Beginning ArcGIS Pro SDK Project Development: Tips and Tricks for Troubleshooting

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Assumptions

Target Audience

• Basic knowledge of .NET Development
• Basic experience creating ArcGIS Pro Add-Ins

• Not covering
  - Creation of ArcGIS Pro Configurations

• Questions at the end of the presentation.

*Please silence cell phones*
Agenda

• Add-In Configuration Issues
• Threading Issues
• Standalone Applications
• Q&A
Add-In Configuration Issues
Add-In Configuration Issues

- Unable to create Add-In
- Broken references
- Add-In not loaded
- Add-In security
- Add-In cannot be loaded
Unable to create Add-In
Broken References
Broken References
Add-In not loaded
Add-In not loaded
Add-In not loaded - Security
Add-In not loaded - Security

- Load only Esri provided Add-Ins (Most Secure)
- Require Add-Ins to be digitally signed by a trusted publisher
- Load all Add-Ins without restrictions (Least Secure)
Add-In cannot be loaded

This add-in cannot be loaded because it targets an incompatible version of ArcGIS Pro.
Add-In cannot be loaded

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Current version: 2.2  Add-in targets: 1.4
Add-In cannot be loaded – Config.daml
Add-In cannot be loaded – Config.daml
Version Compatibility

Add-Ins are:

• Forwards compatible across all minor versions of ArcGIS Pro (e.g., 2.0, 2.1, etc)
• Not forwards compatible across major versions of ArcGIS Pro (e.g., 1.x, 2.x, etc)
• Not backwards compatible across any versions of ArcGIS Pro

*Build number is ignored by desktopVersion
Configuration
Issues Demo
Threading Issues
ArcGIS.Core.CalledOnWrongThreadException
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- Task-based Asynchronous Pattern (TAP)
- Task Class

- Add-In Developer Threads
  1. UI Thread
     Should always remain free
  2. MCT (Main CIM Thread)
     CIM = Cartographic Information Model
ArcGIS.Core.CalledOnWrongThreadException

- Task-based Asynchronous Pattern (TAP)
  - Task Class `QueuedTask.Run()` (Best Practice ✓)

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```csharp
MapView.Active.ZoomToSelected(new TimeSpan(0, 0, 3), true);

//await QueuedTask.Run();
//MapView.Active.ZoomToSelected();
```
ArcGIS.Core.CalledOnWrongThreadException

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```

This method must be called on the MCT. Use `QueueTask.Run`
Threading Demo
Standalone Applications
Standalone Application Issues

• Creating an ArcGIS Pro Standalone application
• Licensing errors
• Target platform errors
• Tips for standalone application development
Creating Standalone Apps

1. Create a new .NET console application
2. Add the following references to your console application:
   - ArcGIS.Core.Host.dll
   - ArcGIS.Core.dll
3. Add Host.Initialize() method to start the ArcGIS Pro Host.
4. Best Practice: Add try/catch statement around Initialization
Licensing Error

```
using System.Text;
using System.Threading.Tasks;

namespace ProConsole
{
    class Program
    {
        static void Main(string[] args)
        {
            // Call ArcGISCoreInitialize before constructing any objects from ArcGIS.Core
            try
            {
                ArcGISCoreInitialize();
            }
            catch (Exception e)
            {
                // Error (missing installation, no license, 64 bit mismatch, etc.)
                Console.WriteLine(String.Format("Initialization failed: {0}", e.Message));
                Console.ReadKey();
                return;
            }

            // If we are here, ArcGIS.Core is successfully initialized
            Geodatabase gdb = new Geodatabase(new FileGeodatabaseConnectionPath("C:\Users\lauren\Documents\ArcGIS\Projects\UCDemoProj\UCDemoProj.gdb"));
            if (gdb.ReadOnlyList<TableDefinition> definitions = gdb.GetDefinitions("waterwClass"));
```

Licensing Error
Target Platform Error
Target Platform Error

Initialization failed: Host must be a 64 bit executable. Check target platform.
Things to Remember…

• ArcGIS Pro must be installed on host machine.
• Configure your ArcGIS Pro license.
• Make target framework 4.6.1 or higher.
• Change Platform Target combo box to be x64 in the Build properties dialog box in your project.
• Add the following references to your console application:
  - ArcGIS.Core.Host.dll
  - ArcGIS.Core.dll
• Add the [STAThread] attribute above the console's static Main(string[] args) method
Standalone Applications Demo
Troubleshooting Suggestions

• Check ArcGIS Pro licensing
• Latest release and system requirements:
  • https://doc.arcgis.com/en/
  • https://github.com/Esri/arcgis-pro-sdk/wiki#requirements
• Existing bug/enhancements:
  • https://support.esri.com/en/
• GeoNet:
  • https://community.esri.com/welcome
• Google/Bing/etc…
Need Tech Support?
Here is what we will need to know..

• Complete environment:
  - IDE Configuration (Visual Studio version)
  - ArcGIS Product Version information (ArcGIS Pro 2.1.2)
• Sample application including source code
• Exact workflow to reproduce the issue
• Error messages
Questions?
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