Building IntelliJ IDEA plugins in Scala

Igal Tabachnik

@hmemcpy

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!**
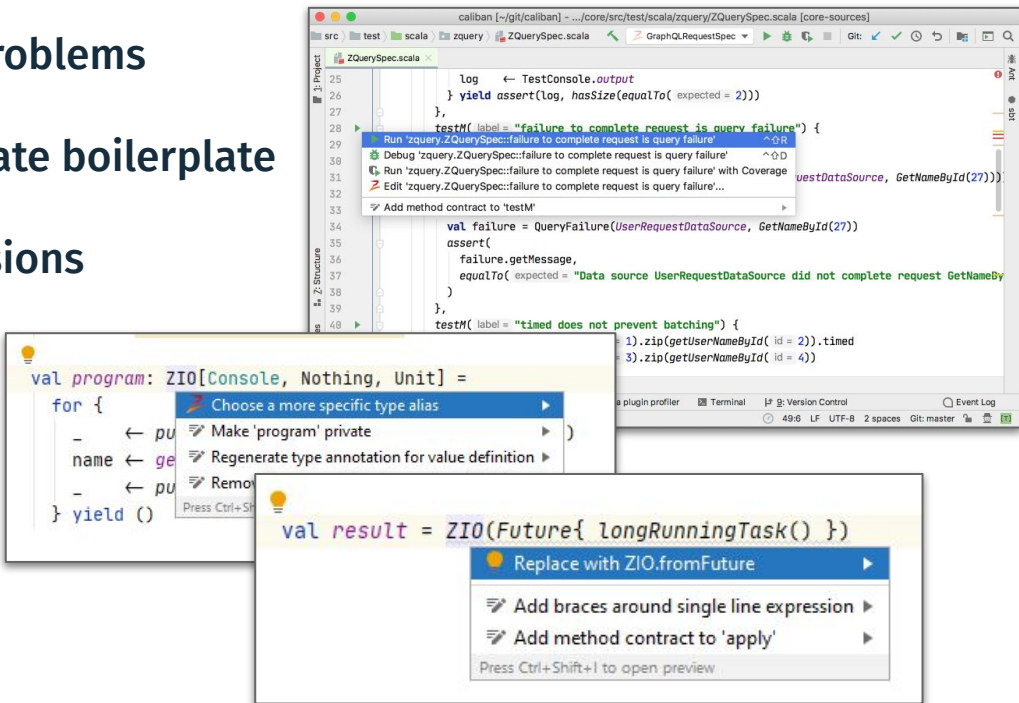
IntelliJ Platform

- **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**
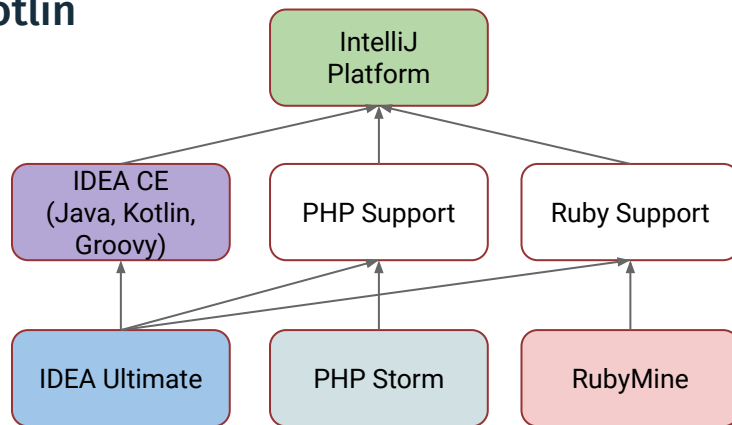
Key IDE features

- **Components and services**

- **Virtual File System (VFS)**

- **Language support (PSI)**

- **Code editor**

- **Inspections**

- **Code generators**

- **...and much more**
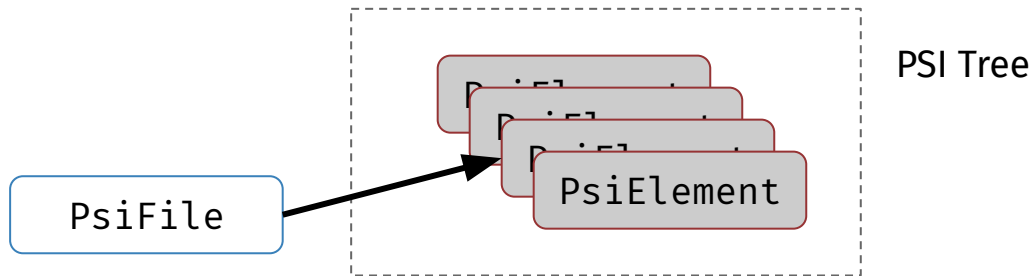

https://github.com/JetBrains/intellij-community

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 Tree

```
PsiElement
  PsiElement
    PsiElement
      PsiElement
```

PsiFile

PSI - Base elements

PSI model:

- **PsiElement**

- **PsiWhiteSpace**

- **PsiClass**

- **PsiMethod**

- **PsiField**

- **...**

Can be inspected with Tools - View PSI Structure
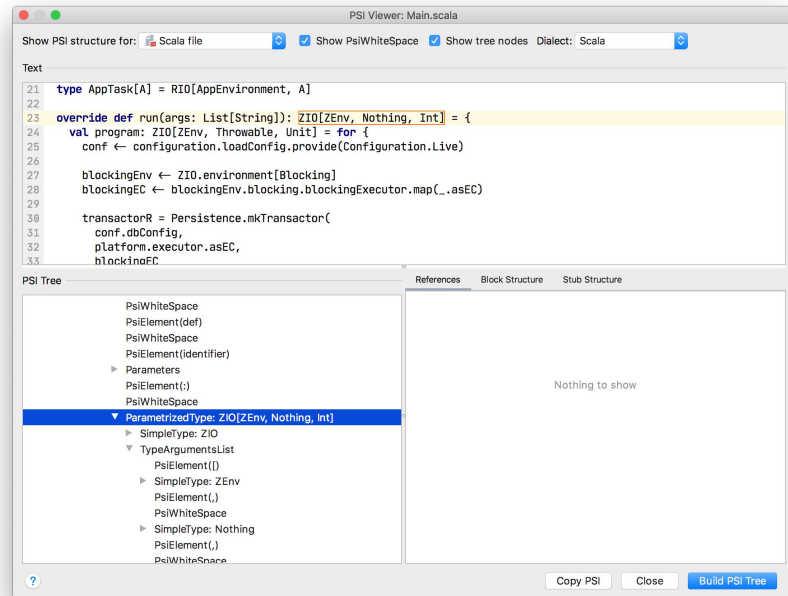
PSI – Scala model

PSI model:

- **ScTrait**

- **ScParameterizedType**

- **ScMethodCall**

- **ScExpression**

- **ScFunction**

- **…**

Can be inspected with Tools - View PSI Structure
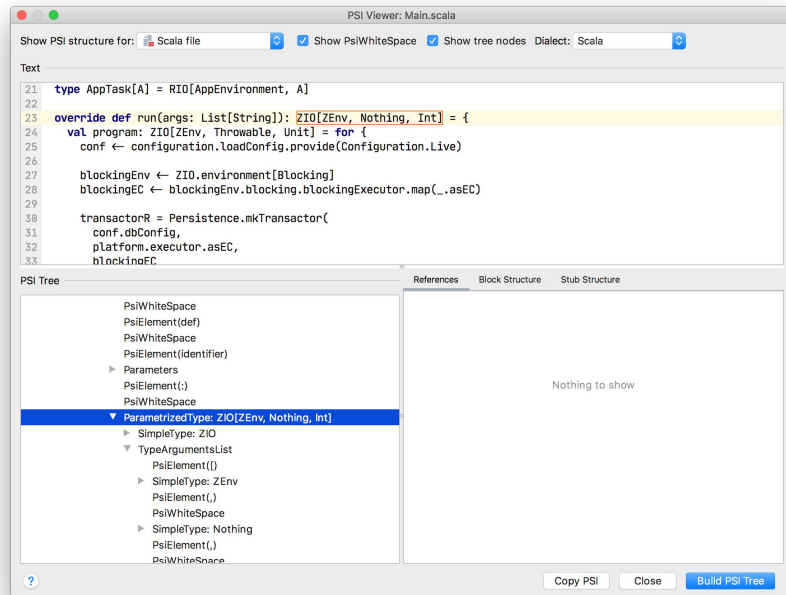
Let's go!

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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