



Building IntelliJ IDEA plugins in Scala

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@hmemcpy

```
27 |         | # Queries can have comments!
28 |         | friends {
29 |         |     | name
30 |         | }
31 |         | }
32 |         | }""".stripMargin
33 |     assertM(Parser.parseQuery(query))(
34 |       equalTo(
35 |         simpleQuery(
36 |           selectionSet = List(
37 |             simpleField(
38 |               name = "name", index = 15
39 |             ),
40 |             simpleField(
41 |               name = "friends",
42 |               selectionSet = List(simpleField(
43 |                 name = "name", index = 73)), index = 57)
44 |             ), index = 4
45 |           ),
46 |         sourceMapper = SourceMapper.sourceMapper
47 |       )
48 |     )
49 |   }
50 | }
51 | testM("arguments") {
52 |   // Run 'caliban.parsing.ParserSpec.arguments' Ctrl+Shift+F10
53 |   // Debug 'caliban.parsing.ParserSpec.arguments'
54 |   // Create 'caliban.parsing.ParserSpec.arguments'...
55 |   // Add method contract to 'testM'
56 |   // Press Ctrl+Shift+I to open preview
57 |   // }""".stripMargin
58 |   assertM(Parser.parseQuery(query))(
59 |     equalTo(
```

Run: ParserSpec

Tests passed: 37 of 37 tests - 633 ms

Test Results	Time
ParserSpec	633 ms
simple query with fields	114 ms
arguments	113 ms
aliases	113 ms
input values	114 ms
block strings	5 ms
variables	5 ms
directives	4 ms
list and non-null types	4 ms
fragments	5 ms
inline fragments	5 ms
inline fragments with directives	5 ms
mutation	3 ms
invalid input	46 ms

Tests passed: 37 (a minute ago)

51:8 LF UTF-8 2 spaces

Event Log

About me

- Software developer and consultant
- Working in Scala and FP for 4 years
- Passionate about productivity tools
- Author of the ZIO plugin for IntelliJ
- @hmemcpy on twitter and everywhere else

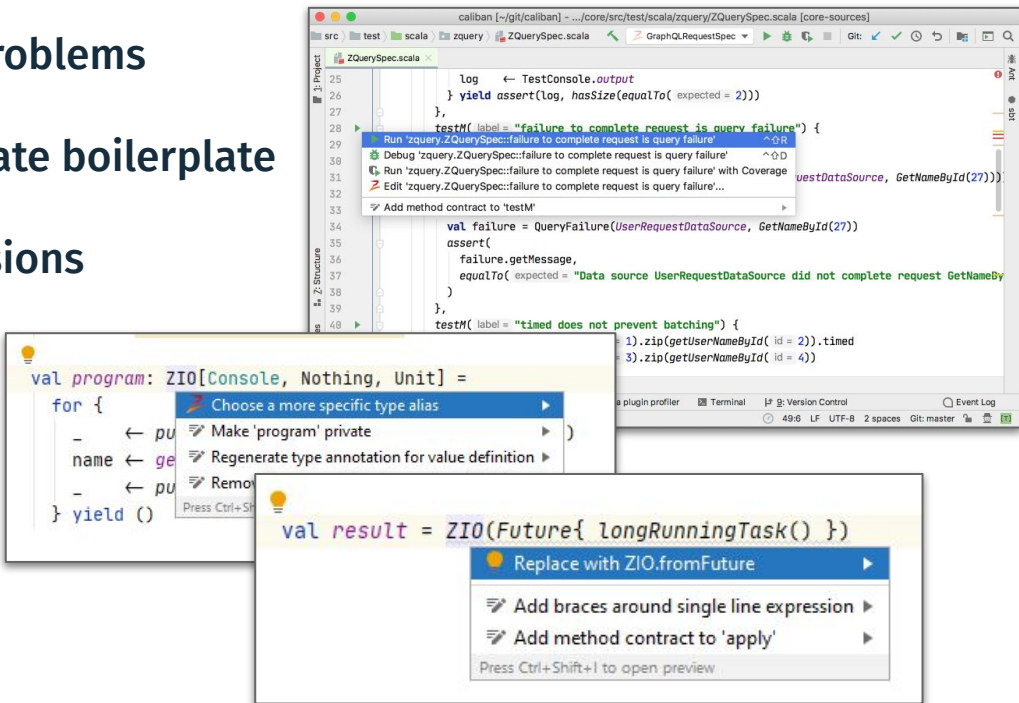


Agenda

- Why create plugins?
- IntelliJ Platform
- Demo
- What's next?
- Q&A

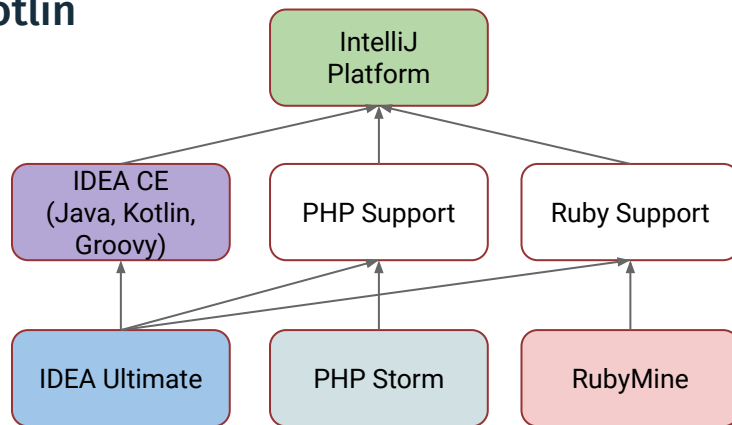
Why plugins?

- Help new users get started with your library or framework
- Prevent routine errors or usage problems
- Automate repetitive tasks, eliminate boilerplate
- Assist migration between API versions
- Discover new (or better) API
- A challenge!



IntelliJ Platform

- A popular IDE among Scala developers
- Huge code base, written mostly in Java/Kotlin
- Everything is a plugin
- Almost everything is extensible
- Plugins can depend on other plugins
- Decent documentation



Key IDE features

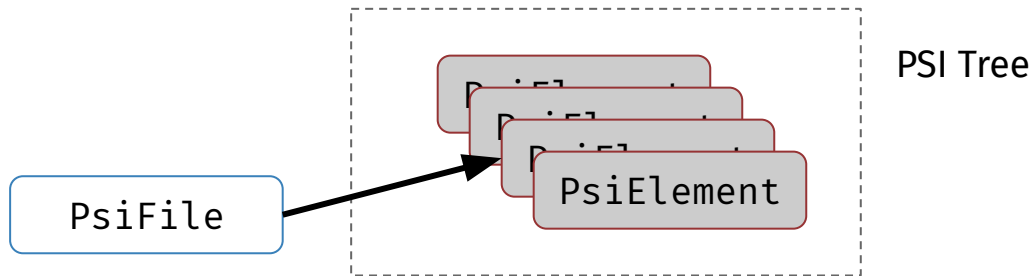
- Components and services
- Virtual File System (VFS)
- Language support (PSI)
- Code editor
- Inspections
- Code generators
- ...and much more



PSI - Program Structure Interface

IntelliJ's representation of a program structure:

- Syntax trees
- Semantic information
- Almost everything can be represented as a **PsiElement**
- Every language implements its own PSI

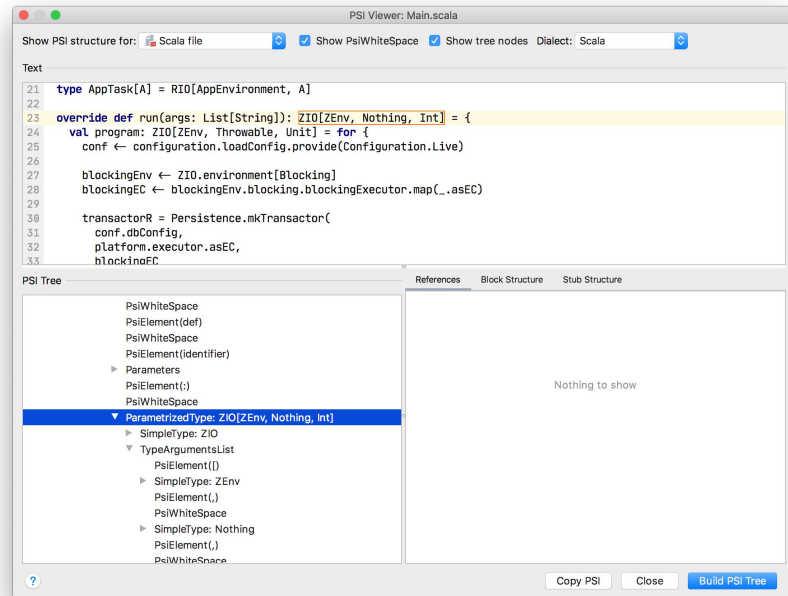


PSI - Base elements

PSI model:

- PsiElement
- PsiWhiteSpace
- PsiClass
- PsiMethod
- PsiField
- ...

Can be inspected with **Tools - View PSI Structure**

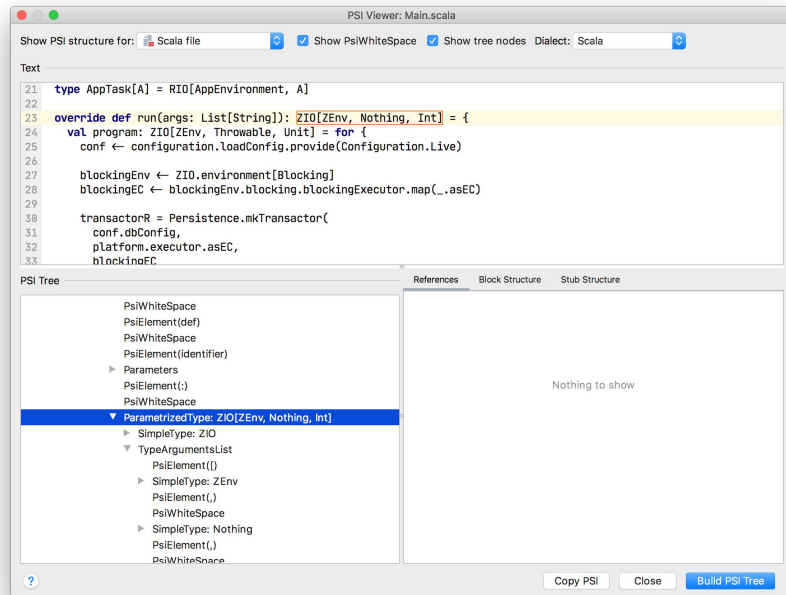


PSI - Scala model

PSI model:

- ScTrait
- ScParameterizedType
- ScMethodCall
- ScExpression
- ScFunction
- ...

Can be inspected with **Tools - View PSI Structure**



Let's go!



More info and resources

- **IntelliJ Platform SDK**

<https://www.jetbrains.org/intellij/sdk/docs/intro/welcome.html>

- **Scala plugin**

<https://github.com/JetBrains/intellij-scala>

- **SBT IDEA plugin**

<https://github.com/JetBrains/sbt-idea-plugin>

- **HaskForce (Haskell plugin)**

<https://github.com/carymrobbins/intellij-haskforce>

- **ZIO plugin for IntelliJ**

<https://github.com/zio/zio-intellij>

- **IntelliJ Platform Slack**

<https://jetbrains-platform.slack.com/>

Thank You!

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