Installing Elasticsearch

Liferay DXP uses Elasticsearch to index its content. By default, Liferay DXP uses Elasticsearch as an embedded service. It works, but this is not a supported configuration for a production server. Feel free to use it while you're testing or developing, but when you're ready to put your site in production, you'll need to run Elasticsearch as a standalone process. This is better anyway, because it frees you to design your infrastructure the way you want it. If you've got hardware or a VM to spare, you can separate your search infrastructure from Liferay DXP and reap some performance gains by putting search on a separate box. If you're more budget-conscious, you can still increase performance by running Elasticsearch in a separate, individually tunable JVM on the same box.

Installing Elasticsearch for Liferay DXP is pretty easy and takes only six steps:

1. Find the version of Elasticsearch that's embedded in the version of Liferay DXP you have, and then download that version from Elastic's website.
2. Install Elasticsearch by extracting its archive to the system where you want it to run.
3. Install some required Elasticsearch plugins.
4. Name your Elasticsearch cluster.
5. Configure Liferay DXP to connect to your Elasticsearch cluster.
6. Restart Liferay DXP and reindex your search and spell check indexes.

Note: Before continuing, make sure you have set the `JAVA_HOME` environment variable

If you have multiple JDKs installed, make sure Elasticsearch and Liferay DXP are using the same version. You can specify this in `[Elasticsearch Home]/bin/elasticsearch.in.sh`:

```
JAVA_HOME=/path/to/java
```

Elasticsearch article for more details on configuring Liferay DXP for Elasticsearch. For more information on installing a search engine, see here.

STEP ONE: FIND THE RIGHT VERSION OF ELASTICSEARCH

If Liferay DXP isn't running, start it.

Visit port 9200 on localhost to access the embedded Elasticsearch:

```
http://localhost:9200
```

A JSON document is returned that varies slightly, but should look similar to this:

```
{
  "name" : "Wiz Kid",
  "cluster_name" : "LiferayElasticsearchCluster",
  "version" : {
    "number" : "2.4.0",
    "build_hash" : "8ff36d139e16f8720f2947ef62c8167a888992fe",
    "build_timestamp" : "2016-08-27T13:32:39Z",
    "build_snapshot" : false,
    "lucene_version" : "5.5.2"
  },
  "tagline" : "You Know, for Search"
}
```

The version of Elasticsearch that's running is the value of the `"number"` field. In this example, it's `2.4.0`.

Elasticsearch 6: Elasticsearch 6 is supported for Liferay Digital Enterprise systems running Fix Pack 79 or later: see the compatibility matrix for the exact version ranges supported for your Fix Pack level. The latest Liferay Portal, GA 7 at the time of this writing, does not support Elasticsearch 6.5. Instead use Elasticsearch 6.1. In Liferay DXP 7.0, Elasticsearch version 2.x remains the default, embedded version. To install Elasticsearch 6.5.x,

1. Make sure you're running at least Digital Enterprise FP-79.

2. Install Elasticsearch 6.5.x (follow steps 2-4 in this article for guidance).

4. Configure the Elasticsearch 6 connector (see step 5 below for guidance).

To learn more about upgrading an existing system to Elasticsearch 6.5, read the upgrade article.
Now that you know the version of Elasticsearch you need, go to Elastic's website and download that version.

STEP TWO: INSTALL ELASTICSEARCH

Most of this step entails deciding where you want to run Elasticsearch. Do you want to run it on the same machine as Liferay DXP, or do you want to run it on its own hardware? The answer to this question comes down to a combination of the resources you have available and the size of your installation. Regardless of what you decide, either way you get the benefit of a separately tunable search infrastructure.

Once you have a copy of the right version of Elasticsearch, extract it to a folder on the machine where you want it running. That's all there is to this step.

STEP THREE: INSTALL ELASTICSEARCH PLUGINS

Install the following required Elasticsearch plugins:

- `analysis-icu`
- `analysis-kuromoji`
- `analysis-smartcn`
- `analysis-stempel`

To install these plugins, navigate to Elasticsearch Home and enter

```
./bin/plugin install [plugin-name]
```

Replace *[plugin-name]* with the Elasticsearch plugin's name.

Elasticsearch 6.5: The `plugin` executable was renamed in Elasticsearch 6, to `elasticsearch-plugin` . The general command syntax for installing plugins to 6.5 is

```
./bin/elasticsearch-plugin install [plugin-name]
```

STEP FOUR: NAME YOUR ELASTICSEARCH CLUSTER

cluster, please refer to Elastic's documentation.

Now that you've installed Elastic, it sits in a folder on your machine, which is referred to here as `[Elasticsearch Home]`. To name your cluster, you'll define the cluster name in both Elasticsearch and in Liferay DXP. First, define it in Elasticsearch. Edit the following file:

```
[Elasticsearch Home]/config/elasticsearch.yml
```

Uncomment the line that begins with `cluster.name`. Set the cluster name to whatever you want to name your cluster:

```
cluster.name: LiferayElasticsearchCluster
```

Of course, this isn't a very imaginative name; you may choose to name your cluster `finders_keepers` or something else you can remember more easily. Save the file.

Now you can start Elasticsearch. Run the executable for your operating system from the `[Elasticsearch Home]/bin` folder:

```
./elasticsearch
```

Elasticsearch starts, and one of its status messages includes a transport address:

```
2016-05-03 16:33:28,358][INFO ][transport] [Hobgoblin II] publish_address {127.0.0.1:9
```

Take note of this address; you'll need to give it to your Liferay DXP server so it can find Elasticsearch on the network.

STEP FIVE: CONFIGURE LIFERAY DXP TO CONNECT TO YOUR ELASTICSEARCH CLUSTER

Elasticsearch 6.5: Before continuing, install the Liferay Connector to Elasticsearch 6 application from Liferay Marketplace and stop the default Elasticsearch 2.x adapter, which connects to Elasticsearch 2.x.

1. Create a file called

If you already have one of these files in `Liferay Home/osgi/configs`, just open it.

2. Place the Bundle Symbolic Name of the Elasticsearch connector in the `blacklistBundleSymbolicNames` property:

```
blacklistBundleSymbolicNames=["com.liferay.portal.search.elasticsearch"]
```

3. Place the file in `Liferay Home/osgi/configs`.

Alternatively, deactivate the Elasticsearch connector using the App Manager in *Control Panel* → *Apps* → *App Manager*. If you're a Digital Enterprise customer, use the blacklist feature as described above. The App Manager relies on the `osgi/state` folder to "remember" the state of the bundle. If you delete this folder (recommended during patching) the Elasticsearch connector will be reinstalled and started automatically.

1. Search for *elasticsearch* in the App Manager. Find the Liferay Portal Search Elasticsearch module and click the edit ((🖉)) button. Choose the Deactivate option. This leaves the bundle installed, but stops it in the OSGi runtime.

2. Once you've downloaded the LPKG file with the Elasticsearch 6 adapter, place it in Liferay Home's `deploy` folder. Find more detailed information on deploying Marketplace applications here.

Now you're ready to configure Liferay DXP. Start Liferay DXP if you haven't already, log in, and then click on *Control Panel* → *Configuration* → *System Settings* → *Foundation*. Find *Elasticsearch* (or *Elasticsearch 6*)in the list of settings and click on it. Now you can configure it. Here are the options you need to change:

Cluster name: Enter the name of the cluster as you defined it in Elasticsearch.

Operation mode: Defaults to EMBEDDED. Change it to REMOTE to connect to a standalone Elasticsearch.

Transport addresses: Enter a delimited list of transport addresses for Elasticsearch nodes. Here, you'll enter the transport address from the Elasticsearch server you started. The default value is `localhost:9300`, which will work.

When finished, click *Save*. You're almost done.

STEP SIX: RESTART LIFERAY DXP AND REINDEX

Stop and restart Liferay DXP. When it's back up, log in as an administrative user and

1. Click on *Control Panel* → *Configuration* → *Server Administration*

3. Click Execute for *Reindex all spell check indexes*.

For more details refer to the Elasticsearch installation guide.

You're almost done! The only thing left is to make sure Marketplace is working and optionally configure portal security.

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