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| --- |
| Photo displaying partial image of two pie charts on a canvas-textured page |
| BlueOptima API Reference —Developers Guide |
| |  |  |  | | --- | --- | --- | | Blueoptima | 1/24/18 | Version 1.0 | |

# Copyright

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# Preface

BlueOptima provides you with REST APIs to assemble various pre-built software components and services to create and manage solutions, with a high degree of flexibility. This document is intended for developers and architects who are building REST services. This document takes you through the available APIs of BlueOptima and provides information on how to use them.

## Conventions

This document uses the following conventions:

|  |  |
| --- | --- |
| **Style** | **Convention** |
| Normal | Used in both, running procedural or nonprocedural text. |
| **Bold** | Used in highlighting the user interface elements, resources and attributes. |
| *Italics* | Used in both, running procedural or nonprocedural text for emphasis. |
| **Note:** | Used to provide any important information. |

# General REST Definitions

This section provides information on the general REST API definitions that are listed below:

* [HTTP Headers](#_HTTP_Headers)
* [HTTPS Status Codes](#_HTTPS_Status_Codes)
* [Query Parameters](#_Query_Parameters)

## HTTP Headers

BlueOptima REST Services supports the following common HTTP headers:

|  |  |  |  |
| --- | --- | --- | --- |
| **HTTP Header Name** | **Description** | **In Request or Response?** | **Value Range** |
| Authorization | Authorization header for authentication. | Request | HTTP basic authentication header with the credential part encoded, for example:  Authorization: Basic  QWxhZGRpbjpvcGVuIHNlc2FtZQ==  Or, Kerberos authentication header with the credential part encoded, for example:  Authorization: Negotiate  YIIZG1hZG1pbjpwYXNzd29yZ... |
| Accept | Acceptable media type for the response. | Request | * application/vnd.emc.xcp+xml * application/vnd.emc.xcp+json * application/xml * application/json |
| Content-Type | MIME type of the request body or response body. | Request/Response | * application/vnd.emc.xcp+xml * application/vnd.emc.xcp+json * application/xml * application/json |
| Content-Length | Size of the entity-body, in decimal number of OCTETs, sent to the recipient. | Request/Response | Non-negative number |
| Location | URI of the newly-created resource. | Response | URI |
| Set-Cookie | Sets an HTTP cookie Response. | Response | Once the user is authenticated,  x-csrf-token  cookie is sent in the response header. |
| x-csrf-token | Client (for example, Javascript) needs to add this header for POST calls to safeguard against any CSRF vulnerability. | Request | Browsers and clients must send  x-csrf-token  cookie value in the Request header or as parameter for any post operation to safeguard against any CSRF vulnerability.  **Example:**  var xhr = new XMLHttpRequest  (); xhr.setRequestHeader('x  -csrf-token', Ext.util.Cookies  .get('x-csrf-token')); |
| WWW-Authenticate | Indicates the authentication scheme that should be used to access the requested entity. | Response | Used by HTTP basic authentication and HTTP Kerberos negotiate authentication Set-Cookie. |

## HTTPS Status Codes

BlueOptima REST Services supports the following HTTP status codes:

|  |  |
| --- | --- |
| **Status Codes** | **Description** |
| 200 OK | The request has succeeded. The information returned with the response is dependent on the method used in the request, for example: GET an entity corresponding to the requested resource is sent in the response; PUT an entity describing or containing the modified resource. |
| 201 Created | The request has been fulfilled and resulted in a new resource being created. The newly created resource can be referenced by the URI(s) returned in the entity of the response, with the most specific URI for the resource given by a Location header field. The entity format is specified by the media type given in the Content-Type header field. |
| 204 No Content | The server has fulfilled the request but does not need to return an entity-body. |
| 304 Not Modified | The server responds with this status code if the client has performed a conditional GET request and access is allowed, but the document has not been modified. |
| 400 Bad Request | The request could not be understood by the server due to malformed syntax, missing or invalid information (such as a validation error on an input field, or a missing required value). The client should not repeat the request without modifications. |
| 401 Unauthorized | The authentication credentials included with this request are missing or invalid. The response must include a WWW-Authenticate header field containing a challenge applicable to the requested resource. |
| 403 Forbidden | The server has recognized your credentials, but you do not possess the authorization to perform this request, and the request should not be repeated. |
| 404 Not Found | The request specifies a URI of a resource that does not exist. |
| 405 Method Not Allowed | The HTTP verb specified in the request (DELETE, GET, HEAD, POST, PUT) is not allowed for the resource identified by the request URI. |
| 406 Not Acceptable | The resource identified by this request URI is not capable of generating a representation corresponding to one of the media types in the Accept header of the request. |
| 409 Conflict | The request could not be completed, because it would cause a conflict in the current state of the resources supported by the server (for example, an attempt to create a new resource with a unique identifier already assigned to some existing resource). |
| 415 Unsupported Media Type | The server is refusing to service the request because the entity of the request is in a format not supported by the requested resource for the requested method. |
| 500 Internal Server Error | The server encountered an unexpected condition which prevented it from fulfilling the request. |

## Query Parameters

BlueOptima REST Services supports the following common query parameters:

**Note:** For a specific resource, it may not support all the following query parameters. For detailed information about what query parameters a resource supports, see the Query Parameters section of that resource.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Query Parameter Name** | **Description** | **Data Type** | **Value Range** | **Default** |
| developers | <to get information> | <to get information> | <to get information> | <to get information> |
| employers | <to get information> | <to get information> | <to get information> | <to get information> |
| datasources | <to get information> | <to get information> | <to get information> | <to get information> |
| organizations | <to get information> | <to get information> | <to get information> | <to get information> |
| collections | <to get information> | <to get information> | <to get information> | <to get information> |
| projects | <to get information> | <to get information> | <to get information> | <to get information> |
| <to add a list of other query parameters> | <to get information> | <to get information> | <to get information> | <to get information> |

# Resources

This section provides information on the available API resources of BlueOptima.

## Analysis Level

Based on the message filter the **analysislevel** API passes a data set that provides information on the productivity of developers. Responds with a set of key value pairs that say which person has what kind of productivity. This request is used to generate Timeless charts in the BlueOptima user interface.

### Signature

*/api/v2/analysis/ce/timeless/{analysisLevel}*

### HTTP Method

POST

### Accepted Request Media Types

*Application/json*

### Query Parameters

analysisLevel:

* + developers : developerIds
  + employers : employerIds
  + datasources : developerIds
  + organizations : organizationIds
  + collections : collectionIds
  + projects : projectIds

**Note:** Any unrecognized filters sent in the request are ignored. Only supported filters receive a response.

### Request Headers

*Application/json*

### Basic Authentication

|  |
| --- |
| GET / HTTP/1.1  Host: 127.0.0.1  Authorization: Basic Zm9vOmJhcg== |

### Request Body

*None*

### Response Headers

*ContentType : application/json*

### Supported Response Media Types

*Application/json*

### Response Status

* 200 - OK
* 400 - Bad request; invalid attribute name or value
* 401 - Authentication failed
* 403 - Permission denied

### Response Body

The following is a sample response body for your understanding:

|  |
| --- |
| {  developers : 353460  Metrics:  {  Calendar Metrics : {  bce : 9,  avg\_bce :3 ,  ab\_bce : 2,  ab\_avg\_bce : 1  } ,  Aberrant Metrics : {  ab\_ce\_hours : 8 ,  ab\_ce\_units : 5,  ab\_bce : 3,  ab\_avg\_bce: 2  }  },    developers : 20987  Metrics:  {  Calendar Metrics : {  bce : 7,  avg\_bce :5 ,  ab\_bce : 2,  ab\_avg\_bce : 1  } ,  Aberrant Metrics : {  ab\_ce\_hours : 4 ,  ab\_ce\_units : 6,  ab\_bce : 3,  ab\_avg\_bce: 1  }  },  } |

### List of Supported Metrics

* **Calendar Metrics -** *bce, avg\_bce, ab\_bce, ab\_avg\_bce*
* **Stats Metrics -** *ce\_hours, ce\_units, ab\_ce\_hours, ab\_ce\_units*
* **Raw Metrics -** *halstead\_flux, comment\_flux, filesize\_flux, nom\_flux, dac\_flux, fanout\_flux, loc\_added, loc\_removed, loc\_flux, cyclo\_flux*
* **Aberrant Metrics -** *ab\_ce\_hours, ab\_ce\_units, ab\_bce, ab\_avg\_bce*

#### Metrics Restrictions

* Any **Calendar Metrics** is not supported with any **Stats Metrics**.
* Any **Calendar Metrics** is not supported with any **Raw Metrics**.
* Any **Raw Metrics** is not supported with any **Aberrant Metrics**.

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