http://gmv.cast.uark.edu A Method Store for Advanced Survey and Modeling Technologies Mon, 01 Apr 2013 03:29:18 +0000 en-US hourly 1 http://wordpress.org/?v=3.5.1 http://gmv.cast.uark.edu/scanning/software/polyworks/workflow-polyworks/polyworks-pifedit-cleaning-point-cloud-data/ http://gmv.cast.uark.edu/scanning/software/polyworks/workflow-polyworks/polyworks-pifedit-cleaning-point-cloud-data/#comments Mon, 11 Feb 2013 23:25:30 +0000 caitlin http://gmv.cast.uark.edu/?p=12311

This page will show you how to view and 'clean' the data in Polyworks PIFEdit.
Hint: You can click on any image to see a larger version.

POLYWORKS PIFEDIT

Introducing Polyworks PIFEdit:

PIFEdit is a data viewing and editing software available in the PolyWorks suite. It is used to clean scan data of unwanted data/points before importing the data into IMAlign.

> * **Note**: You have to have a full license of Polyworks (w/dongle) to be able to edit and save data out of PIFEdit (otherwise it functions only as a viewer.

Basic Navigation:

Upon opening the PIF file in PIF Edit, view the scan using the appropriate mouse buttons:

Left Button: Rotates the scan

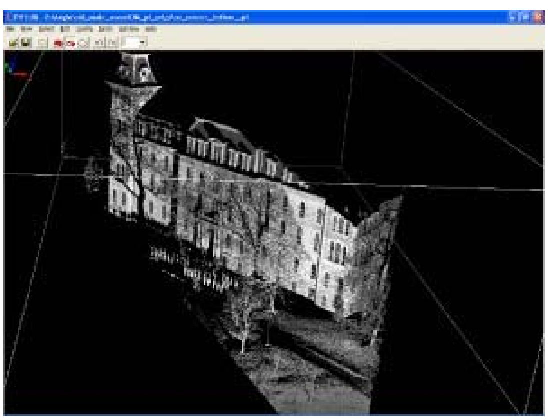
Middle Button: Translates the scan

Right Button: Zooms in and out on the scan

Get accustomed to the use and "feel" of these buttons because they are used in all of the PolyWorks modules.

VIEW DATA

View the data from every angel to identify which data you want to keep and which data can be removed.



In this "un-cleaned" data the trees and people, in this case ROTC soldiers, are seen

In the image above, a group of ROTC soldiers were included in the scan. Since the focus of the scan is the building, the scan data of the soldiers, the trees, and the ground in front of the building will all be removed.

Notice how the trees and the soldiers (objects in the forefront) cause shadows or holes in the scan data of the structure (object in the rear). This can be remedied by simply acquiring another scan of the same area from another location if access and time permit another scan.

SELECT UNWANTED DATA

To remove the unwanted scan data, press the **space bar**. This activates the Selection dialog box.

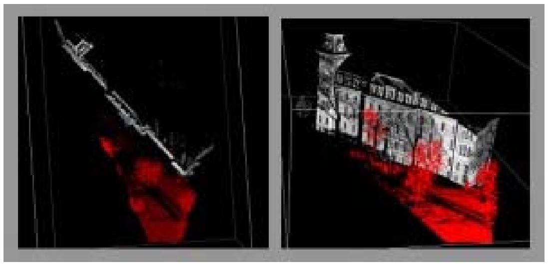
Hold down the **Shift and Ctrl keys and use the middle mouse button** to make your selection.

> **Shift**: Enables Volumetric Selection – otherwise it is in Surface Selection mode which is only useful with polygon meshes
>
> **Ctrl**: Enables Polygonal Selection – otherwise in Freeform Selection mode

CONFIRM SELECTION & DELETE DATA

Because you have to perform a volumetric selection in PIFEdit (aka it selects everything in the selection window), it is always good to **double check** the integrity of your selection before you delete any data.

Once you have done so you can go ahead and delete the unwanted data points from the scan. Repeat this operation as many times as needed.



The red indicates data that has been selected. On the left we view the data from above, on the right we view the same selected data in a perspective view

When finished, go to **File – Save As – save as name_cln.pf**.

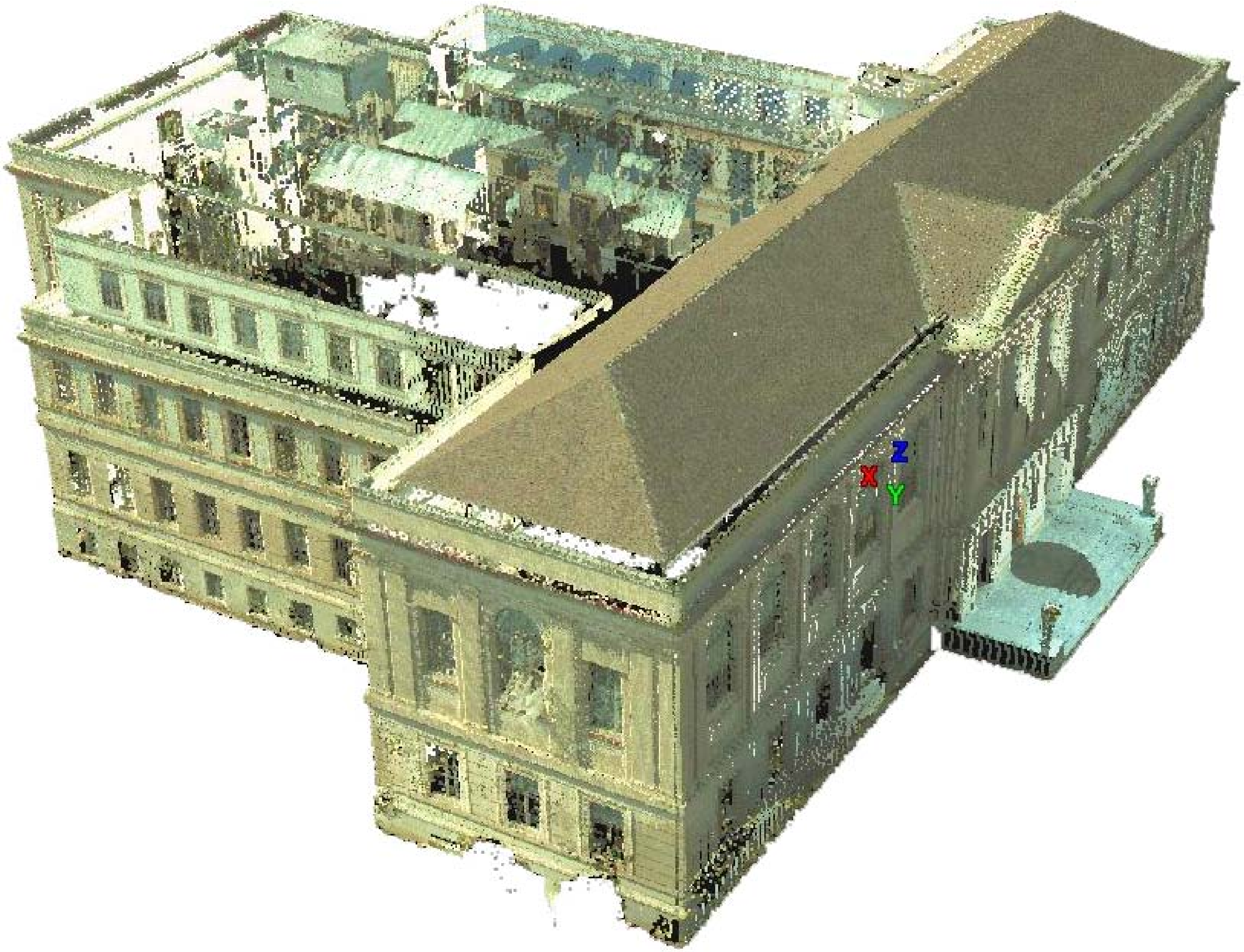
> Note: Our naming convention is to tack a 'cln' onto the scan name or to put the cleaned data into a 'clean' subfolder. **As a rule of thumb – never overwrite the original data**.

CONTINUE TO...

For further processing in the Polyworks Suite, continue on to Importing Data into IMAlign.

]]> http://gmv.cast.uark.edu/scanning/software/polyworks/workflow-polyworks/polyworks-pifedit-cleaning-point-cloud-data/feed/ 0 http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-exterior-2/ http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-exterior-2/#comments Wed, 28 Mar 2012 17:49:15 +0000 caitlin http://gmv.cast.uark.edu/?p=5618 Continue reading →]]>

Working with the University of Arkansas' Facilities Management and Planning Departments, CAST is documenting the historical Vol Walker Building and its renovation. Here are merged scans of the exterior of the building which were collected with the Leica C10 Scan Station scanner. The project includes multiple floors within the building interior as well as the building exterior.Exterior scans were collected with a point spacing of approximately 5-10 cm. The data sets have been separated due to file size and data density. Interior scans were collected with a point spacing that ranged from less than a centimeter at the most dense (at a range of < 1 meter) to approximately 5 cm at the least dense (at a range of 25 meters). These scans were then reduced to a more consistent point spacing of 1 cm for potential future use in historical preservation documentation.


Z
X
Y

Vol_Walker_Building_Exterior .zip (41.9 mb) (7.5 cm spacing in .pts file format)

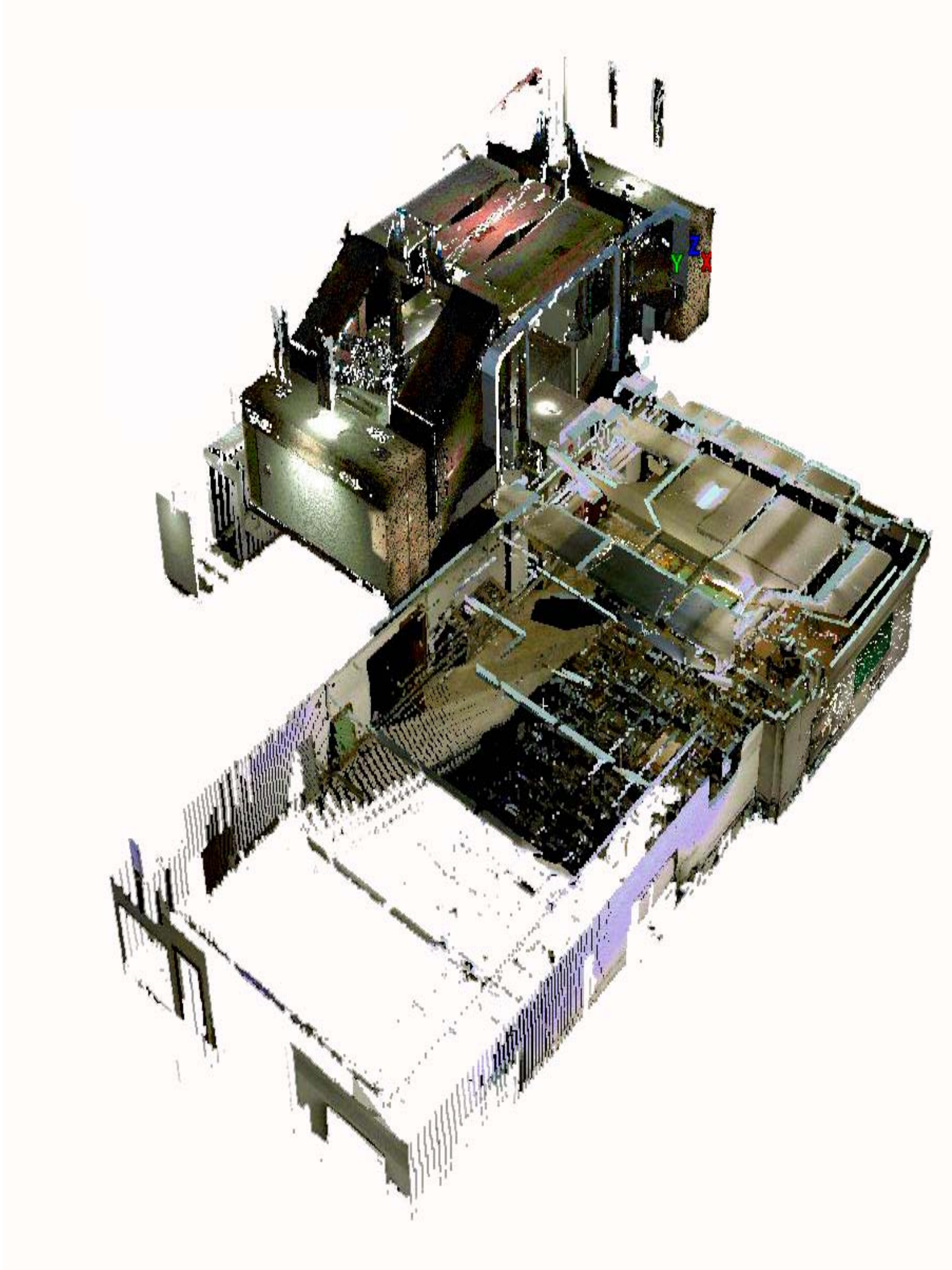
Sitemap_Vol_Walker_Exterior.htm -Explore the data set in Leica TruView, which requires Leica TruView free viewer and Internet Explorer. For instructions on using the free TruView data viewer and for a complete list of links to the TruView data related to this project, please see: Accessing Vol Walker Interior TruViews.

Credits:

Data was collected in collaboration with University of Arkansas Facilities Management, Operations and Maintenance and Campus Planning Divisions with outstanding assistance from Bob Harris, Construction Coordinator.

]]> http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-exterior-2/feed/ 0 http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-interior-basement-level-2/ http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-interior-basement-level-2/#comments Wed, 28 Mar 2012 17:32:28 +0000 caitlin http://gmv.cast.uark.edu/?p=5603 Continue reading →]]>

Working with the University of Arkansas' Facilities Management and Planning Departments, CAST is documenting the historical Vol Walker Building and its renovation. Here are merged scans of the basement or ground floor of the interior, which were collected with the Z+F 5005i Scanner. The project includes multiple floors within the building interior as well as the building exterior. Interior scans were collected with a point spacing that ranged from less than a centimeter at the most dense (at a range of < 1 meter) to approximately 5 cm at the least dense (at a range of 25 meters). These scans were then reduced to a more consistent point spacing of 1 cm for potential future use in historical preservation documentation. Exterior scans were collected with a point spacing of approximately 5-10 cm. The data sets have been separated due to file size and data density.


Z
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Vol_Walker_Building_Interior_Basement .zip (4.4 mb) (1 cm spacing in .pts file format)

Sitemap_Vol_Walker_Basement.htm -Explore the data set in Leica TruView, which requires Leica TruView free viewer and Internet Explorer. For instructions on using the free TruView data viewer and for a complete list of links to the TruView data related to this project, please see: Accessing Vol Walker Interior TruViews.

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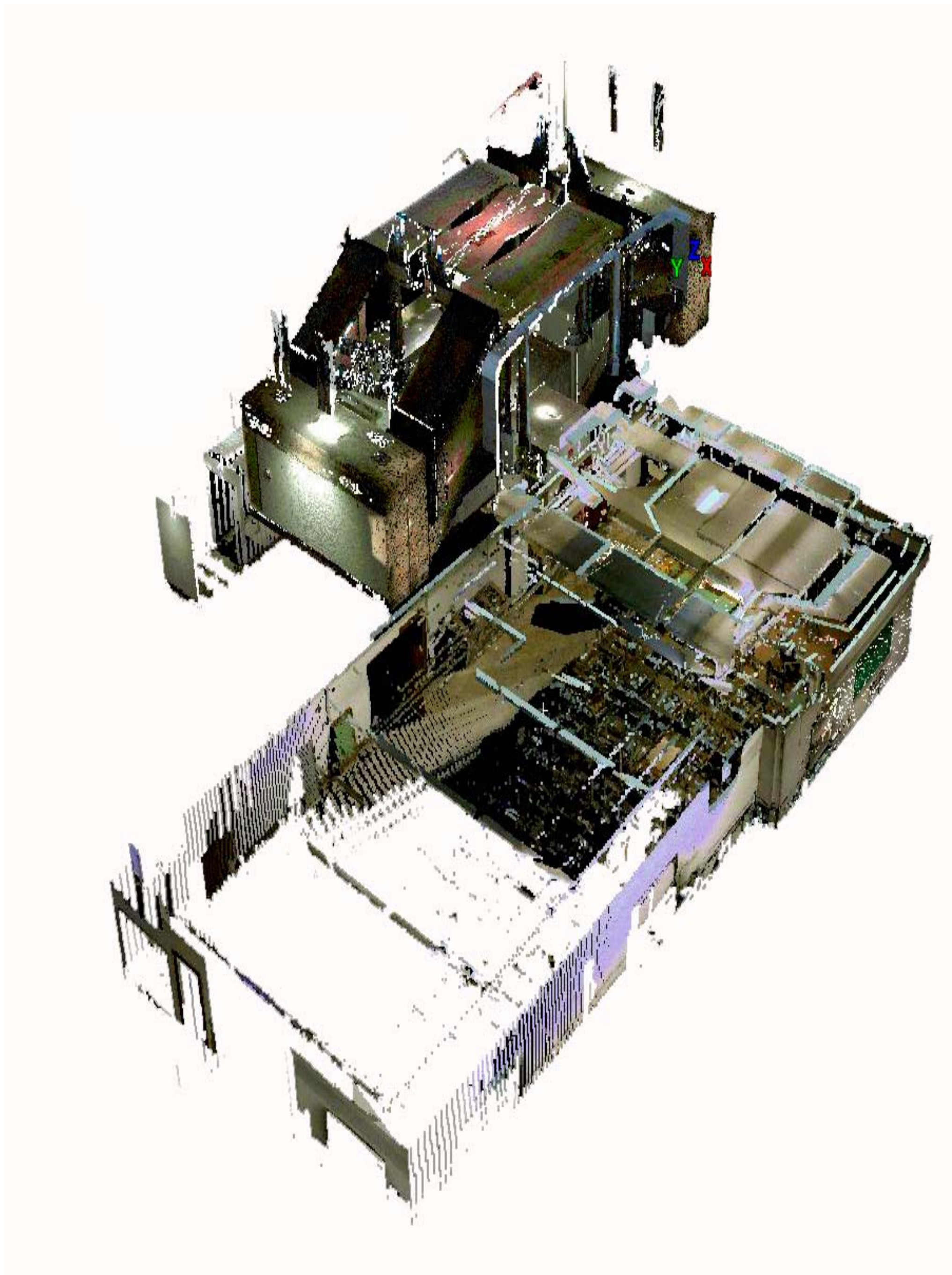
]]> http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-interior-basement-level-2/feed/ 0 http://gmv.cast.uark.edu/scanning/university-of-arkansas-vol-walker-building-interior-basement-level-3/ http://gmv.cast.uark.edu/scanning/university-of-arkansas-vol-walker-building-interior-basement-level-3/#comments Wed, 28 Mar 2012 17:32:28 +0000 caitlin 5 meters]]> http://gmv.cast.uark.edu/?p=5603 Continue reading →]]>

Working with the University of Arkansas' Facilities Management and Planning Departments, CAST is documenting the historical Vol Walker Building and its renovation. Here are merged scans of the basement or ground floor of the interior, which were collected with the Z+F 5005i Scanner. The project includes multiple floors within the building interior as well as the building exterior. Interior scans were collected with a point spacing that ranged from less than a centimeter at the most dense (at a range of < 1 meter) to approximately 5 cm at the least dense (at a range of 25 meters). These scans were then reduced to a more consistent point spacing of 1 cm for potential future use in historical preservation documentation. Exterior scans were collected with a point spacing of approximately 5-10 cm. The data sets have been separated due to file size and data density.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Vol_Walker_Building_Interior_Basement .zip (4.4 mb) (1 cm spacing in .pts file format)

Sitemap_Vol_Walker_Basement.htm -Explore the data set in Leica TruView, which requires Leica TruView free viewer and Internet Explorer. For instructions on using the free TruView data viewer and for a complete list of links to the TruView data related to this project, please see: Accessing Vol Walker Interior TruViews.

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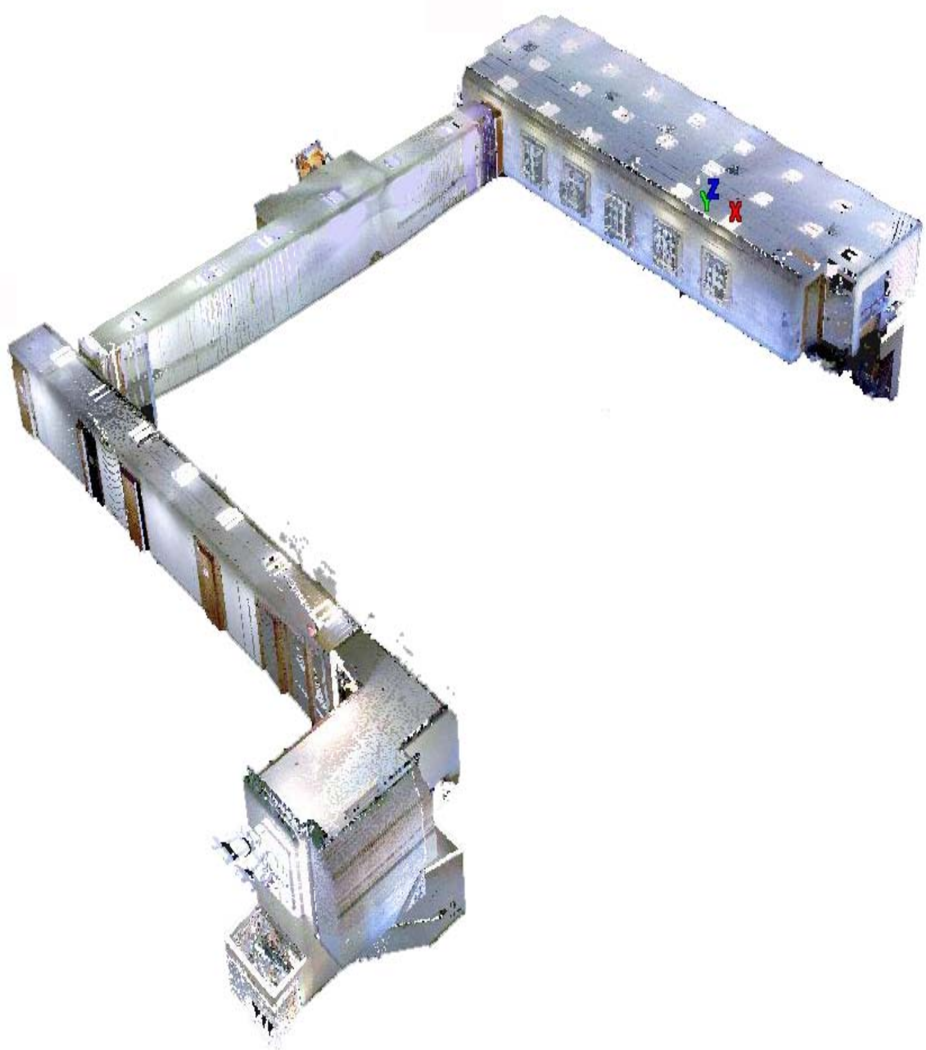
Working with the University of Arkansas' Facilities Management and Planning Departments, CAST is documenting the historical Vol Walker Building and its renovation. Here are merged scans of the third floor of the interior, which were collected with the Z+F 5005i Scanner. The project includes multiple floors within the building interior as well as the building exterior. Interior scans were collected with a point spacing that ranged from less than a centimeter at the most dense (at a range of < 1 meter) to approximately 5 cm at the least dense (at a range of 25 meters). These scans were then reduced to a more consistent point spacing of 1 cm for potential future use in historical preservation documentation. Exterior scans were collected with a point spacing of approximately 5-10 cm. The data sets have been separated due to file size and data density.



Vol_Walker_Building_Interior_Floor_3 .zip (4.4 mb) (1 cm spacing in .pts file format)

Sitemap_Vol_Walker_Floor_3.htm -Explore the data set in Leica TruView, which requires Leica [TruView free viewer]() and Internet Explorer. For instructions on using the free TruView data viewer and for a complete list of links to the TruView data related to this project, please see: [Accessing Vol Walker Interior TruViews]().

Credits:

Data was collected in collaboration with University of Arkansas Facilities Management, Operations and Maintenance and Campus Planning Divisions with outstanding assistance from Bob Harris, Construction Coordinator.

]]> http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-interior-floor-3-2/feed/ 0 http://gmv.cast.uark.edu/modeling/software-visualization/rapidform-xor/workflow-rapidform-xor/working-with-terrestrial-scan-or-photogrammetrically-derived-meshes-in-arcgis/ http://gmv.cast.uark.edu/modeling/software-visualization/rapidform-xor/workflow-rapidform-xor/working-with-terrestrial-scan-or-photogrammetrically-derived-meshes-in-arcgis/#comments Mon, 12 Dec 2011 16:59:53 +0000 Rachel http://gmv.cast.uark.edu/4039/working-with-terrestrial-scan-or-photogrammetrically-derived-meshes-in-arcgis/

Introduction

Many archaeological projects use a GIS to manage their data. After terrestrial scan or photogrammetric modeling data has been collected and cleaned, it may be convenient to integrate it into a project's GIS setup. As ArcGIS is widely available and in use both in University research departments and government offices, we're using it for the example here, but something like this should work for other GIS packages.

The first part of the workflow addresses working with meshes created from terrestrial scan data, and assumes you have existing meshes in Rapidform.

Decimation

Before exporting a dataset for use in a GIS you may want to decimate the dataset to produce a lower resolution model for visualization. High resolution models can slow rendering down and make manipulation of the model difficult.

a. Select the model you will be exporting either graphically or through the menu tree on the left hand side of the screen.

b. In the main menu select **Tools** and then **Scan Tools** and **Decimate Meshes**

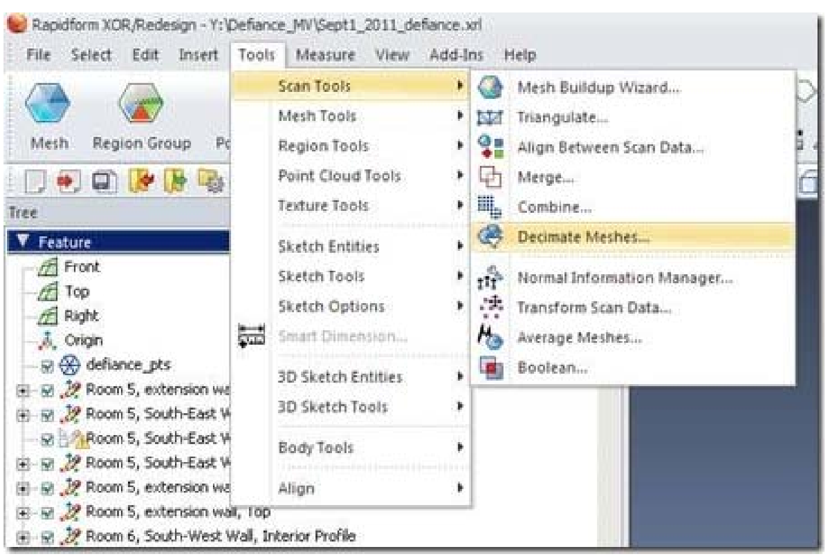


Fig. 1: Select the Decimate Meshes tool

c. In the **Decimate Meshes** menu confirm the selection of the **Target Mesh.**

d. Under **Method** choose **Poly-Face Count** for best control over the size of the resultant model.

e. Under **Options** set the **Target Poly-Face Count**. Numbers under 100,000 will render relatively quickly in ArcGIS. Inclusion of more than 500,000 polyfaces is not recommended.

f. Under **More Options** select **Preserve Color**.

g. Click **"OK"** to confirm and decimate the mesh.

Fig. 2: Select options for decimating the mesh.

Subsetting and Splitting Meshes

(Skipping ahead a bit conceptually…) When you import your mesh data into ArcGIS each mesh is stored as a single multipatch. You don't want to edit the shape of the multipatch in ArcGIS, only the placement (trust us on this). So any subsetting of the mesh needs to be performed before exporting from Rapidform (or other modeling software of your choice). Why subset or split a mesh?

a. Navigating in tight, enclosed spaces. You might want to be able to turn off the visibility of the back wall of a room or one half of a cistern to better visualize its interior.

b. Major sections of a mesh. If you have a scan of a building including several rooms or structures and you want to be able to visualize them individually, then they need to be made into discrete meshes.

Exporting

a. Select the model you want to export from the menu tree on the left hand side of the screen.

b. Right-click and select **"Export"**. Select an appropriate file format (see step 2, below, for choices).

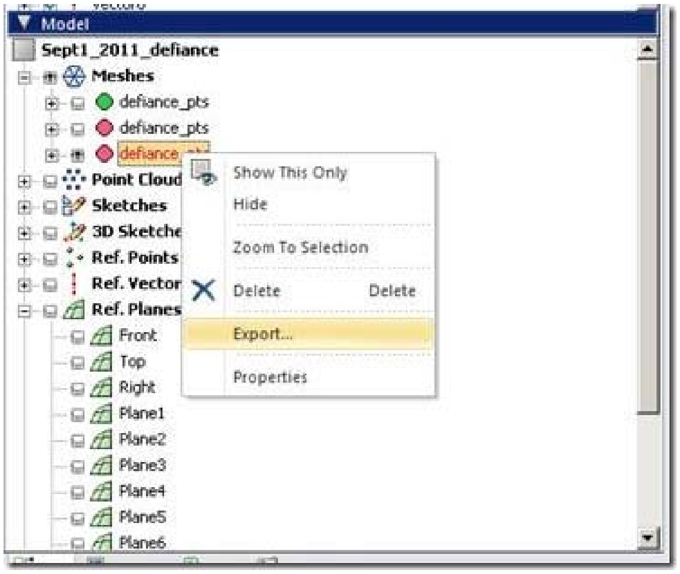


Fig. 3: Export via the menu tree.

4. Export Formats

a. Get a list of valid export formats by looking in the **dropdown** menu of the **export** dialog box.

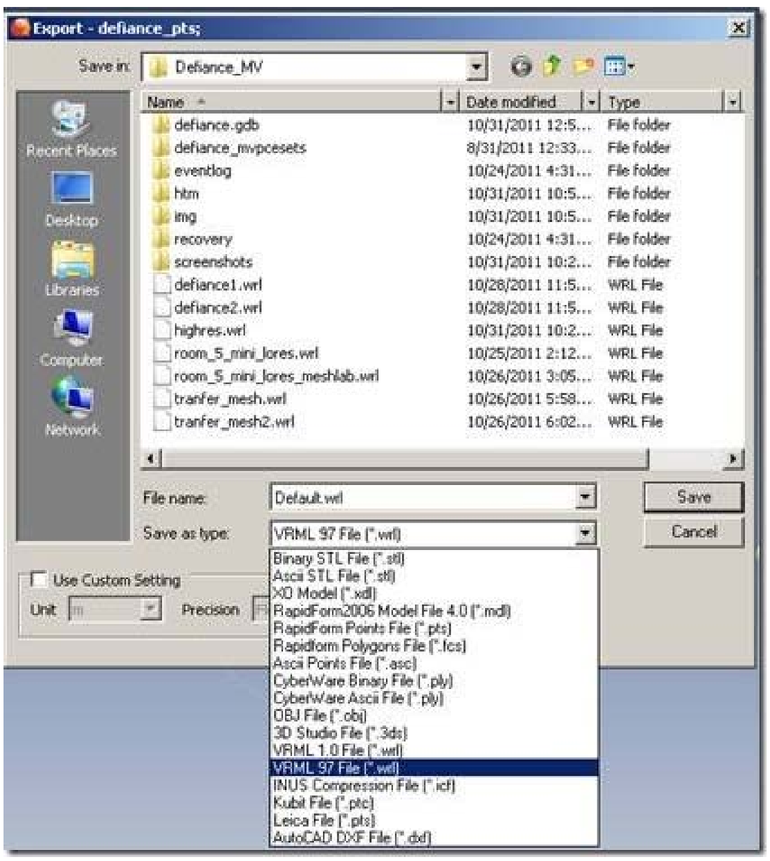


Fig. 4: Valid export file formats.

b. Suggested formats for export are VRML (file extension .wrl), collada (.dae) and AutoDesk 3d Max (.3ds).

Advice on Textures and Color Data

Modeling software manages color data in several ways. Color data might be recorded as UV coordinates referencing a separate texture file, as per vertex, per face or per wedge color information. Color data imported with scan data will typically default to storage as per vertex color. ArcGIS only recognizes color data stored explicitly in texture files, so if your color data is currently stored in another form you need to convert it.

Textures direct from Rapidform

i. Select the **Mesh** mode from the main toolbar.

ii. Select **Tools** and **Texture Tools** and **Convert Color to Texture.**

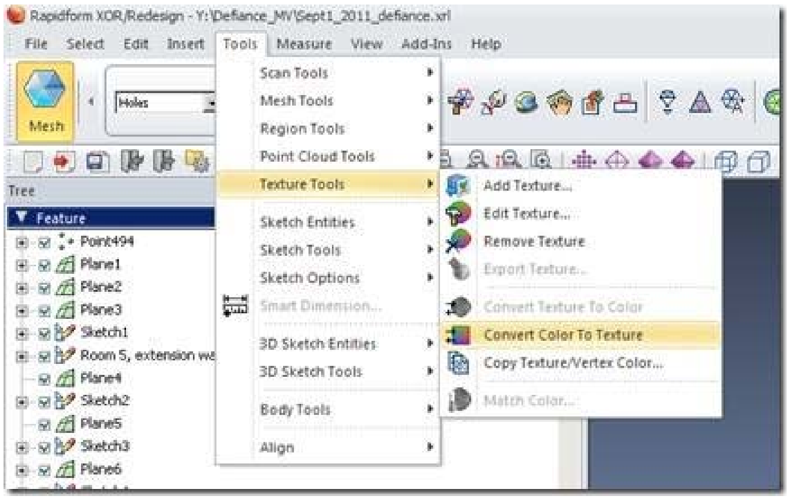


Fig. 5: Conver Color to Texture

iii. *After* creating the texture, export the model as usual.

iv. Export the texture by going in the **Main Menu** to **Texture Tools,** then **Export Texture** to save the texture file. Store it in the same folder as the model.

Color and Texture in Meshlab

Sometimes you want more tools for color editing. Sometimes ArcGIS doesn't like the textures produced by Rapidform. For this reason, we suggest an alternative method for setting the texture data using Meshlab. Meshlab is open source, and can be found at *meshlab.sourceforge.net.*

i. From **Rapidform** export a **.VRML** file by right-clicking (in the model tree menu on the left land side of the screen) on the mesh you wish to export and selecting **Export.**

ii. In **Meshlab**, open a new empty project. Go to **File** and **Import Mesh.**

Fig. 6: Import the Mesh to Meshlab

iii. Select the **VRML** file you just created and hit **Open**.

iv. Transfer the color information from per vertex to per face. In the **main menu** go to **Filters,** then to **Color Creation and Processing,** then to **Transfer Color: Vertex to Face.** Hit **Apply** in the resulting pop-up menu.

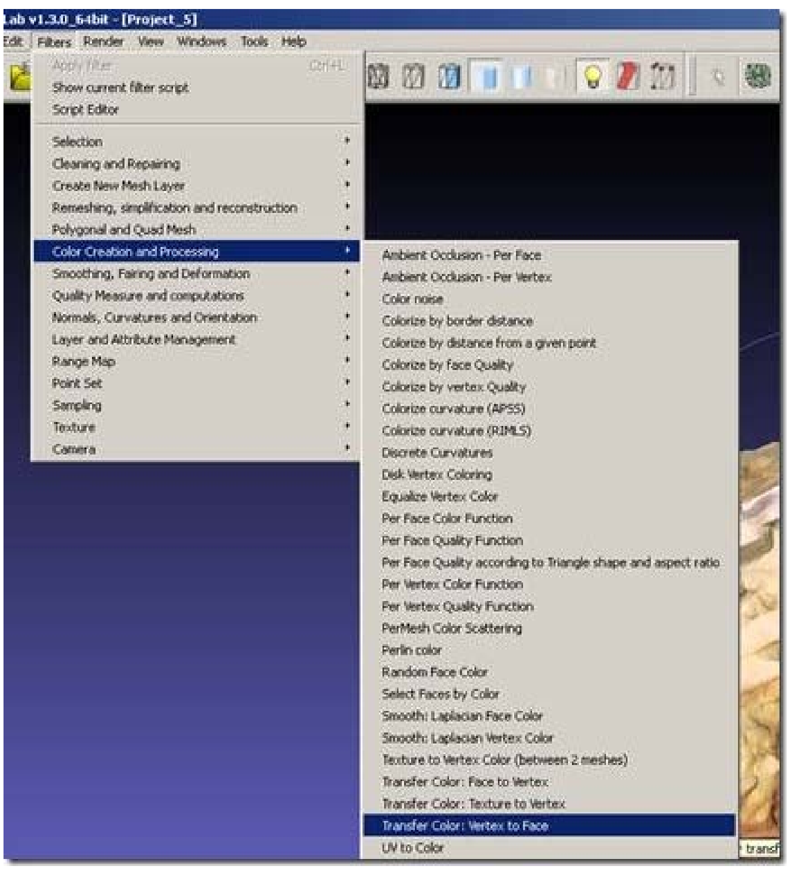


Fig. 7: Transfer color data from the vertices to the faces of the mesh.

v. From the **Main Menu** go to **Filters,** then to **Texture**, then to **Trivial Per-Triangle Parametrization.**

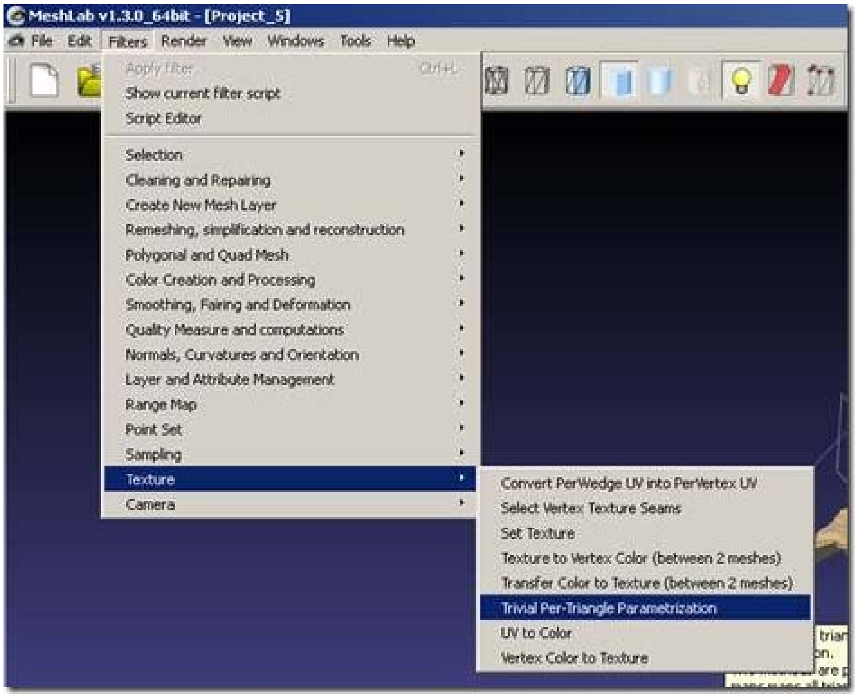


Fig. 8: Create texture data.

In the pop-up menu, select 0 **Quads per line**, 1024 **for the Texture Dimension**, and 0 for **Inter-Triangle border**. Choose the **Space Optimizing** method. Click **Apply.**

n.b. If you get an error along the lines of "Inter-Triangle area is too much" your Texture Dimension is too small for the dataset. Increase the texture dimension to resolve the error.

Fig. 9: Set the texture data parameters.

vi. In the **Main Menu** go to **Filters** and **Texture** and **Vertex Color to Texture**. Accept the defaults for the name and size. Tick the boxes next to **Assign texture** and **Fill Texture**.

Fig. 10: Transfer color data to the texture dataset.

vii. In the **Main Menu** go to **File** and **Export Mesh.** Make sure to **UNTICK** the box next to **Vertex Color**. Otherwise ArcGIS gets confused! Make sure the texture file is present. Click **OK** to save.

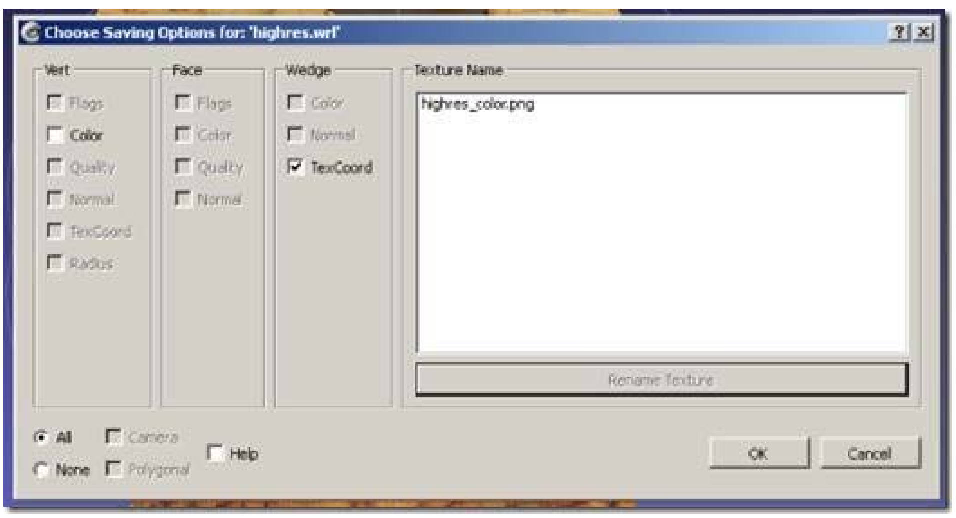


Fig. 11: Export the mesh as collada (dae).

Preparing a GIS to receive Mesh data

Once you have created your mesh files and exported them to collada or something similar and *explicitly assigned* texture data (not to be confused with vertex color, face color or wedge color data), you are ready to import the data into ArcGIS. Assuming your data is not georeferenced, follow the method below. If your data is georeferenced, head over to our [Photoscan to ArcGIS post](), and follow the import method described there.

1. Preparing the geodatabase

a. Open **ArcCatalog** any way you choose. Create a new geodatabase by right clicking on the folder where you wish to create the geodatabase and selecting **New** and **File Geodatabase**. Only **Geodatabases** support the import of texture data, so don't try and use a shapefile.

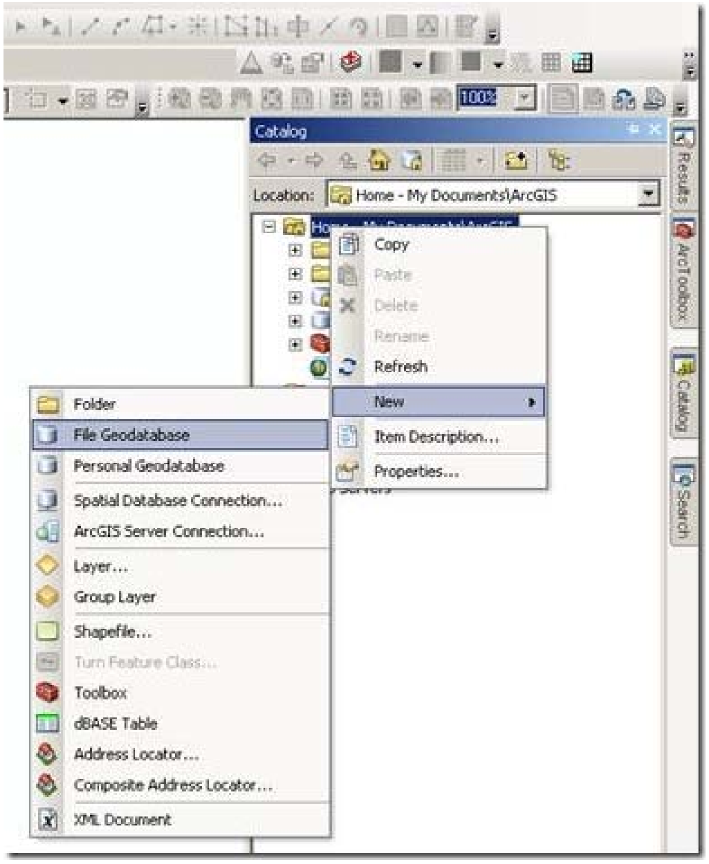


Fig. 14: Create a geodatabase in ArcGIS.

b. Create a **multipatch feature class** in the geodatabase.

c. Ensure that the **X/Y domain** covers the coordinates of any meshes you will be importing. View the **Spatial Domain** by right-clicking on the **feature class** and going to **Properties** and then to the **Domain** tab.

Fig. 15: Check the spatial domain of the new feature class.

d.If the **spatial domain** is not suitable, adjust the **Environment** settings by going to the **Geoprocessing toolbar** in the **Main Menu**. Scroll down to **Geodatabase Advanced** and adjust the **Output XY Domain** as needed. You can also adjust the **Z Domain** in this dialog box.

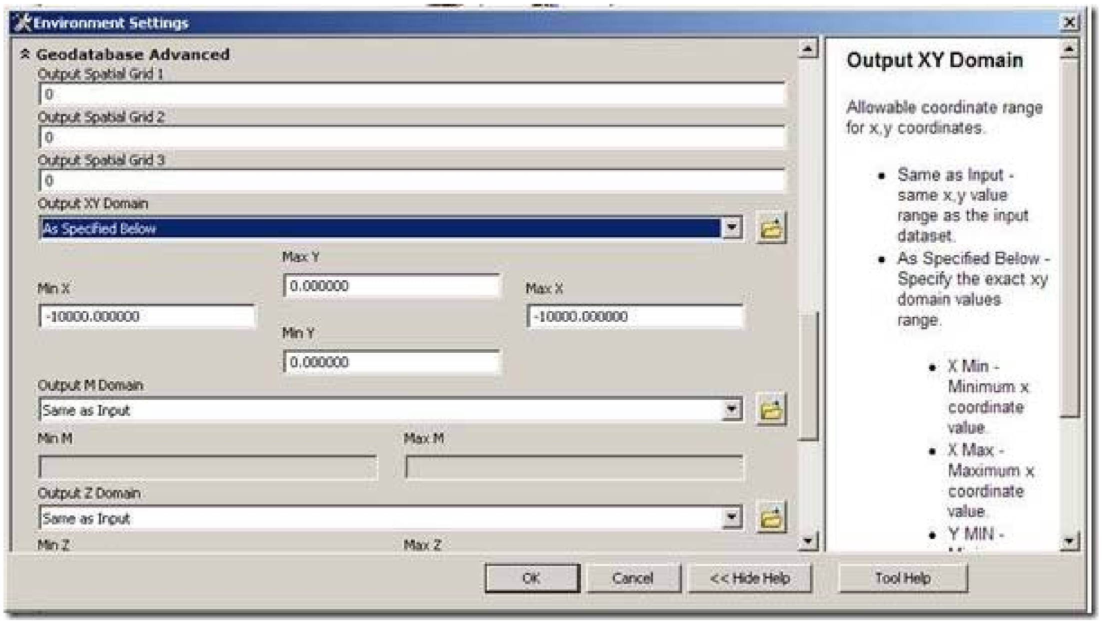


Fig. 16: Adjust the spatial domain in the environment settings.

Preparing the scene file.

a. Open **ArcScene** and add base data such as a plan of the site, an air photo of the location, etc. The base data will allow you to control the location to which the model is imported. Add the empty **multipatch feature class** you just created.

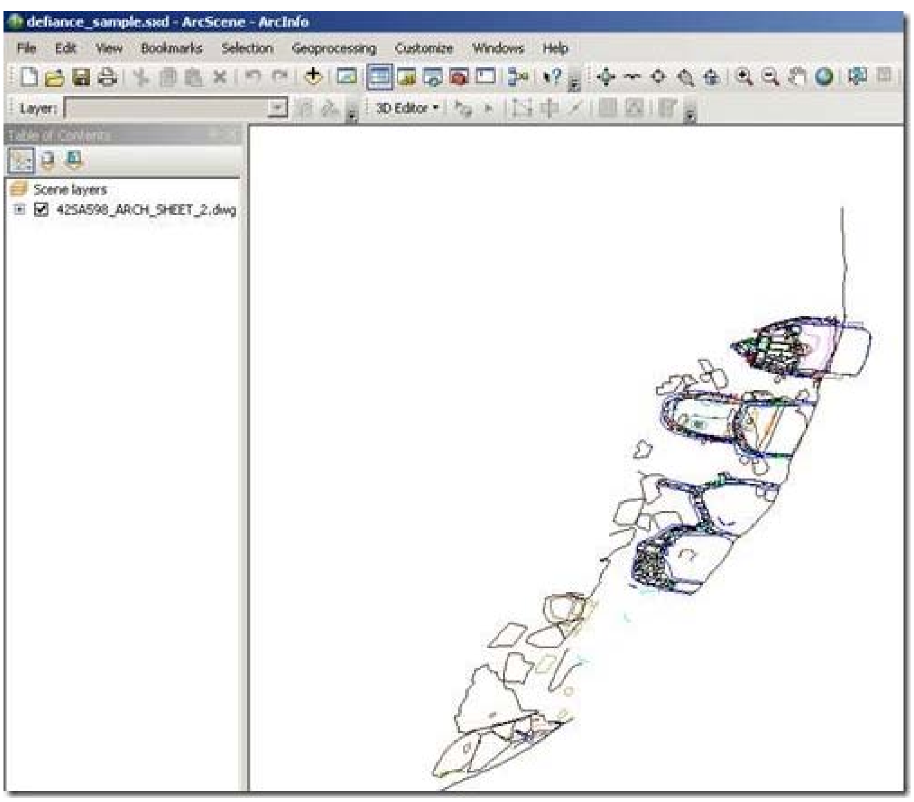


Fig. 17: Add base data to a Scene.

b. Start editing either from the **3D editor** toolbar or by right-clicking on the **multipatch** feature class in the **Table of Contents** and choosing **Edit Features** and **Start Editing.**

Fig. 18: Start editing in ArcScene.

Importing the Scan data

1. Import the **vrml** or **collada** file by selecting the **Create Features Template** for the **multipatch** and clicking on the base plan roughly in the location where you would like the mesh data to appear. Select the **vrml or collada** file from the **Open File** dialog box that appears. Wait while the file is converted.

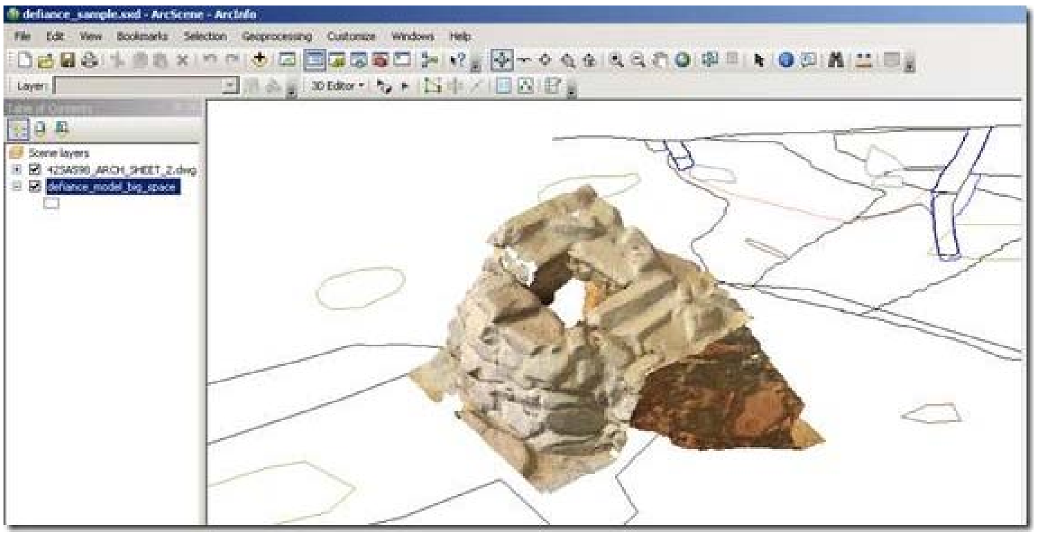


Fig. 19: The vrml data is converted to multipatch on import.

2. You can now Move, Rotate, Scale the imported multipatch in ArcScene by **selecting** the feature using the **Edit Placement** tool and inputting values in the **3D Editing** toolbar or by interactively dragging the multipatch feature.

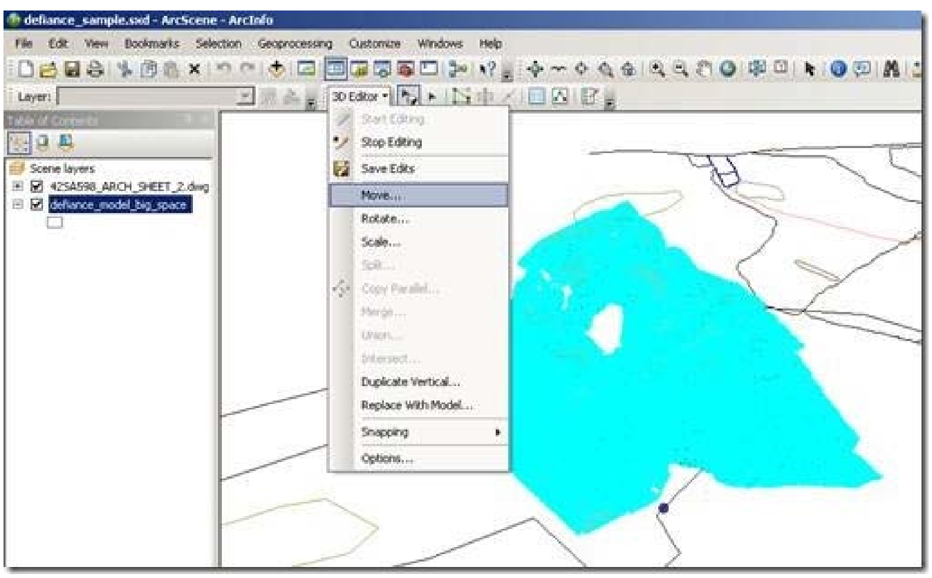
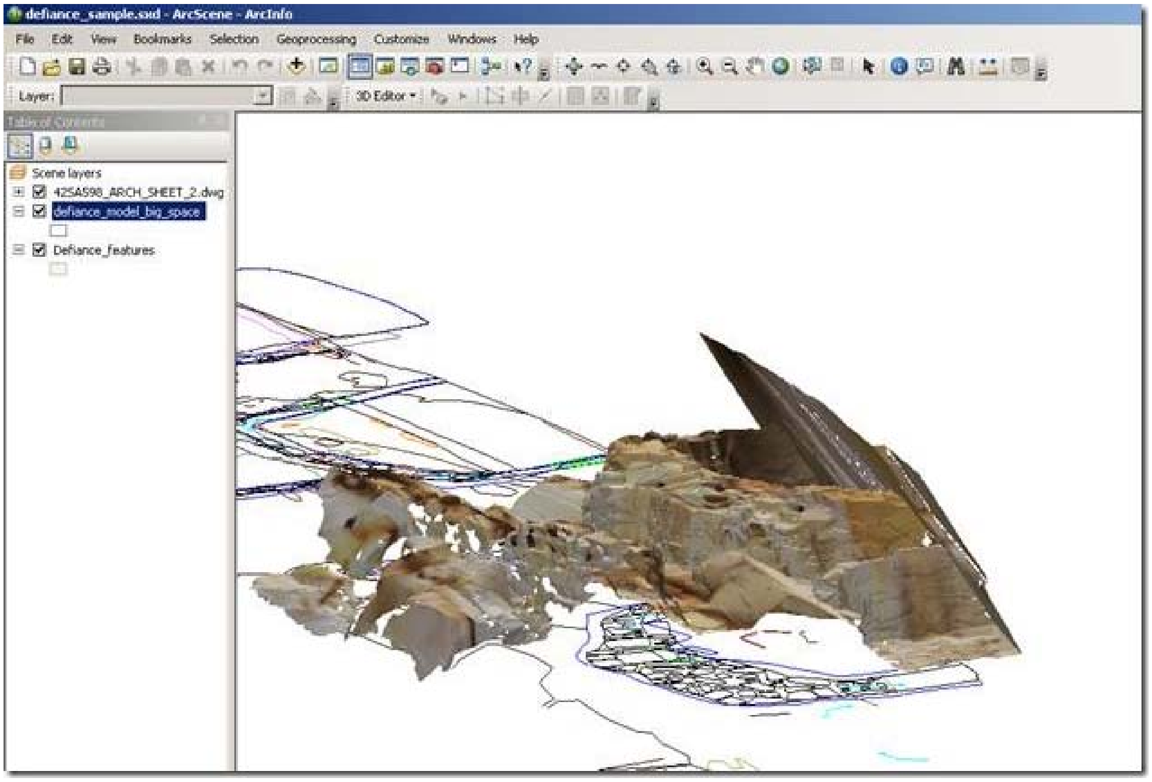


Fig. 20: Select the multipatch feature to adjust its position and scale.

3. Once you are satisfied with the placement of the multipatch, you can add attribute data.

A note on rotation in Arcscene

You can only rotate in the x-y plane (that is, around z-axis) in ArcScene. If you need to rotate your data around the x or y axis you need to do this in your modeling software before import. Bringing a .dxf of the polygon or point data you are trying to align the mesh with into your modeling software is probably the simplest way to get the alignment right. You may have to translate your .dxf to a local grid because most modeling software doesn't like real world coordinates. Losing the real coordinates during this step doesn't matter because you're just using the polygon data to set orientation around the x and y axes. You'll get the model in the correct real-world place when you import into ArcScene.



Re-exporting

Fig. 21: The textured mesh data appears over the correct location on the base plan.

4. At this point it's probably a good idea to re-export a **collada** model of your newly scaled and located mesh data. If not, every time you update the model you will have to go through the scaling and locating process again.

a. In ArcToolbox go to **Conversion Tools> To Collada> Multipatch To Collada**.

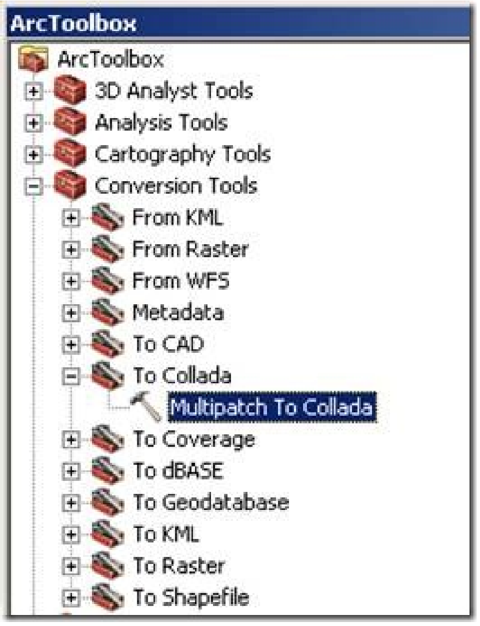


Fig. 22: Export Multipatch to Collada

b. Select the multipatch for export and the folder where you want the re-exported model to appear.

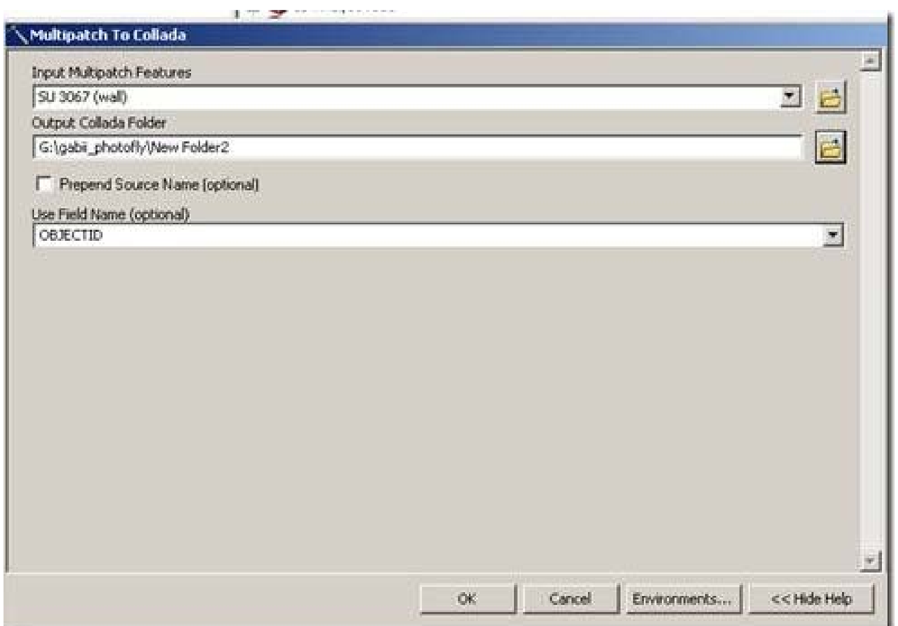


Fig. 23: Set parameters for export.

c. Check that the model has exported correctly by opening it in your modeling software.

n.b. You may have to reapply the textures at this point.

A note on features for attribute management

It may be convenient to store attribute information in other **related** feature classes so that a single meshed model can have multiple, spatially discrete attributes. How you design your geodatabase will vary greatly dependent on project requirements.

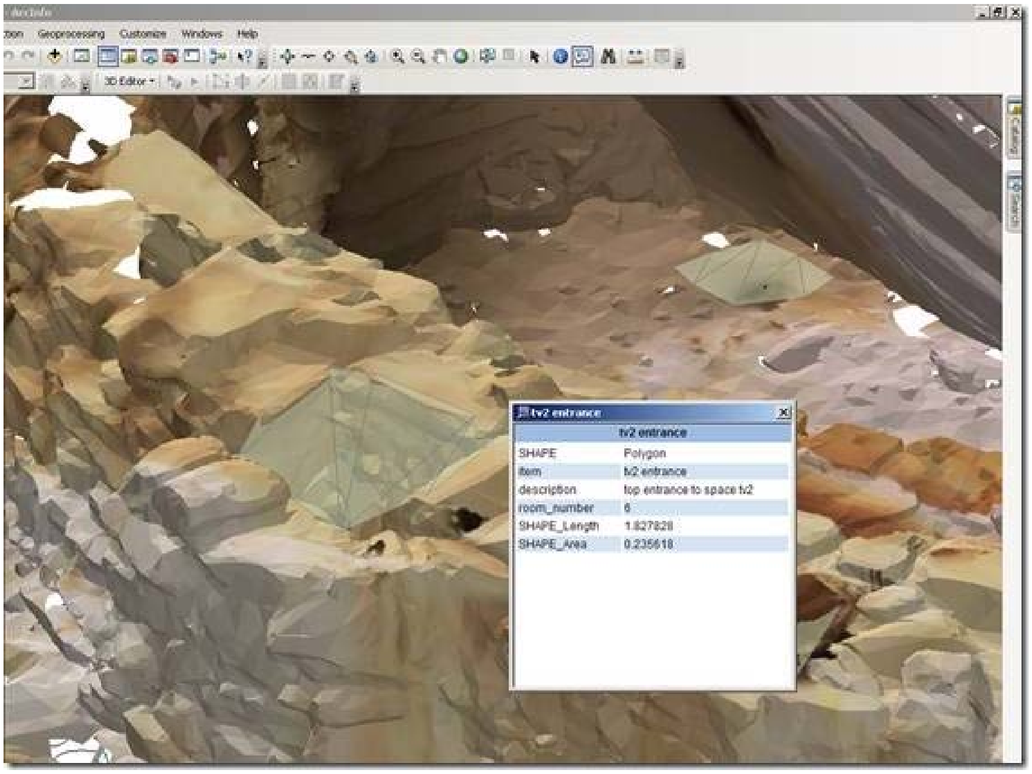


Fig. 19: Additional related feature classes can be used to manage attribute data.

A note on just how much mesh data you can get into ArcScene.

1. If you are using a file geodatabase, in theory the size of the geodatabase is unlimited and you can include all the mesh data you want.

2. In practice, individual meshes with more than 200,000 polygons have problems importing on an average ™ desktop computer.

3. In practice, rendering becomes slow and jumpy with more than 200 MB of mesh data loaded into a single scene on an average ™ desktop computer. The size and quality of your textures will also have an impact here. Compressed textures are probably a good plan.

4. In short, the limitation is on rendering and on what can be cached in an individual scene, rather than on storage in the geodatabase. Consider strategies including having low polygon count meshes for display in a general scene, with links to high polygon count meshes, which can be stored in the geodatabase but not normally rendered in the scene, which can be called up via links in html popup, the attribute table, or via another script.

]]> http://gmv.cast.uark.edu/modeling/software-visualization/rapidform-xor/workflow-rapidform-xor/working-with-terrestrial-scan-or-photogrammetrically-derived-meshes-in-arcgis/feed/ 0 http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-interior-floor-2-2/ http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-interior-floor-2-2/#comments Tue, 30 Aug 2011 00:50:10 +0000 caitlin http://gmv.cast.uark.edu/?p=3634 Continue reading →]]>

Working with the University of Arkansas' Facilities Management and Planning Departments, CAST is documenting the historical Vol Walker Building and its renovation. Here are merged scans of the second floor of the interior, which were collected with the Z+F 5005i Scanner. The project includes multiple floors within the building interior as well as the building exterior. Interior scans were collected with a point spacing that ranged from less than a centimeter at the most dense (at a range of < 1 meter) to approximately 5 cm at the least dense (at a range of 25 meters). These scans were then reduced to a more consistent point spacing of 1 cm for potential future use in historical preservation documentation. Exterior scans were collected with a point spacing of approximately 5-10 cm. The data sets have been separated due to file size and data density.

Vol_Walker_Building_Interior_Floor_2 .zip (2.81 gb) (1 cm spacing in .pts file format)

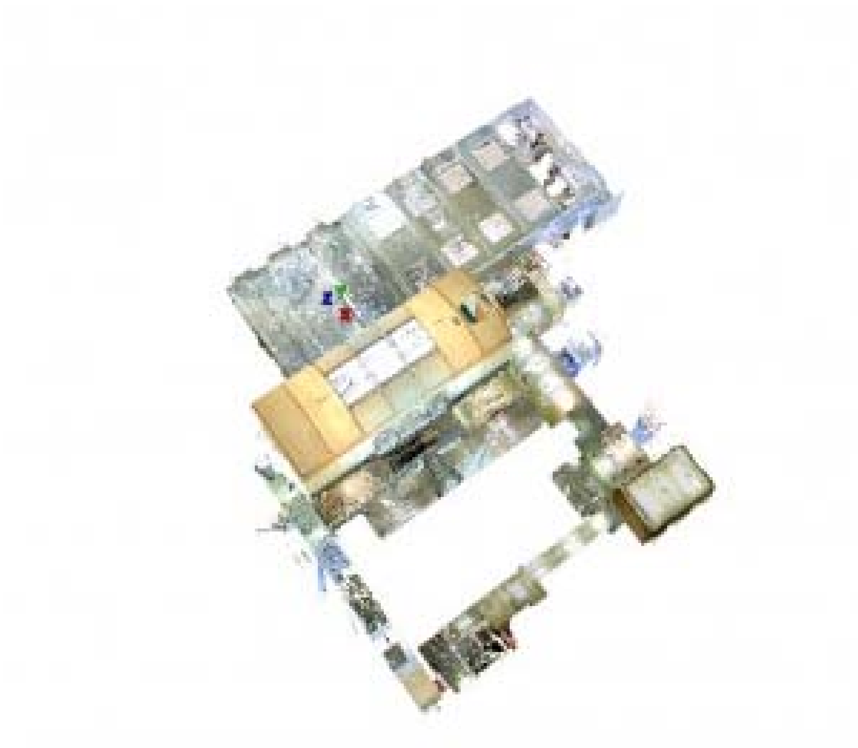
Sitemap_Vol_Walker_Floor_2.htm -Explore the data set in Leica TruView, which requires Leica TruView free viewer and Internet Explorer. For instructions on using the free TruView data viewer and for a complete list of links to the TruView data related to this project, please see: Accessing Vol Walker Interior TruViews.

Credits:

Data was collected in collaboration with University of Arkansas Facilities Management, Operations and Maintenance and Campus Planning Divisions with outstanding assistance from Bob Harris, Construction Coordinator.

]]> http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-interior-floor-2-2/feed/ 0 http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-interior-floor-1-2/ http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-interior-floor-1-2/#comments Tue, 30 Aug 2011 00:15:53 +0000 caitlin http://gmv.cast.uark.edu/?p=3626 Continue reading →]]>

Working with the University of Arkansas' Facilities Management and Planning Departments, CAST is documenting the historical Vol Walker Building and its renovation. Here are merged scans of the first floor of the interior, which were collected with the Z+F 5005i Scanner. The project includes multiple floors within the building interior as well as the building exterior. Interior scans were collected with a point spacing that ranged from less than a centimeter at the most dense (at a range of < 1 meter) to approximately 5 cm at the least dense (at a range of 25 meters). These scans were then reduced to a more consistent point spacing of 1 cm for potential future use in historical preservation documentation. Exterior scans were collected with a point spacing of approximately 5-10 cm. The data sets have been separated due to file size and data density.



Vol_Walker_Building_Interior_Floor_1 .zip (2 gb) (1 cm spacing in .pts file format)

Sitemap_Vol_Walker_Floor_1.htm -Explore the data set in Leica TruView, which requires Leica TruView free viewer and Internet Explorer. For instructions on using the free TruView data viewer and for a complete list of links to the TruView data related to this project, please see: Accessing Vol Walker Interior TruViews.

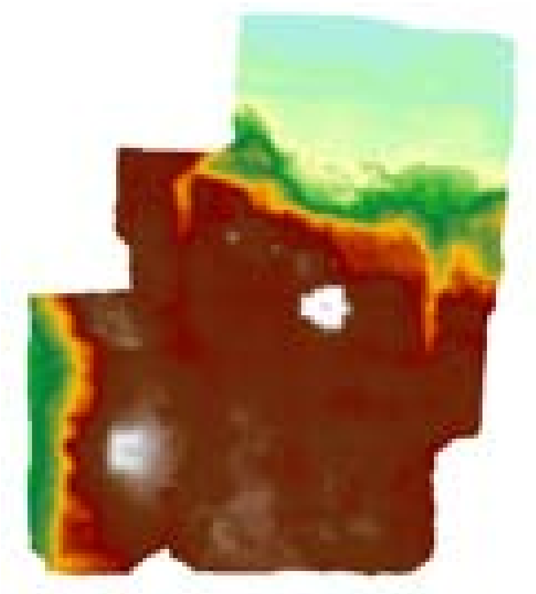
Credits:

Data was collected in collaboration with University of Arkansas Facilities Management, Operations and Maintenance and Campus Planning Divisions with outstanding assistance from Bob Harris, Construction Coordinator.

]]> http://gmv.cast.uark.edu/region-data/region/united-states/university-of-arkansas-vol-walker-building-interior-floor-1-2/feed/ 0 http://gmv.cast.uark.edu/scanning/tiwanaku-boliviadem-2/ http://gmv.cast.uark.edu/scanning/tiwanaku-boliviadem-2/#comments Fri, 17 Jun 2011 21:49:48 +0000 caitlin http://gmv.cast.uark.edu/?p=3494 Continue reading →]]>

The Center has been involved in a multi-year project in collaboration with Dr. Alexei Vranich at the University of Pennsylvania to scan and document the Pre-Incan site of Tiwanaku, Bolivia. Read a short synopsis of the project at Tiwanaku Project Details and for full details on the entire survey, refer to Geophysics and Geomatics at Tiwanaku.

For the .jpg, .tif, or .img photogrammetry formats, we recommend the free viewer ArcGIS Explorer Desktop. This free GIS application provides ways to explore and share GIS data.



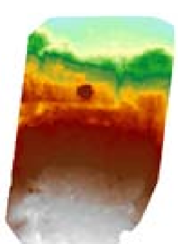
dem_1972_1m.tif (File size – 71 mb)

Photogrammetric processing was performed on 10 historic vertical aerial photographs from 1972 to produce this digital elevation model (DEM) covering the monumental core and surrounding areas of Tiwanaku.
Ground sample distance – 0.5-m
Coverage – 330-ha
Coordinate system – Arbitrary, based on local coordinate system used by archaeologists.

]]> http://gmv.cast.uark.edu/scanning/tiwanaku-boliviadem-2/feed/ 0 http://gmv.cast.uark.edu/scanning/tiwanaku-bolivia-digital-elevation-model-1992-2/ http://gmv.cast.uark.edu/scanning/tiwanaku-bolivia-digital-elevation-model-1992-2/#comments Fri, 17 Jun 2011 18:31:42 +0000 adam http://gmv.cast.uark.edu/?p=3469 Continue reading →]]>

The Center has been involved in a multi-year project in collaboration with Dr. Alexei Vranich at the University of Pennsylvania to scan and document the Pre-Incan site of Tiwanaku, Bolivia. Read a short synopsis of the project at Tiwanaku Project Details and for full details on the entire survey, refer to Geophysics and Geomatics at Tiwanaku.

For the .jpg, .tif, or .img photogrammetry formats, we recommend the free viewer ArcGIS Explorer Desktop. This free GIS application provides ways to explore and share GIS data.



dem_1992_1m.tif (File size – 26 mb)

Photogrammetric processing was performed on two historic vertical aerial photographs from 1992 to produce this digital elevation model (DEM) covering the monumental core and surrounding areas of Tiwanaku.
Ground sample distance – 1-m
Coverage – 550-ha
Coordinate system – Arbitrary, based on local coordinate system used by archaeologists.

]]> http://gmv.cast.uark.edu/scanning/tiwanaku-bolivia-digital-elevation-model-1992-2/feed/ 0