

C# 7

(proposed) new features

<https://github.com/dotnet/roslyn/issues/2136>

VS 2015 != VS 15

VS 2015 == VS 14

Binary Literals

```
int five_Old = Convert.ToInt32("0101", 2);  
    int five_New = 0b0101;
```

<https://github.com/dotnet/roslyn/issues/215>

Digit Separators

```
int speedOfLight_Old = 299792458;  
int speedOfLight_New = 299_792_458;
```

<https://github.com/dotnet/roslyn/issues/216>

Local Functions

helper function declared
inside another function

<https://github.com/dotnet/roslyn/issues/259>

```
static void Main(string[] args)
{
    DemoLocalFunction("World");
    Console.ReadKey();
}
```

```
static void DemoLocalFunction(string recipient)
{
    string greeting = "Hello";

    void GreetRecipient()
    {
        Console.WriteLine($"{greeting}, {recipient}!");
    }

    GreetRecipient();
}
```

Pattern Matching

extends **is** operator and
assigns value to variable

<https://github.com/dotnet/roslyn/issues/206>

```
static string GetInfo(Attendee a)
{
    if (a is Leader l)
    {
        return $"{l.Name} ({l.Role})";
    }
    else if (a is Speaker s && string.IsNullOrEmpty(s.Topic))
    {
        return $"{s.Name} speaking on unknown topic";
    }
    else if (a is Speaker s)
    {
        return $"{s.Name} speaking on \"{s.Topic}\"";
    }
    else
    {
        return $"{a.Name}";
    }
}
```


Ref Returns

can return an object by reference
if passed in as a reference

<https://github.com/dotnet/roslyn/issues/118>

```
static void DemoRefReturns()
{
    int input = 0;
    ref int output = ref ChangeValue(ref input);
    output++; //input changes also
}
```

```
static ref int ChangeValue(ref int value)
{
    value = 123;
    return ref value;
}
```

Tuples

same format as parameter lists

<https://github.com/dotnet/roslyn/issues/347>

```
static void DemoTuples_Old()
{
    Tuple<int, int> result = GetTuple_Old();
    Console.WriteLine(result.Item1);
    Console.WriteLine(result.Item2);
}
```

```
static Tuple<int, int> GetTuple_Old()
{
    return new Tuple<int, int>(5, 15);
}
```

```
static void DemoTuples_Proposed()
{
    var result = GetTuple_Proposed();
    Console.WriteLine(result.count);
    Console.WriteLine(result.sum);
}
```

```
static (int count, int sum) GetTuple_Proposed()
{
    return (5, 15);
}
```

VS 15 Preview 3

!= VS 2015 Update 3
lightweight installer

DEMO

Project Properties -> Build Tab
Conditional Compilation Symbol

Slides and Demos

<https://github.com/kacollins/CSharp7>

Status of Features

<https://github.com/dotnet/roslyn/blob/dd42f4c634a754cfa8e64f5d1ad0ca2044323c9a/docs/Language%20Feature%20Status.md>

Video from Build

<https://channel9.msdn.com/Events/Build/2016/B889>

Release Notes for VS 15 Preview 3

<https://www.visualstudio.com/en-us/news/releasenotes/vs15-relnotes>