Custom Raster functions to perform Image Processing in ArcGIS

Prashant Mangtani, Sangeet Mathew

Session ID: 91   Offering ID: 246
Overview

• Introduction
• Extending Raster Functions
• Implementation
• Deployment
• Resources
• Q & A

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Introduction

- **What is a Raster Function?**
  - Mechanism to perform on-the-fly processing

- **Can be applied to**
  - Images (Raster datasets)
  - Mosaic datasets
  - Items in a mosaic dataset

- **Can be used as a template**
  - Raster type
  - Server functions (10.1)
Extending Raster Functions

• Why?
  - Proprietary algorithms
  - Seamless operation

• How?
  - ArcObjects SDK for the .NET framework
  - Implement
  - Deploy
  - Use
Object Model

- IRasterFunction
- IRasterFunctionArguments
- IPersistVariant, IDocumentVersionSupportGEN
- IXmlSerialize, IXMLVersionSupport
- IFunctionRasterDataset
- IRasterFunctionTemplate
- IRasterFunctionVariable
Implementation - Function

- **IRasterFunction**
  - Name, Description, PixelType, RasterInfo
  - Bind
  - Read

- **IRasterFunctionArguments**
  - Properties
    - De-referencing
  - Wrapper functions
  - Resolve
  - Update
Implementation - Persistence

- IPersistVariant (binary persistence)
  - UID
  - Load
  - Save
- IXmlSerialize (xml persistence)
  - Serialize
  - Deserialized
- Com Registration Functions
  - Reg
  - UnReg
Implementation - UI

- IComPropertyPage
  - Applies
  - SetObjects
  - Activate
  - Apply
Deployment

- Ways to Deploy
  - Easy: Get the sample and follow instructions
  - Manual: Get the function dlls and XMLSupport snippet and register manually.

- Products:
  - ArcGIS Desktop (32bit)
  - Engine (32bit)
  - ArcGIS Server (64bit)

- XMLSupport.dat
  - List of objects that can be serialized by the system
Deployment contd.

- Registration (ESRIRegasm.exe)
  - 32 bit: <Install Drive>\Program Files (x86)\Common Files\ArcGIS\bin\ESRIRegAsm.exe
  - 64 bit: <Install Drive>\Program Files\Common Files\ArcGIS\bin\ESRIRegAsm.exe

- To Register
  - ESRIRegAsm.exe c:\CustomFunctions\NDVIFunction.dll /p Desktop

- To Unregister
  - ESRIRegAsm.exe c:\CustomFunctions\NDVIFunction.dll /p Desktop /u
Custom Raster Functions
Resources 10.1

• Resource Center
  - http://resourcesbeta.arcgis.com

• Function Raster Datasets and Raster Functions

• Raster functions
## Raster related sessions

<table>
<thead>
<tr>
<th>Demo Theater</th>
<th>Day/Time</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom Lidar Solutions</td>
<td>Tue 2:30pm</td>
<td>Demo Theater 1 - Oasis 1 (Palm Springs Convention Center)</td>
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<tr>
<td>Custom Raster Functions to Perform Image Processing in ArcGIS</td>
<td>Tue 5:30pm</td>
<td>Demo Theater 2 - Oasis 1 (Palm Springs Convention Center)</td>
</tr>
<tr>
<td>Technical Session</td>
<td></td>
<td>Room</td>
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<tr>
<td>Automating Workflows for Creating and Publishing Imagery Using Mosaic Datasets</td>
<td>Wed 4:00pm</td>
<td>Primrose C/D (Palm Springs Convention Center)</td>
</tr>
<tr>
<td>Working with Raster Data Using Python</td>
<td>Thu 8:30am</td>
<td>Primrose A (Palm Springs Convention Center)</td>
</tr>
<tr>
<td>Creating Mosaic Datasets and Publishing Image Services Using Python</td>
<td>Thu 10:00am</td>
<td>Primrose A (Palm Springs Convention Center)</td>
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</tbody>
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