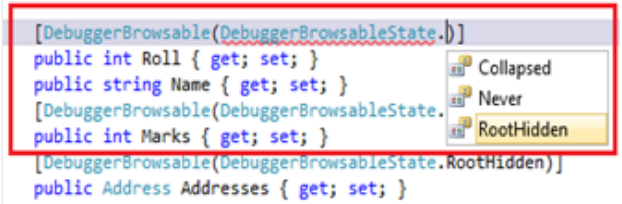
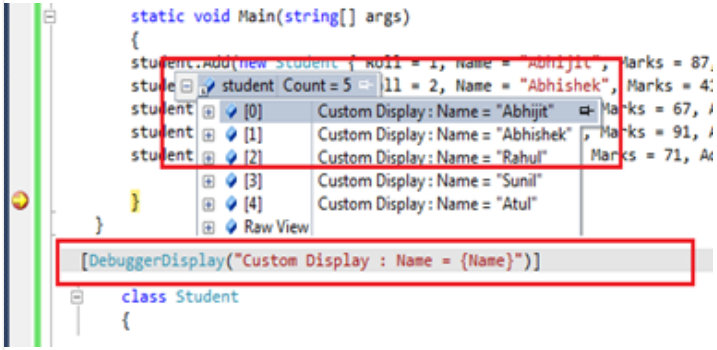
Few Tips on Customizing Debugging Window View in Visual Studio

By Abhijit Jana | February 2, 2011 2 Comments

Use code>DebuggerBrowsable attribute to customize the debugging windows



Use `DebuggerDisplay` attribute to customize the debugging display.

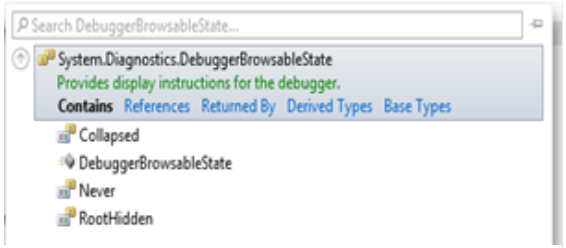


To use above attributes you have to use `System.Diagnostics` namesapce

1. Using `DebuggerBrowsable` Attributes

If you want to customize the view on debugger window for any properties during debugging you can easily do it using `DebuggerBrowsable` attributes. You can apply this attributes for any properties, fields or for Indexer. DebuggerBrowsable attributes constructor takes DebuggerBrowsableState as argument. DebuggerBrowsableState is used to provide the instruction to debugger that how it going to be display in debugger window.

We can provide three state for DebuggerBrowsable attributes.



1. Collapsed : If we set DebuggerBrowsableState as collapsed, then debugger window will show the element as collapsed. it's the default behavior.

2. Never : It will never show the element in debugging window.

3. RootHidden : It will hide the root elements and display the all child items as expanded view.

You can read the complete definition of these *DebuggerBrowsableState* at MSDN

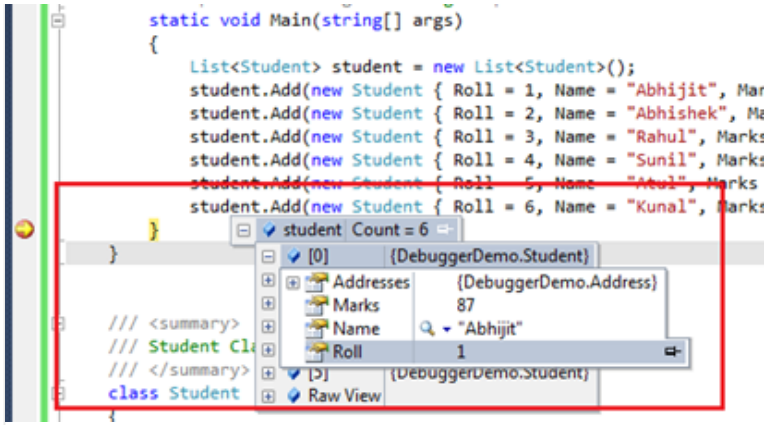
Now I am going to demonstrate the use of this DebuggerBrowsable Attributes and DebuggerBrowsableState using a example.

Before starting, Let's consider we are having the following code block.

```
01  namespace DebuggerDemo
02  {
03
04  /// <summary>
05  /// Student Info Demo Class
06  /// </summary>
07  class Program
08  {
09  /// <summary>
10  /// Mains the specified args.
11  /// </summary>
12  /// <param name="args">The args.</param>
13  static void Main(string[] args)
14  {
15  List<Student> student = new List<Student>();
16  student.Add(new Student { Roll = 1, Name = "Abhijit", Marks = 87, Addresses = new Address { Address1 = "add1", Address2 = "ad
17  student.Add(new Student { Roll = 2, Name = "Abhishek", Marks = 41, Addresses = new Address { Address1 = "add3", Address2 = "a
18  student.Add(new Student { Roll = 3, Name = "Rahul", Marks = 67, Addresses = new Address { Address1 = "add5", Address2 = "" }
19  student.Add(new Student { Roll = 4, Name = "Sunil", Marks = 91, Addresses = new Address { Address1 = "add11", Address2 = "add
20  student.Add(new Student { Roll = 5, Name = "Atul", Marks = 71, Addresses = new Address { Address1 = "add12", Address2 = "add2
21  student.Add(new Student { Roll = 6, Name = "Kunal", Marks = 71, Addresses = new Address { Address1 = "add12", Address2 = "add
22  }
23  }
24
25  /// <summary>
26  /// Student Class
27  /// </summary>
28  class Student
29  {
30  /// <summary>
31  /// Gets or sets the roll.
32  /// </summary>
33  /// <value>The roll.</value>
34  public int Roll { get; set; }
35
36  /// <summary>
```

```
/// Gets or sets the name.
/// </summary>
/// <value>The name.</value>
public string Name { get; set; }

/// <summary>
/// Gets or sets the marks.
/// </summary>
/// <value>The marks.</value>
public int Marks { get; set; }

/// <summary>
/// Gets or sets the addresses.
/// </summary>
/// <value>The addresses.</value>
public Address Addresses { get; set; }
}

/// <summary>
/// Address of Students
/// </summary>
class Address
{
/// <summary>
/// Gets or sets the address1.
/// </summary>
/// <value>The address1.</value>
public string Address1 { get; set; }

/// <summary>
/// Gets or sets the address2.
/// </summary>
/// <value>The address2.</value>
public string Address2 { get; set; }
}
}
```

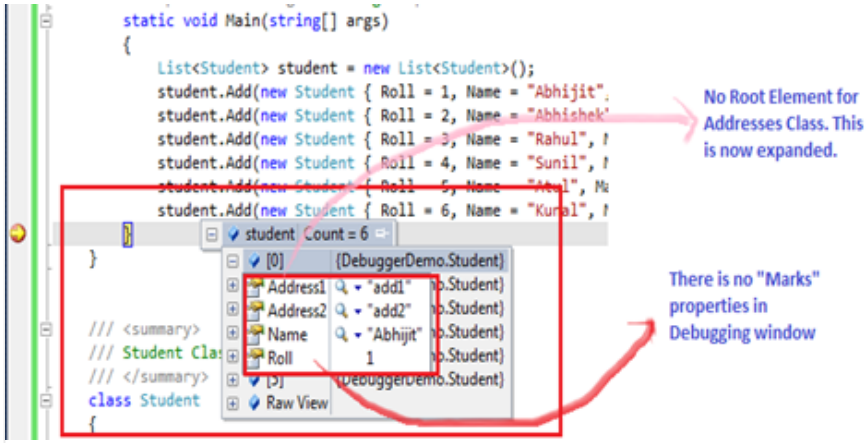
Now, first let's see, how the normal debugging window behaves. Just put a breakpoint at the end of main method and try to explore the debugging window, you will get debugging window as below picture, which is the expected debugging window view.



In the above picture you can see, we are having 6 student object and each one having different value. As *Addresses* is a different class and used as properties with multiple value, hence it is in the collapsed mode.

Now, I want to see all the address along with all other properties with expanded mode and also want to hide the Marks properties. To achieve the above requirement we have to add DebuggerBrowsable attrributes for the *Marks* and *Addresses* properties in the *Student* class

Now if you put the breakpoint in the same location and explore the debugging window you will find the debugging window view as below picture

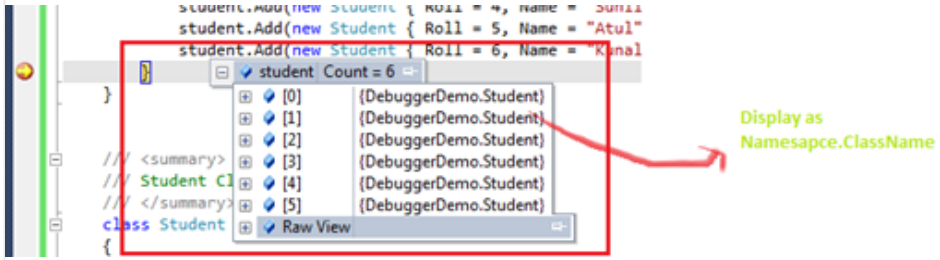


So, from the above picture you can easily identify the changes in the debugging window view.

2. Use DebuggerDisplay attribute

Here is the second tips. By using DebuggerDisplay attributes you can define how a class or field will be displayed in the debugger window. using DebuggerDisplay you can change the debugger window message and variables that you want to display.

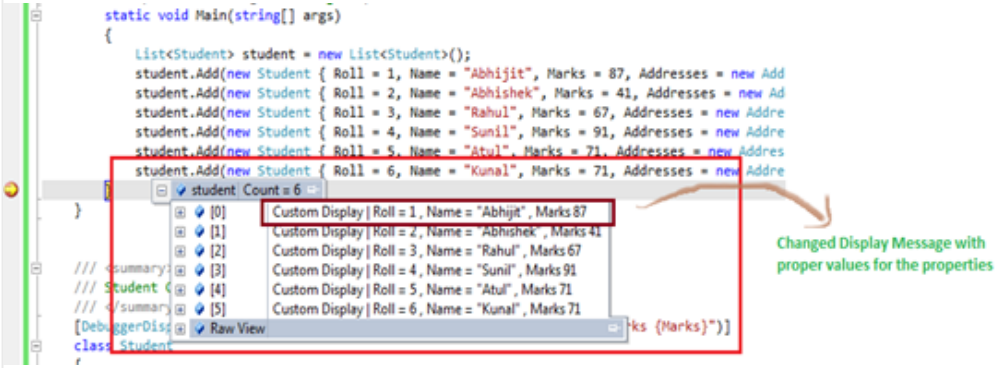
If you consider the above code sample and debug the application, by default you will get the below snaps of debugging



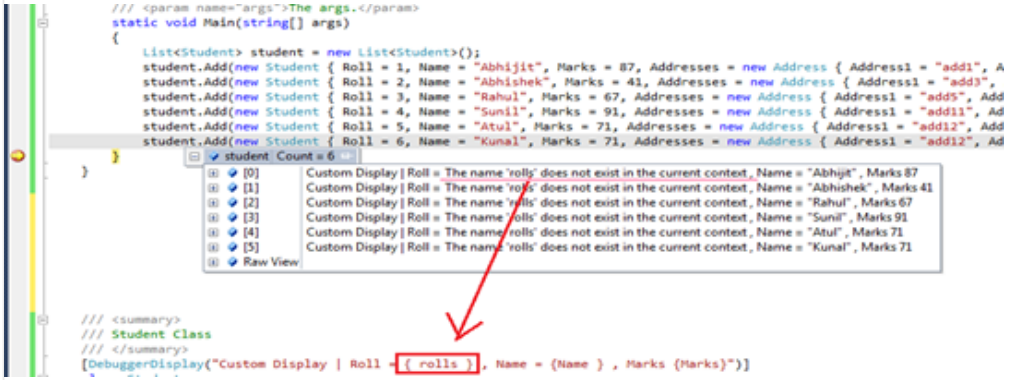
Here, for each student object you are getting NameSpace.ClassName as display mesaage by default. Now we can customize the display using DebuggerDisplay attributes. DebuggerDisplay attributes constructors take display name as arguments or you can passed named parameter that you to display over there.

```
/// <summary>
/// Student Class
/// </summary>
[DebuggerDisplay("Custom Display | Roll = { Roll } , Name = {Name } , Marks {Marks}")]
class Student
{
    /// <summary>
    /// Gets or sets the roll.
    /// </summary>
    /// <value>The roll.</value>
    public int Roll { get; set; }
```

After made the above changes if you run the same code you will find that custom display message with proper value of parameter that you have given in debuggerdisplay attributes.



Note: While using DebuggerDisplay, you have to make sure that you are giving proper field name as argument with in { }. Other wise you will get message like below.



In this post I have explained how we can customize the debugging window's view during debugging of our application using DebuggerBrowsable and *DebuggerDisplay* attributes. This is quite helpful while you are debugging a complex object and you want to make your debug window very simple.

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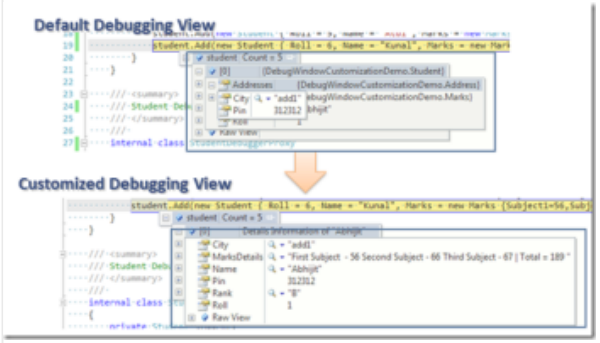

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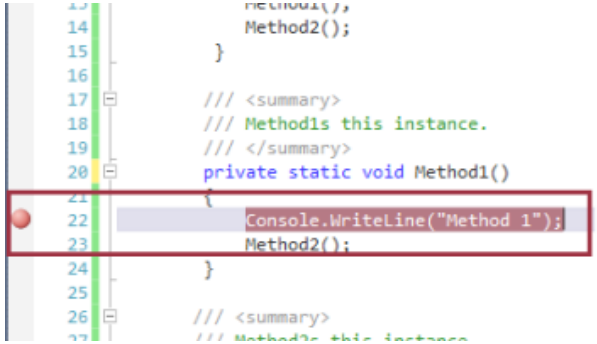

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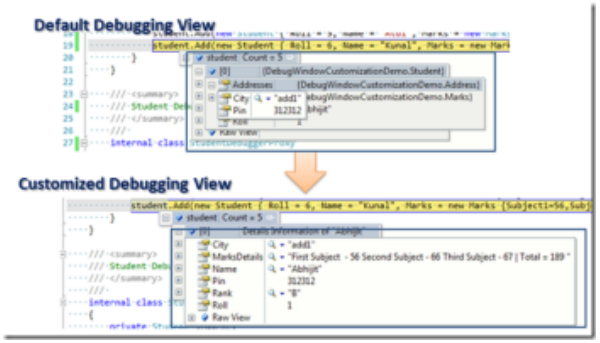

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Abhijit runs the Daily .NET Tips. He started this site with a vision to have a single knowledge base of .NET tips and tricks and share post that can quickly help any developers . He is a Former Microsoft ASP.NET MVP, CodeProject MVP, Mentor, Speaker, Author, Technology Evangelist and presently working as a .NET Consultant. He blogs at http://abhijitjana.net , you can follow him @AbhijitJana . He is the author of book Kinect for Windows SDK Programming Guide.

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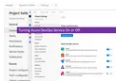

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