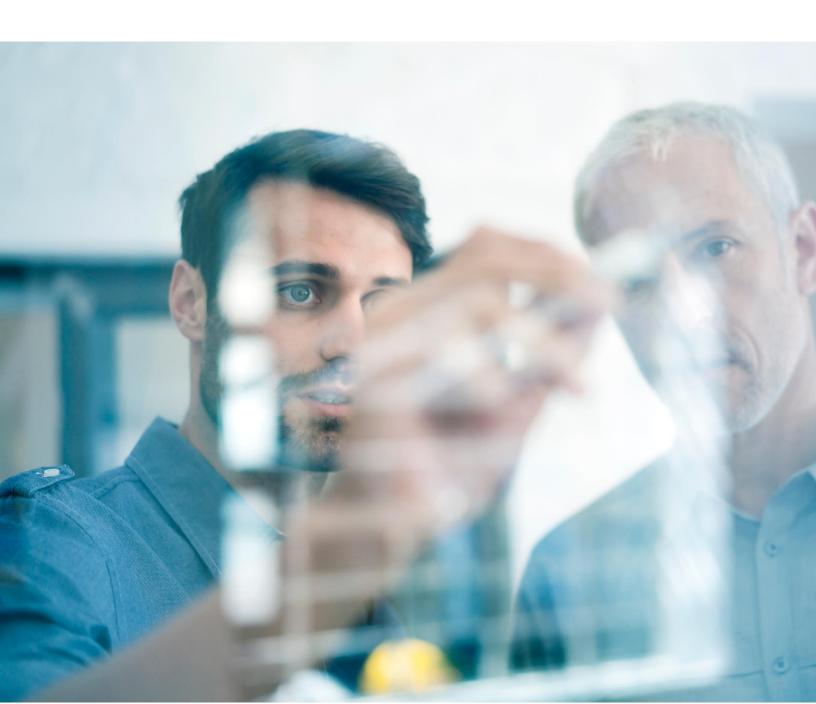**FACTSET** 〉 **SEE THE ADVANTAGE**

SIGNALS API - VERSION 2.1
Developer's Manual and Reference
April 2023
Document Version 2.2

Signals API – Version 2.1

Contents

1. Motivation

FactSet delivers superior analytics, service, content, and technology to help our clients seize opportunities sooner. We are committed to giving investment professionals the edge to outperform, with fresh perspectives, informed insights, and the industry-leading support of our dedicated specialists.

By identifying key Signals - meaningful changes in data, time-sensitive content and cognitive insights - FactSet can help keep you on top of your company, industry, or market. Through the Signals API, users can readily access a curated set of Signals data from across FactSet's diverse core content datasets and Cognitive Computing, plus 3rd party partners to capture relevant and actionable information, gain market-moving insights, and delve deeper into underlying content through our entity mapping.

2. API Program Overview

Clients have been moving towards building a custom solution, driven by the need to increase productivity by consolidating information into a single user experience. As the market continues to demand more transparency and data, FactSet will provide flexible options to meet those demands. APIs complement the current report offerings and facilitate client and internal workflows by surfacing meaningful data in a timely manner through the Signals API and related applications.

The program will provide the following:

- A REST API to access Signals
- Uniform feel across all FactSet's APIs
- Adherence to industry standards
- Versioned APIs
- Documentation on the developer portal

3. Signals API

The Signals API and documentation can be found at https://developer.factset.com/api-catalog/signals-API.

All APIs are hosted under https://api.factset.com/. Authentication is handled using API Keys and authorization is handled using FactSet's in-house subscriptions product. You can find more information about using API Keys at https://developer.factset.com/authentication. Alternatively, Signals now offers OAuth 2.0 authorization protocol.

3.1 Quick Start Guide

To get started, create (or re-use) an API key as provided by FactSet through https://developer.factset.com/manage-api-keys (basic auth), open your IDE of choice, and use your key to access all Signals for one or more companies like so, https://api.factset.com/signals/v2/events/details?ids=FDS-US,AAPL,IBM

3.2 Responses

Signals API responses are returned in JSON.

In a response to a valid request, there are two top level objects, **data** and **meta**. Requests to an incorrect endpoint will return an error message with guidance on what was not retrievable, and requests to an endpoint with invalid parameters or request body will return a **message** with a list of errors.

Proper Request Response	{
	    "data": {},
	    "meta": {}
	}

Incorrect Endpoint	Cannot GET /v2/events

Invalid Parameters	{
	    "message": "BadIdentifier",
	    "errors": [{
	        "detail": "BadIdentifier",
	        "code": "parameterError",
	        "source": { "parameter": "ids" },
	        "title": "Parameter 'ids' contained no supported identifiers. A list of ids that were removed from your request can be found in the detail section."
	    }]
	}

3.3 API Rate Limits

All HTTP requests exceeding FactSet's limits will fail returning an HTTP 429 (too many requests) response.

The current limits for Signals API are a maximum of **10 requests over 2 seconds** from a single client.

For more information on how Kong configures rate limiting, please refer to https://pages.github.factset.com/FactSet/kong-doc/plugins/rate-limiting-advanced/

3.4 Events Endpoint

/signals/v2/events/details?ids=<identifier(s)>&portfolios=<portfolioName>&<filter>=<filterValues>&sort=<sortAttribute>

The events endpoint provides a grouped representation of all signal events. Both GET and POST request types can be used with the events endpoint. The POST request type can be used to send a larger list of identifiers. See **Request Identifier Limits and Performance** below.

3.4.1 Request Parameters

Parameter	Data Type	Required	Description
ids	String	Yes	The \events\details\ endpoint requires an id list to run. Supported ids are ticker, ticker-region, FactSet entity ID, CUSIP, ISIN. Multiple ids can be passed in at once, as a comma delimited list, e.g. ids=MSFT,FDS-US
portfolios	String	Yes	The id list for the \events\details\ endpoint can alternatively be provided by a portfolio file, e.g. portfolios=client:techstocks.ofdb. Note: A list of identifiers must be provided EITHER via an "ids" or a "portfolios" parameter. If both are provided, only the ids parameter is used.
filter	String	No	See 3.4.2 Filter Options below.
sort	String	No	The results from the /events/details/ endpoint can be sorted based on event object attributes. The sort order for each sort attribute is ascending unless it is prefixed with a minus sign, in which case it is descending. The sort parameter can take in a comma delimited list of attributes, which will be applied in order, e.g. sort=-userRelevanceScore,-eventDate If sort is not provided, the default sort applied is -userRelevanceScore (userRelevanceScore in descending order).

3.4.2 Filter Options

Filter	Data Type	Required	Description
signalIds	String	No	Requests can be filtered down to return for any signal or multiple signals, e.g. ?signalIds=signalA,signalB,signalC See **Error! Reference source not found.** below.
created[<C>]	String (YYYY-MM-DDThh:mm:ss)	No	The API will return Signals that have been created within a search window. The search window defaults to the past seven days if filter is omitted. <C> refers to the comparison type. For more on this and how created works with each Signal see 3.4.3 **How Date** Filtering Works.
updated[<C>]	String (YYYY-MM-DDThh:mm:ss)	No	The API will return Signals that have their latest updated date within a search window. The search window defaults to the past day if filter is omitted. <C> refers to the comparison type. For more on this and how updated works with each Signal see 3.4.3 **How Date** Filtering Works.

themes	String	No	Each Signal is tagged with a theme, which helps describe the Signal. See Signal Themes section. Theme to Signal tagging is subject to change. Subscribe to FactSet Notify for updates.
categories	String	No	Each Signal is tagged with one or more categories, which helps describe the Signal. See All Signal Categories. Category to Signal tagging is subject to change. Subscribe to FactSet Notify for updates.

3.4.3 How Date Filtering Works

Both created and updated date filters require a <C> component to specify the comparison type.

The possible values of <C> are as follows:

"gt" => "greater than"

"lt" => "less than"

"gte" => "greater than or equal to"

"lte" => "less than or equal to"

Example: /event/details/?ids=<ids>&created[gt]=<datetime1>&updated[lte]=<datetime2>

What "created[gt]=<datetime1>" means is "return events created at a datetime greater than (after) datetime1".

What "updated[lte]=<datetime2>" means is "return events updated at a datetime less than or equal to (before or at) datetime2"

Both created and updated parameters can be defined, and the API will attempt to filter on both if both parameters are specified.

3.4.4 Headlines

In addition to the /event/details/ endpoint above, the API also provides a /event/headlines/ endpoint, which returns events in a shortened format, without extensive event details. This can be used for a more compact overview of the events firing for certain signals or ids.

Example:
/signals/v2/events/headlines?ids=<identifier(s)>&portfolios=<portfolioName>&<filter>=<filterValues>&sort=<sortAttribute>

All request parameters and filter options for /event/details/ are also included in /event/headlines/ and function the exact same way.

3.4.5 Response Formats

For detailed documentation on response formats for our requests, as well as more information on the above, check out our Signals API Swagger documentation page at: **https://api.factset.com/signals/v2/info/**

3.5 Response Codes

HTTP status code	Description
200	Expected Response.
400	Your request failed validation. Please fix the errors before retrying.
403	You are not authorized for the requested resource.
404	The requested resource was not found.
500	There was an error processing your request. Please try again later.

3.6 Signal Themes

A list of themes is available via the /themes endpoint for Signals API.

Note that the value of the theme assigned to a Signal can change. Signals are continually reviewed for improvement.

3.7 Signal Categories

A list of categories is available via the /categories endpoint for Signals API.

Note that the categories assigned to a Signal can change. Signals are continually reviewed for improvement.

4. How Recommendations Work

Our recommendation algorithm uses the user class assigned to the end user by FactSet (Investment Banking, Portfolio Management, etc.) to determine how useful the Signal is for the end user. The recommendation value also decreases as the Signal ages (i.e. the older the Signal is, the less important it becomes).

Typically, developers will have a user class of "FactSet Employee" and should expect a recommendation value of 0 when running the API as themselves.

The recommendation value is available in the Signal's event objects, as the field "userRelevanceScore". The events returned from the API may be sorted on this field.

```
"signalName": "News Indicators - Financial Health",
"theme": "Third Party",
"source": "Bitvore",
"userRelevanceScore": 0,
"eventId": "0558470b-21a8-47c3-986e-2eff7af41929",
```

5. Troubleshooting

Following steps are recommended to troubleshoot errors from any of the different APIs:

- Record the X-DataDirect-Request-Key response header so that FactSet's API engineering team can analyze your specific request/response.
- Record the response body when the response is an error response. All HTTP status codes equal to and greater than 400 are considered error responses.
- Reach out to your account team with the above information for assistance or signals.api@factset.com.

6. Version Upgrade

Signals API is currently on Version 2.0. We are currently also supporting Version 1.0 for existing 1.0 clients.

FactSet will support old API versions for a limited time. The actual support time will depend on the API and the release stage (i.e., beta or production). All breaking changes, functionality additions, and bug fixes across earlier versions will be documented in the changelog. Breaking changes may occur during the Beta period, but all efforts will be made to inform end users first.

FactSet's API engineering team will work with the clients to ensure smooth transition to newer versions.

7. Signal's Universe

7.1 Regional Scheduled Runs

Signal Universe is made up of roughly 13000 companies across America, Europe, and Asia-Pacific. Signals generate events for every calculable signal at least once a day for all companies (See 7.3 regarding exceptions to this rule). The Americas region and the Europe region are determined by their respective exchanges and their expected opening hours. The top 3000 companies in the Asia-Pacific are divided up into three buckets and scheduled based on country, local time zone, and local exchanges' opening hours.

- Asia-Pacific 1: New Zealand, Australia
- Asia-Pacific 2: South Korea, Japan, Indonesia, Vietnam, Malaysia, Singapore, Taiwan, Thailand, Philippines
- Asia-Pacific 3: China, Hong Kong, India, Bangladesh, Pakistan, Kazakhstan, Sri Lanka, Iran, Russia
- Europe: London Stock Exchange, Nordic, EuroNext, miscellaneous European exchanges
- America: NYSE, NASDAQ, Toronto Stock Exchange

Signal Regions	Number of Companies	Calculation Start Time	Average Time to Finish Calculation
Asia-Pacific 1	~150 Companies	2:00 PM EST / 6:00 PM UTC	30 minutes
Asia-Pacific 2	~1000 Companies	2:30 PM EST / 6:30 PM UTC	40 minutes
Asia-Pacific 3	~1800 Companies	4:30 PM EST / 8:30 PM UTC	30 minutes
Europe	~5300 Companies	2:37 AM EST / 6:37 AM UTC	60 minutes
Americas	~5000 Companies	3:30 AM EST / 7:30 AM UTC	60 minutes