



Woodseer Dividend Forecasting

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API Documentation Version 2.4

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23 pages including examples.

see also: Woodseer Push API Documentation 2.4

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Background

Woodseer is a web-based tool which predicts forward dividends (estimates of dividend payments in the future).

Using a combination of algorithmic forecasting with analyst input, Woodseer forecasts dividends for over 20,000 securities globally.

Specific estimates are provided for dividend dates and amounts, at least two years into the future.

The data set is updated every day, throughout the day with a bulk data load occurring at approximately 1am UTC, Tuesday through Saturday.

Woodseer coverage is constantly expanding. The exact details of the securities to which you have access is available under your login on the www.woodseer.global site (see: [Access](#)).

Historical data back to January 1st 2012 is included and made available with the data including all Special, Interest and Capital Gains disbursements.

However due to their nature unpredictable nature, future projections for Special, Interest and Capital Gains disbursements are not included.

The data is available through the following mechanisms:

1. **RESTful API** (*this document*)
2. Push API: *real time updates*
3. Daily or hourly flat-file extract (FTP)
4. Web-based UI
5. A combination of the above

Data Definitions and Structure

Companies & Securities

A publicly-traded company can have multiple listed securities on different exchanges

e.g. *Ordinary Shares, Class B, ADR, Cdear*, etc.

Each security can be listed on one or more exchange (fungible listings), each potentially with different ticker and ISIN codes.

Woodseer provides ticker and identifier information for the primary and secondary listings.

FIELD DEFINITIONS [see full details in example response](#)

Securities represent different classes of shares. A **Security** has an ID, name, ISIN and date last updated.

Each **Security** has an associated **Company** with a name, ID and possibly a dividend policy (this may be omitted if data is not available).

Additionally each **Security** will have one primary **Listing**, representing the **Security** listed on its primary **Exchange** and zero or more secondary listings. Each **Listing** has an ID, ticker (EPIC), exchange and country.

Each **Security** also has zero or more **Dividends**, usually with an announced amount and currency. Each **Dividend** has one or more **Disbursements**, which represent how shareholders may receive that dividend.

A **Disbursement** may represent a cash payment in a particular currency, a stock (Scrip) dividend or a return of capital.

Securities also have zero or more **Date Rules**, which determine the basis for which our algorithmic forecasts are made. Each rule relates to a particular dividend frequency, position and date field (e.g. quarter 2 record date). The rule is provided as a text description with a confidence score, determined by the recency and regularity of earlier dividends matching the rule.

EXAMPLE 1

In the simplest case, a public **Company** (*Urban Exposure Plc*) will list on one **Exchange** (*XLON - London Stock Exchange*), so they will have one **Security** (*Ordinary Shares*) with one **Listing** (*Ordinary Shares on XLON*).

EXAMPLE 2

Royal Dutch Shell is a company incorporated in the United Kingdom.

It has Ordinary Class A and Class B shares, each traded on more than 10 exchanges globally, primarily on the London Stock Exchange.

The *Royal Dutch Shell* 'A' share had a dividend go ex on 10th August 2017 with an option to receive payment in Euros or Pounds, as well as 1 share for every 59 shares held through the Scrip programme.

In rare cases the dividend is declared and paid in a different currency. For example *Rio Tinto Ordinary Shares* the dividend is declared in USD but only paid in AUD and GBP.

Woodseer differentiates these amounts by showing the dividend amount and currency in USD with 2 disbursements of that dividend in AUD and GBP.

RESTful API

An API is available to query the Woodseer database to obtain specific dividend estimates for shares globally, accessible via HTTPS.

A specific share or shares can be queried for the latest dividend predictions as well as historical dividend data.

Endpoints

The API provides the following end points:

1. **Securities:** query securities matching criteria
2. **Individual Security:** query details on an individual security with dividend information
3. **Dividend Changes:** retrieve a list of all dividend changes from a given date
4. **Stock Exchanges:** lists stock exchanges which may be referenced in results from other API queries
5. **Indices:** lists all indices which can be used in other API queries

Authentication

An access token is required to authenticate your requests against the Woodseer system.

As part of your initial account set up you are provided an account to log into the Woodseer website <https://www.woodseer.global>.

You can check your account's access, as well as look up and generate API access tokens through this website.

The API uses Token Authorization so each request requires a valid token to be included as a header field or API parameter.

Example - Authorization token in the HTTP request header:

Authorization: Token token="xyz"

Example - Authorization token as a URL parameter:

https://api.woodseer.global/2.0/stock_exchanges?token=xyz

Any request made which is missing the authorization token will return a *401 (Unauthorized)* response code.

A request made with an invalid or deleted token will result in a *403 (Forbidden)* response code.

Access

Your account will be configured with access to one or more country, region, index or exchange, or with full global access.

The access associated with your account can be viewed through your Woodseer login.

Technical Notes

1. All dates are expressed in ISO8601 extended format (i.e. YYYY-MM-DD).
2. The format for updates since a given timestamp are expressed in ISO8601 combined date and time format, e.g.: 2007-04-05T14:30Z (the date and time joined by the letter 'T'). The time should finish "Z" representing UTC.
3. All countries are returned as 2 character ISO 3166-1 (2 alpha) code: https://en.wikipedia.org/wiki/ISO_3166-1_alpha-2
4. All dividend and disbursement amounts have an associated currency and values are provided in the major currency with the exception of GBX, e.g.
 - a. *amount: 0.5, currency: USD* is 50 US cents (\$USD 0.50)
 - b. *amount: 0.5, currency: GBX* is half a British penny (£GBP 0.005)
5. The dividend currency is the 3 character ISO 4217 code. More details and the full list is here: https://en.wikipedia.org/wiki/ISO_4217.
6. The currency can change between dividend payments.

API Responses

If the query is successful you will receive an HTTP 200 response with the body containing the company, security, listing and dividend data for all shares to which your account has access.

All API queries are returned in JSON format, and will always have three parameters if there is an error, or five parameters if successful:

1. error (code)
2. message (text)
3. page (current page number)
4. total_pages (number of pages matching the request)
5. results (array or hash)

A valid response will have null in the *error* field, the *message* will be 'Success', the pagination details are provided and the *results* will be populated:

```
{
  "error": null,
  "message": "Success",
  "page": 1,
  "total_pages": 5,
  "results": [...]
}
```

If an invalid parameter is specified the API will return a JSON error response in the format:

```
{
  "error": 5,
  "message": "Invalid authorization token",
  "results": null
}
```

Possible error codes are:

- 1 - Invalid parameter: a provided value is not valid or not in an acceptable format.
- 2 - Disallowed parameter: a parameter was included which is not valid for the query
- 3 - Missing parameter: a required parameter was missing
- 4 - Access denied: the account associated with the provided token does not have access to the requested resource.
- 5 - Invalid token: the authorization token was missing or not valid

The *message* will contain further detail.

Note to developers: JSON responses may be extended at a later date to provide additional data fields. Clients should be implemented defensively to allow for and ignore new fields beyond those mentioned in this document in future.

Endpoint: Securities

The URL for requesting all securities to which your account has access is:
<https://api.woodseer.global/2.0/securities>

In order to refine the results there are a number of parameters which can be included:

1. *exchange* – the stock exchange code (e.g. **XLON** for the London Stock Exchange, see the Stock Exchanges end-point below)
2. *index* – the index code (e.g. **SP100** for the S&P 100, see the Indices end-point below)
3. *updated* - a timestamp specifying only securities which have changed since the given value
4. *isin* – an individual or comma-separated list of 12 character ISIN code of the security (e.g. **GB00B03MLX29** for Royal Dutch Shell Class A shares).

A combination of parameters is allowed to, for instance restrict the results to securities on an exchange which have changed since a given time.

The complete list of all stock exchanges and indices is accessible through the Woodseer website and through the Stock Exchanges and Indices endpoints (see below).

A maximum of 100 ISINs can be included with the *isin* parameter.

If the *format* parameter is not included in the request the result will be in JSON format.

A maximum of 100 securities is returned with each request. Subsequent results can be returned by appended the *page* parameter, e.g.:

<https://api.woodseer.global/2.0/securities?exchange=GBLSE&page=2>

A sample of the returned JSON is provided below.

Endpoint: Individual Security

The URL for requesting an individual security is:
[https://api.woodseer.global/2.0/securities/*nnn*](https://api.woodseer.global/2.0/securities/<i>nnn</i>)

Where *nnn* is the ISIN or the Woodseer ID of the security (retrieved as the result of an earlier query).

Security Query Sample Response

```
{
  "securities": [
    {
      "id": 80928,
      "name": "Ordinary Shares",
      "isin": "NZFBUE0001S0",
      "updated": "2018-11-17T00:32:52Z",
      "reviewed": "2019-06-14T16:44:18Z",
      "analyst_flag": "NP",
      "company": {
        "id": 60020,
        "name": "Fletcher Building Limited",
        "dividend_policy": {
          "text": "Our policy is to grow..."
          "entered": "2018-09-14T14:50:05Z"
        }
      }
    },
    "primary_listing": {
      "id": 71526,
      "country": "NZ",
      "exchange": "NZSE",
      "ticker": "FBU"
      "status": "A",
    },
    "secondary_listings": [
      {
        "id": 185627,
        "country": "AU",
        "exchange": "XASX",
        "ticker": "FBU",
        "status": "D"
      }
    ],
    ...
  ],
  "dividends": [
    {
      "id": 42201526,
      "fiscal_year": 2012,
      "declaration_date": "2012-08-14",
      "ex_div_date": "2012-12-29",
      "record_date": "2012-12-30",
      "pay_date": "2012-12-29",
      "period_end_date": "2012-09-30",
      "year_end_date": "2012-12-31",
      "status": "DEC",
      "frequency": "BNL",
      "flag": "I"
      "amount": "1.07",
    }
  ]
}
```

```
"currency": "NZD",
"disbursements": [
  {
    "type": "C",
    "default": true,
    "amount": "1.07",
    "currency": "NZD"
  },
  ...
]
},
...
]
},
"date_rules": [
  {
    "frequency": "BNL",
    "position": 1,
    "field": "DEC",
    "rule": "10 business days before the Record Date",
    "confidence": 87
  }, ...
]
}
]
}
]
}
```

Security Fields

This table describes the possible fields for each security.

Note: Fields marked with an asterisk(*) are included only if there is a value present.

Name	Type	Description	Notes
id	Integer	Woodseer identifier	
name	String	Name of security	e.g. "Ordinary Shares"
isin	String	International Securities Identifier Number	Subject to change
analyst_flag	String	Flag set by the analyst	See Analyst Flag definitions table
reviewed	Timestamp	When the analyst flag was set or confirmed	This may be set if the analyst has assessed the <i>analyst_flag</i> have no value
updated	Timestamp	Denotes last change time of the security	Applies to the last change to the security, a dividend or disbursement
company	Object	Associated company data	See the Company Fields table
primary_listing	Object	Associated primary listing data	See the Listing Fields table
secondary_listings*	Array	Associated secondary listing data	See the Listing Fields table
dividends	Array	Associated dividends data	See the Dividend Fields table
date_rules*	Array	Associated date rules data	See the Date Rule Fields table
analyst_notes*	Array	Associated notes	See the Analyst Note Fields table

Company Fields

This table describes the possible fields for each company.

Note: Fields marked with an asterisk(*) are included only if there is a value present.

Name	Type	Description	Notes
id	Integer	Woodseer identifier	
name	String	Name of the company	e.g. "Apple Inc"
dividend_policy*	Object	Associated dividend policy data	Where available and enabled. See the Dividend Policy Fields table

Dividend Policy Fields

For companies which have a dividend policy available and this information has been made enabled on your account.

Name	Type	Description	Notes
text	String	The company stated dividend policy	
entered	Timestamp	Indicates when the policy was set in Woodseer	

Listing Fields

Primary listing data for each security is included.

Name	Type	Description	Notes
id	Integer	Woodseer identifier	
ticker	String	Exchange level identifier	Subject to change
status	Character	Listing status	A: Active, D: Delisted
exchange	String	Stock Exchange Market Identifier Code (MIC)	See Endpoint: Stock Exchanges code field
country	String	2 letter exchange country code	

Analyst Notes Fields

One or more notes may be entered in Woodseer against a security providing commentary of the security and associated dividends

Name	Type	Description	Notes
note	String	The note text	
entered	Timestamp	Indicates when the note was set in Woodseer	

Dividend Fields

Notes:

1. Fields marked with an asterisk(*) are included only if there is a value present.
2. Dividends are mutable, meaning when a dividend transitions from being status Estimate to status Declared the ID will be maintained and the status field will be updated.
3. Dividends may be removed, for example if an estimate exists which is subsequently cut.
4. All current dividends associated with a security are included so you can be sure you have the complete list of dividends with each update.

Name	Type	Description	Notes
id	Integer	Woodseer identifier	
fiscal_year	Integer	Fiscal year to which the dividend applies	
frequency	String	Dividend frequency of payment	See the Dividend Frequency Definitions table
flag	String	Dividend flag	See the Dividend Flag Definitions table
declaration_date	Date	Date this dividend was declared	
ex_div_date	Date	Date this dividend went ex	
record_date	Date	Dividend record date	
pay_date	Date	Date the dividend is paid	
period_end_date*	Date	Last date of the period this dividend applies to	e.g. the end of quarter date for a quarterly dividend
year_end_date*	Date	Last date of the fiscal year	

		this dividend applies to	
status	String	Current dividend status	See the Dividend Status Definitions table
amount*	Numeric	Cash amount of the dividend	Includes a decimal amount
currency*	String	Currency code	3 character currency code
disbursements	Array	The collection of possible means this dividend may be paid to shareholders	See the Disbursement Fields table

Disbursement Fields

This table describes the possible fields for each disbursement.

Note fields which apply to *Cash* includes Cash, Cash & Stock, Capital Repayment, PID, Non-PID and Installment and Other types.

Fields which apply to *Stock* disbursements includes Stock/Scrp and Cash & Stock types.

Name	Type	Description	Applies To	Notes
type	String	Disbursement Type	All	See the Disbursement Type Definition table above
default	Boolean	True if this is the default disbursement	All	Only one disbursement will have this set as true
amount	Numeric	Disbursement amount	Cash	Includes a decimal amount
currency	String	Currency code	Cash	3 character currency code
num_held	Numeric	Number of shares held	Stock	Includes a decimal amount
num_received	Numeric	Number of shares received per <i>num_held</i>	Stock	Includes a decimal amount
fx_date	Date	Date of currency exchange	Cash	For dividends declared and paid in different currencies

Analyst Flag Definitions

Woodseer analysts may set a flag on a security to provide information on the status of the security which may impact dividend forecasts.

This flag and the timestamp when the flag was set is included in the Security JSON.

Code	Meaning	Definition
AM	Acquired/Merged	The company has been subsumed into another legal entity and we are forecasting an end to this company's dividends.
TP	Takeover Progress	In The company is under offer and may be acquired and delisted. Forecasts will remain until until the takeover is confirmed but clients should be aware the forecasts will be removed if the takeover proceeds.
CT	Ceased Trading	The security has been delisted and we are forecasting no further dividends.
DC	Dividend Cut	The dividend has recently been cut to zero so we won't forecast payments until we receive an indication of the resumption of dividend payments.
NP	No Pattern	The dividend history has no discernible pattern so our forecasts are based on the latest declared dividends, and we have a low conviction on either our forecast dates or amounts, or both.
IH	Insufficient History	The security has not yet declared a complete year of dividends, so our conviction in the accuracy of the forecast dates is low. This flag is removed once we receive a recent complete year of declarations.
ND	No Dividends	This security does not pay dividends. We will not make a forecast until we receive an indication of the intention to begin paying dividends or a maiden dividend declaration.

Note: possible values may be added in future.

Dividend Status Definitions

Code	Meaning	Definition
EST	Estimate	The dividend dates and amount are estimated and not yet certain
DEC	Declared	The dividend has been officially announced but not yet paid
PAY	Paid	The dividend has been paid and has past
CAN	Cancelled	The dividend has been cancelled by the issuer after being declared
DEL	Deleted	The dividend has been removed from the system because it was entered erroneously

Dividend Frequency Definitions

The dividend frequency indicates how many dividends were/are expected in the fiscal year:

Code	Meaning	Definition
WEK	Weekly	52 times per year
MTH	Monthly	12 times per year
BIM	Bimonthly	6 times per year (once every 2 months)
QTR	Quarterly	4 times per year (once every 3 months)
TNL	Triannually	3 times per year (once every 4 months)
BNL	Biannually	Twice per year (once every 6 months)
ANL	Annually	Once per year
IRG	Irregularly	No pattern. All Special dividends are by definition IRG
HIS	Historical	Used for recording pre-2010 dividend information. An aggregate of the annual total
UKN	Unknown	The pattern is not known

Dividend Flag Definitions

Code	Meaning	Definition
F	Final	The final (regular) dividend payment of the year (note: occasionally a special dividend comes after a final)
I	Interim	A regular dividend which is not a final
S	Special	An irregular dividend outside the usual payment pattern
N	Interest	An interest payment made by some securities.
G	Capital Gain	Gains derived from the sale of securities within a mutual fund or ETF
R	Return of Capital	A return of capital is similar to a special dividend with the important exception of not being taxed as income. Returns of capital are not made from profits generated by the business which is the case for ordinary and special dividends.
U	Supplementary	An additional payment split out from the main dividend

Disbursement Type Definitions

Code	Meaning	Definition
C	Cash	The dividend payment is in cash. There will be a currency associated.
S	Stock/Scrip	The dividend is a stock allocation. There will be a ratio of shares received for shares held.
B	Both Cash & Stock	A combination of cash and stock, there will be a currency for the cash portion and a ratio for the stock allocation portion.
R	Capital Repayment	A return of capital (paid out of capital rather than earnings).
I	Installment	Partial cash payment. A single dividend may be paid out in multiple installment disbursements.
P	PID Amount	A cash payment subject to Property Income Distribution tax.
N	Non-PID Amount	A cash payment not subject to Property Income Distribution tax.
L	Nil Dividend	A zero-amount dividend to maintain the pattern.
O	Other	Another disbursement type not covered.

Date Rules

Each security may have a number of date rules associated which Woodseer uses to forecast future dividend declaration, ex, record and pay dates.

Each rule is associated with one frequency, position and date field combination.

e.g. a company which pays quarterly dividends would have 16 date rules (4 quarters x 4 date fields).

Name	Type	Description	Notes
frequency	String	Dividend frequency or type code the rule applies to	See the Date Rule Frequency table
position	Integer	Sequence of the dividend the rule applies to	
field	String	Date field the rule applies to	See the Date Rule Date Field table
rule	String	Free-text description	
confidence	Numeric	Percent confidence score in the accuracy of the rule	A percentage value including decimal amount*

**the confidence is a percentage (up to 100) indicating Woodseer's confidence in the rule being correct, determined by number of dividends, number of matches, and recency of exceptions, plus some exchange-specific rules.*

Date Rule Frequency Definitions

Code	Meaning	Definition
WEK	Weekly	52 times per year
MTH	Monthly	12 times per year
BIM	Bimonthly	6 times per year (once every 2 months)
QTR	Quarterly	4 times per year (once every 3 months)
TNL	Triannually	3 times per year (once every 4 months)
BNL	Biannually	Twice per year (once every 6 months)
ANL	Annually	Once per year
SPL	Special	Special dividends which are generally paid irregularly
CPG	Capital Gain	Gains derived from the sale of an underlying security. Usually paid irregularly
INT	Interest	An interest payment made by some securities in an undefined pattern
RCP	Return of Capital	Similar to special dividends, see note on Dividend Flag definitions
SUP	Supplementary	An additional payment split out from the main dividend
UKN	Unknown	The dividend type is not known

Date Rule Date Field Definitions

Code	Meaning
DEC	Declaration date
XDD	Ex-Dividend date
REC	Record Date
PAY	Pay Date

Endpoint: Security Timestamps

The URL for requesting all securities to which your account has access with the timestamp the security was last changed, is:

<https://api.woodseer.global/2.0/securities/timestamps>

This returns a paginated list of security identifiers (Woodseer ID and ISIN), and the timestamp the security (or associated dividend data) was last changed.

The list is ordered by the most recently changed first with 1000 records per page. To access subsequent pages append the *page* parameter to the query, e.g.

<https://api.woodseer.global/2.0/securities/timestamps?page=2>

A sample of the returned JSON is provided below:

```
{
  "securities": [
    {
      "id": 109453,
      "isin": "GG00B90J5Z95",
      "updated": "2019-04-11T16:11:27Z"
    },
    ...
  ]
}
```

Endpoint: Indices

The URL for requesting the complete list of indices is:

<https://api.woodseer.global/2.0/indices>

If the format parameter is not included in the request the result will be in JSON format.

A sample of the returned JSON is provided below:

```
{
  "indices": [
    {
      "code": "ASXALLORD",
      "name": "ASX ALL ORDINARIES",
      "country": "AU",
      "access": true
    },
    ...
    {
      "code": "WIGDIV",
      "name": "WIGDIV",
      "country": "PL",
      "access": false
    }
  ]
}
```

Access indicates whether your account has access to query securities on that index.

Endpoint: Stock Exchanges

The URL for requesting the complete list of stock exchanges is:
https://api.woodseer.global/2.0/stock_exchanges

A sample of the returned JSON is provided below:

```
{
  "stock_exchanges": [
    {
      "code": "XFRA",
      "name": "Frankfurt Stock Exchange",
      "country": "DE",
      "access": false
    },
    ...
    {
      "code": "XZIM",
      "name": "Zimbabwe Stock Exchange",
      "country": "ZW",
      "access": true
    }
  ]
}
```

The code is the 4 character Market Identifier Code (MIC) which appears in the results of the Security query (above).

Access indicates whether your account has access to query shares on that exchange.

Sample Code

The following code sample is provided as a reference for developers to understand a possible means of interacting with the API.

It is written in Ruby to illustrate the concept and can be developed in any language.

```
# build an HTTP request
http = Net::HTTP.new("api.woodseer.global", 443)
# ensure the request is made securely (HTTPS)
http.use_ssl = true
# build a request for a specific share
request = Net::HTTP::Get.new("/2.0/securities/ES0125220311")
# set the authorization header of the request
request["Authorization"] = "Token token=\"MYSECRETTOKEN\""
response = http.request(request)
if response.code == "200" # HTTP "OK" response
  json = JSON.parse(response.body)
  if json["message"] == "Success"
    # extract the security data from the JSON array
    security = json["results"]["securities"].first
    # retrieve the dividends array for this share
    dividends = security["dividends"]
    dividends.each do |d|
      puts "Dividend #{d['ex_div_date']} #{d['currency']} #{d['amount']}"
    end
  end
end
end
```

Note: this code sample is provided as a basic example only. Production-ready code would be expected to include error checking and exception handling.