T-rank REST API

T-rank AS

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Contents

1 Introduction

The *T-rank REST API* is a set of services for retrieving ownership information. It is also the sole data source for the T-rank Shareholder Maps modules, and may also be used by other services drawing shareholder structures.

The API is currently available with two different data sources:

- The global Moody's Analytics shareholder database, hereafter referred to as the MA version

- A database containing Danish, Finnish, Norwegian and Swedish companies, offered in cooperation with TietoEvry, hereafter referred to as the TE version.

Functionality and data do to some extent depend on the data source.

Since this API is the sole data source for T-rank shareholder maps, all functionality currently available in these user interfaces could be developed based on this API. Some features are, however, developed in the front end, and are therefore not directly supported by the API - including PDF export, GraphML export and all map editing functionality.

The primary goal of T-rank's shareholder maps is to explain who, directly or indirectly, to a high extent either owns or controls various entities, or the other way around, which entities an entity owns and/or controls. The complete ownership structures are often very complex with thousands of entities and even more links, and as such, impossible to get an overview of on a screen. In such cases, the API will try to extract the most relevant parts of the map - with functionality for extending the map if needed.

This documentation does not explain the concepts behind the various measures delivered by this API. For a deeper understanding of integrated ownership, voting power and various ways of calculating beneficial ownership, refer to T-rank's white papers, available at `https://docs.trank.no/`.

1.1 Examples
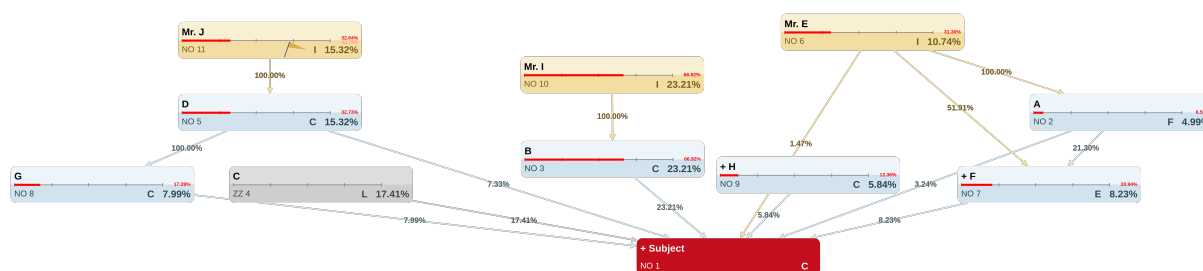
Figure 1: An anonymized map explaining the ownership structure of a company, from the MA version. The links represent shareholdings, as received from the underlying data supplier. The largest percentage figures within the nodes are the calculated integrated ownership. The small red percentage numbers, along with the red bars, represent voting power (the a priori probability of being in a position to flip a vote). The + sign in front of the name in a couple of nodes tells that there are more shareholder information available (either because the integrated ownership of the owner is below the threshold set by the user or because the map has been simplified due to size) and that the user may expand the graph for this node. The flag associated with Mr. J tells that he is a PEP or on a sanction list. The letters in front of the integrated ownership is the entity type abbreviation, as defined by MA.
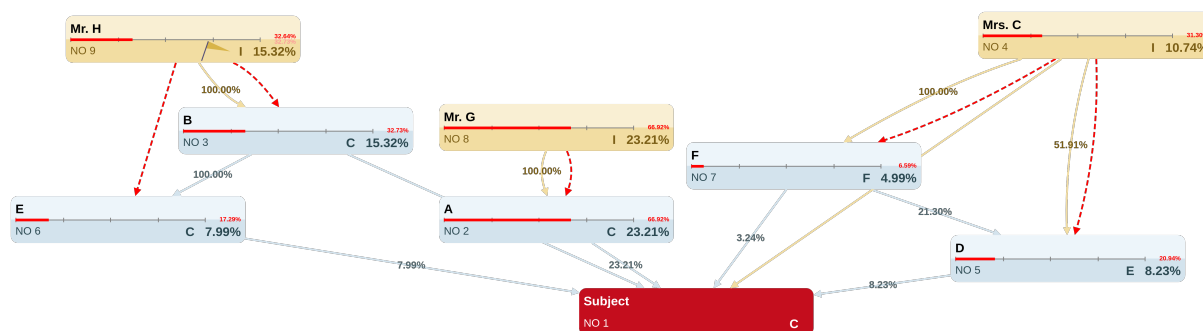
Figure 2: Beneficial owner map for the same company, using the model *Control of voting rights, 10% threshold*. A person included in a beneficial owner map is per definition a beneficial owner according to the specified criteria. The red dashed arrows are control links, explaining which first level shareholders a natural person controls and thus – which voting rights he controls.

1.2   General

The API is available at https://<host>.trank.no/api/, where <host> is bvd-ws for the MA version and tietoevry-ws for the TE version.
All endpoints specified in this document is relative to the base URI.
   The response format is JSON/UTF-8.

1.3   Authorization

There are two separate ways of accessing the API: Either by creating a session through some kind of login mechanism or by using a pre-shared API Key.
   A user, regardless of authorization method, may have access to all or just some specific endpoints. Also, what a certain endpoint returns may to some extend depend on granted privileges. Throughout this documentation, functionality or attributes requiring extended access are marked as follows:

- VP Requires *Voting Power* access

- Restricted Requires additional access of some other kind

1.3.1   Session

For session-based access, the client has to obtain a session key by using one of the SSO endpoints, the /login endpoint or the /login/ip endpoint. If successful, any of these methods will return a session token that must be submitted in all following requests in an Authorization header with the following format:

Format:

```
Authorization: Token <received_token>
```

where <received_token> is replaced by the received token.
   The token is a JSON Web Token which could be unpacked.

1.3.2   Pre-shared API Key

The API Key must be supplied in an Authorization header on every request, preferably combined with IP authorization. Please provide T-rank the relevant IP addresses or CIDR blocks if IP based authentication should be used. T-rank will provide clients with an API Key.

Format:

```
Authorization: ApiKey <client-key>
```

Where <client-key>is replaced by the received key.
   I

1.4   HTTP Status Codes

The API returns HTTP Status Codes as would mostly be expected:

200: OK
307: Temporary Redirect. Used when the ID of the requested entity has been changed to another ID
(MA version only)
400: Bad request - probably illegal request parameters
401: Unauthorized – Not logged in or session expired
403: Access denied – Missing required role?
404: Not found – If the endpoint is valid, the requested ID could not be found in the database
500: Unknown error
502: Used in conjunction with the SSO endpoints if the remote SSO endpoint fails to respond in an
expected way or timed out.

1.5   Specifying thresholds

In general, values are compared with lower bound thresholds using $value \geq threshold$. If you want to
use $>$ rather than $\geq$, put a $>$ in front of the threshold value.

In this documentation, when a parameter is defined as being of type *threshold*, it means a float in
the interval [0,100] (unless otherwise specified) with an optional $>$ prefix. (it is also possible to prefix a
threshold value with $<$, which is interpreted as the largest available double value that is less than the
prefixed value).

1.6   X-Requested-For

According to some agreements, the caller shall provide information to T-rank about who the final client
is. When such an agreement is in place, the caller must use the X-Requested-For HTTP header. Format:
username="<username>" name="<name>"

The header value is MIME-encoded (RFC2047), using Base64.

Example:
username: foobar
name: Foo Bar (BvD Global Sales)

```
X-Requested-For: ZXJuYW1lPSJmb29iYXIiIG5hbWU9IkZvbyBCYXIgKEJ2RCBHbG9iYWwgU2FsZXMpIgo=
```

1.7   Data sets

The term *data set* refer to the complete set of data the service is based on. Several data sets could be
available, for instance historical versions. The default, current data set is always named *current*. For
endpoints supporting different data sets, the dataset is specified in the start of the path. If no data set
is specified, the *current* data set is assumed.
Example:
```
GET /v2/beneficial/x
GET /current/v2/beneficial/x
```
Both requests will retrieve the Beneficial owners of company x, using the current data set.

```
GET /20180928/v2/beneficial/x
```
Get the beneficial owners of company x based on the data set named *20180928*.

1.8   IDs

Most endpoints require an ID to be specified in the request. All entities in a data set have an unique ID.

1.8.1 MA version IDs

In the MA version, BvD-IDs are used as IDs. BvD-IDs consist of a two-letter upper-case iso country code followed by digits and possibly a few special letters. For legal persons, the string following the country code is often some kind of national ID, but this varies from country to country. If the country is not known, YY is used as country code for legal persons and WW for individuals. If the third character of the BvD-ID is a *, it means that this entity is only known from shareholder data, and that the ID is more likely to change in the future.

As an alternative to BvD-IDs, legal entities might also be looked up by OrbidId. The syntax is the same as for BvD-ID, exept that an OrbisId must be prefixed by *orbisid:*. Thus,

1. `/v2/beneficial/NO990092397?model=integrated,vp&threshold_integrated=>25`

2. `/v2/beneficial/orbisid:036797576?model=integrated,vp&threshold_integrated=>25`

will both fetch the beneficial owners of T-rank.

1.8.2 TE version IDs

In the TE version, IDs is built from upper-case two-letter iso country code, followed by the following:

- The national ID if legal person. For Finnish companies, leading zeros and the dash has been removed before creating the ID - example: 0123456-7 becomes FI1234567. In order to generate the national id from our IDs, leftpad with zeros to get 8 digits, then insert a dash between the second last and last digit.

- P + internal T-rank ID if natural person

- X + internal T-rank ID if unidentified entity (could be legal or natural person).

- E + join('-', Municipality ID, Cadastral unit number, Property unit number, Lease number, Unit number) if estate/property (Norwegian properties only).

For natural persons and unidentified entities, the country code is referring to the source of information and not necessarily the country of incorporation/residence/citizenship. For the latter, see the country/citizenship entity attributes. However, if a shareholder from e.g. the Norwegian data has been linked to an entity in the Swedish data, the Swedish (SE) ID will be used.

2 Endpoints

2.1 Authorization

None of these endpoints are applicable when using a pre-shared API Key.

2.1.1 POST /login

Log in, using username and password.

2.1.1.1 Request

Content-Type must be application/x-www-form-urlencoded. Request parameters:

Name	Type	Comment
username	string	Required.
password	string	Required

2.1.1.2 Response

On success, an object with the following properties is returned:

- **token**: string, the session key, which is also a JWT token.

- **config**: object, preferences set by the user in T-rank user interfaces. Not relevant for external partners using the API.

On login failure, HTTP status 403 is returned.

2.1.2 GET /login/ip

Log in, using username only. A list of allowed IP addresses/CIDR blocks from which this user may log in must be configured at the server side in order for this to work.

2.1.2.1 Request

Request parameters:

Name	Type	Comment
username	string	Required.

2.1.2.2 Response

Same return values as for /login.

2.1.3 GET /sso/bvd

MA version only.

Log in, using single-sign-on based on a valid MA session token.

2.1.3.1 Request

Request parameters:

Name	Type	Comment
bvd_session_token	string	Required. A valid BvD session token.

2.1.3.2 Response

Same return values as for /login.

2.1.4 GET /sso/evry

TE version only.

2.1.4.1 Request

Contact T-rank for a definition of the parameters (u,h,i,a,e,jwt_token,refresh_token).

2.1.4.2 Response

Same return values as for /login.

2.2   Lists

2.2.1   GET [/{dataset}]/v2/beneficial/{id}

Retrieve a list of beneficial owners for a given company. The definition of Beneficial Owner is specified in the request.

2.2.1.1   Support for family relations in the TE version

The TE version has support for taking close family relations into account for Beneficial Ownership, according to the Norwegian AML legislation. Family relations will be retrieved on the fly from the Norwegian Population Registry.

In order to turn this feature on, the client must first authenticate to the Norwegian Population Registry through TietoEvry. The JWT token for this session must then be submitted in an *X-Infotorg-JWT* HTTP header.

In addition, the request parameter *include_family=true* must be included in the request.

Only the following models support family relations: integrated, vp, simcon.

2.2.1.2   Request

The following request parameters are supported:

Name	Type	Comment

model	string	Required. A comma-separated list of values, where the following values are supported:
		integrated: Natural persons with an integrated ownership above threshold are beneficial owners.
		simcon: Natural persons who own more than a threshold percent on all levels between the natural person and the requested company are beneficial owners.
		ge50c-gt25: A specific version of Simcon where calculation is done in two steps: First, a standard Simcon calculation is run, but only voting rights ($\geq 50\%$) is taken into account. Then one final iteration is run with criterium max(ownership, voting rights) $> 25\%$. Only available in the TE version. This model corresponds to the BO definition in the Norwegian BO registry legislation.
		vp: VP Natural persons with voting power of at least threshold percent are beneficial owners. The default threshold of 49.8% will work well for most users.
		control: VP Natural persons who control at least threshold% of the voting rights are beneficial owners.
		bo-register: Include Beneficial Owners according to a national BO register. Only available inn the TE version. In order to include the Norwegian BO register, the calling entity must have delegated rights to the BO register to T-rank, and the correct organization number must have been configured on the T-rank side for the client.
		Note that, for the TE version, natural persons being CEO or board members of a foundation or a company owned by a foundation in such a way that the foundation had been a BO according to specified criterias if it had been a natural person are considered beneficial owners regardless of the value submitted in model.
		If more than one model is specified, a person is reported as beneficial owner if he satisfies the criteria of at least one of the listed models.
include_combine_reg	Boolean	This parameter will only have effect if model=bo-register is on. If true, a person A will be a BO in a company S whenever he is BO in a company B according to a national register and B satisfies any of the models specified in the model parameter. Note that this option does not have effect for the Norwegian BO register since this register is accessed on the fly through API.
		Default: false.

include_family	Boolean	Turn on support for family relations. TE version only. See chapter about family relation support above for additional requirements. Default: false.
threshold_integrated	Threshold (0,100]	Integrated ownership threshold, used for model=integrated. Default: 25.0
threshold_simcon	Threshold (0,100]	Threshold used for model=simcon. Available thresholds: TE version: > 10, > 15, > 25, 50, > 50. MA version: 10, 25, > 50. If a non-supported threshold is specified, it will be equivalent to calling with the lowest available threshold greater than the one specified. Default: 25
threshold_control_share VP	Threshold (0,100]	Threshold for the share of voting rights a person must control for model=control. Default: 25.0
threshold_control_control VP	Threshold [50,100]	Threshold for De Facto Control for model=control. Default: 99.9
threshold_vp VP	Threshold	Voting Power threshold for model=vp. Default: 49.8
include_na	Boolean	Toggles whether NA ownership links (links where the value is unknown), where the requested company is the owner, is treated as 0% (false) or as the maximum available ownership after summing other non-NA ownership links (true). Only relevant for the MA version and only applicable for model=control. Default: true
include_legal	Boolean	Whether to also return legal persons satisfying the selected models. Default: true
include_unidentified	Boolean	Whether to return unidentified entities as beneficial owners. TE version only. Unidentified entities are normally natural persons or foreign legal entities. Default: true
include_roles	Boolean	Whether to also return contact data – board of directors, CEO, accountant, auditor etc. – in the result. TE version only. If true, the result will have a company_roles property, containing an array of natural and legal persons. Default: false

Example:
`/v2/beneficial/NO990092397?model=simcon,integrated&threshold_integrated=>10&threshold_simcon=>10`

Fetch the beneficial owners of the company with ID NO990092397, using the models integrated and simcon, both models with 10% threshold (excluding exact 10%), include unidentified entities as beneficial owners and also get legal persons satisfying the specified models.

2.2.1.3   Response

The top level object in the response could have the following properties:

- **meta**: An object holding properties regarding the underlying data

- **request**: An object describing the interpretation of the request.

- **subject**: An object holding data regarding the requested legal person itself

- **beneficial_owners**: An array of beneficial owners found, natural persons and possibly (TE version), unidentified entities if include_unidentified is true.

- **legal_persons**: An array of legal persons found to satisfy the criteria specified in the request. Only present if include_legal is true.

- **company_roles**: TE version only. An array of natural persons having roles (board of directors, CEO), in the company.

The **meta** object currently has only a single property, *dump_date*, which is the update date for the underlying data.

The **request** object in the response return the parameters used (request or default).

The **subject** object contains data about the requested legal entity. Refer to the chapter 3 for a list of properties. In addition, the following properties are available:

- **self_ownership**: The integrated ownership the requested company has in itself.

- **completeness**: A percent indicating the completeness of the shareholder data for the requested company. The number is the sum of integrated ownership for all top level shareholders that are either natural persons, listed companies or has any of the entity types Ass, Fou, Fun, Pub, Tru (TE version) or S (MA version).

- **boreg_status**: Only present if model=bo-register is on and access to the Norwegian BO register has been configured for the client. Possible values: *OK* – the entity has reported (lack of) BOs to the register; *missing* – this entity should have, but has not, reported to the register; *404* – this entity is not obliged to report beneficial owners to the register.

The **beneficial_owners** array is a list of objects with the following properties:

- **Entity properties applicable to natural persons**

- **unidentified**: TE version only. Boolean. True if this beneficial owner is an unidentified shareholder, meaning that it may or may not be a natural person. The only meta data available where unidentified=true is usually name.

- **ownership**: An object with the following properties:

  - **direct**: Float. Direct ownership percentage. Could be NaN - in the MA version when the direct ownership is known to exist but the value is unknown and in the TE version whenever the owner or the owned entity is inactive.

  - **direct_adjusted**: Float. Direct ownership percentage, adjusted for integrated ownership the subject company has in itself. Only present if direct ownership is present and model=ge50c-gt25 is turned on.

  - **voting_rights**: TE version only. Float. Only present if *share_classes_applied* is true.

  - **voting_rights_adjusted**: Float. Voting rights the person holds in the subject company, adjusted for voting rights held (directly) by the subject company itself. Only present if direct ownership is present and model=ge50c-gt25 is turned on.

  - **total**: Float. Total ownership link, percentage (MA version only, could be NaN)

  - **integrated**: Float. Calculated integrated percentage

  - **star**: Boolean. Calculated integrated ownership involves total ownership links (MA version only)

  - **voting_power**: Float. VP (In)direct voting power in percent

  - **suspect**: Boolean. VP *true* if voting power is (partly) based on suspicion of voting power

- **max_controlled_votes**: Float. VP The share of votes controlled by this beneficial owner (the sum of direct ownership and the ownership of all direct owners controlled by the natural person). In the MA version, max_controlled_votes could be an upper bound, since na. links are treated to be the maximum possible (100% - sum of direct links) and total ownership links are treated as direct links, with an upper bound derived from direct links. The attribute is only present if model=control is on and the value is at least threshold_control_share.

  - **level**: Int. Distance, in number of hops, from requested company to this shareholder.

  - **intermediaries**: Array of objects. Only available if model=ge50c-gt25 is on. A list of intermediary companies which satisfies i) the beneficial owner satisfies the ge50c-gt25 model in the company and ii) the company have direct or indirect ownership in the requested company. Each object has the properties id, name, entity_type and level.

  - **ge50c_gt25_controlled_ownership**. Float (percent). Only available if model=ge50c-gt25 is on, and there exists an indirect ownership relationship between the Beneficial owner and the subject. The sum of direct ownership held in the subject company for the beneficial owner and all companies controlled by the beneficial owner according to the $\geq 50\%$ rule. The value takes circular ownership into account.

  - **ge50c_gt25_controlled_voting_rights**. Float (percent). Only available if model=ge50c-gt25 is on, and there exists an indirect ownership relationship between the Beneficial owner and the subject. The sum of direct voting rights held in the subject company for the beneficial owner and all companies controlled by the beneficial owner according to the $\geq 50\%$ rule. The value takes self-owned voting rights in the subject company into account.

  - **privileged_shares** Restricted TE version only. An object containing share counts per share class (share classes as properties, counts as values).

- **bo_reg**: Array of objects. Each object is a registered reason for this person being a BO. Only present if model=bo-register is on. The following fields may occur in each object:

  - **reason**: Standardized text or code for the reason

  - **reason_desc**: Detailed description

  - **control_interval**: Code for how much of the shares is controlled by this BO (Swedish BO register only)

  - **control_interval_desc**: Textual description corresponding to control_interval (Swedish BO register only)

- **bo_roles**: Array of strings. TE version only. A list of roles this beneficial owner has in the requested company, each making the person a beneficial owner. Only present is the requested company is of a self-owned entity type (foundation).

- **models**: An array of model names which this person satisfies. Models that are requested may be listed here, in addition to the model *role* that may appear in the TE version. *model=role* appears if the requested entity is of a self-owned entity type (foundation) where people having certain roles are defined to be beneficial owners, or if the requested entity is owned by a person of a self-owned entity type in such a way that this legal person would have been a beneficial owner if it had been a natural person. If include_combine_reg is turned on (together with the model register), the additional models *<modelname>+register* may occur whenever a person is identified by applying the model *<modelname>* in combination with a national BO registry entry.

- **bo_selfowned_owner**: TE version only. An array, containing legal persons of self-owned entity types (foundations), that would have been beneficial owners if they had been natural persons. The objects in the array have the same properties as other legal person objects, and in addition, *bo_roles*, pointing to an array of role abbreviations – each making this beneficial owner a beneficial owner of the self-owned entity and thus also of the requested company.

- **control_through**: VP Only present if model=control is on. A list of companies with direct shareholdings in requested company which is controlled by this beneficial owner. Each entry in the array may have the same properties as the *subject* object (except completeness), and in addition, an ownership object similar to one level above.

- **in_mother**: VP May only be present if model=control. A natural person found to be beneficial owner in a company controlling the requested company, will also be defined as a beneficial owner of the requested company. If the natural person is already found to be a beneficial owner of the requested company, in_mother will not be present. There will be only one in_mother entry, even if a person is beneficial owner of several mother companies. Note: When in_mother is present, the control_through object will contain information for the relationship between the beneficial owner and the mother (not the requested company). The object may have the same properties as the *subject* object.

legal_persons is an array corresponding to the beneficial_owners array, the only difference being that the meta-data attached to each object is the same as in the *subject* object.

company_roles is an array much alike the beneficial_owners array. The objects will have properties similar to a beneficial owner (if natural person) or a legal owner (if legal person), but will lack the ownership property and properties only relevant for beneficial ownership. In addition, the objects have a property listing the roles: *roles*. *roles* points to an array listing the roles the person has in the company. Refer to chapter 5 for possible values.

2.2.2   GET [/{dataset}]/v2/owners/{id}

Retrieve a list of direct and indirect owners for a given company. The list can be filtered in various ways.

2.2.2.1   Request

The following request parameters are supported:

Name	Type	Comment
threshold_integrated	threshold	Integrated ownership threshold (percent). Only entities with a calculated indirect ownership of at least threshold percent will be returned. Shareholders with only n.a. in direct/total ownership will only be included if threshold=0.
threshold_power VP	threshold	Voting power threshold (percent). Only owners having voting power of at least threshold percent in the requested company will be returned. Use of this parameter requires an API Key with voting power access.
threshold_simcon	threshold	Simcon (ownership at all levels) threshold (percent). Available thresholds: TE version: > 10, > 15, > 25, 50, > 50. MA version: 10, 25. If a non-supported threshold is specified, it will be equivalent to calling with the lowest available threshold greater than the one specified.
page_size	int	Number of entities to be returned per page. If set to 0, there is no limit and all owners satisfying the filters will be returned. Default: 20
page	int	The page in the result set to return. The pages are 1-indexed. Default: 1
max_level	int	Maximum distance, in number of hops, from requested entity to owner. Default: unlimited
filter	string	A named filter. The supported values are: *person*: Only return natural persons *legal*: Only return entities that are not natural persons Default: empty

sort_by	string	Supported values:
		level: First sort by level ascending (distance, in number of hops, from the requested company, according to strongest path algorithm), then by integrated ownership descending.
		name: By entity name ascending.
		level1_integrated: First all level 1 shareholders, then all other shareholders by integrated ownership descending.
		integrated: First by integrated ownership descending, then by level ascending
		voting_power: VP First by voting power descending, then by level ascending
		Default: level

Note: At least one of threshold_integrated, threshold_power or threshold_simcon must be set in order to get any results at all. If more than one are present, the thresholds are combined with logical OR.

Example:
`/v2/owners/NO990092397?threshold_power=40&filter=person&page_size=0&sort_by=voting_power`

Fetch all natural person owners having voting power of at least 40%. Return all results in a single request, order by voting power, starting with the most powerful owner.

2.2.2.2 Response

The result is very similar to the /beneficial endpoint. The differences are:

- All owners are returned in a single array - *owners* – regardless of entity type.

- The request object reflects the possible parameters. In addition, it holds information about number of owners satisfying the criteria (total) and number of pages in the paged result set (pages).

- Properties related to beneficial ownership models are not present in the subject object nor in the ownership objects of subject/owners.

2.2.3 GET [/{dataset}]/owner/

This endpoint is identical to GET [/{dataset}]/v2/owners except for the access rules.

2.2.4 GET [/{dataset}]/v2/subsidiaries/{id}

Retrieve a list of direct and indirect subsidiaries for a given company or natural person. The list can be filtered in various ways.

2.2.4.1 Request

The following request parameters are supported:

Name	Type	Comment
threshold_integrated	threshold	Integrated ownership threshold (percent). Entities in which the requested entity has n.a. in direct/total ownership will be included at first level if threshold=0
threshold_power VP	threshold	Voting power threshold (percent). Only entities in which the requested entity has voting power of at least threshold percent will be returned. Use of this parameter requires an API Key with voting power access.

threshold_simcon	threshold	Simcon (ownership at all levels) threshold (percent). Available thresholds: TE version: > 10, > 15, > 25, 50, > 50. MA version: 10, 25. If a non-supported threshold is specified, it will be equivalent to calling with the lowest available threshold greater than the one specified.
page_size	int	Number of entities to be returned per page. If set to 0, there is no limit and all subsidiaries satisfying the filters will be returned. Default: 20
page	int	The page in the result set to return. The pages are 1-indexed. Default: 1
max_level	int	Maximum distance, in number of hops, from requested entity to subsidiary. Default: unlimited
sort_by	string	Supported values: *level*: First sort by level ascending (distance, in number of hops, from the requested company, according to strongest path algorithm), then by integrated ownership descending. *name*: By entity name ascending. *level1_integrated*: First all level 1 shareholders, then all other shareholders by integrated ownership descending. *integrated*: First by integrated ownership descending, then by level ascending *voting_power*: VP First by voting power descending, then by level ascending Default: level
exclude_branch	boolean	Whether to exclude branches from the result set or not. Default: true
exclude_estate	boolean	Restricted . Whether to exclude estates from the result set or not. Default: true

Note: At least one of threshold_integrated, threshold_power or threshold_simcon must be set in order to get any results at all. If more than one are present, the thresholds are combined with logical OR.

Example:
`/v2/subsidiaries/NO990092397?threshold_integrated=0&threshold_power=40&page_size=0&sort_by=voting_power`

Fetch all subsidiaries in which NO990092397 has voting power of at least 40%. Return all results in a single request, order by voting power, starting with the entity in which NO990092397 has the most Voting Power.

2.2.4.2   Response

The result is very similar to the /beneficial endpoint. The differences are:

- All subsidiaries are returned in a single array - *subsidiaries*.

- The request object reflects the possible parameters. In addition, it holds information about number of subsidiaries satisfying the criteria (total) and number of pages in the paged result set (pages).

- Properties related to beneficial ownership models are not present in the subject object nor in the ownership object of subject/subsidiaries.

2.2.5   GET [/{dataset}]/v2/roles/{id}

Retrieve contacts (board members, auditor, CEO etc) for a given company. Only applicable for the TE version.

2.2.5.1   Request

The following request parameters are supported:

Name	Type	Comment
include_ownership	boolean	If true, each returned entity will have an ownership object, similar to the ownership objects returned by /v2/owners.

Example:
`/v2/contacts/NO990092397`

Fetch the contact information for company with ID NO990092397, using the current dataset.

2.2.5.2   Response

The top level object in the response could have the following properties:

- **meta**: An object holding properties regarding the underlying data, see /v2/beneficial for details.

- **subject**: An object holding data regarding the requested legal person itself, see /v2/beneficial for details. Properties describing the ownership data for the legal person is left out.

- **company_roles**: Identical to the same property in /v2/beneficial. See chapter 5 for possible values.

2.2.6   GET [/{dataset}]/role/{id}

This endpoint is identical to GET [/{dataset}]/v2/roles/{id} except for the access rules.

2.2.7   GET [/{dataset}]/v2/roles-of/{id}

Retrieve all companies a given entity has some kind of known role in.

2.2.7.1   Request

The following request parameters are supported:

Name	Type	Comment
include_ownership	boolean	If true, each returned entity will have an ownership object, similar to the ownership objects returned by /v2/owners.

2.2.7.2   Response

An array of entities is returned, with standard entity data. In addition, each object in the array will have a *roles* property – an array listing the roles the requested entity has in this entity. See chapter 5 for possible values.

2.2.8   GET [/{dataset}]/role-of/{id}

This endpoint is identical to GET [/{dataset}]/v2/roles-of/{id} except for the access rules.

2.3   Analytics

2.3.1   GET [/{dataset}]/v2/ownership_indicators/{id}

Retrieve a set of indicators, relevant for risk assessment and similar tasks.

2.3.1.1   Request

No request parameters are supported.

2.3.1.2 Response

The top level object in the response could have the following properties:

- **meta**: An object holding properties regarding the underlying data

- **subject**: An object holding data regarding the requested legal person

The **meta** object currently has only a single property, *dump_date*, which is the update date for the underlying data.

The **subject** object contains data about the requested legal entity, and may have the following properties:

- **Standard entity properties**

- **self_ownership**: The integrated ownership the requested company has in itself.

- **completeness**: A percent indicating the completeness of the shareholder data for the requested company. The number is the sum of integrated ownership for all top level shareholders that are either natural persons, listed companies or has any of the entity types Ass, Fou, Fun, Pub, Tru (TE version) or S (MA version).

- **num_shareholders_direct**: Number of direct shareholders. For the MA version, this includes shareholders with a total ownership link into the requested company.

- **num_shareholders_legal**: Number of direct and indirect owners that are legal persons.

- **num_shareholders_unidentified**: TE version only. Number of unidentified shareholders. Unidentified shareholders are shareholders for which only their name is known, and could be natural persons or legal persons.

- **num_shareholders_total**: Total number of direct and indirect owners.

- **sum_shareholders_unidentified**: TE version only. Sum of integrated ownership for all unidentified shareholders (shareholders where only the name is known, could be both natural and legal persons). There is never shareholder information available for unidentified shareholders, guaranteeing that integrated ownership is not double counted in this number.

- **max_shareholder_distance**: Maximum distance, in number of hops, from the requested company to a shareholder.

- **num_selfowned_owners**: Number of significant shareholders (shareholders with an integrated ownership of at least 10%) that has an integrated ownership in themselves of at least 10%.

- **num_shareholders_shareclasses**: TE version only. Number of significant shareholders (shareholders with an integrated ownership of at least 10%) that have at least 2 share classes.

- **num_high_vp_low_integrated**: Number of direct and indirect shareholders that have at the most a moderate integrated ownership (max 25%) in the requested company, but significant power (at least 49.8%).

- **ownership_nace**: TE version only. A table (object), having Nace Rev2 level 4 codes for direct and indirect legal person owners as properties, and objects with the following properties as values: *sum* – the sum of integrated ownership for these owners, *title* – the description associated with the NACE code. Since a mother company and a grandmother company might have the same Nace code, the sum of integrated ownership for a nace code could be above 100. If a normalized value is preferred, divide the value by the *num_shareholders_legal* property.

2.3.2 GET [/{dataset}]/indicators/{id}

This endpoint is identical to GET [/{dataset}]/v2/ownership_indicators/{id} except for the access rules.

2.4   Graphs

2.4.1   GET [/{dataset}]/graph/{id}

Retrieve data for an ownership graph for the company with ID {id}.

2.4.1.1   Request

The following request parameters are supported:

Name	Type	Comment
dir	string	The type of graph. Possible values:
		owner: Get direct and indirect owners of the entity
		owns: Get direct and indirect subsidiaries of the entity
		dual: Get both owners and subsidiaries.
		group: Get corporate group VP
		Note that if the requested entity is a natural person, the API will always return a graph of type *owner*.
threshold	threshold	Entities with integrated ownership above this threshold will normally be included in the map. Some times, entities with ownership below the threshold will be included in the returned graph in order to explain the ownership of another entity which is above the threshold (may happen if an entity has ownership in the requested entity through several paths and/or there are ownership circles). If the threshold is set to 0, ownership links not translated to a numeric value (NA. links for both versions and GP links for the MA version) will also be included, but only on the first level. If dir=group, the meaning of the threshold parameters changes to a Voting Power threshold for control and defaults to 99.8%.
power-threshold VP	threshold	Entities with Voting Power above threshold will normally nbe included in the map, even if integrated ownership is below *threshold*. This parameter is always on if the user has access to Voting Power, and is by default set to 49.8%.
max	integer [1,∞)	Maximum number of nodes to include. Default=50.
associated-threshold	threshold (0,50]	Only applicable for dir=group. If set, companies associated to the corporate group will be included. An associated company is a company which either owns (associated-threshold,50]% of a company in the corporate group, or, in sum, is owned by (associated-threshold,50]% by the companies in the corporate group.
exclude-branch	boolean	turn on/off whether branches of companies should be excluded from the returned graph. Only relevant for graphs of type owns or dual. Default false
exclude-estate	boolean	Restricted turn on/off whether estates should be excluded from the returned graph. Only relevant for graphs of type owns or dual. Only relevant for the TE version. Default: true

2.4.1.2   Response

Returns an object with the following properties:

- **dir**: string, usually the same as the dir request parameter, but may be different if the requested entity is a natural person

- **dump_date**: timestamp, The time we last received an update from the data provider, format YYYY-MM-DDThh:mm:ssZ

- **exclude_branch**: boolean, same as corresponding request parameter

- **id**: string, same as {id} in request

- **max**: integer, ignore

- **threshold**: float, same as request

- **data**: object, the graph – refer to chapter 6 for details.

2.4.2   GET [/{dataset}]/graph/{id}/expand/{expand_id}

In general, one will not get a complete ownership structure back, either because the number of nodes exceeded *max*, *max* was set to zero and the API figured the graph was too big to be returned, some nodes was below *threshold* or finally, there were links not at first level that translates to 0% (NA, NG or GP).

Nodes, for which there exists more ownership information for any of the above reasons, will be marked with *has_more=true* in the node object. All ownership links in the specified direction(s) for a node may be retrieved using the expand endpoint.

The expand endpoint will only retrieve ownership information at the first level beyond the {expand_id} node. Since the server does not know the state at the client, all ownership links going to and/or from this node will be returned.

Request parameters and response format is similar to the /graph/<id> endpoint. For the request, *threshold* is not supported. Further, the *max* parameter has a default value of 1000, and *max=0* does not have any special meaning.

If there are more nodes available than the *max* threshold, the response will contain an overflow report – *data.owner_overflow* if *owner* type of map, *data.owns_overflow* if *owns* type of map or, possibly, both if *dual* type of map. The overflow object has a *count* property (overall count of nodes left out), a *direct_weight* and a *total_weight* property. The weight properties contain two objects: *nan* and *non_nan*, which each has a *sum* and a *count* property telling how many nodes have a value for the type of ownership (direct vs total) and value type (*NaN* vs *not NaN*) and the sum of the ownership for the nodes in question.

2.4.3   GET [/{dataset}]/graph/{id}/bo VP

Generate a beneficial owners map for {id}.
In this context, beneficial owners are identified based on ownership only. All natural persons that are found to be beneficial owners according to the request parameters are returned, along with legal entities that either satisfies the same set of criteria or is needed to explain the ownership of the natural persons.

In some cases, the ownership structure will get too big to be displayed to the user. The returned map will then be simplified, but include the most relevant nodes. A warning is issued when simplification has taken place. Unlike for the straight ownership graphs, the nodes in the Beneficial owners graphs do not have information about whether more ownership information is available, with corresponding expand functionality.

A structured explanation of why the various natural persons are found to be beneficial owners is also returned, along with some information about the completeness of the ownership data.

The API may identify beneficial owners based on several different models. If more than one model is activated, a person satisfying the criteria of any of the models will be returned as a beneficial owner.

2.4.3.1   Request

The following request parameters are supported:

Name	Type	Comment

tio	Threshold	If set, natural persons with an integrated ownership at least equal to this parameter will be beneficial owner. Common values for tio: 10 or 25, often prefixed with >.
tvp	Threshold	If set, natural persons with a voting power of at least tvp will be beneficial owner. The threshold should be set a bit lower than the actual wanted value due to calculation inaccuracies originating from Monte Carlo simulations. Recommended value is 49.8.
to	Threshold	Which share of the voting rights a person must control in order to be beneficial owner (directly owned shares + shares owned directly by companies controlled by the person). Common values: 10 or 25. Both *to* and *tc* must be set in order to activate the *Control of voting rights* model
tc	Threshold	How much voting power a person must have in a company in order to be in de facto control. Common values: 99.8 or 99.9. Used to determine which first level shareholders a natural person controls (ref. *to* parameter).
tsc	Threshold	Natural persons with an ownership of at least equal to this parameter, at all levels between himself and the analyzed company, will be a beneficial owner. Note that the result for a given threshold must be precalculated, which means that you only get desired result for a set of predefined values. Currently, > 10, > 15 and > 25 are the supported values for the TE version, 10 and 25 for the MA version.
increg	boolean	Include beneficial owners that are reported to a national BO registry. Only available in the TE version and only applicable for Danish, Finnish and Swedish companies.
incge50cgt25	boolean	The definition used in the Norwegian BO registry law. Only available in the TE version. A person become BO when he/she, together with companies he/she controls, owns more than 25% of the capital or the voting rights in the company. Control is defined as having at least 50% of the voting rights in a company.
incna	boolean	Default true. Only relevant for the MA version and the model *Control of voting rights*. If true, NA ownership links where the owned company is the requested company is considered to be the maximum available after looking at the non-NA links. If false, NA links are treated as 0%.
incfamily	boolean	Default false. TE version only. Consider close family as a unit when identifying beneficial owners, according to Norwegian legislation. Uses the Norwegian Population Register as source. A requirement for this to work is that a session against the Norwegian Property Register was submitted during the SSO authentication (/sso/evry). Close family will only be considered for models integrated, vp and simcon.
combinereg	boolean	Combine national BO registers with any other models turned on. This parameter has the same effect as the include_combine_reg in /v2/beneficial.

2.4.3.2 Response

The response follows much the same structure as an ownership graph. The returned object have the following properties:

- **dump_date**: timestamp, the time we last received an update from the data provider, format YYYY-MM-DDThh:mm:ssZ

- **simplified**: boolean, true if the graph has been simplified due to graph size (the graph will still be a single component, but less important intermediary nodes are left out).

- **id**: string, same as <id> in request

- **tc**: float, as request parameter, *null* if Controlled votes model is off

- **to**: float, as request parameter, *null* if Controlled votes model is off

- **tio**: float, as request parameter, *null* if Integrated ownership model is off

- **tsc**: int, as request parameter, *null* if Recursive model is off

- **tvp**: float, as request parameter, *null* if Voting power model is off

- **data**: object, the graph and Beneficial owner data, refer to chapter 6 for details.

2.4.4   GET [/{dataset}]/graph/{id1}/paths/{id2}

Get a graph containing all paths leading from *id2* to *id1*.
The graph will contain all ownership paths leading from *id2* (the owner) to *id1* (the owned company). In addition, any roles (not available in the MA version) *id2* have in any of the included companies will be included, and if *id2* has roles, but not ownership, in companies with ownership in *id1*, these will also be included.

2.4.4.1   Request

The following request parameters are supported:

Name	Type	Comment
threshold	threshold	Only nodes with integrated ownership of at least *threshold* are considered when extracting ownership paths.
max	integer $[0,\infty)$	Maximum number of nodes (requested entity excluded). If set to 0, the server will try to figure out a reasonable number of nodes to return. The algorithm for picking nodes to return is a bit different when setting it to 0 than when giving an actual value, and 0 will most often give the best result from a user's perspective.

2.4.4.2   Response

The response follows much the same structure as an ownership graph. In addition to ownership links, there might be role links similar to links returned by the */{dataset}/board/{id}* endpoint.

2.4.5   GET [/{dataset}]/board/{id}

TE version only.

Get the board network two hops out from requested entity.

2.4.5.1   Request

The endpoint accept no parameters

2.4.5.2   Response

Returns an object with the following properties:

- **id**: string, id of the requested entity

- **dump_date**: timestamp, the time we last received an update from the data provider, format YYYY-MM-DDThh:mm:ssZ

- **data**: object containing the graph, refer to chapter 6 for details.

2.5   Miscellaneous

2.5.1   GET [/{dataset}]/node/{id}

TE version only.

Get more details about a node.

2.5.1.1   Request

This endpoint accepts no parameters

2.5.1.2   Response

Returns an object which may have the following properties:

- **All entity properties**

2.5.2   GET [/{dataset}]/v2/nodes/search

Only available in the TE version. Freetext search, primarily by entity name.

2.5.2.1   Request

The following request parameters are supported:

Name	Type	Comment
query	string	Required. Freetext query. The free text index is build from the entity names – including unaccented forms and some spelling variations, historical names, entity IDs and date-of-birth on the form YYYYMMDD.
type	string	One of business, person or estate. Default: business
page_size	integer	Number of hits to return. Default: 25
country_codes	string	Comma-separated list of ISO country codes. This is a filter, and no value means no restriction on country. The country codes is applied as a ID prefix filter.
page	integer	The page number to return, 1-indexed. Default: 1
index	string	If index=as-you-type, an ngram index will be used that will give hits even when only parts of words are entered in the query. Default: empty. Double quotes for phrases, - in front of words for *not* and *or* as a boolean operator between words are supported.

2.5.2.2   Response

The response has three attributes:

- **query**: The input parameters.

- **more**: Boolean. True if this is not the last page in the result set.

- **nodes**: An array of entities.

2.5.3   GET [/{dataset}]/node/search

Only available in the TE version. Freetext search, primarily by entity name.

2.5.3.1   Request

The following request parameters are supported:

Name	Type	Comment
query	string	Required. Freetext query. The free text index is build from the entity names – including unaccented forms and some spelling variations, historical names, entity IDs and date-of-birth on the form YYYYMMDD.
type	string	One of business, person or estate. Default: business
per-page	integer	Number of hits to return. Default: 25
country-codes	string	Comma-separated list of ISO country codes. This is a filter, and no value means no restriction on country. The country codes is applied as a ID prefix filter.

| page | integer | The page number to return, 1-indexed. Default: 1 |
| index | string | If index=as-you-type, an ngram index will be used that will give hits even when only parts of words are entered in the query. Default: empty. |

2.5.3.2   Response

The response has three attributes:

- **query**: The input parameters.

- **more**: Boolean. True if this is not the last page in the result set.

- **nodes**: An array of entities.

2.5.4   GET [/{dataset}]/v2/nodes/by-other-id/{id-type}/{id} Restricted

TE version only. Look up a node by Social Security Number or other kind of ID. The response is identical to GET [/{dataset}]/v2/node/{id}.

The {id-type} may have the following values:

- **NO**: Norwegian Social Security-Number, 11 digits. including D-numbers.

- **SE**: Swedish Social Security Number, 12 digits.

- **DKCVR**: Danish persons, the ID the person has been given in the CVR database.

2.5.5   GET [/{dataset}]/graph/{id}/export

This endpoint return an MS Excel spreadsheet (xlsx) with ownership data. Since it is usually executed by providing the user with a link, the session token is submitted as a get parameter rather than the usual HTTP header.

2.5.5.1   Request

The following request parameters are supported:

Name	Type	Comment
dir	string	Same as for the /graph/{id} endpoint, except that dual is not supported.
threshold	threshold	Integrated ownership threshold
max	integer	Maximum number of owners/subsidiaries to include. 0 = default = all above threshold
token	string	JWT session token. Required if access is based on a session.

2.5.5.2   Response

An excel spreadsheet (xslx) is returned with content-disposition attachment.

2.5.6   GET /generate_map

Generate and return a map in PNG or SVG format. The request will be dispatched to a headless browser utilizing the standard T-rank front-end.

2.5.6.1   Request

The only accepted authorization method for this endpoint is a pre-shared API Key.

The endpoint accepts the same query parameters as the standard T-rank map front-end. One may therefore experiment in the front-end and then copy the parameters from the URL. In addition, there are parameters for selecting output format, controlling the resolution of generated PNGs and for removing parts of the graph.

Name	Type	Comment
remoteid	string	Required. The ID of the entity to produce a graph for.
dir	string	Required. The type of graph. Possible values:
		owner: Get direct and indirect owners of the entity
		owns: Get direct and indirect subsidiaries of the entity
		dual: Get both owners and subsidiaries.
		group: Get corporate group VP
		bo: Beneficial owners VP
		paths: All ownership/role paths going to remoteid from specified entity
threshold	threshold	Integrated ownership threshold
maxnum	integer	Maximum number of owners/subsidiaries to include. default = 50
dataset	string	Name of specific dataset. Not needed for current dataset.
exclude_branch	boolean	If true, branches will not be included. Default: false
exclude_estate	boolean	Restricted If true, estates will not be included. Only relevant for TE. Default: true
layout	string	TB (top-bottom, default), BT (bottom-top), LR (left-right), RL (right-left) or C (star). The value C is not supported for SVG format.
targetid	string	Required if and only applicable for dir=paths. The ID of the entity to include paths from.
bo_ownership_threshold	float (0,100]	Ownership threshold for dir=bo, various models.
bo_use_gt	boolean	If *true*, only entities having ownership greater than (and not exactly equal to) the ownership threshold will be included.
bo_incna	boolean	Only relevant for dir=bo when bo_inccs=true, MA version. Whether to treat NA links (first level only) as 0% (bo_incna=false) or as the maximum available after considering all non-NA links (bo_incna=true). Default: true
bo_incio	boolean	Turn on the *Integrated ownership* model when dir=bo. The *bo_ownership_threshold* is used as threshold.
bo_incvp	boolean	Turn on the *Voting power* model when dir=bo.
bo_inccs	boolean	Turn on the *Control* model when dir=bo. The *bo_ownership_threshold* is used as threshold for ownership. For control, the general Control threshold (set in advanced options) is used.
bo_incsc	boolean	Turn on the *Ownership at each level* model when dir=bo. The *bo_ownership_threshold* is used as threshold. Note that this model only supports a few predefined thresholds.
bo_increg	boolean	Report beneficial owners according to national registers when dir=bo. Only supported in the TE version.
bo_incge50cgt25	boolean	Turn on the BO definition in the Norwegian Beneficial Owner register definition when dir=BO.
bo_reg_combine	boolean	If true, return beneficial owners that are found by combining any of the turned on models with BO registries when dir=bo.
group_ass_threshold	threshold	For dir=group, include associated entities, defined by the threshold given here. Default: Do not include associated entities. Associated entities are entities that either own any of the entities within the group with at least the given threshold, or that in sum are owned by companies within the group with at least the given threshold.
n_acc	boolean	Include accounting figures on nodes in the map. Only available in the TE version. Default: false.
n_cc	boolean	Include country markers on nodes. Default: false

scale	float (0,∞]	PNG format only. The scale of the generated PNG. Default 1. The default will normally work fine, but for images with a lot of entities, a higher scale might be needed. If one doubles the scale, the generated image will be 4 times larger in terms of file size. Setting this setting too high will produce a gateway error response due to the response size limit on AWS Lambda. We therefore highly recommend to use the SVG output format.
export_format	string	The supported values are *png* (default), *svg* and *pdf*. PNG export will export a map similar to the ones in the user interface. SVG use another technology for rendering the graph (GraphViz), and yields in general better results. In addition, the SVG format will give a scalable image with much lesser footprint. PDF exports a pdf with the SVG embedded, in addition to a heading with company name and ID (similar to PDF export with improved layout in the user interface). The SVG format is strongly recommended.
removes	string	Comma-separated list of IDs. The listed IDs, along with nodes connected to the requested entity only through these IDs, will be removed from the graph.
collapses	string	Comma-separated list of IDs. Nodes that are connected to the requested entity only through the listed IDs, will be removed from the graph.

2.5.6.2   Response

The return value will on success be binary with mime-type image/png or image/svg+xml. On error, the HTTP status code will most often be as expected, and an error message is returned in the body. Since the request is handled by a headless browser, error situations might lead to unpredictable responses.

2.5.7   GET /datasets

Retrieve a list of available data sets.

2.5.7.1   Request

The endpoint accept no parameters

2.5.7.2   Response

Returns an object with data set names as properties and objects with a single property - dump_date - as values.

2.5.8   POST /user/config

Update a user's preferences. The complete preference object must be submitted. Content-Type must be application/json. External partners must not use this endpoint unless specifically agreed upon.

2.5.9   POST /log

Submit a log entry to the server side action_log. Use MIME type application/x-www-form-urlencoded. The string to be logged is submitted in the *param* parameter. *param* could be repeated, but will be logged as a single entry.

3   Entity data

3.1   Common properties

The following properties are available in all versions:

- **id**: String. Same as in request.

- **entity_type**: String. Abbreviation for type of company. See chapter 4 for details.

- **name**: String.

- **listing_status**: Int. 0=Not listed, 1=Listed, 2=Previously listed, 3=Daughter of listed company. The value 2 may only occur in the MA version, the value 3 only in the TE version.

- **country**: String. ISO 3166-1 alpha 2.

3.2 Properties specific for the MA version

- **orbis_id**: String. Only legal persons have an OrbisId.

- **uci**: String. Only natural persons have a Unique Contact Identfier. Entities representing more than one person (e.g. a family) do not have UCI.

- **woco**: Boolean. True if the entity has a World Compliance flag. Restricted

- **grid**: Boolean. True if the entity has a GRID flag. Restricted

3.3 Properties specific for the TE version

All financial figures are in local currency unless otherwise specified.

- **active**: Boolean. False for dissolved entities.

- **source_type**: String. Type of company as received from information provider

- **lei**: String. Legal Entity Identifier

- **zip**: String. Zip code

- **place**: String. Place associated with zip.

- **street_addr**: String

- **city**: String

- **address_freetext**: String. Full address as string, normally not present if detailed address is avaiable.

- **municipality**: String

- **county**: String.

- **f_date**: Date. Date of birth, natural persons only

- **birth_year**: Int. Year of birth, natural persons only. Note that some natural persons originating in the Norwegian data have year of birth but not date of birth. These entities are considered unidentified.

- **gender**: Character. M = Male, F = Female

- **share_classes**: Int. Number of share classes when known. For Sweden and Denmark, the value NaN is used for companies where voting rights differ from share.

- **share_classes_indirect**: Boolean. True if one or more owners have more than one share class. For Sweden and Denmark, it is true when a direct og indirect owner has share_classes=NaN.

- **share_classes_applied**: Boolean. True if voting right rules for share classes have been applied for Voting Power calculation.

- **classification**: Object. Keys are classification scheme ("4lnace for Nace REV2 level 4 (available for all countries), nace:no for Norwegiane nace, nace:dk for Danish Nace and sni:se for Swedish Nace). The values are an array of objects, where each object has a single property (code) with the textual representation as value. If the information provider delivers one code as the main NACE code, this one will be located first in the array.

- **employees**: No of employees

- **employees_registered**: Date the no of employees was registered

- **man_years**: String. No of man years

- **accounts_currency**: String. The currency for all accounting figures

- **revenue**: Float. Revenue

- **op_profit**: Float. Operating profit

- **net_profit**: Float. Net profit

- **equity**: Float. Equity

- **dept**: Float. Total dept

- **solidity**: Float. Solidity

- **dept_cred_inst**: Dept to credit institutions

- **group_revenue**: Float. Revenue, consolidated statement

- **group_op_profit**: Float. Operating profit, consolidated statement

- **group_net_profit**: Float. Net profit, consolidated statement

- **group_equity**: Float. Equity, consolidated statement

- **group_dept**:Float. Total dept, consolidated statement

- **group_solidity**: Float. Solidity, consolidated statement

- **group_dept_cred_inst**: Float. Dept to credit institutions, consolidated statement

- **incorp_date**: Date. Date of incorporation

- **dissolved**: Date

- **account_date**: Date. Date of last accounts

- **website**: String

- **contact**: String

- **sub_units**: Int. Number of "P-enheder" (DK).

- **privileged_ssns** Restricted : An object with type of ID number as properties (NO for Norwegian Social Security Number, SE for Swedish Social Security Number and DKCVR for the ID in the Danish CVR database) and the actual IDs as values. A person may have more than one ID, for instance a D-number for NO and Swedish Social Security Number for SE.

- **last_update**: Timestamp. Time of last update, delivered from information provider.

- **share_capital**: Float.

- **share_capital_currency**: Currency for share capital

- **fiscal_end**: String. End of fiscal year.

- **no_auditor**: Boolean. True if the company has chosen not to have an external auditor.

- **signatory**: String. Signatories are sometimes also available in the contact data.

- **procurator**: String. Procurators are sometimes also available in the contact data.

- **statute_date**: Date. Date of last change in statutes.

- **advertisement_reservation**: Boolean. True if the entity has made reservation against receiving advertisements.

- **purpose**: String. Company purpose.

- **privileged_share_info** Restricted : Object. Total number of shares and number of votes per share class.

- **control_code**: Int

- **citizenship**: String. Two-letter ISO code.

- **is_abroad**: Boolean. True if foreign entity.

- **description**: String

- **phone**: String

- **foreign_id**: String. Present for representatives of foreign companies only. National ID of the main company.

- **foreign_name**: String. Present for representatives of foreign companies only. Name of the main company.mortgagees

- **foreign_country**: String. Present for representatives of foreign companies only. Name of the country the main company is registered in.

Properties only relevant for Estate entities:

- **estates**: String. A list of buildings on the property, including long/lat coordinates in squere brackets.

- **last_sold**: Date.

- **last_sold_for**: Float. The price, in NOK, the property was last sold for.

- **mortgagees**: String. A list of (amount (NOK), motgagee)-pairs.

- **ownership_source**: The primary source of ownership information for the entity. Possible values:

  - *brreg*: The Brønnøysund Register Centre
  - *cvr*: Danish Business Authority
  - *dc*: dCompany
  - *exp*: Experian
  - *ft*: Financial Supervisory Authority of Norway
  - *gru*: Norwegian Land registration
  - *t*: T-rank (manual override, low frequency)
  - *v8*: Valu8
  - *vps*: Euronext VPS

4   Entity Types

4.1   MA version

The entity types, as defined by Moody's Analytics:

- **B**: Bank

- **A**: Insurance company

- **C**: Corporate

- **F**: Financial company

- **P**: Private equity firm

- **E**: Mutual & pension fund/Nominee/Trust/Trustee

- **J**: Foundation/Research institute

- **Y**: Hedge fund

- **V**: Venture capital

- **S**: Public authority/State/Government

- **W**: Marine vessel

- **Q**: Branch

- **I**: One or more named individuals or families

- **M**: Employees/Managers/Directors

- **Z**: Public (publicly listed companies)

- **L**: Other unnamed shareholders, aggregated

- **D**: Unnamed private shareholders, aggregated

4.2   TE version

- **Ass**: Association

- **BrF**: Branch of foreign entity

- **Com**: Company

- **Est**: Estate Restricted

- **Fin**: Financial institutions / banks

- **Fou**: Foundation

- **Fun**: Fund

- **Hou**: Housing company or similar organization

- **Oth**: Other

- **P**: Natural person

- **Par**: Partnership

- **Pub**: Public authoritiy / State / Company owned by public authorities

- **Tru**: Trust

- **Sol**: Sole proprietorship

The entity types delivered from the information providers are available in the source_type attribute.

5 Roles and role types

TE version only.

When retrieving roles, e.g. through the /v2/beneficial or /v2/roles endpoints, the following attributes are available for each role:

- **name**: Standardized name (abbreviation) for the role. See table below for values.

- **description**: Standardized description for the role.

- **source_role**: Name or abbreviation as submitted from source.

- **source_description**: Description of the role as received from source

- **elected_by**: Information like "employee representative"

- **partner_share**: Used for Norwegian partnerships only. Share of responsibility / capital.

- **date**: Update date.

- **guardian**. (Norway). A star if the contact has a guardian.

Role names:

- **ACC**: Accountant

- **AUD**: Auditor

- **BMA**: Business Manager

- **BUS**: Member of Business Committee

- **CEO**: Chief Executive Officer

- **CFO**: Chief Financial Officer

- **CHA**: Chairman of the Board

- **CON**: Contact

- **COO**: Co-Owner

- **DCH**: Deputy Chairman of the Board

- **DME**: Deputy Board Member

- **FOU**: Founder

- **GP**: General/Unlimited Partner

- **LIQ**: Liquidator

- **LP**: Limited Partner

- **MEM**: Board Member

- **OBS**: Board Observer

- **OTH**: Other

- **PRO**: Procurator

- **REC**: Member of Representative Council

- **REP**: Representative for foreign undertaking

- **SIG**: Signatory

- **SPR**: Sole Proprietor

- **SUP**: Member of Supervisory Board

6 Graph data

Endpoints that returns a graph, put the graph data into the *data* property of the response object. The *data* object may have the following properties:

- **nodes**: An array of objects, where each object represents a vertex.

- **edges**: An array of objects, where each object represent an edge

- **scc**: An array of arrays, where each inner array represent a strongly connected component

- **beneficial_owners**: An array of objects, where each object contains an explanation of why this natural person is a beneficial owner.

- **has_more**: For type=group, true if there are more members in the corporate group than those returned. For type=owner, owns or dual, true if nodes above thresholds are left out due to the max parameter setting. If true, the *max* request parameter must be adjusted in order to retrieve more of/the whole graph.

For each of the object types, available properties varies by data provider and graph type. In the tables below, we use the following column headings:

- **MA**: MA version

- **TE**: TE version

- **G**: Which types of graphs the attribute is available for: O - the ownership endpoints, B - Beneficial Owners endpoint, D - Board network

6.1 Node

The objects in the *nodes* array may have the following properties:

Property	MA	TE	G	Type	Description
id	✓	✓	OBD	string	Unique identifier for the node
root	✓	✓	OBD	boolean	true for the requested entity only
ntype	✓	✓	OBD	char(1)	N=natural person, B=branch, A=aggregated shareholders (by data provider), L=legal person, U=unknown
orig_type	✓	✓	OBD	string	Entity type coming from data provider
name	✓	✓	OBD	string	The entity's name
country	✓		OBD	char(2)	Two letter iso country code
listing_status	✓	✓	OBD	int	0=Not listed, 1=Listed, 2=Previously listed (MA only), 3=Daughter of listed company (TE only)
woco	✓		OBD	boolean	True if the entity has a World Compliance flag Restricted
grid	✓		OBD	boolean	True if the entity has a GRID flag Restricted
uci	✓		OBD	string	Unique Contact Identifier
orbis_id	✓		OBD	string	OrbisId
share_classes		✓	OBD	int	Number of share classes in this entity
f_date		✓	OBD	date	Date of birth
birth_year		✓	OBD	date	Year of birth
has_more	✓	✓	O	boolean	true if more ownership information is available for this entity
level	✓	✓	OB	int	Distance in hops from root node according to strongest path algorithm
total_owner	✓	✓	OB	float [0,100]	Integrated ownership this entity has in the requested company
total_owns	✓	✓	OB	float [0,100]	Integrated ownership requested company has in this entity
star	✓	✓	OB	boolean	True if total_owns and/or total_owner calculation is (partly) based on total ownership links
power_owner	✓	✓	OB	float [0,1]	Voting power this entity has in requested company
power_owns	✓	✓	OB	float [0,1]	Voting power requested company has in this entity
suspect_owner	✓	✓	OB	float [0,1]	Suspicion of voting power this entity has in requested company
suspect_owns	✓	✓	OB	float [0,1]	Suspicion of voting power requested company has in this entity
simcon_owner	✓	✓	B	int	The highest threshold of the available precalculated values for which this entity is beneficial owner in requested company according to the Recursive model
revenue		✓	OBD	int	Revenue
group_revenue		✓	OBD	int	Revenue, consolidated statements
op_profit		✓	OBD	int	Operating profit
group_op_profit		✓	OBD	int	Operating profit, consolidated statements
equity		✓	OBD	int	Equity
group_equity		✓	OBD	int	Equity, consolidated statements

All power* and suspect* properties requires role/power.

6.2 Edges

The objects in the *edges* array may have the following properties:

Property	MA	TE	G	Type	Description
source	✓	✓	OBD	string	The ID of the origin node
target	✓	✓	OBD	string	The ID of the target node
role_names		✓	D	array	An array of role names (abbreviated)
direct_weight	✓	✓	OB	float	Direct ownership, in percent, this link represents. Could be NaN, meaning NA.
total_weight	✓		OB	float	Total ownership, in percent, this link represents. Could be NaN, meaning NA.
direct_text	✓	✓	OB	string	Text representation of direct ownership link, according to MA conventions.
total_text	✓		OB	string	Text representation of total ownership link, according to MA conventions.
power_direct	✓	✓	OB	float [0,1]	Direct voting power, as share.
suspect_direct	✓	✓	OB	float [0,1]	Suspicion of direct voting power, as share.
power_total	✓	✓	B	float [0,1]	Marking that source controls target. Only used for Beneficial owner maps when model Controlling shares is turned on.
owner_stats	✓	✓	B	object	Some statistics about the ownership data we have for this company: num_shareholders (int), sum_direct (float, sum of direct shareholdings), max_total (float, the largest total ownership link going into this node)
bo_register		✓	B	array	An array of objects containing reasons registered in a Beneficial Owner register for why this person is a beneficial owner. Only present if the *BO register* model is on. Each object may have the properties *reason*, *reason_desc*, *control_interval* and *control_interval_desc*.

All power* and suspect* properties requires role/power. All properties except power_total could be available in combination on a single edge. power_total edges are delivered as separate edges.

6.3   Beneficial Owner

The *beneficial_owners* property is only present for Beneficial owners maps, and is an array of Beneficial owners.

Each beneficial owner may have standard node properties. Beneficial ownership based on the models Voting Power model, Integrated ownership model and Recursive model may be directly derived from the standard properties.

An *models* array will be present,, listing all models the Beneficial owner satisfies.

If *incfamily* is on (TE version only), there might also be a *models_w_family* property, listing models this person satisfies together with close family but not alone. There may also be a *relevant_family* array, listing IDs of persons this beneficial owner is in close family with which also have ownership in the subject entity.

If Controlled shares model is on, the following extra properties could be present:

Property	MA	TE	G	Type	Description
direct	✓	✓	B	object	The property *percent* tells how much the natural person owns directly in requested company
through	✓	✓	B	array	List of node objects being direct shareholders of requested company, which this natural person controls
controlled_shares	✓	✓	B	float [0,100]	An upper bound for the votes this person may control, directly + through the entries in the *through* array

If the ge50c_gt25 model (Norwegian BO registry definition) is on, the following extra properties could be present:

Property	MA	TE	G	Type	Description
ge50c_gt25_owner		✓	B	int	50 if the BO controls the entity, 25 if he don't but owns more than 25% of the share capital or the voting rights (possibly through one or more controlled companies)
ge50c_gt25_controlled_ownership		✓	B	float	The sum of direct ownership held in the subject company for the beneficial owner and all companies controlled by the beneficial owner according to the $\geq$ 50% rule. The value takes circular ownership into account
ge50c_gt25_controlled_voting_rights		✓	B	float	The sum of direct voting rights held in the subject company for the beneficial owner and all companies controlled by the beneficial owner according to the $\geq$ 50% rule. The value takes self-owner voting rights in the subject company into account
comb_register		✓	B	boolean	True if the person is BO according to a BO registry in a legal person owner of the company, and the legal person owner satisfies any of the BO criteria. Only present if both increg and combinereg is turned on.

If the BO register model is on (National BO registry, TE version only), a *bo-register* property will be present if the person is BO according to the national register. It points to an array of objects. Each object is a registered reason for this person being a BO. The following properties may occur in each object:

- **reason**: Standardized text or code for the reason

- **reason_desc**: Detailed description

- **control_interval**: Code for how much of the shares is controlled by this BO (Swedish companies only)

- **control_interval_desc**: Textual description corresponding to control_interval (Swedish companies only)

A Example output - /v2/beneficial - TE version

GET /v2/beneficial/NO990092397?model=simcon,integrated&threshold_integrated=10&threshold_
simcon=10

```
{
    "meta":{
        "dump_date":"2022-04-05T07:14:14Z"
    },
    "request":{
        "models":[
            "simcon",
            "integrated"
        ],
        "thresholds":{
            "simcon":10.0,
            "integrated":10.0
        },
        "includes":[
            "legal",
            "unidentified",
            "na"
        ]
    },
    "subject":{
        "entity_type":"Com",
        "revenue":11659,
        "equity":40,
        "place":"OSLO",
        "completeness":100.0,
        "name":"T-RANK AS",
        "op_profit":7041,
        "source_type":"AS",
        "street_addr":"Bogstadveien 54",
        "share_classes":2,
        "account_date":"2020-12-31",
        "listing_status":0,
        "classification":{
            "l4nace":[
                {
                    "58.29":"Other software publishing"
                }
            ],
            "nace:no":[
                {
                    "58.290":"Utgivelse av annen programvare"
                }
            ]
        },
        "share_classes_applied":true,
        "solidity":0.0,
        "zip":"0366",
        "id":"NO990092397",
        "incorp_date":"2006-06-13",
        "self_ownership":0.0,
        "dept":8014
    },
    "beneficial_owners":[
```

```
{
    "f_date":"1949-06-24",
    "entity_type":"P",
    "place":"OSLO",
    "name":"Canright, Geoffrey St John",
    "source_type":"P",
    "street_addr":"Rolf Hofmos Gate 32",
    "unidentified":false,
    "models":[
        "integrated",
        "simcon"
    ],
    "zip":"0655",
    "id":"NOP1452606",
    "ownership":{
        "direct":16.0,
        "voting_rights":16.66,
        "integrated":16.0,
        "star":false,
        "level":1
    },
    "gender":"M",
    "country":"NO"
},
{
    "f_date":"1968-12-03",
    "entity_type":"P",
    "place":"OSLO",
    "name":"Omholt, Arne Petter",
    "source_type":"P",
    "street_addr":"Neuberggata 18 A",
    "unidentified":false,
    "models":[
        "integrated",
        "simcon"
    ],
    "zip":"0367",
    "id":"NOP119694",
    "ownership":{
        "direct":20.0,
        "voting_rights":16.66,
        "integrated":20.0,
        "star":false,
        "level":1
    },
    "gender":"M",
    "country":"NO"
},
{
    "f_date":"1970-12-29",
    "entity_type":"P",
    "place":"FREDRIKSTAD",
    "name":"Engø-Monsen, Kenth",
    "source_type":"P",
    "street_addr":"Kreftings Vei 14",
    "unidentified":false,
    "models":[
        "integrated",
```

```
            "simcon"
        ],
        "zip":"1613",
        "id":"NOP1150651",
        "ownership":{
            "direct":16.0,
            "voting_rights":16.66,
            "integrated":16.0,
            "star":false,
            "level":1
        },
        "gender":"M",
        "country":"NO"
    },
    {
        "f_date":"1975-04-19",
        "entity_type":"P",
        "place":"RYKKINN",
        "name":"Kolstad, Espen Amble",
        "source_type":"P",
        "street_addr":"Mallingsrudveien 15",
        "unidentified":false,
        "models":[
            "integrated",
            "simcon"
        ],
        "zip":"1349",
        "id":"NOP730362",
        "ownership":{
            "direct":16.0,
            "voting_rights":16.66,
            "integrated":16.0,
            "star":false,
            "level":1
        },
        "gender":"M",
        "country":"NO"
    },
    {
        "f_date":"1975-03-11",
        "entity_type":"P",
        "place":"OSLO",
        "name":"Pettersen, Geir Henning",
        "source_type":"P",
        "street_addr":"Låveveien 38",
        "unidentified":false,
        "models":[
            "integrated",
            "simcon"
        ],
        "zip":"0682",
        "id":"NOP408456",
        "ownership":{
            "direct":16.0,
            "voting_rights":16.66,
            "integrated":16.0,
            "star":false,
            "level":1
```

```
        },
        "gender":"M",
        "country":"NO"
      },
      {
        "f_date":"1965-04-02",
        "entity_type":"P",
        "place":"OSLO",
        "name":"Parnas, Svein Brovold",
        "source_type":"P",
        "street_addr":"Olleveien 5",
        "unidentified":false,
        "models":[
            "simcon"
        ],
        "zip":"1182",
        "id":"NOP52919",
        "ownership":{
            "direct":0.0,
            "voting_rights":16.66,
            "integrated":8.0,
            "star":false,
            "level":1
        },
        "gender":"M",
        "country":"NO"
      },
      {
        "f_date":"1968-04-05",
        "entity_type":"P",
        "place":"OSLO",
        "name":"Hanekamhaug, Barbro",
        "source_type":"P",
        "street_addr":"Olleveien 5",
        "unidentified":false,
        "models":[
            "simcon"
        ],
        "zip":"1182",
        "id":"NOP173125",
        "ownership":{
            "integrated":8.0,
            "star":false,
            "level":1
        },
        "gender":"K",
        "country":"NO"
      }
    ],
    "legal_persons":[
      {
        "entity_type":"Com",
        "revenue":939,
        "equity":3355,
        "place":"OSLO",
        "name":"KVARNAS AS",
        "op_profit":322,
        "source_type":"AS",
```

```
        "street_addr":"Olleveien 5",
        "share_classes":1,
        "account_date":"2020-12-31",
        "listing_status":0,
        "classification":{
            "l4nace":[
                {
                    "68.20":"Rental and operating of own or leased real estate"
                }
            ],
            "nace:no":[
                {
                    "68.209":"Utleie av egen eller leid fast eiendom ellers"
                }
            ]
        },
        "solidity":0.0,
        "models":[
            "integrated",
            "simcon"
        ],
        "zip":"1182",
        "id":"NO988895865",
        "ownership":{
            "direct":16.0,
            "voting_rights":0.0,
            "integrated":16.0,
            "star":false,
            "level":1
        },
        "incorp_date":"2005-10-21",
        "dept":181
    }
  ]
}
```

B Example output - /v2/beneficial - MA version

GET /v2/beneficial/NO990092397?model=simcon,integrated&threshold_integrated=10&threshold_simcon=10

```
{
    "meta":{
        "dump_date":"2022-03-30T12:15:00Z"
    },
    "request":{
        "models":[
            "simcon",
            "integrated"
        ],
        "thresholds":{
            "simcon":10.0,
            "integrated":10.0
        },
        "includes":[
            "legal",
            "unidentified",
            "na"
        ]
    },
    "subject":{
        "entity_type":"C",
        "completeness":100.0,
        "name":"T-RANK AS",
        "listing_status":0,
        "id":"NO990092397",
        "self_ownership":0.0,
        "country":"NO"
    },
    "beneficial_owners":[
        {
            "name":"MR SVEIN BROVOLD PARNAS",
            "id":"NO*410387704",
            "country":"NO",
            "ownership":{
                "integrated":16.0,
                "star":false,
                "level":1
            },
            "unidentified":false,
            "entity_type":"I",
            "models":[
                "integrated",
                "simcon"
            ]
        },
        {
            "name":"MR ESPEN AMBLE KOLSTAD",
            "id":"NO*415081339",
            "country":"NO",
            "ownership":{
                "direct":16.0,
                "voting_rights":16.0,
                "integrated":16.0,
```

```
      "star":false,
      "level":1
   },
   "unidentified":false,
   "entity_type":"I",
   "models":[
      "integrated",
      "simcon"
   ]
},
{
   "name":"MR GEIR HENNING PETTERSEN",
   "id":"NO*414147618",
   "country":"NO",
   "ownership":{
      "direct":16.0,
      "voting_rights":16.0,
      "integrated":16.0,
      "star":false,
      "level":1
   },
   "unidentified":false,
   "entity_type":"I",
   "models":[
      "integrated",
      "simcon"
   ]
},
{
   "name":"MR ARNE PETTER OMHOLT",
   "id":"NO*412786036",
   "country":"NO",
   "ownership":{
      "direct":20.0,
      "voting_rights":20.0,
      "integrated":20.0,
      "star":false,
      "level":1
   },
   "unidentified":false,
   "entity_type":"I",
   "models":[
      "integrated",
      "simcon"
   ]
},
{
   "name":"CANRIGHT GEOFFREY ST JOHN",
   "id":"NO*415081340",
   "country":"NO",
   "ownership":{
      "direct":16.0,
      "voting_rights":16.0,
      "integrated":16.0,
      "star":false,
      "level":1
   },
   "unidentified":false,
```

```
            "entity_type":"I",
            "models":[
               "integrated",
               "simcon"
            ]
         },
         {
            "name":"MR KENTH ENGOE-MONSEN",
            "id":"NO*110169844875",
            "country":"NO",
            "ownership":{
               "direct":16.0,
               "voting_rights":16.0,
               "integrated":16.0,
               "star":false,
               "level":1
            },
            "unidentified":false,
            "entity_type":"I",
            "models":[
               "integrated",
               "simcon"
            ]
         }
      ],
      "legal_persons":[
         {
            "entity_type":"E",
            "name":"KVARNAS AS",
            "listing_status":0,
            "models":[
               "integrated",
               "simcon"
            ],
            "id":"NO988895865",
            "ownership":{
               "direct":16.0,
               "voting_rights":16.0,
               "integrated":16.0,
               "star":false,
               "level":1
            },
            "country":"NO"
         }
      ]
}
```

C   Example output - /v2/owners - TE version

GET /v2/owners/NO990092397?threshold_integrated=0&threshold_power=40&filter=person&page_
size=0&sort_by=voting_power

```
{
    "meta":{
        "dump_date":"2022-04-05T07:14:14Z"
    },
    "request":{
        "thresholds":{
            "integrated":0.0,
            "power":40.0
        },
        "sort_by":"voting_power",
        "max_level":null,
        "page":1,
        "page_size":0,
        "total":7,
        "pages":1,
        "filter":"person"
    },
    "subject":{
        "entity_type":"Com",
        "revenue":11659,
        "equity":40,
        "place":"OSLO",
        "completeness":100.0,
        "name":"T-RANK AS",
        "op_profit":7041,
        "source_type":"AS",
        "street_addr":"Bogstadveien 54",
        "share_classes":2,
        "account_date":"2020-12-31",
        "listing_status":0,
        "classification":{
            "l4nace":[
                {
                    "58.29":"Other software publishing"
                }
            ],
            "nace:no":[
                {
                    "58.290":"Utgivelse av annen programvare"
                }
            ]
        },
        "share_classes_applied":true,
        "solidity":0.0,
        "zip":"0366",
        "id":"NO990092397",
        "incorp_date":"2006-06-13",
        "self_ownership":0.0,
        "dept":8014
    },
    "owners":[
        {
            "f_date":"1949-06-24",
```

```
        "entity_type":"P",
        "place":"OSLO",
        "name":"Canright, Geoffrey St John",
        "source_type":"P",
        "street_addr":"Rolf Hofmos Gate 32",
        "unidentified":false,
        "zip":"0655",
        "id":"NOP1452606",
        "ownership":{
            "direct":16.0,
            "voting_power":31.25,
            "voting_rights":16.66,
            "suspect":false,
            "star":false,
            "level":1,
            "integrated":16.0
        },
        "gender":"M",
        "country":"NO"
    },
    {
        "f_date":"1970-12-29",
        "entity_type":"P",
        "place":"FREDRIKSTAD",
        "name":"Engø-Monsen, Kenth",
        "source_type":"P",
        "street_addr":"Kreftings Vei 14",
        "unidentified":false,
        "zip":"1613",
        "id":"NOP1150651",
        "ownership":{
            "direct":16.0,
            "voting_power":31.25,
            "voting_rights":16.66,
            "suspect":false,
            "star":false,
            "level":1,
            "integrated":16.0
        },
        "gender":"M",
        "country":"NO"
    },
    {
        "f_date":"1975-04-19",
        "entity_type":"P",
        "place":"RYKKINN",
        "name":"Kolstad, Espen Amble",
        "source_type":"P",
        "street_addr":"Mallingsrudveien 15",
        "unidentified":false,
        "zip":"1349",
        "id":"NOP730362",
        "ownership":{
            "direct":16.0,
            "voting_power":31.25,
            "voting_rights":16.66,
            "suspect":false,
            "star":false,
```

```
            "level":1,
            "integrated":16.0
        },
        "gender":"M",
        "country":"NO"
    },
    {
        "f_date":"1968-12-03",
        "entity_type":"P",
        "place":"OSLO",
        "name":"Omholt, Arne Petter",
        "source_type":"P",
        "street_addr":"Neuberggata 18 A",
        "unidentified":false,
        "zip":"0367",
        "id":"NOP119694",
        "ownership":{
            "direct":20.0,
            "voting_power":31.25,
            "voting_rights":16.66,
            "suspect":false,
            "star":false,
            "level":1,
            "integrated":20.0
        },
        "gender":"M",
        "country":"NO"
    },
    {
        "f_date":"1965-04-02",
        "entity_type":"P",
        "place":"OSLO",
        "name":"Parnas, Svein Brovold",
        "source_type":"P",
        "street_addr":"Olleveien 5",
        "unidentified":false,
        "zip":"1182",
        "id":"NOP52919",
        "ownership":{
            "direct":0.0,
            "voting_power":31.25,
            "voting_rights":16.66,
            "suspect":false,
            "star":false,
            "level":1,
            "integrated":8.0
        },
        "gender":"M",
        "country":"NO"
    },
    {
        "f_date":"1975-03-11",
        "entity_type":"P",
        "place":"OSLO",
        "name":"Pettersen, Geir Henning",
        "source_type":"P",
        "street_addr":"Låveveien 38",
        "unidentified":false,
```

```
            "zip":"0682",
            "id":"NOP408456",
            "ownership":{
                "direct":16.0,
                "voting_power":31.25,
                "voting_rights":16.66,
                "suspect":false,
                "star":false,
                "level":1,
                "integrated":16.0
            },
            "gender":"M",
            "country":"NO"
        },
        {
            "f_date":"1968-04-05",
            "entity_type":"P",
            "place":"OSLO",
            "name":"Hanekamhaug, Barbro",
            "source_type":"P",
            "street_addr":"Olleveien 5",
            "unidentified":false,
            "zip":"1182",
            "id":"NOP173125",
            "ownership":{
                "star":false,
                "level":2,
                "integrated":8.0
            },
            "gender":"K",
            "country":"NO"
        }
    ]
}
```

D   Example output - /v2/owners - MA version

GET /v2/owners/NO990092397?threshold_integrated=0&threshold_power=40&filter=person&page_
size=0&sort_by=voting_power

```json
{
   "meta":{
      "dump_date":"2022-03-30T12:15:00Z"
   },
   "request":{
      "thresholds":{
         "integrated":0.0,
         "power":40.0
      },
      "sort_by":"voting_power",
      "max_level":null,
      "page":1,
      "page_size":0,
      "total":6,
      "pages":1,
      "filter":"person"
   },
   "subject":{
      "entity_type":"C",
      "completeness":100.0,
      "name":"T-RANK AS",
      "listing_status":0,
      "id":"NO990092397",
      "self_ownership":0.0,
      "country":"NO"
   },
   "owners":[
      {
         "name":"MR ARNE PETTER OMHOLT",
         "id":"NO*412786036",
         "ownership":{
            "direct":20.0,
            "voting_power":62.5,
            "suspect":false,
            "star":false,
            "level":1,
            "integrated":20.0
         },
         "country":"NO",
         "unidentified":false,
         "entity_type":"I"
      },
      {
         "name":"CANRIGHT GEOFFREY ST JOHN",
         "id":"NO*415081340",
         "ownership":{
            "direct":16.0,
            "voting_power":25.0,
            "suspect":false,
            "star":false,
            "level":1,
            "integrated":16.0
         },
```

```
                "country":"NO",
                "unidentified":false,
                "entity_type":"I"
            },
            {

                "name":"MR ESPEN AMBLE KOLSTAD",
                "id":"NO*415081339",
                "ownership":{
                    "direct":16.0,
                    "voting_power":25.0,
                    "suspect":false,
                    "star":false,
                    "level":1,
                    "integrated":16.0
                },
                "country":"NO",
                "unidentified":false,
                "entity_type":"I"
            },
            {

                "name":"MR GEIR HENNING PETTERSEN",
                "id":"NO*414147618",
                "ownership":{
                    "direct":16.0,
                    "voting_power":25.0,
                    "suspect":false,
                    "star":false,
                    "level":1,
                    "integrated":16.0
                },
                "country":"NO",
                "unidentified":false,
                "entity_type":"I"
            },
            {

                "name":"MR KENTH ENGOE-MONSEN",
                "id":"NO*110169844875",
                "ownership":{
                    "direct":16.0,
                    "voting_power":25.0,
                    "suspect":false,
                    "star":false,
                    "level":1,
                    "integrated":16.0
                },
                "country":"NO",
                "unidentified":false,
                "entity_type":"I"
            },
            {

                "name":"MR SVEIN BROVOLD PARNAS",
                "id":"NO*410387704",
                "ownership":{
                    "voting_power":25.0,
                    "suspect":false,
                    "star":false,
                    "level":2,
                    "integrated":16.0
```

```
        },
        "country":"NO",
        "unidentified":false,
        "entity_type":"I"
    }
  ]
}
```

E   Example output - /graph - MA version

GET /graph/NO990092397?threshold=5&dir=owner&exclude-branch=true:

```
{
   "data":{
      "nodes":[
         {
            "woco":false,
            "has_more":false,
            "name":"T-RANK AS",
            "orig_type":"C",
            "listing_status":0,
            "root":true,
            "id":"NO990092397",
            "ntype":"L",
            "idx":170612961,
            "country":"NO"
         },
         {
            "woco":false,
            "has_more":false,
            "name":"MR ARNE PETTER OMHOLT",
            "orig_type":"I",
            "star":false,
            "total_owner":20.0,
            "level":1,
            "id":"NO*412786036",
            "ntype":"N",
            "power_owner":0.625,
            "country":"NO"
         },
         {
            "woco":false,
            "has_more":false,
            "name":"MR KENTH ENGOE-MONSEN",
            "orig_type":"I",
            "star":false,
            "total_owner":16.0,
            "level":1,
            "id":"NO*110169844875",
            "ntype":"N",
            "power_owner":0.25,
            "country":"NO"
         },
         {
            "woco":false,
            "has_more":false,
            "name":"MR GEIR HENNING PETTERSEN",
            "orig_type":"I",
            "star":false,
            "total_owner":16.0,
            "level":1,
            "id":"NO*414147618",
            "ntype":"N",
            "power_owner":0.25,
            "country":"NO"
         },
```

```
            {
                "woco":false,
                "has_more":false,
                "name":"MR ESPEN AMBLE KOLSTAD",
                "orig_type":"I",
                "star":false,
                "total_owner":16.0,
                "level":1,
                "id":"NO*415081339",
                "ntype":"N",
                "power_owner":0.25,
                "country":"NO"
            },
            {
                "woco":false,
                "has_more":false,
                "name":"CANRIGHT GEOFFREY ST JOHN",
                "orig_type":"I",
                "star":false,
                "total_owner":16.0,
                "level":1,
                "id":"NO*415081340",
                "ntype":"N",
                "power_owner":0.25,
                "country":"NO"
            },
            {
                "woco":false,
                "has_more":false,
                "name":"KVARNAS AS",
                "orig_type":"E",
                "star":false,
                "listing_status":0,
                "total_owner":16.0,
                "level":1,
                "id":"NO988895865",
                "ntype":"L",
                "power_owner":0.25,
                "country":"NO"
            },
            {
                "woco":false,
                "has_more":false,
                "name":"MR SVEIN BROVOLD PARNAS",
                "orig_type":"I",
                "star":false,
                "total_owner":16.0,
                "level":2,
                "id":"NO*410387704",
                "ntype":"N",
                "power_owner":0.25,
                "country":"NO"
            }
        ],
        "edges":[
            {
                "source":"NO*410387704",
                "power_direct":1.0,
```

```
            "direct_weight":100.0,
            "target":"NO988895865"
        },
        {

            "source":"NO*110169844875",
            "power_direct":0.25,
            "direct_weight":16.0,
            "target":"NO990092397"
        },
        {

            "source":"NO*412786036",
            "power_direct":0.625,
            "direct_weight":20.0,
            "target":"NO990092397"
        },
        {

            "source":"NO*414147618",
            "power_direct":0.25,
            "direct_weight":16.0,
            "target":"NO990092397"
        },
        {

            "source":"NO*415081339",
            "power_direct":0.25,
            "direct_weight":16.0,
            "target":"NO990092397"
        },
        {

            "source":"NO*415081340",
            "power_direct":0.25,
            "direct_weight":16.0,
            "target":"NO990092397"
        },
        {

            "source":"NO988895865",
            "power_direct":0.25,
            "direct_weight":16.0,
            "target":"NO990092397"
        }
    ],
    "has_more":false
},
"dir":"owner",
"dump_date":"2022-03-30T12:15:00Z",
"exclude_branch":true,
"id":"NO990092397",
"max":50,
"threshold":5.0
}
```

F   Example output - /graph/{id}/expand - MA version

GET /graph/NO990092397/expand/NO988895865?threshold=5&dir=owner&exclude-branch=true

```
{
    "bvd_id":"NO990092397",
    "data":{
        "nodes":[
            {
                "woco":false,
                "has_more":false,
                "dist":1,
                "name":"MR SVEIN BROVOLD PARNAS",
                "orig_type":"I",
                "total_owner":16.0,
                "id":"NO*410387704",
                "ntype":"N",
                "power_owner":0.25,
                "country":"NO"
            }
        ],
        "edges":[
            {
                "source":"NO*410387704",
                "power_direct":1.0,
                "direct_weight":100.0,
                "target":"NO988895865"
            }
        ],
        "owner_overflow":null
    },
    "dir":"owner",
    "dump_date":"2022-03-30T12:15:00Z",
    "exclude_branch":true,
    "max":1000,
    "name":"T-RANK AS",
    "orig_type":"C",
    "threshold":5.0
}
```

G Example output - /graph/{id}/bo - MA version

GET /graph/NO988895865/bo?to=10&tio=10&incio=true

```
{
   "data":{
      "simplified":false,
      "nodes":[
         {
            "woco":false,
            "owner_stats":{
               "num_shareholders":1,
               "sum_direct":100.0,
               "leaf_sum":100.00
            },
            "name":"KVARNAS AS",
            "orig_type":"E",
            "star":false,
            "listing_status":0,
            "root":true,
            "active":true,
            "id":"NO988895865",
            "ntype":"L",
            "idx":170588095,
            "country":"NO"
         },
         {
            "woco":false,
            "name":"MR SVEIN BROVOLD PARNAS",
            "orig_type":"I",
            "star":false,
            "total_owner":100.00,
            "level":1,
            "active":true,
            "id":"NO*410387704",
            "ntype":"N",
            "simcon_owner":25.00,
            "power_owner":1.0,
            "country":"NO"
         }
      ],
      "edges":[
         {
            "source":"NO*410387704",
            "power_direct":1.0,
            "direct_weight":100.0,
            "target":"NO988895865"
         }
      ],
      "beneficial_owners":[
         {
            "woco":false,
            "name":"MR SVEIN BROVOLD PARNAS",
            "orig_type":"I",
            "star":false,
            "total_owner":100.00,
            "level":1,
            "active":true,
```

```
                "id":"NO*410387704",
                "ntype":"N",
                "simcon_owner":25.00,
                "power_owner":1.0,
                "country":"NO"
            }
        ]
    },
    "dump_date":"2022-03-30T12:15:00Z",
    "id":"NO988895865",
    "incio":true,
    "incna":true,
    "tc":null,
    "tio":10.0,
    "to":10.0,
    "tsc":null,
    "tvp":null
}
```

H Example output - /board/{id} - TE version

GET /board/NO990092397

```
{
   "data":{
      "nodes":[
         {
            "revenue":11659,
            "equity":40,
            "place":"OSLO",
            "name":"T-RANK AS",
            "op_profit":7041,
            "source_type":"AS",
            "street_addr":"Bogstadveien 54",
            "orig_type":"Com",
            "share_classes":2,
            "account_date":"2020-12-31",
            "listing_status":0,
            "classification":{
               "l4nace":[
                  {
                     "58.29":"Other software publishing"
                  }
               ],
               "nace:no":[
                  {
                     "58.290":"Utgivelse av annen programvare"
                  }
               ]
            },
            "share_classes_applied":true,
            "solidity":0.0,
            "root":true,
            "zip":"0366",
            "active":true,
            "id":"NO990092397",
            "incorp_date":"2006-06-13",
            "ntype":"L",
            "dept":8014
         },
         {
            "place":"OSLO",
            "name":"GEIR HENNING WAALER-PETTERSEN",
            "source_type":"ENK",
            "street_addr":"Låveveien 38",
            "orig_type":"Sol",
            "listing_status":0,
            "classification":{
               "l4nace":[
                  {
                     "62.02":"Computer consultancy activities"
                  }
               ],
               "nace:no":[
                  {
                     "62.020":"Konsulentvirksomhet tilknyttet informasjonsteknologi"
                  }
```

```
                ]
            },
            "zip":"0682",
            "active":true,
            "id":"NO895767522",
            "ntype":"L"
        },
        {
            "place":"FREDRIKSTAD",
            "name":"FREDRIKSTAD SHOTOKAN KARATE",
            "source_type":"FLI",
            "street_addr":"Cicignong skole gymsal Skolegata 2",
            "orig_type":"Ass",
            "listing_status":0,
            "classification":{
                "l4nace":[
                    {
                        "93.12":"Activities of sports clubs"
                    }
                ],
                "nace:no":[
                    {
                        "93.120":"Idrettslag og -klubber"
                    }
                ]
            },
            "zip":"1606",
            "active":true,
            "id":"NO913584570",
            "incorp_date":"1977-02-01",
            "website":"www.shotokankarate.no",
            "ntype":"L"
        },
        {
            "revenue":2135,
            "equity":1109,
            "place":"OSLO",
            "name":"ENSJØ TORG 2 EIERSEKSJONSSAMEIE",
            "op_profit":1108,
            "source_type":"ESEK",
            "street_addr":"v/Obos Eiendomsforvaltning AS Hammersborg torg 1",
            "orig_type":"Hou",
            "account_date":"2020-12-31",
            "listing_status":0,
            "classification":{
                "l4nace":[
                    {
                        "97.00":"Activities of households as employers of domestic personnel"
                    }
                ],
                "nace:no":[
                    {
                        "97.000":"Lønnet arbeid i private husholdninger"
                    }
                ]
            },
            "solidity":0.0,
            "zip":"0179",
```

```
            "active":true,
            "id":"NO924362804",
            "incorp_date":"2019-11-29",
            "ntype":"L",
            "dept":565
         },
         {
            "place":"OSLO",
            "name":"ENSJØ TORG GARASJESAMEIE",
            "source_type":"SAM",
            "street_addr":"v/OBOS Eiendomsforvaltning AS Hammersborg torg 1",
            "orig_type":"Hou",
            "listing_status":0,
            "classification":{
               "l4nace":[
                  {
                     "97.00":"Activities of households as employers of domestic personnel"
                  }
               ],
               "nace:no":[
                  {
                     "97.000":"Lønnet arbeid i private husholdninger"
                  }
               ]
            },
            "zip":"0179",
            "active":true,
            "id":"NO924531347",
            "incorp_date":"2019-11-22",
            "ntype":"L"
         },
         {
            "place":"OSLO",
            "name":"CANRIGHT RIGHT AWAY",
            "source_type":"ENK",
            "street_addr":"H0601 Rolf Hofmos gate 32",
            "orig_type":"Sol",
            "listing_status":0,
            "classification":{
               "l4nace":[
                  {
                     "85.60":"Educational support activities"
                  }
               ],
               "nace:no":[
                  {
                     "85.609":"Andre tjenester tilknyttet undervisning"
                  }
               ]
            },
            "zip":"0655",
            "active":true,
            "id":"NO924728566",
            "ntype":"L"
         },
         {
            "place":"OSLO",
            "name":"PARNAS CONSULTING",
```

```
        "source_type":"ENK",
        "street_addr":"Olleveien 5",
        "orig_type":"Sol",
        "listing_status":0,
        "classification":{
            "l4nace":[
                {
                    "62.01":"Computer programming activities"
                }
            ],
            "nace:no":[
                {
                    "62.010":"Programmeringstjenester"
                }
            ]
        },
        "zip":"1182",
        "active":true,
        "id":"NO979602731",
        "ntype":"L"
    },
    {
        "revenue":340,
        "equity":9263,
        "place":"FREDRIKSTAD",
        "name":"METODISTKIRKENS DIAKONALE STIFTELSE FREDRIKSTAD",
        "op_profit":-61,
        "source_type":"STI",
        "street_addr":"Ridehusgata 7C",
        "orig_type":"Fou",
        "account_date":"2020-12-31",
        "listing_status":0,
        "classification":{
            "l4nace":[
                {
                    "68.20":"Rental and operating of own or leased real estate"
                }
            ],
            "nace:no":[
                {
                    "68.209":"Utleie av egen eller leid fast eiendom ellers"
                }
            ]
        },
        "solidity":0.0,
        "zip":"1606",
        "active":true,
        "id":"NO980690199",
        "incorp_date":"1973-11-15",
        "ntype":"L",
        "dept":685
    },
    {
        "revenue":939,
        "equity":3355,
        "place":"OSLO",
        "name":"KVARNAS AS",
        "op_profit":322,
```

```
        "source_type":"AS",
        "street_addr":"Olleveien 5",
        "orig_type":"Com",
        "share_classes":1,
        "account_date":"2020-12-31",
        "listing_status":0,
        "classification":{
            "l4nace":[
                {
                    "68.20":"Rental and operating of own or leased real estate"
                }
            ],
            "nace:no":[
                {
                    "68.209":"Utleie av egen eller leid fast eiendom ellers"
                }
            ]
        },
        "solidity":0.0,
        "zip":"1182",
        "active":true,
        "id":"NO988895865",
        "incorp_date":"2005-10-21",
        "ntype":"L",
        "dept":181
    },
    {
        "revenue":5726,
        "equity":3907,
        "place":"OSLO",
        "name":"CPM ANALYTICS AS",
        "op_profit":530,
        "source_type":"AS",
        "street_addr":"Gullhaugveien 7",
        "orig_type":"Com",
        "share_classes":1,
        "account_date":"2020-12-31",
        "listing_status":0,
        "classification":{
            "l4nace":[
                {
                    "73.20":"Market research and public opinion polling"
                }
            ],
            "nace:no":[
                {
                    "73.200":"Markeds- og opinionsundersøkelser"
                }
            ]
        },
        "solidity":0.0,
        "zip":"0484",
        "active":true,
        "id":"NO989990748",
        "incorp_date":"2006-05-12",
        "ntype":"L",
        "dept":2878
    },
```

```
{
    "equity":9124,
    "place":"OSLO",
    "name":"BARM AS",
    "op_profit":-40,
    "source_type":"AS",
    "street_addr":"v/ Bjart Kvarme Sørengkaia 104",
    "orig_type":"Com",
    "share_classes":1,
    "account_date":"2020-12-31",
    "listing_status":0,
    "classification":{
        "l4nace":[
            {
                "68.20":"Rental and operating of own or leased real estate"
            }
        ],
        "nace:no":[
            {
                "68.209":"Utleie av egen eller leid fast eiendom ellers"
            }
        ]
    },
    "solidity":1.0,
    "zip":"0194",
    "active":true,
    "id":"NO990335575",
    "incorp_date":"2006-06-14",
    "ntype":"L",
    "dept":0
},
{
    "place":"STATHELLE",
    "name":"SANNAS VENNER",
    "source_type":"FLI",
    "street_addr":"c/o Olaisen Langesundveien 153",
    "orig_type":"Ass",
    "listing_status":0,
    "classification":{
        "l4nace":[
            {
                "94.99":"Activities of other membership organisations n.e.c."
            }
        ],
        "nace:no":[
            {
                "94.991":"Aktiviteter i andre interesseorganisasjoner ikke nevnt annet sted"
            }
        ]
    },
    "zip":"3961",
    "active":true,
    "id":"NO993609005",
    "incorp_date":"1992-07-16",
    "ntype":"L"
},
{
    "place":"FREDRIKSTAD",
```

```
          "name":"KENTH ENGØ-MONSEN JOBBER",
          "source_type":"ENK",
          "street_addr":"Kreftings vei 14",
          "orig_type":"Sol",
          "listing_status":0,
          "classification":{
             "l4nace":[
                {
                   "62.02":"Computer consultancy activities"
                }
             ],
             "nace:no":[
                {
                   "62.020":"Konsulentvirksomhet tilknyttet informasjonsteknologi"
                }
             ]
          },
          "zip":"1613",
          "active":true,
          "id":"NO993609021",
          "website":"www.engo-monsen.no",
          "ntype":"L"
       },
       {
          "f_date":"1970-12-29",
          "place":"FREDRIKSTAD",
          "name":"Engø-Monsen, Kenth",
          "source_type":"P",
          "street_addr":"Kreftings Vei 14",
          "orig_type":"P",
          "zip":"1613",
          "active":true,
          "id":"NOP1150651",
          "ntype":"N",
          "gender":"M",
          "country":"NO"
       },
       {
          "f_date":"1968-12-03",
          "place":"OSLO",
          "name":"Omholt, Arne Petter",
          "source_type":"P",
          "street_addr":"Neuberggata 18 A",
          "orig_type":"P",
          "zip":"0367",
          "active":true,
          "id":"NOP119694",
          "ntype":"N",
          "gender":"M",
          "country":"NO"
       },
       {
          "f_date":"1949-06-24",
          "place":"OSLO",
          "name":"Canright, Geoffrey St John",
          "source_type":"P",
          "street_addr":"Rolf Hofmos Gate 32",
          "orig_type":"P",
```

```
              "zip":"0655",
              "active":true,
              "id":"NOP1452606",
              "ntype":"N",
              "gender":"M",
              "country":"NO"
          },
          {
              "f_date":"1975-03-11",
              "place":"OSLO",
              "name":"Pettersen, Geir Henning",
              "source_type":"P",
              "street_addr":"Låveveien 38",
              "orig_type":"P",
              "zip":"0682",
              "active":true,
              "id":"NOP408456",
              "ntype":"N",
              "gender":"M",
              "country":"NO"
          },
          {
              "f_date":"1965-04-02",
              "place":"OSLO",
              "name":"Parnas, Svein Brovold",
              "source_type":"P",
              "street_addr":"Olleveien 5",
              "orig_type":"P",
              "zip":"1182",
              "active":true,
              "id":"NOP52919",
              "ntype":"N",
              "gender":"M",
              "country":"NO"
          },
          {
              "f_date":"1975-04-19",
              "place":"RYKKINN",
              "name":"Kolstad, Espen Amble",
              "source_type":"P",
              "street_addr":"Mallingsrudveien 15",
              "orig_type":"P",
              "zip":"1349",
              "active":true,
              "id":"NOP730362",
              "ntype":"N",
              "gender":"M",
              "country":"NO"
          }
      ],
      "edges":[
          {
              "source":"NOP52919",
              "target":"NO989990748",
              "role_names":[
                  "MEM"
              ]
          },
```

```
    {
       "source":"NOP52919",
       "target":"NO988895865",
       "role_names":[
          "CHA",
          "CEO"
       ]
    },
    {
       "source":"NOP52919",
       "target":"NO990335575",
       "role_names":[
          "DME"
       ]
    },
    {
       "source":"NOP1150651",
       "target":"NO913584570",
       "role_names":[
          "MEM"
       ]
    },
    {
       "source":"NOP1452606",
       "target":"NO924362804",
       "role_names":[
          "MEM"
       ]
    },
    {
       "source":"NOP1452606",
       "target":"NO924531347",
       "role_names":[
          "MEM"
       ]
    },
    {
       "source":"NO990092397",
       "target":"NOP1452606",
       "role_names":[
          "MEM"
       ]
    },
    {
       "source":"NOP1452606",
       "target":"NO924728566",
       "role_names":[
          "SPR"
       ]
    },
    {
       "source":"NOP1150651",
       "target":"NO980690199",
       "role_names":[
          "MEM"
       ]
    },
    {
```

```
        "source":"NOP1150651",
        "target":"NO993609005",
        "role_names":[
            "MEM"
        ]
    },
    {
        "source":"NO990092397",
        "target":"NOP730362",
        "role_names":[
            "MEM"
        ]
    },
    {
        "source":"NOP408456",
        "target":"NO895767522",
        "role_names":[
            "SPR"
        ]
    },
    {
        "source":"NO990092397",
        "target":"NOP408456",
        "role_names":[
            "MEM"
        ]
    },
    {
        "source":"NOP1150651",
        "target":"NO993609021",
        "role_names":[
            "SPR"
        ]
    },
    {
        "source":"NO990092397",
        "target":"NOP119694",
        "role_names":[
            "MEM",
            "CEO"
        ]
    },
    {
        "source":"NOP52919",
        "target":"NO979602731",
        "role_names":[
            "SPR"
        ]
    },
    {
        "source":"NO990092397",
        "target":"NOP1150651",
        "role_names":[
            "MEM"
        ]
    },
    {
        "source":"NO990092397",
```

```
            "target":"NOP52919",
            "role_names":[
                "CHA"
            ]
        }
    ]
},
"dump_date":"2022-04-05T07:14:14Z",
"id":"NO990092397"
}
```

I   Example output - /node/{id} - TE version

GET /node/NO990092397

```
{
   "revenue":11659,
   "equity":40,
   "place":"OSLO",
   "name":"T-RANK AS",
   "op_profit":7041,
   "source_type":"AS",
   "street_addr":"Bogstadveien 54",
   "orig_type":"Com",
   "share_classes":2,
   "account_date":"2020-12-31",
   "listing_status":0,
   "classification":{
      "l4nace":[
         {
            "58.29":"Other software publishing"
         }
      ],
      "nace:no":[
         {
            "58.290":"Utgivelse av annen programvare"
         }
      ]
   },
   "share_classes_applied":true,
   "solidity":0.0,
   "zip":"0366",
   "active":true,
   "id":"NO990092397",
   "incorp_date":"2006-06-13",
   "ntype":"L",
   "dept":8014
}
```

J Changelog

API changes, starting 2020-12-01, in reverse order.

2025-10-28

- The has_more root level attribute is now also applicable for graphs of the type owner, owns or dual.

2025-10-14

- Changed default for max number of nodes to return from graph endpoints

2025-09-26

- PDF support in /generate_map

2025-08-27

- Added *bo_register* property on links

- Removed obsolete property *scc* from ownership graph responses

2025-08-15

- Support for the Norwegian BO register.

2025-02-27

- New parameters for */generate_map*: *removes* and *collapses*.

2024-10-25

- New node attributes in the MA version: *uci* and *orbis_id*. Possible to use *orbisid:{orbis_id}* as *{id}* in endpoint paths.

2024-10-10

- Close family support (TE version only).

2024-08-12

- Updated request parameters for the *generate_map* endpoint.

2024-05-29

- *node/search* and */v2/nodes/search* documented.

2024-04-17

- added lei field (entity data) in the TE version.

2024-01-09

- New value for listing_status in the TE version - Daughter of a listed company.

2023-08-29

- GRID Flags (entity data, MA version).

2023-06-26

- Explanation for NaN in direct ownership corrected.

2023-06-06

- Removed entity attribute last_fiscal_year - this date can no be found in account_date - TE version

2023-02-02

- Added accounts_currency to Entity data - TE version

2022-11-18

- Added ownership_source and group_net_profit attributes (Entity data, TE version).

2022-11-04

- Added *power-threshold* request parameter to */graph*

2022-10-20

- Added *threshold_simcon* to */v2/subsidiaries* and */v2/owners*

- Added parameter for excluding estates for several endpoints (TE version only).

- Added entity properties related to estates (TE version only)

2022-07-09

- Added information about Finnish entities in the TE version

2022-06-18

- Added *birth_year* property (TE version)

2022-06-02

- Added exclude_branch parameter to /v2/subsidiaries

- Added include_ownership parameter to /v2/roles-of

- Added include_combine_reg parameter to /v2/beneficial

- Added combinereg parameter to /graph/{id}/bo

- Added reg_combine parameter to /generate_map

2022-04-06

- Major revision, replacing Norwegian, Danish and Swedish version with the combined TietoEvry version.

2022-04-04

- Added /v2/roles-of endpoint and /role-of alias

- Added /v2/nodes/by-ssn endpoint

2022-03-17

- Added /indicators endpoint alias

2022-03-10

- Added *privileged_share_info* as an Entity property, TE version

- Added *privileged_shares* as a property in ownership objects in lists.

2022-01-27

- Added export_format parameter for /generate_map (SVG support)

- Removed quoted-printable as an option for the content of the X-Requested-For header

2022-01-13

- Added BO register information to BO endpoints

- Added toggle for turning off special NA link handling for model=control in BP endpoints

- Added Danish and Swedish version.

2022-01-05

- Added support for > and < as prefix to all threshold parameters

- Renamed *Evry version* to *TE version*

- Added incge50cgt25 parameter to /{dataset}]/graph/{id}/bo endpoint

2021-12-08

- Added model gt50c-gt25 for /v2/beneficial

2021-12-06

- Added /generate_map endpoint

2021-11-26

- Added /{dataset}]/graph/{id1}/paths/{id2} endpoint

2021-10-28

- Added include_ownership as parameter to /v2/roles

- Added /role endpoint alias

- Added /owner endpoint alias

2021-08-19

- Added HTTP 302 status code (MA version only)

2021-08-12

- Added threshold_vp parameter for /v2/beneficial endpoint

2021-06-03

- Added /v2/roles endpoint

2021-01-20

- For /v2/beneficial, if include_roles is on, the objects in the array company_roles will no longer have the role_names property, but rather the roles property. roles is an array of objects. Also, all roles from the Norwegian role register is now included, including roles held by legal persons.

- New parameter, max_level, for /v2/owners and /v2/subsidiaries

2020-12-18

- Added *associated-threshold* for */graph/{id}?dir=group*.

- New endpoint – /log

2020-12-10

- Possible to work against different data sets: Data set as part of path to most endpoints. New endpoint, /datasets, for listing available data sets.