

AUTODESK REVIT API

Week 9, Oct 22 2009

Parametric Modeling with BIM

AUTODESK REVIT API

- What is Revit API?

API - Application Programming Interface.

- What Can I Do With the Autodesk Revit API?

- Creating **add-ins** to automate repetitive tasks in the Autodesk Revit user interface
- Enforcing project design standards by checking for errors automatically
- Extracting project data for **analysis** and to generate **reports**
- **Importing** external data to create new elements or parameter values
- **Integrating** other applications, including analysis applications, into Revit products
- Creating Autodesk Revit project documentation automatically

AUTODESK REVIT API

- **Programming Tools**

The Revit .NET API allows you to program with any .NET compliant language including **VB.NET**, **C#**, and managed C++. The **Software Development Toolkit (SDK)** provides extensive .NET code samples and documentation to help you get started developing with the Revit API for Autodesk Revit Architecture/MEP/Structure.

Autodesk Revit **SDK**:

<http://usa.autodesk.com/adsk/servlet/index?siteID=123112&id=2484975>

AUTODESK REVIT API

- **Deployment Options:**

The Autodesk Revit API supports in-process **DLLs** only. This means that your API application will be compiled as a DLL loaded into the Autodesk Revit process.

DLL - **D**ynamic-**L**ink **L**ibrary- is Microsoft's implementation of the shared library.

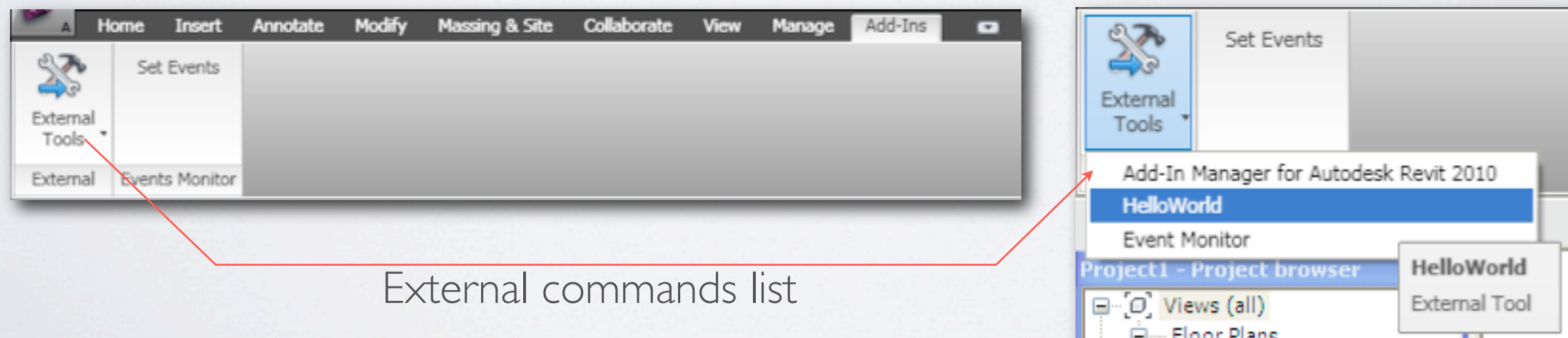
Two types of **DLLs** that you can create with the Autodesk Revit API:

1. External **Commands**
2. External **Applications**

AUTODESK REVIT API

- **External Commands**

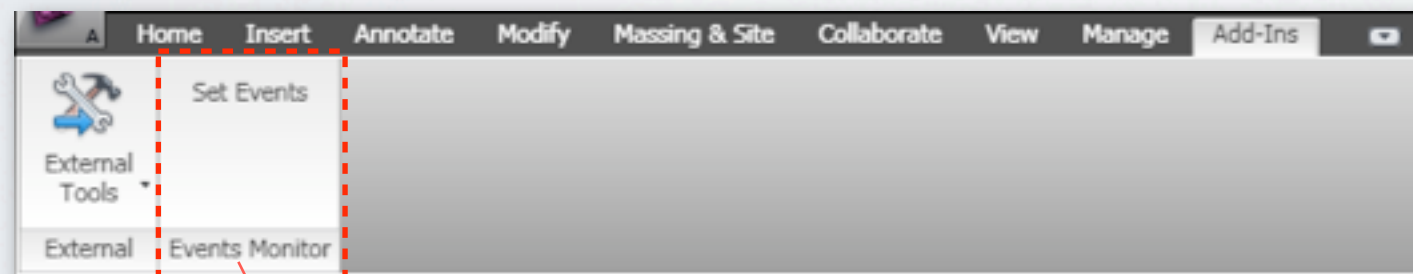
The Autodesk Revit API enables you to add new commands to the user interface of Autodesk Revit. These commands will appear in the **Add-ins** tab under the 'External Tools' pulldown, as seen in Figure 1. Through the API, external tool commands have access to the Autodesk Revit database, as well as the currently selected elements.



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- **External Applications**

The Autodesk Revit API enables you to also add external applications. These applications are invoked during Autodesk Revit startup and shutdown. They can create new panels in the Add-ins tab, as seen in Figure below. They can also register handlers that can react to events occurring in the Autodesk Revit user interface.



External Application_Events Monitor

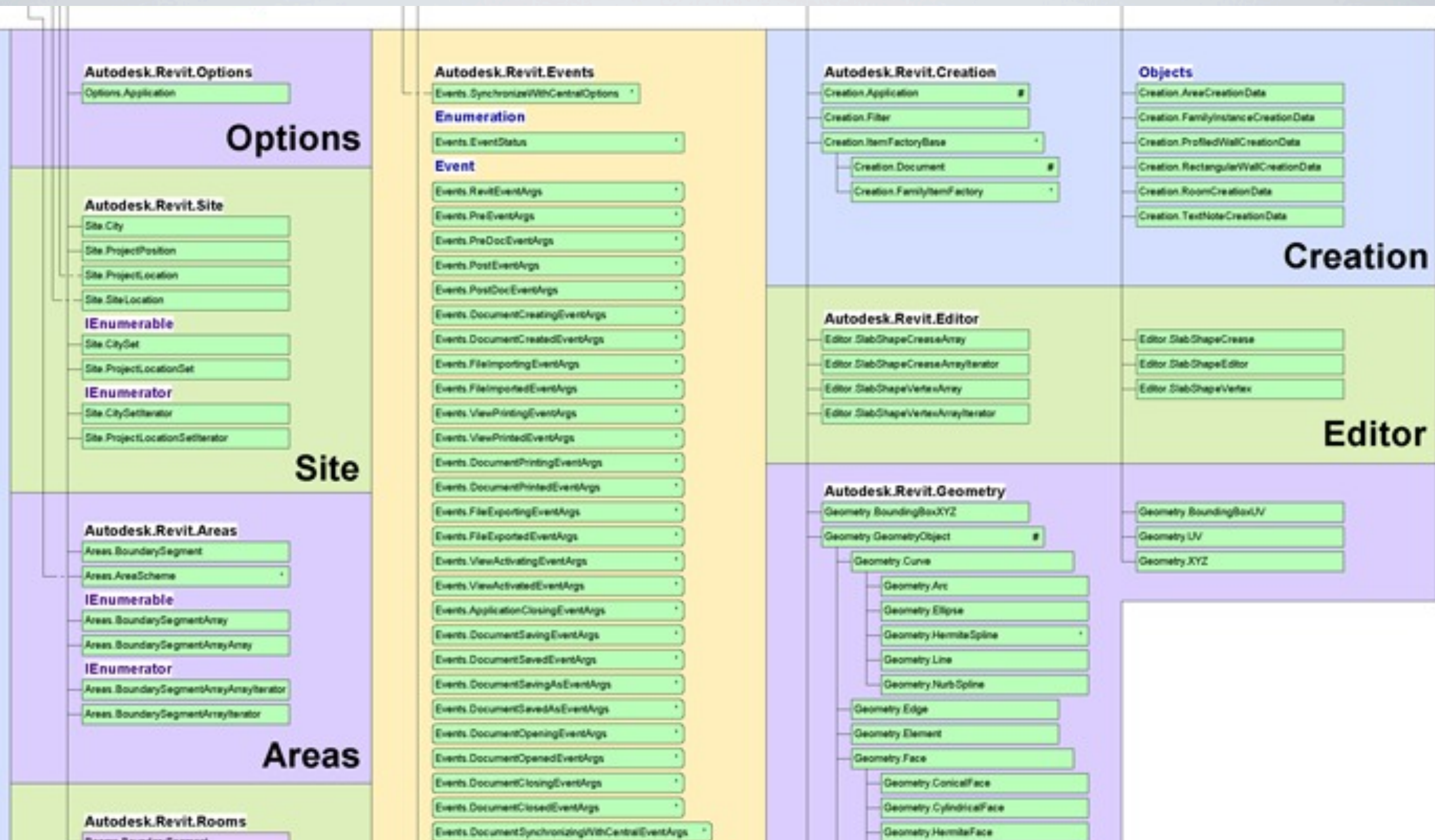
AUTODESK REVIT API

- **The Revit Unit System**

Base Unit	Unit in Revit	Unit System
Length	Feet(ft)	Imperial
Angle	Radian	Metric
Mass	Kilogram(kg)	Metric
Time	Seconds(s)	Metric
Electric Current	Ampere(A)	Metric
Temperature	Kelvin	Metric
Luminous Intensity	Candela(cd)	Metric

[illegible]

Thursday, October 22, 2009



AUTODESK REVIT 2010 API OBJECT DIAGRAM

AUTODESK REVIT API

- **Hello World!**

- ```
using System;
using System.Collections.Generic;
using System.Text;
using Autodesk.Revit;
using System.Windows.Forms;

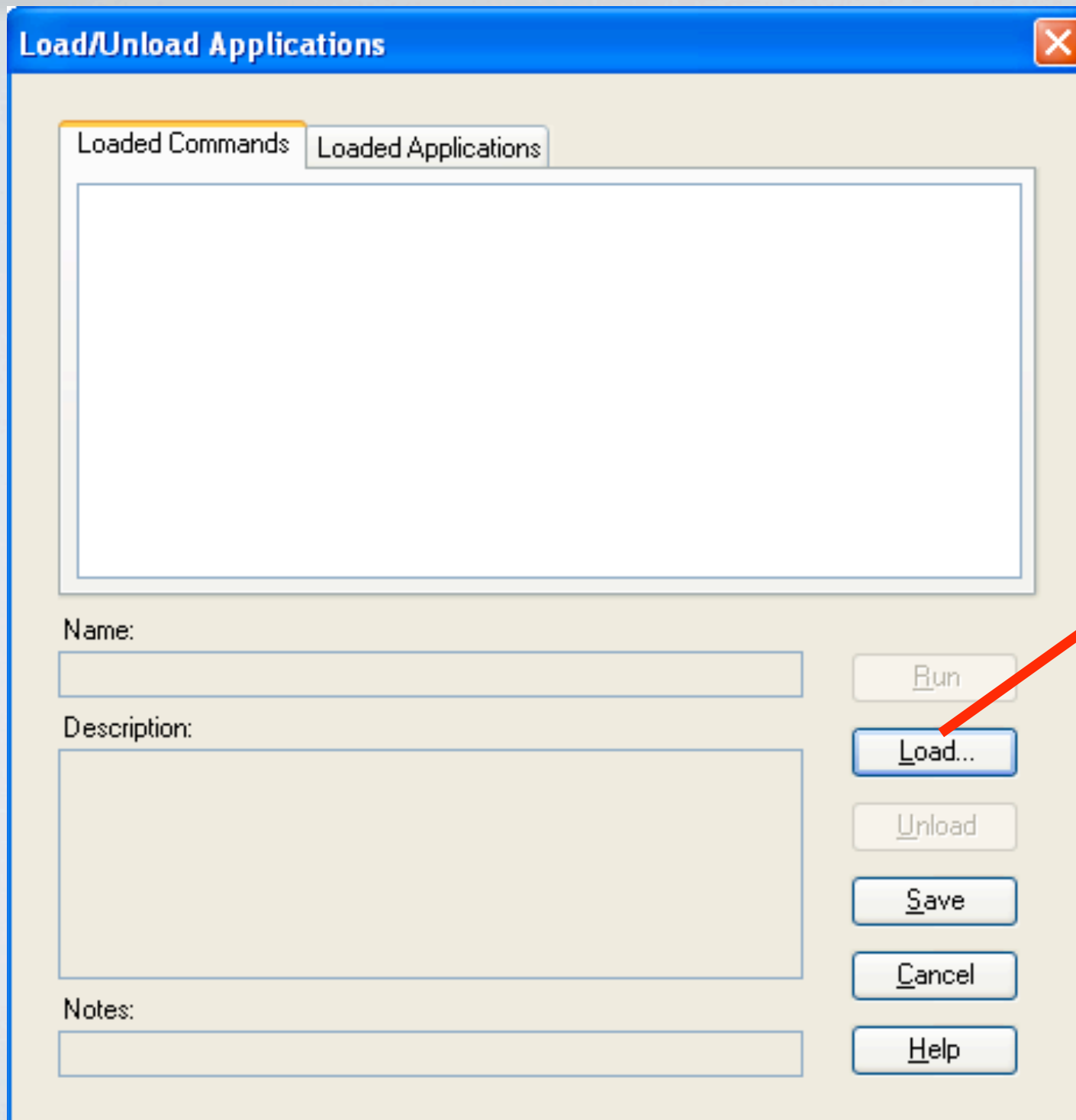
namespace Revit.SDK.Samples.HelloWorld.CS
{
 /// <summary>
 /// Main class just pop up a message box show "Hello World".
 /// </summary>

 public class Command: IExternalCommand
 {

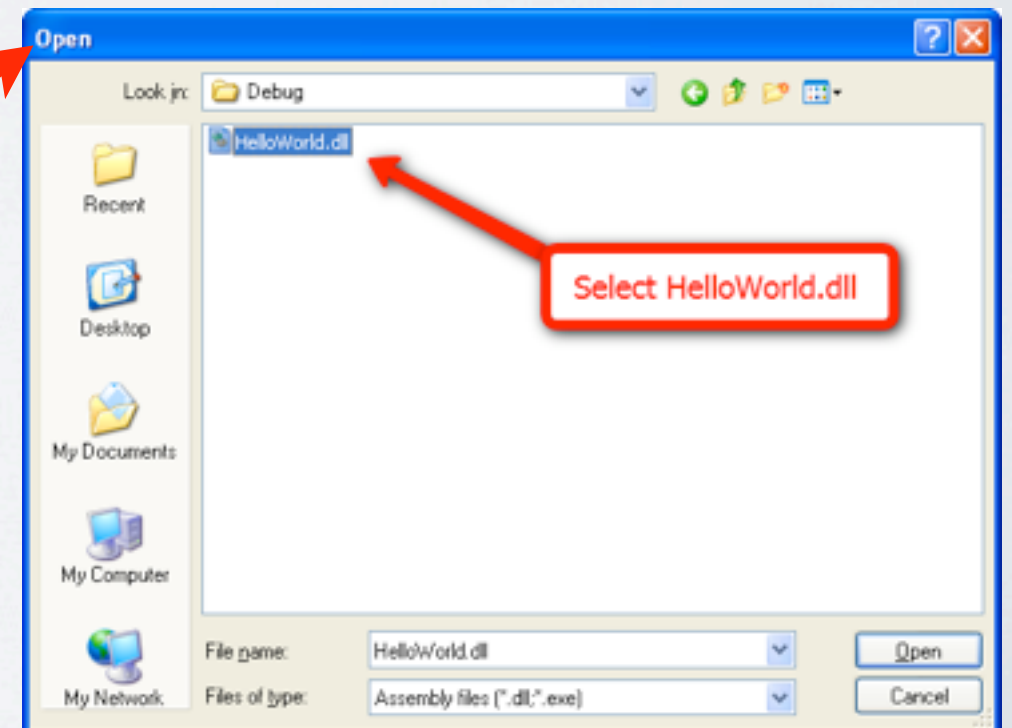
 #region IExternalCommand Members
 public IExternalCommand.Result Execute(ExternalCommandData commandData, ref string message, ElementSet elements)
 {
 MessageBox.Show("Hello World");
 return IExternalCommand.Result.Succeeded;
 }
 #endregion
 }
}
```



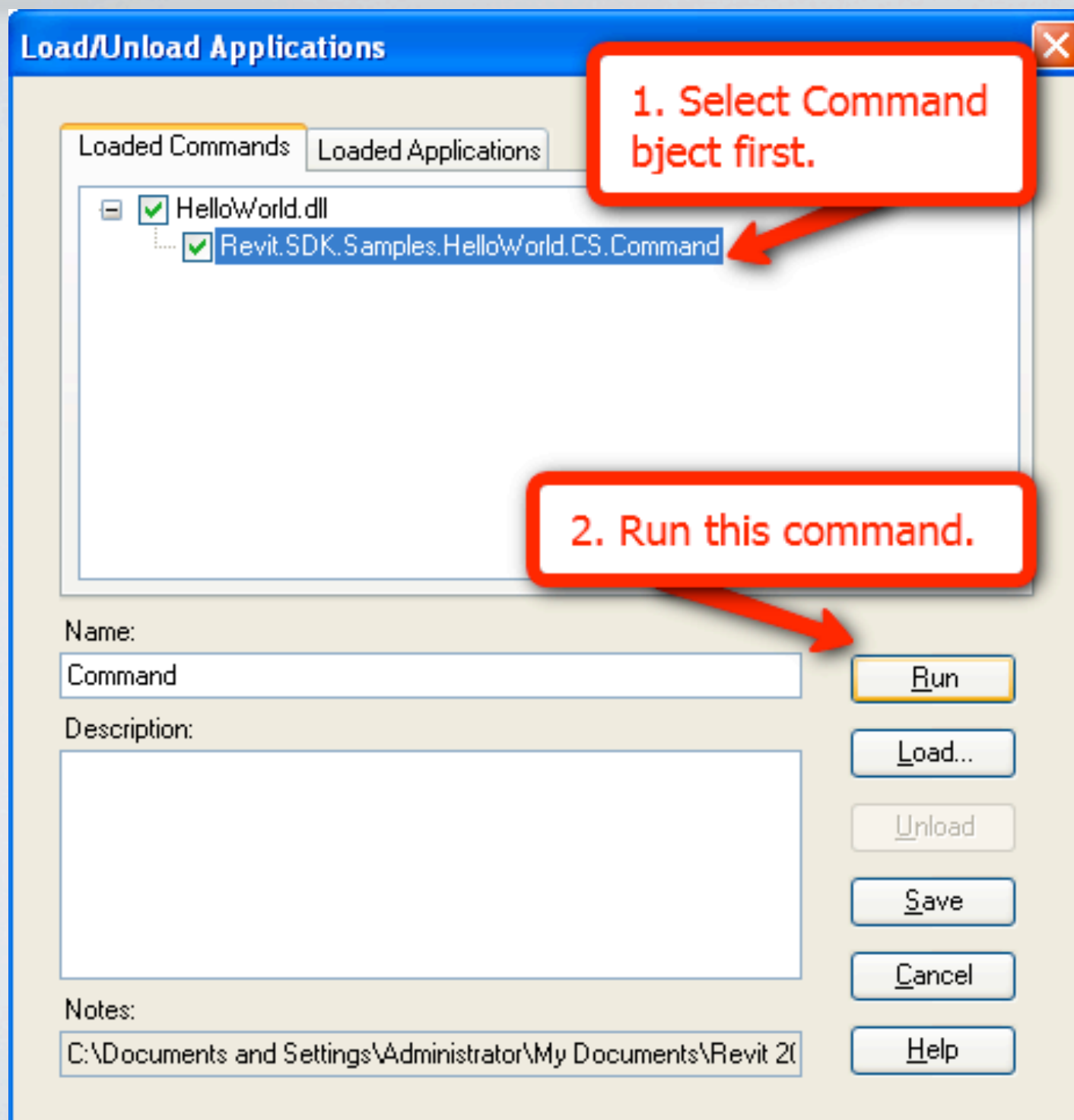
# ADD-IN MANAGER



Add-Ins > External Tools >  
Add-In Manager for Autodesk Revit 2010



# ADD-IN MANAGER



Add-Ins > External Tools >  
Add-In Manager for Autodesk Revit 2010



Result: Pop up window