



Entwicklercamp 2013

# XPages

## Die Grundlagen

11. – 13..03.2013

Maritim Hotel, Gelsenkirchen

Ulrich Krause, BCC Unternehmensberatung GmbH



## Über: Ulrich Krause

- Lotus Notes / Domino Administrator & Entwickler seit 1993
- Senior Software Architect  
**BCC (Düsseldorf)**
- OpenNTF Contributor
- OpenNTF Board of Directors
- IBM Champion 2011/2012/2013
- Blog <http://www.eknori.de>
- Notes Forum (<http://www.atnotes.de>)





## Agenda

- Was sind XPages / Warum XPages ?
- Basis Technologien / Skills
- Wo laufen XPages?
- Portierung bestehender Anwendungen
- Domino Designer / Views / Perspektiven
- Beans / Managed Beans
- SSJS / CSJS
- Scoped Variables
- Praktisches Beispiel

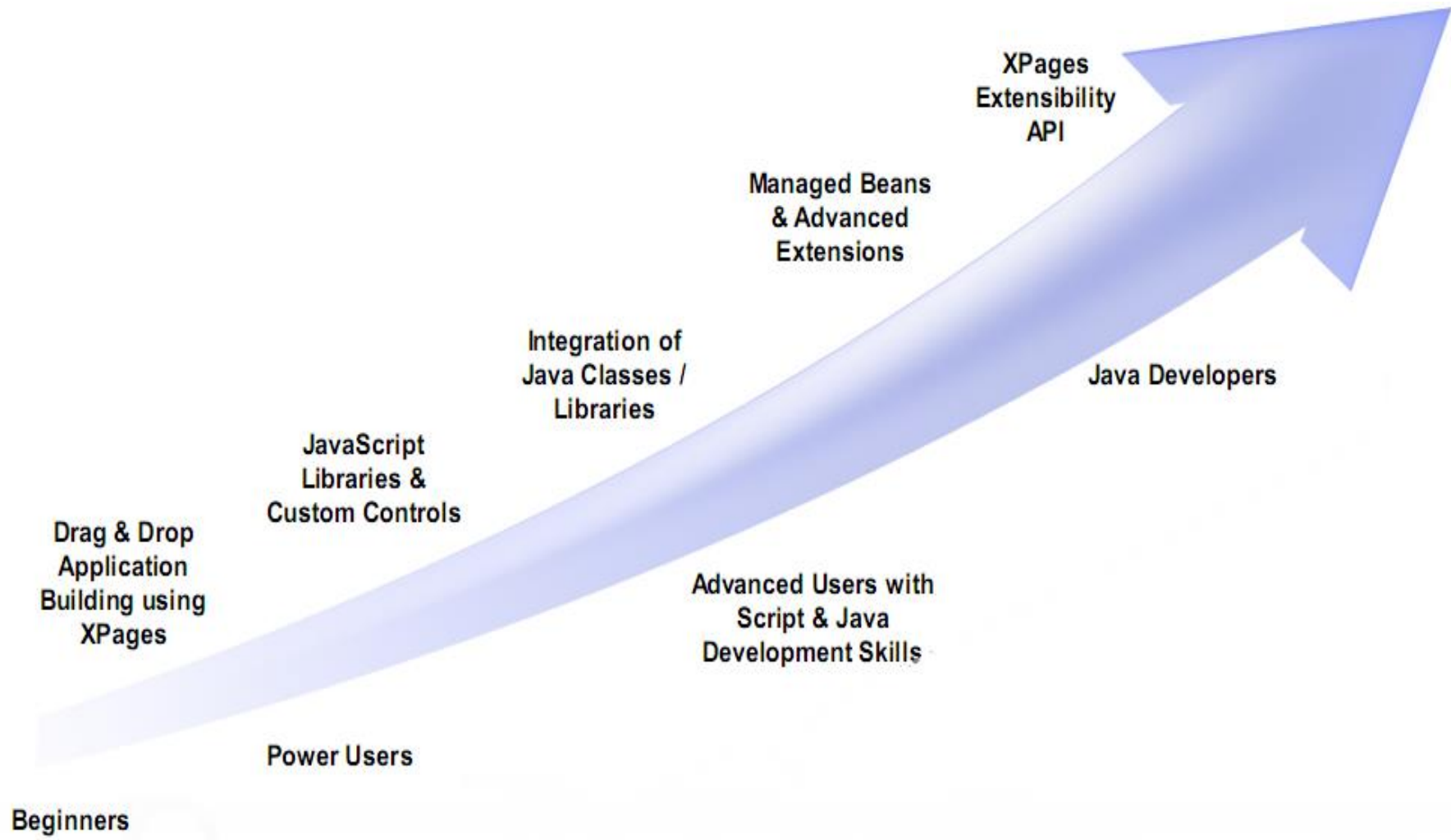


## Was sind XPages?

- Ein neues Design Element ab ND 8.5
- Überwindet uralte Limitierungen der Standard Notes Entwicklung (z.B. @DBLookup in Ansichten)
- A runtime designed to generate modern Web applications
- XML Markup
- Controls, data sources, business logic, custom controls
- – UI/Data separation, HTML generation control, server state, localization,
- extensibility
- Capable of targeting multiple clients
- Highly extensible runtime and design time



# Evolution XPages Entwicklung





## Basistechnologien / Skills

- HTML
- XML
- CSS
- JavaScript
- @Formulas
- Java
- AJAX
- Dojo Toolkit
- JSF (Java Server Faces)



`<?xml?>`



JavaScript



@**FOO**(\$Bar)



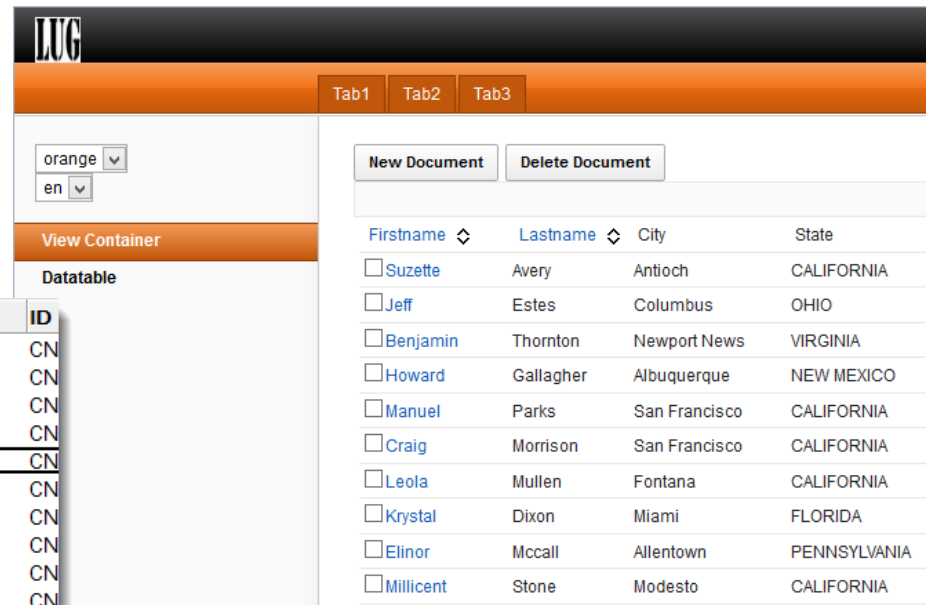
dōjō



# Warum XPages ?

- Moderne Werkzeuge, zeitgemäßer Code
- Portierung bestehender Anwendungen
- Cross Browser kompatibel, mobile Endgeräte
- Geben Sie Ihren Anwendern moderne Anwendungen

Basic	FirstName	LastName	State	City	ID
Persons	Suzette	Avery	CA	Antioch	CN
States	Jeff	Estes	OH	Columbus	CN
	Benjamin	Thornton	VA	Newport News	CN
	Howard	Gallagher	NM	Albuquerque	CN
	Manuel	Parks	CA	San Francisco	CN
	Craig	Morrison	CA	San Francisco	CN
	Leola	Mullen	CA	Fontana	CN
	Krystal	Dixon	FL	Miami	CN
	Elinor	Mccall	PA	Allentown	CN
	Millicent	Stone	CA	Modesto	CN
	Henry	Schwartz	TX	Lewisville	CN
	Eunice	Berry	CO	Westminster	CN
	Eva	Stanley	WA	Vancouver	CN
	Randy	Huber	CA	Richmond	CN

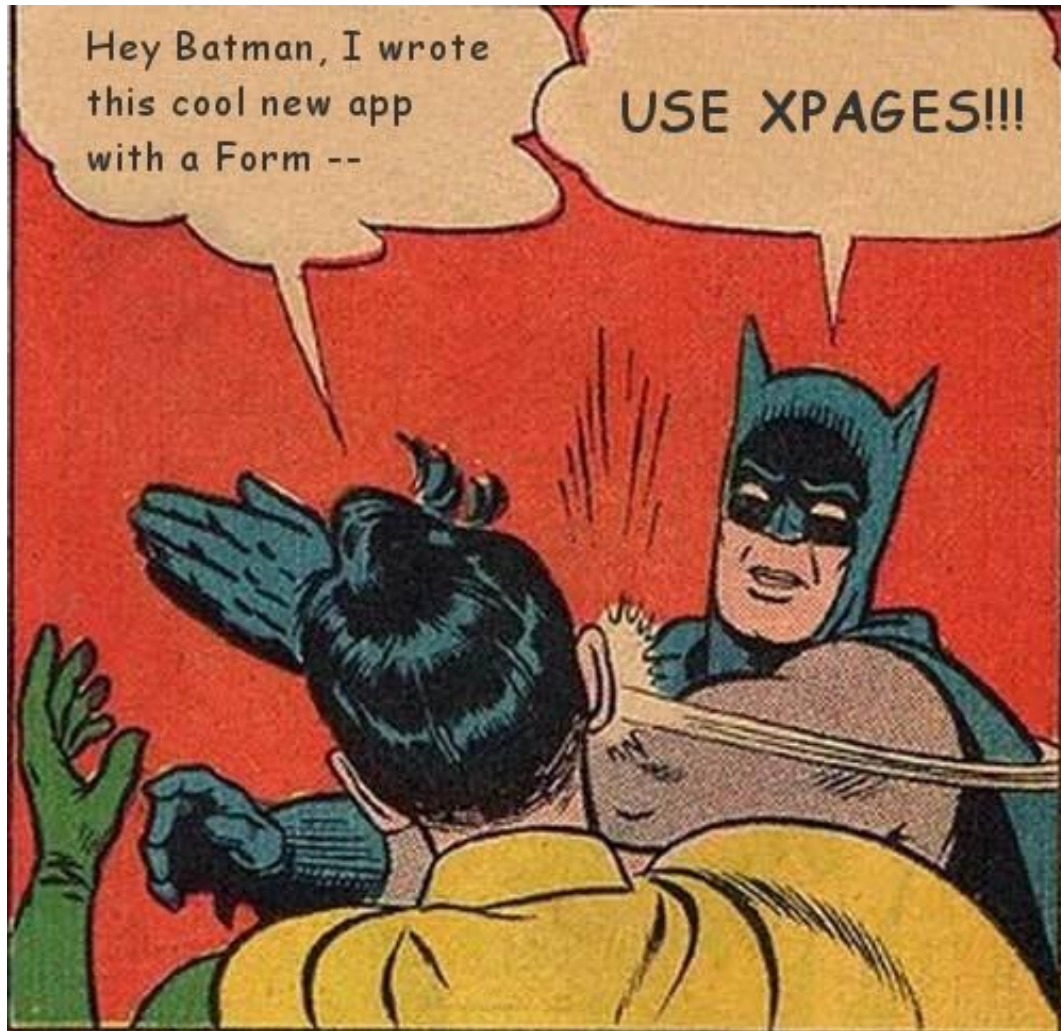


The screenshot shows an XPages application with a dark header containing the text 'LUG'. Below the header is a navigation bar with three tabs: 'Tab1', 'Tab2', and 'Tab3'. The main content area is divided into two sections. On the left, there are two dropdown menus: one with 'orange' and another with 'en'. Below these is a 'View Container' section with a 'Datatable' label. On the right, there are two buttons: 'New Document' and 'Delete Document'. Below these buttons is a table with four columns: 'Firstname', 'Lastname', 'City', and 'State'. Each row in the table has a checkbox on the left and a blue link for the first name. The data in the table is as follows:

Firstname	Lastname	City	State
<input type="checkbox"/> Suzette	Avery	Antioch	CALIFORNIA
<input type="checkbox"/> Jeff	Estes	Columbus	OHIO
<input type="checkbox"/> Benjamin	Thornton	Newport News	VIRGINIA
<input type="checkbox"/> Howard	Gallagher	Albuquerque	NEW MEXICO
<input type="checkbox"/> Manuel	Parks	San Francisco	CALIFORNIA
<input type="checkbox"/> Craig	Morrison	San Francisco	CALIFORNIA
<input type="checkbox"/> Leola	Mullen	Fontana	CALIFORNIA
<input type="checkbox"/> Krystal	Dixon	Miami	FLORIDA
<input type="checkbox"/> Elinor	Mccall	Allentown	PENNSYLVANIA
<input type="checkbox"/> Millicent	Stone	Modesto	CALIFORNIA



# Warum XPages ?







# White Paper

- Paul Withers - Maximize the Benefits of Lotus Domino 8.5.2 with Xpages
  - [http://hermes.intec.co.uk/Intec/Blog.nsf/dx/Maximising%20The%20Benefits%20of%20XPages%20in%208.5.2.pdf/\\$file/Maximising%20The%20Benefits%20of%20XPages%20in%208.5.2.pdf](http://hermes.intec.co.uk/Intec/Blog.nsf/dx/Maximising%20The%20Benefits%20of%20XPages%20in%208.5.2.pdf/$file/Maximising%20The%20Benefits%20of%20XPages%20in%208.5.2.pdf)



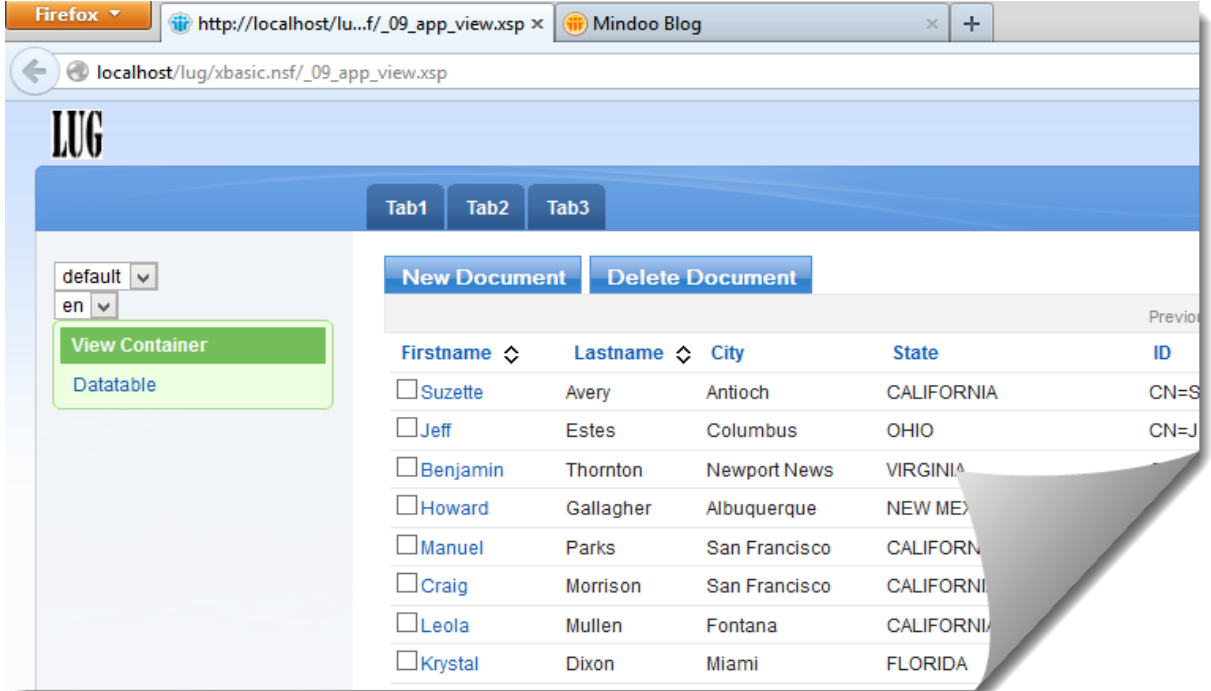
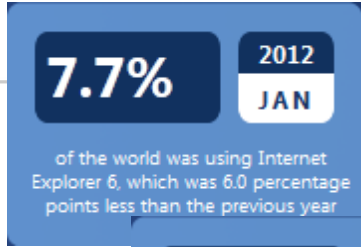
---

<b>1 What is XPages?</b> .....	<b>3</b>
<b>2.0 Risk-Benefit Analysis</b> .....	<b>4</b>
<b>2.1 Software Impacts</b> .....	<b>4</b>
<b>2.2 Delivery Options</b> .....	<b>5</b>
<b>2.2 Learning Requirements</b> .....	<b>6</b>
<b>2.3 Technical Analysis of XPages Functionality</b> .....	<b>7</b>
<b>3.0 Summary</b> .....	<b>9</b>



# Wo laufen meine XPages?

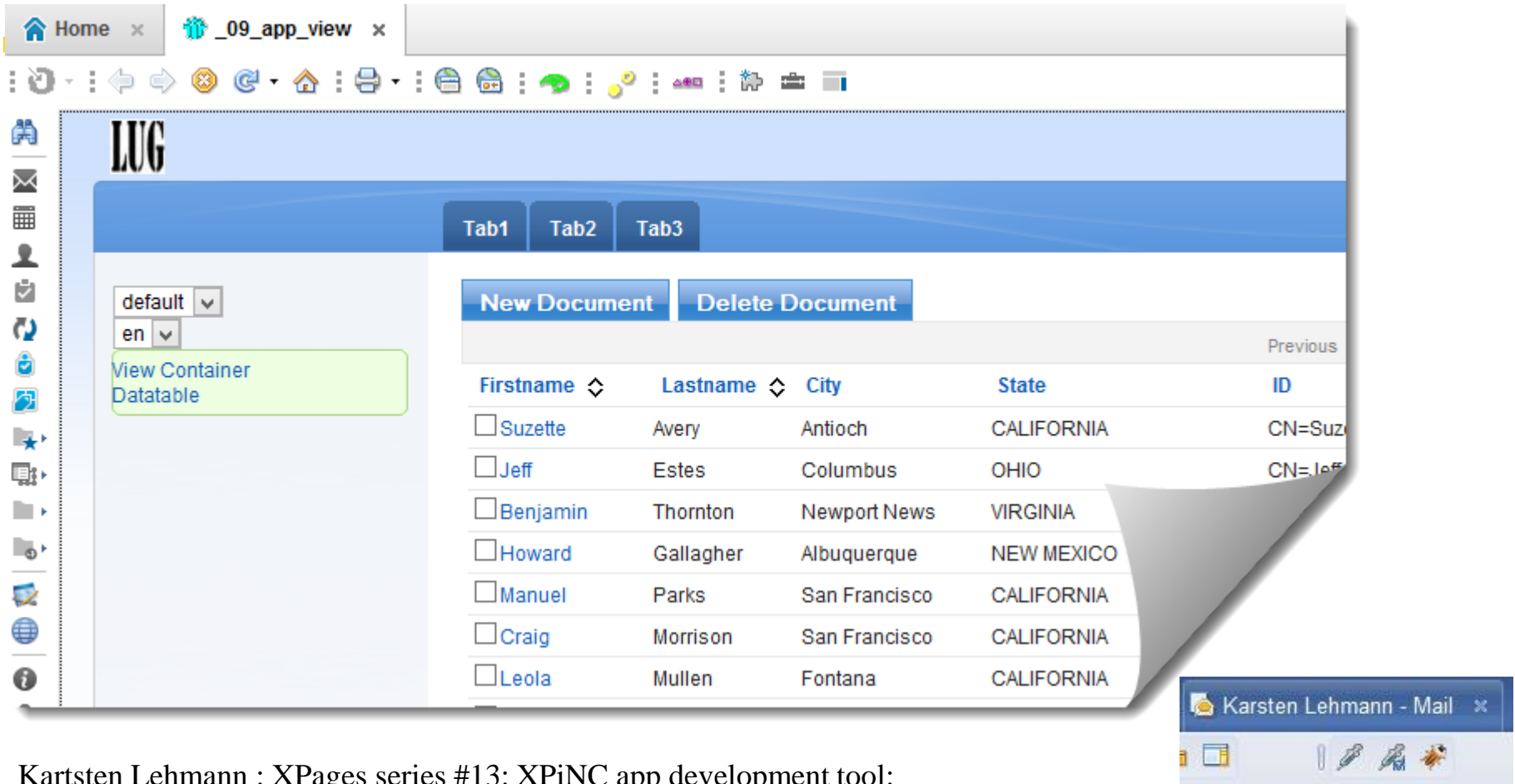
- Browser
  - Firefox, Safari, Chrome, Internet Explorer\*
    - \* IE6 **must** die! , sagt Microsoft
    - <http://www.ie6countdown.com/>
- Für die Entwicklung Firefox verwenden
  - Firebug
  - YSlow
  - PageSpeed



Firstname	Lastname	City	State	ID
<input type="checkbox"/> Suzette	Avery	Antioch	CALIFORNIA	CN=S
<input type="checkbox"/> Jeff	Estes	Columbus	OHIO	CN=J
<input type="checkbox"/> Benjamin	Thornton	Newport News	VIRGINIA	
<input type="checkbox"/> Howard	Gallagher	Albuquerque	NEW MEX	
<input type="checkbox"/> Manuel	Parks	San Francisco	CALIFORNIA	
<input type="checkbox"/> Craig	Morrison	San Francisco	CALIFORNIA	
<input type="checkbox"/> Leola	Mullen	Fontana	CALIFORNIA	
<input type="checkbox"/> Krystal	Dixon	Miami	FLORIDA	



# Wo laufen meine XPages?



default

en

View Container Datable

New Document Delete Document

Firstname	Lastname	City	State	ID
<input type="checkbox"/> Suzette	Avery	Antioch	CALIFORNIA	CN=Suzette
<input type="checkbox"/> Jeff	Estes	Columbus	OHIO	CN=Jeff
<input type="checkbox"/> Benjamin	Thornton	Newport News	VIRGINIA	
<input type="checkbox"/> Howard	Gallagher	Albuquerque	NEW MEXICO	
<input type="checkbox"/> Manuel	Parks	San Francisco	CALIFORNIA	
<input type="checkbox"/> Craig	Morrison	San Francisco	CALIFORNIA	
<input type="checkbox"/> Leola	Mullen	Fontana	CALIFORNIA	

Karsten Lehmann - Mail

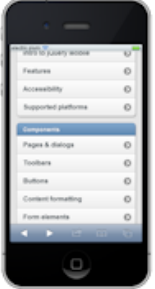
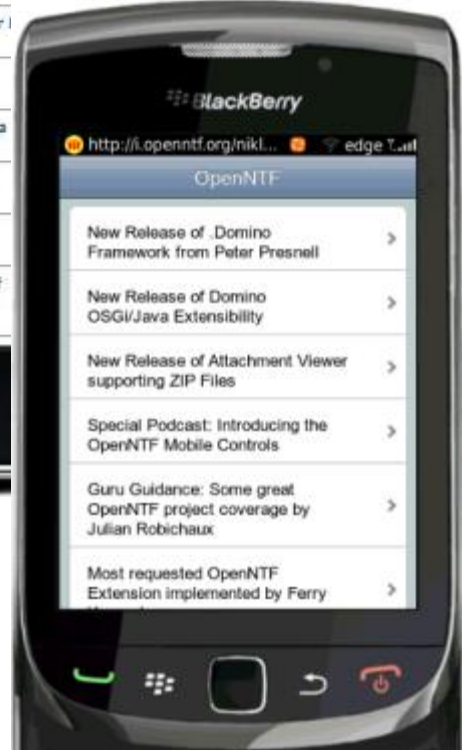
Karsten Lehmann : XPages series #13: XPiNC app development tool:

<http://www.mindoo.de/web/blog.nsf/dx/02.02.2012162412KLEL3Q.htm?opendocument&comments#anc1>



# Wo laufen meine XPages?

- Mobile Endgeräte
- iOS, Android, Blackberry ...
- Simulatoren



## iOS Web Browser Simulator (FREE limited version)

Download Limited Free Trial Version (Windows)

Download Limited Free Trial Version (Mac)

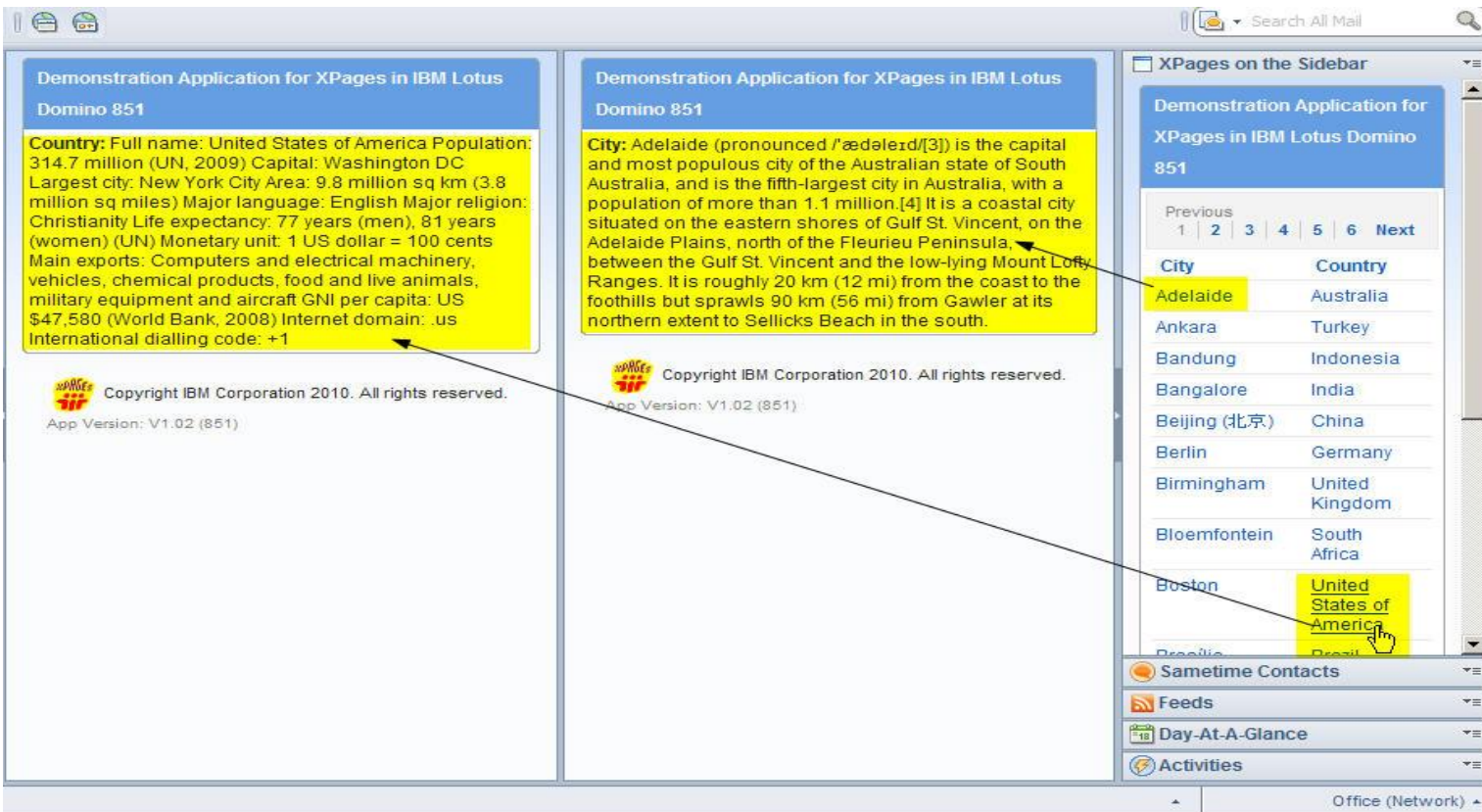
- Full screen presentation mode.
- JavaScript Error Detection.



# Wo laufen meine XPages?

## ■ Sidebar , Composite Application

- <http://xpages.info/XPagesHome.nsf/Entry.xsp?documentId=24552AD3D535EC18852578CB00669EF8> (Paul Hannan )



**Demonstration Application for XPages in IBM Lotus Domino 851**

**Country:** Full name: United States of America Population: 314.7 million (UN, 2009) Capital: Washington DC Largest city: New York City Area: 9.8 million sq km (3.8 million sq miles) Major language: English Major religion: Christianity Life expectancy: 77 years (men), 81 years (women) (UN) Monetary unit: 1 US dollar = 100 cents Main exports: Computers and electrical machinery, vehicles, chemical products, food and live animals, military equipment and aircraft GNI per capita: US \$47,580 (World Bank, 2008) Internet domain: .us International dialling code: +1

Copyright IBM Corporation 2010. All rights reserved.  
App Version: V1.02 (851)

**Demonstration Application for XPages in IBM Lotus Domino 851**

**City:** Adelaide (pronounced /ˈædəleɪd/[3]) is the capital and most populous city of the Australian state of South Australia, and is the fifth-largest city in Australia, with a population of more than 1.1 million.[4] It is a coastal city situated on the eastern shores of Gulf St. Vincent, on the Adelaide Plains, north of the Fleurieu Peninsula, between the Gulf St. Vincent and the low-lying Mount Lofty Ranges. It is roughly 20 km (12 mi) from the coast to the foothills but sprawls 90 km (56 mi) from Gawler at its northern extent to Sellicks Beach in the south.

Copyright IBM Corporation 2010. All rights reserved.  
App Version: V1.02 (851)

**XPages on the Sidebar**

Previous 1 | 2 | 3 | 4 | 5 | 6 | Next

City	Country
Adelaide	Australia
Ankara	Turkey
Bandung	Indonesia
Bangalore	India
Beijing (北京)	China
Berlin	Germany
Birmingham	United Kingdom
Bloemfontein	South Africa
Boston	United States of America
Brazilia	Brazil

Sametime Contacts  
Feeds  
Day-At-A-Glance  
Activities

Office (Network)



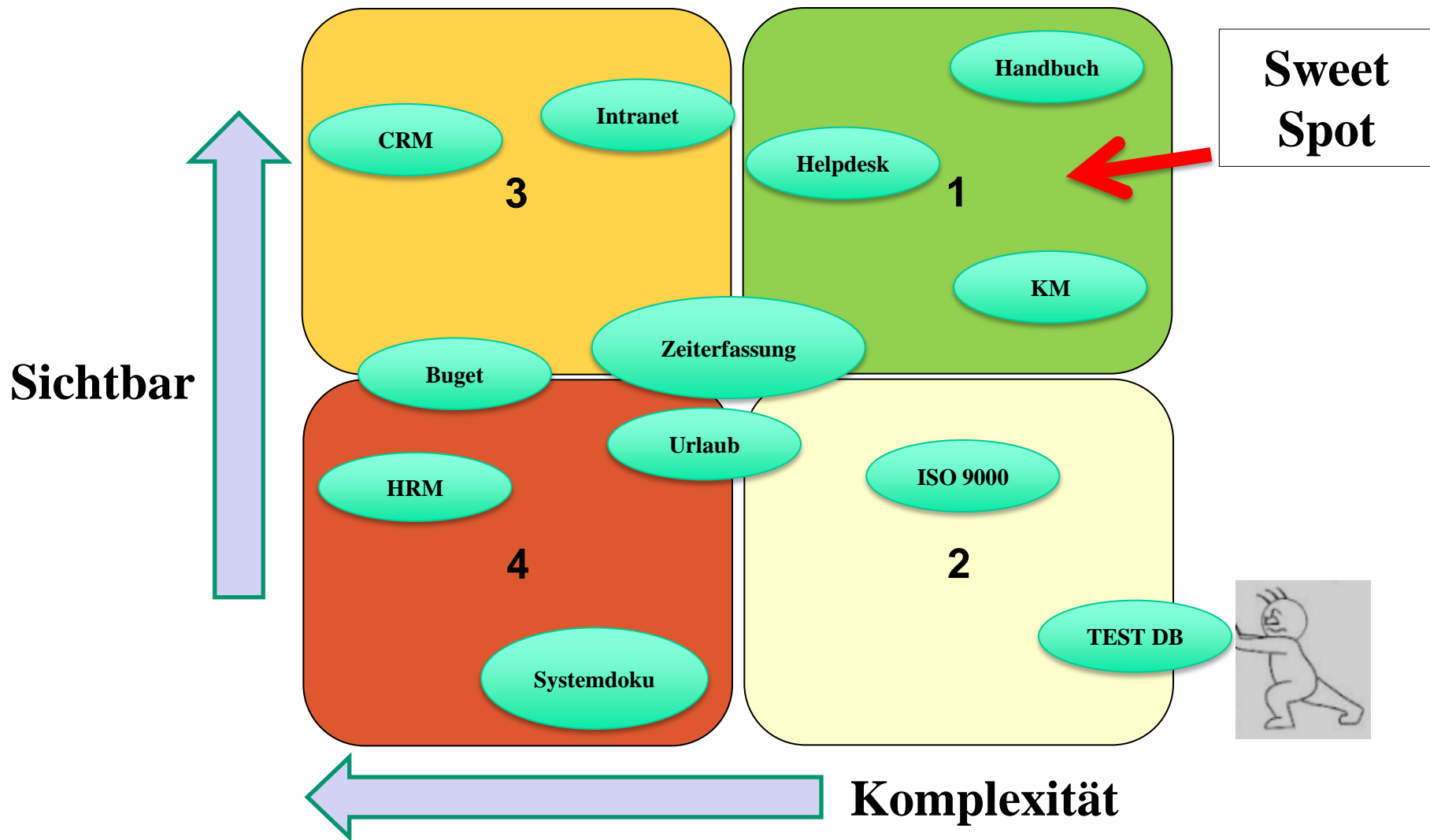
## Wo laufen meine XPages?

- Wenn es unbedingt sein muss / es gar nicht anders geht

```
<iframe frameborder="0" name="myxpage"  
    src=http://myserver/mydb.nsf/MyCoolPage.xsp>  
</iframe>
```



# Applikationen nach XPages portieren?





## Applikationen nach XPages portieren?

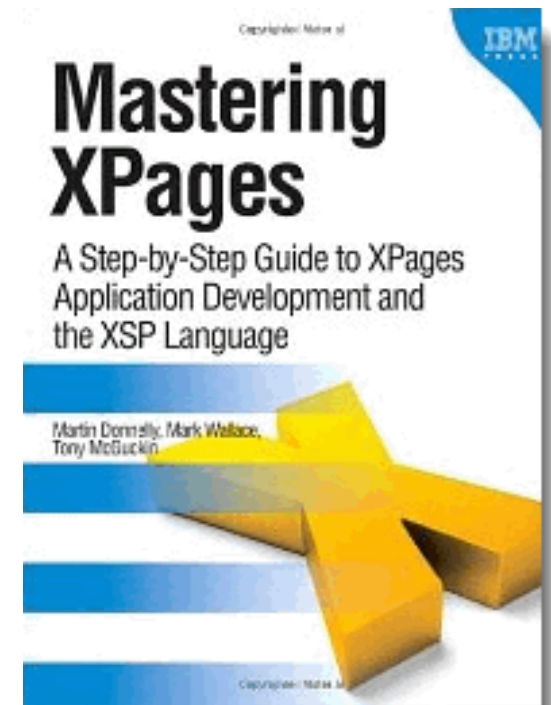
- Eine Portierung bestehender Anwendungen macht keinen Sinn wenn ...
  - ... es dafür ein Standard Template gibt
  - ... die Funktionalität durch einen andere Technologie abgedeckt werden kann
    - IBM Connections oder IBM Quickr®
  - ... die Anwendung ausschließlich von Admins und Entwicklern benutzt wird
  - ... die Anwendung bereits eine funktionierende Web GUI besitzt
  - ...





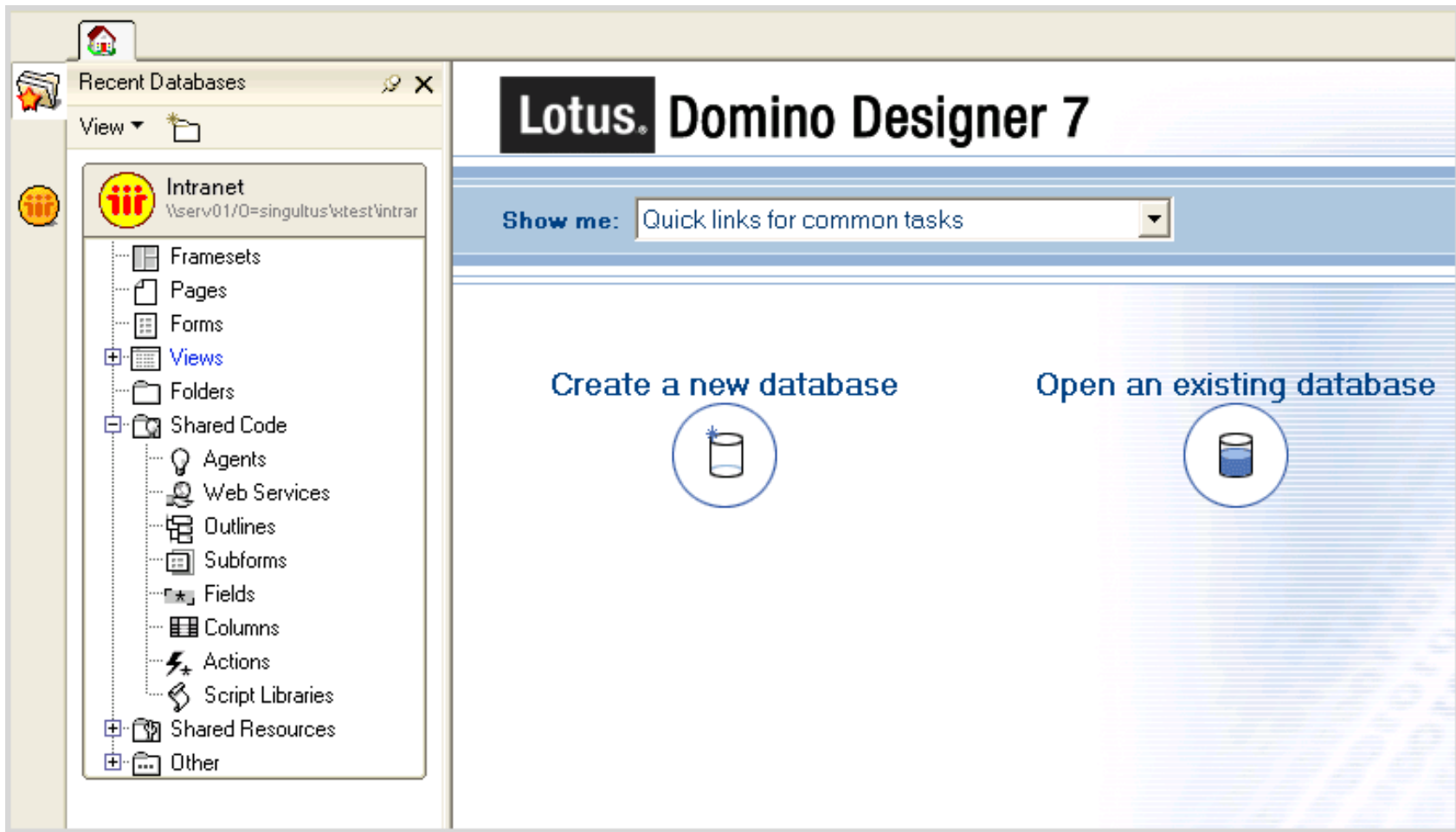
# Einstieg in XPages

- IBM
  - Mastering XPages – IBM Press
- Matt White
  - XPages 101 (<http://xpages101.net/>)
- David Leedy
  - XPages TV (<http://xpages.tv/> )
  - XPages Cheat Sheet (<http://xpagescheatsheet.com/>)
- Xpages Info
  - <http://xpages.info/XPagesHome.nsf/Home.xsp>





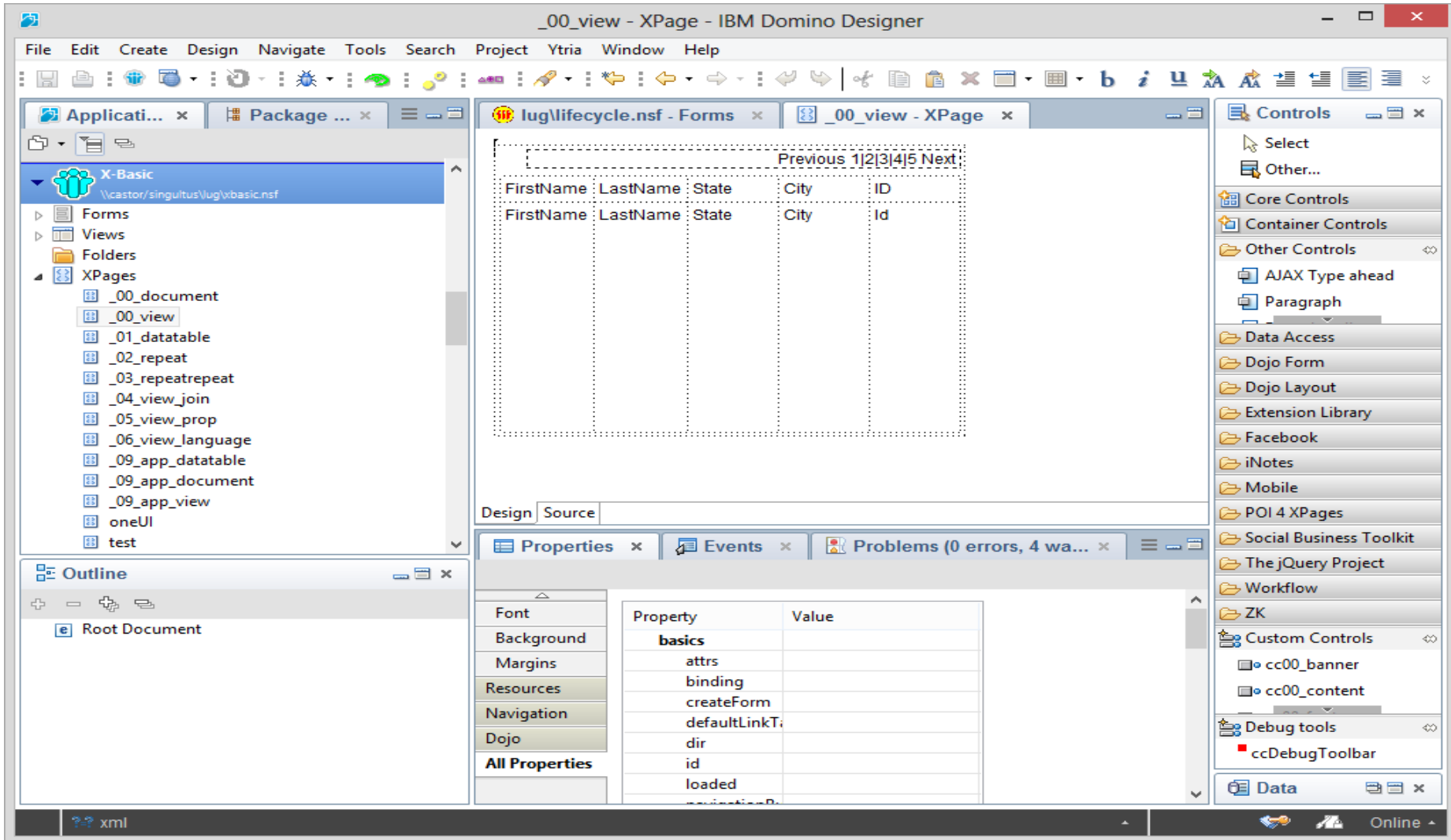
# Domino Designer 7



The screenshot displays the Lotus Domino Designer 7 interface. On the left is a navigation pane with a 'Recent Databases' window at the top. Below it, a 'View' dropdown is visible. The main pane shows a tree view for an 'Intranet' database located at 'I:\serv01\0=singultus\wtest\intranet'. The tree includes categories like Framesets, Pages, Forms, Views (highlighted in blue), Folders, Shared Code, Agents, Web Services, Outlines, Subforms, Fields, Columns, Actions, Script Libraries, Shared Resources, and Other. The main workspace area features the title 'Lotus Domino Designer 7' and a 'Show me:' dropdown menu set to 'Quick links for common tasks'. Two primary actions are presented: 'Create a new database' with a database icon and a plus sign, and 'Open an existing database' with a database icon.



# Domino Designer 9



The screenshot displays the IBM Domino Designer 9 interface. The main window shows a design view of an XPage titled "\_00\_view - XPage". The XPage contains a table with the following structure:

FirstName	LastName	State	City	ID
FirstName	LastName	State	City	Id

Navigation links "Previous 1|2|3|4|5 Next" are visible above the table. The interface includes a menu bar (File, Edit, Create, Design, Navigate, Tools, Search, Project, Ytria, Window, Help), a toolbar, and several panels:

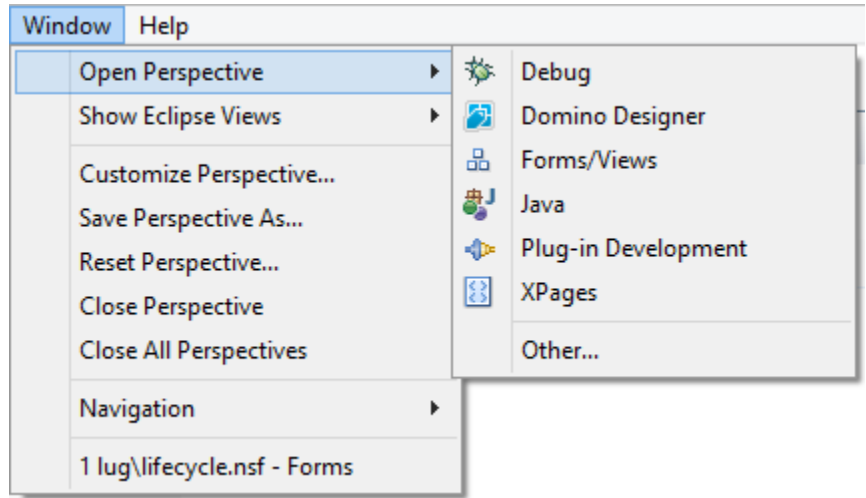
- Left Panel:** Project Explorer showing the file structure under "X-Basic" and "XPages".
- Bottom Left:** Outline panel showing "Root Document".
- Bottom Center:** Properties, Events, and Problems panels. The Properties panel shows a table of properties for the selected element:

Property	Value
basics	
attrs	
binding	
createForm	
defaultLinkT	
dir	
id	
loaded	

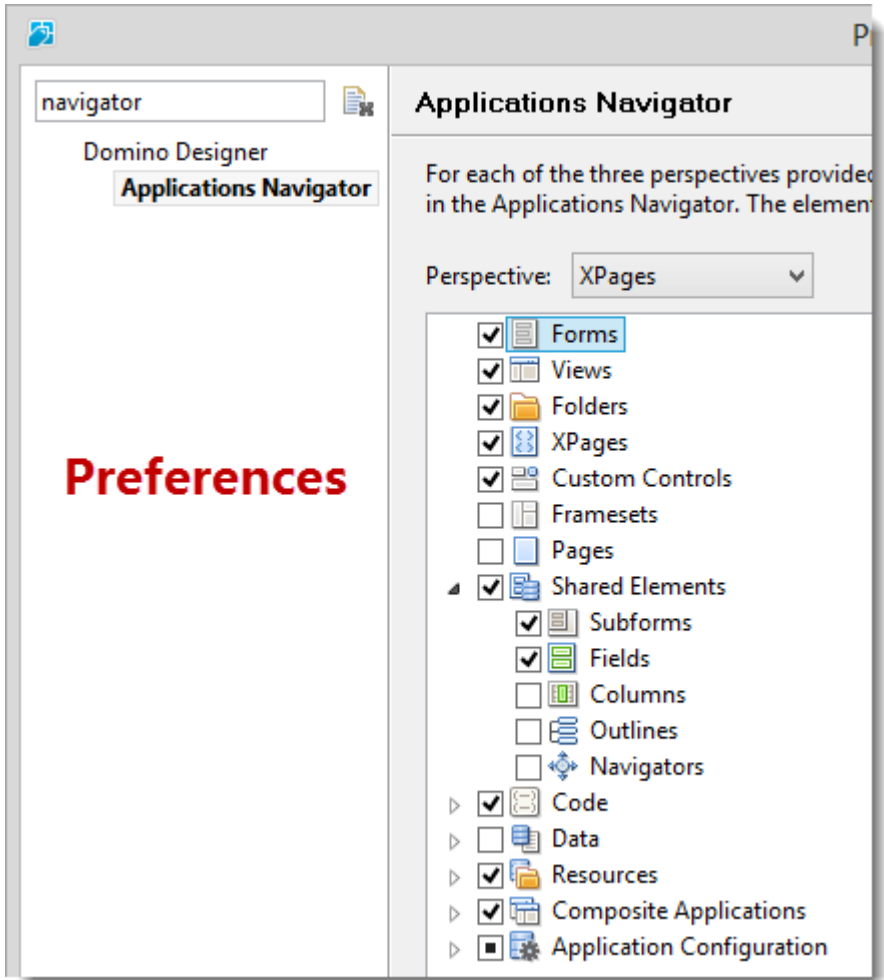
- Right Panel:** Controls palette with categories like Core Controls, Container Controls, Data Access, Dojo Form, Dojo Layout, Extension Library, Facebook, iNotes, Mobile, POI 4 XPages, Social Business Toolkit, The jQuery Project, Workflow, ZK, Custom Controls, Debug tools, and Data.



# Perspectives / Eclipse Views



The screenshot shows the 'Window' menu in Eclipse. The 'Open Perspective' option is selected, which has opened a sub-menu. This sub-menu lists several perspectives: Debug, Domino Designer, Forms/Views, Java, Plug-in Development, and XPages. There is also an 'Other...' option at the bottom of the sub-menu. Other options in the main 'Window' menu include 'Show Eclipse Views', 'Customize Perspective...', 'Save Perspective As...', 'Reset Perspective...', 'Close Perspective', 'Close All Perspectives', 'Navigation', and a file named '1 lug\lifecycle.nsf - Forms'.

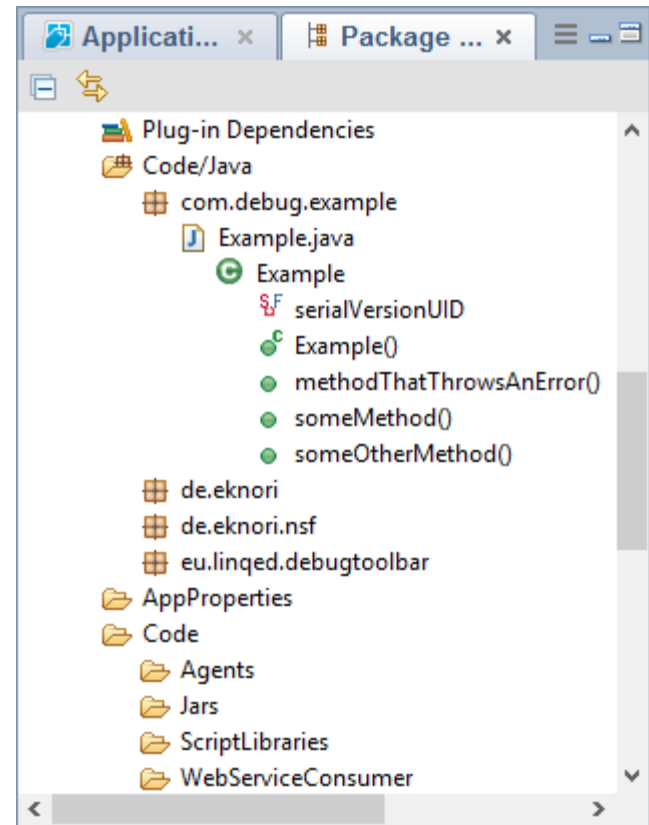
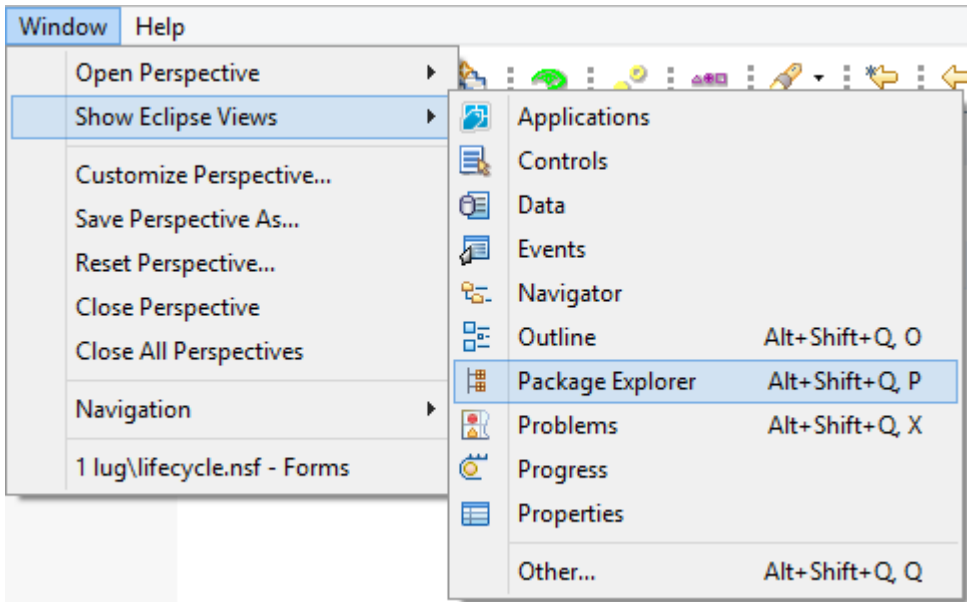


The screenshot shows the 'Applications Navigator' preferences dialog. The 'navigator' tab is active, showing the 'Domino Designer' perspective. The 'Applications Navigator' section is expanded, showing a list of elements with checkboxes. The 'Perspective' dropdown is set to 'XPages'. The elements listed are: Forms (checked), Views (checked), Folders (checked), XPages (checked), Custom Controls (checked), Framesets (unchecked), Pages (unchecked), Shared Elements (checked and expanded), Code (checked), Data (unchecked), Resources (checked), Composite Applications (checked), and Application Configuration (unchecked). The 'Shared Elements' sub-section includes: Subforms (checked), Fields (checked), Columns (unchecked), Outlines (unchecked), and Navigators (unchecked).

**Preferences**

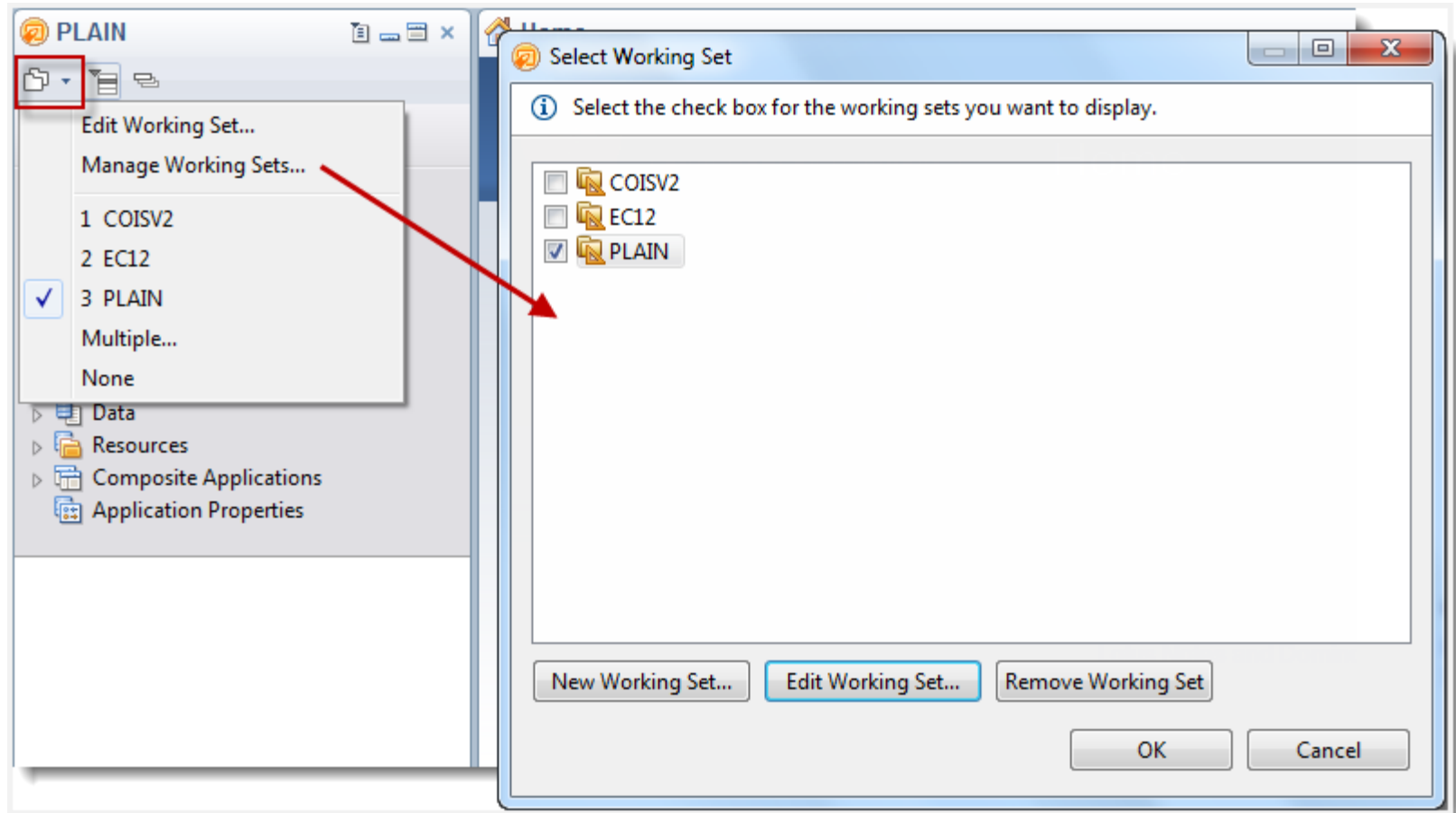


# Perspectives / Eclipse Views



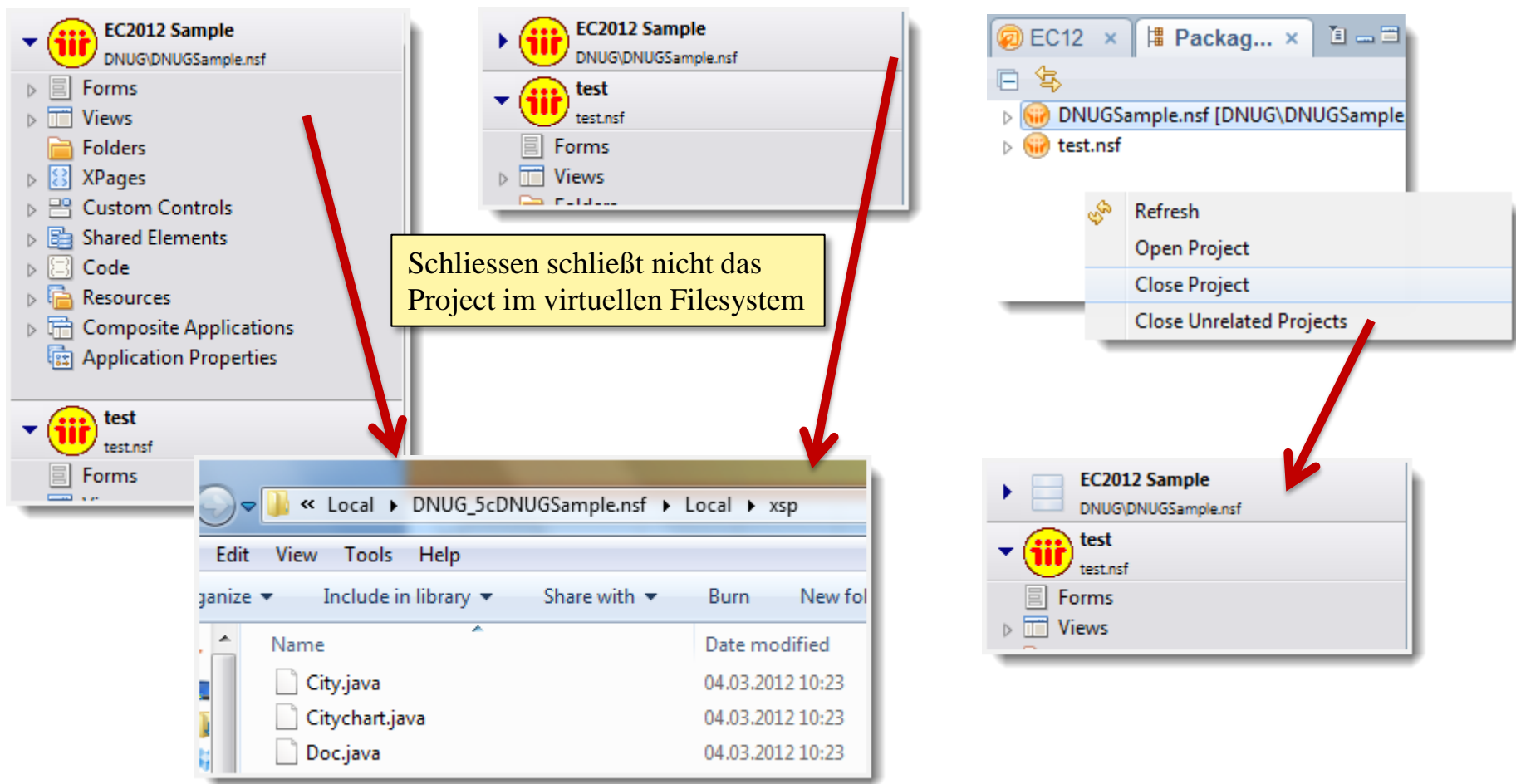


# Working Sets





# Virtuelles Filesystem

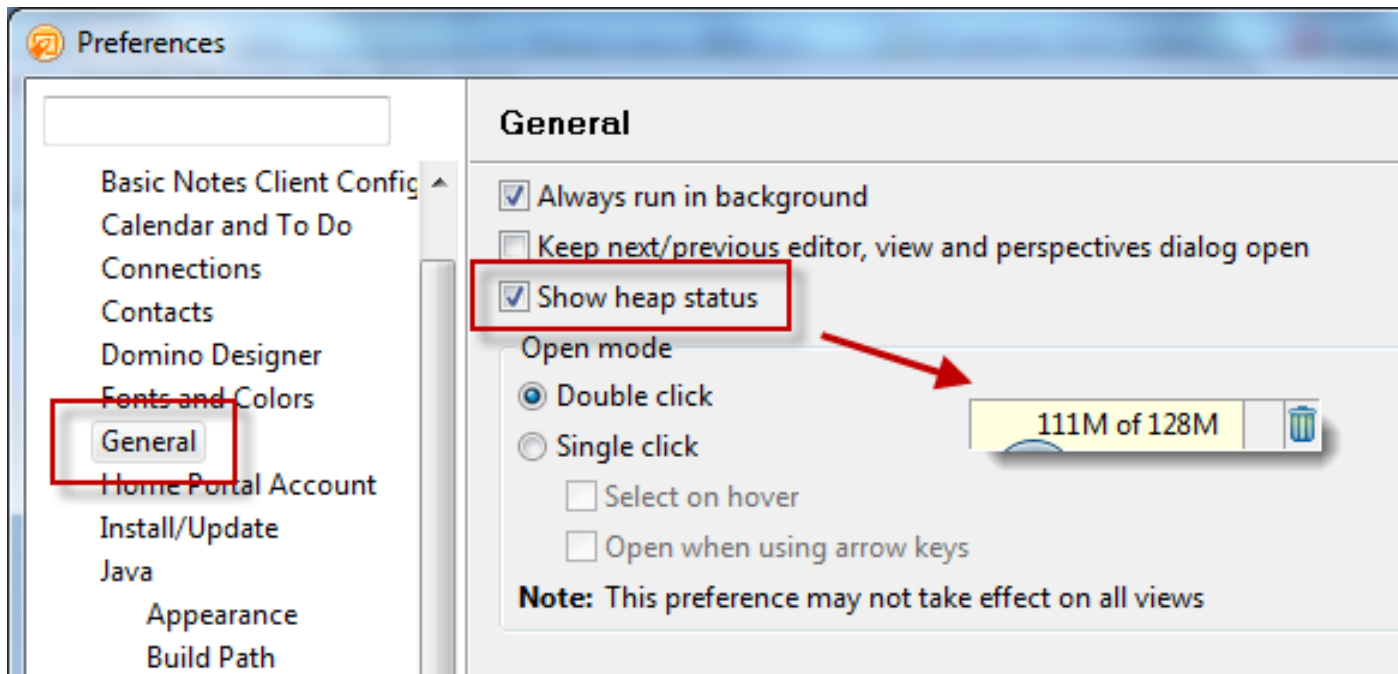


The screenshot illustrates the Eclipse IDE's virtual file system. On the left, the Project Explorer shows a tree structure for 'EC2012 Sample' and 'test'. A yellow callout box with the text 'Schliessen schließt nicht das Project im virtuellen Filesystem' (Closing does not close the project in the virtual file system) has two red arrows pointing to the 'test' project in the tree. On the right, the Package Explorer shows the same structure. A context menu is open over the 'test' project, with a red arrow pointing to the 'Close Project' option. At the bottom, a File Explorer window shows the local file system path 'Local > DNUG\_5cDNUGSample.nsf > Local > xsp', containing files 'City.java', 'Citychart.java', and 'Doc.java'.



# Notes Client Speichernutzung optimieren

- <NotesProgramDir>\framework\rcp\deploy\jvm.properties
  - **vmarg.Xmx=-Xmx512m** (max. HeapSize ¼ RAM)
  - **vmarg.Xms=-Xms128m** (min HeapSize)
    - Werte müssen durch 4 teilbar sein





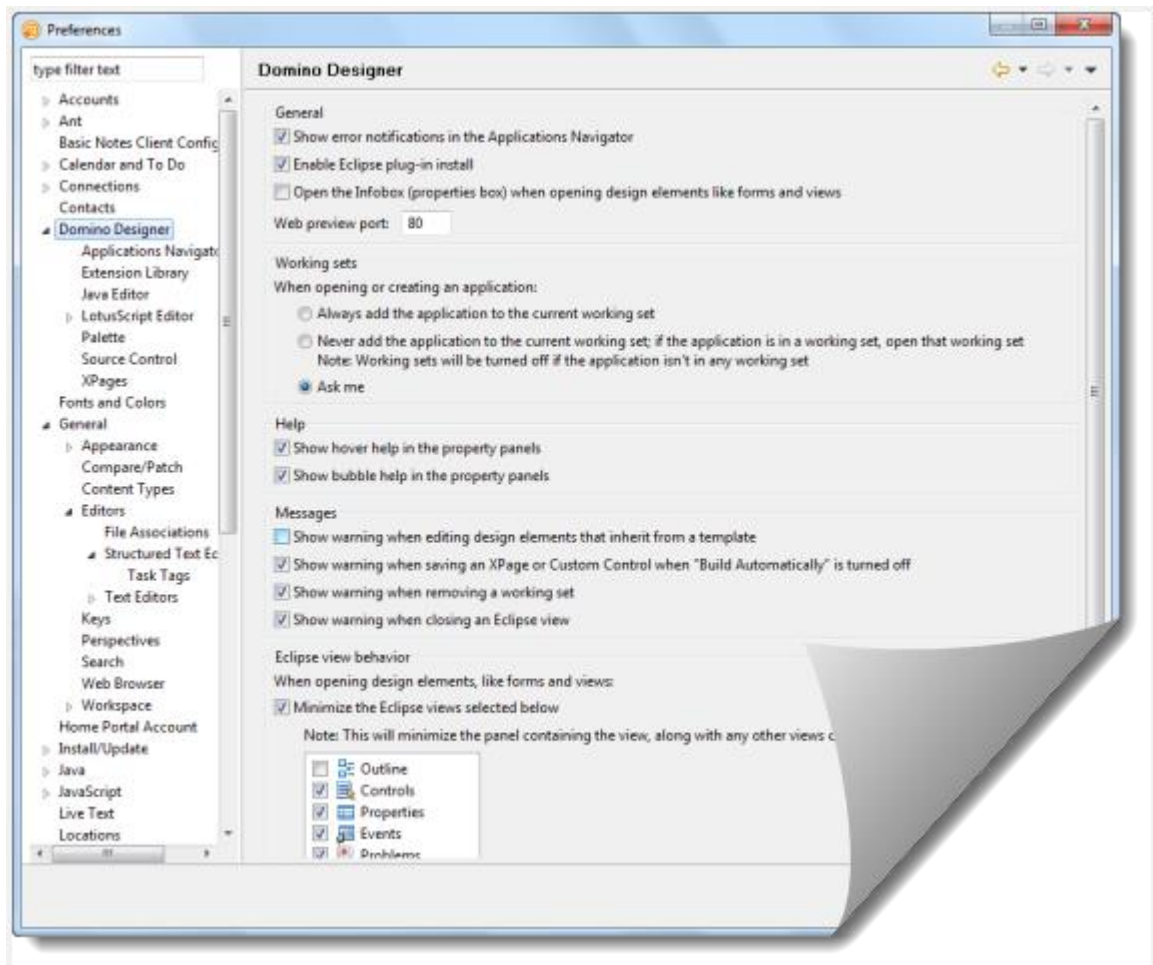


# Domino Designer individuell anpassen

- File → Preferences
- Nathan Freeman

**“Making Domino Designer work like you want”**

<http://ntf.gbs.com/nathan/escape.nsf/d6plinks/NTFN-8GP6RP>





# WYGINWYS = What You Get Is Not What You See

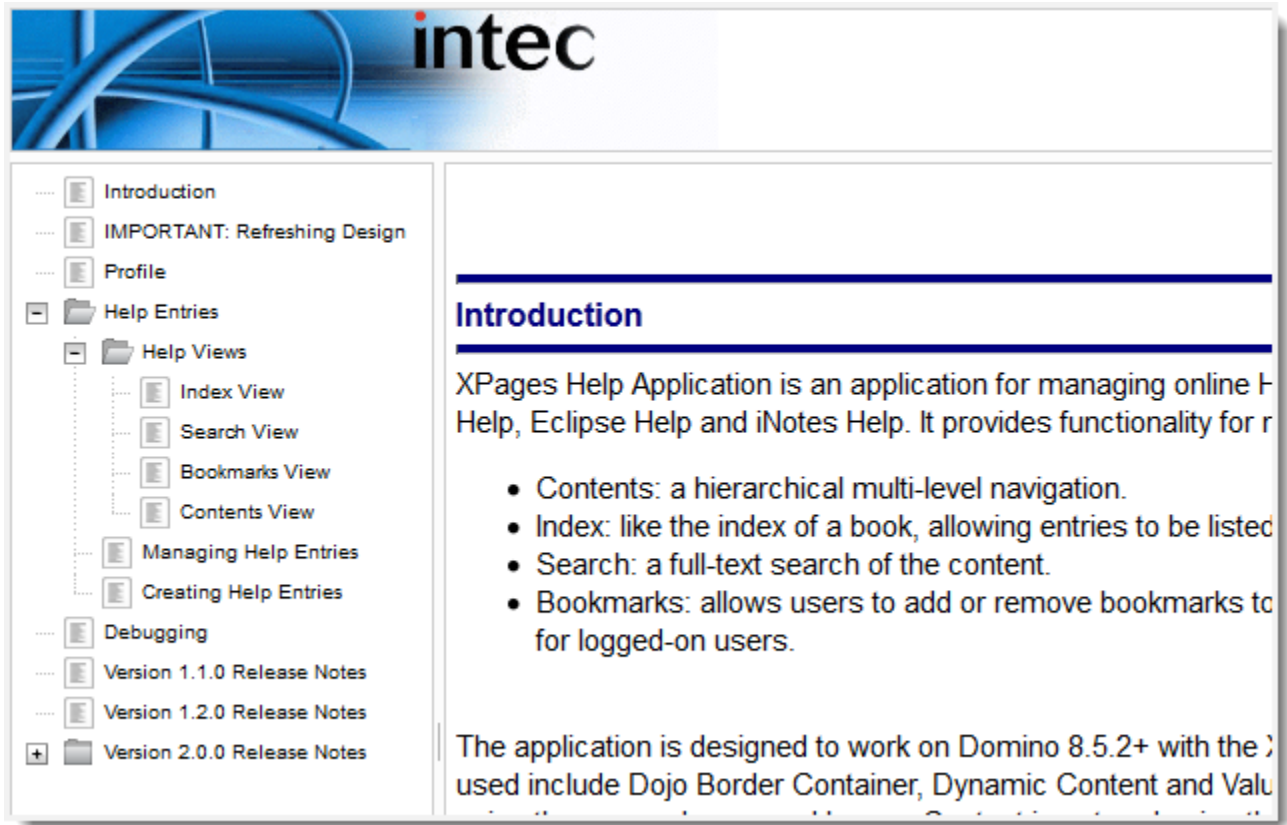
- Was im Designer so aussieht





# WYGINWYS = What You Get Is Not What You See


- Sieht im Browser so aus ...



<http://www.openntf.org/internal/home.nsf/project.xsp?action=openDocument&name=XPages%20Help%20Application> OpenNTF XPages Help Application: Paul Withers



# Unterschiedliche Sichten



Organization:	Organization	T
Organization type:	OrganizationType	T
Customer:	Customer_Name	T
Request Number:	RequestNumber	T
Phone Number:	Customer_Phone	T
Supporter:	SupportAuthor	T
Mailaddress:	Customer_Email	T
Date Created:	Date_Created	
Status:	Status	T
Severity:	Severity	T

```

<?xml version="1.0" encoding="UTF-8"?>
<xp:view xmlns:xp="http://www.ibm.com/xsp/core">
  <xp:table>
    <xp:tr>
      <xp:td>
        <xp:label value="Organization:"
          id="organization_Label1" for="organization1">
        </xp:label>
      </xp:td>
      <xp:td>
        <xp:inputText value="#{document1.Organization}"
          id="organization1">
        </xp:inputText>
      </xp:td>
    </xp:tr>
    <xp:tr>
      <xp:td>
        <xp:label value="Organization type:"
          id="organizationType_Label1" for="organizationType1">
        </xp:label>
      </xp:td>
      <xp:td>
        <xp:inputText value="#{document1.OrganizationType1}"
  
```





# SSJS / CSJS

 New Script Library  Sign

Name	Type	Last Modified	Last Modified By
lib.class.JAVA	Java	31.08.2012 15:2...	serv01/singultus
lib.functions.Main_CS	JavaScript	31.08.2012 15:2...	serv01/singultus
lib.functions.Main_SS	Server JavaScript	31.08.2012 15:2...	serv01/singultus

**New Script Library**

 Create a new Script Library. 

Name:

Comment:

Type:

Application: 

- LotusScript
- Java
- JavaScript
- Server JavaScript

## Server-side JavaScript

Netscape introduced an implementation of the language for server-side scripting with [Netscape Enterprise Server](#), first released in December, 1994 (soon after releasing JavaScript for browsers).<sup>[13][14]</sup> Since the mid-2000s, there has been a proliferation of [server-side JavaScript implementations](#). [Node.js](#) is one recent notable example of server-side JavaScript being used in real-world applications.<sup>!</sup>



# Java ( Beans & Managed-Beans )

- Keine Unterschiede im Code
- Managed-Beans ...
  - werden deklariert
  - haben eine Lebensdauer
  - werden automatisch erzeugt, initialisiert, gelöscht
  - werden über die Expression Language (EL) bereitgestellt



```
<managed-bean id="Example">
  <managed-bean-name>sampleBean</managed-bean-name>
  <managed-bean-class>com.debug.example.Example</managed-bean-class>
  <managed-bean-scope>view</managed-bean-scope>
</managed-bean>
```

```
<xp:button value="call another function in a bean"
  id="button5" dojoType="dijit.form.Button">
  <xp:eventHandler event="onclick" submit="true"
    refreshMode="partial" refreshId="debugToolbar">
    <xp:this:action>
      <![CDATA[#{javascript:sampleBean.someOtherMethod();}]]>
    </xp:this:action>
  </xp:eventHandler>
</xp:button>
```



# Scoped Variables

## ■ Application

- The applicationScope duration is the WebModule duration. A web module is started when the first request comes in, and is eventually discarded after a period of inactivity, the default being 30 minutes. Every user of the application can access these variables once they are created, so there is no privacy with these variables. The applicationScope should only be used for data that must be shared among many XPages.

## Session

- With sessionScope variables, the variable lasts for the duration of a server session. This is when the user closes their browser, times out, or when a user logs off. The sessionScope is useful for using you want to store values for the current session only and specific to the current user

## ■ View

- The viewScope is an XPage extension to JSF and it's variables exist for the duration of the current view i.e. the current page. They are not accessible outside of that view. The viewScope is useful when a value must be stored for the current page and can deleted when the user moves to another page.

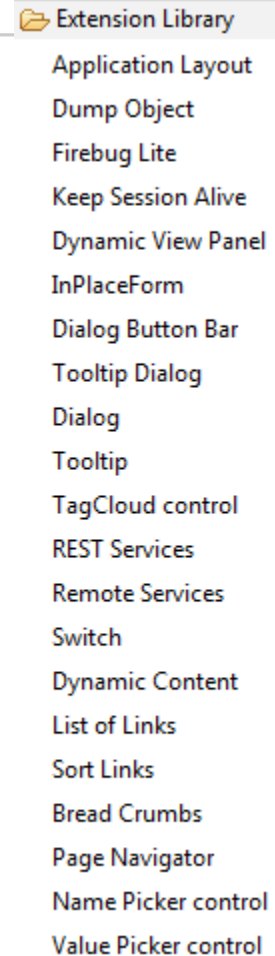
## Request

- The requestScope variables last for the duration of the request. This means the variables will last for the duration of a url request from the server. The variable can exist across XPages i.e. if an XPage is requested from another XPage. The requestScope variables are useful for variables which can be deleted straight after the value is submitted to the server. This means that there is not extra memory being used to store variables that are no longer needed.



# OpenNTF: XPages Extension Library

- Macht die Entwicklung von Web Anwendungen noch einfacher und schneller
- Integration in Domino Designer
- ~ 90 zusätzliche, kostenlose Custom Controls
- Open Source
- Eigene Erweiterungen durch Extensibility API
  - <http://www.openntf.org/projects/pmt.nsf/ProjectLookup/XPages%20Extension%20Library>




Extension Library

- Application Layout
- Dump Object
- Firebug Lite
- Keep Session Alive
- Dynamic View Panel
- InPlaceForm
- Dialog Button Bar
- Tooltip Dialog
- Dialog
- Tooltip
- TagCloud control
- REST Services
- Remote Services
- Switch
- Dynamic Content
- List of Links
- Sort Links
- Bread Crumbs
- Page Navigator
- Name Picker control
- Value Picker control





# Das Endergebnis



Tab1 Tab2 Tab3

orange de

**View Container**  
**Datatable**

Neues Dokument Dokument loeschen

Previous 1 2 3 4 5 6 7 8 ... Next

<a href="#">Vorname</a> ⚡	<a href="#">Nachname</a> ⚡	Stadt	Bundesland	eiDie
<input type="checkbox"/> <a href="#">Suzette</a>	Avery	Antioch	CALIFORNIA	CN=Suzette Avery/O=renovations
<input type="checkbox"/> <a href="#">Jeff</a>	Estes	Columbus	OHIO	CN=Jeff Estes/O=renovations
<input type="checkbox"/> <a href="#">Benjamin</a>	Thornton	Newport News	VIRGINIA	CN=Benjamin Thornton/O=renovations
<input type="checkbox"/> <a href="#">Howard</a>	Gallagher	Albuquerque	NEW MEXICO	CN=Howard Gallagher/O=renovations
<input type="checkbox"/> <a href="#">Manuel</a>	Parks	San Francisco	CALIFORNIA	CN=Manuel Parks/O=renovations
<input type="checkbox"/> <a href="#">Craig</a>	Morrison	San Francisco	CALIFORNIA	CN=Craig Morrison/O=renovations
<input type="checkbox"/> <a href="#">Leola</a>	Mullen	Fontana	CALIFORNIA	CN=Leola Mullen/O=renovations
<input type="checkbox"/> <a href="#">Krystal</a>	Dixon	Miami	FLORIDA	CN=Krystal Dixon/O=renovations
<input type="checkbox"/> <a href="#">Elinor</a>	Mccall	Allentown	PENNSYLVANIA	CN=Elinor Mccall/O=renovations
<input type="checkbox"/> <a href="#">Millicent</a>	Stone	Modesto	CALIFORNIA	CN=Millicent Stone/O=renovations
<input type="checkbox"/> <a href="#">Henry</a>	Schwartz	Lewisville	TEXAS	CN=Henry Schwartz/O=renovations
<input type="checkbox"/> <a href="#">Eunice</a>	Berry	Westminster	COLORADO	CN=Eunice Berry/O=renovations
<input type="checkbox"/> <a href="#">Eva</a>	Stanley	Vancouver	WASHINGTON	CN=Eva Stanley/O=renovations
<input type="checkbox"/> <a href="#">Randy</a>	Huber	Richmond	CALIFORNIA	CN=Randy Huber/O=renovations
<input type="checkbox"/> <a href="#">Belinda</a>	Wiggins	Sterling Heights	MICHIGAN	CN=Belinda Wiggins/O=renovations



## Q + A

- Mail: [eknori@eknori.de](mailto:eknori@eknori.de)
- Blog: <http://www.eknori.de>
- Sametime: [bleedyellow.com](http://bleedyellow.com)
- Twitter: [eknori](https://twitter.com/eknori)





# FILL IN YOUR SESSION EVALUATIONS\*



\* or a kitten must die!