



# **Old Forms developers never die, they just switch to JDeveloper**

**(JDeveloper ADF Faces for  
Oracle Dinosaurs)**



**SAGE Computing Services**  
**Customised Oracle Training Workshops**  
**and Consulting**  
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**Penny Cookson - Managing Director**

**Ray Tindall – Senior Consultant**

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## Forms

1985	Forms 1 – answer the INP questions
1987	Forms 2 – with a Character based interface
1990	Forms 3 – with PL/SQL
1993	Forms 4.0 - Least said the better
1995	Forms 4.5 GUI version
1998	Forms 5 + browser version
2006	Not much change since Forms 5

# History

## JDEV

Mar 1998	Initial version
Apr 1999	Early release of the BC4J framework
Nov 1999	Full release of the BC4J framework
May 2002	New IDE shell released, with better support for JSPs
	UIX and modelling tools provided
Mar 2004	Upgraded to use JDK 1.4
Apr 2004	ADF framework included
	BC4J becomes ADF business components
	More modellers and visual editing tools added
End 2005	ADF Faces support



# Oracle JDev Quotes

**A stranger is an axe murderer  
you have yet to meet**



# Features

<b>Code Editors</b>	for editing Java, XML, PLSQL and other source code, with features such as syntax highlighting, code templates, standard reformatting etc.
<b>UI Design Editors</b>	WYSIWYG design editors for developing user interfaces, including Swing, and web page technologies such as JSF, JSP and HTML
<b>Diagrammer</b>	for modelling Java classes, ADF Business Components, Java sequence diagrams, UML and Use Case diagrams.
<b>Database Development</b>	for modelling and editing connected databases, as well as providing database connection information for your Java applications.
<b>Wizards</b>	a large set of wizards to simplify the development process.
<b>Debugger</b>	a comprehensive debugger, including support for conditional breakpoints
<b>Code Profiling</b>	to profile the memory and CPU usage of your code.
<b>Refactoring</b>	support for refactoring code with the ability to change code names and all references to the code
<b>Integrated Change Control</b>	integration with CVS change control repository.

# Model – View - Controller

## ➡ Model

represents persistent business data  
coupled with business logic

## ➡ View

user interface (UI) representation of  
dynamic model's content

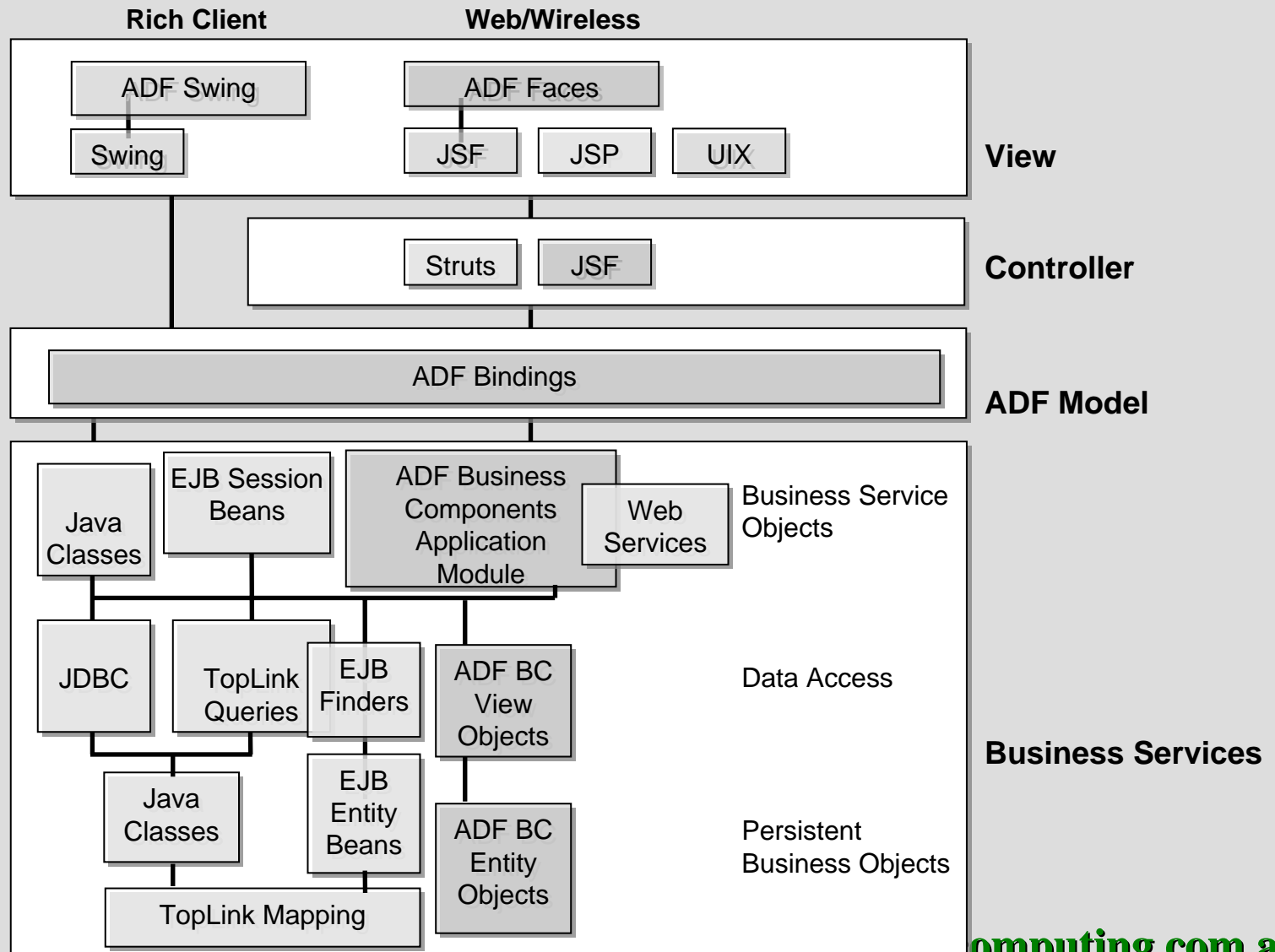
## ➡ Controller

responds to UI events executed by the user  
communicates to the model layer  
controls page flow.

A green bracket on the right side of the slide groups the View and Controller sections together.

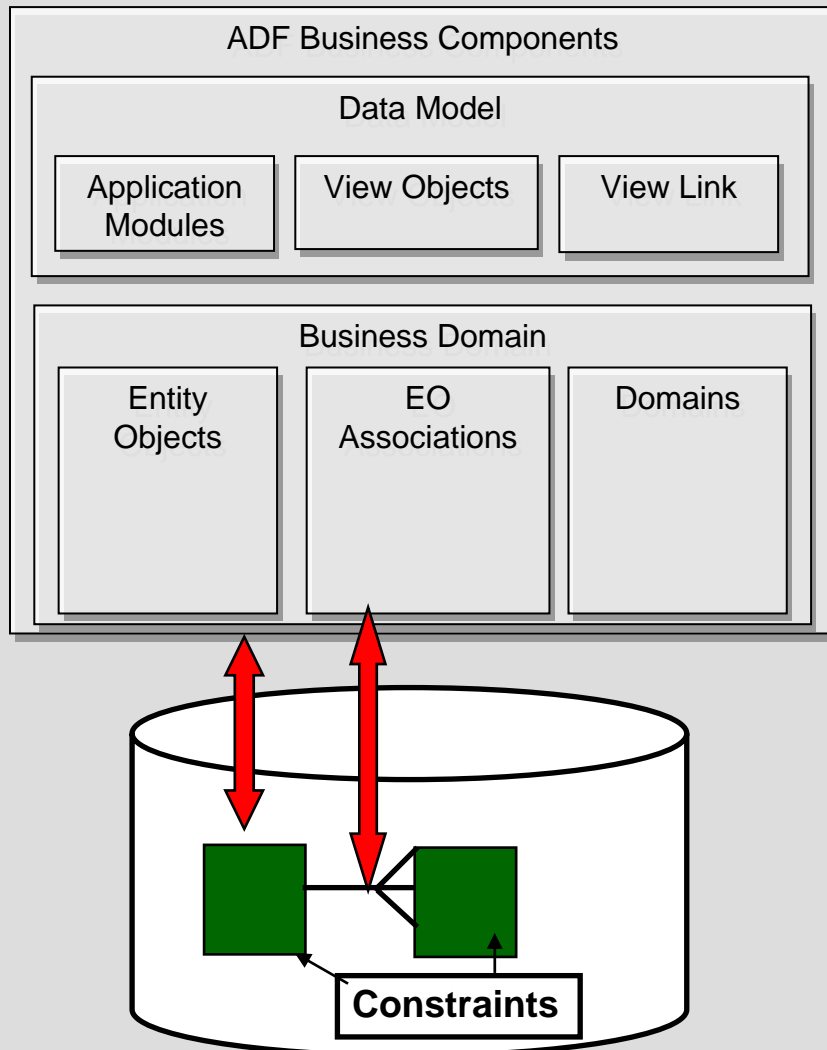
Presentation  
layer

# Where ADF Faces Fits

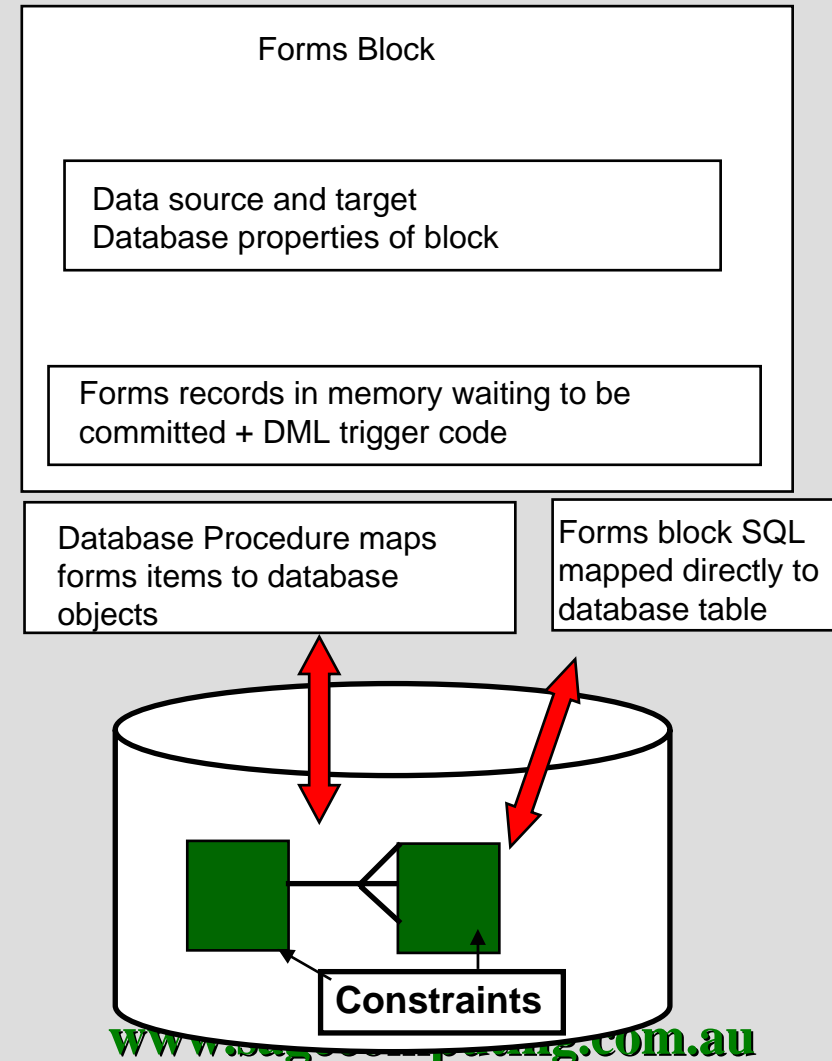


# Model/Business Services

## JDeveloper ADF

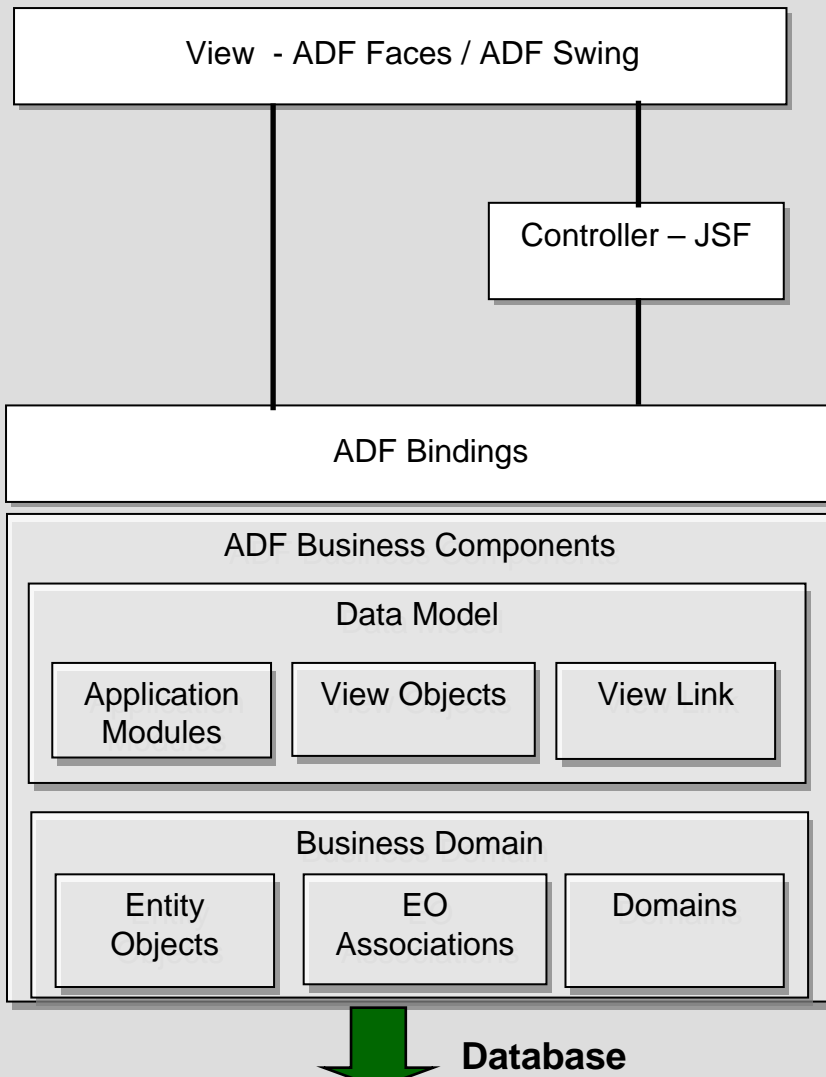


## Oracle Forms

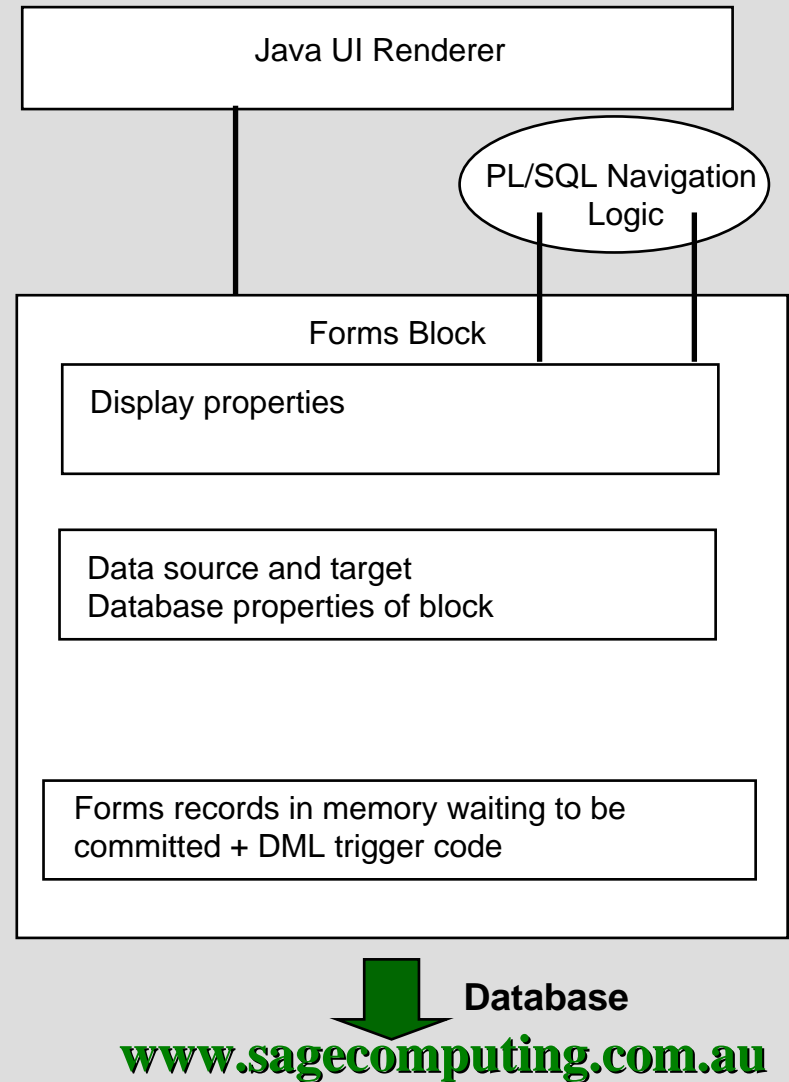


# Model View Controller

## JDeveloper ADF



## Oracle Forms







# Approaches

## Database developers

1. Develop a database schema.
2. In JDeveloper create an application workspace.
3. Create business services and model layer using for example ADF Business Components.
4. Implement view and controller layers using for example ADF Faces.
5. Test, debug and deploy the application.

## Web developers

1. Create an application workspace.
2. In the ADF Faces web-page diagrammer, define your web pages and page flow.
3. Create business services and the model layer to support the view layer.
4. Generate database schema objects based on the model layer.
5. Test, debug and deploy the application.



# ADF Business Components

- No UI specific elements
- No application flow
- Map to data
- Handle persistence
- Hooks for business rules
- UI exposed objects → data model
  - Application modules
  - View objects
  - View links
- Business domain
  - Entity objects → generally 1 to 1 with table
  - EO associations
  - Domains

# Creating Entity Objects

**Create Entity Object - Step 1 of 5: Name**

**Entity Object**

Name:

Package:

Extends Entity:

**Database Objects**

Schema Object:   
 EMPLOYEES  
 EVENTS  
 ORGANISATIONS  
 RESOURCES  
 RESOURCE\_TYPES

Database Schema:

☒ Tables ☐ Views ☐ Synonyms

To populate the database object list, select the appropriate checkboxes.

**Create Entity Object - Step 2 of 5: Attributes**

Click New to create new attributes. Click New from Table to add attributes for unmapped columns.

**Entity Attributes:**

OrgId  
 ParentOrgId  
 Name  
 Address1  
 Address2  
 Address3  
 State  
 Postcode  
 Telephone  
 Email  
 Internal

# OO?

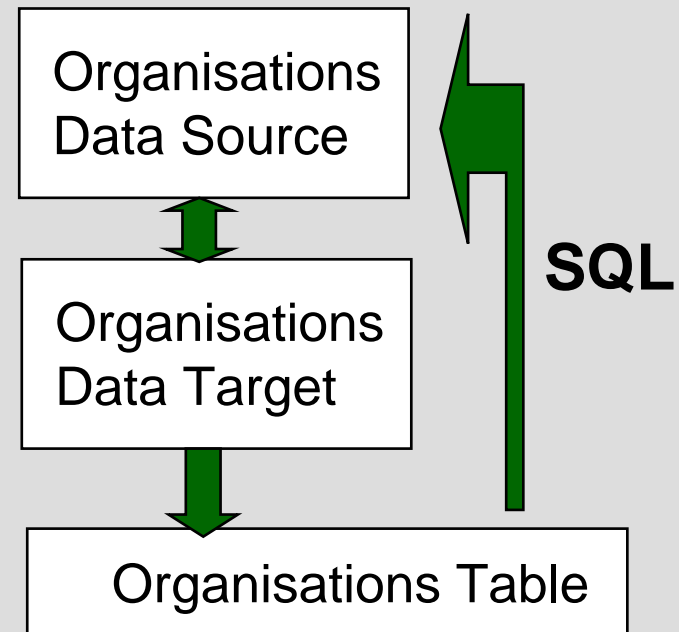
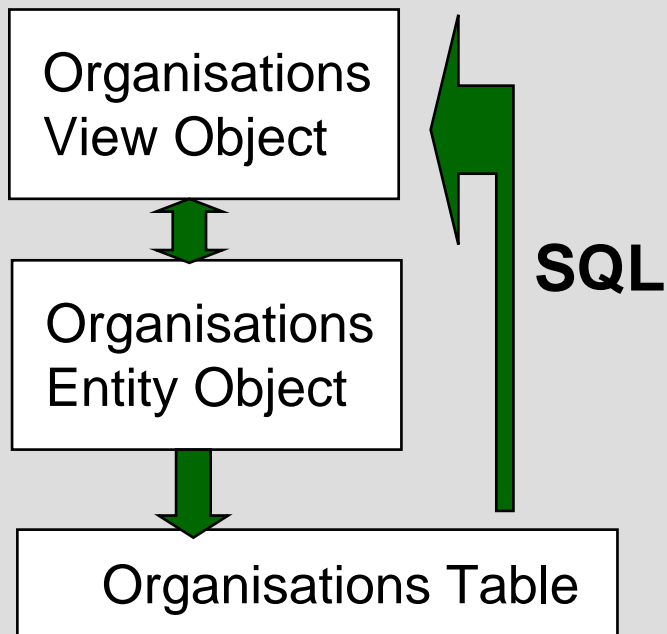


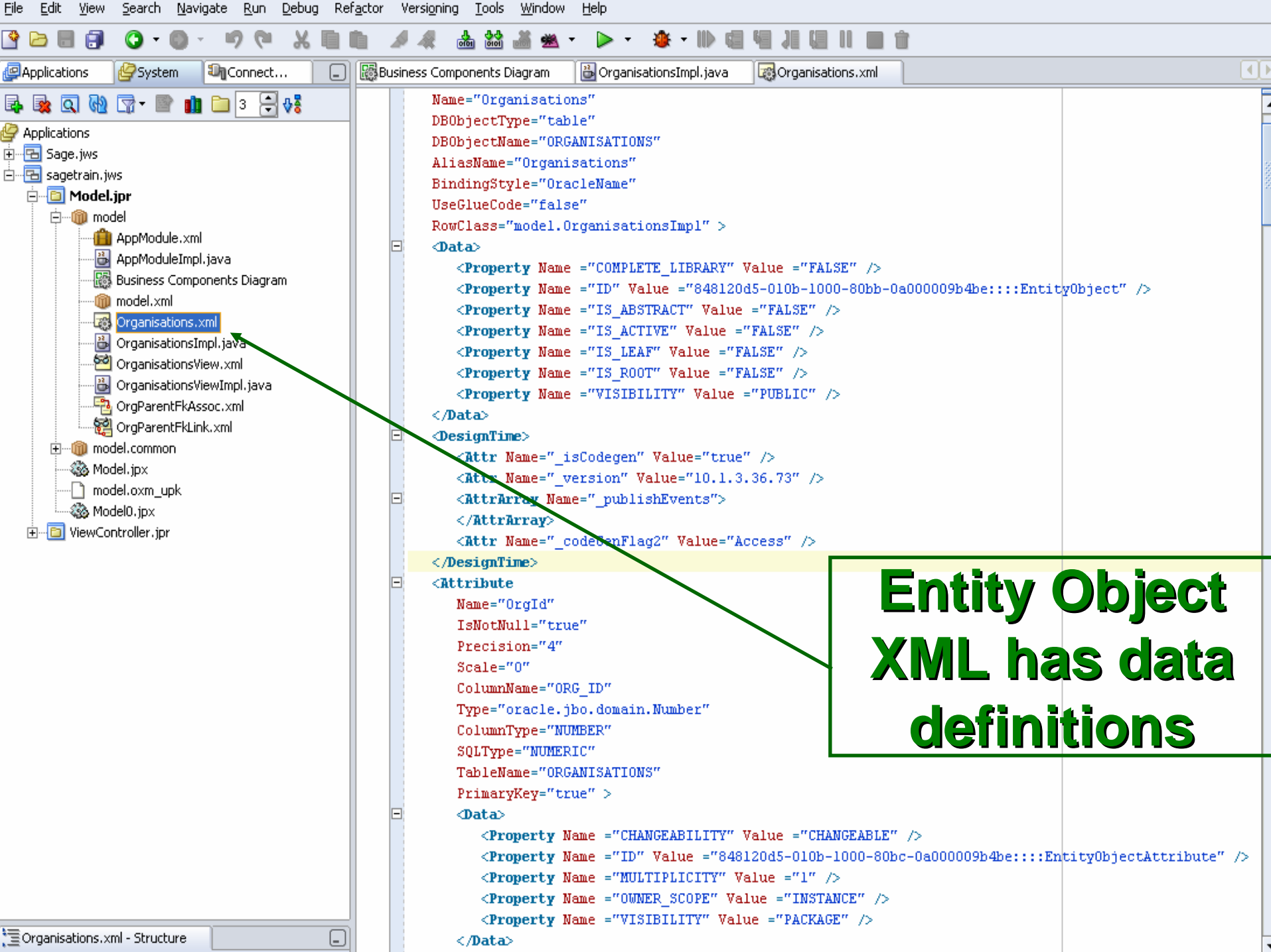
- ➡ **ADF Business Components 1 to 1 with table**
- ➡ **You could use EJB or Toplink instead**
- ➡ **Future version will allow ADF Business components based on Toplink data mapping?**

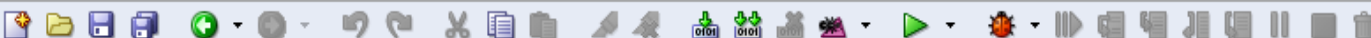
# Entity Objects / View Objects

Think of a Form with

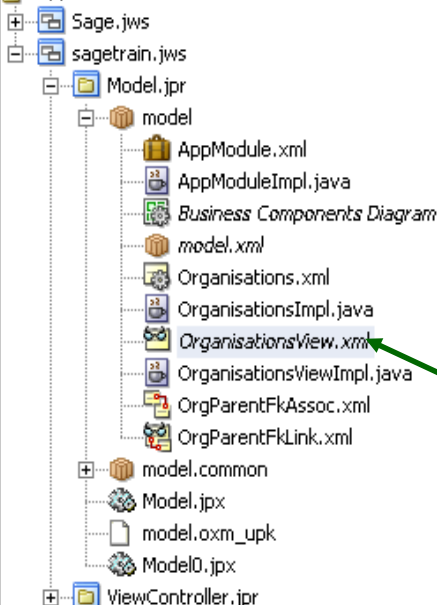
- ➡ A From clause query as its source
- ➡ A procedure/table as its data target



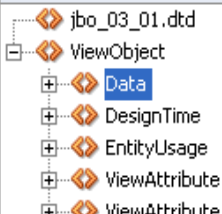




## Applications



## OrganisationsView.xml - Structure



```
<?xml version='1.0' encoding='windows-1252' ?>
<!DOCTYPE ViewObject SYSTEM "jbo_03_01.dtd">
```

## &lt;ViewObject

```
  Name="OrganisationsView"
  SelectList="Organisations.ORG_ID,
             Organisations.PARENT_ORG_ID,
             Organisations.NAME,
             Organisations.ADDRESS1
```

## View Object Editor: OrganisationsView

## Entity Objects

## Attributes

- OrgId
- ParentOrgId
- Name
- Address1
- Address2
- Address3
- State
- Postcode
- Telephone
- Email
- Internal

## SQL Statement

- Bind Variables
- Attribute Mappings
- Tuning
- Java
- Client Interface
- Client Row Interface
- Custom Properties

## SQL Statement

By default, the SELECT list and FROM clause are automatically maintained. To override this mechanism, select Expert Mode.

## Generated Statement

```
Organisations.ADDRESS1,
Organisations.ADDRESS2,
Organisations.ADDRESS3,
Organisations.STATE,
Organisations.POSTCODE,
Organisations.TELEPHONE,
Organisations.EMAIL,
Organisations.INTERNAL
FROM ORGANISATIONS Organisations
```

## Query Clauses

Where:

Edit...

Order By:

Edit...

☐ Expert Mode

Binding Style: Oracle Named

Explain Plan...

Test

Help

Apply

OK

Cancel

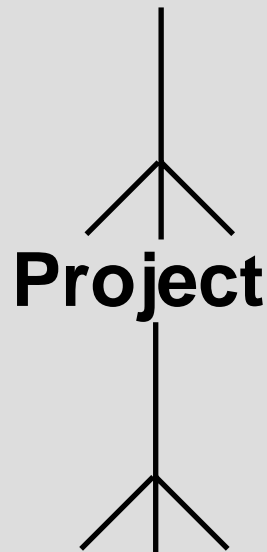
```
Entity="model.Organisations" >
```

&lt;Data&gt;

```
<Property Name ="COMPLETE_LIBRARY" Value ="FALSE" />
```

# So Many Files

## Application workspace



Entity Objects

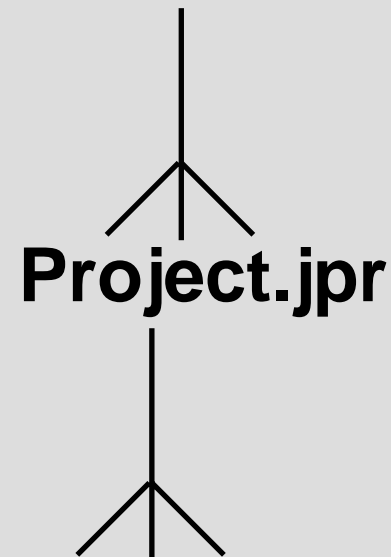
Associations

View Objects

Links

Application Module

## Workspace.jws



Organisations.xml , Organisationsimpl.java

OrgParentFkAssoc.xml

OrganisationsView.xml, OrganisationsViewImpl.java

OrgParentFkLink.xml

AppModule.xml, AppModuleImpl.java



# Oracle JDev Quotes

Your tentative steps into the J2ee world will have thrown up a whole host of strange and unfamiliar terms, "help", "I am too old for this stuff", and "What the \*\*\*\*"

# How They Work

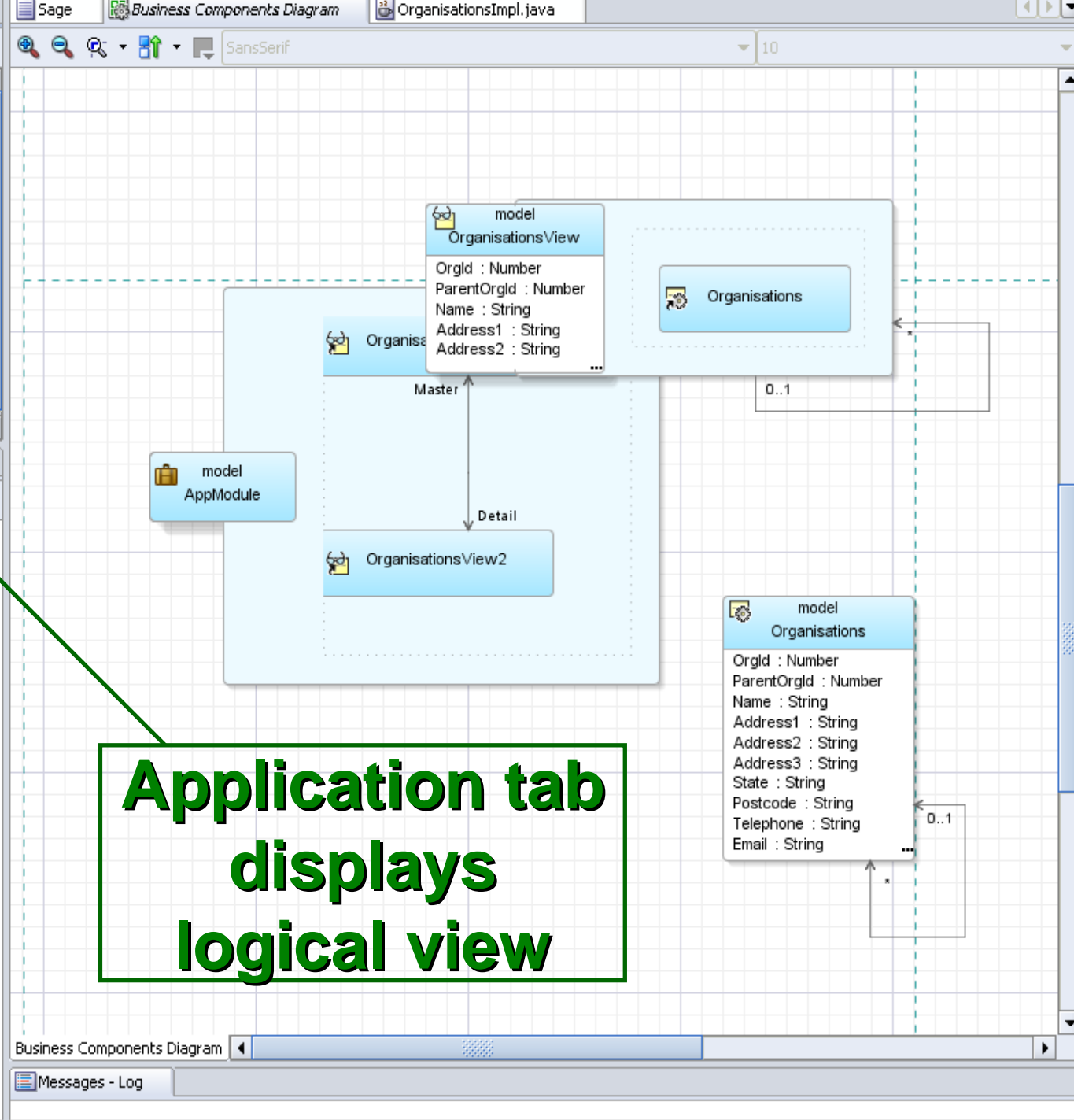
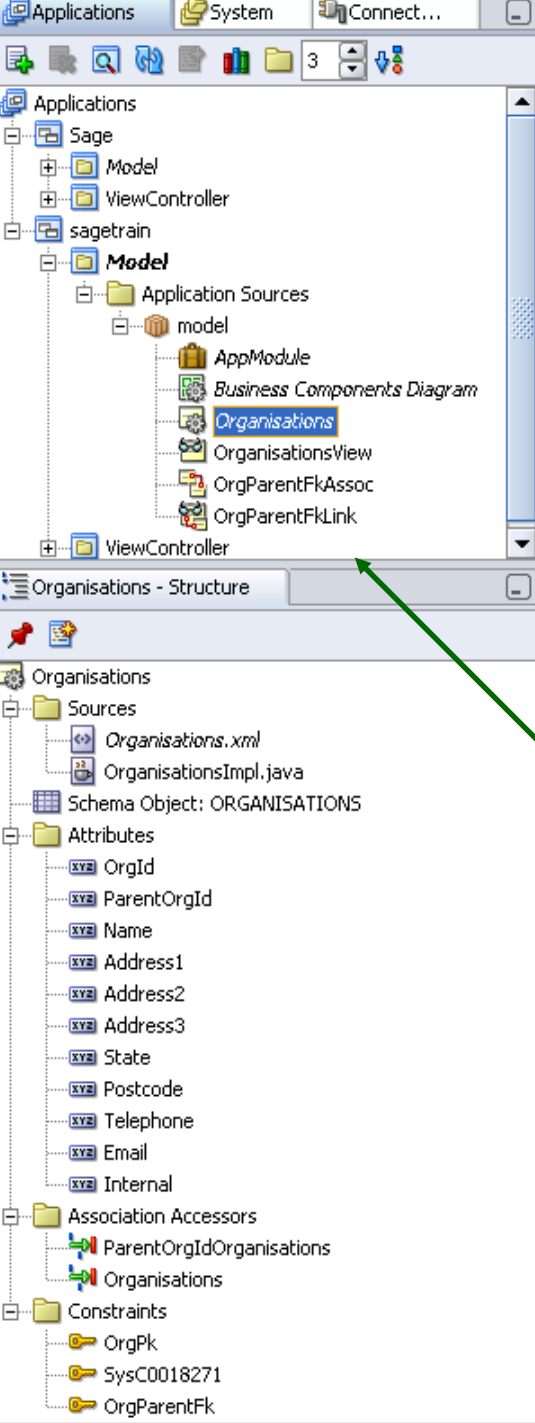
**JDeveloper**

Create and Maintain

**Definitions  
stored in  
XML files**

**Predefined  
Java classes  
access  
definitions**

**Java classes  
extend default  
classes to  
represent runtime  
instances**



Applications Sage System Connect...

Applications

- Sage.jws
- sagetrain.jws
- Model.jpr
  - model
    - AppModule.xml
    - AppModuleImpl.java
    - Business Components Diagram
    - model.xml
    - Organisations.xml
    - OrganisationsImpl.java
    - OrganisationsView.xml
    - OrganisationsViewImpl.java
    - OrgParentFkAssoc.xml
    - OrgParentFkLink.xml

OrganisationsImpl.java - S... Hierarchy

- model
  - Imports
    - OrganisationsImpl
      - extends EntityImpl
      - OrganisationsImpl()
      - createPrimaryKey(Number) : Key
      - getAddress1() : String
      - getAddress2() : String
      - getAddress3() : String
      - getAttrInvokeAccessor(int, AttributeDefImpl)
      - getDefinitionObject() : EntityDefImpl
      - getEmail() : String
      - getInternal() : String
      - getName() : String
      - getOrganisations() : RowIterator
      - getOrgId() : Number
      - getParentOrgId() : Number
      - getParentOrgIdOrganisations() : Organisations
      - getPostcode() : String
      - getState() : String
      - getTelephone() : String
      - setAddress1(String) : void

Business Components Diagram OrganisationsImpl.java

```
package model;

import ...;

// -----
// --- File generated by Oracle ADF Business Components Design Time.
// --- Custom code may be added to this class.
// --- Warning: Do not modify method signatures of generated methods.
// -----

public class OrganisationsImpl extends EntityImpl {

    public static final int ORGID = 0;
    public static final int PARENTORGID = 1;
    public static final int NAME = 2;
    public static final int ADDRESS1 = 3;
    public static final int ADDRESS2 = 4;
    public static final int ADDRESS3 = 5;
    public static final int STATE = 6;
    public static final int POSTCODE = 7;
    public static final int TELEPHONE = 8;
    public static final int EMAIL = 9;
    public static final int INTERNAL = 10;
    public static final int PARENTORGIDORGANISATIONS = 11;
    public static final int ORGANISATIONS = 12;
    private static EntityDefImpl mDefinitionObject;

    /**This is the default constructor (do not remove)
    */
    public OrganisationsImpl() {
    }

    /**Retrieves the definition object for this instance class.
    */
    public static synchronized EntityDefImpl getDefinitionObject() {
        if (mDefinitionObject == null) {
            mDefinitionObject = (EntityDefImpl)EntityDefImpl.findDefObject("model.Organisations");
        }
        return mDefinitionObject;
    }

    /**Gets the attribute value for OrgId, using the alias name OrgId
```

**System tab displays physical view**

Source Design History

# Forms Data Mapping

**Events**

Event No  EVENT\_NO Organisation  ORG\_ID  ORG\_NAME

Description  DESCRIPTION

Contact Name  CONTACT\_NAME

Start Date  START\_DATE End Date  END\_DATE Days  TION

Attendees  NUM\_ATTENDI Comments  COMMENTS

**Bookings**

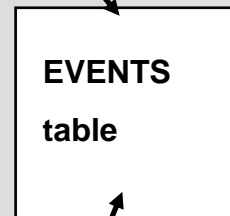
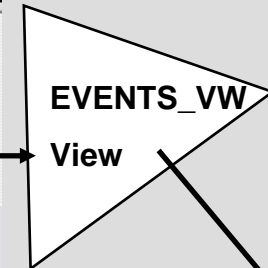
Booking No	Resource	Description	Charge	Made By	Qty	Cost	Status
BOOKING_NO	RESOURCE	RESOURCE_DESC	MADE_BY	QUANTITY	COST	STA	
BOOKING_NO	RESOURCE	RESOURCE_DESC	MADE_BY	QUANTITY	COST	STA	
BOOKING_NO	RESOURCE	RESOURCE_DESC	MADE_BY	QUANTITY	COST	STA	
BOOKING_NO	RESOURCE	RESOURCE_DESC	MADE_BY	QUANTITY	COST	STA	
BOOKING_NO	RESOURCE	RESOURCE_DESC	MADE_BY	QUANTITY	COST	STA	

COMMENTS  Edit

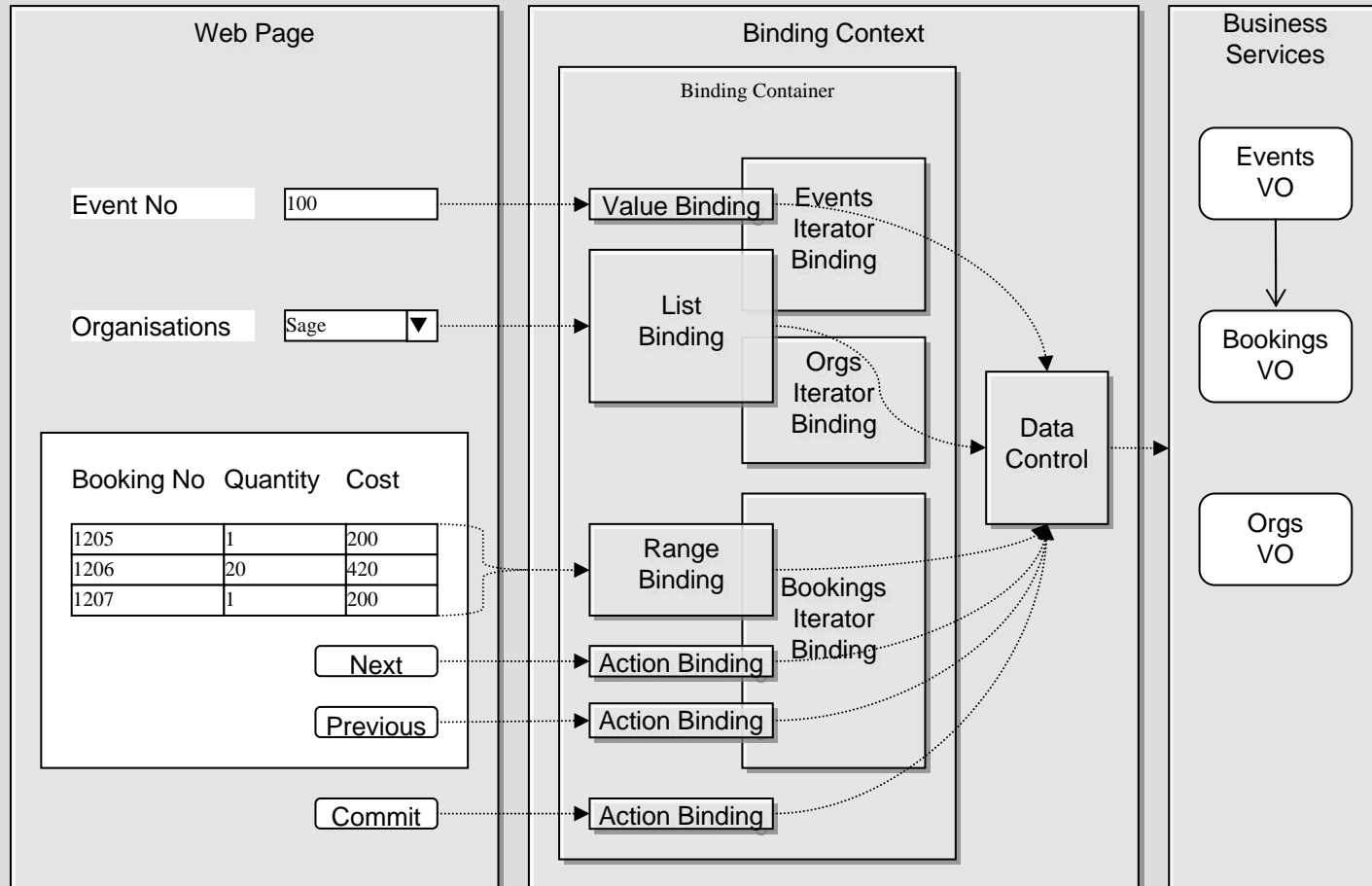
Check Resource

Data Block: EVENTS

Database	
Database Data Block	Yes
Enforce Primary Key	No
Query Allowed	Yes
Query Data Source Type	Table
Query Data Source Name	EVENTS_VW
Query Data Source Columns	
Query Data Source Arguments	
Alias	
Include REF Item	No
WHERE Clause	
ORDER BY Clause	
Optimizer Hint	
Insert Allowed	Yes
Update Allowed	Yes
Locking Mode	Automatic
Delete Allowed	Yes
Key Mode	Automatic
Update Changed Columns Only	No
Enforce Column Security	No
Maximum Query Time	0
Maximum Records Fetched	0
Advanced Database	
DML Data Target Type	Procedure
DML Data Target Name	
Insert Procedure Name	EVT_PK.EVT_INS
Insert Procedure Result Set Columns	
Insert Procedure Arguments	
Update Procedure Name	EVT_PK.EVT_UPD
Update Procedure Result Set Columns	



# Binding Layer



➡ **Provides abstraction of business service implementation**

Oracle JDeveloper 10g - train.jws : ViewController.jpr

FileEditViewSearchNavigateRunDebugRefactorVersioningToolsWindowHelp

ApplicationsSystemConne...faces-configDataBindings.cpxeventsPageDef.xml

ComponentsD...

ADPIntro1.jwsextensionsdk.jwsSage.jwsSageTrain.jwsSRDemoSample.jwsSRDemoSampleADFC.jwsTrain.jwsModel.jpviewController.jpviewDataBindings.cpxview.pageDefseventsPageDef.xmlWEB-INFWEB-INF\libWEB-INF\temp\adfevents.isv

eventsPageDef.xml - Structure

eventsPageDefparametersexecutablesEventsView1IteratorBookingsView2IteratorbindingsEventNo1OrgId1Description1ContactName1StartDate1EndDate1AttrNamesAttrNamesEndDateNumAttendees1Comments1FirstPreviousNextLastEventsView1BookingsView2

<bindings>

<attributeValues id="EventNo1" IterBinding="EventsView1Iterator">

<AttrNames>

<Item Value="EventNo"/>

</AttrNames>

</attributeValues>

<attributeValues id="OrgId1" IterBinding="EventsView1Iterator">

<AttrNames>

<Item Value="OrgId"/>

</AttrNames>

</attributeValues>

<attributeValues id="Description1" IterBinding="EventsView1Iterator">

<AttrNames>

<Item Value="Description"/>

</AttrNames>

</attributeValues>

<attributeValues id="ContactName1" IterBinding="EventsView1Iterator">

<AttrNames>

<Item Value="ContactName"/>

</AttrNames>

</attributeValues>

<attributeValues id="StartDate1" IterBinding="EventsView1Iterator">

<AttrNames>

<Item Value="StartDate"/>

</AttrNames>

</attributeValues>

<attributeValues id="EndDate1" IterBinding="EventsView1Iterator">

<AttrNames>

<Item Value="EndDate"/>

</AttrNames>

</attributeValues>

<attributeValues id="NumAttendees1" IterBinding="EventsView1Iterator">

<AttrNames>

<Item Value="NumAttendees"/>

</AttrNames>

</attributeValues>

<attributeValues id="Comments1" IterBinding="EventsView1Iterator">

<AttrNames>

eventsPageDef.xml - P...

displayWarningsFlagTrueloadEncodingUTF-8saveEncodingUTF-8

displayWarningsFlag

SourceHistory

Running: Embedded OC4J Server - Log

MessagesRunning: Embedded OC4J Server

C:\jdeveloper\workspaces\train\viewController\src\view\pageDefs\eventsPageDef.xml

Xml Editing





# ADF Faces

- Implementation of the JSF specification
- Standard look and feel UI components, suited for database data representation, such as date pickers, advanced tables and colour
- Client side validators and converters
- Accessibility and multilingual support
- Efficient implementation of client-side state saving, reducing per-component state saving size
- Partial Page Rendering (PPR)
- Extended Faces tags
- Different render kits to display on mobile phones, PDAs, and telnet clients
- Integrates with the ADF Model Layer



# Component Tree

```

untitled1.jspx
<?xml version='1.0' encoding='windows-1252'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.0"
  xmlns:h="http://java.sun.com/jsf/html"
  xmlns:f="http://java.sun.com/jsf/core"
  xmlns:af="http://xmlns.oracle.com/adf/faces"
  xmlns:afh="http://xmlns.oracle.com/adf/faces/html">
  <jsp:output omit-xml-declaration="true" doctype-root-element="HTML"
    doctype-system="http://www.w3.org/TR/html4/loose.dtd"
    doctype-public="-//W3C//DTD HTML 4.01 Transitional//EN"/>
  <jsp:directive.page contentType="text/html; charset=windows-1252"/>
  <f:view>
    <afh:html>
      <afh:head title="Edit Events">
        <meta http-equiv="Content-Type"
          content="text/html; charset=windows-1252"/>
      </afh:head>
      <afh:body>
        <af:messages/>
        <h:form>
          <af:panelForm>
            <af:inputText value="#{bindings.EventNo.inputValue}"
              label="#{bindings.EventNo.label}"
              required="#{bindings.EventNo.mandatory}"
              columns="#{bindings.EventNo.displayWidth}">
              <af:validator binding="#{bindings.EventNo.validator}"/>
              <f:convertNumber groupingUsed="false"
                pattern="#{bindings.EventNo.format}"/>
            </af:inputText>
            <af:inputText value="#{bindings.OrgId.inputValue}"
              label="#{bindings.OrgId.label}"
              required="#{bindings.OrgId.mandatory}"
              columns="#{bindings.OrgId.displayWidth}">
              <af:validator binding="#{bindings.OrgId.validator}"/>
              <f:convertNumber groupingUsed="false"
                pattern="#{bindings.OrgId.format}"/>
            </af:inputText>
            <af:inputText value="#{bindings.Description.inputValue}"
              label="#{bindings.Description.label}"
              required="#{bindings.Description.mandatory}"
  
```



# Graphical Interface

The screenshot displays the SAGE graphical interface for designing a web form. The main workspace shows a form titled "Messages" with several input fields and buttons. The form is designed using a visual editor with a toolbar at the top and a component palette on the right.

**Form Fields and Bindings:**

Field Label	Binding
EventNo	<code>{bindings.EventNo.inputValue}</code>
OrgId	<code>{bindings.OrgId.inputValue}</code>
Description	<code>{bindings.Description.inputValue}</code>
ContactName	<code>{bindings.ContactName.inputValue}</code>
StartDate	<code>{bindings.StartDate.inputValue}</code>
EndDate	<code>{bindings.EndDate.inputValue}</code>
NumAttendees	<code>{bindings.NumAttendees.inputValue}</code>
Comments	<code>{bindings.Comments.inputValue}</code>

Buttons: First, Previous, Next, Last

**Component Palette (Right):**

- AppModuleDataControl
  - OrganisationsView1
    - OrgId
    - ParentOrgId
    - Name
    - Address1
    - Address2
    - Address3
    - State
    - Postcode
    - Telephone
    - Email
    - Internal
  - OrganisationsView2
  - Operations
- EventsView1
  - EventNo
  - OrgId
  - Description
  - ContactName
  - StartDate
  - EndDate
  - NumAttendees

**Structure View (Bottom Left):**

```
<af:head - Edit Events>  
  <meta - text/html; charset=win...>  
  <af:body>  
    <af:messages>  
      <h:form>  
        <af:panelForm>  
          <af:inputText - #{bindings.EventNo.label}>  
            <af:validator>  
              <f:convertNumber>  
            </af:validator>  
          </af:inputText>  
          <af:inputText - #{bindings.OrgId.label}>  
          <af:inputText - #{bindings.Description...}>  
          <af:inputText - #{bindings.ContactName...}>  
          <af:selectInputDate - #{bindings.StartDate...}>  
          <af:selectInputDate - #{bindings.EndDate...}>  
        </af:panelForm>  
      </h:form>  
    </af:messages>  
  </af:body>  
</af:head>
```

**Source View (Bottom):**

```
<jsp:root> <f:view> <af:html> <af:body> <h:form> <af:panelForm> <af:inputtext>
```



# Component Palette

File Edit View Search Navigate Run Debug Design Refactor Versigning Tools Window Help

untitled1.jspx

None Default None

Messages

# {bindings.EventNo.label}	# {bindings.EventNo.inputValue}
# {bindings.OrgId.label}	# {bindings.OrgId.inputValue}
# {bindings.Description.label}	# {bindings.Description.inputValue}
# {bindings.ContactName.label}	# {bindings.ContactName.inputValue}
# {bindings.StartDate.label}	<input type="text"/>
# {bindings.EndDate.label}	<input type="text"/>
# {bindings.NumAttendees.label}	# {bindings.NumAttendees.inputValue}
# {bindings.Comments.label}	# {bindings.Comments.inputValue}

First Previous Next Last

h:form

<jsp:root> <f:view> <afh:html> <afh:body> <h:form> <af:panelForm>

Design Source History

Messages - Log

Component Palette

Data Control Palette

JSF HTML

- Pointer
- Checkbox
- Column
- Command Button
- Command Hyperlink
- Data Table
- Form
- Graphic Image
- Input Hidden
- Input Secret
- Input Text
- Input Textarea
- Listbox
- Menu
- Message
- Messages
- Multi-Select Checkbox

PanelForm - Property Inspector

General

FieldWidth	
LabelWidth	
MaxColumns	
Rows	
Width	
AttributeChangeList...	
Binding	
Id	
PartialTriggers	

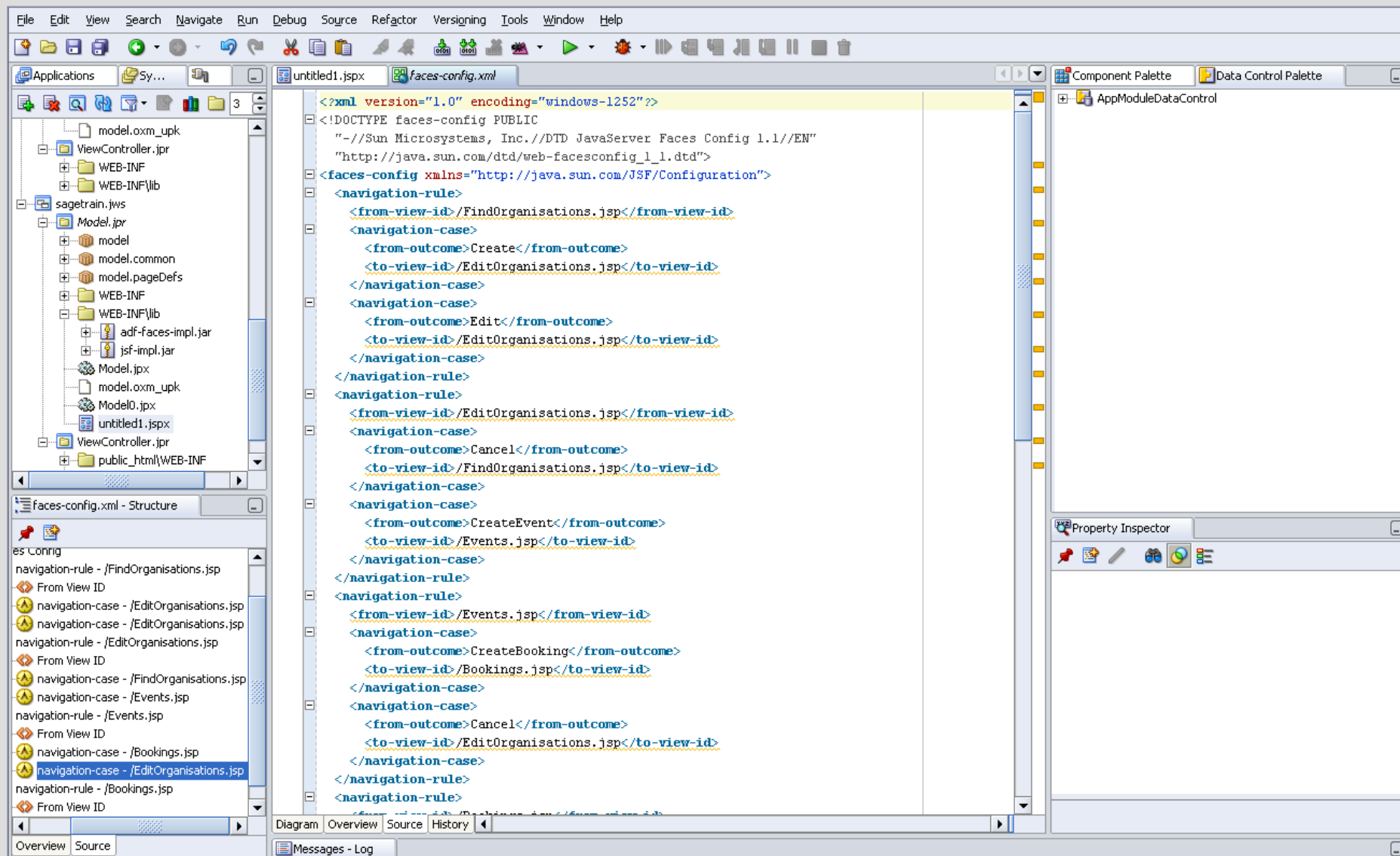
Core

- InlineStyle

Go to Page Definition

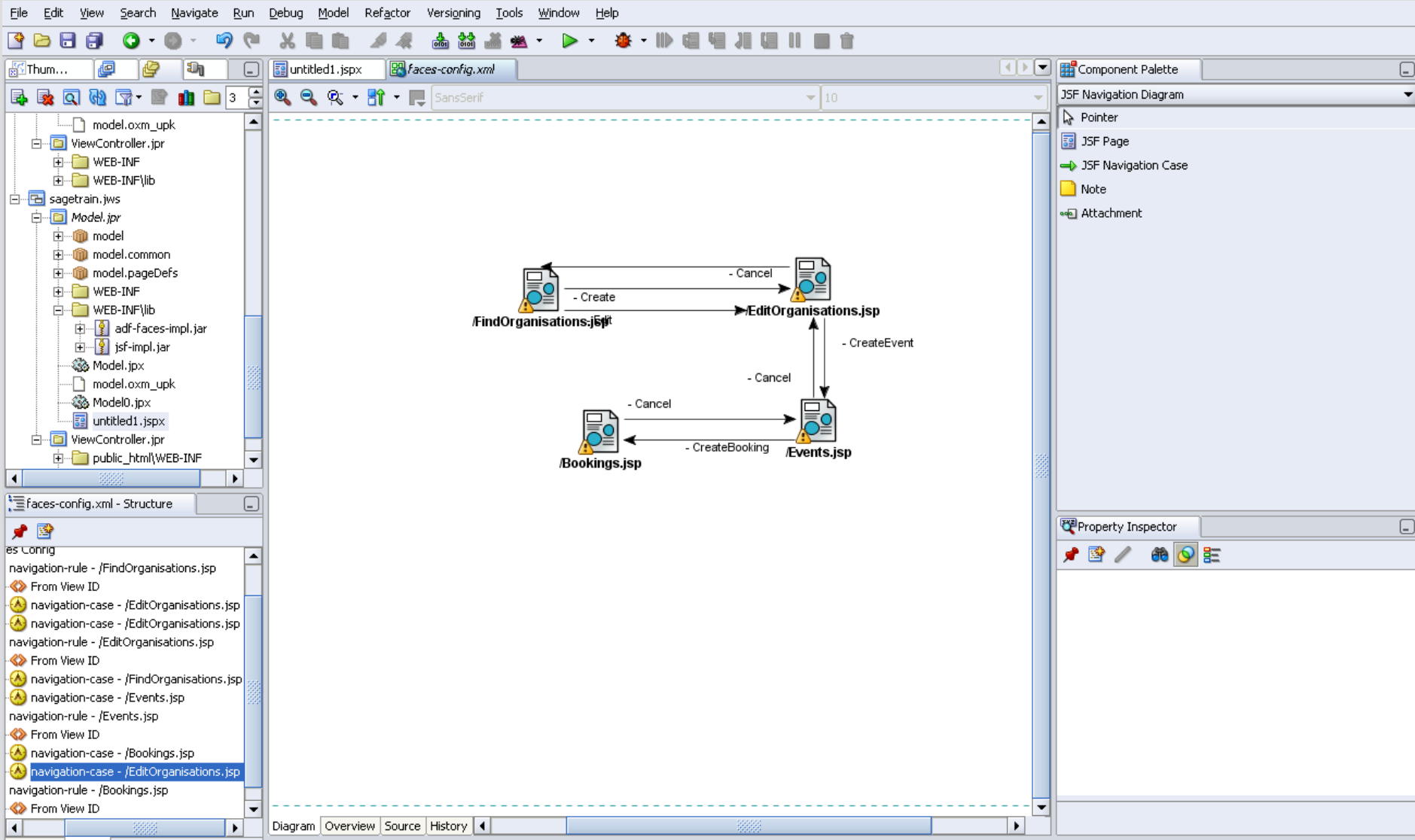
af:panelForm

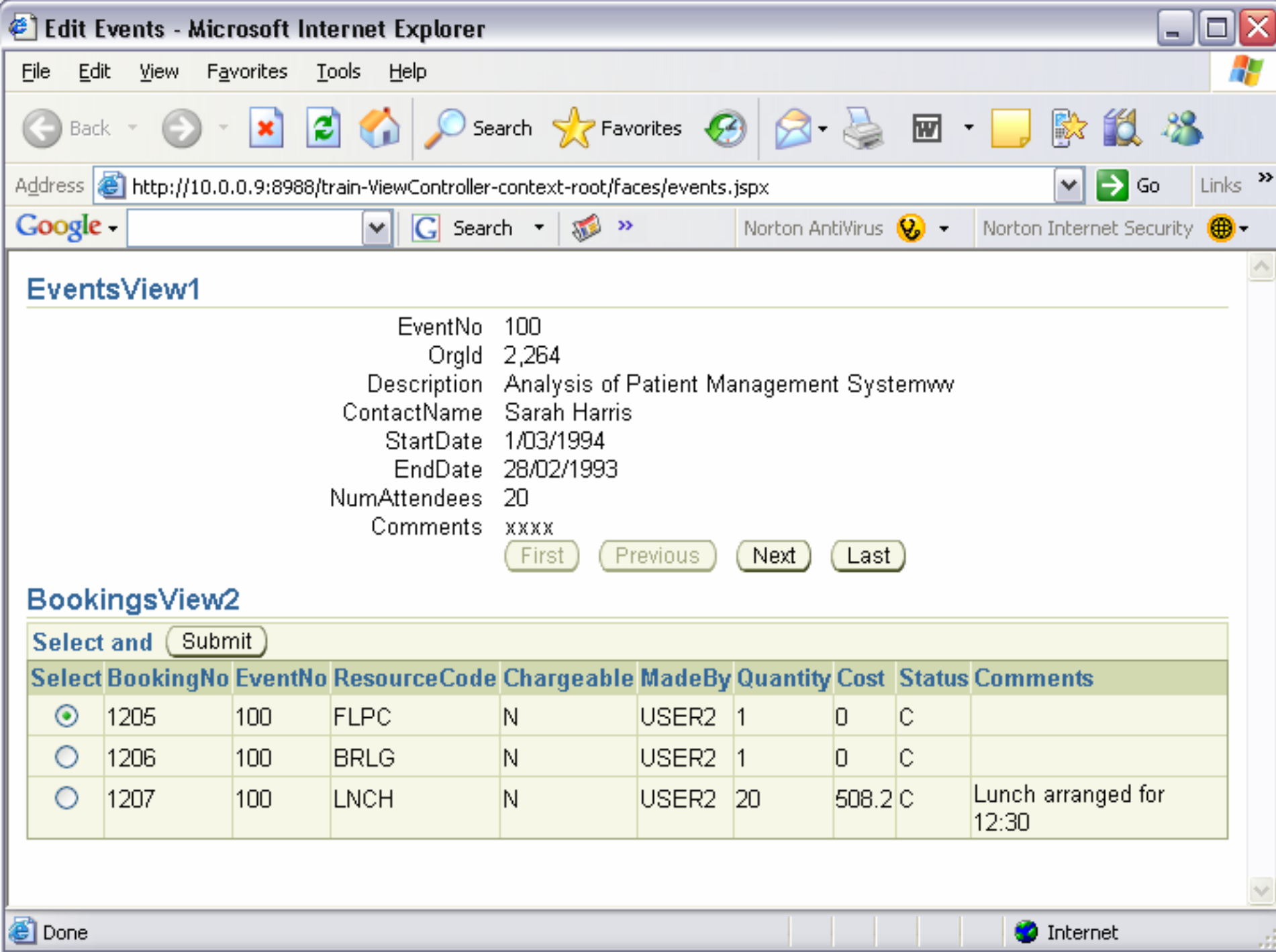
- af:inputText - #{bindings.EventNo.la
- af:validator
- f:convertNumber
- af:inputText - #{bindings.OrgId.label
- af:inputText - #{bindings.Description
- af:inputText - #{bindings.ContactNar
- af:selectInputDate - #{bindings.Start
- af:selectInputDate - #{bindings.End
- af:inputText - #{bindings.NumAttend
- af:inputText - #{bindings.Comments.
- PanelForm facets
- footer
- af:panelButtonBar
- af:commandButton - First





# Controller





# Oracle JDev Quotes

Oracle Developer supports every phase of the development lifecycle including overconfidence, modeling, coding, debugging, testing, panicking, tuning, allocating blame, deploying, and distancing yourself from the whole thing



# Thank You For Your Attention

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**[www.sagecomputing.com.au](http://www.sagecomputing.com.au)**