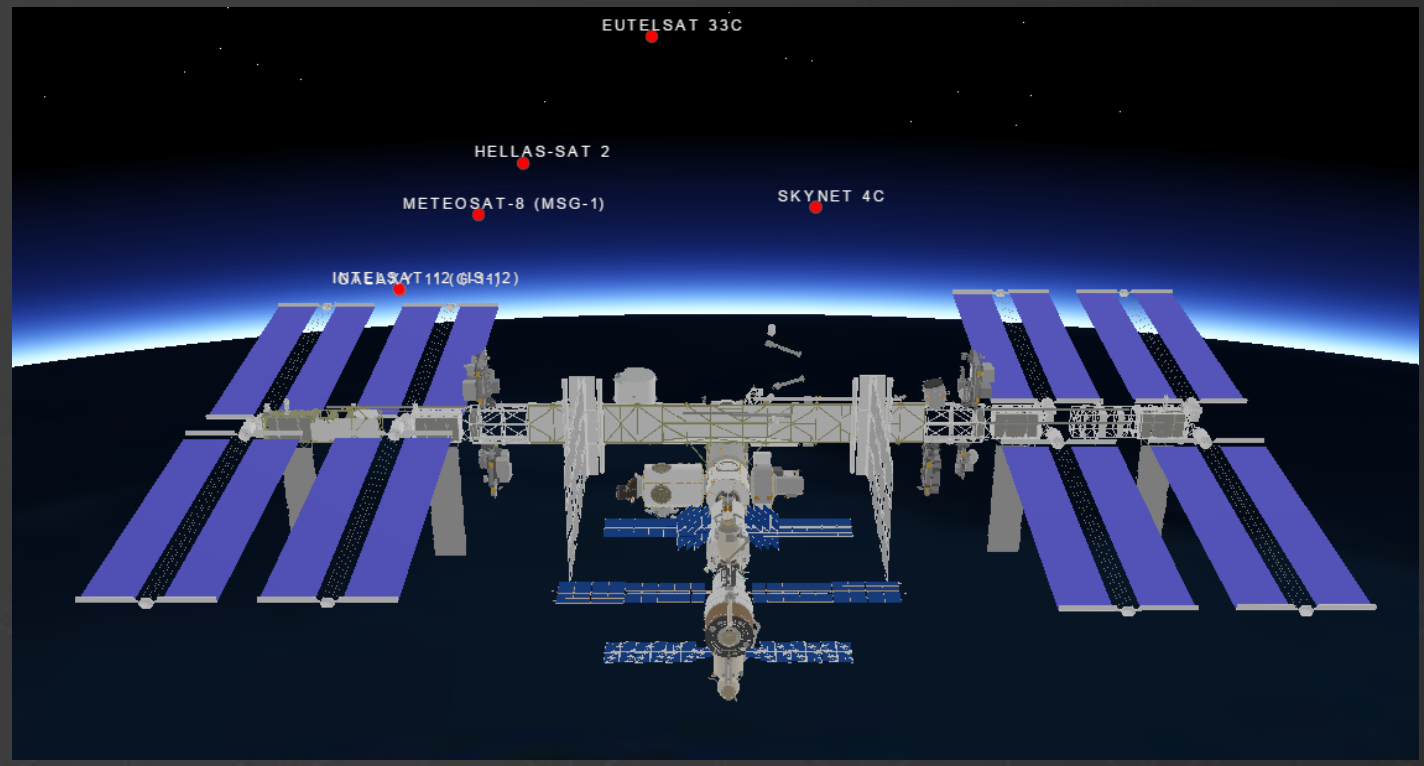
ArcGIS Runtime

Building 3D Applications

Mark Baird and Luke Smallwood

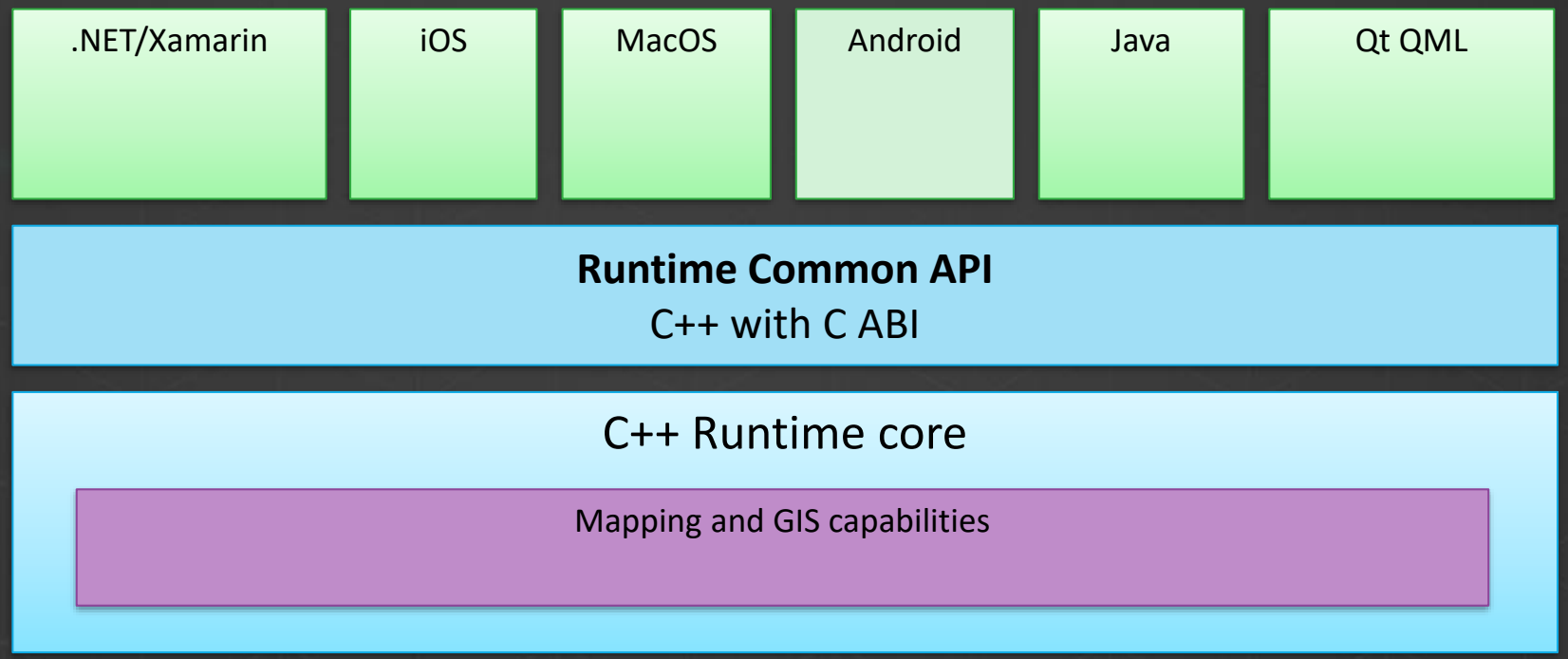
Agenda

- 3D in the ArcGIS Platform
- 3D in ArcGIS Runtime
- Making a 3D application
- Cameras and viewpoints
- Using 2D and 3D data
- Scene properties
- Graphics overlays
- What's coming next?
- Questions



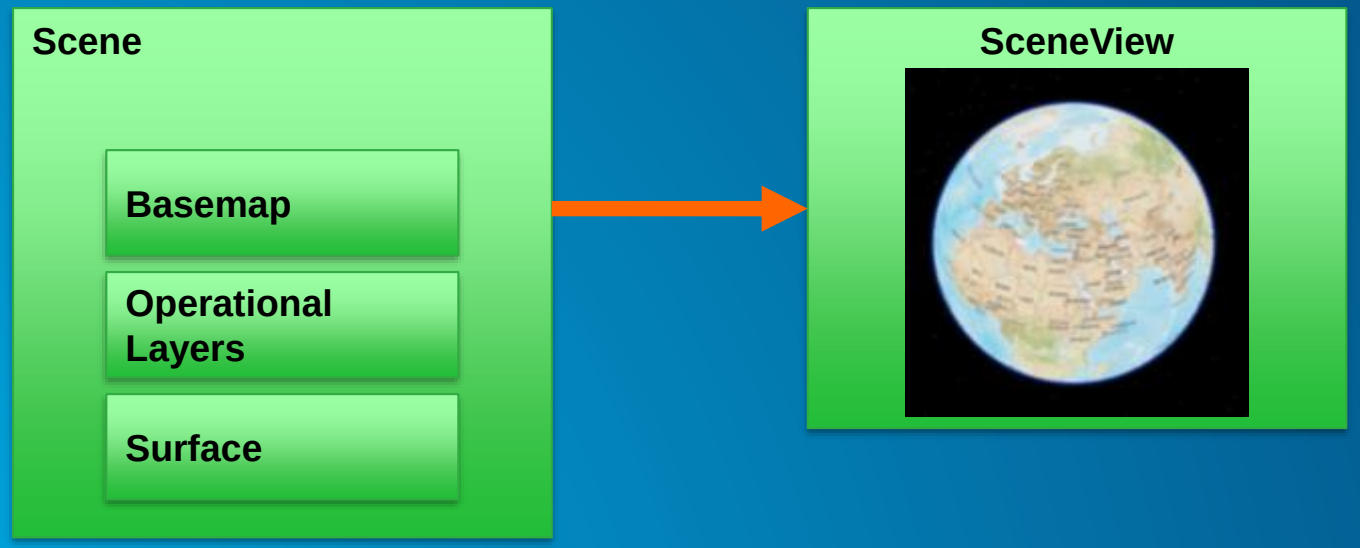
3D across the ArcGIS Platform

ArcGIS Runtime SDKs – Common Core



Writing 2D applications

Writing 3D applications



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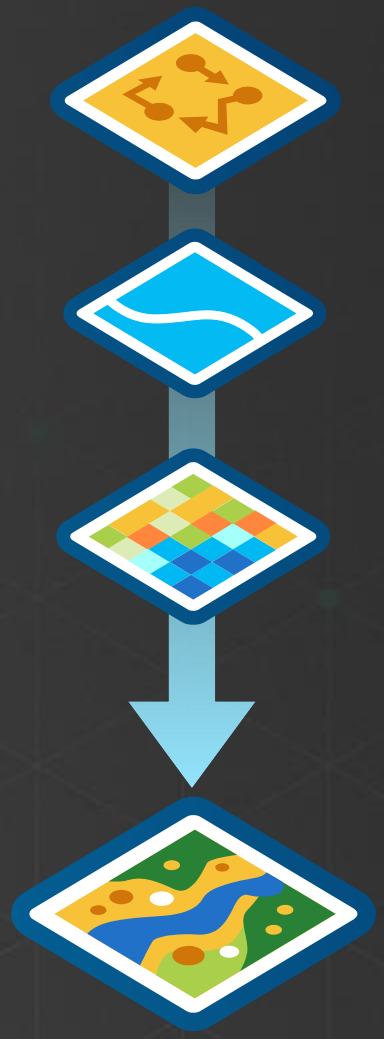
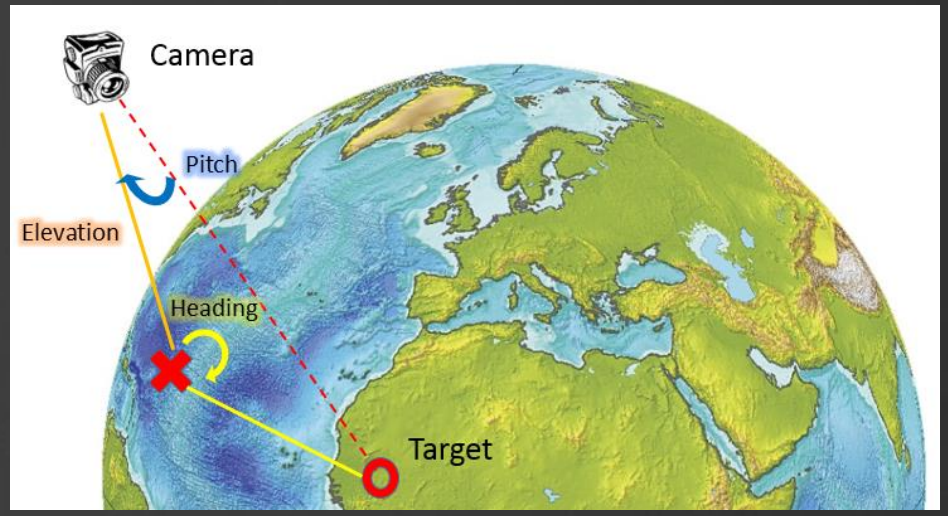
Convert 2D app to 3D

Luke Smallwood



Cameras and Viewpoints

- Camera
  - Location, heading, pitch
- Viewpoint on Scene View
  - Can take a viewpoint from a Map View
  - Can set a viewpoint with a camera




```
// 53.06 latidude, -4.04 longitude, 1289 metres above sea level
// Bearing 295 degrees
// Pitch 71 degrees
Button btnSnowdon = new Button("Snowdon");
btnSnowdon.setOnAction(e -> {
  Camera snowdonCamera = new Camera(53.06, -4.04, 1289, 295, 71, 0);
  sceneView.setViewpointCameraAsync(snowdonCamera);
});
```

```
// get the current camera position for the scene view
Camera cam = sceneView.getCurrentViewpointCamera();
```

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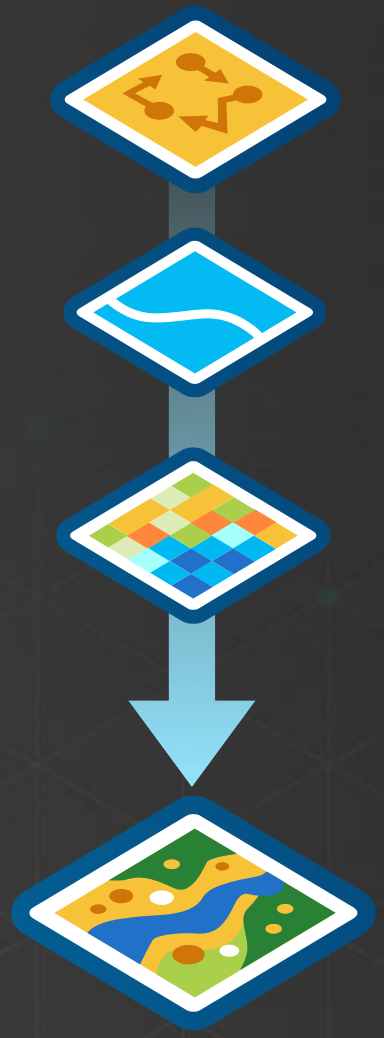
Cameras and viewpoints

Mark Baird



2D data and 3D data

- You can use 2D data in your 3D applications
  - Feature services
  - Image data
  - Map Image Layers
- Limitations for 100.1.0 (to be addressed in later releases)
  - Vector Basemaps are not supported
  - Rendering of feature and map image layers will be improved
- 3D specific data
  - Surface data
  - Scene layers (online and offline)

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Scene services

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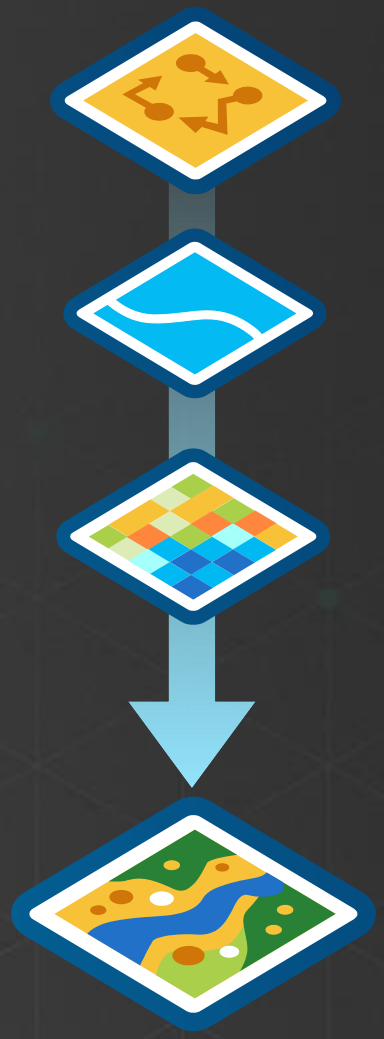

Scene properties

- Atmosphere
  - Horizon
  - None
  - Realistic
- Lighting effects and shadows
  - Light
  - Light and Shadows
  - No Light
- Sun time

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Scene properties

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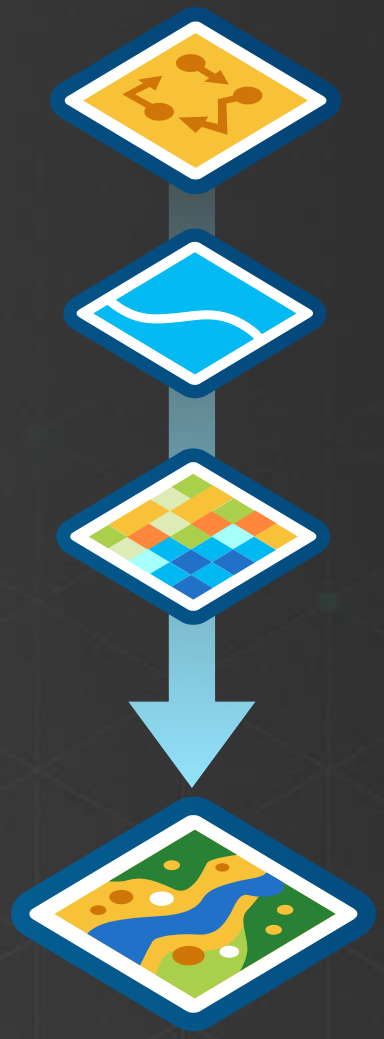
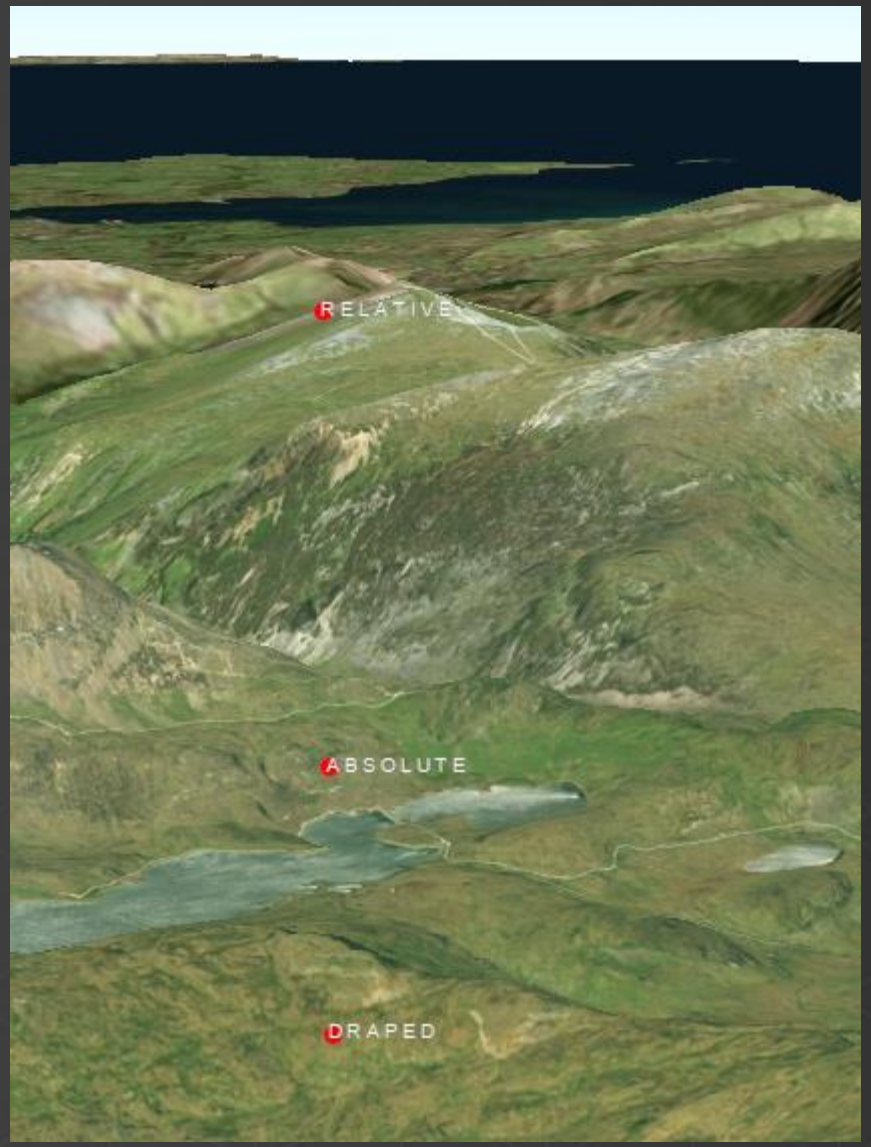


Graphics Overlays

- Graphics overlays are added to the SceneView
- Used for temporary or rapidly updating information.
- Display:
  - Lines
  - Polygons
  - Points
    - 2D symbols
    - 3D symbols (cones, etc)
    - 3D models (collada, 3d max etc)

Graphics Overlays

- **Surface placement modes**
  - **Draped**
  - **Absolute**
  - **Relative**



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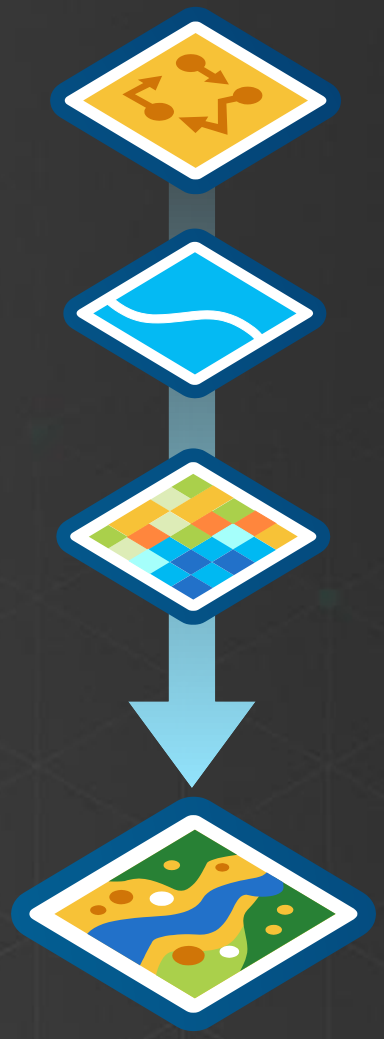
Graphics Overlays Introduction

Luke Smallwood



Model Symbols

- Lots available as download
  - NASA
- Can create your own
  - Sketchup
  - Blender

What’s coming in future releases

- Improved feature layer rendering
- Augmented Reality / Virtual Reality
- GPU scene analysis (Line of sight and viewshed)
- Grids (Lat / Long for example) on scene
- Vector basemap support for 3D
- Viewing underground data

Questions?