

IF I CAN MAKE A LANGUAGE SERVER ...YOU CAN TOO!



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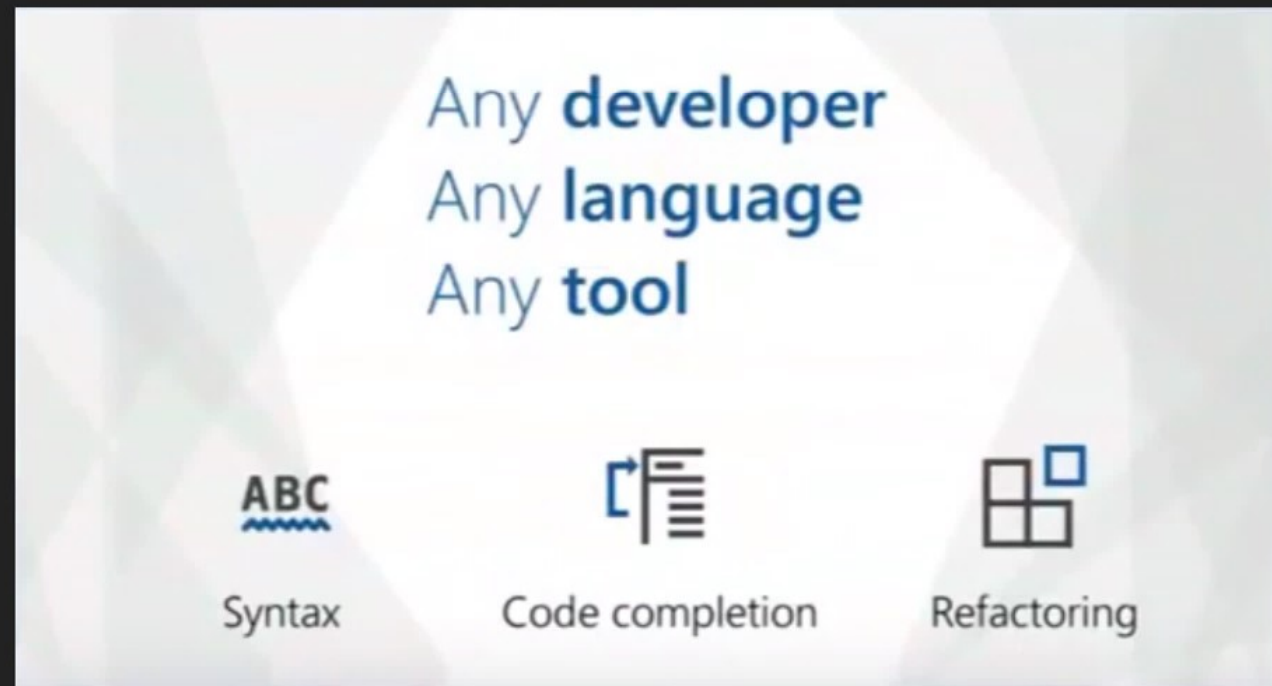


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WHAT IS THE LANGUAGE SERVER PROTOCOL?



WHY?



WHAT IF...



NOTEPAD IS NOT FUN :(

```
InitReactorRunner.java - Notepad
File Edit Format View Help
import java.util.logging.Level;
import java.util.logging.Logger;

import static java.util.logging.Level.SEVERE;
import org.kohsuke.accmod.Restricted;
import org.kohsuke.accmod.restrictions.NoExternalUse;

/**
 * Executes the {@link Reactor} for the purpose of bootup.
 *
 * @author Kohsuke Kawaguchi
 */
public class InitReactorRunner {
    public void run(Reactor reactor) throws InterruptedException, ReactorException, IOException {
        reactor.addAll(InitMilestone.ordering().discoverTasks(reactor));

        ExecutorService es;
        if (Jenkins.PARALLEL_LOAD)
            es = new ThreadPoolExecutor(
                TWICE_CPU_NUM, TWICE_CPU_NUM, 5L, TimeUnit.SECONDS, new LinkedBlockingQueue<Runnable>(), new DaemonThreadFactory());
        else
            es = Executors.newSingleThreadExecutor(new NamingThreadFactory(new DaemonThreadFactory(), "InitReactorRunner"));
        try {
            reactor.execute(es, buildReactorListener());
        } finally {
            es.shutdownNow(); // upon a successful return the executor queue should be empty. Upon an exception, we want to cancel all pending tasks
        }
    }

    /**
     * Aggregates all the listeners into one and returns it.
     *
     * <p>
     * At this point plugins are not loaded yet, so we fall back to the META-INF/services look up to discover implementations.
     * As such there's no way for plugins to participate into this process.
     */
    private ReactorListener buildReactorListener() throws IOException {
        List<ReactorListener> r = Lists.newArrayList(ServiceLoader.load(InitReactorListener.class, Thread.currentThread().getContextClassLoader()));
        r.add(new ReactorListener() {
            final Level level = Level.parse( Configuration.getStringConfigParameter("initLogLevel", "FINE") );
        });
    }
}
```

EXAMPLE (OMNISHARP)

```
1 using System;  
2 Console.WriteLine("Hello World");  
3
```


EXAMPLE (TYPESCRIPT)

```
1 window.location;
```

WHAT EDITORS CAN I USE?



LANGUAGE SUPPORT

- C#
- C++
- HTML
- CSS/LESS/SCSS
- Json
- PHP
- Java
- SQL
- Go
- Rust
- Scala
- TypeScript
- JavaScript
- Docker
- Lua
- Ruby
- Elixir
- Groovy

WRITING A LANGUAGE SERVER

- <https://microsoft.github.io/language-server-protocol/specification>
- Protocol defines operations
- Server and Client negotiate capabilities
- Json RPC
- Bi-directional communication
- Transports
 - Stdio
 - WebSocket
 - Socket

SDKS

- NodeJS
 - TypeScript
 - JavaScript
- Java
- C#

SUPPORTS FEATURES LIKE...

- Goto Definition
- Rename Symbol
- Workspace Symbols
- Logging
- Diagnostics / Errors
- Intellisense
- Signature Help
- Hover
- Document Symbols
- Formatting
- Code Lens
- Code Actions

CREATING A LANGUAGE SERVER?

- Custom Templating Language!
- Configuration files!
- Support a custom Scripting Language!
- Translation!

DEMO