



Oracle JDeveloper/Oracle ADF 11g Production Project Experience

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Outline

- Project Reference
- Sample Development Time Estimation
- Development Best Practices
- Quality Extension
- Team Development
- Lessons Learned
- Contacts

Project Reference - MedNeXt



- *"Oracle ADF 11g was the natural choice for us and we believe that it will help us upgrade our technology platform too while maintaining most of the rich UI features of Oracle Forms."*

- Gerry Raftopoulos, General Manager, MedNet International Ltd.



Oracle Develop, Oracle OpenWorld 2009

The Oracle ACE logo, featuring the text "Oracle ACE" in a white, sans-serif font, with "Oracle" in a smaller font size than "ACE", all on a black rectangular background.

Project Reference - MedNeXt

ORACLE

TECHNOLOGY NETWORK

PRODUCTS

Database
Middleware
Developer Tools
Enterprise Management
Applications Technology
Products A-Z

TECHNOLOGIES

BI & Data Warehousing
Embedded
Java
Linux
.NET
PHP
Security
Technologies A-Z

ARCHITECTURE

shortcuts

GETTING STARTED

DOWNLOAD

Customer Success Stories



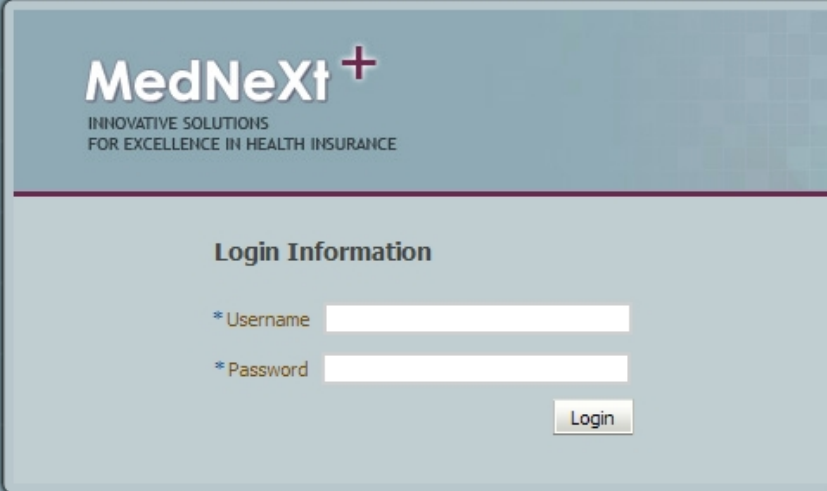
Project Reference - MedNeXt

- Oracle JDeveloper / Oracle ADF 11g R1
 - ADF Faces Rich Client
 - ADF Task Flows
 - ADF Business Components
- Oracle WebLogic Server 11g R1
- Oracle Application Server 10g R2
- Oracle Reports 10g R2
- Oracle RDBMS 10g R2

Project Reference - MedNeXt

- Project Manager
- Technical Manager
- Technical Consultant
- 16 Oracle ADF Developers
- 200 Forms to develop
- 27 Logical Modules developed already
- 2600 ADF Business Components elements developed already
- 300 Java classes developed already
- 240 Web Pages developed already

Project Reference - MedNeXt



MedNeXt+
INNOVATIVE SOLUTIONS
FOR EXCELLENCE IN HEALTH INSURANCE

Login Information

* Username

* Password

Login

Project Reference - MedNeXt

The screenshot displays the MedNeXt web application interface. At the top left, the logo "MedNeXt+" is shown with the tagline "INNOVATIVE SOLUTIONS FOR EXCELLENCE IN HEALTH INSURANCE". Below the logo, a welcome message reads "Welcome 'John Doe'" and a "Logout" button is positioned in the top right corner. The main content area is organized into four vertical menu columns: "Policy", "Care", "Claims", and "Customer".

- Policy**: Policy Query, Member Query
- Care**: Case, Hospitalisation, Outpatient, Authorisation
- Claims**: Local Invoice Maintenance (dropdown), Allowance Maintenance, Recovery Invoice, Claim Maintenance, Close Claim, Claim Query, InvoiceQuery, InvoiceReview, Claim Report, Claim Information Export, Claim Reserve Report, Pending Event Resolution
- Customer**: Issue Maintenance, Issue Query, Event Query

MedNeXt - Authorisation

MedNeXt+
INNOVATIVE SOLUTIONS
FOR EXCELLENCE IN HEALTH INSURANCE

Action ▾ Information ▾

Apply Undo Estimate Cost As Institutional Invoice Estimate Cost As Professional Invoice Create Local Institutional

Authorisation

Authorisation Nbr 192533 Search Authorisation Status Description Αναμονή

Entry Notification Notes

Authorisation

Incident Nbr 1 Hospitalisation Case Nbr 1 Effective Date 15

Insured Member 182 ΚΩΝ/ΝΟΣ Δ ΤΣΕΚΟΥΡΑΣ Expiry Date 15

Policy Number 136 ΚΩΝ/ΝΟΣ Δ.ΤΣΕΚΟΥΡΑΣ Claim Characteristic

Audit Nbr External Reference Authorisation Type

Issue Date 23/9/2009 Effective Date Expiry Date Category

Incident Diagnoses

View ▾ Insert Delete Detach

Diagnosis Type	Diagnosis	Diagnosis Description	Date	Diagnosis Q
ICD9	608	ΑΛΛΕΣ ΑΝΩΜΑΛΙΕΣ ΤΩΝ ΑΝΔΡΙΚΩΝ ΓΕ...		PRDIAG

Diagnosis

View ▾ Insert Delete Detach

Diagnosis Type	Diagnosis	Diagnosis Description	Diagnosis Date	Diagnosis Q
No rows yet.				

Apply Undo

Authorisation

Authorisation Criteria

Search Criteria Advanced Saved Search ATHAuthorisationCriteria ▾

Match All Any

Authorisation Nbr

Incident Nbr

Insured Member

Policy Number


Search Reset Save...

View ▾ Detach

Authorisation Nbr	Authorisation Status Description	Requester Provider	Requester Provider Name	Issue Date
192549	Αναμονή	C1187	ΑΘΛΟΚΛΙΝΙΚΗ (Ο...	23/9/2009
192542	Αναμονή	C1076	ΟΦΘΑΛΜΟΛΟΓΙΚ...	23/9/2009
192533	Αναμονή	H4	ΥΓΕΙΑ ΘΕΡΑΠΕΥΤΙ...	23/9/2009
192523	Ύρνηση	H25	ΑΓΛΑΙΑ ΚΥΡΙΑΚΟΥ...	22/9/2009
192521	Ύρνηση	H9	ΚΛΙΝΙΚΗ ΛΕΥΚΟΣ ...	21/7/2009
192520	Έγκριση	H4	ΥΓΕΙΑ ΘΕΡΑΠΕΥΤΙ...	21/7/2009
192519	Ύρνηση	H170	ΚΕΝΤΡΙΚΗ ΚΛΙΝΙΚ...	21/7/2009
192518	Έγκριση	H4	ΥΓΕΙΑ ΘΕΡΑΠΕΥΤΙ...	21/7/2009
192517	Ύρνηση	H4	ΥΓΕΙΑ ΘΕΡΑΠΕΥΤΙ...	21/7/2009
192516	Έγκριση	H4	ΥΓΕΙΑ ΘΕΡΑΠΕΥΤΙ...	21/7/2009
192515	Ύρνηση	H753	ΝΟΣΟΚΟΜΕΙΟ ΜΕ...	21/7/2009
192514	Έγκριση	H4	ΥΓΕΙΑ ΘΕΡΑΠΕΥΤΙ...	21/7/2009
192513	Έγκριση	H4	ΥΓΕΙΑ ΘΕΡΑΠΕΥΤΙ...	21/7/2009
192512	Έγκριση	H753	ΝΟΣΟΚΟΜΕΙΟ ΜΕ...	21/7/2009

OK

MedNeXt - Authorisation



Action ▾ Information ▾

Apply Undo Estimate Cost As Institutional Invoice Estimate Cost As Professional Invoice Create Local Institutional Pre Invoice Create Local Professional Pre Invoice Attach Claims... Print Accepted Authorisation Print R

Authorisation
Insert Delete Decision First Previous Next Last

Authorisation Nbr 192533
Authorisation Status Description Ανομνή
Pre Invoice

Entry
Notification
Notes

Authorisation

Incident Nbr Hospitalisation

Insured Member ΚΩΝ/ΝΟΣ Δ ΤΣΕΚΟΥΡΑΣ

Policy Number ΚΩΝ/ΝΟΣ Δ.ΤΣΕΚΟΥΡΑΣ

Audit Nbr

Issue Date Effective Date

Case Nbr

Expiry Date

Claim Characteristic

External Reference

Expiry Date

Category

Effective Date

Deletion Date

* Requester Provider ΥΓΕΙΑ ΘΕΡ...

Submission Date

Place Of Service

Insurance Company

Incident Diagnoses

Diagnosis


Procedures

View ▾
Insert Delete Detach

Procedure Type	Procedure	Procedure Description	Procedure Date	Claimed Quantity	Claimed Quantity Qualifier	Author. Qty	Authorized Quantity Qualifier	Requested Amount	Max Amount Authorised	User Estim. Cost	System Estim. Cost	Status
GENPL	1070180	ΟΣΦΥΙΚΟΣ ΣΥΜΠΛ...	23/9/2009	1	D	1	D	1,00	1,00	1,00		A


Service Nbr ΕΞΟΔΑ ΑΠΟΚΛΕΙΣ...
Internal Notes
Report Notes

Apply Undo



ORACLE ACE DIRECTOR

Oracle Develop, Oracle OpenWorld 2009



MedNeXt - Incident

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FOR EXCELLENCE IN HEALTH INSURANCE

Action ▾ Information ▾

Apply Undo Create Authorisation... View Attach Claims... Print Announcement Letter Print Hospitalisation Information Exit Sales Entity...

Hospitalisation Insert Delete First Previous Next Last

Hospitalisation Nbr 298301 Search

* Case Nbr 221689 Incident Status O OPEN Effective Date 23/12/1994

Insured Member 309157 ΧΡΗΣΤΟΣ Ν ΖΥΓΟΥΡΗΣ Category ONG ΟΓΚΟΛΟΓΙΚΟ Expiry Date 31/12/2099

Policy Number 762248 ING Pool Policy Insurance Company 46 I.N.G. E.A.A.E.Z. Deletion Date

Hospitalisation Procedures Notes

Provider Code H30 ΕΛΠΙΣ ΝΟΜΑΡΧΙΑΚΟ ΓΕΝΙΚΟ ΝΟΣ.ΑΘΗΝΩΝ

Notifying Information

Notified Date 16/7/2009 Time 15:23

Notification Method IR Αποστολή Τιμολογίου Απόδειξης

Notifying Person IC Ασφαλιστική Εταιρία

Notified Person's Name

Admission Information

Admission Date 27/5/2009 Time

Type

Source

Admission Health Condition

Patient Status

Class C External Reference 2255209

Discharge Information

Discharge Date 5/6/2009 Time

Discharge Health Condition

Patient Status

Stay Information

Overnight Stay Estimated LOS 9

Estimated Cost 4.002,00 Actual LOS 9

Associated Providers

Diagnosis

View ▾ Insert Delete Detach

Diagnosis Type	Diagnosis	Diagnosis Description	Date	Diagnosis Qualifier	Print
ICD10	C68.9	ΚΑΚΟΗΘΗ ΝΕΟΠΛΑΣΜΑΤΑ ΔΙΑΦΟΡΩ...	27/5/2009	PRDIAG	<input checked="" type="checkbox"/>

Internal Notes

Report Notes

Apply Undo

MedNeXt - Claim

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FOR EXCELLENCE IN HEALTH INSURANCE

Action ▾ Information ▾

Apply Undo Attach Cases... Exit Invoices... Reserve Transactions... Decision Information Log...

Claim Insert Delete Decision First Previous Next Last

Claim Nbr 75747 Claim Status Open Insurance Company 47 ING A.E. Ομ. & Ατομ. Ασφ. Ζωής

Insured Member 995399 ΝΙΚΟΛΑΟΣ-ΑΛΚΙΝΟ ΝΤΑΟΥΛΤΖΗΣ-ΤΑΜΠΑΚΑΚΗΣ Effective Date 1/5/2009

Policy Number 1038541 ΕΚΠΑΙΔΕΥΤΗΡΙΑ ΔΟΥΚΑ Α.Ε. Expiry Date 1/5/2010 Cancellation Date

Claim Reserves Notes

Occurrence Date 22/6/2009 Claim External Reference

Claim Type 02 Out Patient Claim Form Ref

Notifying Information

Notification Method IR Invoice Receipt Notified Date 21/7/2009 Notified Time 00:00

Notifying Person AG Agent Notified Person's Name

Amount Information

Reserve	40,00	Reported Invoices	Paid Invoices
---------	-------	-------------------	---------------

Creation User 177 Πλακούτσας Γεώργιος Creation Date 21/7/2009 Creation Time 15:14

Last Modification User 177 Πλακούτσας Γεώργιος Last Modification Date 21/7/2009 Last Modification Time 15:14

Apply Undo

MedNeXt - Invoice

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FOR EXCELLENCE IN HEALTH INSURANCE

Action ▾ Information ▾

Apply Undo Create As Previous Suspend Invoice... Set Invoice Criteria... Bypass Invoice Transactions... View Negative Invoice... View New Invoice... Exit Invoice Documents... Invoice Providers... Exchange

Invoice Invoice Insert Delete Compute First Previous Next Last

Invoice Nbr 502466 Search Invoice Status REPORTED OFFICIALLY Disposition Date/User 21/7/2009 00:00 138 Σίδερη Διονυσία

Entry Review **View Detail** Adjustment Diagnosis Notes

Invoice Line Info

View ▾ Detach

Date Of Service	Service Nbr	Service Description
23/4/2009	4511	ΔΑΠΑΝΕΣ ΝΟΣΗΛΕΙΑΣ
23/4/2009	4511	ΔΑΠΑΝΕΣ ΝΟΣΗΛΕΙΑΣ
23/4/2009	4511	ΔΑΠΑΝΕΣ ΝΟΣΗΛΕΙΑΣ
23/4/2009	4511	ΔΑΠΑΝΕΣ ΝΟΣΗΛΕΙΑΣ
25/4/2009	4511	ΔΑΠΑΝΕΣ ΝΟΣΗΛΕΙΑΣ
25/4/2009	4511	ΔΑΠΑΝΕΣ ΝΟΣΗΛΕΙΑΣ

Network 1 NETWORK

Territory 1 ΕΛΛΑΔΑ

Claim Characteristic 0 ΚΑΝΟΝΙΚΟ ΠΕΡΙΣΤΑΤΙΚΟ

Invoice Amounts

Provider Cost	158,71
Social Security Part	
Invoice Amount	158,71
Approved Cost	158,71
Insured Amount	0,00
Insurer Amount	158,71

Contract Details

Prv. Contract Nbr

Contract Number

Service Category


Rate Methodology

Rate Meth. Type

Invoice Line Transactions per Rule Type

Apply Undo

MedNeXt – Claims Query



Action ▾

View Exit

Claims Query Criteria

Search
Advanced | Saved Search Claim Query Criteria ▾

* Required

Match All Any

* Insurance Company 🔍

Claim Status ▾

Policy Number 🔍

Claim Type 🔍

Product 🔍

Package 🔍

Occurrence Date - 📅

* As On Date 📅

Days Diff. - ▾

Remaining Reserve on Reported Invoices Diff % - ▾

Remaining Reserve on Paid Invoices Diff % - ▾

Claims

View ▾ View Detach

Claim Nbr	Claim External Reference	Occurrence Date	Policy Number	Insured Member	Insured Member Name	Days Diff.	Reserve	Reported Invoices		Paid Invoices	
								Reported Invoices Amount	Remaining Reserve on Reported Invoices Diff %	Paid Invoices Amount	Remaining Reserve on Paid Invoices Diff %
47159	932003.004	5/2/1993	1437	1890	ΒΛΑΣΗΣ Χ ΓΑΛΑΝΗΣ	0		-161,64		-161,64	
12963	292000.002	6/2/1993	1403	1877	ΕΠΑΜΕΙΝΩΝΔΑΣ Π...	4		-1.812,59		-1.812,59	
12969	292000.003	18/2/1993	1756	2299	ΑΛΕΞΑΝΔΡΟΣ Α Ζ...	3		-459,05		-459,05	
12958	292000.001	18/2/1993	1756	2299	ΑΛΦΑΝΑΡΟΣ Α Ζ...	0		-24,06		-24,06	
Totals								-1.999.654,91		-1.999.654,91	

Claim Status Description Closed Claim Type Description Out Patient Last Invoice Date 5/2/1993

Sample Development Time Estimation

- Form name – **Event Query**

- Estimated time: **77** hours
- Actual development time: **111** hours

- Complexity:

- Model: 1 Application Module, 1 View Object, 25 Entity Objects, 20 LOV
- ViewController: 2 Query Criteria, Result Table, Export to Excel functionality, Integration with Event Maintenance form

- Form name – **Incident**

- Estimated time: **296** hours
- Actual development time: **290** hours

- Complexity:

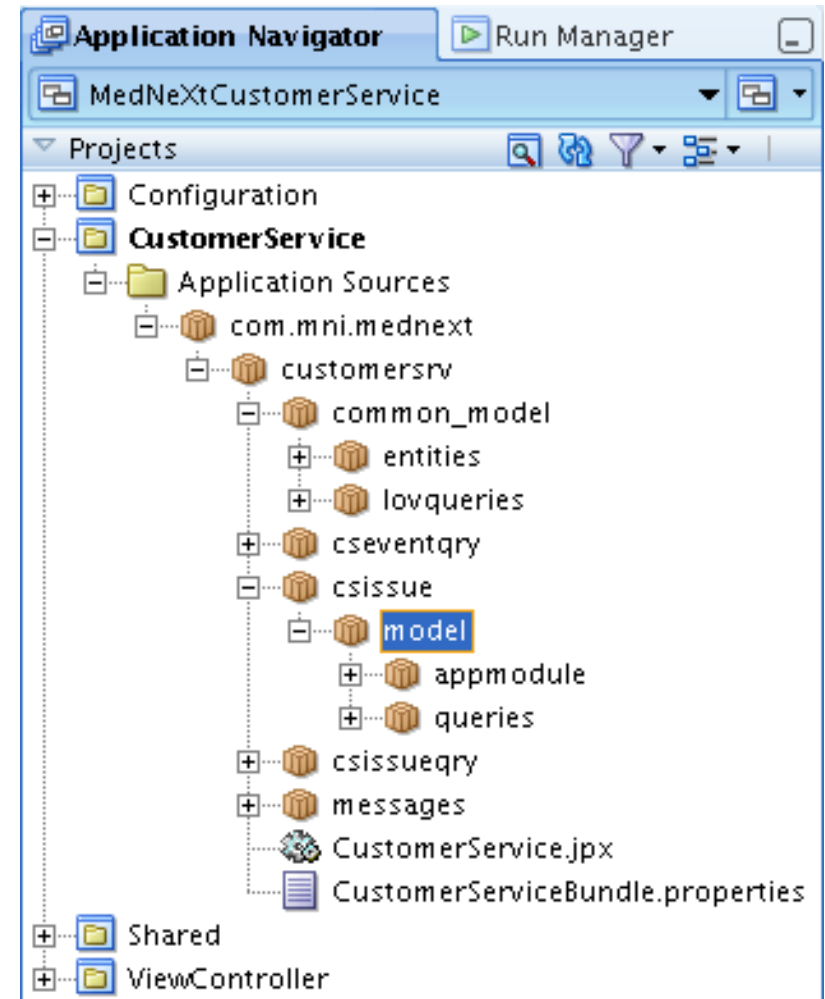
- Model: 1 Application Module, 12 View Objects, 52 Entity Objects, 35 LOV, 10 View Links, Inheritance
- ViewController: 3 ADF Task Flows, 5 ADF Regions, complex CRUD functionality, 9 Data Blocks

Development Best Practices

- Application Structure and Packaging
- Reusability
- Oracle ADF Tuning
- Application Splitting and Integration
- Forms to Fusion Modernization

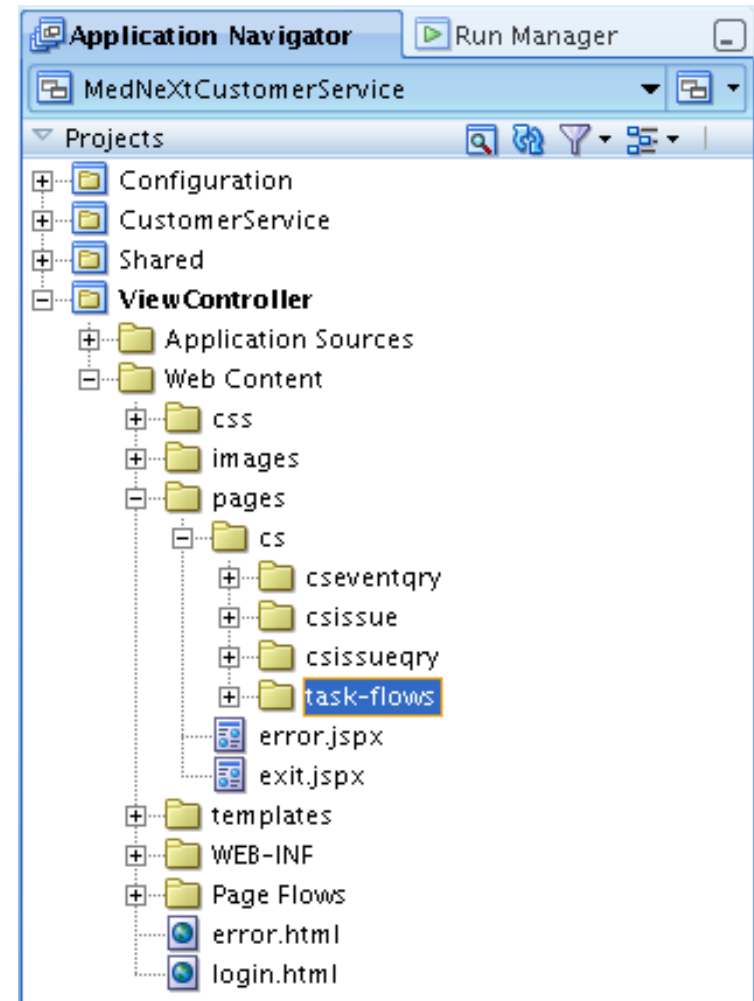
Application Structure and Packaging

- Model
 - Common Model: Entity Objects and LOV View Objects
 - Form Specific: Application Module and View Objects



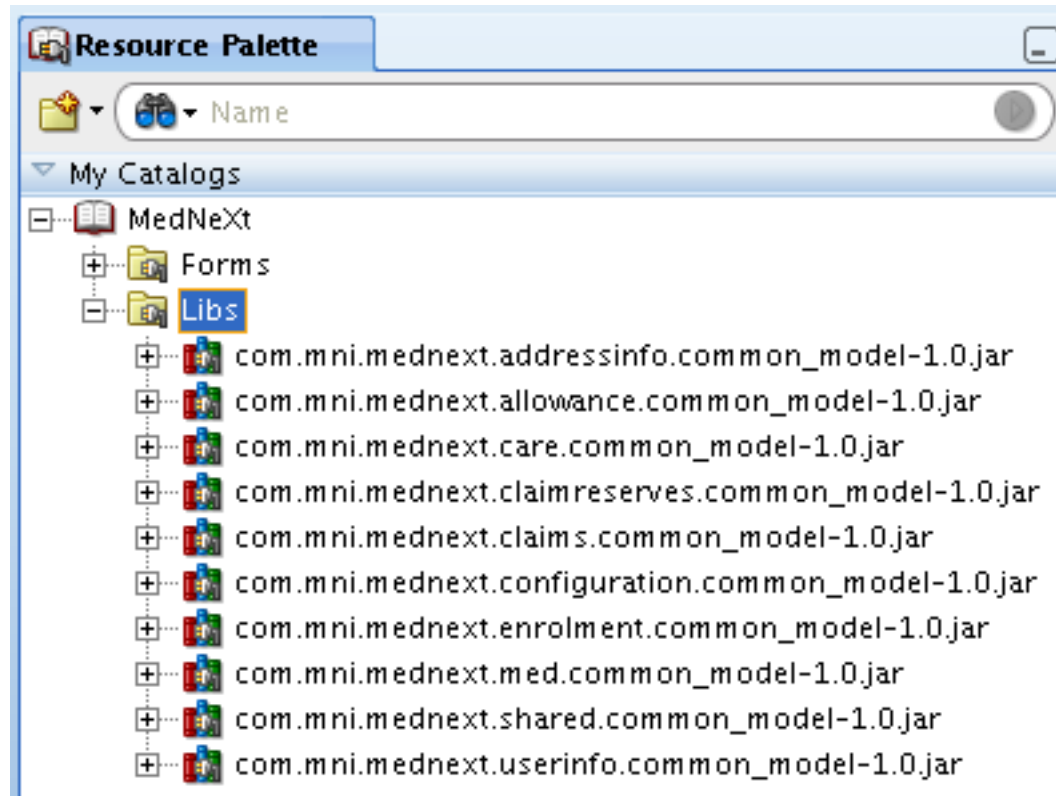
Application Structure and Packaging

- View-Controller
 - JSF Pages
 - ADF Task Flows
 - Page Definitions
 - Backing Beans



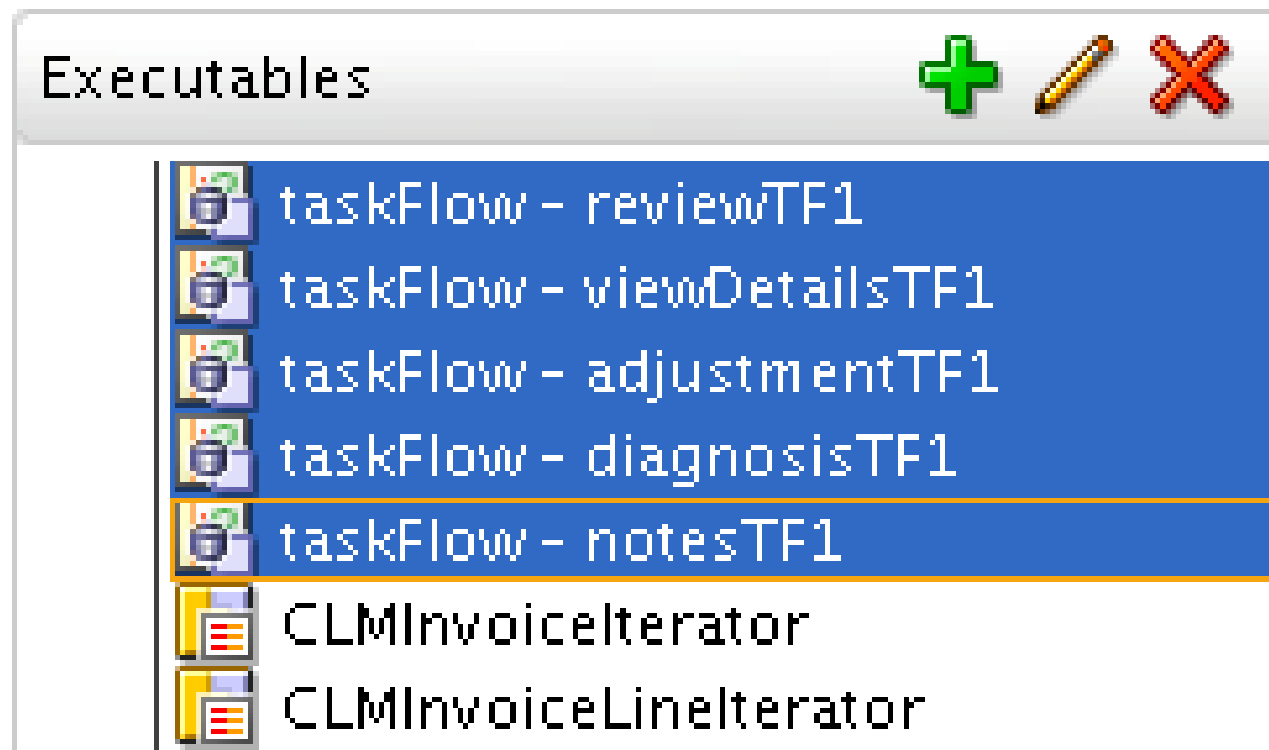
Model Reusability

- ADF Business Components Reusability using ADF Libraries



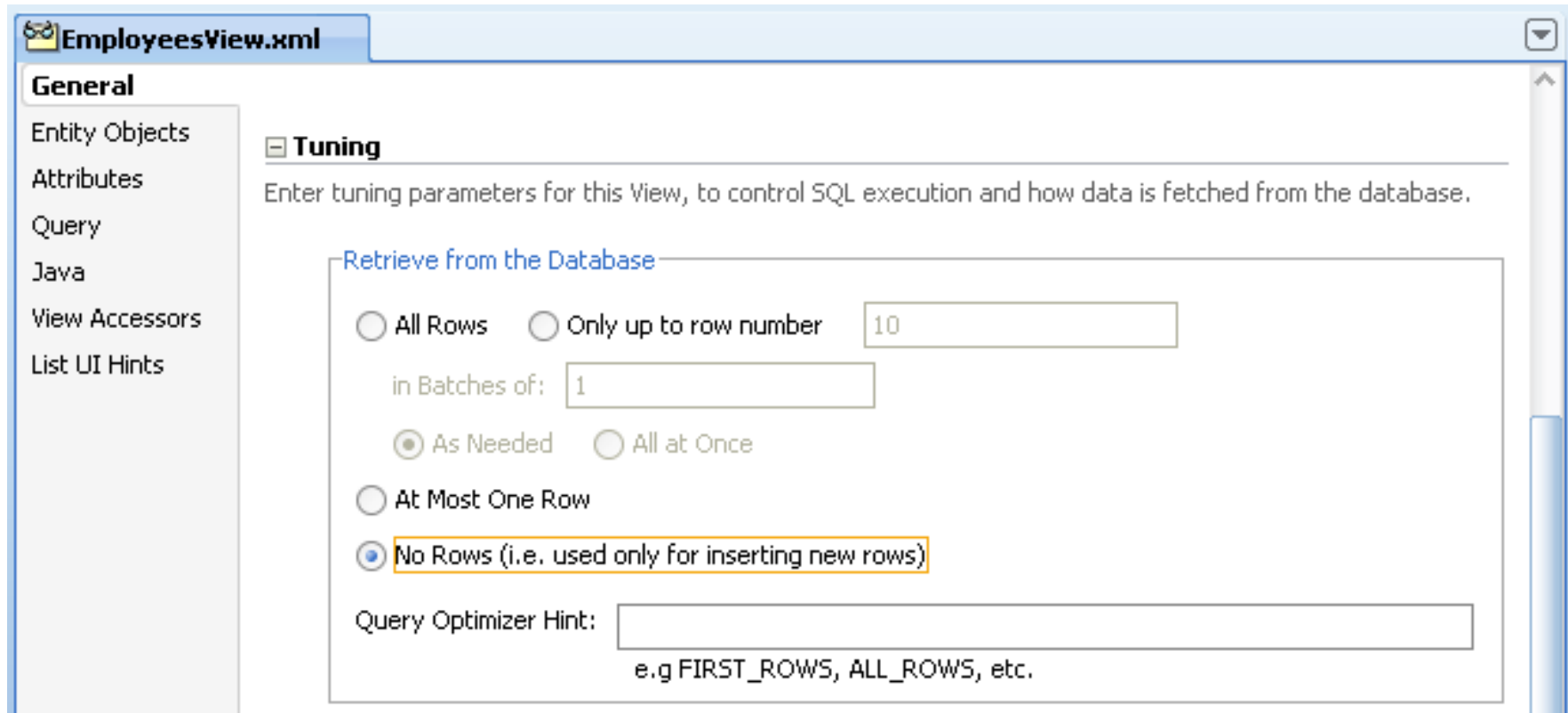
ViewController Reusability

- JSF Fragments



Oracle ADF Tuning

- **No Rows** Tuning Option When Opening Form in Insert Mode



The screenshot shows the 'EmployeesView.xml' tuning dialog. The 'Tuning' section is expanded, showing options for 'Retrieve from the Database'. The 'No Rows (i.e. used only for inserting new rows)' option is selected and highlighted with a yellow border. Other options include 'All Rows', 'Only up to row number' (set to 10), 'in Batches of' (set to 1), 'As Needed', 'All at Once', and 'At Most One Row'. A 'Query Optimizer Hint' field is also present, with an example 'e.g FIRST_ROWS, ALL_ROWS, etc.' below it.

EmployeesView.xml

General

- Entity Objects
- Attributes
- Query
- Java
- View Accessors
- List UI Hints

Tuning

Enter tuning parameters for this View, to control SQL execution and how data is fetched from the database.

Retrieve from the Database

All Rows Only up to row number

in Batches of:

As Needed All at Once

At Most One Row

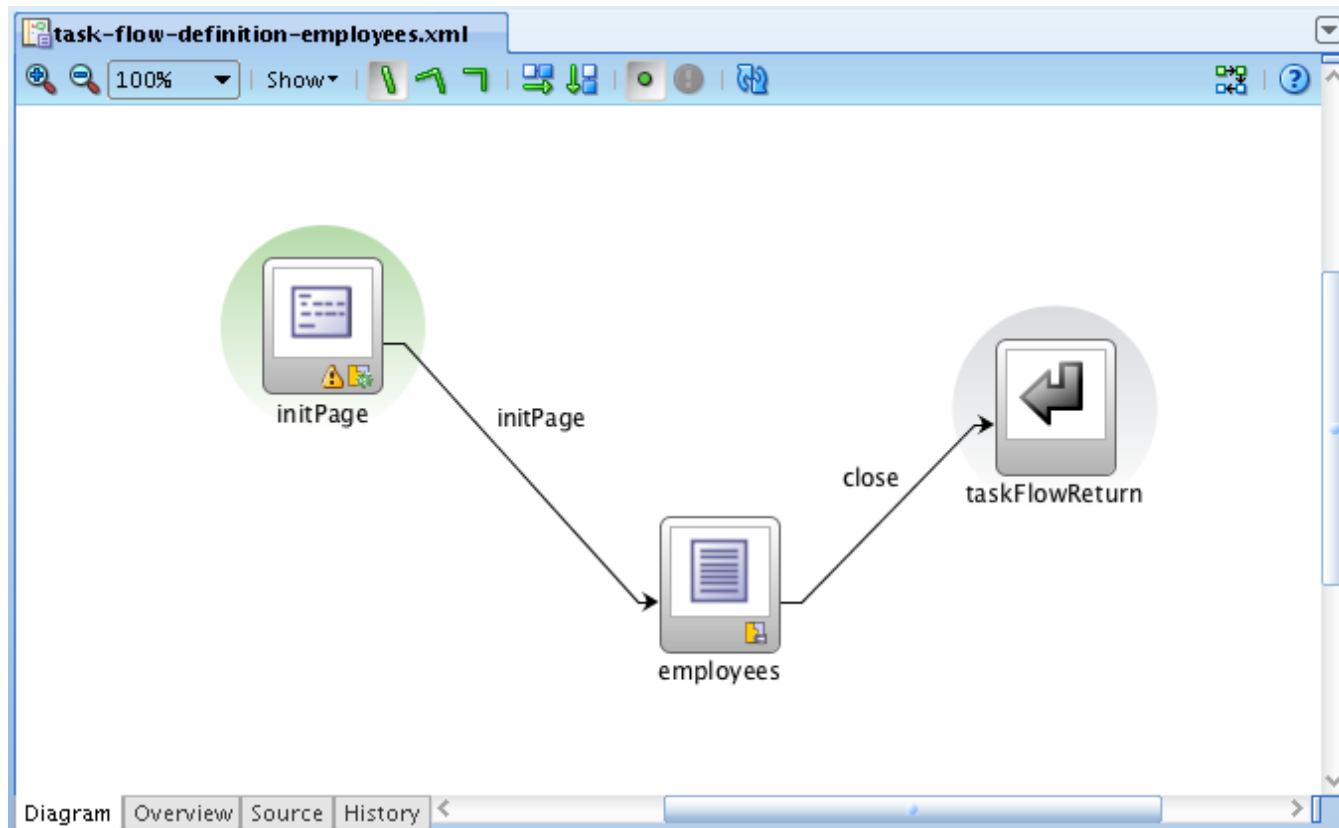
No Rows (i.e. used only for inserting new rows)

Query Optimizer Hint:

e.g FIRST_ROWS, ALL_ROWS, etc.

Oracle ADF Tuning

- ***executeEmptyRowSet()*** to Prevent Default Query on Page Load



Oracle ADF Tuning

- ***Range Paging Auto Post*** to Limit Data Retrieval from Database

Fill Last Page of Rows when Paging through Rowset

Passivate State (e.g. Current Row, Bind Values, etc.)

Including All Transient Values

Retain View Link Accessor Rowset

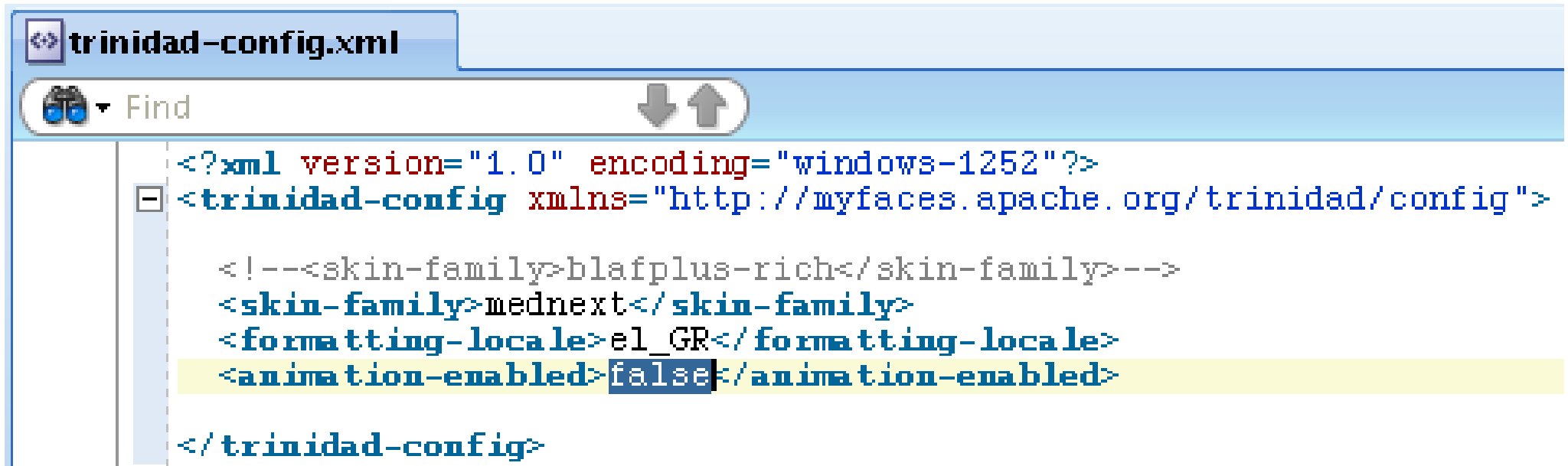
Access Mode:

Range Size:

Range Paging Cache Factor:

Oracle ADF Tuning

- **Animation = FALSE** to Improve ADF Faces Rich Client Performance



```
<?xml version="1.0" encoding="windows-1252"?>
<trinidad-config xmlns="http://myfaces.apache.org/trinidad/config">

  <!--<skin-family>blafplus-rich</skin-family-->
  <skin-family>mednext</skin-family>
  <formatting-locale>el_GR</formatting-locale>
  <animation-enabled>false</animation-enabled>

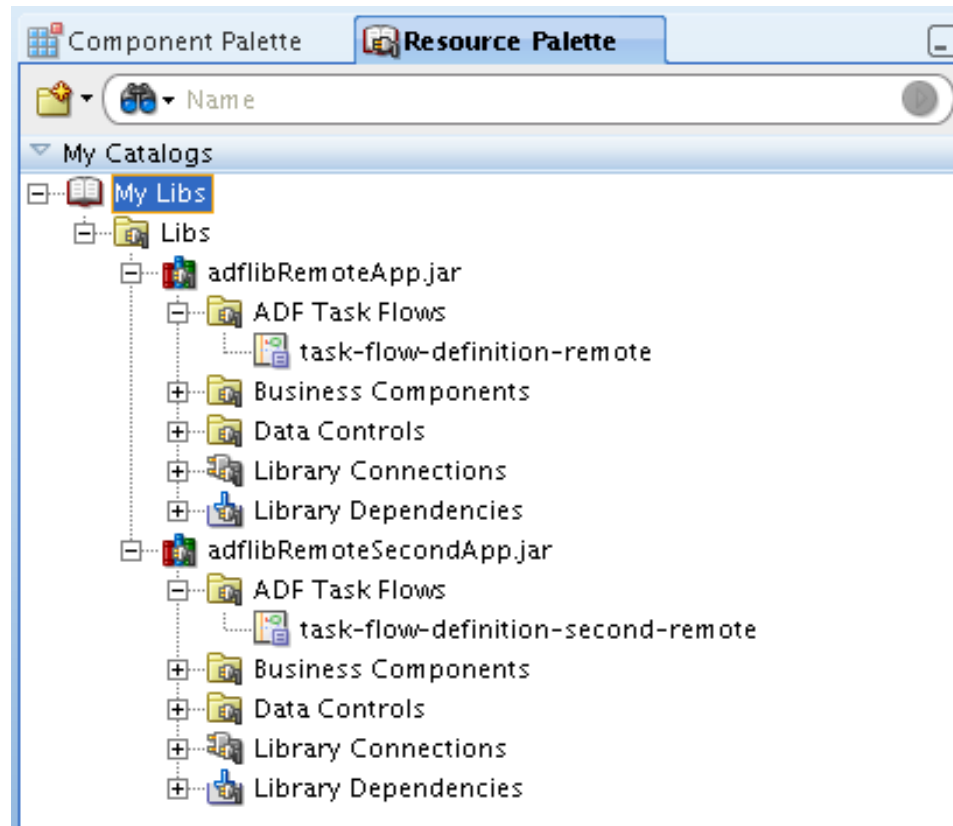
</trinidad-config>
```

Application Splitting and Integration

- One Application:
 - Complex to Monitor and Control Development
 - JDeveloper Performance Overload
- Splitted Application:
 - Improves Development Performance
 - Complex to Maintain
- Split and Integrate:
 - ADF Libraries
 - ADF Task Flows

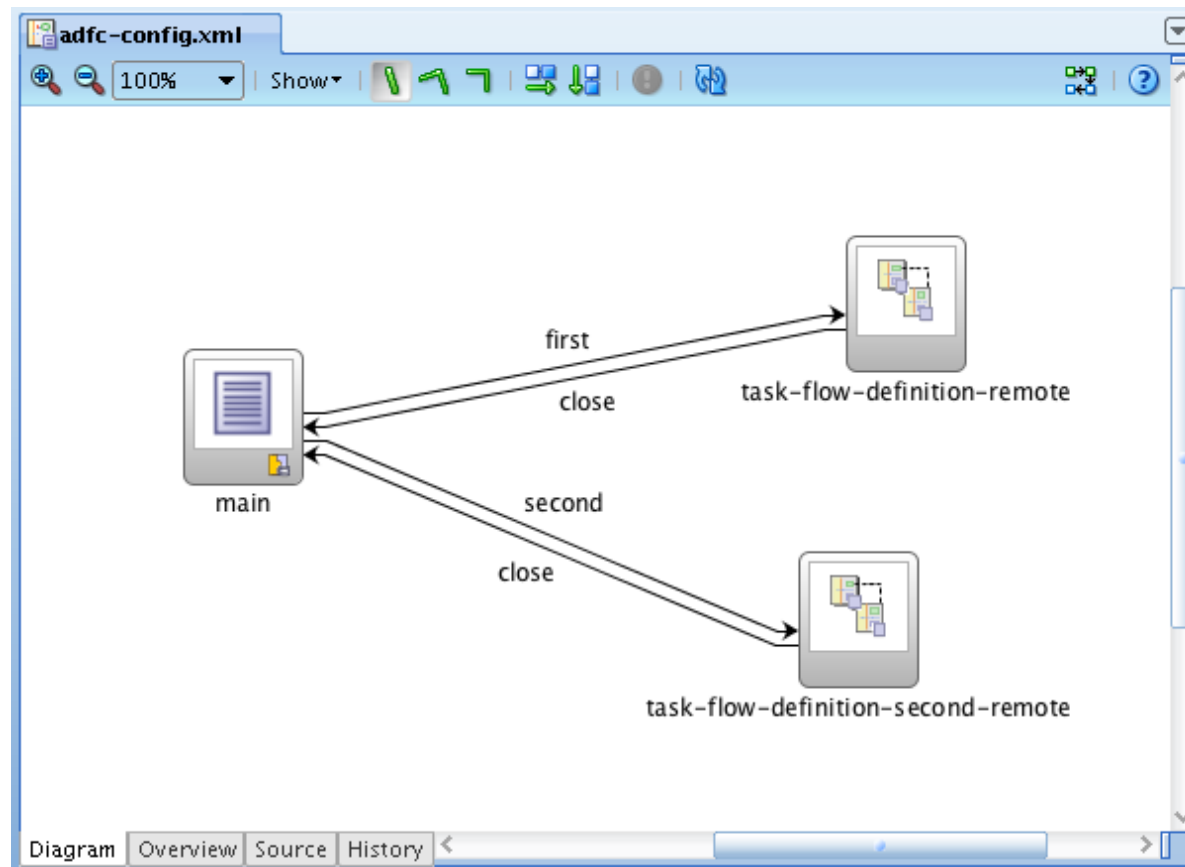
Application Splitting and Integration

- ADF Libraries



Application Splitting and Integration

- ADF Task Flows



Application Splitting and Integration

- Lessons Learned:
 - Never call Application Module from ViewController directly
 - Extract common files to separate project and reference it through dependency
 - From the beginning maintain proper application structure suitable for splitting
 - In JDeveloper 11g R1, jazn-data.xml can't be reused
 - Assign different Managed Bean names
 - Try to avoid circle dependency

Forms to Fusion Modernization

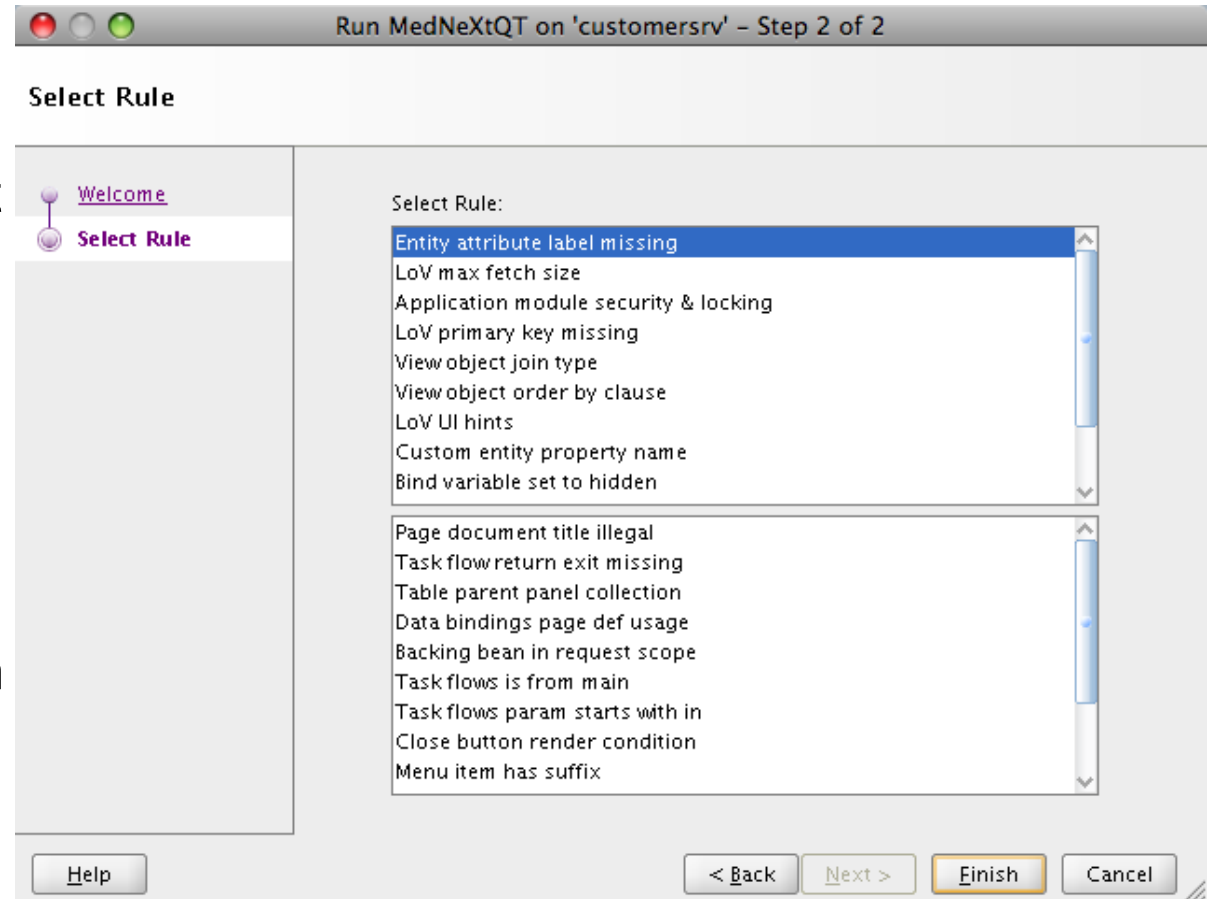
- Consider differences in User Interface behavior:
 - Validation execution
 - CRUD operations for Master-Details
 - Default Form opening and navigations
- Be careful with PL/SQL usage in J2EE architecture
- Consider performance differences between Web and Client-Server applications
- Consider Automatic generation VS. Development approach

Tests and Quality Control

- Development Team
 - JDeveloper 11g MedNeXt Quality Extension
 - Cross-check code reviews, JDeveloper 11g Show Overview
 - Code reviews during SVN merges
 - Automatic Builds, Code Quality reports
 - No JUnit
- Test Team
 - Manual Test Cases execution
 - Test Cases are based on Development Specifications

Quality Extension - MedNeXtQT

- JDeveloper 11g R1 extension is developed based on ADF development rules violations collected during manual Quality Reviews
- Provides automatic Quality Review for Model and ViewController
- Performs automatic scan on Package level



Quality Extension - MedNeXtQT

- Demo – **Model** quality rules:
 - Entity Attribute Label Missing
 - LOV Primary Key Missing
 - View Object Order By Clause
 - Bind Variable Set to Hidden
 - Overridden Class Check

Quality Extension - MedNeXtQT

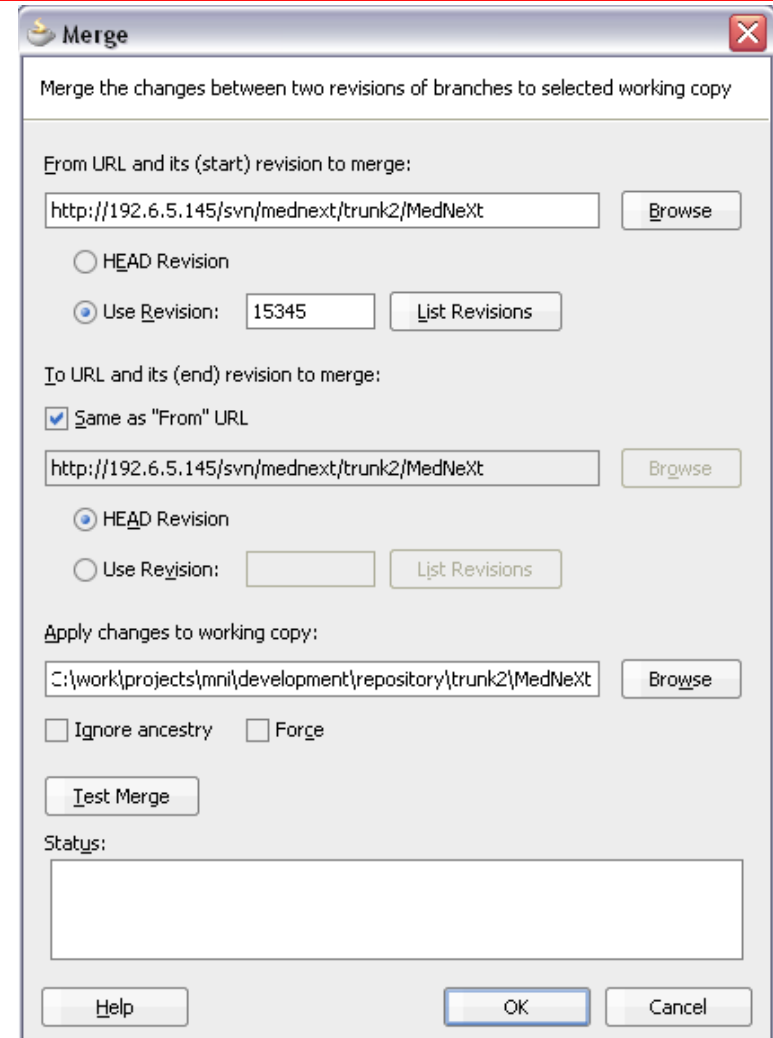
- Demo – **ViewController** quality rules:
 - Table Parent Panel Collection
 - Task Flow Return Exist Missing
 - Backing Bean in Request Scope
 - Task Flows is From Main
 - Task Flows Parameter Starts with In

Team Development

- One SVN Branch Approach:
 - Complex to control concurrent changes in ADF metadata files
 - Frequent runtime errors due to corruptions in ADF metadata files
 - No stable branch at any point of time
 - Easier to maintain
- Multiple SVN Branches Approach:
 - Separate SVN branch is created for each logical module
 - Development bugs in SVN branch are not blocking other modules development
 - Always stable Trunk branch
 - Complex to maintain

Team Development

- SVN Branches Merging is supported in JDeveloper 11g
- Developers should update their SVN branches only with critical patches from trunk
- Before committing merged development branch into trunk, changes should be reviewed



Lessons Learned

- Define reusable application structure from the beginning
- Split development into multiple applications and integrate into one
- Implement automatic builds procedure
- Be careful with PL/SQL usage in JEE systems
- Use standard ADF functionality, avoid custom solutions. Centralize custom code in extension classes
- Design and Test UI behavior properly before development
- Cross-check development quality
- Use SVN branches for different modules and maintain them
- Train developers for at least 1 month
- Be ready to prove new design to Form users

Contacts

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Andrejus Baranovskis's Blog

Blog about Oracle technology



Oracle Develop, Oracle OpenWorld 2009

Oracle ACE

Questions

Answers