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Introduction to Spatial Functions in ProjectWise Design Integration

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ProjectWise Spatial Options

- Standard functionality in ProjectWise and gives spatial context to documents, folders and projects stored in ProjectWise
- ProjectWise Geospatial brings more advanced geospatial options to ProjectWise
- For your data to be consistent, it is essential that you know the coordinate system of the DGN file you'll be using as map background. This is not something that can be "guessed" or determined through trial and error – it is information that needs to be known precisely. People dealing with spatial data must know the coordinate system used in their projects, files, data, etc.

What is ProjectWise Spatial?

- A technology that adds spatial context to a managed environment
 - Spatial indexing
 - Query and locate
 - Spatial display
 - Maps created from one or more CAD files and are static and have a fixed resolution
 - Included with PW Design Integration
 - Supported on premise or hosted
- Originally derived from ProjectWise Geospatial Extension XM Edition
- Requires no extra servers or services.



What is PW GeoSpatial?

- A technology that adds spatial context to a managed environment ...
 - Spatial indexing
 - Query and locate
 - Spatial display
 - ESRI ArcMAP integration
 - Spatial location by attributes
 - Map can include
 - CAD files
 - Oracle Spatial Layers
 - Raster Imagery
 - ArcGIS data
 - WMS layers
 - Maps are generally dynamic (i.e. automatically update when the source is changed)
- PWCE requires GWP Ss5 (full version as no GWP Light no longer included)
 - Not available in hosted environment, on premise only



A geospatial extension to managing data



Scaleable Background Maps



Spatial Display Options



Spatial Location

- A location is a combination of a geometry and a coordinate system
- Spatial locations can be displayed over multiple backdrops



Document/Project Extent Indexing

• A spatial location may be:

- manually defined
- inherited from the parent folder
- scanned from the files (auto extract and batch)
- imported from an external file
- calculated (for a folder and files)
- inferred from an attribute value*
- It can be a gradual process (as with any other meta data)

*denotes PW GeoSpatial functionality



Setting up ProjectWise Spatial - Overview

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- Adding Coordinate System
 - Add Background Maps or DPRs to ProjectWise
 - Add Coordinate System from Dictionary
- Creating Background Maps
 - Static CAD Layers
 - Multiple CAD Layers
- Assign Spatial Location
 - Drawing a Spatial Location manually
 - Using "Auto-scan for CAD files" feature
 - Using Spatial Location Scan tool
 - Using "Extraction" function
 - Using "Calculate" function

Setting up ProjectWise Spatial – Add Coordinate System



Setting up ProjectWise Spatial – Add Coordinate System

atitude/Longitude		
ailable coordinate s	systems in selected group	
Key Name	Description	^
LL-Irish75	Ireland 1975 Lat/Long's, Degrees	
LL-NTF	NTF Lat/Longs, Prime Meridian = Paris, Grad	
LL-NZGD49	Lat/Long, New Zealand Geodetic Datum of 1949 (via	
LL-OLDHI	Old Hawaii Lat/Long's, Degrees, -180 ==> +180	
LL-RGF93	RGF93 Lat/Longs, essentially same as LL84	
LL-RT90	Swedish RT90 Lat/Long's, Degrees, -180 ==> +180	
LL-Tokyo	Latitude/Longitude, referenced to the Tokyo Datum	
LL27	NAD27 Lat/Long's, Degrees, -180 ==> +180	
LL72	WGS72 Lat/Long's, Degrees, -180 ==> +180	
LL 77	ATS77 Lat/Long's, Degrees, -180 ==> +180	
LL83	NAD83 Lat/Long's, Degrees, -180 ==> +180	
LL84	WGS84Lat/Long's, Degrees, -180 ==> +180	
LLCH1903	Swiss National Geodetic System Lat/Long's	~

Setting up ProjectWise Spatial – Add Coordinate System

Alias	Key Name	Туре	Scan Action	Replace By	Status
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³ 1 → UTM83-17	UTM83-17	From Dictionary	Ask		ОК
³ ⁴ → UTM83-18	UTM83-18	From Dictionary	Ask		ОК





Background Map Settings	x
Map Name: Coordinate System: World LL84	v
Filename Minimum scale Maximum scale	Add Layer Remove Layer Edit Layer
Folder: Browse Save Cancel	



Ed	lit Map Layer Settings	×
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Bounding box Lower left:	Upper right:	Add dynamic CAD layer Add DPR layer
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OK Cancel]	

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Address: Description: File Name: Application:	pw:\\GPHLEAF LL84 world.dgn MicroStation	RNSRV:PWWORKSHOF	91\Documents\Background	Maps Data\v	vorld.dgn				
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DPR layer creation in progress...

Generating DPR file [C:\Users\ADMINI~1\AppData\Local\Temp\world_(1).dpr]...



х

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Bounding box Lower left: Upper right: X: -179.999999722222 X: 179.999999722222 Y: -84.652618611111 Y: 82.6048986111111
Scale range Minimum: Maximum: 0.0 0.0 OK Cancel



Settings File

<?xml version="1.0"?>

- <MapDefinition version="08.11">

- <Maps>

</Maps>

```
<CoordSys GUID="72c61791-dd3a-4765-8623-b1ec90586ca6"/>
```

</MapDefinition>



	Select Folder
Select	ers Select Folder Analysis Select Folder A
pw:	\\GPHLEARNSRV:PWWORKSHOP1\Documents\Backgro v OK Cancel

Map name	Map Settings file
📉 World	pw:\\GPHLEARNSRV:PWWORKSHOP1\Documents\Background Maps Data\Settings Files\World
Toronto	pw:\\GPHLEARNSRV:PWWORKSHOP1\Documents\Background Maps Data\Settings Files\Toronto



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Default Display Symbology

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Symbol	•		
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		OK	Cancel

Default Display Symbology





Assign Spatial Location - Autoscan



Assign Spatial Location - Autoscan







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Documents							
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M 🔍							
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μ Toronto	TorontoStreets1	TorontoStreets1.dg					
μ Toronto	TorontoStreets2	TorontoStreets2.dg					
μ Toronto	TorontoStreets3	TorontoStreets3.dg					
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Application:	All Application	15	¥				
- Selected Documents	Add	Remove					
Name	Description	File Name	File Siz				
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		ОК	Cancel				

Spatial Location Scanning Tool	ĸ			
Select Files and Folders to be scanned Select individual files or folders to be scanned for spatial information.				
Toronto\TorontoStreets1.dgn Toronto\TorontoStreets2.dgn Toronto\TorontoStreets3.dgn				
Check All Clear All				
Place a check in the box next to a folder that you wish to rescan				
< Back Next > Cancel]			

Spatial Location Scanning Tool
Location Only Extraction Options Select the coordinate system that will be assigned to each file.
Extract Location Only Extract Location and Coordinate System
Available Coordinate Systems
UTM83-18
Advanced
< Back Next > Cancel

Advanced Options

- Use case:
 - DGN or DWG files for which the location is automatically extracted.
- Feature:
 - Convex Hull, oriented rectangles can be extracted in addition of the MBR (bounding box)

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- References can be taken into account for the calculation

Advanced Options Examples





Spatial Location Scanning Tool			
Spatial Location Scanning Configuration Complete The Spatial Scanning Tool is now ready to be launched.			
Progress Information Scanned File:			
Start Start			
< Back Next > Exit			





Assign Spatial Location – Extract Extent

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Assign Spatial Location – Extract Extent

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Assign Spatial Location – Extract Extent









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pw:	\\GPHLEARNSRV:PWWORKSHOP1\Documents\Toronto ↓	
	OK Cance	!





Assign Spatial Location – Spatial Location Files

- A Spatial Location File is an XML document which stores geometries that have been extracted from MicroStation.
- The geometries represent the geographic location of specific documents or folders within a project.



Assign Spatial Location – Spatial Location Files





Assign Spatial Location – Spatial Location Files



Questions?

