

Porting a Swing Application to the NetBeans Platform

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Agenda

- Some examples of former “plain Swing” Apps
- Our experience porting a former Swing Application
- A generic process for porting an existing Swing Application to NetBeans Platform

Examples of ported Applications

1. Sepix CRM (Aljoscha Rittner)
2. Instant JChem (Tim Dudgeon, Petr Hamerik)
3. Blue Marine (Fabrizio Giudicci)
4. ChipInspector



Berechnete Route	
München	
2 Nord auf Marstalplatz Richtung Salpeterstraße	275 m
3 Bei Hofgartenstraße rechts abbiegen	< 1 min 426 m
4 Bei Franz-Josef-Strauß-Ring links abbiegen	1 min 733 m
5 Bei Prinzregentenstraße rechts abbiegen	2 min 1,5 km
6 Bei Widenmayerstraße links abbiegen	4 min 2,4 km
7 Weiter auf Ifflandstraße	5 min 3,1 km
8 Die Auffahrt auf B2R nehmen	6 min 5,6 km
9 Die Ausfahrt nach A9 nehmen	9 min 161,4 km
10 Bei Ausfahrt 51-Kreuz Nürnberg links in A3 Richtung Frankfurt a.M./ Würzburg/ Bamberg/ A73/ Nürnberg-Nord einfädeln	1h 32 min 263,5 km 2h 23 min
11 Bei Ausfahrt 73-Kreuz Biebelried Richtung Kassel/ Schweinfurt fahren	265,2 km 2h 24 min
12 Auf A7	405,3 km
13 Die Ausfahrt nach A7 nehmen	3h 36 min 510,1 km
14 Bei Ausfahrt 73-Göttingen in B3 Richtung Göttingen/ Rosdorf einfädeln	4h 32 min 514,0 km 4h 37 min
15 Weiter auf Groner-Tor-Straße	514,1 km
Göttingen	4h 37 min

Kartenfenster

Streckenabschnitte + Hinzufügen - Entfernen ↑ Auf ↓ Ab

München
Göttingen

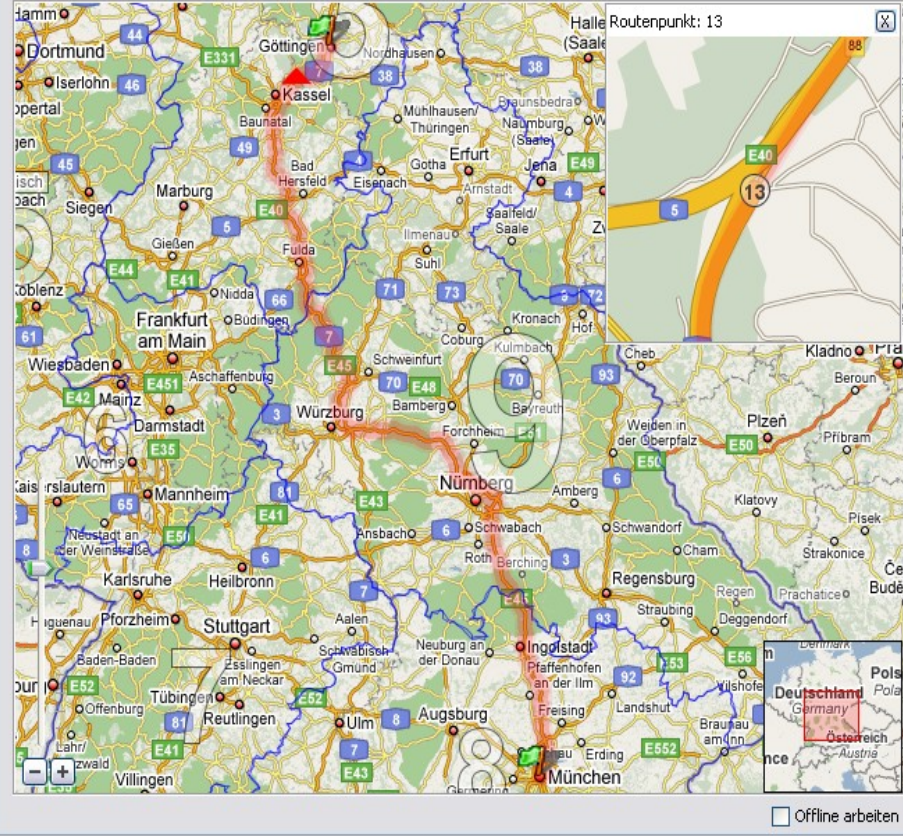
Route berechnen

Laden

Speichern

Region anzeigen

0 10 20 30



Verwendete Ebenen

+ - + Aus Bibliothek

Ebenen

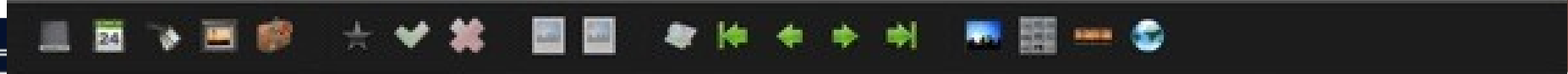
- PLZ Region
- Ausgewählte PLZ Region
- Regionale Verteilung Adressen
- Aktuelle Region
- Adress-Orte
- Berechnete Route
- Streckenabschnitte
- Routenzwischenpunkte

Göttingen - Eigenschaften

Routenabschnitt: Göttingen

Deaktivieren	<input type="checkbox"/>
Aus Termin generiert	<input type="checkbox"/>
Fester Termin	<input type="checkbox"/>
Koordinaten berechnet	Erfolgreich georeferenz...
Koordinaten	[51.532638, 9.92816]
Eigenschaften	{}

Göttingen



Calendar

- Saturday, July 21, 2007
- Friday, July 27, 2007
- August
 - Saturday, August 4, 2007
 - Monday, August 6, 2007
 - Tuesday, August 7, 2007
 - Thursday, August 9, 2007
- September
 - Saturday, September 1, 2007
 - Monday, September 3, 2007**
 - Tuesday, September 4, 2007
 - Wednesday, September 5, 2007
 - Saturday, September 8, 2007
 - Tuesday, September 11, 2007
 - Wednesday, September 12, 2007
 - Saturday, September 15, 2007
 - Wednesday, September 19, 2007

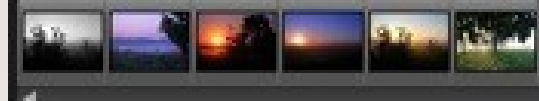


6 items in "Sep 3, 2007" sort by path name

September 2007

Mon	Tue	Wed	Thu	Fri	Sat	Sun
						1 2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Film Strip: "Sep 3, 2007"



<http://bluemarine.tidalwave.it>
Demo

Exa

Instant JChem 2.3

File Edit View Search Data Lists Tools Window Help

Projects Lists and queries

ijc-project
localdb [as admin]
Pubchem demo
Wombat (compound view)
Wombat (activities view)
README.txt
newBasicStandardizerTemplate.srz

Form view for Pubchem demo

Design Query Browse Entity: Pubchem demo

Structure

Pubchem demo

...	CdId	Formula	MolWeight	IUPAC name
1	1.001	C9H17NO4	203,24	(2-acetoxy-
2	1.002	C7H8O4	156,14	5,6-dihydroxycy
3	1.003	C3H9NO	75,11	1-aminopropan-
4	1.004	C3H8NO5P	169,07	(3-amino-
5	1.005	C6H3ClN2O4	202,55	1-chloro-
6	1.006	C7H9N5	163,18	9-ethyl-

Pubchem demo: 1.000 out of 1.000 rows.

ChiplInspector: Starting Point

- Based on own Framework:
 - > Weblauncher
 - > XML based configuration
 - > Update Manager
 - > Download Manager
 - > Proxy Handling
 - > Options/Settings
 - > JavaHelp
 - > Docking
 - > WebBrowser Component

Why (NetBeans) RCP

- Less framework maintenance
- Generic features for free (Update Manager, docking...)
- Less boilerplate code
- Application Lifecycle Management
- Standardized look & feel
- Modular structure (Dependency Management, Versioning)

ChipInspector Demo

ChipInspector 2.1

File Edit View Navigate Tools Window Help

Projects: Genomatrix Project_2

- ChipInspector Analysis
 - ChipInspector Analysis.res
- Microarray Data
 - GSM172123.cif
 - GSM172125.cif
 - GSM172129.cif

Significance Curve

Genome Browser

Chromosome: 1 From: 1260511 To: 1422170

Table: Unique Probes Statistics

Chromoso...	Position	Length	Strand	Significan...	Region	Transcript	Fold Chan...
1	1278066	25	-	-0,83		0XR_015152,...	-0,35
1	1278148	25	-	-0,95		1XR_015152,...	-0,56
1	2323536	25	+	-1,38		2ENST00000...	-0,59
1	4737382	25	+	-0,85		3XM_001109...	-0,38
1	6083627	25	+	-0,89		4AK131252, ...	-0,36
1	7762584	25	+	-0,98		5NM_004781	-0,45
1	7762766	25	+	-0,80		6NM_004781	-0,47
1	7967854	25	+	-0,83		7AK091679, ...	-0,81
1	9040145	25	-	-0,84		8ENST00000...	-0,37
1	11268873	25	+	-0,82		9NM_013319...	-0,41
1	15769576	25	+	-0,95		10AK022530, ...	-0,94
1	17266181	25	-	-1,02		11NM_007365...	-1,00
1	23904689	25	-	-0,82		12-	-0,44
1	25013209	25	+	-0,85		13AK315051, ...	-0,42
1	26670148	25	+	-0,96		14AK023164, ...	-0,65
1	29347084	25	-	-0,92		15AK223444, ...	-0,58
1	31177194	25	-	-0,97		16ENST00000...	-0,57
1	31611060	25	-	-1,29		17NM_004102	-0,92
1	35219998	25	-	-0,88		18XM_001725...	-0,46

Probe Filters

Positive Delta: 0.0 to 1.12 (Current: 0.75)

Negative Delta: 0.0 to -1.75 (Current: -0.39)

Significant Features (est.): 10
FDR (%): 0.0
Median False Positives: 0.0

Significant Features (est.): 745
FDR (%): 0.0

5 updates found. Click here to make your application up to date.

Common Pitfalls

- Some features are hard to remove (Example “Web Browser” in Options Panel)
- Some settings are difficult to change (Example SecurityManager)
- ClassLoader hierarchy problematic with some libraries (Spring, JasperReports)
- Some things are harder to do (Obfuscation...)

Extras that made life easier

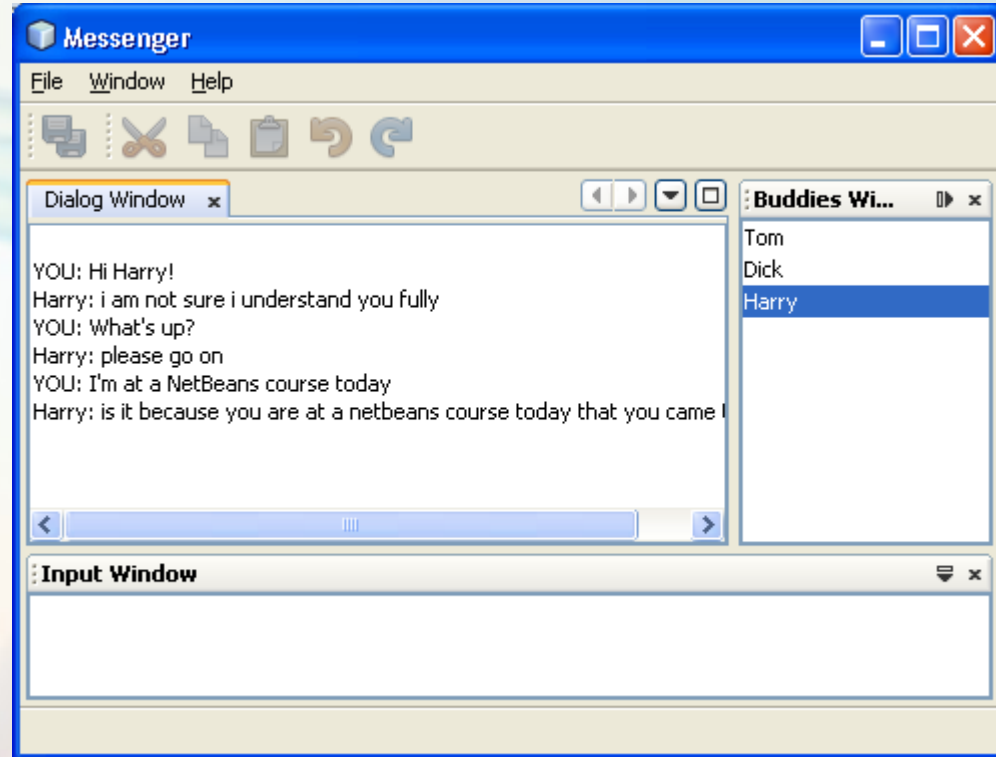
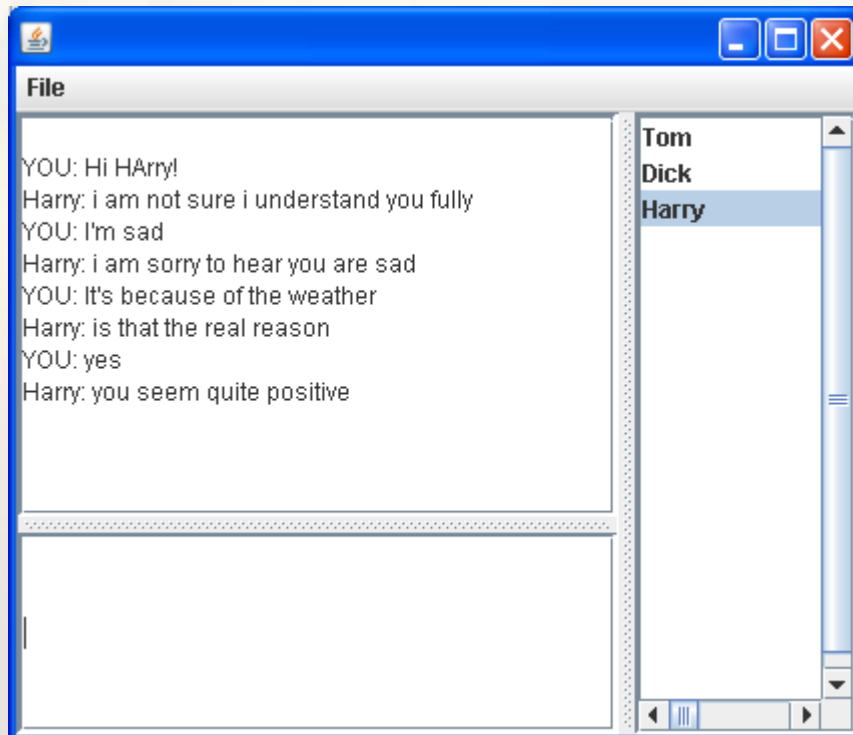
- You can exclude stuff from standard Java (Example JAX-WS) -> More control over environment
- You can use ServiceLoader like functionality in java < 1.6
- SystemFileSystem for storing your data
- You can easily create distributions (Zip Distro, Webstart, OpenInstaller, Os X Application)

Generic Process - Conversion

1. Third-party Libraries -> Library wrapper
2. Swing Panel -> TopComponent
3. Action -> CallableSystemAction, CallbackSystemAction...
4. Adjust Menus -> Layer (SystemFileSystem)
5. Dialogs, Wizards -> Dialogs API
6. Beans -> Node Wrappers
7. Synchronizing Views / Selection -> Lookup

Demo

- Porting a simple Swing application to the NetBeans Platform



Generic Process (cont.)

9. Options, settings -> Options API
10. Libraries/features/packages -> modules
11. Extension Points -> META-INF/services, Lookup, SystemFileSystem
12. JavaHelp -> Help System Integration
13. Branding -> Resource Bundles
14. Mimetypes -> Datasystem API
15. Add IDE stuff: Project Tree, Web Browser, Database Explorer...

Summary

- First steps are simple,
- then there's a steep learning curve.
- NetBeans really helped reducing boilerplate code

- The real gain from porting comes from adapting NetBeans architecture

Hints

- Well written applications are easy to port
- To make sure your application remains portable:
 - > Separate UI code from Business Logic code
 - > Minimize dependencies
 - > Know the APIs your application depends on (and their dependencies...)
 - > Use wizards, don't depend on them
 - > Make sure you still understand your application

Resources

Tutorial for getting started:

<http://platform.netbeans.org/tutorials/60/nbm-porting-basic.html>

Blue Marine developers experience:

<http://netbeans.dzone.com/news/from-pain-gain-swing-and-netbe>

XING Group

<http://www.xing.com/group-20148.82db20>

Questions & Answers

