AUTODESK. UNIVERSITY

QA/QC Workflow for Construction with Laser Scanning and BIM using Cintoo Cloud and BIM 360

Rob Rasnic

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About the speaker

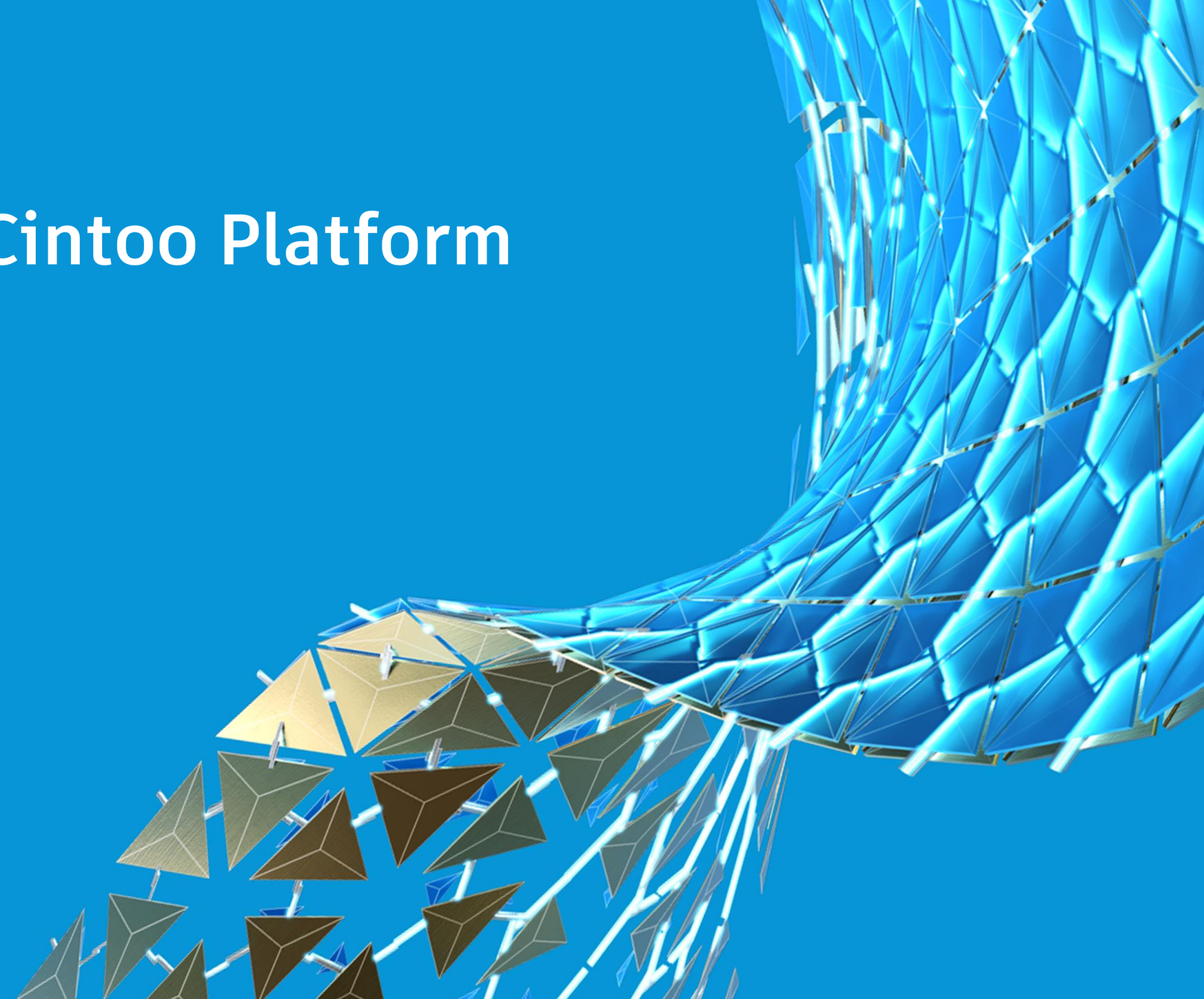
Rob Rasnic – Sales Director Cintoo US

Rob Rasnic is the Sales Director of Cintoo US Inc. and is based in St. Louis, Missouri. Rob has over 25 years experience in the AEC industry space. Before joining Cintoo, Rob held various positions in the market as VP of AEC with Measure, a drone services firm based out of Washington DC focused on data collection workflows within the AEC marketplace. Prior to that Rob spent 16 years at Autodesk with various roles ranging from Channel Manager to Sr. Industry Solutions Manager within the Autodesk Industry Strategy and Marketing group. He also was a product specialists with Infraworks focused on customer workflows and adoption. Rob holds a BS degree in Forestry from the University of Missouri-Columbia.

Today’s Learning Objectives

- **Introduction to the Cintoo Platform**
- **Learn how upload your BIM Models**
- **Learn how to compare your as-built scan data to your BIM Models**
- **Learn how to document issues in Cintoo Cloud**
- **Learn how to export issues to BIM 360 or in BCF format for use in Revit and Navisworks for Scan-to-BIM workflows.**
- **Learn how to provide access to laser scan data in mesh or point cloud format for efficient desktop-based Scan & BIM modeling or clash detection.**

Objective 1:
Intro to the Cintoo Platform



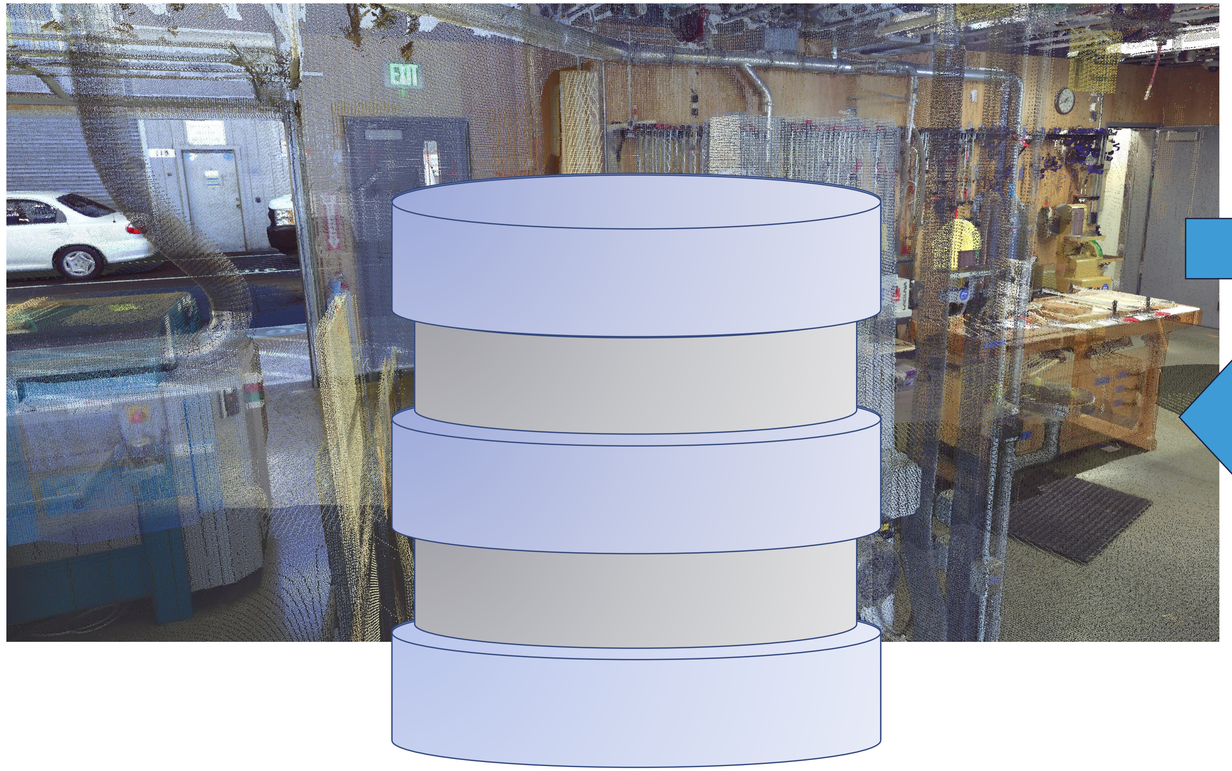
Cintoo Core Technology

Cintoo
Empowering Reality Data on Demand

PATENT PENDING

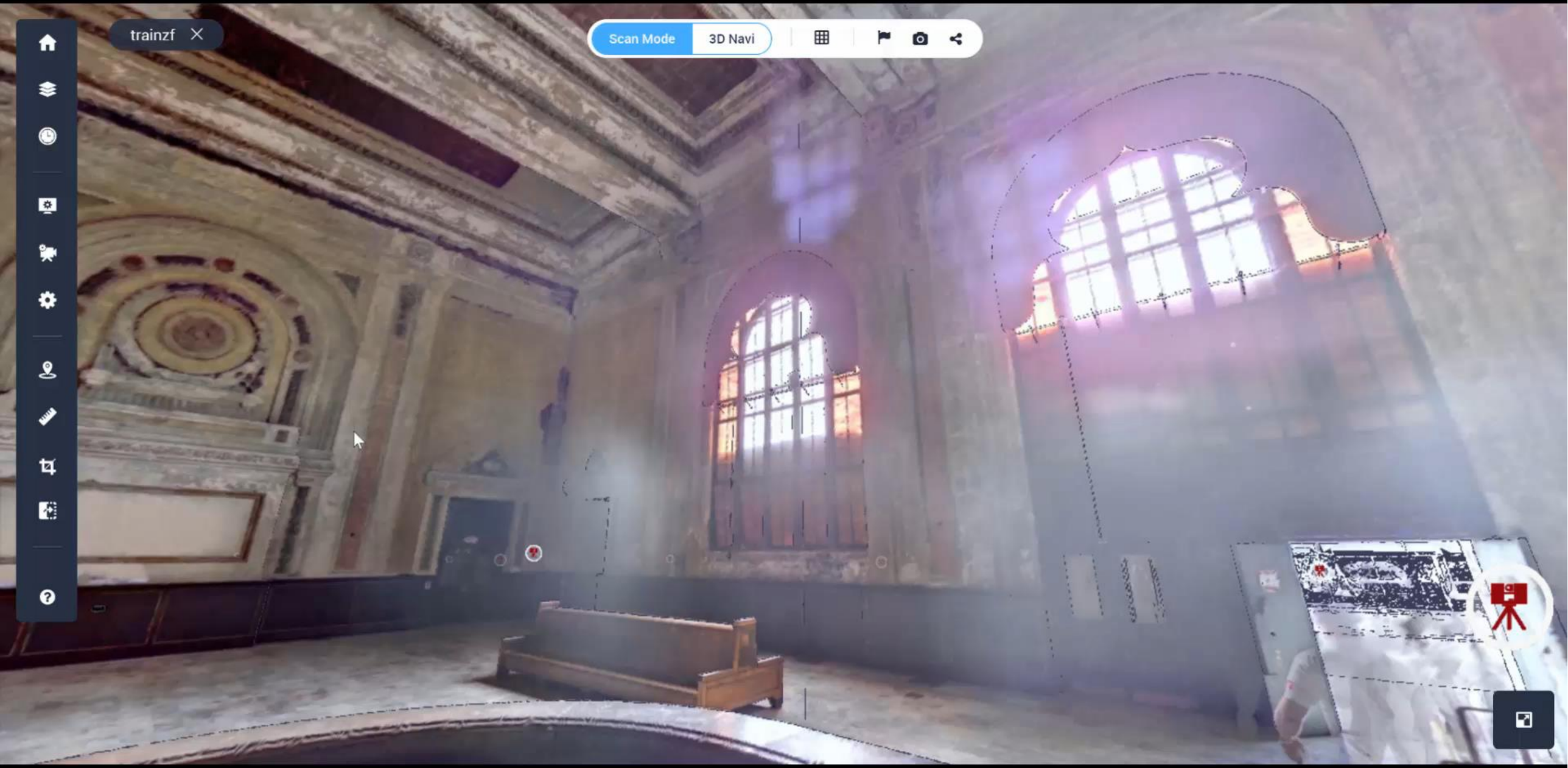
NETFLIX *for 3D Data*

3D Point Cloud



3D Mesh

10 to 20 times smaller!



Cintoo Cloud

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Engineers

Owners

Contractors

Architects

Cintoo Cloud

X *Job site*

Field Technicians

The Digital Twin Platform

Cintoo
Empowering Reality Data on Demand

Process & Power

AEC / O

Device Agnostic

Measurements

Data Management

Experiences

Analytics

Sharing

Annotations

Cintoo Cloud

Visualization

Organization

Distribution

Collaboration

Reports

Manufacturing

Vertical Infrastructure

Ecosystem

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Field

Leica Geosystems

TOPCON

AUTODESK.

Trimble

FARO

AUTODESK® BIM 360™

Cintoo Cloud

amazon web services™

Microsoft Azure

Office(s)

AUTODESK.

AUTODESK® REVIT®

AUTOCAD®

AUTODESK NAVISWORKS

...

Reality Data Workflow

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Field

Structured
RCP, E57, FLS

Cintoo Connect

Point cloud-to-Mesh

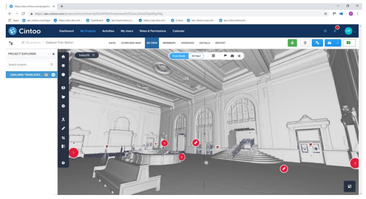
AUTODESK® BIM 360™

IFC, RVT, NWC, NWD, DWG

Issues, Reports, Analysis

Cintoo Cloud

Mesh Streaming



Office(s)

Cintoo Connect

Mesh-to-Point Cloud

3D Unified Mesh:
OBJ, STL, FBX

Point clouds:
Unified RCP / RCS
Structured E57

Reports, Analysis, Measurements, Annotations, Shared viewer

Reality Data Streaming

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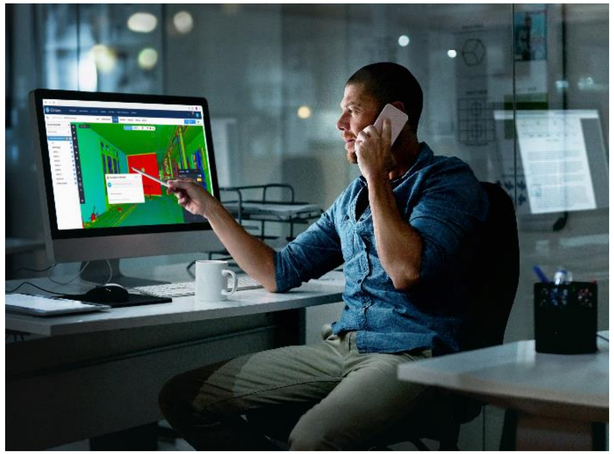
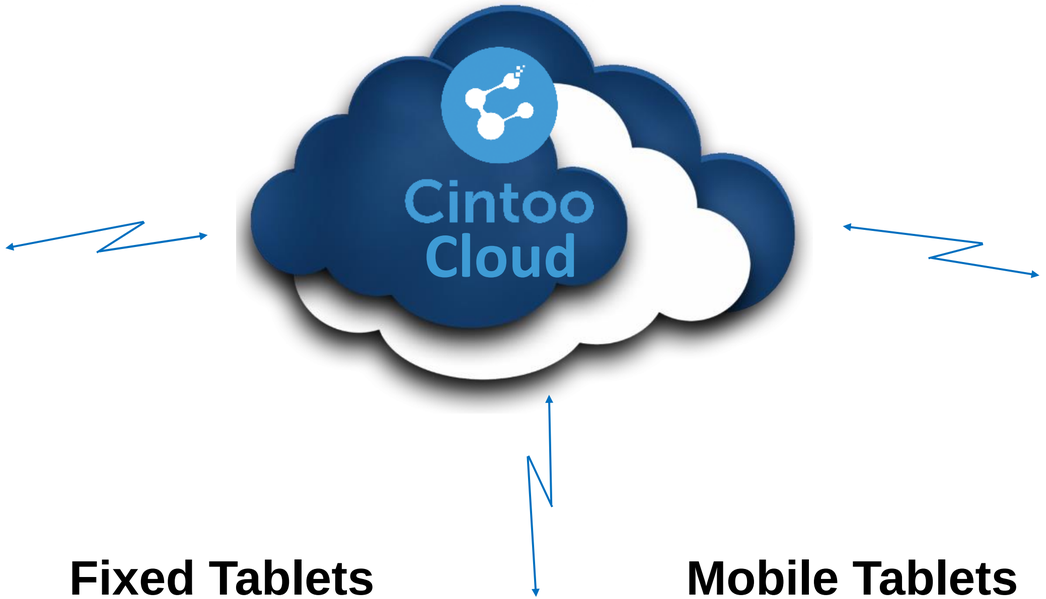
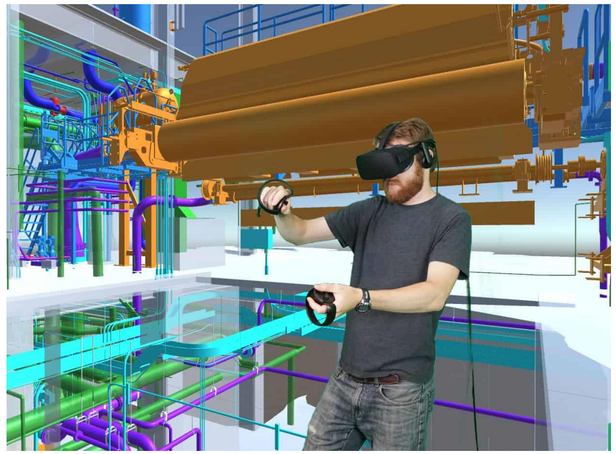


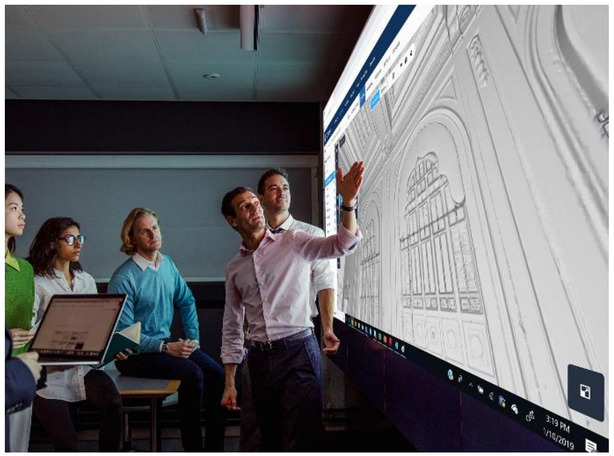
Desktops, Laptops



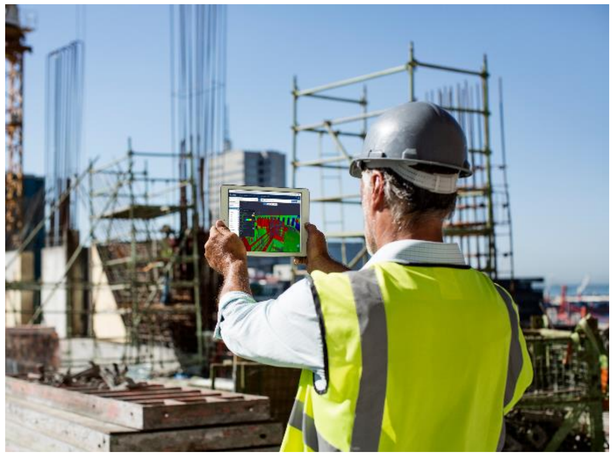


VR Headsets

Fixed Tablets



Mobile Tablets



Collaborative Platform For All

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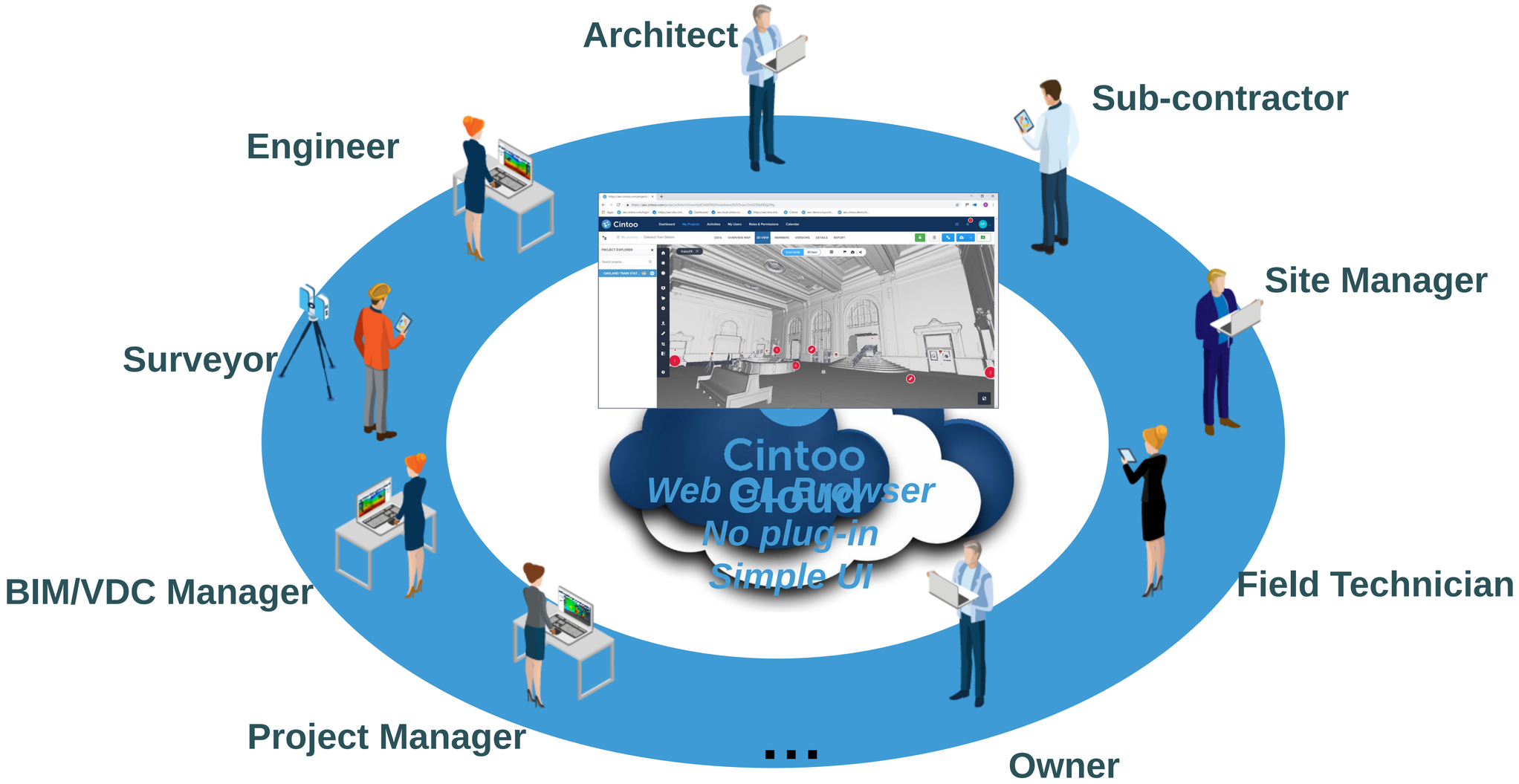

Some Customers

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LUMINOUS

PRP

VINCI CONSTRUCTION

POWER CONSTRUCTION

PCL CONSTRUCTION

CLAYCO
THE ART & SCIENCE OF BUILDING

Stantec

eserv

BBA

GAYLOR
Gaylor Inc. of North Carolina

FSU

Turner
Construction Company

lendlease

HOLOVISION 3D

QUINN EVANS
ARCHITECTS

TESLA

BIMTek

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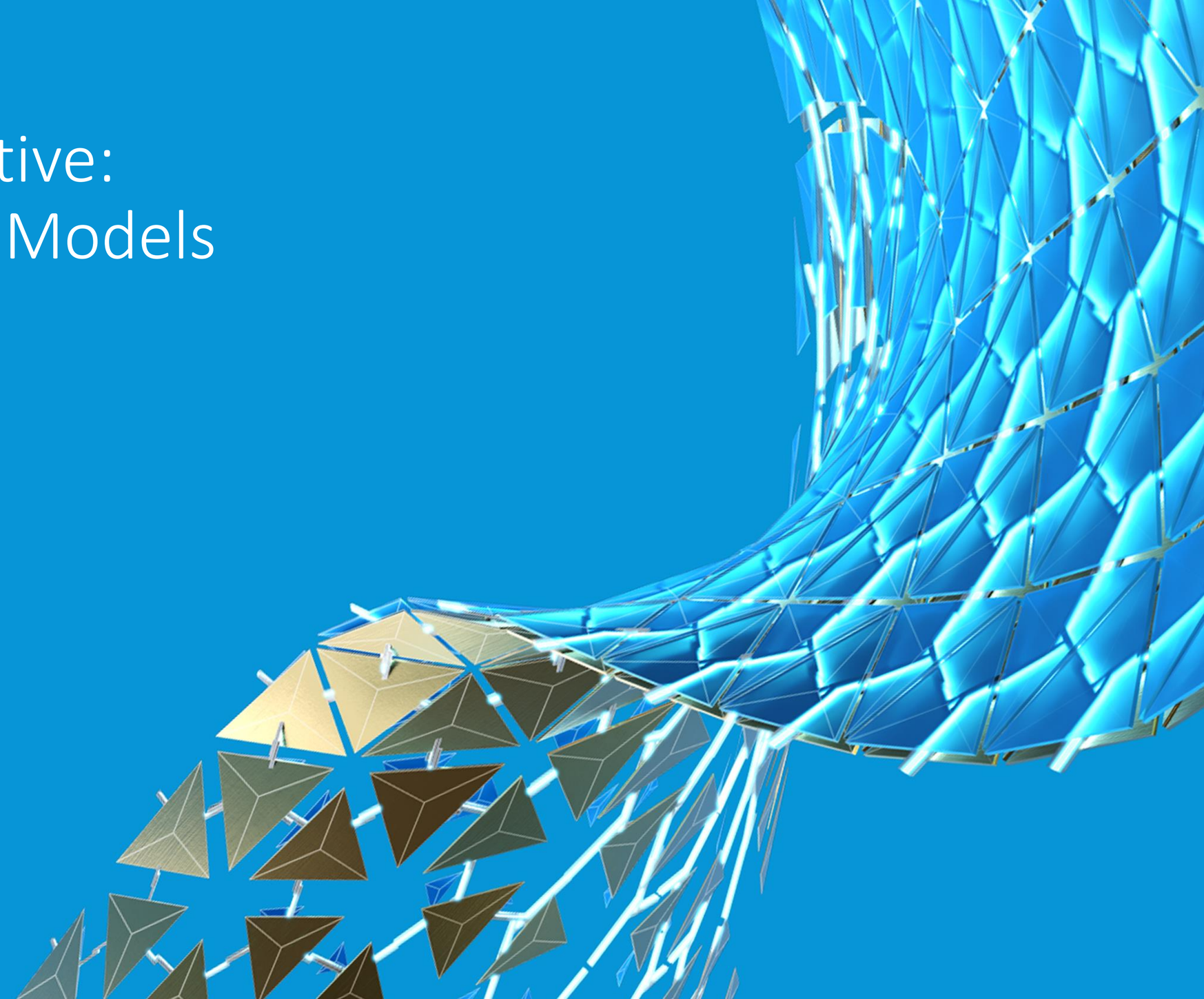
Learning Objective: Uploading BIM Models



Uploading BIM Models

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2 methods to upload BIM Models to Cintoo Cloud

Local hard disk

Supported file types:

IFC2x2, IFC2x3 TC1, IFC4, IFC4 Add1, IFC4 Add2 TC1, IFC4.1, IFC4.2

When exporting IFCs from Revit, go to Revit's Advanced Settings:

- Make sure to use "*Active Shared Coordinates*"
- Make sure to "*Include IFCSITE elevation in the site local placement origin*".
- Make sure to select the right_ Level of Detail_ for the work that you need to do

Autodesk BIM 360

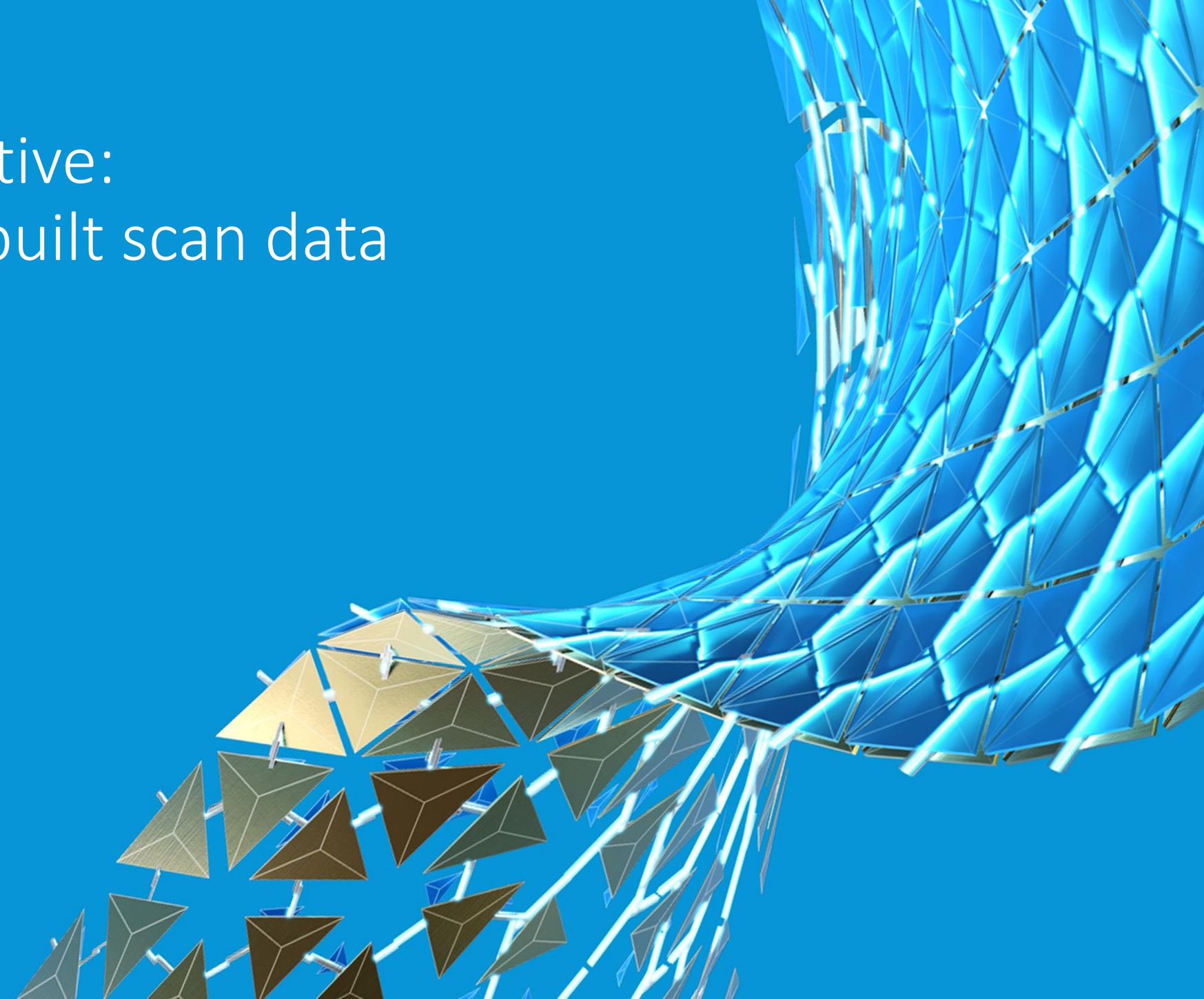
Supported file types:

IFC (see above), RVT, DWG, NWC, NWD, JT

- Login to your BIM 360 account. Select your Hub and your project.
- Select your folder and model
- When selecting a Revit file, you will be asked to select the positioning option between 'Shared Coordinates' and 'Origin to Origin

- You will be notified by email once the selected model is ready for viewing in Cintoo Cloud

Learning Objective:
Comparing as-built scan data to BIM Model



Using the Comparison Tool

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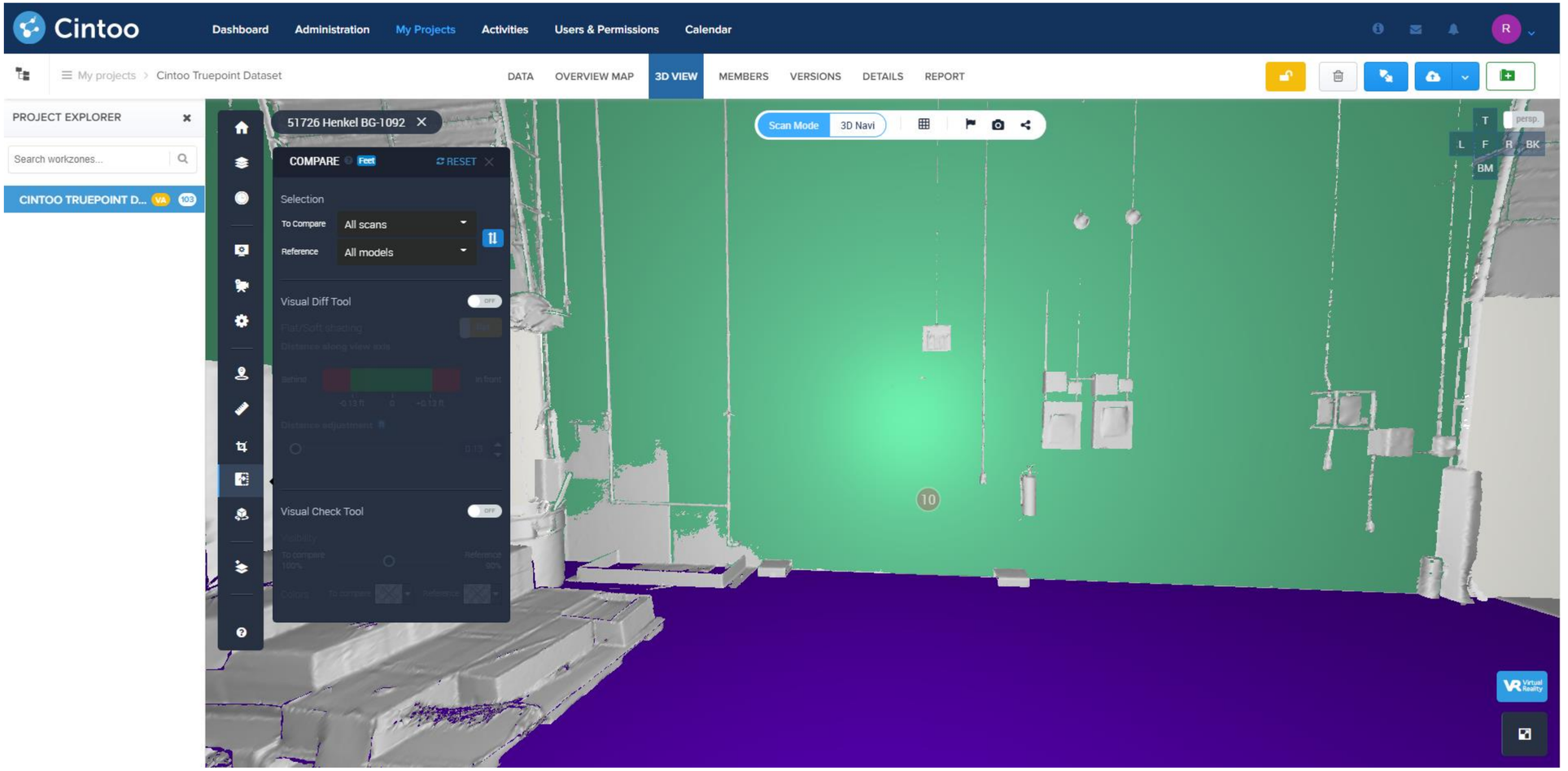
Comparing As-Built Scans to the BIM Model



Using the Comparison Tool

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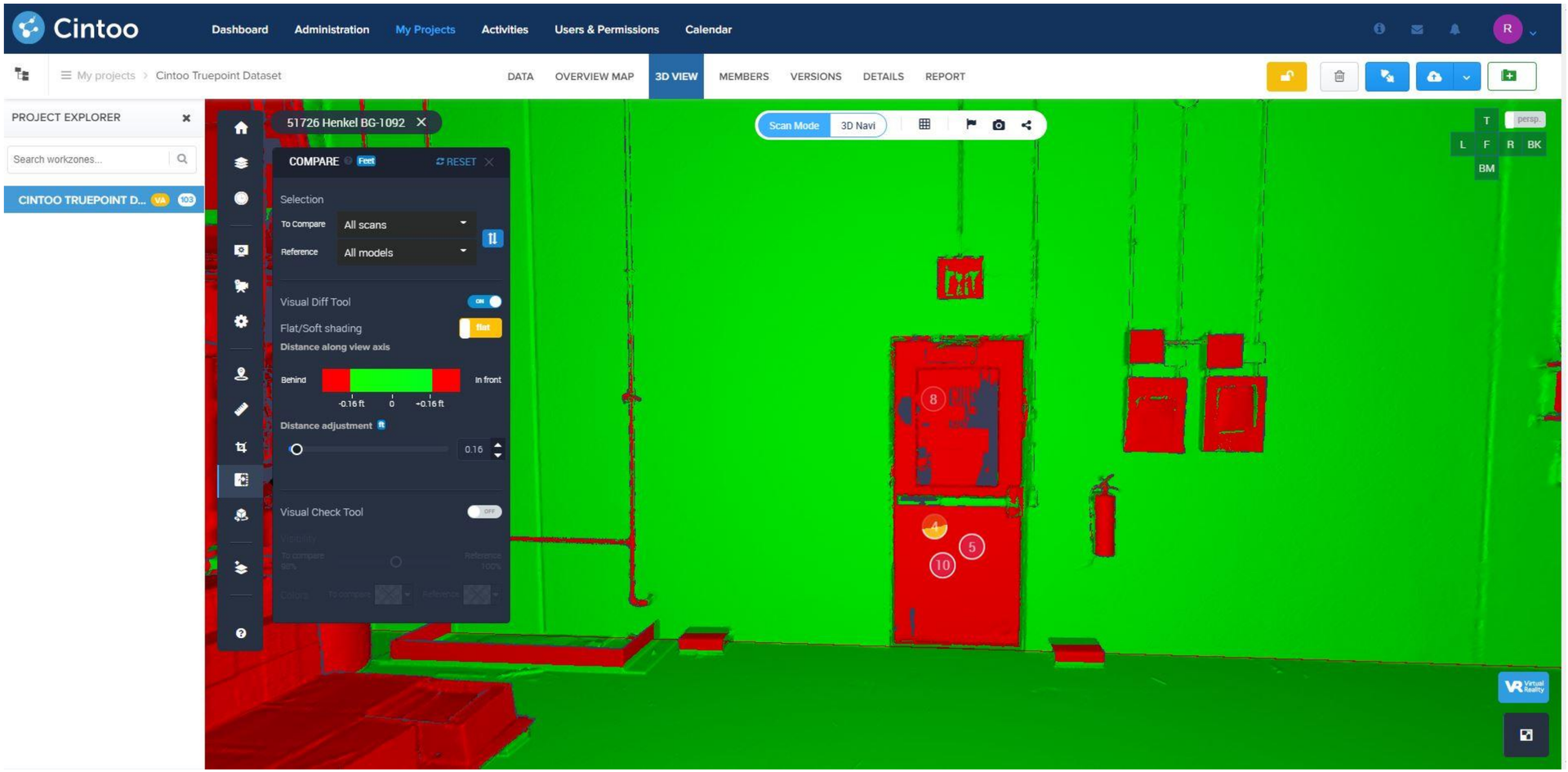
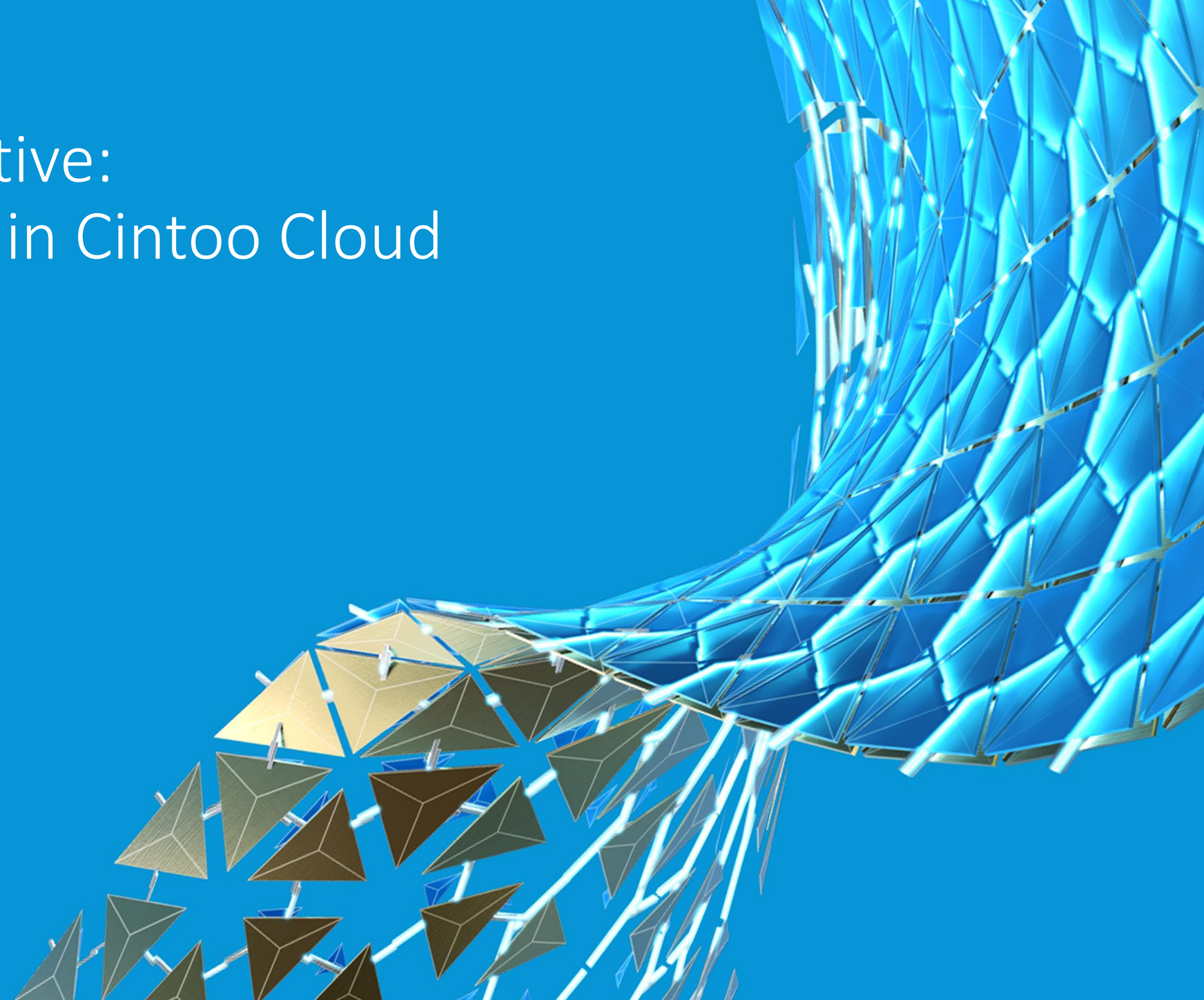
Comparing As-Built Scans to the BIM Model



Learning Objective:
Creating Issues in Cintoo Cloud



Adding an Annotation

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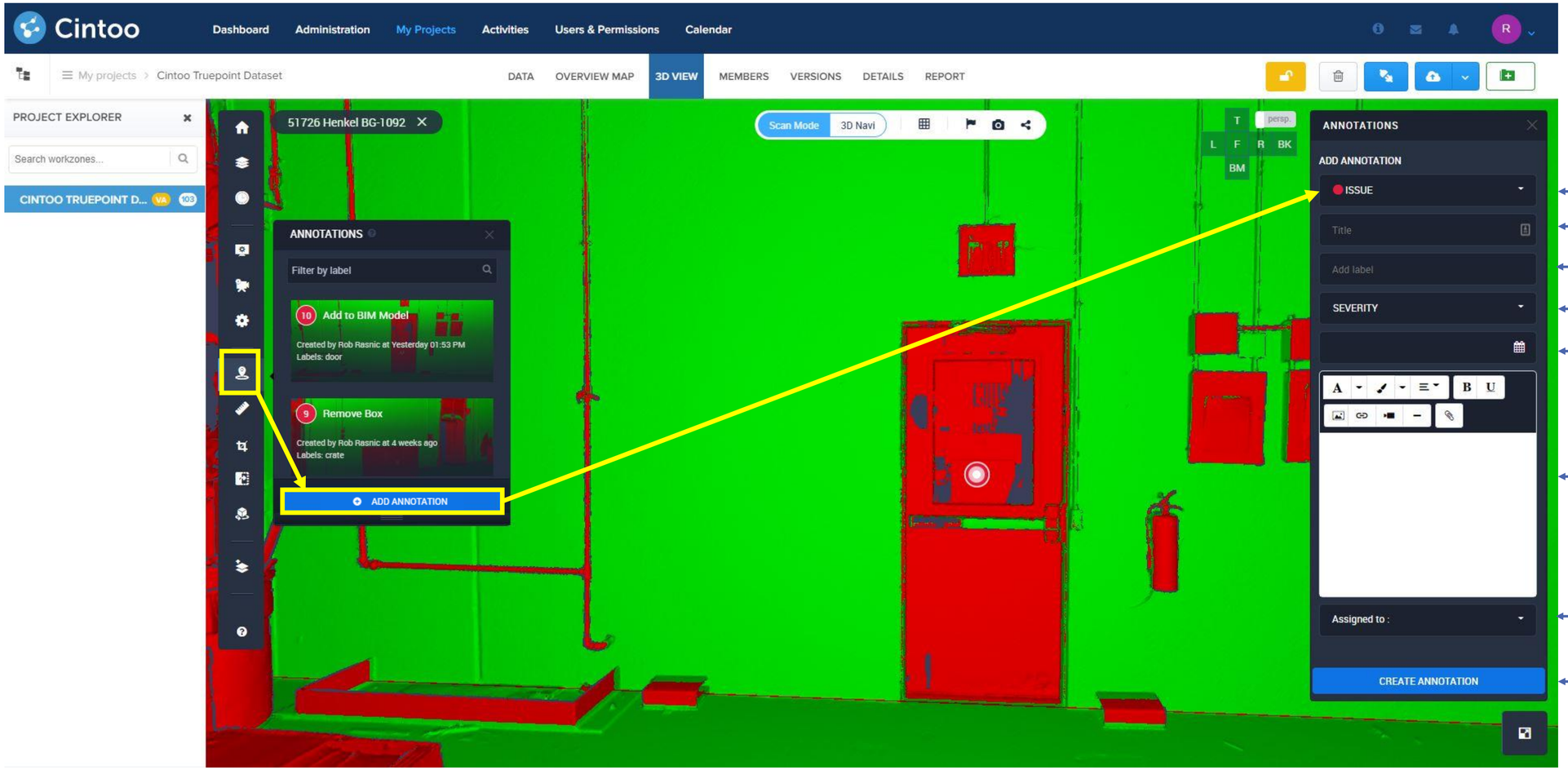
Creating an issue



Issue-Change from Note

Title-give your Issue a name

Label-Can be used for sorting issues

Severity level

Due Date

Details area – you can add text, pictures, hypelinks, attachments, etc.

Assigned to – Verifies that person is a part of the project team

Select to create the Annotation

Learning Objective:
Push issues to BIM 360 and exporting BCF for use in Autodesk Products

Using the Reports Tab

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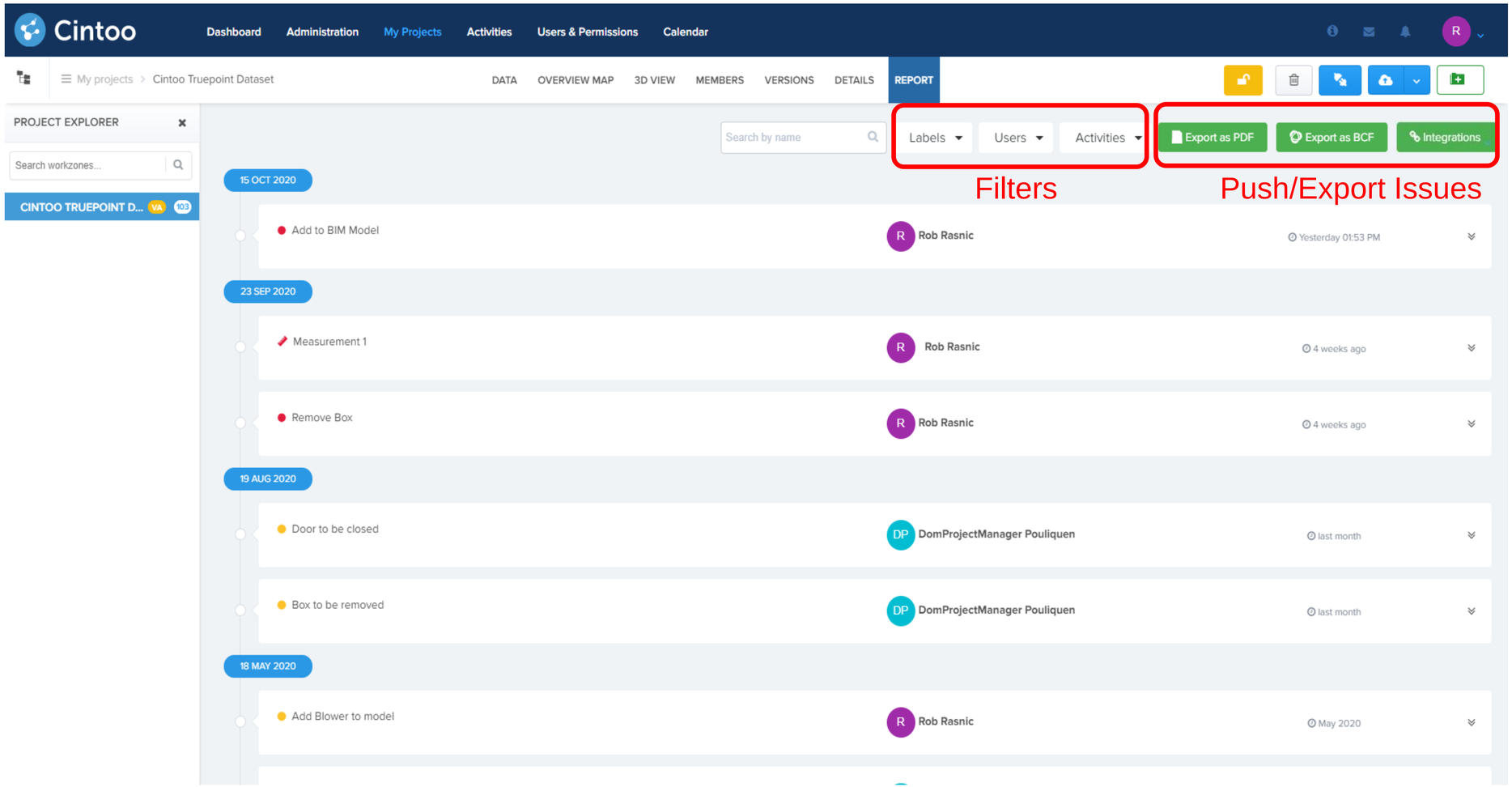
Central source for pushing/exporting issues



Pushing Issues to BIM 360 Issue

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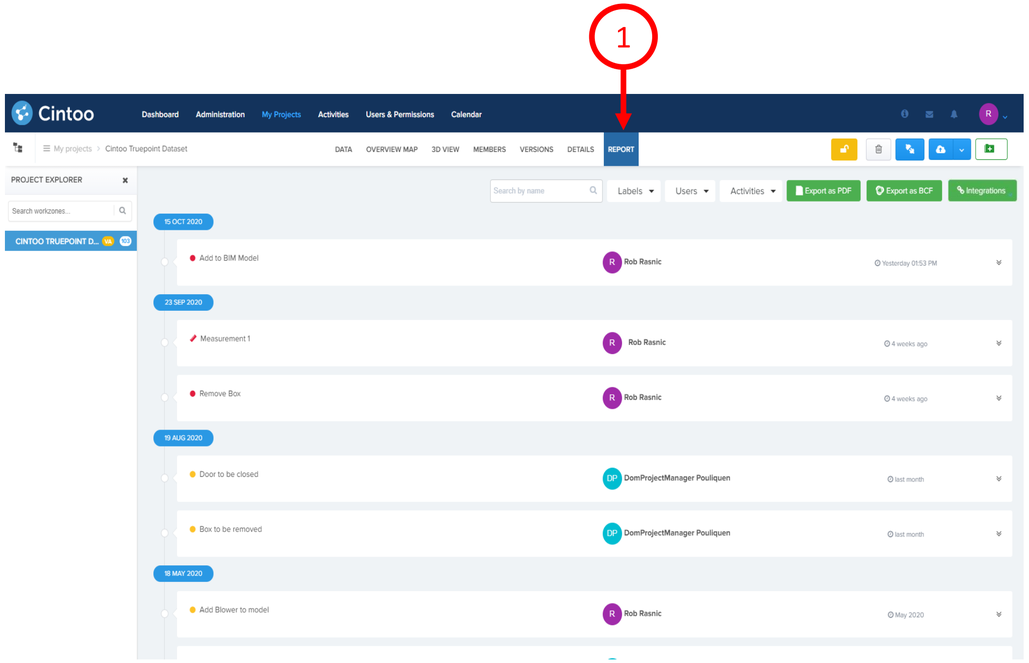
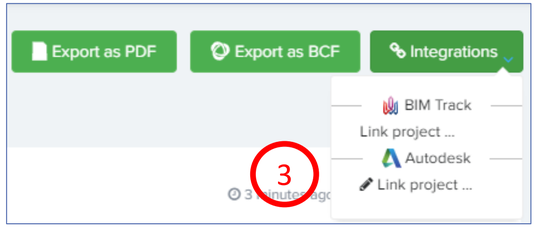
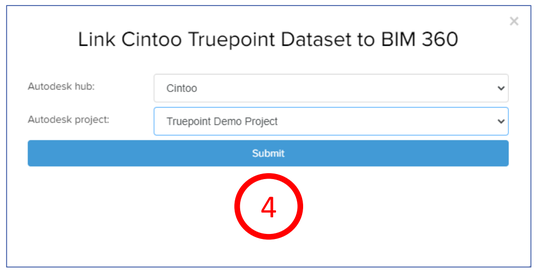
How to Push Issue to BIM 360

1. Select the Reports tab
2. Select Integrations
3. Select Link Project under Autodesk
4. Select your project in BIM 360
5. Click on Autodesk icon to push to BIM 360 issue







Creating PDF Issue report

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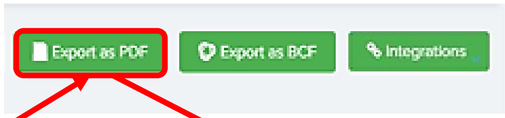
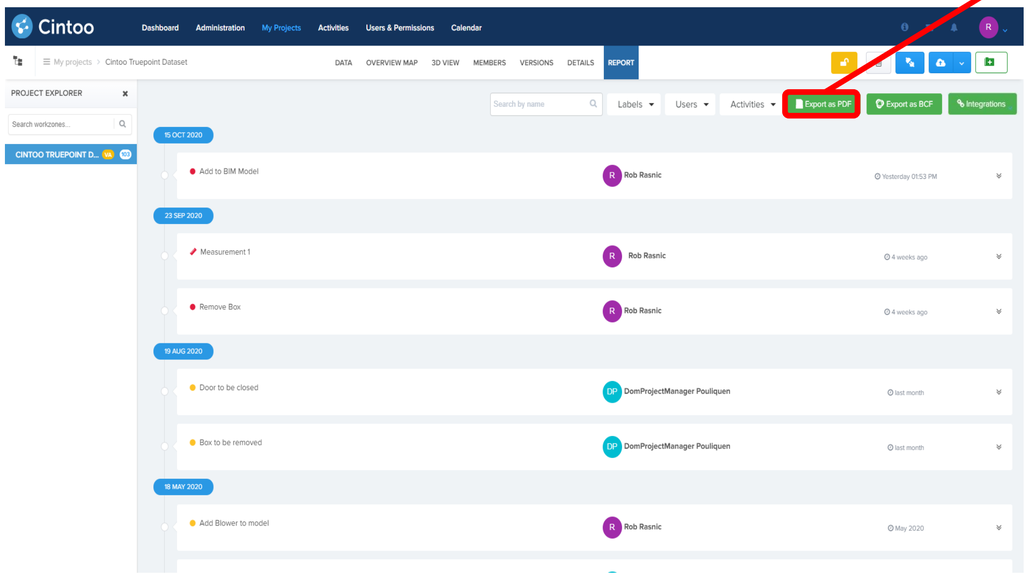
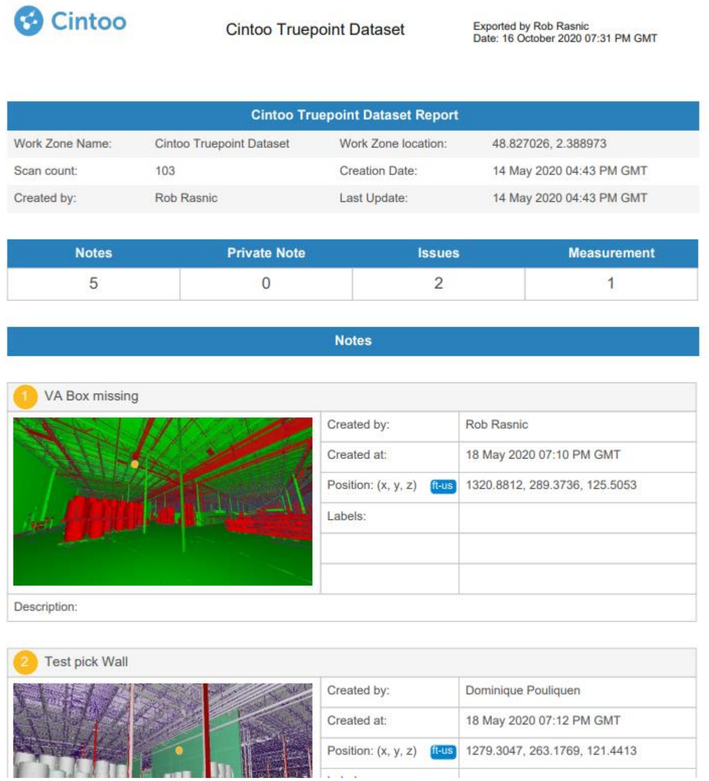
Creating a PDF report







Exporting Issue as BCF file

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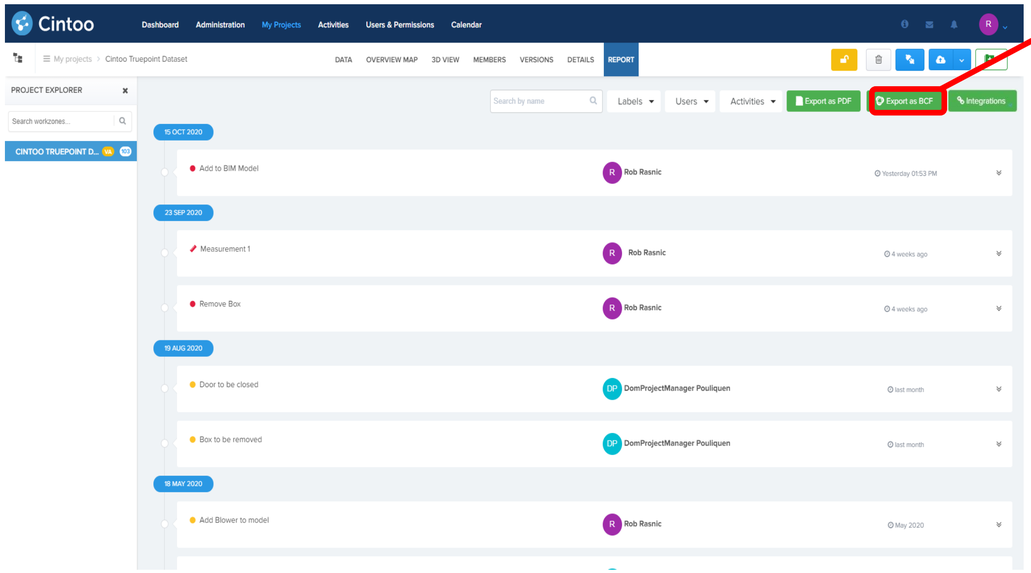
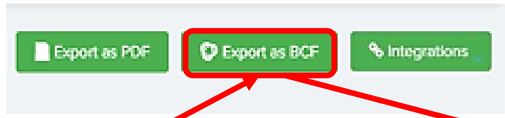
Export BCF file





BCF Format

Partner Plug-ins

BIMTRACK®
revizto
BIMcollab

AUTODESK.

AUTODESK® REVIT®

AUTOCAD®

AUTODESK NAVISWORKS

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Learning Objective:
Exporting point cloud or meshes for use in scan-BIM and clash detection workflow

Exporting Point Clouds

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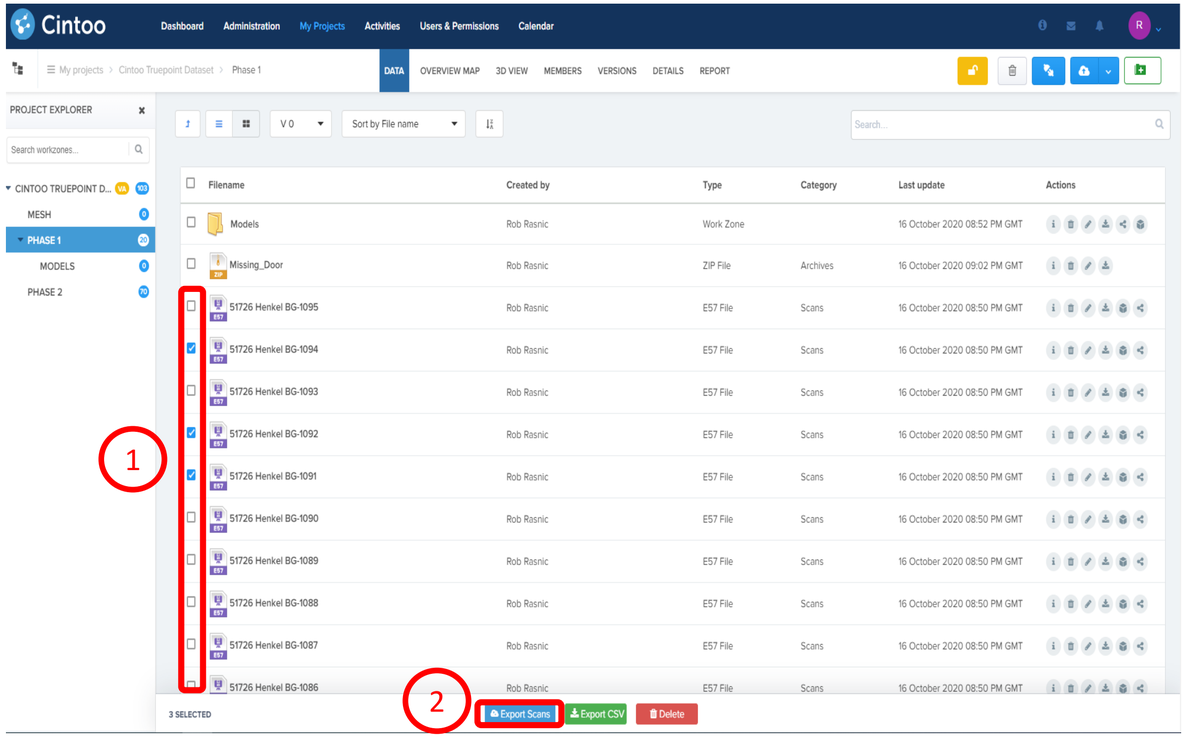
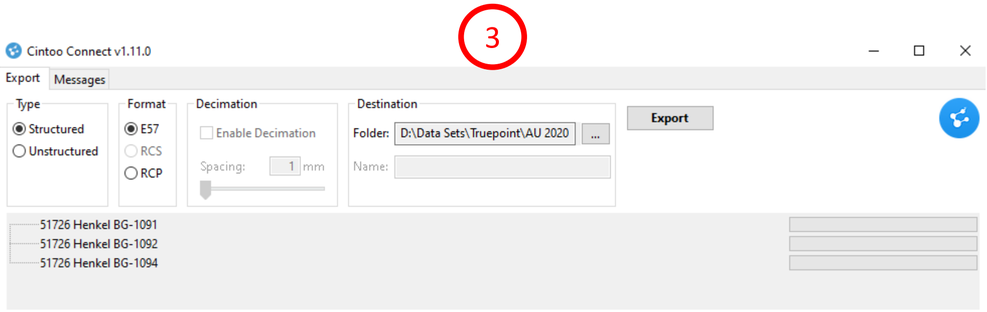
Via the Data Tab

1. Select Scans to Export
2. Select “Export Scans”
3. Cintoo Connect will open and ask where to download locally on client computer





Exporting Point Clouds

Cintoo
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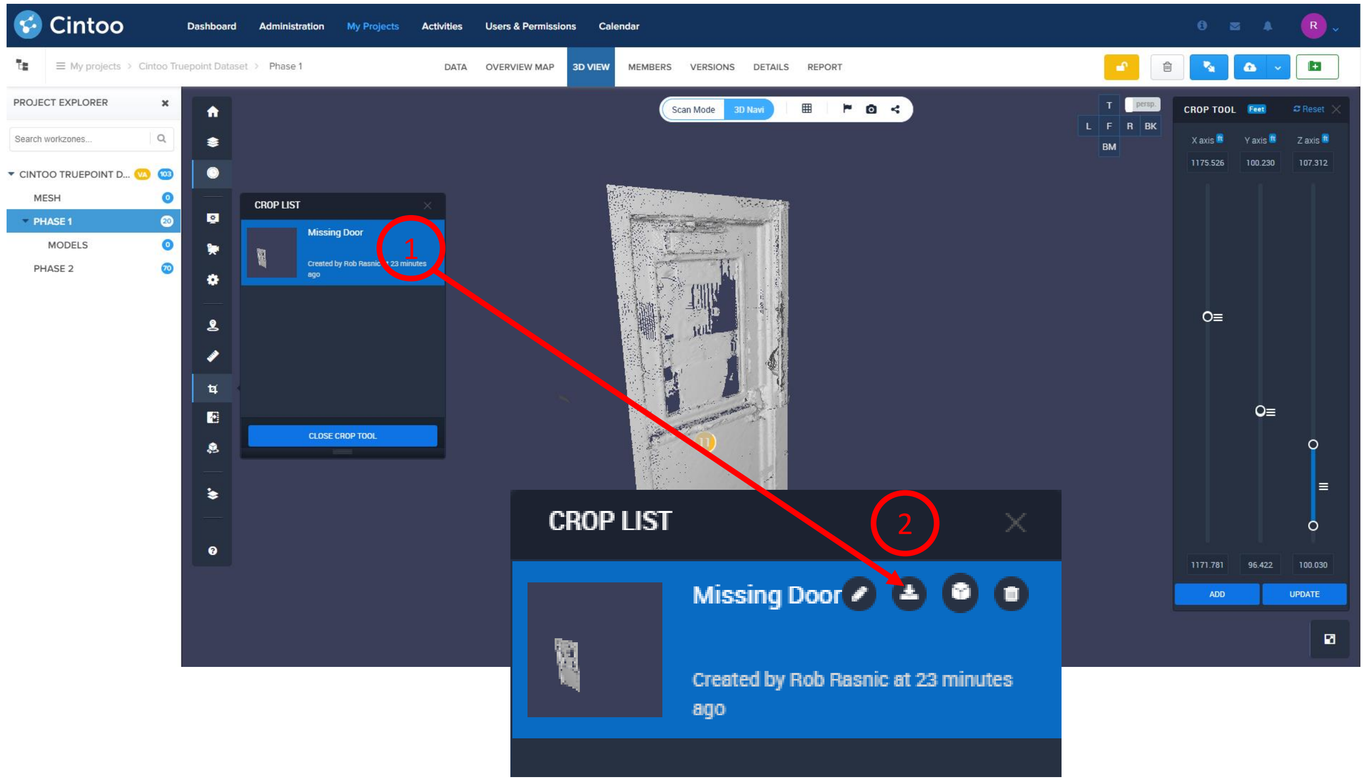
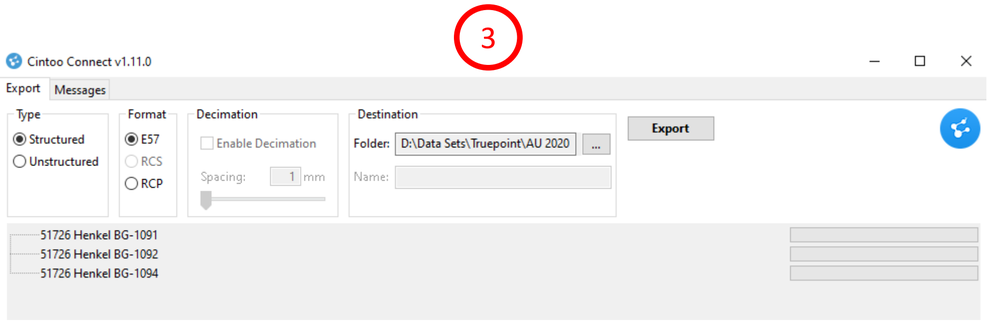
Via the Crop Tool



1. Create and Save a crop of area you want point cloud of
2. Select “Export”
3. Cintoo Connect will open and ask where to download locally on client computer



Exporting Unified Mesh

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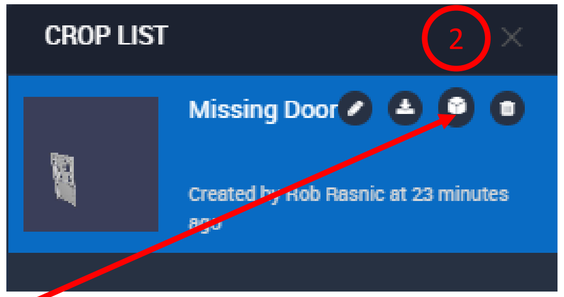
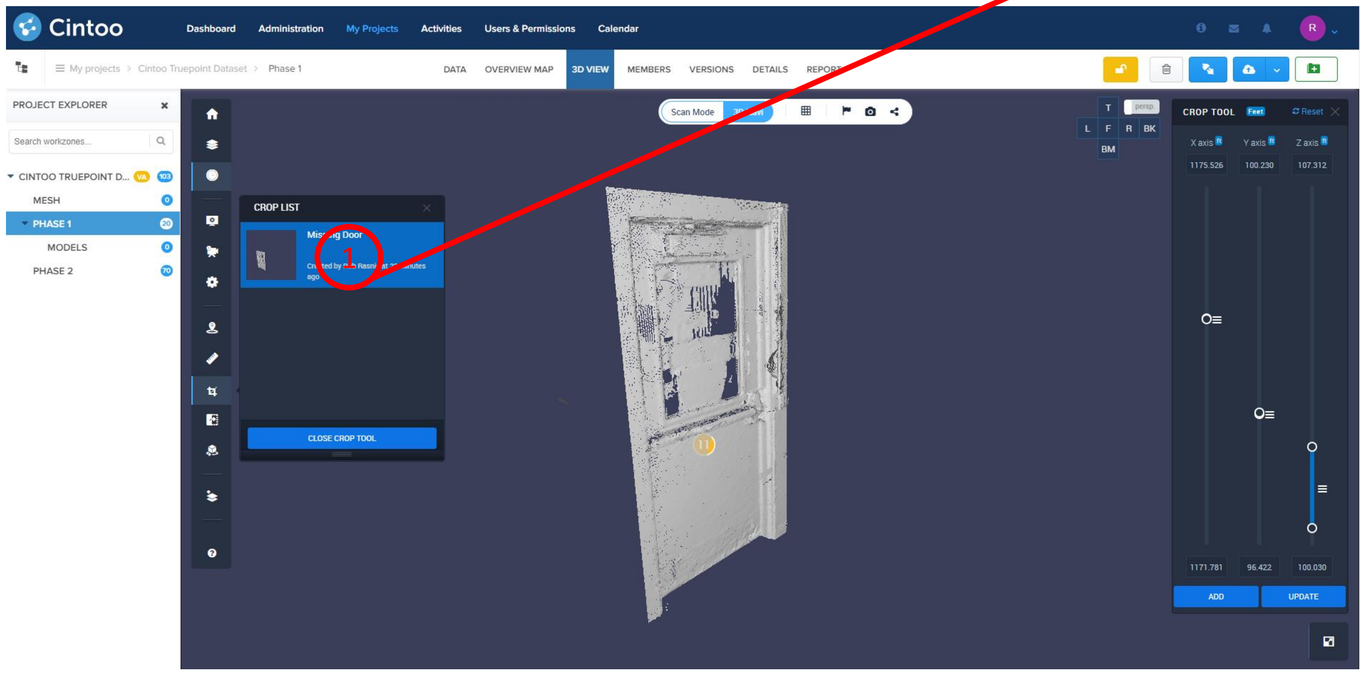
Export with Crop Tool

1. Create and Save a crop of area you want unified mesh of
2. Select “Create Mesh”
3. Select Name, Resolution and format
4. Message will display that mesh is being processed
5. You will receive email notification once completed to download your mesh





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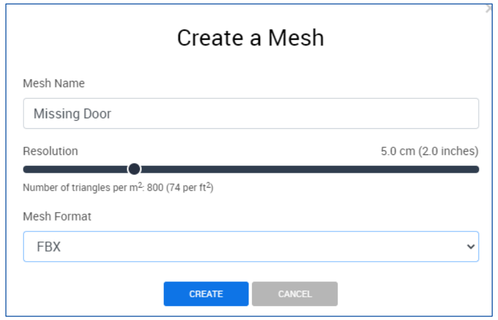

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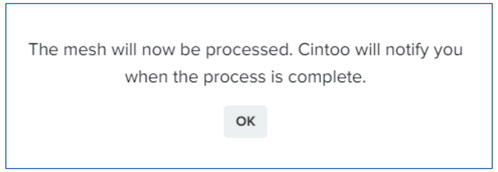

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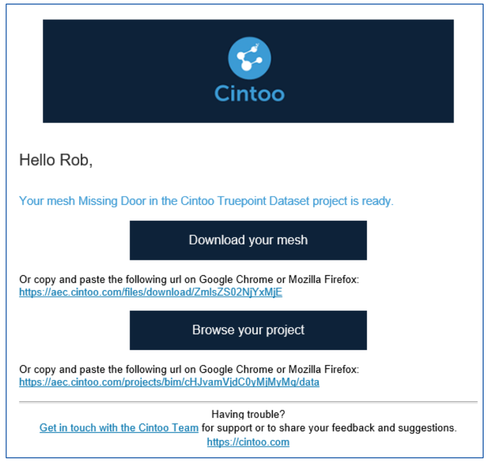

Importing Mesh into Navisworks/Revit

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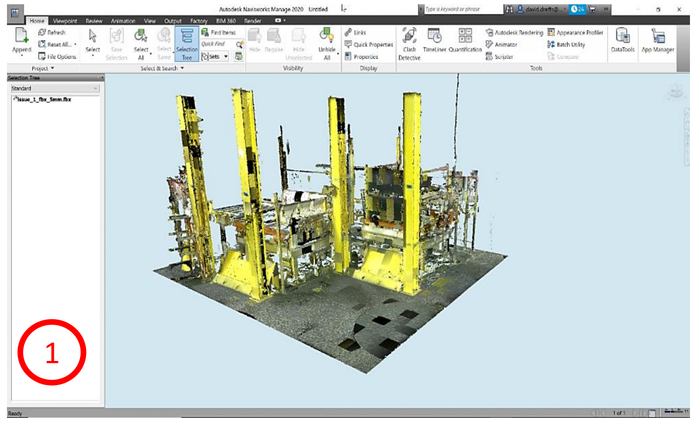
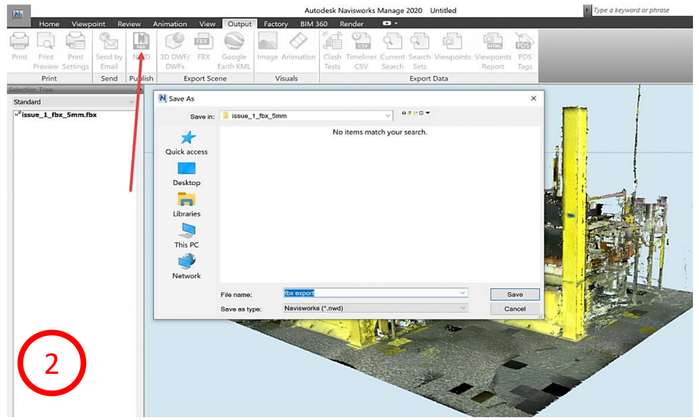
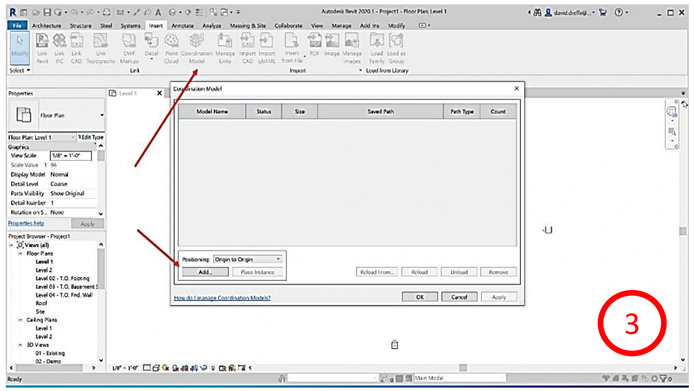
Mesh as FBX in Navisworks and Revit

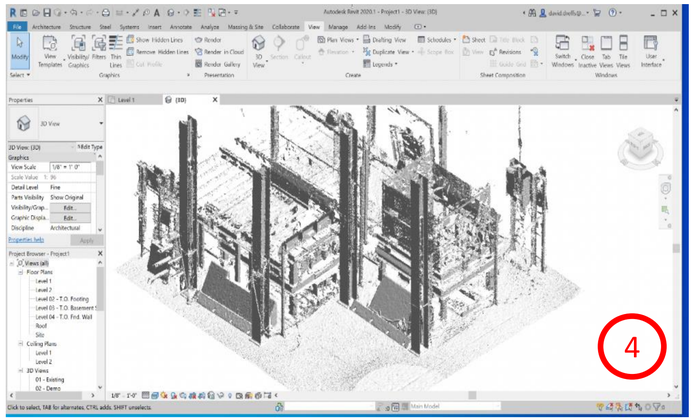
Navisworks





Revit





1. Import FBX in Navisworks (color is retained)
2. Export mesh as NWC from Navisworks
3. Import the NWC in Revit using Model Coordination
4. Notice color is lost

Customer Testimonial

Cintoo
Empowering Reality Data on Demand

Myles Martin
Principal
M3 Design Group

Summary

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Empowering Reality Data on Demand

Today's Learning Objectives

- ✓ **Introduction to the Cintoo Platform**
- ✓ **Learn how upload your BIM Models**
- ✓ **Learn how to compare your as-built scan data to your BIM Models**
- ✓ **Learn how to document issues in Cintoo Cloud**
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- ✓ **Learn how to provide access to laser scan data in mesh or point cloud format for efficient desktop-based Scan & BIM modeling or clash detection.**

Cintoo

https://cintoo.com/
sales@cintoo.com
contact@cintoo.com