UPGRADE FROM ARCGIS 10.3 TO ARCGIS PRO

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Abstract

The paper aimed to present the evolution of ArcGIS from ArcGIS 10.3 to ArcGISPro. Similar to ArcMap, ArcCatalog, ArcScene and ArcGlobe, ArcGIS Pro is an application that belongs to ArcGIS for Desktop and is included in with the ArcGIS 10.3 for Desktop product. ArcGIS Pro by Esri improves the GIS experience by assisting ArcGIS for Desktop to perform faster and is used to create and analyze data in 2D and 3D. The brand new 64-bit desktop application is an essential upgrade for the ArcMap in developing and analyzing spatial data.
Projects: ArcGIS Pro transforms all entries into projects, maintaining organized and standardized work. This project feature is comprised of a vast number of project templates catering for a wide variety of needs. Data visualization: ArcGIS Pro contains a rich library of maps and layer types. With its new 64-bit support system, multiples maps and layers can be viewed simultaneously. Even better, these maps and layers can be viewed in 2D and 3D.

Keywords: *ArcGIS, Geoprocesing, GIS, Spatial data.*

INTRODUCTION

A geographic information system (GIS) is a framework for gathering, managing, and analyzing data. Rooted in the science of geography, GIS integrates many types of data. It analyzes spatial location and organizes layers of information into visualizations using maps and 3D scenes. With this unique capability, GIS reveals deeper insights into data, such as patterns, relationships, and situations—helping users make smarter decisions.

Prior to the ArcGIS suite, Esri had focused its software development on the command lineArc/INFOworkstation program and several Graphical User Interface-based products such as the ArcView GIS 3.x desktop program. Other Esri products included MapObjects, a programming library for developers, and ArcSDE as a relational database management system. The various products had branched out into multiple source trees and did not integrate well with one another. In January 1997, Esri decided to revamp its GIS software platform, creating a single integrated software architecture.

ArcGIS Pro is a free application however; it is only accessible for clients that have the ArcGIS for Desktop license and are current on maintenance. The three main stages of starting up are the installation, authorization and updates:

Download and install ArcGIS Pro: Download ArcGIS Pro and any other necessary application, for example the Offline Help. Install the ArcGIS Pro application first and then work through the other downloads.

Authorization of ArcGIS Pro: Launching the ArcGIS application for the first time will prompt the Sign In box to appear. Key in the credentials obtained the organization in charge via ArcGIS online or the ArcGIS Portal.

Updating ArcGIS Pro: ArcGIS Pro is enabled with auto-updates depending on the regularity of the new patches.

MATERIALS AND METHODS

ArcGIS Pro is a ribbon-based application. Many commands are available from the ribbon at the top of the ArcGIS Pro window; more advanced or specialized functionality is found on panes that can be opened as needed. ArcGIS Pro allows you to store multiple items, such as maps, layouts, tables, and charts, in a single project and work with them as needed. The application also responds contextually to your

work. Tabs on the ribbon change depending on the type of item you're working with.

The interface of ArcGIS 10.3 as presented in Figure 1 and the new interface of ArcGIS PRO presented in Figure 2.
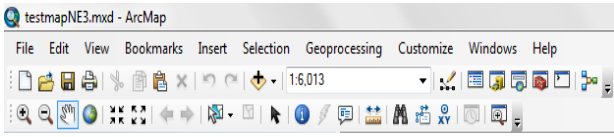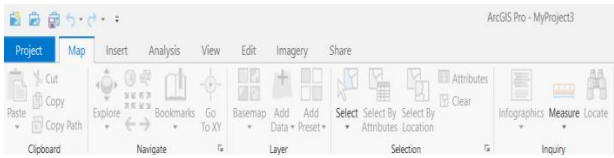

Figure 1. ArcGIS 10.3

Figure 2. ArcGIS PRO

Now we will present you the new improvements of the new ArcGIS version.

ArcGIS Prohelps you organize and manage the resources related to a work project. To do this, it uses a project file (.aprx) as its basic file type. An ArcGIS Pro project may contain maps, scenes, layouts, data, tools, and other items. It may contain connections to folders, databases, and servers. Content can be added from online portals such as your ArcGIS organization or the ArcGIS Living Atlas of the World (Figure 3).
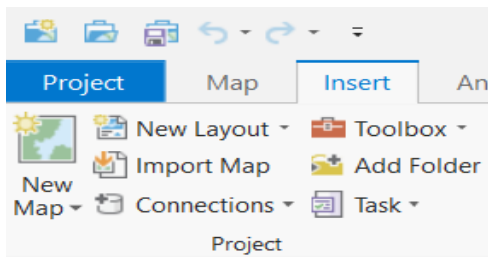

Figure 3. Insert Tab

Here we are going to present how Georeferencing works in the newest version of ArcGIS (Figure 4).
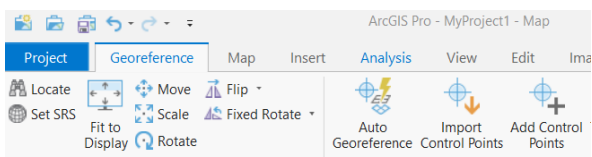

Figure 4. Georeference tab

Auto Georeference automatically compute control points between the source layer and other visible reference raster layers in the map.

The generated control points are based on spectral signatures so it is meant for aerial and satellite imagery, where the source and the reference targets are similar in nature terms of geographic location, time, season, image orientation, image scale and band combination. Import Control Points you can import control points from a file (Figure 5).
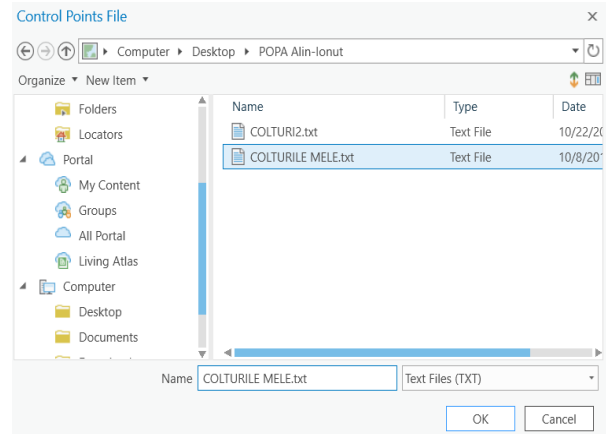

Figure 5. Import Control Points

Add Control Points to align the source layer to the reference layers. First click at a location on the source layer you are georeferencing, then click at the corresponding location on the reference layer (Figure 6).
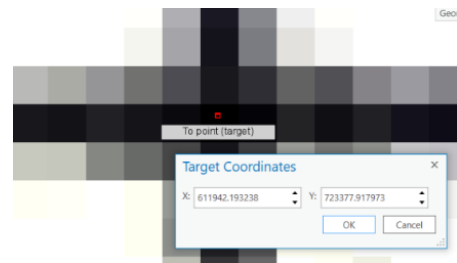

Figure 6. Add Control Points

Control Point Table

The Control Point Table and the Review group are used to check the quality of the control points. The Control Point Table provides information regarding the control point pairs that have been created. Each row represents a control point pair and lists the starting coordinates, adjusted coordinates, and residual error. The sum of the errors is presented in the root mean square (RMS) error.

With this update there is a new way to create a Feature Class.

Feature classes are homogeneous collections of common features, each having the same spatial

representation (such as points, lines, or polygons) and a common set of attributes (for example, a line feature class for representing road center lines). The four most commonly used feature classes are points, lines, polygons, and an notation (Figures 7 and 8).
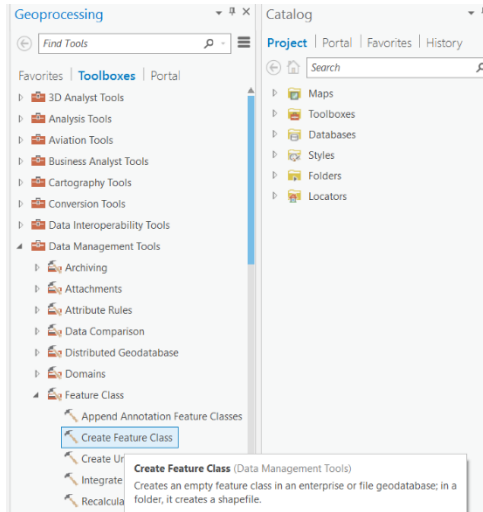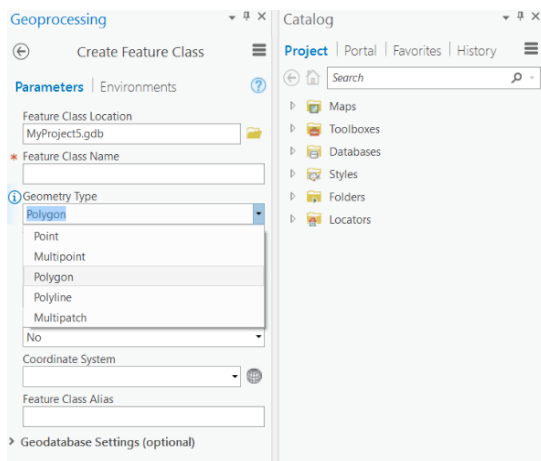

Figure 7. Create feature class (1)

Figure 8. Create feature class (2)

RESULTS AND DISCUSSIONS

ArcGIS Pro is a truly 64-bit desktop application that takes advantage of your modern hardware for maximum performance and smooth map and 3D scene displays. It has a vibrant, contextual interface that serves you with the right tools at the right time, and anyone who has spent time looking for tools knows, this is fantastic. You can now do exciting new things like design and edit in 2D and 3D in one place, work with multiple displays and layout designs, and publish finished web maps directly to ArcGIS Online or Portal for ArcGIS. ArcGIS Pro can

work side-by-side with ArcMap so there is no need to pick one over the other. The fundamental principle is you do the heavy work with the power of desktop software yet you can easily connect to people within your organization or throughout the world. This way, your work, co-workers, stakeholders, clients and the public are all at your fingertips. Lastly, because ArcGIS Pro is a central and integrated part of the ArcGIS platform, you get the scalability you need to be individually successful and drive success for your organization.

Sharing your work is an important part of ArcGIS Pro. You can share everything from entire projects to maps, layers, and other components of your work. You can share maps from your project as web maps. Web maps can be reused within ArcGIS Pro as well as across the ArcGIS platform, and they can be viewed in browsers and on mobile devices (Figure 9).
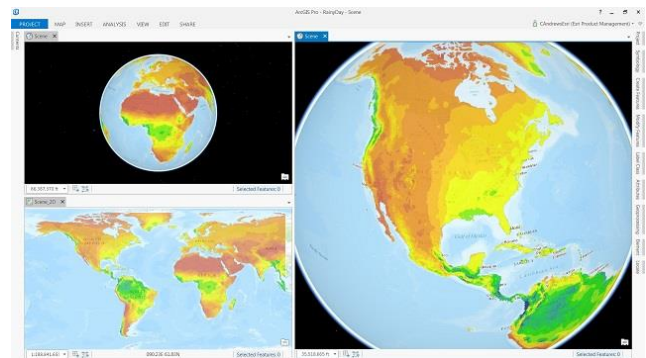

Figure 9. Sharing work

ACKNOWLEDGEMENTS

CONCLUSIONS

This paper presented the changes brought by the new version of ArcGIS.
With the release of the ArcGIS PRO version, we have a new and interactive interface that can help us access the tools needed for data processing faster.

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