

Interface description and instructions

Revision history

Date	Author	Change description	Interface version
2022-06-22	JM	First version	1.0
2022-09-27	JM	Updated code sets and added the duration of fixed-term work to the job posting data and occupational category as a search criteria.	1.0
2022-12-16	JM	Added information about the environments	1.0
2023-01-24	JM	Added information on the implementation of the interface and more detailed technical instructions for authentication	1.0

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I Introduction

This document describes in more detail the features of the retrieval interface of Job Market Finland. The manual applies to interface version 1.0.

The introduction of the job posting retrieval interface is described in chapter 2. The retrieval interface is a REST interface, and its use requires separate authentication data. More detailed information related to this can be found in chapter 3.

The use of the retrieval interface requires acceptance of the Terms of Use and contacting the KEHA Centre to obtain the necessary credentials for the use of the interface.

The retrieval interface is a REST interface, and its use requires separate authentication data. This authentication information is provided to the user of the retrieval interface as part of the acceptance process of the Terms of Use. The use of the interface is authenticated according to the OAuth 2.0 client credentials flow.

A more detailed description of the interface's entities and calls starts in section 4. The corresponding documentation can be found in the OpenApi description, which is also available at the Job Market Finland [website](#). It can be viewed in the [Swagger editor](#), for instance. Examples of use have been added to this manual.

Job postings use the European ESCO classification to describe occupations and skills. This will ensure that jobs can also be transferred to the European Job Mobility Portal (EURES) where appropriate. The ESCO classification in use is version 1.1.0 and more information is available [here](#).

Via the same link, you can also find the existing code set for occupational categories (ISCO classification), which is part of the ESCO classification. Although the values of the occupational categories in the ESCO classification are in the form of URLs, only the code value of the end of the URL, without the letter C, is used as the search criterion in the interface. This also corresponds to the current value of the ISCO-08 classification. For example, ESCO's occupational category for Non-commissioned armed forces officers (<http://data.europa.eu/esco/isco/C021>) has the search criteria **021**.

2 How to start using the API

Implementation of the interface requires acceptance of the terms of use and a separate [notification of the activation](#) to the KEHA Centre. After this, the user of the interface will be provided with credentials to Job Market Finland's QA environment, and the necessary connection openings will be made. The final implementation of the import interface requires testing it first in the QA environment. When the user of the interface considers the testing to be complete, information about it must be sent to the email address tmt-rajapinnat.keha@ely-keskus.fi. After this, the KEHA Centre will deliver IDs for the retrieval interface proper.

3 Environments and authentication

The calls used are the same in both environments, but the first part of the address changes depending on the environment.

The use of the interface is protected. Programmatic Authentication is performed in accordance with the Microsoft Identity Platform Client Credentials Flow ([more information](#)). The third-party application calls the

Microsoft Graph api, using OAuth2.0's Client Credentials Flow. The Microsoft interface returns an Access Token to the end user. After this, the third-party application calls the HTTPS interface of TE-Digi.

3.1 Test environment

<https://integraatit-qa.tyomarkkinatori.fi/>

3.1.1 Authentication to test environment

The user of the interface must provide the authentication token as part of the interface calls. For this, the token must first be obtained from Azure's AD B2C service.

3.1.2 Obtaining the token

The access token for the test environment is obtained from the following end point:

https://tedigidevb2c.b2clogin.com/tedigidevb2c.onmicrosoft.com/B2C_1A_SIGNIN/oauth2/v2.0/token

Required parameters

- "client_id": "unique, user-specific"
- "scope": "<https://tedigidevb2c.onmicrosoft.com/07fd933a-dd1b-4c6d-8eee-ffedf3fbb3da/.default>"
- "client_secret": "unique, use-specific"
- "response_type": "token"
- "grant_type": "client_credentials"

3.1.3 Using the token

The received access token must be added to the header of all REST calls of the interface

Authorization: Bearer <token>

3.1.4 Token validity period

3600 seconds (1 hour)

3.2 Production environment

<https://integraatit.tyomarkkinatori.fi/>

3.2.1 Production configurations

Access token end point:

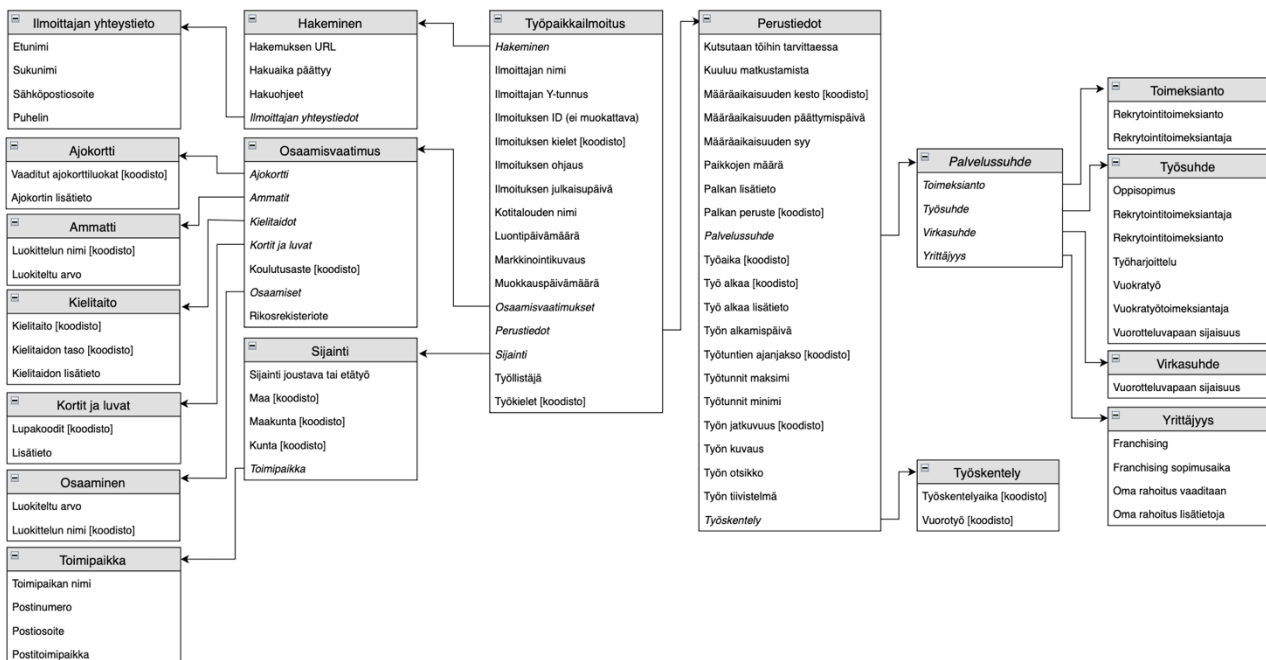
https://tedigib2c.b2clogin.com/tedigib2c.onmicrosoft.com/B2C_1A_SIGNIN/oauth2/v2.0/token

Required parameters

- "scope": "<https://tedigib2c.onmicrosoft.com/fad9328b-e852-45e4-951b-6d142430e89d/.default>"

4 Job posting entities

The job posting entities returned through the interface form the model described below. More detailed descriptions of the entities can be found in the OpenApi description.



5 Search criteria and result set parameters

The search for job postings can be modified by a few search criteria and parameters that control the size of the result set and the place in the result set. All parameters are query parameters, and the result set parameters are mandatory.

5.1 Search criteria

Parameter	Alternatives	Legend	Description
ammattiryhma	E.g. 021	List of code values for occupational categories (see end of chapter 1)	Occupational categories to search for

työllistäjä	<ul style="list-style-type: none"> ▪ 01 ▪ 02 	<ul style="list-style-type: none"> ▪ Company ▪ household 	Job posting employer type
työnjatkuvuus	<ul style="list-style-type: none"> ▪ 01 ▪ 02 ▪ 0201 ▪ 0202 	<ul style="list-style-type: none"> ▪ open-ended ▪ temporary ▪ summer work ▪ seasonal work 	Continuity of work
työaika	<ul style="list-style-type: none"> ▪ 01 ▪ 02 	<ul style="list-style-type: none"> ▪ Full-time work ▪ Part-time work 	Working hours of the job
kieli	<ul style="list-style-type: none"> ▪ fi ▪ sv ▪ en 	<ul style="list-style-type: none"> ▪ Finnish ▪ Swedish ▪ English 	Job posting language
sijaintijoustava	<ul style="list-style-type: none"> ▪ true ▪ false 	<ul style="list-style-type: none"> ▪ the location is flexible ▪ The location is not flexible 	Is the location of the workplace flexible
maa	E.g. FI	List of country code set values	Jobs in a certain country
maakunta	E.g. 06	List of regional code set values	Jobs in a certain region
kunta	E.g. 837	List of municipal code set values	Jobs in a certain municipality

5.2 Result set parameters

Parameter (mandatory)	Example	Description
sivu	0	Page number of the desired result set
maara, 100-500	100	Number of results per page

6 Job posting search

Searching for job postings via the interface is done by using the GET method of the http protocol. The contents of the call provide information on the search criteria, as well as the number of results and their paging.

6.1 Call

GET **environment**/jobpostingprovider/v1/tyopaikat?sivu=0&maara=100

6.2 Return

In response, a list of job postings matching the search criteria, quantity and paging (status code 200) will be returned.

Error conditions include (http status code):

- Invalid search criteria (400)
- Non-authenticated search attempt (401)
- No access to the interface (403)
- Internal error (500)

6.3 Examples

- The first 100 results for all of the company's job postings in Finnish.
 - <https://integraatiot.tyomarkkinatori.fi/jobpostingprovider/v1/tyopaikat?sivu=0&maara=100&tyollistaja=01&kieli=fi>
- The third page of the 250 results of job postings with a flexible location
 - <https://integraatiot.tyomarkkinatori.fi/jobpostingprovider/v1/tyopaikat?sivu=3&maara=250&tyollistaja=01&kieli=fi>
- First 200 results of summer job postings in Pirkanmaa
 - <https://integraatiot.tyomarkkinatori.fi/jobpostingprovider/v1/tyopaikat?sivu=0&maara=200&tyollistaja=01&tyonjatkuvuus=0202&maakunta=06>
- The second page of the 100 results for part-time jobs by a household employer in Tampere
 - <https://integraatiot.tyomarkkinatori.fi/jobpostingprovider/v1/tyopaikat?sivu=2&maara=100&tyollistaja=02&tyoaika=02&kunta=837>

7 Code sets used in job postings

7.1 Driver's license (vaaditutAjokorttiluokat)

The code set describes the most common categories of driver's licences, which are grouped as follows.

Code	Description
A1A2A	A1, A2 or A (motorcycle)
B	B (passenger car)
B96BE	B96 or BE (trailer combination)
C1C	C1 or C (truck)
C1ECE	C1E or CE (truck and trailer)
D1D	D1 or D (bus)
D1EDE	D1E or DE (bus and trailer)

7.2 Occupation (ammattiluokiteltuArvo)

Code set used in the classification of occupations. Currently only the ESCO code set is supported.

Code	Description
ESCO	ESCO occupations classification

7.3 Language (kielitaito and tyoKielet)

The language code set used is that of ISO 639-1. This code set is used to indicate working languages and separate language skills. In addition to these, the following ISO 639-2 and 639-3 codes are used.

Code	Description
ber (639-2)	Berber languages
rom (639-3)	Romany
smn (639-2)	Inari Sami
sms (639-2)	Skolt Sami
und (639-2)	Undetermined
crn (639-3)	Montenegrin

fse (639-3)	Finnish Sign Language
fss (639-3)	Finnish-Swedish Sign Language

7.4 Level of language skills (kielitaidon Taso)

Code set for indicating the required level of language proficiency. The code set is based on the Common European Framework of Reference for Languages (CEFR).

Code	Description
A1	Basics
B1	Satisfactory
B2	Good
C1	Very good
L1	Native language

7.5 Licenses and permissions (lupaKoodit)

Professional cards and permits in use in Finland.

Code	Description
001	A/T certification, Qualification in antenna systems
002	ADR driving license
003	Engineer officer's certification
004	First-Aid Fire Extinguishing certificate AS1
005	Liquor license
006	ARPA course (Automatic radar plotting aid)
007	Asbestos removal licence
008	Degree in document management and archival work
009	Licensed real estate agent, LKV
010	A/T certification, Qualification in antenna and network systems
011	Authorised translator
012	BRM course (Bride resource management)
013	First aid 1
014	First aid 2
015	Special load traffic controller degree - EKL
016	GOC course (General Operator's Certificate)
017	Professional driving permit for passenger cars
018	Man lift safety card
019	Lift safety examination
020	Welding qualifications/classifications
021	HTM-Auditor degree
022	Hygiene card
023	Age limit certificate
024	IMGD course
025	Skipper's certificate for the Baltic Sea
026	JHTT-Auditor degree

027	Security steward license
028	Gas spray permit
029	Gas carrier safety course
030	Able seafarer's certification
031	Hot work on roof card
032	Chemical tanker safety course
033	KHT-Auditor degree
034	Cook steward's certification
035	Engine attendant's certification
036	Second engineer officer's certification
037	Motorman's certification
038	Watchkeeping rating's engine certification
039	Repairman's certification
040	Skipper's certificate for domestic trade
041	Professional driver qualification card
042	Boatmaster's certificate I
043	Boatmaster's certificate II
044	Ship's steward certification
045	Ship's cook certification
046	Electro-technical rating's certification
047	Ship's waiter certification
048	Able seafarer's certification
049	Matupa - Tourism Safety pass
050	Master's certification
051	Wet room waterproofing certificate
052	Survival course
053	Rescue boat certificate of proficiency
054	First officer's certification
055	Ergonomic patient handling card
056	Pumpman's certification
057	Ordinary seaman's certification
058	Boatswain's certification
059	Pipeline license
060	Periodic inspector for fall protection equipment
061	Safety card for wood work
062	Bridge crane licence
063	Health and social services safety card
064	STCW-95 Basic
065	Protection expert card
066	Inert gas system and crude oil washing course
067	Electro-technical officer's certification
068	Electrical safety certification 1, 2 and 3
069	Electrical safety card SFS 6002
070	Basic training for tanker operations
071	Taxi driving license
072	Road safety card 1 and 2
073	T certification, Qualification in network systems

074	Forklift truck card
075	Hot work card
076	Safety advisor training
077	Security officer license
078	Well-being at Work card
079	Occupational Safety Card
080	Dangerous Chemical Industrial Handling, inventory and Supervision
081	Dangerous goods (VAK or ADR training)
082	Transportation of dangerous goods by air, Basic Training (DGR)
083	Watchkeeping engineer's certification
084	Watchkeeping rating's certification
085	Deck officer's certification
086	Guard's license
087	Water hygiene card
088	Water work card
089	Licensed housing rental agent, LVV
090	General diploma in insurance, VTS
091	Dual purpose crew, Electro-technical rating, Certificate of competency
092	Advanced diploma in insurance, YVTS
093	Chief engineer officer certificate
094	Chief officer certificate
095	Oil tanker safety course

7.6 Level of education (koulutusaste)

Code set for describing the level of education. The code set is compatible with the national code set for levels of education.

Code	Description
31	Upper Secondary School
32	Vocational Education
4	Specialist qualification level
5	Short-cycle tertiary level
6	Bachelor's level
7	Master's level
8	Third cycle level

7.7 Municipality (kunta)

The code set for the location municipal data is the municipal numeric codes according to Statistics Finland's [Municipalities 2022](#) classification.

7.8 Country (maa)

The code set for the location regional data is the regional numeric codes according to Statistics Finland's [Regions 2022](#) classification.

7.9 Region (maakunta)

The code set for the regional data for the location is the numeric codes according to [ISO 3166](#).

7.10 Competence (osaamiset.luokiteltuArvo)

Code set for describing competence. Currently only the ESCO code set is supported.

Code	Description
ESCO	ESCO competences classification

7.11 Basis for salary (palkanPeruste)

Code set used to describe the job salary type.

Code	Description
01	Salary based on working hours (e.g. monthly salary)
02	Fixed salary, regardless of the time spent at work
03	Salary based on performance (e.g. commission)
04	In addition to a fixed salary, an agreement has been made on a performance-based component
05	In addition to a salary based on working hours, an agreement has been made on a performance-based component
06	Performance-based salary paid on the basis of the performance of a previously agreed on work package.
07	Other salary type

7.12 Work begins (tyoAlkaa)

The code set describes when the employment relationship will start.

Code	Description
01	Work will begin as soon as possible
02	Work will begin on the given day
03	Work will begin as mutually agreed upon

7.13 Working hours (tyoAika)

The code set describes the working hours of the employment relationship.

Code	Description
01	Work is full-time
02	Work is part-time

7.14 Continuity of work (työnjatkuvuus)

Code set for describing how long the employment relationship is.

Code	Description
01	Employment relationship will continue until further notice
02	Employment relationship is fixed term
0201	Work is seasonal
0202	Work is summer work

7.15 Working time (työskentelyaika)

The code set describes the working time of the employment relationship.

Code	Description
01	Work takes place during the day
02	Work takes place during the evening
03	Work takes place during the night
04	Work takes place in episodes
05	Working time is flexible
06	Work takes place on weekdays
07	Work takes place on weekends
08	Work takes place in shifts

7.16 Time period of working hours (työvuorokausi)

The code set describes the time period of the given working hours.

Code	Description
0201	Part-time hours are given per week
0202	Part-time hours are given per month

7.17 Shift work (vuorotyö)

Code set for describing what kind of shift work is involved.

Code	Description
0801	The work is done in two shifts
0802	The work is done in three shifts
0803	The work is done in four shifts
0804	The work is done in five shifts