

ArcGIS Runtime: Building 3D Applications

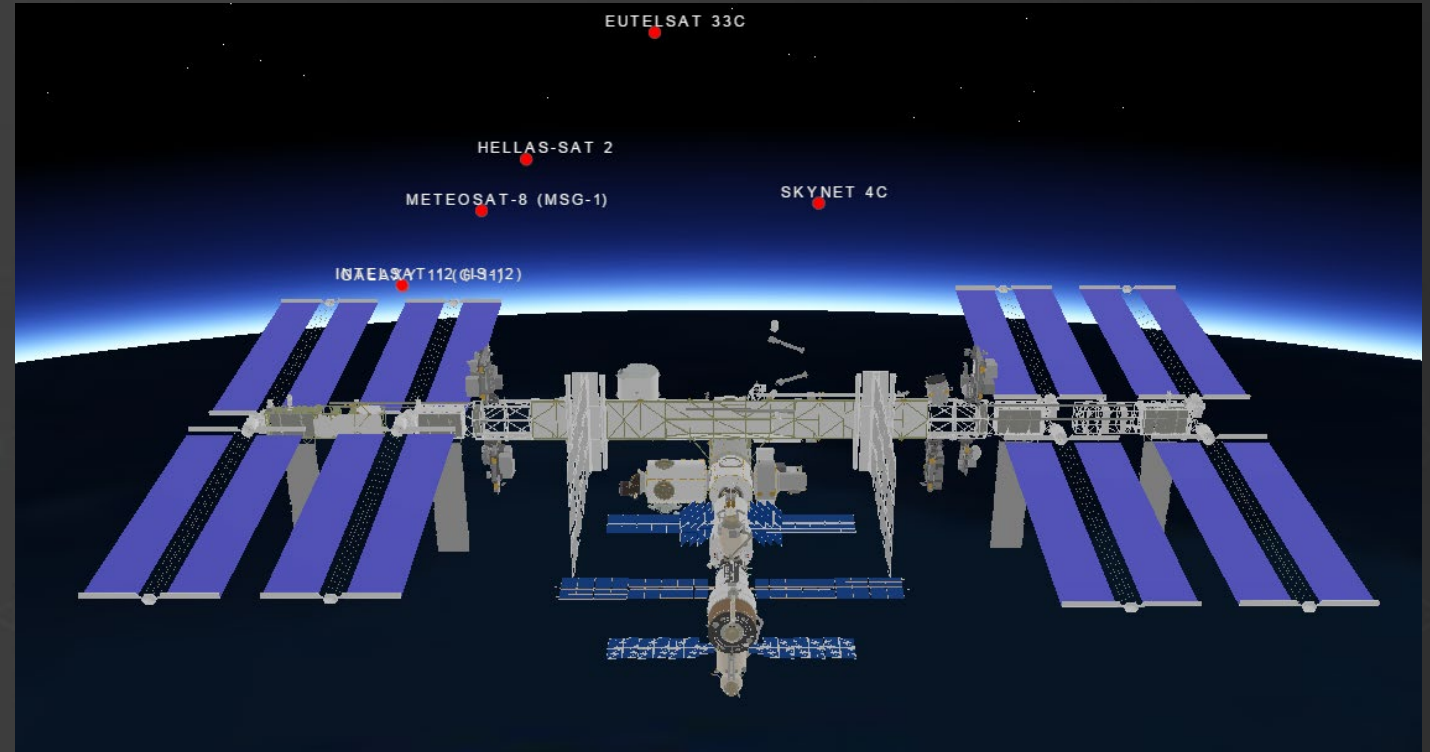
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Agenda

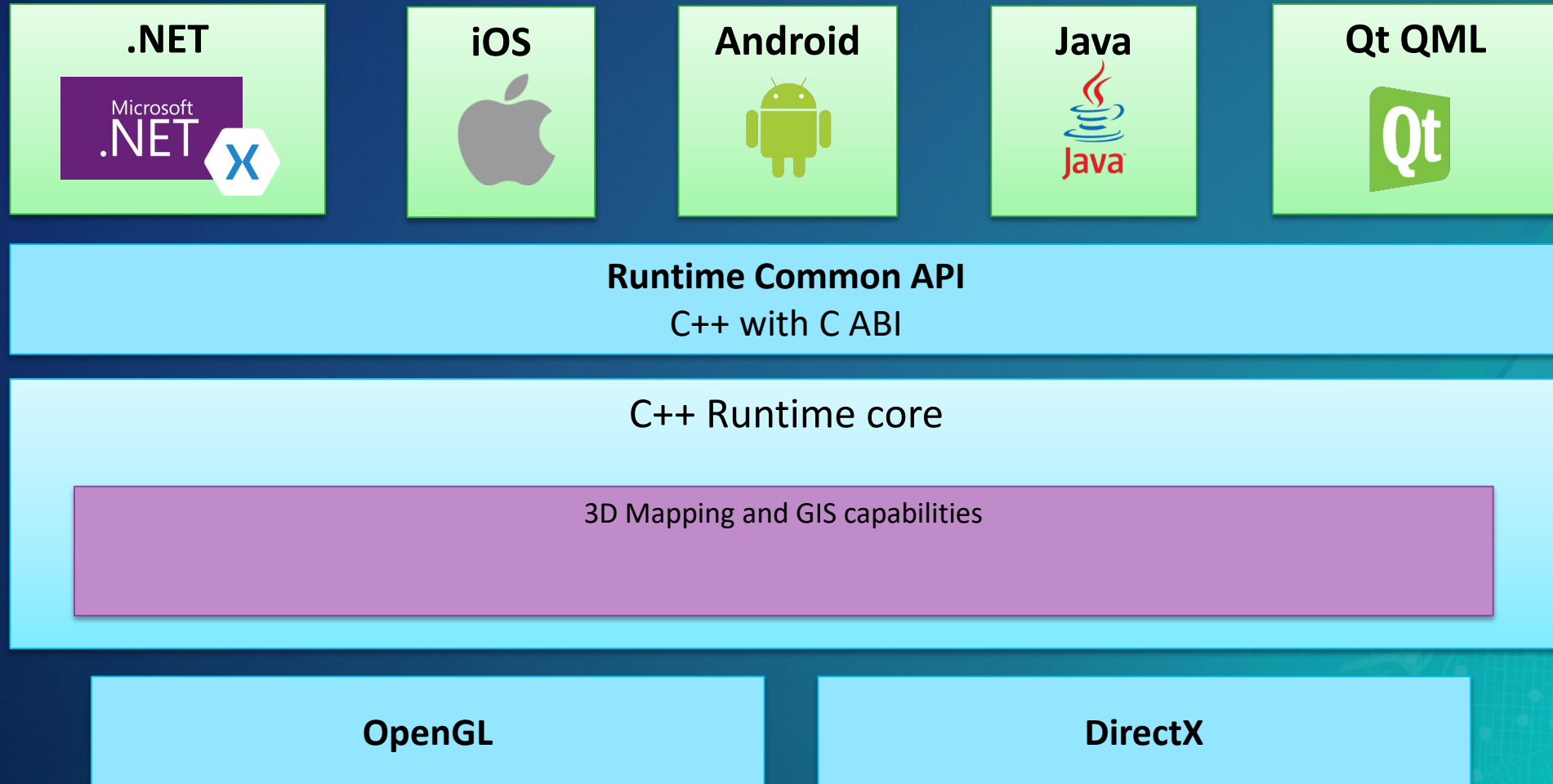
- 3D in the ArcGIS Platform
- 3D in ArcGIS Runtime
- Making a 3D application
- Cameras and viewpoints
- Using 2D and 3D data
- Scene properties
- Graphics overlays
- Augmented Reality
- Questions



3D across the ArcGIS Platform



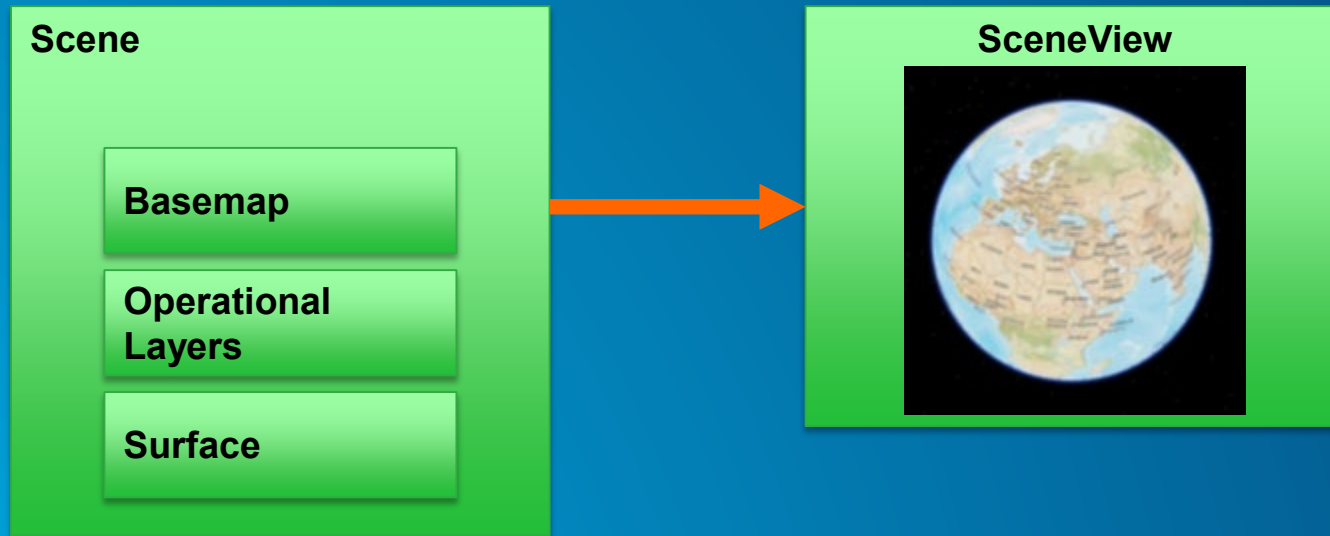
ArcGIS Runtime SDKs share a common core



Writing 2D applications



Writing 3D applications

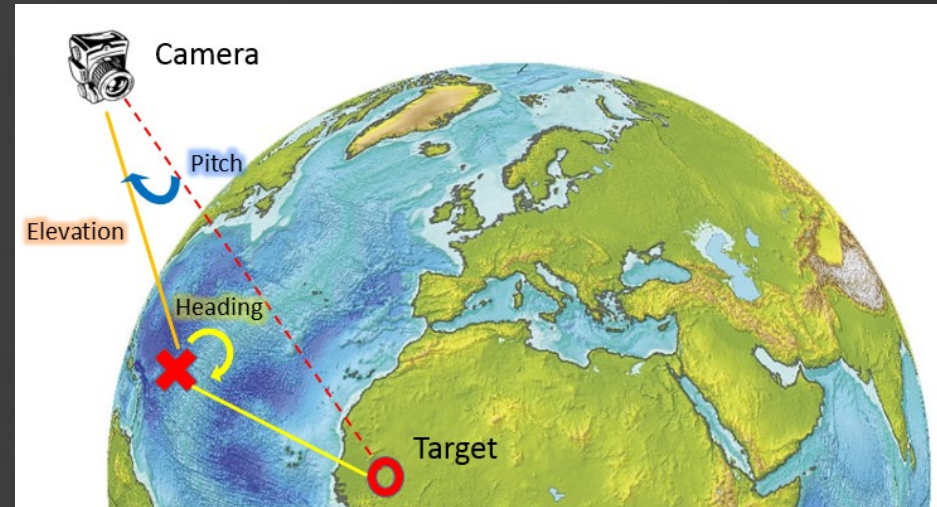


Writing a basic 3D app



Cameras and Viewpoints

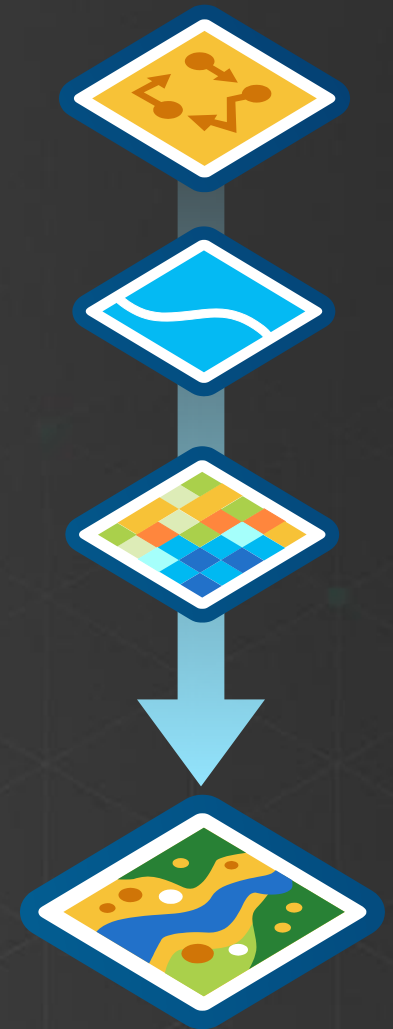
- Camera
 - Location, heading, pitch
- Viewpoint on Scene View
 - Can take a viewpoint from a Map View
 - Can set a viewpoint with a camera



```
// 53.06 latitude, -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();
```


Cameras and viewpoints

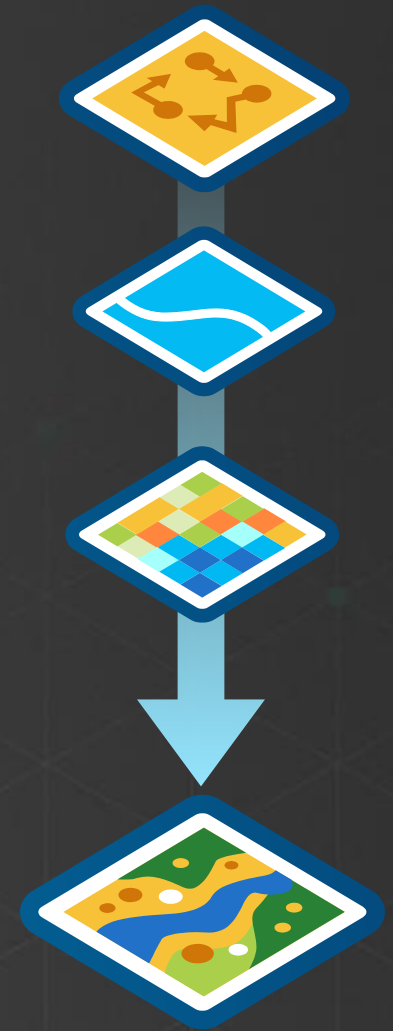


2D data and 3D data

- **You can use 2D data in your 3D applications**
 - Feature services
 - Image data
 - Map Image Layers
- **Limitations (to be addressed in later releases)**
 - Vector Basemaps are not supported
- **3D specific data**
 - Surface data
 - Point Cloud
 - Scene layers
 - Can be packaged into scene packages for offline



Scene services



Scene properties

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

Scene properties



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)**

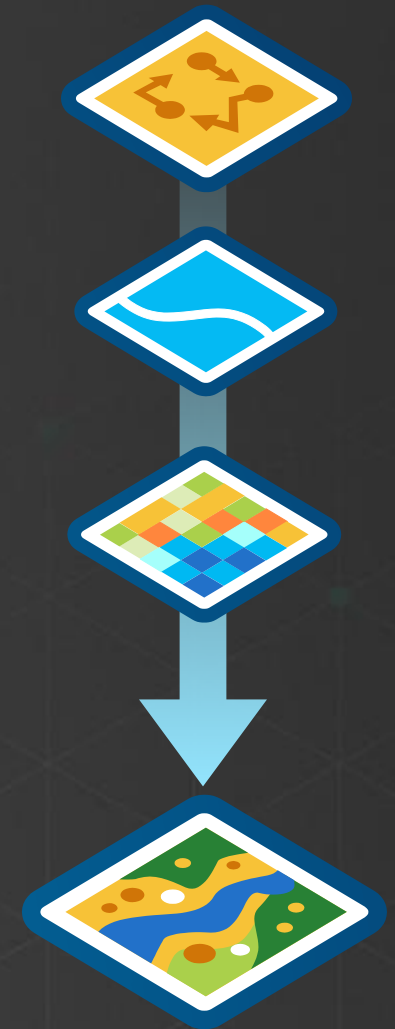
Graphics Overlays

- Surface placement modes
 - Draped
 - Absolute
 - Relative



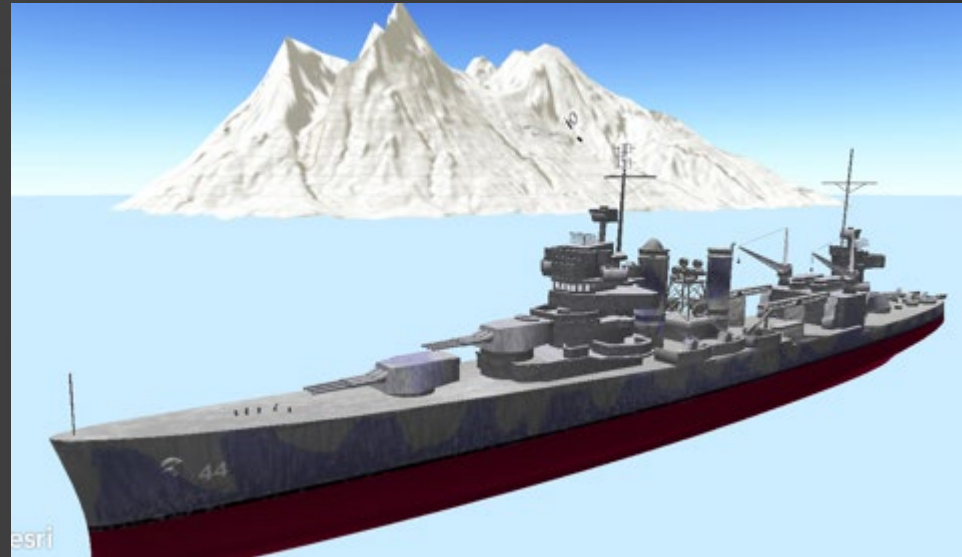
DEMO

Graphics Overlays Introduction



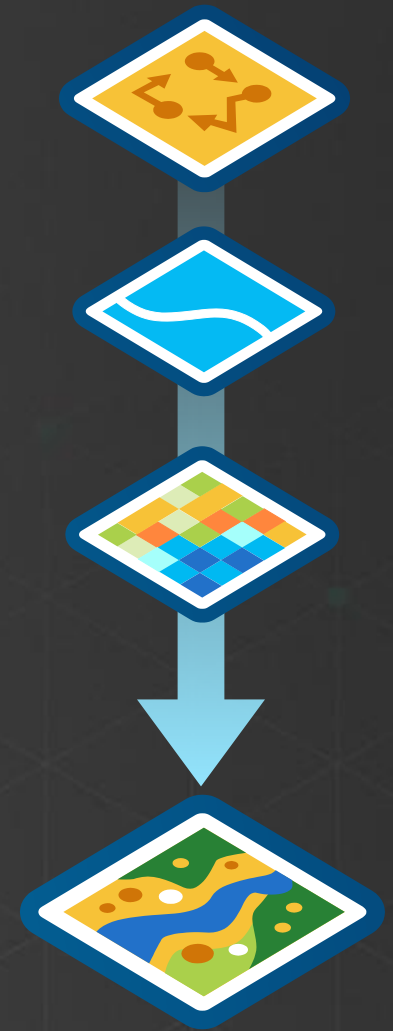
Model Symbols

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



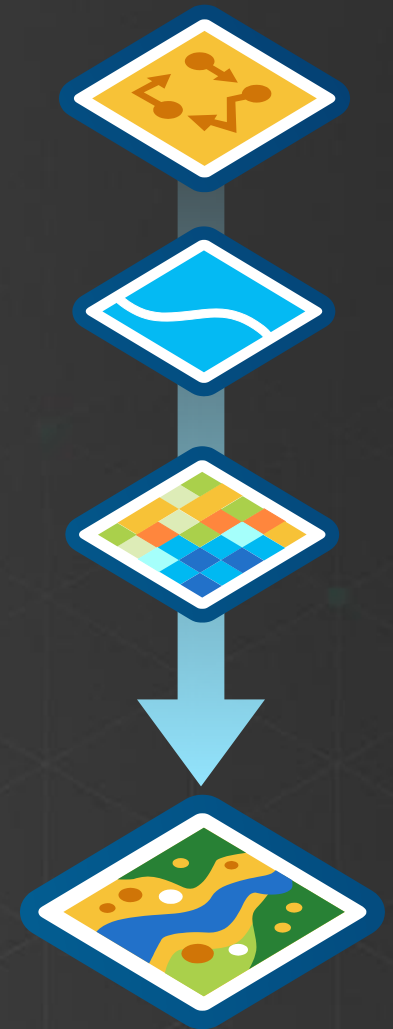
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Analysis



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Augmented Reality



Questions?

