



October 29-31, 2007
Plano, Texas

Gen Portfolio and Model Analysis – Understanding What You've Got

Session # 11

October 29, 2007 3:15pm – 4:15pm
Doug Michael, Jumar Solutions

Introduction

- **Jumar Solutions Ltd**
 - Based in Birmingham, UK
 - CA Partner for both Products and Services
 - CA Smart solution provider worldwide (over 10 CA smart products)
 - All Consultants have over 10 years Gen experience
 - Provide Managed Services, contract staff, software solutions and Training services to many customers thought EMEA, APAC & US
 - Renowned for our Automation tools



Introduction

- Customers have requested consultancy in the following areas:
 - QA review of returned Outsourced development work
 - Performance Tuning of Gen applications
 - Scoping Release Functionality
 - Identification of Transitioning Issues
 - GUI to Web, 3270 to Web
 - Mainframe to Unix, Fat client to Distributed process and SOA
 - Componentisation
 - Identification of Gen upgrade Issues

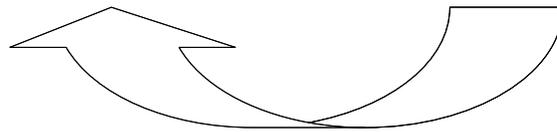


Introduction

- In this presentation we will
 - Highlight the approach Jumar takes to helping customers understand what they have in their models
 - Introduce Jumar Model Analysis – A key tool in the understanding of Gen model content
 - Give some examples of how the Model Analysis process and tools have been used for customer benefit

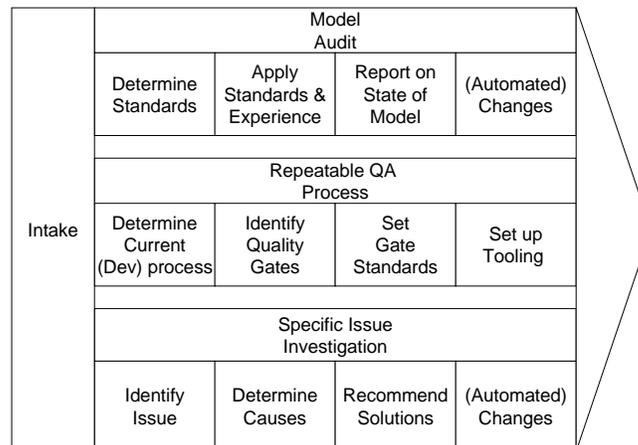


Approach



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Audit and QA Process



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Model Audit

- One off investigation to determine options
- As part of migration to different platform/architecture
- Prior to Gen version upgrade
- As intake when taking over maintenance of models
- Before major development
- Before major style or standard change

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Repeatable QA process

- Part of standard development cycle
- Hand over between internal development and maintenance departments
- As part of the outsource process
- Ensuring that (new) architecture is being adhered to

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Specific Issue Investigation

- Performance Issue
- Platform Transition Issue
- Upgrade Issue
- Maintainability Issue

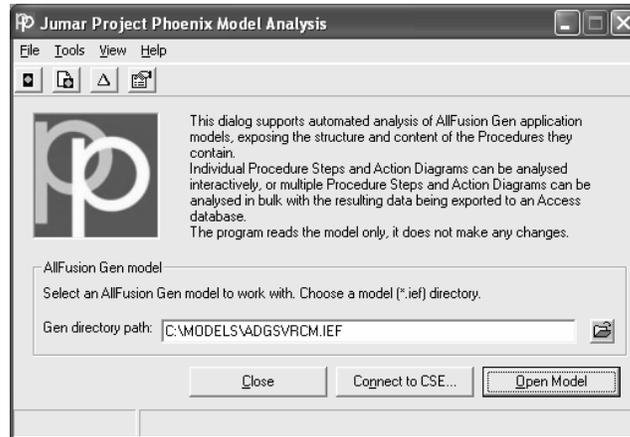
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Recognise

- Identify problem to be solved
- Populate Model Analysis database
 - From CSE or .dat files
 - Cross model reporting gives in-depth view
- Analyse Procedures in bulk and run standard reports
- Define and execute custom queries

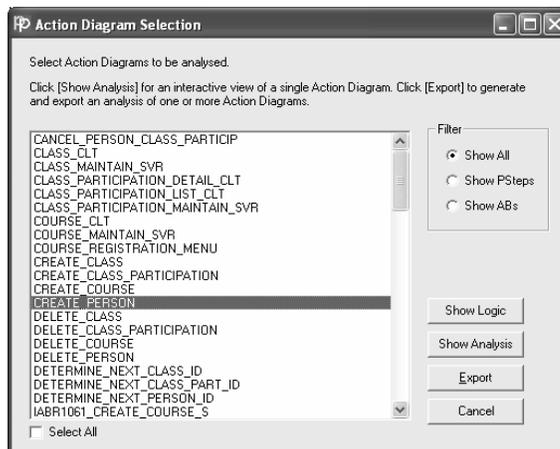
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Recognise



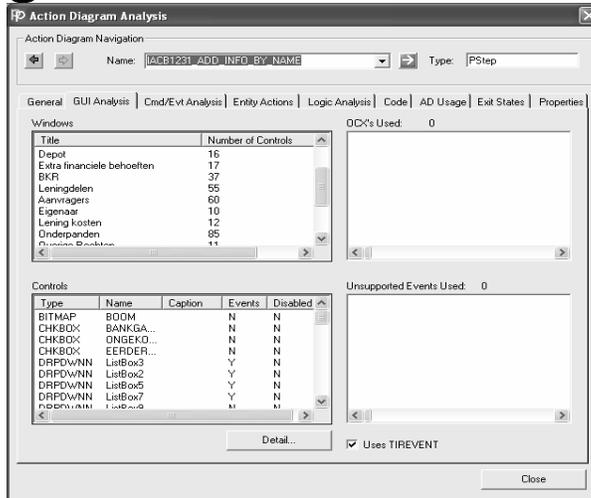
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Recognise



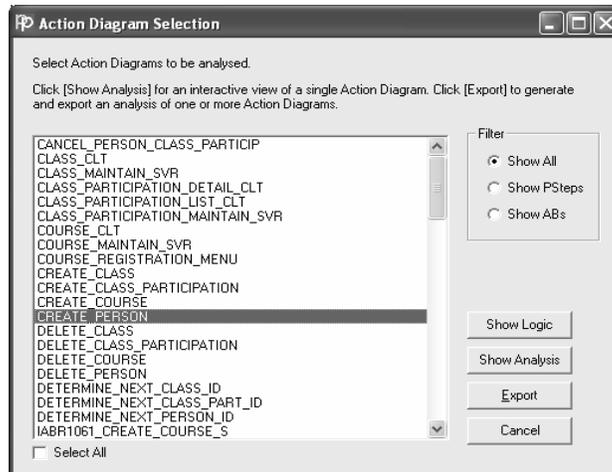
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Recognise



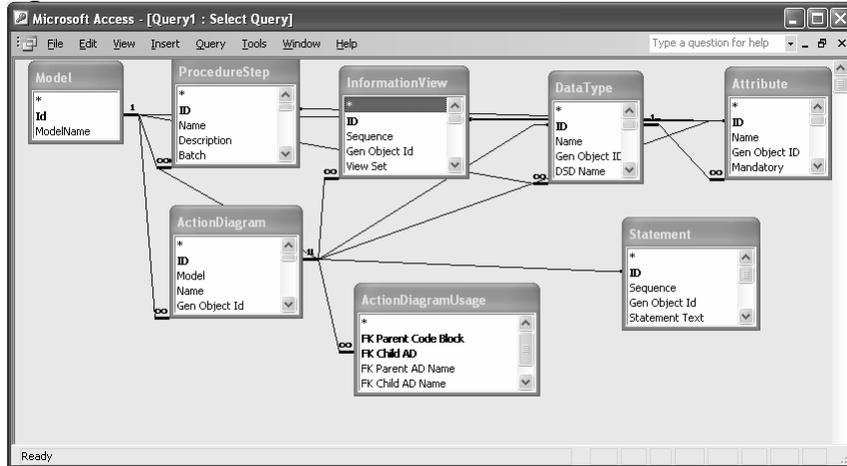
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Recognise - Export to Database



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Recognise - Simple Database



Complexity Report

Complexity Report
Date Created: 28/02/2006

Model	Business System	Complexity Rating	Number of statements	Number of Note Statements	Ratio Total Statements vs Note Statements	Number of IF Statements	Number of Unique USE Statements	Number of Unique USE Statements Recursively	Number of READ Statements	Number of CASE OF States	Level of Index
GEN SAMI COOP_C/PStep	CLIENT_MAINTAIN_EMPLOYEE	6.6	90	1	90	6	2	5	0	1	3
GEN SAMI CORP/PStep	MAINTAIN_DEPARTMENT	5.2	129	2	64.5	9	3	3	6	2	5
GEN SAMI CORP/PStep	EMPLOYEE_LIST	4.6	104	2	52	7	1	1	8	2	6
GEN SAMI CORP/PStep	EMPLOYEE_DETAIL	4.4	64	1	64	9	2	2	3	1	4
GEN SAMI GUL_COR/PStep	GUL_MAINTAIN_EMPLOYEE	4.4	158	6	26.3	6	1	1	12	6	7
GEN SAMI COOP_C/PStep	CLIENT_MAINTAIN_DEPARTMENT	3.9	45	1	45	4	2	5	0	1	3
GEN SAMI COOP_C/PStep	CLIENT_MAINTAIN_DIVISION	3.7	44	1	44	4	2	5	0	1	3
GEN SAMI GUL_COR/PStep	GUL_MAINTAIN_DEPARTMENT	3.3	109	5	21.8	4	1	1	10	4	5
GEN SAMI GUL_COR/PStep	GUL_DETAIL_EMPLOYEE	3.1	34	1	34	1	2	2	3	2	5
GEN SAMI COOP_C/PStep	SERVER_DETAIL_EMPLOYEE	3.1	35	1	35	2	3	3	3	1	5
GEN SAMI COOP_C/PStep	SERVER_DETAIL_DEPARTMENT	3	34	1	34	2	3	3	3	1	4
GEN SAMI GUL_COR/PStep	GUL_DETAIL_DEPARTMENT	2.9	34	1	34	1	2	2	3	2	4
GEN SAMI CORP/PStep	MODIFY_EMPLOYEE	2.8	37	1	37	1	0	0	3	0	4
GEN SAMI CORP/PStep	MAINTAIN_DIVISION	2.6	90	4	22.5	8	3	3	2	2	4
GEN SAMI COOP_C/PStep	SERVER_DETAIL_DIVISION	2.6	28	1	28	2	3	3	2	1	4
GEN SAMI COOP_C/PStep	SERVER_MAINTAIN_EMPLOYEE	2.6	78	6	13	0	0	0	12	5	6
GEN SAMI GUL_COR/PStep	GUL_DETAIL_DIVISION	2.5	28	1	28	1	2	2	2	2	4
GEN SAMI GUL_COR/PStep	GUL_MAINTAIN_DIVISION	2.4	76	5	15.2	4	1	1	4	2	4
GEN SAMI COOP_C/PStep	CLIENT_FILE_FUNCTIONS_WRITE	2.3	31	1	31	1	1	1	0	1	2



Action Diagram QA

Label Name	Package System	Type	PS of AD Name	Action Diagram description present	High Performance View	Passing Flag set	Group view subscript check	PS with CRUD Statements	Action Diagram performs CRUD action	Execute Statement Number Flag	Contains READs with Both Select and C	Number of Disabled Stat	Exit Status
GEN GUI_CPS	GUI_DETAIL_EMPLOYEE	N										0	Y
GEN GUI_CPS	GUI_FILE_FUNCTIONS_READ	N										0	Y
GEN GUI_CPS	GUI_FILE_FUNCTIONS_WRITE	Y										0	Y
GEN GUI_CPS	GUI_MAINTAIN_DEPARTMENT	N										0	Y
GEN GUI_CPS	GUI_MAINTAIN_DIVISION	N										0	Y
GEN GUI_CPS	GUI_MAINTAIN_EMPLOYEE	N										0	Y
GEN GUI_CPS	GUI_MENU	N										0	N
GEN CORP_PS	ICBD1011_MAINTAIN_DEPARTMENT_T	N										4	Y
GEN CORP_PS	ICBD1011_MAINTAIN_DEPARTMENT_T	Y										0	Y
GEN CORP_PS	MAINTAIN_DEPARTMENT	Y										0	Y
GEN CORP_PS	MAINTAIN_DIVISION	Y										0	Y
GEN CORP_PS	MENU	Y										0	Y
GEN CORP_AB	MODIFY_DEPARTMENT	N	P									0	Y
GEN CORP_AB	MODIFY_DIVISION	N	P									0	Y
GEN CORP_AB	MODIFY_EMPLOYEE	N	P									0	Y
GEN COOP_PS	SERVER_DETAIL_DEPARTMENT	N										0	Y
GEN COOP_PS	SERVER_DETAIL_DIVISION	N										0	Y



Read Statement Analysis

READ required department WHERE DESIRED required department controls SOME required employee AND THAT required employee number IS EQUAL TO local employee number

READ EACH required employee TARGETING all_output FROM THE BEGINNING UNTIL FULL SORTED BY ASCENDING required employee name

No WHERE clause; Primary SORT key is non-identifying attribute

READ required department WHERE DESIRED required department controls SOME required employee AND THAT required employee number IS EQUAL TO local employee number

READ EACH required department, required employee TARGETING all_output FROM THE BEGINNING UNTIL FULL SORTED BY ASCENDING required employee number WHERE DESIRED required department controls DESIRED required employee AND DESIRED required department number IS EQUAL TO import_display_for department number

READ required division WHERE DESIRED required division is_divided_into SOME required department AND THAT required department number IS EQUAL TO local department number

READ EACH required department, required employee TARGETING all_output FROM THE BEGINNING UNTIL FULL SORTED BY ASCENDING required employee name WHERE DESIRED required department controls DESIRED required employee AND DESIRED required department number IS EQUAL TO import_display_for department number

Primary SORT key is non-identifying attribute

READ required division WHERE DESIRED required division is_divided_into SOME required department AND THAT required department number IS EQUAL TO local department number

READ EACH required employee, required department, required division TARGETING all_output FROM THE BEGINNING UNTIL FULL SORTED BY ASCENDING required employee number WHERE DESIRED required division is_divided_into DESIRED required department AND DESIRED required department controls DESIRED required employee AND DESIRED required division number IS EQUAL TO import_display_for division number

Three or more entities in READ list

READ EACH required employee, required department, required division TARGETING all_output



Resolve

- Apply corrective actions
 - Where corrective actions are simple use standard Jumar tools

Jumar Project Phoenix: QA Compliance
Jumar:Xtras BulkUpdate

- Jumar Project Phoenix bespoke automation solutions

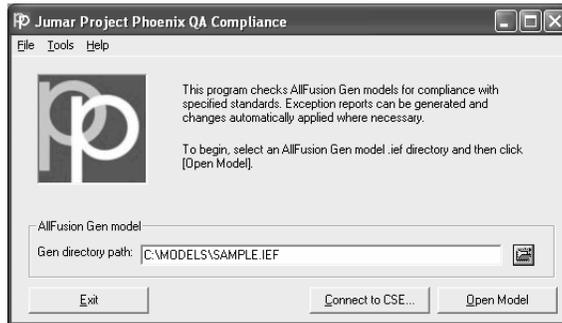
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QA Compliance for CA Gen

- Checks compliance with company naming standards
- Suggests name changes where the object does not comply
- Can update the model with the name changes where necessary
- Works directly on encyclopaedia or local files

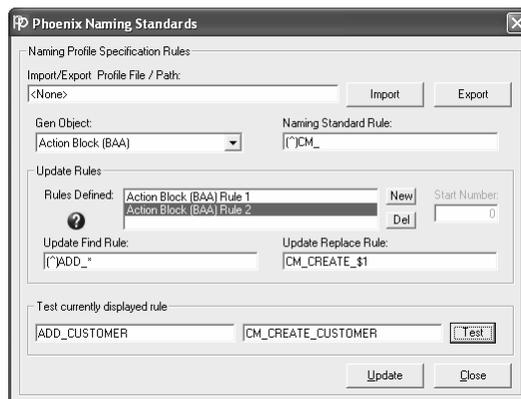
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QA Compliance: Model Selection



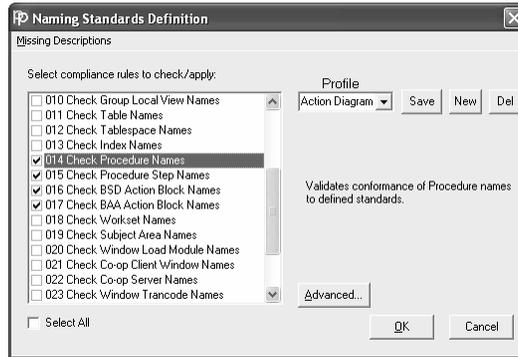
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QA Compliance: Regular Expressions

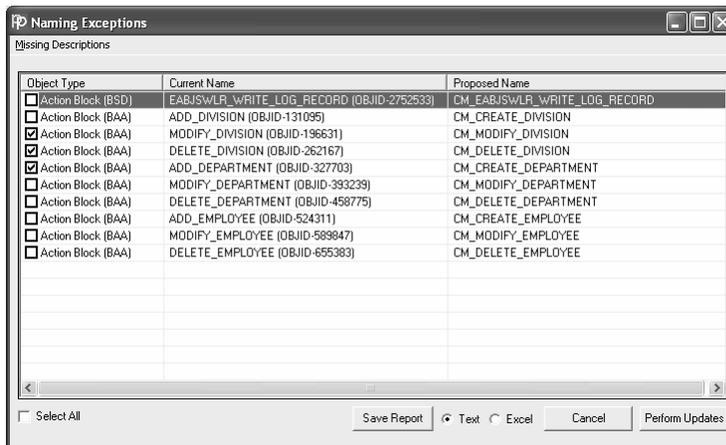


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QA Compliance: Object Selection



QA Compliance: Suggested Updates



QA Compliance: Log File

```
sample.log Notepad
File Edit Format View Help
Objects selected for exception processing:
21: 23

Naming Exception Summary:
Action Block (BSD) (OTC:21) - 1
Action Block (BAA) (OTC:23) - 9

Percentage of exceptions found for objects selected:
Action Block (BSD)(OTC:21) - 3 found, Exceptions found - 33.33%
Action Block (BAA)(OTC:23) - 9 found, Exceptions found - 100%

Update Summary:
Action Block (BAA) (OTC:23) - 3

Naming Exception Details:
Object Type Current Name Proposed Name
-----
Action Block (BSD) EAB3SWLR_WRITE_LOG_RECORD (OBJID-2752533) CM_EAB3SWLR_WRITE_LOG_RECORD
Action Block (BAA) ADD_DIVISION (OBJID-131095) CM_CREATE_DIVISION
Action Block (BAA) MODIFY_DIVISION (OBJID-196631) CM_MODIFY_DIVISION
Action Block (BAA) DELETE_DIVISION (OBJID-262167) CM_DELETE_DIVISION
Action Block (BAA) ADD_DEPARTMENT (OBJID-327703) CM_CREATE_DEPARTMENT
Action Block (BAA) MODIFY_DEPARTMENT (OBJID-393239) CM_MODIFY_DEPARTMENT
Action Block (BAA) DELETE_DEPARTMENT (OBJID-419775) CM_DELETE_DEPARTMENT
Action Block (BAA) ADD_EMPLOYEE (OBJID-524311) CM_CREATE_EMPLOYEE
Action Block (BAA) MODIFY_EMPLOYEE (OBJID-589847) CM_MODIFY_EMPLOYEE
Action Block (BAA) DELETE_EMPLOYEE (OBJID-655383) CM_DELETE_EMPLOYEE

Update details:
OTC-23 : MODIFY_DIVISION (OBJID-196631) has been renamed CM_MODIFY_DIVISION
OTC-23 : DELETE_DIVISION (OBJID-262167) has been renamed CM_DELETE_DIVISION
OTC-23 : ADD_DEPARTMENT (OBJID-327703) has been renamed CM_CREATE_DEPARTMENT
```

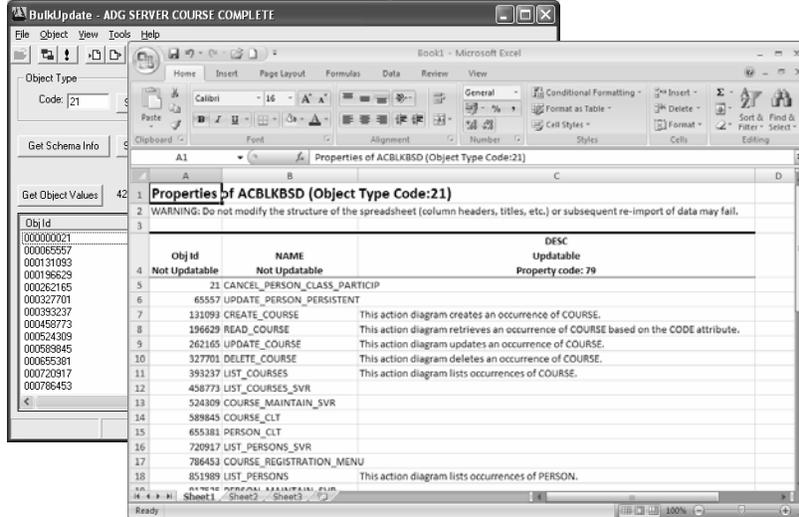


Jumar:Xtras BulkUpdate for CA Gen

- Part of the Jumar:Xtras Brand of complementary products, utilities, add-ins and plug-ins
- Allows for bulk updates on Gen models
 - Very useful to change certain settings in an efficient and uniform manner
 - No need to open individual action blocks
 - Often used to update flags, descriptions, or object types
- Works on the workstation DAT files
 - Internal checks and Upload process ensures that no invalid changes can be made
- Full integration with Microsoft Excel
 - Objects can be exported in Excel spreadsheet, updated without using the toolset, and then imported back into the tools set.



Jumar:Xtras Bulk Update for CA Gen



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Resolve

• Project Phoenix

- Unique capability to create and manipulate Gen models using the API
- Allows automation of many Gen model tasks
- Over 100 high level operations that can be assembled into a bespoke solution
- Standing Project Phoenix solutions exist for Web transitioning from 3270 or GUI, Componentisation and Fat Client Re-Engineeing.

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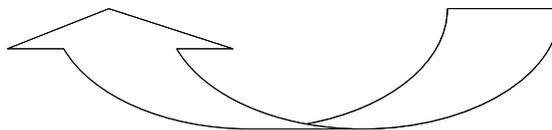
Project Phoenix Automation



- Jumar has excellent track record of creating automated solutions to specific customer problems
- Includes
 - full transitioning of applications from one platform to another (including EABs)
 - 3270 to GUI or WUI transformation
 - CBD transitioning
- Changes required to achieve Performance and/or Maintainability enhancements
 - Automated replacement of certain code constructions
 - Automated code block promotion to simplify complex code structures.
 - Automated removal of unused views, unused code, etc
- Needs to be cost beneficial



Approach



Recognising Performance Issues

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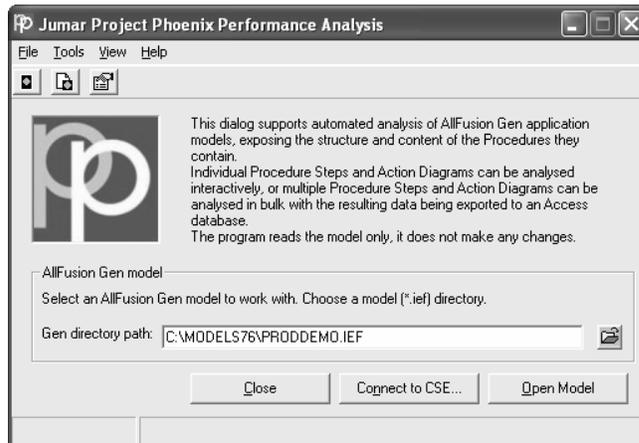
Project Phoenix Performance Analyser for CA Gen

project 
phoenix

- Tooling specifically aimed at supporting the performance tuning of Gen applications
- Automates the introduction and subsequent removal of performance measurement points into implementation logic
- Assists with the analysis of Gen models for factors that influence performance and scalability

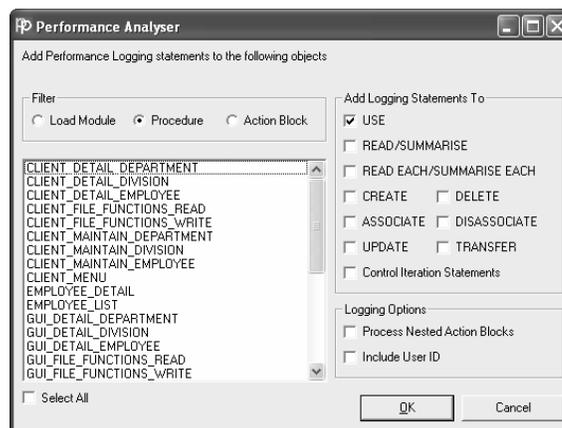
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Introducing Performance Analysis



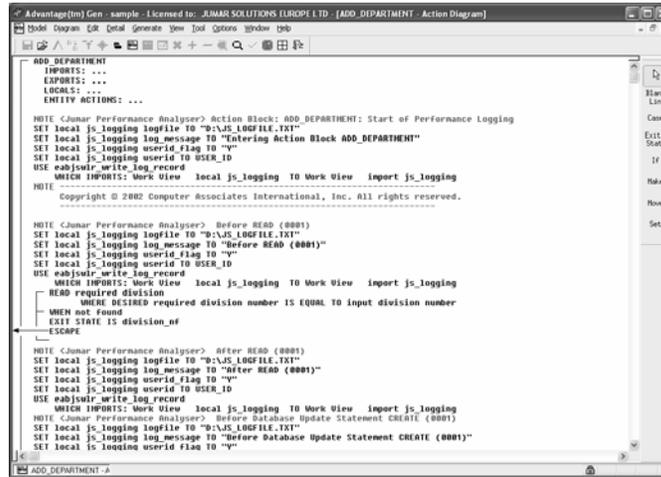
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Recognise - Add Logging



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Recognise - Add Logging



```
Advantage(tm) Gen - sample - Licensed to: JIMAR SOLUTIONS (EUROPE) LTD. - (ADD_DEPARTMENT - Action Diagram)
Model Diagram Edit Detail Generate View Tool Options Window Help

ADD DEPARTMENT
IMPORTS: ...
EXPORTS: ...
LOCALS: ...
ENTITY ACTIONS: ...

NOTE (Jumar Performance Analyzer) Action Block: ADD_DEPARTMENT: Start of Performance Logging
SET local js_logging logfile TO "D:\JS_LOGFILE.TXT"
SET local js_logging log_message TO "Entering Action Block ADD_DEPARTMENT"
SET local js_logging userid_flag TO "Y"
SET local js_logging userid TO USER_ID
USE eabjswir.write_log_record
WHICH IMPORTS: Work View local js_logging TO Work View import js_logging

NOTE
Copyright © 2002 Computer Associates International, Inc. All rights reserved.

NOTE (Jumar Performance Analyzer) Before READ (0001)
SET local js_logging logfile TO "D:\JS_LOGFILE.TXT"
SET local js_logging log_message TO "Before READ (0001)"
SET local js_logging userid_flag TO "Y"
SET local js_logging userid TO USER_ID
USE eabjswir.write_log_record
WHICH IMPORTS: Work View local js_logging TO Work View import js_logging
READ required division
WHEN required division number IS EQUAL TO input division number
WHEN not found
EXIT STATE IS division_nf
ESCAPE

NOTE (Jumar Performance Analyzer) After READ (0001)
SET local js_logging logfile TO "D:\JS_LOGFILE.TXT"
SET local js_logging log_message TO "After READ (0001)"
SET local js_logging userid_flag TO "Y"
SET local js_logging userid TO USER_ID
USE eabjswir.write_log_record
WHICH IMPORTS: Work View local js_logging TO Work View import js_logging

NOTE (Jumar Performance Analyzer) Before Database Update Statement CREATE (0001)
SET local js_logging logfile TO "D:\JS_LOGFILE.TXT"
SET local js_logging log_message TO "Before Database Update Statement CREATE (0001)"
SET local js_logging userid_flag TO "Y"
SET local js_logging userid TO USER_ID
```



Recognise - Analyse Logfile

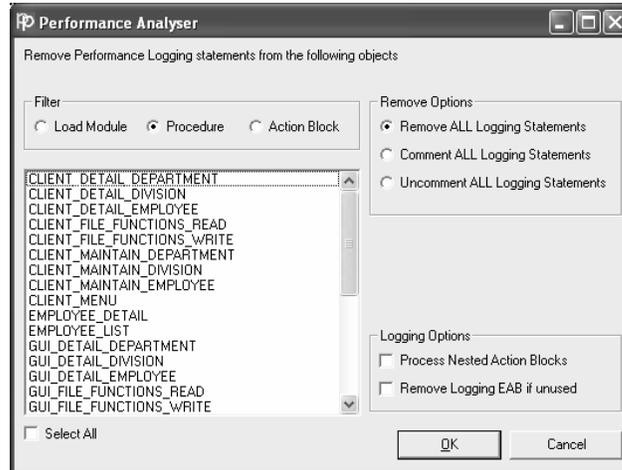


```
GUIMAIN2_Performance - Notepad
File Edit Format View Help

28-02-06 15:57:10 Entering Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 15:57:10 Before Control Iteration Statement FOR EACH (0001)
28-02-06 15:57:10 After Control Iteration Statement FOR EACH (0001)
28-02-06 15:57:39 Entering Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 15:57:39 Before Control Iteration Statement FOR EACH (0001)
28-02-06 15:57:39 After Control Iteration Statement FOR EACH (0001)
28-02-06 15:57:39 Before READEACH (0001)
28-02-06 15:59:21 Entering Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 15:59:21 Before Control Iteration Statement FOR EACH (0001)
28-02-06 15:59:21 After Control Iteration Statement FOR EACH (0001)
28-02-06 15:59:21 Before READEACH (0001)
28-02-06 16:02:05 Entering Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 16:02:05 Before Control Iteration Statement FOR EACH (0001)
28-02-06 16:02:05 After Control Iteration Statement FOR EACH (0001)
28-02-06 16:02:05 Before READEACH (0001)
28-02-06 16:04:26 Entering Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 16:04:26 Before Control Iteration Statement FOR EACH (0001)
28-02-06 16:04:26 After Control Iteration Statement FOR EACH (0001)
28-02-06 16:04:26 Before READEACH (0001)
28-02-06 16:04:26 After READEACH (0001)
28-02-06 16:04:26 Leaving Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 16:04:28 Entering Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 16:04:28 Before Control Iteration Statement FOR EACH (0001)
28-02-06 16:04:28 After Control Iteration Statement FOR EACH (0001)
28-02-06 16:04:28 Leaving Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 16:06:01 Entering Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 16:06:01 Before Control Iteration Statement FOR EACH (0001)
28-02-06 16:06:01 After Control Iteration Statement FOR EACH (0001)
28-02-06 16:06:01 Before READEACH (0001)
28-02-06 16:06:01 After READEACH (0001)
28-02-06 16:06:01 Leaving Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 16:06:02 Entering Procedure Step GUI_MAINTAIN_DIVISION
28-02-06 16:06:02 Before Control Iteration Statement FOR EACH (0001)
```



Removing Logging Statements



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Summary

- Pinpoints performance problems
- Leaves no trace after clean up
- Can be customised to meet specific customer demands

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Example Reporting (All Tools)

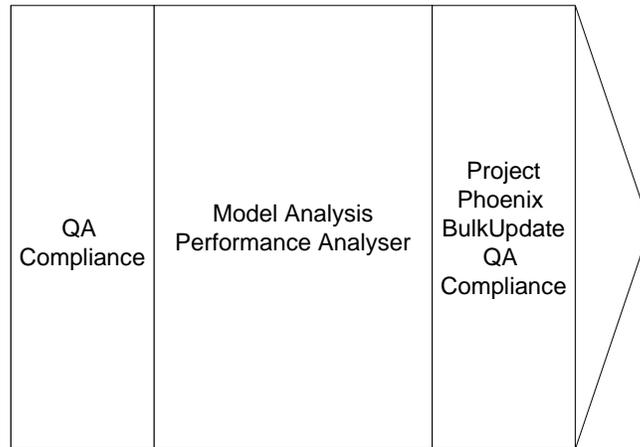
- **Complexity**
 - Including an customised weighted complexity rating
- **Structure**
 - Which action blocks are being called (cross model structure)
 - Stats on number of calls and
- **Action Block coding standards**
 - usage of flags,
 - indentation,
 - note statement vs. lines of code ratio
- **View reporting**
 - unused views
 - view sizes
 - View nesting
- **DBMS Access**
 - Cross model Actual Effects CRUD analysis
 - READ Statement analysis

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Summary

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Tooling



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Example 1: Transition to Web

- Identify Issues: Consultant expertise
- Report on: Feature in models that cause upgrade problems – Model Analysis
- Resolve: Update model using BulkUpdate or Project Phoenix bespoke automation

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Example 2: Gen Upgrade Analysis

- Recognise Issues: Consultant expertise
- Report on: Feature in models that cause upgrade problems – Model Analysis
- Resolve: Update model using BulkUpdate or Project Phoenix bespoke automation



Example 3: Recognise Performance Bottlenecks

- Report on
 - Time of statement execution – Performance Analysis
 - Suggested improvements – Performance Analysis reports and consultant expertise
 - Effect of changes made - Performance Analysis

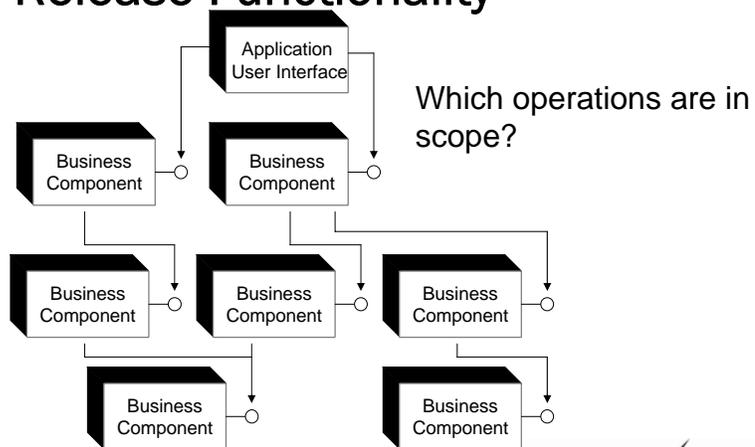


Example 4: Scope Release Functionality

- Report on:
Use Cases included in scope – result in which
public operations / function need to be developed
and which do not

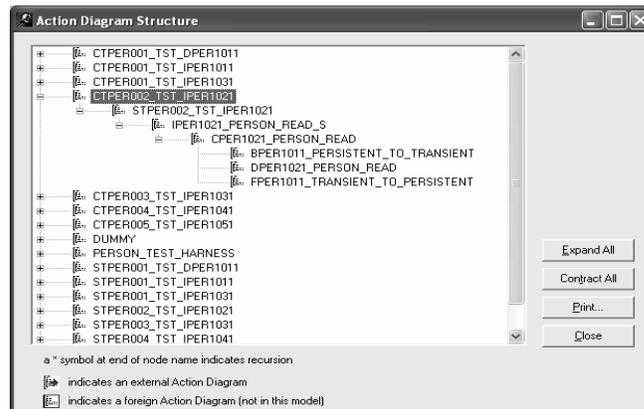
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Example 4: Scope Release Functionality



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Example 4: Scope Release Functionality



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Jumar Services Offering

- **Model Quality Review**
 - Quality Review of a model using the latest tooling and experienced consultant(s)
 - Comprehensive Presentation of the results
 - Practical Advice on the next steps
- **Performance Audit**
 - Detailed Performance audit using the latest tooling and experienced consultant(s)
 - Can look at general performance enhancements or specific performance issues
 - Comprehensive Presentation of the results
 - Practical advice on the next steps
 - Duration depends on the customer requirements

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Further Information

- **Contact Details:**

Jumar Solutions Ltd
Jumar House
Pinewood Business Park
Coleshill Road
Solihull
B37 7HG
United Kingdom
Tel: +44 (0)121 788 4550
Fax: +44 (0)121 788 4551
www.jumar-solutions.com
info@jumar-solutions.com

- **Questions?**



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- Your feedback/suggestions are necessary to continue to bring you top-notch events
- Thank You for Coming – See you in 2008!

