CONTINUOUS DIGITAL TRANSFORMATION

Sustainment Working Group
Bloom Technology

point3D

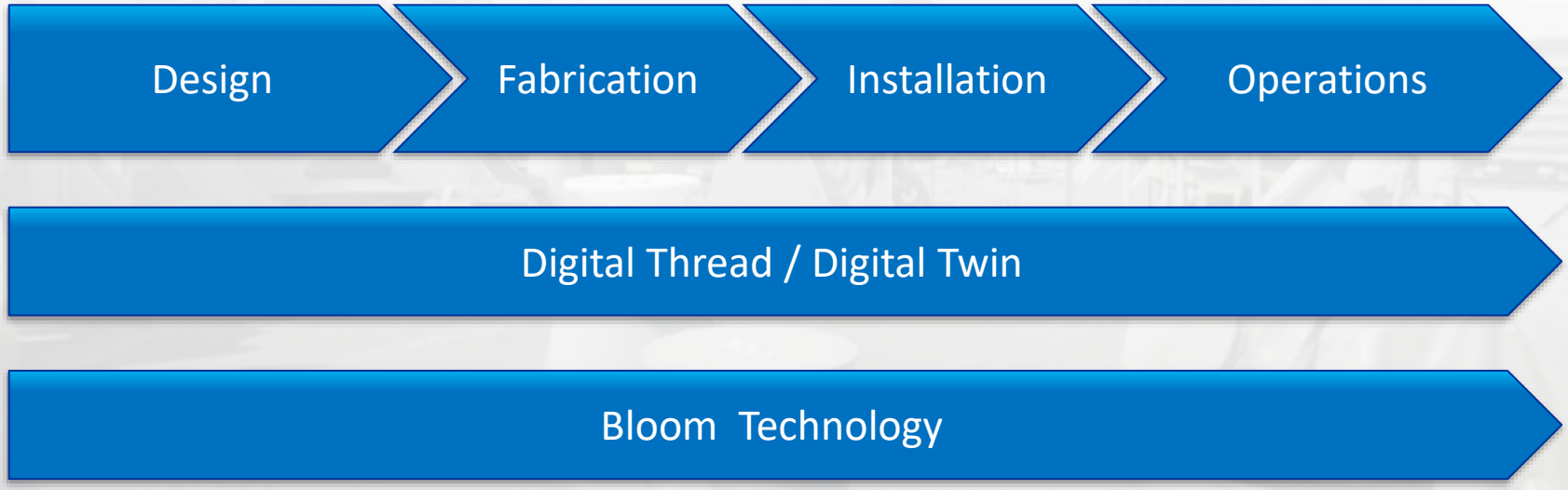
Laser Scanning Hardware, Software,
Training, Support, and Services

point3D.com | info@point3D.com | 800-616-1003

NSRP
NATIONAL SHIPBUILDING RESEARCH PROGRAM™

Plans for Sustainment

The Sustainment Panel mission is to reduce the cost of ship logistics and sustainment activities while increasing operational availability. Focus on advancements that realize greater efficiencies in lifecycle sustainment. *https://www.nsrp.org/sustainment/*



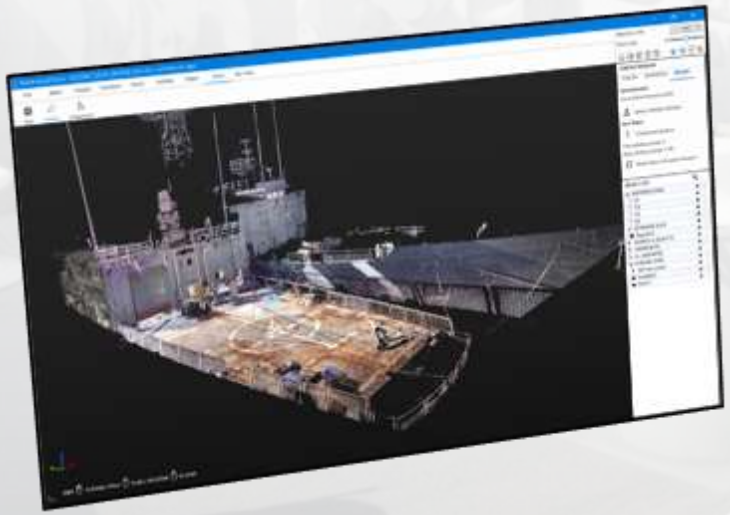
NSRP
NATIONAL SHIPBUILDING RESEARCH PROGRAM
Taking Shipbuilding and Repair to the Next Level

point3D

Bloom Technologies

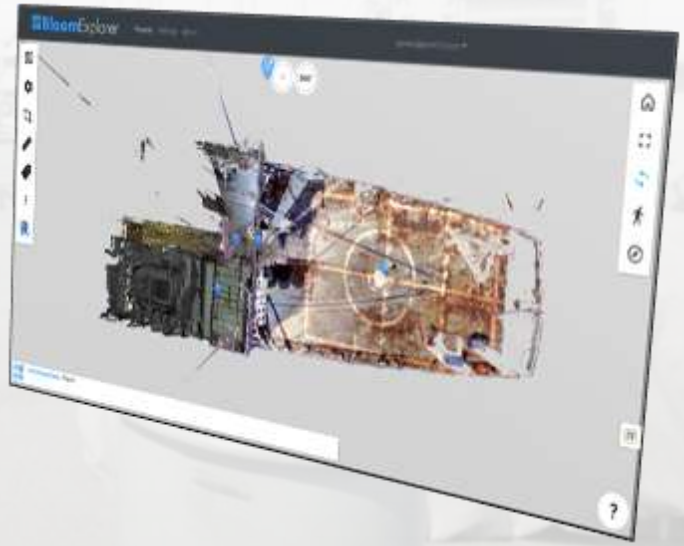
Bloom Cloud Engine

Desktop Application



Bloom Explorer

On-Premise - Cloud - Saas



Lifecycle – Digital Twin – Asset Management - Upgrades

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Taking Shipbuilding and Repair to the Next Level

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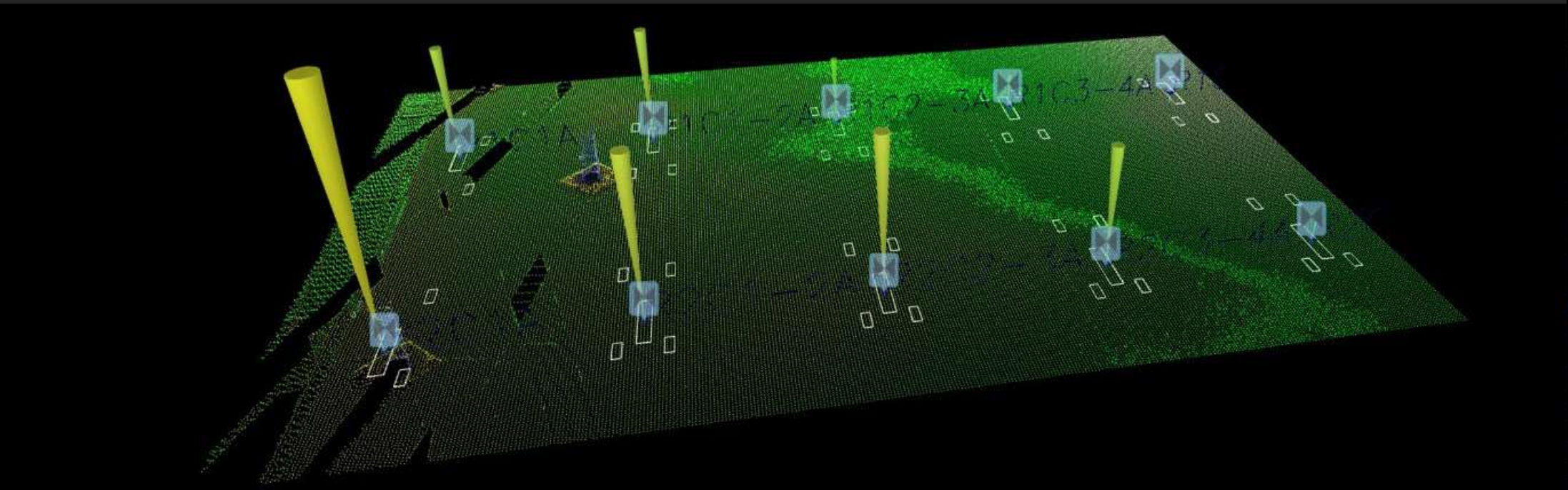
First Introduction of Bloom to Shipbuilding Point Clouds for QA



Module QA, Deck Flatness, Reverse Engineering

The US Navy's Introduction To Bloom Technologies

Zumwalt Destroyer Needs New Engine After Turbine Blades Damaged in Sea Trials

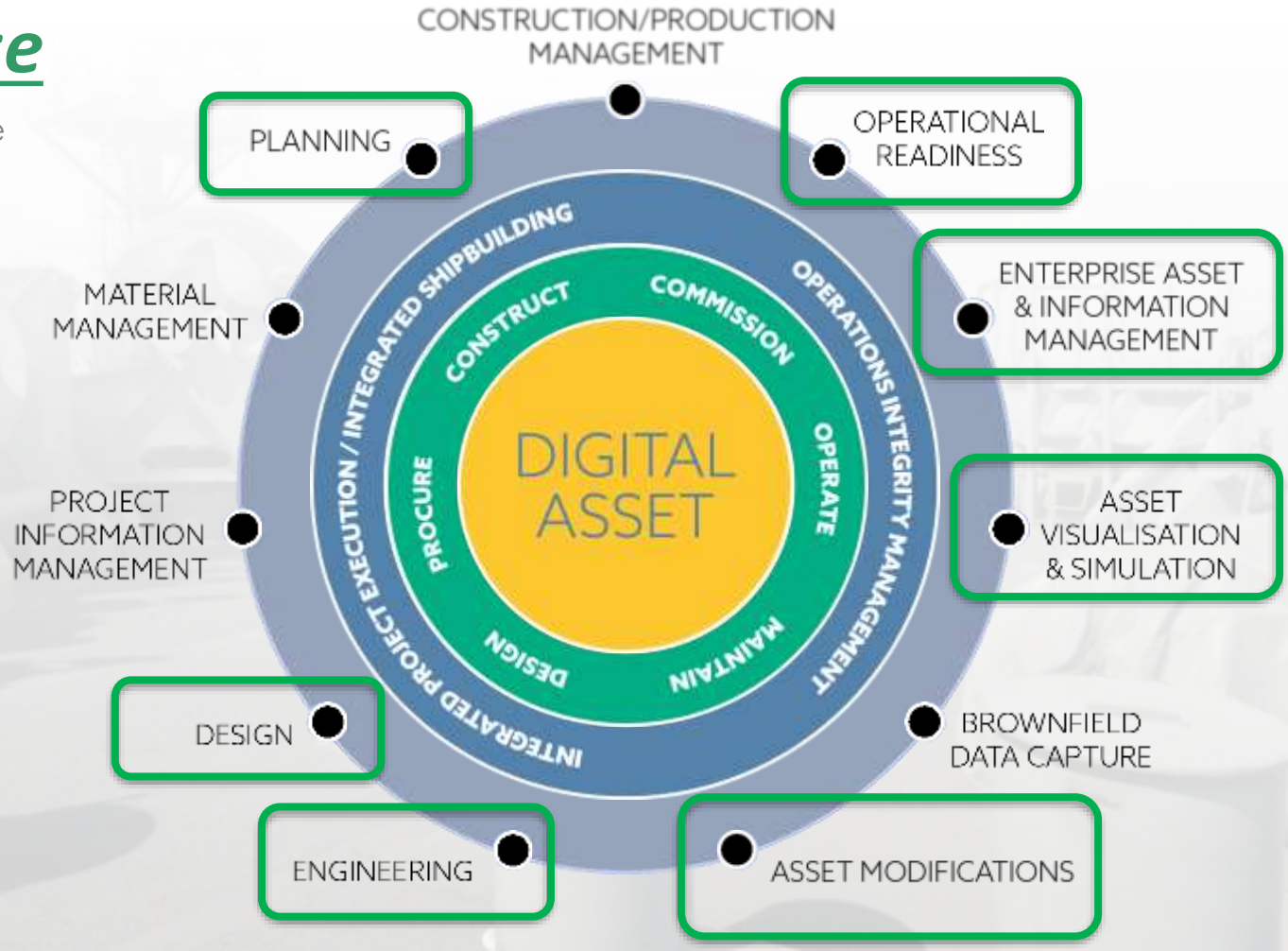
Equipment Removal Planning

MT30 in 2010. Rolls-Royce Photo
https://news.usni.org/2018/07/11/second-zumwalt-destroyer-needs-new-engine-turbine-blades-damaged-sea-trials

Digital Asset Lifecycle

Lifecycle Use

Bloom Cloud Engine
Bloom Explorer



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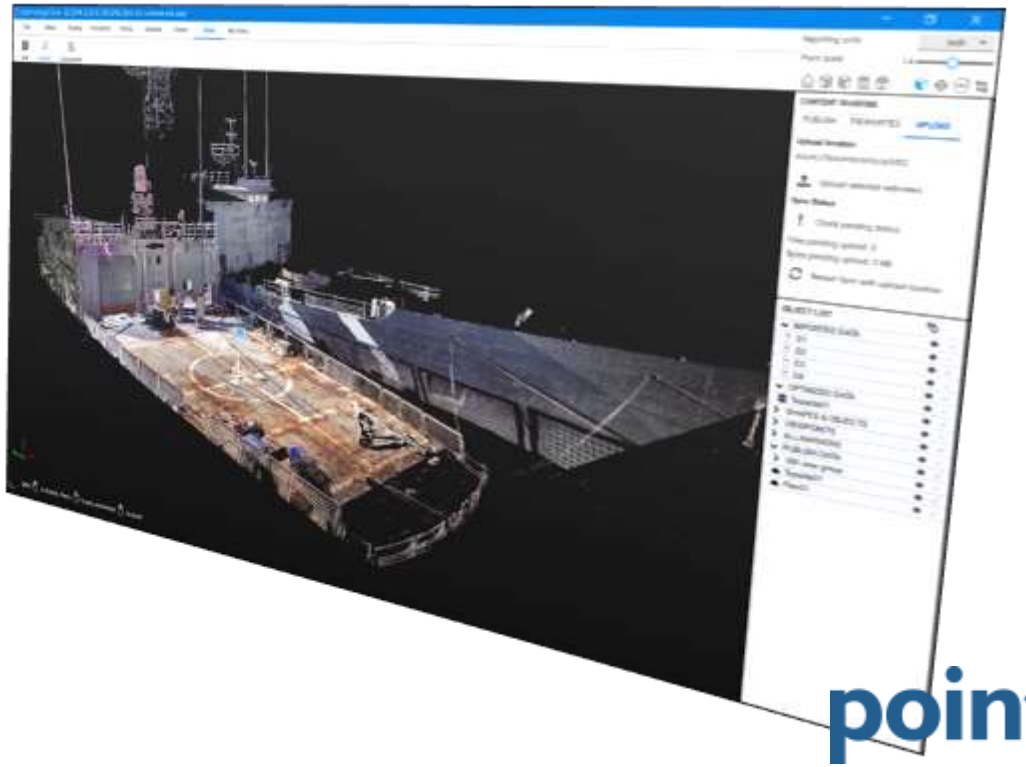
Bloom Cloud Engine

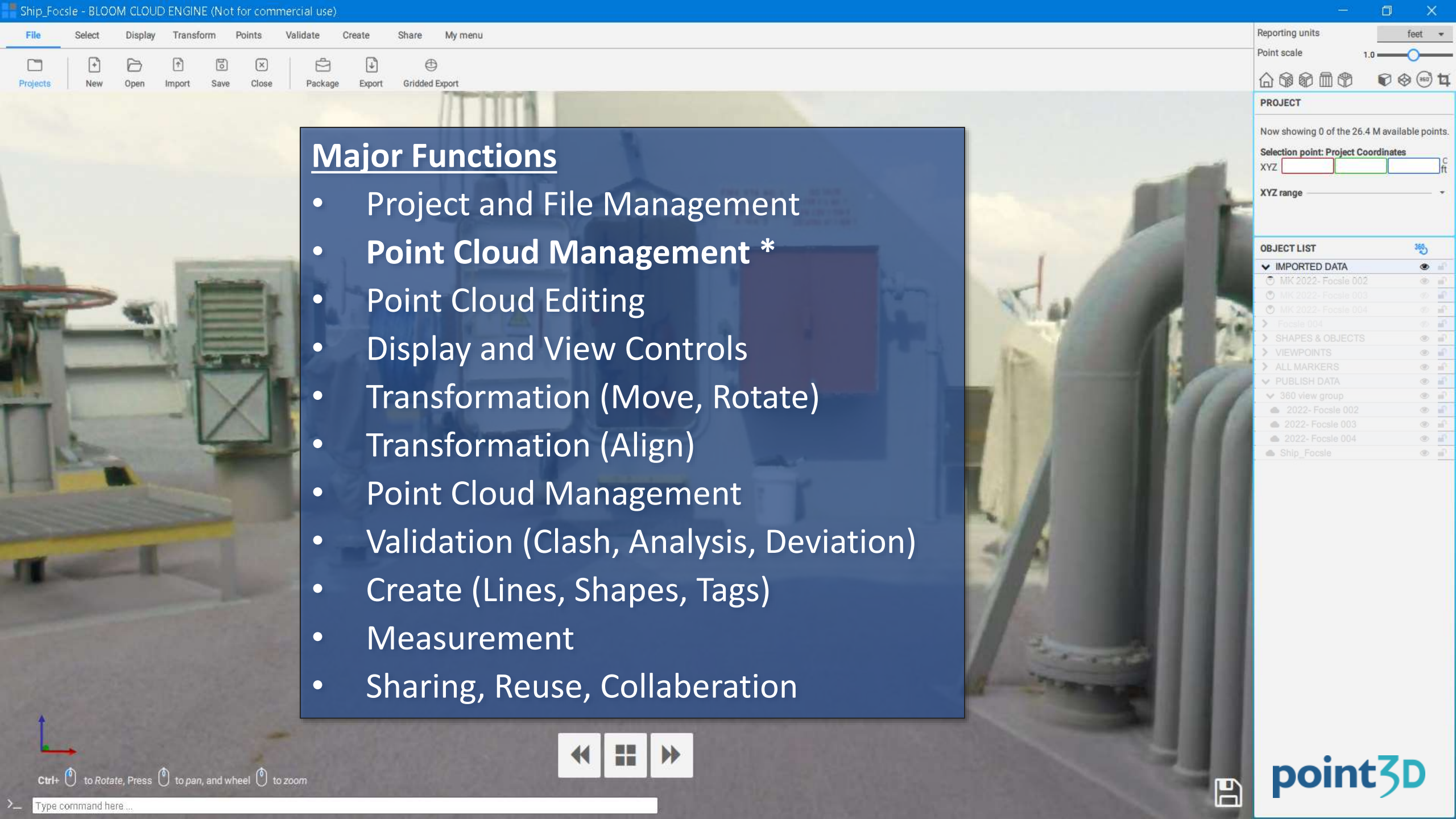
Overview

Bloom Cloud Engine is a new way of working with point clouds where you can manipulate points like objects, group them like layers, and simulate construction activity.

- Point Cloud Edit and Analysis
- Point Cloud Management
- Integrations (Autodesk)
- Publish to Bloom Explorer
  - Secure Cloud Portal (Azure)
  - On-Premise Storage (File)



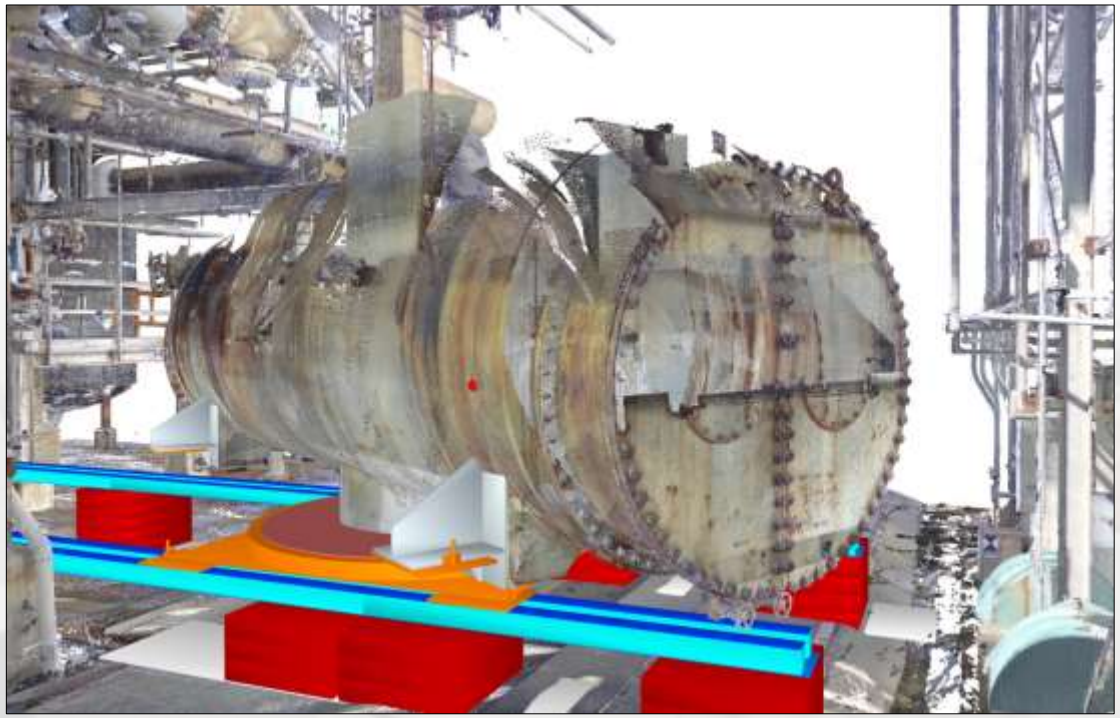
point3D


Ship_Focsle - BLOOM CLOUD ENGINE (Not for commercial use)
File
Select
Display
Transform
Points
Validate
Create
Share
My menu
Projects
New
Open
Import
Save
Close
Package
Export
Gridded Export
Reporting units
feet
Point scale
1.0
PROJECT
Now showing 0 of the 26.4 M available points.
Selection point: Project Coordinates
XYZ
XYZ range
OBJECT LIST
IMPORTED DATA
MK 2022- Focsle 002
MK 2022- Focsle 003
MK 2022- Focsle 004
Focsle 004
SHAPES & OBJECTS
VIEWPOINTS
ALL MARKERS
PUBLISH DATA
360 view group
2022- Focsle 002
2022- Focsle 003
2022- Focsle 004
Ship_Focsle
Major Functions
• Project and File Management
• Point Cloud Management *
• Point Cloud Editing
• Display and View Controls
• Transformation (Move, Rotate)
• Transformation (Align)
• Point Cloud Management
• Validation (Clash, Analysis, Deviation)
• Create (Lines, Shapes, Tags)
• Measurement
• Sharing, Reuse, Collaberation
Ctrl+ to Rotate, Press to pan, and wheel to zoom
Type command here ...
point3D

Lifecycle – Removal Planning

Advanced Applications

- Load Path Analysis
- Real-time interference
- Equipment Validation
- Manufacturing Validation



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Load Path Pre-Removal

Pre-Removal Items

- Scaffolding
- Large Bore Piping
- Small Bore Piping
- Piping, Tubing, Conduit
- Misc.

Condenser Replacement
Rigging Plan Review
Removal and Installation Clearances and Clashes

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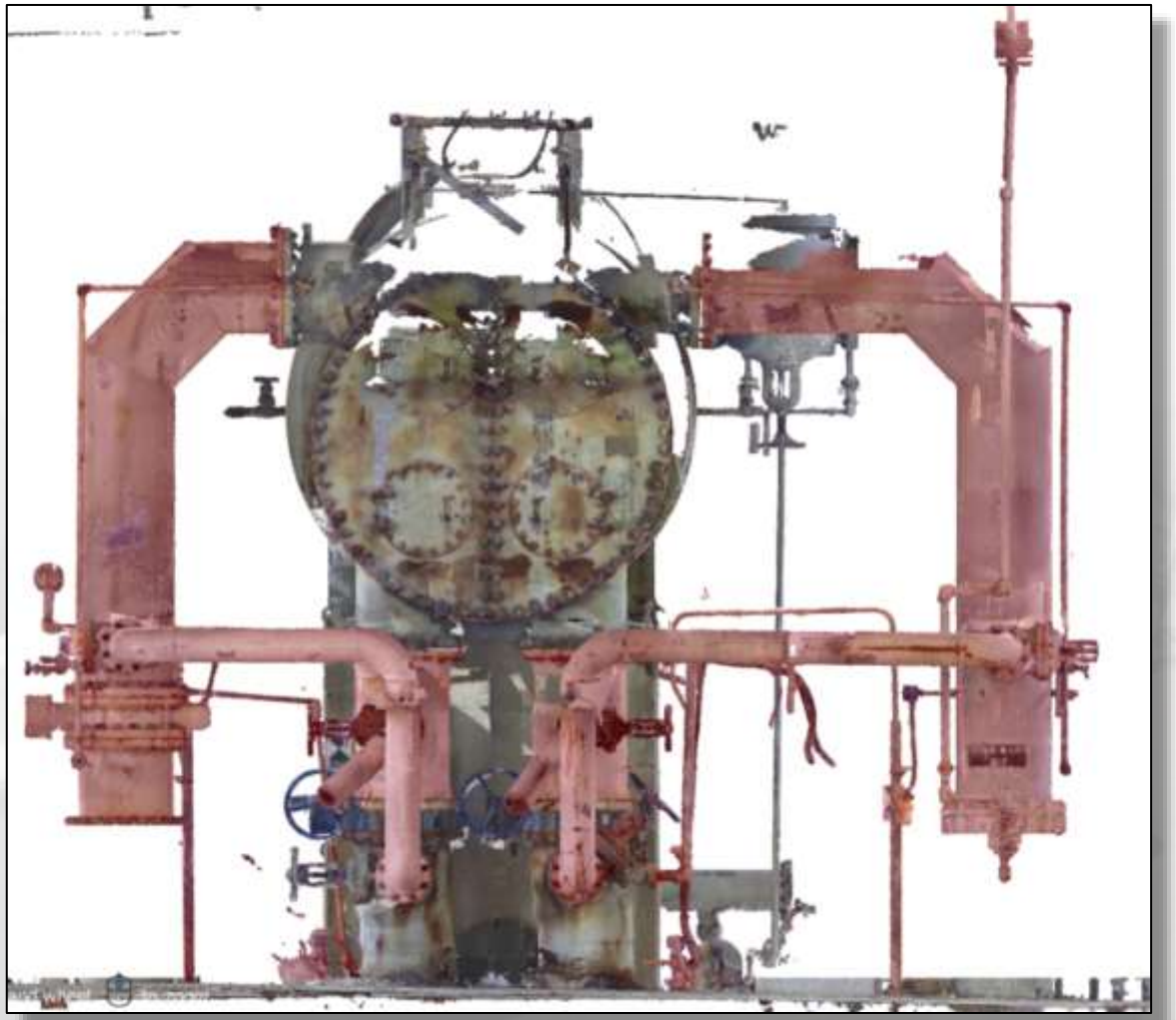
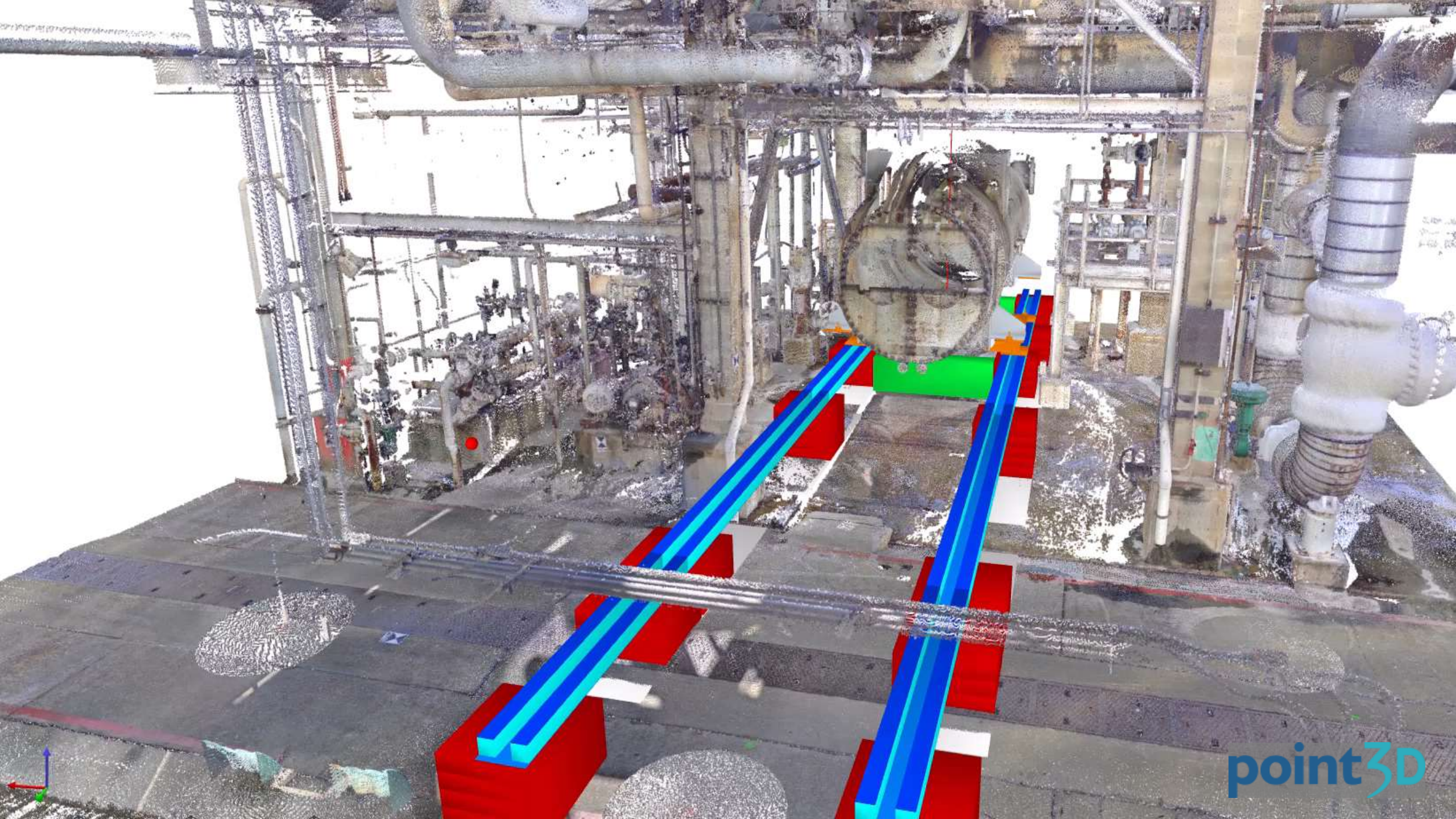
Load Path Pre-Removal

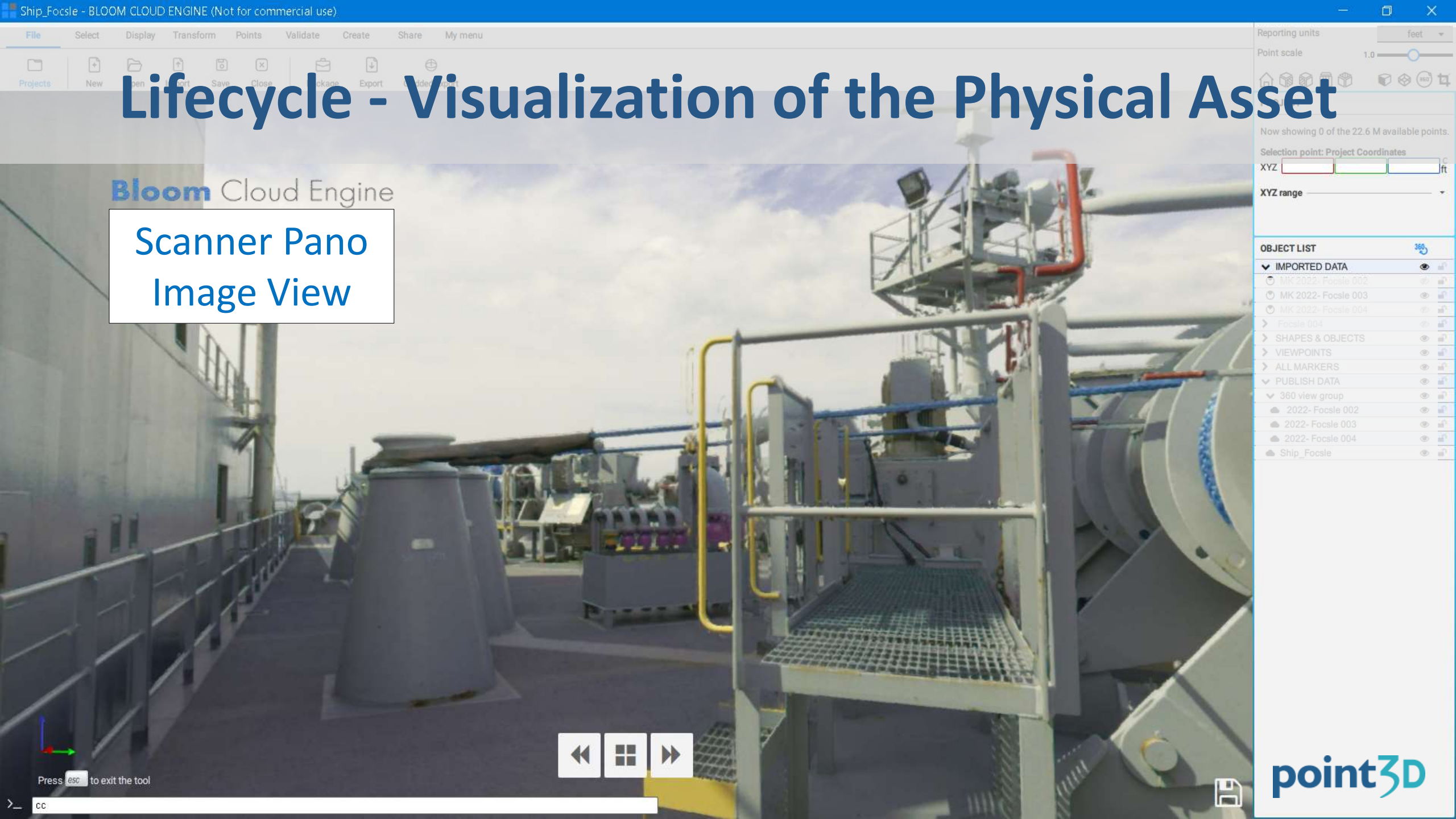


Rigging Plan Review Removal and Installation Clearances and Clashes

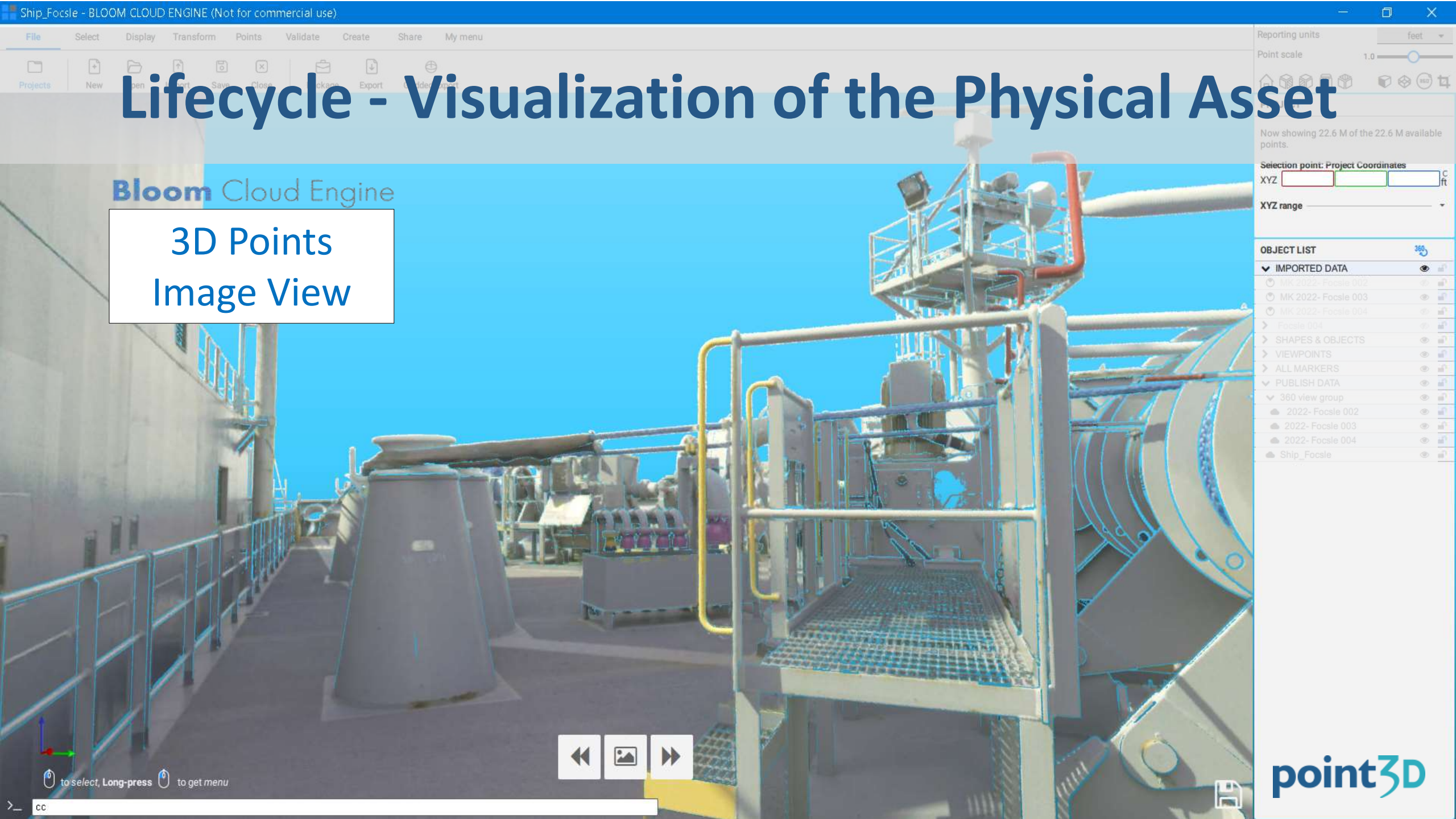
point3D


point3D

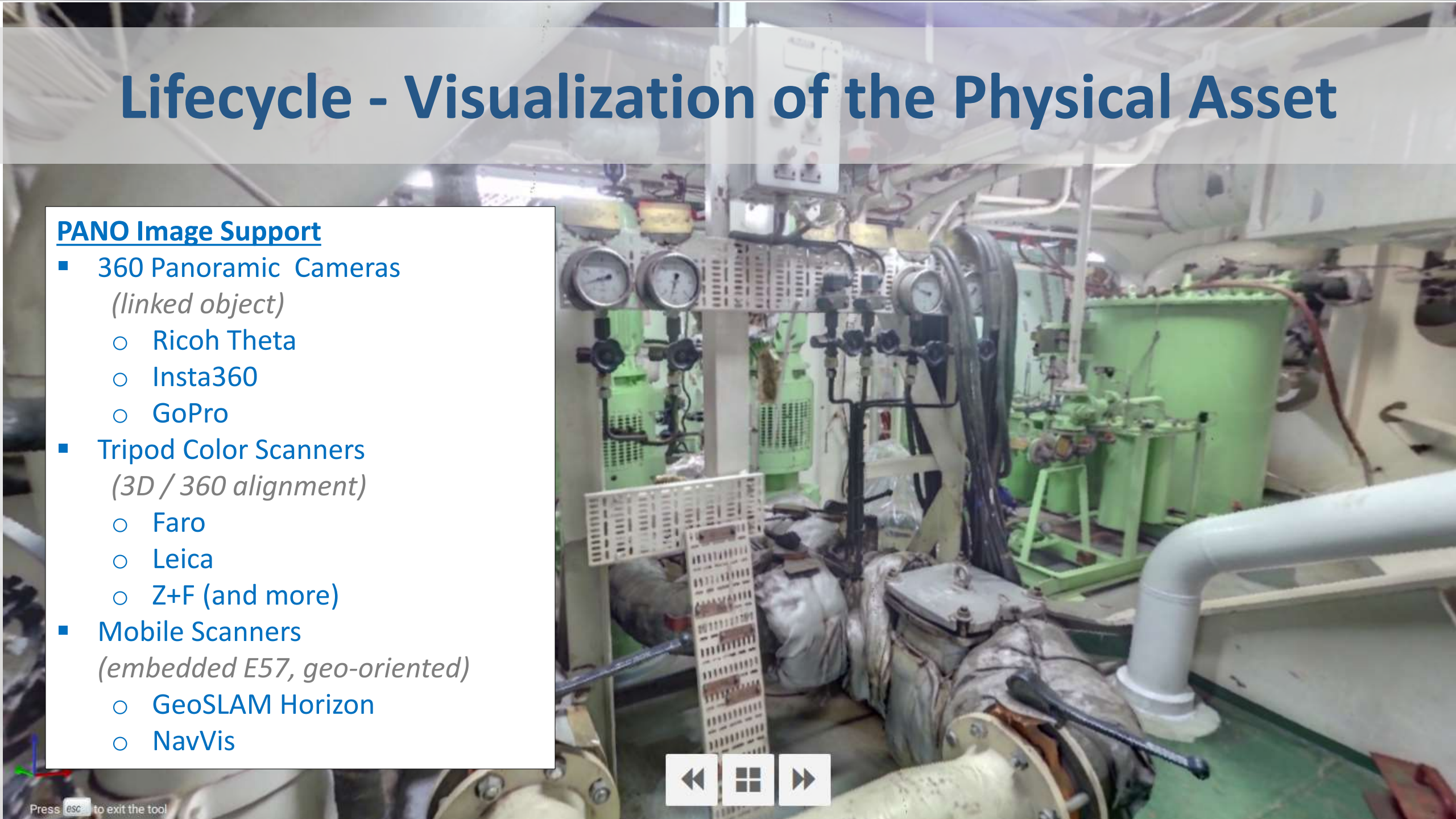
Lifecycle - Visualization of the Physical Asset



Lifecycle - Visualization of the Physical Asset



Lifecycle - Visualization of the Physical Asset



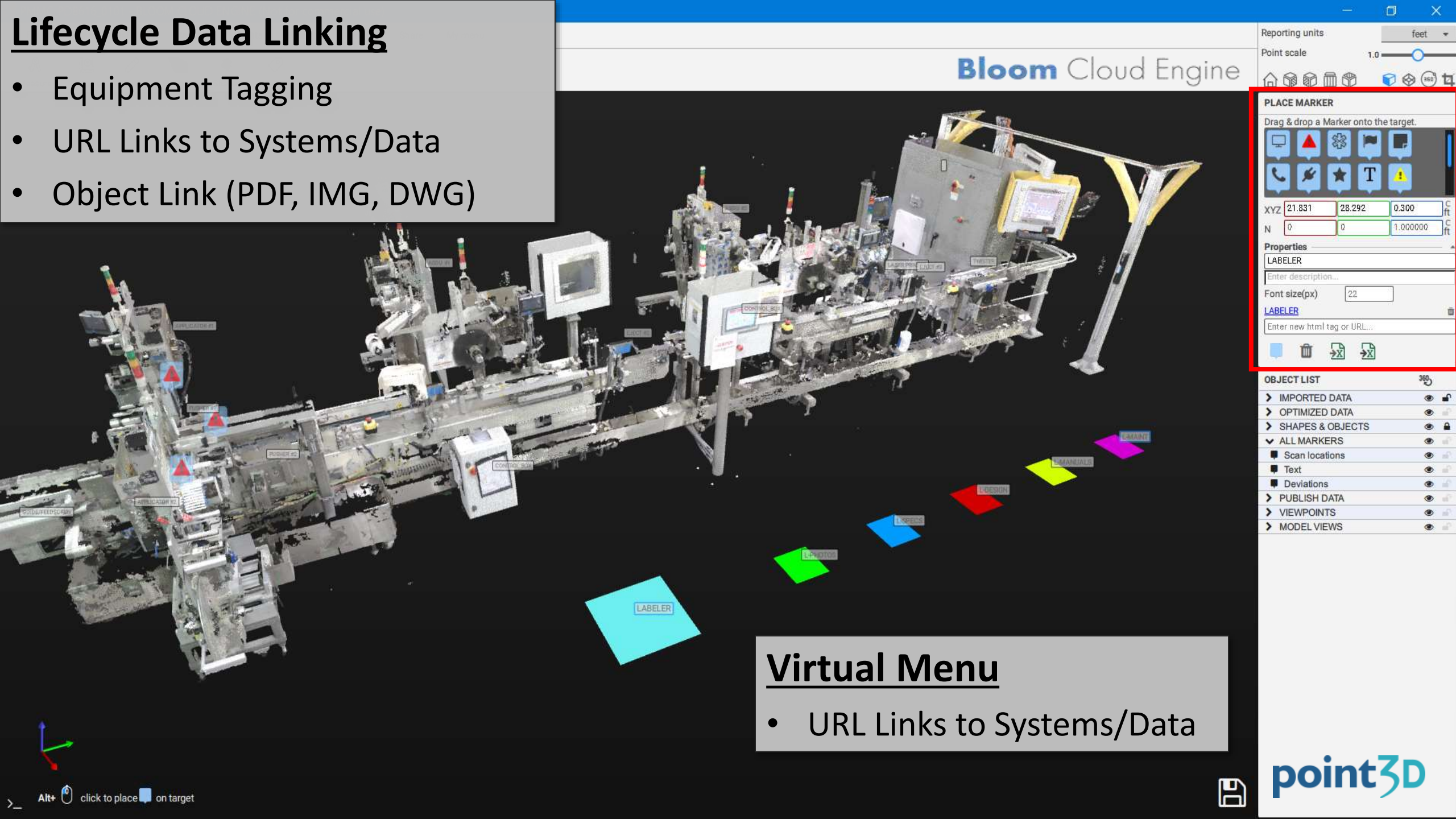
PANO Image Support

- 360 Panoramic Cameras
  (linked object)
  - Ricoh Theta
  - Insta360
  - GoPro
- Tripod Color Scanners
  (3D / 360 alignment)
  - Faro
  - Leica
  - Z+F (and more)
- Mobile Scanners
  (embedded E57, geo-oriented)
  - GeoSLAM Horizon
  - NavVis

Press esc to exit the tool

Lifecycle Data Linking

- Equipment Tagging
- URL Links to Systems/Data
- Object Link (PDF, IMG, DWG)



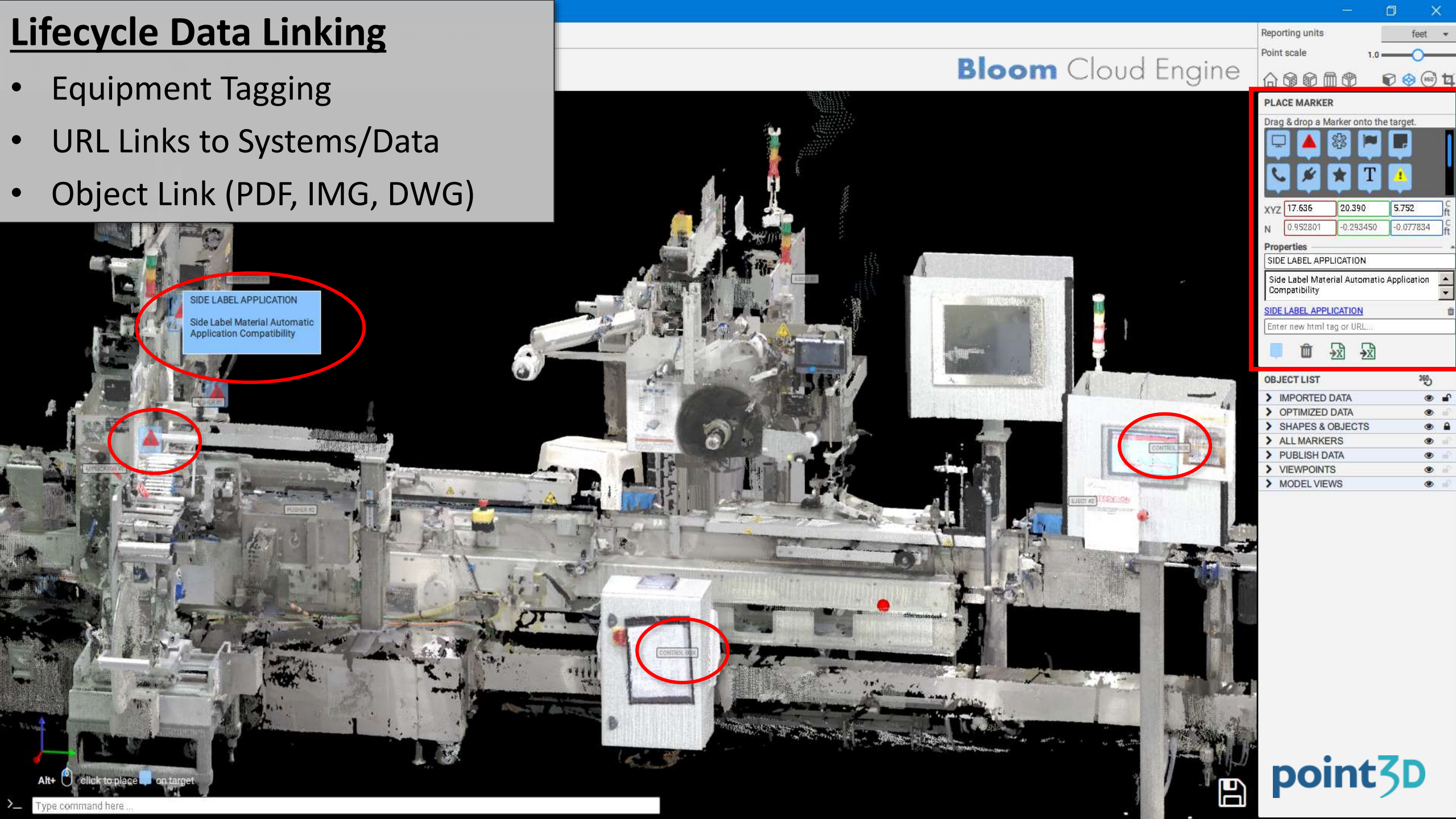
Virtual Menu

- URL Links to Systems/Data

point3D

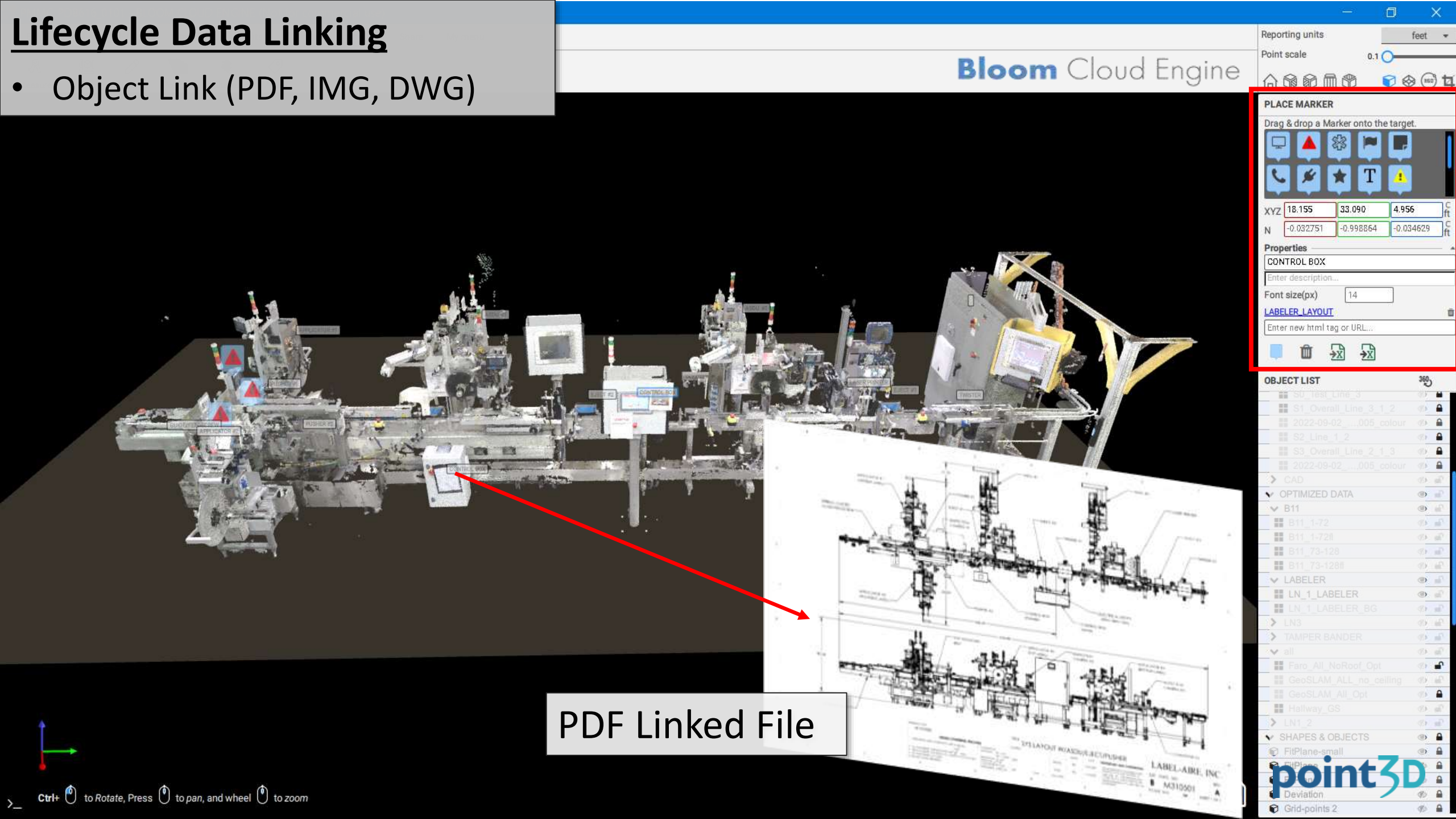
Lifecycle Data Linking

- Equipment Tagging
- URL Links to Systems/Data
- Object Link (PDF, IMG, DWG)



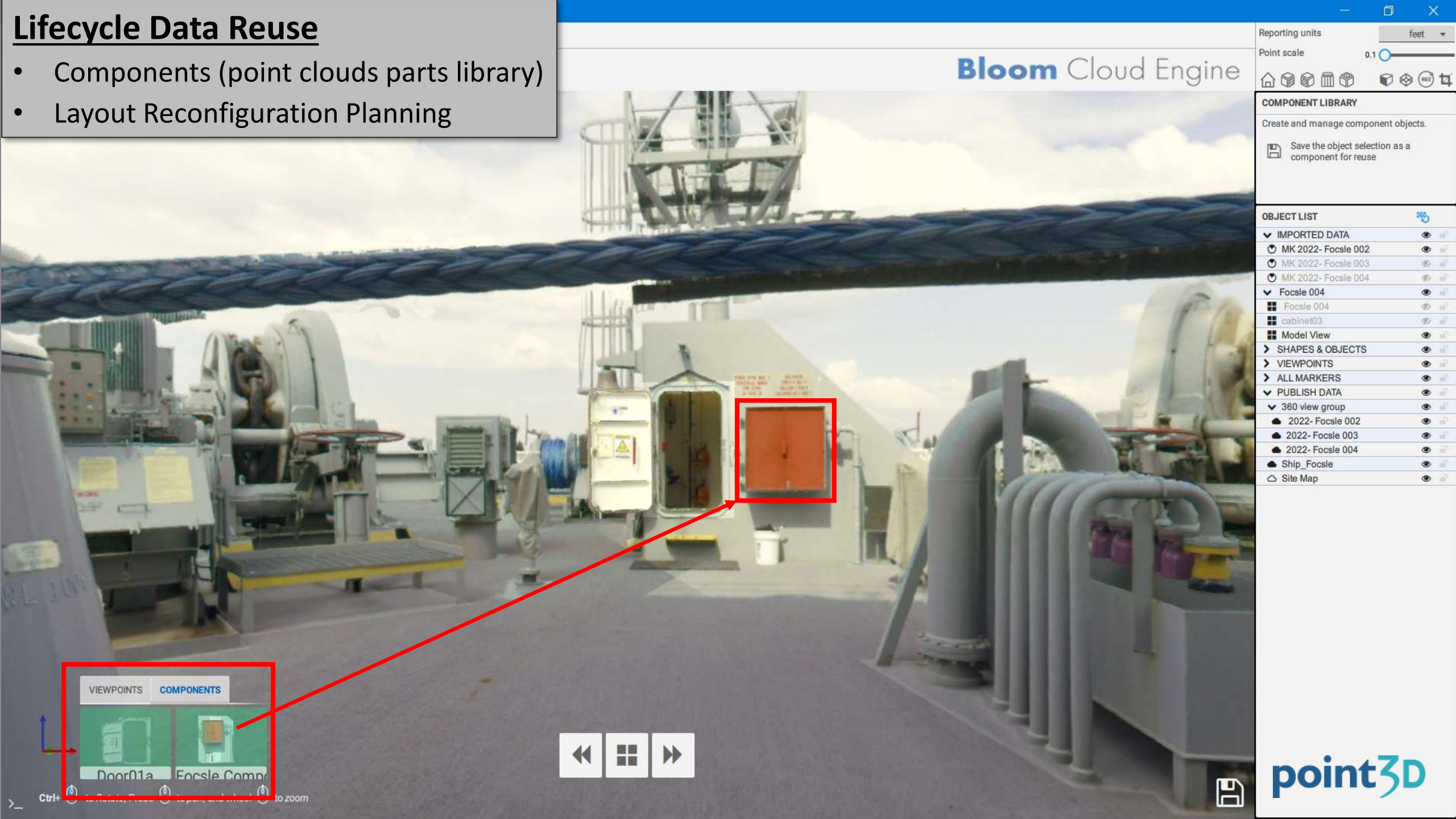
Lifecycle Data Linking

- Object Link (PDF, IMG, DWG)



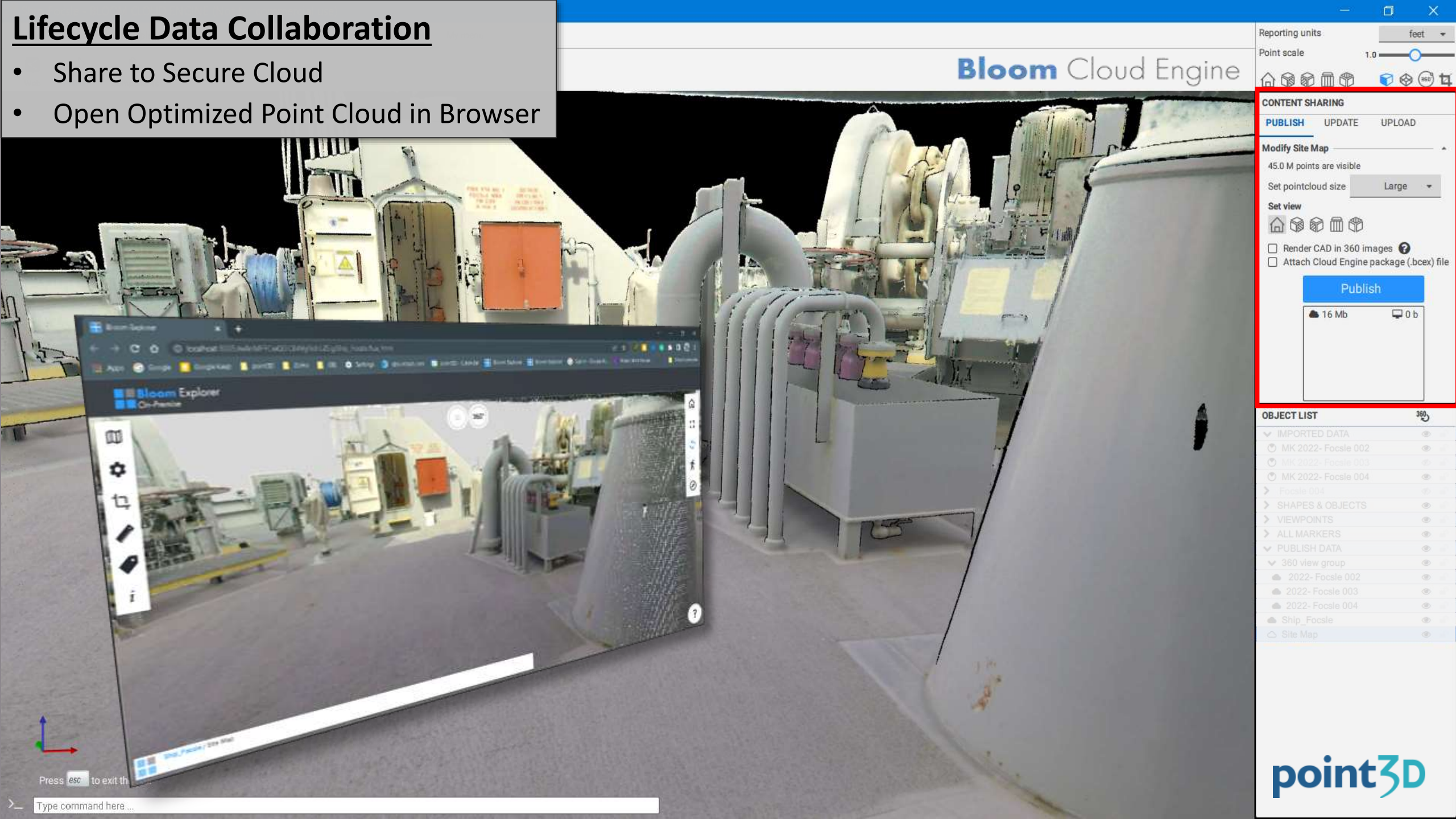
Lifecycle Data Reuse

- Components (point clouds parts library)
- Layout Reconfiguration Planning



Lifecycle Data Collaboration

- Share to Secure Cloud
- Open Optimized Point Cloud in Browser

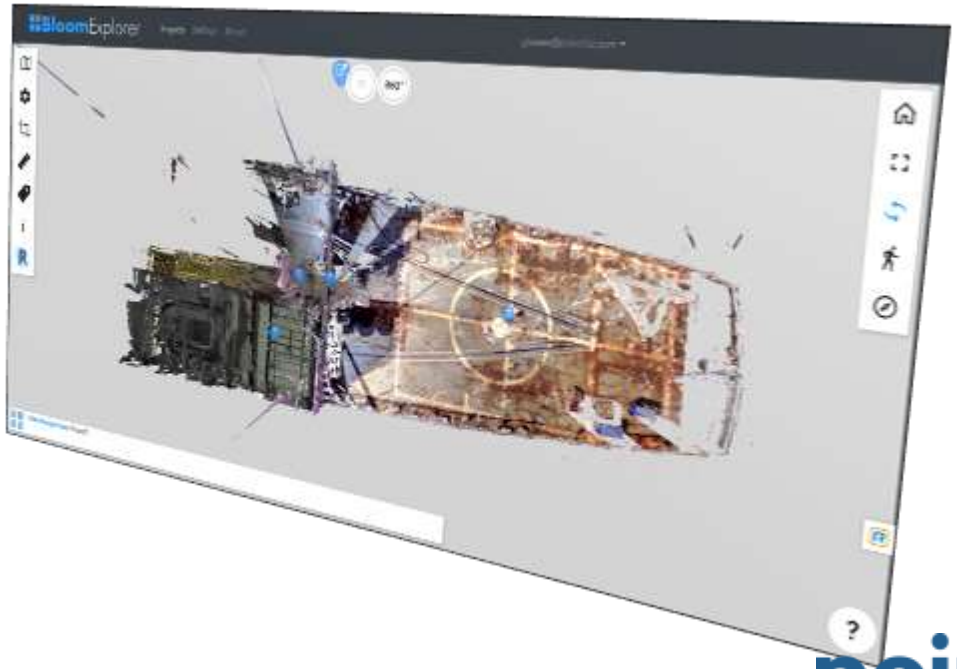


Bloom Explorer

Overview

Bloom Explorer is a hosting and collaboration solution for managing laser scans, CAD, image and asset data.

- Point Clouds, CAD, 360-Pano
- View, Measure & Markup
- Tag, Link & Attach Doc's
- Storage & Access Options
  - Secure Cloud Portal (Azure)
  - On-Premise Storage (File)



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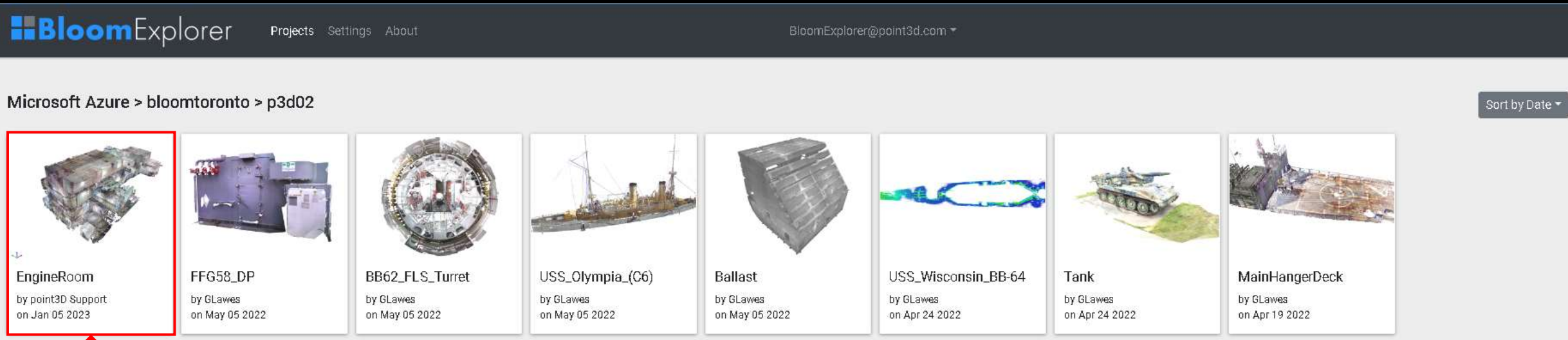

Project Selection

Bloom Explorer

Projects on the Secure Cloud Portal (Azure)

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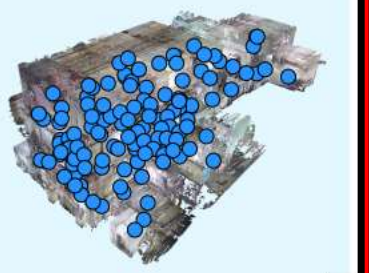
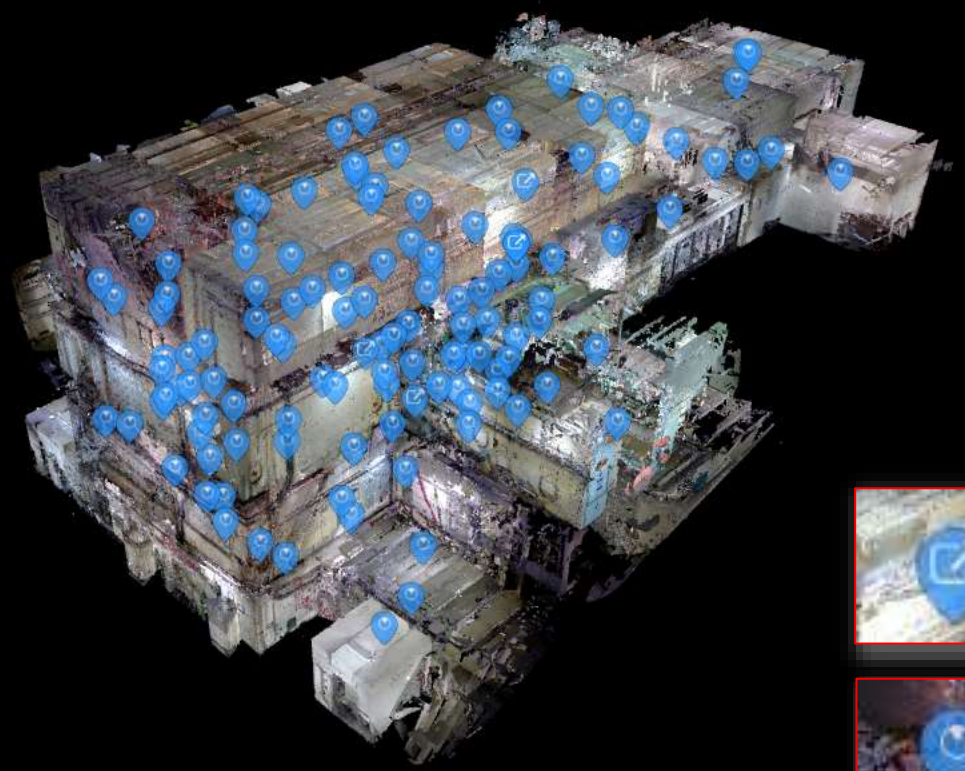
BloomExplorer Projects Settings About BloomExplorer@point3d.com

SiteMap List Thumbnail



Project Site Map

3D 360°

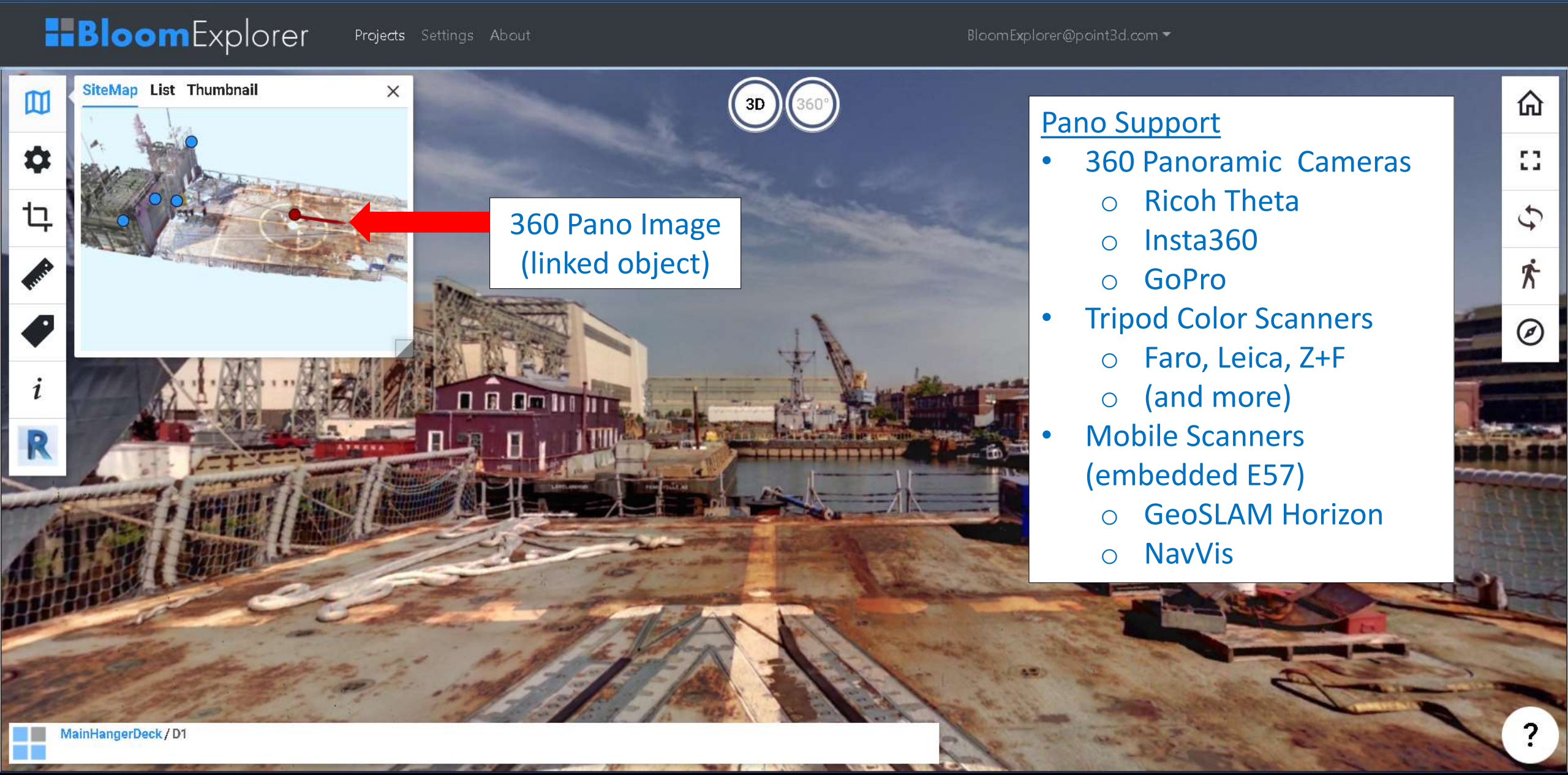


Scan Location Icon

Pano Location Icon

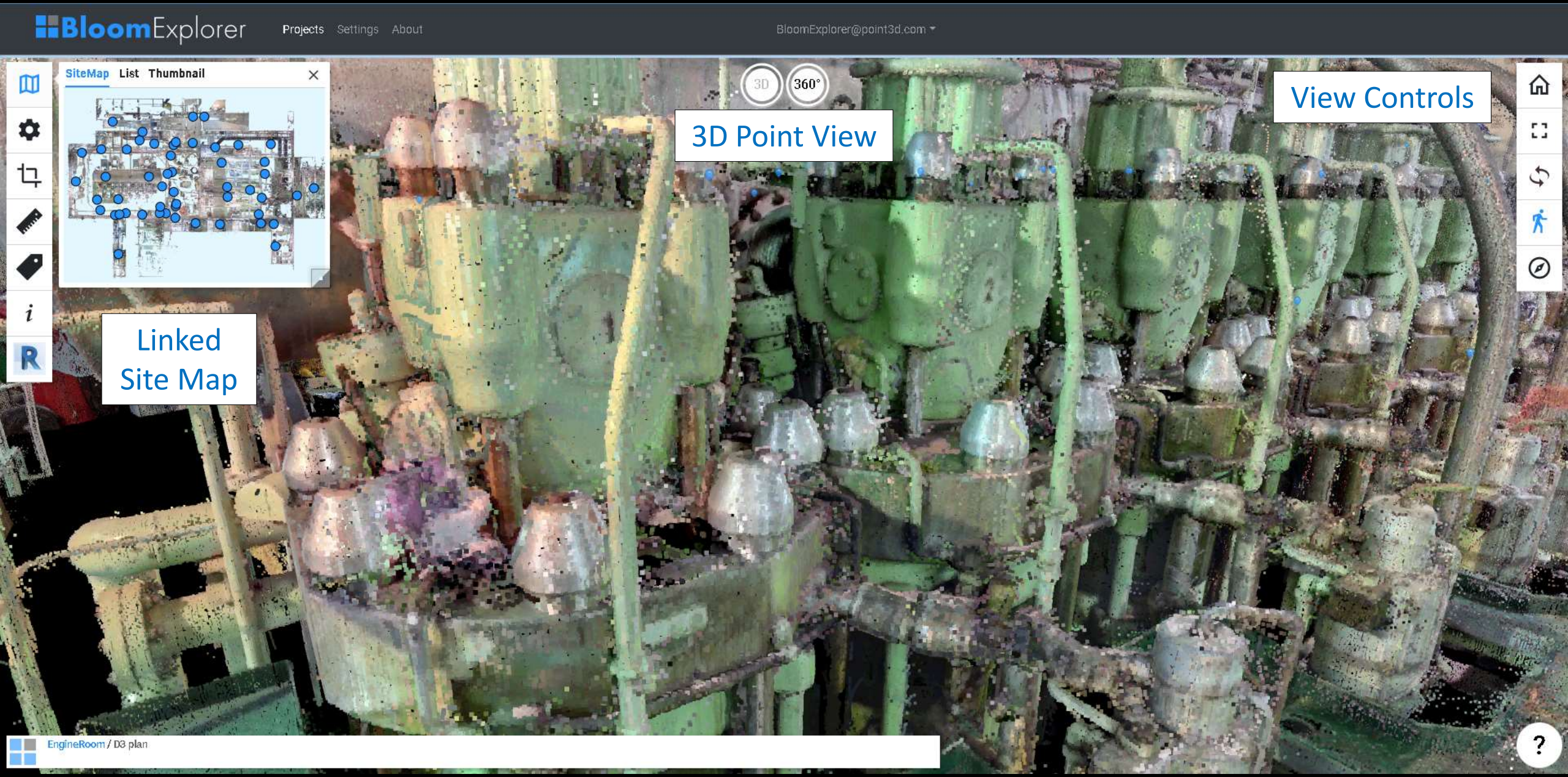
EngineRoom / EngineRooom Decks 3360 links

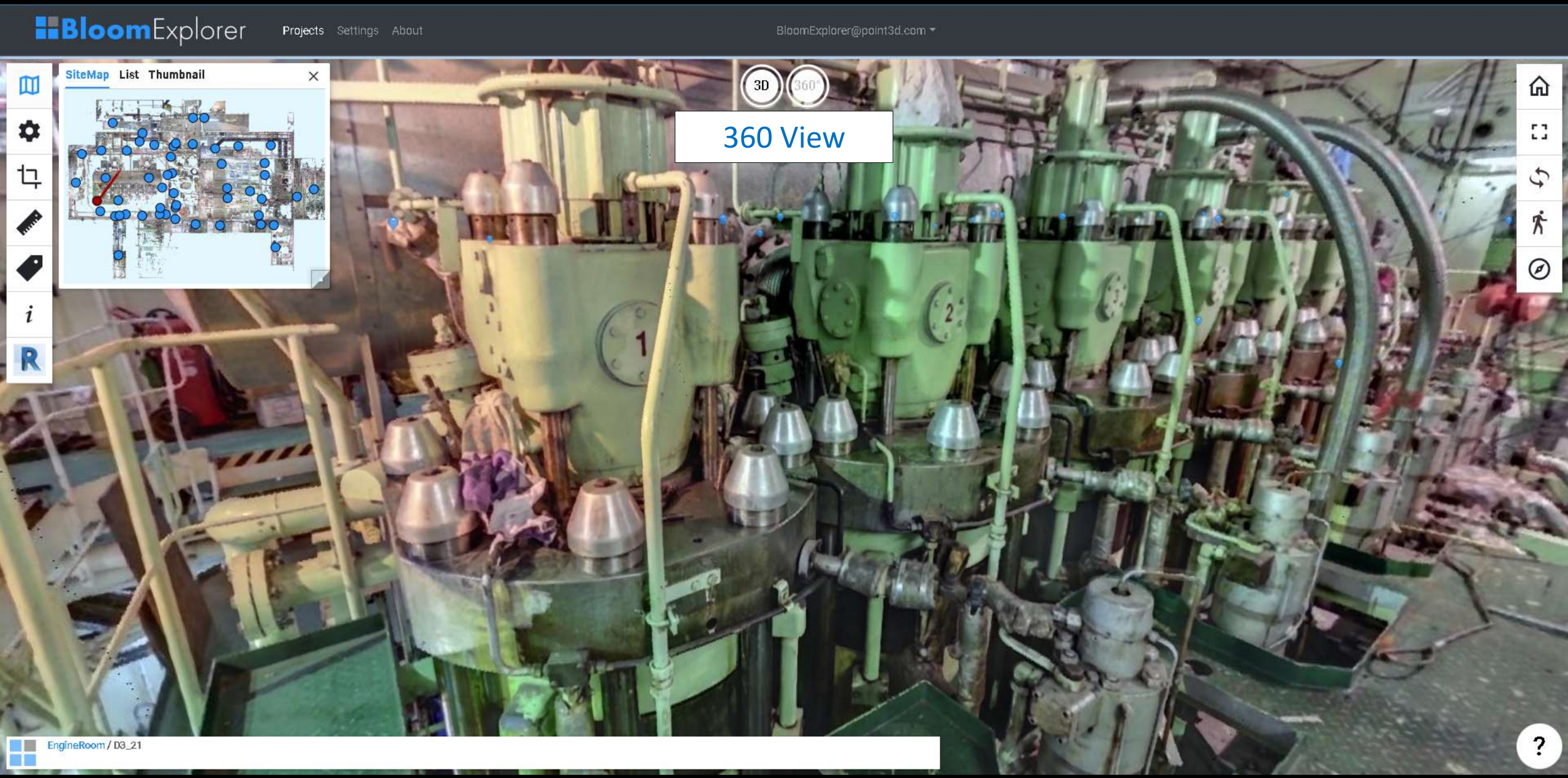
?



Pano Support

- 360 Panoramic Cameras
  - Ricoh Theta
  - Insta360
  - GoPro
- Tripod Color Scanners
  - Faro, Leica, Z+F
  - (and more)
- Mobile Scanners (embedded E57)
  - GeoSLAM Horizon
  - NavVis


BloomExplorer
Projects
Settings
About
BloomExplorer@point3d.com
SiteMap
List
Thumbnail
3D
360°
3D Point View
View Controls
Linked
Site Map
EngineRoom / D3 plan
?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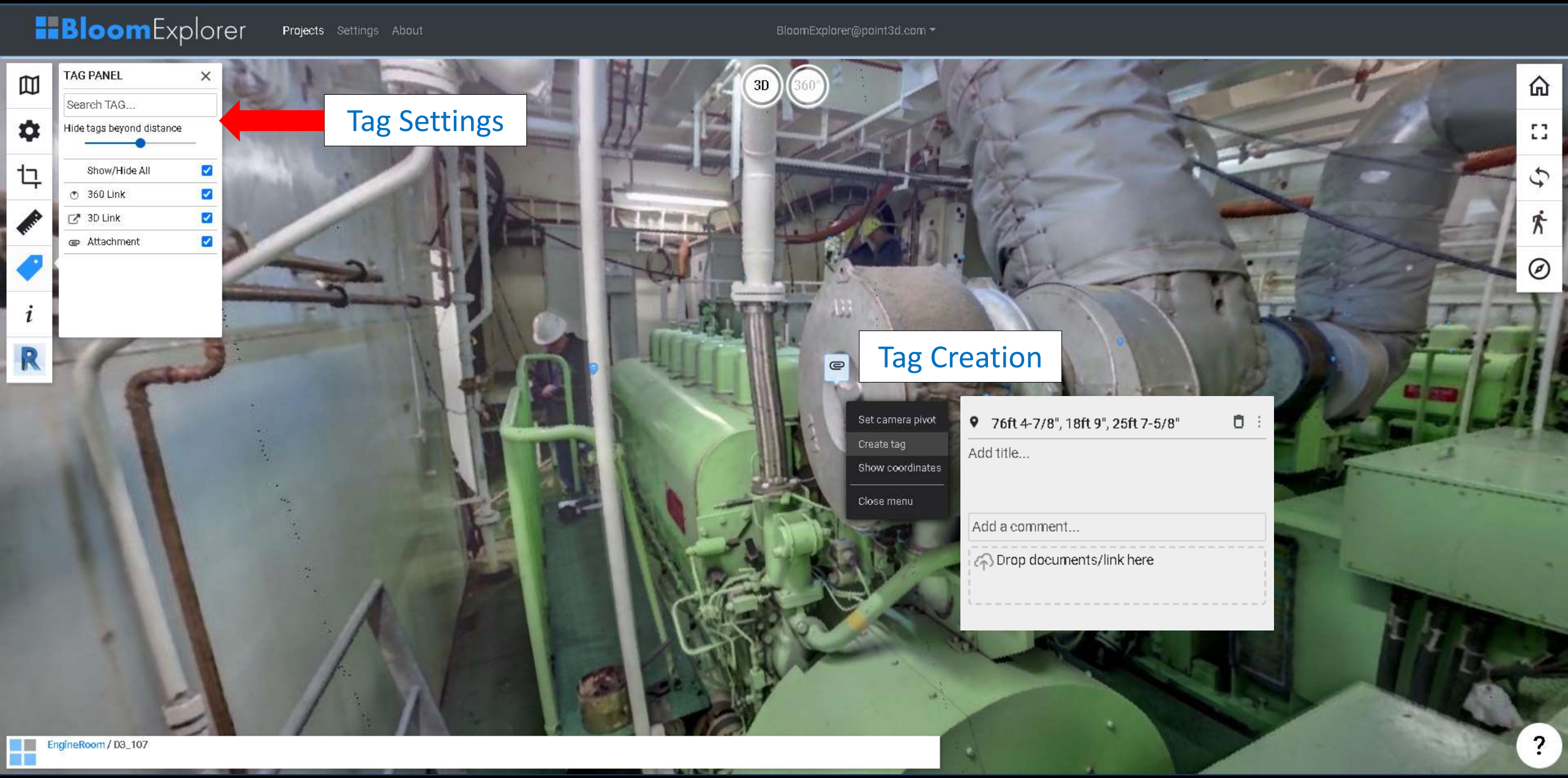
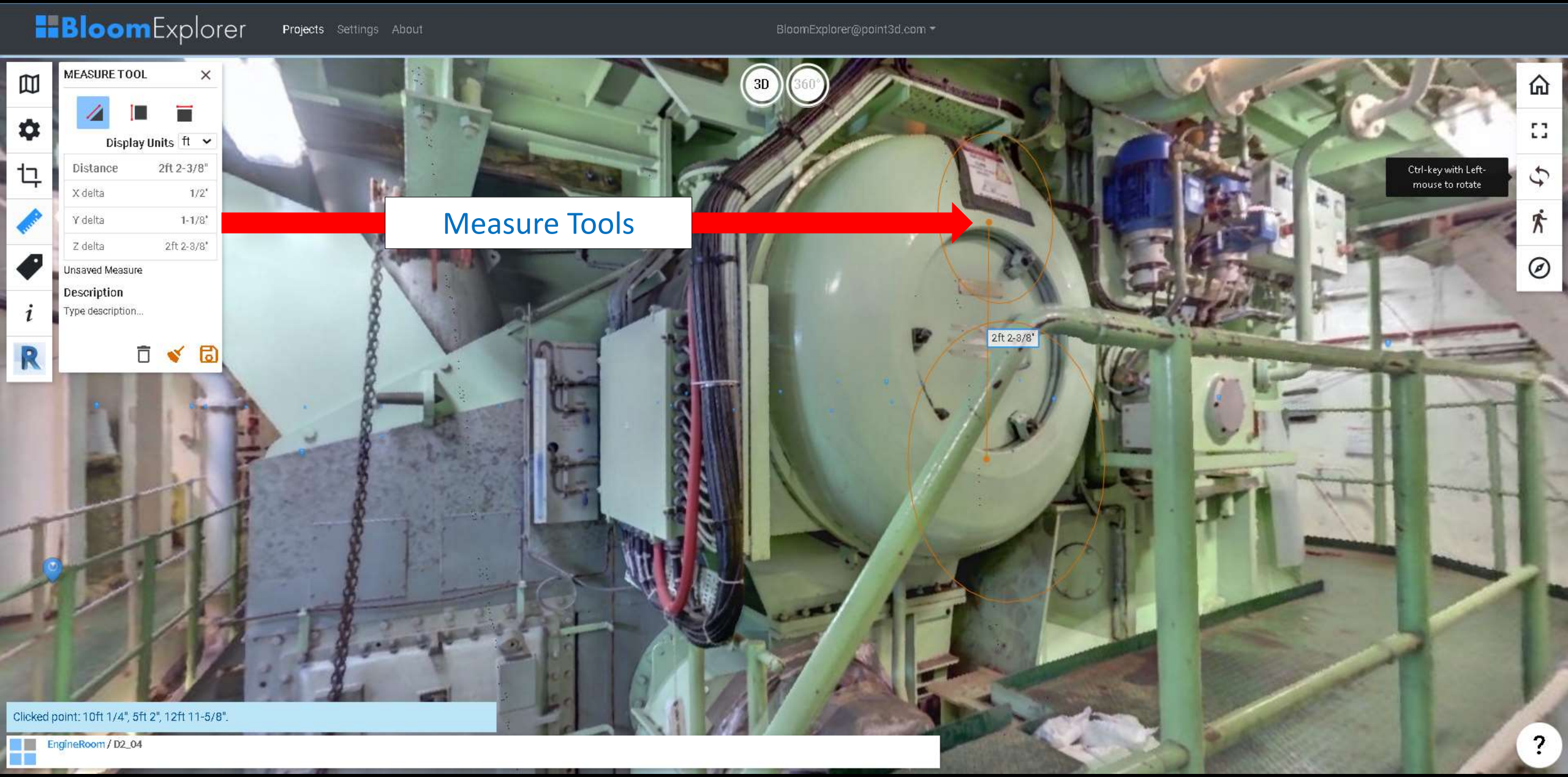
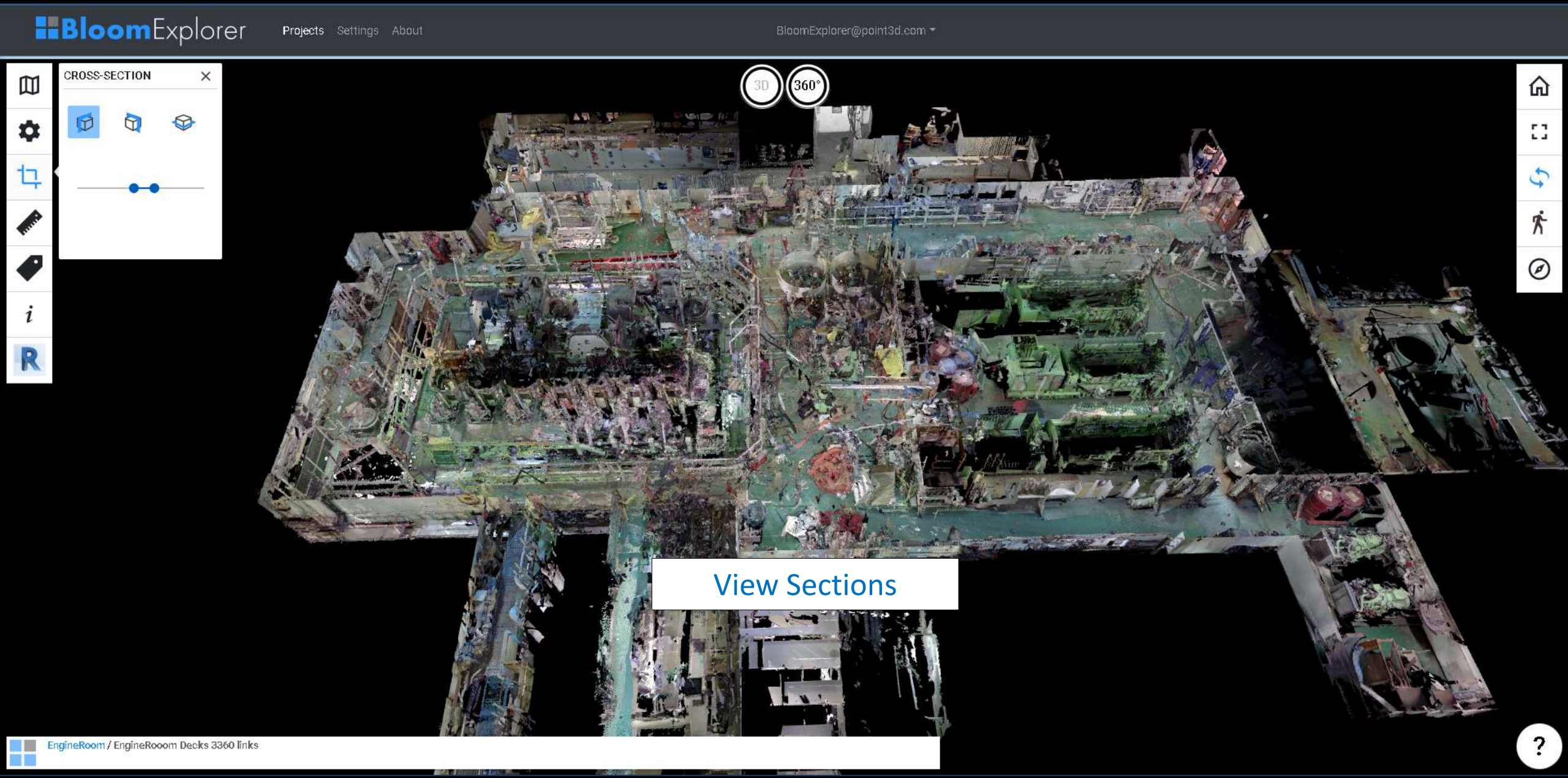
About
BloomExplorer@point3d.com
SiteMap
List
Thumbnail
3D
360°
360 View
EngineRoom / D3_21


BloomExplorer
Projects
Settings
About
BloomExplorer@point3d.com
TAG PANEL
Search TAG...
Hide tags beyond distance
Show/Hide All
360 Link
3D Link
Attachment
Tag Settings
3D
360°
Tag Creation
Set camera pivot
Create tag
Show coordinates
Close menu
76ft 4-7/8", 18ft 9", 25ft 7-5/8"
Add title...
Add a comment...
Drop documents/link here
EngineRoom / D3_107


BloomExplorer
Projects
Settings
About
BloomExplorer@point3d.com
MEASURE TOOL
Display Units ft
Distance 2ft 2-3/8"
X delta 1/2"
Y delta 1-1/8"
Z delta 2ft 2-3/8"
Unsaved Measure
Description
Type description...
3D
360°
Measure Tools
Ctrl-key with Left-mouse to rotate
2ft 2-3/8"
Clicked point: 10ft 1/4", 5ft 2", 12ft 11-5/8".
EngineRoom / D2_04


BloomExplorer
Projects
Settings
About
BloomExplorer@point3d.com
CROSS-SECTION
3D
360°
View Sections
EngineRoom / EngineRooom Decks 3360 links

Bloom Explorer

Accessing
Secure Bloom Portal

Bloom Explorer – On-Premise

Bloom Explorer On-Premise Projects Settings About

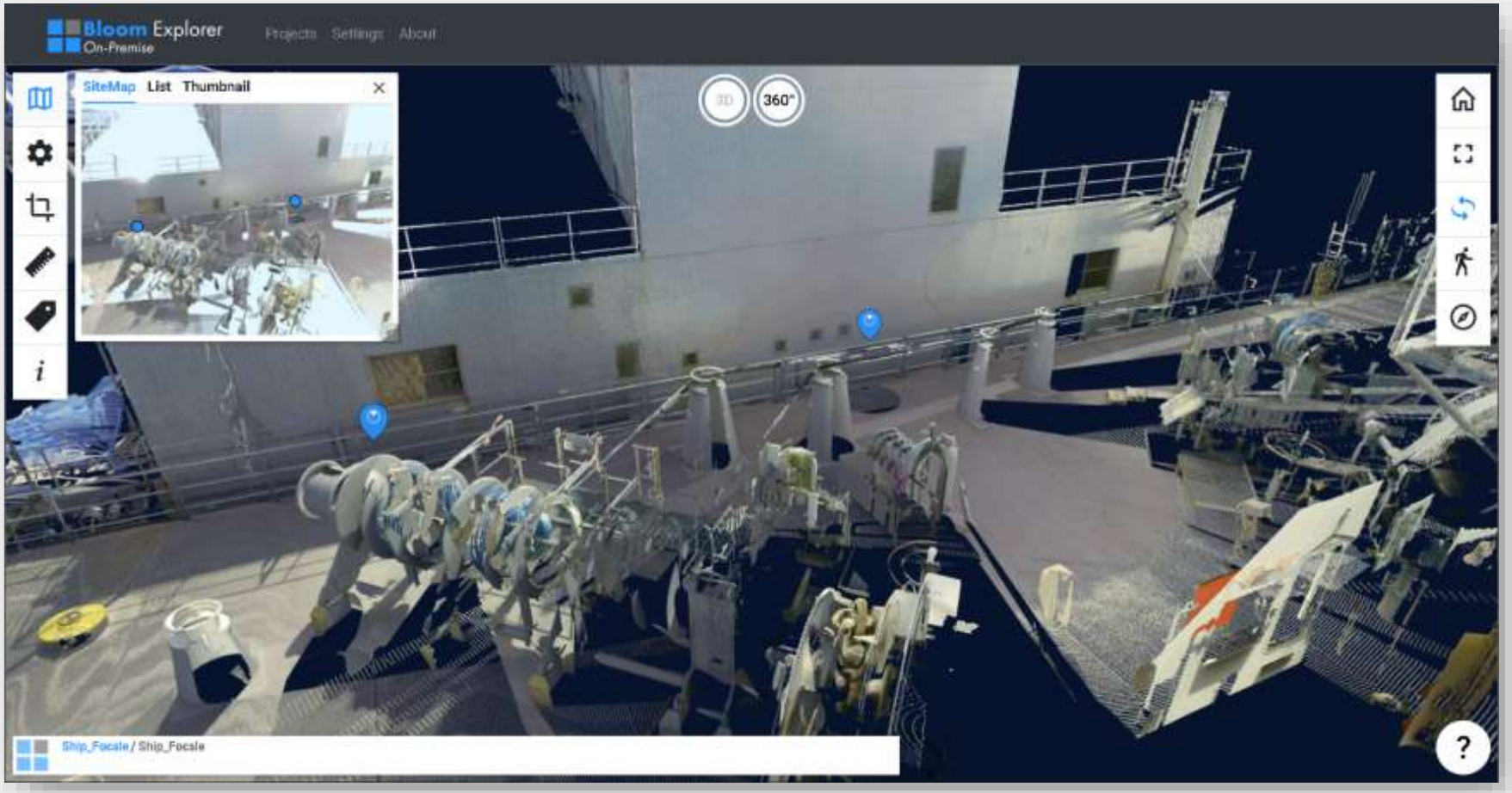
Local Area Network

D:/Emprise/BloomExplorer_project

Ship_Focsle

by glawe

on Mar 24 2023



point3D

Bloom Explorer

bloomcloudengine.com/#!/browse

BloomExplorer Projects About Login

User Login

AS-BUILT DIGITAL TWIN

Digital Twin hosted with Microsoft Azure Cloud.

Let's Talk

Digital Twin from reality capture and design data

Microsoft Azure

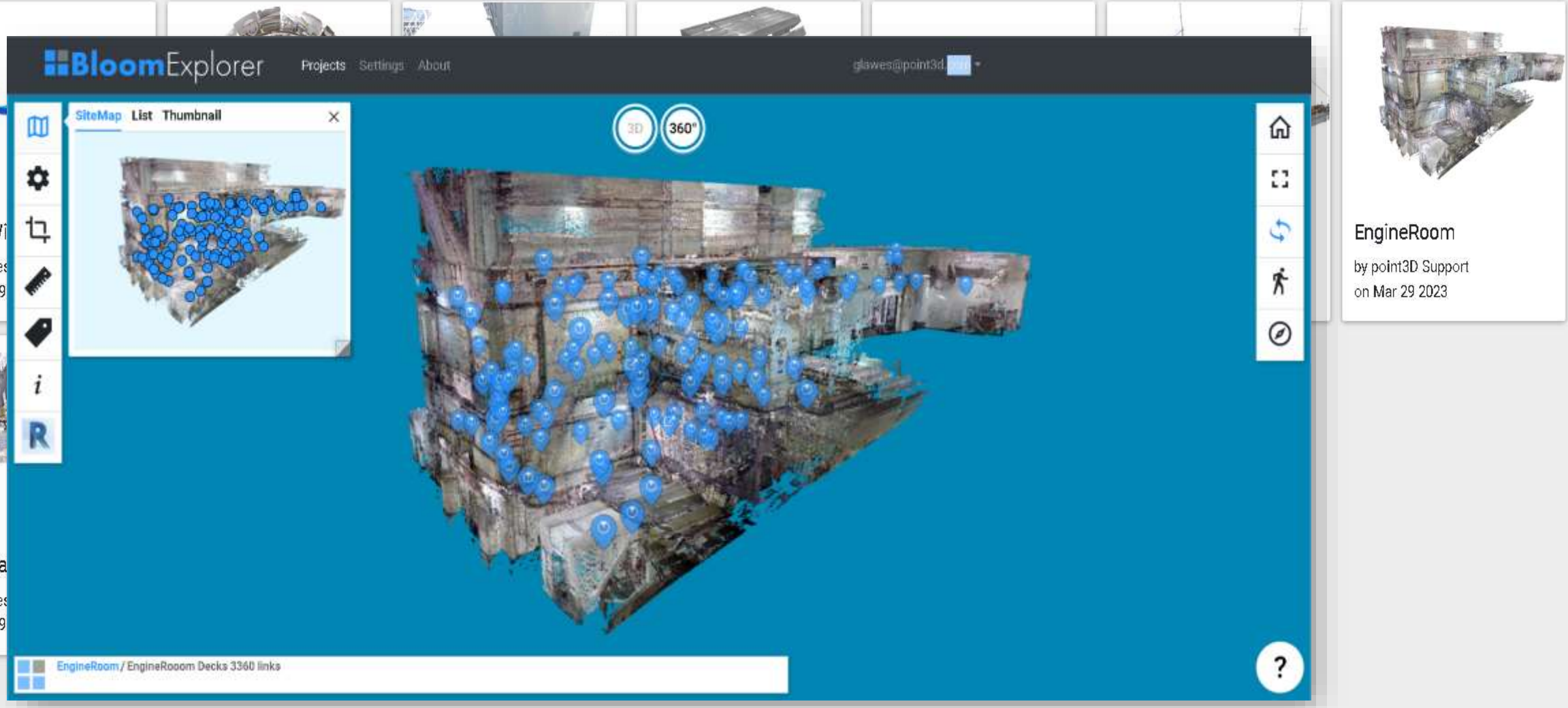
point3D

Bloom Explorer – Saas Azure

BloomExplorer Projects Settings About

Microsoft Azure > point3d > c03

Sort by Date



USS_Wi
by GLawes
on Mar 29

MainHa
by GLawes
on Mar 29

EngineRoom
by point3D Support
on Mar 29 2023

point3D

ENGINE ROOM / MAN 7S60
Marine Diesel Engine

Project Hosting on Microsoft Azure

Security Goal - DoD Impact Level 4/5

point3D

Security Compliant Cloud

PROJECT HOSTS™
Security Compliant Clouds

Project Hosts is a cloud solutions provider (CSP) that specializes in securing applications, data, and workloads on Azure and AWS, while ensuring compliance with regulatory standards, including DoD Impact Levels 2,4 and 5.

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Cloud Compliance-as-a-Service

Compliance Inheritance

General Support System (GSS) PaaS on top of Microsoft Azure that handles 80% of the controls for any application deployed on Azure that ties into the GSS.

Compliance by Certification

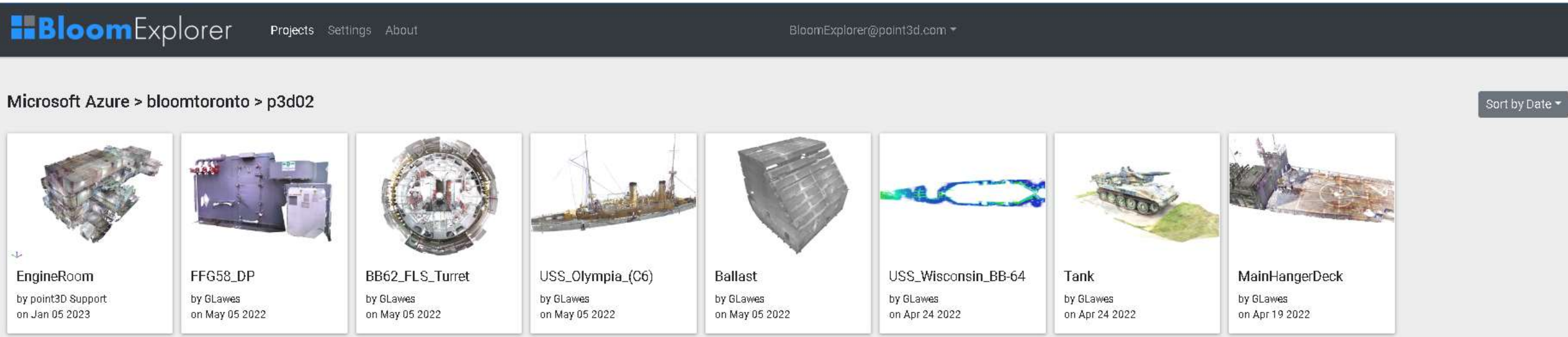
Turnkey process to get certified for DoD, FedRAMP in a short period of time. General Support System (GSS), organizations inherit up to 95% of the compliance standard controls.

Continuous Compliance

Turnkey process to get certified for DoD, FedRAMP in a short period of time. General Support System (GSS), organizations inherit up to 95% of the compliance standard controls.

PROJECT HOSTS™
Security Compliant Clouds

point3D



Bloom Explorer + PaaS on top of Microsoft Azure

DoD Impact Level 5 Secure

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Future Directions

- User and Project Driven
- Current Requests
  - Formats
    - MCAD (Solidworks, Siemens NX)
    - 360 video

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Thank You and Work Safe

Greg Lawes
glawes@point3D.com
point3D.com
p 800-616-1003 x 101
m 856-457-2964

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Laser Scanning Hardware, Software,
Training, Support, and Services