

# INTRAFIND



## **iFinder Installation**

Technical Documentation

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## 1 Introduction

For a quick installation on a server you can use the [ZIP installer](#). For more complex scenarios, install apps and services separately.

If you want to install with Docker/Ansible, please contact your technical contact person. We can provide you with the appropriate package.

### System requirements

You can install an iFinder environment on the following operating systems:

- Microsoft Windows Server 2012 or higher
- Linux (for example tested on Ubuntu 18.04 LTS and CentOS 7.6)

### Supported browsers

All modern and up-to-date browsers are supported, including, but not limited to:

- Google Chrome
- Apple Safari
- Microsoft Edge
- Mozilla Firefox

It is recommended to keep your browser up to date.

Currently we still support Internet Explorer 11, but this could change in future versions.

### Recommendations for the configuration of antivirus software

We recommend not to check the following with the antivirus software:

- The directory where the index is located. The antivirus scanner slows down the access and thus slows down the search.
- The directory where the software is installed. Here are JAR files that are important for the operation of the software. It may happen that the antivirus software deletes JAR files. This would make the software unusable. Furthermore, temporary files that are important for the extraction of textual information are stored here. When the antivirus software accesses the files, they are blocked for a certain time and the process is delayed. If these files are deleted by the antivirus software, the indexing of the files may be incomplete.

### Third party components

The following third-party components are required and are provided with the products:

- Java Developer Kit: Use only the specific IntraFind installer which is customized for IntraFind and delivered with the product.
- Apache Tomcat: Use the default installation package supplied with the product.
- For Windows installations: Install Microsoft Visual C++ Redistributable using **vc redistrib\_x64.exe**. You can get the file here: <https://www.microsoft.com/en-us/download/details.aspx?id=40784>.
- For Linux installations: Python 3

## 2 Installing with the ZIP installer

For test installations and non-complex installation scenarios, use the ZIP installer. The ZIP installer sets the environment variables and runs all installation programs with the default settings. The following is installed:

- All services for the search
- JDK
- Apache Tomcat
- Apps for searching
- Administration application

For detailed information on the installation and the necessary configuration steps, see [Manual installation](#).

### 2.1 Preparing installation

1. Log on with a user who is in the local administrators group.
2. Create a directory for the installation, e.g. **C:\IntraFind** with the subdirectory **license**. In the following this directory is referred to as **<Installation directory>** genannt.
3. Copy the license file **intrafind.lic** to **<Installation directory>\license**.
4. Install Microsoft Visual C++ Redistributable using **vc redistrib\_x64.exe**. The file is available in the installation directory and here: <https://www.microsoft.com/de-de/download/details.aspx?id=40784>.

### 2.2 Installing

1. Execute the file **1\_Environment.bat** as administrator: **Context menu > Run as administrator**.
2. Execute the file **2\_Services.bat** as administrator: **Context menu > Run as administrator**.
3. If you want to use LDAP user and **not** local users:
  - After installation, extract the archive **waffle-for-if-sv-access.zip** and copy the files from the **lib** directory to **if-sv-access\lib**.
  - Extract the archive **waffle.zip** and copy the files from the **lib** directory to **<Instdir>\services\tomcat\webapps\iFinder5\WEB-INF\lib**.
  - Copy the file **web.xml** to **<Installation directory>\services\tomcat\webapps\iFinder5\WEB-INF\**.

### 2.3 Creating local users (optional)

You can now optionally and only for test installations create a basic configuration with local users. The integration component Searchbar currently does not support the use of local users.

1. Start the file **Local\_Users.bat**.

2. The following users are created:
  - Users **local.ifinder** for searching, password **iFinder5**
  - User **local.admin** for the administration tool, password **iFinder5**
3. After successful execution, the operating system automatically starts the iFinder interface in the browser defined as default.
4. Open the user interfaces:
  - iFinder5: <http://localhost:8080/iFinder5>
  - Administration: <http://localhost:9680/resource/login.html>

## 2.4 Testing search

1. Start the search interface iFinder5: <http://localhost:8080/iFinder5>.
2. Search for terms that occur in your own documents.

## 2.5 Verifying installation

After installation, check that the services work:

- Enter the following URL on the server being tested:  
`http://localhost:<PORT>/json/state/get?param0=[health]`
- Sample answer: `{"health.status":"green"}`

Service	Port / Request	Expected result
<b>if-sv-configstore</b>	9600	Contains "status":"green"
<b>if-sv-thesaurus</b>	9601	Contains "status":"green"
<b>if-sv-converter</b>	9602	Contains "status":"green"
<b>if-sv-search</b>	9605	Contains "status":"green"
<b>If-app-adminui</b>	9680	Contains "status":"green"
<b>If-sv-elasticsearch</b>	<a href="http://localhost:9200/cluster/health">http://localhost:9200/cluster/health</a>	Contains "status":"green"
<b>if-app-ifinder5</b>	Contains the iFinder5 frontend to be deployed as Tomcat app.	Required
<b>searchbar-standard</b>	Contains the search bar integration component to be deployed as Tomcat app.	Required

## 2.6 Installation under Windows

### 2.6.1 Preparing installation

The user for installation must have administrator rights.

1. Logon with a user that is in the local administrator group.
2. Create a dedicated directory for installation, for example **C:\IntraFind** with the following subdirectories: **license**, **install**.  
In the following, this directory is referred to as **<Installation directory>**.
3. Copy the installation files to **<Installation directory>\install**.
4. Copy the license file to **<Installation directory>\license**.
5. Install Microsoft Visual C++ Redistributable with **vc\_redist\_x64.exe**. The file is available in the installation package, or you can obtain the file here: <https://www.microsoft.com/en/download/details.aspx?id=40784>.

### 2.6.2 Installing the components

#### Installing the Java Developer Kit (JDK)

1. Start **if-meta-openjdk-installer-<Version>.exe**.
2. Follow the instructions of the installation assistant.

#### Setting the environment variables

1. In the Control Panel, set the following environment variables.  
**Control Center > System > Advanced System Settings > Environment Variables > System variables**

```

JAVA_HOME=<installation directory>\jdk
INTRAFIND_LICENSE=<installation directory>\license\intrafind.lic

```

Set the `JAVA_HOME` variable if you only have this java installation on your system. If you have several java installations, you might need to define the path when you refer to your java installation.

2. To the path variable, add the following paths:

```

<installation directory>\jdk
<installation directory>\services\tomcat

```

#### Installing Elasticsearch and Linguistics

The installer **if-elasticsearch-installer-<Version>.exe** installs the **elasticsearch7** service and the linguistic features.

You can only use the linguistic features if your license includes them.

1. Install **if-elasticsearch-installer-<VERSION>.exe** .
2. Follow the instructions of the installation assistant.
3. Default settings are:

- **Installation directory:** C:\IntraFind\services\if-elasticsearch7-1
- **Service port:** 9200. You can check if the port is available. If not, change the port number.
- **Select license:** Use license from INTRAFIND\_LICENSE. You can see the value below the option.
- **Value for maximum heap size:** 2 GB.
- **Clustername:** ifinder-prod

It is not recommended to install multiple instances of Elasticsearch for other than test reasons.

### Installing the services and apps

1. Install the following services and apps one after one:

Installer	Default values
<b>if-sv-search7-installer-&lt;VERSION&gt;.exe</b>	Destination: C:\IntraFind\services\if-sv-search-1 Service port: 9605
<b>if-sv-configstore-installer-&lt;VERSION&gt;.exe</b>	Destination: C:\IntraFind\services\if-sv-configstore-1 Service port: 9600
<b>if-app-admin-ui-installer-&lt;VERSION&gt;.exe</b>	Destination: C:\IntraFind\apps\if-app-admin-ui-1 Port: 9680
<b>if-sv-access-installer-&lt;VERSION&gt;.exe</b>	Destination: C:\IntraFind\services\if-sv-access-1 Port: 9611  For this installation, Waffle 1.8.3 is required. After installation, unzip the archive <b>waffle-for-if-sv-access.zip</b> and copy its contents to the <b>if-sv-access\lib</b> folder.
<b>if-sv-converter-installer-&lt;VERSION&gt;.exe</b>	Destination: C:\IntraFind\services\if-sv-converter-1 Options to use: Converter, Preview, Thumbnail Port: 9602  For this installation, Microsoft Visual C++ Redistributable is required.
<b>if-sv-thesaurus-installer-&lt;VERSION&gt;.exe</b>	Destination: C:\IntraFind\services\if-sv-thesaurus-1 Port: 9601

2. For each service, follow the instructions of the installation assistants. If you want to install additional services, also install them one after one.



### Installing the search front-end

The search UI requires an Apache Tomcat installation.

1. In the installation directory, create a **services\tomcat** sub-directory:  
**<Installation directory>\services\tomcat**.
2. Unzip **apache-tomcat-<VERSION>.zip** and copy its contents to  
**<Installation directory>\services\tomcat**.
3. Open a command prompt as administrator and enter the following:

```
cd C:\IntraFind\services\tomcat\bin
service.bat install Tomcat-iFinder
```

4. Start **Services** and set the **Apache Tomcat 9.0 Tomcat-iFinder** service to **Automatic (Delayed Start)**.
5. Place the files **if-app-ifinder5-VERSION.war** and **if-app-serchbar-standard-VERSION.war** in the **<installation directory>\services\tomcat\webapps**. Tomcat will unpack the files automatically.
6. If you want to use LDAP users and **not** local users:
  - o Unzip the **waffle.zip** oder **waffle-for-if-sv-access.zip** file and copy the files that are in the **lib** folder to **<Installation directory>\tomcat\lib**.
  - o Copy the web.xml file to **<Installation directory>\services\tomcat\webapps\iFinder5\WEB-INF\**.
7. Open the **<Installation directory>\services\tomcat\webapps\iFinder5\WEB-INF\classes\config.cfg** file and remove everything except for the following lines:

```
common.config-store:
com.intrafind.common.beans.Beans.of(com.intrafind.api.config.ConfigStore.
class, "http://localhost:9600/hessian/configstore")
```

8. Start the **Apache Tomcat 9.0 Tomcat-iFinder** service.

### 2.6.3 Installing connectors

In addition to the services and apps, you install one or more connectors. For detailed information, see the respective documentation.

### 2.6.4 Verification steps

After installation, check that the services are up and running:

- Enter the following URL on the server that is being tested:  
[http://localhost:<PORT>/json/state?method=get&param0=\[health\]](http://localhost:<PORT>/json/state?method=get&param0=[health])
- Sample response:

```
{"health.status":"green"}
```

Service	Port / Request	Expected result
If-sv-configstore	9600	Contains "status": "green"
If-sv-thesaurus	9601	Contains "status": "green"
If-sv-converter	9602	Contains "status": "green"
If-sv-search	9605	Contains "status": "green"
If-app-adminui	9680	Contains "status": "green"
If-sv-elasticsearch	<a href="http://localhost:9200/_cluster/health">http://localhost:9200/_cluster/health</a>	Contains "status": "green"
Tomcat	<a href="http://localhost:8080">http://localhost:8080</a>	HTML is returned.

## 2.7 Installation under Linux

### 2.7.1 Preparing installation

The user for installation must have **sudo** permissions.

1. Check that you have access to the relevant tools in your Linux system:
  - unzip
  - gcc
  - make
  - python (at least version 3)
2. Create an **intrafind** user. The user should have **sudo** permissions.
3. Logon with this user.

The installation process asks for the sudo password. If the user does not have sudo permissions, press the **Enter** key. After three attempts, an error message is displayed but the software will be installed anyway.

```
Sorry, try again.
[sudo] password for intrafind:
sudo: 3 incorrect password attempts
```

4. Create a dedicated directory for installation, for example **opt/intrafind**.
5. Copy the license file **intrafind.lic** to **/opt/intrafind/license/**.
6. Copy the installation files to **/opt/intrafind/install/**.
7. Ensure that all **\*.sh** and **\*.bin** files are executable. (**chmod +x \*.bin**).

- Use the **fc-list** command to check that fonts are installed on your system. If they are not installed, install them with the following:

```
sudo apt install fontconfig
```

## 2.7.2 Installing the components

### Setting the environment

Before installation, set the variables.

- In the **/etc/environment** file, add the bold text to the PATH setting. Your default path may look different.

```
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:  
/usr/games:/usr/local/games:/opt/intrafind/jdk/bin:  
/opt/intrafind/tomcat/bin"
```

- Add three lines at the end of the file and change the paths accordingly.

```
JAVA_HOME=/opt/intrafind/jdk  
INTRAFIND_LICENSE=/opt/intrafind/license/intrafind.lic  
CATALINA_HOME=/opt/intrafind/tomcat
```

You cannot use variables in **/etc/environment**.

- In the **~/profile** file, also define the PATH variable. Append following lines to the end of the file:

```
export JAVA_HOME=/opt/intrafind/jdk  
export INTRAFIND_LICENSE=/opt/intrafind/license/intrafind.lic  
export CATALINA_HOME=/opt/intrafind/tomcat  
export PATH="$JAVA_HOME/bin:$CATALINA_HOME/bin:$PATH"
```

Log out and log in again to use the new settings.

**su - intrafind** is not sufficient to activate the settings, you also have to re-login with the current user.

### Installing the Java Developer Kit

- Install **if-meta-jdk-installer-xx.bin**.

```
intrafind@localhost:~/install$ ./if-meta-jdk-installer-xx.bin
```

- Log out and log in again to use the new settings.

### Installing Elasticsearch and Linguistics

The installer **if-elasticsearch7-installer-<Version>.bin** installs the **elasticsearch7** service and the linguistic features.

You can only use the linguistic features if your license includes them.

1. Install **if-elasticsearch7-base-installer-xx.bin** with the **intrafind** user.

```
intrafind@localhost:~/install$ ./if-elasticsearch-base-installer-
x.x.x.x.bin
```

2. You have the following installation options:

```
-p port Port on which the service should run
-u user User under which the service should run
-h Shows the help message with additional parameters
```

3. You will get following output:

```
IntraFind Installer <Version>
Installing "elasticsearch"

Summary of selected options:
INSTALLATION DIR : /opt/intrafind/services/if-elasticsearch
JRE                : /opt/intrafind/jdk
PORT               : 9200
USERNAME           : intrafind

Continue? [Y/n]
```

4. Press the **ENTER** key to install Elasticsearch.

**Info:** It is not recommended to install multiple instances of Elasticsearch for other than test reasons.

### Installing the services and apps

1. Install the at least following services and apps one after one.

If your license includes additional services and apps, also install them as described in the following.

Installer name
<b>if-sv-search7-installer&lt;Version&gt;.bin</b>
<b>if-sv-configstore-installer&lt;VERSION&gt;.bin</b>
<b>if-app-admin-ui-installer&lt; VERSION &gt;.bin</b>
<b>if-sv-access-installer&lt;VERSION&gt;.bin</b>

**Installer name****if-sv-converter-installer<VERSION>.bin****if-sv-thesaurus-installer<VERSION>.bin**

2. For each package, run the install script.

```
intrafind@localhost:~$ ./if-sv-<NAME>-<VERSION>.bin
```

**Info:** If you get **permission denied** to write in certain directories, try to run them as root and pass the user:

```
intrafind@localhost:~$ sudo ~/install/if-sv-<NAME>-<VERSION>.bin -u <USER>
```

3. After execution the installation process starts:

```
IntraFind Installer 1.0
Installing "search"

Summary of selected options:
INSTALLATION DIR : /opt/intrafind/services/if-sv-search
JRE               : /opt/intrafind/jdk
LICENSE          : /opt/intrafind/license/intrafind.lic
PORT             : 9605
USERNAME         : intrafind

Continue? [Y/n]
```

4. If you have changes, abort the installation process by typing **n** and pressing the **Enter** key or by pressing **CTRL** and **C**. Otherwise process pressing the **Enter**.The service or app is now installed.
5. The service is available at **/etc/systemd/system/if-sv-<NAME>.service**. You can now enable the service with:

```
systemctl enable if-sv-<NAME>.service
```

**Starting the services****To start the if-elasticsearch service:**

```
sudo systemctl start if-elasticsearch.service
```

**To start the other services:**

```
sudo systemctl start if-sv-<servicename>
```

## Installing the front-end

1. Log on with the **intrafind** user.
2. Extract Apache Tomcat:

```
cd ~/install
unzip apache-tomcat-x.x.x.zip -d /opt/intrafind/
cd ..
mv apache-tomcat-x.x.x tomcat
```

3. Configure Apache Tomcat for your environment:

```
cd /opt/intrafind/tomcat/bin
tar xzf commons-daemon-native.tar.gz
cd commons-daemon-x.x.x.-native-src/unix
./configure --with-java=$JAVA_HOME
make
```

4. Usually you can ignore the warnings.
5. Copy the created file and edit the **daemon\_sh** file.

```
cp jsvc /opt/intrafind/tomcat/bin/jsvc
nano /opt/intrafind/tomcat/bin/daemon.sh
```

6. Edit the following settings:

<pre>--tomcat-user ) TOMCAT_USER="\$2" shift; shift; continue ;;</pre>	<p>If you only have local users on your installation, for example on a DEV installation, replace <b>\$2</b> with <b>intrafind</b>.</p> <p>If you have an AD environment, replace <b>\$2</b> with a domain user.</p>
<pre>test ".\$TOMCAT_USER" = . &amp;&amp; TOMCAT_USER=tomcat</pre>	<p>If you only have local users on your installation, for example on a DEV installation, replace <b>tomcat</b> with <b>intrafind</b>.</p> <p>If you have an AD environment, replace <b>tomcat</b> with a domain user.</p>

7. Enter the following:

```
cd /etc/init.d
sudo ln -s /opt/intrafind/tomcat/bin/daemon.sh tomcat
cd /opt/intrafind/tomcat/bin/
chmod +x *.sh
```

8. Copy the war file **if-app-ifinder5<VERSION>.war** file to **<installation directory>/tomcat<VERSION>/webapps/iFinder5**.
9. Copy the war file **searchbar-standard<VERSION>.war** file to **<installation directory>/tomcat<VERSION>/webapps/searchbar**.

## 10. Start and stop Tomcat once.

```
sudo /etc/init.d tomcat start
sudo /etc/init.d tomcat stop
```

### 2.7.3 Installing connectors

In addition to the services and apps, you install one or more connectors. For detailed information, see the respective documentation.

### 2.7.4 Verification steps

Check that the services are up and running:

- Base command called from server that is being tested:

```
curl 'http://localhost:<PORT>/json/state/get?param0=[health]'
```

- Sample Response:

```
{"health.status":"green"}
```

Service	Port / Request	Expected Result
If-sv-configstore	9600	Contains "status":"green"
If-sv-thesaurus	9601	Contains "status":"green"
If-sv-converter	9602	Contains "status":"green"
If-sv-search	9605	Contains "status":"green"
If-app-adminui	9680	Contains "status":"green"
If-sv-elasticsearch	curl 'http://localhost:9200/_cluster/health'	Contains "status":"green"
Tomcat	curl 'http://localhost:8080'	Html is returned.

For convenience, you can execute the following script:

```
#!/usr/bin/env bash

HOSTNAME=$( hostname )
exec 1> >(tee integration-testing.log) 2>&1
echo "Testing open ports on $HOSTNAME"
for a in 9600 9601 9602 9605 9619 9680;
do
    curl "http://localhost:$a/json/state?method=get&param0=[health]"
2>/dev/null| grep memory > /dev/null && echo "$a green" || echo "$a red";
done

curl 'http://localhost:9200/_cluster/health' 2>/dev/null|grep
'"status":"green"' && echo "9200 green" || echo "9200 red"
echo "Healthcheck page"
curl 'http://localhost:11224/122_APPSRHIF5/healthcheck.jsp' 2> /dev/null |
lynx --dump --stdin
```

The script writes a file called **integration-testing-`<hostname>`.log** with the respective hostname filled in.

The health check returns failed because no data has been indexed yet.

## 2.7.5 Little helpers in a Linux environment

### How to check which systemctl services are running

```
systemctl | grep if-
```

### How to test a service and view the logfile directly

Run `./runConsole.sh` in the bin directory of a service. This is the interactive mode.

### What is the process on the specified port

```
lsof -i :4680
# returns the process id
```

### What is the instance running in that process ID

```
ps -p 19817 -o command
```



## 2.7.6 Troubleshooting

Some errors might occur during the installation of the search service. Check the following:

### Ownership and group of the services

```
intrafind intrafind 4096 Aug 7 10:42 if-app-admin-ui
intrafind intrafind 4096 Aug 7 07:11 if-elasticsearch7
intrafind intrafind 4096 Aug 7 08:47 if-sv-access
intrafind intrafind 4096 Aug 7 10:41 if-sv-configstore
intrafind intrafind 4096 Aug 7 08:47 if-sv-converter
intrafind intrafind 4096 Aug 7 13:39 if-sv-search
intrafind intrafind 4096 Aug 7 08:48 if-sv-thesaurus
```

To change ownership recursive:

```
sudo chown -R intrafind:intrafind ~/services/*
```

### User set in the wrapper configuration

```
nano ~/services/if-sv-search/conf/wrapper.conf
```

Check for following line

```
wrapper.app.account=intrafind
```

### Output in wrapper.log

```
less ~/services/if-sv-search/logs/wrapper.log
```

### Potential errors in the wrapper.log and how to fix them

**Error: “Language: de not licensed for Analyzers!”**

```
WrappedException: java.util.concurrent.ExecutionException:
RemoteTransportException[[node-1][127.0.0.1:9300][indices:admin/create]];
nested: NotSerializableExceptionWrapper[license_exception: Language: de
not licensed for Analyzers! HostIds: error: *java.io.IOException: Cannot
run program "hostname": error=13, Permission denied
```

**Solution:** In this case, move the **intrafind** license **~/license/intrafind.lic** to **user/home** and restart the Elasticsearch service and afterwards the search service.

```
intrafind@localhost:~$ mv ~/license/intrafind.lic ~/.
intrafind@localhost:~$ sudo systemctl stop if-elasticsearch.service
intrafind@localhost:~$ sudo systemctl start if-elasticsearch.service
intrafind@localhost:~$ sudo systemctl start if-sv-search
```

**Error:** Sudden stop/restart of the service

```
INFO|7143/0|if-sv-search|18-08-07 11:49:36|2018-08-07 11:49:36,639 {07143}
[INFO ] <BeanConfig      > |server pipeline subnet-restriction| subnet-
restriction allows 'LOCALHOST'
INFO|7143/0|if-sv-search|18-08-07 11:49:37|2018-08-07 11:49:37,320 {07143}
[INFO ] <GuardJvm       > |server pipeline jvm| throttling if heap <
'210'mb
INFO|7143/0|if-sv-search|18-08-07 11:49:37|2018-08-07 11:49:37,373 {07143}
[INFO ] <Server         > || serving 'state' -->
'com.intrafind.common.state.StateDispatcher@3fb6cf60'
INFO|7143/0|if-sv-search|18-08-07 11:49:37|2018-08-07 11:49:37,375 {07143}
[INFO ] <Server         > || serving 'search' -->
'com.intrafind.services.search.SearchStats@12192604'
exit code bsd process 1
INFO|wrapper|if-sv-search|18-08-07 11:49:38|restart process due to default
exit code rule
INFO|wrapper|if-sv-search|18-08-07 11:49:38|restart internal RUNNING
INFO|wrapper|if-sv-search|18-08-07 11:49:38|stopping process with
pid/timeout 7143 45000
INFO|wrapper|if-sv-search|18-08-07 11:49:38|killing 7143
INFO|wrapper|if-sv-search|18-08-07 11:49:38|process exit code: 1
```

**Solution:** Check the *hs\_err\_pid\** log in the service directory. You might run out of memory, so the service tries to restart relentlessly.

1. Open the wrapper.conf file.

```
nano ~/services/if-sv-search/conf/wrapper.conf
```

2. Look for following line

```
wrapper.java.additional.2 = -Xmx2048M
```

3. Change it to:

```
wrapper.java.additional.2 = -Xmx4G
```

4. Check the total memory with **top**.
5. If your machine does not have enough memory, ask your administrator to allocate more memory for your machine.

## 2.8 Configuring the system

This guide only describes some basic configuration steps in a standard one-node deployment.

For detailed information see the following guides:

- Documentation for the services, for example for **if-sv-search7** and **if-sv-converter**
- Documentation for connectors, for example for **if-app-indexer-share**
- [iFinder Customizing](#) for information about customizing Searchbar and iFinder
- [iFinder Administration](#) or integrated help file for information about setting up the system using iFinder Administration (Admin Tool).

### 2.8.1 Enabling iFinder5

Perform a basic user configuration of iFinder in iFinder Administration: [iFinder Administration](#).

1. Start iFinder Administration: <http://localhost:9680/resource/index.html>
2. Define the credentials:
  - **Select product > Credential Administration**
  - Add a credential.
  - Enter the data. Enter the user name in the following format: **<user>@<NetBIOSDomainName>**, for example **ifinder@muc**
3. Define an LDAP connection ([Configuring the LDAP connection](#)):
  - **Select product > User Administration > LDAP Connection > LDAP Credentials**
  - Add an LDAP connection.
  - Enter the data:  
The NETBios domain name is the short name of LDAP connection, f. ex. **muc**.  
The credential ID refers to the credential that you created in the last step.
4. Add an LDAP group.
  - **Select product > User Administration > LDAP Connection > LDAP Group Administration**
  - Add an LDAP group.
  - Enter the data:  
Select the LDAP connection that you created before.  
Enter the group names exactly as they are defined in your Active Directory. If you add more than one, separate the entries with commas or semicolons.
  - To identify the existing Active Directory groups, type in the following in a command prompt:  
**whoami /groups**
5. Map iFinder roles to the LDAP groups.
  - **Select product > User administration > Groups > iFinder**
  - Edit the group and add the relevant roles.
6. Map search profile roles to the LDAP groups.

- **Select product > User administration > Groups > Search profiles**
- Edit the group and add the relevant roles.

## 2.8.2 Settings for e-discovery scenarios

Elasticsearch and Linguistics are configured for a best-practice balance of quality and performance with the settings listed below. If it is more important to find every single document like in an e-discovery scenario and performance is less important, you can comment out the following lines.

### if-sv-search7/config.cfg

```
search_plugin.use_exact_terms_4_queries:      false
search_plugin.diacritics_boost:              2.0
search_plugin.query_opt_min_part_length_4_ling: 3
search_plugin.max_split_parts:               3
```

### if-elasticsearch/plugins/intrafind\_linguistic/config-es.jar/config.cfg

```
search_plugin.excessiveSplitting: false
search_plugin.useExactTerms:      false
```

For more information about the settings, see the plugin documentation [if-pl-elasticsearch-linguistic](#).

## 2.8.3 Defining security settings (Windows and Linux)

**If you want to enable access to the search service from outside:**

1. Change the firewall rules, at least enable access to port 8080 for the user front end.
2. Edit the following file
  - Windows: **<Elasticsearch node>\config\intrafind.yml**
  - Linux: **<Elasticsearch node>/config/intrafind.yml**
3. Comment out the following line:

```
security.subnet: localhost
```

4. If required, edit the file:
  - Windows: **<installation directory>\if-sv-search\config.cfg**
  - Linux: **<installation directory>/if-sv-search/config.cfg**
5. Extend the security settings for the services (ports 9600-9620) with the host IPs or range that are allowed to access the services.

```
## network security
net.server.pipeline.subnet-restriction.subnet: localhost
es.security.subnet: localhost
```

## 2.8.4 Starting and configuring conversion (Windows and Linux)

If you are installing in an AD domain, you need to start the **if-sv-converter** service with a domain user with read permissions to **all** files. This is required so that the converter service can open and read the documents for the thumbnail and preview creation. The converter service in turn will create images of the documents to provide the thumbnails and previews.

Depending on the connector, further settings are necessary, see the documentation for the connectors.

If you are using the e-indexer and want to index files on the local server, you need to change the configuration of the converter service. If the e-indexer runs on another machine than the converter service, do not change the setting.

To configure the converter for processing local files:

1. Edit the following file:
  - Windows: <Installation directory>\services\if-sv-converter\config.cfg
  - Linux: /opt/intrafind/services/if-sv-converter/config.cfg
2. Change the line to **true**.

```
converter.allow.local.files: false
```

By changing **false** to **true** you will be able to convert local files.

## 2.8.5 Avoiding broken thumbnails and previews for web pages (Linux)

During conversion you may you get the following error in the logfile:

```
INFO|1812/0|Service if-sv-converter|17-05-02 15:19:21|2017-05-02
15:19:21,587 {convert 01812} [ERROR] <PhantomRunner > |@2| error
executing external command: ./phantomjs/phantomjs: error while loading
shared libraries: libfontconfig.so.1: cannot open shared object file: No
such file or directory
```

Install the following font configs:

```
sudo apt-get install libfontconfig
```

## 2.8.6 Configuring the search service

For detailed information about configuring the search service, see the search service documentation.

## 2.8.7 Configuring access for the search service

Define the access settings in the Admin Tool. For detailed information, see *iFinder Administration Guide*.

**If you have no AD (for testing only):**

1. Edit the **config.cfg** file.
  - Windows: <Installation directory>\services\if-sv-search\  
 ○ Linux: <installation directory>/services/if-sv-search/
2. Look for **permissionsearch.permission-check** and change it.
3. Comment **aclRetriever** and the first **permCheck** and uncomment the second **permCheck**:

```
permissionsearch.permission-check:
var secure = com.intrafind.ifinder.secure;

# var aclRetriever = new
secure.ACLRetrieverUserInfo(Beans.of("permissionsearch.userinfo"),
"_store.groupsids");
# var permCheckACL = new secure.ACLBasedPermissionCheck(aclRetriever)

# allows all documents which have a field "_raw.aclallow" containing
a value "S-1-1-0"
var permCheckPublic = new secure.AllowAllPermissionCheck()
```

## 2.8.8 Configuring LDAP access (Linux Only)

1. If you are trying to access the iFinder from a remote machine, grant access.
2. Comment following lines out in **~/services/if-sv-search/config.cfg** (prepend #):

```
## network security
net.server.pipeline.subnet-restriction.subnet: localhost
es.security.subnet: localhost
```

3. In the Kerberos configuration file, replace the placeholders with your LDAP information.

```
Nano ~/tomcat/webapps/iFinder5/WEB-INF/classes/krb5.conf
```

4. In the **conf** file, for the **principal** parameter replace the placeholders with the path to your machine.

```
nano ~/tomcat/webapps/iFinder5/WEB-INF/classes/login.conf
```

5. In iFinder Administration:
  - **Select product > iFinder5 > Connection > User credentials**
  - Activate the Kerberos Security Filter option and add the relevant information.

- Path to KRB5 configuration:  
**/home/<USER>/tomcat/webapps/iFinder5/WEB-INF/classes/krb5.conf**
  - Path to KRB5 login configuration:  
**/home/<USER>/tomcat/webapps/iFinder5/WEB-INF/classes/login.conf**
6. Restart tomcat after configuration.

```
sudo /etc/init.d/tomcat stop
sudo /etc/init.d/tomcat start
```

### 2.8.9 Installing multiple instances in a test scenario

It is not recommended to install multiple instances of Elasticsearch for other than test reasons.

If you want to install an additional instance on the same server for test reasons, proceed as follows:

1. Install a second instance of the **elasticsearch**
2. Install a second instance of the search service **if-sv-search7**.
3. Install a second instance of the iFinder app.
4. During installation, the installation assistant detects that there already is an instance.
5. During installation, as cluster name, enter a different name, for example **ifinder-test**.
6. In addition, change the cluster name manually in the **if-sv-search/config.cfg** file of the second search service:

```
## elasticsearch
es.client.settings: cluster.name, ifinder-test
```

## 2.9 Finalizing installation

1. Restart the system.
2. After restarting have a look to the following logs:
  - elasticsearch log at  
Windows: <Installation Directory>\services\if-elasticsearch7\logs\<clustername>.log  
Linux: <Installation Directory>/services/if-elasticsearch7/logs/<clustername>.log
  - search service log at  
Windows:<Installation Directory>\services\if-sv-search\logs\wrapper.log  
Linux: <Installation Directory>/services/if-sv-search/logs/wrapper.log

## 3 Updating

The configstore update tool does not update all configuration files, but only configuration that is defined using the Admin Tool. For other settings, for example the basic settings in the *config.cfg* file of the Search Service, take care to back up your settings and transfer them to your new installation.

### 3.1 Updating the configstore

An update script helps you to update your configuration in the configstore.

Use this tool to update the configstore running iFinder5 version 5.2.0.3 and later to 5.4.x. For older installations, contact your IntraFind consultant for further information.

The update tool is java command line tool.

This program does not necessarily change your current configstore if no target configstore is specified. It can also create a new **config.cfg** file based on the data in your configstore with the necessary modifications for the new iFinder5 version.

#### Prerequisites

- Java Runtime Environment
- URL of the configstore holding the current configuration (iFinder5 version 5.2.0.3 or later)

#### Automatic update

- After execution of the tool and without specifying a target URL for a configstore, the current configstore is automatically updated.
- If you specify a target URL for a new configstore, it will be the updated configstore.
- The tool always generates a backup of the current configstore (**txt**, see option **-o**) which can be imported again.

#### To start the tool:

##### LINUX:

```
./startUpdateTool.sh http://localhost:9600/hessian/configstore 5.2.0.x  
http://localhost:9200
```

##### WINDOWS:

```
startUpdateTool.bat http://localhost:9600/hessian/configstore  
http://localhost:9600/hessian/elasticsearch 5.2.0.x http://localhost:9200
```



## Parameters

Generic call:

```
java -cp if-tool-configupdate-from5203-5.4.1.x-XXXXX.jar:lib/*
com.intrafind.configupdate.ConfigUpdate -c <URL_TO_CURRENT_CONFIGSTORE> [
-cTarget <URL_TO_CONFIGSTORE>] [-v version] [-e URL_TO_ELASTICSEARCH] [-o
dir] [-d]
```

- **-c:** Hessian URL to your current config store, which should be updated
- **-cTarget:** Hessian URL to your target config store (optional, if empty - same URL as **-c**)
- **-v:** iFinder version **from** which you want to update (current version of configstore, for example **-v 5.2.0.3**)
- **-e:** URL to your Elasticsearch installation, for example <http://localhost:9200>.
- **-o:** Absolute path to directory for the **configstoreBackup.txt** and the **updatedConfigstore.cfg** (optional, if empty - user **dir**)

### To import the backup:

```
java -cp if-tool-configupdate-from5203-5.4.1.x-XXXXX.jar:lib/*
com.intrafind.configupdate.ImportBackup -c <URL_TO_CONFIGSTORE> [-i dir]
```

- **-c:** Hessian URL to configstore where backup should be imported
- **-i:** Path to directory of configstore backup (**configstoreBackup.txt**).

### To start the import tool:

LINUX:

```
./importBackup.sh http://localhost:9600/hessian/configstore
./configstoreBackup.txt
```

WINDOWS:

```
importBackup.bat http://localhost:9600/hessian/configstore
/path/to/configstoreBackup.txt
```

## 3.2 Updating the permission checks

The permission check configuration has been updated for this release.

### From version 5.3.0

You can still use the permission check configuration that was introduced with 5.3.0 with no further changes.

If you want to move to the new configuration, configure the permission check as described in the `if-sv-search` documentation. Make sure **not** to set the parameters `secure.userinfo.retrievers`, and `permissionsearch.permission-check` because they would be in conflict with the new configuration.

### From versions earlier than 5.3.0

Update to the new permission check as described in `if-sv-search` documentation.

## 3.3 Updating the waffle.zip

The waffle-zip installation comes with a new `web.xml`. Exchange the existing `web.xml` file with the new file.

## 3.4 Updating the datastore settings

For new installations, the store of `if-sv-search` is used for storing information such as favorites of the user. For installations older than 5.3.0, one of the following scenarios is enabled:

- You are using `if-sv-datastore` (Elasticsearch-based). You can continue to use this. In this case, disable the store endpoint in `if-sv-search`: `config/wrapper.conf`. Alternatively, you can use the Admin Tool to change the store port to 9605 (**iFinder5 > IntraFind-Services > Store service**). After this, you can shut down `if-sv-datastore`.
- You are using `if-sv-store-lucene4`. You can continue to use this. In this case, disable the store endpoint in `if-sv-search`: `config/wrapper.conf`. Migration is recommended though. Contact IntraFind for more information.

## 3.5 Updating config.json

In previous versions, settings were defined in the `config.json` file to customize the searchbar and iFinder to your needs. With version 5.4.0 the customizing procedure changed. The `config.json` file contains only the settings that you customize. All other settings are taken from the internal file `default-config.js`. A copy can be found under `default-config/default-config.txt`. You cannot change this file.

When you update from versions prior to 5.40 to iFinder 5.4.1, proceed as follows:

1. Make a backup copy of your `config.json` file.
2. Identify the changes that you made by comparing your file with the default `config.json` file of the currently installed release.
3. You can review the changes in the new version in `default-config/default-config.txt`.

4. Add only the relevant parameters to the new **config.json** file and skip all other parameters.

More information: [Customizing procedure](#)

### 3.6 Upgrading Elasticsearch to new version

From version 5.4.0 on, iFinder is based on Elasticsearch 7, an existing index can still be used. Once you have used Elasticsearch 7, you cannot return to Elasticsearch 6.

To switch to Elasticsearch 7, proceed as follows:

1. Install the new versions of the Search Service, Configstore, Converter Service and the relevant connectors you use (e.g. if-app-indexer-share, if-app-indexer-ews, if-app-indexer-sharepoint).
2. Adjust the configuration of Elasticsearch, see [Einstellungen für Elasticsearch](#).
  - a. The HTTP protocol is used for the communication between **if-sv-search** and the Elasticsearch cluster. Change the configured port from 9300 to 9200.
  - b. The configuration of Elasticsearch clusters differs significantly from the previous version. For single-lenode installations use the default setting **discovery.type: single-node** in the **elasticsearch.yml** file.
3. Adjust the configuration of the iFinder components as you would for a new installation, see the documentation of the individual components.
4. For the reconfiguration of the indexwalks please contact your technical contact person at IntraFind.

## 4 Uninstalling iFinder

In case of problems, you can uninstall manually as described under [Uninstalling iFinder server manually](#).

1. Log on to your iFinder server with a user with administration access.
2. To uninstall the services:
  - a. Go to `<Installation folder>\services` and then to every service folder one after one.
  - b. In each service directory, double-click on the **uninstall** file. The uninstaller stops the service, removes the folder and deletes it from the registry.
  - c. Repeat this step for every service until all service folders are removed.
3. To uninstall iFinder Administration (**if-app-admin-ui**):
  - a. Go to `<Installation folder>\apps\if-app-admin-ui`.
  - b. Double-click on the **uninstall** file.
  - c. The uninstaller removes the folder and deletes it from the registry.
4. To uninstall Tomcat:
  - a. Stop the service with **Windows Start menu > Services > Apache Tomcat > Stop**.
  - b. Uninstall the service by executing the file `<tomcat>/bin/service.bat`.
 

```
service.bat remove
```
5. To uninstall the JDK:
  - a. Go to `<JDK Installation folder>`.
  - b. Double-click on the **uninstall** file.
6. Delete the complete installation directory of iFinder, for example `C:\IntraFind`.

### 4.1 Uninstalling iFinder server manually

**Troubleshooting:** If uninstalling the services does not work as described above, proceed as follows:

1. Log on to your iFinder server with a user with administration access.
2. Stop all IntraFind services with **Windows Start menu > Services > IntraFind - Service name > Stop**.
3. To uninstall Apache Tomcat:
  - a. Stop the service with **Windows Start menu > Services > Apache Tomcat > Stop**.
  - b. Open a command prompt.
  - c. Navigate to `<tomcat installation path>/bin/`.
  - d. Execute the following command:

```
service.bat remove
```

4. To uninstall Elasticsearch:

- a. In the command prompt, navigate to *<installation path>/services/if-elasticsearch6-base-1/bin/*.
- b. Execute the following command:

```
elasticsearch-service.bat remove
```

- c. Delete respective folder.
5. For all other IntraFind services in the *<Installation folder>\services* folder (except for *if-elasticsearch6-base*):
- a. Start *<Installation folder>\services\<if-sv-servicename>\bat\uninstallService.bat*.
  - b. Delete respective folder.
6. To uninstall iFinder Administration (**if-app-admin-ui**):
- a. Start *<Installation folder>\apps\if-app-admin-ui\bat\uninstallService.bat*.
  - b. Delete the *<Installation folder>\apps\if-app-admin-ui* folder.
7. To uninstall the JDK, delete the folder.
8. Open the registry by typing **regedit** in **Windows menu** search. Remove all entries starting with **IF\_** from the registry at **HKEY\_LOCAL\_MACHINE\Software**, for example **HKEY\_LOCAL\_MACHINE\Software\IF\_Service\_elasticsearch7**.
9. Delete the complete installation directory of iFinder, for example *C:\IntraFind*.

## 5 License update on Linux systems

Proceed as follows to install a new iFinder license on the productive iFinder servers.

This describes the case where all services and apps access a central license file, which has also been defined as environment variable `INTRAFIND_LICENSE` during installation. If the license file is stored in the individual folders of the services and apps, you must import the license in each of these folders accordingly.

**Phase 1:** Store the new license file *intrafind.lic* on all servers.

1. Connect to the iFinder server on which the license should be installed. To do this, use the run user, that is, the user under which the services were installed and are operated (example `$ sudo su intrafind`).

With a 3-node cluster, you must install the license on all three productive servers!

2. Navigate to the folder where you have stored the license file. Default is *opt/intrafind/license*. It can also be the home directory of the run user, for example */var/home/intrafind*.
3. Create a backup copy of the previous license file (*intrafind.lic*) in the same folder and name it *intrafind.lic.bak\_<date>*, for example *intrafind.lic.bak\_20200504*.
4. Open the new license file *intrafind.lic* and copy the content of the new license via the clipboard into the file.
5. Save and close the file.

**Phase 2:** Restart the Tomcat server and services on all servers.

1. Log in with a user who has sudo rights.
2. Restart the Tomcat server: Execute the following commands. You must enter the password.

```
sudo systemctl stop tomcat.service
sudo systemctl start tomcat.service
```

3. Restart the services: Execute the following commands.

```
sudo systemctl stop if-sv-search.service
sudo systemctl start if-sv-search.service
sudo systemctl stop if-sv-thesaurus.service
sudo systemctl start if-sv-thesaurus.service
sudo systemctl stop if-sv-converter.service
sudo systemctl start if-sv-converter.service
sudo systemctl stop if-sv-access.service
sudo systemctl start if-sv-access.service
sudo systemctl stop if-elasticsearch.service
sudo systemctl start if-elasticsearch.service
```

If you use additional IntraFind services, stop and start them as well.

4. Info for servers: A message of success should be sent back for the following service:
  - o `tomcat.service`

- if-sv-search.service
- if-sv-thesaurus.service
- if-sv-converter.service
- if-sv-access.service
- if-elasticsearch.service
- all other services that you have stopped and started

**Phase 3:** Check whether searching is working properly.

1. Is the search input field still there?
2. Can you perform a search and get a hit list?
3. Are the known functions still available (e.g. search dropdown/quicksearch)?

### Troubleshooting

If the license file was stored at several locations in your company:

1. Identify the storage locations with **find . -name 'intrafind.lic'**.
2. Create a backup copy of the previous license files in the same folder and name them *intrafind.lic.bak\_<date>*, for example *intrafind.lic.bak\_20200504*.
3. Replace all found files with the new license file.

## 6 License update on Windows systems

Proceed as follows to install a new iFinder license on the productive iFinder servers.

This describes the case where all services and apps access a central license file, which has also been defined as environment variable `INTRAFIND_LICENSE` during installation. If the license file is stored in the individual folders of the services and apps, you must import the license in each of these folders accordingly.

**Phase 1:** Store the new license file *intrafind.lic* on all servers on which the software is installed.

1. Connect to the iFinder server on which the license should be installed.

With a 3-node cluster, you must install the license on all three productive servers!

2. Navigate to the folder where you have stored the license file. Default is `C:\IntraFind\license`.
3. Create a backup copy of the previous license file (*intrafind.lic*) in the same folder and name it *intrafind.lic.bak\_<date>*, for example *intrafind.lic.bak\_20200504*.
4. Open the new license file *intrafind.lic* and copy the content of the new license via the clipboard into the file.
5. Save and close the file.

**Phase 2:** Restart the Tomcat server and services on all servers.

Alternatively to the following steps you can restart the whole server, if this is possible in your environment.

in the following order

1. Log in with a user who has administration rights.
2. Stop Tomcat server **Services > Apache Tomcat > Stop**.
3. Stop the following services in the following order: **Services > <Service> >**.
  - IntraFind Access Service
  - IntraFind Admin-UI Service
  - IntraFind Converter Service
  - IntraFind Search Service
  - IntraFind Thesaurus Service
  - IntraFind Configstore Service
  - IntraFind Elasticsearch7 Service
4. Restart Tomcat server: **Services > Apache Tomcat > Restart**.
5. Restart the following services in the following order: **Services > <Service> > Restart**.
  - IntraFind Elasticsearch7 Service
  - IntraFind Configstore Service



- IntraFind Access Service
- IntraFind Admin-UI Service
- IntraFind Converter Service
- IntraFind Search Service
- IntraFind Thesaurus Service

If you use additional IntraFind services, stop and start them as well.

6. Info for servers: A message of success should be sent back for all started and stopped services:
  - Apache Tomcat
  - IntraFind Access Service
  - IntraFind Admin-UI Service
  - IntraFind Configstore Service
  - IntraFind Converter Service
  - IntraFind Elasticsearch7 Service
  - IntraFind Search Service
  - IntraFind Thesaurus Service

**Phase 3:** Check whether searching is working properly.

1. Is the search input field still there?
2. Can you perform a search and get a hit list?
3. Are the known functions still available (e.g. search dropdown/quicksearch)?