Section 3. Archiving Laser Scan Data#

3.4 Metadata for additional products#

3.4.1 Pre Mesh Point Cloud Subset Metadata (optional)

The premesh point cloud dataset is only archived for projects where polygonal meshes are created. The premesh point cloud dataset has had additional processing and clean up to prepare the point cloud for meshing. This dataset is considered important because it is the base dataset to which all meshes and additional mesh products should be compared to for final accuracy assessment.

Pre-Meshing Metadata:

Element	Description
Name of Pre-Mesh Dataset	The dataset's filename, a suggested naming convention for premesh point cloud dataset is *ProjectName_GRE.txt*
Number of Points in File	Total number of points in the edited premesh point cloud
Overlap Reduction	(Y/N) (optional)
Smoothing	(Y/N) (optional)
Subsampling	(Y/N) (optional)
Color Editions	(Y/N) (optional)
Point Editing Summary	Include a description of major editing operations (IE overlap reduction, point deletion, etc...) that have been performed on the dataset

3.4.2 Metadata for a polygonal mesh (include creation, editing, and optimization)

A polygonal mesh is a surface model of a dataset that is created by connecting points through a series of small triangles. Creating, editing, and finalizing a polygonal mesh is a very complex process. The final mesh model should be archived in the OBJ format with the metadata items listed below. If color is included in the dataset it can either be stored internally within the OBJ data structure or as a separate JPG (and archived accordingly). Additionally, if the object?s coordinate system is adjusted then a transformation matrix must also accompany the OBJ file.

Polygonal Mesh Metadata:

Element	Description
Name of Mesh Dataset	The filename, a suggested naming convention for the polygonal mesh dataset is *ProjectName_origmesh*
Holes Filled	(Y/N)
Smoothing	(Y/N)
Color Editions	(Y/N) (optional)
Healing/despiking	(Y/N) (optional)
Total Triangle Count (post editing, predecimation)	Total number of triangles in the mesh file
RGB Color Included	(Y/N)
Data Reduction	(Y/N). If yes, give percentage of reduction from original

Coordinate System Adjustment	(Y/N). If yes, a transformation matrix must also be provided.
Additional processing notes	

Decimated Polygonal Mesh Metadata:

Element	Description
Name of Decimated Mesh Dataset	The file name, a suggested naming convention for the decimated polygonal mesh dataset is *ProjectName_decimesh_50pcnt* for decimated mesh e.g. by 50%.
Total Original Triangle Count	
Decimated Triangle Count	
RGB Color Preserved from original dataset	(Y/N)

3.4.3 Metadata for creating 2D CAD Models

2D CAD Models can include cross sections, plans and elevations and be derived from point clouds or meshed datasets. It is recommended that all 2D CAD drawings be archived in the DXF or DWG formats. Further metadata should also be collected in line with the CAD Guide.

2D CAD Model Metadata:

Element	Description
Source file name w/extension used to create 2D CAD Model	
Coordinate System transformation?	(Y/N). If yes, provide transformation matrix
Software used	
Dataset type	Cross Section, Plan, Elevation

If *cross section* dataset then:

Element	Description
Direction of cross sections	(X Axis, Y Axis, Z Axis, Other - Provide coordinates of direction)
Number of cross sections	

If *elevation or plan* dataset then:

Element	Description
Method used	Briefly describe method for creating 2D line features

3.4.4 Metadata for creating a 3D CAD Model

A 3D CAD model is a 3D surface model that has been created from a point cloud dataset. 3D CAD Models should be archived in DXF or DWG format. Further metadata should also be collected in line with the CAD Guide.

3D CAD Drawing Metadata:

Element	Description
Source file name w/extension used to create 3D CAD Model	
Coordinate System transformation?	(Y/N). If yes, provide transformation matrix
Software used to create 3D CAD Model	
Brief explanation of methods used to create 3D CAD model	

3.4.5 Metadata for creating a Digital Elevation Model (DEM)

DEM's can be created in GIS software from imported point cloud datasets. It is recommended that DEMs be archived in USGS, SDTS or other available ArcView formats.

DEM Creation Metadata:

Element	Description
Source point cloud dataset name used to create DEM	
DEM grid size (rows and columns)	
DEM resolution; units	
Coordinate System transformation (Y/N)?	If yes, provide transformation matrix
Brief explanation of methods used to create DEM	

3.4.6 Metadata for creating video/animation

A video or flythrough of a point cloud dataset or any of the derived products can be useful in many applications. All videos should be archived in the MPG4 format.

Video Creation Metadata:

Element	Description
Source file name w/extension used to create video	
Software used to create video	
Codec used for compression	
FPS	