



# Project Team Collaboration Challenges

## Design and engineering content demands are unique

- Lack of interoperability
- Large files are difficult to share
- Different workflows and applications



## Teams are distributed across offices and organizations

- Slow and unreliable network connections
- Different processes and standards
- Time wasted looking for and validating information



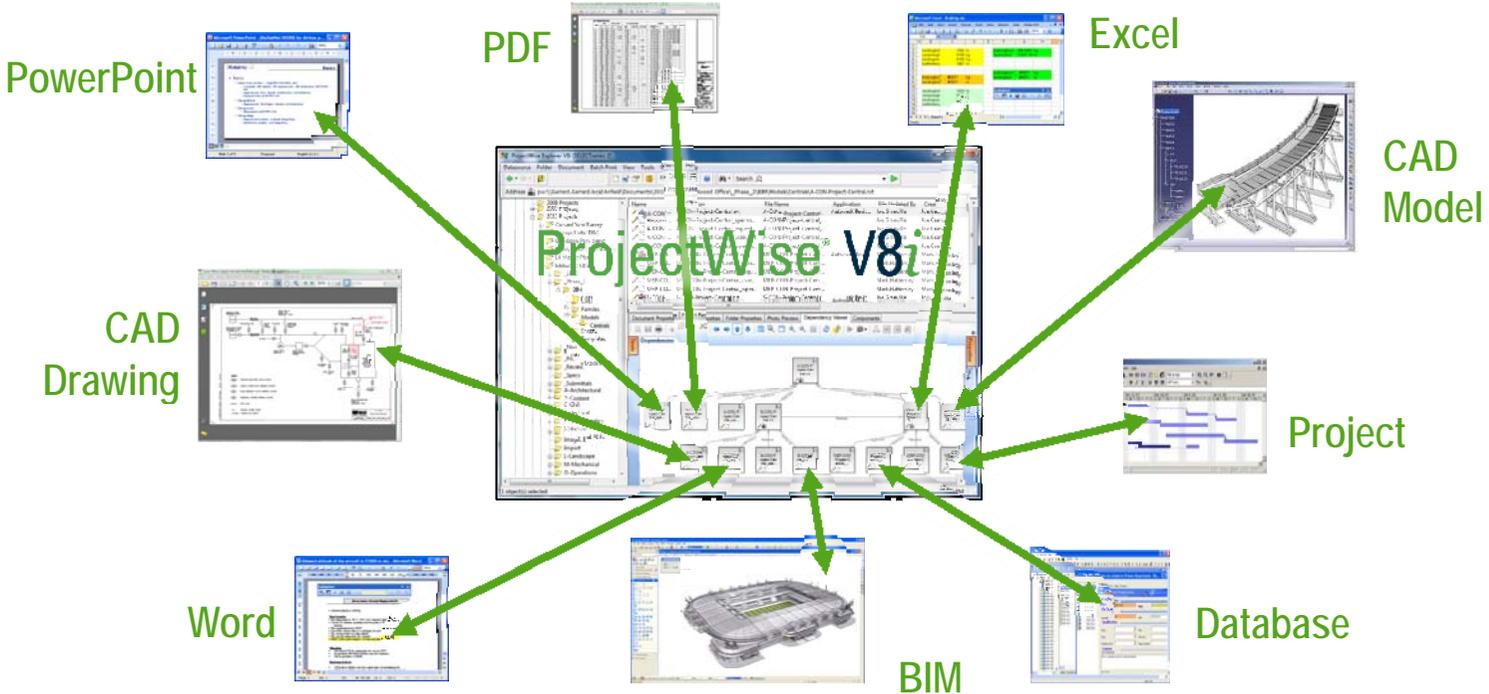
## Project information is constantly changing

- Assuring teams have current data
- Complex, interdependent file relationships
- Lack of real-time synchronization



# Trusted Shared Source of Project Information

Regardless of location and file formats



# ProjectWise Secures Information Mobility



# Work-sharing

Create and manage ongoing work-product effectively

...where the right people quickly and reliably accelerate work-in-progress using infrastructure tools and workflows of choice.



# Work-sharing

**Permissions View**

**Web View**

**Spatial View**

**Document View**

**Dependency View**

**Immersive 3D View**

**Component View**

**AECO Information Management**

# Reference files / Xrefs

The screenshot displays the ProjectWise Explorer V8i (SELECTseries 4) interface. The main window shows a tree view on the left with the following structure:

- BSI300 - Medical Complex-Córdoba
- BSI400 - W01 - Intersection of I-9 and SR 32
- BSI900 - Adelaide Tower
- Gas Authority, Inc
  - Groningen Refinery
    - BSI700 - Storage Facility Expansion
      - 000 - Application Data
      - 100 - 3D Models

The main pane shows a list of files with columns: Name, Updated, Version, File Size, State, and Out to. The selected file is **BSI700-P1001-001-Pipe&SupportDetails.dgn**.

Name	Updated	Version	File Size	State	Out to
BSI700-C0301-001-RRCC Detail.dgn	18-6-2012 15:26:40		203 KB	Pending Approval	
BSI700-D1100-Equipment Details.dgn	18-6-2012 15:26:40		497 KB	Pending Approval	
BSI700-O-SH-NA-0001	21-5-2013 15:55:11		7,619 KB	Pending Approval	
BSI700-P1001-001-Pipe&SupportDetails.dgn	18-6-2012 15:26:43		2,098 KB	Pending Approval	
BSI700-Index.overlay.dgn	30-4-2013 9:46:08		108 KB	Pending Approval	Admin
			133 KB	Pending Approval	
			101 KB	Draft	
			06 KB	Draft	

The **BSI700-P1001-001-Pipe&SupportDetails.dgn** dialog box is open, showing a list of files with columns: Name, Updated, Version, File Size, and State.

Name	Updated	Version	File Size	State
BSI700-P1001-001-Pipe&SupportDetails.dgn	18-6-2012 15:26:43		2,098 KB	Pending Approval
B-borderPipeSupport.dgn	18-6-2012 15:26:44		102 KB	Draft
BSI700-B-3DM-G-0001	18-6-2012 15:26:37		635 KB	Approved
BSI700-GEO-3DM-G-0001	18-6-2012 15:26:38		58 KB	Approved
BSI700-O-3DM-G-0001	30-4-2013 9:52:14		586 KB	Work in Progress
BSI700-O-3DM-NA-0001				
BSI700-O-3DM-NA-0002				
BSI700-O-3DM-NA-0003				
BSI700-O-3DM-NA-0004				
BSI700-O-3DM-NA-0005				
BSI700-O-3DM-NA-0006				
BSI700-RR-3DM-NA-0001				
BSI700-RR-3DM-NA-0002				
BSI700-V0202-PlotPlan.dgn	18-6-2012 15:26:47		45 KB	Draft
E-border.dgn	18-6-2012 15:26:44		99 KB	Draft

The **BSI700-B-3DM-G-0001 - Referenced By** dialog box is also open, showing a list of files with columns: Name, Updated, Version, File Size, and State.

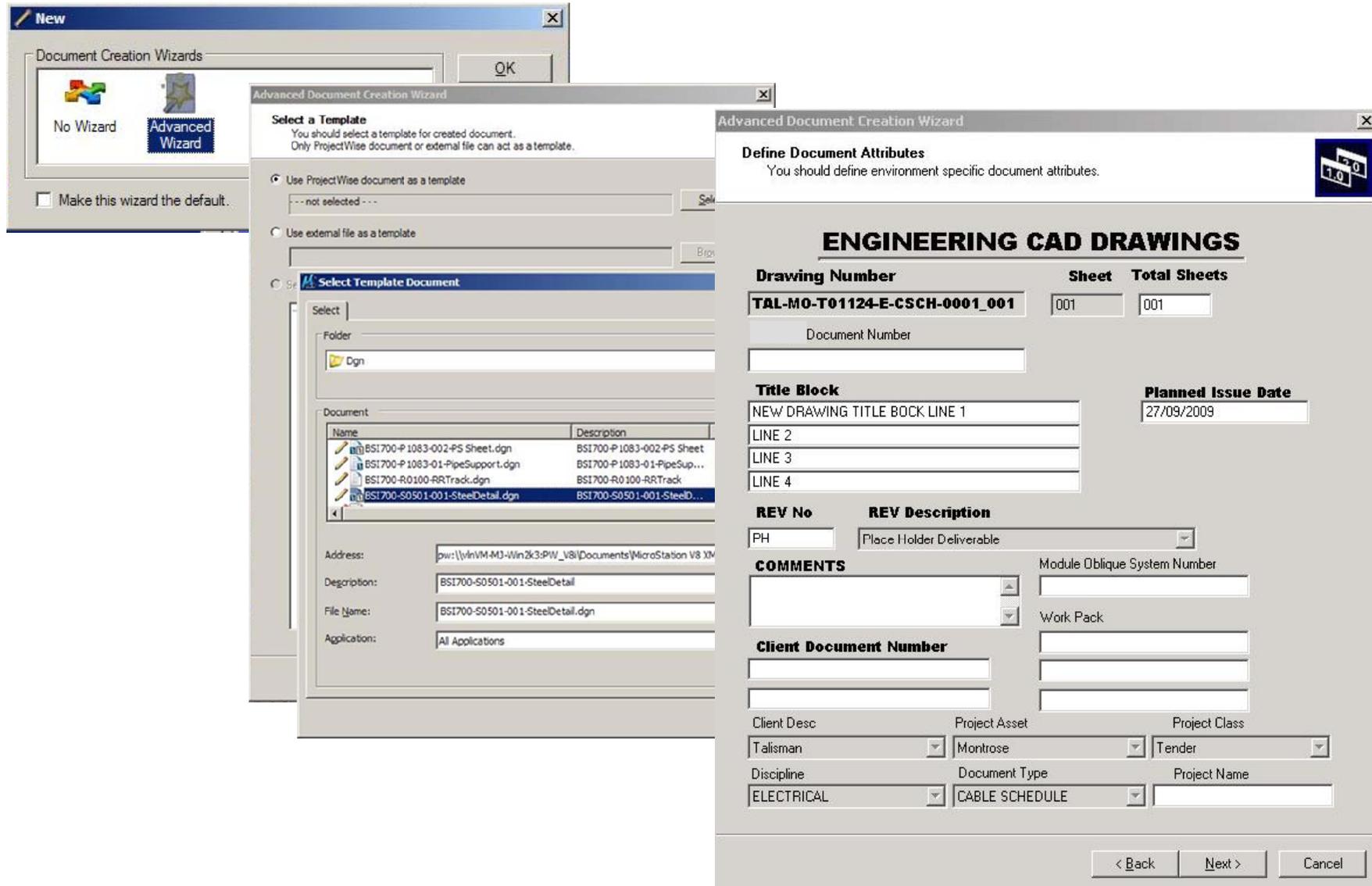
Name	Updated	Version	File Size	State
BSI700-O-3DM-NA-0001	21-5-2013 15:55:11		75 KB	Approved

# Reference files / Xrefs - graphically

The screenshot displays the ProjectWise Explorer V8i (SELECTseries 4) interface. The left pane shows a hierarchical tree structure of project folders, including 'Gas Authority, Inc' and 'Groningen Refinery'. The right pane shows a list of files with columns for Name, Updated, Version, File Size, State, and Out to. Below the list, the 'Dependencies' view is active, showing a graphical representation of file relationships. The graph consists of nodes representing files, connected by lines indicating dependencies. The top node is 'ES700-P 1001-001-Plan.dgn', which is highlighted in red. It has four children: 'E-border-1001-001.dgn', 'E-border-1001-002.dgn', 'ES700-O 1001-001.dgn', and 'ES700-O 1001-002.dgn'. The 'ES700-O 1001-001.dgn' node has several children of its own, including 'ES700-Y 1001-001-Plan.dgn', 'ES700-O 1001-001.dgn', 'ES700-E 1001-001.dgn', 'ES700-P 1001-001.dgn', 'ES700-O 1001-001.dgn', 'ES700-O 1001-001.dgn', 'ES700-O 1001-001.dgn', 'ES700-O 1001-001.dgn', and 'ES700-P 1001-001.dgn'. The bottom right corner shows the time 14:22.

Name	Updated	Version	File Size	State	Out to
BSI700-C0301-001-RRCC Detail.dgn	18-6-2012 15:26:40		203 KB	Pending Approval	
BSI700-D1100-Equipment Details.dgn	18-6-2012 15:26:40		497 KB	Pending Approval	
BSI700-O-SH-NA-0001	21-5-2013 15:55:11		7.619 KB	Pending Approval	
BSI700-P1001-001-Pipe&SupportDetails.dgn	18-6-2012 15:26:43		2.098 KB	Pending Approval	
BSI700-Index.overlay.dgn	30-4-2013 9:46:08		108 KB	Pending Approval	Admin
BSI700-Index1.overlay.dgn	21-5-2013 16:11:16		133 KB	Pending Approval	

# Creating documents





# Application Integration

- Multiple levels of integration with multiple apps

Application Version Compatibility with ProjectWise V8i Releases Ver 5.03

Application	Application Version	ProjectWise V8i (SELECTseries 4 Refresh Update)	ProjectWise V8i (SELECTseries 4)	ProjectWise V8i (SELECTseries 3)	ProjectWise V8i (SELECTseries 2)	ProjectWise V8i (SELECTseries 1)	ProjectWise V8i
		08.11.11.559+	08.11.11.111+	08.11.09.109+	08.11.07.443+	08.11.07.107+	08.11.05.63+
<b>PLATFORM APPS</b>							
MicroStation V8i (SELECTseries 3) Update 1	08.11.09.357+	X	X	X	NO	NO	NO
MicroStation V8i (SELECTseries 3)	08.11.09.292+	X	X	X	NO	NO	NO
MicroStation V8i (SELECTseries 2)	08.11.07.443+	X	X	X	X	X	X
MicroStation V8i (SELECTseries 1)	08.11.07.171+	X	X	X	X	X	X
MicroStation V8i	08.11.05.17+	X	X	X	X	X	X
MicroStation XM	08.09.04.51+	X	X	X	X	X	X
MicroStation V8 2004	08.05.02.70+	X	X	X	X	X	X
MicroStation J	07.01.05.03+	X	X	X	X	X	X
MicroStation PowerDraft V8i (SELECTseries 3) Update 1	08.11.09.357+	X	X	X	NO	NO	NO
MicroStation PowerDraft V8i (SELECTseries 2)	08.11.09.308+	X	X	X	NO	NO	NO
MicroStation PowerDraft V8i (SELECTseries 2)	08.11.07.443+	X	X	X	X	X	NO
MicroStation PowerDraft V8i (SELECTseries 1)	08.11.07.172+	X	X	X	X	X	NO
MicroStation PowerDraft V8i	08.11.05.17+	X	X	X	X	X	X
MicroStation PowerDraft XM	08.09.04.88+	X	X	X	X	X	X
MicroStation PowerDraft J	07.01.05.03+	NO	NO	X	X	X	X
Bentley Navigator (SELECTseries 4)	08.11.09.293+	X	X	X	NO	NO	NO
Bentley Navigator (SELECTseries 3)	08.11.08.43+	X	X	X	See Note 5	NO	NO



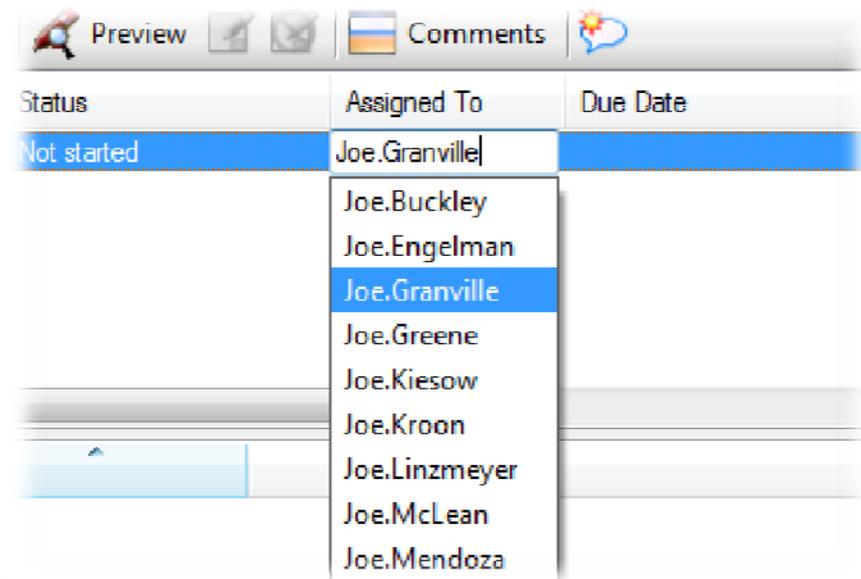
# Application Integration

- MicroStation V8i (SELECTseries 3)
  - No support for DGNIndexer in initial release
- Navigator and i-model Composer V8i (SELECTseries 3)
  - Markup user names
- AutoCAD and Revit 2012 & 2013 (both 32 and 64-bit)
  - Revit Enhancements
- Added AutoCAD Mechanical
- Advanced Civil3D Integration



# ProjectWise User Name Support in Navigator

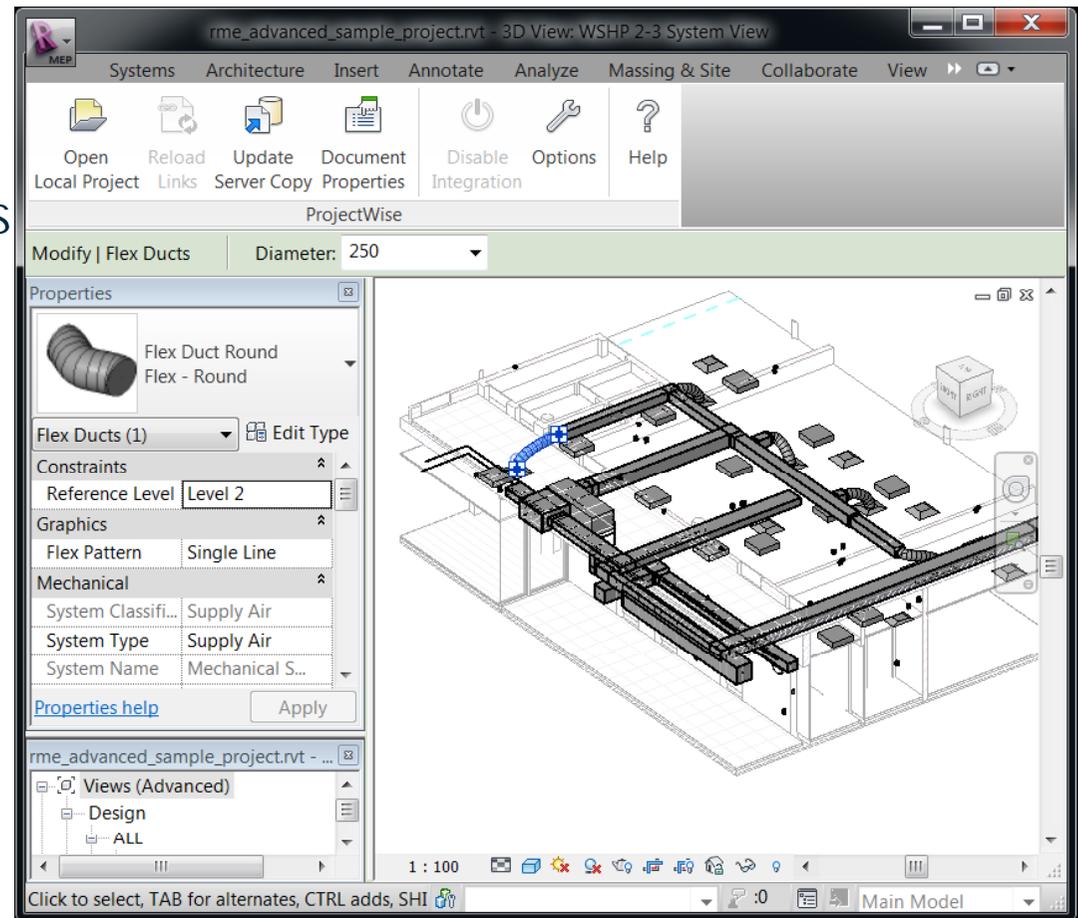
- Leverage ProjectWise user name for all assignment fields
- Display user name or description based on ProjectWise (Display Description) user setting
- Works with ProjectWise V8i (SELECTseries 3) as well



# ProjectWise Integration for Revit 2013

## Revit Enhancements

- All originally available in Add-in
- Now built into PW Explorer install
- New resolve links tool
- New Revit FAQ on Be Communities
- Overall performance improved
- Support for:
  - RFA-type catalogs
  - Decals
  - Background images for rendering
  - Exporting rendered image
  - Enhanced Notification messages



# Revit FAQ

## ↓ [FAQ - ProjectWise Application Integration for Revit](#)

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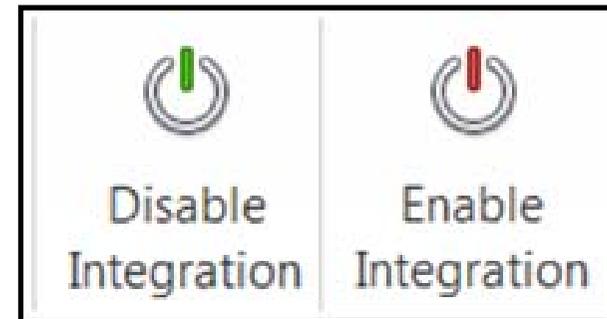
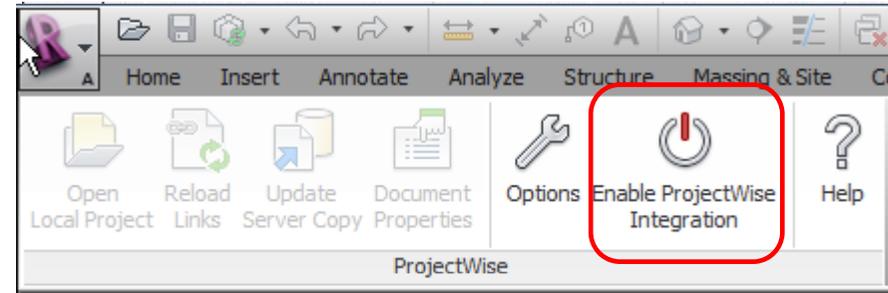
[FAQ - ProjectWise Application Integration for Revit](#)

This is the ProjectWise Application Integration for Revit Frequently Asked Questions list (FAQ). It provides answers to some of the most frequently asked questions related to the application integration, project implementation, and modeling strategies for Revit projects that are integrated with ProjectWise. The contents of this document are intended for ProjectWise Administrators, Project Managers and Designers who are working on Revit based projects integrated with ProjectWise..

**Be** | Communities

# ProjectWise Integration on/off

- Disable\enable integration switch added GUI
- Allows user to control ProjectWise integration as needed
- Supported in:
  - AutoCAD
  - Revit
  - Office 2007 and 2010

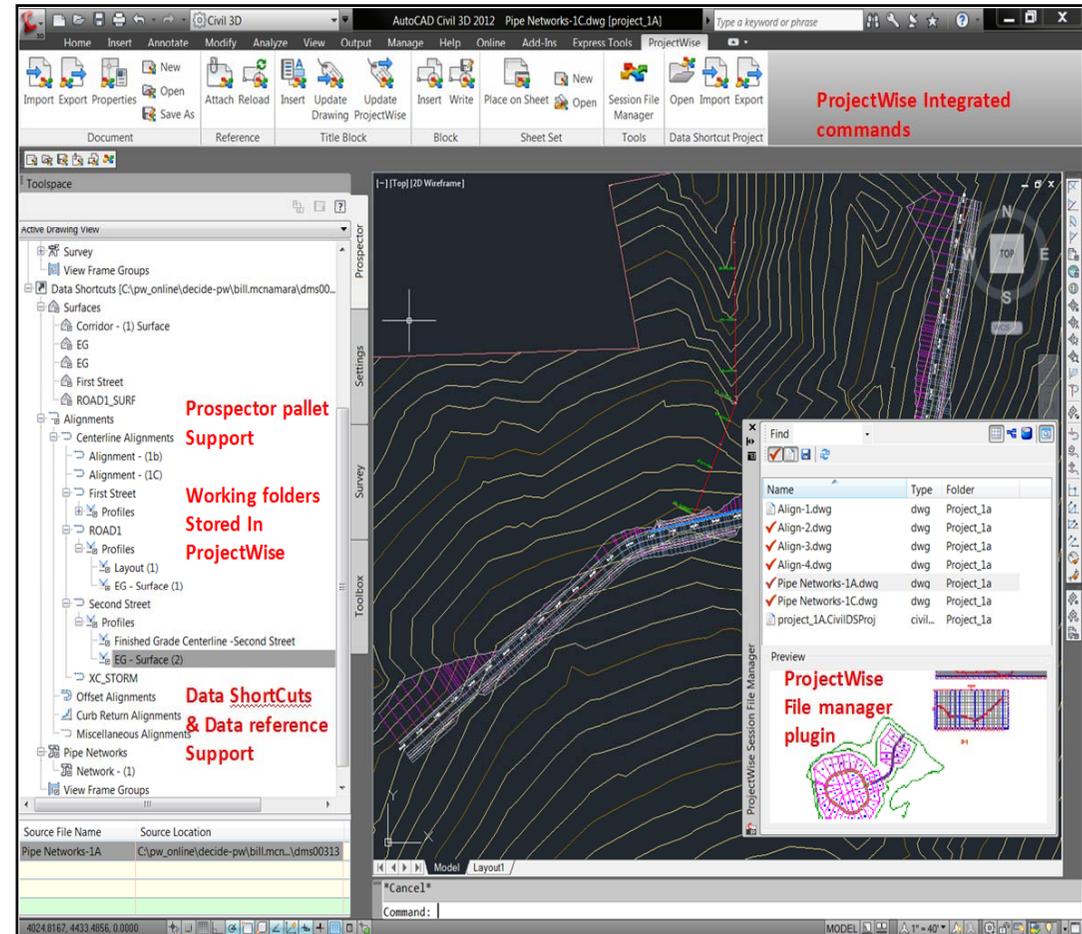


# ProjectWise Advanced Integration for Civil 3D



## Civil 3D Enhancements

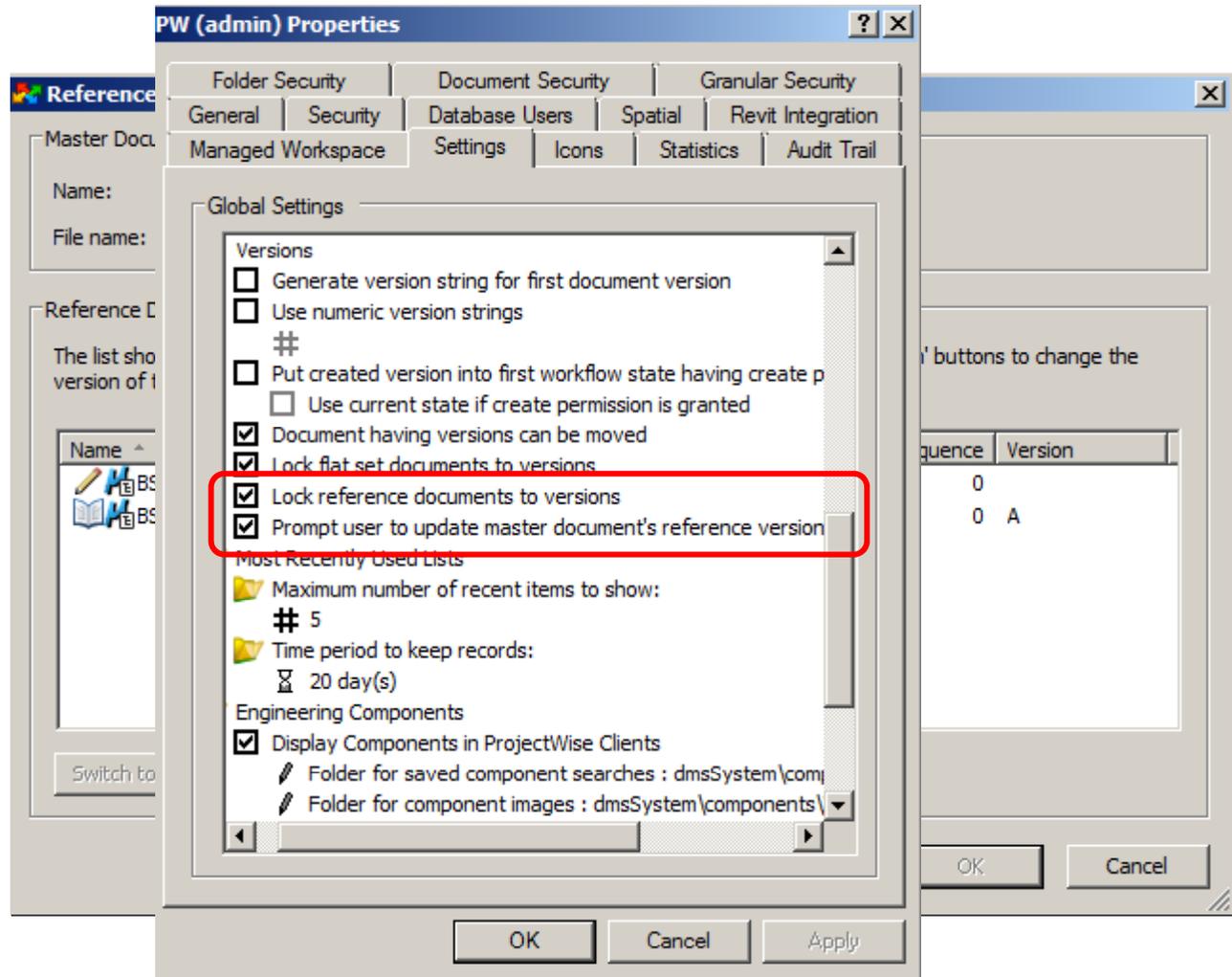
- Data Shortcuts & Data References Supported
- Prospector Palette Integration
- C3D Working directory integration
- Surface features support for:
  - .TIN
  - .DEM
  - .GRS
  - .MMS
- Supports Ver. 2012 - 2013



# Reference Set Versioning

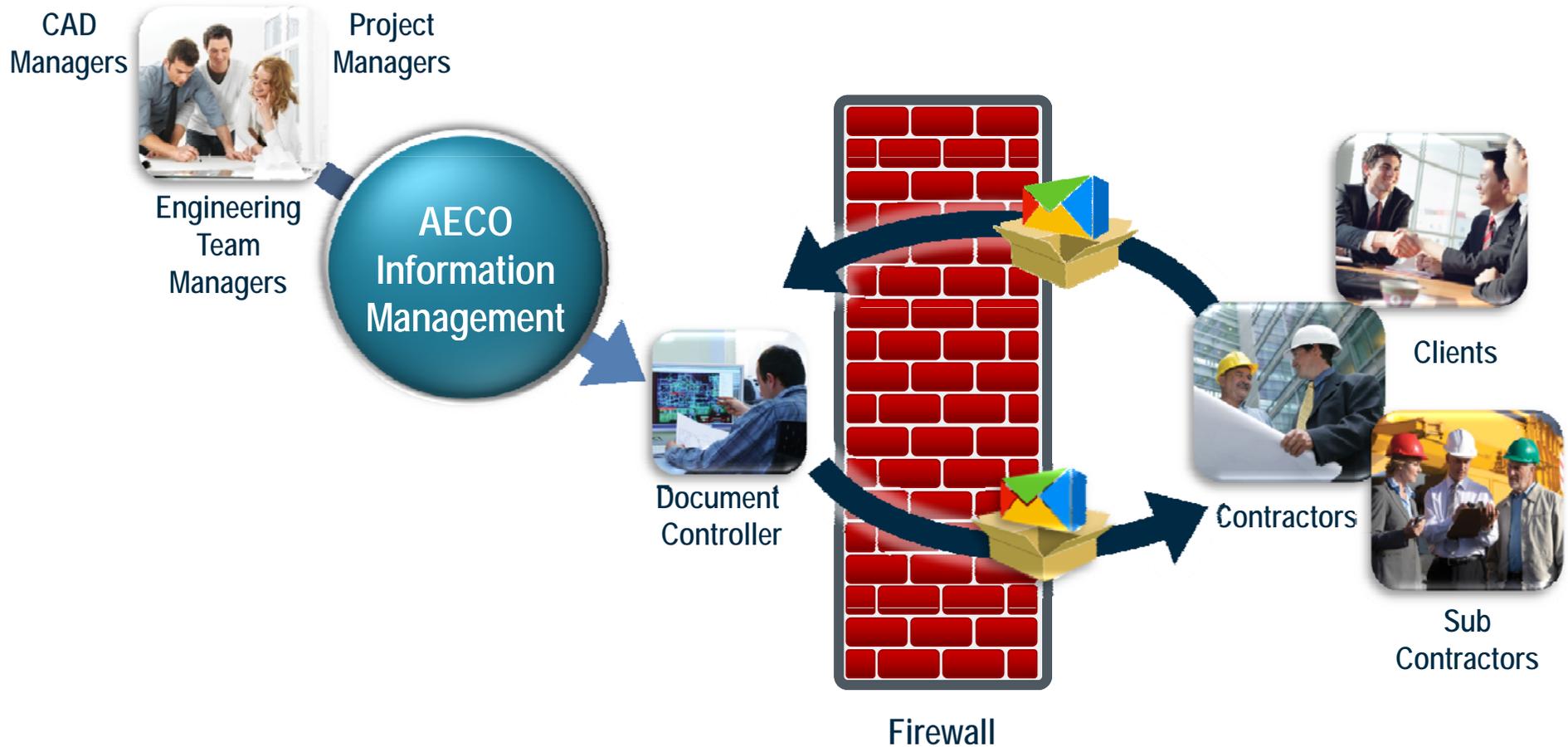
- Option to have reference files stick with the current version of the reference file at attachment time
- Datasource level default setting as well as attachment time option
- Works with both MicroStation and AutoCAD sets
- Setting to prompt user that a newer version of a reference file is available when opening a master file
- Can only update the attachment to newer version for directly attached references, does not allow updating nested reference

# Reference Set Versioning UIs

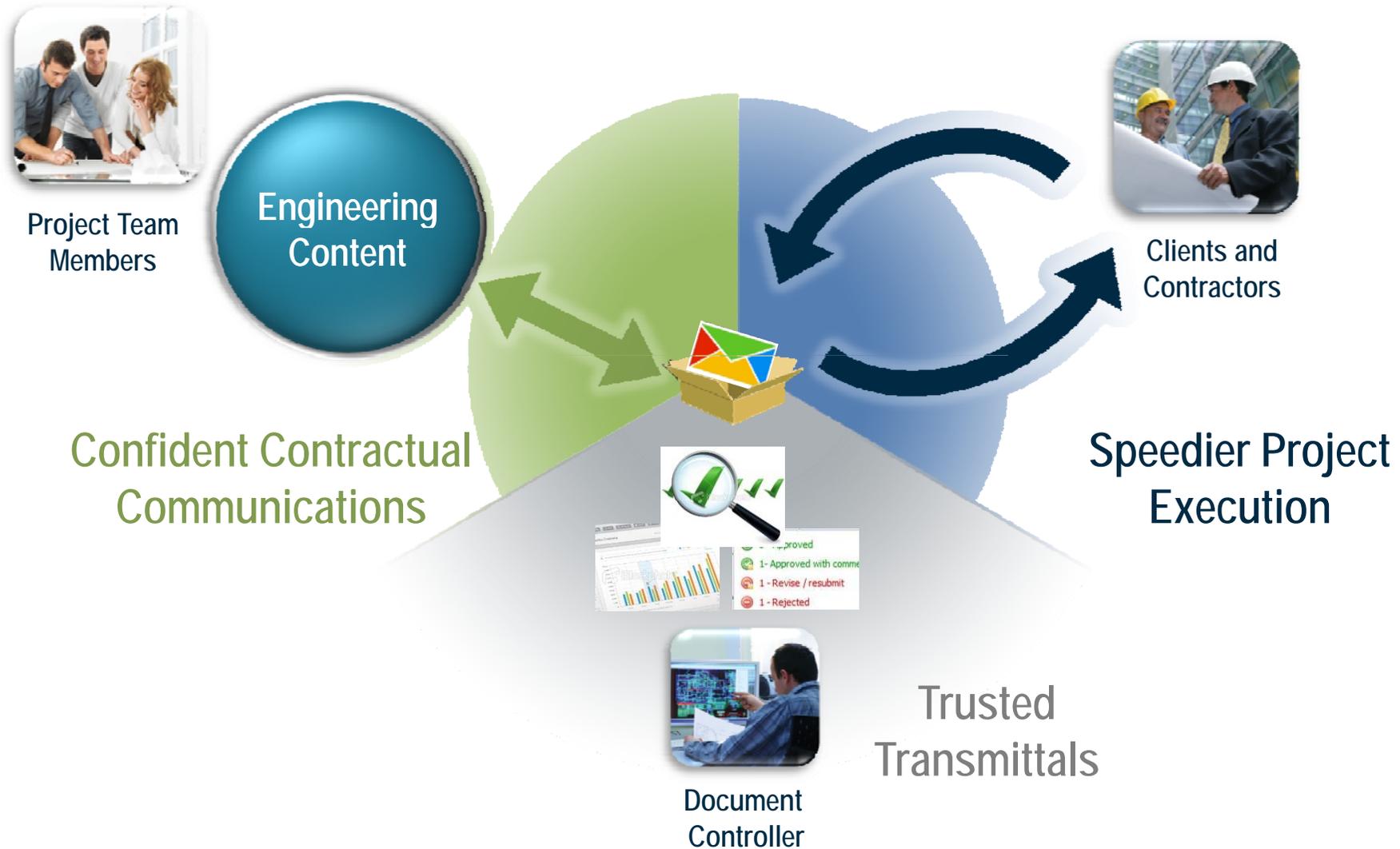


# Bentley Transmittal Services

*A Secure Transmittal Process*

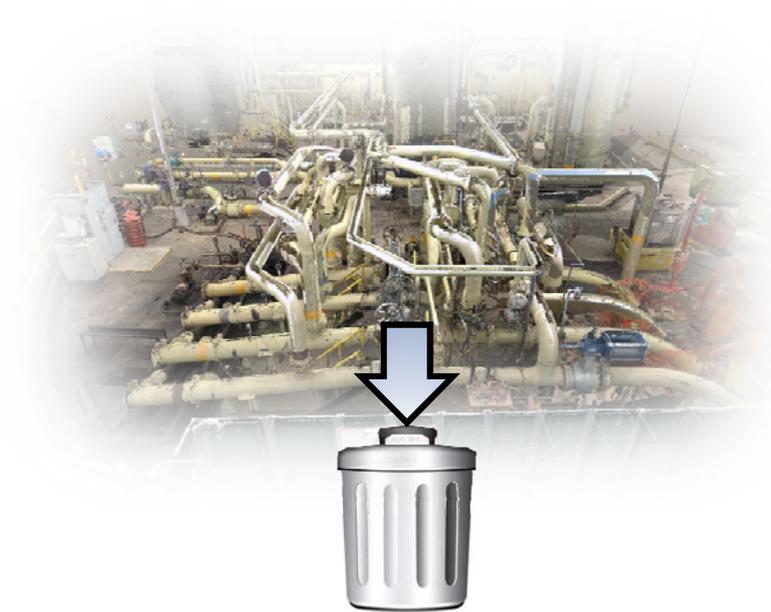


# Bentley Transmittal Services Advantages



# Collaboration with Point Clouds

- Files are large and require efficient management and distribution



- Point clouds deliver value throughout an asset's lifecycle
- But are typically discarded after use

# ProjectWise Point-cloud Services

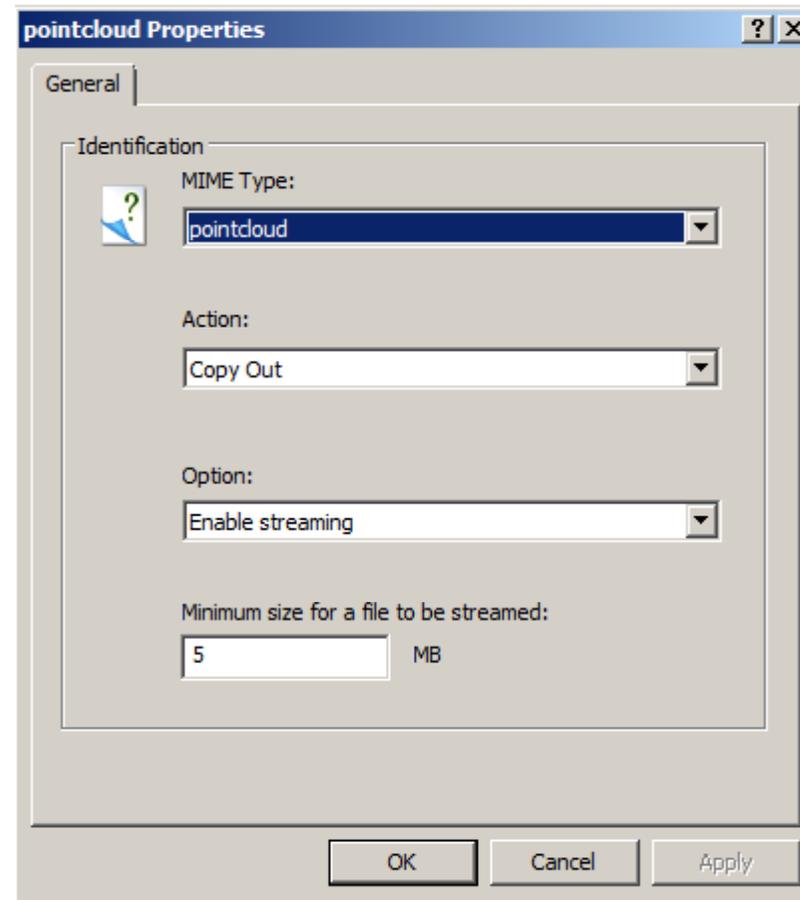


# Point Cloud Management

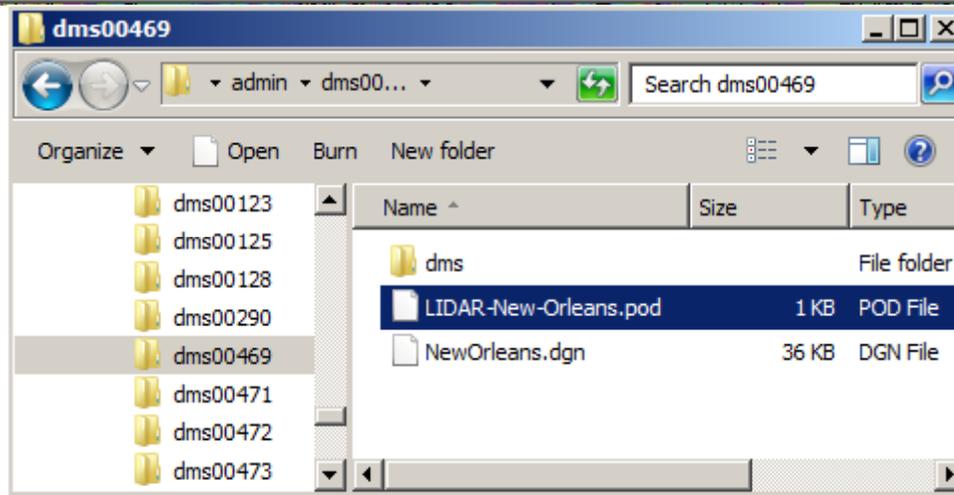
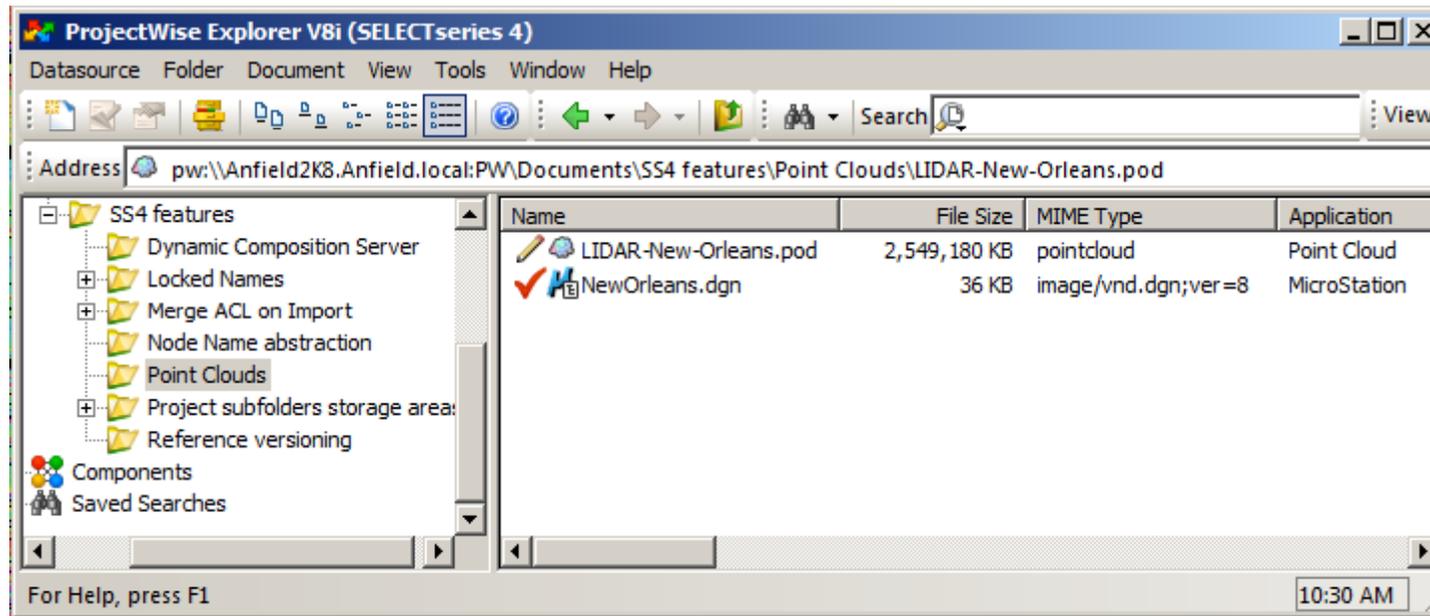
- Provide streaming capability to ensure performance
  - Only downloads the points needed to properly display view
  - Only placeholder file put in Workdir – rest in memory
  - Works based on location(zoom) as well as level of detail
- Based on POD file format used by MicroStation
- Works from PW Explorer and MicroStation File-Open
  - Raster streaming has been enhanced to work from ProjectWise Explorer also
- Provides scan ref capability for importing existing DGN/POD file sets
- Can be enabled/disabled at Datasource level

# Datasource Configuration

- Separately enable Point Cloud Streaming and Raster file streaming
- Configurable minimum size for streaming



# Point Cloud Streaming



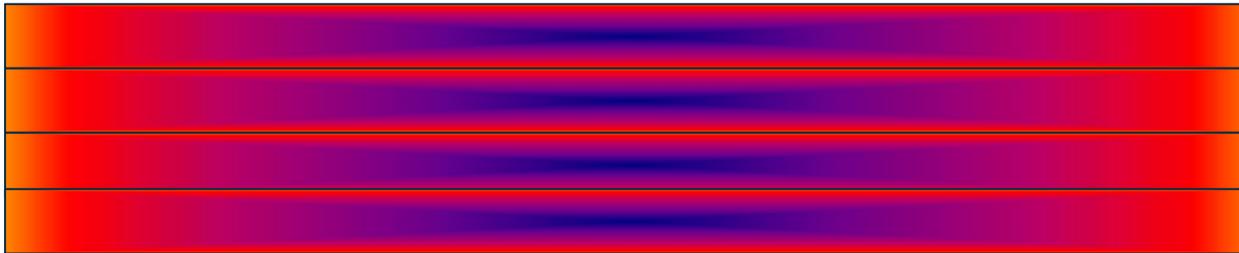
# Streaming Performance

- Standard Download and MicroStation Launch

- 50Mb Point Cloud



- 1.5Gb Point Cloud



No Streaming

3:30 minutes

> 1 hour  
(who really cares exactly once you get over an hour...)

- Streaming and MicroStation Launch

- 50Mb Point Cloud



- 1.5Gb Point Cloud



Streaming

1:26 minutes

1:38 minutes

# Work-sharing: Servers & Services

- **ProjectWise Integration Server**  
*Empower and manage AECO Content and team collaboration*
- **ProjectWise Caching Server**  
*Solve the geographically distributed 'big files' problem*
- **ProjectWise Web Server**  
*Enable passport enabled project team member access via a web browser*
- **Bentley Transmittal Services**  
*Package, register, deliver and track AECO submittals and transmittals*
- **Bentley Point-cloud Services**  
*Enables streaming of large point cloud data files*
- **Bentley Dynamic Right Management Services**



Field Supervisor



ProjectWise  
Explorer Mobile

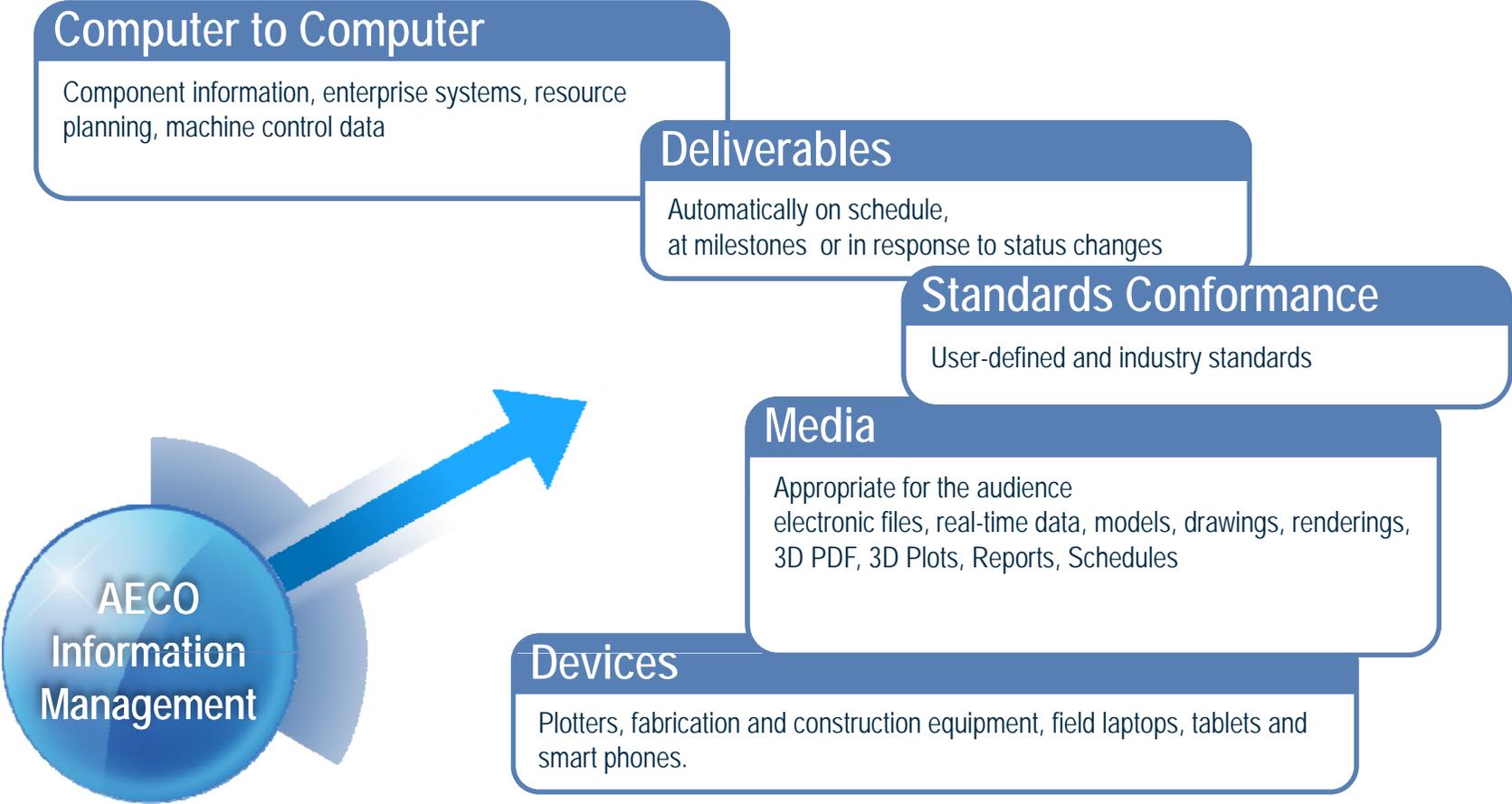
# Content Re-use

Inform project stakeholders



...in a more consistent, timely and predicable manner using high impact deliverables.

# Content Re-use



# Content Re-use

**AECO Information Management**

**i-model Plug-in for Excel**

**i-model Plug-in for Crystal Reports**

**i-model Plug-in for Access**

STOCK NUMBER	ORIGINAL DIAMETE	DEV. WEIGHT	GRADE	SPECIFICATION
15 00mm				
12 00mm				
10 00mm				
8 00mm				
6 00mm				
4 00mm				
3 00mm				
2 00mm				
1 00mm				
0 00mm				
APPE12	300.00	36.71	400	AB
APPE12	300.00	36.71	400	AB
APPE12	300.00	36.21	400	AB
APPE12	300.00	204.16	400	AB
APPE12	300.00	36.76	400	AB
APPE12	300.00	107.72	400	AB
APPE12	300.00	407.33	400	AB
APPE12	300.00	176.23	400	AB
APPE12	300.00	36.71	400	AB
APPE12	300.00	54.44	400	AB
APPE12	300.00	304.55	400	AB
APPE12	300.00	132.77	400	AB
APPE13	300.00	800.94	400	AB

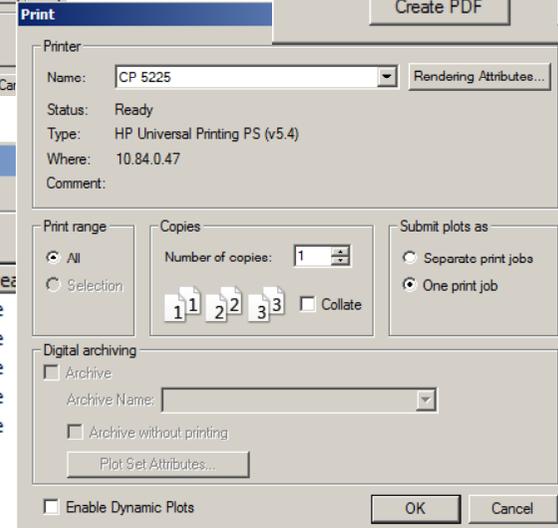
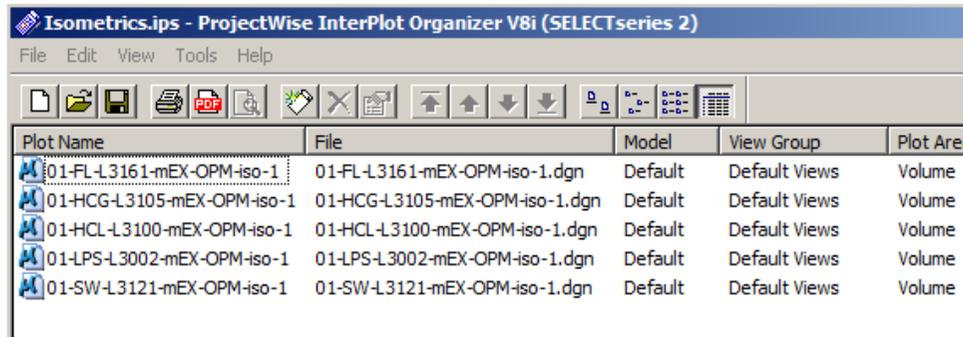
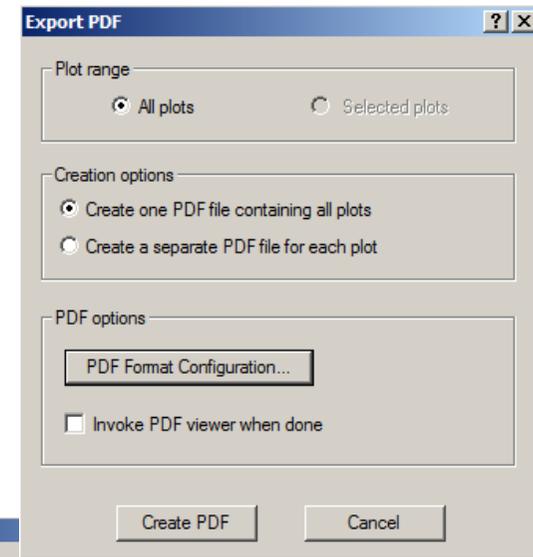
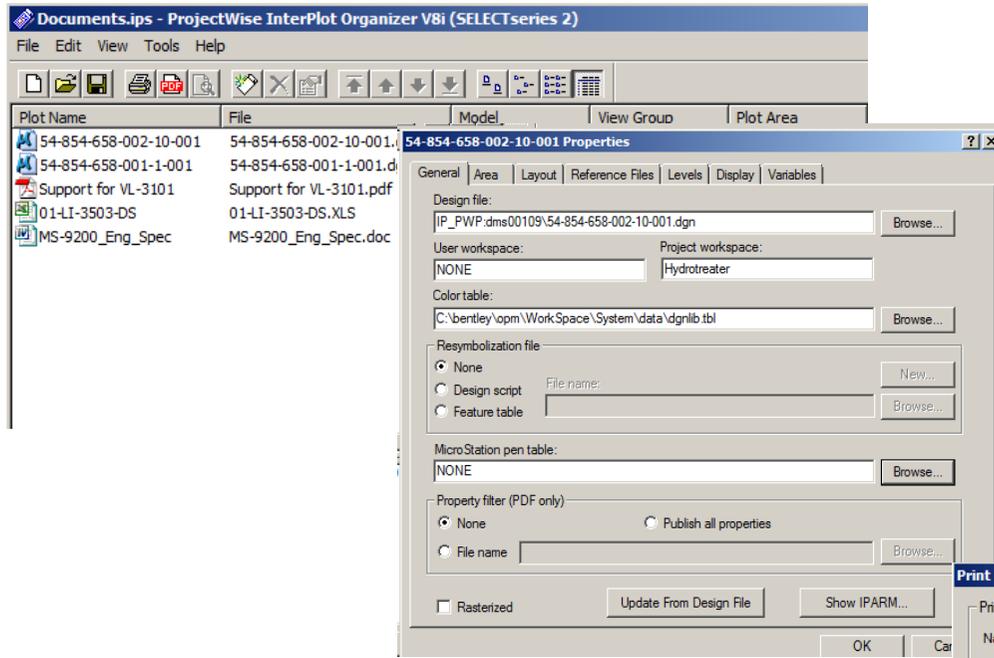
# Bentley i-model Composition Server



- Automating information mobility
- i-model & PDF output
- On-demand & on-schedule

- Standardized publishing
- Scalable across the enterprise
- Mobile, desktop, device, or web

# Managed Plot Sets



# Content Re-use: Servers & Services

- **ProjectWise InterPlot Server**  
*Automate production plotting for paper, PDF, and 3D Plots*
- **Bentley i-model Composition Server**  
*Automate publishing of i-models, PDFs, and raster*
- **ProjectWise Web View Server**  
*Enable read-only browser access to broader stakeholders  
(no passport required)*

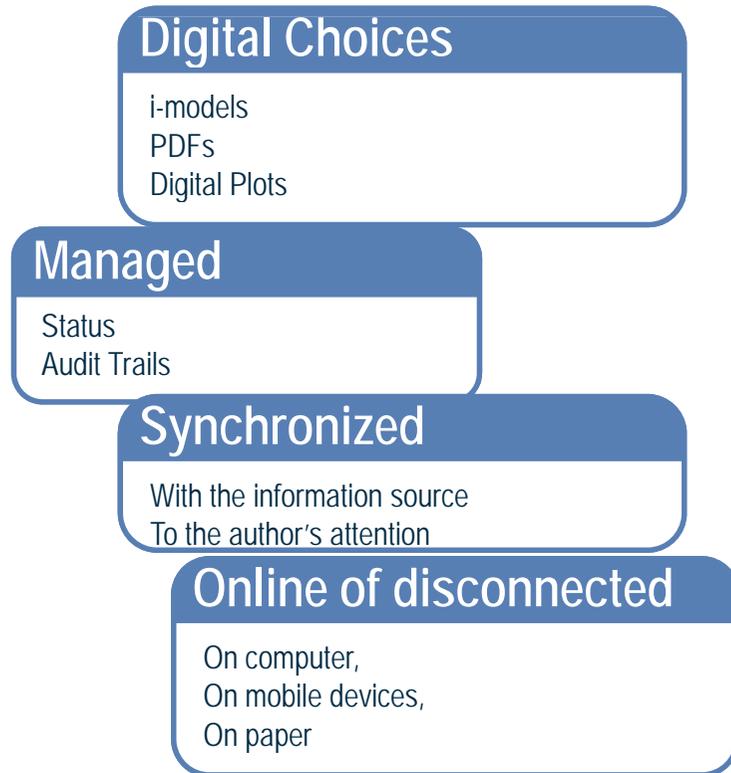
# Dynamic Feedback

Synchronize comments  
to resolve issues  
quickly and effectively

...in a 'closed-loop', returning feedback  
in context to all the relevant designers  
so as to be actionable.



# Dynamic Feedback



# Dynamic Feedback: Digital and Pen



- Dynamic Plots
- Smart Pens
- Traditional workflow
- “Redlines”

# Manage markups

The screenshot displays the ProjectWise Explorer V8i (SELECTseries 3) interface. The left pane shows a tree view of the project structure, with 'Models' expanded under 'Equipment'. The main pane shows a list of model files with columns for Name, Description, and File Name. A dialog box titled '54-854-658-X-01-002-11-008.i.dgn - Show Markups' is open, showing a list of markups for the selected file.

Name	Description	File Name
54-854-658-X-01-002-11-001	Fired Heater HR-3101	54-854-658-X-01-002-11-001.dgn
54-854-658-X-01-002-11-001.dgn.i.dgn		54-854-658-X-01-002-11-001.dgn.i.dgn
54-854-658-X-01-002-11-002	Feed Effluent Exchangers	54-854-658-X-01-002-11-002.dgn
54-854-658-X-01-002-11-002.dgn.i.dgn		54-854-658-X-01-002-11-002.dgn.i.dgn
54-854-658-X-01-002-11-003	Reheat Exchangers	54-854-658-X-01-002-11-003.dgn
54-854-658-X-01-002-11-003.dgn.i.dgn		54-854-658-X-01-002-11-003.dgn.i.dgn
54-854-658-X-01-002-11-004	OVHD Reactors	54-854-658-X-01-002-11-004.dgn
54-854-658-X-01-002-11-004.dgn.i.dgn		54-854-658-X-01-002-11-004.dgn.i.dgn
54-854-658-X-01-002-11-005	Feed Pumps	54-854-658-X-01-002-11-005.dgn
54-854-658-X-01-002-11-005.dgn.i.dgn		54-854-658-X-01-002-11-005.dgn.i.dgn
54-854-658-X-01-002-11-006	Gas Oil Bottoms Pumps	54-854-658-X-01-002-11-006.dgn
54-854-658-X-01-002-11-006.dgn.i.dgn		54-854-658-X-01-002-11-006.dgn.i.dgn
54-854-658-X-01-002-11-007	Condensors	54-854-658-X-01-002-11-007.dgn
54-854-658-X-01-002-11-007.dgn.i.dgn		54-854-658-X-01-002-11-007.dgn.i.dgn
54-854-658-X-01-002-11-008	Hydro Reactors	54-854-658-X-01-002-11-008.dgn
54-854-658-X-01-002-11-008.dgn.i.dgn		54-854-658-X-01-002-11-008.dgn.i.dgn
54-854-658-X-01-002-11-008.i.dgn		54-854-658-X-01-002-11-008.i.dgn
54-854-658-X-01-002-11-009	Tanks	54-854-658-X-01-002-11-009.dgn

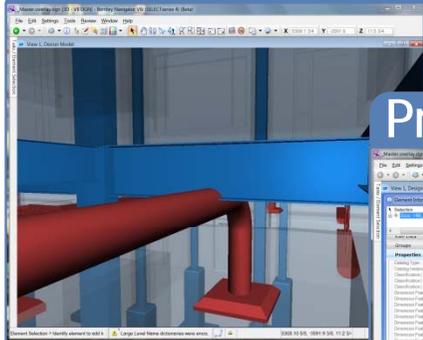
  

Name	Description	File Name
54-854-658-X-01-002-11-008-11.overlay.dgn	Nozzles on VL-3101 for L3100	54-854-658-X-01-002-11-008-11.overlay.dgn
54-854-658-X-01-002-11-008.overlay.dgn	Support for VL-3101	54-854-658-X-01-002-11-008.overlay.dgn

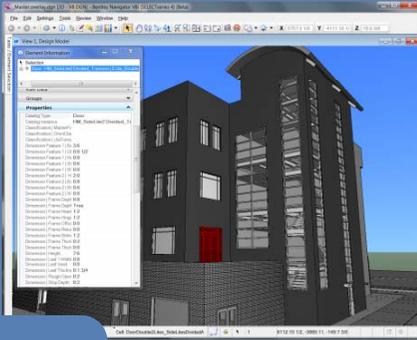


# Dynamic Feedback

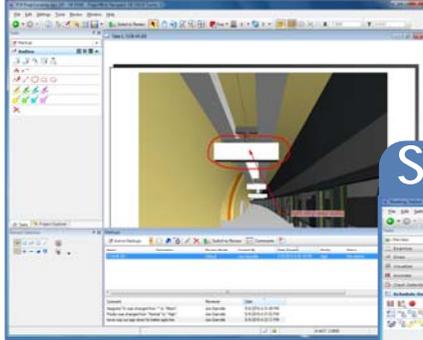
## Clash Resolution



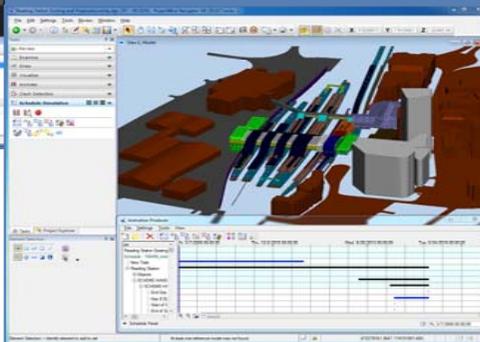
## Properties



## Markup



## Schedule Simulation



AECO  
Information  
Management



Schedule Simulation

# Dynamic Feedback: Servers & Services

- **Bentley Navigator**

*Review, mark-up, clash resolution, visualization of i-models*



Navigator Mobile

- **ProjectWise Dynamic Plot Service**

*Produce paper plots for dynamic review with digital pens*

- **Bluebeam Revu**

*Markup PDFs with AEC project tools*

- **ProjectWise PDx Dynamic Review Service**

*Access Plant Design PDS models and data without requiring PDS software*



# Extending ProjectWise into the Field

# Bentley Mobile Apps

United States [Change] | Contact Us | Partners | SELECTservic

SOLUTIONS PRODUCTS SUBSCRIPTIONS TRAINING & LEARNING SUPPORT & SERVICES RESOURCES

COMPANY



Field Supervisor



InspectTech Collector Mobile



Bentley Map Mobile



Navigator Mobile



Navigator Pano Review



ProjectWise Explorer Mobile



Structural Synchronizer View



## Mobile Apps for iPad, iPhone, and Android Mobile Devices

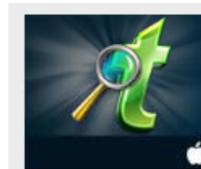
When in the field, it is more important than ever to have up-to-date, rich project information immediately available to make confident decisions. Bentley's mobile Apps allow users to seamlessly continue workflows while on the go. Try Bentley's Apps today for free using sample data. A single [Bentley Passport](#) fully enables all Bentley Apps. It entitles the user access to any Bentley server or service (such as ProjectWise and AssetWise) via Bentley Apps and a wide range of desktop applications. Get a Bentley Passport from your Bentley account representative or visit [www.bentley.com/Passports](http://www.bentley.com/Passports) to learn more.



**Bentley Map Mobile**  
Publish Bentley Map data to i-model for use with Bentley Map Mobile



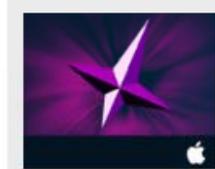
**Field Supervisor**  
Field Supervisor enables confident, real-time decision making at construction sites



**InspectTech Collector Mobile**  
Inspect transportation assets, capture photos, and create reports



**Navigator Mobile**  
Review 3D models and documents on your mobile device



**Navigator Pano Review**  
Review 3D design models on the iPad



**ProjectWise Explorer Mobile**  
Create, browse, and view ProjectWise documents on the iPad



**Structural Synchronizer View for iPad, iPhone, and iPod Touch**  
View structural models on your iOS device

[www.bentley.com/apps](http://www.bentley.com/apps)

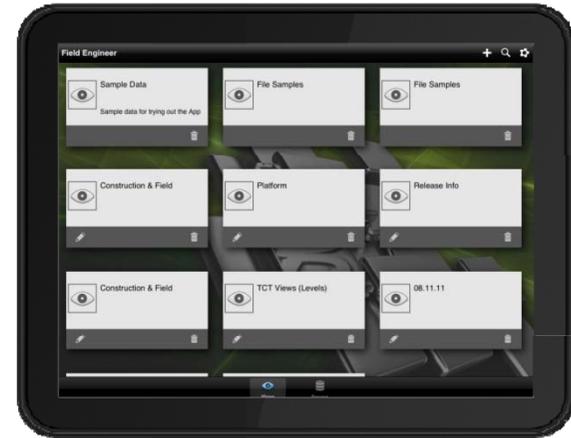


# Field Supervisor

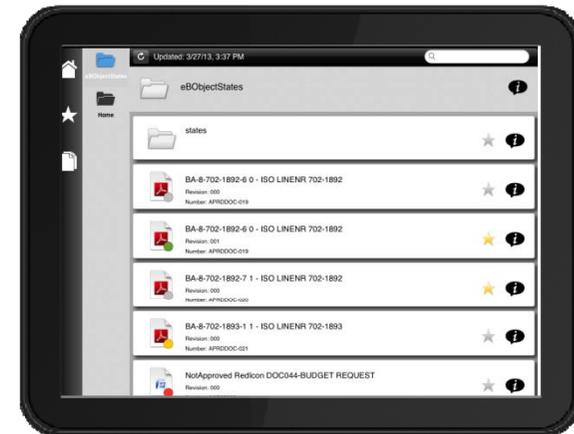
- Make **real-time** decisions based on relevant information to your task
- Make **better** decisions based on current information
- Make **confident** decisions based on complete information



[www.Bentley.com/FieldSupervisor](http://www.Bentley.com/FieldSupervisor)



Personalized and unified views into multiple project data sources, including *ProjectWise* and *eB*



Secure and managed mobile connectivity to project information



# ProjectWise Explorer Mobile

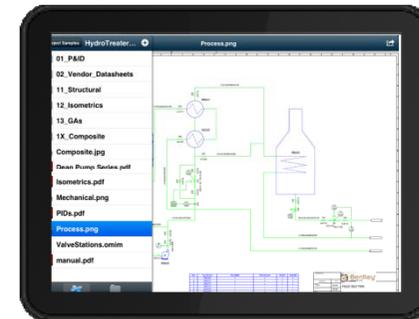
- Create **secure work packages** from documents stored in ProjectWise
- Open, preview and **interact with content**
- View files contained in i-models



[www.Bentley.com/Apps](http://www.Bentley.com/Apps)



Access documents stored in ProjectWise



Preview files store in ProjectWise

