

# Automation Accelerators: Templates & Snippets for Autodesk Add-ins

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Senior Application Engineer



# Background

KETIV

- Senior Application Engineer at KETIV
  - Develop software solutions for clients
- Brigham Young University, Mechanical Engineering
  - General Motors, Knowledge Based Engineering
  - Autodesk, Education Field Team
  - PTC, Software Developer



Autodesk Inventor

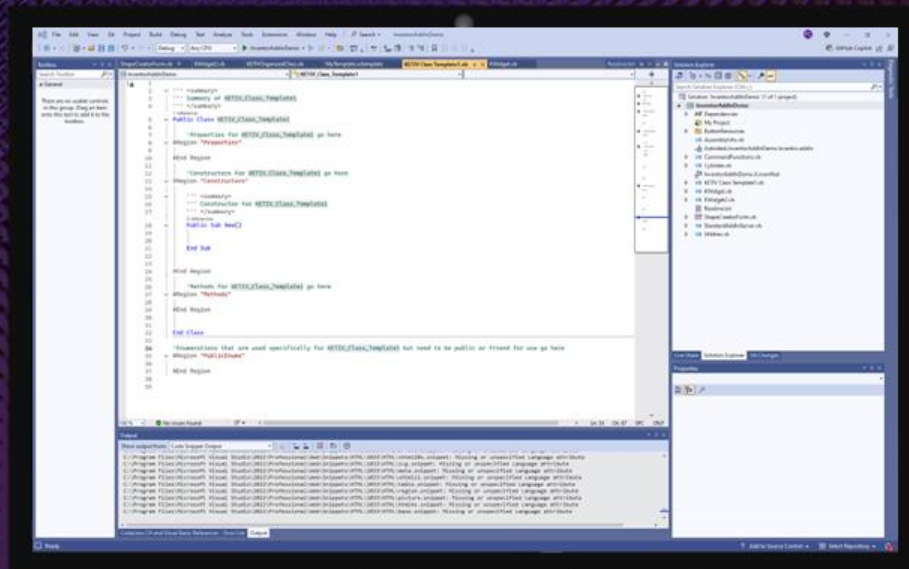
# Visual Studio Development Kit



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# Snippets

# Where are my Snippets?

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📁 > This PC > Documents > Visual Studio 2022 > Code Snippets > Visual Basic > My Code Snippets

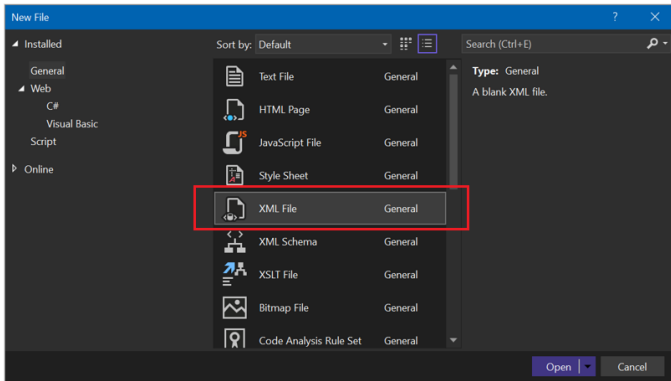
Name	Status	Date modified	Type
DefineAProperty.snippet	✓	7/2/2025 10:59 AM	Code Snippet File
ExtensionMethod.snippet	✓	2/16/2023 2:24 PM	Code Snippet File
KParameterClassProperty.snippet	✓	2/16/2023 2:24 PM	Code Snippet File
ReadOnlyProperty.snippet	✓	2/16/2023 2:24 PM	Code Snippet File

- On the Visual Studio menu bar, choose **Edit > IntelliSense > Insert Snippet**.
- Right-click, and choose **Snippet > Insert Snippet** from the context menu.
- From the keyboard, press **Ctrl+K, X**.

- Can be made from scratch

## Walkthrough: Create a code snippet in Visual Studio

<https://learn.microsoft.com/en-us/visualstudio/ide/walkthrough-creating-a-code-snippet?view=vs-2022>



# Snippet Example

- Header
  - Title – Name
  - Description – Tooltip description
  - Shortcut – Triggered on Tab

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <CodeSnippets xmlns="http://schemas.microsoft.com/VisualStudio/2005/CodeSnippet">
3   <CodeSnippet Format="1.0.0">
4     <Header>
5       <SnippetTypes>
6         <SnippetType>Expansion</SnippetType>
7       </SnippetTypes>
8       <Title>Property</Title>
9       <Author>Microsoft Corporation</Author>
10      <Description>Defines a Property with a backing field.</Description>
11      <HelpUrl>
12      </HelpUrl>
13      <Shortcut>Property</Shortcut>
14    </Header>
15    <Snippet>
16      <Declarations>
17        <Literal Editable="true">
18          <ID>PropertyName</ID>
19          <ToolTip>Replace with property name.</ToolTip>
20          <Default>NewProperty</Default>
21        </Literal>
22      </Declarations>
23    </Snippet>
24  </CodeSnippet>
25 </CodeSnippets>
```

Insert Snippet: My Code Snippets >

Protected \_StartLocationX As

```
''' <summary>
''' Read/Write Property
''' </summary>
''' <returns></returns>
```

20 references | 0 changes | 0 authors, 0 cha

Public Property StartLocati

Get

Return \_StartLocati

ExtensionMethod  
KAttributeClassProperty  
KEnumAttributeClassProperty  
KEnumParameter  
KParameterClassProperty  
KPropertyClassProperty  
Property  
ReadOnly Property  
SerializableReadOnly

As \$PropertyType\$

Defines a Property with a backing field.  
Shortcut: ppty

```
45 </>Snippet>
46 </CodeSnippet>
47 </CodeSnippets>
```

# Snippet Example

- Declarations = Variables
  - ID – Variable Name
  - Tooltip – Shows up on hover
  - Default – Variable value before edit
- Code = What gets written
  - Variable IDs between \$
  - Comments


```
Protected NewProperty As String
```

```
''' <summary>  
''' Read/Write Property. Enter the description here.  
''' </summary>  
''' <returns></returns>
```

0 references | 0 changes | 0 authors, 0 changes

```
Public Property NewProperty() As String
```

```
Get  
Return NewProperty  
End Get  
Set(ByVal value As String)  
    NewProperty = value  
End Set  
End Property
```

 **Class System.String**  
Represents text as a sequence of UTF-16 code units.  
Replace with the property type.

```
1 <?xml version="1.0" encoding="UTF-8"?>  
2 <CodeSnippets xmlns="http://schemas.microsoft.com/VisualStudio/2005/CodeSnippet">  
3   <CodeSnippet Format="1.0.0">  
4     <Header>  
5       <SnippetTypes>  
6         <SnippetType>Expansion</SnippetType>  
7       </SnippetTypes>  
8       <Title>Property</Title>  
9       <Author>Microsoft Corporation</Author>  
10      <Description>Defines a Property with a backing field.</Description>  
11      <HelpUrl>  
12      </HelpUrl>  
13      <Shortcut>Property</Shortcut>  
14    </Header>  
15    <Snippet>  
16      <Declarations>  
17        <Literal Editable="true">  
18          <ID>PropertyName</ID>  
19          <ToolTip>Replace with property name.</ToolTip>  
20          <Default>NewProperty</Default>  
21          <Function>  
22          </Function>  
23        </Literal>  
24        <Literal Editable="true">  
25          <ID>PropertyType</ID>  
26          <ToolTip>Replace with the property type.</ToolTip>  
27          <Default>String</Default>  
28          <Function>  
29          </Function>  
30        </Literal>  
31      </Declarations>  
32      <Code Language="vb" Kind="method decl" Delimiter="$"><![CDATA[Protected _$PropertyName$ As _$PropertyType$  
33      ''' <summary>  
34      ''' Read/Write Property. Enter the description here.  
35      ''' </summary>  
36      ''' <returns></returns>  
37      Public Property _$PropertyName$() As _$PropertyType$  
38      Get  
39        Return _$PropertyName$  
40      End Get  
41      Set(ByVal value As _$PropertyType$)  
42        _$PropertyName$ = value  
43      End Set  
44    End Property]]></Code>  
45    </Snippet>  
46  </CodeSnippet>  
47 </CodeSnippets>
```

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# Templates



# Template Example - .vstemplate

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- Default Name
- Name
- Description
- Project Type
- Sort Order
- Icon
- Project Item
- Custom Parameters

```
1 <VSTemplate Version="3.0.0" xmlns="http://schemas.microsoft.com/developer/vstemplate/2005" Type="Item">
2   <TemplateData>
3     <DefaultName>KETIV Class Template.vb</DefaultName>
4     <Name>KETIV Class Template</Name>
5     <Description>Class template used on KETIV Automation Projects</Description>
6     <ProjectType>VisualBasic</ProjectType>
7     <SortOrder>10</SortOrder>
8     <Icon>__TemplateIcon.png</Icon>
9   </TemplateData>
10  <TemplateContent>
11    <References />
12    <ProjectItem SubType="" TargetFileName="$fileinputname$.vb" ReplaceParameters="true">KETIVOrganizedClass.vb</ProjectItem>
13    <CustomParameters>
14      <CustomParameter Name="$customerName$" Value="AwesomeCompany1"/>
15    </CustomParameters>
16  </TemplateContent>
17 </VSTemplate>
```

# Template Example – templateName.vb

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<https://learn.microsoft.com/en-us/visualstudio/ide/template-parameters?view=vs-2022>

## Reserved template parameters

The following table lists the reserved template parameters that can be used by any template:

Expand table

Parameter	Description
clrversion	Current version of the common language runtime (CLR).
ext_*	Add the <code>ext_</code> prefix to any parameter to refer to the variables of the parent template. For example, <code>ext_safeprojectname</code> .
guid[1-10]	A GUID used to replace the project GUID in a project file. You can specify up to 10 unique GUIDs (for example, <code>guid1</code> ).
itemname	The name of the file in which the parameter is being used.
safeitemname	Same as <code>itemname</code> but with all unsafe characters and spaces replaced by underscore characters.
safeitemrootname	Same as <code>safeitemname</code> .

## Custom Parameters

```
1
2  ''' <summary>
3  ''' Summary of $safeitemname$. Update this summary.
4  ''' </summary>
5  Public Class $safeitemname$
6
7      'Properties for $safeitemname$ go here
8      #Region "Properties"
9
10     #End Region
11
12     'Constructors for $safeitemname$ go here
13     #Region "Constructors"
14
15     ''' <summary>
16     ''' Constructor for $safeitemname$
17     ''' </summary>
18     Public Sub New()
19
20     End Sub
21
22     #End Region
23
24     'Methods for $safeitemname$ go here
25     #Region "Methods"
26
27     #End Region
28
29     End Class
30
31
32
33
34
35     'Enumerations that are used specifically for $safeitemname$ but need to be public or friend for use go here
36     #Region "PublicEnums"
37
38     #End Region
39
40
```

# Questions about Design Automation

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- Ideas for KVA Topics?
- Project Ideas?

Connect with Philip - [philip.cox@Ketiv.com](mailto:philip.cox@Ketiv.com)

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