



The F# Community – What it is and How it works

@dsyme, researcher at microsoft, f# community contributor

First, a little about F#

F# is the open-source, cross-platform functional language for .NET

Get Started with F#

Supported on Windows, Linux, and macOS

www.microsoft.com/net/

[TRY ONLINE](#)[GET STARTED](#)

Fable is a compiler powered by [Babel](#) designed to make [F#](#) a first-class citizen of the JavaScript ecosystem



Functional programming and more

Immutable by default. Powerful pattern matching. Lightweight syntax. Units of measure. Type providers. Enjoy!



Type safety without the hassle

Don't panic about verbose signatures. Let the compiler infer the types and catch the bugs for you before they ever get into runtime!



Modern Javascript output

Fable produces readable JavaScript code compatible with ES2015 standards and popular tooling like [Webpack](#)



Easy JavaScript interop

Call [JavaScript from Fable](#) or [Fable from JS](#)! Use NPM packages! Everything's ready for you!

A functional-first approach makes a huge difference in practice

fsharp.org/testimonials

An analysis (Simon Cousins, Energy Sector)

350,000

lines of C# OO
by offshore team

The C# project took five years and peaked at ~8 devs. It never fully implemented all of the contracts.

The F# project took less than a year and peaked at three devs (only one had prior experience with F#). All of the contracts were fully implemented.

30,000

lines of robust F#, with
parallel + more features

An application to evaluate the revenue due from [Balancing Services](#) contracts in the UK energy industry

<http://simontcousins.azurewebsites.net/does-the-language-you-use-make-a-difference-revisited/>

Implementation	C#	F#
Braces	56,929	643
Blanks	29,080	3,630
Null Checks	3,011	15
Comments	53,270	487
Useful Code	163,276	16,667
App Code	305,566	21,442
Test Code	42,864	9,359
Total Code	348,430	30,801

TL;DR – Where we are now

F# is open, cross-
platform, neutral,
independent

All F# language
and tooling is
accepting
contributions

The F# community
is self-empowered
fsharp.org

Xamarin tools for
Android, iOS,
macOS etc.

VSCode, VS for
Windows, Mac

.NET Core for
Linux/OSX

The F# Compiler
Service powers
other tools

Fable for F#-to-
Javascript
SAFE for F#
fullstack

F# 4.7 now
complete!

F# and .NET Core (Linux, OSX, Windows)

```
dotnet new -lang F#
```

```
dotnet build
```

docs.microsoft.com/dotnet/core/

But how did we get here?

How did the F# community get created and
how does it work?

The Early History of F# - HOPL IV (2020)

fsharp.org/history



Technique #1

The Community at the Centre of the Technology

The F# Pivot of 2013 - From Proprietary to Open

Old think...



New think...

Microsoft

Visual Studio, .NET, SDKs, Tools

Visual F# Tools

Microsoft
Research

F# Language

tryfsharp.org

fpish.net

tryfs.org

fssnip.net

tryfs.org

fsharpforfunandprofit.com

Xamarin Studio

Xamarin



...



F# Open Source Group

F# Software Foundation

F# Community Groups



Technique #2



The Community at the Centre of Design & Implementation

Suggestions:

Designs

Implementation

github.com/fsharp/fslang-design

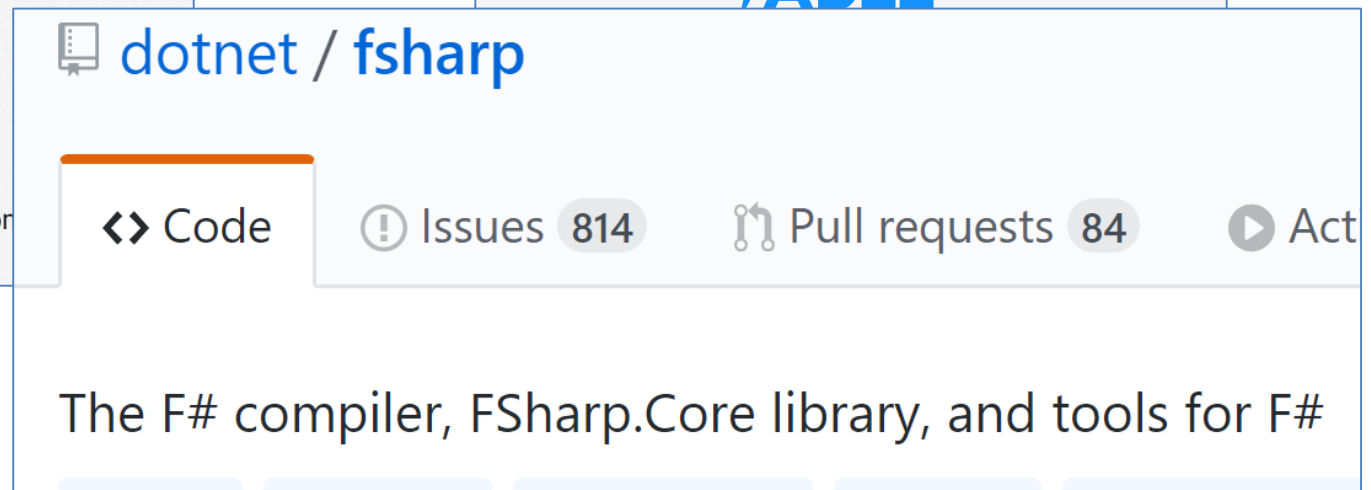
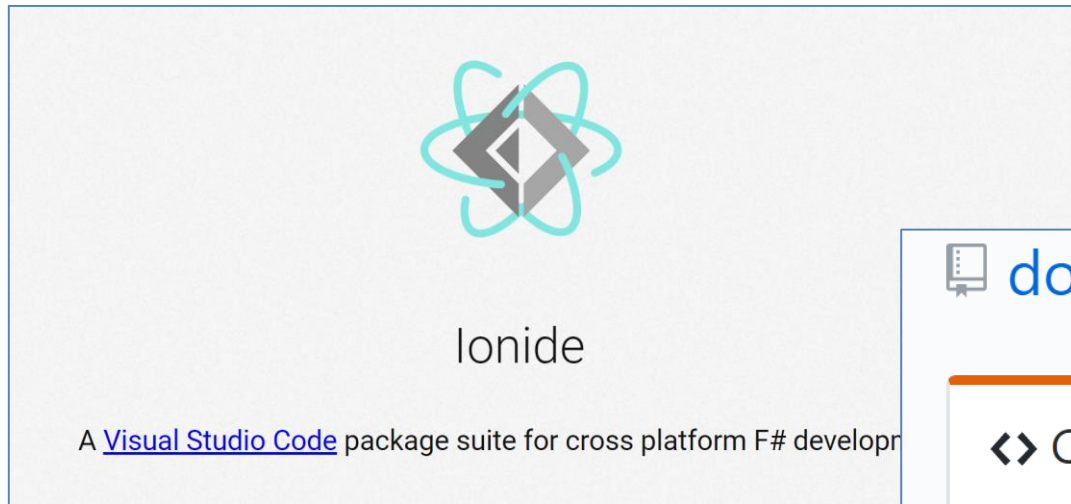
github.com/fsharp/fslang-suggestions

github.com/dotnet/fsharp

Technique #3



The Community at the Centre of Tooling





Technique #4

A Foundation at the Centre of the Community...

...that embodies the ethics and spirit of the community and represents its interests positively

<http://foundation.fsharp.org>

Technique #5



The Community at the Centre of Incubation

<http://fsprojects.github.io> and much more

Balancing trust, consistency and innovation

Technique #6



The Community owns the Message

The core message about F# is decided by the community

Microsoft is part of the community, so are many other interests

F# Conferences are F# Events run by the F# Community

Technique #7



Balance the Forces in the Community

Communities are a balance of interests and forces

There need to be truly neutral zones

Commercial interests are important but must not dominate

Take the long term into account

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Take the long term into account

Please, get involved in the core technologies

programming languages

runtimes

frameworks

Invent, Create, Initiate, Lead, Contribute,
Collaborate, Govern, Sustain

Questions?

DYLAN AND THE LINEBREAKERS



F# 4.0

- ✓ True shift to cross-platform open engineering
 - ✓ Long laundry list of language items
 - ✓ Normalized core library
 - ✓ Type providers more powerful
-
- ✓ Better debugging, tooling, performance
 - ✓ ~20% compiler perf improvement

<https://github.com/fsharp/fslang-design/tree/master/FSharp-4.0>

F# 4.1

- ✓ Optional large scope cycles more on this later)
 - ✓ Result<T,Error> in standard library
 - ✓ Unboxed (struct) tuples
 - ✓ Unboxed (struct) records
 - ✓ Unboxed (struct) unions
-
- ✓ More bits and pieces

<https://github.com/fsharp/fslang-design/tree/master/FSharp-4.1>

F# 4.5

- ✓ `Span<T>` high perf type-safe non-allocating code
- ✓ Improved async debugging
- ✓ More bits and pieces

<https://github.com/fsharp/fslang-design/tree/master/FSharp-4.5>

F# 4.6

- ✓ Anonymous records
- ✓ More bits and pieces

<https://github.com/fsharp/fslang-design/tree/master/FSharp-4.5>