

# User Stories



Help us improve the Bimplus API doc by providing your valuable comments. You can find the comment section at the bottom of the page.



Developers please use <https://api-stage.bimplus.net/v2> (stage version of Bimplus API) and <http://portal-stage.bimplus.net/> (stage version of Shop /Portal) for testing purposes. The production version of the portal is located under <https://portal.bimplus.net/> and the base url of the API is different for the production version.

Connect with Bimplus. Relation(workflow) between Bimplus portal and Bimplus api

Become a Bimplus compliant developer/partner. Register and authorize yourself to access the Bimplus resources. Relation between teams and projects

Create a team. Create an user. Assign the newly created user to the newly created team. Verify whether he/she is part of the team

Create, modify and access different resources/objects of the building model using the Bimplus api

Create a project, add an object(wall) and view it using the web viewer

Get the list of available projects and its properties

Add properties to the project

Add a thumbnail to the project

Project topology and object topology tree

Find the geometry of an object. Get to know the types of geometry available

Get the different properties / structure(normal, viewer properties, object in hierarchical tree structure) of the object using different property combinations

Get the project layers and element types. Find the relation between them

Filter the building information using different filter criteria

Import an existing model in the form of IFC/SketchUp file

Create and assign issues to projects. Locate/visualize the issues in the project

Learn about the issue based rights & roles

Add attachments to the whole building as well as to the individual objects

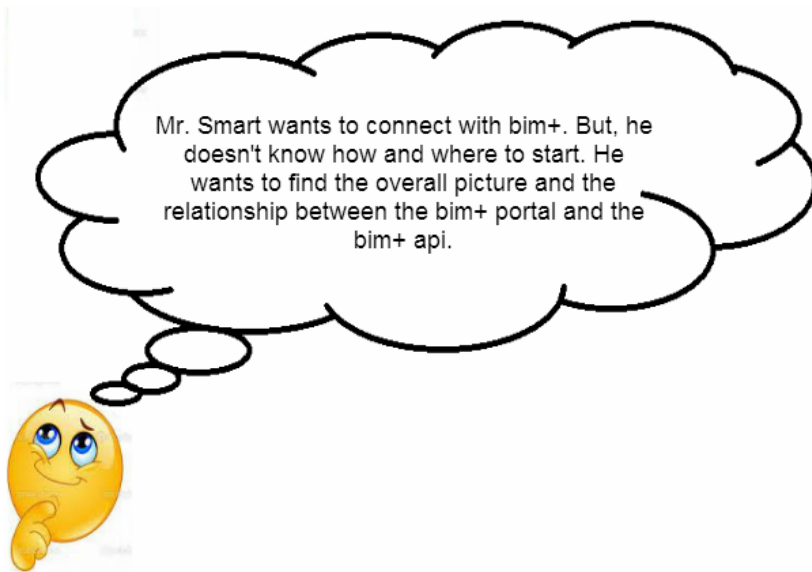
Find out how many teams I am part of. Remove myself from some of the teams

Authentication token for multiple services

Rights & Roles. Relation between User, Team and Project

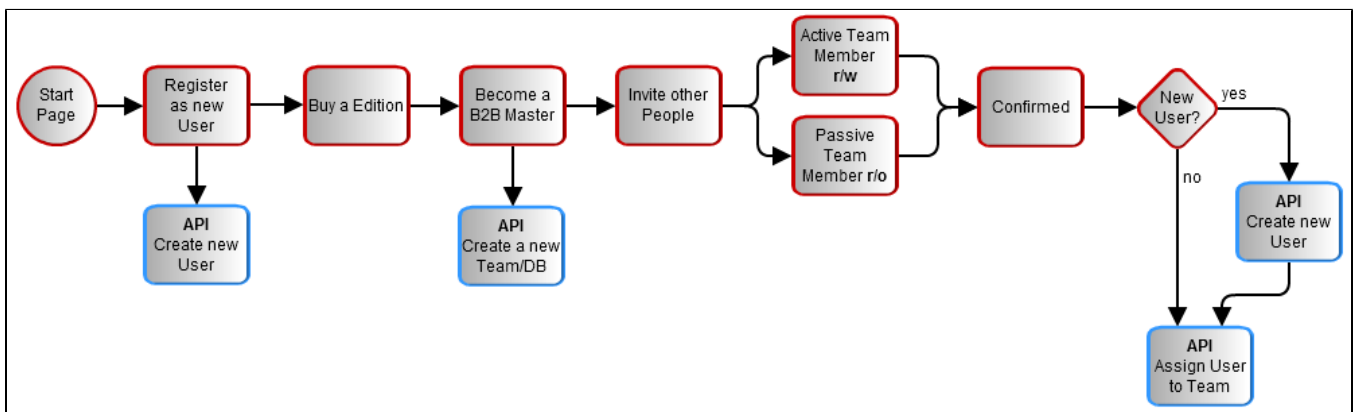
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**Connect with Bimplus. Relation(workflow) between Bimplus portal and Bimplus api**



- [Bimplus portal](#) is the first place of contact of the user/developer for using the Bimplus platform(stage version). The production version of the portal can be found under [shop](#) where you can purchase different editions of Bimplus cloud platform. [Here](#) you can also find a few critical foundation apps like the Bimplus Explorer, Bimplus Viewer and Bimplus Problem Spotter. The portal takes care of the user registration(developer registration) as well.
- The Bimplus API(development version url : <https://api-stage.bimplus.net/v2>) provides an interface for accessing the building information and models. It connects the building project information to a vast number of developers providing innovative Apps / applications that can operate on the building models and information.

The figure below describes the relation between the Bimplus portal and the API.

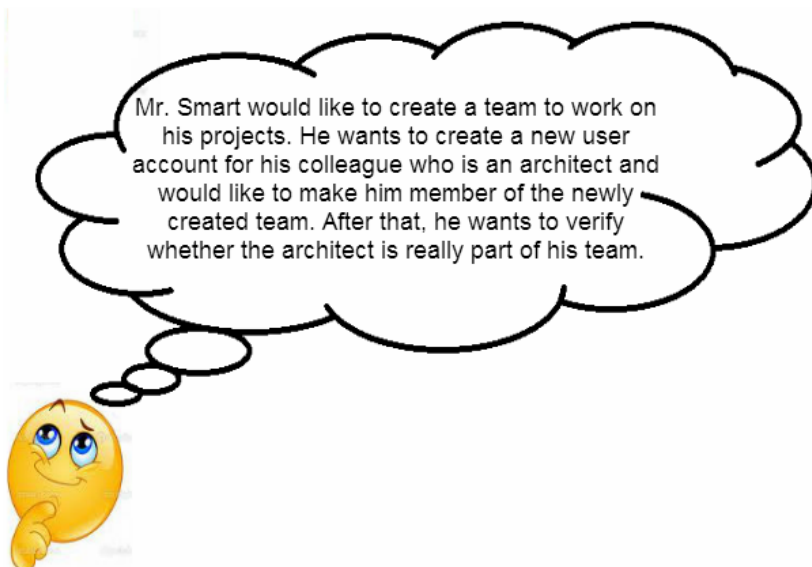


**Become a Bimplus compliant developer/partner. Register and authorize yourself to access the Bimplus resources. Relation between teams and projects**



- Please register [here](#) for accessing the Bimplus resources and become a Bimplus compliant developer and a partner. You will receive an authentication token after the registration.
  - A Team is a tenant/company which work on the projects. The team has to be specified and setup through the [bimplus](#) portal as so called [slugs](#) to present a [clean URL](#) . The team slug will be used to know which tenant database to work on.
  - Using the authentication token and the team slug, you can start working with the building projects which you are a member of, using our Bimplus api.
  - Please find a quick start tutorial [here](#) .
- 

**Create a team. Create an user. Assign the newly created user to the newly created team. Verify whether he/she is part of the team**



The Bimplus provides a few user administration relevant services. They are:

- [User Management Service](#)
  - [Team Management Service](#)
  - [Membership Management Service](#)
  - Please use the [Bimplus Team Management Service](#) (POST <https://api-stage.bimplus.net/v2/teams>) for creating a team. This will basically create a data storage for the team. See in the Request/Response tab where we have created the "best-company" team. Also, please note that the team slug "best-company" will be part of the subsequent requests for accessing the resources and performing the desired actions on them.
  - Create a new user using the [Bimplus User Management Service](#)(POST <https://api-stage.bimplus.net/v2/users>).
  - Add the user which you have created to the team using the [Bimplus Membership Management Service](#)(POST <https://api-stage.bimplus.net/v2//members>).
  - Verify whether the user has been added to the team by using the [Bimplus Membership Management Service](#)(GET <https://api-stage.bimplus.net/v2//members>). In the response tab, you can see the user(test@bimplus.net) who is part of the "best-company" team.
  - For authorization, user should perform OIDC authentication and receive token (preferably within browser UI)
- 

## Create, modify and access different resources/objects of the building model using the Bimplus api



The **project slug** (which should be provided during the creation of a project) should be provided as part of the URL for accessing all the project relevant resources. This is also necessary to verify the user's access rights on the project in an early stage of processing the API call (before any business data will be touched and any business logic will be executed)

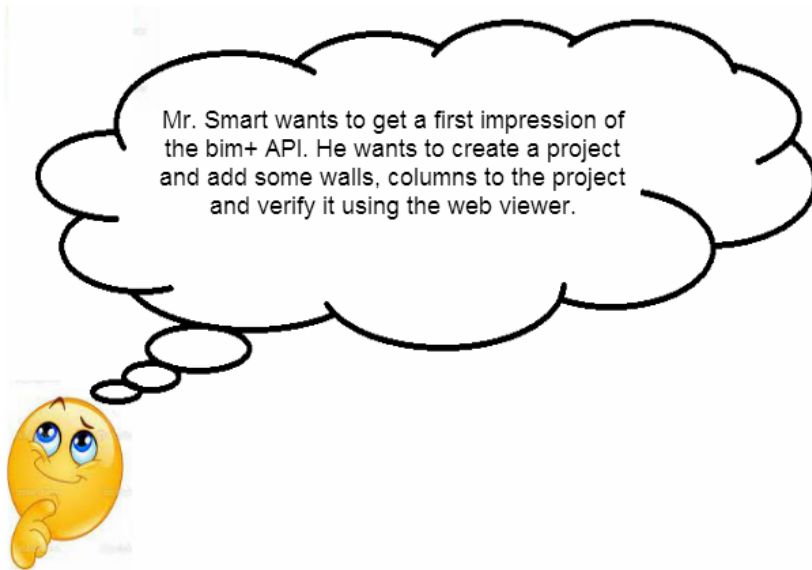
These are the project relevant services available at the moment:

- [Project Service](#)
- [Object Service](#)
- [ElementType Service](#)
- [Division Service](#)
- [Attachment Service](#)
- [Issue Service](#)
- [Pin Service](#)
- [Import Service](#)

For further details see the [Bimplus api reference](#)

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## Create a project, add an object(wall) and view it using the web viewer



## 1. Create a new project

Use the [Bimplus Project Service](#) for creating a new project.

### HTTP Method

POST

### URL / Resource / JSON Structure

**Resource:** projects

**URL:** <https://api-stage.bimplus.net/v2/<team>/projects>

**Example:** <https://api-stage.bimplus.net/v2/bimplus-gmbh/projects>

### JSON Structure:

| Name       | Mandatory / Optional | Type          | Description                      |
|------------|----------------------|---------------|----------------------------------|
| name       | optional             | string        | Name of the project              |
| shortDescr | optional             | string        | Short description of the project |
| created    | will be ignored      | string (date) | Creation date of the project     |

### Description

Creates a new project.

### Request

#### Headers

Authorization: BimPlus 9c1874a62c974dcfa75e0132c423a088  
Content-Type: application/json

## JSON

```
{
  "name" : "Your Wonderful Model",
  "shortDescr" : "The best building model in the world"
}
```

## Response

### Status

Status: 201 Created

## JSON

```
{
  "name": "Your Wonderful Model",
  "shortDescr": "The best building model in the world",
  "teamName": "Bimplus GmbH",
  "teamSlug": "bimplus-gmbh",
  "hasWriteAccess": true,
  "thumbnail": null,
  "created": "2014-01-30T15:43:55.1302187Z",
  "changed": "2014-01-30T15:43:55.1302187Z",
  "disciplines": null,
  "id": "69e48f92-a8dc-4af5-8f71-187b40a8b8f5"
}
```

## 2. Create a model under the project

### HTTP Method

POST

### URL / Resource / JSON Structure

**Resource:** divisions

**URL:** [https://api-stage.bimplus.net/v2/<team\\_slug>/projects/<project\\_id>/divisions](https://api-stage.bimplus.net/v2/<team_slug>/projects/<project_id>/divisions)

**Example:** <https://api-stage.bimplus.net/v2/bimplus/projects/69e48f92-a8dc-4af5-8f71-187b40a8b8f5/divisions>

### JSON Structure:

| Name        | Mandatory / Optional | Type          | Description                                   |
|-------------|----------------------|---------------|-----------------------------------------------|
| name        | mandatory            | string        | Name of the model                             |
| description | optional             | string        | Short description of the model                |
| projectId   | will be ignored      | string (guid) | Id of the project to which the model belongs  |
| topologyId  | optional             | string (guid) | Id of the topology to which the model belongs |
| disciplines | optional             | object        | The discipline list of the model              |

### Description

Creates a new model.

### Request

#### Headers

Authorization: BimPlus 9c1874a62c974dcfa75e0132c423a088  
Content-Type: application/json

#### JSON

```
{  
  "name" : "Nemetschek Building",  
  "shortDesc" : "Model created via API"  
}
```

#### Response

##### Status

Status: 201 Created

#### JSON

```
{  
  "name": "Nemetschek Building",  
  "description": null,  
  "projectId": "69e48f92-a8dc-4af5-8f71-187b40a8b8f5",  
  "id": "4496b8ad-ba5a-483c-9912-2cb837178708"  
}
```

### 3. Create a topology node

A Topology node has to be created for adding the objects (Column, Wall). As a topology node is also an object, the [Bimplus Object Service](#) has to be used for creating the topology object. Please see the request tab. The id of the project is provided as the parent of the topology node object. The model id has to be provided as the "divisionid" attribute.

#### HTTP Method

POST

#### URL / Resource / JSON Structure

**Resource:** objects

**URL:** <https://api-stage.bimplus.net/v2/<team>/objects>

**Example:** <https://api-stage.bimplus.net/v2/bimplus/objects>

#### JSON Structure:

| Name       | Mandatory / Optional | Type          | Description                                                |
|------------|----------------------|---------------|------------------------------------------------------------|
| parent     | optional             | string (guid) | The id of the parent to which the object can be associated |
| type       | mandatory            | string        | Element type of the object                                 |
| attributes | optional             | string        | Attributes of the object                                   |
| children   | optional             | Object        | Children of the object                                     |

#### Description

Creates a new object

#### Request

### Headers

Authorization: BimPlus 9c1874a62c974dcfa75e0132c423a088  
Content-Type: application/json

### JSON

```
{
  "parent": "69e48f92-a8dc-4af5-8f71-187b40a8b8f5",
  "type": "TopologyDivision",
  "attributes": {
    "element": {
      "isparent": true,
      "elementtyp": "e003e080-f21b-4f8a-8c4c-4c9c5026cf50",
      "divisionid": "4496b8ad-ba5a-483c-9912-2cb837178708"
    },
    "general": {
      "name": "created by objects post",
      "isobjectvalid": true
    }
  }
}
```

### Response

#### Status

Status: 201 Created

### JSON

```
{
  "id": "b793c860-d3b8-48a5-aa42-9df9e24a0d71",
  "parent": "69e48f92-a8dc-4af5-8f71-187b40a8b8f5",
  "type": "TopologyDivision",
  "attributes": {
    "element": {
      "isparent": true,
      "elementtyp": "e003e080-f21b-4f8a-8c4c-4c9c5026cf50",
      "divisionid": "4496b8ad-ba5a-483c-9912-2cb837178708",
      "logparentid": "69e48f92-a8dc-4af5-8f71-187b40a8b8f5"
    },
    "general": {
      "name": "created by objects post",
      "isobjectvalid": true
    }
  }
}
```

#### 4. Add a wall to the project

Again we use the Bimplus Object Service for creating the wall object in the project. Please note that the wall is added to the topology node and not the project (i.e See the request tab. The id of the topology node is provided for the parent attribute of the json object(wall))

#### HTTP Method

POST

#### URL / Resource / JSON Structure

Resource: objects

URL: https://api-stage.bimplus.net/v2/<team>/objects

Example: https://api-stage.bimplus.net/v2/bimplus/objects

JSON Structure:

| Name       | Mandatory / Optional | Type          | Description                                                |
|------------|----------------------|---------------|------------------------------------------------------------|
| parent     | optional             | string (guid) | The id of the parent to which the object can be associated |
| type       | mandatory            | string        | Element type of the object                                 |
| attributes | optional             | string        | Attributes of the object                                   |
| children   | optional             | Object        | Children of the object                                     |

Description

Creates a new object

Request

| Headers                                                                                   |
|-------------------------------------------------------------------------------------------|
| Authorization: BimPlus 9c1874a62c974dcfa75e0132c423a088<br>Content-Type: application/json |

| JSON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>{   "parent": "b793c860-d3b8-48a5-aa42-9df9e24a0d71",   "type": "wall",   "attributes": {     "element": {       "elementtyp": "10074eef-9418-4d64-9c6d-23932835a7f1",       "divisionid": "4496b8ad-ba5a-483c-9912-2cb837178708"     },     "general": {       "name": "a new test wall without walllayer"     },     "quantity": {       "width": 100,       "volume": 200.4     },     "geometry": {       "mesh": {         "color": 4291407461,         "vertices": [           -3486.667,           0,           -3000,           8993.333,           0,           -3000,           8993.333,           300,           -3000,           -3486.667,           300,           -3000,           -3486.667,           0,           -400,           8993.333,           0,           -400,           8993.333,           300,           -400,           -3486.667,           300,</pre> |

```
        -400
      ],
      "faces": [
        4,
        3,
        0,
        1,
        2,
        4,
        4,
        7,
        6,
        5,
        4,
        0,
        3,
        7,
        4,
        4,
        1,
        0,
        4,
        5,
        4,
        2,
        1,
        5,
        6,
        4,
        3,
        2,
        6,
        7
      ]
    }
  }
}
```

Response

| Status              |
|---------------------|
| Status: 201 Created |

| JSON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>{   "id": "b2a92252-ae51-4c72-ab1e-fafa141ac54c",   "parent": "b793c860-d3b8-48a5-aa42-9df9e24a0d71",   "type": "Wall",   "attributes": {     "element": {       "elementtyp": "10074eef-9418-4d64-9c6d-23932835a7f1",       "divisionid": "4496b8ad-ba5a-483c-9912-2cb837178708",       "logparentid": "69e48f92-a8dc-4af5-8f71-187b40a8b8f5"     },     "general": {       "name": "a new test wall without walllayer"     },     "quantity": {       "width": 100,       "volume": 200.4     },     "geometry": {       "mesh": {</pre> |

```

"color": 4291407461,
"vertices": [
  -3486.667,
  0,
  -3000,
  8993.333,
  0,
  -3000,
  8993.333,
  300,
  -3000,
  -3486.667,
  300,
  -3000,
  -3486.667,
  0,
  -400,
  8993.333,
  0,
  -400,
  8993.333,
  300,
  -400,
  -3486.667,
  300,
  -400
],
"faces": [
  4,
  3,
  0,
  1,
  2,
  4,
  4,
  7,
  6,
  5,
  4,
  0,
  3,
  7,
  4,
  4,
  1,
  0,
  4,
  5,
  4,
  2,
  1,
  5,
  6,
  4,
  3,
  2,
  6,
  7
]
}
},
"elementstate": {
  "state": "0aaf5a1c-2453-40cb-9232-315119dd288f"
}
}
}

```

5. Verify whether the wall and column is added to the project by seeing the object topology

For verifying whether the wall and the column is added to the project, we have to call GET <https://api-stage.bimplus.net/v2/nemetschek/objects//topology>. Please note that the API call GET <https://api-stage.bimplus.net/v2/nemetschek/projects//topology> will only give you its children (i.e topology) details. So, if your project is very big, you can first call GET <https://api-stage.bimplus.net/v2/nemetschek/projects//topology> and get the topology id(i.e 7f76a497-e322-4b78-b820-1ce85ebc39db in our example). Using the topology id we can get the object(wall, column in our case) details using the call GET <https://api-stage.bimplus.net/v2/nemetschek/objects/7f76a497-e322-4b78-b820-1ce85ebc39db/topology>.

**HTTP Method**

GET

**URL / Resource / JSON Structure**

**Resource:** objects/<object\_id>/topology

**URL:** [https://api-stage.bimplus.net/v2/<team>/objects/<object\\_id>/topology](https://api-stage.bimplus.net/v2/<team>/objects/<object_id>/topology)

**Example:** <https://api-stage.bimplus.net/v2/bimplus-gmbh/objects/69e48f92-a8dc-4af5-8f71-187b40a8b8f5/topology>

**Description**

Get all the project properties of a project using its id.

**Request**

| Headers                                                                                   |
|-------------------------------------------------------------------------------------------|
| Authorization: BimPlus 9c1874a62c974dcfa75e0132c423a088<br>Content-Type: application/json |

**Response**

| Status         |
|----------------|
| Status: 200 OK |

| JSON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>{   "parent": null,   "name": "Your Wonderful Model",   "type": "ID_Project",   "children": [     {       "parent": "69e48f92-a8dc-4af5-8f71-187b40a8b8f5",       "name": "created by objects post",       "type": "ID_TopologyDivision",       "children": [         {           "parent": "b793c860-d3b8-48a5-aa42-9df9e24a0d71",           "name": "a new test wall without walllayer",           "type": "ID_ArchWall",           "children": [],           "id": "b2a92252-ae51-4c72-ab1e-fafa141ac54c"         }       ],       "id": "b793c860-d3b8-48a5-aa42-9df9e24a0d71"     }   ],   "id": "69e48f92-a8dc-4af5-8f71-187b40a8b8f5" }</pre> |

6. See your result visually by using the web viewer.



---

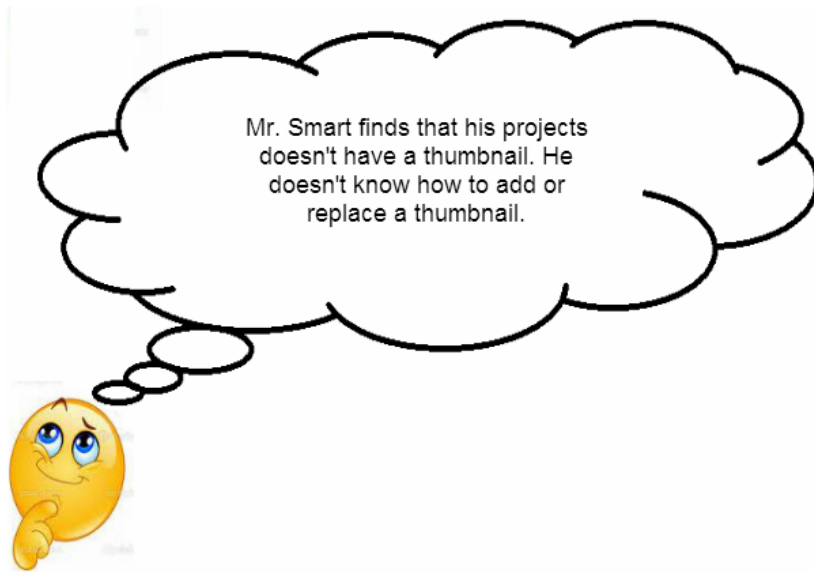
## Get the list of available projects and its properties



- [This API call](https://api-stage.bimplus.net/v2/projects)(GET <https://api-stage.bimplus.net/v2/projects>) should retrieve the list of projects available to the team. In this call, only a few properties of the projects will be visible.
- Using the project id got from the previous call, the full property list can be accessed using [this API call](https://api-stage.bimplus.net/v2/projects/)(GET <https://api-stage.bimplus.net/v2/projects/>)

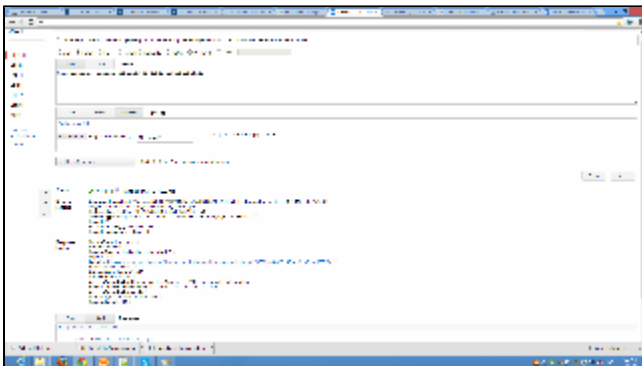
---

## Add a thumbnail to the project

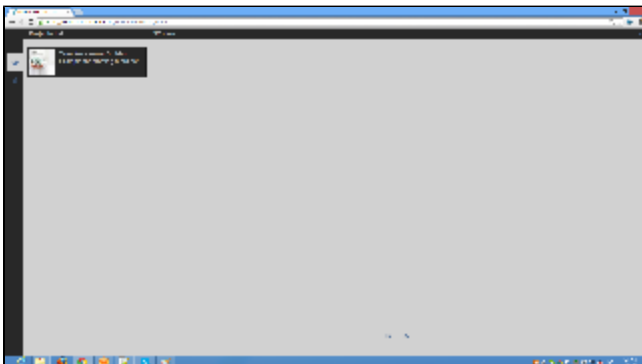


- Thumbnail can be added to a project by using the [Bimplus Project Service](https://api-stage.bimplus.net/v2/projects/thumbnail)(POST <https://api-stage.bimplus.net/v2/projects/thumbnail>). There is also a [service](#) available for downloading the thumbnail.

**Thumbnail API call:**

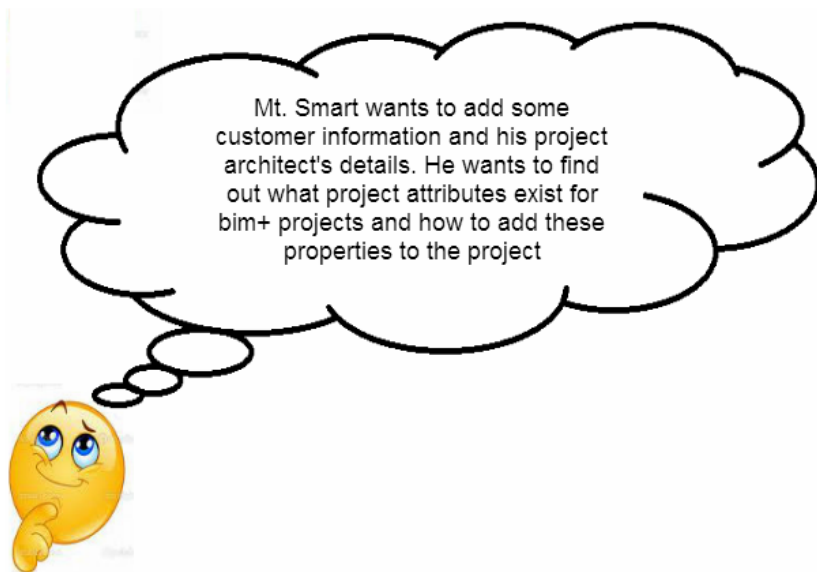


**Web Viewer:**



- Please, note that there is a seperate attachment service available for uploading attachments other than thumbnail.

## Add properties to the project



- The project can be updated with the necessary attributes. The list of available Bimplus attributes can be seen [here](#)
- Update the project with the project properties

#### HTTP Method

PUT

#### URL / Resource / JSON Structure

**Resource:** projects/<project\_id>

**URL:** https://api-stage.bimplus.net/v2/<team>/projects/<project\_id>

**Example:** https://api-stage.bimplus.net/v2/bimplus/projects/0d2ce2cc-3588-45d6-a59a-f6b89ebed34e

#### JSON Structure:

| Name       | Mandatory / Optional | Type          | Description                      |
|------------|----------------------|---------------|----------------------------------|
| name       | optional             | string        | Name of the project              |
| shortDescr | optional             | string        | Short description of the project |
| created    | will be ignored      | string (date) | Creation date of the project     |
| changed    | will be ignored      | string (date) | Changed date of the project      |

#### Description

Update or replace a specified existing project with a new one.

#### Request

##### Headers

Authorization: BimPlus 9c1874a62c974dcfa75e0132c423a088  
Content-Type: application/json

## JSON

```
{
  "properties": {
    "MainFloorArea": "456m²",
    "Architect": {
      "name": "NemetschekTech.GmbH",
      "phone1": "089/12793-1115",
      "phone2": "0171/71384483",
      "email": "MyName@Nemetschek.com",
      "city": "Munich",
      "zip": "81829",
      "street": "Konrad-Zuse-Platz1"
    },
    "Customer": {
      "name": "Bimplus customer",
      "phone1": "001-201-1279345",
      "email": "MyName@Nemetschek.com",
      "city": "New Jersey",
      "zip": "08201"
    }
  }
}
```

## Response

### Status

Status: 200 OK

- See the updated project properties

## HTTP Method

GET

## URL / Resource / JSON Structure

**Resource:** projects/<project\_id>

**URL:** https://api-stage.bimplus.net/v2/<team>/projects/<project\_id>

**Example:** https://api-stage.bimplus.net/v2/bimplus/projects/586b02be-43b8-4e27-b698-e067e85e38e2

## Description

Get all the project properties of a project using its id.

## Request

### Headers

Authorization: BimPlus 9c1874a62c974dcfa75e0132c423a088  
Content-Type: application/json

## Response

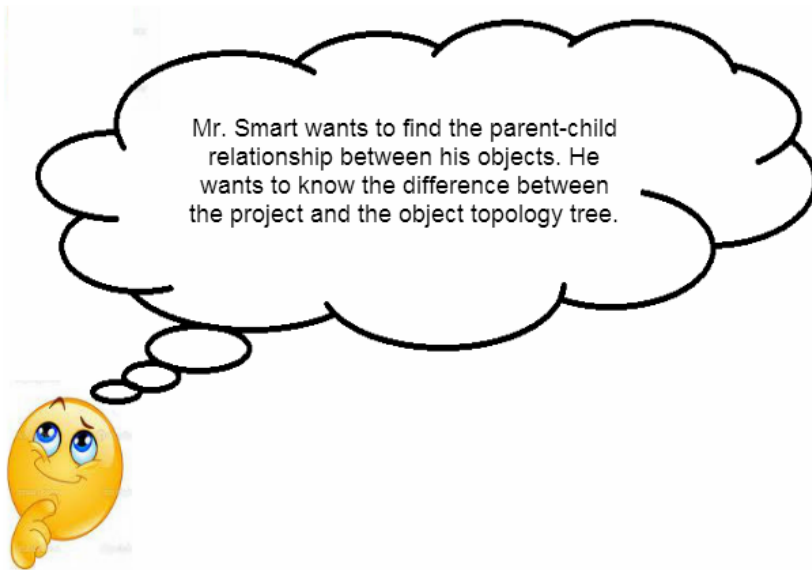
### Status

Status: 200 OK

## JSON

```
{
  "name": "Your Awesome Building",
  "shortDescr": "The example project",
  "thumbnail": "/nemetschek/projects/0d2ce2cc-3588-45d6-a59a-f6b89ebed34e/thumbnail/download",
  "created": "0001-01-01T00:00:00",
  "changed": "0001-01-01T00:00:00",
  "disciplines": [
    {
      "id": "0f106af0-a919-44c5-b211-15bd5ef620b6",
      "name": "ID_BuildingModel",
      "divisionId": "ac21b9a1-8853-4658-9fbf-0cf62340bd18",
      "divisionName": null,
      "revisions": []
    }
  ],
  "properties": {
    "mainfloorarea": "456m²",
    "architect": {
      "name": "NemetschekTech.GmbH",
      "street": "Konrad-Zuse-Platz1",
      "phone1": "089/12793-1115",
      "phone2": "0171/71384483",
      "email": "MyName@Nemetschek.com",
      "zip": "81829",
      "city": "Munich"
    },
    "customer": {
      "name": "Bimplus customer",
      "phone1": "001-201-1279345",
      "email": "MyName@Nemetschek.com",
      "zip": "08201",
      "city": "New Jersey"
    }
  },
  "id": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e"
}
```

## Project topology and object topology tree



Topology is a hierarchical tree representing all its child nodes. A topology tree consist of components which can have a graphical representation(objects or elements) or components which does not have a graphical representation(nodes). A topology tree can be obtained both on the project as well as on the object level.

- Please use the [Bimplus Project Service](#) for obtaining/filtering the project topology tree. This will yield the topology nodes filtered till the sub-project level.

#### Project Topology Tree (GET [api.bimplus.net/v2/<team>/projects/<project\\_id>/topology](#))

```
{
  "parent": null,
  "name": null,
  "type": "Project",
  "children": \[{
    "parent": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e",
    "name": null,
    "type": "ID_TopologyDivision",
    "children": [],
    "id": "195db084-3715-4ebc-b164-3ee47a495b2e"
  }
\],
  "id": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e"
}
```

#### Project Tree (GET api.bimplus.net/v2/<team>/projects/<project\_id>)

```
{
  "name": "Your Awesome Building",
  "shortDescr": "Updating the example project",
  "created": "0001-01-01T00:00:00",
  "changed": "0001-01-01T00:00:00",
  "disciplines": \[{
    "id": "0f106af0-a919-44c5-b211-15bd5ef620b6",
    "name": "ID_BuildingModel",
    "divisionId": "ac21b9a1-8853-4658-9fbf-0cf62340bd18",
    "divisionName": null,
    "revisions": []
  }
\],
  "id": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e"
}
```

- Please use the [Bimplus Object Service](#) for obtaining/filtering the object topology tree. This will yield the topology nodes with all the properties, attributes, geometry and children.

#### Object Topology Tree (GET api.bimplus.net/v2/<team>/objects/<object\_id>/topology)

```
{
  "parent": null,
  "name": "Updated_Brickwall",
  "type": "ID_ArchWall",
  "children": [],
  "id": "7cf910cb-e357-43f6-aa3a-b45c26380f75"
}
```

#### Object Tree (GET api.bimplus.net/v2/<team>/objects/<object\_id>)

```
{
  "id": "7cf910cb-e357-43f6-aa3a-b45c26380f75",
  "type": "Wall",
  "attributes": {
    "element": {
      "isparent": true,
      "nr": 0,
      "matrix": "AAAAAAAAA8D8AAAAAAAAAgAAAAAAAAACINejcP1YsEAAAAAAAAAgAAAAAAAAAPA/AAAAAAAAIAK16Nw/fy
                2QAAAAAAAAACAAAAAAAAAIAAAAAAAAAADwPwAArkfheoS
/AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA8D8=",
      "elementtyp": "10074eef-9418-4d64-9c6d-23932835a7f1",
      "logparentid": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e",
      "divisionid": "ac21b9a1-8853-4658-9fbf-0cf62340bd18"
    },
    "general": {
      "name": "Updated_Brickwall",
      "isobjectvalid": true
    },
    "allplan": {
      "allplan_guid": "08b8195a-a2ad-11e2-9993-002215ea7d6b",
      "allplan_id": 2065507287,
      "allplan_text": "<PP>Wall",
      "dateofexport": "2013-05-01T09:32:13"
    },
    "geometry": {
      "mesh": "{\\\"C\\\":0,\\\"V\\\":[4450.01,115.01,0.01,3200.01,115.01,0.01,3200.01,0.01,0.01,4450.01,0.01,0.01,2315.01,
0.01,0.01,2315.01,115.01,0.01,0.01,115.01,0.01,0.01,0.01,0.01,4450.01,115.01,2750.01,4450.01,0.01,
2750.01,0.01,0.01,2750.01,0.01,115.01,2750.01,2315.01,115.01,2190.01,3200.01,115.01,2190.01,3200.01,
0.01,2190.01,2315.01,0.01,2190.01],\\\"F\\\":[4,0,1,2,3,4,4,5,6,7,4,8,9,10,11,4,0,3,9,8,8,6,5,12,13,1,0,
8,11,4,7,6,11,10,8,3,2,14,15,4,7,10,9,4,12,15,14,13,4,15,12,5,4,4,13,14,2,1]}"
    }
  }
}
```

- A project is basically an object. For a better understanding, here the same project is represented using the different API calls.

#### Project Tree (GET api.bimplus.net/v2/nemetschek/projects/0d2ce2cc-3588-45d6-a59a-f6b89ebed34e)

```
{
  "name": "Your Awesome Building",
  "shortDescr": "Updating the example project",
  "thumbnail": "/nemetschek/projects/0d2ce2cc-3588-45d6-a59a-f6b89ebed34e/thumbnail/download",
  "created": "0001-01-01T00:00:00",
  "changed": "0001-01-01T00:00:00",
  "disciplines": [
    {
      "id": "0f106af0-a919-44c5-b211-15bd5ef620b6",
      "name": "ID_BuildingModel",
      "divisionId": "ac21b9a1-8853-4658-9fbf-0cf62340bd18",
      "divisionName": null,
      "revisions": []
    }
  ],
  "id": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e"
}
```

#### Project Topology Tree (GET api.bimplus.net/v2/nemetschek/projects/0d2ce2cc-3588-45d6-a59a-f6b89ebed34e/topology)

```
{
  "parent": null,
  "name": "Your Awesome Building",
  "type": "ID_Project",
  "children": [
    {
      "parent": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e",
      "name": "Your Awesome Building",
      "type": "ID_TopologyDivision",
      "children": [],
      "id": "c1c6c2bc-f38e-4c01-ae5a-864baaa0b2d0"
    }
  ],
  "id": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e"
}
```

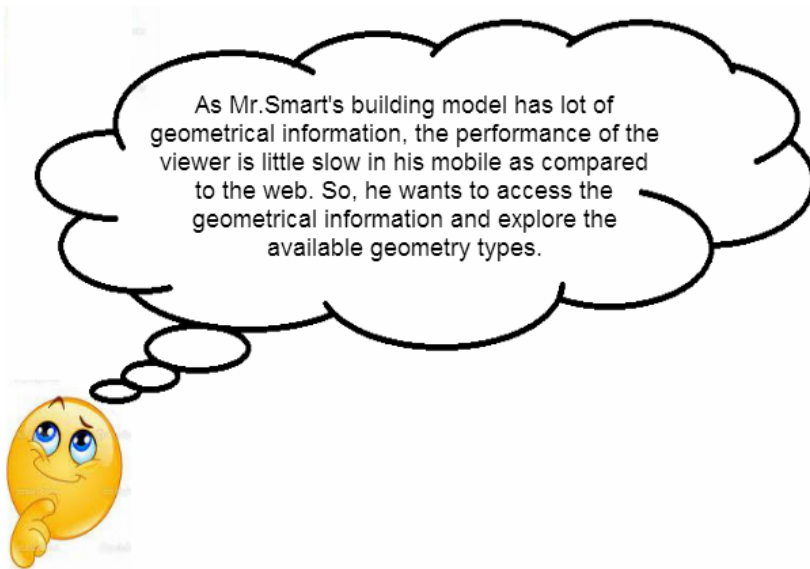
#### Object Tree (GET api.bimplus.net/v2/nemetschek/objects/0d2ce2cc-3588-45d6-a59a-f6b89ebed34e)

```
{
  "id": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e",
  "type": "Project",
  "attributes": {
    "element": {
      "isparent": true,
      "elementtyp": "8d27ae6d-3c9a-4201-8a4d-bf0225861788",
      "materialsurfaceid": "cddb7fbc-0d02-4be5-adb3-04b7f0b2a638"
    },
    "general": {
      "name": "Your Awesome Building",
      "description": "Updating the example project",
      "isobjectvalid": true
    }
  }
}
```

#### Object Topology Tree (GET api.bimplus.net/v2/nemetschek/objects/0d2ce2cc-3588-45d6-a59a-f6b89ebed34e/topology)

```
{
  "parent": null,
  "name": "Your Awesome Building",
  "type": "ID_Project",
  "children": [
    {
      "parent": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e",
      "name": "Your Awesome Building",
      "type": "ID_TopologyDivision",
      "children": [
        {
          "parent": "c1c6c2bc-f38e-4c01-ae5a-864baaa0b2d0",
          "name": "Brickwall",
          "type": "ID_ArchWall",
          "children": [],
          "id": "7cf910cb-e357-43f6-aa3a-b45c26380f75"
        }
      ],
      "id": "c1c6c2bc-f38e-4c01-ae5a-864baaa0b2d0"
    }
  ],
  "id": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e"
}
```

## Find the geometry of an object. Get to know the types of geometry available



The geometrical information(graphical representation) of a building can be accessed through the [Bimplus Object Service](#). There are different types of geometry available for optimizing and viewing on different devices.

There are three type of Geometry objects.

- **mesh:** It is the default geometry type. It is an uncompressed mesh format where the geometry object will be compressed on the server before storing it into the database. Please use this [API call](#)(GET <https://api-stage.bimplus.net/v2//objects/>) for getting the mesh information of an object.

Get the mesh data from the object tree (GET [api.bimplus.net/v2/<team>/objects/<object\\_id>](http://api.bimplus.net/v2/<team>/objects/<object_id>))

```
{
  "id": "7cf910cb-e357-43f6-aa3a-b45c26380f75",
  "type": "Wall",
  "attributes": {
    "element": {
      "isparent": true,
      "nr": 0,
      "matrix": "AAAAAAAA8D8AAAAAAAAAgAAAAAAAACAINejcP1YsEAAAAAAAAAgAAAAAAAAPA/AAAAAAAAIAK16Nw/fy
                2QAAAAAAAACAAAAAAAAAIAAAAAAAAAADwPwAArkfheoS
/AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA8D8=",
      "elementtyp": "10074eef-9418-4d64-9c6d-23932835a7f1",
      "logparentid": "0d2ce2cc-3588-45d6-a59a-f6b89ebed34e",
      "divisionid": "ac21b9a1-8853-4658-9fbf-0cf62340bd18"
    },
    "general": {
      "name": "Updated_Brickwall",
      "isobjectvalid": true
    },
    "allplan": {
      "allplan_guid": "08b8195a-a2ad-11e2-9993-002215ea7d6b",
      "allplan_id": 2065507287,
      "allplan_text": "<PP>Wall",
      "dateofexport": "2013-05-01T09:32:13"
    },
    "geometry": {
      "mesh": "{\"C\\":0,\"V\\":[4450.01,115.01,0.01,3200.01,115.01,0.01,3200.01,0.01,0.01,4450.01,0.01,0.01,2315.01,
0.01,0.01,2315.01,115.01,0.01,0.01,115.01,0.01,0.01,0.01,0.01,4450.01,115.01,2750.01,4450.01,0.01,
2750.01,0.01,0.01,2750.01,0.01,115.01,2750.01,2315.01,115.01,2190.01,3200.01,115.01,2190.01,3200.01,
0.01,2190.01,2315.01,0.01,2190.01],\"F\\":[4,0,1,2,3,4,4,5,6,7,4,8,9,10,11,4,0,3,9,8,8,6,5,12,13,1,0,
8,11,4,7,6,11,10,8,3,2,14,15,4,7,10,9,4,12,15,14,13,4,15,12,5,4,4,13,14,2,1]}"
    }
  }
}
```

- **meshblob**: It is a compressed mesh format intended to be used in the desktop CAD applications. Internal CAD format of the geometry will be converted into a Bimplus compressed mesh format with the help of a DLL in order to minimize the JSON object. Please use this [API call](http://api-stage.bimplus.net/v2/objects/geometries/meshblob)(GET [http s://api-stage.bimplus.net/v2/objects/geometries/meshblob](http://api-stage.bimplus.net/v2/objects/geometries/meshblob)) for getting the meshblob information of an object.

### Meshblob data (GET [api.bimplus.net/v2/<team>/objects/<object\\_id>/geometries/meshblob](https://api.bimplus.net/v2/<team>/objects/<object_id>/geometries/meshblob))

```
{
  "elementsCount": 1,
  "objects": [
    {
      "id": "7cf910cb-e357-43f6-aa3a-b45c26380f75",
      "parent": "00000000-0000-0000-0000-000000000000",
      "type": "wall",
      "attributes": {
        "geometry": {
          "compress": true,
          "picture":
"H4sIAAAAAAEANVXW3PbRBTWylIsuUmctml6T900t7aua+eetiH0ndAQDLS8pBnhzyYVUeQiyR0cGJ545y9QGB
54YYY3HvkXPPetQLLDuV/2E7uqiEfUMzRDkwc
/zf10tHv02XP0WhKRJ0kPduG0q1VmCLVQmPE8xywVzLJXc+iV+k06nE69QB3Xr

NpTQ91cLpPNjExmxzIjufHRBDo1V70g0GXTmucUrXSQuCTZzVkyrV+pblJ7yq5ZLoo10qt0i3pu+QbdzKxe9UxrSw5RaemZstunt
BYk9tr1C16rRCnTh7Qb1ZNW1PoZUNqlwv1qm2ZTxXrJg1t33LmKV2xbQ3nKplUcVjRsrL87FYTFGU2G3yfN316FZmDg/LHrPbzSxRm

zpmObNiut6LubW1SFsC09jSzJfdiMb6+luPwsQFFpFH28JFtmm7ZmFP50rVmu3N0E6xjoRuUq03Sk0kJMyG4h4el6WawYGsxwAKQGWQ
SKg/s5pqajoURfxW0apRw5A0TBbrCT1J
/Z+eJU97IFsFGwjJBt12ajIBpWN67KxIRs3ZMOUjZdkY1N6cGnxuMwvacelwnj/QX3AzBb
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/zHqYF3idQkXzEkQgSEZnQ11QW+R

W0AtRbAW2AdkASgIn0vYB9gP2ATsABQBfgIADB1w8DjsAQXRIsgIGRrSK8n74dRwHHAMcB3YATAMyjnwt0AE4BegF9gh7AAGAQCbpwB
nAWkAacA2QA5wFZQA4wxKBNiyf+FrqHWow98C0eBowARGFjgHHABGAScAFwEXAJa7WoiHZzm4NEIa+Q0t1GxrS0Ymn7g9felEsf5F+e
Snz8zkfX8q92vr90Z/uNaYL9w9T3nv2wW5Xea1Ro26EgHgQK7VxBLNGgkAzP0PV2o0LHDoUGG
/ZyBUE0K0zbodCwxP4dRooZ/CVfezd

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r5AQn0G1bQKQ4AQH
/a81JTkBAVyI9nND4a+QUJ9AqUhyk1xMJ7jjp4wQE5Dbp50Qrf40MhAzz5xgMTepbejpkGNKfn0EEBKQ70cuJdhG
PdGgV35dzITt8XzKhAKEiyHl0QEAFkCwn0oS3udCyvsZQ6BUsrQ43s51o0
/BLxReDG3u9iY00qyzb3vBQ0rX1lqu0ZZYeHGIj7ARjv4c
fXaXx8eJoeXQsNzk8QrMTk+v+EaRPwRs0QL8TPgFpVEjTkMaElIc0LqQZSBNCmoU0KaQ5SBeENA
/popAWIF0S0iJ2Hyb8x6GIPtHjKDh

NX+Jp6tcQogSj9SfD7LRg18NsXrBPhdkZwV7mSekn5qxgV8K6c4J90qw7L9jVs06CYJ8Js4uCLYTYpHBJE61ENIykCEsTDUK0gaRwTRN
1L4o7KdzTfmUfByiTH9gd1ZEMXMRnhygxnCP4tP+Gje/YwLGRFG5r+MD4go3V2cB5kQxc
/40x0CBwBqDN/8jKz9m4z8a3mF+EQ00P/4w
xa0Vf4YkIiFYJk75m4xc2PsUTERbtLpPusfE7G1/iI+dPBQ0gCIMQAAA=",
          "type": 3,
          "matrix": "AAAAAAAA8D8AAAAAAAAAagAAAAAAAAACAInejcP1YsEAAAAAAAAAagAAAAAAAAAPA/AAAAAAAAIAK16Nw
/fy2QAAAAAAAAACAAAAAAAAIAAAAAAAAA
DwPwAArkfheoS/AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA8D8="
        }
      }
    ]
  }
}
```

- **threejs**: It is a format which is optimized for viewing on mobile devices or in browsers where the native model is filtered and tessellated in order to deliver minimal JSON size and maximal navigation speed (FPS). This model has ThreeJS JSON v 3.1 format and can be directly parsed by the client. Please use this [API call](https://api-stage.bimplus.net/v2/objects//geometries/threejs) (GET <https://api-stage.bimplus.net/v2/objects//geometries/threejs>) for getting the threejs information of an object.

### ThreeJS data (GET [api.bimplus.net/v2/<team>/objects/<object\\_id>/geometries/threejs](https://api.bimplus.net/v2/<team>/objects/<object_id>/geometries/threejs))

```
{
  "elementsCount": 1,
  "viewbox": {
    "x": -5081.562,
    "y": 5005.8785,
```

```
    "z": 1231.1029999999996,
    "width": 5950,
    "height": 5540.835,
    "depth": 7065.71
  },
  "colors": [
    -9868951
  ],
  "objects": [
    {
      "id": "f5cc3c6c-1fdf-499d-a38d-0582adadc216",
      "type": "RoofLayer",
      "attributes": {
        "geometry": {
          "threejs": {
            "faces": [
              0,
              2,
              1,
              3,
              0,
              5,
              3,
              9,
              1,
              1,
              14,
              1,
              5,
              6,
              15,
              12,
              1,
              7,
              4,
              13,
              14
            ],
            "vertices": [
              -2106.562,
              7588.114,
              -2301.752,
              -8056.562,
              7588.114,
              -2301.752,
              -8056.562,
              -880.999,
              -4742.212,
              6700,
              -880.999,
              -4742.212,
              7412.539,
              -1821.578,
              -5522.212,
              7412.539,
              -1821.578
            ]
          },
          "metadata": {
            "formatVersion": 3,
            "colorid": 0
          }
        }
      },
      "quantity": {
        "length": 7065.71,
        "height": 150,
        "volume": 7911354818.818842,
        "area": 52742365.4587924
      },
      "general": {
        "name": "<PP>RoofLayer"
      }
    }
  ]
}
```

```
}  
  }  
    }  
  }  
}
```

**Get the different properties / structure(normal, viewer properties, object in hierarchical tree structure) of the object using different property combinations**



Different properties / structure (normal, viewer properties, object in hierarchical tree structure) of the object can be obtained using different property combinations.

url: /geometries/threejs/properties/{props}

where props can be 1, 2 or 3.

/geometries/threejs/properties/1 : show objects as hierarchical tree ( default (/geometries/threejs or /geometries/threejs/properties/0 will give the object details in a flat structure))

/geometries/threejs/properties/2 : show also viewer attributes

/geometries/threejs/properties/3 : include FACE\_NORMAL

You can also combine different property numbers

eg: geometries/threejs/properties/4 should give both the show objects as tree(1) + add FACE\_NORMAL in threeJs json(3)

#### HTTP Method

GET

#### URL / Resource / JSON Structure

**Resource:** objects/<object\_id>/geometries/threejs/properties/{props}

**URL:** https://api-stage.bimplus.net/v2/<team\_slug>/objects/<object\_id>/geometries/threejs/properties/{props}

**Example:** https://api-stage.bimplus.net/v2/bimplus/objects/a17ff78a-8b42-4523-9bf7-283e725e3e95/geometries/threejs/properties/4

#### Description

Get the different properties / structure (normal, viewer properties, object in hierarchical tree structure) of the object using different property combinations.

Request

| Headers                                                                                   |
|-------------------------------------------------------------------------------------------|
| Authorization: BimPlus 9c1874a62c974dcfa75e0132c423a088<br>Content-Type: application/json |

Response

| Status         |
|----------------|
| Status: 200 OK |

| JSON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>{   "elementsCount": 1,   "faceCount": 88,   "viewbox": {     "x": 21000,     "y": 2850,     "z": -19000,     "width": 133,     "height": 5700,     "depth": 140   },   "colors": [     4278190080   ],   "objects": [     {       "id": "a17ff78a-8b42-4523-9bf7-283e725e3e95",       "type": "Column",       "attributes": {         "geometry": {           "threejs": {             "faces": [               0,               2,               1,               0,               0,               4,               0,               3,               0,               7,               6,               5,               0,               8,               5,               6,               0,               9,               5,               8,               0,               10,               9,               8,               0,               13,               12,               11,</pre> |

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    "type": "GeometryObject"
  }
}
}
}
]
}

```

geometries/treejs/properties/7 should give you a combination of objects as tree(1) + viewer attributes(2) + face normal(3)

## HTTP Method

GET

### URL / Resource / JSON Structure

**Resource:** objects/<object\_id>/geometries/threejs/properties/{props}

**URL:** [https://api-stage.bimplus.net/v2/<team\\_slug>/objects/<object\\_id>/geometries/threejs/properties/{props}](https://api-stage.bimplus.net/v2/<team_slug>/objects/<object_id>/geometries/threejs/properties/{props})

**Example:** <https://api-stage.bimplus.net/v2/bimplus/objects/a17ff78a-8b42-4523-9bf7-283e725e3e95/geometries/threejs/properties/7> (i.e 7 gives you a combination of objects as tree(1) + viewer attributes(2) + face normal(3))

**Description**

Get the different properties / structure (normal, viewer properties, object in hierarchical tree structure) of the object using different property combinations.

**Request**

| Headers                                                                                   |
|-------------------------------------------------------------------------------------------|
| Authorization: BimPlus 9c1874a62c974dcfa75e0132c423a088<br>Content-Type: application/json |

**Response**

| Status         |
|----------------|
| Status: 200 OK |

| JSON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>{   "elementsCount": 1,   "faceCount": 88,   "viewbox": {     "x": 21000,     "y": 2850,     "z": -19000,     "width": 133,     "height": 5700,     "depth": 140   },   "colors": [     4278190080   ],   "objects": [     {       "id": "a17ff78a-8b42-4523-9bf7-283e725e3e95",       "type": "Column",       "attributes": {         "geometry": {           "threejs": {             "faces": [               0,               2,               1,               0,               0,               4,               0,               3,               0,               7,               6,               5,               0,               8,               5,               6,               0,               9,               5,               8,               0,               10,</pre> |

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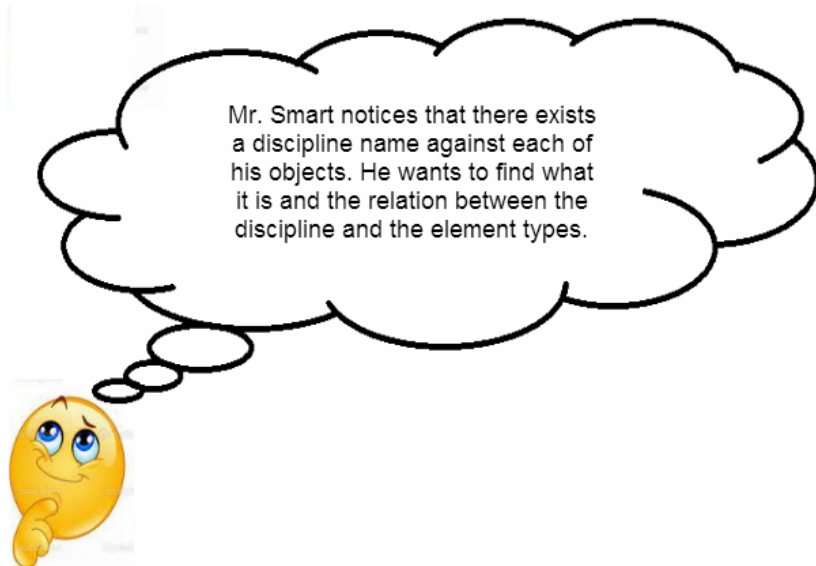
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  "colorid": 0
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  "model": "Structural model",
  "material": "S 235"
},
"elementstate": {
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},
"allfreeattrib": {
  "globalid": "26gojRhan8_9KtPcvJkUQf",
  "skipparentlocations": "False",
  "extrudeprofilename": "HEA140",
  "extrudeprofiletype": "IShapeProfile",
  "filletradius": "12",
  "flangethickness": "8,5",

```

```
    "overalldepth": "133",  
    "overallwidth": "140",  
    "webthickness": "5,5"  
  }  
}  
]
```

---

**Get the project layers and element types. Find the relation between them**

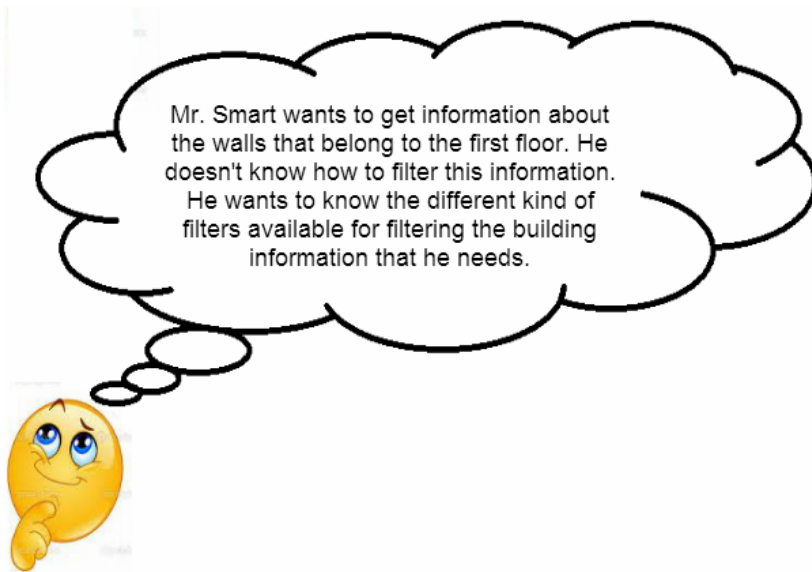


A group of element types constitute a layer. But an element type cannot belong to two layers. Both the element types and layers are predefined.

- Please see the list of element types [here](#)
- The list of element types can be accessed through [this API call](#)(GET <https://api-stage.bimplus.net/v2//element-types>)
- The list of layers can be accessed through [this API call](#)(GET <https://api-stage.bimplus.net/v2//element-types/disciplines>)

---

**Filter the building information using different filter criteria**

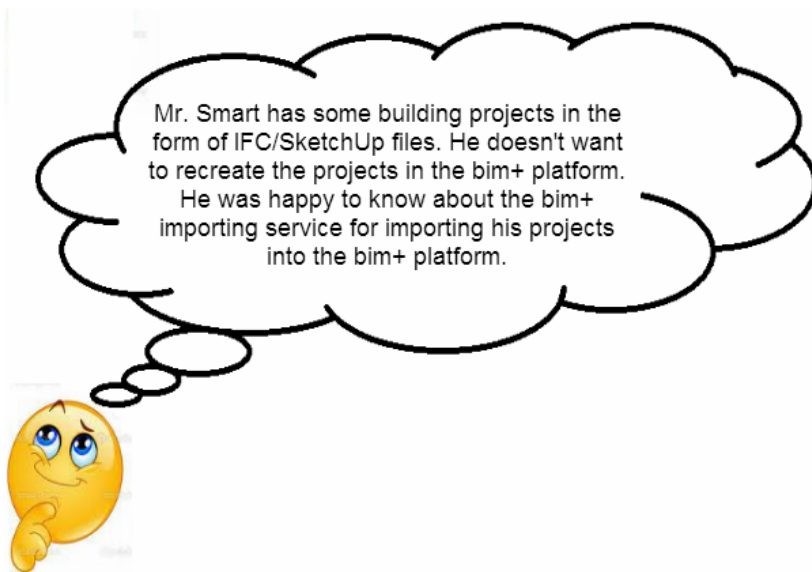


Mr. Smart wants to get information about the walls that belong to the first floor. He doesn't know how to filter this information. He wants to know the different kind of filters available for filtering the building information that he needs.

The "ThreeJS" or the "meshblob" information can be filtered by the layer.

- Please use [this API call](https://api-stage.bimplus.net/v2/<team>/objects/<object_id>/disciplines/<discipline_id>/geometries/threejs) (GET [https://api-stage.bimplus.net/v2/<team>/objects/<object\\_id>/disciplines/<discipline\\_id>/geometries/threejs](https://api-stage.bimplus.net/v2/<team>/objects/<object_id>/disciplines/<discipline_id>/geometries/threejs)) to get the object tree with selected property list whose geometry type is "ThreeJS" filtered by layer
- Please use [this API call](https://api-stage.bimplus.net/v2/<team>/objects/<object_id>/disciplines/<discipline_id>/geometries/meshblob) (GET [https://api-stage.bimplus.net/v2/<team>/objects/<object\\_id>/disciplines/<discipline\\_id>/geometries/meshblob](https://api-stage.bimplus.net/v2/<team>/objects/<object_id>/disciplines/<discipline_id>/geometries/meshblob)) to get the object tree whose geometry type is "compressed geometry mesh (meshblob)" filtered by layer

## Import an existing model in the form of IFC/SketchUp file

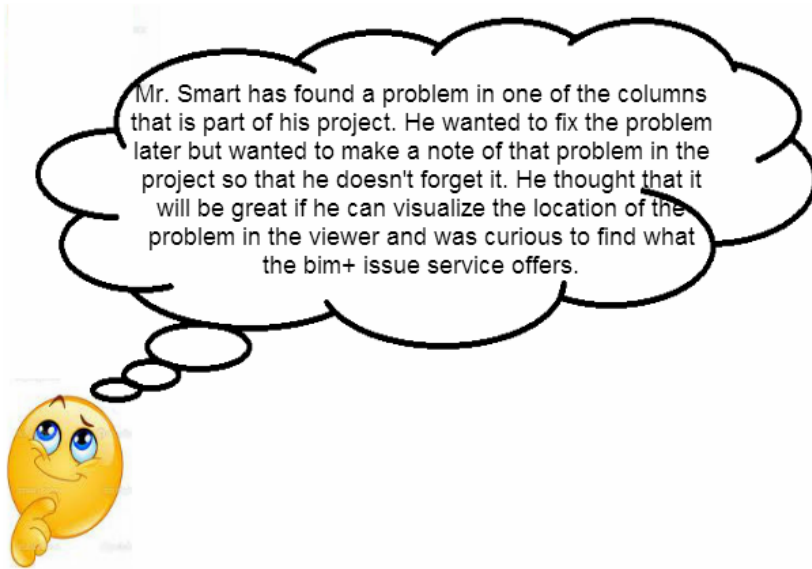


Mr. Smart has some building projects in the form of IFC/SketchUp files. He doesn't want to recreate the projects in the bim+ platform. He was happy to know about the bim+ importing service for importing his projects into the bim+ platform.

Projects in the form of IFC/SketchUp files can be imported into the Bimplus platform by using the [Bimplus Import Service](#)

---

## Create and assign issues to projects. Locate/visualize the issues in the project



Any problems or remarks can be reported and assigned to a project in the form of issues. To understand the problem better, comments or attachments can be added to the issue.

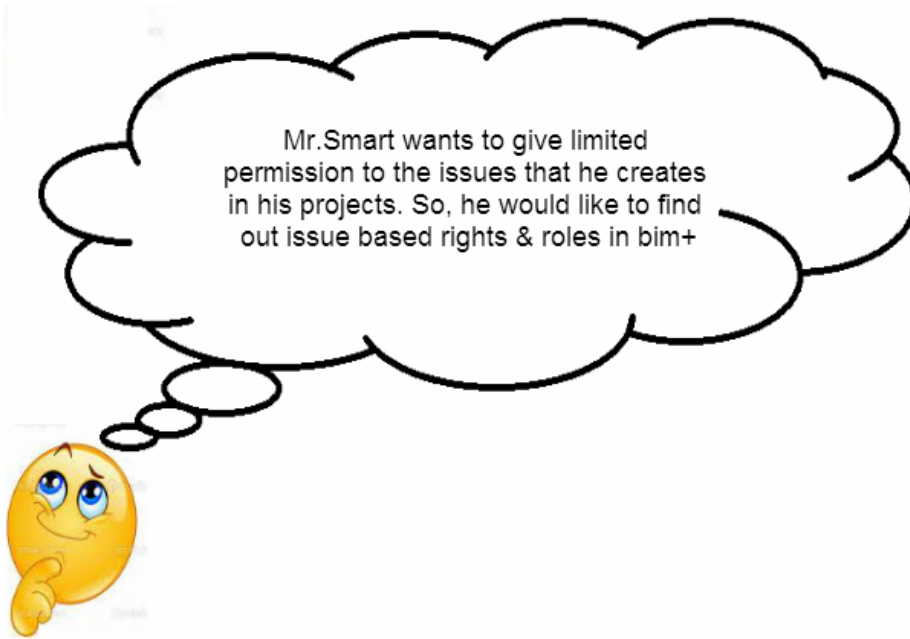
- Please use the [Bimplus Project Service](#) for creating/deleting an issue or for getting all the issues assigned to a project
- Please use the [Bimplus Issue Service](#) for doing all the specific issue related actions

Pins are used to visualize the issues. Pins are relation between an issue and an object. It defines position of an issue in the 3D space.

- A Pin can be created by using the [Bimplus Issue Service](#) (POST <https://api-stage.bimplus.net/v2/issues/pins>)
- There is also a [Bimplus PIN Service](#) available for doing all the specific pin related actions.

---

## Learn about the issue based rights & roles

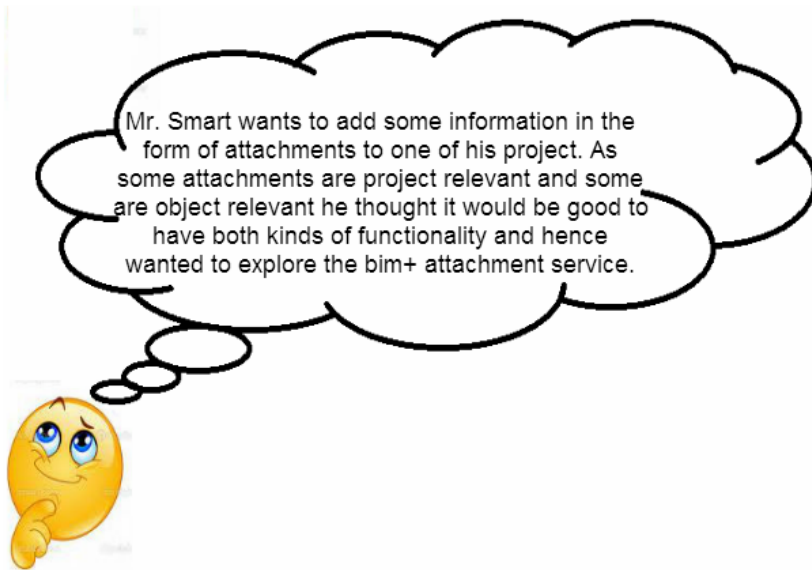


Currently Bimplus has a couple of issue based roles (i.e Author, Responsible). Author is the user who creates an issue and the responsible is the one who solves it. Here are some of the conditions that apply for the Bimplus issue tracking.

- An user can create an issue only if he has the rights for editing a project. See the project based rights & roles [here](#)
- Issue details can be changed only by the author. An exception to it is the "solution" property of the issue where both the author and responsible can change this property.
- Only the author of the issue can set the issue "Status" to be "Closed". Currently there are three defined issue status: Status, Open & Solved
- Issues can be deleted only by the author of the respective issue
- An email will be sent to the author/responsible/cc when an issue is created/updated/deleted (not implemented)
- Please use the [Bimplus Project Service](#) for creating/deleting an issue or for getting all the issues assigned to a project
- Please use the [Bimplus Issue Service](#) for doing all the specific issue related actions

---

**Add attachments to the whole building as well as to the individual objects**



The pictures or any other documents(pdf, ifc etc) can be attached to both the project as well as the individual objects.

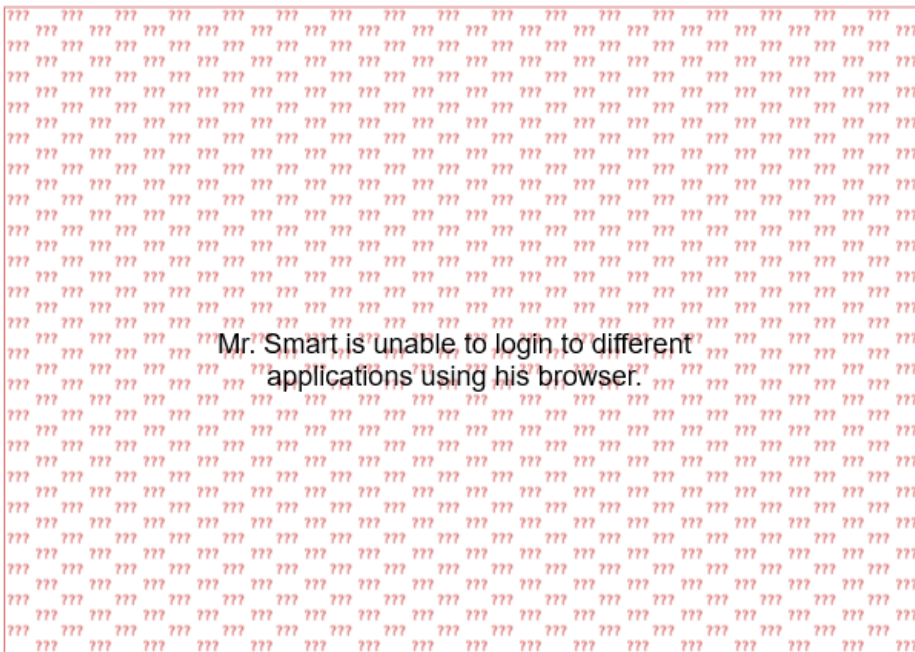
- Please use the [Bimplus Project Service](https://api-stage.bimplus.net/v2/projects/attachments) (POST <https://api-stage.bimplus.net/v2/projects/attachments>) for adding an attachment to the project.
  - Verify whether the picture has been attached to the project using the [Bimplus Project Service](https://api-stage.bimplus.net/v2/projects/attachments) (GET <https://api-stage.bimplus.net/v2/projects/attachments>)
  - Please use the [Bimplus Object Service](https://api-stage.bimplus.net/v2/objects/attachments) (POST <https://api-stage.bimplus.net/v2/objects/attachments>) for adding an attachment to the object.
  - Verify whether the picture has been attached to the object using the [Bimplus Object Service](https://api-stage.bimplus.net/v2/objects/attachments) (GET <https://api-stage.bimplus.net/v2/objects/attachments>)
- 

**Find out how many teams I am part of. Remove myself from some of the teams**



- Please use the [Bimplus Team Management Service](https://api-stage.bimplus.net/v2/teams) (GET https://api-stage.bimplus.net/v2/teams) to get the team list in which you are member of.
- After getting the team list, use the [Bimplus Membership Management Service](https://api-stage.bimplus.net/v2/members/) (DELETE https://api-stage.bimplus.net/v2/members/) to delete yourself from some of the teams that you don't want to be part of.

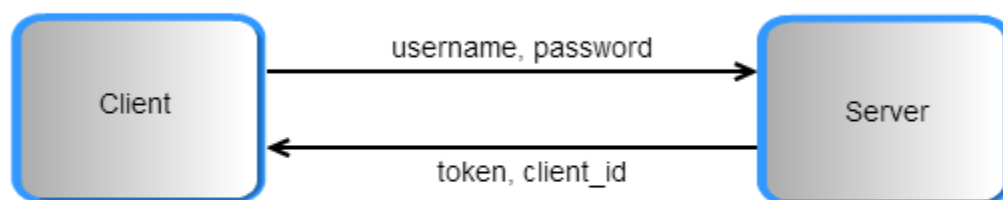
## Authentication token for multiple services



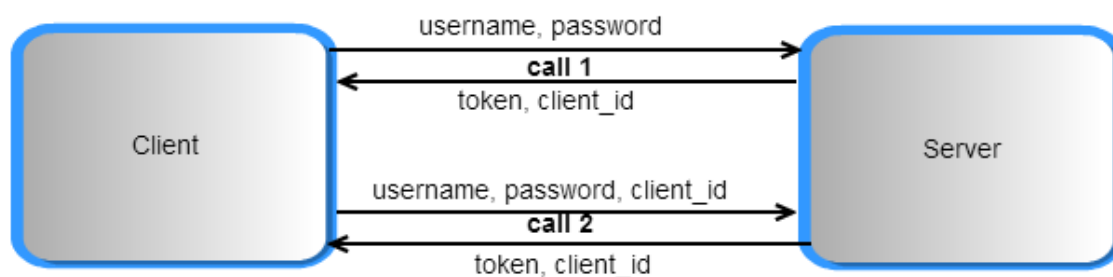
- Please use the client\_id as part of the [authentication request](#). The client\_id is a name of another application ,that user wants to use additionally. When user authenticate to another service using SSO, it opens browser UI login page again, it uses cookies and issues token without re-entering credentials. A token will be generated based on the new client\_id and cookies which will allow single-signon logins at the same time and increase security because credentials are not entered and transferred many times and the token is only valid for this device and client (Browser, Mobile App).

**Obsolete** example using internal authentication service, deprecated in 2026:

### Single Login at a time using a token



### Multiple logins at a time using a token



#### HTTP Method

POST

#### URL / Resource / JSON Structure

**Resource:** authorize

**URL:** <https://api-stage.bimplus.net/v2/authorize>

#### JSON Structure:

| Name           | Mandatory / Optional | Type   | Description                       |
|----------------|----------------------|--------|-----------------------------------|
| user_id        | mandatory            | string | The email address of the user     |
| password       | mandatory            | string | The user's password               |
| client_id      | optional             | string | The identifier of the used client |
| application_id | optional             | string | The id of the application         |

#### Description

Authenticate by requesting and receiving a token.

#### Request

| Headers                        |
|--------------------------------|
| Content-Type: application/json |

| JSON                                                                   |
|------------------------------------------------------------------------|
| <pre>{   "user_id" : "test@bimplus.net",   "password" : "test" }</pre> |

#### Response

| Status         |
|----------------|
| Status: 200 OK |

| JSON                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>{   access_token: "e3271e89d8ea474c82745039bc2bed0d"   expires_in: 2591999   client_id: "9fd0bb9d-570b-4719-bfae-93e2f879c19a"   token_type: "BimPlus" }</pre> |

Use the client\_id "9fd0bb9d-570b-4719-bfae-93e2f879c19a" to generate a token for multiple logins.

#### HTTP Method

POST

#### URL / Resource / JSON Structure

**Resource:** authorize

**URL:** https://api-stage.bimplus.net/v2/authorize

#### JSON Structure:

| Name           | Mandatory / Optional | Type   | Description                       |
|----------------|----------------------|--------|-----------------------------------|
| user_id        | mandatory            | string | The email address of the user     |
| password       | mandatory            | string | The user's password               |
| client_id      | optional             | string | The identifier of the used client |
| application_id | optional             | string | The id of the application         |

#### Description

Authenticate by requesting and receiving a token.

#### Request

#### Headers

Content-Type: application/json

#### JSON

```
{  
  "user_id" : "test@bimplus.net",  
  "password" : "test",  
  "client_id" : "9fd0bb9d-570b-4719-bfae-93e2f879c19a"  
}
```

#### Response

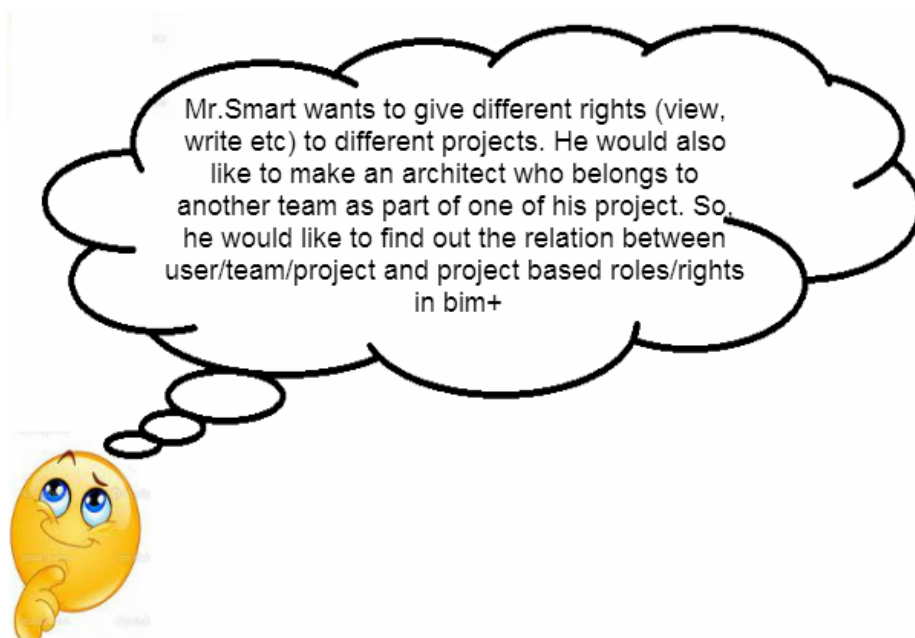
##### Status

Status: 200 OK

#### JSON

```
{  
  access_token: "c33fa174169e46999fe82fb07fc53e3d"  
  expires_in: 2591999  
  client_id: "9fd0bb9d-570b-4719-bfae-93e2f879c19a"  
  token_type: "BimPlus"  
}
```

## Rights & Roles. Relation between User, Team and Project

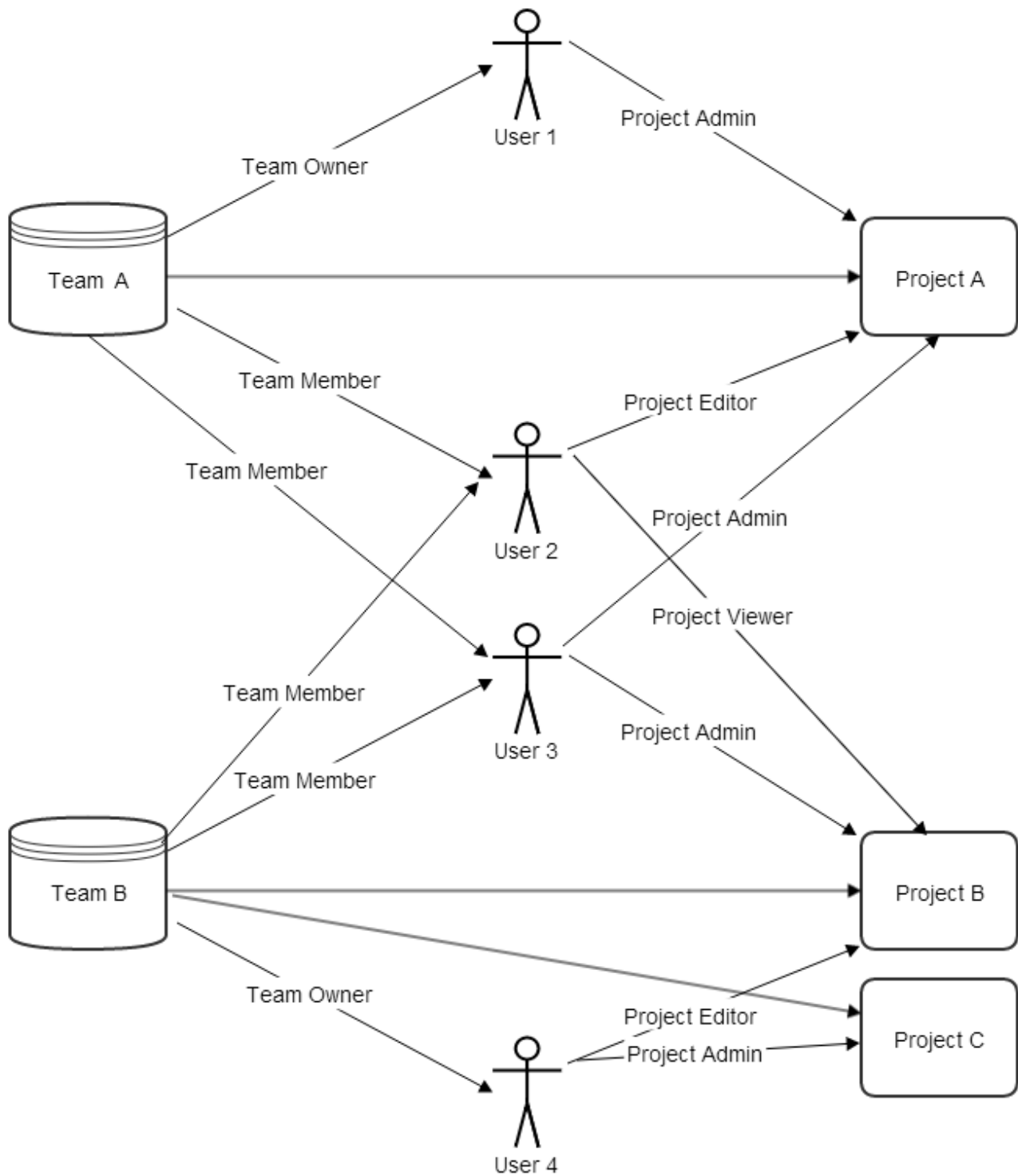


## Rights vs Roles

|                            | Account / Team Owner | Project Admin | Project Editor | Project Viewer |
|----------------------------|----------------------|---------------|----------------|----------------|
| Create Project             | x                    |               |                |                |
| Admin Project (eg. invite) | x                    | x             |                |                |
| Edit Project               | x                    | x             | x              |                |
| Delete Project             | x                    | x             |                |                |
| View Project               | x                    | x             | x              | x              |
|                            |                      |               |                |                |
| View all Models            | x                    | x             | x              | x              |
| Create Model               | x                    | x             |                |                |
| Admin Model (eg. invite)   | x                    | x             |                |                |
| Assign User to Model       | x                    | x             |                |                |
| Edit Model                 | x                    | x             |                |                |
| Import Data                | x                    | x             |                |                |
| Delete Model               | x                    | x             |                |                |
| View Model                 | x                    | x             | x              | x              |

- Please note that the the column names are roles and the horizontal ones are rights.
- There can be many Project Owners although there can be only one Team/Account Owner.

## Relation between User, Team & Projects



So, in Bimplus the users have project based roles. After assigning the registered user to a team, the Team Owner or the Project Admin of that particular project has to send an invitation (via portal. See the picture below) to the user who belongs to one of his team.

