

# Write once, **test everywhere?**

*Cross platform development and testing with Eclipse*

# Agenda

- ▶ **Introduction & motivation**
- ▶ **Affected areas**
- ▶ **“demo”: differences & varieties**
- ▶ **Conclusions**
- ▶ **Tips & solutions**

# Introduction / motivation

## ► Eclipse RCP - a cross-platform platform

Operating System	Version	Hardware	JRE	Windowing System
Windows	7	x86 32-bit	Sun Java 5 Update 14 IBM Java 5 SR6b	Win32
		x86 64-bit		
	Vista	x86 32-bit	Sun Java 5 Update 14 IBM Java 5 SR6b BEA JRockit 27.4.0	
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IBM AIX	5.3	Power	IBM Java 5 SR6b	Motif 2.1
Apple Mac OS X	10.5	Universal	Apple Java 10.5 Update 1	Carbon
		Universal 32-bit		Cocoa
		Universal 64-bit		

# Introduction / motivation

► **Eclipse RCP - a cross-platform platform**

► **necessitate cross-platform awareness**

development

testing

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# (Af/In)-fected Areas

## ► Area 1 - Compiling

JRE – 1.4.2 → 1.6

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# (Af/In)-fected Areas

## ▶ Area 1 - Compiling

JRE – 1.4.2 → 1.6

## ▶ Area 2 - Deployment

required Plug-ins / Fragments

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# (Af/In)-fected Areas

## ▶ Area 1 - Compiling

JRE – 1.4.2 → 1.6

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required Plug-ins / Fragments

## ▶ Area 3 - Startup

Launcher

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# (Af/In)-fected Areas

## ▶ Area 1 - Compiling

JRE – 1.4.2 → 1.6

## ▶ Area 2 - Deployment

required Plug-ins / Fragments

## ▶ Area 3 - Startup

Launcher

## ▶ Area 51 - GUI

underlying Windowing System

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## Area 1, 2, 3

### ▶ **Compiling + Deployment + Launching**

MANIFEST.MF – Execution Environments

Target Platforms

Product configuration

PDE Build

### ▶ **Area 1-3: “well known” & “often discussed”**



## Area 51 - GUI



**Not “well known” – but “knowledge is power”**

# Obvious differences (1/2)

- ▶ **SWT - native Look&Feel**

# Obvious differences (1/2)

▶ **SWT - native Look&Feel**

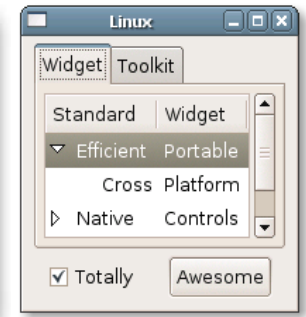
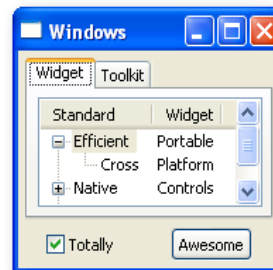
▶ **Look**

Widget

Size&Location: absolute vs. relative

Fonts

Colors



# Obvious differences (1/2)

▶ **SWT - native Look&Feel**

▶ **Look**

Widget

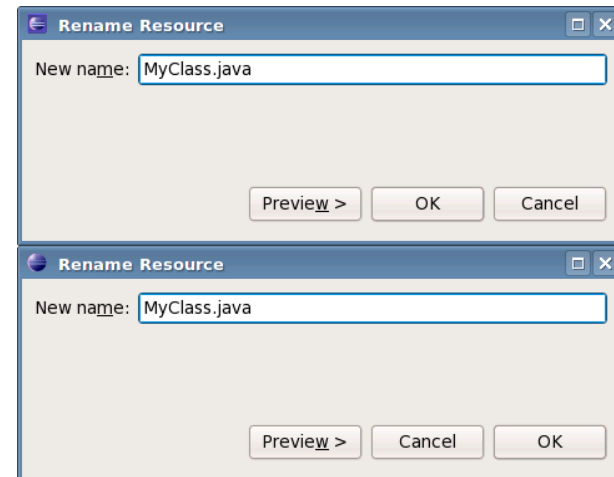
Size&Location: absolute vs. relative

Fonts

Colors

Layout (Dialogs, Wizards, ...)

button order (e.g. 3.4 ↔ 3.5 GTK)



# Obvious differences (1/2)

▶ **SWT - native Look&Feel**

▶ **Look**

Widget

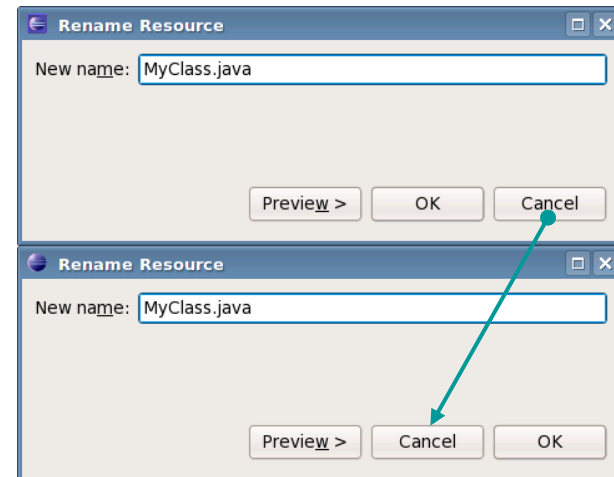
Size&Location: absolute vs. relative

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# Obvious differences (1/2)

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▶ **Look**

Widget

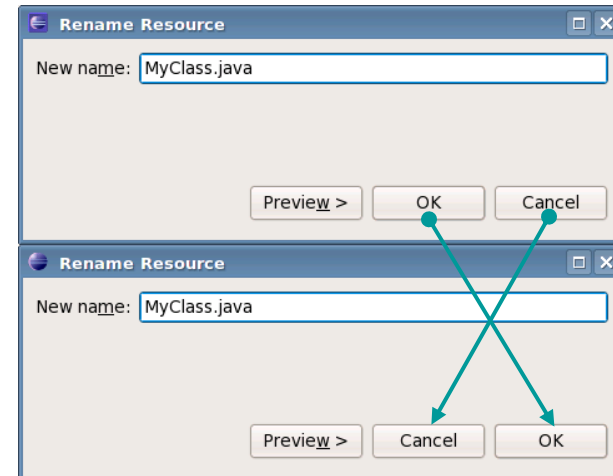
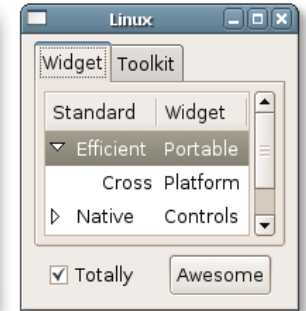
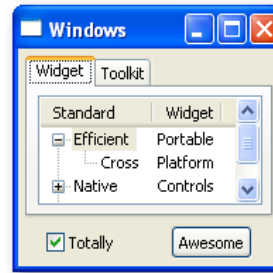
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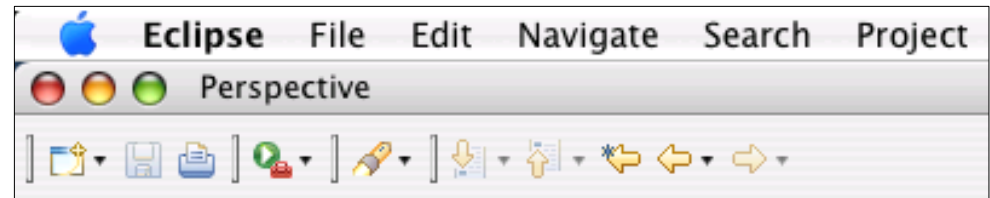
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# Obvious differences (2/2)

## Application

Menu Bar + Menu Items



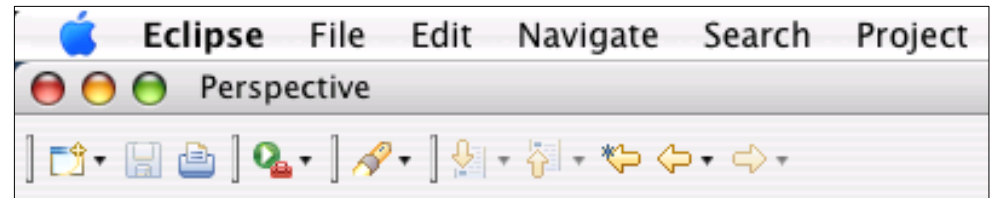


# Obvious differences (2/2)

## Application

Menu Bar + Menu Items

Native Dialogs – non-java  
file chooser,  
color picker,  
printing, ...



# Obvious differences (2/2)

## Application

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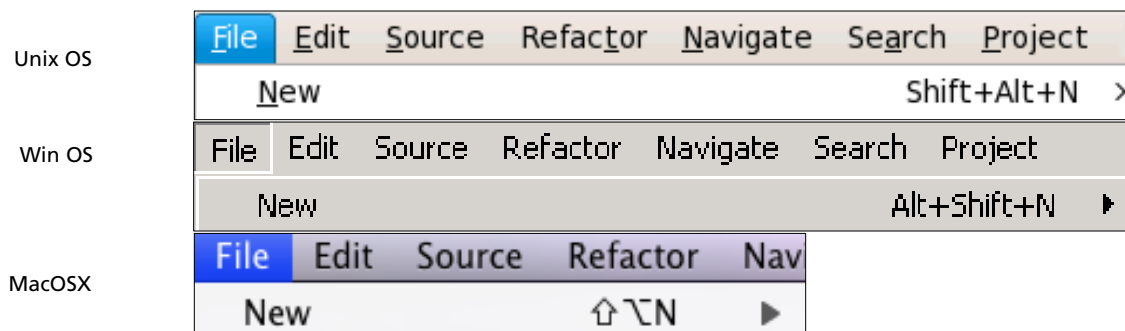
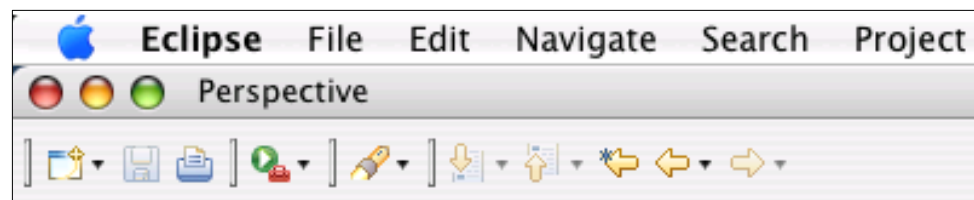
Shortcuts (M1-3 + Key)

Toolbar layout

Tooltips

detached Views

....





# Non-obvious differences (1/2)

## ▶ **Feel**

setting, extending (multi-)

**selection**

# Non-obvious differences (1/2)

## ▶ Feel

setting, extending (multi-)  
usage of **modifier keys**

**selection**

# Non-obvious differences (1/2)

## ▶ Feel

setting, extending (multi-)  
usage of **modifier keys**  
gaining and losing

**selection**

**focus**

# Non-obvious differences (1/2)

## ▶ Feel

setting, extending (multi-)  
usage of **modifier keys**  
gaining and losing  
number of **clicks**

**selection**

**focus**

# Non-obvious differences (1/2)

## ▶ Feel

setting, extending (multi-)  
usage of **modifier keys**  
gaining and losing  
number of **clicks**  
opening and closing

**selection**

**focus**

**context menus**



## Non-obvious differences (1/2)

### ▶ **Feel**

setting, extending (multi-)

usage of **modifier keys**

gaining and losing

number of **clicks**

opening and closing

usage of **mouse buttons**

**selection**

**focus**

**context menus**





## Non-obvious differences (2/2)

cut,

**copy&paste**  
**drag&drop**



## Non-obvious differences (2/2)

cut,

modifier keys, **gestures**

**copy&paste**  
**drag&drop**

## Non-obvious differences (2/2)

cut,

modifier keys, **gestures**  
expanding and collapsing

**copy&paste**  
**drag&drop**

**trees**



## Non-obvious differences (2/2)

cut,

modifier keys, **gestures**

expanding and collapsing

auto **expansion level**

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## Non-obvious differences (2/2)

cut,

modifier keys, **gestures**

expanding and collapsing

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▶ **Performance**

**copy&paste**  
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## Non-obvious differences (2/2)

cut,

modifier keys, **gestures**

expanding and collapsing

auto **expansion level**

- ▶ **Performance**
- ▶ **UI is likely to change**

**copy&paste**  
**drag&drop**

**trees**

## Non-obvious differences (2/2)

cut,

modifier keys, **gestures**

expanding and collapsing

auto **expansion level**

- ▶ **Performance**
- ▶ **UI is likely to change**
- ▶ **Bugs - platform specific**  
caused by RCP, SWT, JRE, OS

**copy&paste**  
**drag&drop**

**trees**



# Conclusion

## ▶ Steps to take



# Conclusion

## ► Steps to take

### 1. Don't panic!

- Where there's a will there's a way.

# Conclusion

## ▶ Steps to take

### 1. Don't panic!

- Where there's a will there's a way.

### 2. Be aware!

- Consider known issues.

# Conclusion

## ▶ Steps to take

### 1. Don't panic!

- Where there's a will there's a way.

### 2. Be aware!

- Consider known issues.

### 3. Specify once & test'em all!

- Use the right tools.



## The right tool...

- ▶ **Platform independent**
  - High level actions
  - tough object recognition



## The right tool...

- ▶ **Platform independent**
  - High level actions
  - tough object recognition
- ▶ **easy to maintain tests**
  - readable
  - modular & single sourcing



## The right tool...

- ▶ **Platform independent**
  - High level actions
  - tough object recognition
- ▶ **easy to maintain tests**
  - readable
  - modular & single sourcing
- ▶ **experienced tester**



**Thank You!**

▶ **Any questions?**

▶ **Webinar**

<http://live.eclipse.org/node/834>