Java™

# NetBeans IDE 8

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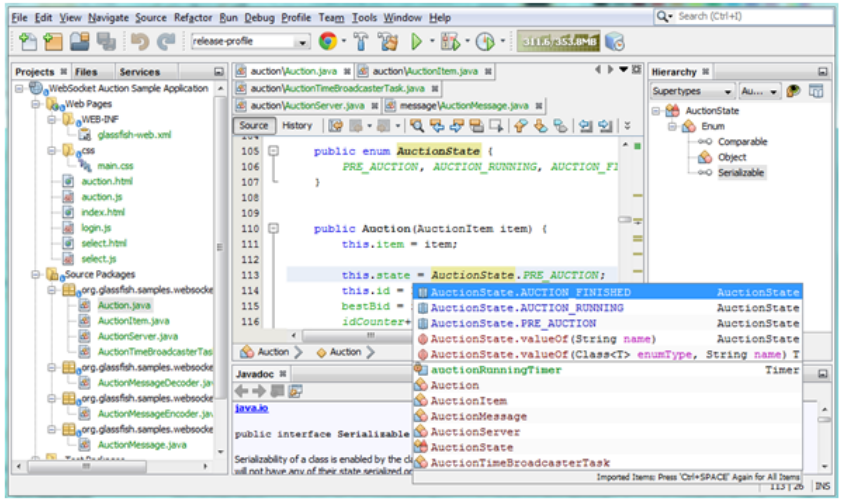
# What is NetBeans IDE?

## Comprehensive Development Environment

- Java, HTML5, PHP, C/C++ and more
- Ready to use out of the box
- Support for latest Java specs
- Intuitive workflow
- Free and open source
- Customizable and extensible
- Large community and many plugins



# Program Agenda

- Java 8
- Java EE
- Maven
- HTML5
- Miscellaneous

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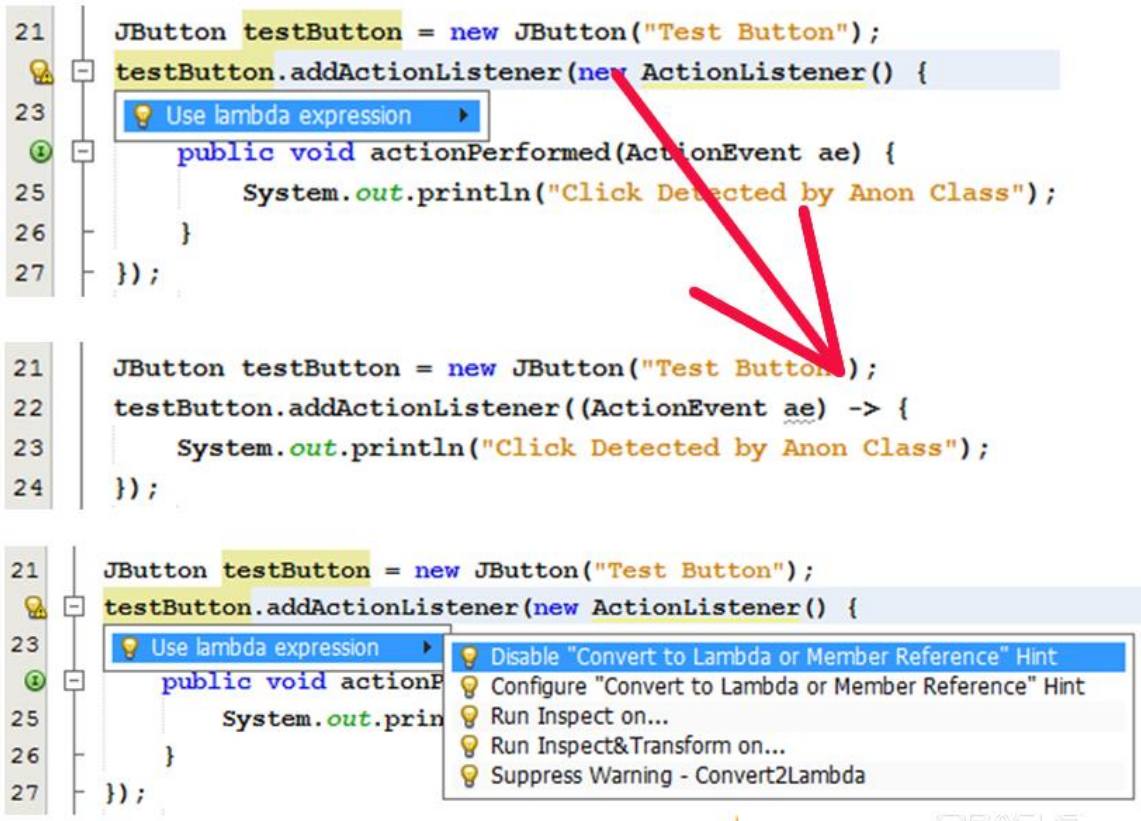
# Tools for Java SE 8

## Lambda Expressions

- Quickly convert anonymous inner classes to lambdas



```
JButton testButton = new JButton("Test Button");
testButton.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent ae) {
        System.out.println("Click Detected by Anon Class");
    }
});
```

Use lambda expression

```
JButton testButton = new JButton("Test Button");
testButton.addActionListener((ActionEvent ae) -> {
    System.out.println("Click Detected by Anon Class");
});
```

```
JButton testButton = new JButton("Test Button");
testButton.addActionListener(new ActionListener() {
    public void actionP
        System.out.prin
    }
});
```

Use lambda expression

- Disable "Convert to Lambda or Member Reference" Hint
- Configure "Convert to Lambda or Member Reference" Hint
- Run Inspect on...
- Run Inspect&Transform on...
- Suppress Warning - Convert2Lambda

# Tools for Java SE 8

## Lambda Expressions

- Static analysis to ensure safe transformation, automatically add cast for correct type

```
27  try {
28      conv = AccessController.doPrivileged(
                new PrivilegedExceptionAction<B2CConverter>() {
30                  @Override
                    public B2CConverter run() throws Exception {
32                      return new B2CConverter(enc);
33                  }
34              });
35  } catch (PrivilegedActionException ex) {
36      Exception e = ex.getException();
37      if (e instanceof IOException) {
38          throw (IOException) e;
39      }
40  }
```

```
27  try {
28      conv = AccessController.doPrivileged(
29              (PrivilegedExceptionAction<B2CConverter>) () -> new B2CConverter(enc));
30  } catch (PrivilegedActionException ex) {
31      Exception e = ex.getException();
32      if (e instanceof IOException) {
33          throw (IOException) e;
34      }
35  }
```

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# Tools for Java SE 8

## Lambda Expressions

- When variable declaration hides variable in enclosed scope, the IDE detects and renames shadowed variables

```
19  private JSlider createZoomSlider() {
20      JSlider slider = new JSlider();
21      slider.setFocusable(true);
22      slider.setMinimum(1);
23      slider.setMaximum(800);
24      slider.setValue(100);
        slider.addChangeListener(new ChangeListener() {
26          @Override
            public void stateChanged(ChangeEvent event) {
28              JSlider slider = (JSlider)event.getSource();
29
30          }
31      });
32      return slider;
33  }
```

```
19  private JSlider createZoomSlider() {
20      JSlider slider = new JSlider();
21      slider.setFocusable(true);
22      slider.setMinimum(1);
23      slider.setMaximum(800);
24      slider.setValue(100);
25      slider.addChangeListener((ChangeEvent event) -> {
26          JSlider slider1 = (JSlider)event.getSource();
27      });
28      return slider;
29  }
```

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# Tools for Java SE 8

## Internal Iterators via Java 8 Streams

- Editor support for functional operations over collections

```
public int getTotalWeight(List<Block> blocks) {
    return blocks.stream()
            .map(b -> b.getWeight())
            .reduce(0, (a, b) -> a + b);
}
```

1.

```
public void changeColor(List<Block> blocks) {
    blocks.stream()
            .filter(b -> b.getColor() == Color.RED)
            .forEach(b -> b.setColor(Color.BLUE));
}
```

2.

3.

```
public boolean areAnyBlocksBlue(List<Block> blocks){
    return blocks.stream().anyMatch(b -> b.getColor() == Color.BLUE);
}
```

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# Tools for Java SE 8

## Internal Iterators via Java 8 Streams

- Smoothly convert to internal iterators via hints and tips

```
7  public int getNumberOfErrors(String grammarName){
8      int count = 0;
9      for (ElementRule rule : getRules()) {
10         if(rule.hasErrors()){
11             count += rule.getErrorCount();
12         }
13     }
14     return count;
15 }
```

```
7  public int getNumberOfErrors(String grammarName) {
8      int count = 0;
9      count = getRules().stream().
10             filter((rule) -> (rule.hasErrors())).
11             map((rule) -> rule.getErrorCount()).
12             reduce(count, Integer::sum);
13     return count;
14 }
```

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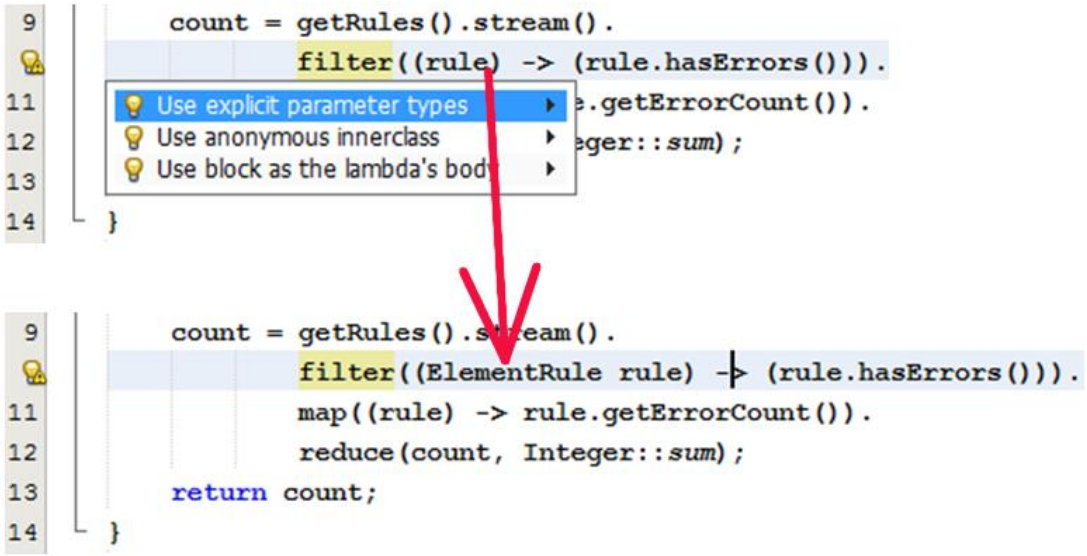
# Tools for Java SE 8

## Internal Iterators via Java 8 Streams

- Quickly add explicit parameter types for readability



```
count = getRules().stream().
        filter((rule) -> (rule.hasErrors())).
        e.getErrorCount()).
        eger::sum);
}
```

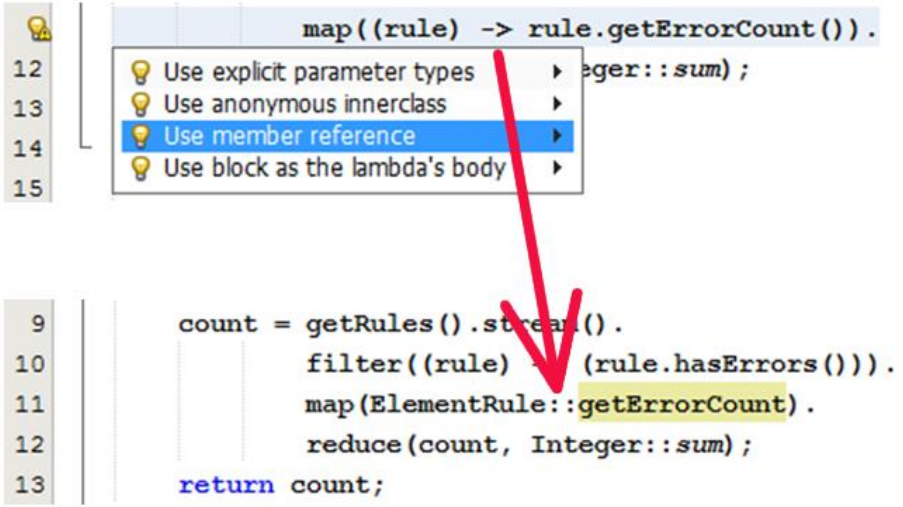
Use explicit parameter types
Use anonymous innerclass
Use block as the lambda's body

```
count = getRules().stream().
        filter((ElementRule rule) -> (rule.hasErrors())).
        map((rule) -> rule.getErrorCount()).
        reduce(count, Integer::sum);
return count;
}
```

# Tools for Java SE 8

## Internal Iterators via Java 8 Streams

- Easily convert from lambdas to member references

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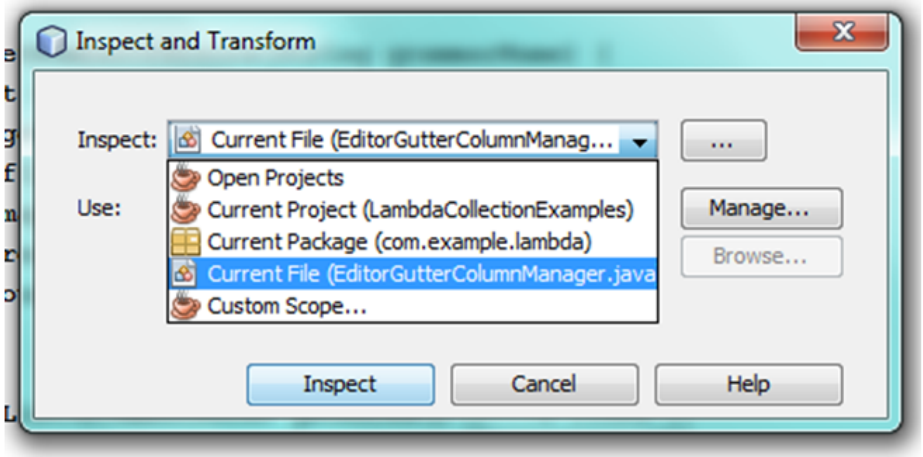
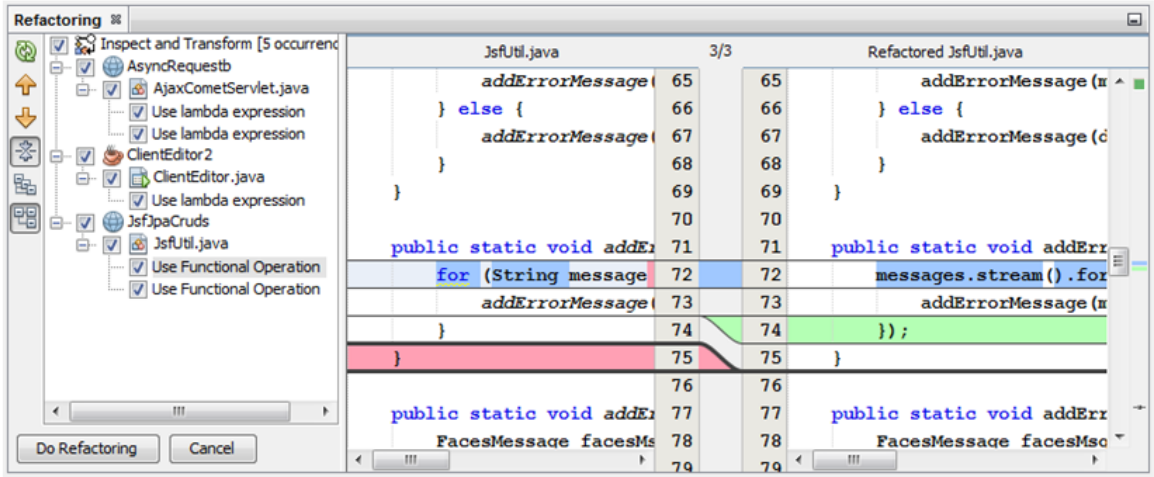
# Tools for Java SE 8

## Refactoring in Batch Mode

- Specify a scope for upgrading to Java 8
  - All/current projects
  - Specific package
  - Specific class
- Run converters
- Visually preview proposals for refactoring

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**Brett Ryan** @brettryan
Just finished using #NetBeans 8 JDK8 migration to move several projects to #java 8 language features, perfect! @java @netbeans

**Girish B** @giri1208 · .
My First #Java8 Program using #Netbeans8 has been posted!
invincibletux.blogspot.com/2014/01/my-fir…
**@java @netbeans**

**Johan Vos** @johanvos ·
**Java 8** support in **NetBeans** is amazing. (e.g. suggest functional operations). Excellent job!

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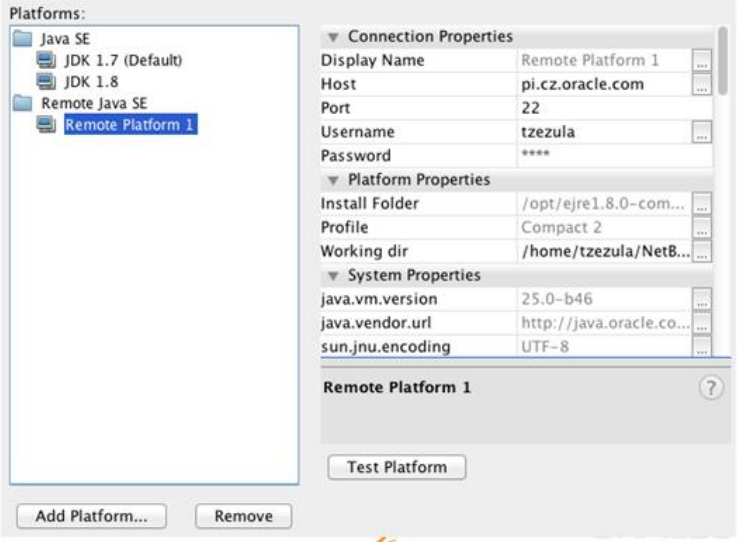
# Tools for Java SE Embedded 8

## Seamless Integration

- Full Development Cycle support against a remote platform
  - Intuitive development
  - One-click deploy
  - Remote debugging
  - Comprehensive remote profiling
- Complete end to end integration for Raspberry Pi and other embedded devices e.g., with Web Services.

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"NetBeans embedded support makes embedded development painless, fluid, and fast paced. Being able to debug a running robot at sea from a thousand miles away is truly life-altering."

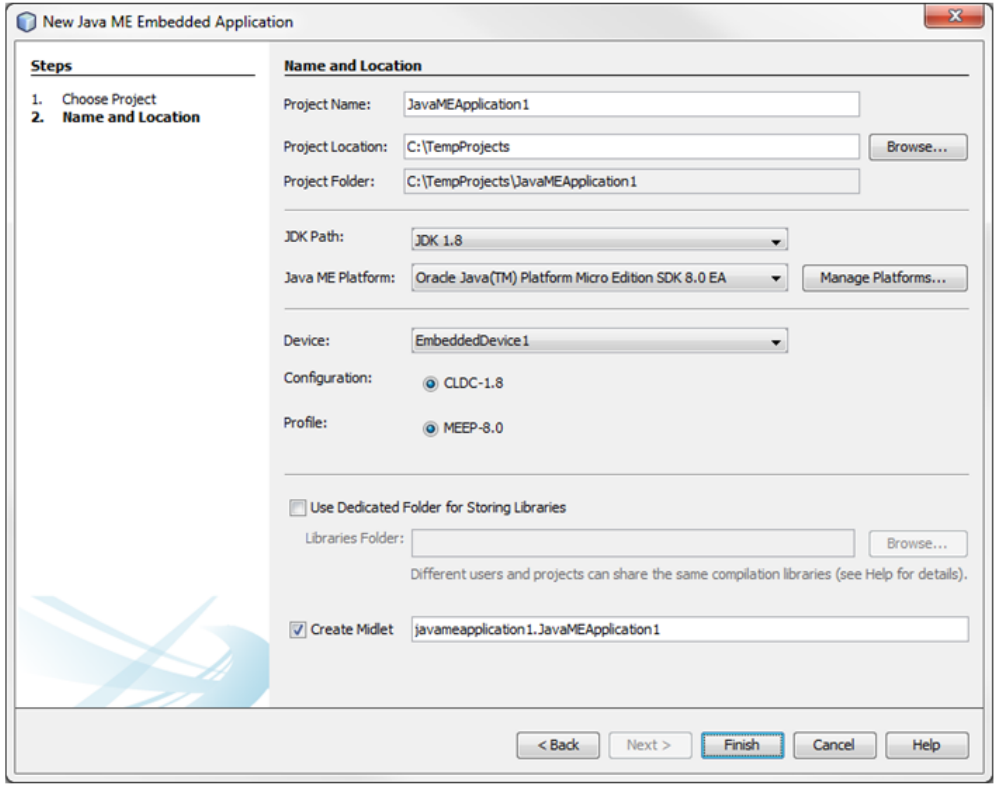
**James Gosling**

Founder of Java,
Liquid Robotics CTO

# Tools for Java ME Embedded 8

## Seamless Integration

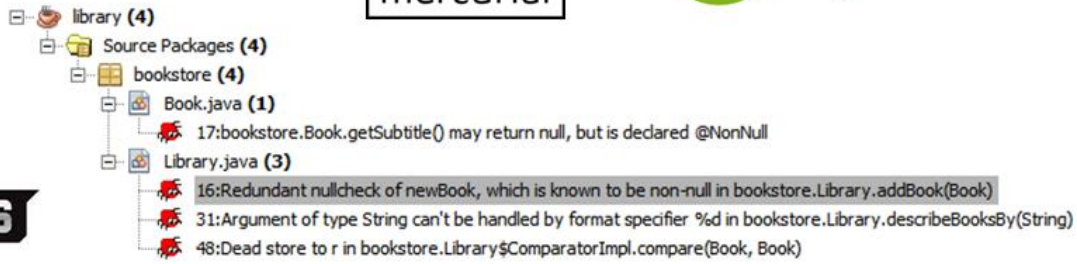
- Make use of Java ME 8 CLDC Platform Emulator.
- Intuitive tools and editors for JDK 8 on Java ME.
- Simple customization of optional packages, e.g., Web Services.



# Tools for Java EE

## Feature Overview

- Editor, Debugger, Profiler
- PrimeFaces, RichFaces, IceFaces
- Maven, Ant, Gradle
- Git, Mercurial, Subversion
- Code Analysis, e.g., FindBugs
- JUnit, TestNG



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"We have found that NetBeans IDE is fast at introducing new features that ease Java EE development and integrates perfectly with popular tools like Maven. It provides the best Maven integration we know of."

**Çağatay Çivici**

Founder of PrimeFaces,
PrimeFaces Lead

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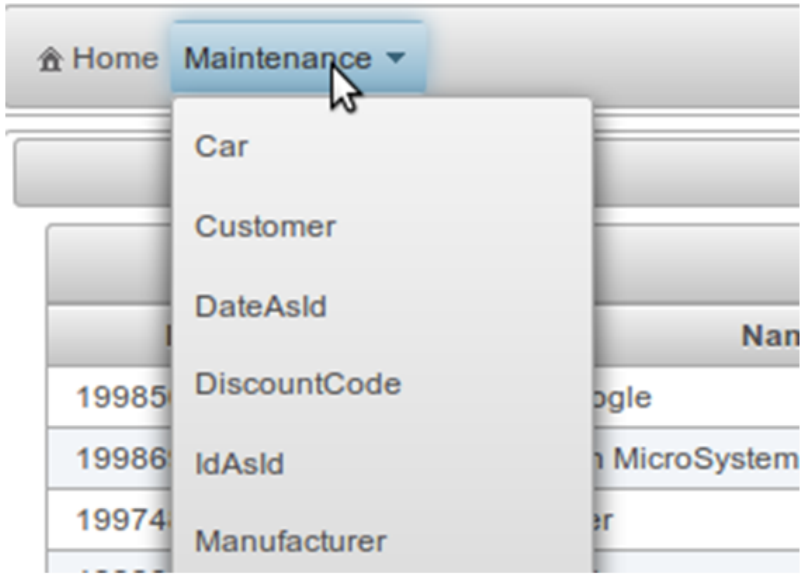
# Tools for Java EE

## Out of the Box for Java EE

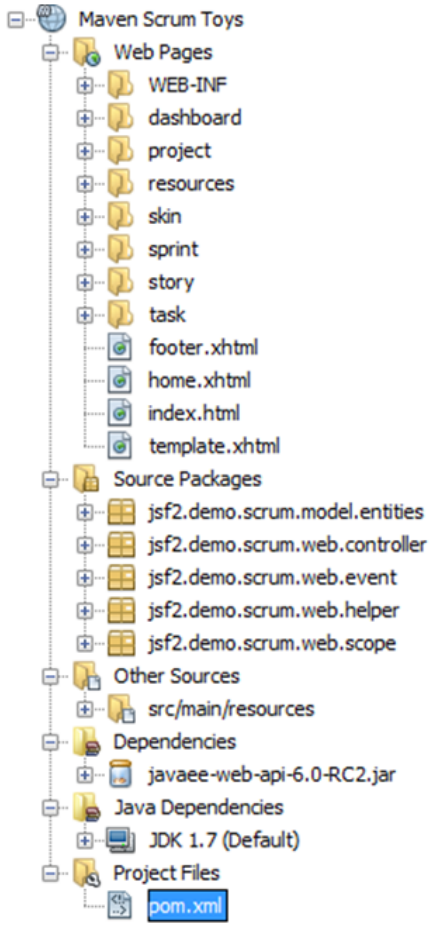
- Smart PrimeFaces code generators
  - generate complete CRUD apps
  - generate data forms
  - generate data tables
- Tools for Facelets, CDI, and JPA
  - enhanced code completion
  - new and enhanced Java hints



# Tools for Maven

## Feature Overview

- Maven defines the POM.
  POM is the project.
- No import process. Simply open the POM.
- All execution happens through Maven,
  the IDE executes tests
  exactly how CI does it.
- No plugins needed. “It just works.”

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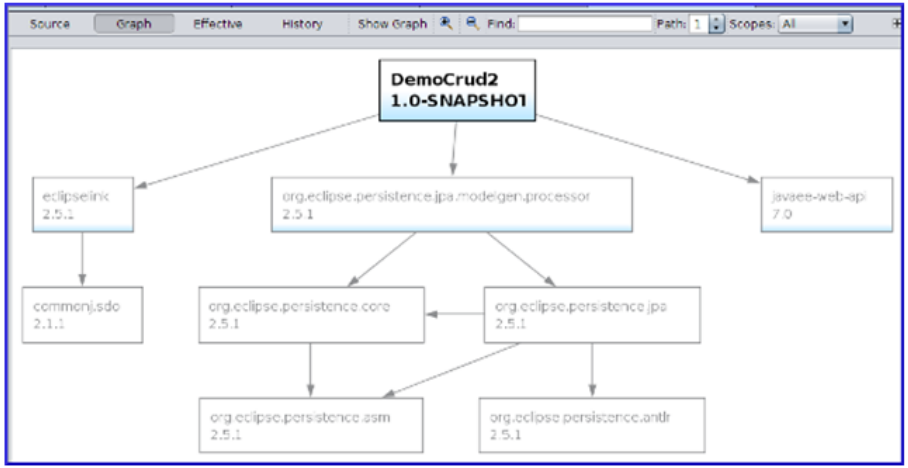
# Tools for Maven

## New Visualizers and Analyzers for Maven

- Hierarchical graphs of dependencies
  - New graph layout switcher
  - Navigator shows POM goals
- Improved performance
  - When re-running
  - When applying code changes

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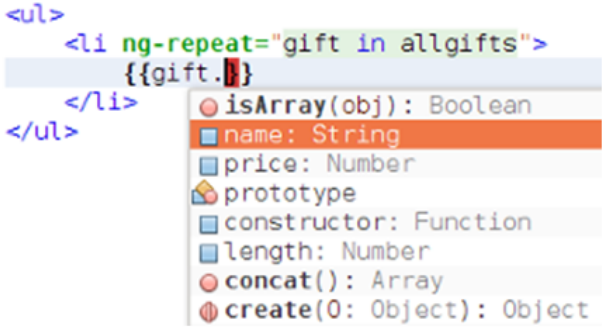
# Tools for HTML5

## Angular, Knockout, Backbone, ExtJS, and more

- Deep editor integration features
  - Hyperlinking between artifacts
  - Code completion enhancements
  - New hints and error messages
- File templates and generators
- Grunt
- Karma

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# NetBeans 8 and Java 8

## Learn More & Resources

- **Download:** java.oracle.com
- **Documentation:** docs.oracle.com/javase
- **Training:** education.oracle.com/java
- **Java 8 Central:** oracle.com/java8
- **NetBeans IDE:** netbeans.org

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