

# Textual Index

- Textual Index
- Operation

# Textual Index

## Introduction

A textual index is a data structure used in database systems to facilitate efficient search and retrieval of text-based information. It is designed to handle large volumes of textual data and provide quick access to relevant documents or records based on specified search criteria.

When a search query is performed on a database with a textual index, the index is queried to identify relevant documents or records that match the search terms. The index provides information about the location and relevance of the documents, which enables the database system to retrieve and present the results in a timely manner.

Textual indexes play a crucial role in enabling efficient search and retrieval of textual information in databases, making them an essential component in applications that handle large volumes of textual data, such as search engines, content management systems, and document repositories.

Soffid incorporates the textual index from version 3.5 using [the Apache Lucene library](#).

## Index configuration

Soffid allows you to configure the objects you want to use in the textual index. To do this, you must select the proper object from the metadata page and enable the option "Use textual index". Once you enable this option, the textual index will be applied to the attributes of this object that have been included in the quick search.

Notice, from the user interface, it is not interpreted as a Lucene expression.

## Example

1. Enable the "Use textual index" on the User object and save the changes.

**soffid** Search ? ⚙

Main Menu > Administration > Configuration > Global Settings > Metadata ◀ 9 / 12 ▶

Object type :

Description :

Use textual index : Yes III ▶

<input type="checkbox"/>	Code	Label	Data type	Built-in type
<input type="checkbox"/>	Filter	Filter	Filter	Filter
<input type="checkbox"/>	__COMMONATTRIBUTES__	Common attributes	Separator	Yes
<input type="checkbox"/>	userName	User name	String	Yes
<input type="checkbox"/>	firstName	First name	String	Yes
<input type="checkbox"/>	lastName	Last Name	String	Yes
<input type="checkbox"/>	middleName	Middle name	String	Yes

## 2. Check the attributes included in the quick search.

**soffid** Attribute metadata ? ⚙

Main Menu > Administration > Configuration > Global Settings > Metadata ◀ 2 / 31 ▶

Object type :

Description :

Use textual index : Yes III ▶

**Attribute metadata** ◀ 2 / 31 ▶

Code :

Label :

Data type :

Letter case :

User hint :

Description :

Required : Yes II ▶

Include in quick search : Yes II ▶

Prevent duplicated values : II No

Multiple values : II No

Maximum number of rows to display :

# How does the user interface search work?

Once you have configured the textual index for a specific object, Soffid will apply it when you use Quick Search on this object.

## Example 1

**1.** If you search for users using the text "*frankin*", then Soffid will display all the users whose userName, firstName, lastName, or middleName match, to some degree, with the typed text following the textual index rules.

soffid

Search

?

⚙

[Main Menu](#) > [Administration](#) > [Resources](#) > [Users](#)

frankin

Quick Basic Advanced

<input type="checkbox"/>	▼ User name	↕ First name	↕ Last Name	↕ Primary group	↕ Enabled	↕ Manager
<input type="checkbox"/>	aretha	Aretha	Franklin	world	Yes	
<input type="checkbox"/>	frank	Frank	Sinatra	Music	Yes	
<input type="checkbox"/>	frankrudolph	Frank Rudolph	Olson	scientist	Yes	
<input type="checkbox"/>	franks	Frank	Sherwood	scientist	Yes	
<input type="checkbox"/>	rfranklin	Rosalind	Franklin	scientist	Yes	

Displayed rows: 5

2. If you include the attribute manager in the quick search:

soffid

Attribute metadata

[Main Menu](#) > [Administration](#) > [Resources](#) > [Users](#)

Object type :

Description :

Use textual index :

Code

Filter

☐ rid
 ☐ fullName
 ☐ birthDate
 ☐ picture
 ☐ \_\_ORGANIZATION
 ☐ userType

Attribute metadata

◀ 15 / 32 ▶

Code :

manager

Label :

Manager

Data type :

User

User hint :

User hint

Description :

Description

Required :

☐ Yes
 ☐ No

Include in quick search :

☒ Yes
 ☐ No

Prevent duplicated values :

☐ Yes
 ☐ No

Multiple values :

☐ Yes
 ☐ No

Maximum number of rows to display :

3. And search for "frankin", then Soffid will display all the users whose userName, firstName, lastName, middleName, or manager match with the typed text following the textual index rules.

soffid

Search

?

⚙

[Main Menu](#) > [Administration](#) > [Resources](#) > [Users](#)

frankin

Quick Basic Advanced

<input type="checkbox"/>	▼ User name	↕ First name	↕ Last Name	↕ Primary group	↕ Enabled	↕ Manager
<input type="checkbox"/>	aretha	Aretha	Franklin	world	Yes	
<input type="checkbox"/>	frank	Frank	Sinatra	Music	Yes	
<input type="checkbox"/>	frankrudolph	Frank Rudolph	Olson	scientist	Yes	
<input type="checkbox"/>	franks	Frank	Sherwood	scientist	Yes	
<input type="checkbox"/>	hlamarr	Hedy	Lamarr	scientist	Yes	franks
<input type="checkbox"/>	inewton	Isaac	Newton	scientist	Yes	frank
<input type="checkbox"/>	janis	Janis	Joplin	Music	Yes	frank
<input type="checkbox"/>	rfranklin	Rosalind	Franklin	scientist	Yes	

Displayed rows: 8

## Example 2

1. If you search for users using the text "manager:frank" Soffid will display all users whose manager matches the text "frank".

soffid

Search

?

⚙

[Main Menu](#) > [Administration](#) > [Resources](#) > [Users](#)

🔍

Quick [Basic](#) [Advanced](#)

<input type="checkbox"/>	▼ User name	↕ Full name	↕ Primary group	↕ Enabled	↕ First name	↕ Last Name	↕ Manager
<input type="checkbox"/>	hlamarr	Hedy Lamarr	scientist	Yes	Hedy	Lamarr	franks
<input type="checkbox"/>	inewton	Isaac Newton	scientist	Yes	Isaac	Newton	frank
<input type="checkbox"/>	janis	Janis Joplin	Music	Yes	Janis	Joplin	frank
<input type="checkbox"/>	ntesla	Nikola Tesla	Support IT	Yes	Nikola	Tesla	frankrudolph

Displayed rows: 4

Notice the difference by searching "manager:frank?":

soffid

Search

?

⚙

[Main Menu](#) > [Administration](#) > [Resources](#) > [Users](#)

🔍

Quick [Basic](#) [Advanced](#)

<input type="checkbox"/>	▼ User name	↕ Full name	↕ Primary group	↕ Enabled	↕ First name	↕ Last Name	↕ Manager
<input type="checkbox"/>	hlamarr	Hedy Lamarr	scientist	Yes	Hedy	Lamarr	franks
<input type="checkbox"/>	ntesla	Nikola Tesla	Support IT	Yes	Nikola	Tesla	frankrudolph

Displayed rows: 2

And by searching "manager:frank\*":

soffid

Search

?

⚙

[Main Menu](#) > [Administration](#) > [Resources](#) > [Users](#)

🔍

Quick [Basic](#) [Advanced](#)

<input type="checkbox"/>	▼ User name	↕ Full name	↕ Primary group	↕ Enabled	↕ First name	↕ Last Name	↕ Manager
<input type="checkbox"/>	hlamarr	Hedy Lamarr	scientist	Yes	Hedy	Lamarr	franks
<input type="checkbox"/>	inewton	Isaac Newton	scientist	Yes	Isaac	Newton	frank
<input type="checkbox"/>	janis	Janis Joplin	Music	Yes	Janis	Joplin	frank
<input type="checkbox"/>	ntesla	Nikola Tesla	Support IT	Yes	Nikola	Tesla	frankrudolph

Displayed rows: 4

And also by searching "manager:fr\*"

soffid

Search

?

⚙

[Main Menu](#) > [Administration](#) > [Resources](#) > [Users](#)

🔍

Quick [Basic](#) [Advanced](#)

<input type="checkbox"/>	▼ User name	↕ Full name	↕ Primary group	↕ Enabled	↕ First name	↕ Last Name	↕ Manager
<input type="checkbox"/>	etaylor	Elizabeth Taylor	Movie Stars	Yes	Elizabeth	Taylor	freddie
<input type="checkbox"/>	hlamarr	Hedy Lamarr	scientist	Yes	Hedy	Lamarr	franks
<input type="checkbox"/>	inewton	Isaac Newton	scientist	Yes	Isaac	Newton	frank
<input type="checkbox"/>	janis	Janis Joplin	Music	Yes	Janis	Joplin	frank
<input type="checkbox"/>	ntesla	Nikola Tesla	Support IT	Yes	Nikola	Tesla	frankrudolph

Displayed rows: 5

## Example 3

**1.** If you search for users using the text "userName:frank\*" Soffid will display all users whose user name matches the text "frank" followed by any other text.

soffid

Search

?

Main Menu > Administration > Resources > Users

userName:frank\*

[Quick](#) [Basic](#) [Advanced](#)

<input type="checkbox"/>	▼ User name	↕ Full name	↕ Primary group	↕ Enabled	↕ First name	↕ Last Name	↕ Manager
<input type="checkbox"/>	frank	Frank Sinatra	Music	Yes	Frank	Sinatra	
<input type="checkbox"/>	frankrudolph	Frank Rudolph Olson	scientist	Yes	Frank Rudolph	Olson	
<input type="checkbox"/>	franks	Frank Sherwood	scientist	Yes	Frank	Sherwood	

Displayed rows: 3

Notice the difference by searching the text "userName:frank?":

soffid

Search

?

Main Menu > Administration > Resources > Users

userName:frank?

[Quick](#) [Basic](#) [Advanced](#)

<input type="checkbox"/>	▼ User name	↕ Full name	↕ Primary group	↕ Enabled	↕ First name	↕ Last Name	↕ Manager
<input type="checkbox"/>	frankrudolph	Frank Rudolph Olson	scientist	Yes	Frank Rudolph	Olson	
<input type="checkbox"/>	franks	Frank Sherwood	scientist	Yes	Frank	Sherwood	

Displayed rows: 2

## Example 4

1. If you search for users using the text "frank" plus the wildcard "?", Soffid will display all users whose userName, firstName, lastName, middleName, or manager match the typed text as long as it has variation in the characters where the wildcard has been used.

soffid

Search

?

Main Menu > Administration > Resources > Users

frank?

[Quick](#) [Basic](#) [Advanced](#)

<input type="checkbox"/>	▼ User name	↕ First name	↕ Last Name	↕ Primary group	↕ Enabled	↕ Manager
<input type="checkbox"/>	aretha	Aretha	Franklin	world	Yes	
<input type="checkbox"/>	frankrudolph	Frank Rudolph	Olson	scientist	Yes	
<input type="checkbox"/>	franks	Frank	Sherwood	scientist	Yes	
<input type="checkbox"/>	hlamarr	Hedy	Lamarr	scientist	Yes	franks
<input type="checkbox"/>	ntesla	Nikola	Tesla	Support IT	Yes	frankrudolph
<input type="checkbox"/>	rfranklin	Rosalind	Franklin	scientist	Yes	

Displayed rows: 6

Notice the difference by searching "fran?"

soffid

Search

?

Main Menu > Administration > Resources > Users

fran?

[Quick](#) [Basic](#) [Advanced](#)

<input type="checkbox"/>	▼ User name	↕ First name	↕ Last Name	↕ Primary group	↕ Enabled	↕ Manager
<input type="checkbox"/>	aretha	Aretha	Franklin	world	Yes	
<input type="checkbox"/>	frank	Frank	Sinatra	Music	Yes	
<input type="checkbox"/>	frankrudolph	Frank Rudolph	Olson	scientist	Yes	
<input type="checkbox"/>	franks	Frank	Sherwood	scientist	Yes	
<input type="checkbox"/>	hlamarr	Hedy	Lamarr	scientist	Yes	franks
<input type="checkbox"/>	inewton	Isaac	Newton	scientist	Yes	frank
<input type="checkbox"/>	janis	Janis	Joplin	Music	Yes	frank
<input type="checkbox"/>	ntesla	Nikola	Tesla	Support IT	Yes	frankrudolph
<input type="checkbox"/>	rfranklin	Rosalind	Franklin	scientist	Yes	

Displayed rows: 9

# How does the SCIM interface search work?

1. First of all, you must install the SCIM addon in Soffid.

For more information, you can visit [the How to install SCIM in Soffid? page](#).

2. Then, you can use any REST client to test and consume our SCIM REST web service.

For more information, you can visit [the Testing tool page](#).

3. Finally, you can start to use the SCIM interface search by using Lucene syntaxis

## Lucene syntaxis

Please browse the standard specifications in this link:

<https://bookstack.soffid.com/books/soffid-3-reference-guide/page/lucene-query-parser-syntax>

## Term Modifiers

Lucene supports modifying query terms to provide a wide range of search options. Here are the most common ones:

<b>Wildcard Searches</b>	To perform a single character wildcard search use the "?" symbol. To perform a multiple character wildcard search use the "*" symbol.
<b>Regular Expression Searches</b>	Lucene supports regular expression searches matching a pattern between forward slashes "/"

<b>Fuzzy Searches</b>	<p>To do a fuzzy search use the tilde, "~", symbol at the end of a Single word Term</p> <p><u>Soffid Console &lt;= 3.4 version</u></p> <p>~0.8: stricter search</p> <p>~0.1: more lax search</p> <p><u>Soffid Console &gt; 3.4 version</u></p> <p>An additional (optional) parameter can specify the maximum number of edits allowed. The value is between 0 and 2.</p>
<b>Range Searches</b>	<p>Range Queries allow one to match documents whose field(s) values are between the lower and upper bound specified by the Range Query</p>
<b>Boosting a Term</b>	<p>To boost a term use the caret, "^", symbol with a boost factor (a number) at the end of the term you are searching. The higher the boost factor, the more relevant the term will be.</p>

## Boolean Operators

<b>OR</b>	The OR operator links two terms and finds a matching document if either of the terms exist in a document. This is equivalent to a union using sets
<b>AND</b>	The AND operator matches documents where both terms exist anywhere in the text of a single document. This is equivalent to an intersection using sets.
<b>+</b>	The "+" or required operator requires that the term after the "+" symbol exist somewhere in a the field of a single document.
<b>NOT</b>	The NOT operator excludes documents that contain the term after NOT. This is equivalent to a difference using sets.
<b>-</b>	The "-" or prohibit operator excludes documents that contain the term after the "-" symbol.

## Escaping Special Characters

Lucene supports escaping special characters that are part of the query syntax.

The current list of special characters are + - & || ! ( ) { } [ ] ^ " ~ \* ? : \ /

## Examples

### Example 1

1. Use the wildcard search



## 1.1.\*

### Request

```
GET http://<domain>/webservice/scim2/v1/User?textFilter=fran*
```

### Response 200 OK

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 4,
  "startIndex": 1,
  "Resources": [
    {
      "lastName": "Franklin",
      "createdByUser": "ActiveDirectory",
      "fullName": "Rosalind Franklin",
      "active": true,
      "userName": "rfranklin",
      "mailAlias": "",
      "firstName": "Rosalind",
      "createdDate": "2023-08-08 14:26:14",
      "multiSession": true,
      "meta": {
        "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/2862",
        "links": {
          "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'rfranklin'+and+enabled+eq+true",
          "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'rfranklin'+and+disabled+eq+false",
          "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'rfranklin'",
          "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'rfranklin'",
          "effectiveGrants": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/2862/effectiveGrants"
```

```
    },
    "resourceType": "User"
  },
  "modifiedByUser": "ActiveDirectory",
  "schemas": [
    "urn:soffid:com.soffid.iam.api.User"
  ],
  "modifiedDate": "2023-08-08 14:26:14",
  "attributes": {},
  "id": 2862,
  "userType": "I",
  "primaryGroupDescription": "scientist",
  "primaryGroup": "scientist"
},
{
  "lastName": "Franklin",
  "createdByUser": "ActiveDirectory",
  "fullName": "Aretha Franklin",
  "active": true,
  "userName": "aretha",
  "mailAlias": "",
  "firstName": "Aretha",
  "createdDate": "2023-09-06 13:12:54",
  "multiSession": true,
  "meta": {
    "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276397",
    "links": {
      "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'aretha'+and+enabled+eq+true",
      "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'aretha'+and+disabled+eq+false",
      "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'aretha'",
      "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'aretha'",
      "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276397/effectiveGrants"
```

```
    },
    "resourceType": "User"
  },
  "modifiedByUser": "ActiveDirectory",
  "schemas": [
    "urn:soffid:com.soffid.iam.api.User"
  ],
  "modifiedDate": "2023-09-06 13:12:54",
  "attributes": {},
  "id": 276397,
  "userType": "I",
  "primaryGroupDescription": "World",
  "primaryGroup": "world"
},
{
  "lastName": "Sinatra",
  "createdByUser": "ActiveDirectory",
  "fullName": "Frank Sinatra",
  "active": true,
  "userName": "frank",
  "mailAlias": "",
  "firstName": "Frank",
  "createdDate": "2023-09-06 13:12:54",
  "multiSession": true,
  "meta": {
    "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435",
    "links": {
      "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'frank'+and+enabled+eq+true",
      "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'frank'+and+disabled+eq+false",
      "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'frank'",
      "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'frank'",
      "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435/effectiveGrants"
```

```
    },
    "resourceType": "User"
  },
  "modifiedByUser": "ActiveDirectory",
  "schemas": [
    "urn:soffid:com.soffid.iam.api.User"
  ],
  "modifiedDate": "2023-09-06 13:12:55",
  "attributes": {},
  "id": 276435,
  "userType": "I",
  "primaryGroupDescription": "Music",
  "primaryGroup": "Music"
},
{
  "lastName": "Sherwood",
  "createdByUser": "pgarcia",
  "fullName": "Frank Sherwood",
  "active": true,
  "userName": "franks",
  "mailAlias": "",
  "firstName": "Frank",
  "createdDate": "2023-10-05 15:32:40",
  "multiSession": false,
  "meta": {
    "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/432644",
    "links": {
      "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'franks'+and+enabled+eq+true",
      "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'franks'+and+disabled+eq+false",
      "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'franks'",
      "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'franks'",
      "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/432644/effectiveGrants"
```

```
    },
    "resourceType": "User"
  },
  "modifiedByUser": "pgarcia",
  "schemas": [
    "urn:soffid:com.soffid.iam.api.User"
  ],
  "modifiedDate": "2023-10-05 15:32:40",
  "attributes": {},
  "id": 432644,
  "userType": "I",
  "primaryGroupDescription": "scientist",
  "primaryGroup": "scientist"
}
]
}
```

## 1.2. ?

### Request

```
http://<domain>/webservice/scim2/v1/User?textFilter=fran?
```

### Response 200 OK

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 2,
  "startIndex": 1,
  "Resources": [
    {
      "lastName": "Sinatra",
      "createdByUser": "ActiveDirectory",
      "fullName": "Frank Sinatra",
      "active": true,
      "userName": "frank",
      "mailAlias": "",
      "firstName": "Frank",

```

```
"createdDate": "2023-09-06 13:12:54",
"multiSession": true,
"meta": {
  "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435",
  "links": {
    "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'frank'+and+enabled+eq+true",
    "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'frank'+and+disabled+eq+false",
    "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'frank'",
    "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'frank'",
    "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435/effectiveGrants"
  },
  "resourceType": "User"
},
"modifiedByUser": "ActiveDirectory",
"schemas": [
  "urn:soffid:com.soffid.iam.api.User"
],
"modifiedDate": "2023-09-06 13:12:55",
"attributes": {},
"id": 276435,
"userType": "I",
"primaryGroupDescription": "Music",
"primaryGroup": "Music"
},
{
  "lastName": "Sherwood",
  "createdByUser": "pgarcia",
  "fullName": "Frank Sherwood",
  "active": true,
  "userName": "franks",
  "mailAlias": "",
  "firstName": "Frank",
```

```

    "createdDate": "2023-10-05 15:32:40",
    "multiSession": false,
    "meta": {
      "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/432644",
      "links": {
        "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'franks'+and+enabled+eq+true",
        "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'franks'+and+disabled+eq+false",
        "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'franks'",
        "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'franks'",
        "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/432644/effectiveGrants"
      },
      "resourceType": "User"
    },
    "modifiedByUser": "pgarcia",
    "schemas": [
      "urn:soffid:com.soffid.iam.api.User"
    ],
    "modifiedDate": "2023-10-05 15:32:40",
    "attributes": {},
    "id": 432644,
    "userType": "I",
    "primaryGroupDescription": "scientist",
    "primaryGroup": "scientist"
  }
]
}

```

## Example 2

1. Use the wildcard search in a specific attribute

### Request

GET http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User?textFilter=userName:frank

## Response 200 OK

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 1,
  "startIndex": 1,
  "Resources": [
    {
      "lastName": "Sinatra",
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    "id": 3910,  
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```

```
  }
```

```
]
```

```
}
```

## Example 3

### 1. Use the Fuzzy Searches

#### Request

```
GET http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User?textFilter=fran~
```

#### Response 200 OK

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 2,
  "startIndex": 1,
  "Resources": [
    {
      "lastName": "Sinatra",
      "createdByUser": "ActiveDirectory",
      "fullName": "Frank Sinatra",
      "active": true,
      "userName": "frank",
      "mailAlias": "",
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      "createdDate": "2023-09-06 13:12:54",
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```
    "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435/effectiveGrants"
    },
    "resourceType": "User"
  },
  "modifiedByUser": "ActiveDirectory",
  "schemas": [
    "urn:soffid:com.soffid.iam.api.User"
  ],
  "modifiedDate": "2023-09-06 13:12:55",
  "attributes": {},
  "id": 276435,
  "userType": "I",
  "primaryGroupDescription": "Music",
  "primaryGroup": "Music"
},
{
  "lastName": "Sherwood",
  "createdByUser": "pgarcia",
  "fullName": "Frank Sherwood",
  "active": true,
  "userName": "franks",
  "mailAlias": "",
  "firstName": "Frank",
  "createdDate": "2023-10-05 15:32:40",
  "multiSession": false,
  "meta": {
    "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/432644",
    "links": {
      "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'franks'+and+enabled+eq+true",
      "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'franks'+and+disabled+eq+false",
      "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'franks'",
      "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'franks'",
```

```
      "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/432644/effectiveGrants"
    },
    "resourceType": "User"
  },
  "modifiedByUser": "pgarcia",
  "schemas": [
    "urn:soffid:com.soffid.iam.api.User"
  ],
  "modifiedDate": "2023-10-05 15:32:40",
  "attributes": {},
  "id": 432644,
  "userType": "I",
  "primaryGroupDescription": "scientist",
  "primaryGroup": "scientist"
}
]
}
```

## 2. Use the Fuzzy Searches: specify the maximum number of edits allowed

### Request

```
GET http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User?textFilter=frankl~2
```

### Response 200 OK

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 4,
  "startIndex": 1,
  "Resources": [
    {
      "lastName": "Franklin",
      "createdByUser": "ActiveDirectory",
      "fullName": "Rosalind Franklin",
      "active": true,
      "userName": "rfranklin",
```

```
"mailAlias": "",
"firstName": "Rosalind",
"createdDate": "2023-08-08 14:26:14",
"multiSession": true,
"meta": {
  "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/2862",
  "links": {
    "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'rfranklin'+and+enabled+eq+true",
    "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'rfranklin'+and+disabled+eq+false",
    "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'rfranklin'",
    "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'rfranklin'",
    "effectiveGrants": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/2862/effectiveGrants"
  },
  "resourceType": "User"
},
"modifiedByUser": "ActiveDirectory",
"schemas": [
  "urn:soffid:com.soffid.iam.api.User"
],
"modifiedDate": "2023-08-08 14:26:14",
"attributes": {},
"id": 2862,
"userType": "I",
"primaryGroupDescription": "scientist",
"primaryGroup": "scientist"
},
{
  "lastName": "Franklin",
  "createdByUser": "ActiveDirectory",
  "fullName": "Aretha Franklin",
  "active": true,
  "userName": "aretha",
  "mailAlias": "",
```

```
"firstName": "Aretha",
"createdAt": "2023-09-06 13:12:54",
"multiSession": true,
"meta": {
  "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276397",
  "links": {
    "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'aretha'+and+enabled
+eq+true",
    "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'aretha'+and+disabled+eq+f
alse",
    "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+e
q+'aretha'",
    "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'aretha'",
    "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276397/effectiveGrants"
  },
  "resourceType": "User"
},
"modifiedByUser": "ActiveDirectory",
"schemas": [
  "urn:soffid:com.soffid.iam.api.User"
],
"modifiedDate": "2023-09-06 13:12:54",
"attributes": {},
"id": 276397,
"userType": "I",
"primaryGroupDescription": "World",
"primaryGroup": "world"
},
{
  "lastName": "Sinatra",
  "createdByUser": "ActiveDirectory",
  "fullName": "Frank Sinatra",
  "active": true,
  "userName": "frank",
  "mailAlias": ""
```



```
"firstName": "Frank",
"createdDate": "2023-09-06 13:12:54",
"multiSession": true,
"meta": {
  "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435",
  "links": {
    "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'frank'+and+enabled+eq+true",
    "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'frank'+and+disabled+eq+false",
    "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'frank'",
    "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'frank'",
    "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435/effectiveGrants"
  },
  "resourceType": "User"
},
"modifiedByUser": "ActiveDirectory",
"schemas": [
  "urn:soffid:com.soffid.iam.api.User"
],
"modifiedDate": "2023-09-06 13:12:55",
"attributes": {},
"id": 276435,
"userType": "I",
"primaryGroupDescription": "Music",
"primaryGroup": "Music"
},
{
  "lastName": "Sherwood",
  "createdByUser": "pgarcia",
  "fullName": "Frank Sherwood",
  "active": true,
  "userName": "franks",
  "mailAlias": ""
```

```

    "firstName": "Frank",
    "createdDate": "2023-10-05 15:32:40",
    "multiSession": false,
    "meta": {
      "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/432644",
      "links": {
        "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'franks'+and+enabled+eq+true",
        "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'franks'+and+disabled+eq+false",
        "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'franks'",
        "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'franks'",
        "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/432644/effectiveGrants"
      },
      "resourceType": "User"
    },
    "modifiedByUser": "pgarcia",
    "schemas": [
      "urn:soffid:com.soffid.iam.api.User"
    ],
    "modifiedDate": "2023-10-05 15:32:40",
    "attributes": {},
    "id": 432644,
    "userType": "I",
    "primaryGroupDescription": "scientist",
    "primaryGroup": "scientist"
  }
]
}

```

## Example 4

1. Use the boolean operator AND

## Request

```
GET http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User?textFilter=fran~ AND Sinatra
```

## Response 200 OK

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 1,
  "startIndex": 1,
  "Resources": [
    {
      "lastName": "Sinatra",
      "profileServer": "Void host",
      "createdByUser": "admin",
      "fullName": "Frankaaa Sinatra",
      "active": true,
      "userName": "frank",
      "mailAlias": "",
      "mailServer": "Void host",
      "firstName": "Frankaaa",
      "emailAddress": "pgarcia@soffid.com",
      "mailDomain": "soffid.com",
      "createdDate": "2023-06-02 07:41:47",
      "multiSession": false,
      "meta": {
        "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/3910",
        "links": {
          "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'frank'+and+enabled+eq+true",
          "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'frank'+and+disabled+eq+false",
          "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'frank'",
          "effectiveGrants": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/3910/effectiveGrants"
```

[illegible]

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dRufMpF1ud+4ccu6B6SwgnWYXCbfq4dsrl3UvlyN1aJTW1xZyBw58LTZbO2ITrpnpsDb2gGBKncplgPYRhEKyxloAwJ  
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ZA7Y+6YGXF7dWUANygQ3KrUHabDk7zTcdpD7p3RNIY16Lq9JaRQDsgkU6zpfIdbOym6kHiNN8FVXQqXuAEps/NG7  
WExPipshPlyLinS4esjFHZg6lcpp11stS3DWwax/KB6xhMStRfQjqrC4594I4EboRhMj0Hx62egHzrq9Jjo2XQOjD7amxP  
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naYo1At+w5AJ3Wf3Tv47vTIA1u2+jpZzXw1g+903BjxZTuDcxuO/TjQrtipSbl6spG9WFj6H5zbUsRcSPjXUizqGHjgGHx  
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Gcfz64asfU03mk6V0Q532zjqSeRftU2Pg6IP6zM2WLHNuNTK/eDUU0qg7stVEPnAFg665ErFRmpDqcQm7rKT9gP4i+  
U94Uy96A1slSpSvcG4/qT2GH3ILfglFtHDhLOvsYijUvbXtg3YfiVJJ2VieorLWJy5KjUqwlJ3lijEDXUZlvwtxgemMlwiSaRV1  
V0IZWAI1BB3WliMkCPaDtjBgvoBoEWfd1RS7sFUbyTYTp0DC9Iekj1wUpgrR5nKvWclI3ITL/KA/eAZQI/86eeKcHw7C  
hR6Tp0Agruod7aC9PGo1rm2qtra54+sl6Z2am7KtVWVqfWU6ahxbRS677k6Xup011iToBqdRsz5Ulc/wCdhXvapze  
mTx423jeMwjKioEUhyaOb6up/4mHqb8j21tfXTxHI9OgdUZyzOFXrkU9ft9yvSPtOoGhuLE27mG6MWmjotLP2HzNh6j  
WBR/foudwBNvPKdxnToFfhKN1KnCO7U2NNyr1PbXmoBANiDbviVqCa5sFWHi9QfNPGLOgVmKRPdwr373qH4BRKm  
op4Ubd1nPznToAWY/YH4W/WNKnfIsNxGtjOnQNv0Y2pnQKx7SaG/EcD+veJpKeEaoQBOOnQNJs3YoWxl1/f6SZtnGU8j  
h3rsAci3VLhc77kQHvNok6B5JT2saH+ISun8TUqVC6OjMtMPmcmcncZb3IAABOp7xM2+LZ83ZA7ClTWIZlv23Gt3OY2Jt  
lvpaLOgDw+Is2lgBusLcbi/E8tZ6p0a2mHRTfXd5zp0DV0sRKjpdSx+ModWrhGDBwxGYXAlsRcEXvvE6dAotl9HqeDQ  
sVNSqB7ZsLE7gg90X85Z7D2aEGdtXY3J8Yk6BdVGAtluKJtp8506BjNvlztkU+32A2mj5WZCP60UTO583aC2LXcDgppq  
A51/pr0x+KLOgBwo6xBTJ0FSoi62s1VCafkXQjzkps9UU61NVZ3BpVUYLINSmAwJDGxLIN3MGdOgazoNtEWfDFSjKS  
wPNe6X9oITqUvrY6i54Wmqczp0ATiAnToH//2Q=="

```
},  
"id": 3910,  
"userType": "I",  
"homeServer": "Void host",  
"shortName": "pgarcia",  
"primaryGroupDescription": "Music",  
"primaryGroup": "Music"
```

```
}
```

```
]
```

```
}
```

## 2. Use the boolean operator +

### Request

```
GET http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User?textFilter=fran~ +bacall
```

### Response 200 OK

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 3,
  "startIndex": 1,
  "Resources": [
    {
      "lastName": "Bacall",
      "createdByUser": "ActiveDirectory",
      "fullName": "Lauren Bacall",
      "active": true,
      "userName": "lbacall",
      "mailAlias": "",
      "firstName": "Lauren",
      "createdDate": "2023-08-08 14:26:14",
      "multiSession": true,
      "meta": {
        "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/2844",
        "links": {
          "roleAccounts":
            "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'lbacall'+and+enabled+eq+true",
          "groupUsers":
            "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'lbacall'+and+disabled+eq+false",
          "accounts":
            "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'lbacall'",
          "issues":
```

```
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'lbacall'",
  "effectiveGrants": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/2844/effectiveGrants"
},
"resourceType": "User"
},
"modifiedByUser": "pgarcia",
"schemas": [
  "urn:soffid:com.soffid.iam.api.User"
],
"modifiedDate": "2023-08-22 17:34:07",
"attributes": {},
"id": 2844,
"userType": "I",
"primaryGroupDescription": "Music",
"primaryGroup": "Music"
},
{
  "lastName": "Sinatra",
  "createdByUser": "ActiveDirectory",
  "fullName": "Frank Sinatra",
  "active": true,
  "userName": "frank",
  "mailAlias": "",
  "firstName": "Frank",
  "createdDate": "2023-09-06 13:12:54",
  "multiSession": true,
  "meta": {
    "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435",
    "links": {
      "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'frank'+and+enabled+eq+true",
      "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'frank'+and+disabled+eq+false",
      "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'frank'",
      "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'frank'"
    }
  }
}
```



```
    "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435/effectiveGrants"
    },
    "resourceType": "User"
  },
  "modifiedByUser": "ActiveDirectory",
  "schemas": [
    "urn:soffid:com.soffid.iam.api.User"
  ],
  "modifiedDate": "2023-09-06 13:12:55",
  "attributes": {},
  "id": 276435,
  "userType": "I",
  "primaryGroupDescription": "Music",
  "primaryGroup": "Music"
},
{
  "lastName": "Sherwood",
  "createdByUser": "pgarcia",
  "fullName": "Frank Sherwood",
  "active": true,
  "userName": "franks",
  "mailAlias": "",
  "firstName": "Frank",
  "createdDate": "2023-10-05 15:32:40",
  "multiSession": false,
  "meta": {
    "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/432644",
    "links": {
      "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'franks'+and+enabled+eq+true",
      "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'franks'+and+disabled+eq+false",
      "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'franks'",
      "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'franks'",
```

```
        "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/432644/effectiveGrants"
    },
    "resourceType": "User"
},
"modifiedByUser": "pgarcia",
"schemas": [
    "urn:soffid:com.soffid.iam.api.User"
],
"modifiedDate": "2023-10-05 15:32:40",
"attributes": {},
"id": 432644,
"userType": "I",
"primaryGroupDescription": "scientist",
"primaryGroup": "scientist"
}
]
}
```

### 3. Use the boolean operator -

#### Request

```
GET http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User?textFilter=fran~ -Sherwood
```

#### Response 200 OK

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 1,
  "startIndex": 1,
  "Resources": [
    {
      "lastName": "Sinatra",
      "createdByUser": "ActiveDirectory",
      "fullName": "Frank Sinatra",
      "active": true,
      "userName": "frank",

```

```

    "mailAlias": "",
    "firstName": "Frank",
    "createdDate": "2023-09-06 13:12:54",
    "multiSession": true,
    "meta": {
      "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435",
      "links": {
        "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'frank'+and+enabled+eq+true",
        "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'frank'+and+disabled+eq+false",
        "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'frank'",
        "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'frank'",
        "effectiveGrants":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276435/effectiveGrants"
      },
      "resourceType": "User"
    },
    "modifiedByUser": "ActiveDirectory",
    "schemas": [
      "urn:soffid:com.soffid.iam.api.User"
    ],
    "modifiedDate": "2023-09-06 13:12:55",
    "attributes": {},
    "id": 276435,
    "userType": "I",
    "primaryGroupDescription": "Music",
    "primaryGroup": "Music"
  }
]
}

```

## Example 5

### 1. U

## Request

GET

http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User?textFilter=(firstName:aretha OR firstName:Rosalind)  
AND lastName:Franklin AND birthDate:1979-01-01

## Response 200 OK

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 2,
  "startIndex": 1,
  "Resources": [
    {
      "lastName": "Franklin",
      "createdByUser": "ActiveDirectory",
      "fullName": "Aretha Franklin",
      "active": true,
      "userName": "aretha",
      "mailAlias": "",
      "firstName": "Aretha",
      "createdDate": "2023-09-06 13:12:54",
      "multiSession": true,
      "meta": {
        "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276397",
        "links": {
          "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'aretha'+and+enabled+eq+true",
          "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'aretha'+and+disabled+eq+false",
          "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'aretha'",
          "issues":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'aretha'",
          "effectiveGrants":
```

"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/276397/effectiveGrants"

```
    },
    "resourceType": "User"
  },
  "modifiedByUser": "pgarcia",
  "schemas": [
    "urn:soffid:com.soffid.iam.api.User"
  ],
  "modifiedDate": "2023-10-05 16:02:40",
  "attributes": {
    "birthDate": "1979-01-01 00:00:00"
  },
  "id": 276397,
  "userType": "I",
  "primaryGroupDescription": "World",
  "primaryGroup": "world"
},
{
  "lastName": "Franklin",
  "createdByUser": "ActiveDirectory",
  "fullName": "Rosalind Franklin",
  "active": true,
  "userName": "rfranklin",
  "mailAlias": "",
  "firstName": "Rosalind",
  "createdDate": "2023-08-08 14:26:14",
  "multiSession": true,
  "meta": {
    "location": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/2862",
    "links": {
      "roleAccounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/RoleAccount?filter=userCode+eq+'rfranklin'+and+enabled+eq+true",
      "groupUsers":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/GroupUser?filter=user+eq+'rfranklin'+and+disabled+eq+false",
      "accounts":
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Account?filter=type+eq+U+and+users.user.userName+eq+'rfranklin'",
      "issues":
```

```
"http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/Issue?filter=user.userName+eq+'rfranklin'",
  "effectiveGrants": "http://soffid.35x.lab:8089/soffid/webservice/scim2/v1/User/2862/effectiveGrants"
},
"resourceType": "User"
},
"modifiedByUser": "pgarcia",
"schemas": [
  "urn:soffid:com:soffid:iam:api:User"
],
"modifiedDate": "2023-10-05 16:03:02",
"attributes": {
  "birthDate": "1979-01-01 00:00:00"
},
"id": 2862,
"userType": "I",
"primaryGroupDescription": "scientist",
"primaryGroup": "scientist"
}
]
}
```

# Operation

## Operation

The Lucene index information is stored in files arranged in a folder structure. This folder structure is replicated in every Soffid Console and every Sync Server and also is saved in the database.

In case an instance (Docker, Kubernetes, or stand-alone) detects an inconsistency, the information will be overwritten with the database data.

When you update an object, marked as the textual index, a task will be created. The **soffid agent** will execute this task and the Sync Server will update the database tables related to the textual index.

## Folder structure

The folder structure is the following:

- `../index/<TENANT>/<SOFFID_OBJECT>`

## Example

1. Here you are the folder structure for the Soffid Console

```
root@da8136799e55:/opt/soffid/iam-console-3/index/master# ll
total 16
drwxr-x--- 4 root root 4096 Jun  2 09:58 ./
drwxr-x--- 3 root root 4096 Jun  2 08:53 ../
drwxr-x--- 2 root root 4096 Jun  2 09:58 com.soffid.iam.api.Group/
drwxr-x--- 2 root root 4096 Jun  2 10:45 com.soffid.iam.api.User/
root@da8136799e55:/opt/soffid/iam-console-3/index/master#
```

```
root@da8136799e55:/opt/soffid/iam-console-3/index/master# cd com.soffid.iam.api.Group/
root@da8136799e55:/opt/soffid/iam-console-3/index/master/com.soffid.iam.api.Group# ls
_1f.fdm  _1f.kdi      _1f_Lucene90_0.tim  _1p.fdt  _1p.kdm      _1p_Lucene90_0.tip  _1q.si  _1s.cfs
_1f.fdt  _1f.kdm      _1f_Lucene90_0.tip  _1p.fdx  _1p_Lucene90_0.doc  _1p_Lucene90_0.tmd  _1r.cfe  _1s.si
_1f.fdx  _1f_Lucene90_0.doc  _1f_Lucene90_0.tmd  _1p.fnm  _1p_Lucene90_0.dvd  _1p.si              _1r.cfs  segments_1n
_1f.fnm  _1f_Lucene90_0.dvd  _1f.si              _1p.kdd  _1p_Lucene90_0.dvm  _1q.cfe              _1r.si  write.lock
_1f.kdd  _1f_Lucene90_0.dvm  _1p.fdm             _1p.kdi  _1p_Lucene90_0.tim  _1q.cfs              _1s.cfe
root@da8136799e55:/opt/soffid/iam-console-3/index/master/com.soffid.iam.api.Group#
```

2. And the folder structure for the Sync Server

```
root@17beaa887a1e:/opt/soffid/iam-sync/index/master# ll
total 16
drwxr-xr-x 4 root root 4096 Jun  2 11:00 ./
drwxr-xr-x 3 root root 4096 Jun  2 09:39 ../
drwxr-xr-x 2 root root 4096 Jun  2 11:00 com.soffid.iam.api.Group/
drwxr-xr-x 2 root root 4096 Jun  2 10:45 com.soffid.iam.api.User/
root@17beaa887a1e:/opt/soffid/iam-sync/index/master#
```

```
root@17beaa887a1e:/opt/soffid/iam-sync/index/master/com.soffid.iam.api.Group# ls
_1f.i.liv  _1f.kdi  _1f_Lucene90_0.tip  _1p.fnm  _1p_Lucene90_0.dvm  _1q.cfs  _1s.cfs  write.lock
_1f.fdm  _1f.kdm  _1f_Lucene90_0.tmd  _1p.kdd  _1p_Lucene90_0.tim  _1q.si  _1s.si
_1f.fdt  _1f_Lucene90_0.doc  _1f.si  _1p.kdi  _1p_Lucene90_0.tip  _1r.cfe  _1t.cfe
_1f.fdx  _1f_Lucene90_0.dvd  _1p.fdm  _1p.kdm  _1p_Lucene90_0.tmd  _1r.cfs  _1t.cfs
_1f.fnm  _1f_Lucene90_0.dvm  _1p.fdt  _1p_Lucene90_0.doc  _1p.si  _1r.si  _1t.si
_1f.kdd  _1f_Lucene90_0.tim  _1p.fdx  _1p_Lucene90_0.dvd  _1q.cfe  _1s.cfe  segments_1o
root@17beaa887a1e:/opt/soffid/iam-sync/index/master/com.soffid.iam.api.Group#
```

## Database

The database tables involved:

- **SC\_LUINPA**
- **SC\_LUNIND**

## Example

### 1. The database structure

```
MariaDB [soffid_35x]> select * from SC_LUNIND;
+-----+-----+-----+-----+
| LIP_ID | LIP_NAME | LIP_TEN_ID | LIP_TIMSTA |
+-----+-----+-----+-----+
| 5378 | master/com.soffid.iam.api.User | 1 | 1685702740517 |
| 5774 | master/com.soffid.iam.api.Group | 1 | 1685703228965 |
+-----+-----+-----+-----+
```

```
MariaDB [soffid_35x]> select * from SC_LUINPA \G;
***** 1. row *****
LIP_ID: 5379
LIP_LIN_ID: 5378
LIP_NAME: _v_Lucene90_0.dvd
LIP_ORDER: 0
LIP_TEN_ID: 1
LIP_DATA: ?\Lucene90DocValuesData  Mi!k
Lucene90_0 e(Y;RooGaoYlG(  mG
LIP_TIMSTA: 1685697735029
***** 2. row *****
LIP_ID: 5380
LIP_LIN_ID: 5378
LIP_NAME: _v.fdm
LIP_ORDER: 0
LIP_TEN_ID: 1
LIP_DATA: ?\Lucene90FieldsIndexMeta  Mi!k
0  0  6  A  0  $  (  )
LIP_TIMSTA: 1685697735025
***** 3. row *****
LIP_ID: 5381
```

## soffid agent

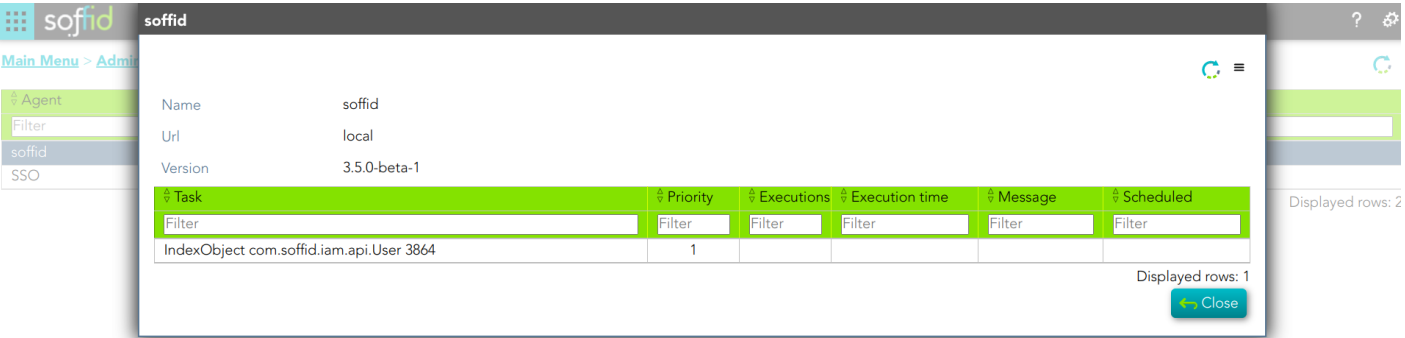
You can check the soffid agent status by visiting the Sync Server monitoring page:

Main Menu > Administration > Monitoring and reporting > Sync server monitoring



# Example

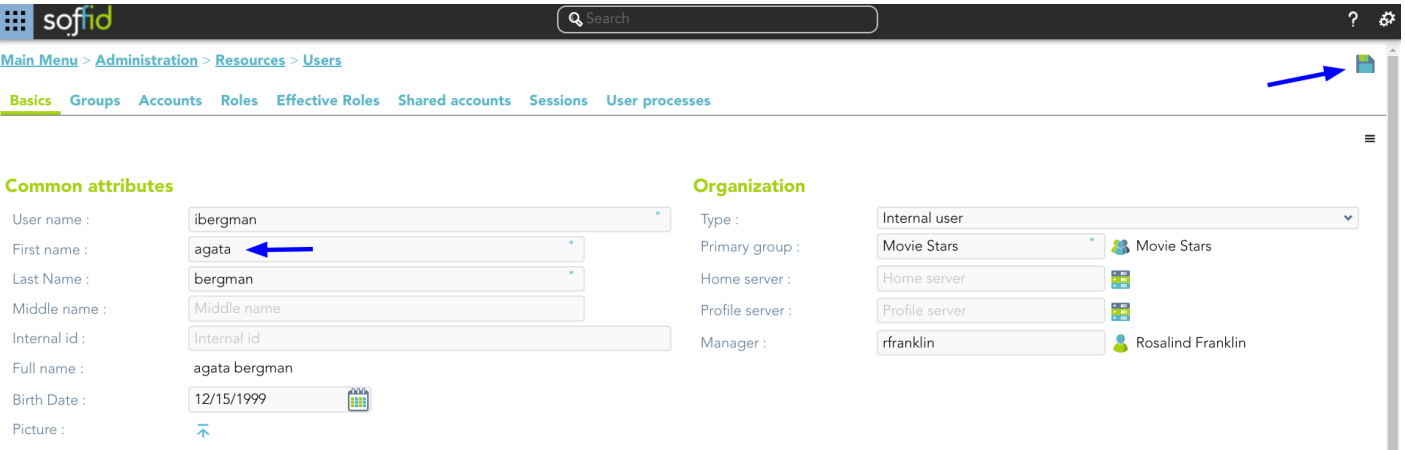
1. A soffid agent pending task:



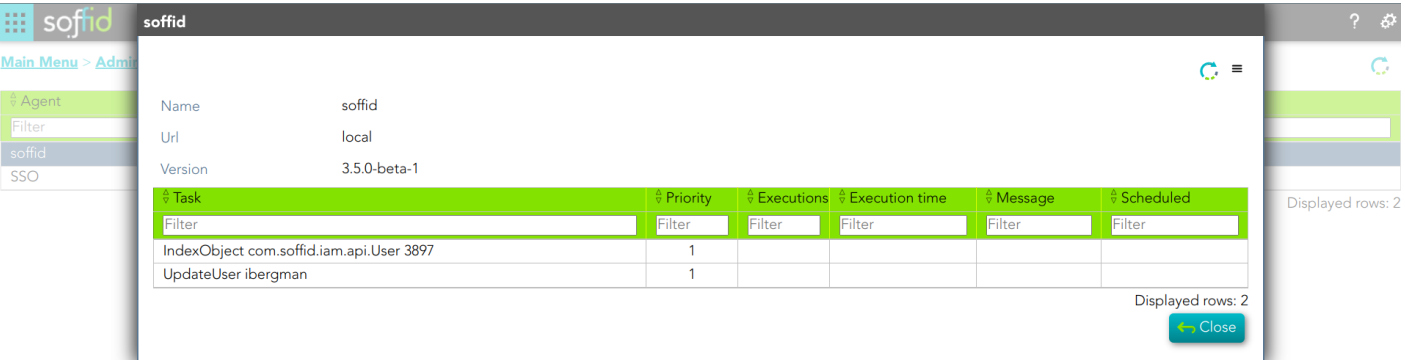
# Step-by-step

## Example 1

1. You update one user's data and save the changes.



2. New tasks are created and executed.



3. Then Sync Server indexes the updated text and places the index file.

```

root@da8136799e55:/opt/soffid/iam-console-3/index/master/com.soffid.iam.api.User# ls -al
total 108
drwxr-x--- 2 root root 4096 Jun  2 13:23 .
drwxr-x--- 4 root root 4096 Jun  2 09:58 ..
-rw-r----- 1 root root 405 Jun  2 10:42 _12.cfe
-rw-r----- 1 root root 2437 Jun  2 10:42 _12.cfs
-rw-r----- 1 root root 350 Jun  2 10:42 _12.si
-rw-r----- 1 root root 405 Jun  2 13:16 _15.cfe
-rw-r----- 1 root root 2608 Jun  2 13:16 _15.cfs
-rw-r----- 1 root root 350 Jun  2 13:16 _15.si
-rw-r----- 1 root root  67 Jun  2 09:40 _b_2.liv
-rw-r----- 1 root root 405 Jun  2 09:22 _b.cfe
-rw-r----- 1 root root 3463 Jun  2 09:22 _b.cfs
-rw-r----- 1 root root 385 Jun  2 09:22 _b.si

```

4. Then Sync Server and updates the database table SC\_LUNIND by upgrading the LIP\_TIMSTA field of the User object or by creating a new record if it did not previously exist.

```

MariaDB [soffid_35x]> select * from SC_LUNIND;
+-----+-----+-----+-----+
| LIP_ID | LIP_NAME                                | LIP_TEN_ID | LIP_TIMSTA |
+-----+-----+-----+-----+
| 5378   | master/com.soffid.iam.api.User         | 1          | 1685711801976 |
| 5784   | master/com.soffid.iam.api.Group        | 1          | 1685703660618 |
+-----+-----+-----+-----+

```

5. When the following search will be performed, the very first thing to do is check the database file. If it is necessary update the file system and finally perform the search.

## Example 2

1. The task engine mode is Read only

soffid Search ? ⚙

Main Menu > Administration > Configuration > Integration engine > Smart engine settings

Task engine mode: Read only (blue arrow)

Tasks limit per transaction: 15 (If a single transaction creates more than this number of tasks, tasks will be held until Soffid administrator releases them.)

Scripting language: Javascript

Undo Confirm changes

2. You update one user's data and save the changes.

soffid Search ? ⚙

Main Menu > Administration > Resources > Users

Basics Groups Accounts Roles Effective Roles Shared accounts Sessions User processes

Common attributes

User name: ibergman

First name: agata (blue arrow)

Last Name: bergman

Middle name: Middle name

Internal id: Internal id

Full name: agata bergman

Birth Date: 12/15/1999

Picture: [icon]

Organization

Type: Internal user

Primary group: Movie Stars (Movie Stars icon)

Home server: Home server (server icon)

Profile server: Profile server (server icon)

Manager: rfranklin (Rosalind Franklin icon)

### 3. A new task is created and executed

The screenshot shows the 'soffid' application interface. On the left, there is a sidebar with a 'Main Menu > Admin' link and a list of items: 'Agent', 'Filter', 'soffid', and 'SSO'. The 'soffid' item is selected. A modal window is open in the center, displaying details for a task. The modal has a title bar with 'soffid' and a close button. Inside, there are fields for 'Name' (soffid), 'Url' (local), and 'Version' (3.5.0-beta-1). Below these is a table with columns: 'Task', 'Priority', 'Executions', 'Execution time', 'Message', and 'Scheduled'. The table has one row with the following data: 'IndexObject com.soffid.iam.api.User 3897', '1', an empty cell, an empty cell, an empty cell, and an empty cell. At the bottom right of the modal, it says 'Displayed rows: 1' and has a 'Close' button. In the background, another modal window is partially visible, showing a table with 'Displayed rows: 2'.

Task	Priority	Executions	Execution time	Message	Scheduled
IndexObject com.soffid.iam.api.User 3897	1				

### 4. Then Sync Server indexes the updated text and places the index file.

### 5. Then Sync Server and updates the database table SC\_LUNIND by upgrading the LIP\_TIMSTA field of the User object or by creating a new record if it did not previously exist.

### 6. When the following search will be performed, the very first thing to do is check the database file. If it is necessary update the file system and finally perform the search.