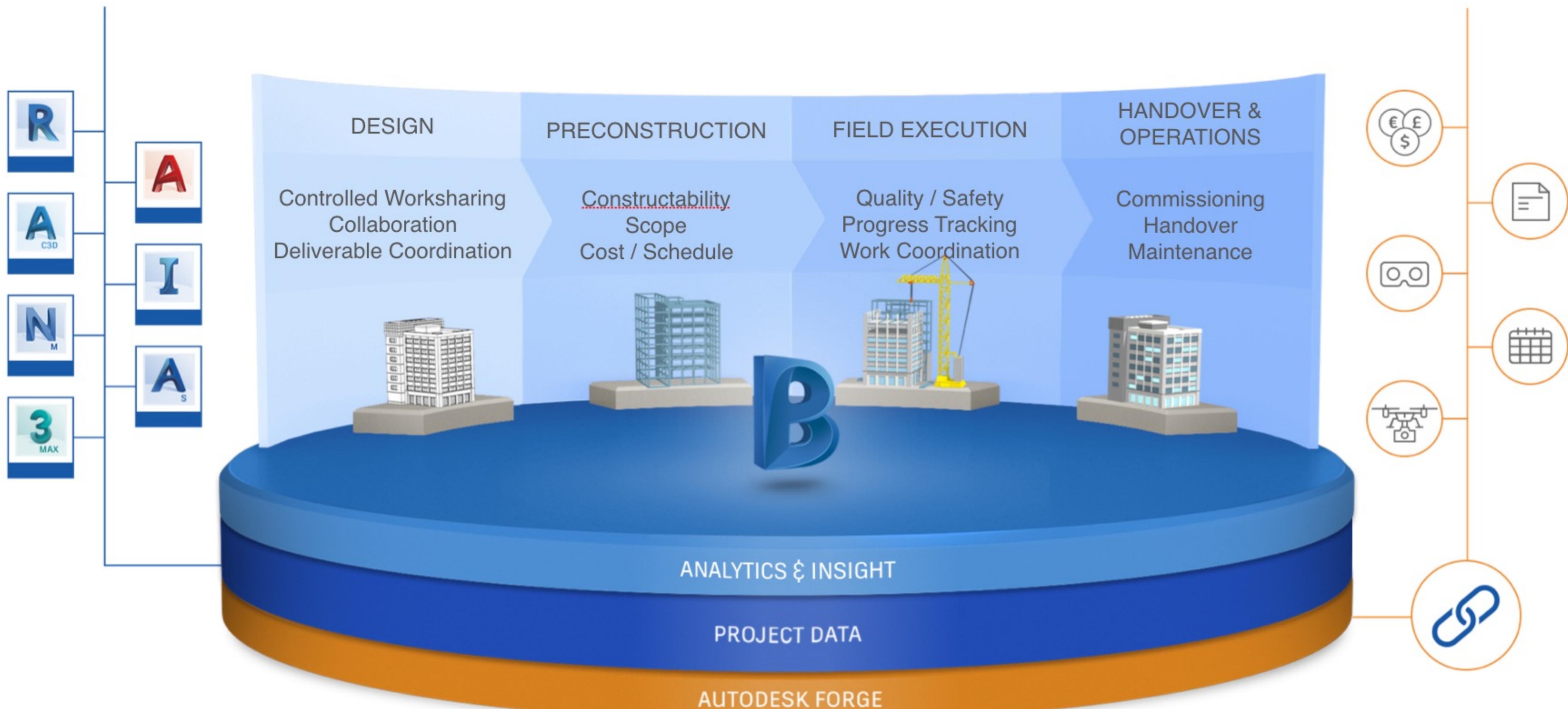


# BIM 360

Eason Kang  
Mikako Harada



# BIM360 Partners Integrations

The screenshot shows the Autodesk BIM 360 Integrations page. At the top, there's a navigation bar with links for Home, Content Type, Workflows, Technology & Innovation, Customers, Integrations (which is highlighted), and Blogs. Below the navigation is a search bar and a share icon. The main content area features a heading "Connect your data and workflows with BIM 360" and a sub-section "Group by Integrations | Companies". It displays a grid of 148 integration partners, categorized into four main groups: Mixed Reality, Document & File Management, Site & Safety Management, and Data & Analytics: BI, AI & IoT. Each card includes the partner's logo, name, and a brief description. A sidebar on the left lists categories such as Workforce Collaboration, Project Management & Scheduling, Reality Capture, Financials & Budget Planning, Document & File Management, Mixed Reality, Data & Analytics: BI, AI & IoT, and Site & Safety Management.

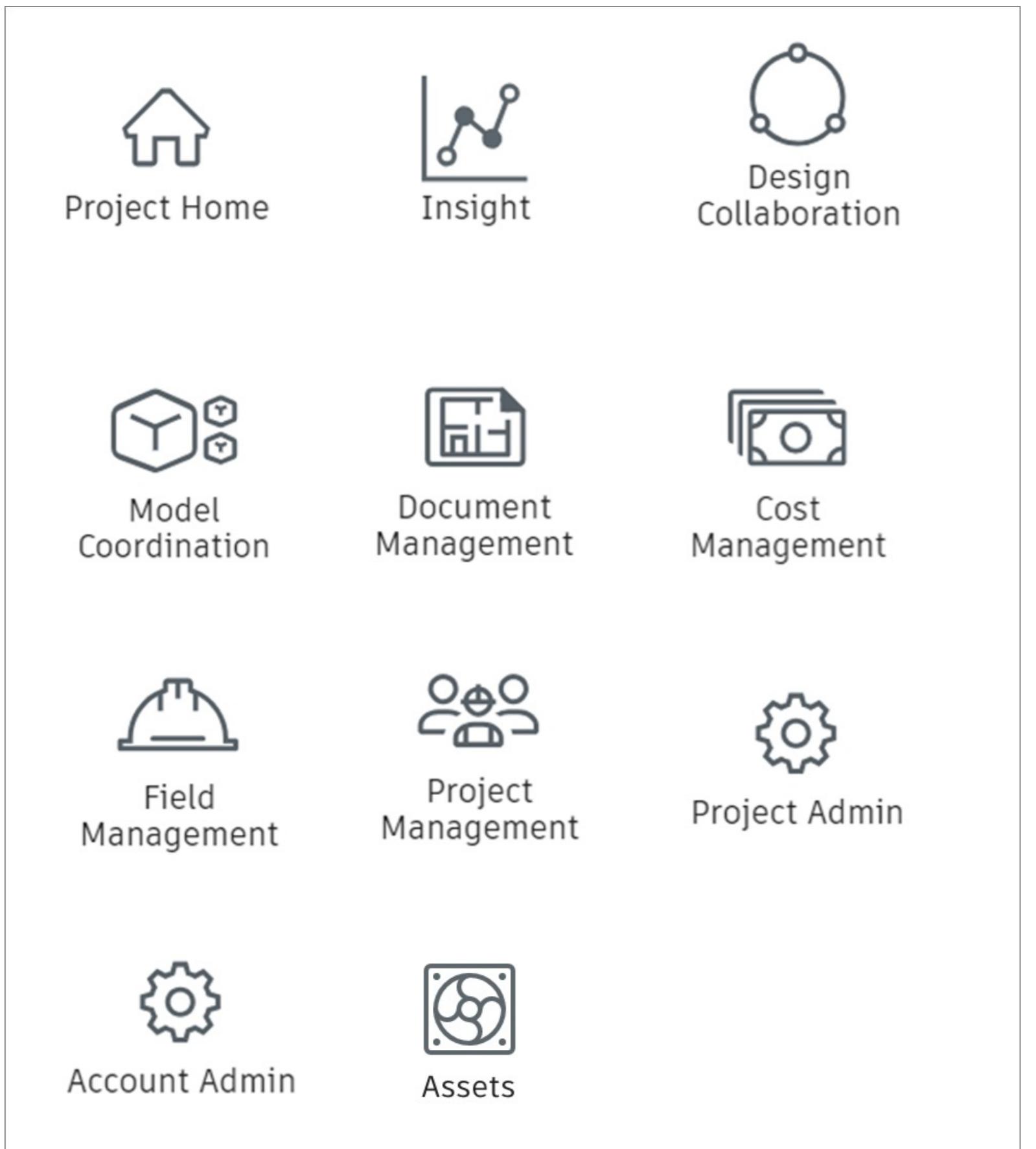
<https://integrations.bim360.autodesk.com>

The screenshot shows the Autodesk BIM 360 Resources page under the "Integrations" tab. The main heading is "Get the most out of construction technology by integrating the software you already use with BIM 360." Below this, there are several video thumbnails demonstrating different integrations:

- First, let's Export results to Excel**: A video showing a BIM 360 interface with a table of data and a yellow callout box pointing to a button labeled "First, let's Export results to Excel".
- EarthCam + Autodesk Integration**: A video showing a construction site with a camera overlay and a play button.
- Bridgit Bench Integration**: A video showing a Gantt chart and project details.
- Watch Video**: A placeholder for a video.
- Power Search + BIM 360 Integration**: A large, bold heading.
- [Integration] signNow for Autodesk**: A video showing a signNow interface.
- Pype AutoSpecs BIM 360 Partner Card Spotlight**: A video showing a Pype AutoSpecs interface.
- Watch Video**: Placeholder for a video.

<https://bim360resources.autodesk.com/integrations>

# BIM 360 – API Overview



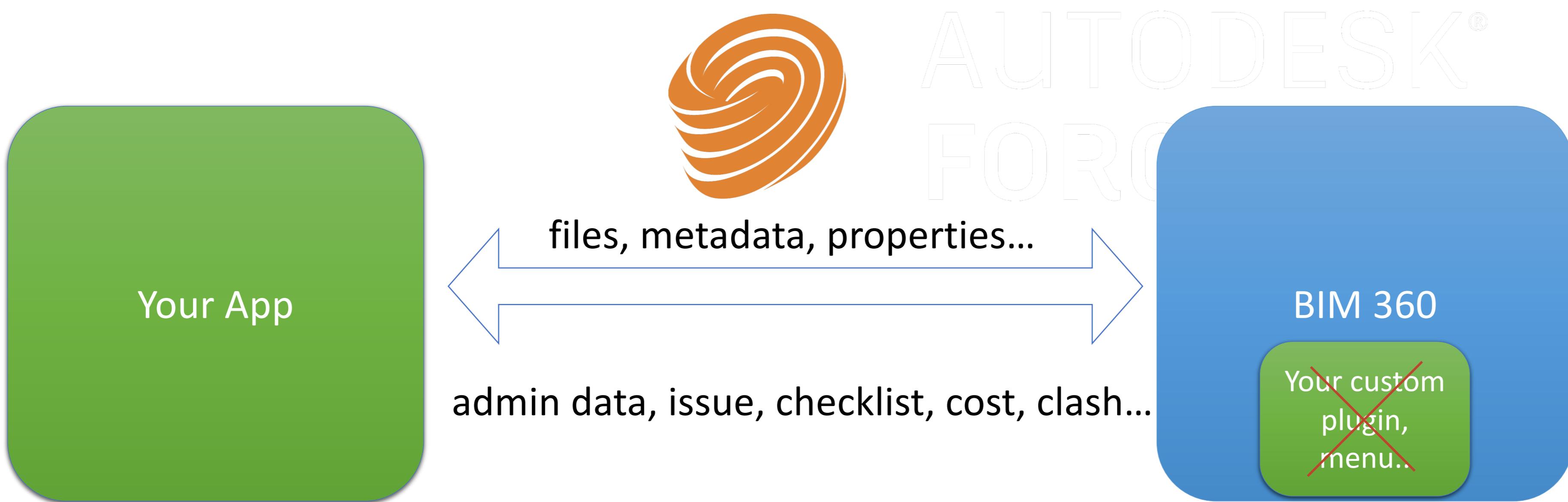
## Generic API

- Authentication (OAuth) API
- Data Management API
- Model Derivative API
- Viewer API
- Webhook API
- Design Automation API
- ....

## BIM360 specific API

- Admin API
- Issues API
- RFI API
- Checklists API
- Model Coordination API
- Cost Management API
- Document Management API
- Data Connector API
- Assets API
- Relationships API
- ....

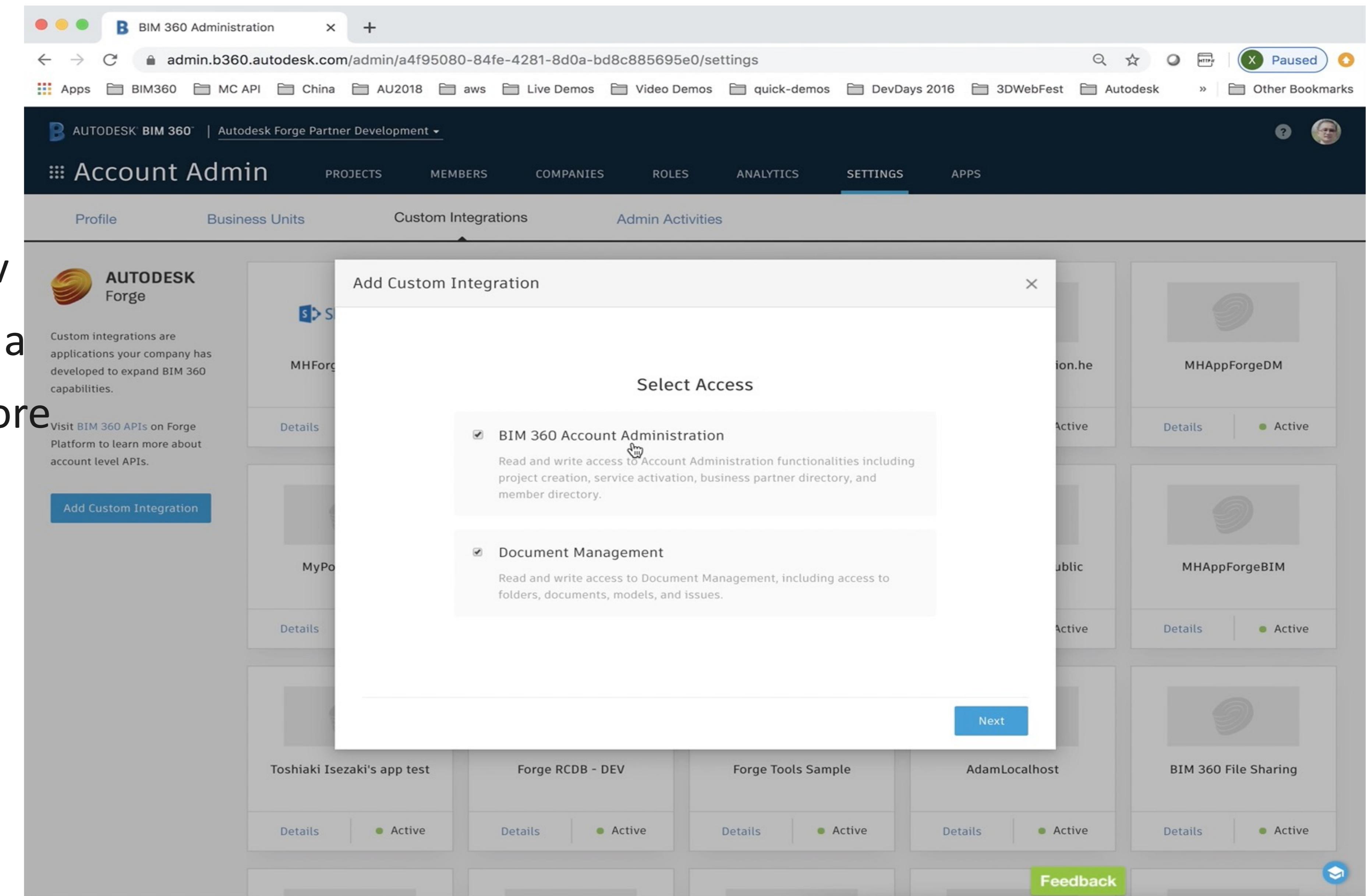
# Integrate with BIM360



# Prerequisite: Provision your app with BIM account

If you are planning to use BIM 360 Docs, yet you do not have **development environment (dev env)**, please make sure you get a **development environment before** the working with BIM 360 app.

[Instruction Steps here.](#)



# Generic API

- Data Management API
  - Hub, Project, Folder, Items, Versions, Storage
- Model Derivative API
  - Metadata, properties, AEC data, etc..
- Forge Viewer
- Webhook
- Design Automation API

# LearnForge Tutorial



# BIM 360 Model Report

Visual Reports

Enable my BIM 360 Account

Augusto Goncalves

- Inventor2Revit
- Linked
- Navisworks
- Project Files 70
- Revit2Issues
- Search
- prodam
- v19v19
- webhook
- 104305-KOS-PCM
- 268564-M-CENTF
- 72\_01\_154915\_IB
- Analyze1.dwf
- Drawing1.dwg
- Drawing12.dwg
- House Design.rvt
- Screen Shot 2018
- Villalpes.rvt
- cube.dwg
- rac\_basic\_sample
- v1: 12/6/2018
- v2: 12/6/2018
- v3: 12/6/2018
- v4: 12/6/2018
- v5: 12/6/2018
- v6: 6/14/2019
- v7: 7/17/2019
- v8: 1/14/2020
- v9: 1/14/2020
- response.ifc
- rme\_basic\_sample
- Recycle
- Shop Drawings
- Forge Demo AN
- Forge Demo C4R

Nested Viewer

A102 - Plans

Hall 105 24 m<sup>2</sup>

Rain water collection tanks

Master Bedroom 206 27 m<sup>2</sup>

Deck

Rooms

- Bath
- Bed
- Entry
- Line
- Master

3 A-05

3000

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# Account Admin API

- Get/Update/Create
  - Project, Users (account/project), Companies
- Get Project Roles
- Others
- Some endpoints: US v.s. EMEA

B AUTODESK BIM 360® | Autodesk Forge Partner Development ▾

## Account Admin

PROJECTS MEMBERS COMPANIES ROLES ANALYTICS

### Project Directory

The Project Directory lists all projects in your account.

Add

97 Current Projects | View Archived

Name	Members	Companies	Project S
00 Design Files	0	1	Active
Accelerator Shanghai	2	3	Active
AC J Liska	1	1	Active

Search project by name

AUTODESK FORGE Success Stories Solutions ▾ Getting Started Documentation

## BIM 360 API v1

- > Developer's Guide
- > Step-by-Step Tutorials
- ▽ API Reference
  - ▽ HTTP Specification
    - ▽ Account Admin
      - ▽ Projects
        - POST projects**
        - GET projects
        - GET projects/:project\_id
        - PATCH projects/:project\_id
        - PATCH projects/:project\_id/image
      - > Companies
      - > Account Users
      - > Project Users
      - > Project Roles
      - > Business Units
      - > Jobs

Projects

**POST projects**

Create a new BIM 360 project in **Resource Information**

---

**Method and URI (US)**

---

**Method and URI (EMEA)**

---

**Authentication Context**

---

**Required OAuth Scopes**

---

**Data Formats**

---

Request

**Headers**

---

**Authorization**

[Code](#)[Issues 1](#)[Pull requests 2](#)[Actions](#)[Projects](#)[Wiki](#)[Security](#)[Insights](#)[Settings](#)

master ▾

2 branches

1 tag

[Go to file](#)[Add file ▾](#)[Code ▾](#)

JohnOnSoftware remove unnecessary dependent modul CefSharp

018b7ca on Jul 10

28 commits



BimProjectSetupCLI

update readme

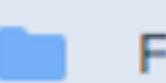
5 months ago



BimProjectSetupCommon

fix the null pointer issue

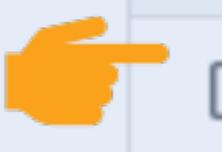
4 months ago



ForgeBimApi

support assign role permission while copy folder structure from anoth...

5 months ago



BIM360-ProjectSetupTool-UsageGu...

improve user guide

4 months ago



BimProjectSetupTool.sln

Initial commit

6 months ago



CHANGELOG.md

update change log

4 months ago



LICENSE.md

Initial commit

6 months ago



README.md

remove unnecessary dependent modul CefSharp

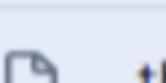
2 months ago



UseCases.png

Initial commit

6 months ago



thumbnail.gif

update readme

5 months ago

<https://github.com/Autodesk-Forge/forge-bim360.project.setup.tool>

Image caption goes here

# Workflow

## PREPARATION

### Account & CSV file

- BIM 360 account
- Forge App
- Integrate Forge App with BIM 360 Account
- CSV file

## PROJECTS

### Create projects

- Create BIM 360 projects from scratch
- Create BIM 360 projects from template

## SERVICES

### Assign services

- Services are assigned to the project with admin

## IMPORT USER

### Import project users

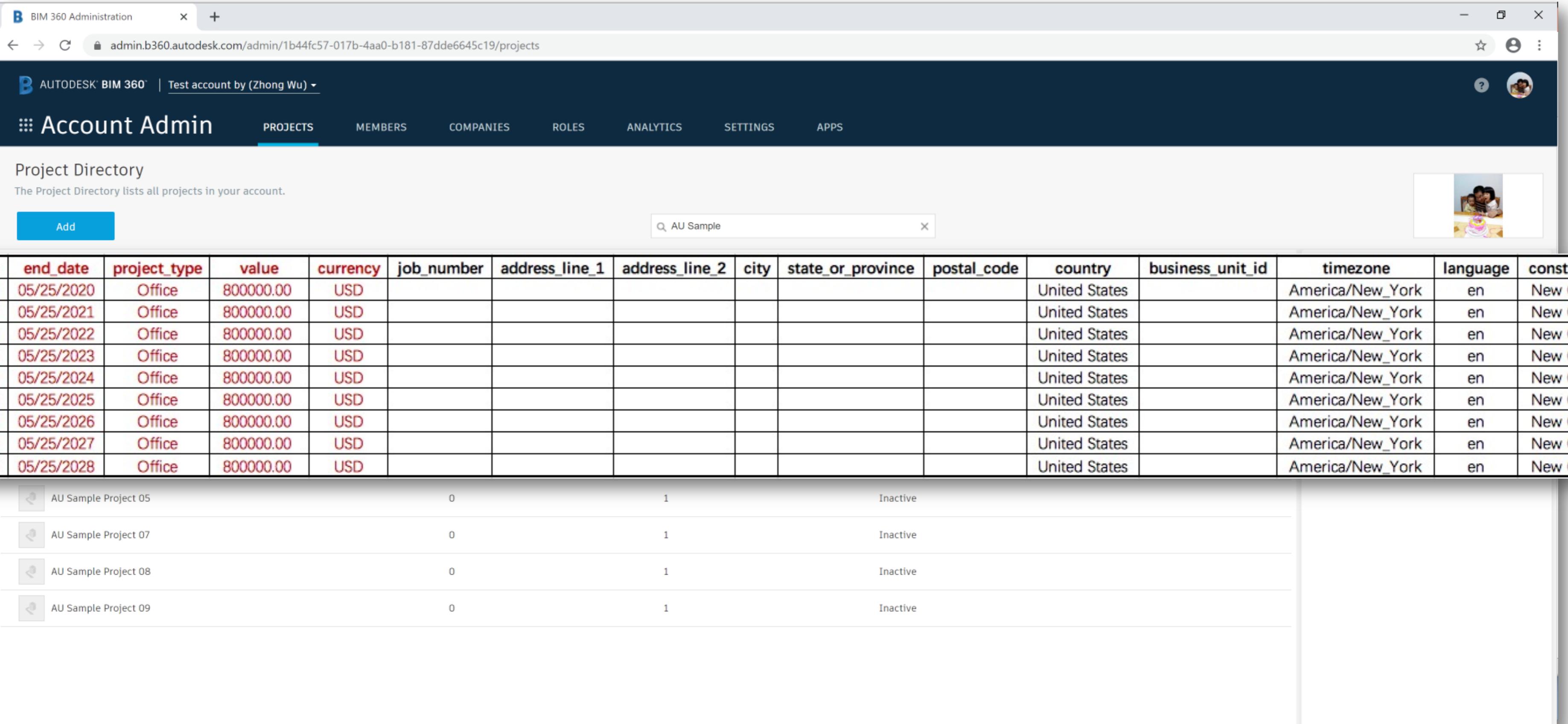
- Import project users
- Only document management and project administration supported
- Admin or normal user

## UPDATE USER

### Update project users

- Update project users
- Support access, company, role

# Create Projects (from scratch)



name	start_date	end_date	project_type	value	currency	job_number	address_line_1	address_line_2	city	state_or_province	postal_code	country	business_unit_id	timezone	language	construction_type	contract_type
AU Sample Project 01	05/21/2019	05/25/2020	Office	800000.00	USD							United States		America/New_York	en	New Construction	Design-Bid-Build
AU Sample Project 02	05/21/2019	05/25/2021	Office	800000.00	USD							United States		America/New_York	en	New Construction	Design-Bid-Build
AU Sample Project 03	05/21/2019	05/25/2022	Office	800000.00	USD							United States		America/New_York	en	New Construction	Design-Bid-Build
AU Sample Project 04	05/21/2019	05/25/2023	Office	800000.00	USD							United States		America/New_York	en	New Construction	Design-Bid-Build
AU Sample Project 05	05/21/2019	05/25/2024	Office	800000.00	USD							United States		America/New_York	en	New Construction	Design-Bid-Build
AU Sample Project 06	05/21/2019	05/25/2025	Office	800000.00	USD							United States		America/New_York	en	New Construction	Design-Bid-Build
AU Sample Project 07	05/21/2019	05/25/2026	Office	800000.00	USD							United States		America/New_York	en	New Construction	Design-Bid-Build
AU Sample Project 08	05/21/2019	05/25/2027	Office	800000.00	USD							United States		America/New_York	en	New Construction	Design-Bid-Build
AU Sample Project 09	05/21/2019	05/25/2028	Office	800000.00	USD							United States		America/New_York	en	New Construction	Design-Bid-Build
AU Sample Project 05						0			1			Inactive					
AU Sample Project 07						0			1			Inactive					
AU Sample Project 08						0			1			Inactive					
AU Sample Project 09						0			1			Inactive					

## Command:

```
Autodesk.BimProjectSetup.exe -p ".\sample\BIM360_Projects_Template.csv" -c "<YOUR-CLIENT-ID>" -s "<YOUR-CLIENT-SECRET>" -a "<ACCOUNT-ID>"
```

## API Used:

- POST: /accounts/:account\_id/projects

BIM 360 Administration

admin.b360.autodesk.com/admin/1b44fc57-017b-4aa0-b181-87dde6645c19/projects

AUTODESK® BIM 360 | Test account by (Zhong Wu)

## Account Admin

PROJECTS MEMBERS COMPANIES ROLES ANALYTICS SETTINGS APPS

### Project Directory

The Project Directory lists all projects in your account.

Add

0 Current Projects Found | View Archived

Name

Querying Business Units for AccountID '1b44fc57-017b-4aa0-b181-87dde6645c19'  
- processing row 1 - project name: AU Sample Project 01  
- project AU Sample Project 01 created with ID 56d6712a-6a1f-414e-b67c-cd6a9e19e8c9!  
- processing row 2 - project name: AU Sample Project 02  
- project AU Sample Project 02 created with ID 6949ea9f-6fb6-4086-b8b1-cdbbf5b4b16c!  
- processing row 3 - project name: AU Sample Project 03  
- project AU Sample Project 03 created with ID e72d3b73-86a5-46d1-985e-5ee561b101b3!  
- processing row 4 - project name: AU Sample Project 04  
- project AU Sample Project 04 created with ID bed2094a-bb4a-4cf8-adb8-0a2a25aed5fb!  
- processing row 5 - project name: AU Sample Project 05  
- project AU Sample Project 05 created with ID fae88859-ce52-4b82-aa30-490aacdc2fb3!  
- processing row 6 - project name: AU Sample Project 06  
- project AU Sample Project 06 created with ID 4b3e1fc4-7e7c-4a00-891b-3eb4e23562a2!  
- processing row 7 - project name: AU Sample Project 07  
- project AU Sample Project 07 created with ID 91fcfbab-fad5-4d50-8933-52cf1e6dee48!  
- processing row 8 - project name: AU Sample Project 08  
- project AU Sample Project 08 created with ID 1146387c-403a-4453-a72b-2c2ab48c837f!  
- processing row 9 - project name: AU Sample Project 09

Activate Windows  
Go to Settings to activate Windows.

Feedback

# Issue API

- Create/Get/Update Issues
- Create/Get Comments
- Create/Get Attachments
- Get Root Cause, Issue Type, Custom Attributes

AUTODESK® BIM 360™ | Autodesk Forge Partner Development > Forge Concert Hall ▾

## Field Management

TEMPLATES CHECKLISTS ISSUES DAILY LOGS

ID	Title	Location	Assigned to	Company
237	Verify jambs for doors...	-	Eason Kang	Bay Electrics
236	"Verify jambs for door...	-	Eason Kang	Bay Electrics
235	Remove debris from s...	-	Zhong Wu	Power Electric
234	Verify doors are as re...	-	Xiaodong Lia...	Autodesk Co...

3D\_House.rvt

Issues

AUTODESK® FORGE Success Stories Solutions ▾ Getting Started Documentation Comm

BIM 360 API v1

> Developer's Guide  
> Step-by-Step Tutorials  
▼ API Reference

▼ HTTP Specification  
> Account Admin  
▼ Issues  
    ▼ Issues  
        GET users/me  
        **GET issues:**  
        GET issues/:id  
        POST issues  
        PATCH issues/:id  
        GET issues/:id/comments  
        POST issues/comments  
        GET issues/attachments  
        POST issues/attachments  
        GET root-causes  
        GET issue-types  
        GET custom-attribute-definitions  
        GET custom-attribute-mappings

Issues

**GET issues**

Retrieves information about all the BIM 360 issues added to an issue since a specific date, see the [HTTP Specification](#). You can retrieve both document-related (pdf) and non-document-related issues. To verify whether an issue is document-related, check if it has a document ID (document\_id). BIM 360 issues are managed either in the [Resource Information](#) section or in the [Issues](#) section.

Resource Information

Method and URI

Authentication Context

Required OAuth Scopes

Data Format

Request

Headers

# • Pushpin issue integration

AUTODESK FORGE

Augusto Goncalves

Autodesk Forge Partner Development

- Forge Demo AG
- Photos
- Plans
  - A001 - Title Sheet
  - A101 - Site Plan
  - A102 - Plans
  - A103 - Elevations/Sections
  - A104 - Elev./Sec./Det.
  - A105 - Elev./ Stair Sections
  - S001 - Title Sheet
  - S101 - Framing Plans
  - S201 - Upper House Framing
  - S202 - Wall Section
  - S203 - Central Pile Section
  - S204 - Footing Detail
  - S205 - Column Schedules
  - S206 - Elevations
  - {3D}\_Villalpes.rvt
  - {3D}\_Villalpes1.rvt

Enable my BIM 360 Account

• batch edit/import/export issues interactively

BIM360 Issue Editor

AUTODESK FORGE BIM360 Issues Editor Autodesk / Sample Project ipetrbroz

Issues

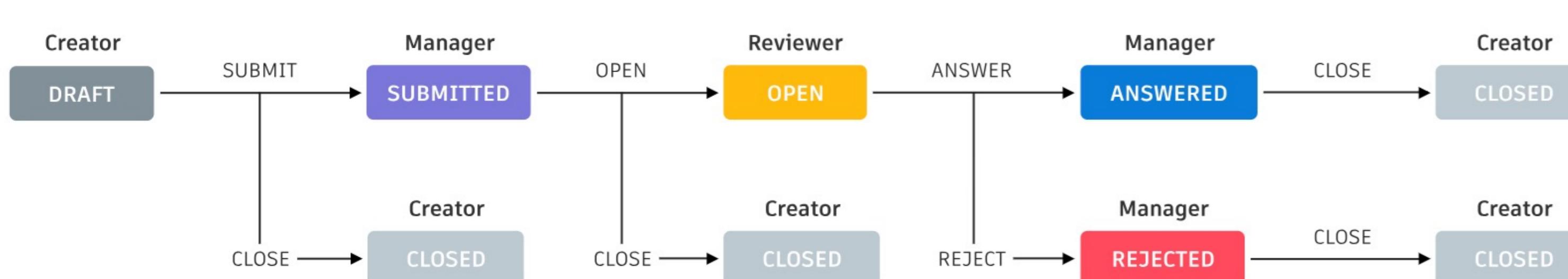
#	Type	Subtype	Title	Description	Owner	Location	Status	Answer		
4	Safety	Safety Infraction	My Title	My Description	Petr Broz		draft	null	0	0
10	Design	Client Feedback	HoloLens Issue #2	This is an issue report	Petr Broz		draft	null	0	0
12	Design	Client Feedback	HoloLens Issue #0	This is an issue report	Petr Broz		draft	null	0	0
8	Design	Client Feedback	HoloLens Issue #0	This is an issue report	Petr Broz		draft	null	0	0
14	Design	Client Feedback	HoloLens Issue #0	This is an issue report	Petr Broz		draft	null	0	0
17	Design	Client Feedback	atitleofanissue.	here we can describe 1	Petr Broz		draft	null	0	0
30	Punch List	Pre-Punch List	Another custom web	desc	Petr Broz		draft	null	0	0
32	Design	Design	Hola	Hola	Petr Broz		draft	null	0	0
31	Design	Design	Hello	Hello	Petr Broz		draft	null	0	0
34	Design	Design	Trying an issue assoc.	Trying an issue assoc.	Petr Broz		draft	null	0	0
7	Design	Client Feedback	HoloLens Issue #0	This is an issue report	Petr Broz		draft	null	0	0
69	Design	Client Feedback	hyhhjjm,,	I like so play shake it	Petr Broz		open	null	0	0
58	Design	Client Feedback	ifyouwant.	this is issue number o	Petr Broz		draft	null	0	0
56	Design	Design	Issue created with v2	Description	Petr Broz		draft	null	0	0
72	Coordination	Clash	foooo	null	Petr Broz		draft	null	1	1

Issues 31-45

Update Issues

# RFI API

- get RFI collection data of single RFI
- get RFI comments and attachments
- get RFI associated document and pushpin data
- get permitted action of next transition.
- modify general data
- transfer RFI to next role and update status
- create new RFI without associating document, or pushpin RFI with one document
- create new comments
- associate existing files as attachment of RFI
- delete attachment



BIM 360 API v1

Developer's Guide

Step-by-Step Tutorials

API Reference

HTTP Specification

- Account Admin
- Issues
- Checklists
- Cost Management (beta)
- Document Management
- Model Coordination (beta)

RFIs (beta)

RFIs

GET rfis

GET rfis/:id

POST rfis

GET users/me

PATCH rfis/:id

Comments

GET comments

POST comments

Attachments

GET attachments

POST attachments

DELETE attachments/:attachmentId

RFIs

GET rfis

Retrieves information about detailed information about You can retrieve both docu To verify whether an RFI is linkedDocument will be BIM 360 RFIs are managed

## Resource Information

Method and URI

Authentication Context

Required OAuth Scopes

Data Format

## Request Headers

Authorization \*

string

# Checklist API

- 4 read endpoints
- Get Template(s)
- Get Instance(s)

The screenshot shows the Autodesk Forge Field Management interface. At the top, there are tabs: Field Management, TEMPLATES, CHECKLISTS, ISSUES, and DAILY LOGS. The CHECKLISTS tab is selected. Below this, a breadcrumb navigation shows 'IN PROGRESS' and 'XiaodongTestInstance001'. The main content area displays two checklist instances:

- 1 OSHA 2209 - PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING**
  - 1.1 Are employers assessing the workplace to determine if hazards that require the use of personal protective equipment (e.g. head, eye, face, hand, or foot protection) are present or are likely to be present?
    - True
    - False
    - NA
  - 1.2 If hazards or the likelihood of hazards are found, are employers selecting and having affected employees use properly fitted personal protective equipment suitable for protection from these hazards?
    - True
    - False
    - NA

The screenshot shows the Autodesk Forge BIM 360 API v1 documentation page. The top navigation includes links for Success Stories, Solutions, Getting Started, and Documentation. The left sidebar has a tree view of API Reference, with 'Instances' expanded. The right panel details the **GET instances** endpoint:

**GET instances**  
Retrieves information about a section and attachments, see Filtering  
Filtering  
You can configure the response  
Filtering follows one of the following:

- param[<fieldName>]=<matchValue>
- param=<matchValue>

**Resource Information**

**Method and URI**

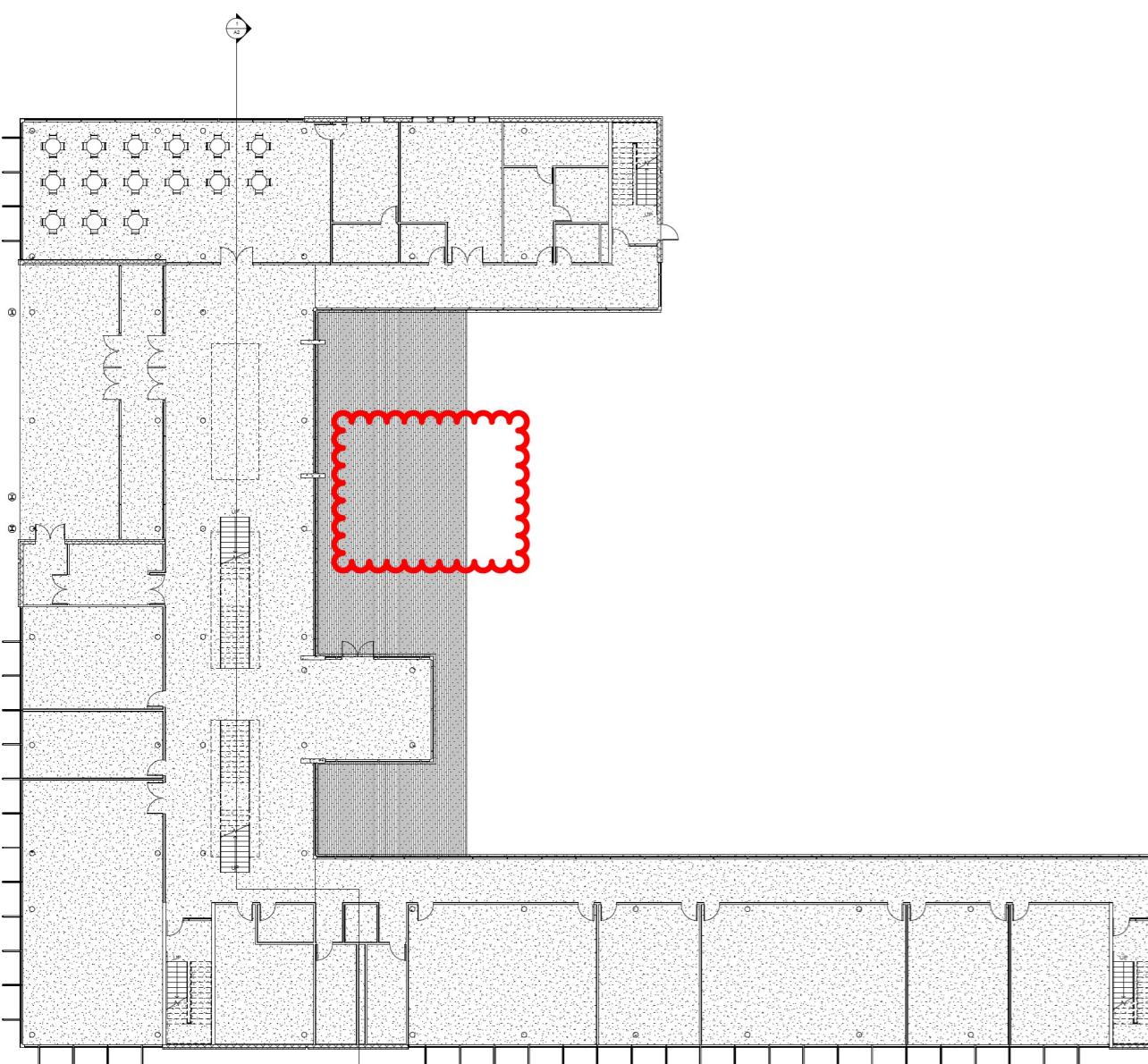
**Authentication Context**

**Required OAuth Scopes**

**Data Format**

# Document Management API

- Download PDF (with markup, hyperlink)
- Folder Permissions - public beta
- Custom Attributes - public beta



Permissions - Built-In Plans Folder

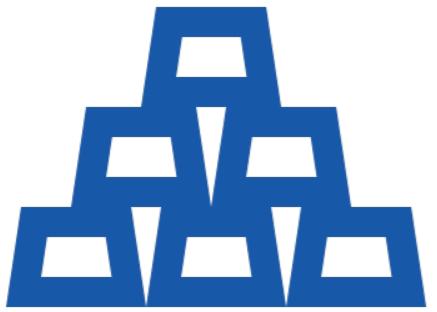
Users: 4 Companies: 0 Roles: 0

Add  Search for name or email

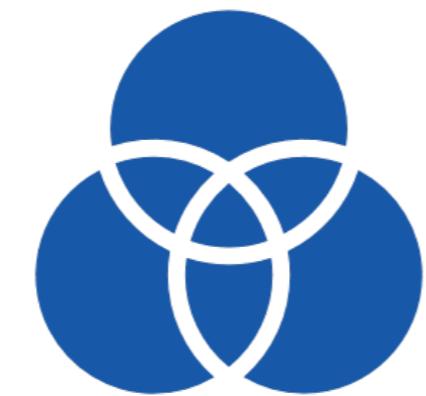
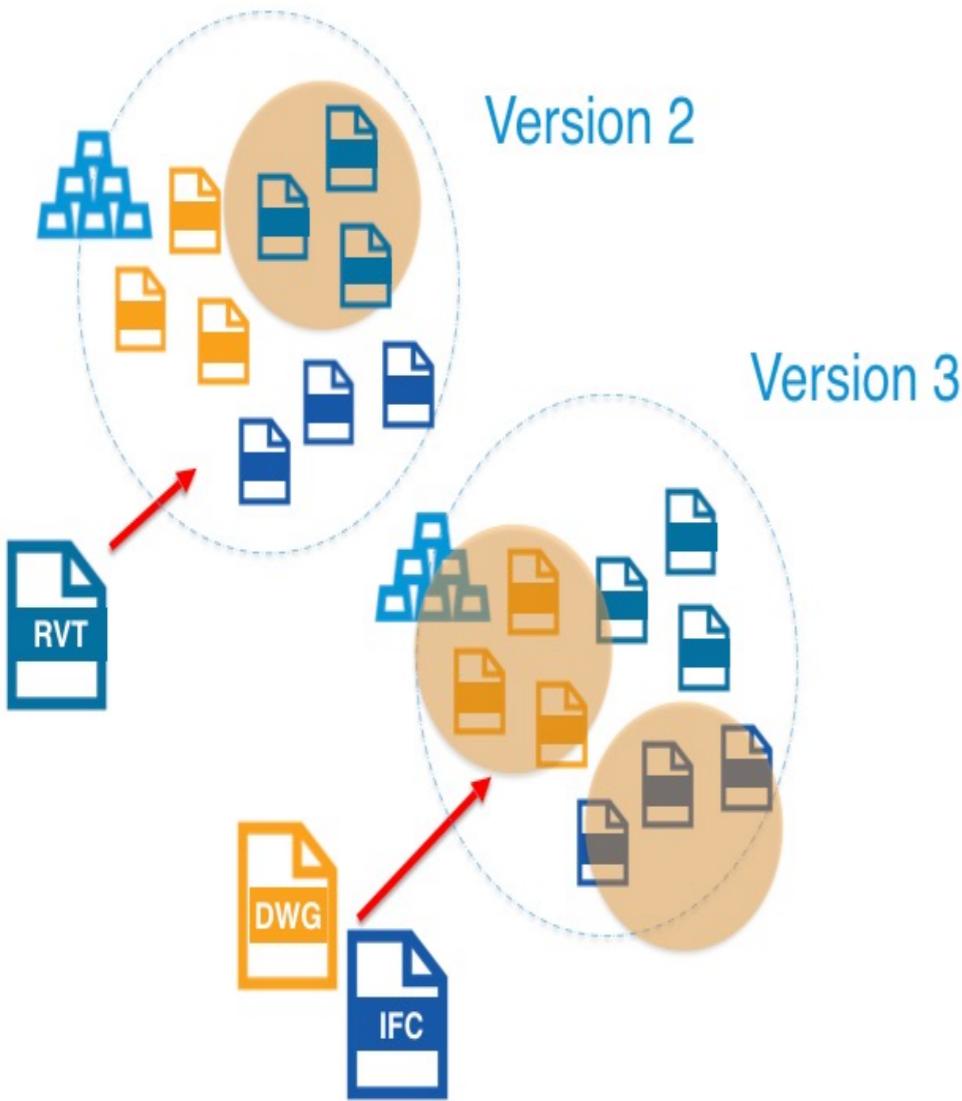
Name	Permission Level	Type	
Xiaodong Liang	Folder Control	User	Project Ad...
Zhong Wu	Folder Control	User	Project Ad...
Xiaodong@hotmail.com	Folder Control	User	Project Ad...
Eason Kang	View Only	User	<a href="#">Remove</a>

Markup	Issue	RFI	Approval status	Set	customtext	customdate	customdropdown
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
					project file folder text	Aug 4, 2020	c789
					Updated Text		a123
					ff	Aug 19, 2020	
					eee	Aug 19, 2020	c789
					fff	Aug 18, 2020	b456
					fggg	Aug 20, 2020	b456

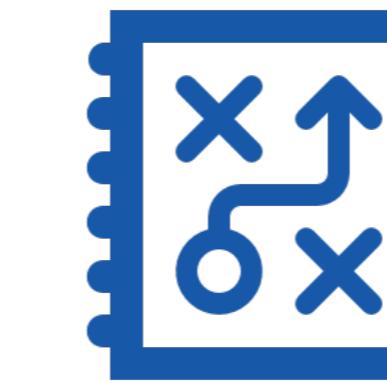
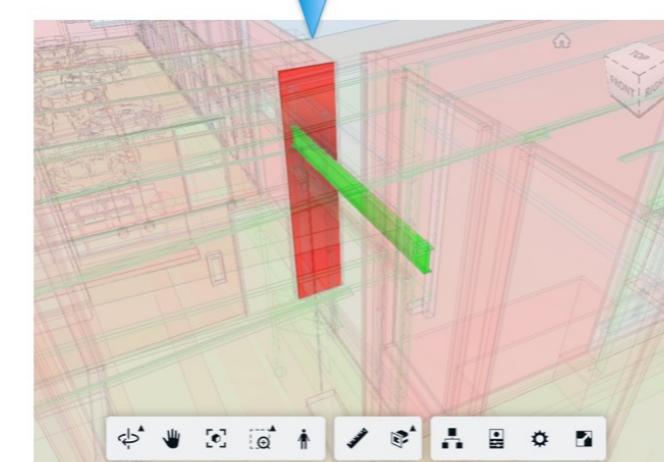
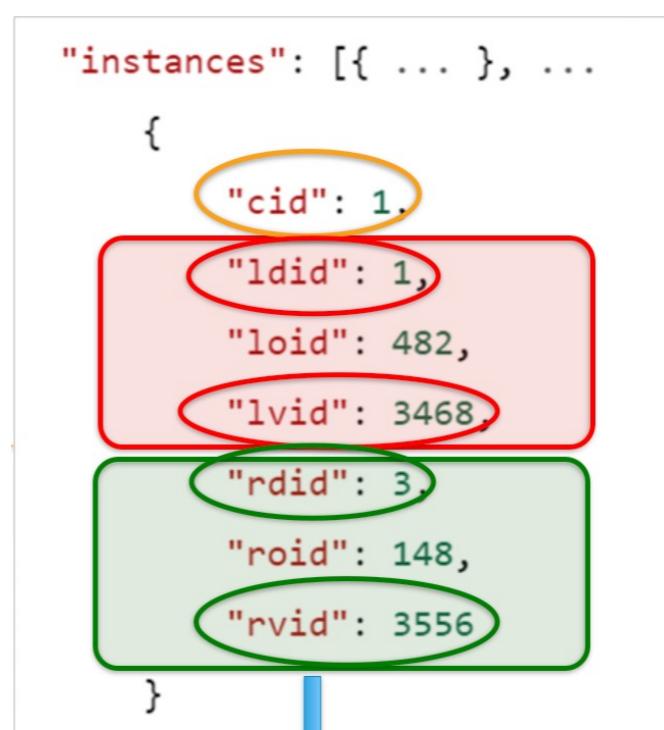
# Model Coordination API



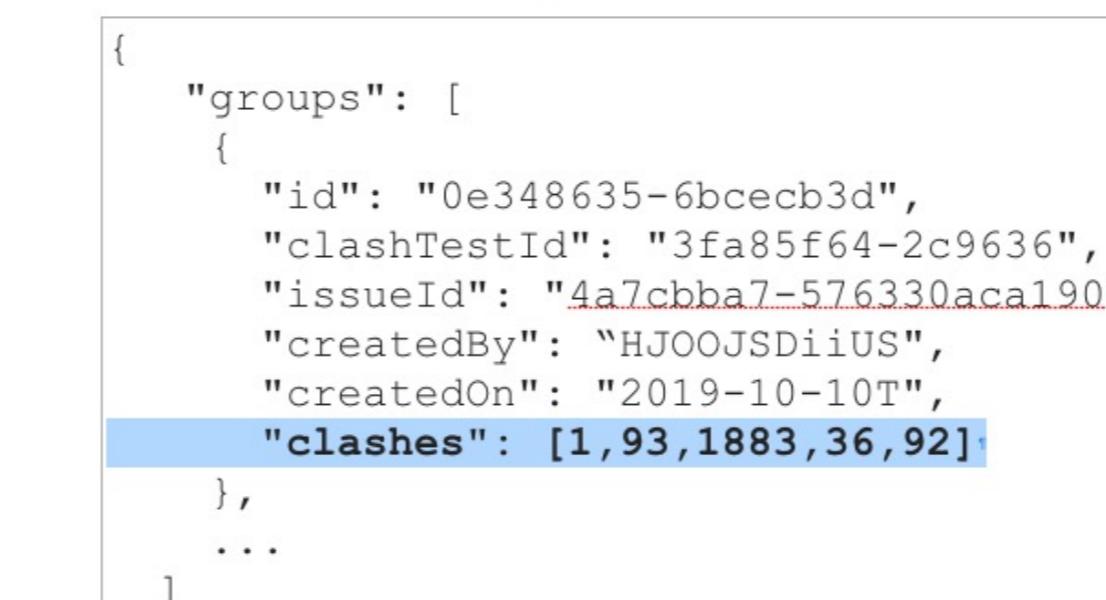
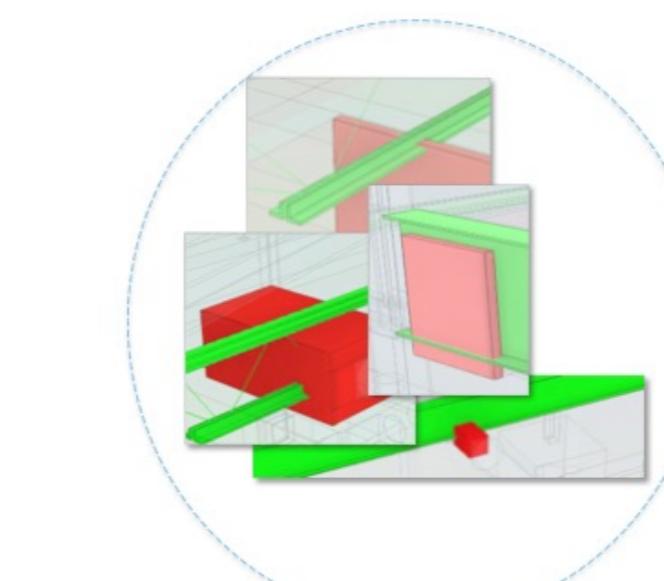
Model set  
versions through  
time



Clash tests for  
every model set  
version



Closed and  
Assigned (Issue)  
Clash Groups



BIM index for  
every model  
set version



SQL Indexing

SELECT \* WHERE ...

```
{"file": "d8e674e7", "db": "3ff9dee3",  
"docs": ["8e525582"], "id": 2236, "Level":  
"Arch-FIRST FLOOR", "Average Estimated  
Illumination": 0.0,  
"Room Name": "Unoccupied", "Area": 0.0,  
"name": "WOMEN'S TOILET 131 [715139]",  
"Volume":  
0.0, "Plenum": false, "Computation  
Height": 4.0, "Specified Exhaust  
Airflow": 0.0, "_RC": "Spaces", "Calculated  
Heating Load":
```

# Analyze clash data with PowerBI and Forge Viewer

BIM 360 Model Coordination C x xiaodongliang x | xiaodongliang/bim360-mcap-i x | repository-readme-help/getiss x | + Paused X

localhost:3000/#

Apps BIM360 MC API China AU2018 wrike Live Demos Video Demos quick-demos DevDays 2016 3DWebFest Autodesk Prototype Customer Tech Info meetup Sydney travel Other Bookmarks

BIM 360 Model Coordination Clash Issues ! The logic of this sample works for ModelSet which are created after Oct 1st,2019 About Config GitHub Xiaodong Li

**BIM 360 Projects List**

- Zhong Revit File Upgrader Project
- my\_test\_project\_for\_case\_3391\_12
- Forge Demo ZW DA
- xiaodong\_change\_project\_name\_by\_API
- Xiaodong-test-MC**
- Forge Concert Hall
- my\_test\_project\_for\_case\_3391\_11
- Forge Demo XL API
- Flow Test
- Sample for Phil by Zhong2

**ModelSets**

AUDemo-New	v-1
AUDemo	v-2
MC_20190925130256	v-2
MC_20190924075642	v-2
MC_20190829164612	v-2

**Clash Overview**

**Matrix View by Object Count of Active Clash**

	{3D}_Audubon_Architecture.rvt	{3D}_Audubon_Structure.rvt	{3D}_Audul
{3D}_Audubon_Architecture.rvt		717	216
{3D}_Audubon_Mechanical.rvt	243	84	
{3D}_Audubon_Structure.rvt	322		44

**PowerBI Analyze by Object Category and Clash Count**  
Total Clash Count: 1562

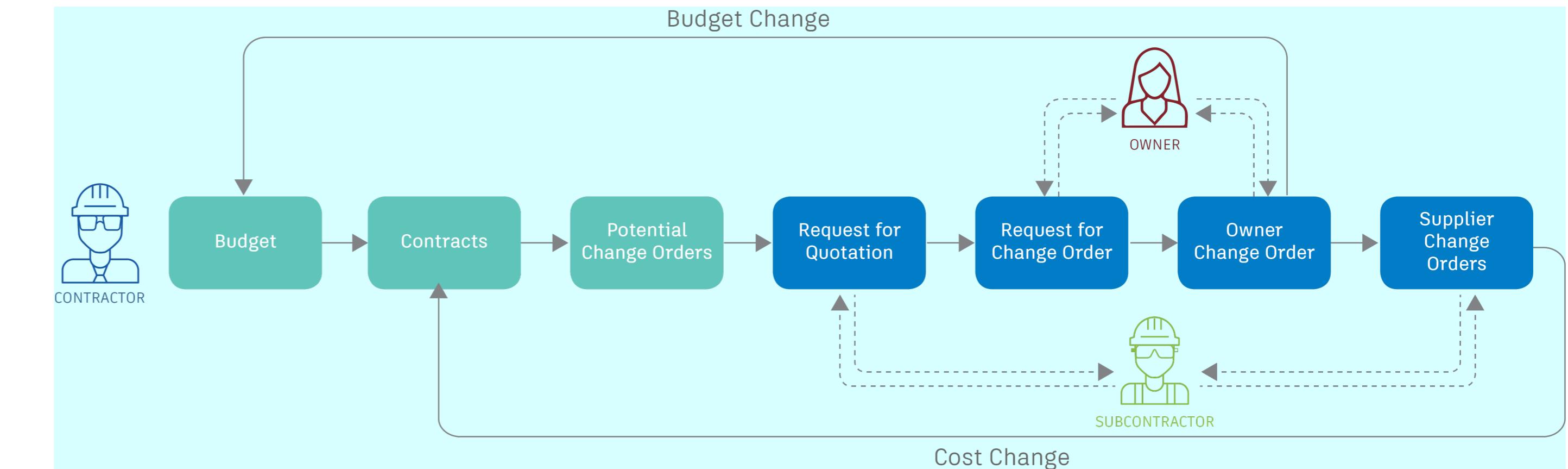
clashcount by cat and docname  
docname {3D}\_Audubon\_Architecture.rvt {3D}\_Audubon\_Structure.rvt

**Clash Issue View**

cat	docname	clashcount	clash	fam
Flange [592973]	Structural Framing	(3D)_Audubon_Structure.rvt	4	1003;768;757;752;
52]	Walls	(3D)_Audubon_Architecture.rvt	3	1006;919;903;
310435]	Walls	(3D)_Audubon_Architecture.rvt	1	1008;
2135728]	Structural Framing	(3D)_Audubon_Structure.rvt	2	1015;982;
Flange [274281]	Walls	(3D)_Audubon_Architecture.rvt	1	1016;
Parts	(3D)_Audubon_Architecture.rvt	1	1017;	
Structural Section-Column [259936]	Structural Columns	(3D)_Audubon_Structure.rvt	1	1018;
Structural Section-Column [259935]	Structural Columns	(3D)_Audubon_Structure.rvt	1	1019;
Parts	(3D)_Audubon_Architecture.rvt	1	1022;	
Parts	(3D)_Audubon_Architecture.rvt	1	1023;	
210439]	Walls	(3D)_Audubon_Architecture.rvt	1	1024;
2036]	Mass	(3D)_Audubon_Architecture.rvt	1	1025;
Flange [268771]	Structural Framing	(3D)_Audubon_Structure.rvt	1	1025;
310441]	Walls	(3D)_Audubon_Architecture.rvt	1	1026;
Flion [2152615]	Walls	(3D)_Audubon_Architecture.rvt	1	1028;
Flange [661286]	Parts	(3D)_Audubon_Architecture.rvt	1	1029;
Structural Section-Column [524399]	Structural Columns	(3D)_Audubon_Structure.rvt	1	1030;
Structural Section-Column [524399]	Structural Columns	(3D)_Audubon_Structure.rvt	1	1031;

# Cost Management API

- Cost/budget changes
- Track/coordinate change orders
- Understand financial impact



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Cost Management **BUDGET** CONTRACT CHANGE ORDER

General					
Budget Code	Cost Type	Budget Name ▾	Supplier Contract	Original Budget	Internal
001.013000.0	GEN	3D Printing	Printing	86,529.87	
001.015000.0	GEN	Accommodation	Accommodation	21,449.14	
001.013500.4	FEE	Acoustic Consultant Survey	Acoustic Consultan...	18,332.60	
001.013500.0	FEE	Architects	Architects	3,060,719...	
001.086700.0	SUB	Atrium roof blinds	Atrium roof blinds	367,649.29	
001.270000.0	SUB	Automatic Controls, Security, d...	Automatic Controls,...	2,833,649...	
001.012100.3	FEE	Bill Preparation	Bill Preparation	73,330.40	
001.013500.9	FEE	Building Regs fees	Building Regs fees	100,829.30	
001.093000.0	SUB	Ceramic Tiling	Ceramic Tiling	367,100.23	
001.017400.2	GEN	Cleaning Services	Cleaning Services	34,373.63	

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Budgets

**GET budgets**

Returns all the Budget in a project.

**Resource Information**

Method and URI **GET** https://developer.a.com/api/v1/budgets

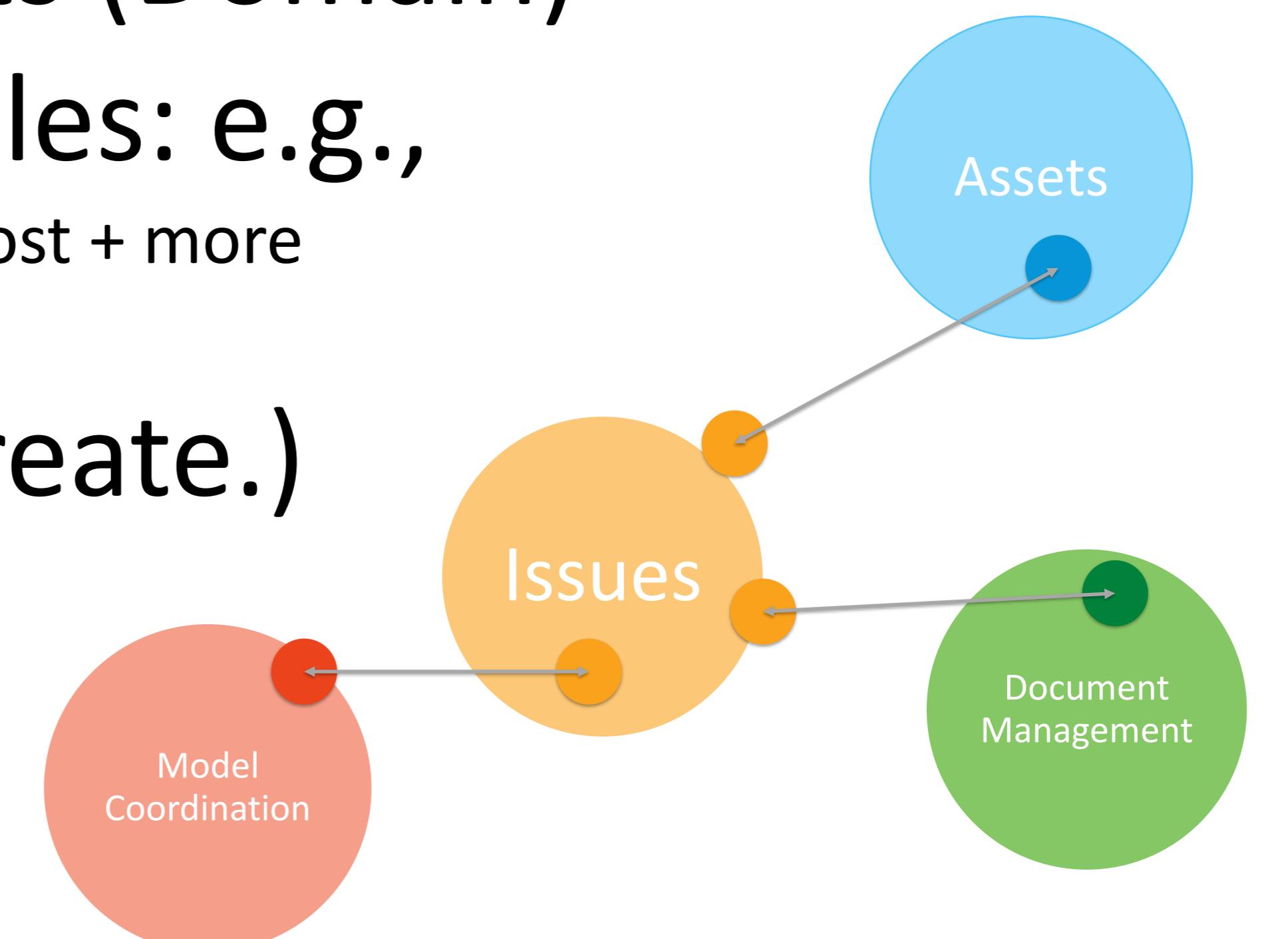
Authentication Context user context required

Required OAuth Scopes **data:read**

Data Format JSON

# Relationships API

- Represent links between items (Entity) that reside in different functional components (Domain)
- Used in BIM 360 by various modules: e.g.,
  - Model Coordination, Assets, Field Management, Cost + more
  - Older implementation may not
- Read-only. (Domain function to create.)
- Publicly available today



```
{  
  "id": "b544a7eb-3c64-4a56-a7ff-392d0441015f",  
  "createdOn": "2015-10-21T16:32:22Z",  
  "isReadOnly": true,  
  "isService": false,  
  "isDeleted": false,  
  "entities": [  
    {  
      "createdOn": "2015-10-21T16:32:22Z",  
      "domain": "autodesk-bim360-asset",  
      "type": "asset",  
      "id": "b1d1e7d4-f0ed-11e9-81b4-2a2ae2dbcce4"  
    },  
    {  
      "createdOn": "2015-10-21T16:32:22Z",  
      "domain": "autodesk-bim360-issue",  
      "type": "issue",  
      "id": "92d6bb28-9c5c-424a-8b29-6d847542fa7f"  
    }  
  ]  
}
```

# Assets API (public beta)

- Read/Write
  - asset items
  - custom attributes
  - categories
  - status sets
  - status
- Built relationship with Issue/Checklist/Attachment
- Batch operations
  - batch get/create/update/delete

The image displays two screenshots of the Autodesk BIM 360 interface, illustrating the Assets API features.

**Top Screenshot (Project Admin):** Shows the 'Project Admin' dashboard with the 'Categories' tab selected. The table lists asset categories, including 'All Categories' and 'Air Handling Units (AHU's)'. The 'Air Handling Units (AHU's)' row shows it is active and assigned to the 'Default' status set.

Name	Active / Inactive	Status Set	Attributes
All Categories		Default	
Air Handling Units (AHU's)	Active	Default	

**Bottom Screenshot (Assets):** Shows the 'Assets' dashboard with the 'ASSETS' tab selected. An 'Asset Tree' sidebar shows categories like 'All Categories', 'Air Handling Units (AHU's)', 'Electrical Equipment', etc. The main area shows a list of assets, with the first asset (ID 621642) selected. The asset details are displayed in a card:

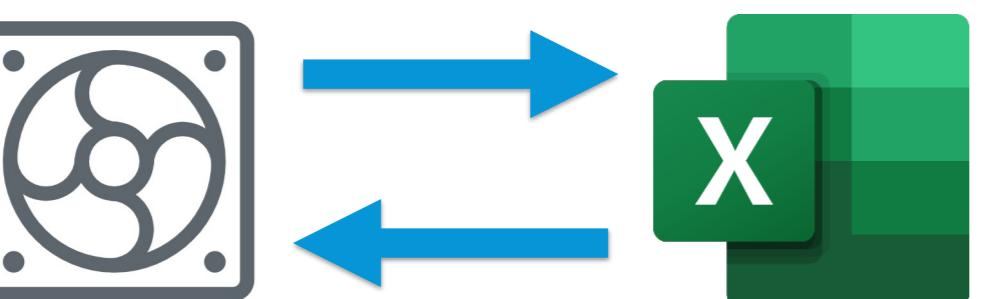
Asset ID	Category
621642	Lighting Fixtur...
621643	Lighting Fixtur...
621644	Lighting Fixtur...
694117	Lighting Fixtur...
694251	Lighting Fixtur...
694268	Lighting Fixtur...

**Asset Details Card:**

Asset ID	621642
Category	Lighting Fixtures > Recessed Parabolic Light
Description	2'x2'(2 Lamp) - 277V
Barcode	Unspecified
Location	Tower 2 > 2 Floor > Rm 212
Serial number	Unspecified
Submittal	Unspecified
Purchase order	Unspecified
Purchase date	Unspecified

# Export/Import to/from Excel

- **What it does:** Export all the Assets data in BIM 360 Assets module to a custom web page with links, then to Excel sheet. Modification in Excel is import back to Assets. This sample is to demonstrate the basic read/write access with Assets module.
- **Code:** GitHub Sample (TBD)
- **Author:** Xiaodong Liang, Autodesk



The image shows two screenshots illustrating the export/import process between BIM 360 Assets and Excel.

The top screenshot displays the "BIM 360 Project List" interface. It shows a tree view of projects under "Autodesk Forge Partner Development", including "BIM360 AU Asset Test Project(Zhong)", "Daimler POC Project", "Delete Test Sample 4 by Zhong", "Flow Test", "Forge Concert Hall", "Forge Demo EK", "Forge Demo ZW DA", "Forge Demo Zhong", "Forge Infraworks", "Pacific Center Hospital v2", "Xiaodong Tes & Patch", "Xiaodong-test-MC", "Zhong Revit File Upgrader Project", and "xiaodong-test-asset". Below the tree view is a table titled "ASSETS" with columns: clientAssetId, version, description, isActive, category, status, barcode, serialNumber, installationDate, installedBy, warrantyStartDate, warrantyEndDate, and expectedLifeYears. The table contains several rows of asset data.

The bottom screenshot shows the "Assets" interface in BIM 360 and an open Microsoft Excel spreadsheet titled "bim360-assets-report\_xiaodong-test-asset\_". The Excel spreadsheet contains a table with the same columns as the BIM 360 table, listing various assets with their details like category, status, and location. A blue arrow points from the BIM 360 interface up to the Excel spreadsheet, indicating the export process, while another blue arrow points from the Excel spreadsheet down to the BIM 360 interface, indicating the import process.

clientAssetId	version	description	isActive	category	status	barcode	serialNumber	installationDate	installedBy	warrantyStartDate	warrantyEndDate	expectedLifeYears
AHU-999	3937	Performance Climate Changer Air Handler Floor 1	true	Air Cooled Chiller	Installed	barcode-12345	SN-7890456	2020-09-02	company-B	2020-09-09	2021-01-08	20
AHU-998	3938	Performance Climate Changer Air Handler Floor 2	true	Air Cooled Chiller	Functional Performance Tests	barcode-45789	SN-7890456	2020-09-02	company-C	2020-09-09	2021-01-08	20
AHU-997	3939	Performance Climate Changer Air Handler Floor 3	true	Air Cooled Chiller	Acceptance	barcode-34896	SN-674456	2020-09-02	company-R	2020-09-09	2021-01-08	20
VAV-996	3940	Base Mounted	true	Primary Water Pump	Installed	barcode-33556	SN-490874	2020-09-02	company-F	2020-09-09	2021-01-08	20
VAV-995	3941	Base	true	Primary Water Pump	Functional Performance	barcode-SN-098745	SN-098745	2020-09-02	company-	2020-09-09	2021-01-08	20

# Set up Assets from a Design Model

**What it does:** Extract assets from a design model in BIM 360 Docs, using **Design Automation for Revit**, and import to Assets module. Optionally filter/verify assets before importing to Assets module. (We save Revit unique element ids as custom attributes to keep the association between assets to elements in Revit.)

**Code:** GitHub Sample (TBD)

**Author:** Zhong Wu, Autodesk



The screenshot displays the Autodesk BIM 360 Assets interface. At the top, a message box says "localhost:3000 says Assets are imported to BIM360 Asset Module." Below this, there are two windows. The left window shows a "Select Revit File" dialog with a tree view of projects and files, including "rac\_basic\_sample\_project.rvt" and "rme\_school\_project.rvt". The right window shows a 3D rendering of a modern building model with various components highlighted in blue. To the right of the 3D view is a table titled "Asset Info List" showing a list of extracted assets, all categorized as "Air Terminals" and "Unspecified" status, with "Manufacturer Asia" and "Primary School Sample" details.

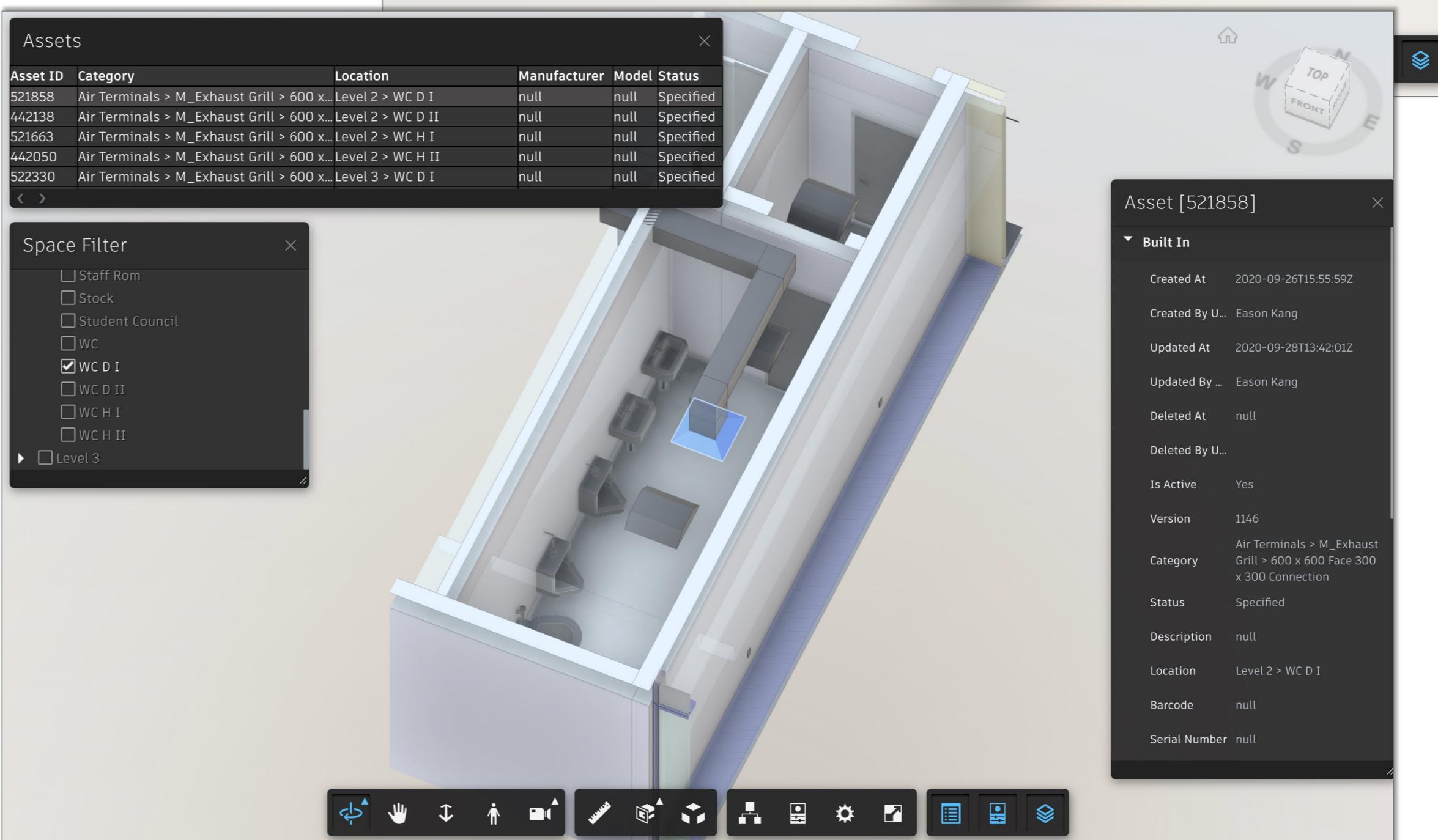
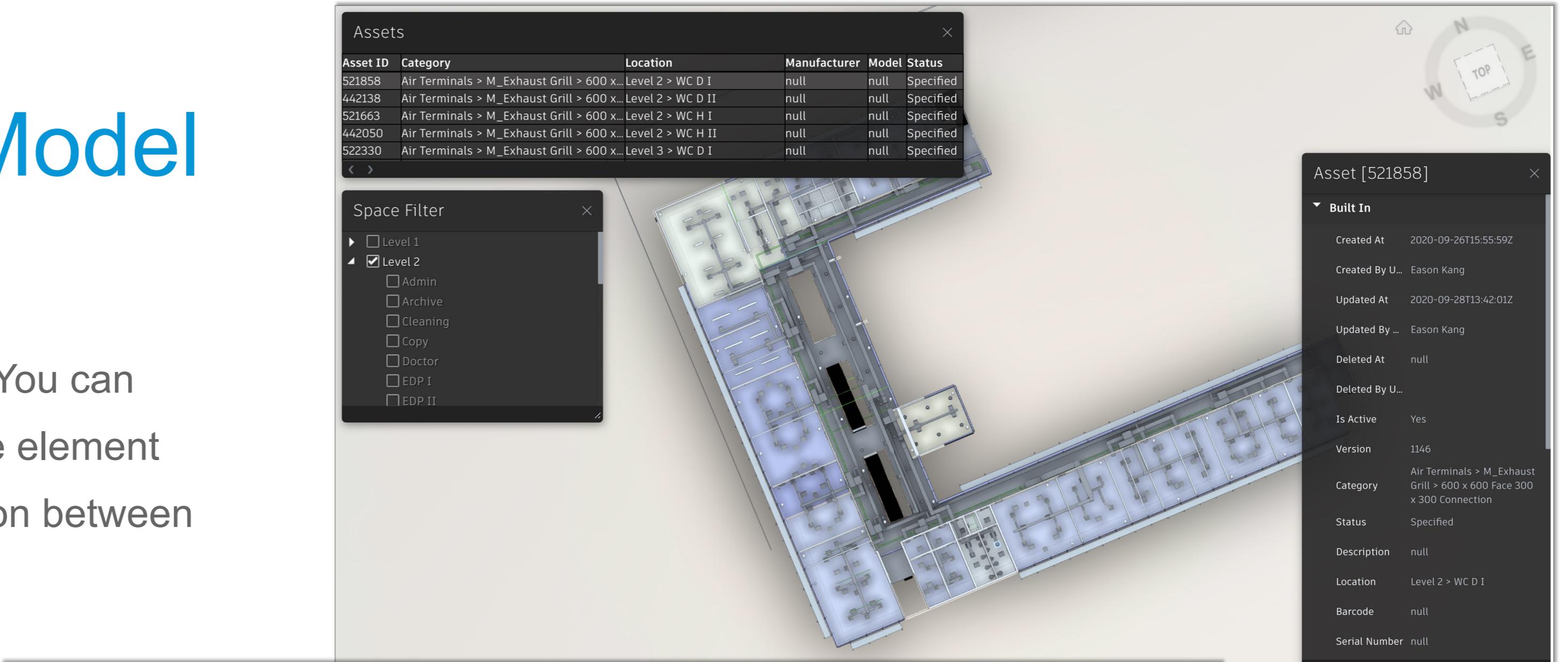
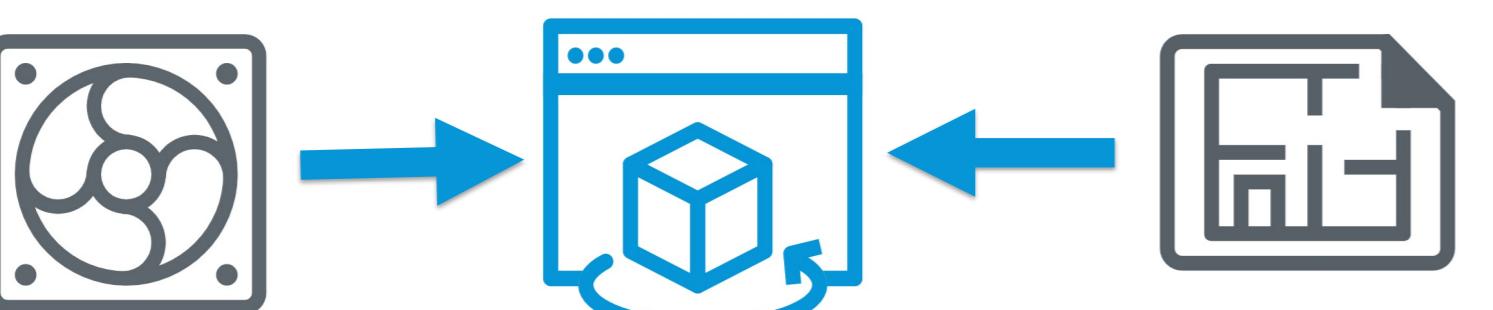
Asset ID	Category	Status	Manufacturer	Model
DuctTerminal-119	Air Terminals	Unspecified	Manufacturer A...	Primary School ...
DuctTerminal-41	Air Terminals	Unspecified	Manufacturer A...	Primary School ...
DuctTerminal-62	Air Terminals	Specified	Manufacturer Asia	Primary School Sample
DuctTerminal-61	Air Terminals	Specified	Manufacturer Asia	Primary School Sample
DuctTerminal-60	Air Terminals	Specified	Manufacturer Asia	Primary School Sample
DuctTerminal-6	Air Terminals	Specified	Manufacturer Asia	Primary School Sample
DuctTerminal-59	Air Terminals	Specified	Manufacturer Asia	Primary School Sample
DuctTerminal-58	Air Terminals	Specified	Manufacturer Asia	Primary School Sample
DuctTerminal-57	Air Terminals	Specified	Manufacturer Asia	Primary School Sample
DuctTerminal-56	Air Terminals	Specified	Manufacturer Asia	Primary School Sample
DuctTerminal-55	Air Terminals	Specified	Manufacturer Asia	Primary School Sample
DuctTerminal-54	Air Terminals	Specified	Manufacturer Asia	Primary School Sample

# View Assets in Design Model

**What it does:** View asset data in the model viewer. You can filter assets by level and room. (We use Revit unique element ids saved as custom attributes to keep the association between assets to elements in Revit.)

**Code:** GitHub Sample (TBD)

**Author:** Eason Kang, Autodesk



Microsoft Edge File Edit View History Favorites Tools Profiles Tab Window Help

Autodesk Forge - BIM 360 Assets BIM 360 Assets https://assets.b360.autodesk.com/projects/f6698202-e0a1-40f6-af11-e81d407bd366/assets?preview=ca5cf41e-38ed-4b0b-b28b-848c3b926a4f

Enterprise Daily Work BIM360 Forge Revit AU

AUTODESK BIM 360 Autodesk ADN Taiwan > Assets Demo

## Assets

Asset Tree	Asset ID	Category	Location
All Categories	521858	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 2 > WC D I
▶ Air Terminals	442138	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 2 > WC D II
▶ Electrical Equipment	521663	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 2 > WC H I
▶ Electrical Fixtures	442050	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 2 > WC H II
▶ Lighting Devices	522330	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 3 > WC D I
▶ Lighting Fixtures	522312	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 3 > WC H I
▶ Mechanical Equipment	431155	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > Admin
	430655	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > Archive
	431276	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > Cleaning
	430663	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > Copy
	431304	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > EDP I
	431365	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > EDP I
	430875	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > EDP II
	430885	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > EDP II

**Asset** 521858

SPECIFIED ▾ X

DETAILS ISSUES CHECKLISTS ATTACHMENTS

Asset ID	521858
Category	Air Terminals > ... > 600 x 600 Face 300 x 300 Connection
Description	Unspecified
Barcode	Unspecified
Location	Level 2 > WC D I
Serial number	Unspecified
Submittal	Unspecified
Purchase order	Unspecified
Purchase date	Unspecified
Installation date	Unspecified
Warranty start date	Unspecified
Warranty end date	Unspecified
Expected life (years)	Unspecified
Installed by	Unspecified
Spec section	Unspecified
Manufacturer	Unspecified
Model	Unspecified
External Id	f056ea9d-8fba-434e-80ce-46b4df0ea740-0007f682

# Data Connector API (public beta)

The screenshot shows the Autodesk BIM 360 Data Connector interface. On the left, there's a sidebar with a list of CSV files under 'schemas'. The main area has tabs for Insight, RISK, DESIGN, QUALITY, SAFETY, and DATA, with 'DATA' being the active tab. Below the tabs, it says 'Data Connector' and has a 'Run extraction' button. To the right of the button is a 'Created' timestamp ('Jan 6, 2021 3:09 PM'). Further right is a 'Autodesk Forge Partner Development - BIM 360 Data Connector Dashboard Demo' window. This window displays 'Current Extraction Requests' with three entries: 'Extraction by UI' (ONE\_TIME), 'Projects Quality Issues Inspection' (ONE\_TIME), and 'Account Overall Status bv' (DAY). It also shows a 'Data List - Job startedAt:2021-01-19T03:17:30.973Z' with various CSV file options like 'issues\_comments.csv' and 'locations\_trees.csv'. At the bottom of the dashboard, there are two charts: 'Issue Count of Top 10 Projects' and 'Issue Count by Projects'.

- admin and project information
  - companies, users, roles, issues, checklists, RFIs ,cost, location, daily-log...
- data definitions
  - Issue types, custom attributes definitions ...
- schedule extraction: one time, daily, weekly, monthly and yearly.
- specify service groups you are interested in.
- get a list of existing requests and their configurations.
- set up a notification using webhooks.
- get the list of extracted data.
- download all or a selected data.

# 2 legged token v.s. 3 legged token

- 2 legged token (2LO): get access token by client id and client secret of the app
  - Admin (HQ) API
    - projects, companies, users, roles etc.
  - Data Management API
    - hubs, projects, folders, items, versions
    - In default, the app has access to all users specified by the administrator
    - x-user-id: By providing this header, the API call will be limited to act on behalf of only the user specified.
  - Document Management API
- 3 legged token (3LO): get access token by auth code of logged user, client id and client secret of the app
  - Data Management API
  - Issue API, RFI API, Checklist API, Cost API, Model Coordination API
  - Document Management API
  - Data Connector API

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**BIM 360**

Integrate with the Autodesk BIM 360 platform to extend its capabilities to reach segments of the construction ecosystem that don't have direct access to BIM data.

Intro >  
Developer's guide >  
API reference >

**Data Management**

Access data across BIM 360 team, Fusion Team, BIM 360 Docs, and the Object Storage Service to build apps to display and extend your data in ways that add value to your users.

Intro >  
Developer's guide >  
API reference >

**Design Automation**

Automate repetitive tasks by leveraging on the scale of the Forge Platform and running scripts on your design files in the cloud.

Intro >  
Developer's guide >  
API reference >

**Model Derivative**

Derive outputs viewable by the Forge Viewer from more than 60 CAD file formats, and extract metadata about the models as well as the individual objects within the model.

Intro >  
Developer's guide >  
API reference >

**Reality Capture**

Convert digital images into high resolution textured meshes, dense point clouds and orthophotos.

Intro >  
Developer's guide >  
API reference >

**Viewer**

Render 3D and 2D model data within a browser. The models can come from a wide range of applications such as AutoCAD, Fusion 360, Revit, and many more.

Intro >  
Developer's guide >  
API reference >

**Webhooks**

Subscribe to and receive notifications of the occurrence of events within the Forge eco system.

Intro >  
Developer's guide >  
API reference >

**Token Flex**

Access Autodesk Token Flex Usage Data platform to generate reports on consumption, usage, and contract details.

Intro >  
Developer's guide >  
API reference >

# Tutorial

**Step-by-Step Tutorials**

**Getting Started**

[Get Access to a BIM 360 Account](#)  
[Manage API Access to BIM 360 Docs](#)

**Account Admin**

[Create a New Project](#)  
[Create a New Company](#)  
[Activate a Service](#)

**Issues**

[Retrieve Issues Container ID](#)  
[Retrieve Issues](#)  
[Create Issues](#)  
[Attach BIM 360 Document Management Files to Issues](#)  
[Retrieve Issue Custom Attributes Mapped to an Issue Type](#)

**Document-related (Pushpin) Issues**

[Render Document-related \(Pushpin\) Issues in Your App](#)  
[Create Document-related \(Pushpin\) Issues in Your App](#)

**Checklists**

[Retrieve Checklists Container ID](#)

**Step-by-Step Tutorials**

**Getting Started**

[Account Admin](#)  
[Issues](#)  
[Document-related \(Pushpin\) Issues](#)  
[Checklists](#)

**Document Management**

[Upload Files to BIM 360 Document Management](#)  
[Download Files from BIM 360 Document Management](#)  
[Export PDF Files from BIM 360 Document Management](#)  
[Retrieve a User's Folder Permissions](#)  
[Update a User's Folder Permissions](#)

**Model Coordination (beta)**

[Working with Model Sets and Versions](#)  
[Working with Clash Results](#)  
[Querying Model Set Indexes](#)

**Cost Management (beta)**

[Retrieve Cost Container ID](#)  
[Link Budgets to a Contract](#)  
[Update a Contract's Company](#)  
[Create a Potential Change Order \(PCO\)](#)  
[Open a Potential Change Order \(PCO\)](#)  
[Directly Attach Local Files to a Cost Item](#)  
[Download a Document Generated from an SCO](#)

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# Tools

- [LearnForge Tutorial](#)
- [Walkthrough for Model Coordination API](#)
- [CommandLine Tool of Project Setup](#)
- [Postman Tool of Project Setup](#)
- [Postman Collection for RFI API](#)
- [Postman Collection for Document Manager API](#)
- [Postman Collection for Data Connector API](#)

# Samples

## Data extraction and visualization

- [Elements Properties Dashboard](#)
- [Export metadata to Excel](#)
- [BIM 360 Admin Data --> Dashboard](#)
- [BIM360 Data Extract Scripts \(Admin/Documents/Issues\)](#)
- [Issues —>Excel & Dashboard](#)
- [Issue editor and batch export and import](#)
- [Cost—> Excel](#)
- [Clash Report —> PDF](#)
- [Data Connector → Dashboard](#)

## Data Integration

- [Transfer documents with other cloud storage](#)
- [WebHook sample with SMS, Email and Slack notifications](#)
- [Extract Revit quantity and create budgets](#)
- [BIM 360 Elastic Search](#)
- [Revit family creation](#)
- [Revit model automatic upgrade](#)
- [Pushpins issues management](#)
- [Embed Forge Viewer inside Power BI report](#)
- [Clash coordination by PowerBI](#)
- [Admin/Documents data with PowerBI by R script](#)

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