



**US Army Corps
of Engineers®**

A/E/C Work Structure Committee

A/E/C Work Structure Manager's Guide

Release 1.4 (October 2016)

This document was updated to reflect the changes with AEC_WS_001 – Update #5

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The A/E/C Work Structure - Managers Guide

Forward

The A/E/C Work Structure is a working environment, configured to assist the designer to efficiently and effectively assemble their drawings and to follow the A/E/C Standards developed by the CAD/BIM Technology Center. Every item in the work structure has been reviewed and corrected for size, shape and symbology to follow the A/E/C Standards. The A/E/C Work Structure is configured to operate alongside of the default datasets delivered by the CAD-BIM software vendors. This allows CAD-BIM managers the flexibility to install minor version releases for updates & bug fixes, while providing full functionality for new releases without reconfiguring the A/E/C Work Structure or waiting for a new version to be developed.

It is our hope that you will find this work structure more effective than the previous workspaces. It is our goal to enhance the A/E/C Work Structure in order to make it easier to use, more efficient and effective. Please share your comments with us by filling out and submitting the Change Request, Issue Report and Evaluation Form located on the last page of this document. Comments, Concerns & Recommendations (CCRs) always welcome.

Note:

Updates to the Work Structure will delete and replace the entire Standards folder structure, the entire AEC_WS_001_ProjectTemplate folder structure, and the AEC_WS_001_ProjectTemplate.pcf file. **DO NOT** modify these items. Changes to these will be lost on a future update.

The Work Structure Committee – Structure Team (WSC-ST)

Definitions

Workspace: A collection of datasets, extensions, folder structures, and files combined to create a consistent common working environment.

Dataset: A predefined collection of data files.

Extension: Data files that extend the capabilities of the dataset beyond what was delivered.

Project: The CAD/BIM/CIM file folder structure that holds the design and support files for a specific drawing set as defined by the Project Template. The Project Template is delivered in the Workspace/Projects folder.

Master Format: A standard for organizing specifications and other written information for commercial and institutional building projects in the U.S. and Canada.

TOC: In the upper right of many pages, you will see [TOC](#). This is a link to the Table of Contents in this document.

[*AECWS - A/E/C Work Structure YouTube Channel*](#)

For more information see: [Manager's Guide Playlist](#)

Downloading the Work Structure

The A/E/C Work Structure can be downloaded from the CAD/BIM Centers web site located at:

<https://cadbimcenter.erdcdren.mil/>. Register and follow the instructions on the site to download.

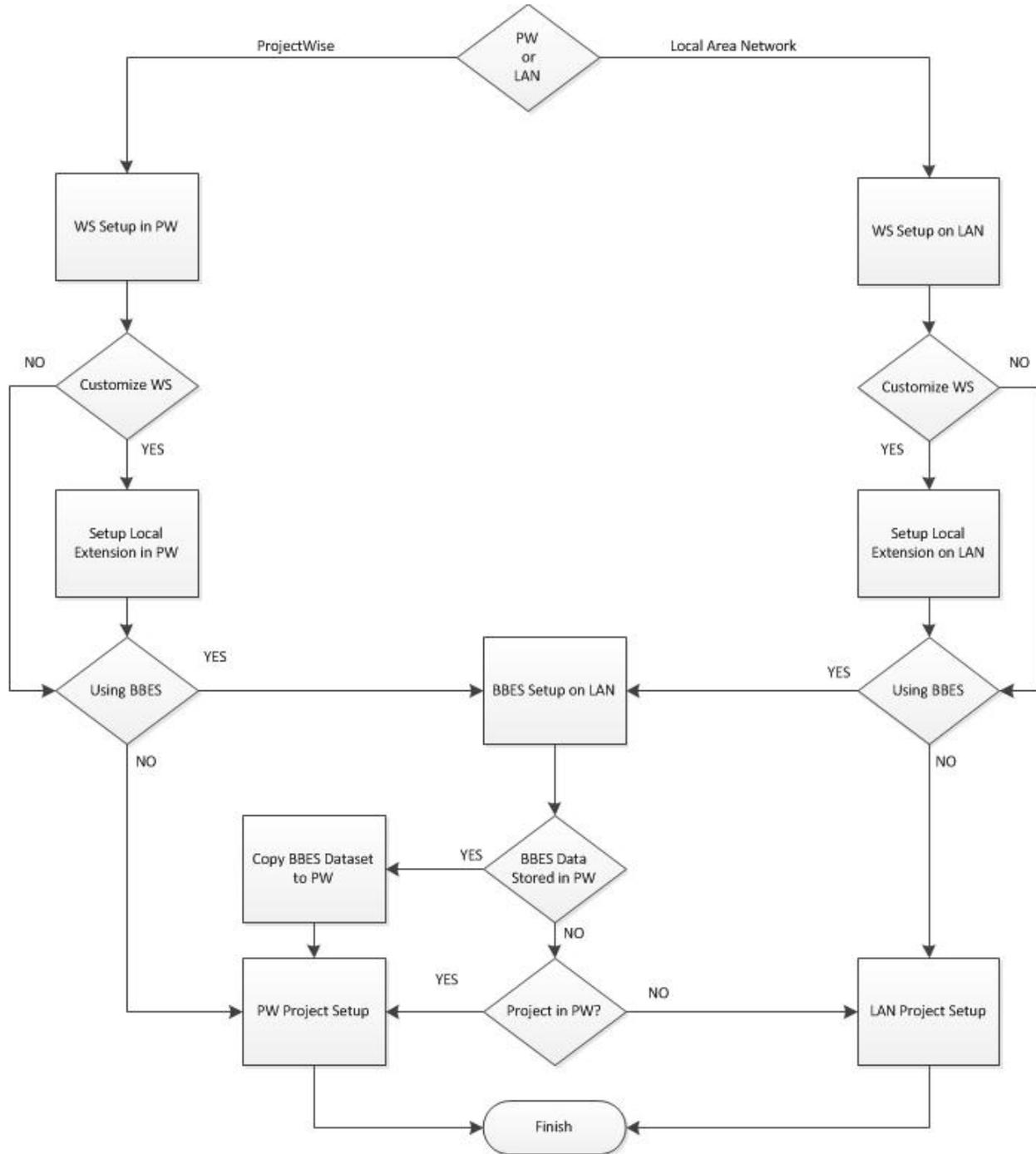
Installing the Work Structure (overview)

The A/E/C Work Structure (WS) is primarily designed to be used in ProjectWise (PW), but can also be installed on a LAN or a local drive with only a few minor changes. It is flexible enough to do both with equal effectiveness.

- Installation on a LAN is used for small groups that work in the same office, share network resources, and don't require virtual teaming. This process can also be used to install the Work Structure on a local hard drive for portable access.
- Installation in PW is simple to set up and use. It is used for large groups that have access to PW and need to use virtual teams on projects.

The WS can be loaded in various ways. The important part of the installation process is to define your workflow, and then use the method to install that is best suited for your organization (See A/E/C Work Structure Installation Flow Chart).

A/E/C Work Structure Installation Flow Chart



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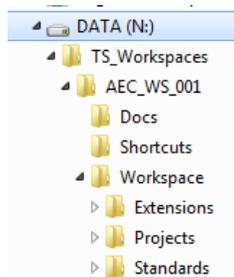
Working with Bentley on a Local Area Network (LAN)

Installing the Work Structure on a LAN

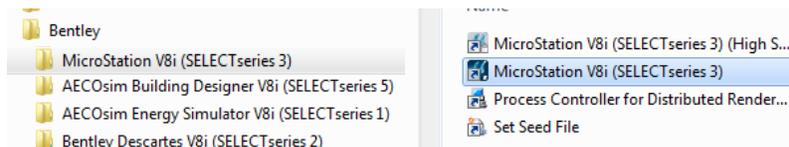
Work Structure Setup

This describes the basic process to set up the Work Structure on a LAN.

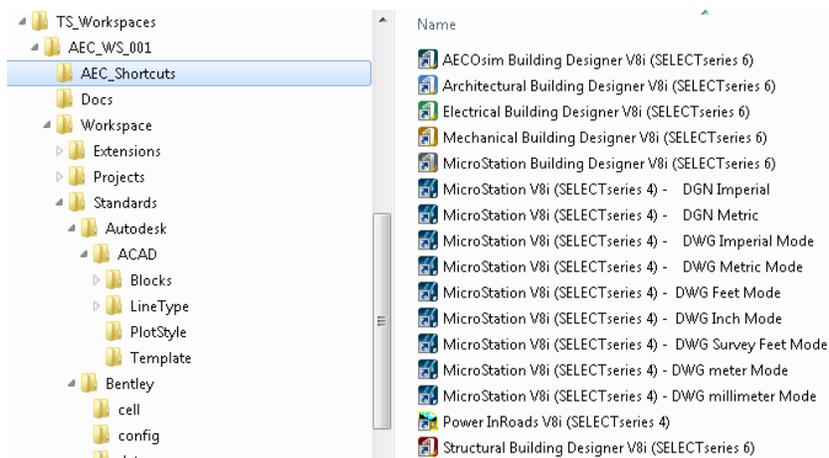
1. Pick a network location accessible to all users to store the Work Structure. It is best if the location does NOT have spaces in the folder path. The location will work better on a mapped network drive than a UNC path.
2. Unzip the files from the downloaded ZIP file to that network location.



3. Find the shortcuts for the Bentley software you want to integrate with the Work Structure. The shortcuts are typically located in folders C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Bentley\ (MicroStation v8i SS3 shown below):



4. Copy the shortcuts for the software to the ...\AEC_WS_001\Shortcuts\ folder as many times as needed for your environment.



- Right click on each shortcut and at the end of the Target line insert:

SPACE `"-ws_USTN_SITE=(The_network_location_for:)\AEC_WS_001\Workspace\Standards\"`

Replace `"(The_network_location_for:)"` (after the `"="`) with the path on your network or local PC where you unzipped the default Work Structure. This will redirect the Bentley Configuration Site Level to activate the AEC Work Structure. (**Note:** there is a space between the end of the original text and the `"-ws"` and there is always a `"\"` at the end.)

Examples:

If there are spaces in your path, use quotes around the entire string after the space:

`"-ws_USTN_SITE=C:\This Folder Has Spaces\AEC_WS_001\Workspace\Standards\"`

Or, if there are NO spaces in your path the use of quotes are optional:

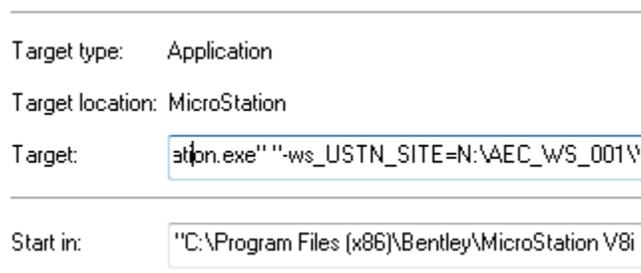
`-ws_USTN_SITE=N:\TS_Workspaces\AEC_WS_001\Workspace\Standards\`

Or UNC Path

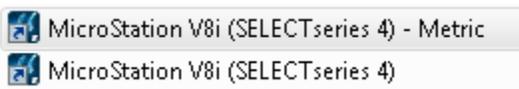
`"-ws_USTN_SITE=\\servername\share\folder name\AEC_WS_001\Workspace\Standards\"`

NOTE: It is NOT recommended you use the UNC path if you use Print Organizer.

Bentley DR 11276.

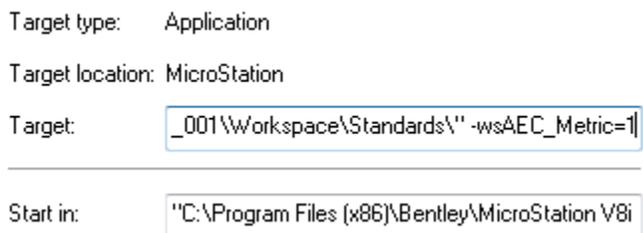


Metric Mode Shortcut icon



To use Metric units mode add:

`-wsAEC_Metric=1`



DWG Mode Shortcut icons

For additional information about DWG work mode, see section [Information on DWG work mode](#).

Note: Information on page 11 has been superseded by the data below.

-  MicroStation V8i (SELECTseries 4) - DWG Imperial Mode
-  MicroStation V8i (SELECTseries 4) - DWG Metric Mode
-  MicroStation V8i (SELECTseries 4) - DWG Feet Mode
-  MicroStation V8i (SELECTseries 4) - DWG Inch Mode
-  MicroStation V8i (SELECTseries 4) - DWG Survey Feet Mode
-  MicroStation V8i (SELECTseries 4) - DWG meter Mode
-  MicroStation V8i (SELECTseries 4) - DWG millimeter Mode

For DWG Work Mode, the follow settings can be added to the end of any shortcut icon target. The User can still override this setting by selecting a user in the file open dialog. Architectural units will always open a Feet and Inches.

To always have to select a User for decimal units:

To use DWG work mode add:

-wsAEC_DWG=1

Target:

To use DWG work mode with Metric units add:

-wsAEC_DWG_Metric=1

Target:

To directly open the file without setting a User:

To use DWG work mode with Decimal units as International Feet:

-wsAEC_DWG_Feet=1

Target:

To use DWG work mode with Decimal units as Inches:

-wsAEC_DWG_Inches=1

Target:

To use DWG work mode with Decimal units as Survey Feet:

-wsAEC_DWG_SurveyFeet=1

Target:

To use DWG work mode with Decimal units as Meters:

-wsAEC_DWG_Meters=1

Target:

To use DWG work mode with Decimal units as millimeters:

-wsAEC_DWG_MilliMeters=1

Target:

Note: Architectural units will always open with Feet and Inches and convert the AutoCAD units to Inches, regardless of how decimal units are set to open.

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Set up a Local Extension (optional)

Reminder: The Work Structure Committee will overwrite the Standards folder on every update. Use the Extensions folder to store additional content not provided in the A/E/C/ Work Structure.

Local Extensions are one way to customize the A/E/C Work Structure for default organizational resources and settings. Typically, these address special settings, detail libraries, custom programs, plot drivers for printers/plotters etc. for your office or job site.

The Standards Configuration file has a predefined “If exists” to load the LocalExtension.cfg. There is no need to reload it in the .PCF.

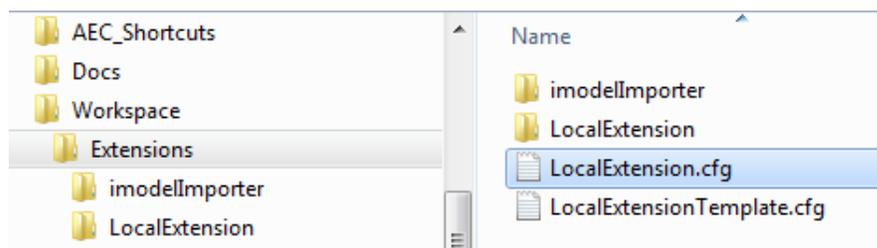
`_AEC_EXTENSIONSROOT` is the variable set, by default, to the root folder location for all A/E/C Work Structure extensions `.../AEC_WS_001/Workspace/Extensions/`.

`AEC_LEF` is a variable set in the Local Extension Template to point to `${_AEC_EXTENSIONSROOT}LocalExtension/` for your convenience.

Example 1: Setting a common Projects folder location for all projects

For settings and resources that are common across most projects, create a Local Extension. E.G. If most or all of your projects are located on the same server and have the same root folder, set `_USTN_PROJECTSROOT` once in a Local Extension and only modify it in a Project Configuration File (.PCF) when necessary to move the location of the Project Folder. See [Network Project Setup](#).

1. Go to the Extensions folder: `.../AEC_WS_001/Workspace/Extensions/`



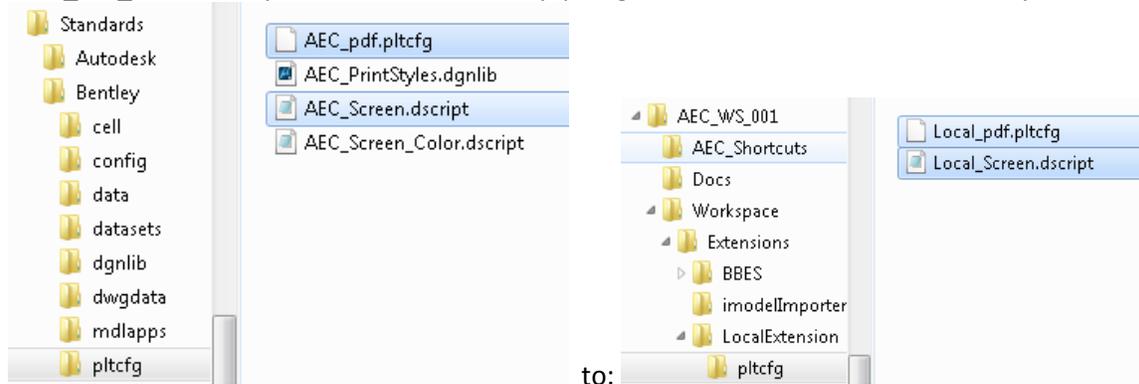
2. Copy and rename the file “LocalExtensionTemplate.cfg” to “LocalExtension.cfg”. **Note:** The file “LocalExtensionTemplate.cfg” will be replaced with Work Structure updates. DO NOT edit LocalExtensionTemplate.cfg.
3. Using Notepad, open the file LocalExtension.cfg.
4. Insert the line:
`_USTN_PROJECTSROOT = P:/Projects/`
 Where “P:/Projects/” is the default project location.

```
%if exists (${_AEC_EXTENSIONSROOT}LocalExtension.cfg)
    %include ${_AEC_EXTENSIONSROOT}LocalExtension.cfg
%endif
```

Example 2: Setting up plot drivers for local plotters

To update the plot drivers to print directly to your printer/plotter, you will need the drivers and a location to store them.

1. Go to the folder for extensions found at: ...\\AEC_WS_001\\Workspace\\Extensions\\LocalExtension\\ and create a new folder called pltcfg.
2. Copy and rename the plot driver and design script from \\AEC_WS_001\\Workspace\\Standards\\Bentley\\pltcfg\\ to the new folder created in step 1.



3. Using Notepad, open the file LocalExtension.cfg.
4. Insert the line: `MS_PLTCFG = $(AEC_LEF)pltcfg/`
This redirects the Bentley software to look at the LocalExtension/pltcfg folder for plot drivers.
5. Open MicroStation using the icon created Work Structure Setup (step 4) and edit the drivers to point to your plotters. See [Printing and Plotting](#) for more information on editing the driver and design script.

Notes on extensions:

Use extensions to add custom project, site settings and resources for Bentley and Autodesk Software. Updates to the A/E/C Work Structure will not overwrite custom extensions created in the folder ...\\AEC_WS_001\\Workspace\\Extensions.

Build custom extensions based on the software used for a specific project or site. These include enhancements to specific Military, Civil Works, Construction or Operation and Maintenance.

If you notify the A/E/C Work Structure Committee about any custom extension you create. We will evaluate them for inclusion in future releases of the A/E/C/ Work Structure.

Note: Do **NOT** make changes to the Standards folder in the A/E/C Work Structure. The Work Structure Committee will update it from time to time, and you will have to recreate all of your modifications with every update.

Project Setup on a LAN

Note:

The folder AEC_WS_001_ProjectTemplate and the file AEC_WS_001_ProjectTemplate.pcf will be deleted and replaced on every update. If you intend to make local changes to the template, make a copy of these items and modify the copy.

A/E/C Work Structure, Project Setup & documentation

Based on the type of project and project phase, the resources needed can vary greatly. Some projects may require an Autodesk or Bentley centric design where others may be a mix of the two. Some may have GIS components with a Bentley map workflow others may use MicroStation in DWG Mode for horizontal application and AECOSim Building designer for the vertical application. Other projects may use Revit for the vertical and InRoads or Civil3d for the horizontal. The A/E/C Work Structure is designed in a modular fashion so incorporating multiple datasets and extensions can be accomplished.

At this time, A/E/C Work Structure uses a combination of datasets and extensions designed for specific purposes. The Work Structure uses the Standards folder structure for delivery of AEC content utilized on most projects. The Extensions folders structure and the Project template dataset is used to customize or tailor a work environment to meet site, customer and project specific workflows. Many of these resources are automatic depending on the Software the user is running. These include but are not limited to:

- Autodesk Blocks, Line Types, Templates used in AutoCAD or MicroStation DWG mode
- imodelImporter and Bentley BBES extensions,
- Bentley Metric, DWG work mode, Horizontal and Vertical Datasets
- InRoads - Template Library (.itl) .XIN

For projects that require specific configuration not available in the A/E/C Work Structure, create separate and specific Project and Site based extensions or datasets. This will give you the most flexibility and make it easier for them to incorporate into future releases of the A/E/C Work Structure.

Depending on the extensions needed for a project, configuration files point to the specific datasets and extensions resources.

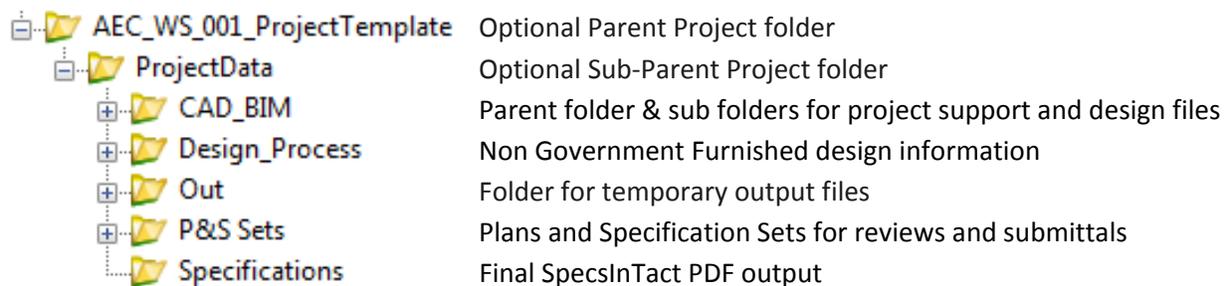
Project Template

The default settings for projects are set to work in DGN Work Mode with Imperial Units. For Metric and DWG Work Modes, see optional settings in other sections.

The Project Template is located at:

...\AEC_WS_001\Workspace\Projects\AEC_WS_001_ProjectTemplate\

See the AEC_WS_001_Users_Guide for a complete description of the folders in the Project Template. The Parent folder structure for AEC_WS_001_ProjectTemplate contains:



The A/E/C Project Template is a vendor neutral engineering and design work environment. The folder structure was developed to deliver engineering and design content in a consistent manner.

Optional Parent, Sub-Parent Project folders:

Depending on project types, these folders can be used and renamed at the CAD Manager's discretion to comply with the project's **Data Management Plan (DMP)**.

"CAD_BIM", "Design_Process" and "Out" Integrated Folder Structures:

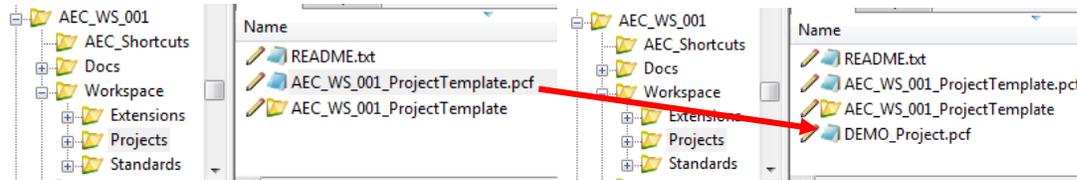
These folder structures are integrated into the Work Structure's configuration files. They must be in the same parent folder and cannot be renamed, moved or modified without major configuration changes.

P&S Sets and Specifications folder structures:

These folder structures are recommended and designed to keep the entire solicitation package together during engineering and design. This folder structure can be modified to fit the design entities DMP

Project Setup Procedure:

1. In the ...\\AEC_WS_001\\Workspace\\Projects\\ copy and paste the Template Project Configuration File (.PCF), AEC_WS_001_ProjectTemplate.pcf, to the same folder and rename it based on the new project.



Open the new Project Configuration File using Notepad and edit it to reflect where the new project and **integrated folder structures** will be created. Additional instructions are located in the template Project Configuration File.

- a. `_USTN_PROJECTNAME` is the parent project folder name in the project root folder.
 - b. `_USTN_PROJECTDESCR` is a description of the project. This variable isn't used by the software, but is a reminder of what the project is. Typically it would be set to the Projects Title.
 - c. `_USTN_PROJECTSROOT` is the parent folder containing the Projects folder structure defined in step a. The Template PCF has this commented out by default and the description of how to set this variable for all projects is in the local extension section. Use the PCF to set this variable when your projects are not all located in a common folder.
 - d. `_USTN_PROJECTDATA` is used to define the full folder path containing the **integrated folder structures** CAD_BIM, Design_Process and Out. `_USTN_PROJECTDATA` is a compilation of: `$_USTN_PROJECTSROOT)/$_USTN_PROJECTNAME)/[Your Sites Project Structure]/`
 - e. `MS_DEF` defines the folder that will be displayed when a project is selected in the MicroStation Manager Dialog box. This is set to the CAD_BIM folder by default. Editing this line is not necessary.
 - f. `%include $_AEC_EXTENSIONSROOT)[include the name of the local extension configuration file here].cfg` is used to make local changes to the Work Structure. This line should be uncommented and pointed to the Extensions folder for local use only when "LocalExtension.cfg" is NOT used. See the Extensions description for the process of setting up local multi-project customizations.
2. Save the file and exit.
 3. Browse to the network location defined by `_USTN_PROJECTDATA`
 4. Copy the Project Template folder structures needed, to the location of your project identified in step 1. **NOTE: The integrated folder structures "CAD_BIM", "Design_Process" and "Out" folder structures must stay in the same root folder for the configuration files to work without modification.**
 5. If the project structure has the optional Parent/Sub-Parent folders rename them appropriately.

Note: This page has been superseded by a change in the startup icon on page 6. Technically this process still works, but a better method is described elsewhere.

Projects in DGN Work Mode with Metric Units (Optional):

1. Open your project .PCF file.
2. Uncomment the line:

```
%include $(AEC__CORPORATE_DATASET)Datasets/Metric/AEC_MetricMode.cfg
```

```
###
# PW CSB NAME: AEC_WS_001_Metric_Mode
# Metric MODE IN DGN
###
# Uncomment this line to add the Metric dataset
# Note: additional Bentley datasets may need to be loaded on each machine to load the specific flavor
# of Metric for the county.


```
%include $(AEC__CORPORATE_DATASET)Datasets/Metric/AEC_MetricMode.cfg
```


```

Projects in DWG Work Mode with Imperial Units (Optional):

1. Open your project .PCF file.
2. Uncomment the line:

```
%include $(AEC__CORPORATE_DATASET)Datasets/ACAD/AEC_DWGMMode.cfg
```

```
###
# DWG WORK MODE
###
# Uncomment this line for DWG WORK MODE WITH IMPERIAL UNITS
# PW CSB NAME: AEC_WS_001_DWG_Mode


```
%include $(AEC__CORPORATE_DATASET)Datasets/ACAD/AEC_DWGMMode.cfg
```


# OR Uncomment this line for DWG WORK MODE WITH METRIC UNITS. DO NOT UNCOMMENT BOTH!
# PW CSB NAME: AEC_WS_001_DWG_Metric_Mode
#


```
%include $(AEC__CORPORATE_DATASET)Datasets/ACAD/AEC_DWGMetric.cfg
```


```

Projects in DWG Work Mode with Metric Units (Optional):

1. Open your project .PCF file.
2. Uncomment the line:

```
%include $(AEC__CORPORATE_DATASET)Datasets/ACAD/AEC_DWGMetric.cfg
```

```
###
# DWG WORK MODE
###
# Uncomment this line for DWG WORK MODE WITH IMPERIAL UNITS
# PW CSB NAME: AEC_WS_001_DWG_Mode
#


```
%include $(AEC__CORPORATE_DATASET)Datasets/ACAD/AEC_DWGMMode.cfg
```


# OR Uncomment this line for DWG WORK MODE WITH METRIC UNITS. DO NOT UNCOMMENT BOTH!
# PW CSB NAME: AEC_WS_001_DWG_Metric_Mode


```
%include $(AEC__CORPORATE_DATASET)Datasets/ACAD/AEC_DWGMetric.cfg
```

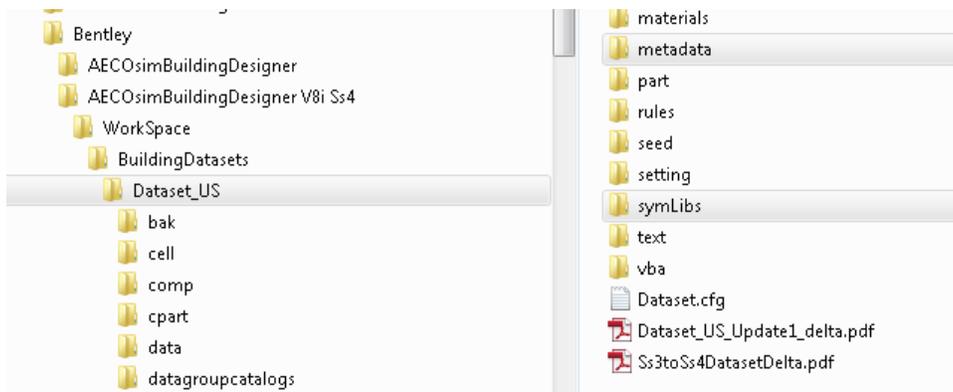

```

BBES setup (optional)

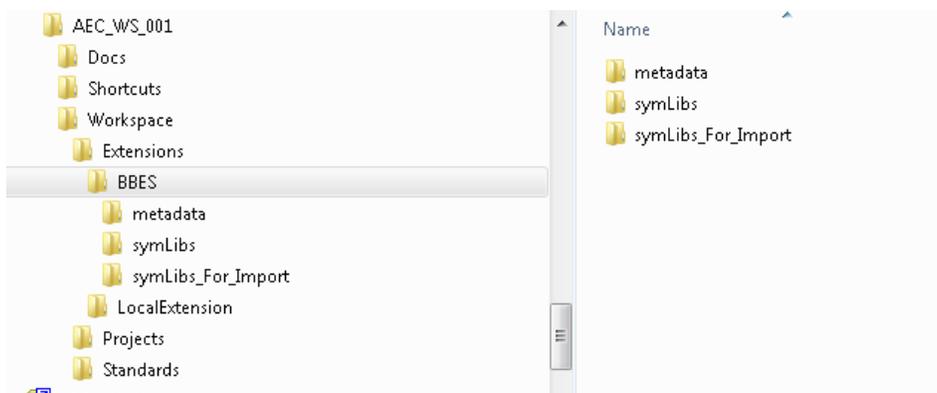
This process can be skipped if you are not using the Bentley Building Electrical software (BBES). This process is performed once and all projects will share the new symbol libraries. To avoid having to clean up the Template folders; it can be completed after the first Project Setup. The BBES uses a dataset that is larger than can be managed or delivered. So only the AEC changes to the BBES dataset are being delivered. To get BBES to work with the AEC content, you will have to copy the delivered BBES dataset and add the AEC content.

1. Find the AECOsim Building Designer dataset and **Copy** the metadata and SymLibs folders. The folders are typically located in folders listed below (software version name will vary):

C:\ProgramData\Bentley\AECOsimBuildingDesigner V8i
Ss4\WorkSpace\BuildingDatasets\Dataset_US\



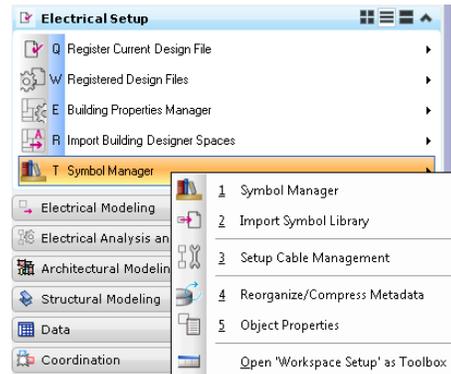
2. Paste the folders into the BBES Extension folder located at:
...\AEC_WS_001\Workspace\Extensions\BBES\



3. Run Bentley Building Electrical using the icon created in Steps 4 and 5 of the [Work Structure Setup](#) instructions.



4. Use the Work Structure template project and create a new temporary file. Open the file.
5. Register the file, create the new database, and select the default symbol library.
6. Under the Electrical Annotation Tasks for (SS5) or Electrical Setup for (SS6), select Import Symbol Library.



ABD (SS4 & SS5)

ABD (SS6)

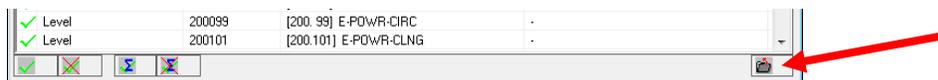
7. In the Update Symbol Manager dialog, select the file ImportCustomLib.UPD from the following folders (three times) and pick OK:

...\AEC_WS_001\Workspace\Extensions\BBES\symLibs_For_Import\Import026\

...\AEC_WS_001\Workspace\Extensions\BBES\symLibs_For_Import\Import027\

...\AEC_WS_001\Workspace\Extensions\BBES\symLibs_For_Import\Import028\

Note: a dialog box will display and simply close it using the button on the lower right corner.



8. Exit the software.

Note:

Skip this step if you are completing this process in an actual project.

9. Clean up the Template folder.
 - a. Delete the temporary design file created in Step 3.
 - b. Delete the Database files created in Step 4, located at:
 ...\AEC_WS_001\Workspace\Projects\AEC_WS_001_ProjectTemplate\
 ProjectData\CAD_BIM\Support\Bentley\elecdb_bbes\

Updating the Work Structure on a LAN

Setting up current projects for use with Update 5 and Dynamic Views

The software changes in Bentley AECOsim Building Designer (ABD) (SelectSeries 6) (SS6) requires a significant change to the Dynamic View setting files (Dgnlibs and rules files). Update #5 requires additional steps to work with currently active projects. There are several scenarios possible, and each will be addressed in this section.

Note: The updated Dynamic View (DV) rules are significantly different than the previous version and more closely follow the A/E/C Standards. If the design team has already made significant progress on the project, it may be better to maintain what they are currently using. Also note, the ABD (SS6) rules are incompatible with the older versions of ABD. The A/E/C Work Structure – Update 5 rules are now ABD (SS6) rules by default.

The dynamic view seeds are closely tied to the rules files. If you are using ABD (SS4 or SS5) or the previous rules with ABD (SS6), the AEC_ABD_DVVERSION variable has to be set to blank. (The new value for this variable is “_SS6”, which is appended to the file name to keep the dgnlibs consistently named with the rules. The old versions do not have the name change.)

For the following three scenarios there is no change:

1. I am not using ABD on projects, but using the A/E/C Work Structure.
2. I am using ABD on projects with the A/E/C Work Structure, but not using Dynamic Views or extractions.
3. I have not previously used the A/E/C Work Structure.

For these scenarios, just follow the normal process for [updating the Work Structure](#).

Using an older version of ABD with a NEW project:

1. I'm using ABD (SS5 or earlier) on a new A/E/C Work Structure– Update 5 project:
 - a. Follow the normal process for [updating the Work Structure](#) (done once).
 - b. Create a new project from the template.
 - c. Go to your projects .pcf file and uncomment the line:

```
AEC_ABD_DVVERSION      =
```

Setting the version to blank will set the project up to use the rules and dgnlib files from the previous A/E/C Work Structure. Edit the rules as necessary for your project.

Using ABD on a project created from a previous version of the Work Structure:

1. I'm using ABD (any version) on a previously set up project that is nearing completion and there isn't time to update:

- a. Follow the normal process for [updating the Work Structure](#) (done once).
- b. Go to your projects .pcf file and add the line:

```
AEC_ABD_DVVERSION      =
```

Setting the version to blank will set the project up to use the current rules in the project and the previous dgnlibs.

Upgrading a project to use the new rules:

1. I'm using ABD (SS6) on projects that were set up for A/E/C Work Structure – Update 4b or earlier and I want to use the new DV settings and rules:

- a. Follow the normal process for [updating the Work Structure](#) (done once).
- b. Copy all of the *_SS6.rul files from
"AEC_WS_001\Workspace\Projects\AEC_WS_001_ProjectTemplate\ProjectData\CAD_BIM\Support\Bentley\rules\" and paste them in your projects
"\CAD_BIM\Support\Bentley\rules\" folder.
- c. For each of your files, update all of your previous Dynamic Views:
 - i. For Architectural, Mechanical, and Electrical views, simply update your views to pull the new rule settings.
 - ii. For Structural, recreate all of your Dynamic views, since the rule name have changed from the previous version.

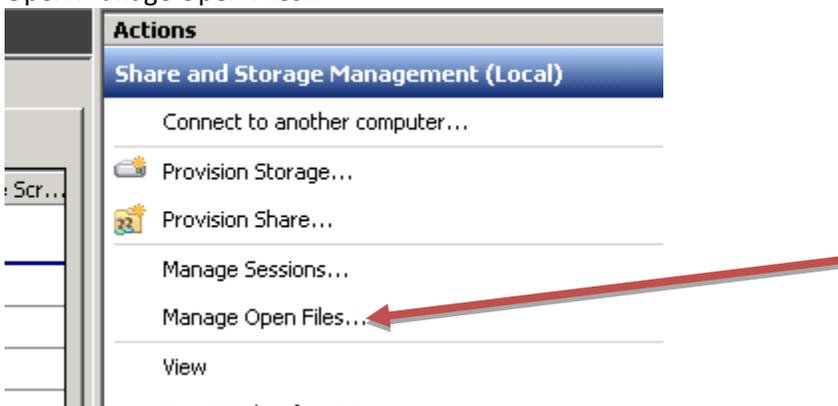
Unlocking files in use by users.

These steps are needed when a user doesn't exit the software used by the Work Structure, and you are locked out from deleting files during the update.

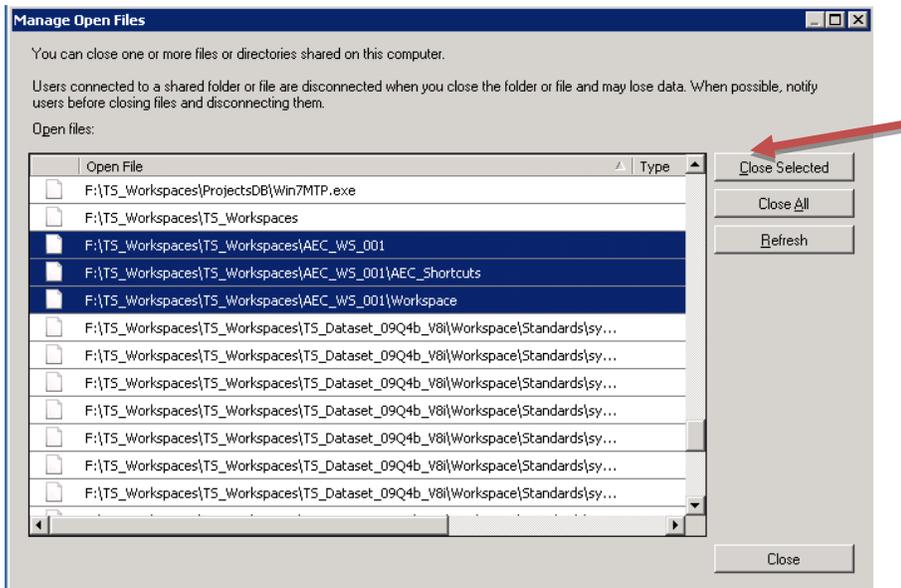
1. Log into the server that contains the Work Structure
2. Open Control Panel
3. Open Administrative Tools
4. Open Share and Storage Management or Computer Management



5. Open Manage Open Files...



6. Browse down to the files you need to delete
7. Highlight all of them
8. Select Close Selected



9. Log out of the Server

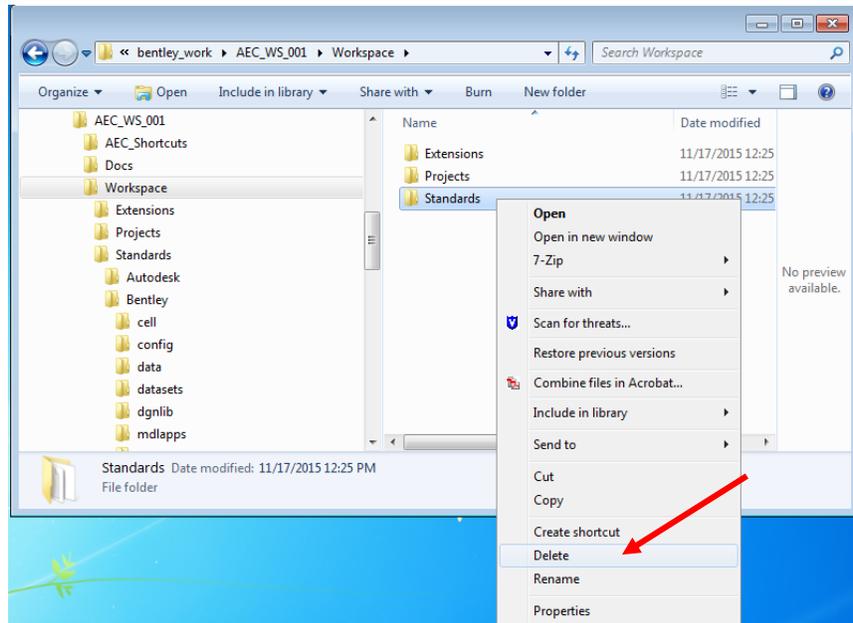
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Updating the Work Structure – manual method

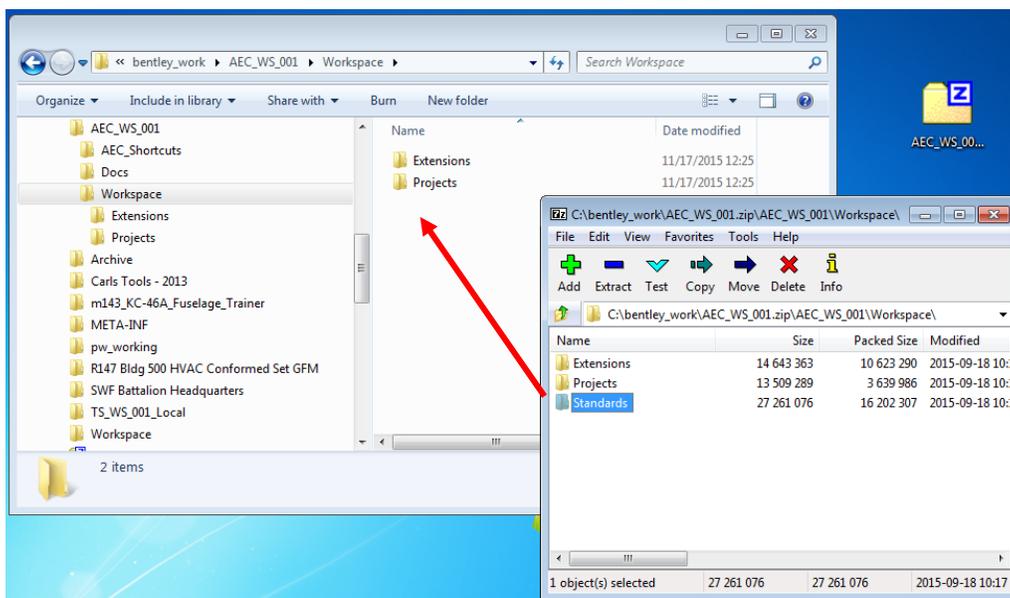
When updates are made available, this process describes how to update the A/E/C Work Structure.

Note: Back up your existing A/E/C Work Structure prior to updating.

1. Go to the ...\\AEC_WS_001\\Workspace\\ and delete the Standards folder already installed.



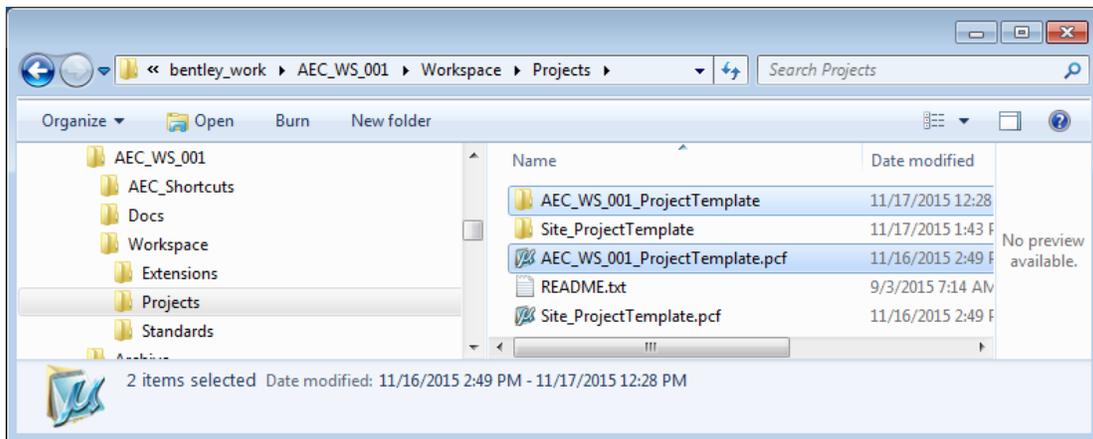
2. Open the A/E/C Work Structure AEC_WS_001.zip file and browse to the Standards folder.
3. Drag and drop the new Standards folder to the ...\\AEC_WS_001\\Workspace\\ location in step 1.



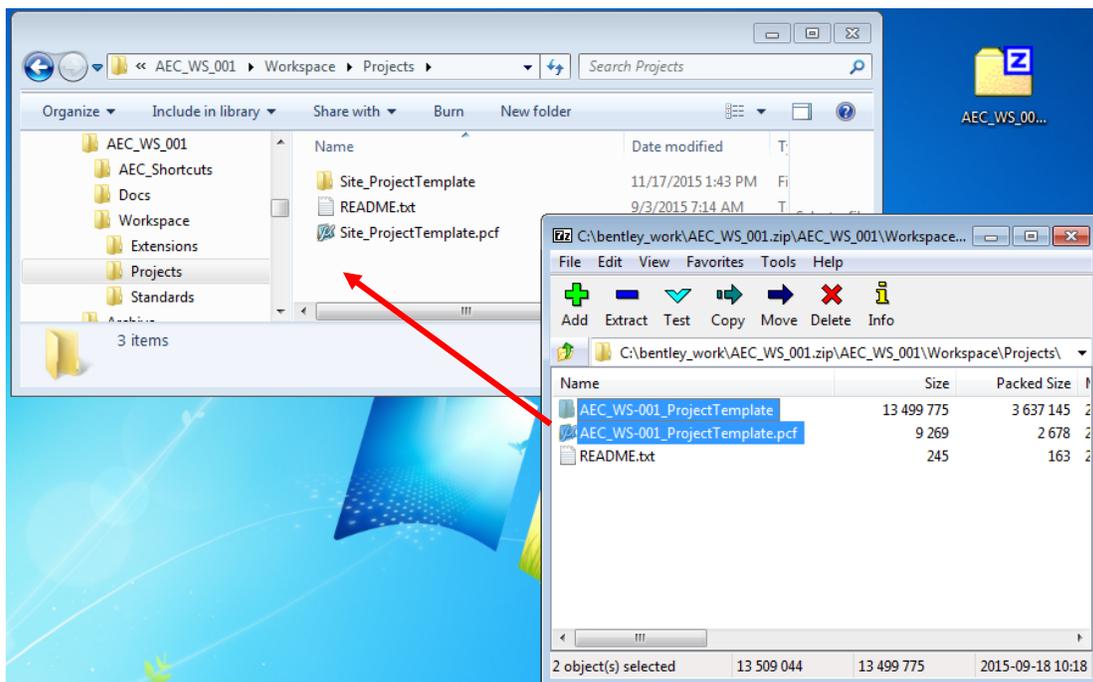
- Go to ...\\AEC_WS_001\\Workspace\\Projects folder and delete the AEC_WS_001_ProjectTemplate folder and the AEC_WS_001_ProjectTemplate.pcf file.

Note:

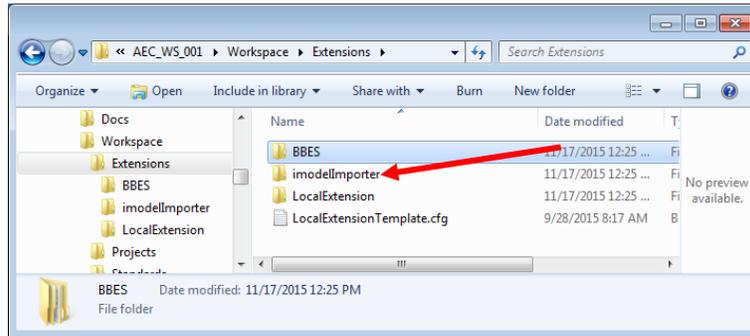
Do **NOT** delete any other existing files or folders.



- Open the A/E/C Work Structure AEC_WS_001.zip file and browse to the folder where Project Template and pcf file. Drag and drop the new AEC_WS_001_ProjectTemplate folder and the AEC_WS_001_ProjectTemplate.pcf file into the existing ...\\AEC_WS_001\\Workspace\\Projects folder



6. Go to the existing ...\\AEC_WS_001\\Workspace\\Extensions folder and delete the imodelImporter folder.



7. Open the A/E/C Work Structure AEC_WS_001.zip file and browse to the Extensions folder.
8. Drag and drop the new imodelImporter folder to the ...\\AEC_WS_001\\Workspace\\Extensions folder.
9. Go to the existing ...\\AEC_WS_001\\Workspace\\Extensions folder and delete the gINT folder, if exists.
10. As of A/E/C Work Structure – Update 5, there are no BBES updates needed to be performed.
11. Go to the existing ...\\AEC_WS_001\\Workspace\\Extensions folder and replace LocalExtensionTemplate.cfg with the new file.
12. Go to the existing ...\\AEC_WS_001\\ folder and replace AEC_PW_TBI_Mapping.ini, AEC_PW_Variables_To_Exclude.aam, and UpdateAECWS.vbs with the new files
13. Go to the existing ...\\AEC_WS_001\\Workspace\\Docs\\ folder and delete these files, if they exist:

AEC-WS-001_Report-Issue.pdf
 AEC_WS_001_CAD_Standards.pdf
 AEC_WS_001_Graphics_Standards.pdf
 AEC_WS_001_Managers_Guide.pdf
 AEC_WS_001_Users_Guide.pdf
 AEC_WS_001_Symbols_Guide.pdf
 AEC5 to AEC6 Changes-Cell_LineStyles.xlsx
 WSVersion.txt

The following files were removed by previous updates:

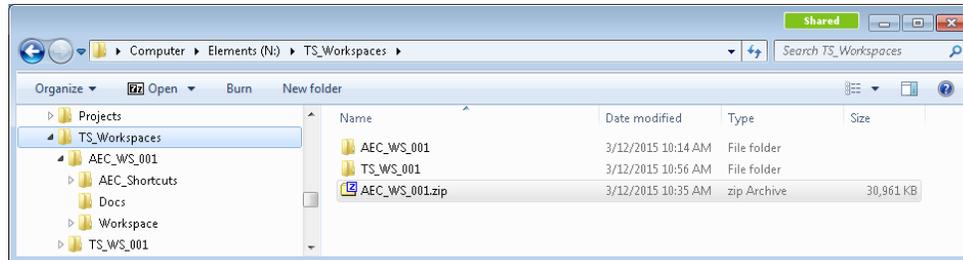
AEC_Cells.pdf
 AEC_WS_001_Guide_Preliminary.pdf
 MicroStation Key-in Reference.pdf
 AEC_WS_001_Managers_Guide_BETA1.pdf
 AEC_WS_001_Users_Guide_BETA1.pdf
 AEC_WS_001_Managers_Guide_RC1.pdf
 AEC_WS_001_Users_Guide_RC1.pdf
 AEC_LineStyles.pdf
 AECv6 Line Styles.pdf
 ERDC_ITL TR-12-1 _A_E_C Graphics Standard_ Release 2.0.pdf

14. Open the A/E/C Work Structure AEC_WS_001.zip file and browse to the Docs folder.
15. Drag and drop all of the files to the ...\\AEC_WS_001\\Workspace\\Docs folder.

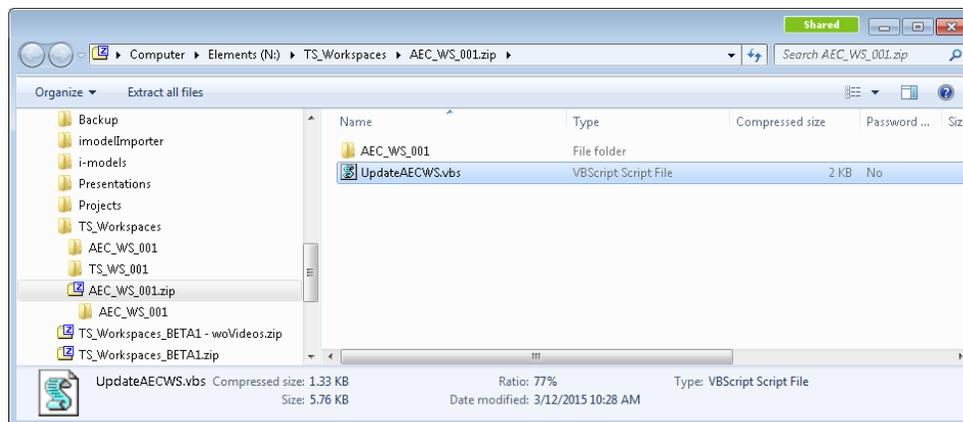
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Updating the Work Structure with the vbscript

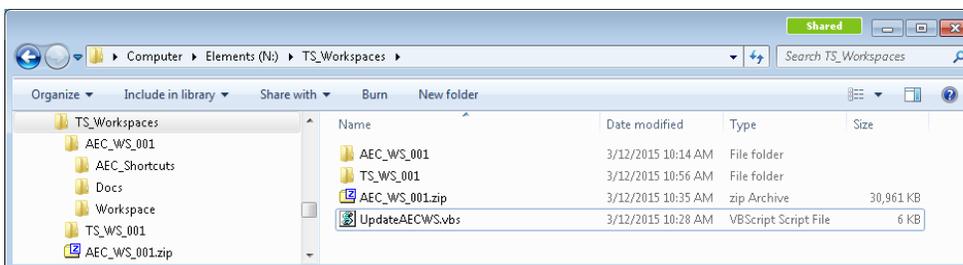
1. Copy the AEC_WS_001.zip file to the location where the A/E/C Work Structure was previously installed.



2. Explore the zip file and find the UpdateAECWS.vbs file.

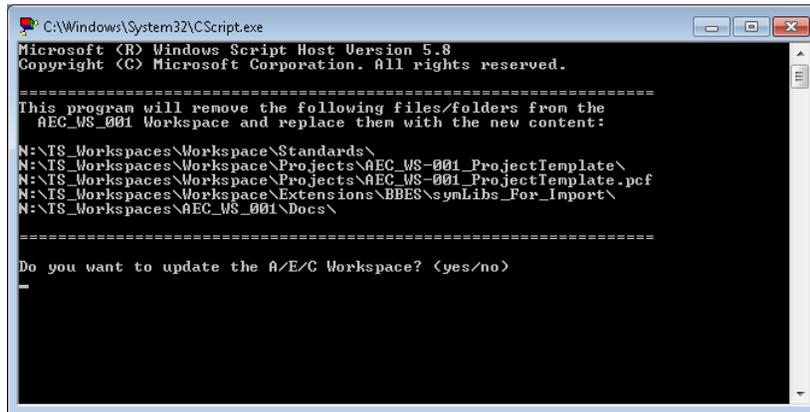


3. Extract UpdateAECWS.vbs to the same location as the zip file.

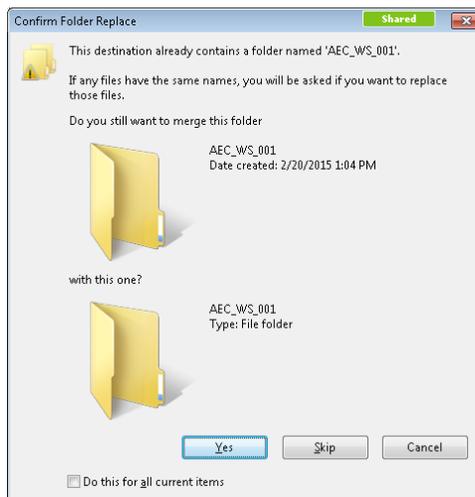
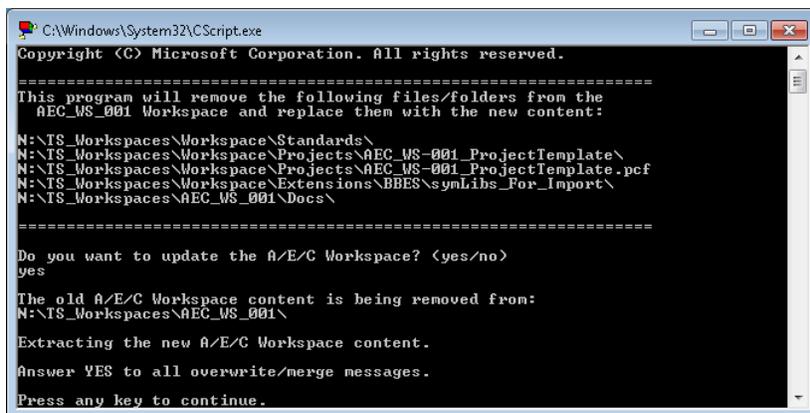


4. Double-click on the .vbs file to run it.

- If everything is in place, a message will display that it will remove files and folders and then ask to confirm the update process.



- Key-in “yes” and Enter to update the Work Structure.
- The next item will instruct you to select YES to any merging or overwriting of files. Press Enter.



- When the extraction is complete, press the Enter key to exit.

```

C:\Windows\System32\CScript.exe
This program will remove the following files/folders from the
AEC_WS_001 Workspace and replace them with the new content:
N:\TS_Workspaces\Workspace\Standards\
N:\TS_Workspaces\Workspace\Projects\AEC_WS-001_ProjectTemplate\
N:\TS_Workspaces\Workspace\Projects\AEC_WS-001_ProjectTemplate.pcf
N:\TS_Workspaces\Workspace\Extensions\BBES\symLibs_For_Import\
N:\TS_Workspaces\AEC_WS_001\Docs\
=====
Do you want to update the A/E/C Workspace? <yes/no>
yes
The old A/E/C Workspace content is being removed from:
N:\TS_Workspaces\AEC_WS_001\
Extracting the new A/E/C Workspace content.
Answer YES to all overwrite/merge messages.
Press any key to continue.
Extraction complete.
Press any key to exit.
    
```

- If using Bentley Building Electrical and a message indicates there is an update to the Electrical Extension, repeat the procedure for BBES setup to install the Work Structure.

```

There are no new BBES Extension updates at this time.
Press any key to exit.
    
```

or

```

There are BBES Extension updates.
Please follow the instructions for installing BBES content
to complete the installation.
Press any key to exit.
    
```

- Once the update is complete, you can delete both the .zip file and the .vbs file.

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Working with Bentley in ProjectWise (PW)

Installing the Work Structure in PW Managed Environment

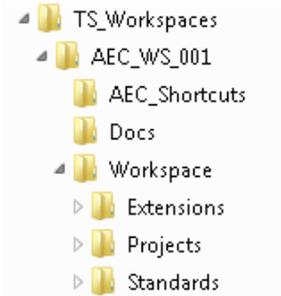
Work Structure Setup

This section describes the basic process to set up the Work Structure in the PW Managed Environment.

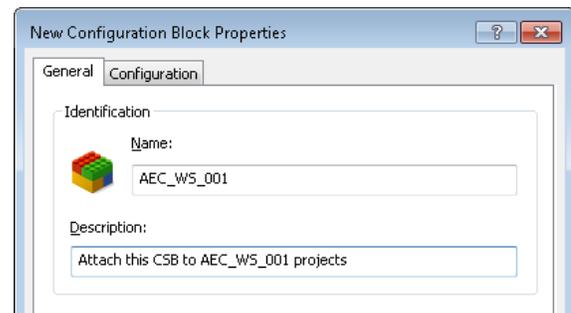
1. If you need to run the Work Structure outside of PW and/or use BBES, complete the steps for [Installation of the WS on a LAN](#) first.

2. Unzip the files from the downloaded ZIP file to any location.

3. Move the folders AEC_WS_001/AEC_Shortcuts, AEC_WS_001\Workspace\Extensions\BBES, and AEC_WS_001\Workspace\Extensions\imodelImporter to another location. They will be used later, if needed.

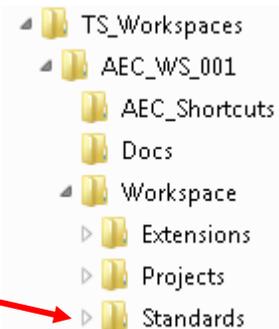


4. Import the AEC_WS_001 folder and all of its remaining sub folders and files to a location inside PW.



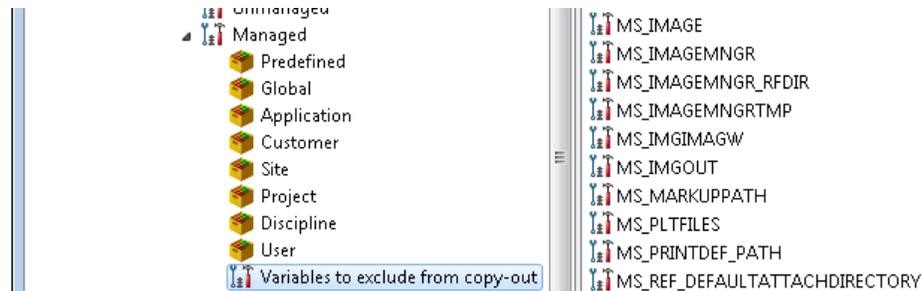
5. Open PW Administrator, go to Workspace/Managed/Predefined and create a new Configuration Block named AEC_WS_001.

6. Add the Variable “_USTN_SITE”. Direct the variable to point to the PW folder for A/E/C Work Structure Standards.



7. Go to Variables to exclude from copy-out and add the variables:

See video on how to import the variables using the AEC_PW_Variables_To_Exclude.aam
<https://www.youtube.com/watch?v=cinPw70NgFE> (Starting at the 1:00 mark in the video)



_AEC_EXTENSIONSROOT	MS_DEF	MS_STEPOUT
_AEC_FOLDER1	MS_DESIGNDIR	MS_TAGOUTPUT
_AEC_FOLDER2	MS_DGNOUT	MS_TAGREPORTS
_AEC_FOLDER3	MS_DRAWINGDIR	MS_TAGTEMPLATES
_AEC_FOLDER4	MS_IGESLOG	MS_TMP
_AEC_FOLDER5	MS_IGESOUT	RDL_DIR
_DGNDIR	MS_IMAGE	TF_DRAWINGS
_USTN_OUT	MS_IMAGEMNGR	TFDIR_IFC
AEC__BUILDING_US_RESOURCES	MS_IMAGEMNGR_RFDIR	
AEC__CORPORATE_RESOURCES	MS_IMAGEMNGRTMP	
AEC__DISTRICT_RESOURCES	MS_IMAGEOUT	
AEC__PROJECT_RESOURCES	MS_IMGIMAGW	
AEC__SYSTEM_RESOURCES	MS_IMGOUT	
AEC_CELLDOC	MS_MARKUPPATH	
MS_STANDARDSCHECKER_OUT	MS_PLTFILES	
MS_GEOPRINTPREP_PDFFILENAME	MS_PRINTDEF_PATH	
MS_REF_DEFAULTATTACHDIRECTORY	MS_RENDERLOG	
MS_SEED_LINKSET_PATH	MS_RFDIR	
CLASHDETECTION_DEFAULT_OUTPUT_PATH	MS_ROSEDB	
DWGRDL_DIR	MS_SCR	
MS_BACKUP	MS_SHEETDIR	
MS_CGMLOG	MS_SKETCHUP_IMAGE	
MS_CGMOUT	MS_STEPLOG	

Set up a Local Extension (optional)

See [Setting up a Local Extension on a LAN](#). Replace the network paths with the equivalent PW Locations. Then set up Project Level Configuration Blocks to %include them and attach to your project in PW.

Application Configuration

ProjectWise Applications are used in place of shortcuts.

The applications can be manually created by selecting New Application in the ProjectWise Administrator. The Application Name, Program Class, Command Line Arguments and Replace Default Arguments are listed in the chart below. Refer to ProjectWise Administrator training guides for information on this process.

<i>ProjectWise Application List</i>			
Application Name	Program Class	Command Line Arguments	Replace Default Arguments
AECOSim Architectural Building Designer	Bentley.AECOSimBuildingDesigner.Application	-wsBB_DISCIPLINE=Architectural	OFF
AECOSim Building Designer	Bentley.AECOSimBuildingDesigner.Application	NONE	ON
AECOSim Electrical Building Designer	Bentley.AECOSimBuildingDesigner.Application	-wsBB_DISCIPLINE=Electrical	ON
AECOSim Electrical SUBTYPE MANAGER	Bentley.AECOSimBuildingDesigner.Application	-wsBB_DISCIPLINE=Electrical	ON
AECOSim Electrical SYMBOL MANAGER	Bentley.AECOSimBuildingDesigner.Application	-wsBB_DISCIPLINE=Electrical	ON
AECOSim Mechanical Building Designer	Bentley.AECOSimBuildingDesigner.Application	-wsBB_DISCIPLINE=Mechanical	OFF
AECOSim MicroStation w/ Building Enablers	Bentley.AECOSimBuildingDesigner.Application	-wsBB_DISCIPLINE=MicroStation	OFF
AECOSim Structural Building Designer	Bentley.AECOSimBuildingDesigner.Application	-wsBB_DISCIPLINE=Structural	OFF
Bentley Map Enterprise	Bentley.MapEnterprise.Application	-ws_USTN_PRODUCT_SHORTNAME=MapEnterprise	OFF
Bentley Navigator	Bentley.Navigator.Application	NONE	OFF
GEOPAK	Bentley.MicroStation.Application	-wsLoad_GEOPAK_SS2=1	OFF
InRoads (SS2)	Bentley.MicroStation.Application	-wsLoad_InRoads_SS2=1	OFF
InRoads Suite (SS2)	Bentley.MicroStation.Application	-wsLoad_InRoads_SS2=1	OFF
Power GEOPAK	Bentley.PowerGEOPAK.Application	NONE	OFF
PowerInRoads	Bentley.PowerInRoads.Application	NONE	OFF
Bentley i-model Composer	Bentley.imodelComposer.Application	NONE	OFF

Note: Class names will vary depending on software installation order. These are only examples.

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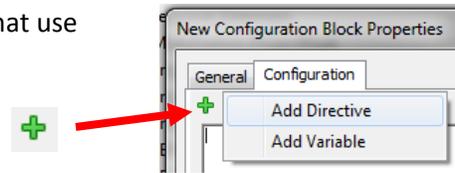
Creating Configuration Blocks to include Project or Discipline Specific datasets or extensions

ProjectWise uses Configuration Blocks to point to project, site and corporate configuration settings files.

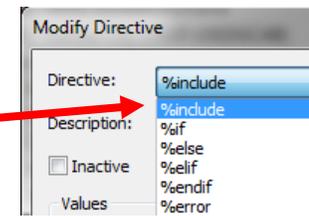
To set projects to work in DGN Work Mode with Metric Units (Optional):

1. Open PW Administrator, go to Workspace/Managed/Project and create a new Configuration Block
 - a. Name: AEC_WS_001_DGN_Metric_Mode
 - b. Description: AEC_WS_001 Use for DGN Projects that use metric units

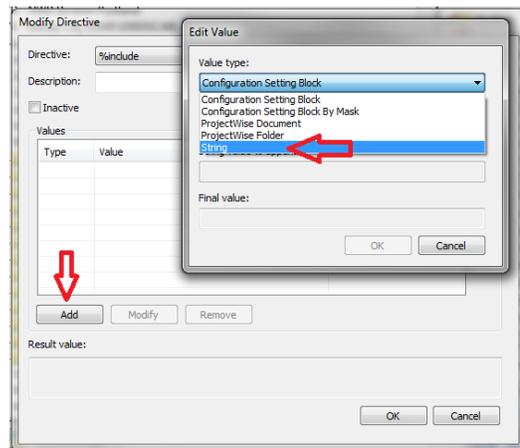
2. Select the Configuration tab, Select the Green Plus sign:



3. Select **Add Directive**: Select **%include**



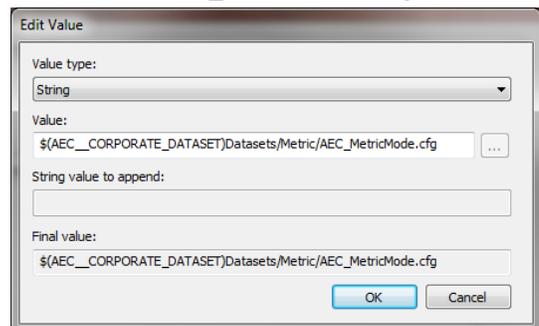
4. Select the Add button



5. For the Value type, Select **String**

6. Set the Value to: `$(AEC__CORPORATE_DATASET)Datasets/Metric/AEC_MetricMode.cfg`

This will load the configuration file for metric mode when you attach the configuration block to your project. See [Project Setup in ProjectWise](#) for folders or [Activate DWG work mode](#) for individual files.



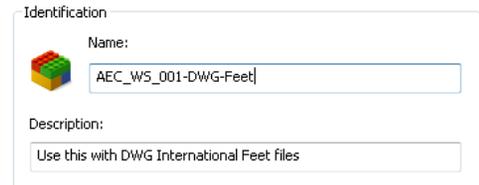
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Projects in DWG Work Mode with various units (Optional):

For additional information about DWG work mode, see section [Information on DWG work mode](#).

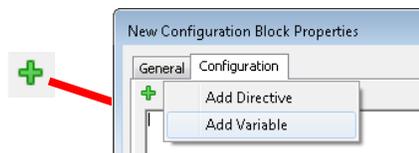
To open DWG files with Decimal unit settings, the AutoCAD unit measurement has to be specified to MicroStation. To set the measurement value in the Work Structure, there are several predefined variables that can be used. This section defines how to set up Configuration Blocks to hold the variables that need to be applied to the files or folders.

1. Open PW Administrator, go to Workspace/Managed/Application, Global, or Predefined and create the following Configuration Blocks (These steps will be repeated 7 times with the following information)

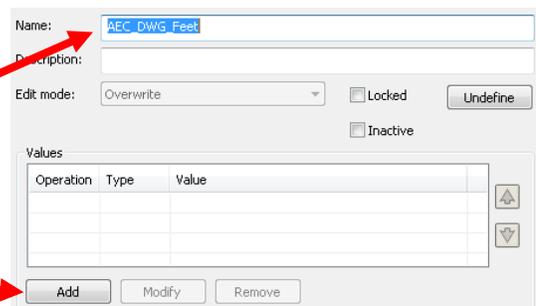


Name	Description	Variable	Purpose
AEC_WS_001-DWG-Imperial	Use this with DWG Imperial files	AEC_DWG	Imperial settings no units
AEC_WS_001-DWG-Inches	Use this with DWG Inches files	AEC_DWG_Inches	Imperial settings units Inches
AEC_WS_001-DWG-Feet	Use this with DWG International Feet files	AEC_DWG_Feet	Imperial settings units International Feet
AEC_WS_001-DWG-SurveyFeet	Use this with DWG Survey Feet files	AEC_DWG_SurveyFeet	Imperial settings units Survey Feet
AEC_WS_001-DWG-Metric	Use this with DWG Metric files	AEC_DWG_Metric	Metric Settings no units
AEC_WS_001-DWG-meters	Use this with DWG meter files	AEC_DWG_Meters	Metric Settings units meters
AEC_WS_001-DWG-MilliMeters	Use this with DWG millimeter files	AEC_DWG_MilliMeters	Metric Settings units millimeters

2. Select the Configuration tab, Select the Green Plus sign:



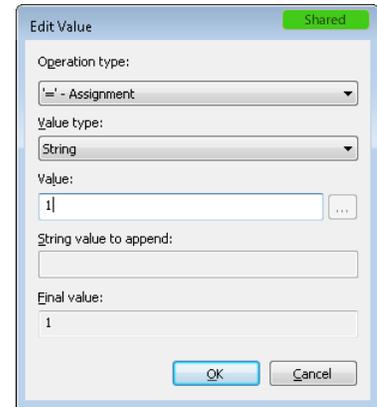
3. Select **Add Variable**: Enter the Variable name:



4. Select the Add button

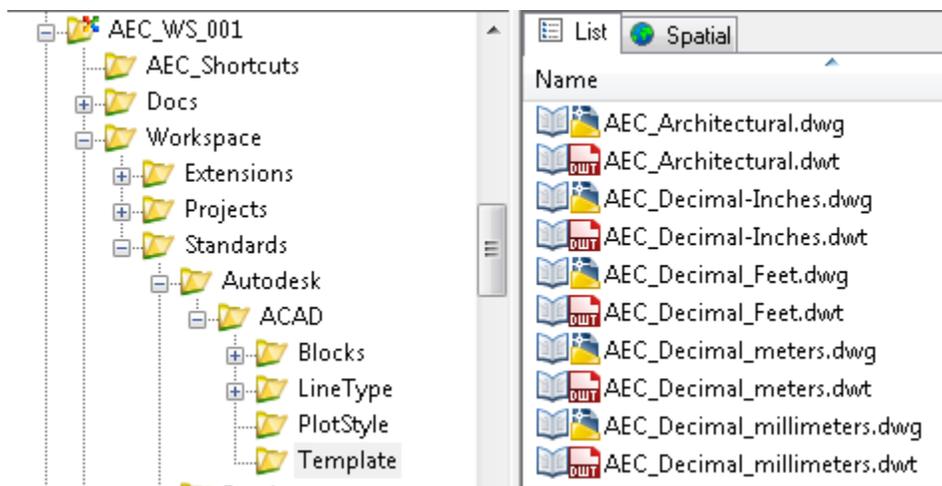
5. For the Value type, Select **String**
6. Set the Value equal to: 1
7. Select OK several times to complete the configuration block.

These settings will load the configuration file for DWG mode when you attach the configuration block to your file or project. See [Project Setup in ProjectWise](#) for folders.

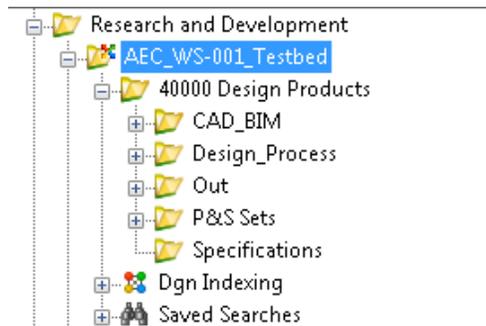


To activate the DWG work mode

8. Attach the appropriate Configuration block to the files or folder below:
 - a. Add the Configuration Block from above to each of the template/seed files located in: `\AEC_WS_001\Workspace\Standards\Autodesk\ACAD\Template\`



- b. Configuration Block from above to each project needing DWG work mode.



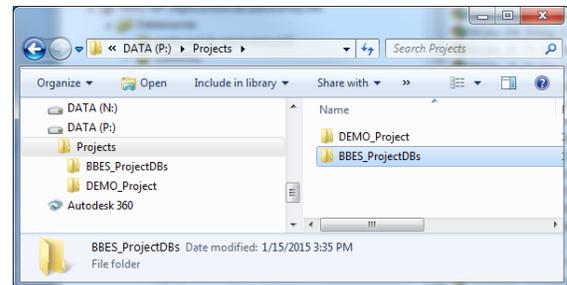
BBES setup (optional)

This process can be skipped if you are not using the Bentley Electrical software. You must complete **Installing the Work Structure in PW Managed Environment Work Structure Setup** first.

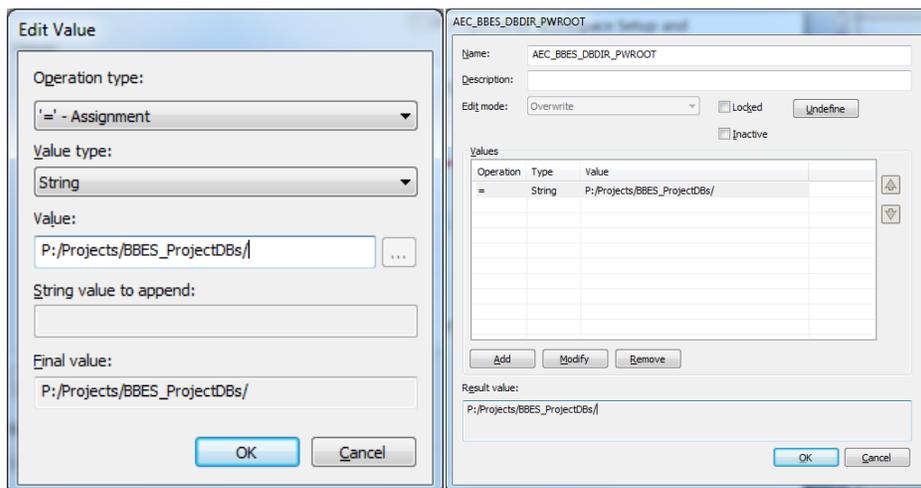
The PW BBES setups are described in two methods, one where the Electrical Dataset is stored on the LAN; the other where the Electrical Dataset is stored inside PW. The Work Structure Committee recommends that the BBES dataset be maintained outside of PW for easier user access, use, and updating. The Managed BBES dataset is best used for virtual teaming.

- Installation in PW with an unmanaged BBES Dataset is simple to set up and use. It is used for small groups that have access to PW and need to manage the BBES environment locally.
- Installation in PW with a managed BBES Dataset allows virtual teams to access the common dataset.

1. Create a folder on the LAN where users will have access to create folders and project Databases. This typically would be in the projects folder on a LAN.
2. Add another Variable to the Configuration Block: "AEC_BBES_DBDIR_PWROOT" and point it to the folder created in step 1.

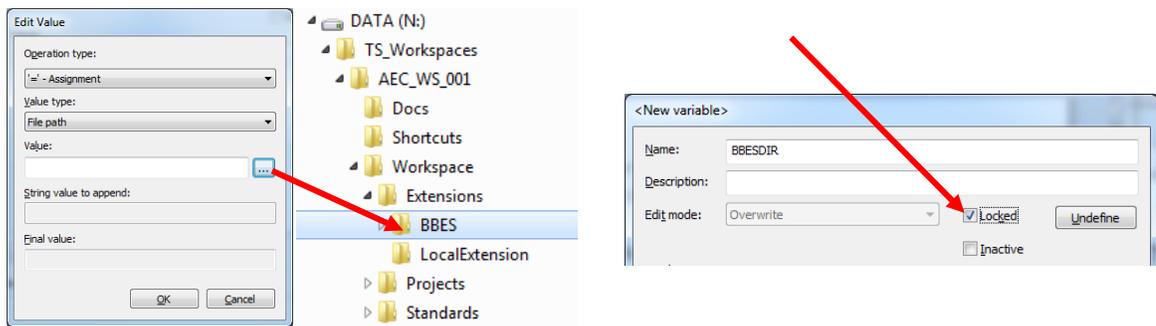


3. Complete steps 1 through 8 for BBES Setup on a LAN.



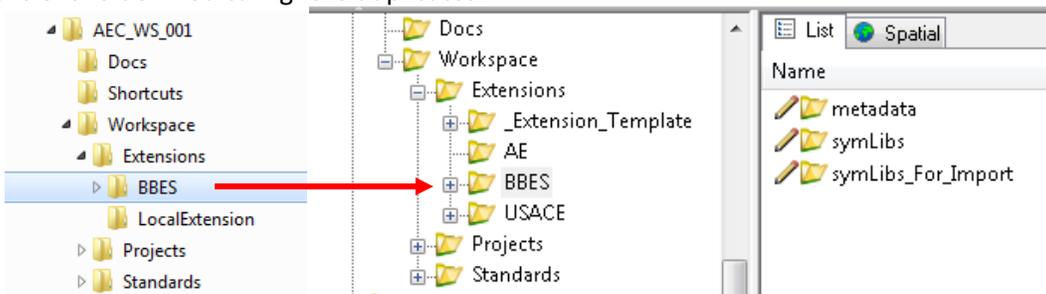
To maintain the BBES dataset outside PW (Unmanaged BBES Dataset):

- Put the BBES Extension where you want to maintain it. **Note:** If you are using the A/E/C Work Structure for projects outside of PW too, leave the BBES folder in the Extensions folder and use the same dataset for both PW projects and non-PW projects.
- Add another Variable to the Configuration Block: "BBESDIR" and set it to the folder you used in step 3: ...\\AEC_WS_001\\Workspace\\Extensions\\BBES\\ and **LOCK** the variable.



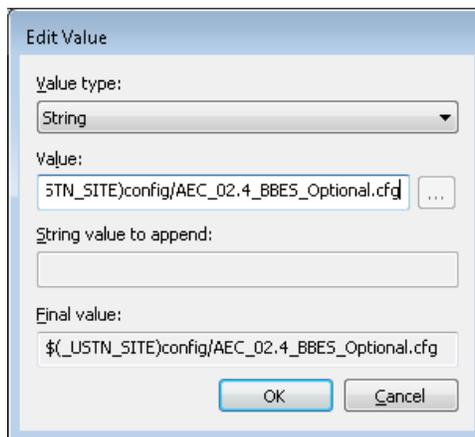
To maintain the BBES dataset inside PW (Managed BBES Dataset):

- Copy the BBES Extension folder from ...\\AEC_WS_001\\Workspace\\Extensions\\BBES\\ to the PW BBES Extensions folder. You can ignore duplicates.



- Go to the Configuration Block created in step 3 of Installing the Work Structure in PW Work Structure Setup and add the directive:

`%include $(AEC__CORPORATE_DATASET)config/AEC_02.4_BBES_Optional.cfg`



PW Title Block Integration with PCM2.0

There are two methods the safe Manual long way and the slightly dangerous Programmatic short way.

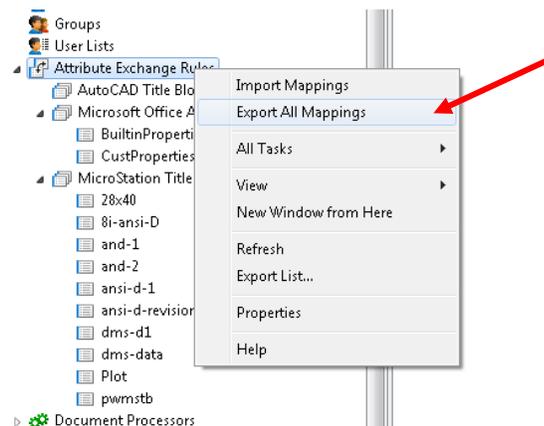
Title Block Integration Programmatically

WARNING:

If you are using PCM2.0, the Title Block Integration map is available with the .INI file provided in the zip file. **DO NOT USE THE INI FILE DIRECTLY. IT WILL DELETE ALL OF YOUR PREVIOUS MAPPINGS.**

Note: If you are not using the PCM the steps listed below will work. You will have to manually go in and add the bindings to your local ProjectWise Properties.

1. Open PW Administrator and expand your datasource.
2. Right click on the Attribute Exchange Rules and select Export All Mappings.



Save the file to a location you can remember make an additional copy for editing and open it with notepad.

Note: Keeping a second backup copy of the file will preserve your original settings in case there is a problem in the import process. You can use it to restore your original settings.

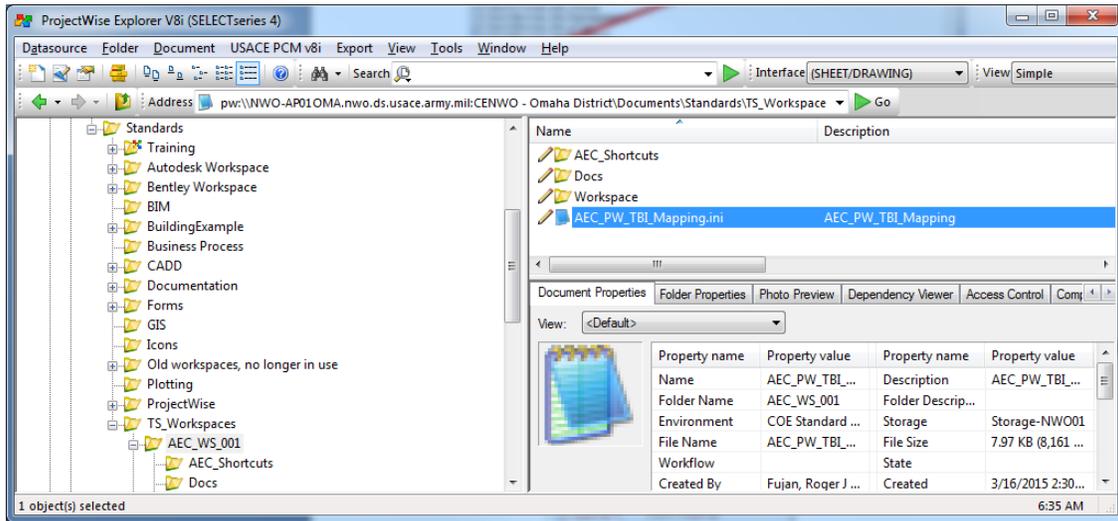
Notice how many mappings you have in the [Mapping_names] section. You will only be modifying the WPS_AAM_MSTAGS_00001 in the Mapping1 section.

3. Make a note of how many classes in the file. (2 in this example)

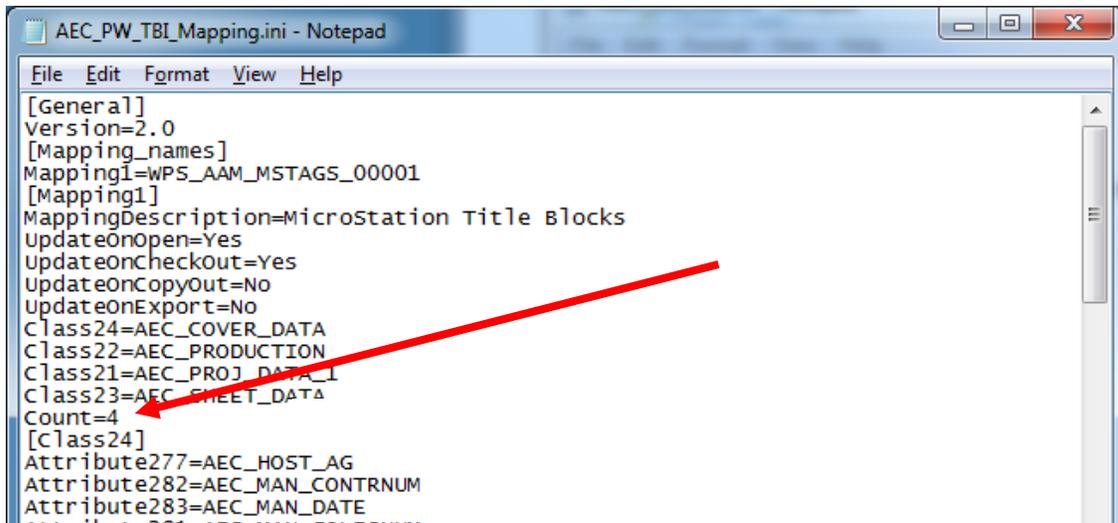
```

[General]
Version=2.0
[Mapping_names]
Mapping1=WPS_AAM_MSTAGS_00001
Mapping2=WPS_AAM_ACADTB_00001
Mapping3=WPS_AAM_OFFICE_00001
[Mapping1]
MappingDescription=MicroStation Title Blocks
UpdateOnOpen=Yes
UpdateOnCheckOut=Yes
UpdateOnCopyOut=No
UpdateOnExport=No
Class4=28x40
Class10=dms-d1
Count=2
[Class4]
Attribute60=change_1
Attribute62=change_1_date
  
```

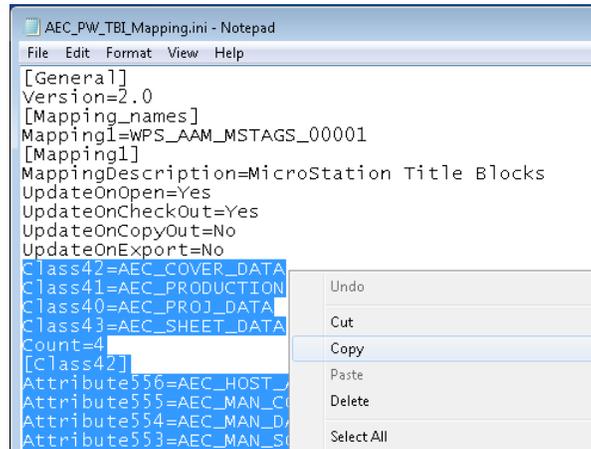
- Open the Work Structure, find the supplied AEC_PW_TBI_Mapping.ini file, and open it with notepad.



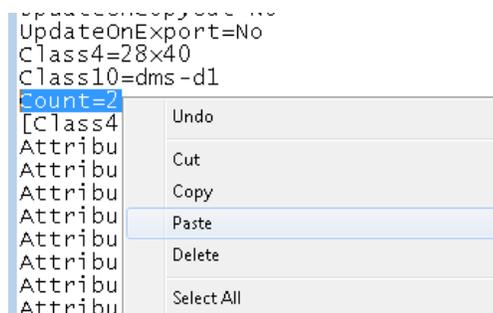
- Make note of how many classes in this file (4).



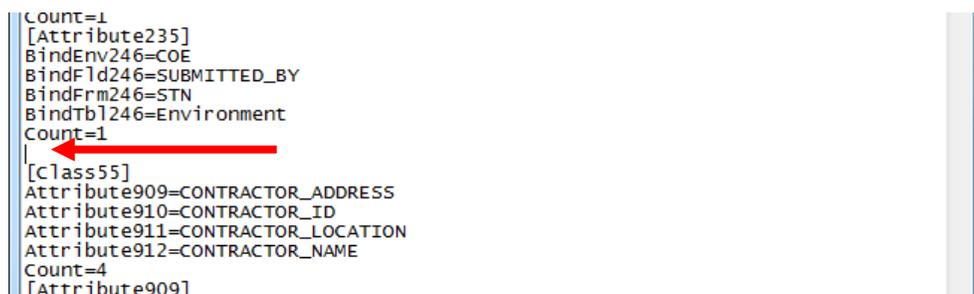
- This step will copy the information you need to add to your ini file with one copy and paste. In the AEC_PW_TBI_Mapping.ini file, highlight all of the lines starting with the first “class ## =” and end with the end of the file and copy the text.



- In your exported copy, highlight the Count line highlighted in Step 3 above and paste to replace the existing line with the new text copied from AEC_PW_TBI_Mapping.ini.



- If there is an extra blank line, delete it.



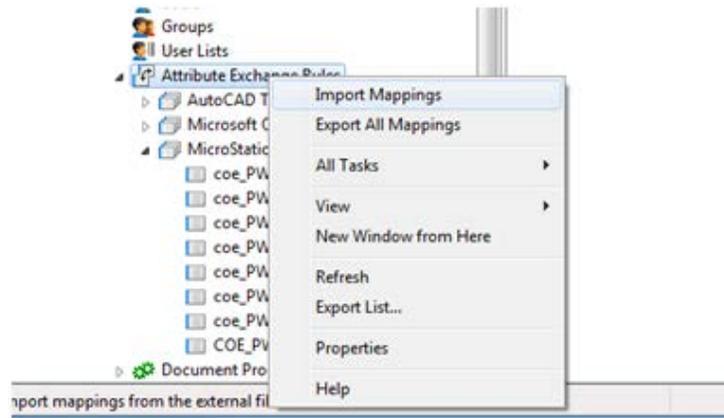
- Return to the top of the document and find the first count in the Mapping1 section. Change the count to the new total from steps 4 and 6. (6 in this example.)

```

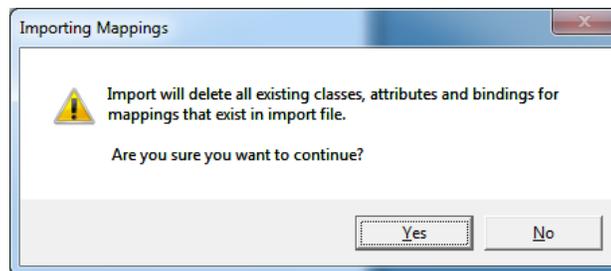
PW_TitleBlock_ALL_working.ini - Notepad
File Edit Format View Help
[General]
Version=2.0
[Mapping_names]
Mapping1=WPS_AAM_MSTAGS_00001
Mapping2=WPS_AAM_ACADTB_00001
Mapping3=WPS_AAM_OFFICE_00001
[Mapping1]
MappingDescription=MicroStation Title Blocks
UpdateOnOpen=Yes
UpdateOnCheckout=Yes
UpdateOnCopyOut=No
UpdateOnExport=No
Class4=28x40
Class10=dms-d1
Class42=AEC_COVER_DATA
Class41=AEC_PRODUCTION
Class40=AEC_PROJ_DATA
Class43=AEC_SHEET_DATA
Count=6
[Class42]
Attribute556=AEC_HOST_AG
Attribute555=AEC_MAN_CONTRNUM
    
```

- Save the file with a new name.

- In PW Administrator, right click on Attribute Exchange Rules and select Import Mappings.

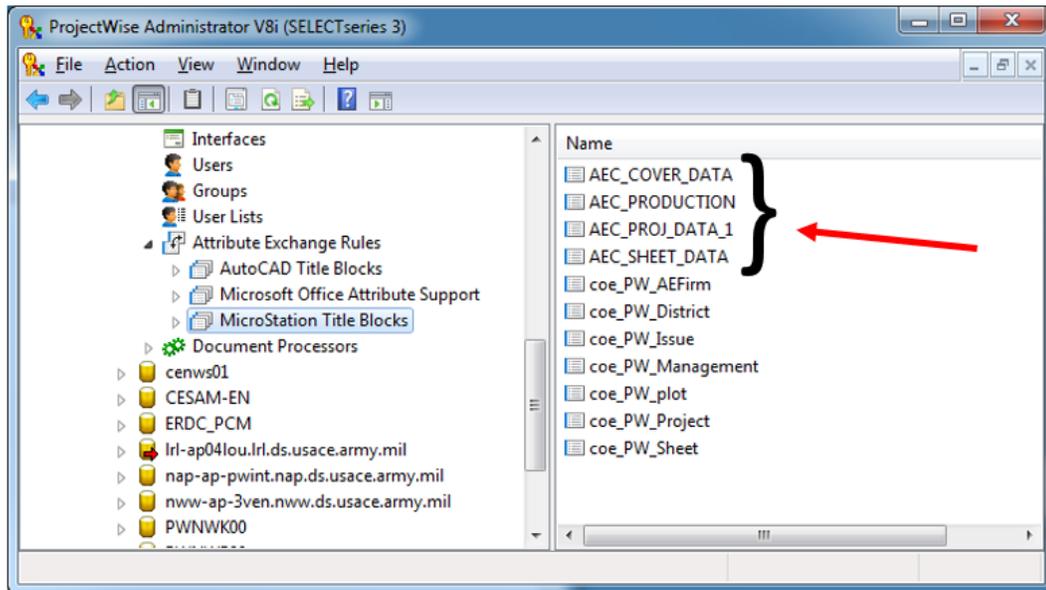


- Select Yes to the overwrite message



13. Select the .INI file you saved in step 11.

14. Check the MicroStation Title Blocks to see the new AEC_ mappings were added.



15. To add Title Block Integration for AutoCAD copy the 4 Attribute Classes shown in step 14 and paste them in the AutoCAD Title Blocks Exchange Rule.

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Title Block Integration Manually

Below are the “Attribute Exchange Rules” bindings for MicroStation and AutoCAD. The above process, if followed correctly, will add these to your existing “Attribute Exchange Rules” You can add these manually by Right-Clicking on the “Attribute Exchange Rules” tab in PW Administrator, select Help and follow the directions.

See the attached drawing at the end of this document to see the location where these tags are placed.

Attribute Class/ Tag Set Name	Attribute/Tag Name	PCM 2.0 Variable	Description
AEC_PROJ_DATA	AEC_DES_1_NAME	CONTRACTOR_NAME	Name of the Contractor
AEC_PROJ_DATA	AEC_DES_2_ADD	CONTRACTOR_ADDRESS	Address of Contractor
AEC_PROJ_DATA	AEC_DES_3_CITY	CONTRACTOR_LOCATION	City/State of Contractor
AEC_PROJ_DATA	AEC_DES_4_ADD	CONTRACTOR_ID	Contractor ID
AEC_PROJ_DATA	AEC_HOST_AG	ORG_DIST_OFFC	The District, Office, or Agency Responsible for the Document
AEC_PROJ_DATA	AEC_HOST_AG_ADD1	ORG_LOC	city/state of the District, Office, or Agency Responsible for the Document
AEC_PROJ_DATA	AEC_HOST_AG_ADD2	Not Bound	No PCM equivalent
AEC_PROJ_DATA	AEC_MAN_CONTRNUM	CONTRACT_NO	Contract Number
AEC_PROJ_DATA	AEC_MAN_DATE	ISSUE_DATE	Contract Issue Date
AEC_PROJ_DATA	AEC_MAN_OPT1TAG	Not Bound	changed through plot text substitution
AEC_PROJ_DATA	AEC_MAN_OPT2TAG	Not Bound	changed through plot text substitution
AEC_PROJ_DATA	AEC_MAN_SOLICNUM	SOLICIT_NO	Solicitation Number
AEC_PROJ_DATA	AEC_PROJ_1_LOCATION	PROJ_TITLE_1	Project Title Line 1
AEC_PROJ_DATA	AEC_PROJ_2_DISC	PROJ_TITLE_2	Project Title Line 2
AEC_PROJ_DATA	AEC_PROJ_3_DESCID	PROJ_TITLE_3	Project Title Line 3
AEC_PROJ_DATA	AEC_PROJ_4_ID	PROJ_TITLE_4	Project Title Line 4
AEC_PROJ_DATA	AEC_PROJ_STATUS	STATUS	Current phase or state of the contract set

Attribute Class/ Tag Set Name	Attribute/Tag Name	PCM 2.0 Variable	Description
AEC_SHEET_DATA	AEC_BLDG_ID	Not Bound	No PCM equivalent
AEC_SHEET_DATA	AEC_CHECKER	CHECKED_BY	individual Checking the file
AEC_SHEET_DATA	AEC_DESIGNER	DESIGN_BY	Name of Designer
AEC_SHEET_DATA	AEC_DRAWER	DRAWN_BY	individual who produced the file
AEC_SHEET_DATA	AEC_OPTION1	FILE_NO	File number
AEC_SHEET_DATA	AEC_OPTION2	DocFileName	Documents File Name
AEC_SHEET_DATA	AEC_REV_DATE1	ISSUE_01_DATE	Drawing revision issue date
AEC_SHEET_DATA	AEC_REV_DATE2	ISSUE_02_DATE	Drawing revision issue date
AEC_SHEET_DATA	AEC_REV_DATE3	ISSUE_03_DATE	Drawing revision issue date
AEC_SHEET_DATA	AEC_REV_DATE4	ISSUE_04_DATE	Drawing revision issue date
AEC_SHEET_DATA	AEC_REV_DATE5	ISSUE_05_DATE	Drawing revision issue date
AEC_SHEET_DATA	AEC_REV_DATE6	ISSUE_06_DATE	Drawing revision issue date
AEC_SHEET_DATA	AEC_REV_DATE7	ISSUE_07_DATE	Drawing revision issue date
AEC_SHEET_DATA	AEC_REV_DATE8	ISSUE_08_DATE	Drawing revision issue date
AEC_SHEET_DATA	AEC_REV_DESC1	ISSUE_01_DESC	Drawing revision description
AEC_SHEET_DATA	AEC_REV_DESC2	ISSUE_02_DESC	Drawing revision description
AEC_SHEET_DATA	AEC_REV_DESC3	ISSUE_03_DESC	Drawing revision description
AEC_SHEET_DATA	AEC_REV_DESC4	ISSUE_04_DESC	Drawing revision description
AEC_SHEET_DATA	AEC_REV_DESC5	ISSUE_05_DESC	Drawing revision description
AEC_SHEET_DATA	AEC_REV_DESC6	ISSUE_06_DESC	Drawing revision description
AEC_SHEET_DATA	AEC_REV_DESC7	ISSUE_07_DESC	Drawing revision description
AEC_SHEET_DATA	AEC_REV_DESC8	ISSUE_08_DESC	Drawing revision description
AEC_SHEET_DATA	AEC_REV_MARK1	ISSUE_01	Drawing revision issue mark
AEC_SHEET_DATA	AEC_REV_MARK2	ISSUE_02	Drawing revision issue mark
AEC_SHEET_DATA	AEC_REV_MARK3	ISSUE_03	Drawing revision issue mark
AEC_SHEET_DATA	AEC_REV_MARK4	ISSUE_04	Drawing revision issue mark
AEC_SHEET_DATA	AEC_REV_MARK5	ISSUE_05	Drawing revision issue mark
AEC_SHEET_DATA	AEC_REV_MARK6	ISSUE_06	Drawing revision issue mark
AEC_SHEET_DATA	AEC_REV_MARK7	ISSUE_07	Drawing revision issue mark
AEC_SHEET_DATA	AEC_REV_MARK8	ISSUE_08	Drawing revision issue mark
AEC_SHEET_DATA	AEC_SHEET_ID	SHEET_NO	Sheet identification
AEC_SHEET_DATA	AEC_SHT_TITLE1	SHEET_TITLE_1	Sheet Title 1
AEC_SHEET_DATA	AEC_SHT_TITLE2	SHEET_TITLE_2	Sheet Title 2
AEC_SHEET_DATA	AEC_SHT_TITLE3	SHEET_TITLE_3	Sheet Title 3
AEC_SHEET_DATA	AEC_SUBMITTER	SUBMITTED_BY	Submitter of the Document

Attribute Class/ Tag Set Name	Attribute/Tag Name	PCM 2.0 Variable	Description
AEC_COVER_DATA	AEC_HOST_AG	ORG_DIST_OFFC	The District, Office, or Agency Responsible for the Document
AEC_COVER_DATA	AEC_MAN_CONTRNUM	CONTRACT_NO	Contract Number
AEC_COVER_DATA	AEC_MAN_DATE	ISSUE_DATE	Contract Issue Date
AEC_COVER_DATA	AEC_MAN_SOLICNUM	SOLICIT_NO	Solicitation Number
AEC_COVER_DATA	AEC_PROJ_1_LOCATION	PROJ_TITLE_1	Project Title Line 1
AEC_COVER_DATA	AEC_PROJ_2_DISC	PROJ_TITLE_2	Project Title Line 2
AEC_COVER_DATA	AEC_PROJ_3_DESCID	PROJ_TITLE_3	Project Title Line 3
AEC_COVER_DATA	AEC_PROJ_4_ID	PROJ_TITLE_4	Project Title Line 4
AEC_COVER_DATA	AEC_PROJ_VOLUME	VOL_NO	Volume Number

Attribute Class/ Tag Set Name	Attribute/Tag Name	PCM 2.0 Variable	Description
AEC_PRODUCTION	AEC_PROD_1	Typically Not Bound	Lower left corner production data, changed through plot text substitution
AEC_PRODUCTION	AEC_PROD_2	Typically Not Bound	Lower left corner production data, changed through plot text substitution
AEC_PRODUCTION	AEC_PROD_3	Typically Not Bound	Lower left corner production data, changed through plot text substitution
AEC_PRODUCTION	AEC_PROD_4	Typically Not Bound	Lower left corner production data, changed through plot text substitution

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Project Setup in ProjectWise

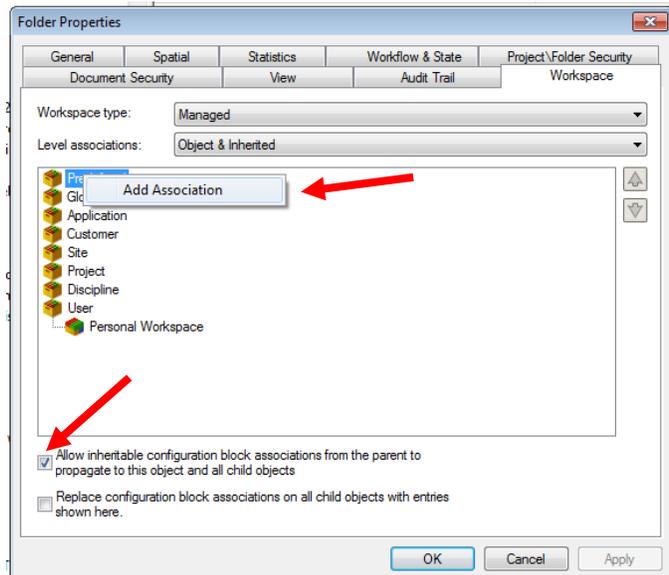
This description is for the PW Collaboration Model 2.0 (PCM2.0). You will need to adapt for your own PW folder structure if you don't use PCM 2.0. First complete **Installing the Work Structure in PW Managed Environment Work Structure Setup**. See the Project Template section for more information.

1. Open PW Explorer and copy the Project folder structure to the location you want to create a new project. **Note:** PW will need the folder to be a "Project" (not just a folder) to be able to use the DMS value for the project. Another **Note:** It is advantageous to create a Template to create new projects, so you can easily duplicate settings for new projects.



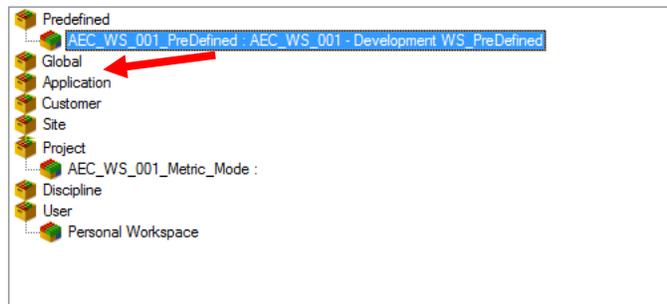
2. Set the permission levels for each folder according to your local plan.
3. Attach the Work Structure PreDefined Configuration Block created in Step 3 of Work Structure Setup on PW.

- a. Right-Click on the Project folder and select **Properties**
- b. Left-Click the **Workspace** tab
- c. Ensure **Allow inheritable** is checked
- d. Right-Click on the **Predefined** and select **Add Association**
- e. Right-Click on the **Project** and select **Add Association** to add project specific association e.g. Metric, DWG Work Mode or BBES



4. Right-Click on the **Project** and select **Add Association** to add project specific association e.g. Metric, DWG Work Mode or BBES.

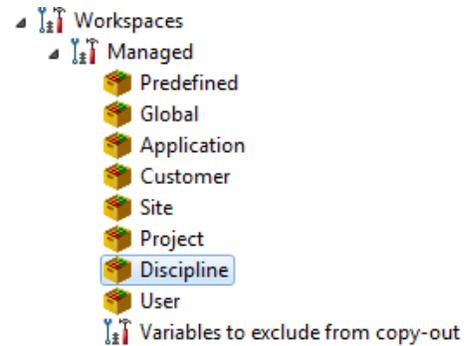
- a. Right-Click on the Project folder and select **Properties**
- b. Left-Click the **Workspace** tab
- c. Ensure **Allow inheritable** is checked
- d. Right-Click on the **Project** and select **Add Association**



BBES in a Managed BBES Dataset environment (Optional):

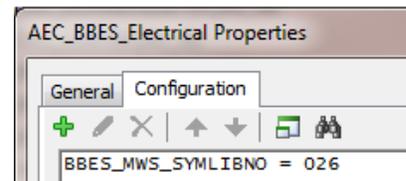
- Go to Open PW Administrator, expand Workspace/Managed/Discipline and create 3 new Configuration Blocks:

- AEC_BBES_Electrical
- AEC_BBES_Communication
- AEC_BBES_Electronic Safety and Security

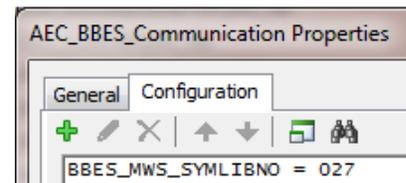


- To each Configuration Block, add the Variable “BBES_MWS_SYMLIBNO” and set them to a value of:

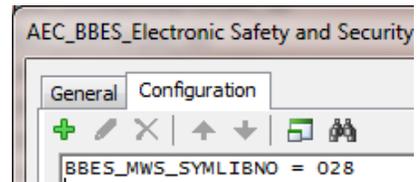
AEC_BBES_Electrical : 026



AEC_BBES_Communication : 027



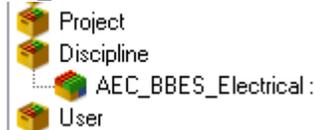
AEC_BBES_Electronic Safety and Security : 028



- In PW Explorer, go to the project:

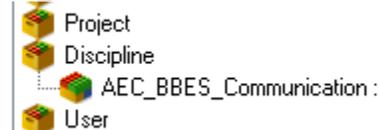
... \CAD_BIM\15_Elec folder, Select Properties, Workspace Tab and add the Discipline

Configuration Block: AEC_BBES_Electrical



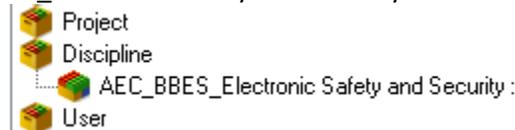
... \CAD_BIM\16_Telcom folder, Select Properties, Workspace Tab and add the Discipline

Configuration Block: AEC_BBES_Communication



... \CAD_BIM\11_FireProt folder, Select Properties, Workspace Tab and add the Discipline

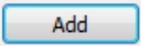
Configuration Block: AEC_BBES_Electronic Safety and Security



Updating the Work Structure in PW Managed Environment

Setting up current projects for use with Update 5 Dynamic Views in PW – Update 5

For projects that are using AECOsim Building Designer (SS5 or older) or are not being updated to the current Dynamic View rules, the configuration block for your project is:

1. In PW Administrator, go to Workspace/Managed/Project and create a new Configuration Block.
 - a. Name: AEC_SS5_Rules
 - b. Description: AEC_WS_001 Use for ABD Projects using version SS5 rules
2. Select the Configuration tab, Select the Green Plus sign: 
3. Select **Add variable**:
4. Enter AEC_ABD_DVVERSION
5. Select the Add button 
6. For the Value type, Select **String**
7. In the Value: enter a single space
8. Add the Configuration Block to your projects that use the old versions.

See [Setting up current projects for use with Update 5 and Dynamic Views](#) for additional information on which files to copy to the project.

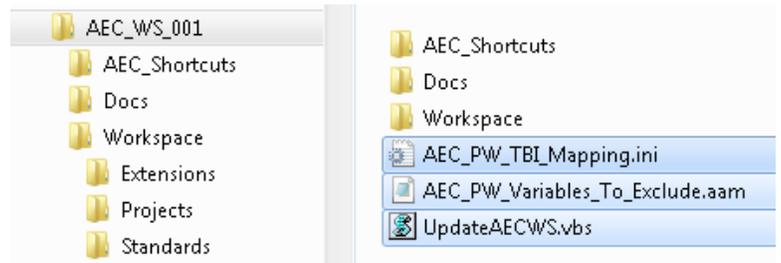
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There are two methods to update the Work Structure in a PW managed Environment. One, deleting and replacing certain files and folders, two via the PW admin client using the Workspace update tool.

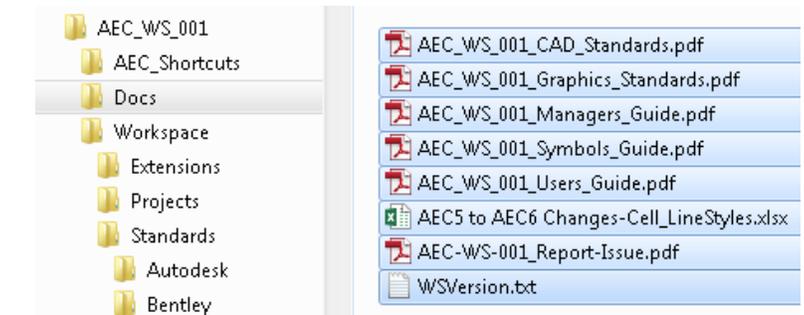
Updating the Work Structure Delete and Replace Files & Folders (method)

1. Unzip the Work Structure on your local drive.

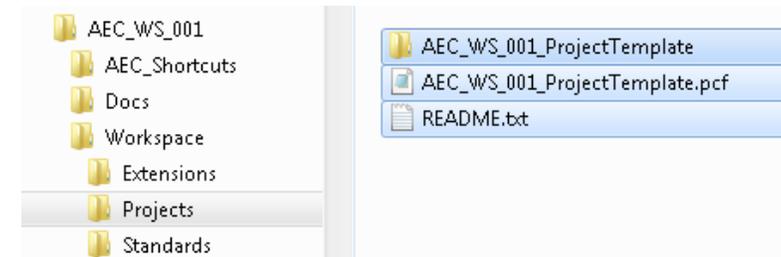
2. **AEC_WS_001**, In ProjectWise, delete and replace only the files highlighted in blue on the right.



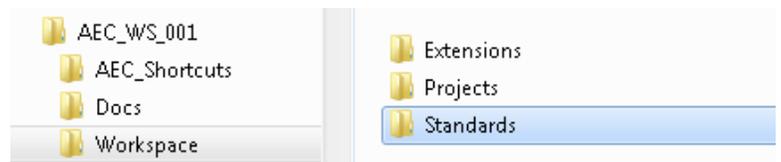
3. **Docs**, In ProjectWise, delete and replace only the files highlighted in blue on the right.



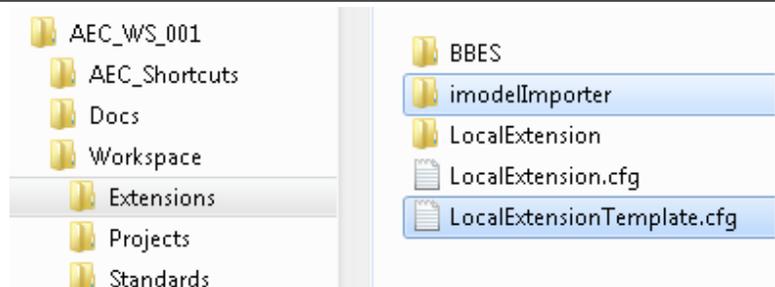
4. **Projects**, In ProjectWise, delete and replace only the files and folders highlighted in blue on the right.



5. **Standards**, In ProjectWise, delete and replace the Standards folder highlighted in blue on the right.



6. **Extensions**, In ProjectWise, delete and replace only the files and folders highlighted in blue on the right.



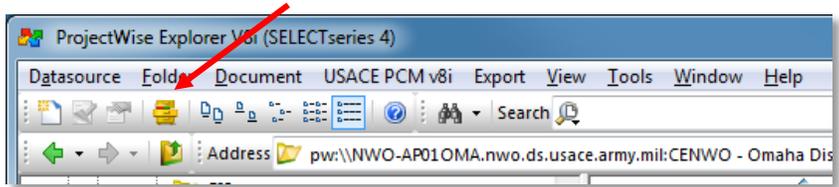
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Updating the Work Structure PW using the Admin Client (Alternate method)

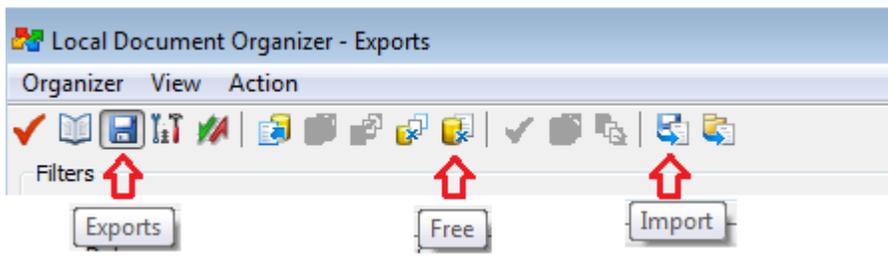
This describes the process to update the A/E/C Work Structure.

1. If you have files Exported in PW, **Import** the files modified and free any non-modified files.

- a. Open PW Local Document Organizer.



- b. Select



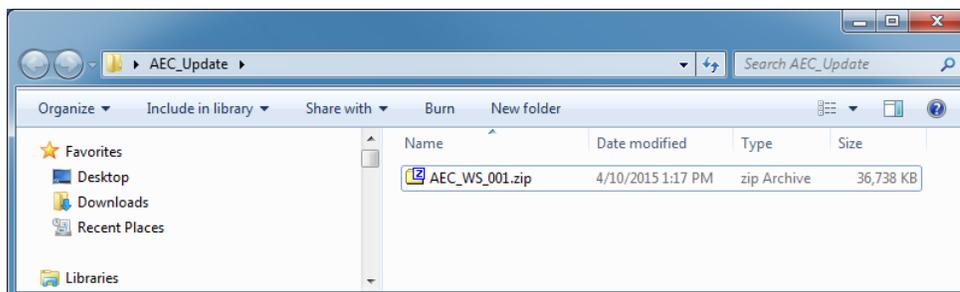
- c. Highlight any non-modified files and Select

Name	Description
Modified File.txt	Modified File
Non-Modified File.txt	Non-Modified File

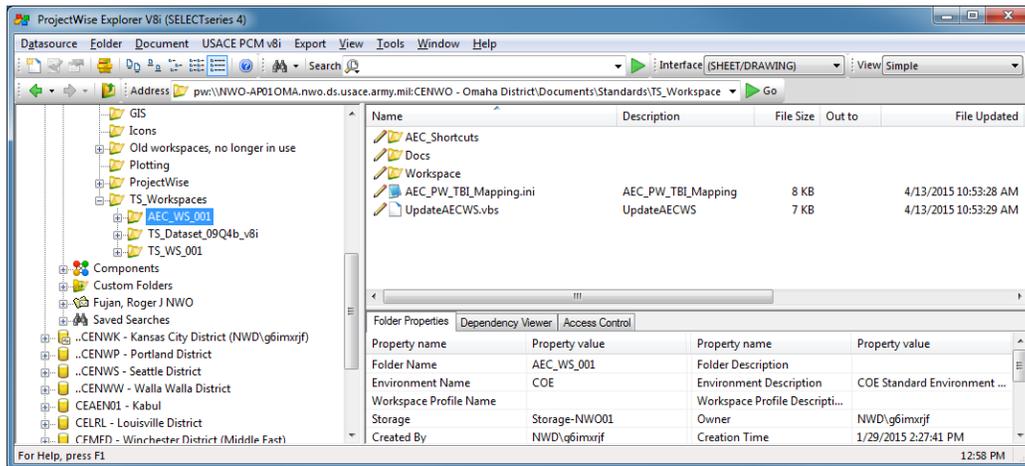
- d. Highlight any modified files and Select

Name	Description
Modified File.txt	Modified File
Non-Modified File.txt	Non-Modified File

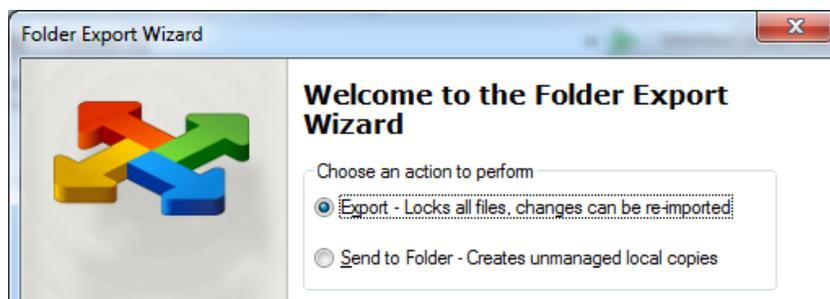
2. Download the updated Work Structure zip file and place it in a folder on your hard drive.



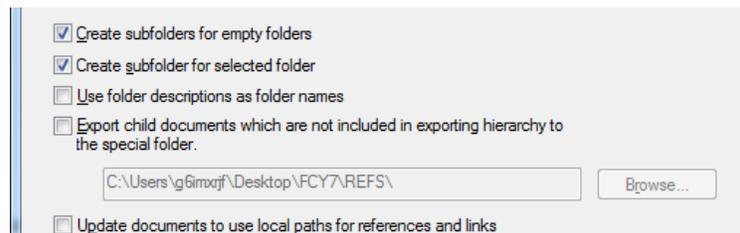
- In PW, go to the A/E/C Work Structure folder previously installed.



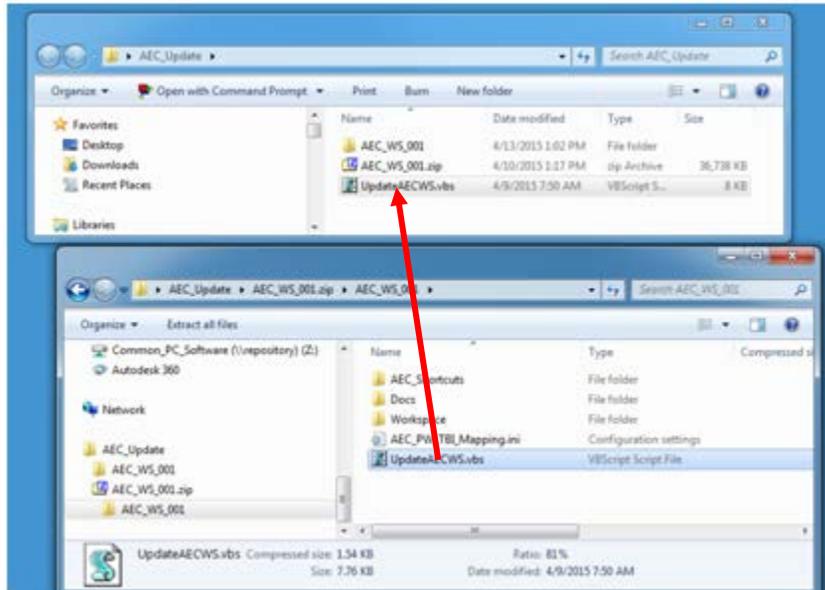
- Right click on the A/E/C Work Structure folder and select **Export**.
- Select **Export – Locks all files, changes can be re-imported** and then select **Next**.



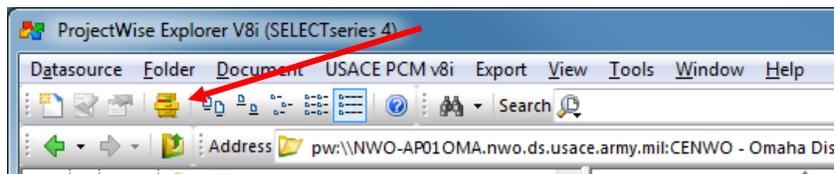
- Set the Export folder to the same location as the zip file in step 1. Select **Create subfolders for empty folders** and **Create subfolder for selected folder**. Then select **Next**.



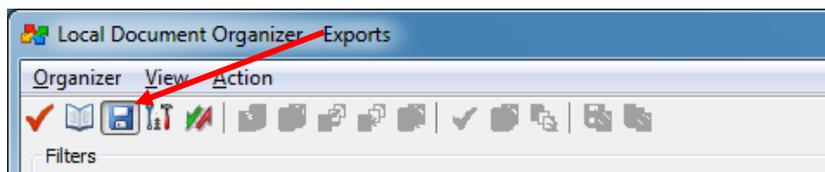
- Explore the zip file and copy the .vbs file to the same location as the zip file.



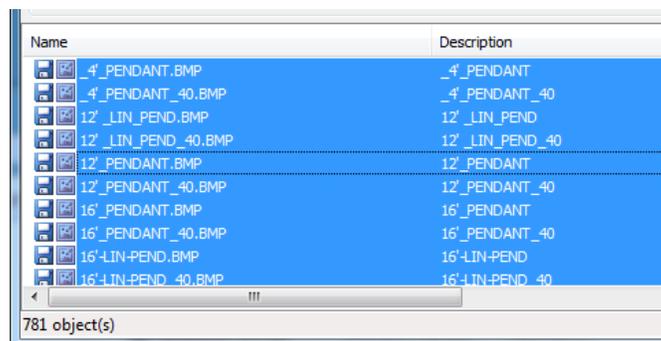
- Run the .vbs to update the exported Work Structure. Follow the instructions.
- In PW, open Local Document Organizer.



- Select **Exports**.

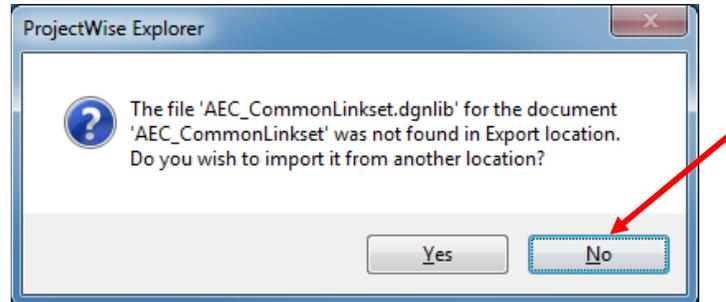


- Highlight any document select Ctrl+A to select all documents.



12. Right click and select **Import**.

13. Files that were removed will bring up a missing file error dialog. Select **No** to each missing file and complete the rest of the import.



14. When the import is complete, the only files remaining in Local Document Organizer will need to be deleted from the Work Structure.

- a. In Local Document Organizer;
 - i. Right click on each file individually and select **Open Folder**,
 - b. In the PW Explorer window:
 - i. Right click on the file and select **Free**,
 - ii. Right click on the file and select **Delete**,
 - c. Repeat for each file left in the document Organizer
- This will remove any documents deleted from the Work Structure.

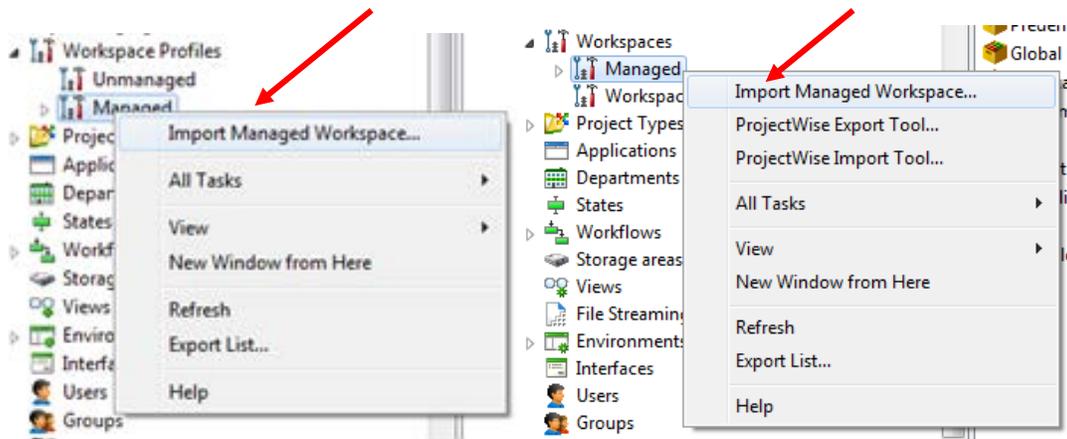
Name	Description
AEC_CommonLinkset.dgnlib	AEC_CommonLinkset
Cell Name Changes.xlsx	Cell Name Changes
Civil_AECR4.XIN	Civil_AECR4
GlulamShapes.xml	GlulamShapes
Horiz.cfg	Horiz

Now all the existing files are up to date, and the removed files have been deleted, but the new files will still need to be imported.

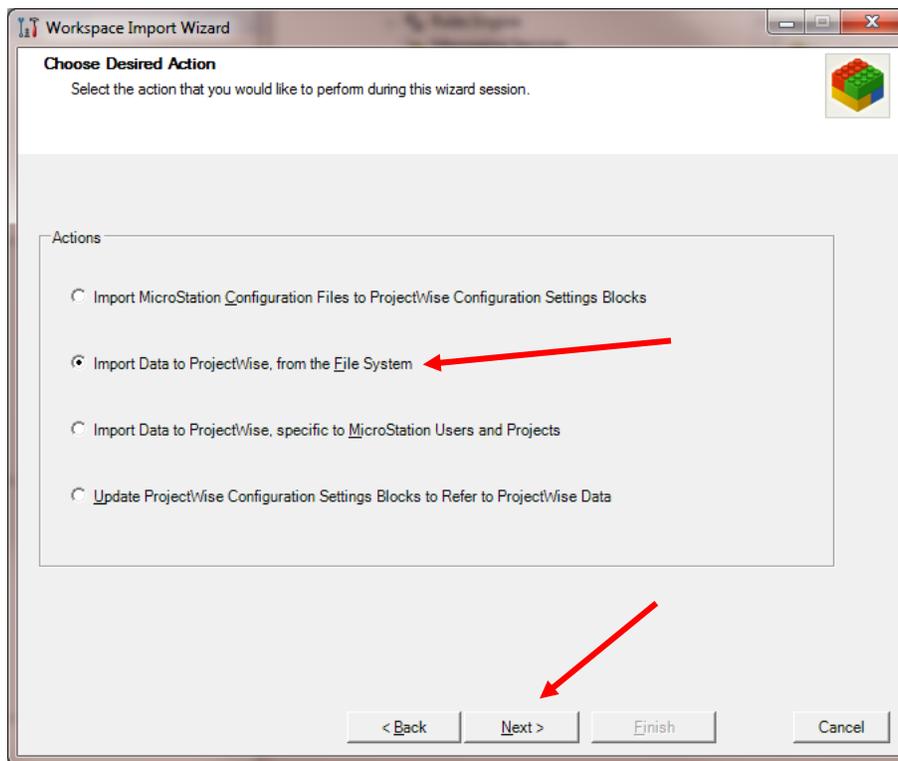
15. Exit Local Document Organizer.

16. Open PW Administrator and log in.

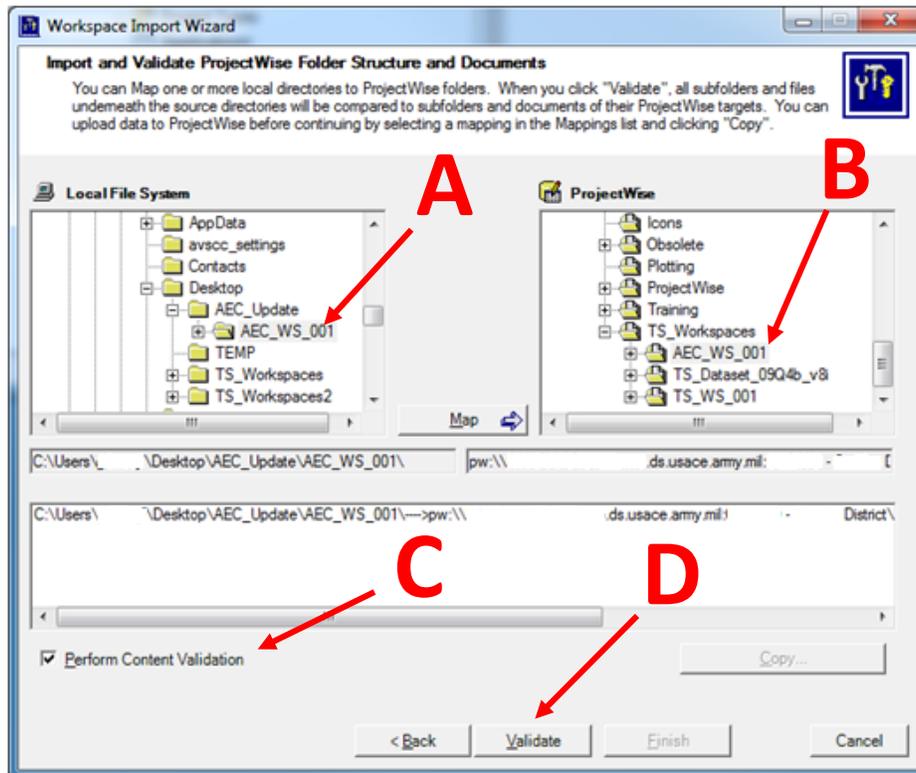
17. Depending on the version of PW Admin you have;
 - a. Right click on **Workspace Profiles, Managed**, and select **Import Managed Workspace**
 - b. Right click on **Workspaces, Managed**, and select **Import Managed Workspace**



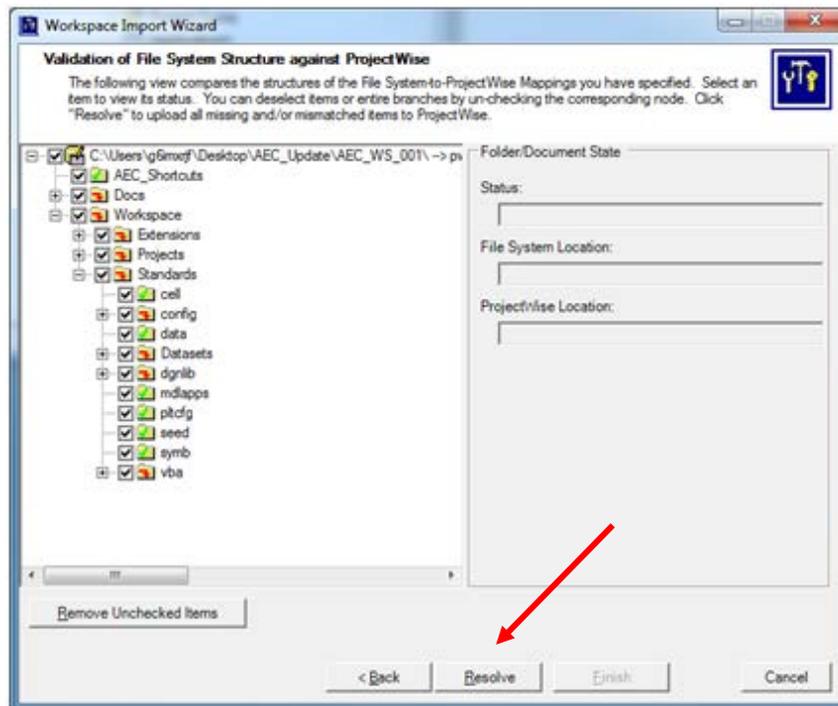
18. Select **Next** and then Import Data to PW, from File System, and then select **Next**.



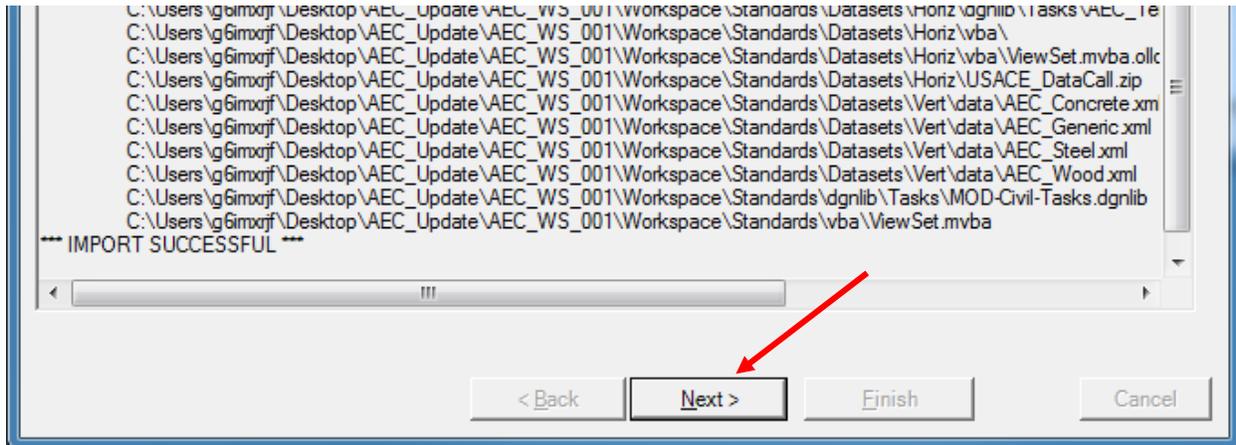
- Map the folder **A** you updated to the Workspace folder **B** in PW.
Select check box **Perform Content Validation C**, and Select **Validate D**.



- A list of what is different will display. Select **Resolve** to import the new content.



21. The dialog will change to show a list of what is updated. Select **Next**.



22. Select **Close**. The update is complete. Remind users to use the Local Document Organizer to delete their current Work Structure and download the new updates when opening a file in the Work Structure.

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Printing and Plotting

Design Scripts

Objects in MicroStation have certain visual attributes such as colors, weights, thickness, fills, and patterns. Collectively, these are the object's symbology.

By default, Print Organizer plots objects with the same symbology as they were drawn and displayed on the screen. However, you may want to alter the appearance of certain objects at plot time, without having to modify the original files. This process is resymbolization and is accomplished with design script files.

Some common uses of Design Script resymbolization are:

- Emphasizing specific objects by changing their color, weight, or levels
- Character substitution
- Controlling the order in which objects are plotted
- Obtaining consistent colors on various plotters with the use of color tables and libraries
- Defining custom line styles for MicroStation files or line types for AutoCAD files
- Area-filling closed objects with a specified color or pattern
- Omitting specific objects from the plot
- Creating content-rich PDF documents

Relational Operators

Character	Function
*	matches zero or more occurrences of any character
?	matches exactly one occurrence of any character
\	indicates that the next character is to be treated as an actual character and not as a special character. In other words, it disables the special meaning of the asterisk (*) and question mark (?) characters.

The result of a relational expression is a value of true if the condition is satisfied and false if the condition is not satisfied. The following list describes the relational operators, as well as some example relational expressions:

Operator	Result
.EQ. , EQ , or ==	true if operand1 and operand2 are equal
.NE. , NE , or <>	true if operand1 and operand2 are not equal
.GE. , GE , or >=	true if operand1 is greater than or equal to operand2
.LE. , LE , or <=	true if operand1 is less than or equal to operand2
.GT. , GT , or >	true only if operand1 is greater than operand2
.LT. , LT , or <	true only if operand1 is less than operand2

Logical Expressions

Logical expressions are compound relational expressions formed by combining simple relational expressions with logical operators. The logical and operator (AND, .AND. or &&) and the logical or operator (OR, .OR. or ||) are both binary operators. Both operands must be simple relational expressions or logical expressions that evaluate to true or false. The logical not operator (.NOT.) requires only a single operand. The following list contains descriptions of each of the logical operators and some example logical expressions.

Operator	Result
AND. , AND , or &&	Evaluates to true if and only if both operands are true. Otherwise it evaluates to false.
.OR. , OR , or	Evaluates to true if either operand is true. Evaluates to false if and only if both operands are false.
.NOT. or NOT	Evaluates to true if the single operand is false. Evaluates to false if the operand is true.

```

if (type eq 17) then
  if (characters eq "$date$$") then
    characters = date
  endif
endif
endif

```

In line 1, "type" is used in the "get" context because the type number of the element is being retrieved from the current element being processed. In line 2, "characters" is used in the "get" context because the text string is being retrieved from the current element so that it can be compared with "\$date\$\$. In line 3, "characters" is used in the "set" context because the element's text string is being changed. Also, in line 3, the value of "date" is being used in a "get" context.

See the following table to determine the allowed use of the IPLOT Design Script keyword:

Keyword	Get context allowed	Set context allowed
am_pm	Yes	No
angle	Yes	No
area_fill	Yes	Yes
characters	Yes	Yes
class	Yes	Yes
cls_end_width	Yes	Yes
cls_name	Yes	Yes
cls_origin_width	Yes	Yes

Keyword	Get context allowed	Set context allowed
cls_scale	Yes	Yes
cls_shift_distance	Yes	Yes
cls_shift_fraction	Yes	Yes
color	Yes	Yes
date	Yes	No
day_abbreviation	Yes	No
day_name	Yes	No
day_number	Yes	No
dgnspec	Yes	No
element_url	Yes	No
element_url_description	Yes	No
envr_value	Yes	Yes
envr_variable	No	Yes
file	Yes	No
fill_color	Yes	Yes
first_time	Yes	No
font	Yes	Yes
font_name	Yes	Yes
header_type	Yes	No
hour	Yes	No
hour_12	Yes	No
hour_24	Yes	No
ip_color_table	Yes	No
ip_data_rescale	Yes	No
ip_data_rescale_x	Yes	No
ip_data_rescale_y	Yes	No
ip_design	Yes	No
ip_design_script	Yes	No
ip_display	Yes	No
ip_environment	Yes	No
ip_fast	Yes	No
ip_feature_table	Yes	No
ip_fence	Yes	No
ip_levels	Yes	No
ip_logical_name	Yes	No

Keyword	Get context allowed	Set context allowed
ip_mirror	Yes	No
ip_model	Yes	No
ip_nodisplay	Yes	No
ip_nofast	Yes	No
ip_origin	Yes	No
ip_origin_x	Yes	No
ip_origin_y	Yes	No
ip_pen_table	Yes	No
ip_plot_rescale	Yes	No
ip_plot_rescale_x	Yes	No
ip_plot_rescale_y	Yes	No
ip_project	Yes	No
ip_qpr_options	Yes	No
ip_queue	Yes	No
ip_ref_filename	Yes	No
ip_region	Yes	No
ip_rendering_attributes	Yes	No
ip_rotation	Yes	No
ip_scale	Yes	No
ip_scale_num	Yes	No
ip_short_color_table	Yes	No
ip_short_design	Yes	No
ip_short_design_script	Yes	No
ip_short_pen_table	Yes	No
ip_short_feature_table	Yes	No
ip_short_rendering_attributes	Yes	No
ip_short_ref_filename	Yes	No
ip_short_scale	Yes	No
ip_units	Yes	No
ip_view	Yes	No
ip_viewgroup	Yes	No
ip_volume	Yes	No
ip_workspace	Yes	No
ip_workspace_user	Yes	No
ip_workspace_project	Yes	No

Keyword	Get context allowed	Set context allowed
ip_xsize	Yes	No
ip_xsize_num	Yes	No
ip_xysize	Yes	No
ip_yysize	Yes	No
ip_yysize_num	Yes	No
level	Yes	Yes
level_name	Yes	No
lname	Yes	No
long_date	Yes	No
long_time	Yes	No
minute	Yes	No
month_abbreviation	Yes	No
month_name	Yes	No
month_number	Yes	No
nested_cellname	Yes	No
page_number	Yes	No
plan_set_name	Yes	No
plan_set_short_name	Yes	No
plot_name	Yes	No
properties	Yes	No
pw_component_business_key	Yes	No
pw_component_class_name	Yes	No
pw_current_file_url	Yes	No
pw_master_file_url	Yes	No
pw_sheet	Yes	No
pw_component_property_value_integer	Yes	No
pw_component_property_value_character	Yes	No
pw_component_property_value_real	Yes	No
pw_plan_set_file_url	Yes	No
second	Yes	No
sheet_name	Yes	No
short_date	Yes	No
short_time	Yes	No
short_year	Yes	No
size	Yes	Yes

Keyword	Get context allowed	Set context allowed
style	Yes	Yes
sytime	Yes	No
tag_character	Yes	No
tag_display	Yes	No
tag_integer	Yes	No
tag_real	Yes	No
text_node_number	Yes	No
time	Yes	No
total_pages	Yes	No
type	Yes	No
username	Yes	No
weight	Yes	Yes
width	Yes	No
year	Yes	No
zoom_percentage	Yes	Yes

Bentley DWG Work Mode

Information on DWG work mode

Bentley definition: DWG work mode is a working environment within MicroStation specifically adapted to the editing and reviewing of DWG files. DWG work mode is automatically enabled when a DWG file is opened. In DWG work mode, some advanced MicroStation functionality is disabled to ensure DWG-incompatible features are not created.

The DWG dataset in the A/E/C Work Structure adds/replaces content in the Work Structure that is compatible with the DWG file format while working in Bentley MicroStation. The intent is that most of the content is also usable by Autodesk AutoCAD.

- Blocks: All are compatible with AutoCAD 2013 or later.
- Line Types: All are compatible with AutoCAD 2011 or later.
- Templates: All are compatible with AutoCAD 2013 or later.
- Seed files: All are compatible with MicroStation V8i with the Bentley V8i Autodesk RealDWG 2013 plug-in.
- Plot styles: Style based plot file for AutoCAD 2013 or later and MicroStation V8i or later.
- DWG data files for MicroStation: Color Tables, Text style support for line styles, and settings resource.
- Dgnlib: Adds content for Tasks when working with DWG files in MicroStation.

The Config file will replace the Cells with the DWG blocks, replaces the line types with DWG line types, and redirects the seed files.

To activate the DWG work mode

See [DWG Mode Shortcut Icons](#) for LAN Setup.

See [Projects in DWG Work Mode with various units \(Optional\)](#) and [Project Setup in ProjectWise](#) for ProjectWise Setup

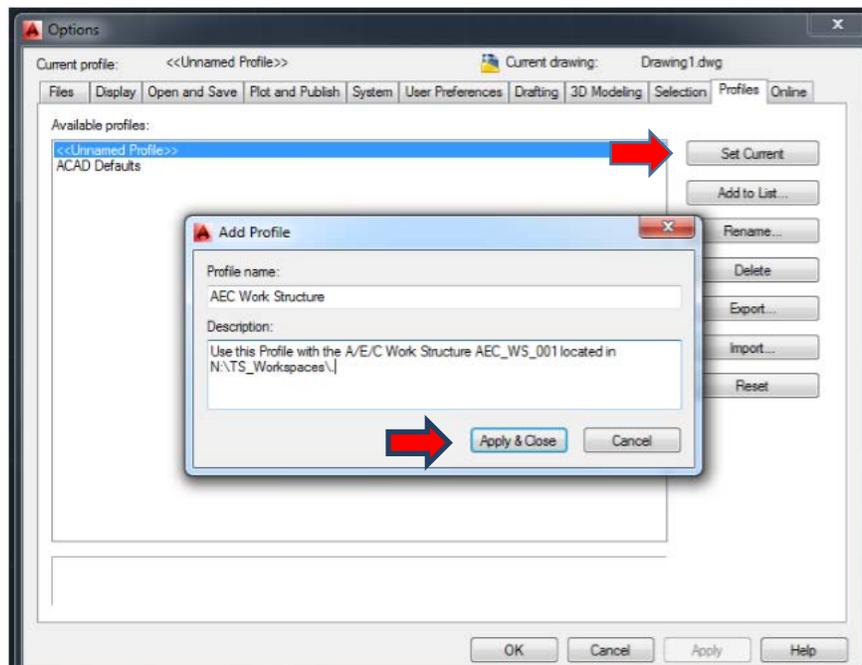
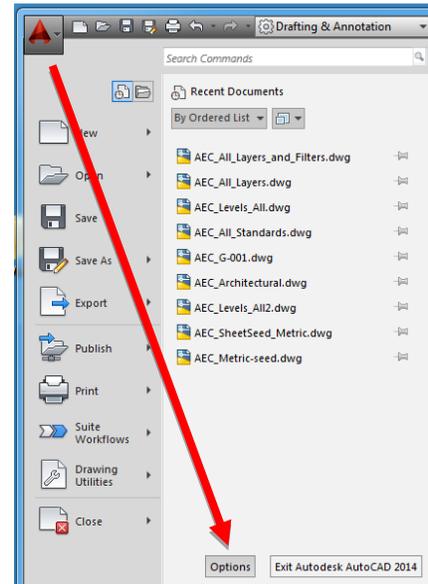
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Working with Autodesk

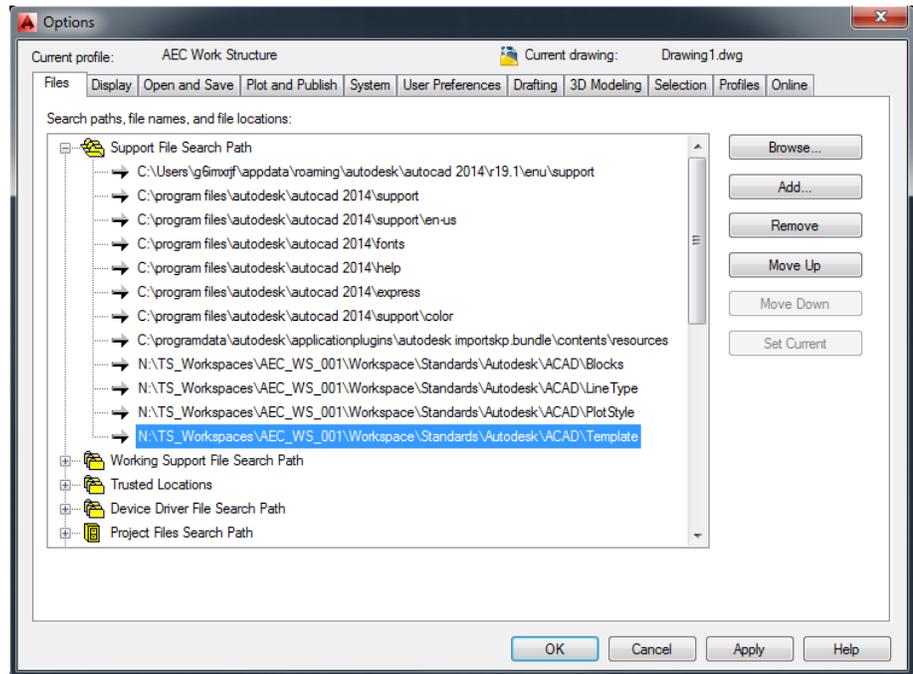
AutoCAD and Civil3D

Setting up AutoCAD and Civil3D to use the Work Structure Content on Local Area Network

1. Complete steps 1 and 2 of Installing the Work Structure on Local Area Network.
2. Open AutoCAD or Civil3D.
3. Select **Options**.
4. Select the **Profiles** tab.
5. For Civil3D: select the appropriate unit profile (C3D_Imperial or C3D_Metric) and set it current.
6. Select **Add to List**, to create a new profile.
7. Key-in **Profile Name** and **Description**, It is a good idea to put the folder path to where you installed the A/E/C Work Structure in the Description.
Profile Name: AEC Work Structure
Profile Description: Use this profile with the A/E/C Work Structure located:
N:\TS_Workspaces\AEC_WS_001\
8. Select **Apply & Close**
9. Select the new Profile as Select **Set Current**.



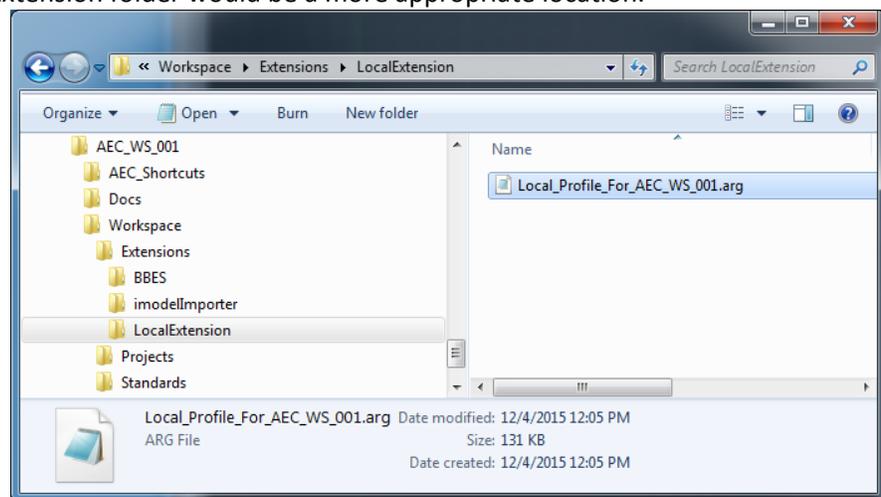
10. Open the **Files** tab.
11. Select and expand **Support File Search Path** and Add for each of the following:
 - a. ...\\AEC_WS_001\\Workspace\\Standards\\Autodesk\\ACAD\\Blocks
 - b. ...\\AEC_WS_001\\Workspace\\Standards\\Autodesk\\ACAD\\LineType
 - c. ...\\AEC_WS_001\\Workspace\\Standards\\Autodesk\\ACAD\\PlotStyle
 - d. ...\\AEC_WS_001\\Workspace\\Standards\\Autodesk\\ACAD\\Template



12. Select **Apply**.
13. Select the **Profiles** tab and select **Export**.
14. Select an appropriate location to place the .arg file, name it, and save it.

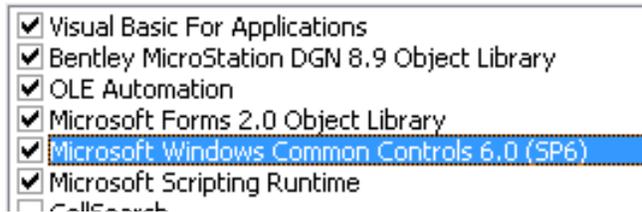
Note: Do not save the file under Standards, or it will be deleted on the next update to the Work Structure. The Local Extension folder would be a more appropriate location.

15. Let users know where to import the new A/E/C Work Structure Profile from.



Troubleshooting

The VBA tools included in the Work Structure use resources not always found on every computer. You may need to load these additional resources to get them work. The most common are listed in the image below.



At a minimum, Visual Basic For Applications, Bentley MicroStation DGN 8.9 Object Library, and OLE Automation must be running for MicroStation to function with VBA.

Additionally, CellSearch, DrawingTitles, DWGPowerAnno, and LineStyleSearch require Microsoft Forms 2.0 Object Library, Microsoft Windows Common Controls 6.0 (SP6), and Microsoft Scripting Runtime.

ViewSet requires Microsoft Forms 2.0 Object Library.

LevelSearch requires Microsoft Forms 2.0 Object Library and Microsoft Windows Common Controls 6.0 (SP6).

DWGCells and DWGsetscale only require the minimum.

Known Issues

1. ~~The rules “.rul” files located in the project dataset are version-specific. Keep a backup copy of these files on hand.~~
 - a. The .rul files have been updated in Update 5 of the Work Structure. See documentation in this document on how to handle version issues. [On a LAN](#) [In PW](#)
2. No Revit Documentation.

Change Request, Issue Report and Evaluation Form

Please open the attached form, fill it out, and select the email link at the bottom.

