

# Introduction to BIM 360 and Forge API

*BIM 360 Hackathon: Day 2*

Mikako Harada

*AEC Technical Lead and Americas Manager  
Developer Technical Services, Autodesk*

# Agenda

BIM 360 and Family Products

BIM 360 Docs and Forge API

- Overview
- Forge
  - Authentication
  - Account level API
  - Data Management
  - Model Derivative
  - Viewer

Summary

Q&A

# BIM 360 Docs and Family Products

# BIM 360 Family Products



Team

Glue

Layout

Docs

Field

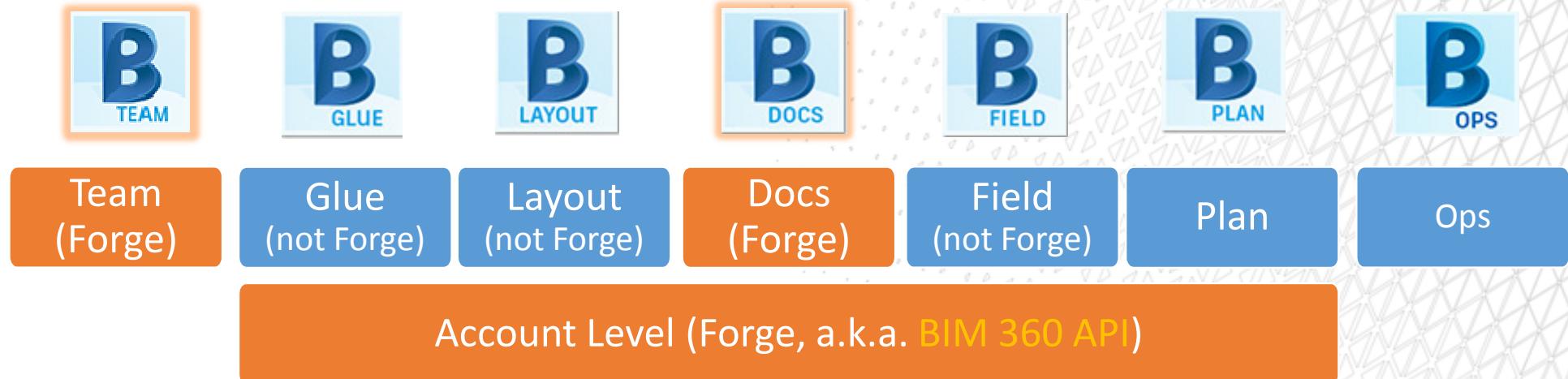
Plan

Ops

Account Level

# BIM 360 Family Products

## Forge vs. non-Forge



# Why BIM 360 Docs?

Docs as data at center  
Seamless, unified future



Team  
(Forge)

Glue

Layout

Docs  
(Forge)

Field

Plan

Ops

Account Level (Forge)

# What's Coming

Next generation Field and Glue

- Field Management
- Model Coordination

And more

- Insight (IQ)

# BIM 360 Docs and API – Big Picture

# BIM 360 Docs – API Overview

Authentication (OAuth)

BIM 360 API  
(Account/HQ Mgmt)

Data Management API

Model Derivative API

Viewer

Issues API

The screenshot shows the Autodesk BIM 360 Document Management interface. At the top, there's a navigation bar with the Autodesk logo, 'AUTODESK BIM 360', 'ADSK Technical Marketing', and a user profile. Below the navigation bar, the main title is 'Document Management'. There are three tabs: 'FOLDERS', 'ISSUES', and 'RFIS', with 'FOLDERS' selected. On the left, there's a sidebar with categories like 'Plans', 'Shop Drawings', 'Project Files', and 'Rvt with SharedParam'. The main area displays a table of documents. One document, 'A001 - Site Plan', is highlighted with a blue border. Below the table, there's a 3D rendering of a building model. At the bottom, there's a preview strip showing thumbnails for various documents.

Document Name	File Name	Version	Updated by
プラン.1		--	--
A001 - Site Plan	rac_basic_sample_project.rvt	V1	Mikako Harada
A101 - Title Sheet			
A102 - Plans			
A103 - Elevations			
A104 - Elev./Sec.			
A105 - Elev./Staf			
S001 - Title Shee			

# BIM 360 Docs – API Overview

## Authentication (OAuth)

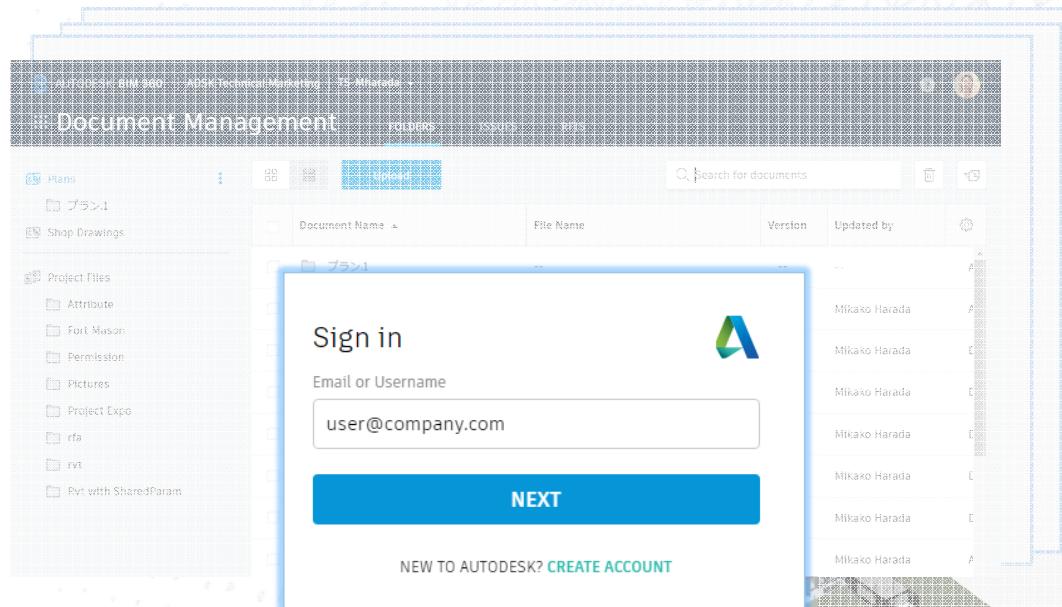
BIM 360 API  
(Account/HQ Mgmt)

Data Management API

Model Derivative API

Viewer

Issues API



# BIM 360 Docs – API Overview

Authentication (OAuth)

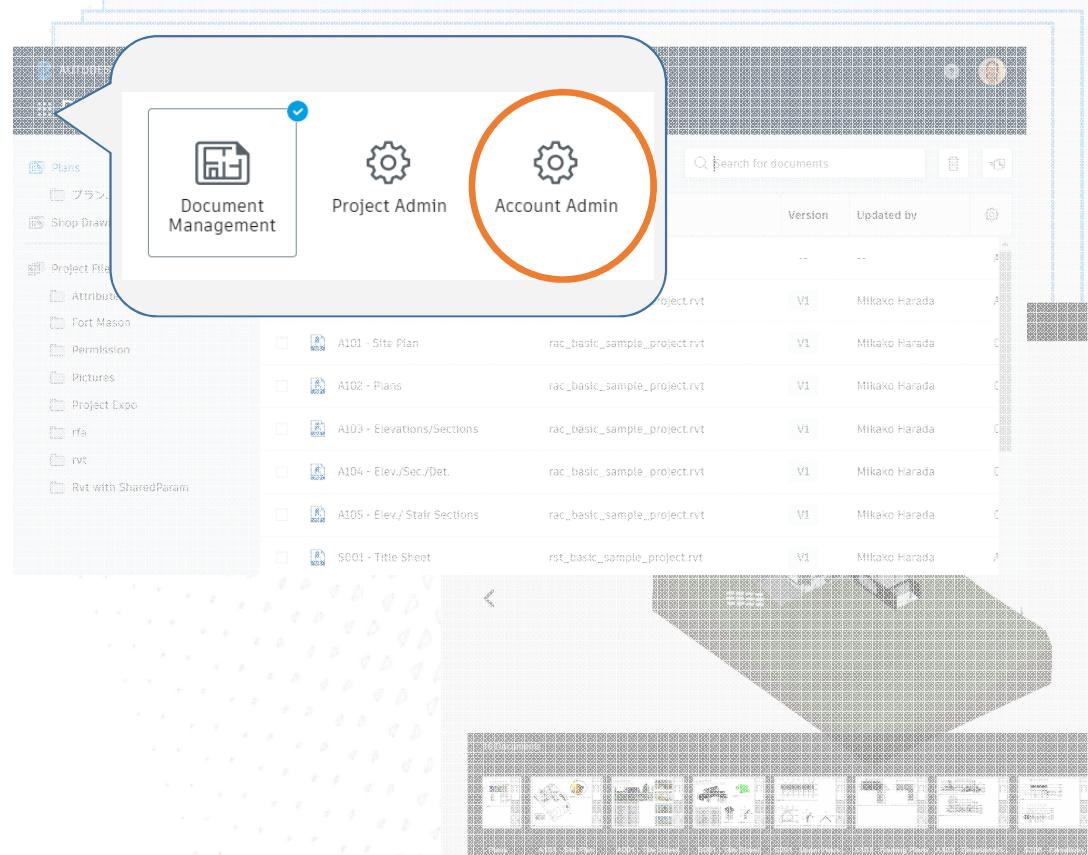
**BIM 360 API  
(Account/HQ Mgmt)**

Data Management API

Model Derivative API

Viewer

Issues API



# BIM 360 Docs – API Overview

Authentication (OAuth)

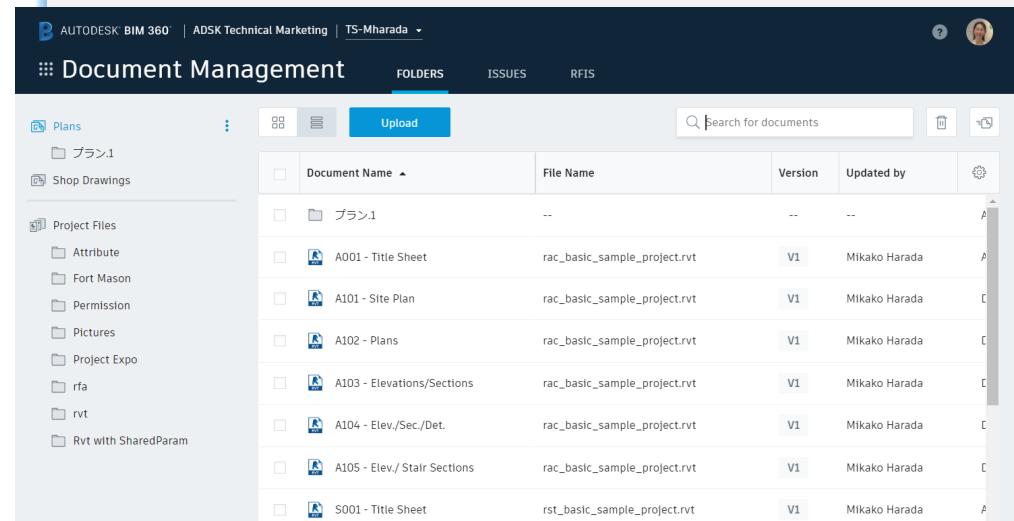
BIM 360 API  
(Account/HQ Mgmt)

Data Management API

Model Derivative API

Viewer

Issues API



The screenshot shows the Autodesk BIM 360 Document Management interface. The left sidebar displays project navigation with sections like 'Plans' (containing 'プラン.1' and 'Shop Drawings'), 'Project Files' (containing 'Attribute', 'Fort Mason', 'Permission', 'Pictures', 'Project Expo', 'rfa', 'rvt', and 'Rvt with SharedParam'), and a search bar. The main area is titled 'Document Management' and contains tabs for 'FOLDERS', 'ISSUES', and 'RFIS'. A large table lists documents with columns for 'Document Name', 'File Name', 'Version', 'Updated by', and a settings gear icon. The table includes entries such as 'A001 - Title Sheet', 'A101 - Site Plan', and 'S001 - Title Sheet', all created by 'Mikako Harada' at version V1.

Document Name	File Name	Version	Updated by	Actions
プラン.1	--	--	--	A
A001 - Title Sheet	rac_basic_sample_project.rvt	V1	Mikako Harada	A
A101 - Site Plan	rac_basic_sample_project.rvt	V1	Mikako Harada	C
A102 - Plans	rac_basic_sample_project.rvt	V1	Mikako Harada	C
A103 - Elevations/Sections	rac_basic_sample_project.rvt	V1	Mikako Harada	C
A104 - Elev./Sec./Det.	rac_basic_sample_project.rvt	V1	Mikako Harada	C
A105 - Elev./Stair Sections	rac_basic_sample_project.rvt	V1	Mikako Harada	C
S001 - Title Sheet	rst_basic_sample_project.rvt	V1	Mikako Harada	A

# BIM 360 Docs – API Overview

Authentication (OAuth)

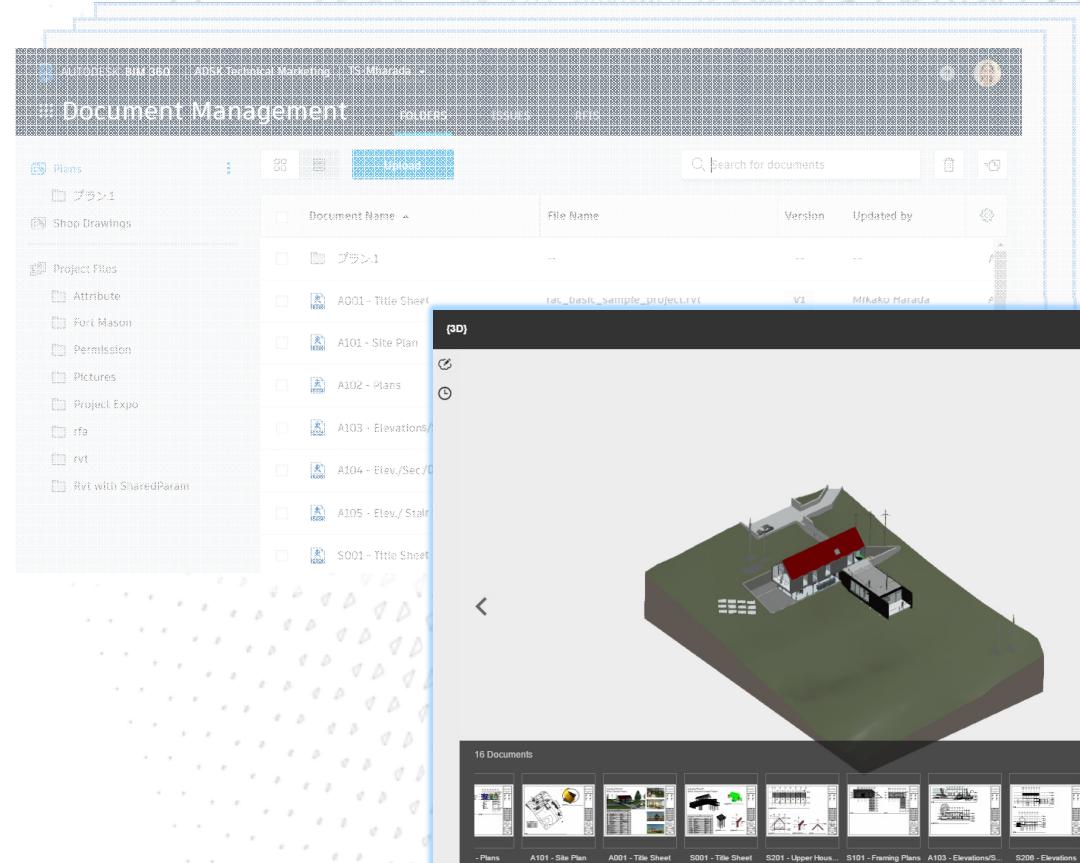
BIM 360 API  
(Account/HQ Mgmt)

Data Management API

Model Derivative API

Viewer

Issues API



# BIM 360 Docs – API Overview

Authentication (OAuth)

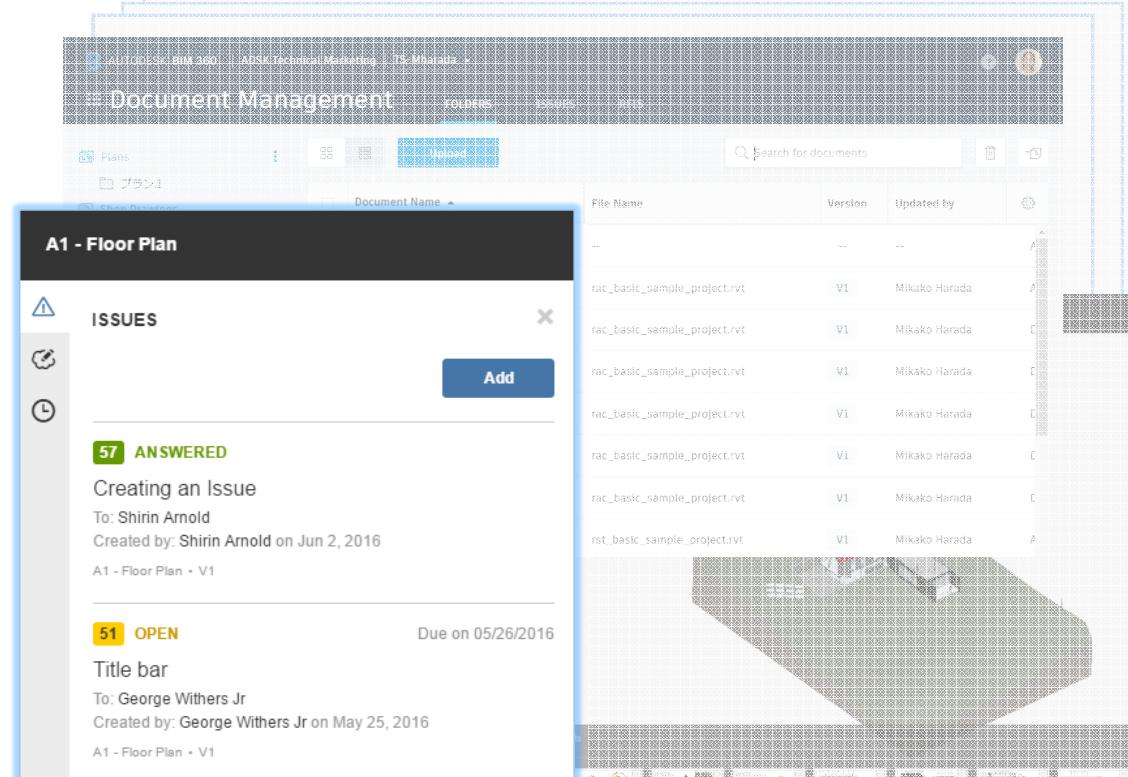
BIM 360 API  
(Account/HQ Mgmt)

Data Management API

Model Derivative API

Viewer

Issues API\*



# BIM 360 Team – API Overview

## Authentication (OAuth)

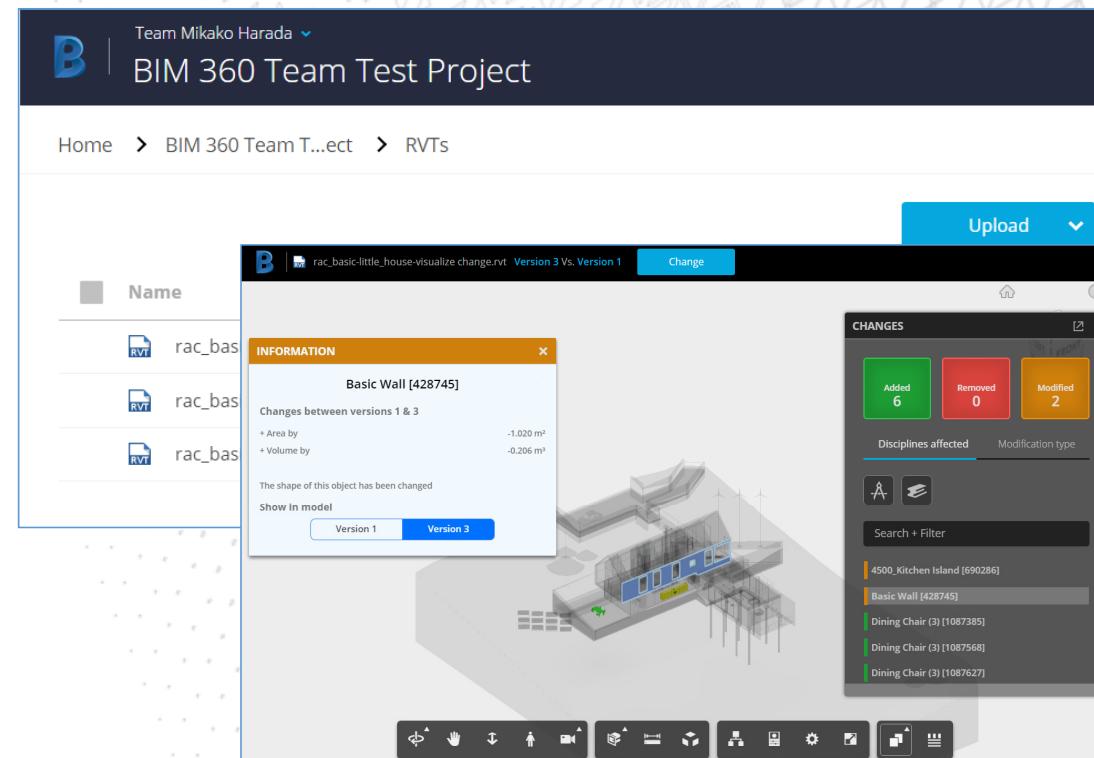
~~BIM 360 API  
(Account/HQ Mgmt)~~

Data Management API

Model Derivative API

Viewer

~~Issues API\*~~



# Forge API

# Forge API

Authentication (OAuth)

BIM 360 API  
(Account/HQ Mgmt)

Data Management API

Model Derivative API

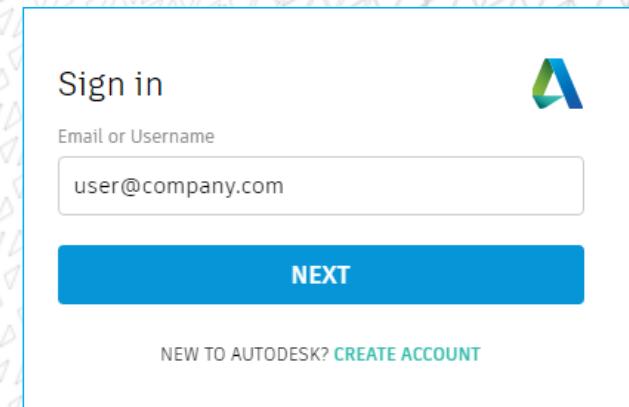
Viewer



# Authentication Methods for BIM 360 Docs

## OAuth2

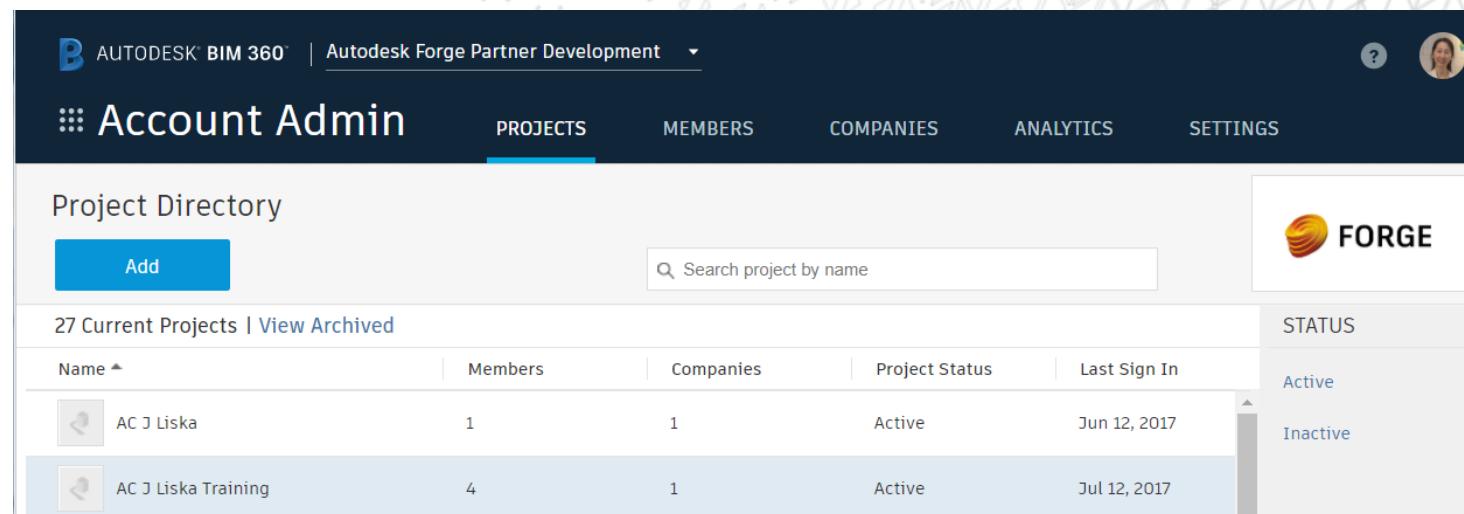
- 2-legged
  - Application-only
- 3-legged
  - User context
  - Re-direct to accounts.autodesk.com



<https://developer.autodesk.com/en/docs/oauth/v2/overview/>

# Account Admin API (BIM 360 API)

- admin.b360
- Projects
- Members
- Companies



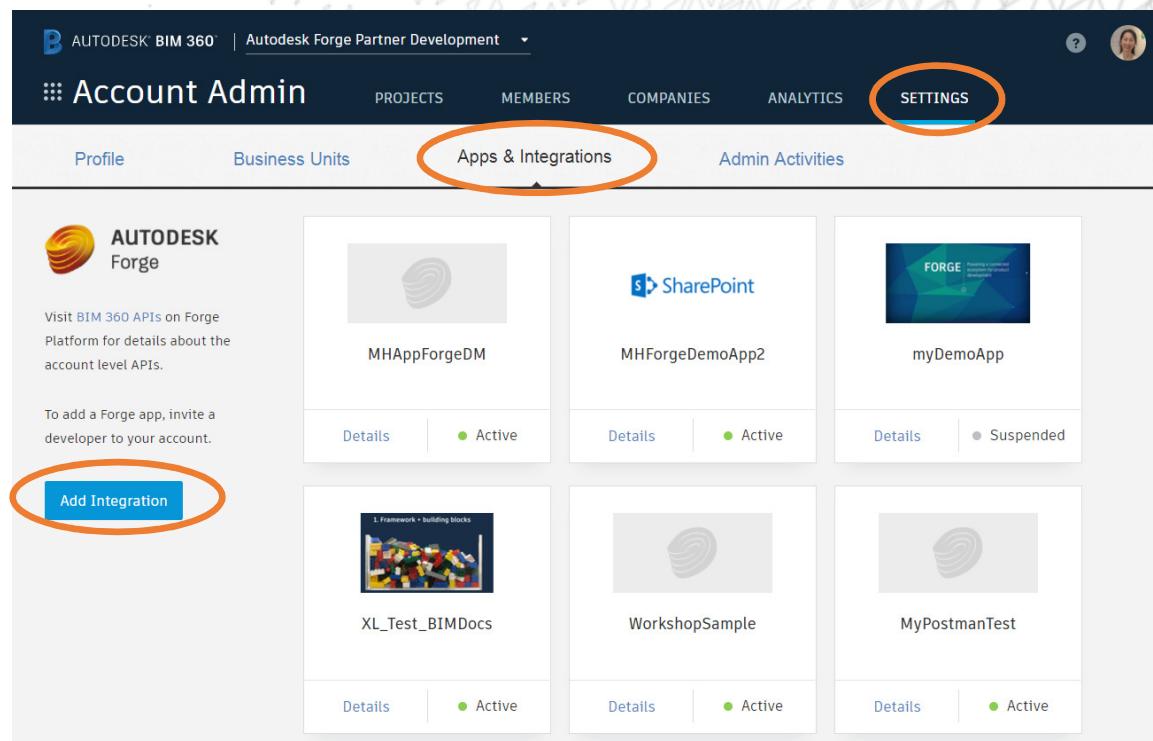
The screenshot shows the Autodesk BIM 360 Account Admin interface. The top navigation bar includes the BIM 360 logo, the current workspace ('Autodesk Forge Partner Development'), a help icon, and a user profile icon. Below the navigation is a secondary navigation bar with tabs: PROJECTS (which is selected), MEMBERS, COMPANIES, ANALYTICS, and SETTINGS. The main content area is titled 'Project Directory' and features a large blue 'Add' button. A search bar allows users to 'Search project by name'. Below the search bar, there is a table titled '27 Current Projects | View Archived'. The table has columns for Name, Members, Companies, Project Status, Last Sign In, and Status. Two projects are listed: 'AC J Liska' (1 member, 1 company, Active, Jun 12, 2017) and 'AC J Liska Training' (4 members, 1 company, Active, Jul 12, 2017). The 'Status' column shows 'Active' for the first project and 'Inactive' for the second.

Name	Members	Companies	Project Status	Last Sign In	Status
AC J Liska	1	1	Active	Jun 12, 2017	Active
AC J Liska Training	4	1	Active	Jul 12, 2017	Inactive

<https://developer.autodesk.com/en/docs/bim360/v1/overview/>

# Account Admin API (BIM 360 API)

- admin.b360
  - Projects
  - Members
  - Companies
- 
- API Access for Docs



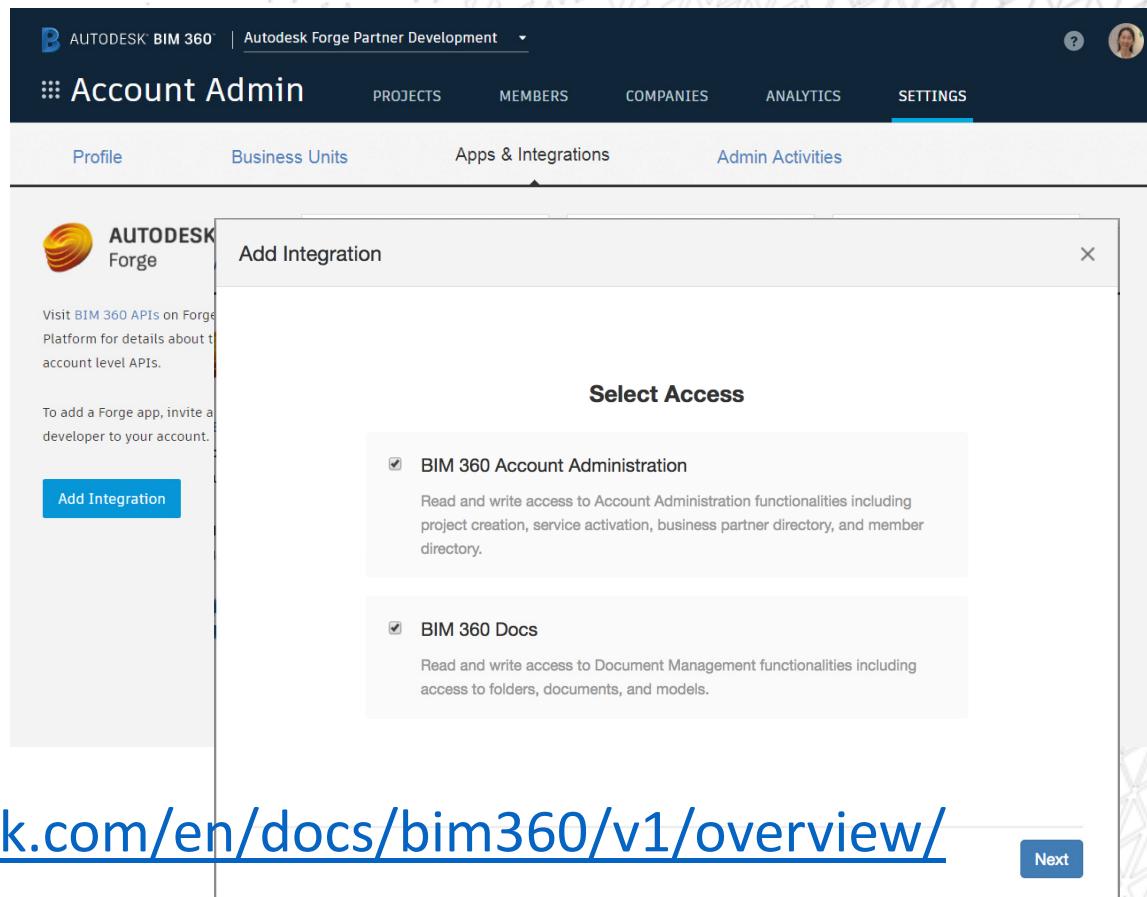
The screenshot shows the Autodesk BIM 360 Account Admin interface. At the top, there's a navigation bar with tabs: Profile, Business Units, Apps & Integrations (which is highlighted with an orange circle), and Admin Activities. Below the navigation bar, there's a section for Autodesk Forge with a "Add Integration" button (also highlighted with an orange circle). To the right, there's a grid of integration cards for various platforms like SharePoint, myDemoApp, XL\_Test\_BIMDocs, WorkshopSample, and MyPostmanTest. The "Settings" tab in the top right corner is also circled in orange.

Integration	Status	Action
MHAppForgeDM	Active	Details
MHForgeDemoApp2	Active	Details
myDemoApp	Suspended	Details
XL_Test_BIMDocs	Active	Details
WorkshopSample	Active	Details
MyPostmanTest	Active	Details

<https://developer.autodesk.com/en/docs/bim360/v1/overview/>

# Account Admin API (BIM 360 API)

- admin.b360
  - Projects
  - Members
  - Companies
- 
- API Access for Docs



<https://developer.autodesk.com/en/docs/bim360/v1/overview/>

Autodesk, Inc. [US] | https://admin.b360.autodesk.com/...

## Add Integration

BIM 360 info you need

When accessing BIM 360 APIs from your app, you need to specify the BIM 360 Account ID. Before proceeding, please make sure to save the BIM360 Account ID info for your records.

BIM 360 Account ID

a4f95080-84fe-4281-8d0a-bd8c885695e0

I have saved the Account ID information se

Fill in App Information

\* Forge Client ID

o57oA9BMeJlmmgbqxQLo6TvVARurZc9U6

App Logo

Select image to upload

\* App Name

TestApp

App Description

my test app

Autodesk, Inc. [US] | https://developer.autodesk.com/myapps/TestAp...

Production AUTODESK FORGE INTERNAL VERSION (Production)

# TestApp

About this app (Created 29 May 2017)

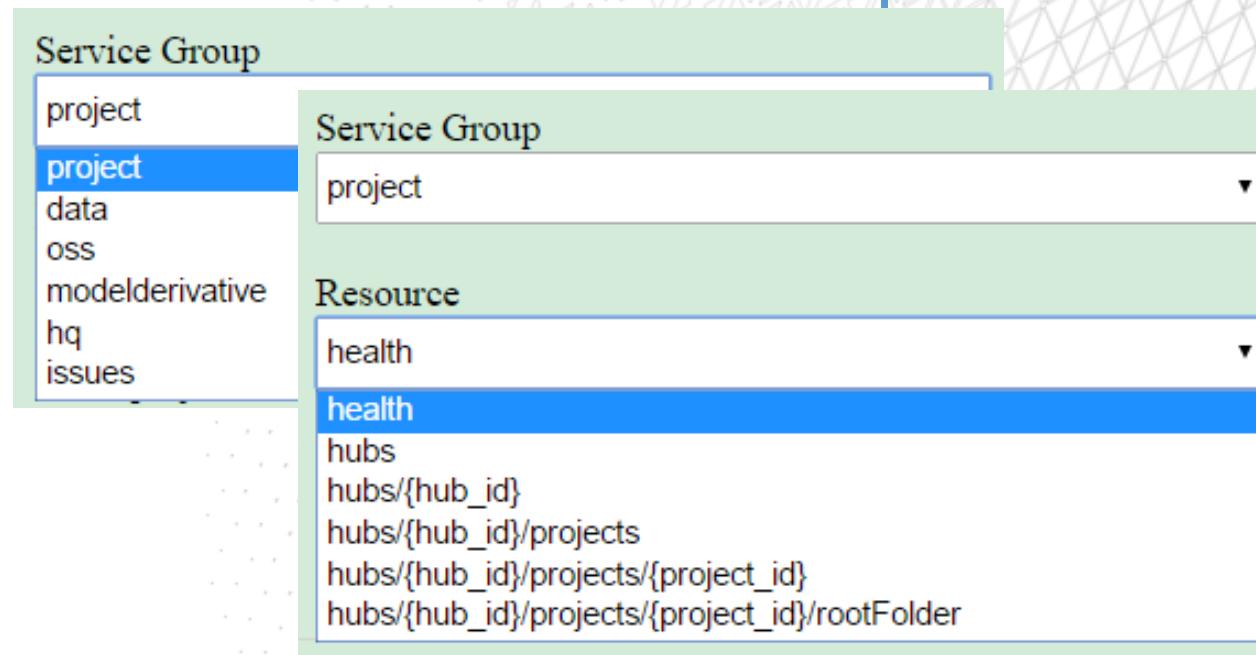
Client ID	o57oA9BMeJlmmgbqxQLo6TvVARurZc9U6
Client Secret	REGENERATE
App Name	TestApp
Description	TestApp
CallBack URL	http://myurl.test.com

# Data Management API – Overview

- Document Management
- Common across Autodesk products
  - A360
  - Fusion/Life Cycle
  - BIM 360 Docs
  - Consumer products (Tinker CAD)
  - ...

# Data Management API – Service Groups

- Project service
- Data service
- Object storage service (OSS)
- Schema services



<https://developer.autodesk.com/en/docs/data/v2/overview/>

# Data Management API

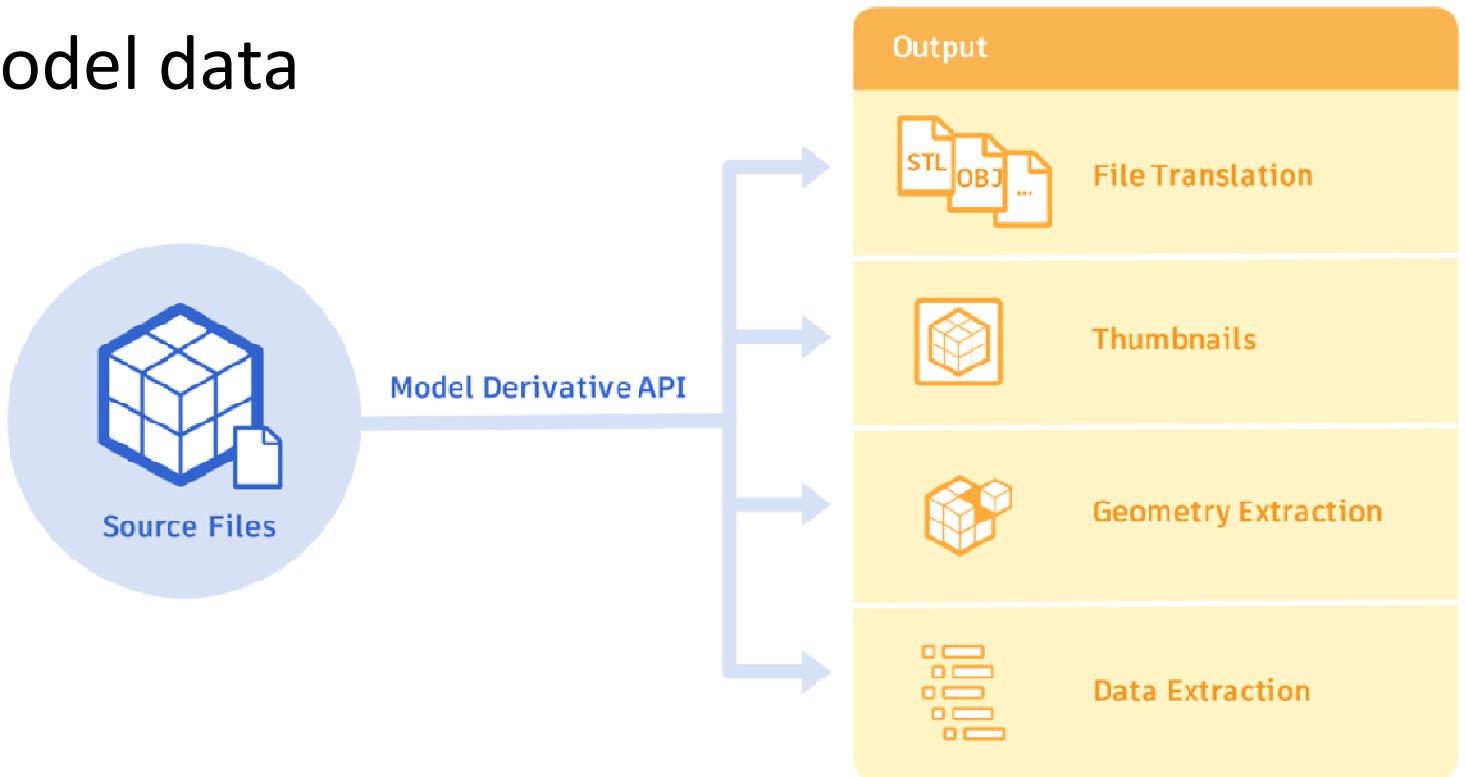
JSON API  
{json:api}

<http://jsonapi.org/format/>



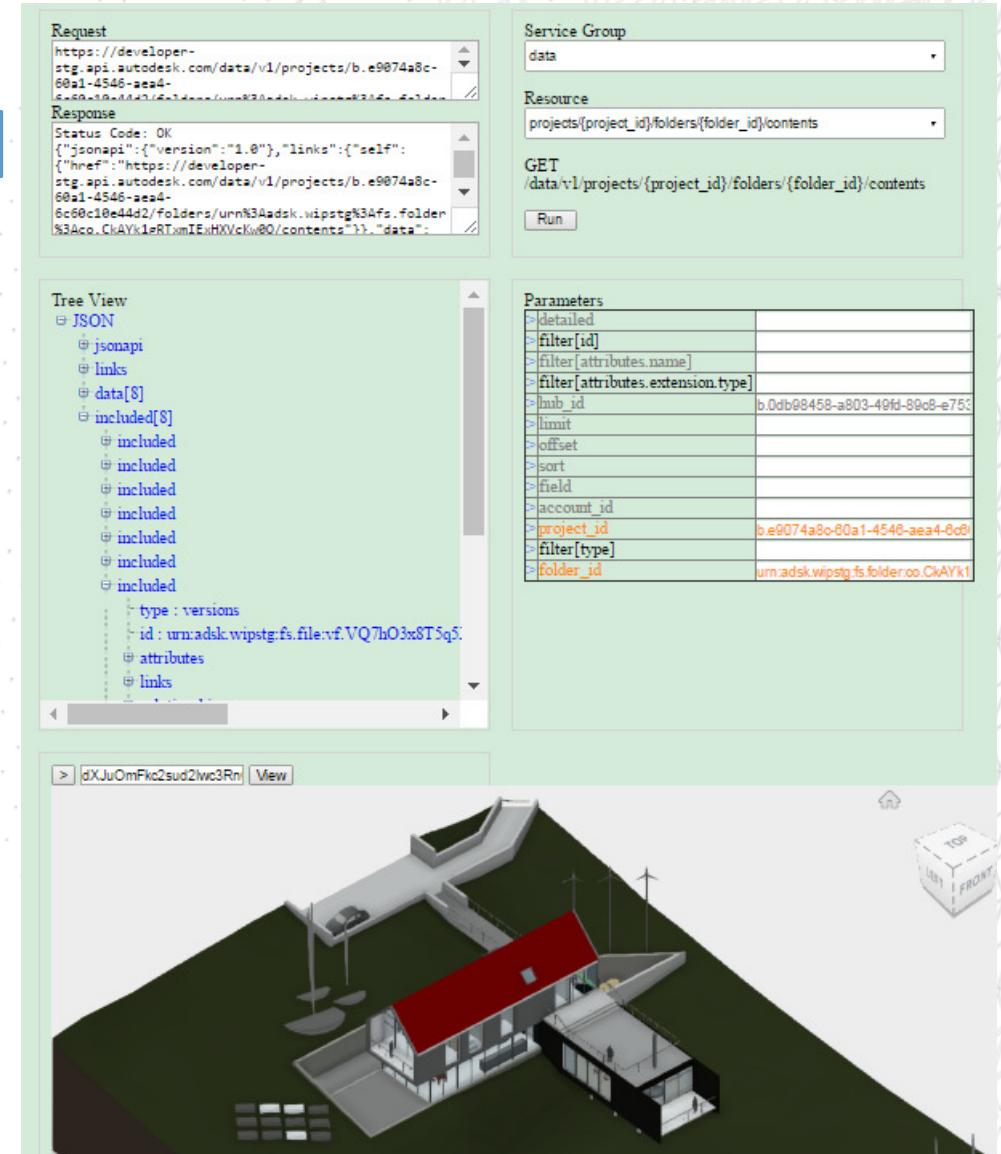
# Model Derivative API

All about model data



# Data Management API

- Drill down with Test Harness



# BIM 360 Docs & Forge

- Basic workflow is identical to A360 Personal & Team Hubs
- A few differences:
  - Docs support 2-legged and 3-legged.
  - “Hubs” is equivalent of “Accounts” in BIM 360.
  - Docs requires an additional step for activating API access in Account Admin Page.
  - Look for the use of extension types, such as **\*:autodesk.bim360:\*** instead of **\*:autodesk.core:\***

# BIM 360 Docs & Forge

- Uploading files
  - In [Step 5 of tutorial](#), use `*:autodesk.bim360:*` instead of `*:autodesk.core:*`
  - Use topFolders relationships (most user does not have access to rootFolder)
  - If you upload to Plans folder, it will automatically create Documents.
  - pdf in Plans – appear as review documents. Still needs to manually review.

# BIM 360 Docs & Forge

- Folder creation
  - Use command instead of post folder (for now)  
<https://developer.autodesk.com/en/docs/data/v2/overview/commands/>

# No “Apps & Integrations”?

Send the requests to:

[bim360appsactivations@autodesk.com](mailto:bim360appsactivations@autodesk.com)

Information needed:

1. BIM 360 Account ID(\*)
2. BIM 360 Account Name
3. BIM 360 Account Admin Email

\*) BIM 360 Account Admin >> “Settings” tab  
>> “View Account ID” link in the bottom-left of the screen.

# No Docs Account for Development?

- ADN members -- adn.autodesk.io >> Development Software and Web Services Request Form
- Paid account owner – ready to use
- Not ADN, no paid account
  - [www.autodesk.com/joinadn](http://www.autodesk.com/joinadn)
  - Contact [bim360hackathon@autodesk.com](mailto:bim360hackathon@autodesk.com)

Learn more

<https://developer.autodesk.com/>

<https://autodesk-forge.github.io/>

<https://fieldOfViewBlog.wordpress.com/forge>

# Model Derivative API – Basic Node.js Sample

## Model Derivative API - Basic Node.js Sample

Show the entire list of Hubs, Projects, Folders, Items and Versions under your account.

Select an item version to show a file using [Autodesk Viewer](#)

You're logged in

Retrieved hierarchy

The interface displays a retrieved hierarchy on the left and a 3D model viewer on the right. The hierarchy shows various projects and items, with specific versions of 'Basic Roof' selected. The 3D viewer shows a house model with dimensions and properties listed below it.

Mikako Test

Mikako Test2

Boston Build Space

Mikako Sandbox

DirectShapeSample.rvt

Urban Innovation Festival

Autodesk Cloud Accelerator

DevTech AEC

Revit Collaboration

Samples

Golden Bridge Gate.dwg

House Design.rvt

Office Building.nwc

Robot.iam

Sports Car.sldasm

V8 Engine.iam

Upload Delete

Roofs

Basic Roof

Typical Roof

Basic Roof [143181]

Basic Roof [145079]

Basic Roof [177761]

Basic Roof [186659]

Slab Edges

Specialty Equipment

Stairs

svf Download Delete

Analytical Properties

Constraints

Construction

Dimensions

Area = 387.871206

Slope = 5.093698

Thickness = 0.541667

Volume = 209.458295

RIGHT BACK

Upload Delete

3D View

File View

Properties

Dimensions

Autodesk Viewer

## Learn Path – Next

Aug 17 (Thurs)    Authentication and Data Management API

Aug 18 (Fri)      Introduction to Model Derivative API

Aug 22 (Tues)     Introduction to Viewer API

Aug 23 (Wed)      BIM 360 Account Level API

Aug 24 (Thurs)     Submitting a BIM 360 App to Autodesk App Store

# Contact for further inquiry

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API product manager [tomer.galon@autodesk.com](mailto:tomer.galon@autodesk.com)

FPD AEC tech lead [mikako.harada@autodesk.com](mailto:mikako.harada@autodesk.com)

# Summary

## BIM 360 and Family Products

### BIM 360 – API

- Overview
- Forge
  - Authentication
  - Account level (HQ)
  - Data Management
  - Model Derivative
  - Viewer



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