

C# 8.0

VS 2019, .NET vNext

@RobertHaken | Microsoft MVP: Development | HAVIT, s.r.o.

PLATINUM PARTNER



GOLD PARTNER

DEVCON HALL SHOWIT HALL



SILVER PARTNER

PROFINIT
NÁSKOK DÍKY ZNALOSTEM

GENERAL PARTNER



C# 8 Preview 5

DEMA



C# 8.0: Default interface methods

```
interface IEnumerable<T>
{
    int Count()
    {
        int count = 0;
        foreach (var x in this)
            count++; return count;
    }
}
```

```
interface IList<T> : IEnumerable<T>
{
    int Count { get; }
    override int IEnumerable<T>.Count() => this.Count;
}
```

<https://github.com/dotnet/csharplang/blob/master/proposals/default-interface-methods.md>

C# Language – vNext (after 8.0)



C# vNext: Records

```
class Person(string First, string Last);
```

```
class Person : IEquatable<Person>
```

```
{
```

```
    public string First { get; }
```

```
    public string Last { get; }
```

```
    public Person(string First, string Last) => (this.First, this.Last) = (First, Last);
```

```
    public void Deconstruct(out string First, out string Last)
```

```
        => (First, Last) = (this.First, this.Last);
```

```
    public bool Equals(Person other)
```

```
        => other != null && First == other.First && Last == other.Last;
```

```
    public override bool Equals(object obj) => obj is Person other ? Equals(other) : false;
```

```
    public override int GetHashCode() => GreatHashFunction(First, Last);
```

```
    ...
```

```
}
```

<https://github.com/dotnet/csharplang/blob/master/proposals/records.md>

C# vNext (??): Extension everything

```
extension Enrollee extends Person
{
    // static field
    static Dictionary<Person, Professor> enrollees = new Dictionary<Person, Professor>();

    // instance method
    public void Enroll(Professor supervisor) { enrollees[this] = supervisor; }

    // instance property
    public Professor Supervisor => enrollees.TryGetValue(this, out var supervisor) ? supervisor : null;

    // static property
    public static ICollection<Person> Students => enrollees.Keys;

    // instance constructor
    public Person(string name, Professor supervisor) : this(name) { this.Enroll(supervisor); }
}
```

C#/.NET vNext: Native-Sized Number Types

```
// now
IntPtr ptr;
UIntPtr uptr;
IntPtr.Size

// vNext
IntN i;
UIntN u;
FloatN f;
```

<https://github.com/dotnet/corefxlab/blob/master/docs/specs/nativesized.md>

Visual Studio vNext



Visual Studio 2019 Headlines

Debugger: A better performing and more reliable debugger, out-of-process 64-bit

.NET Core 3 tooling pro WinForms a WPF

„better refactorings, better navigation, more capabilities in the debugger, faster solution load, and faster builds“

DEMO

Visual Studio 2019 – Startup, UI, IntelliCode, Code Cleanup



Visual Studio 2019

New startup experience (open code, clone, ...)

New project creation experience

Refreshed blue theme, Updated menu and title bar, Scrollbar status icon

IntelliCode

One-click code cleanup command for documents, projects and solutions

Pull request checkout + review

LiveShare

Find all references in Razor (.cshtml)

Commands search accuracy

Visual Studio 2019 Q1/19 Iteration Plan

Unit Tests against multiple .NET frameworks

Add more Azure services from the publish page

Test Explorer updates – perf, grouping, sorting

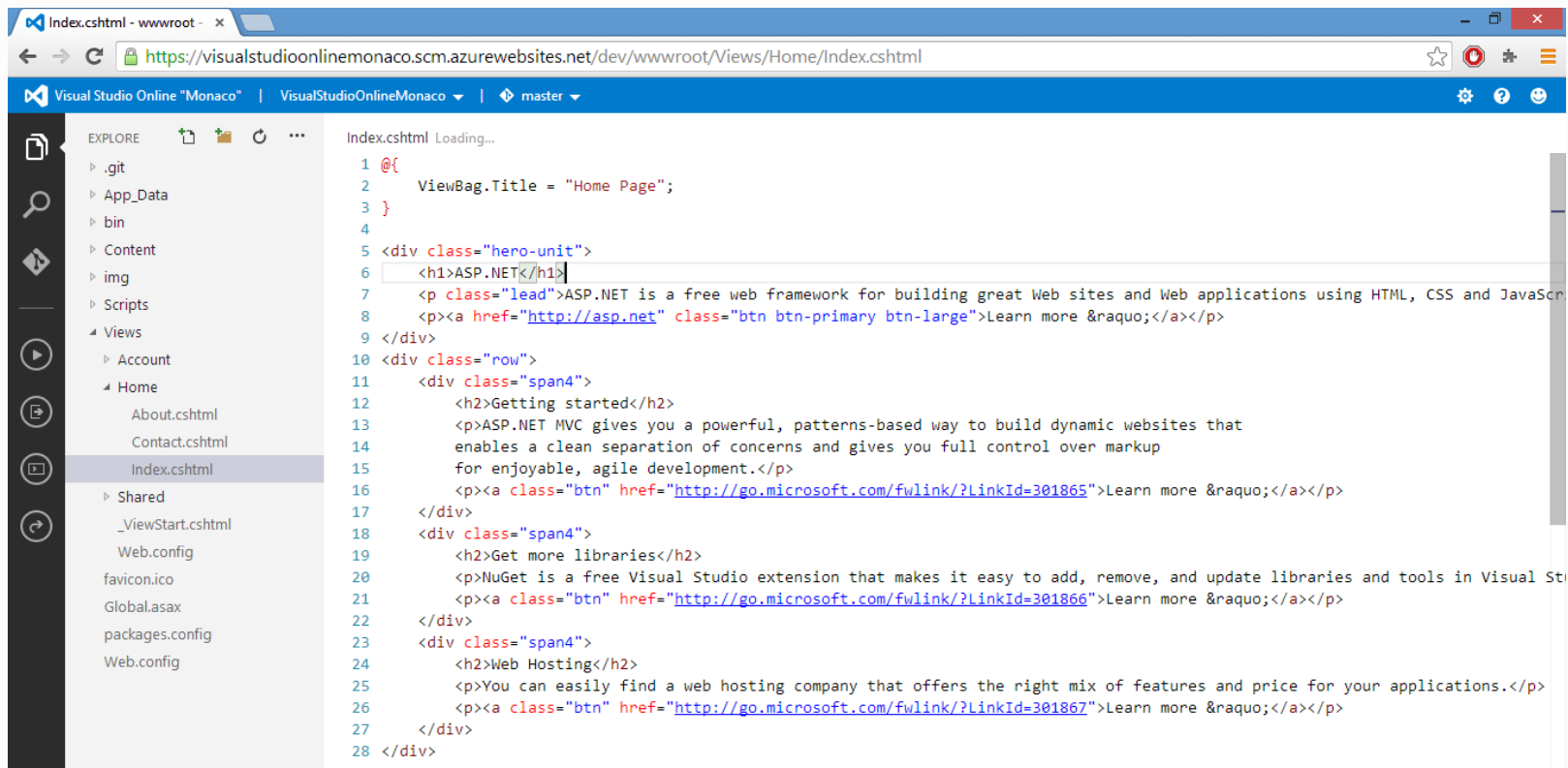
Xamarin.Forms 4.0 support

WinForms and WPF development with .NET Core 3

Move some services to the background so solutions load faster

Multiple monitors with varying DPIs

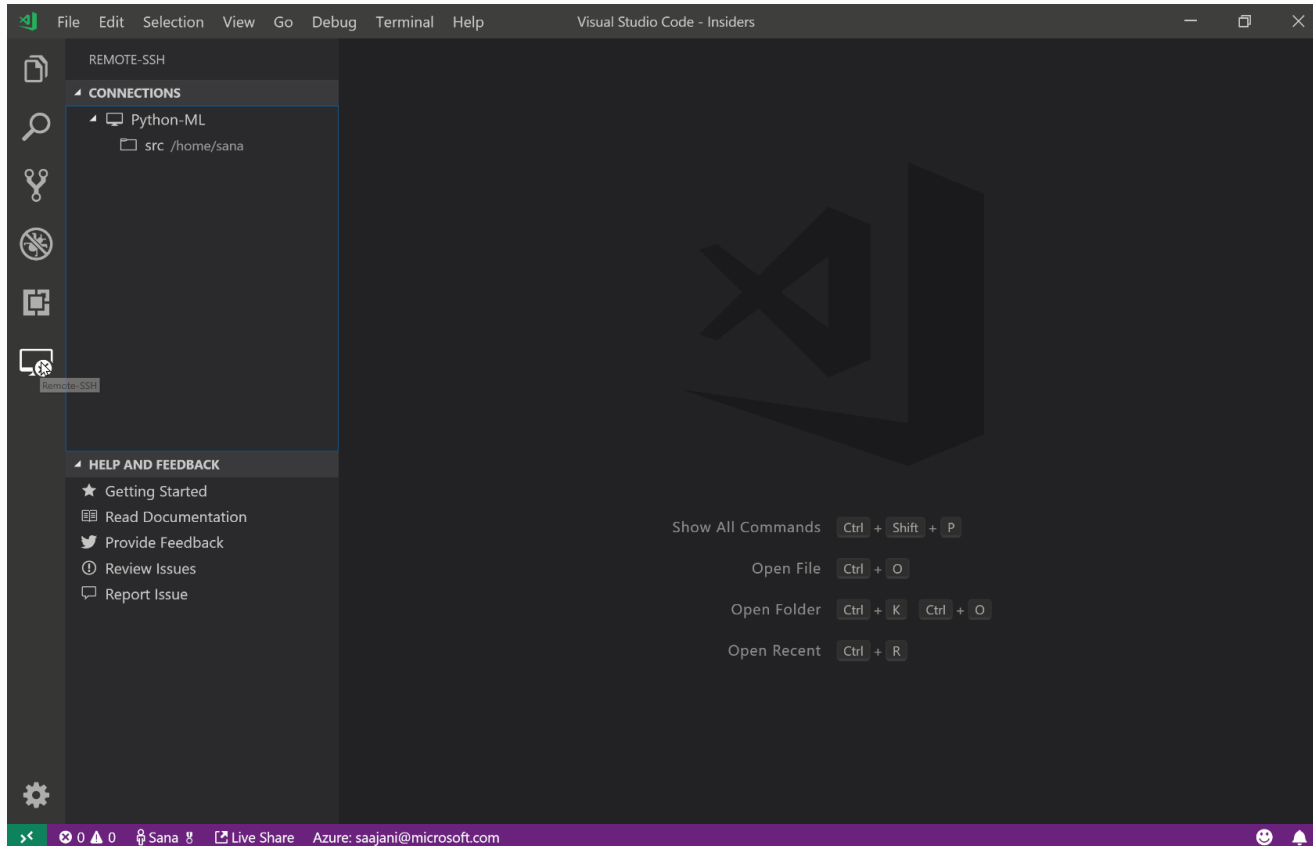
Visual Studio Online (“Monaco”)



The screenshot shows the Visual Studio Online Monaco editor interface. The browser address bar displays the URL: `https://visualstudioonlinemonaco.scm.azurewebsites.net/dev/wwwroot/Views/Home/Index.cshtml`. The editor title bar shows "Visual Studio Online 'Monaco' | VisualStudioOnlineMonaco | master". The left sidebar contains an "EXPLORE" view with a file tree showing folders like ".git", "App_Data", "bin", "Content", "img", "Scripts", and "Views", and files like "Account", "Home", "About.cshtml", "Contact.cshtml", "Index.cshtml", "_ViewStart.cshtml", "Web.config", "favicon.ico", "Global.asax", "packages.config", and "Web.config". The main editor area shows the content of "Index.cshtml" with the following code:

```
1 @{
2     ViewBag.Title = "Home Page";
3 }
4
5 <div class="hero-unit">
6     <h1>ASP.NET</h1>
7     <p class="lead">ASP.NET is a free web framework for building great Web sites and Web applications using HTML, CSS and JavaScript</p>
8     <p><a href="http://asp.net" class="btn btn-primary btn-large">Learn more &raquo;</a></p>
9 </div>
10 <div class="row">
11     <div class="span4">
12         <h2>Getting started</h2>
13         <p>ASP.NET MVC gives you a powerful, patterns-based way to build dynamic websites that enables a clean separation of concerns and gives you full control over markup for enjoyable, agile development.</p>
14         <p><a class="btn" href="http://go.microsoft.com/fwlink/?LinkId=301865">Learn more &raquo;</a></p>
15     </div>
16     <div class="span4">
17         <h2>Get more libraries</h2>
18         <p>NuGet is a free Visual Studio extension that makes it easy to add, remove, and update libraries and tools in Visual Studio.</p>
19         <p><a class="btn" href="http://go.microsoft.com/fwlink/?LinkId=301866">Learn more &raquo;</a></p>
20     </div>
21     <div class="span4">
22         <h2>Web Hosting</h2>
23         <p>You can easily find a web hosting company that offers the right mix of features and price for your applications.</p>
24         <p><a class="btn" href="http://go.microsoft.com/fwlink/?LinkId=301867">Learn more &raquo;</a></p>
25     </div>
26 </div>
```

Visual Studio Remote Development



.NET Framework



.NET Framework 4.8 (April 18th, 2019)

[Runtime] JIT and NGEN improvements (based on .NET Core 2.1)

[BCL] Updated ZLib

[BCL] Reducing FIPS Impact on Cryptography

[Windows Forms] Accessibility enhancements (Tooltips, LiveRegions, Notification Events)

[WCF] Health Monitoring endpoint (ServiceHealthBehavior)

[WPF] High DPI improvements, UIAutomation Improvements

[WPF] SelectionTextBrush Property

+ maaaany **fixes**

<https://devblogs.microsoft.com/dotnet/announcing-the-net-framework-4-8/>

<https://github.com/Microsoft/dotnet-framework-early-access/blob/master/release-notes/NET48/dotnet-48-changes.md>

.NET Core Ecosystem



.NET Core 3.0

Desktop Development - WinForms, WPF (tooling in VS2019, Windows-only)

Access to all the Windows 10 API's

.NET Core App Bundler (Embed .NET directly into an application)

Razor Components (server-side Blazor)

Entity Framework 6 Support (Windows-only)

RC (Release Candidate) scheduled for July 2019

GA (General Availability) scheduled for September 2019

.NET Core 3.1 - LTS (Long Term Support) release, scheduled for November 2019

ASP.NET Core 3.0

.NET Core 3.0 only!

OpenAPI generation (Swagger) + API client generation (C# & TypeScript)

HTTP API REPL tooling

Authorization Server (OpenID Connect)

Server-Side Blazor (aka Razor Components)

HTTP/2 in Kestrel & HttpClient

.NET 5 = .NET Core vNext

.NET – A unified platform



static compilation of .NET (ahead-of-time – AOT)

Blazor
(WebAssembly),
iOS

Java, Objective-C
and Swift
interoperability

Release scheduled for November 2020

REFERENCES

Demos - <https://github.com/hakenr/CSharp8Demo>

Blog – HAVIT Knowledge Base- <http://knowledge-base.havit.cz/> + .eu

Twitter - [@RobertHaken](https://twitter.com/RobertHaken)

YouTube - <https://www.youtube.com/user/HAVITcz>

Děkuji za pozornost
Pěkný den