

Esri International User Conference | San Diego, CA Technical Workshops | July 13, 2011

## **Creating Animations**

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### Overview

- Animations
- Basic Animation Concepts
- Types of Animations
- Managing Animations
- Visualizing Temporal Data
- Exporting Animations

### Animations

Available in: ArcMap, ArcScene, ArcGlobe

- Create simple and complex dynamic effects
  - Visualize changes in perspective
  - Geographical movements
  - Scene properties

Automate the process of effective demonstration and visualization of data

### **Basic Animation Concepts**

#### Animation

- The rapid display of a sequence of 2-D or 3-D views in order to create a dynamic visual effect

#### - Consists of :

- One or more animation tracks
- Similar or different types of tracks can be played independently or together

### **Basic Animation Concepts**

#### Animation Track

- Collection of keyframes
- Each track is bound to one or more objects and describe their behavior over animation time

#### 

Track 1-*Camera* 

#### Track 2-*Transparency*

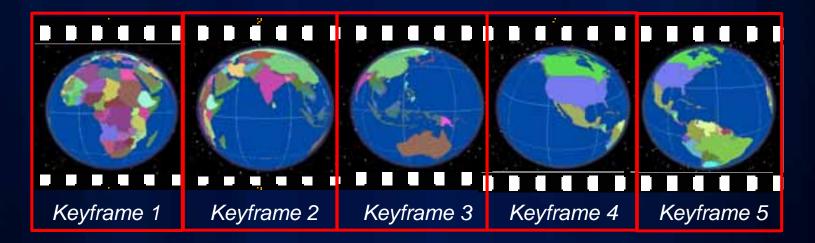


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#### **Basic Animation Concepts**

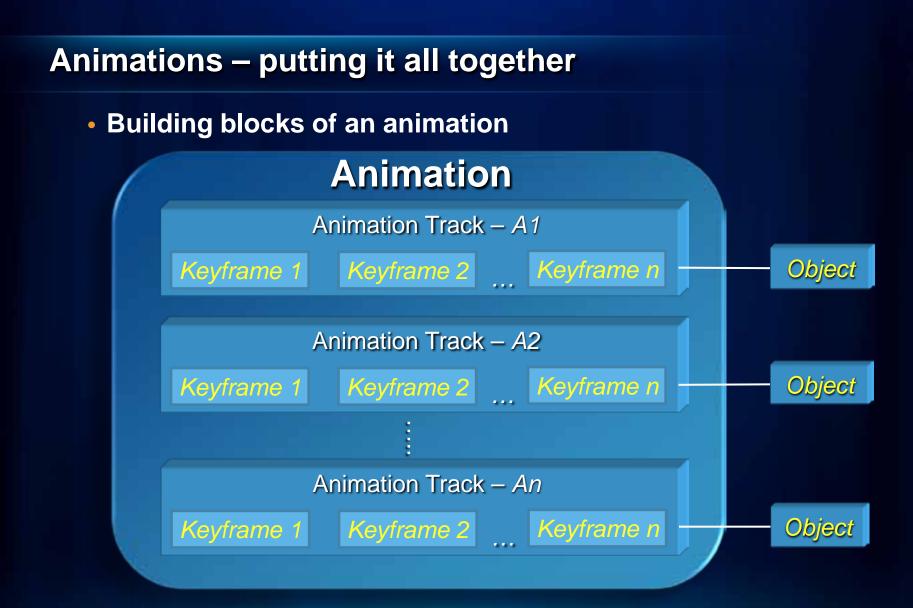
#### Keyframe

- Snapshot of an object's properties at a certain time



#### - Objects can be -

- Camera, Layer, Scene, Map View and Map Time



Object – Camera, Layer, Scene, Map View, and Map Time

### **ArcMap Animation Examples**

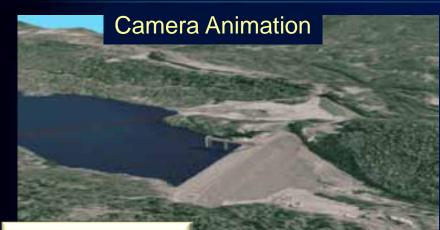
#### Map View Animation



#### Map Layer Animation



### **ArcScene Animations Examples**



Projection Type Observer Target Azimuth Inclination Roll Distance View Angle Ortho Extent

#### **Scene Animation**

Visibility Transparency Translation Scale Rotation Center Offset

Vertical Exaggeration Sun Azimuth Sun Inclination Sun Contrast Background Color

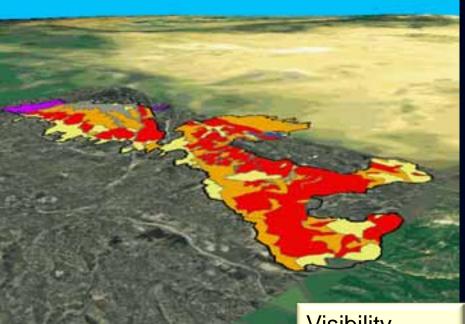
Layer Animation

### **ArcGlobe Animation Examples**

#### **Globe Camera Animation**



**Globe Layer Animation** 



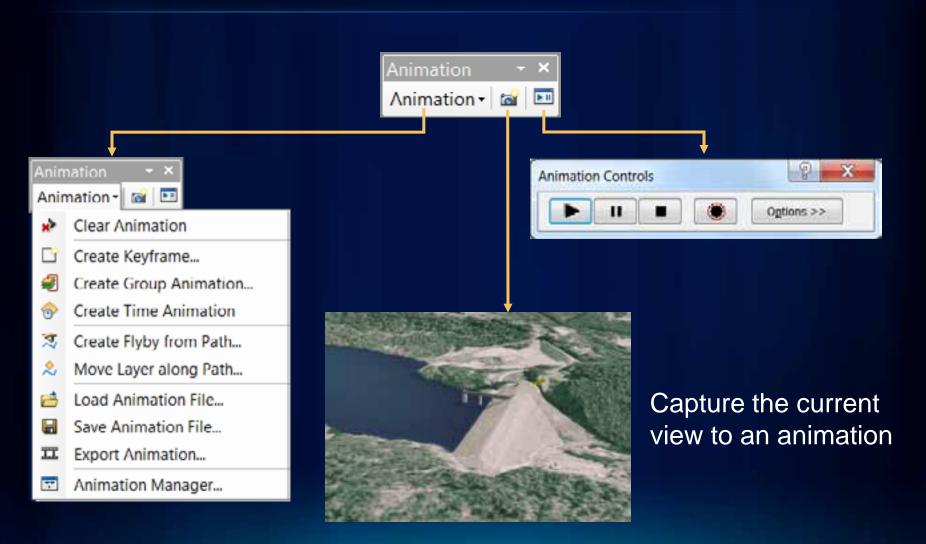
Navigation mode Target Observer View Angle RollOffset Visibility Transparency

### **Time Animations**



- Available in ArcMap, ArcScene, and ArcGlobe
- Time animations should be used "only for specific" scenarios
  - Example Creating a flyby while visualizing temporal data

## **Exploring the Animation Toolbar**



# **Creating Animations**

Simple

Build animations from keyframes

Create Group Layer animations

Build animations from paths

Time animations

- Capture current view to animation
- Record and play a flyby
- Toggling layers on and off
- Create flyby using flight paths
- Move layers along a path (Scene)
- Temporal visualization (specific use cases)

Advanced

Manipulate object properties

- Use the Animation Manager
  - Edit keyframe and track properties

ArcObjects customization • Animate objects



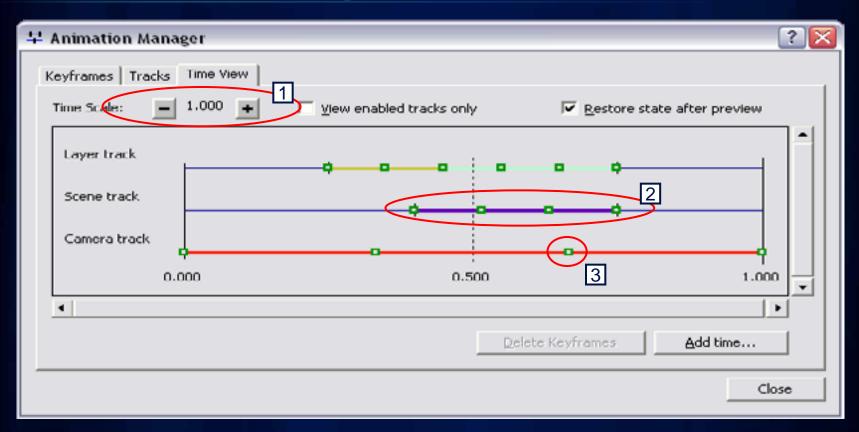
### **Animation Manager**

#### Used to:

- Organize and manage animation tracks and keyframes
- Arrange animation tracks and keyframes along animation timeline

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# **Time Scale Properties**



- 1. Entire animation time is normalized from 0 1 range
- 2. Individual animation tracks can span any section of this range
- 3. Keyframes have a timestamp within the 0 1 track time range

### **Playing Animations**

- Play options:
  - Duration (speed)
  - Number of frames to display

- Play portions
- Looping options
  - Play once forward
  - Play once reverse
  - Loop forward
  - Loop forward and reverse
- Restore state after playing

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	Frame duration: 1.0 secs.
	Play only from: 0.0 to: 10.0 secs.
	✓ Play in <u>all viewers</u>
	Play mode: Play once forward 💌
3	Restore state after playing
	Record Options
	✓ Overwrite the last recording

## Demo

Advanced Animation Concepts Group Animations Flyby's

### **Visualizing Temporal Data in ArcGIS 10**

- Simplified Temporal Mapping
  - Map is time aware
- Create, interact with, and serve temporal maps
- Unified experience for working with temporal data
  - Desktop, Engine, and Server



## Simplified User Experience

- Configure time properties on the layer
- Use Time Slider to visualize temporal data
  - Common experience in ArcMap, ArcGlobe, ArcScene

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### **Time Animations**

- Use Time Animations <u>only for specific</u> scenarios
  - Visualize temporal data while flying over an area
  - Fading in/out layers while visualizing temporal data
- Existing ArcGIS 9.x Time Layer Animations
  - Should work in ArcGIS 10
  - Time properties on layers are set automatically
  - Time animation tracks in ArcGIS 10 control the Map Time
    - Time animations tracks are not tied to specific time layers



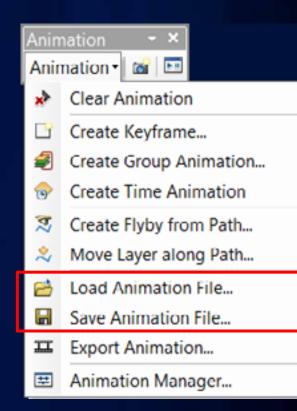
If you just want to visualize data over time, use the Time Slider (new in ArcGIS 10)

## Demo

Using the Time Slider Creating Time Animations

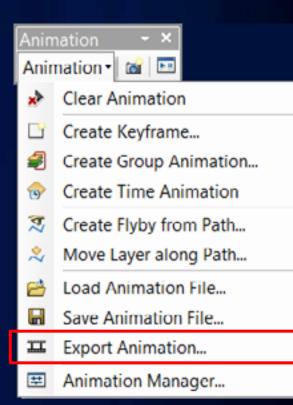
#### **Storing and Sharing Animations**

- Formats supported
  - ArcMap animation (\*.ama) file
  - ArcScene animation (\*.asa) file
  - ArcGlobe animation (\*.aga) file
- Reusable in the same or different document
  - The Table Of Contents should contain the same data for Layer and Time animation



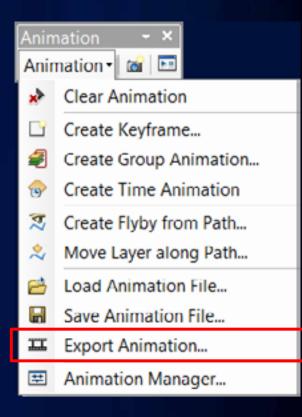
### **Exporting Animations as Videos**

- Formats supported
  - Audio Video Interleave (\*.avi) format
  - QuickTime (\*.mov) format
    - Apple QuickTime Player required
    - Not supported on Windows Vista & Win 7
- Can be played by standard media players
- Video properties
  - Resolution and quality can be controlled
  - Select different codecs
  - Custom resolution videos without distortion
    - ArcMap and ArcGlobe



#### **Exporting Animations as Sequential Frames**

- Supported output image formats
  - Windows Bitmap (\*.BMP)
  - JPEG (\*.jpg)
- Frames are written to a specified folder
- Exported frames can then be edited or modified
- Frames can then be processed into a video using the Raster to Video GP tool





## **Documentation on Animations**

- ArcGIS 10 Desktop Help
  - Professional Library > Mapping and Visualization > Animations
- Online Help under ArcGIS.com > Resource Center
  - <u>http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.</u>
    <u>html#/What is an animation/00090000001000000</u>

#### Additional animation related UC activities

Thursday, July 14

- Working with Temporal Data in ArcGIS
  Room 4 1:30 PM 2:45 PM
- Creating Animations (Offering 2)
  Room 7 A/B 3:15 PM 4:30 PM

## Questions

Please remember to complete the session survey

http://www.esri.com/sessionevals