap' size to ~40% of your RAM memory. For example, if you have 32 GB RAM, ensure that both -Xmx and -Xms values are set to 12g. For example, -Xms12g and -Xmx12g.**
  3. Restart the **Elasticsearch** service from the **Services** window to update the settings.