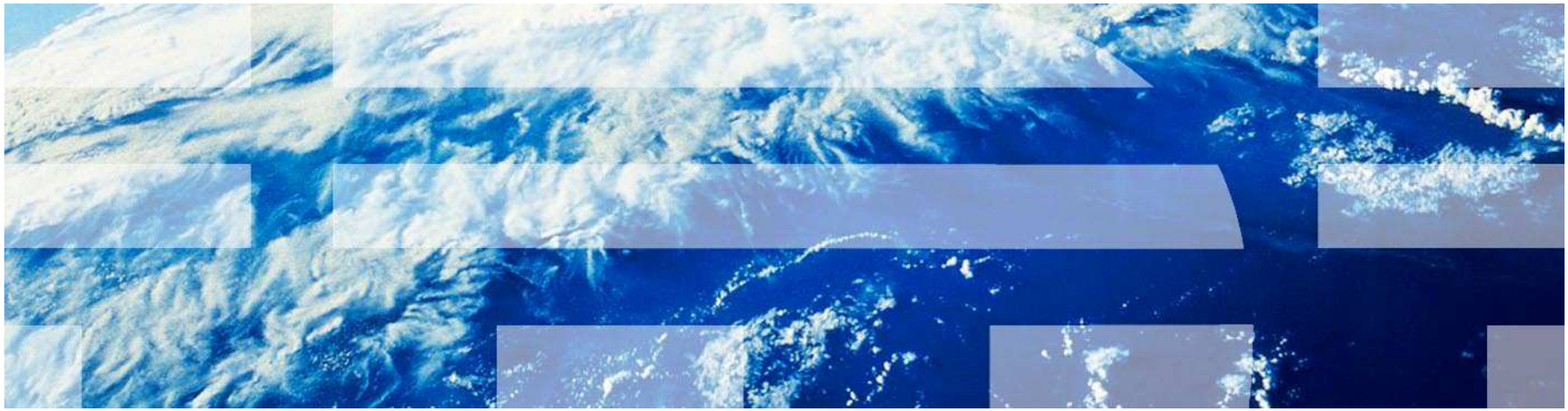
WEBSPHERE DECISION SERVER - BPM & SOA ADOPTION ON SYSTEM z

WAS z, CICS Events, BRMS and WBE Connectivity and Integration on System z



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Welcome to the Technical Exploration Center

- Introductions
- Access restrictions
- Restrooms
- Emergency Exits
- Smoking Policy
- Breakfast/Lunch/Snacks – location and times
- Special meal requirements?

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Introductions

- Please introduce yourself
- Name and organization
- Current integration technologies/tools in use

What do you want out of this Exploration session?

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Agenda – Decision Management

Solution Overview

1. Decision Server Concepts
2. Business Events
3. Business Rules

Solution Demonstration

4. CICS Business Events
5. Business Event Processing
6. Business Rules Processing

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Business Requires Greater Decision Agility & Effectiveness

Automate, improve and govern high-volume, operational decisions

Business agility and responsiveness	Business alignment, compliance and transparency	Smarter personalization and self-service
Improve process automation, flexibility and efficiency	**Empower LOB users to manage and improve decisions**	**Achieve finer-grain personalization in customer interaction**
Shorten response time in actionable situations	**Maximize decisions for resources, risk and value**	**Move decision-making to point of contact with customers**

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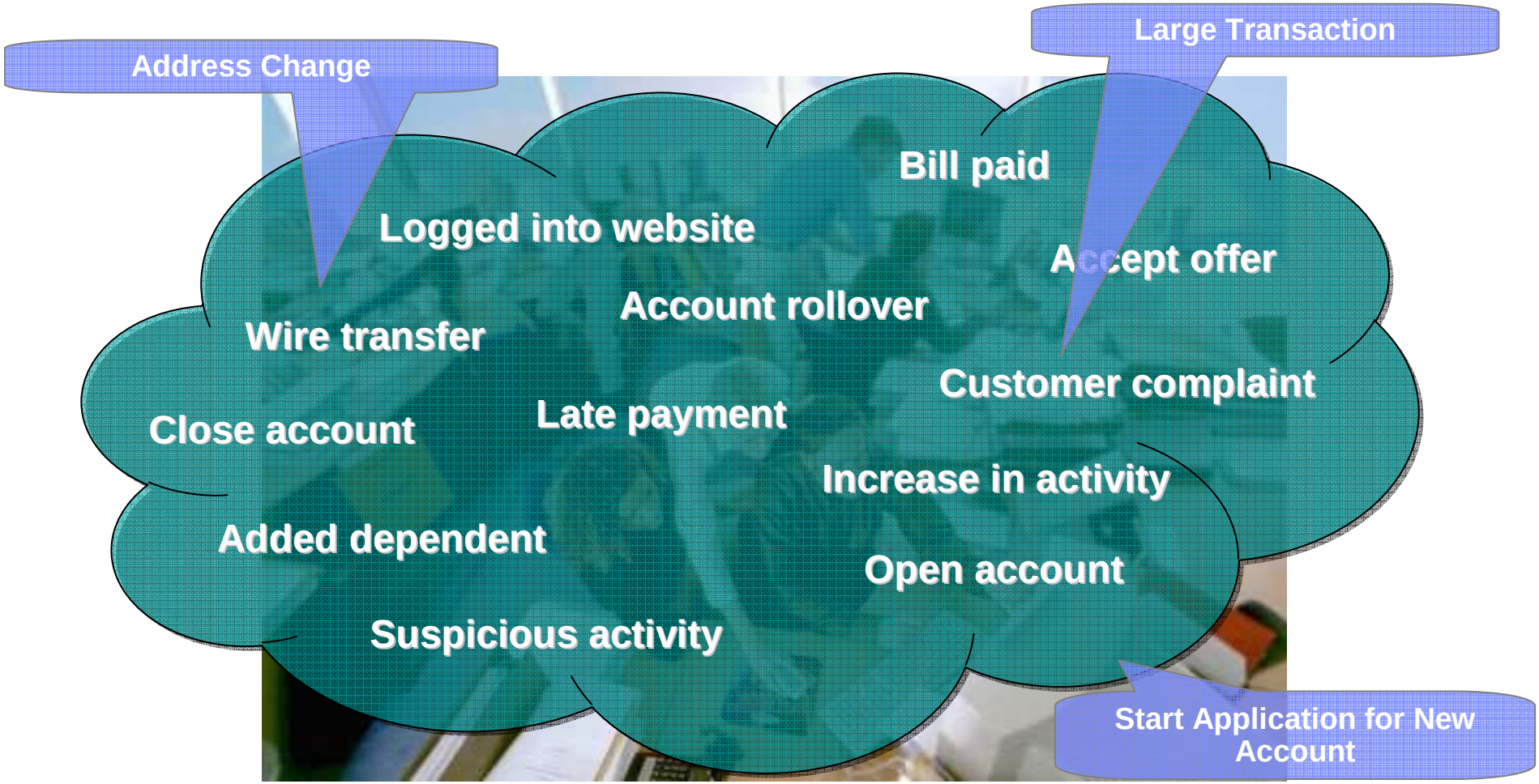
Greater Decision Agility and Effectiveness

Business Events Indicate The Need for Decision Management to Make Decisions



"Events… pass silently back and forth… as unrelated pieces of communication. They are a source of great power, for when they are correlated, they yield a wealth of information."

-Dr. David Luckham, Professor Emeritus, Stanford University

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Greater Decision Agility and Effectiveness

Business Rules Codify Logic For Deciding What To Do

For operational systems, business rules are usually contained within application code, although they can also be in documentation or the knowledge of employees

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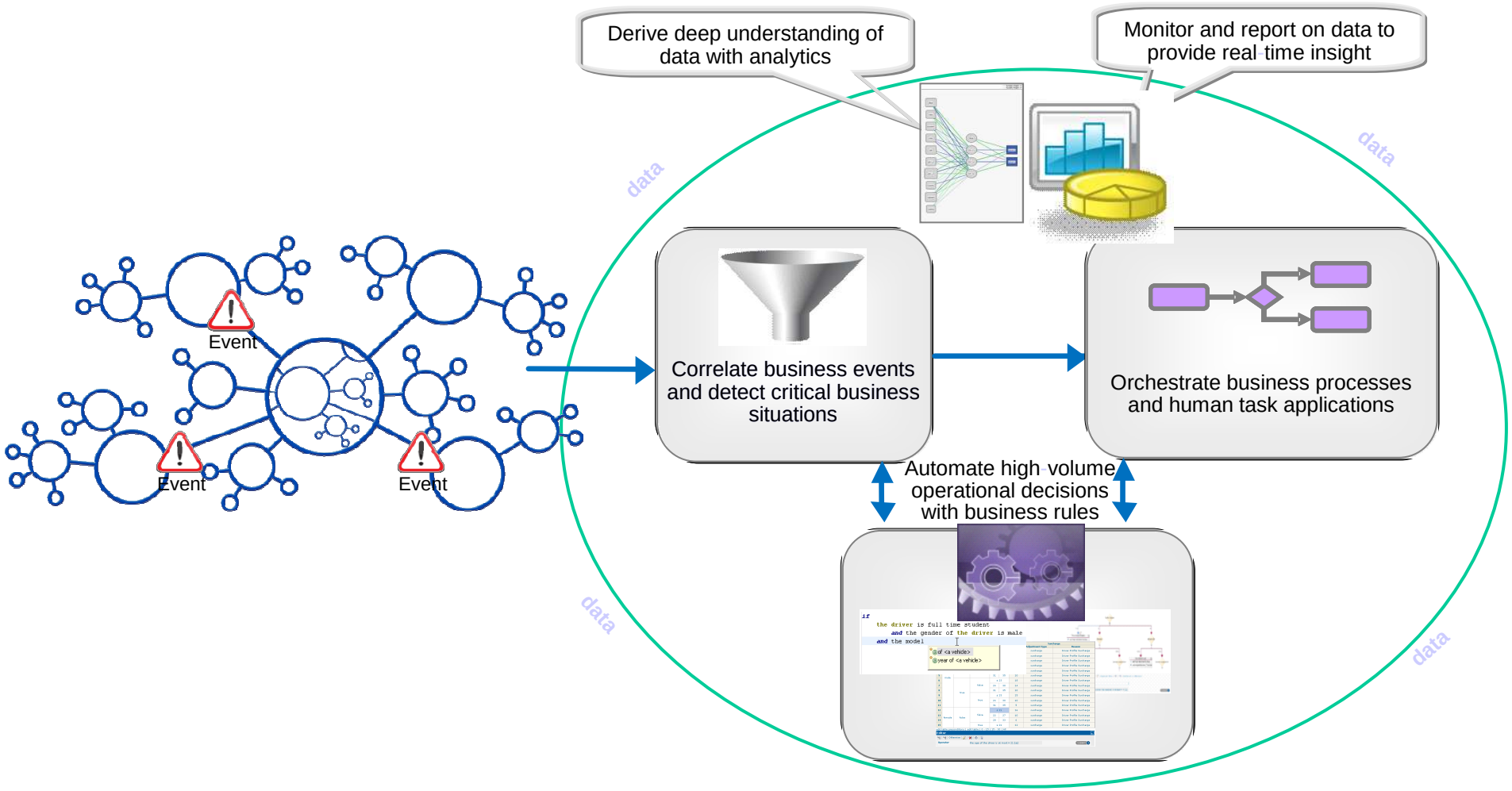
Greater Decision Agility and Effectiveness

Key Technologies



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Qualifying Prospects for WebSphere Decision Server

1. How well can your systems track customer behavior across systems and channels? Are there opportunities you could exploit by being able to respond more quickly to insights on customer behavior?

2. Would you like to be able to increase personalization of pricing, promotions, product offers (etc.) through your business systems? How could this help you vs. your competitors? How could this help you with customer loyalty?

3. What are the current rates of automation for key decisions within your business processes? Are there repeatable, high-volume decisions that require a lot of manual intervention? What factors are limiting decision automation?

4. Can your business experts manage and govern automated decisions effectively without involving IT? What benefits would IT gain by being able to easily collaborate with line-of-business users in the implementation of decision logic that drives business systems behavior? What benefits would line-of-business functions gain?

5. Does your IT infrastructure enable you to implement event-driven applications that sense and respond real-time to actionable business situations and initiate actions based on knowledge-based rules?

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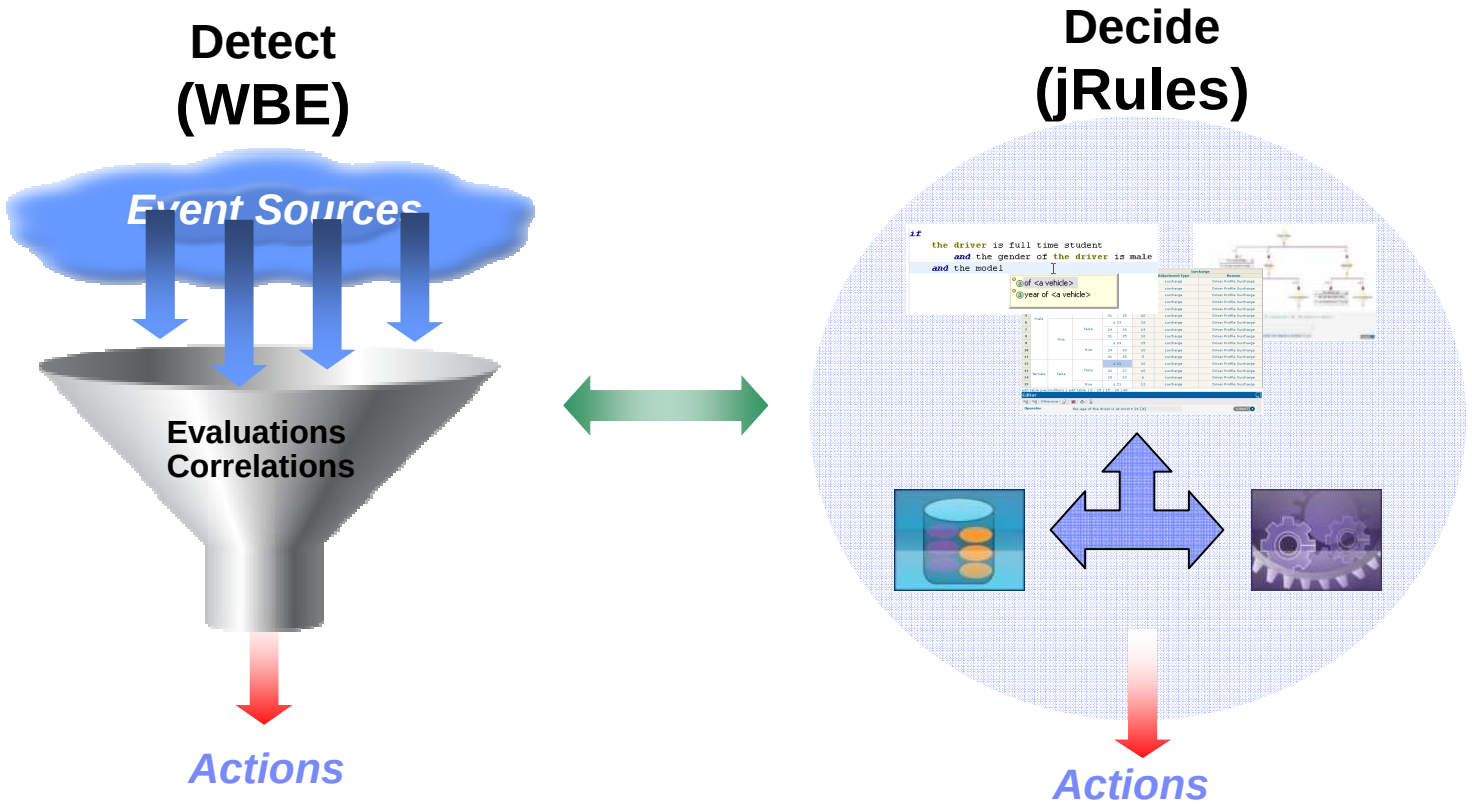
WebSphere Decision Server

Greater Decision Agility and Effectiveness



- **WBE - Detects when events or patterns of events occur to notify people or systems to take action**
- **jRules - Decides business outcome through execution of business rules against available data**

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Greater Decision Agility and Effectiveness

Business Event Processing

- Primarily implements a time-based pattern detection model – correlating events as data is in motion
- Main purpose is to determine what of interest is transpiring and coordinate one or more responses by other systems or generate alerts to people
- Correlating patterns of events coming from different sources is a key capability

Business Rules Management

- Primarily implements a decision model - given a snapshot view of data, determines best course of action at a specific point in a process or application
- Main purpose is to automate a decision based on a combination of factors (business policies, regs., best practices)
- Governing the evolution of decision logic used by operational systems is a high priority

Gartner characterizes BRMS and CEP systems as complementary notions. The combination being required to implement intelligent decision management programs.

Gartner Research Report: Rule Engines and Event Processing, Mar 9 2009

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WebSphere Decision Server
Automate and Improve High-volume Operational Decisions

WebSphere Decision Server

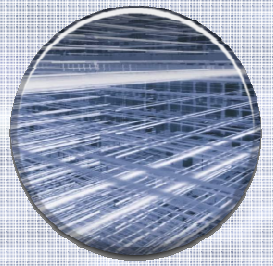
- Detect critical events across the business network and automate precise, context-specific decisions

- **Major American Utility Company** delivers electricity to 2 million customers in a 5,000-square-mile area
- Smart Grid is a top priority:
  - ***Business Events Processing*** is used for detecting events and event patterns from Smart Meters as they occur
  - ***Business Rules Management*** will increase automation of follow-up decisions on Smart Meter alerts, based on the collective knowledge of the customers' subject matter experts
- Ability to respond to real-time data with intelligent, automated decisions focuses operations personnel on those situations where there is real value-add in having manual review of alerts

New!

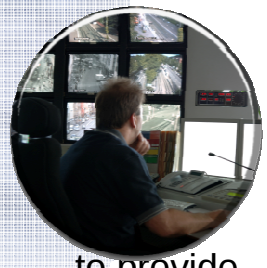
WebSphere Decision Server

Combined rules and events capabilities to power flexible decision management solutions



Can be used for fully automated interactions, or…

…for decision support in the back-office, or…



… to provide decision guidance for personal interactions with customers

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Decision Agility and Effectiveness in Health Care

Business Challenge:

Large, regional Healthcare provider challenged to offer improved patient after-care to reduce readmissions, overall cost and risk for both provider and payer.

Solution: WebSphere Business Events and WebSphere ILOG JRules are being used for real-time assessment and decision-making for chronic disease management:

- capture care events and home health device metrics
- catch problems before they escalate into a dangerous and costly treatment situation
- when WBE detects and identifies defined patterns of interest, it initiates JRules to make patient-specific decisions, providing guidance to healthcare provider

Goals:

- ✓ Ability for clinicians to customize logic for individual patients
- ✓ Improved patient care and loyalty to the provider
- ✓ Reduced readmissions
- ✓ Reduced cost to patient and provider
- ✓ Mitigates risk for both the provider and payer

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Decision Agility and Effectiveness
Insurance & Credit Card Services

Customer Acquisition
(E.g. Car Insurance)

- WBE to monitor customer behavior and offer promotional discounts
  - Detect multiple requests for insurance quote over a short period of time
  - Detect quote requests that have not been accepted within a period of time
  - Trigger action to JRules to determine customer promotional offer
- JRules to determine whether to make an offer, and if so, for what
  - Tailor offer based on customer demographic and quote details
  - Provides ability to quickly introduce/remove offers as company risk profile changes

Value Add Personalized Service and Interaction
(E.g. Credit Card Services)

- WBE to monitor transaction behavior based on individual customer preferences
  - Detect patterns and subsequently notify cardholders about card activity behavior and thresholds (i.e. purchases exceed threshold over 24 hours)
  - Offers business users the flexibility to change rules and patterns definitions
  - Identify behavior patterns that meet promotional opportunity
- JRules to determine whether to offer a targeted offer, and if so, for what
  - Precise offer based on customer profile and behaviour

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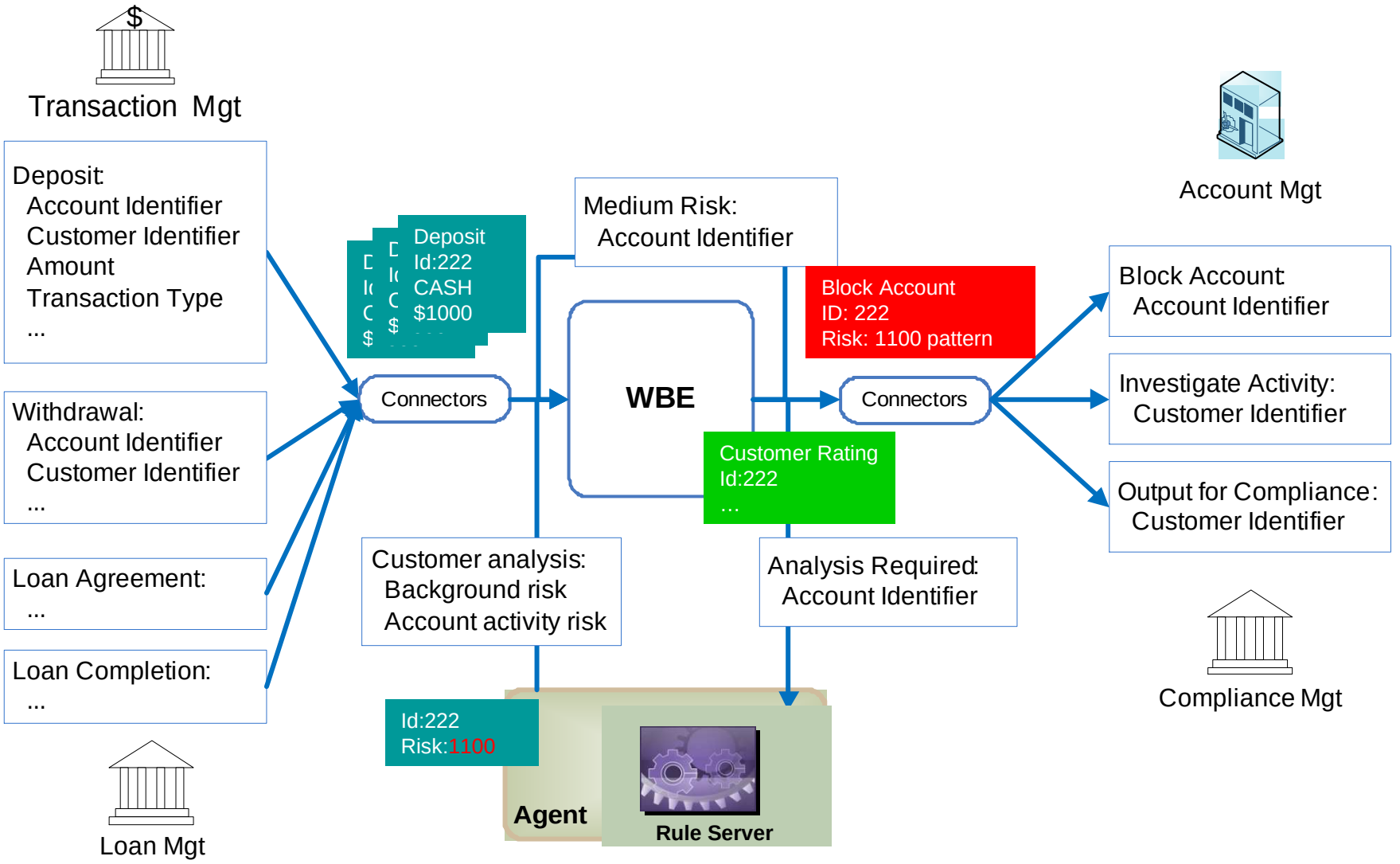
Decision Agility and Effectiveness in Banking



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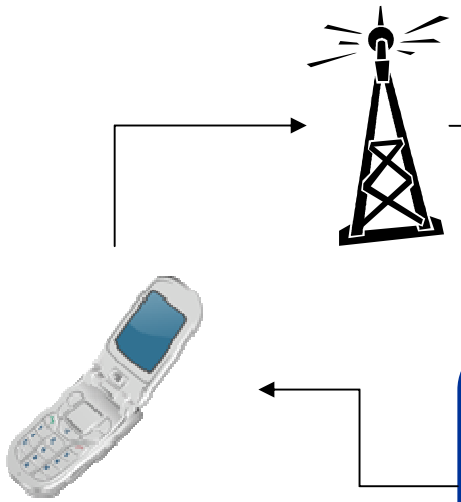
Decision Agility and Effectiveness
Just-in-time marketing to Telecom subscribers



Marketing Manager(s)

ILOG jRules

WebSphere Business Events

Customer

Transaction

Siebel CRM

Oracle

Subscriber Data

SMS Messages:

- You made 3 or more pay-as-you go calls today. Please consider our XYZ plan which could save you money.
- You have 35 minutes left on your plan. Please call our service center to purchase more time.

- If 3 pay-as-you-calls are made in the same day, then “XYZ Offer”.
- If only 20% of minutes remain, then “Buy More”.

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WebSphere Decision Server

Greater Decision Agility and Effectiveness

- Improve responsiveness to critical business situations
- Determine the best response for a variety of operational decisions
- Rapidly implement changes to meet market needs and competitive threats
- Reuse decision logic across processes and systems
- Ensure compliance with business policies and external regulations

Learn more at:
http://www-01.ibm.com/software/integration/business-rule-management/decision-server/

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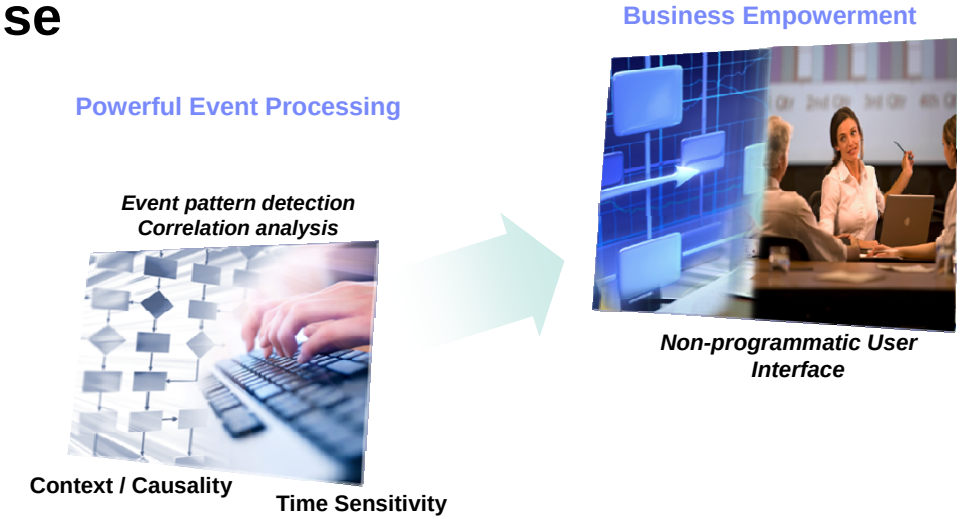
WebSphere Business Events

Putting the Power of Event Processing in the Hands of the Business

Situational Awareness and Response

- A powerful, scalable, flexible event processing platform
- Business user oriented interfaces reducing time to value.
- Built-in Connectivity to the widest range of events.
- Designed to expect change – supports incremental development and deployment



The Convergence of Power and Ease of Use

“The real world is mostly event driven, and event-driven situations are best addressed by event-driven business applications”.

Roy Schulte, VP Gartner Research

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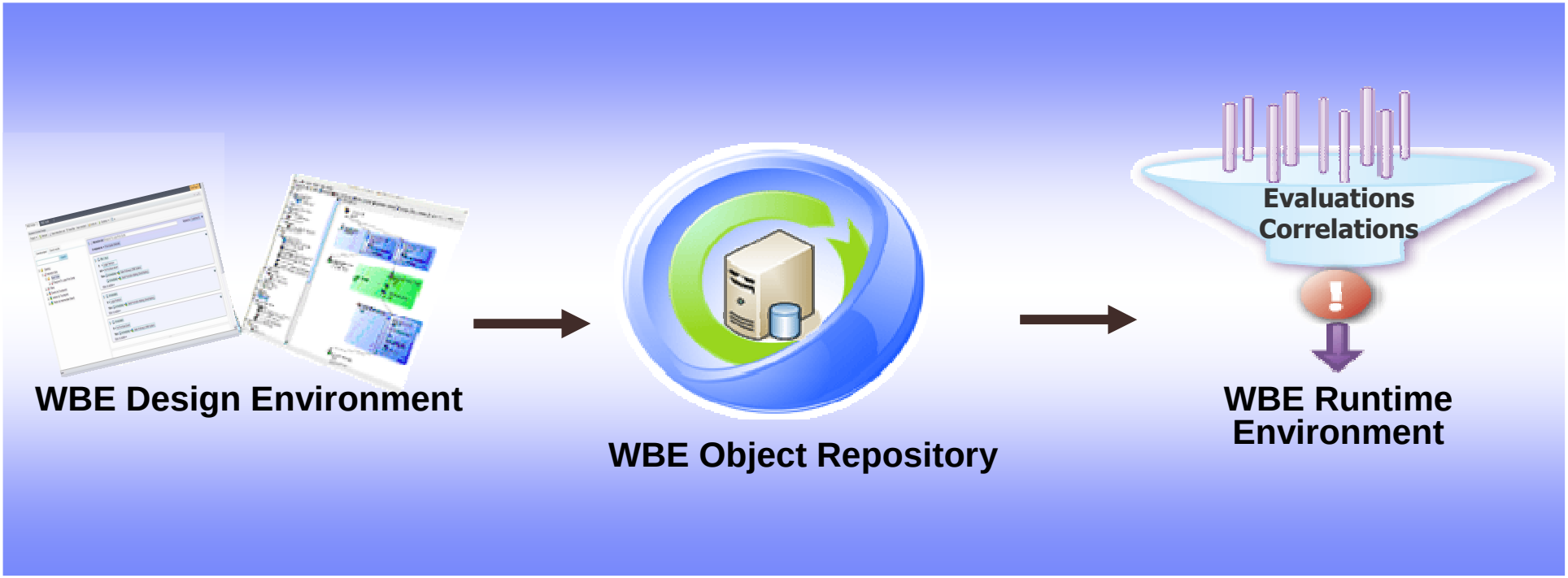
WebSphere Business Events

Putting the Power of Event Processing in the Hands of the Business



Seamlessly integrated solution for the design and execution of business event processes

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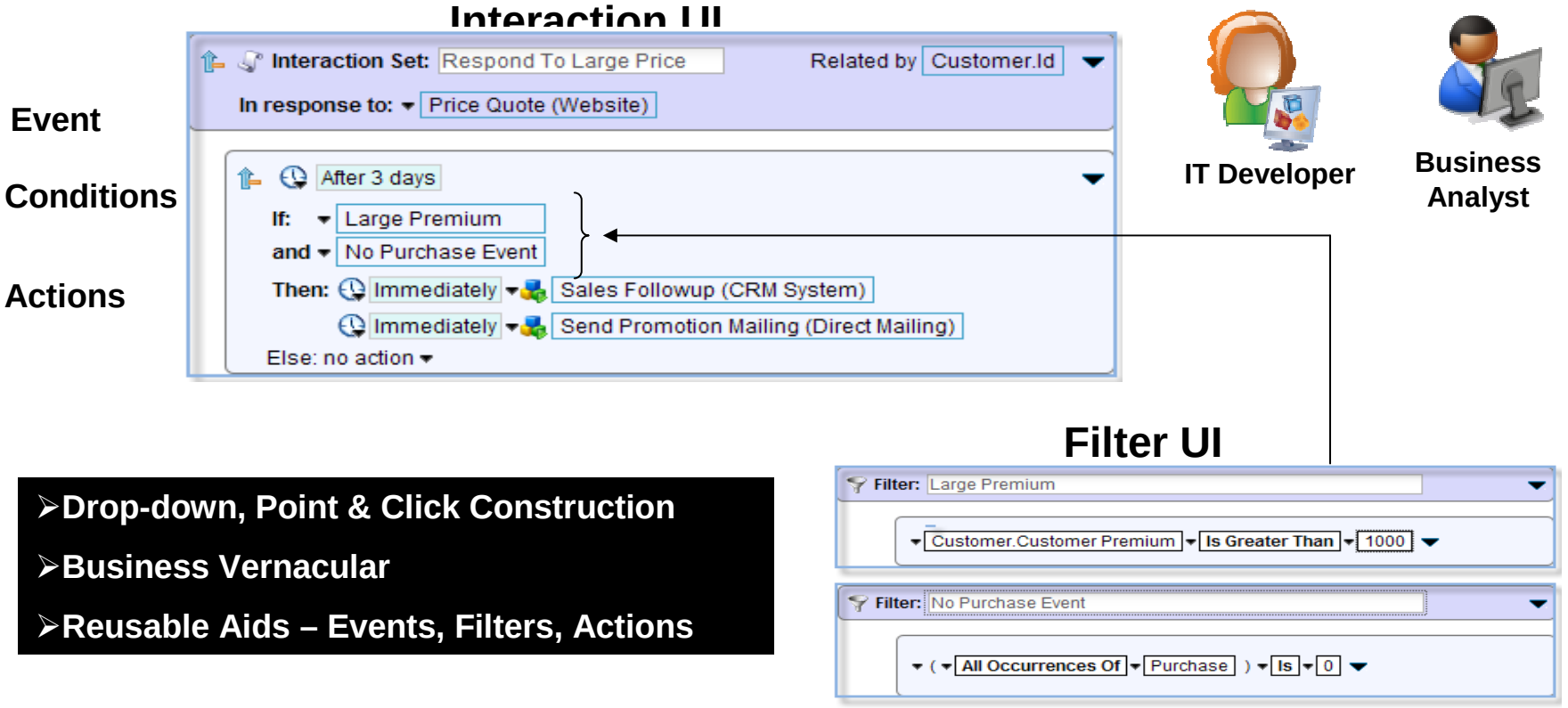
Define WBE Interactions (Logic)

Empowers IT and Business Analyst to define the logic



- Drop-down, Point & Click Construction
- Business Vernacular
- Reusable Aids – Events, Filters, Actions

With Building Blocks Defined, Business Analyst Define the Logic

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WebSphere Business Events

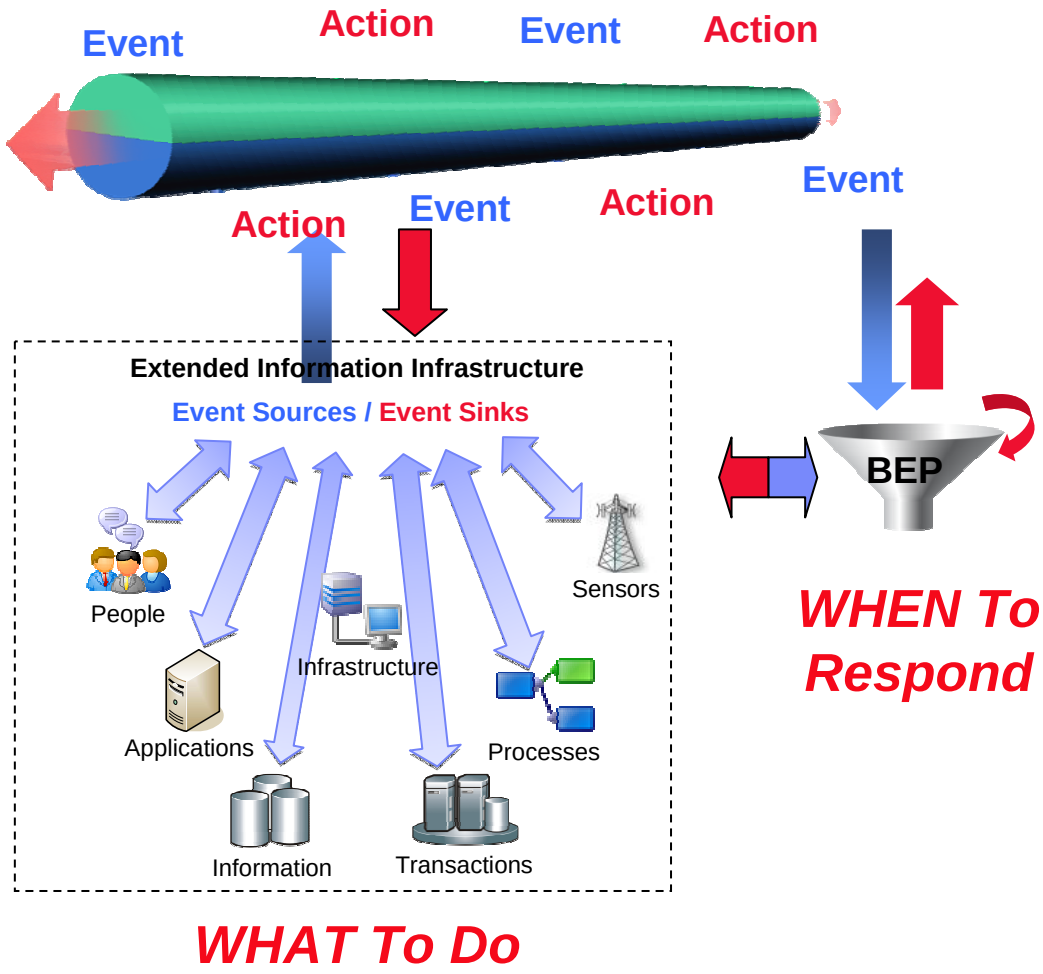
Leveraging the Infrastructure – Detect and React to Actionable Situations

Event Processing is About Determining *"When"* To Act

- WBE detects "when" an event or event pattern occurs (actionable situation) and generates one or more messages (actions) alerting the infrastructure

Knowing "When" Allows Coordination of *"What"* To Do

- When any application or process, operating in the IT infrastructure, receives an alert message (posted by WBE) indicating an actionable situation has occurred, it will determine "what" to do" I.e. do nothing, execute and when finished create a new event message or *not*



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Business Event Processing

Detect Events and Complex Patterns, as they occur, and Responds

If Event —**and**→ **Conditions** —**then**→ **Actions**

(Enrichment) **(Value or Correlation)** **(Enrichment)** **(Alert or Initiate Systems)**

If Event-A occurs then initiate Action-X

If Event-A occurs and Data Field =≠<>(value) then initiate Action-X

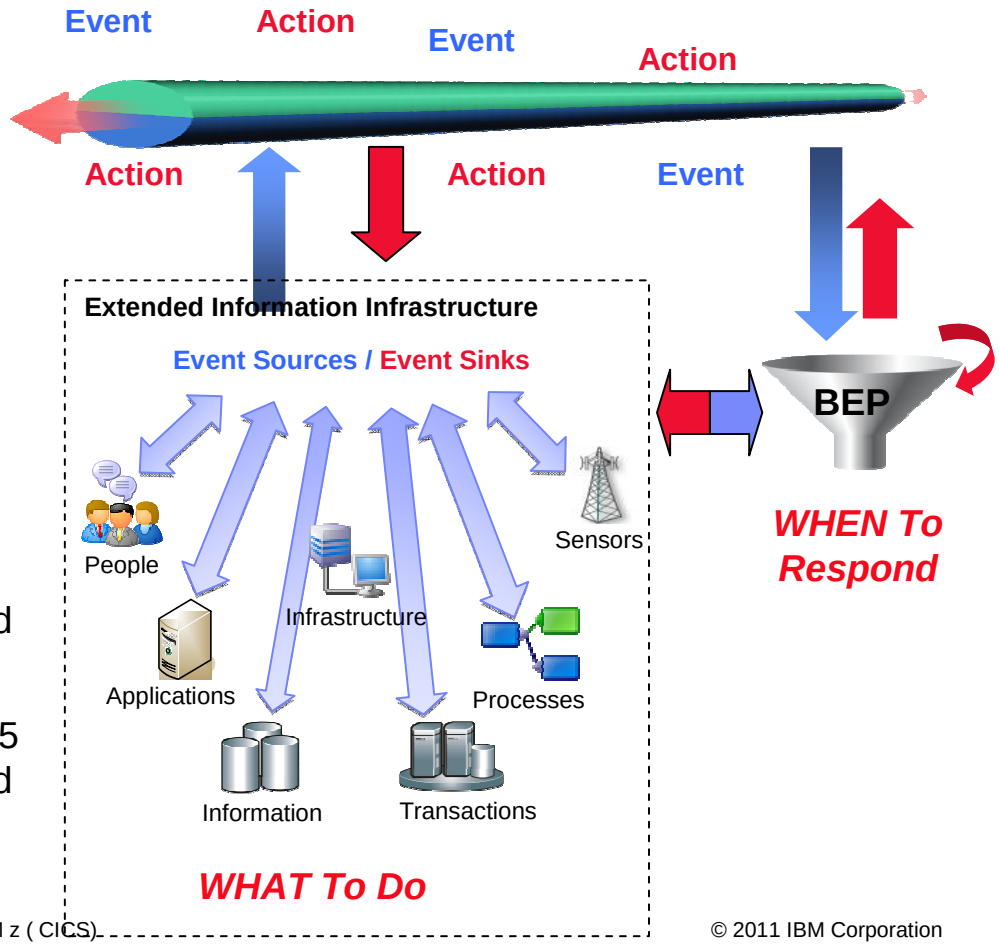
If Event-A occurs 3 times and Data Field =≠<>(value) then initiate Action-X

If Event-A occurs and Event-B occurs and Data Field =≠<> (value) then initiate Action-X,Y

If Event-A occurs and Event-B occurs and Event-C does *not* occur and Data Field =≠<> (value) then initiate Action-X,Y

If Event-A occurs and Event-B occurs within 15 minutes and Event-C does *not* occur within 2 days and Data Field =≠<> (value) then initiate Action-X,Y,Z

If Event-A occurs and Event-B occurs 2 times within 15 minutes and Event-C does *not* occur within 2 days and Data Field =≠<> (value) then initiate Action-X,Y,Z



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Elevator Pitch

Today, decision agility requires situational awareness, the ability to sense and respond in a timely manner to actionable situations that represent opportunity or risk.

WebSphere Business Events® enables situational awareness. WBE manages the business events flowing across systems and people and detects and responds to actionable situations. It enables users to describe the events and patterns to detect and react to in business terms. WBE provides tooling to define, implement, and manage business event rules without programming. WBE is unique because in its ability to empower the business and rapidly deploy and respond to change.

For example, WBE could be used to identify an opportunity to up-sell to a customer and initiate follow-up activity:

> *When, in 72 hours, a customer researches a product at the Web site and calls the help desk for more information, but does not purchase*
>
> *Then, initiate updating the customer/product activity in the CRM system and after five days, initiate sending a "thank you for your interest" e-mail from the Campaign Management system.*

Employing WBE will:

- Provide more timely line-of-business insight and awareness to business situations
- Increase business agility to leverage opportunity and mitigate risk
- Enable business users to define and manage business events
- Reduce TCO for decision management

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Qualifying Prospects for WBE

1. How often is your business negatively impacted by untimely response to actionable situations? Are you losing more than an acceptable amount of business to your Competitive Analysis? Is customer satisfaction being hurt? Is customer loyalty decreasing?
2. Are you able to respond quickly enough to the accelerating pace of change in today's business world? Does the business feel that IT takes too long to implement changes to adapt new patterns of activity?
3. Are you missing opportunities to leverage knowledge across disparate business processes or separate instances of the same process?
4. Are you happy with your ability to detect and act on business risks? Is your company looking to reduce the costs incurred from fraud, identity theft and other risks?
5. Are you seeking ways to market your products and services to your customers when they are most susceptible to your offering? Do you feel your leaving money on the table because your promotional offers aren't made at the right time?
6. Would your business benefit by detecting and responding to patterns of activity more consistently across the company? Are you confident that your best practices are being followed as defined in every situation?

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BEP in Retail
Promote Customer Loyalty

Business Challenge: **Retailers wish to provide incentive for customers real-time while they are still in the store, to join customer loyalty programs or upgrade to a higher value programs, as well as reap the benefits of certain purchasing milestones.**

Solution: WBE can correlate a purchase as it is being made, to the customer's purchase total for the current year and loyalty status and determine loyalty program eligibility based on the purchase total plus the purchase in-progress and notify the cashier or the store manager If the customer is not participating in that loyalty program to approach the customer before he or she leaves the store. Additionally, WBE could correlate external factors like weather forecasts or time of year (holiday, new season) with the given loyalty purchase to help more specifically tailor the reward, e.g., if the customer hits a given plateau on during a cold spell, deliver a cappuccino coupon in real-time vs. a frappuccino during more balmy weather.

Results:
- ✓ Greater participation in loyalty programs that foster repeat customer visits
- ✓ Greater customer satisfaction
- ✓ Positive word of mouth/viral publicity for the company

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BEP in Manufacturing
Order Management across Multiple ERP Systems

Business Challenge: **Manufacturing and retail companies are frequently challenged by maintaining multiple ERP systems based on legacy operational practices. Incoming orders are split and distributed to the appropriate systems, but if there is a problem with delivery of one part, or a request for a delivery change, coordinating a response is difficult.**

Solution: WBE can detect events that occur across multiple ERP and enterprise systems that represent critical supply chain situations that will result in customer impacting delays or practices such as splitting order fulfillment into multiple shipments and initiate a series of automatic responses to properly fulfill complex orders or compensate for delays or challenges in specific parts of the order fulfillment process.

Results:
- ✓ Improved operational efficiency
- ✓ Coordination across disparate processes
- ✓ Improved customer responsiveness and satisfaction

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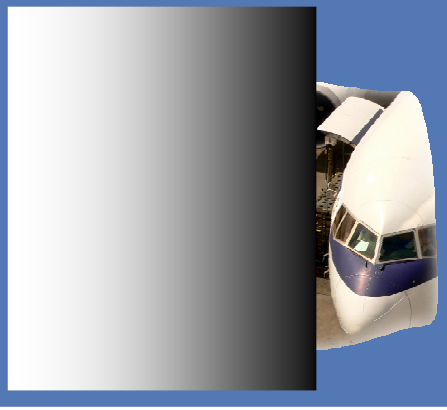
BEP in Government
Smarter Infrastructure

Business Challenge:
Governments are challenged with limited resources, technologies and personnel for evaluating and detecting deteriorating conditions across the physical infrastructure – roads, bridges and buildings



Solution: WBE is being used to monitor and correlate events from sensors attached to bridges. These event patterns can be used to measure traffic and the condition of the structure under stress used to recommend more timely and cost effective inspections.

Results:
- ✓ Determination and notification of preventive maintenance
- ✓ Alert to critical public safety conditions
- ✓ Determination and alert to compliance with regulations

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WebSphere Business Events

Real Time Situational Awareness and Response

Why WebSphere Business Events:

- Mature Product Offering
- Synergy with WebSphere Portfolio
- Unequaled Business User Empowerment
- Superior Event Processing Functionality
- Broadest Access to Event Sources
- Unparalleled Scalability Up and Out
- Unsurpassed Global Support

Unlock the value of events by enabling the business user to define actionable business situations and responses

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Agenda – Decision Management

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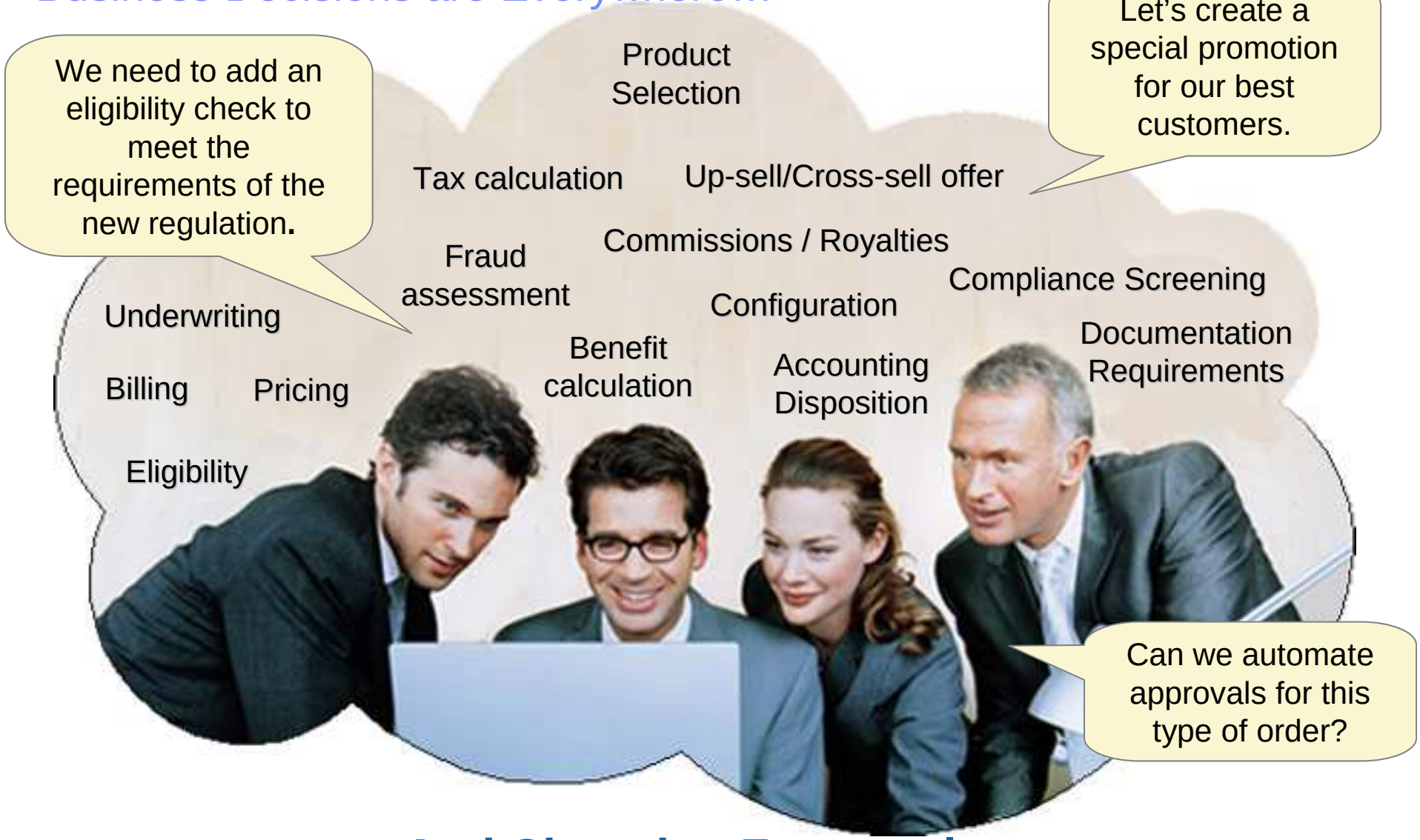
Business Decisions are Everywhere…



And Changing Frequently

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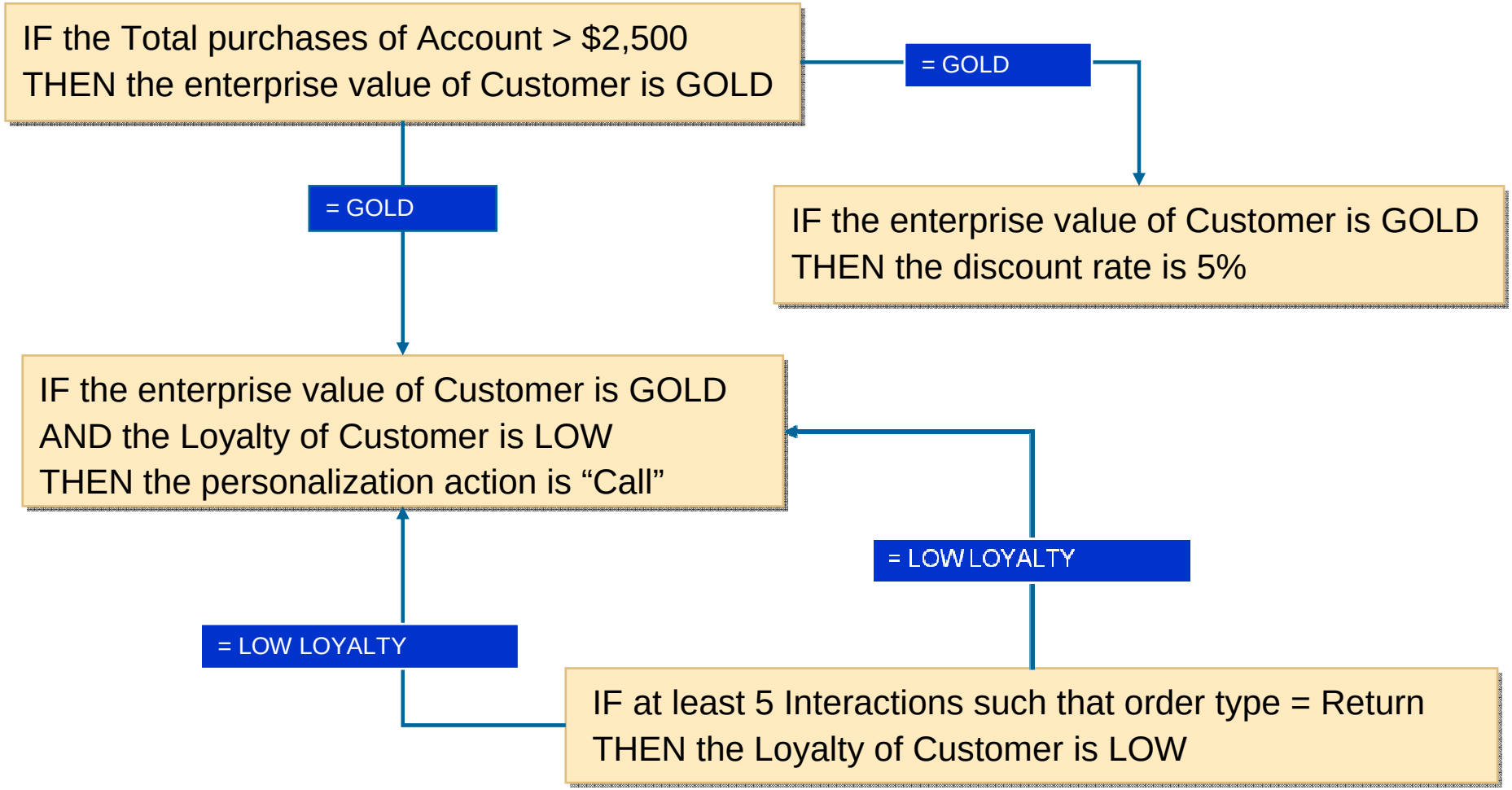
What is a business decision?



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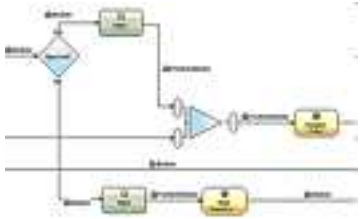
Traditional Approach for Managing Decision Change

The traditional (ad hoc) approach of dealing with rule changes leads to…

- Reduced organizational agility
- Reduced employee productivity
- Increased load on IT

Where Business Rules Typically Exist

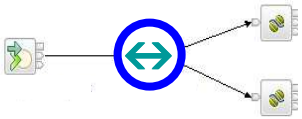
People



Processes

Applications

Documents



Message Flows

Issues

- Rules are hidden in code or isolated within the organization
- Changes are hard to track and maintain over time
- Rules used by systems have to be programmed and require IT resources
- Duplication and multiple versions of the same rules
- Lack of auditability, traceability
- Decision changes cannot be easily tested or simulated

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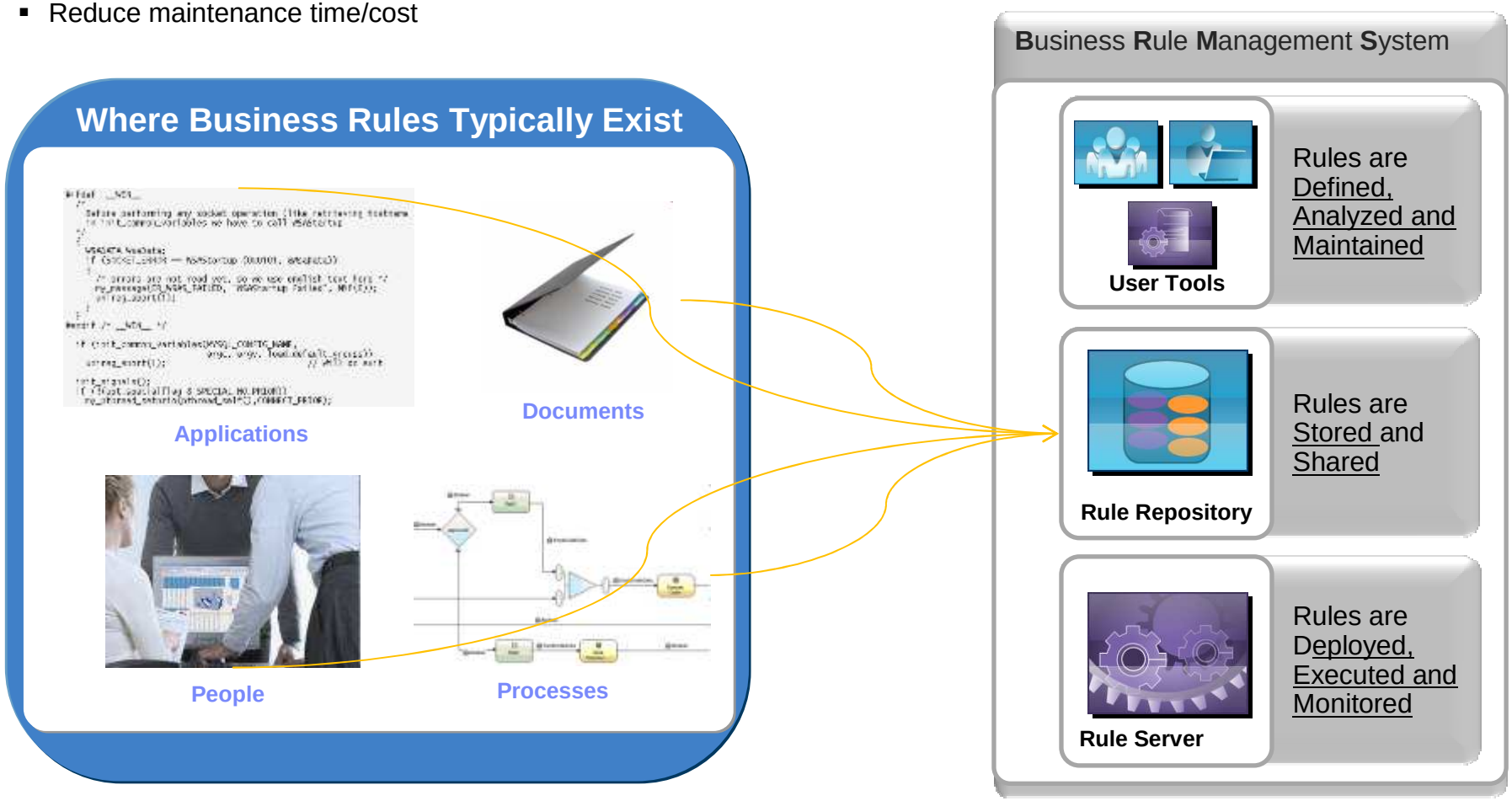
The Smarter Approach – Easy, Safe, Reliable Change with BRMS

- Eliminate decision silos
- Make decision logic accessible to Business and IT
- Allow business users to manage rules
- Implement fine-grained, context-specific decision automation
- Reduce maintenance time/cost



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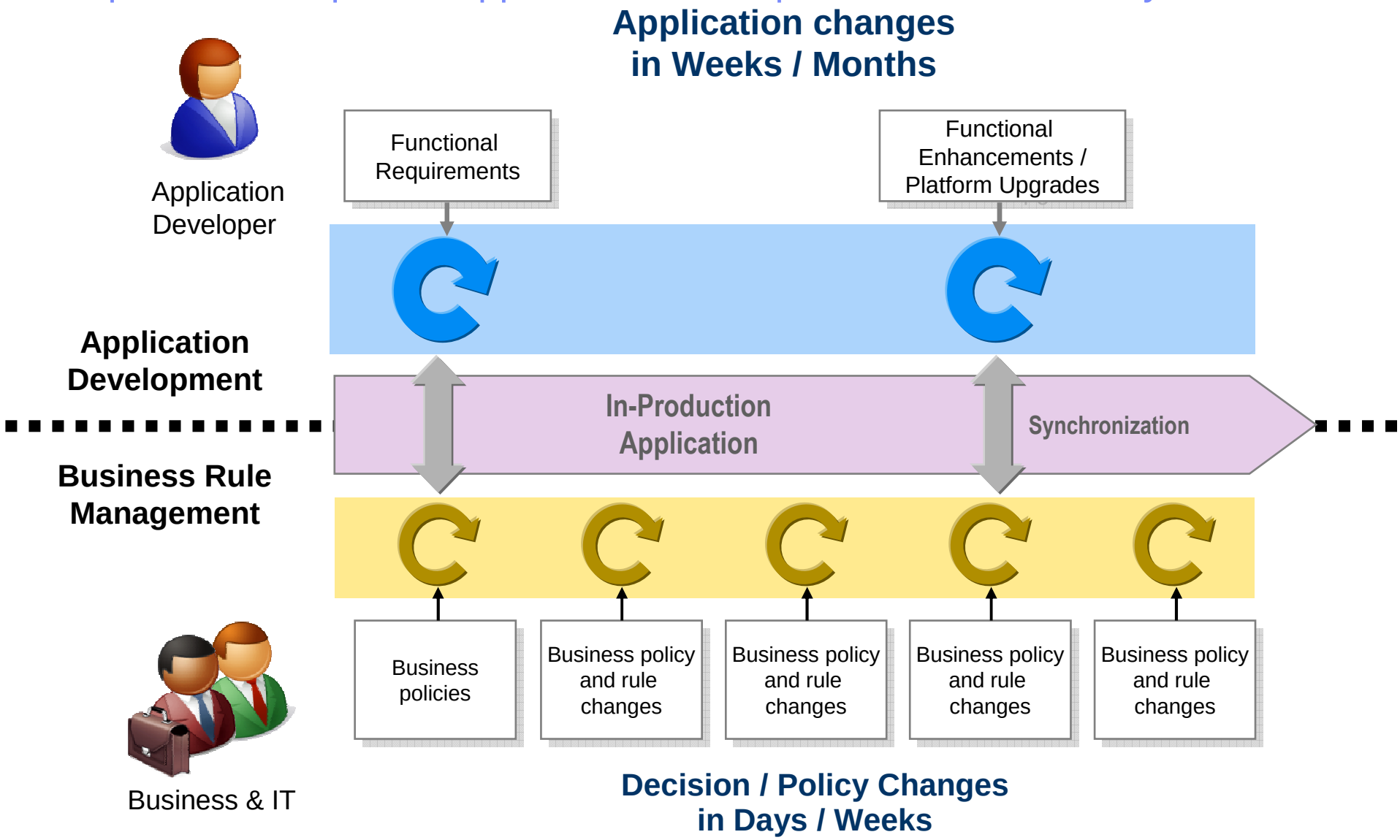
Requirement: separate Application Development and Rule Lifecycles



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Value of BRMS

- **Improved agility**
  - Business Decisions and Rules can be more easily accessed and changed
  - Business Decisions and Rules can be reused across applications

- **Improved time to market**
  - Line of Business Managers can manage and change rules
  - Quick response to market and regulatory changes

- **Management of rule based decisions**
  - Improved regulatory compliance
  - Consistency in applying business decisions across applications

- **Incremental application modernization**
  - Incrementally modernize business applications by managing business logic independently of technical services

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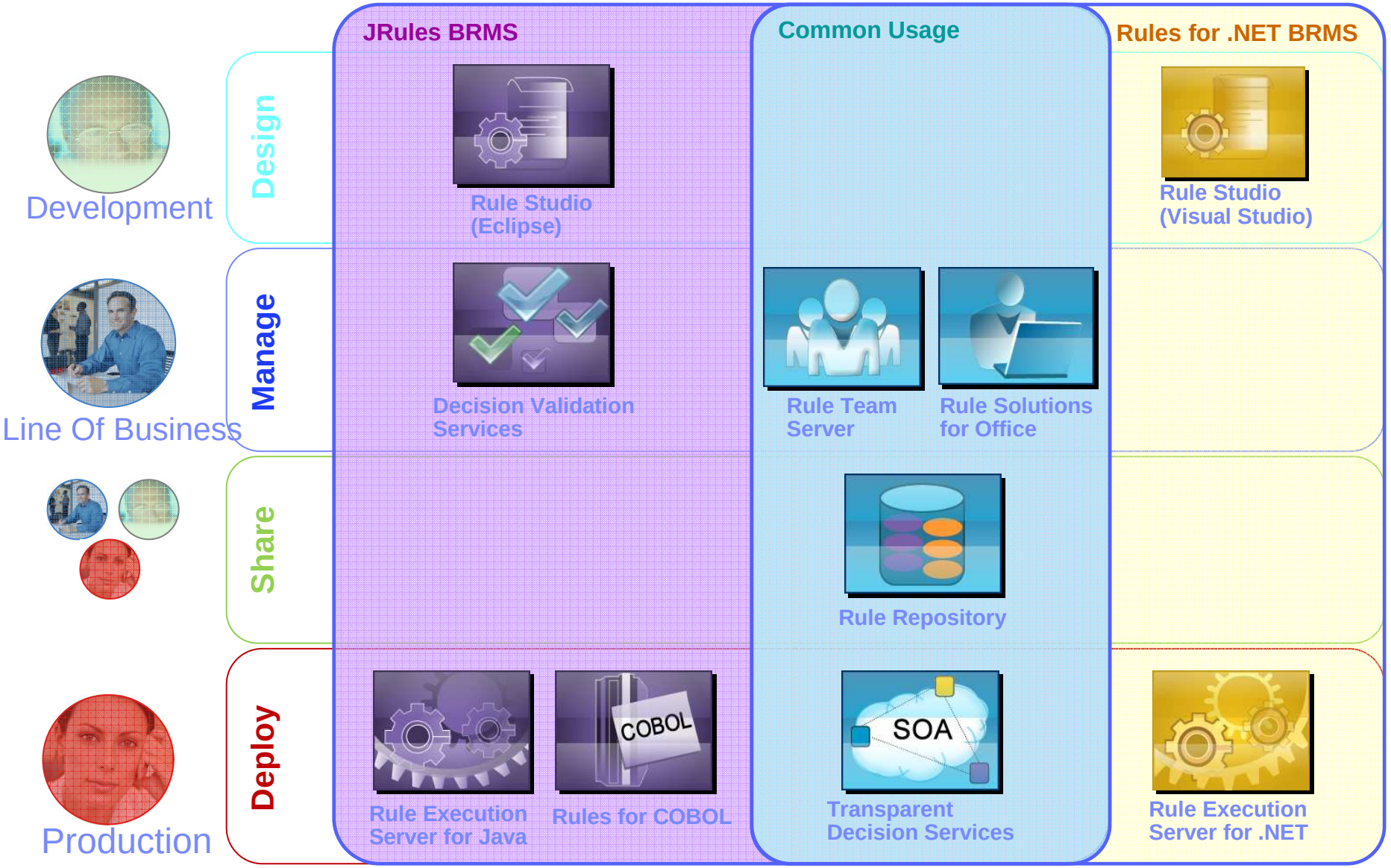
IBM WebSphere ILOG Business Rules Product Family



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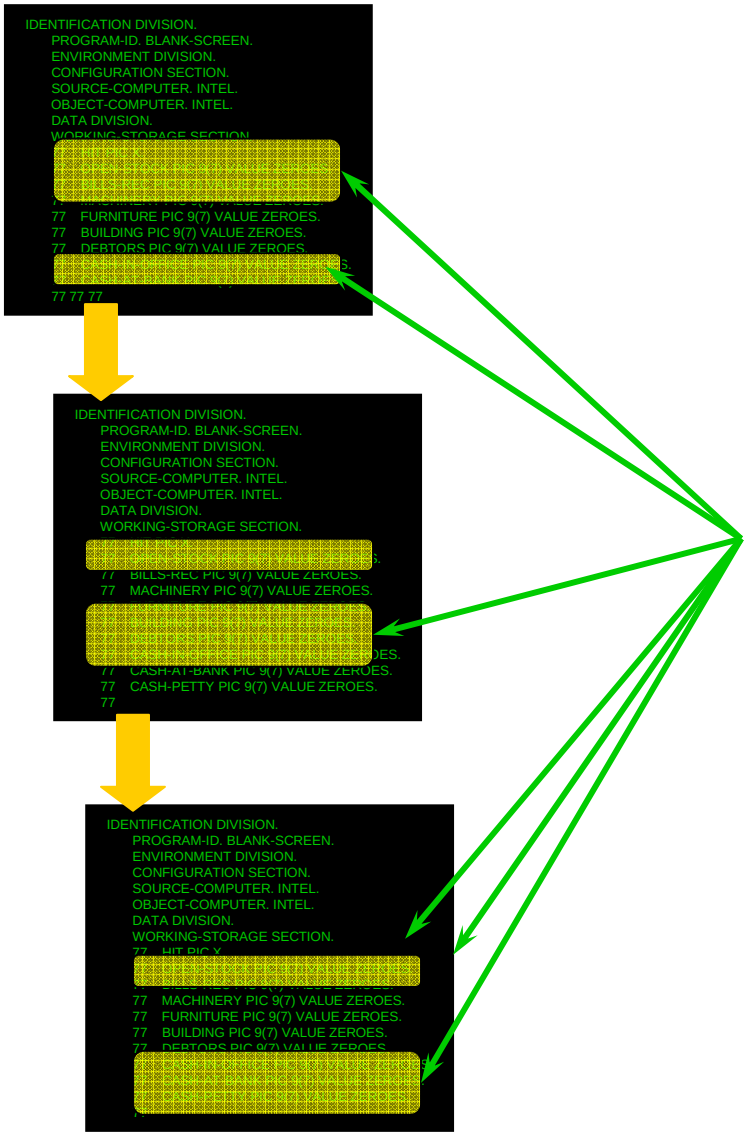
COBOL Applications



- Without a BRMS, these coded rules are:
  - Hidden in COBOL code, databases, etc
  - Potentially undocumented
  - Accessible only by IT people
  - Subject to same life cycle as the code

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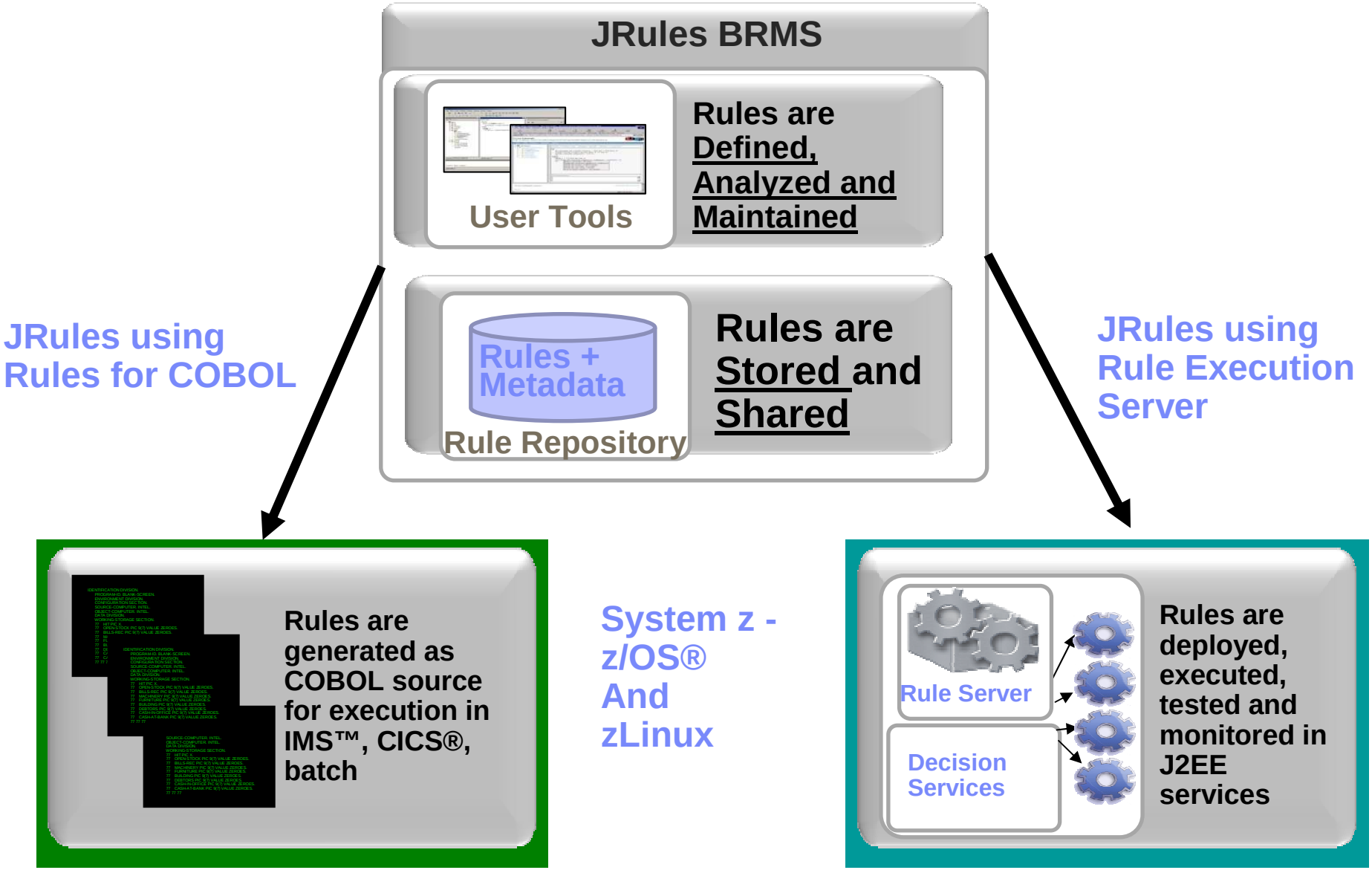
ILOG BRMS System z Options



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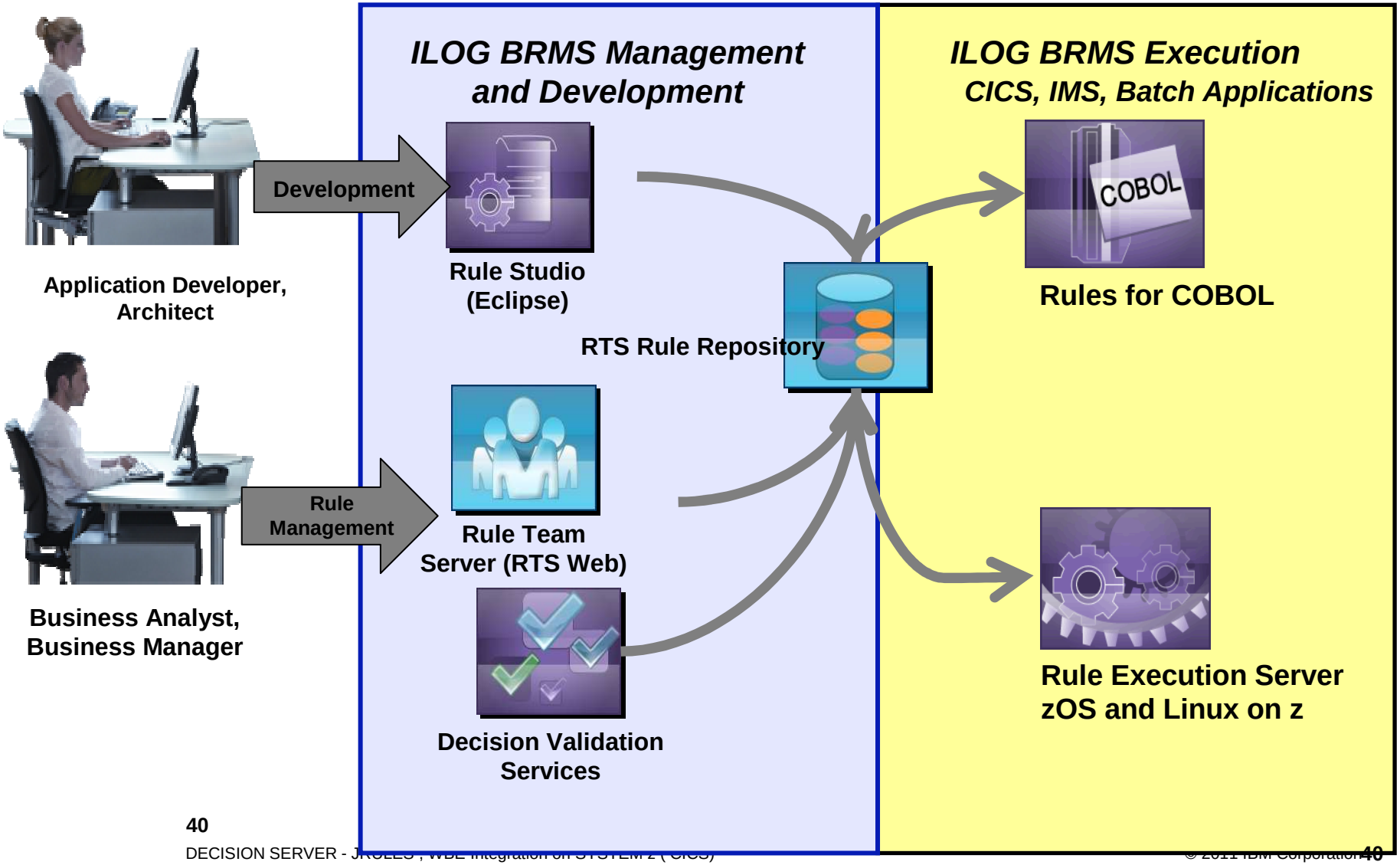
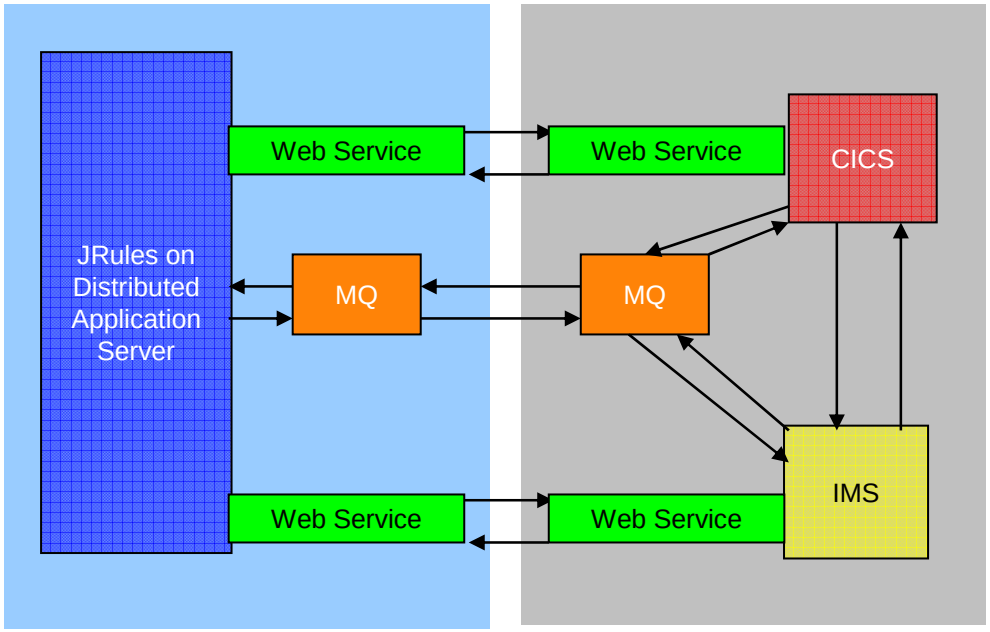
ILOG Business Rule Management Solutions for COBOL Applications on System z



z/OS JRules options

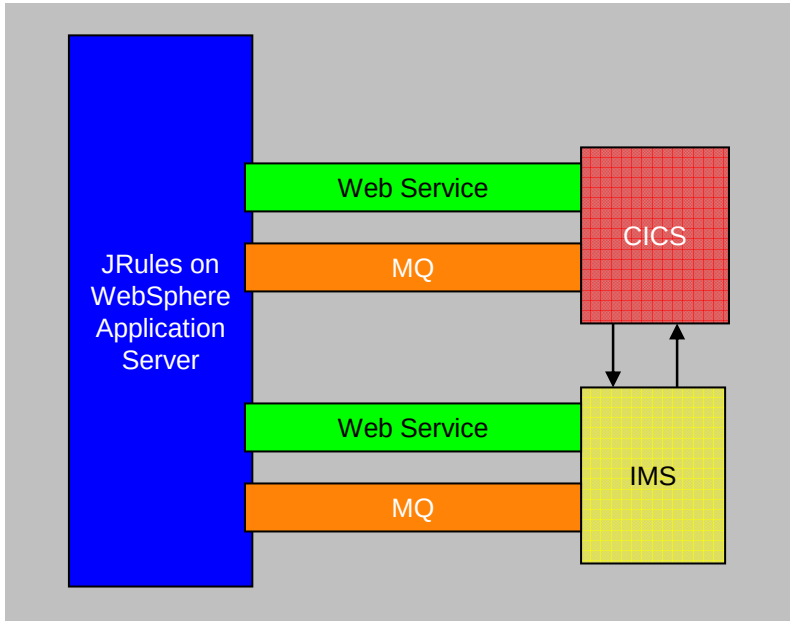
Multi-tier



Linux, Unix, Windows

z/OS

Single Tier



z/OS

Moving from multiple physical tiers to a single tier provides additional benefits, including tighter security, enhanced management, reduced costs, simplified configurations and performance gains.

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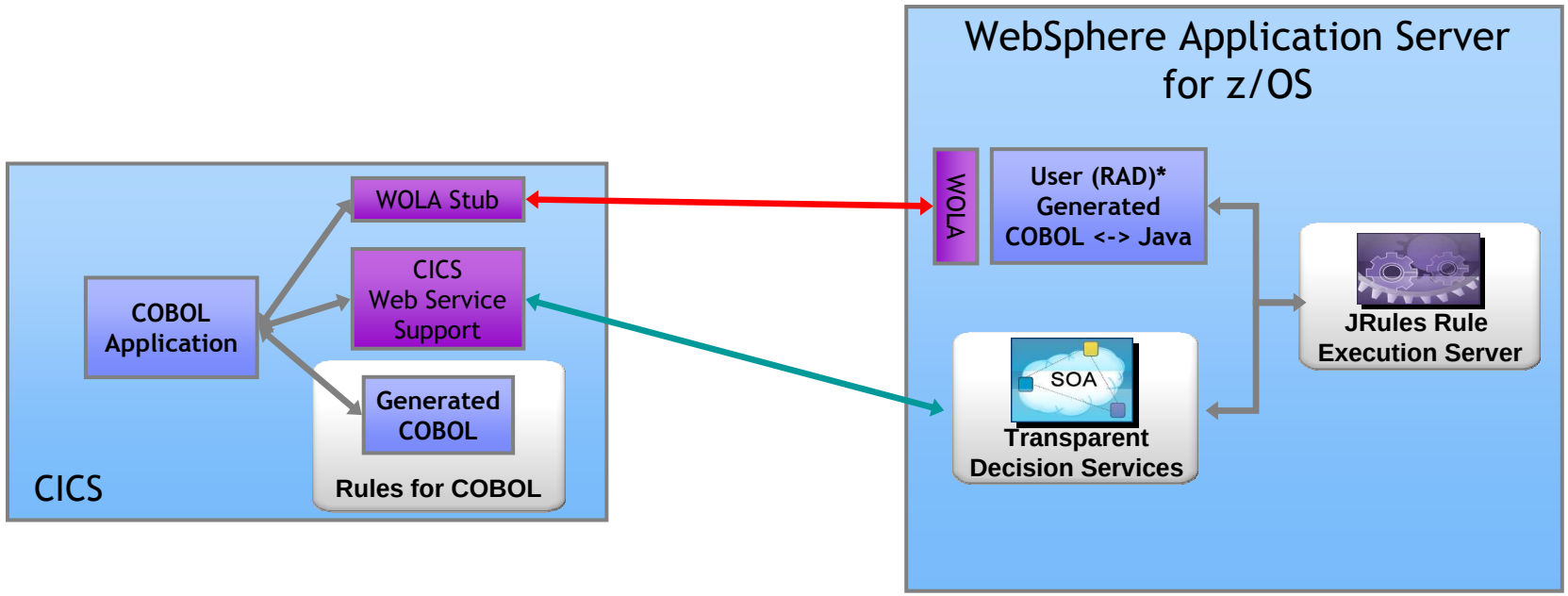
Choices of Tightly Coupled or Loosely coupled solutions



* Rational Application Developer provides tooling to map COBOL data structures to Java

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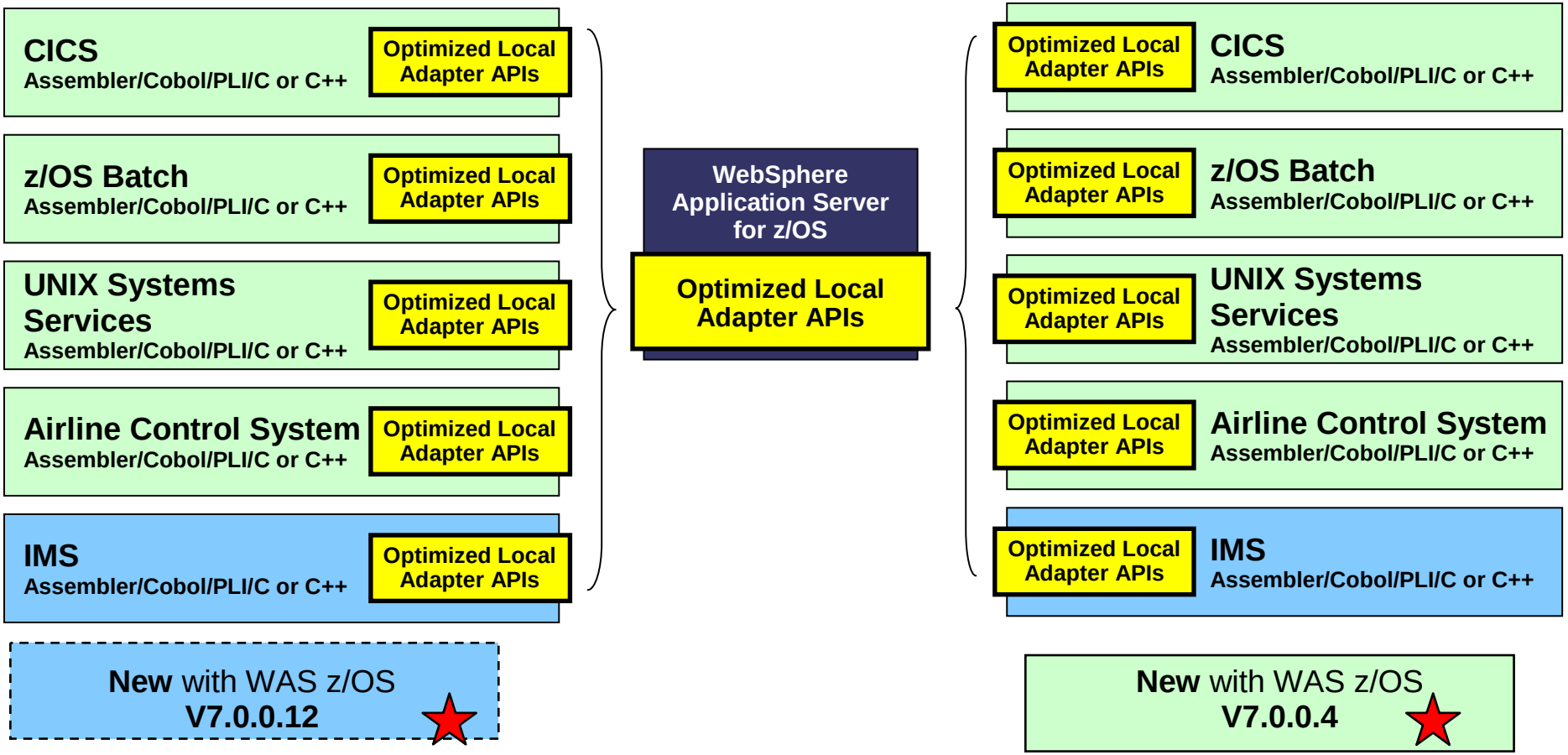
Cross-Memory: New Optimized Local Adapters (WOLA)

The new WOLA Adapters allow a bi-directional Cross-Memory communication between WAS and CICS, z/OS Batch and USS.



Benefits:

- **Based on Local Comm cross-memory access (z/OS exclusive)**
- **Bi-directional … WAS outbound or inbound to WAS (WOLA exclusive)**
- **CICS Security and Transaction propagation**
- **Very, very fast. 2x – 6x faster than other local solutions**
- **Allows all the z/OS players to call one another like peers – leverage all of your assets**

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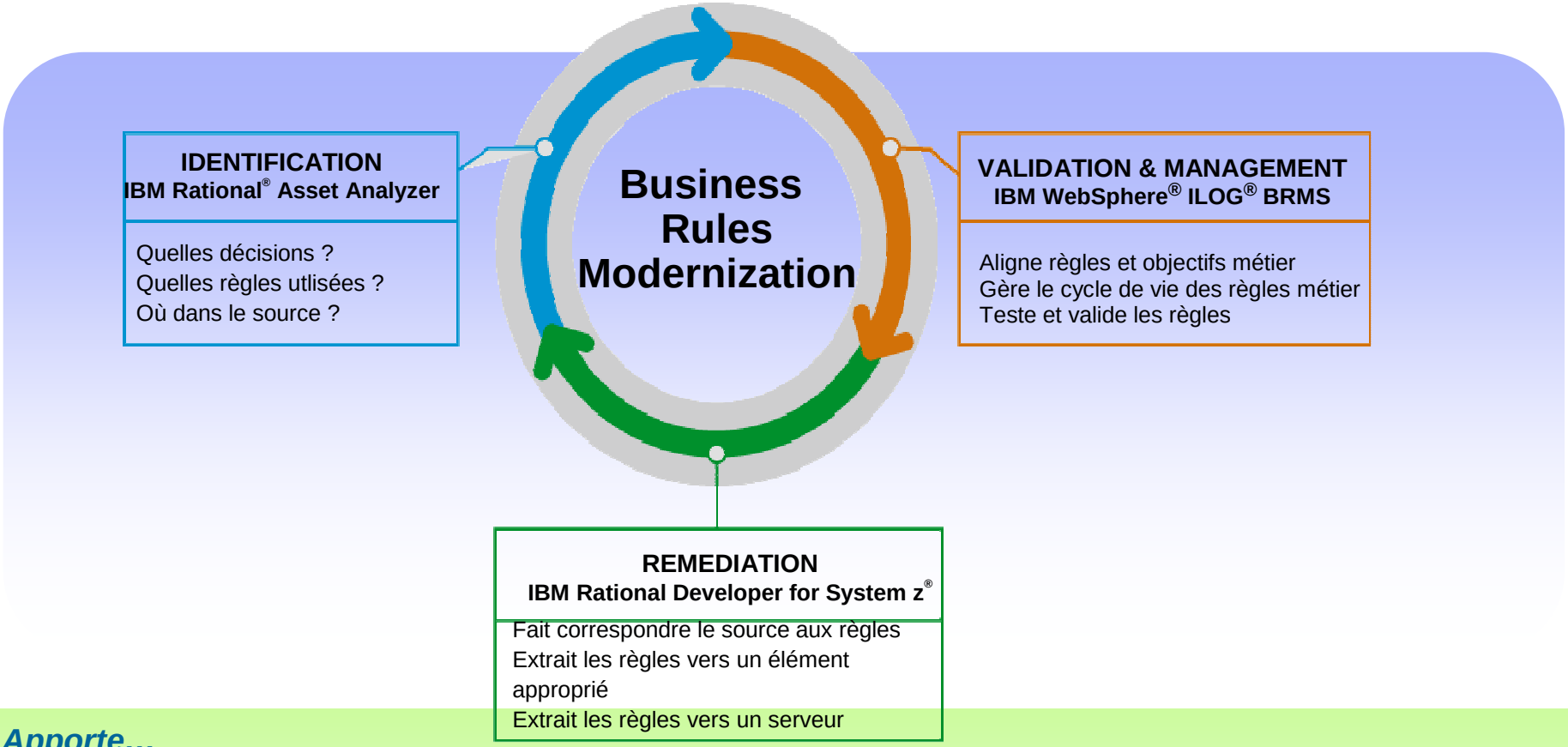
Rational : Modernisation de règles métier

New!

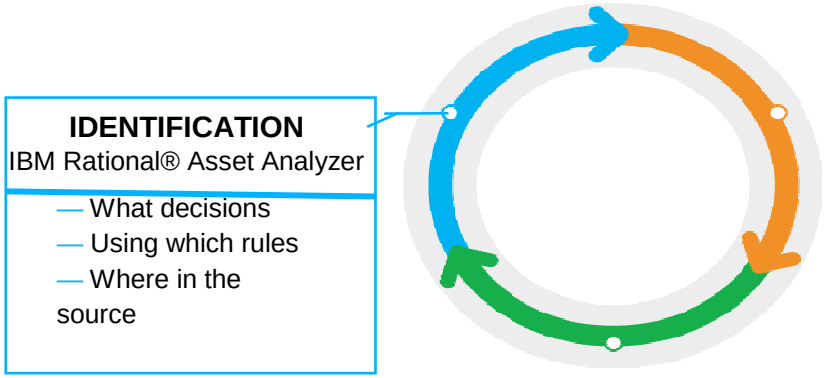
Rational Asset Analyzer v6.0
maintenant intégré avec WebSphere ILOG



Apporte…

- ✓ L'extraction des règles métier depuis des assets existants
- ✓ Gestion, validation et teste des règles métier depuis un point central
- ✓ Maintenance et modernisation des règles métiers pour réutilisation

Business Rule Mining with RAA V6



- Scope the effort
  - Defined Business Goal; with process model with specific set of business decisions
  - Deliver incremental value: Keep a manageable size with timely deliverables
- Establish the vocabulary
  - Import Business Terms from ILOG BRMS or define them with RAA dialogs
  - Map Business Terms to developer “terms”, code variables and data elements
- Define the candidate business rules
  - RAA will identify source statements that “act” on the business terms through their associated data elements
  - Form unstructured candidate rules based on the identified source statements
  - Create structured candidate business rules using ILOG Editor within RAA
- Export Rules to ILOG

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Agenda – Decision Management

Solution Overview

1. Decision Server Concepts
2. Business Events
3. Business Rules

Solution and Demonstration

4. CICS Business Events
5. Business Event Processing
6. Business Rules Processing

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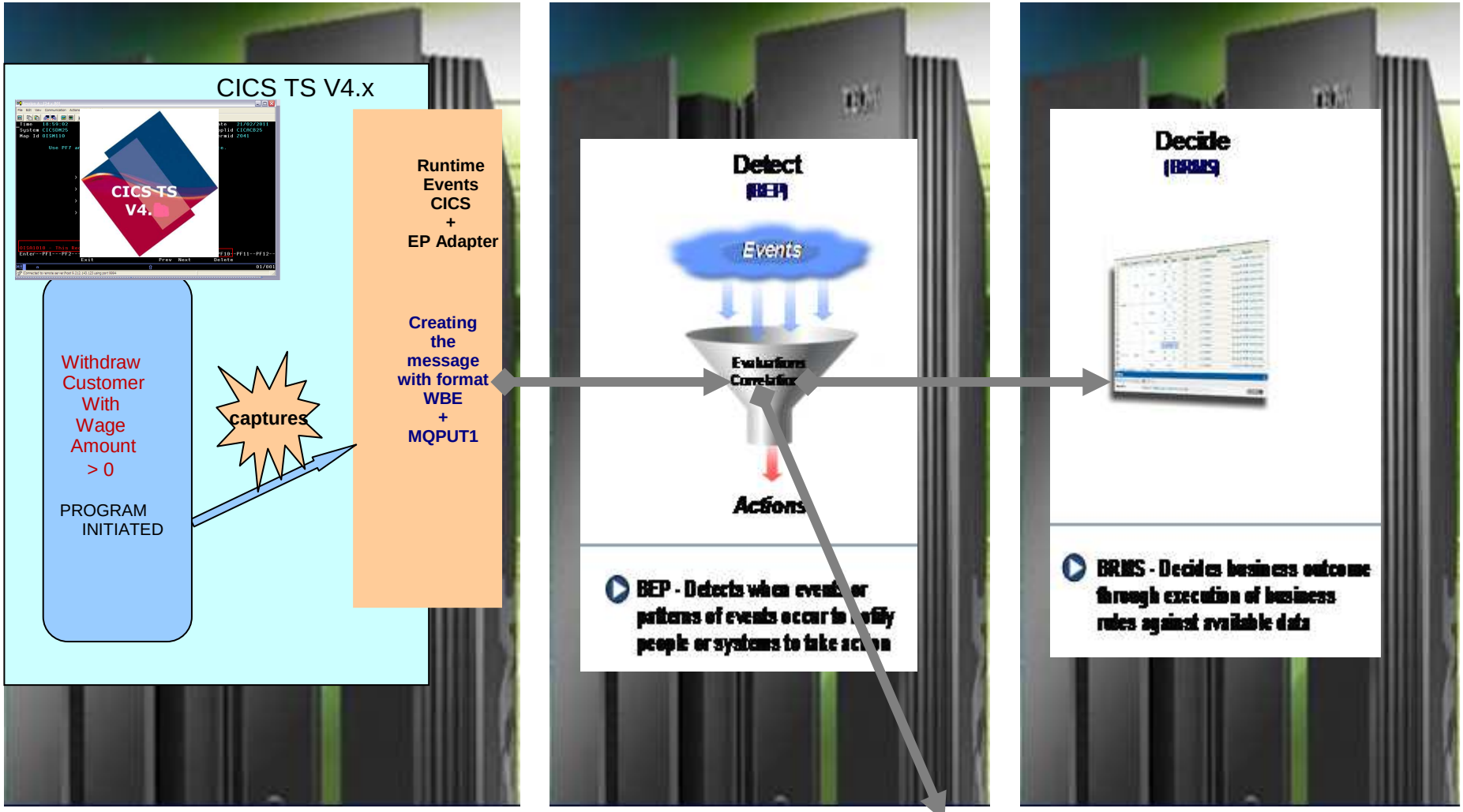
CICS and Decision Server Integration Scenario



CICS Application hosted on ZT01
(9.212.143.123)

WBE hosted on ZT01
(9.212.143.123)

ILOG BRMS hosted on JAZZ08
(9.212.143.75)

Mail server
(relay.uk.ibm.com)

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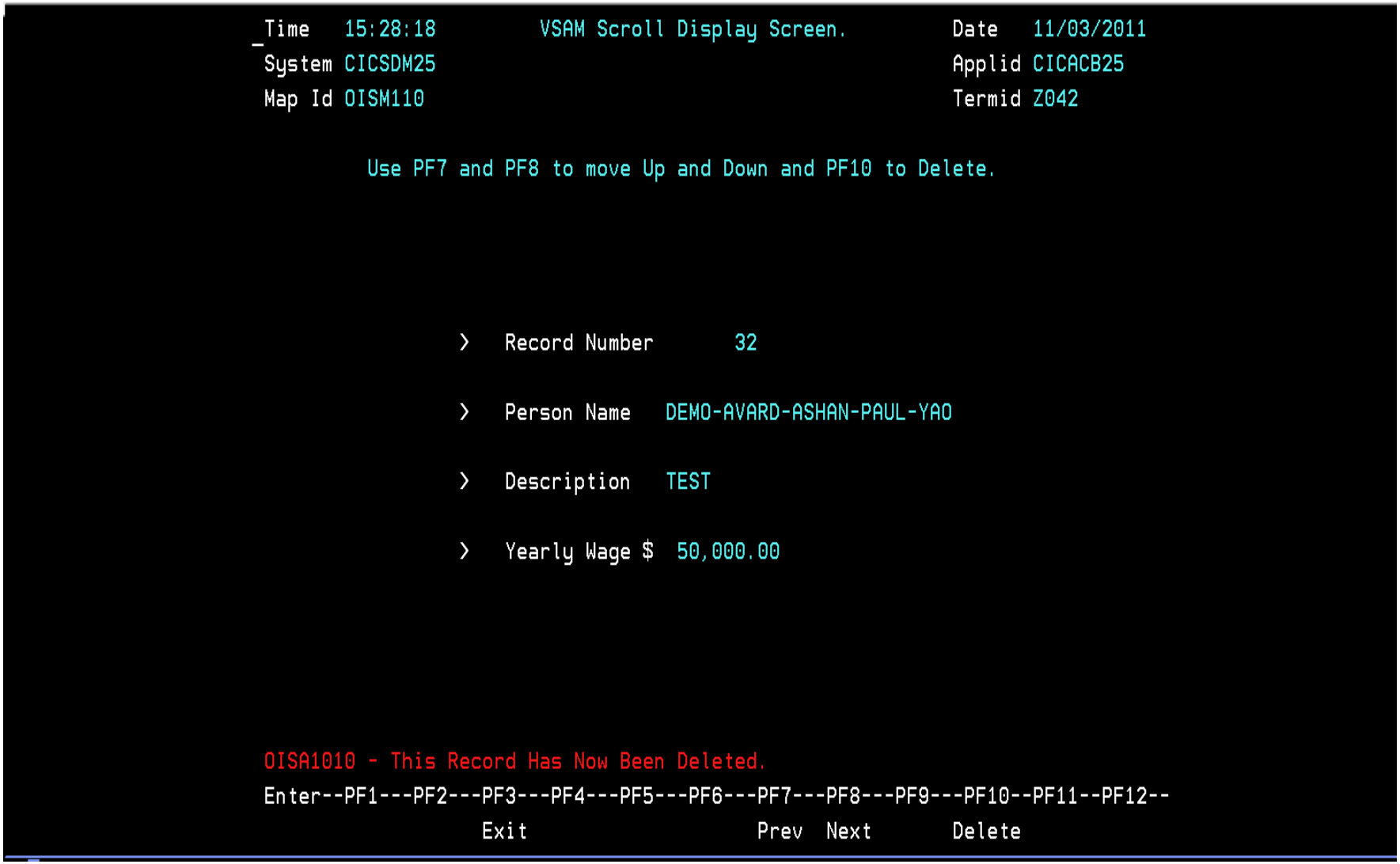
Scenario



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Rules Scenario

Decision Rule

1. Calculate customer level
2. Calculate interest premium
3. calculate interest rate

1 - Calculate customer level

The customer level is identified based on the average balance, or wage amount maintained in the bank or the number of years of relationship with the bank

Customer since (in years)	Average balance or Wage amount (in $, €, £)	Customer Level
> 10	> 100k	P (Platinum)
> 5 <10	> 50k <100k	G (Gold)
> 3 <5	> 30k < 50k	S (Silver)
Other	Other	R (Regular)

2- Calculate interest premium

Depending on the customer level, the interest premium is defined,

Customer Level	Interest Premium (in %)
P	0
G	0.25
S	0.5
R	0.75

3 - Calculate interest rate

Depending on the customer credit rating, loan amount and duration of loan, the interest rate is added to the base interest

Credit Rating	Principle (in $, €,£)	Terms (in years)	Add interest rate (in %)
> 540 < 700	< 430 k	15	1.90
		20	2.00
		30	2.50
	> 430	15	1.95
		20	2.05
		30	3.00
> 700 < 830	< 430	15	1.00
		20	1.5
		30	1.8
	> 430	15	1.25
		20	1.75
		30	1.85

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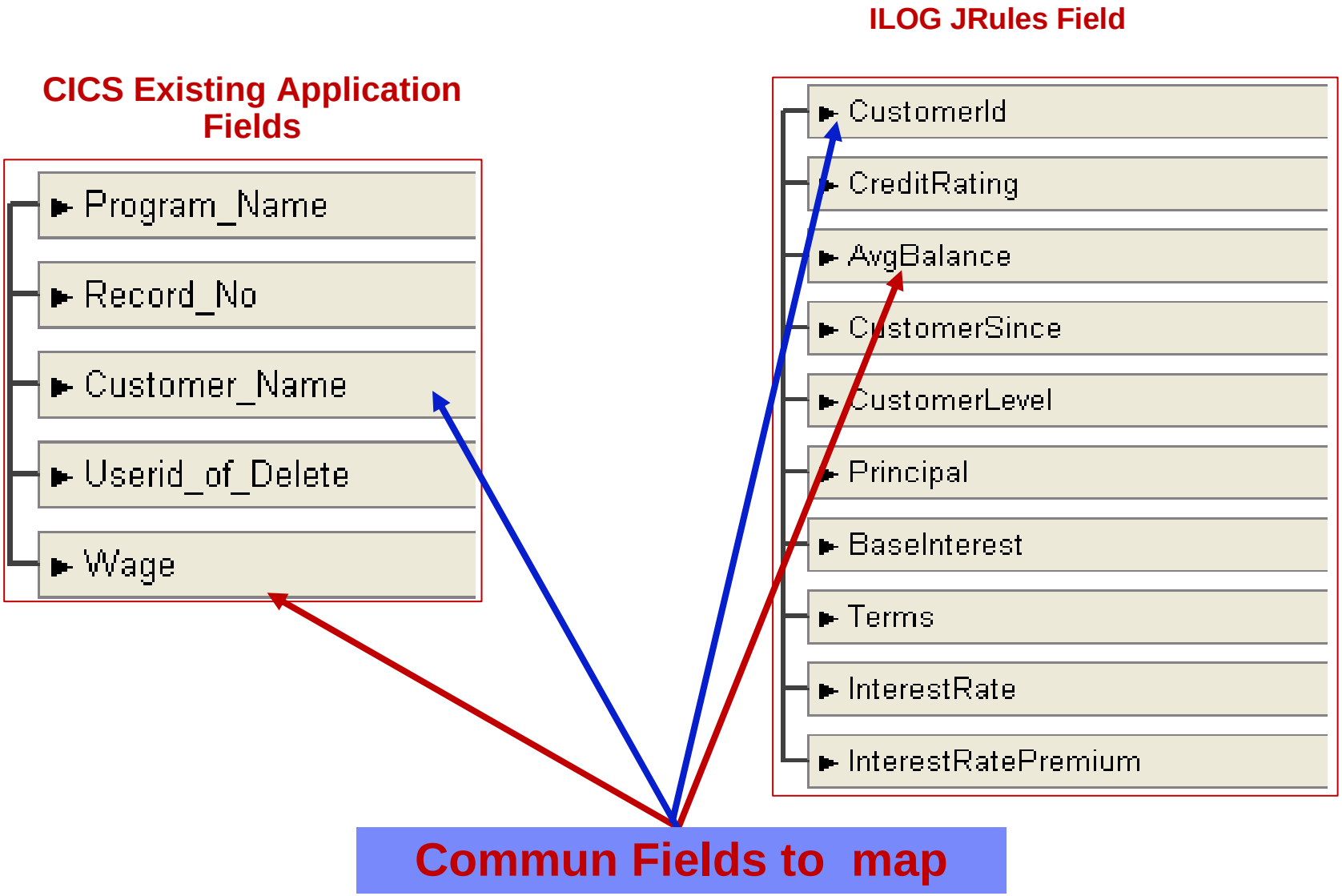
Messages – Interfaces : Meet-in-Middle apporach



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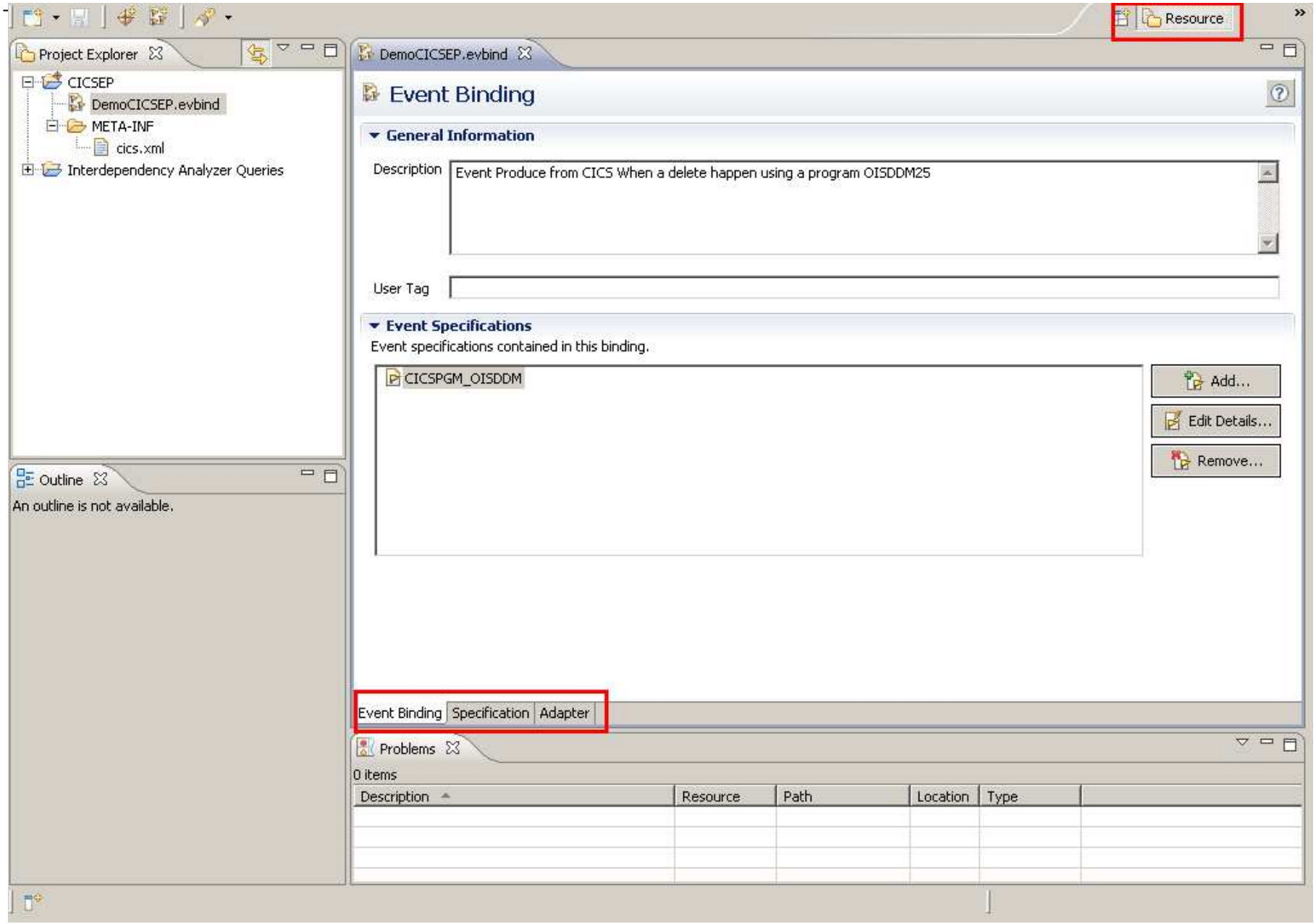
Capture Event



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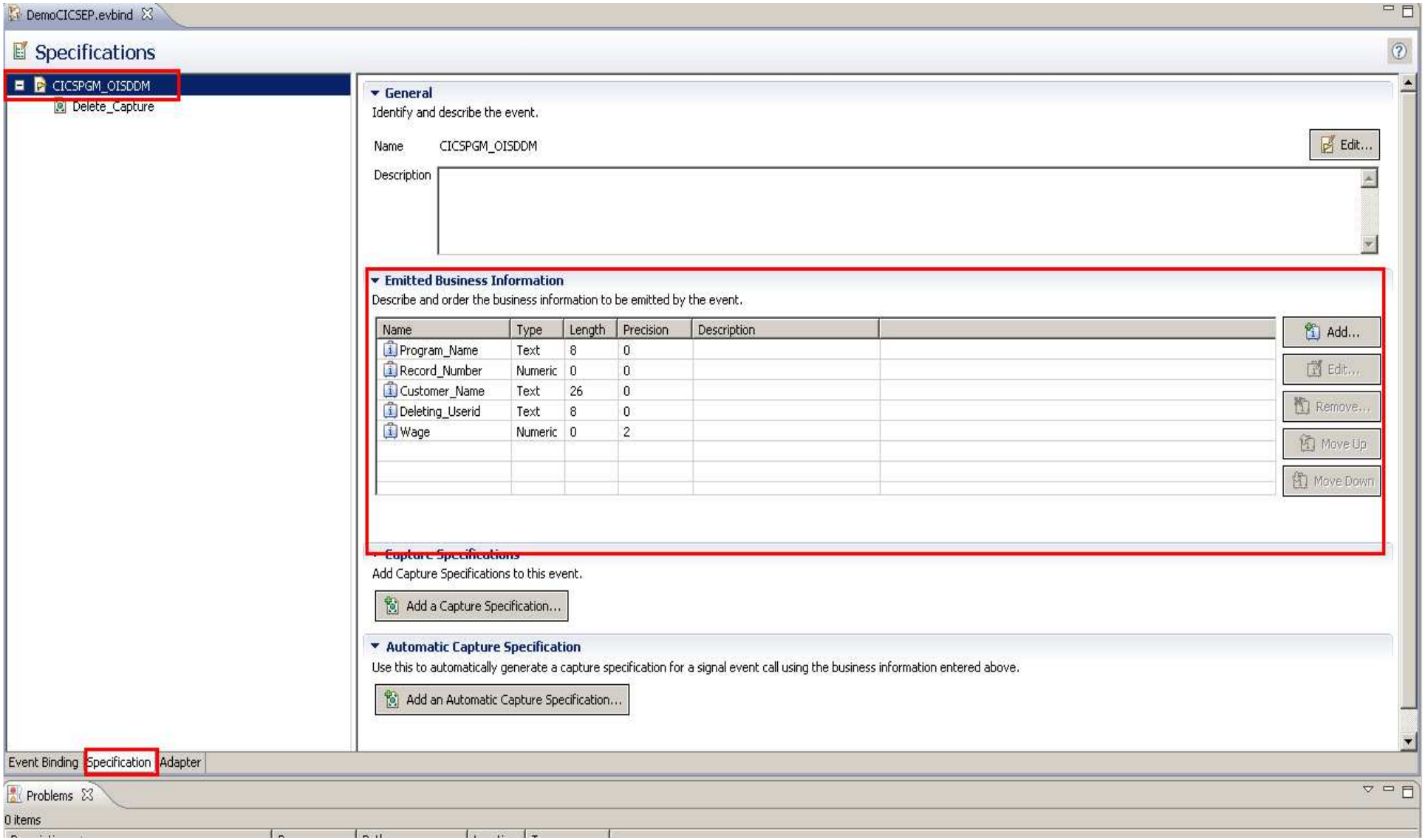
Capture Event



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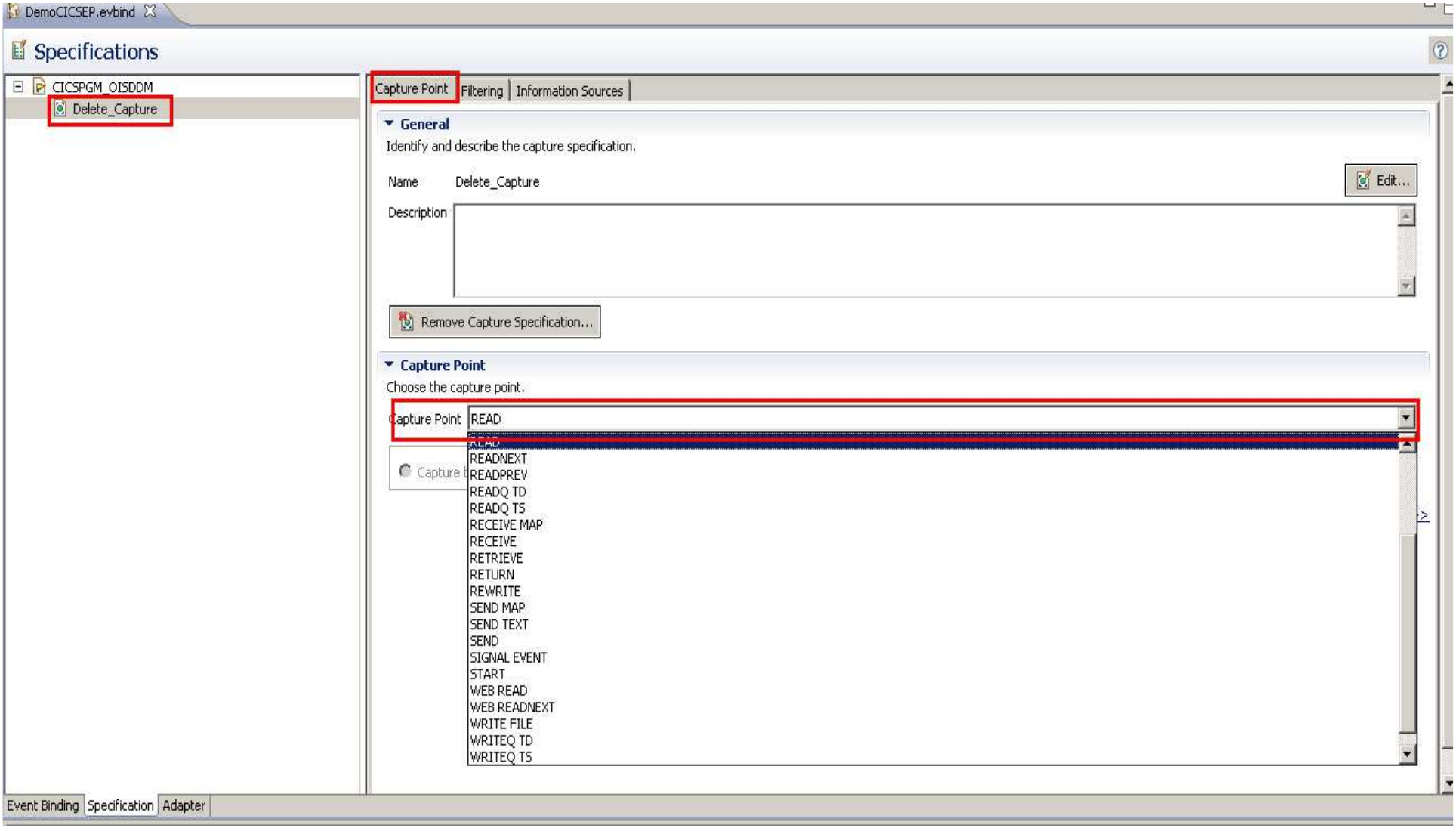

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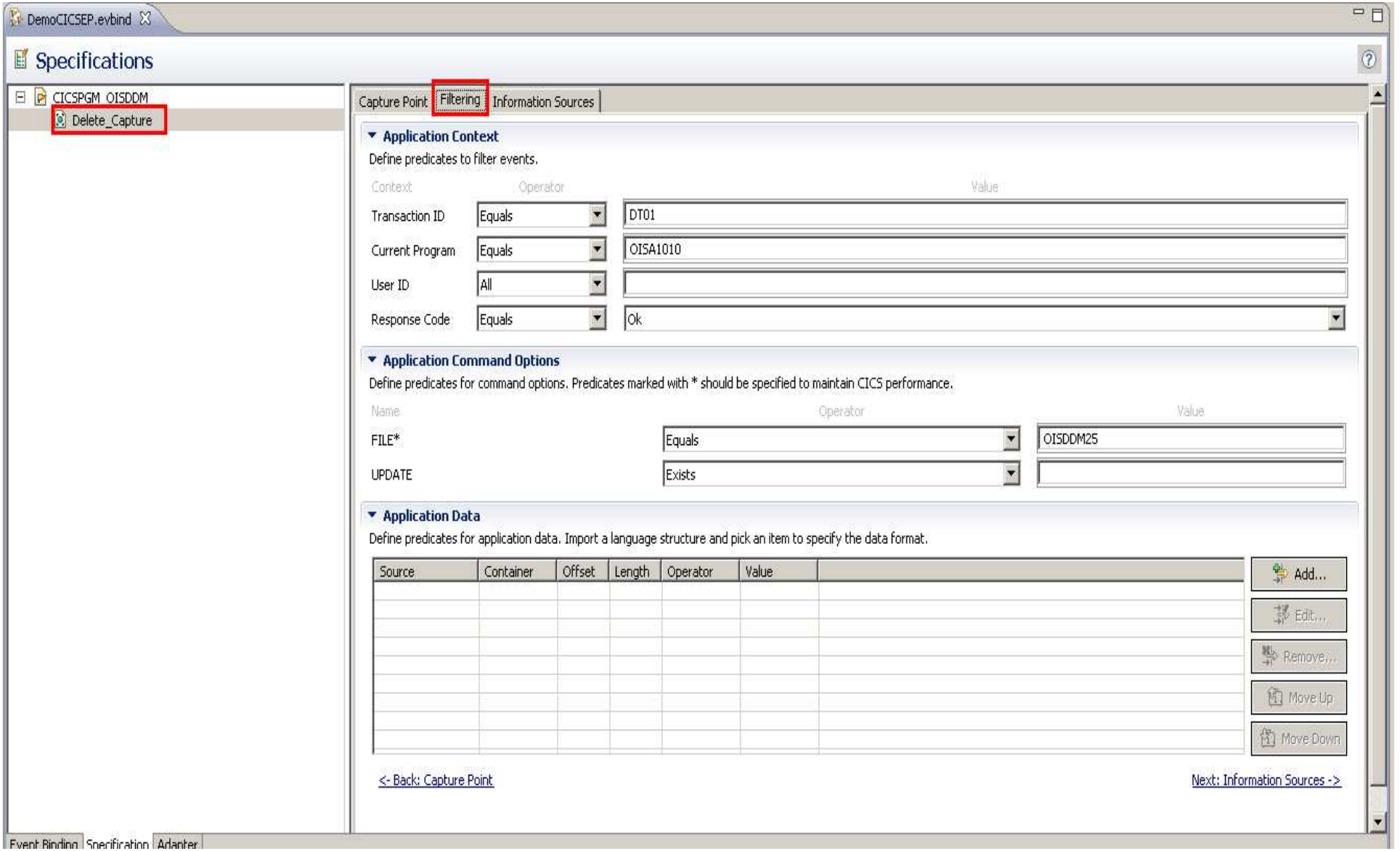

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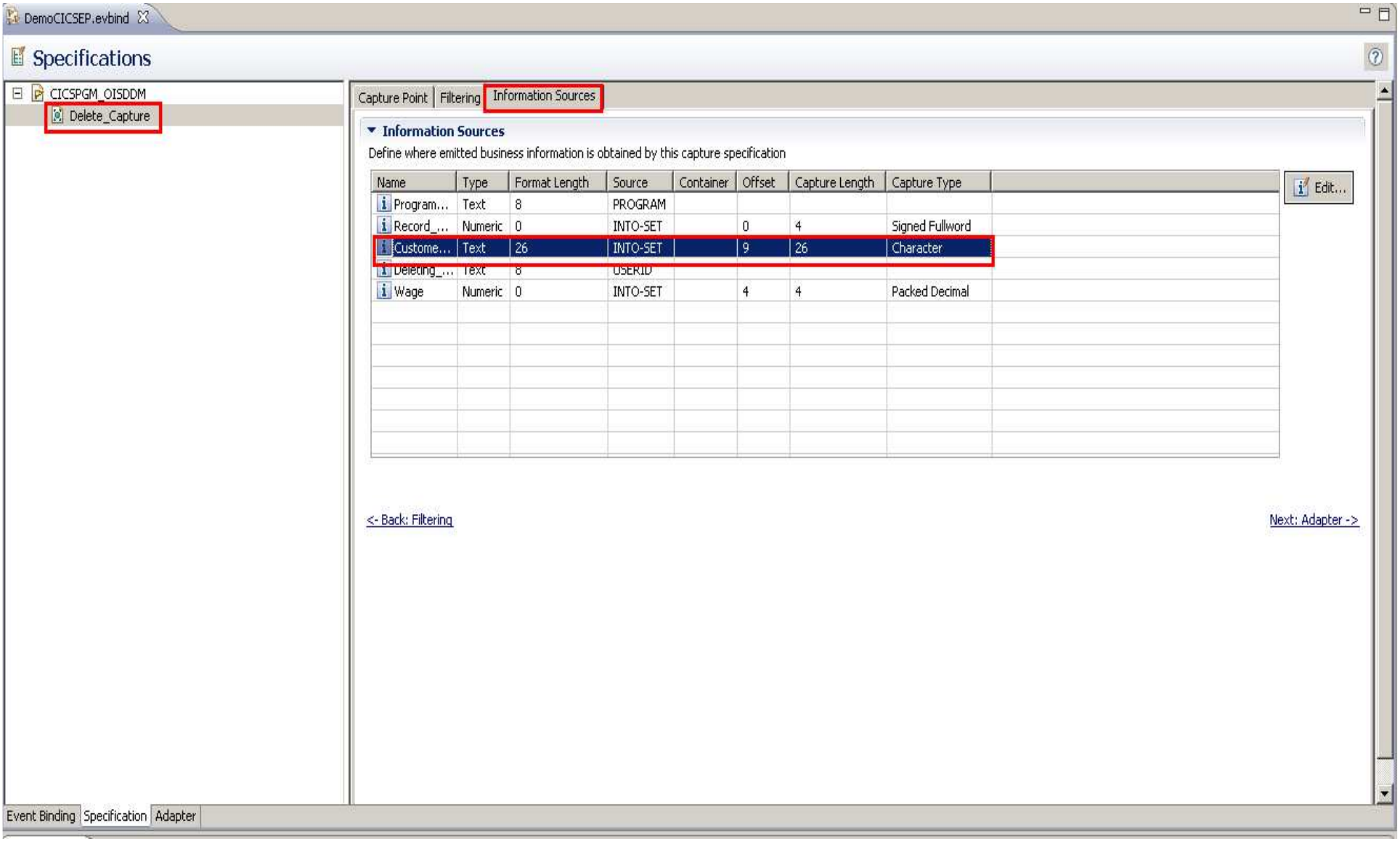

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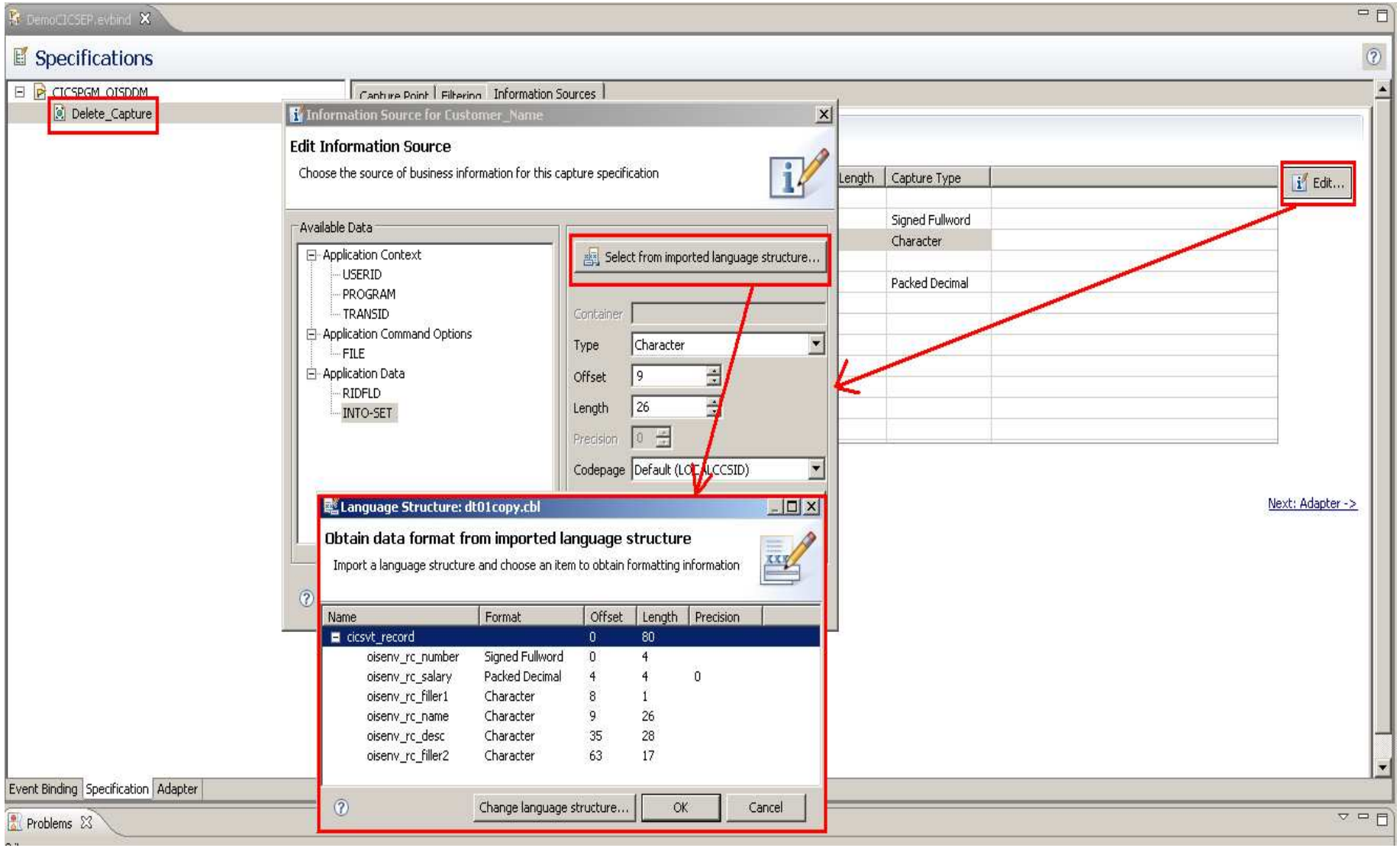

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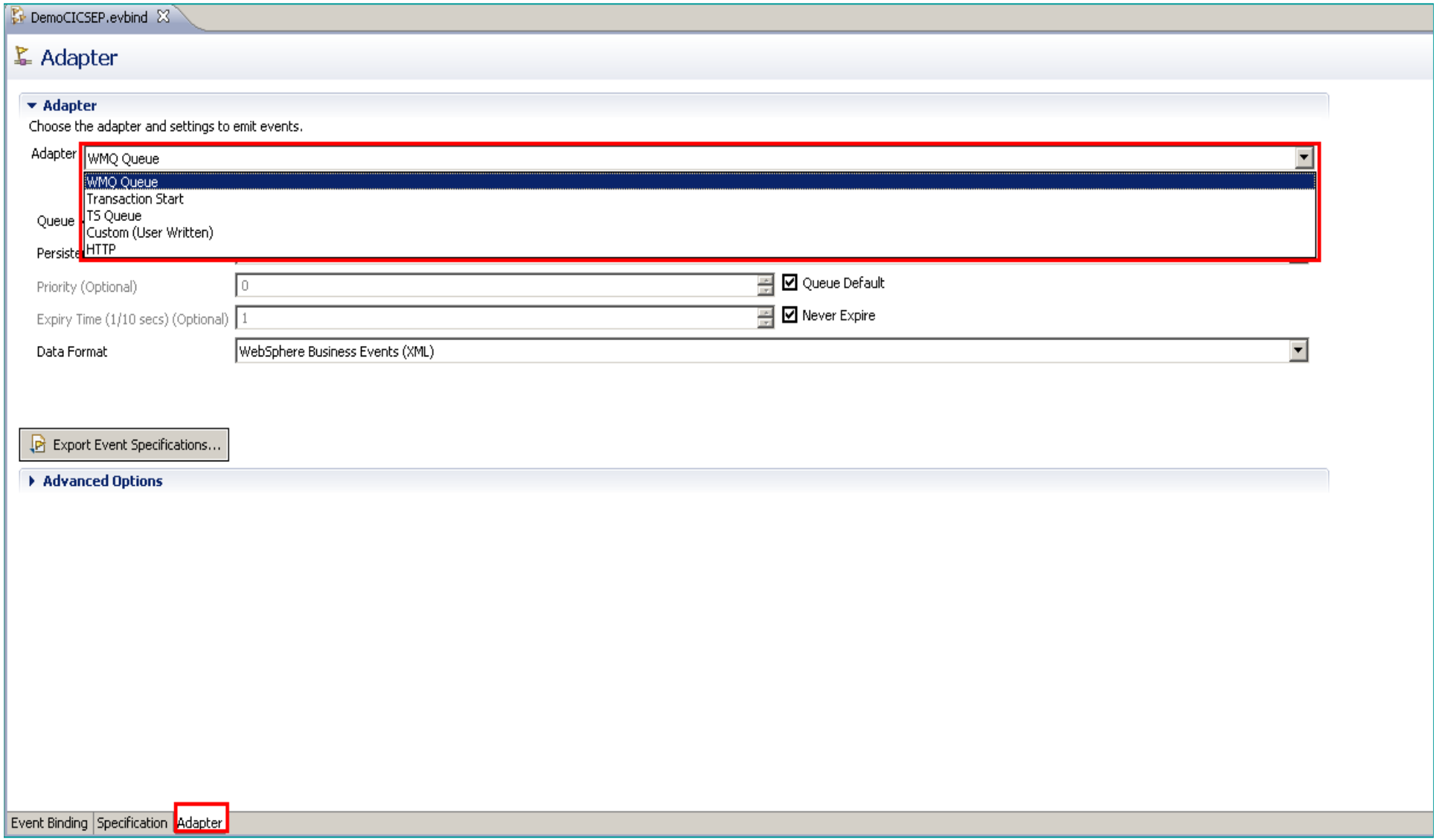

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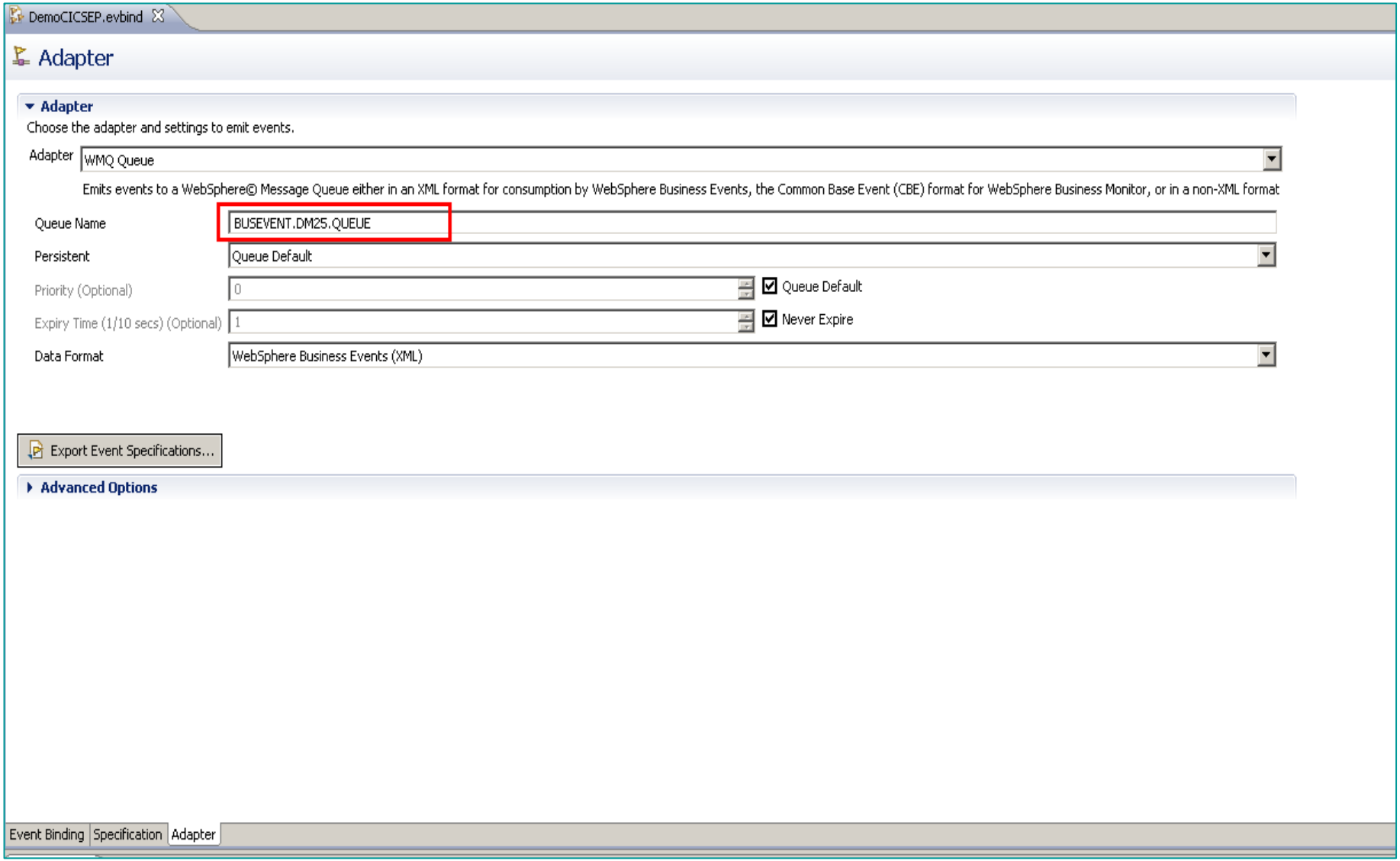

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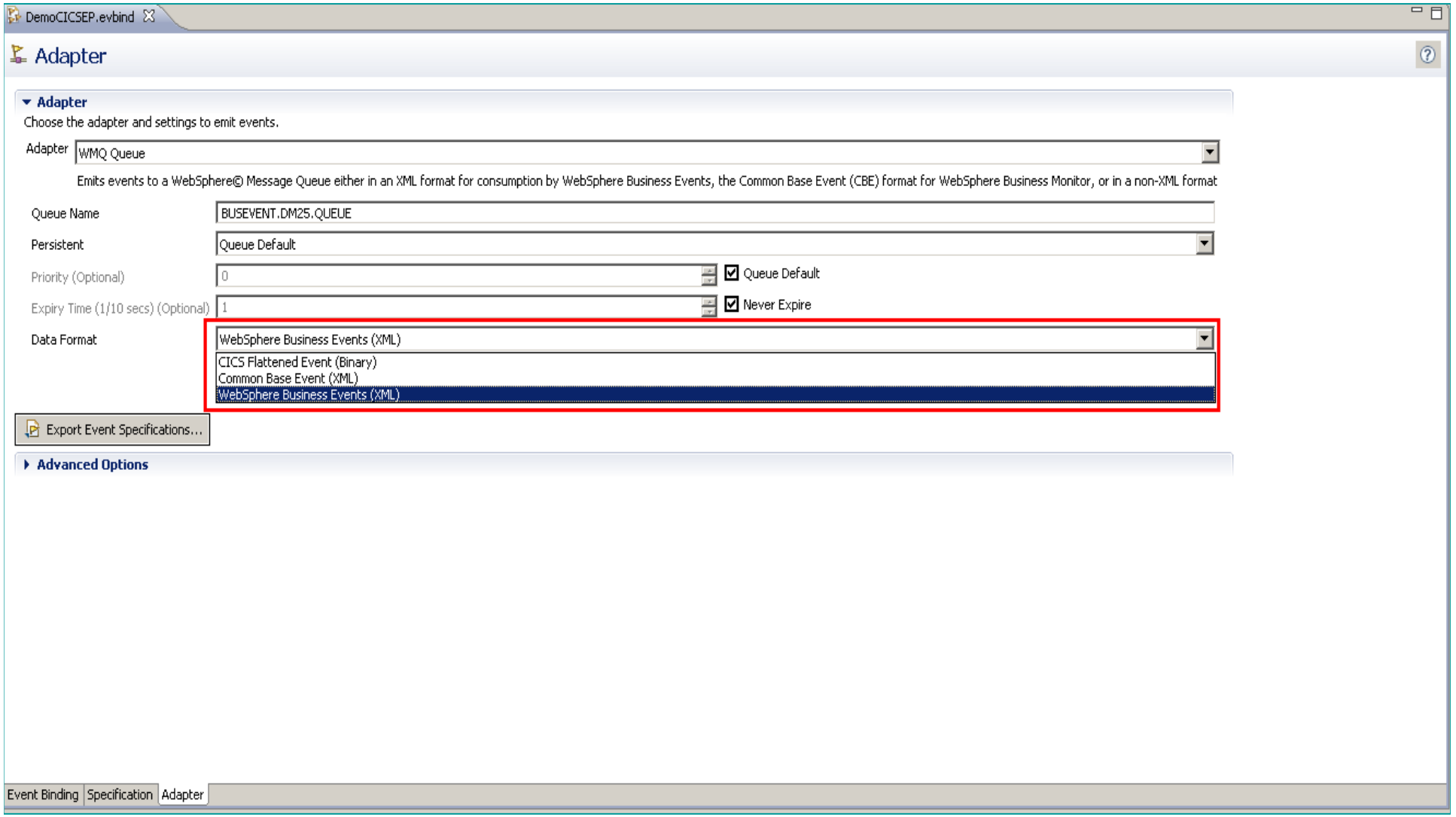

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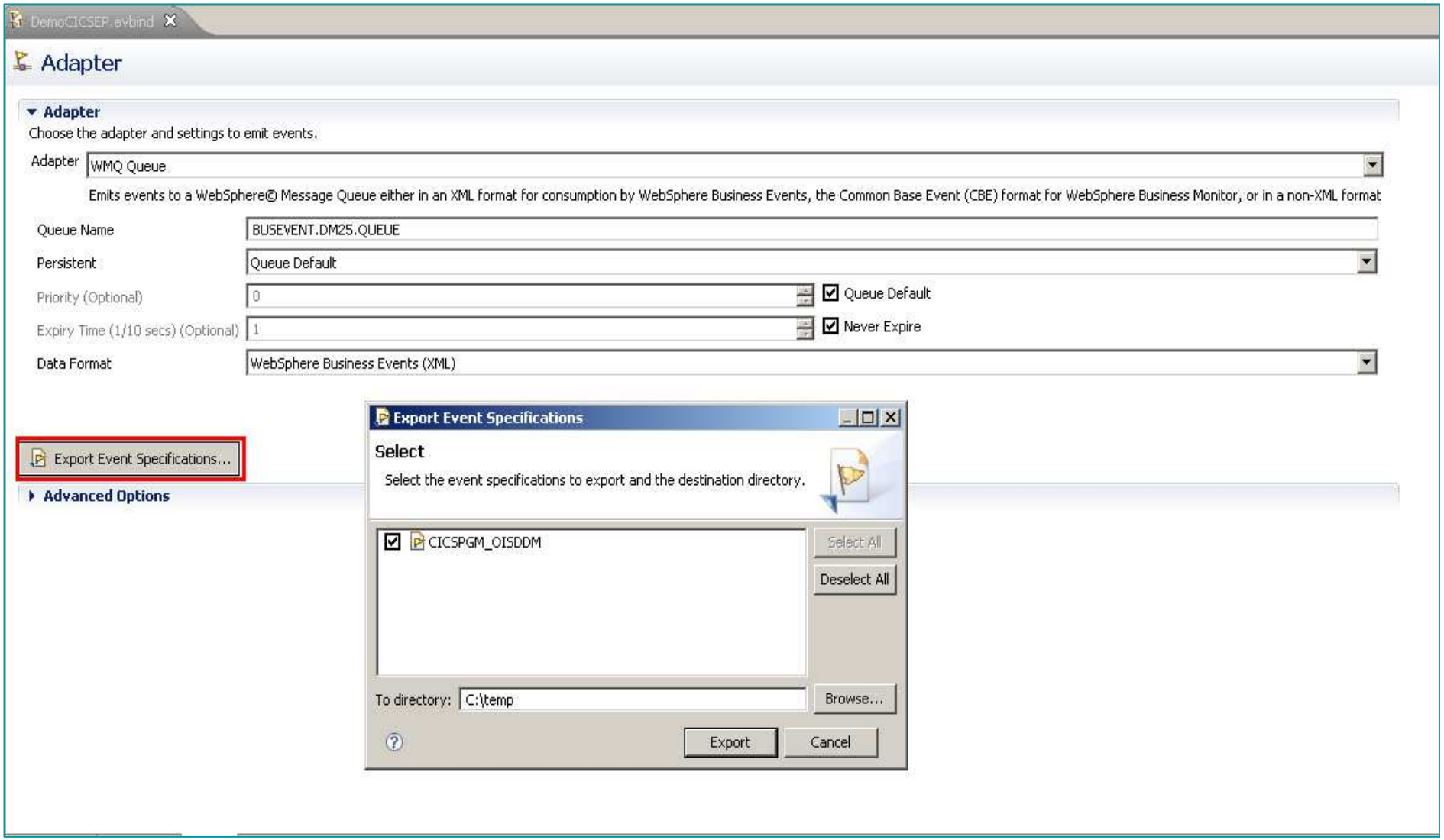

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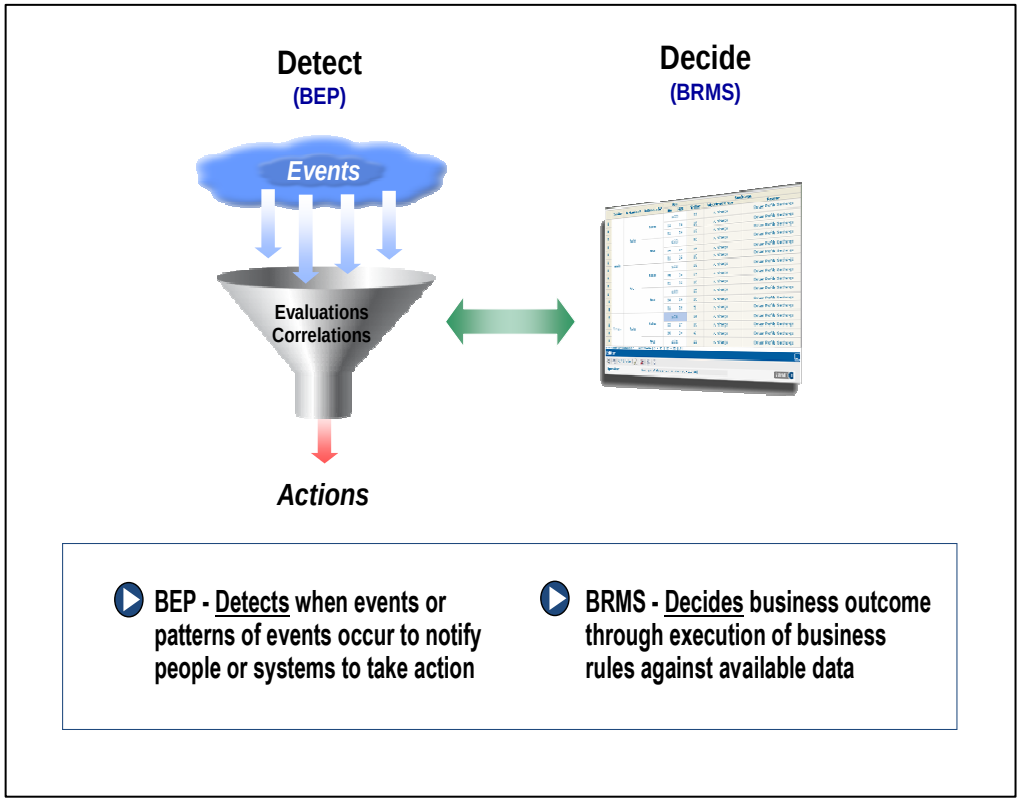
Mapping : Detect – Decide - Action



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Infrastructure

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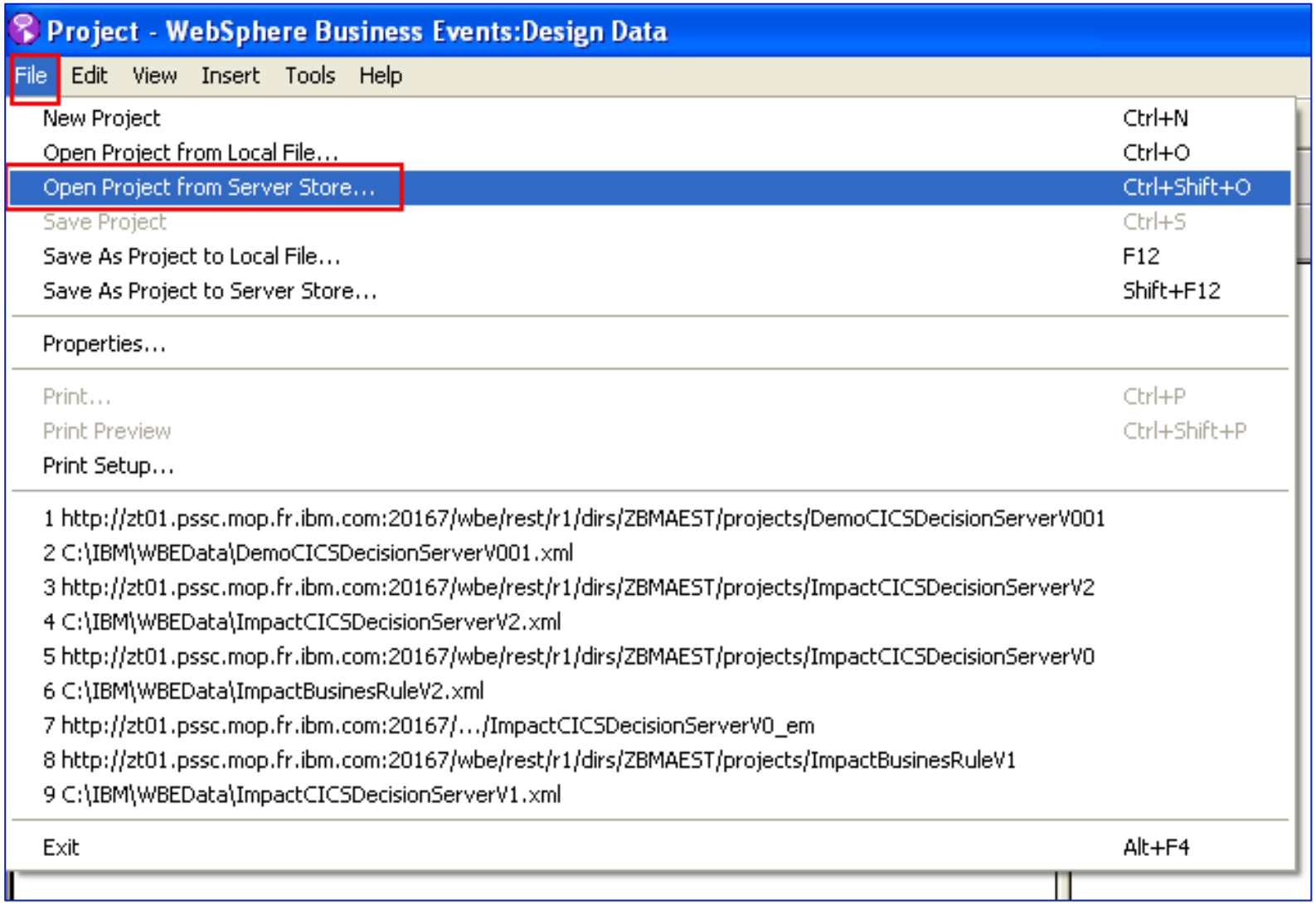

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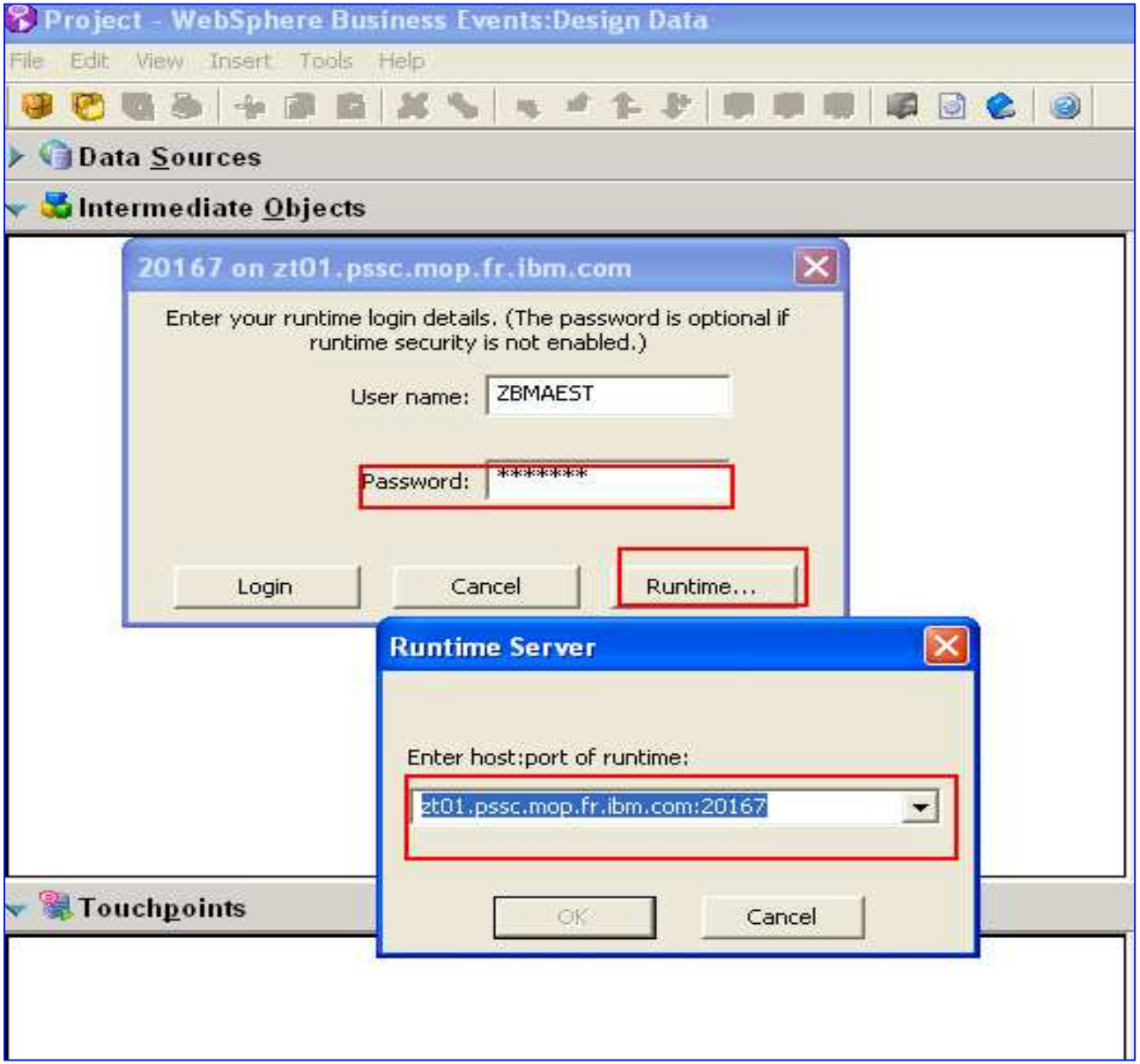

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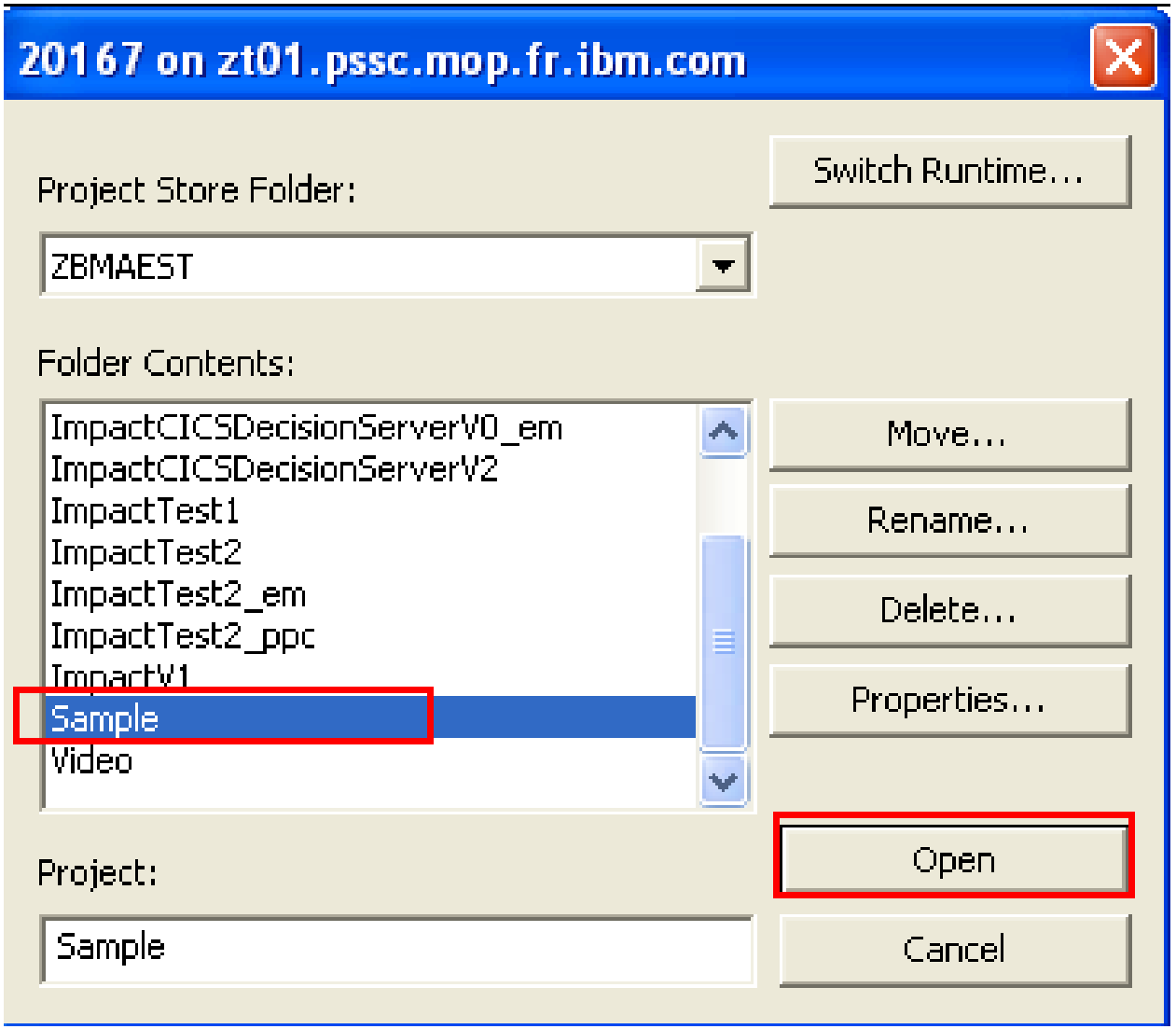

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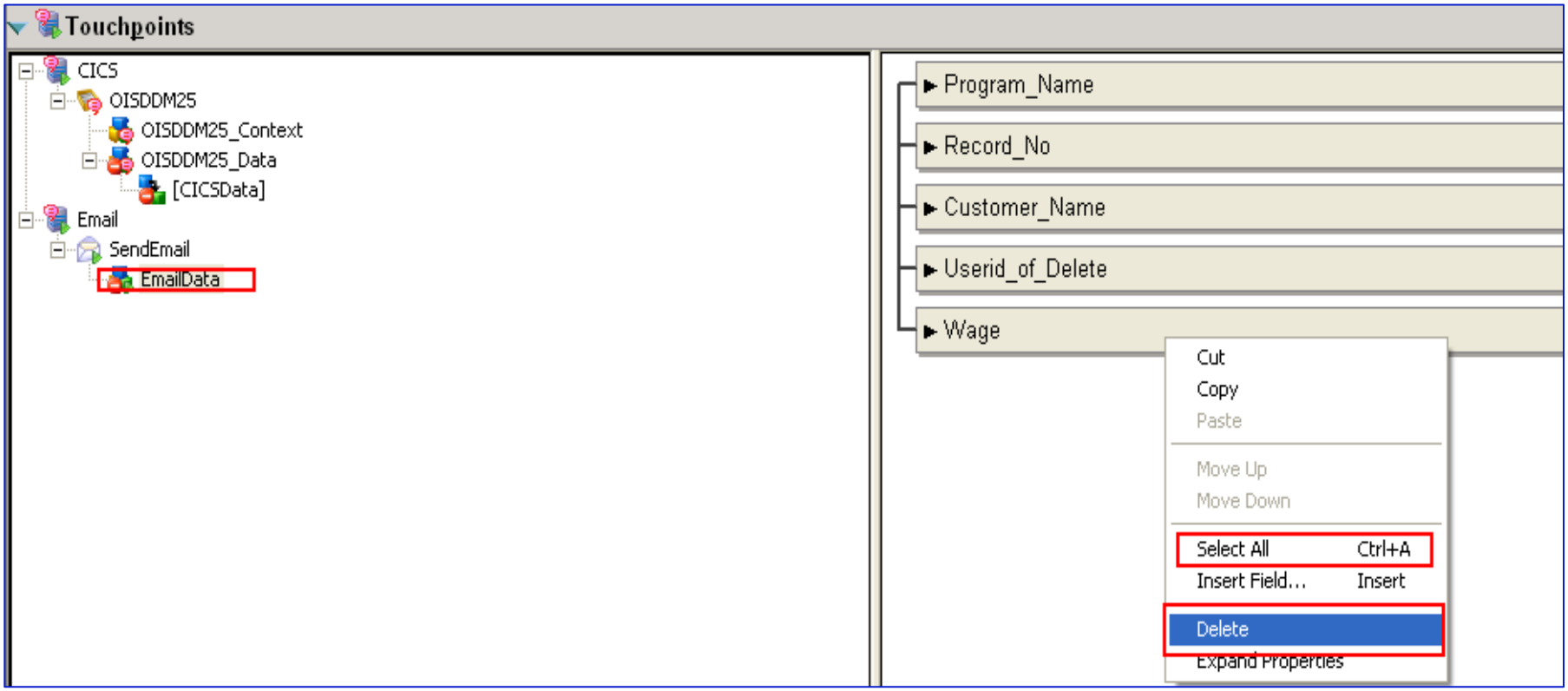

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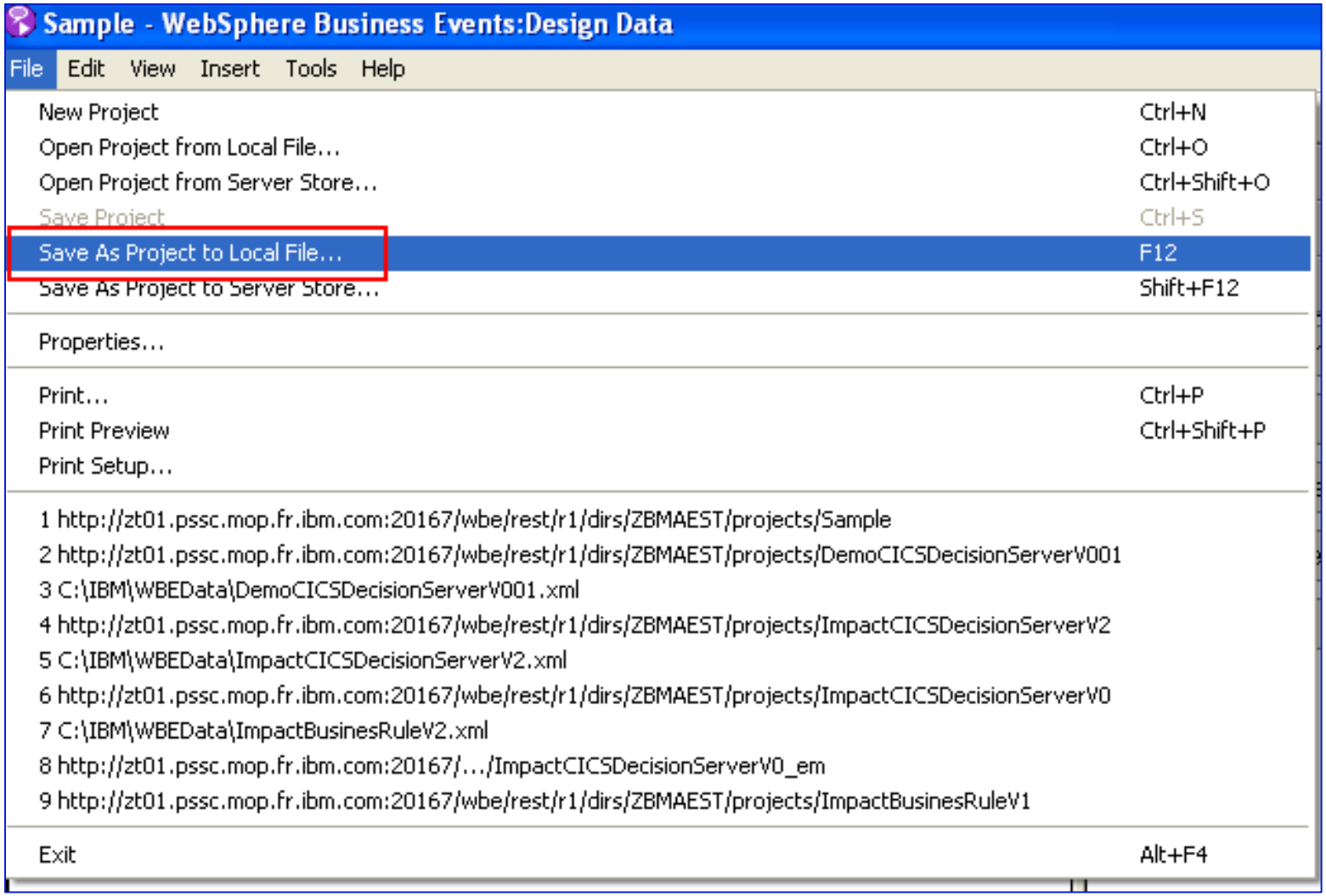

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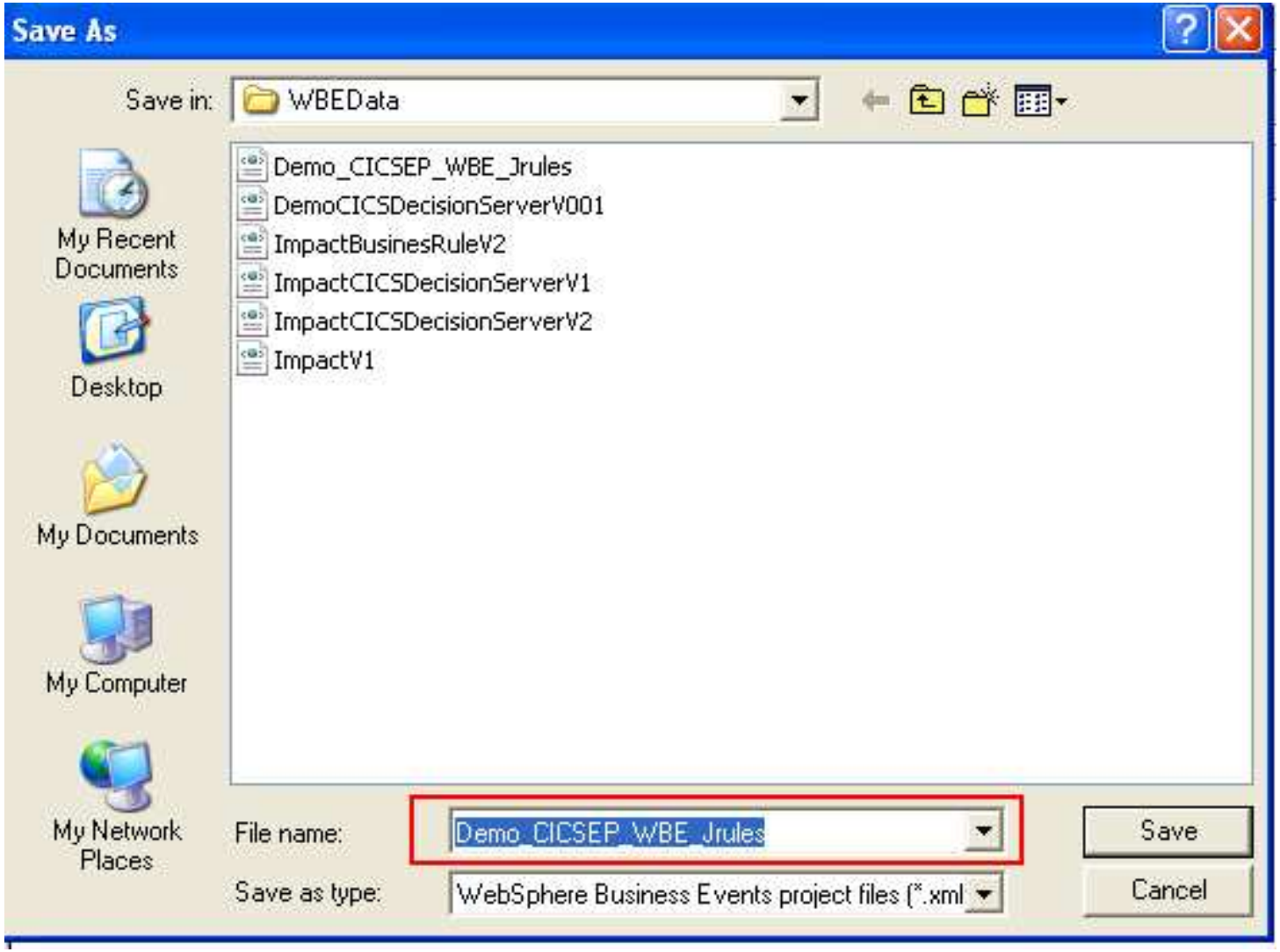

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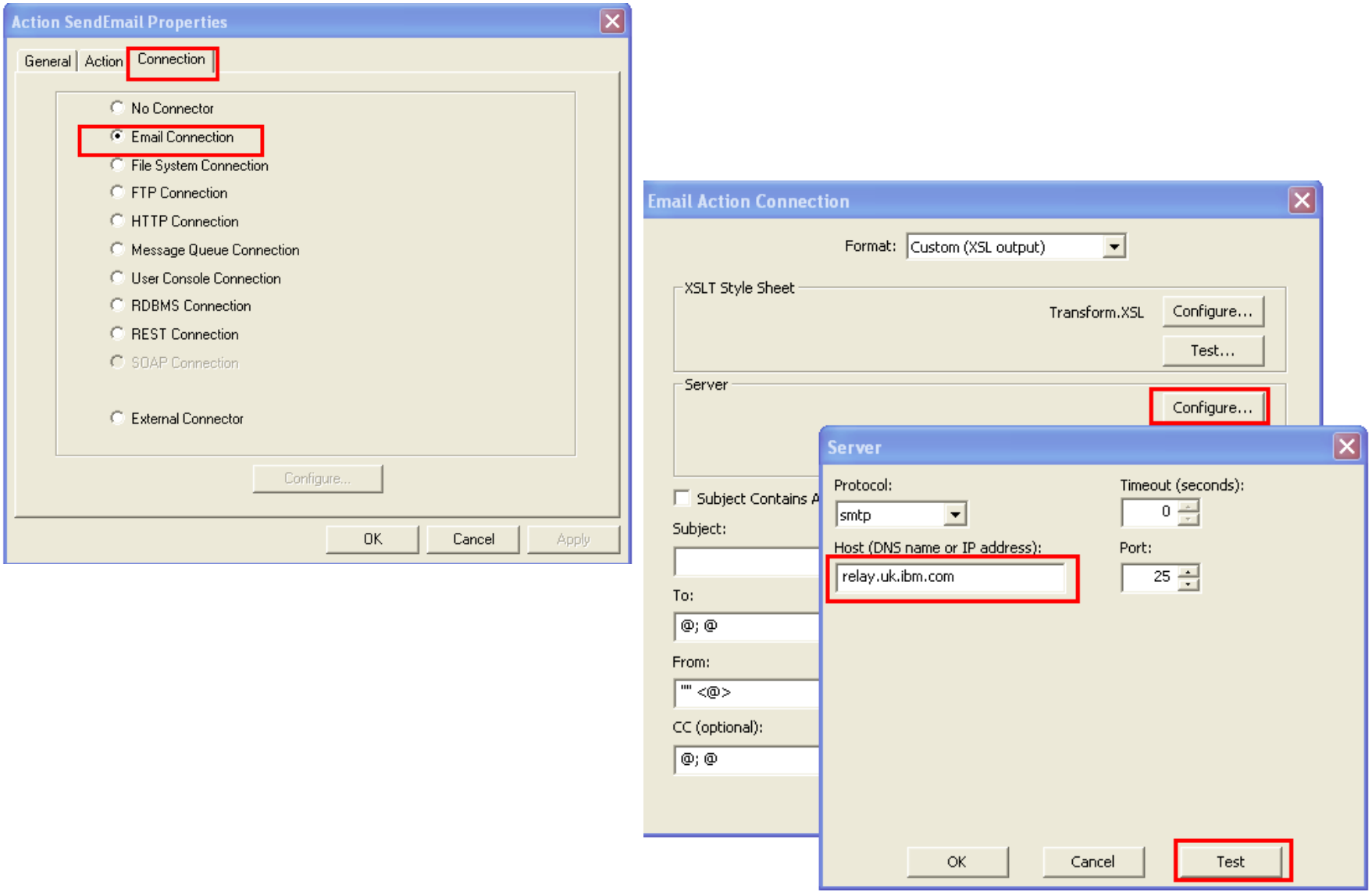

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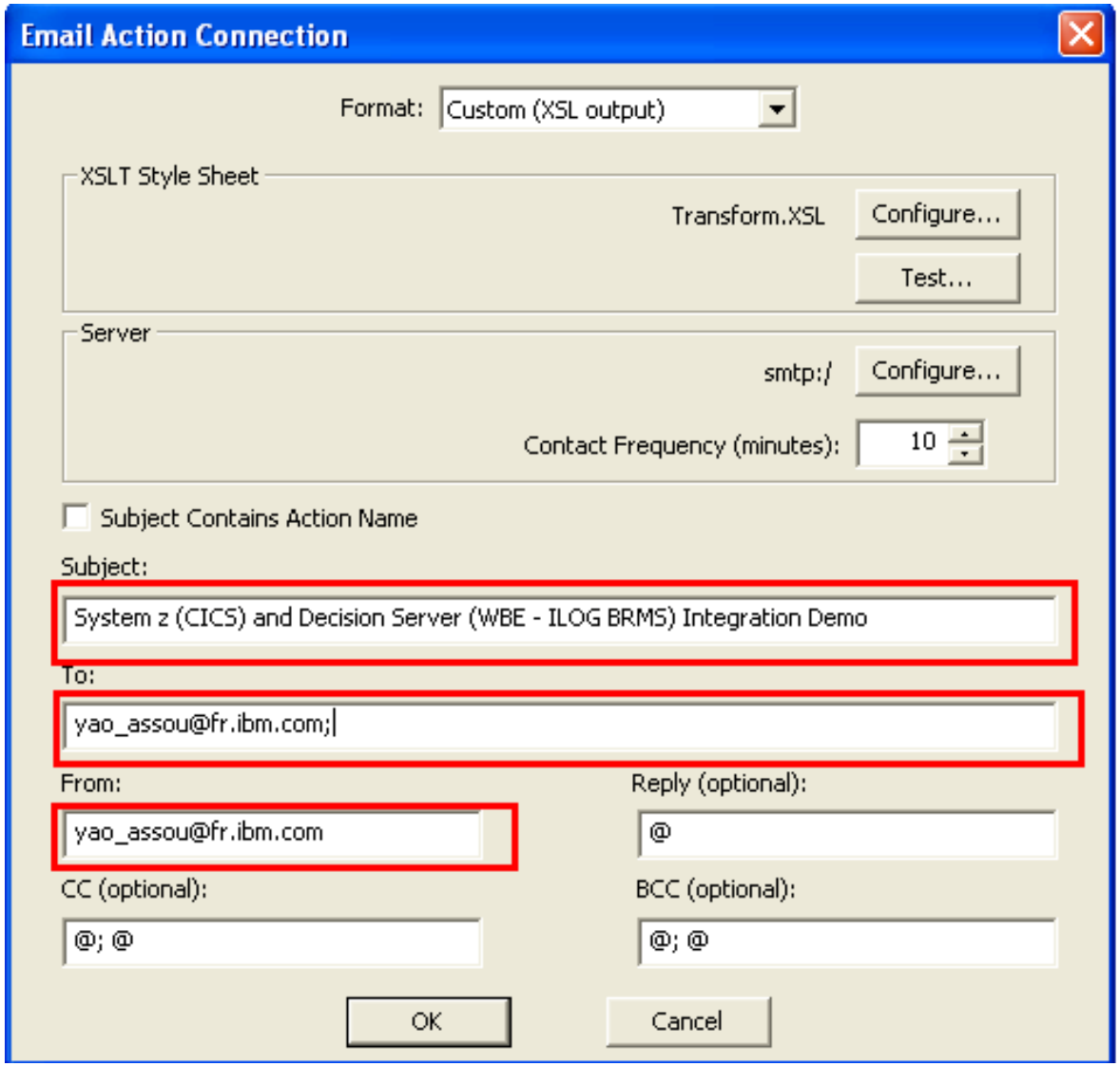

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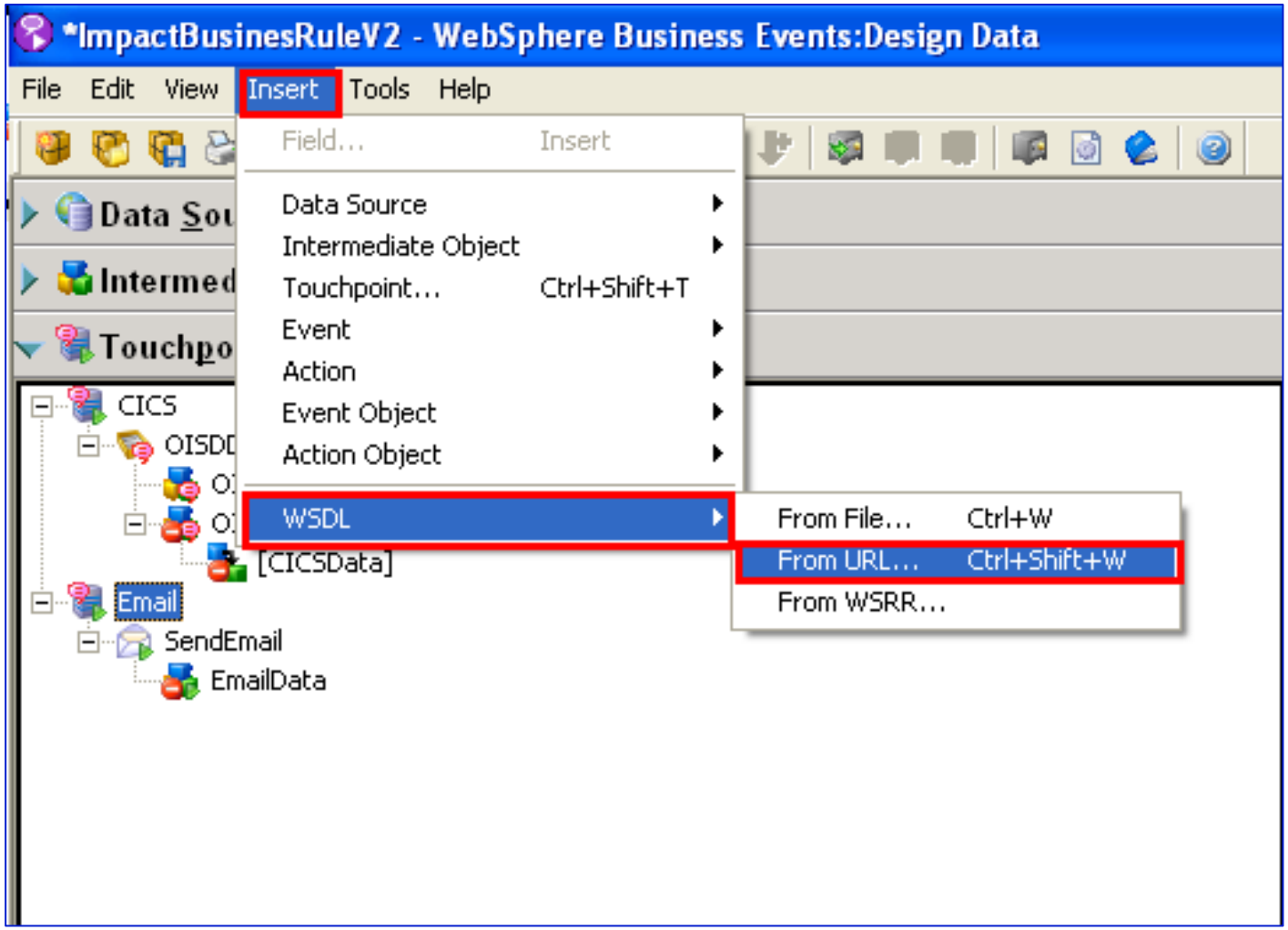

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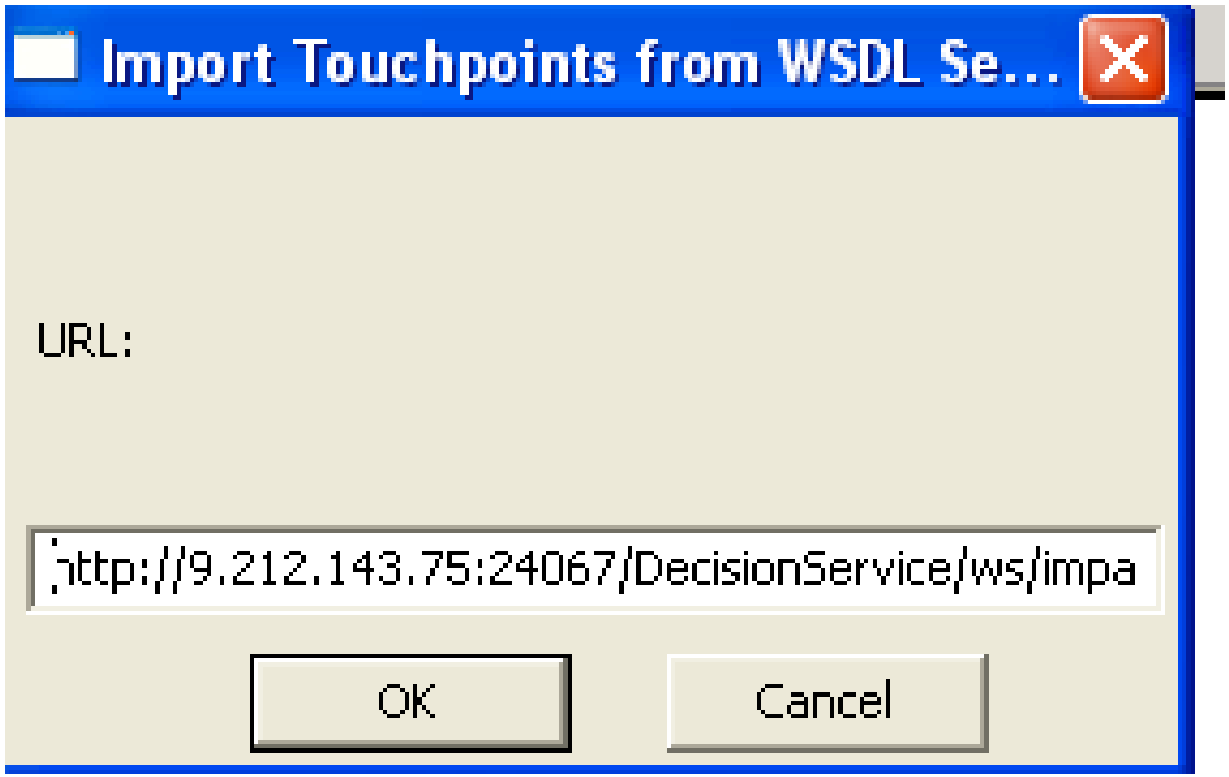

http://9.212.143.75:24067/DecisionService/ws/PoTCICSDSRulesApp00/1.0/CICS_DS_rules00/1.0?WSDL

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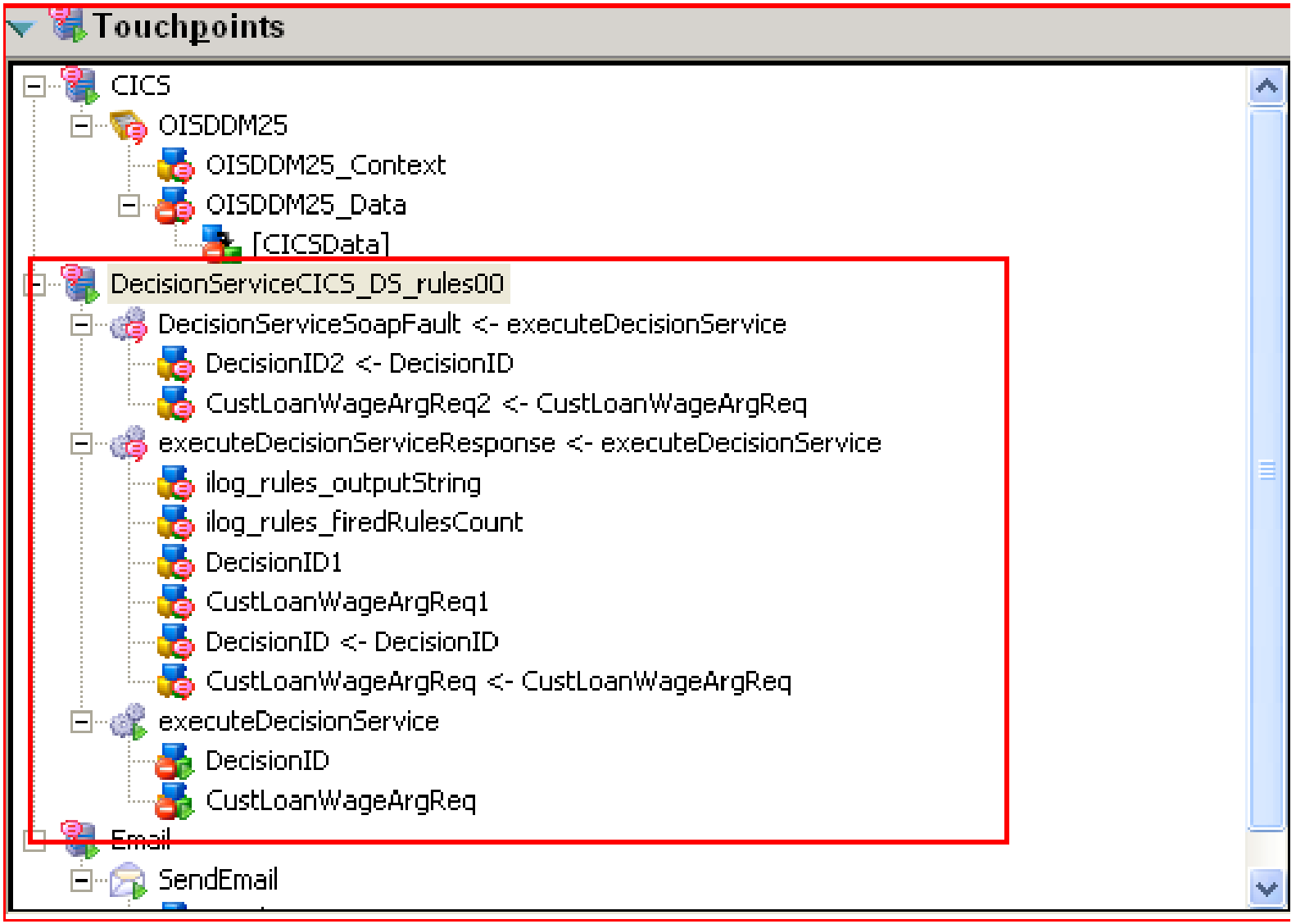

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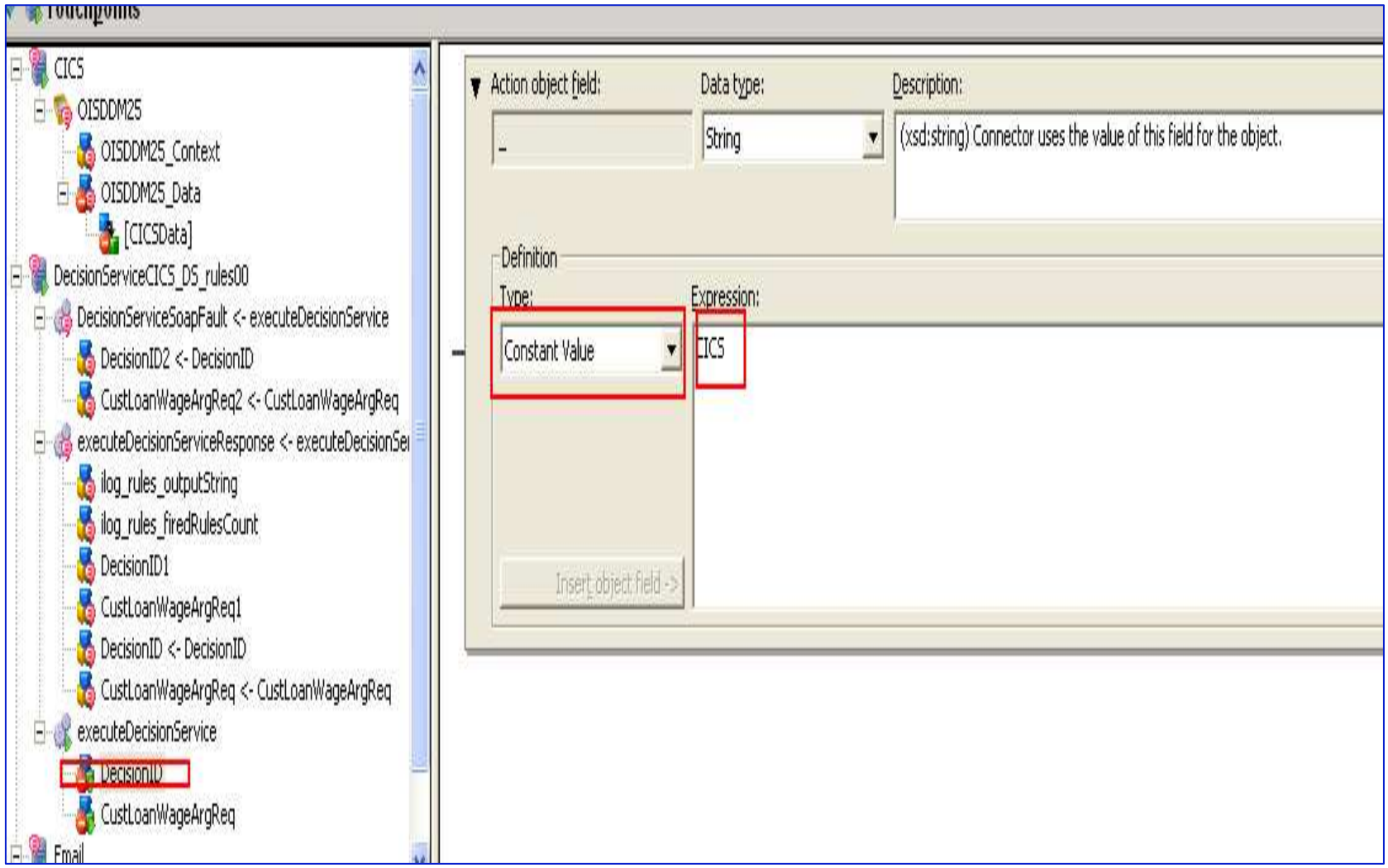
CICS
OISDDM25
OISDDM25_Context
OISDDM25_Data
[CICSData]
DecisionServiceCICS_DS_rules00
DecisionServiceSoapFault <- executeDecisionService
DecisionID2 <- DecisionID
CustLoanWageArgReq2 <- CustLoanWageArgReq
executeDecisionServiceResponse <- executeDecisionSe
ilog_rules_outputString
ilog_rules_firedRulesCount
DecisionID1
CustLoanWageArgReq1
DecisionID <- DecisionID
CustLoanWageArgReq <- CustLoanWageArgReq
executeDecisionService
DecisionID
CustLoanWageArgReq
Email
Action object field:
Data type:
Description:
String
(xsd:string) Connector uses the value of this field for the object.
Definition
Type:
Expression:
Constant Value
CICS
Insert object field ->
Insert object field ->
Insert object field ->

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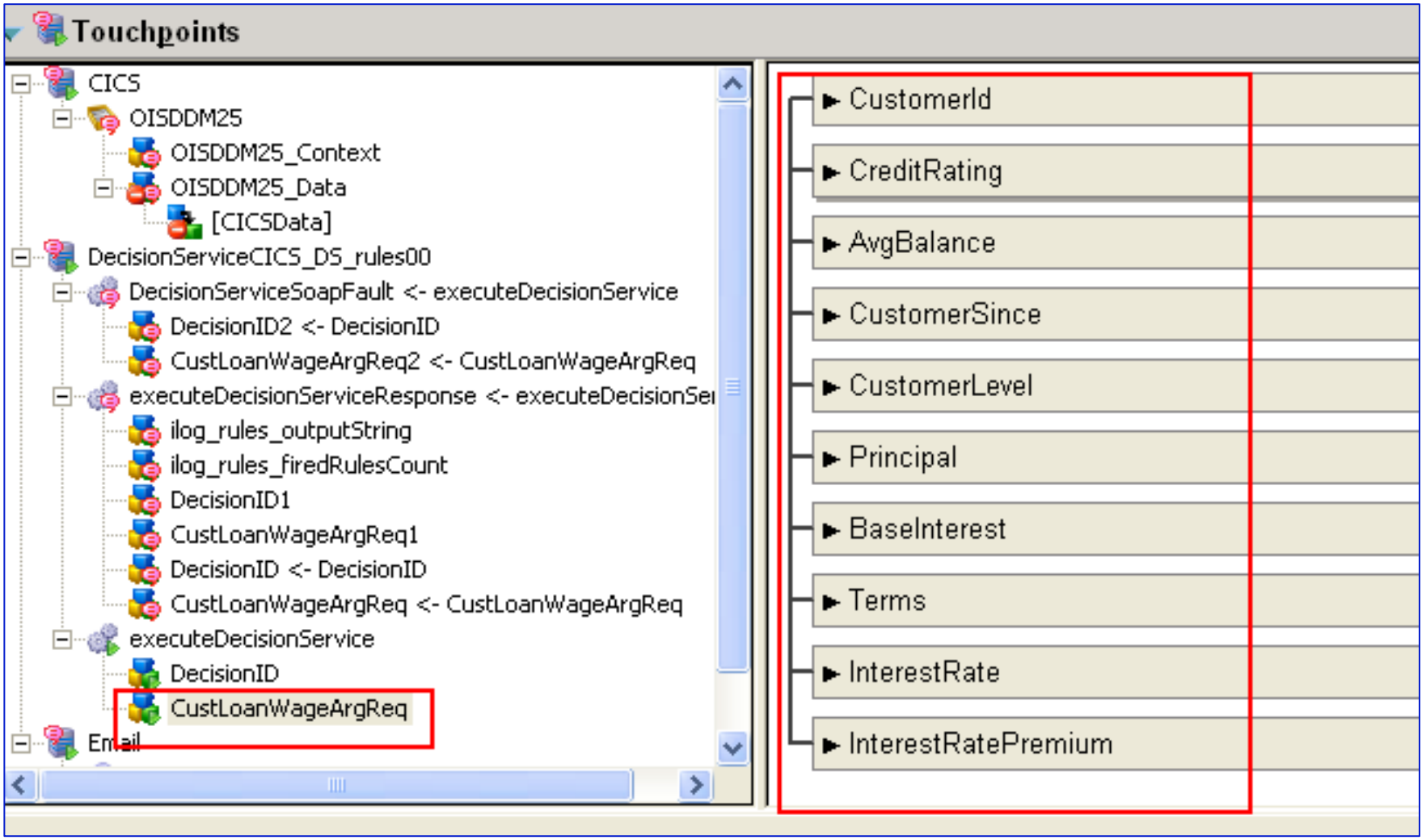

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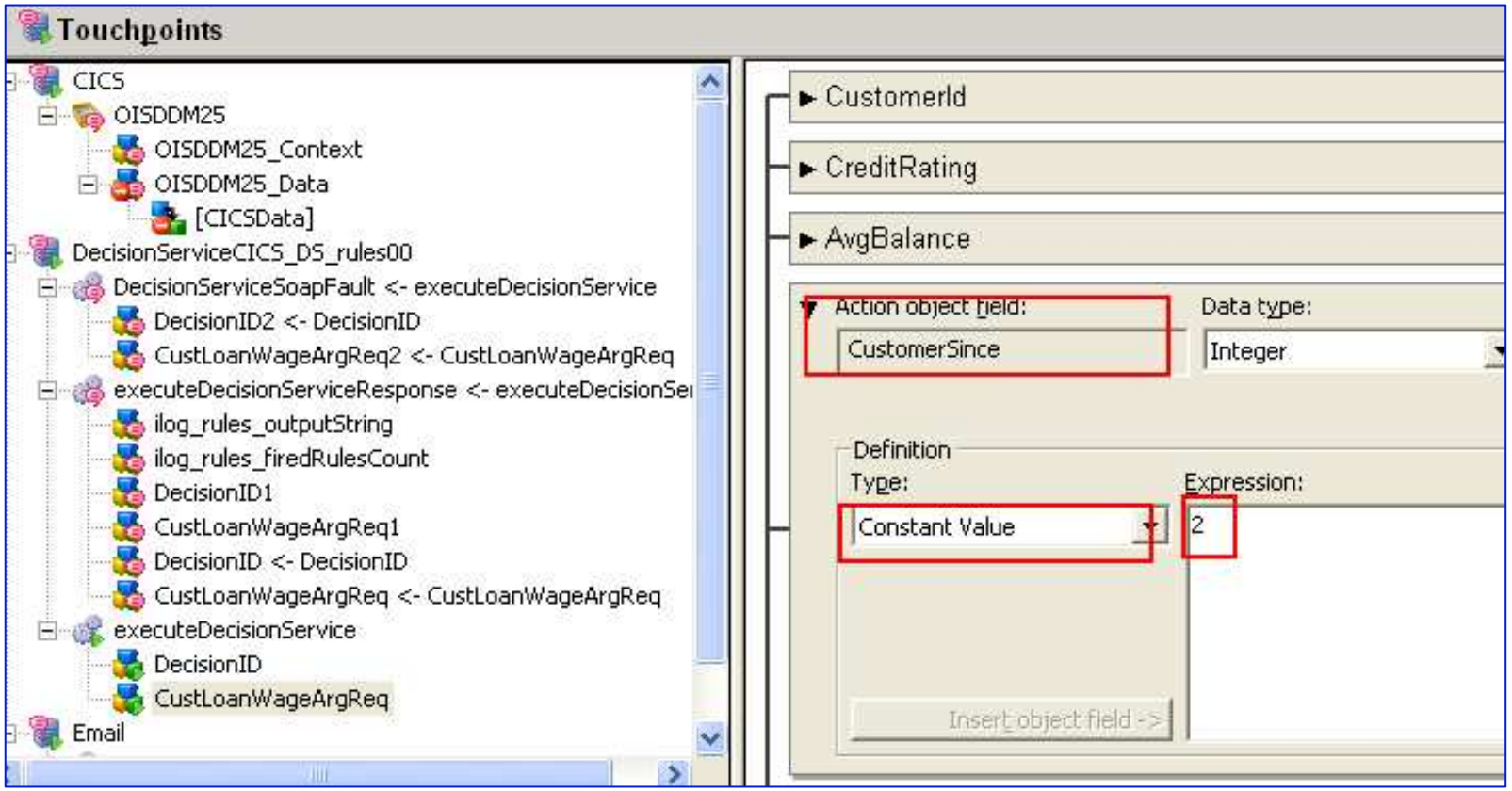

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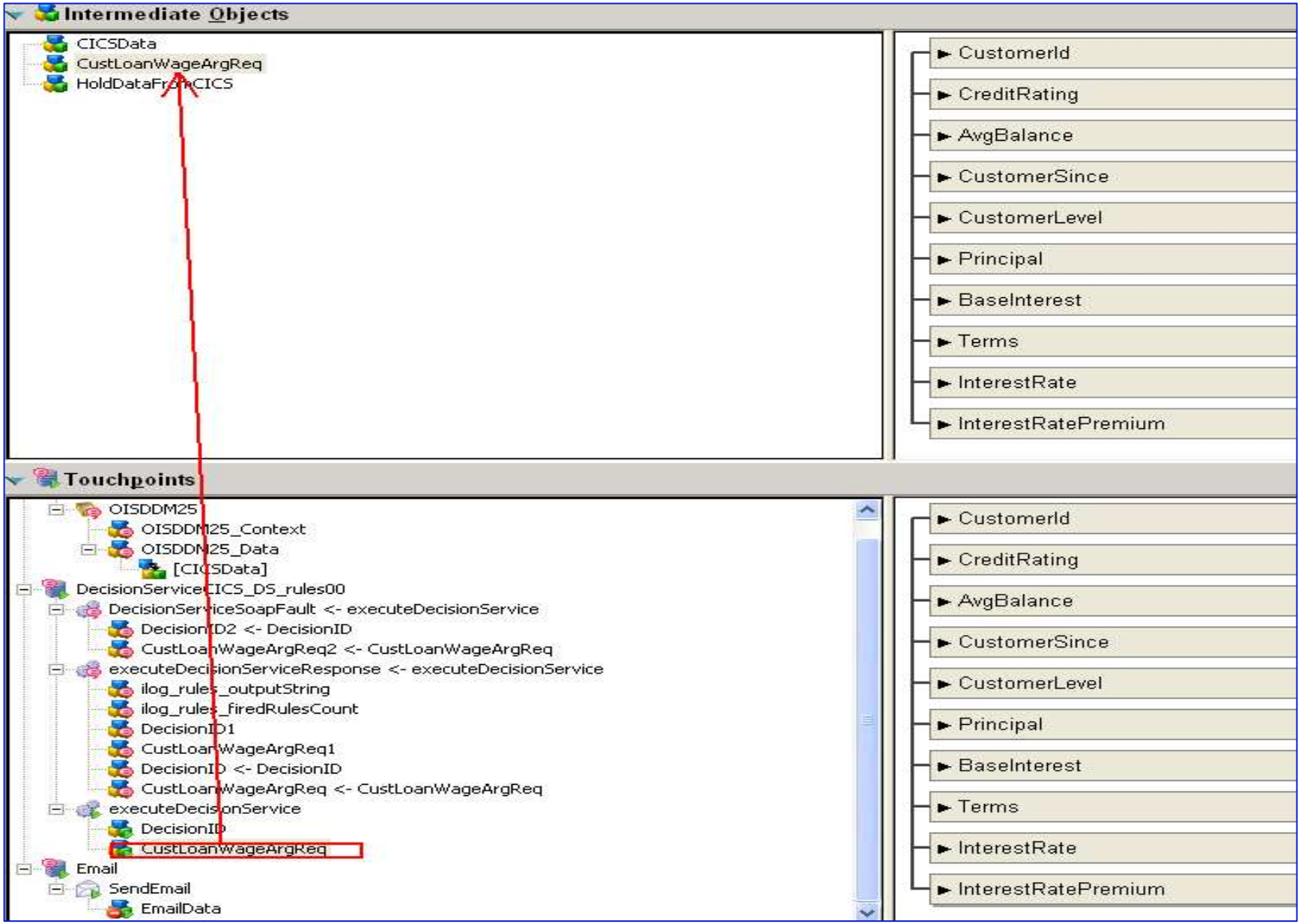

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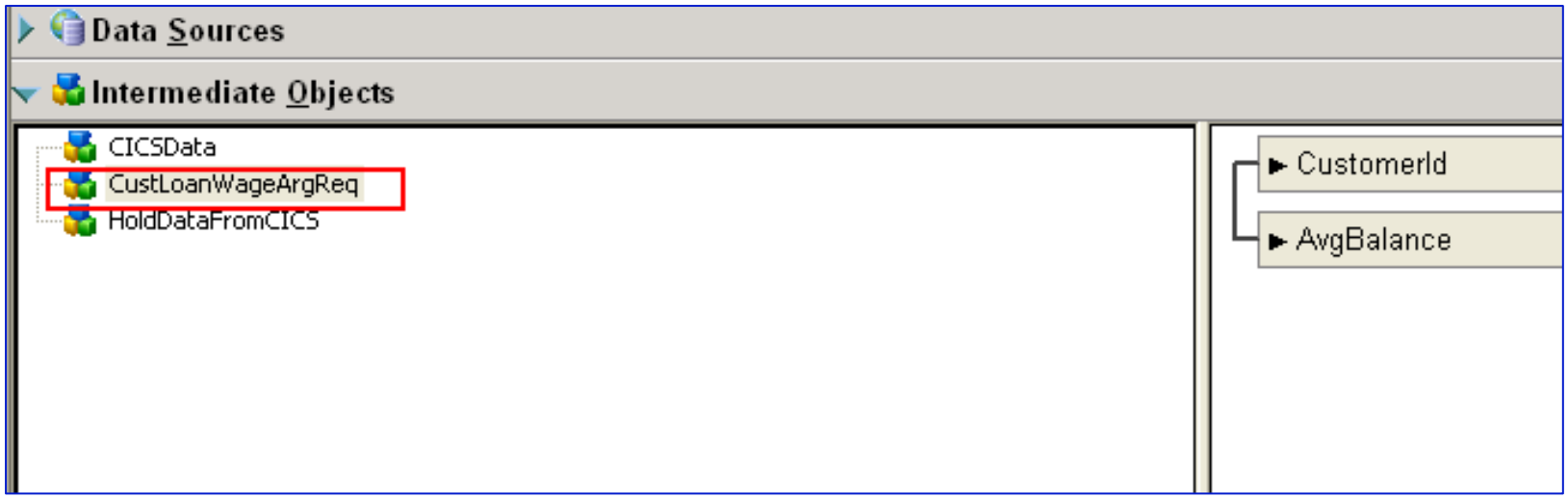

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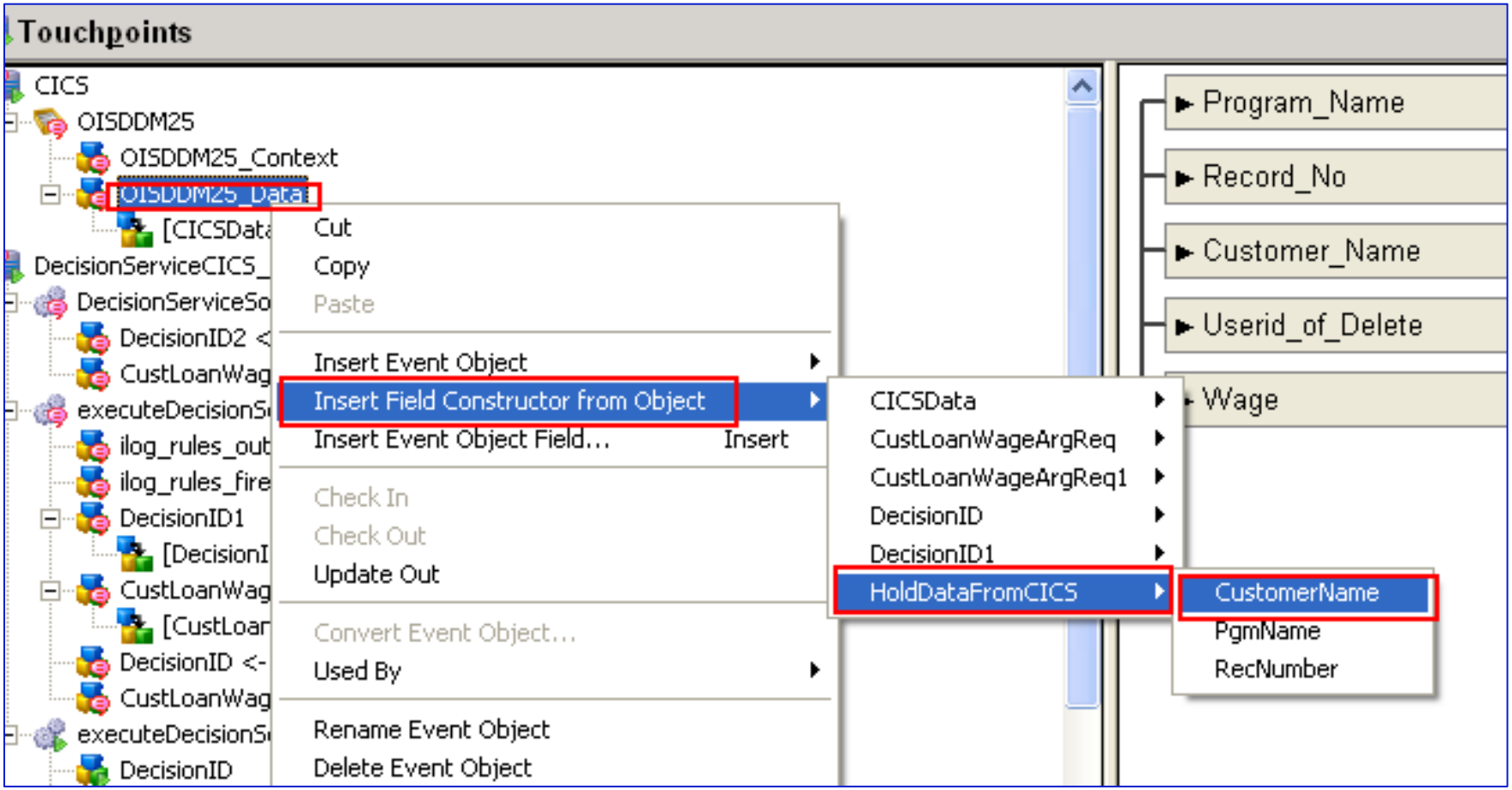

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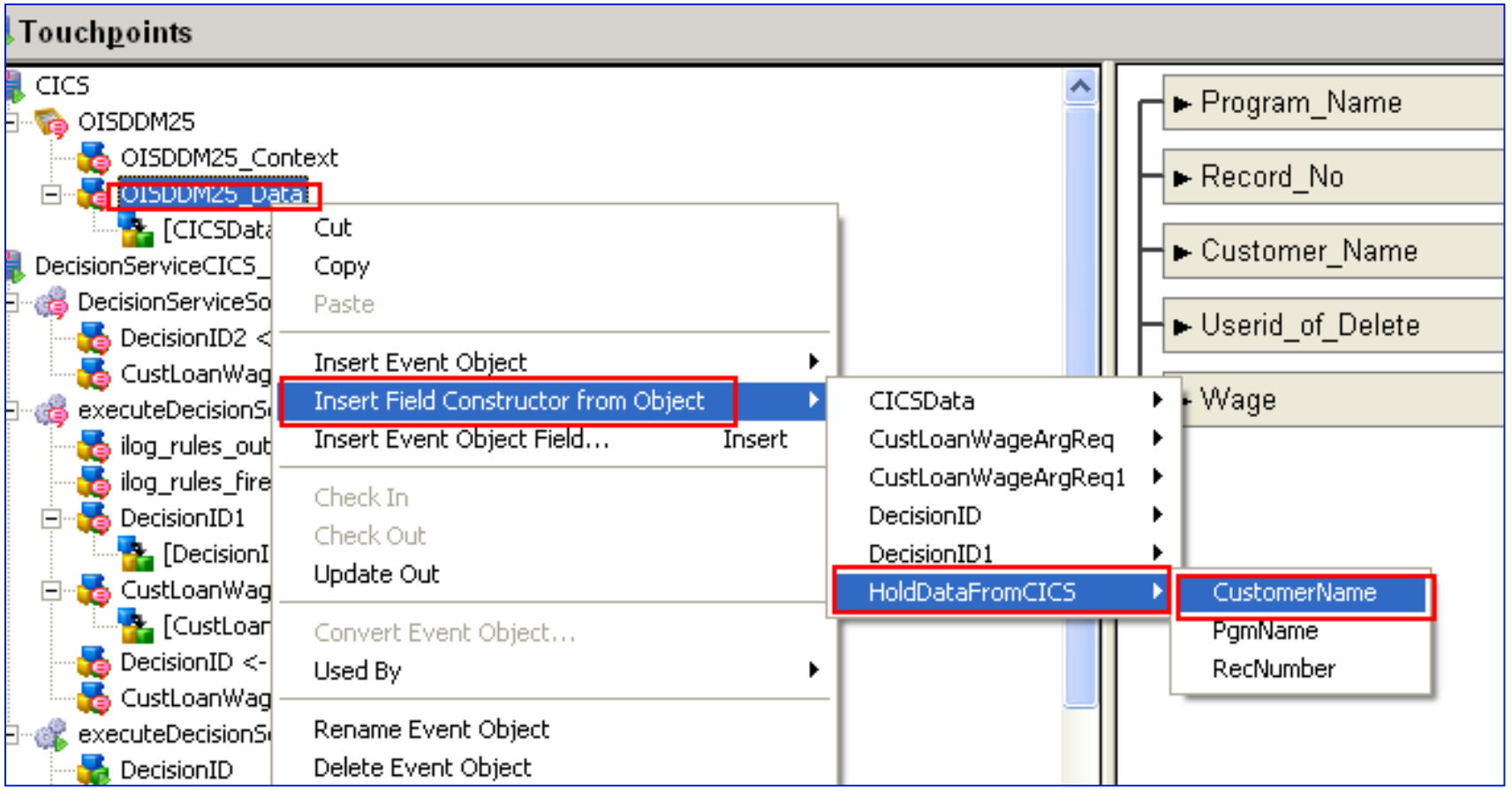

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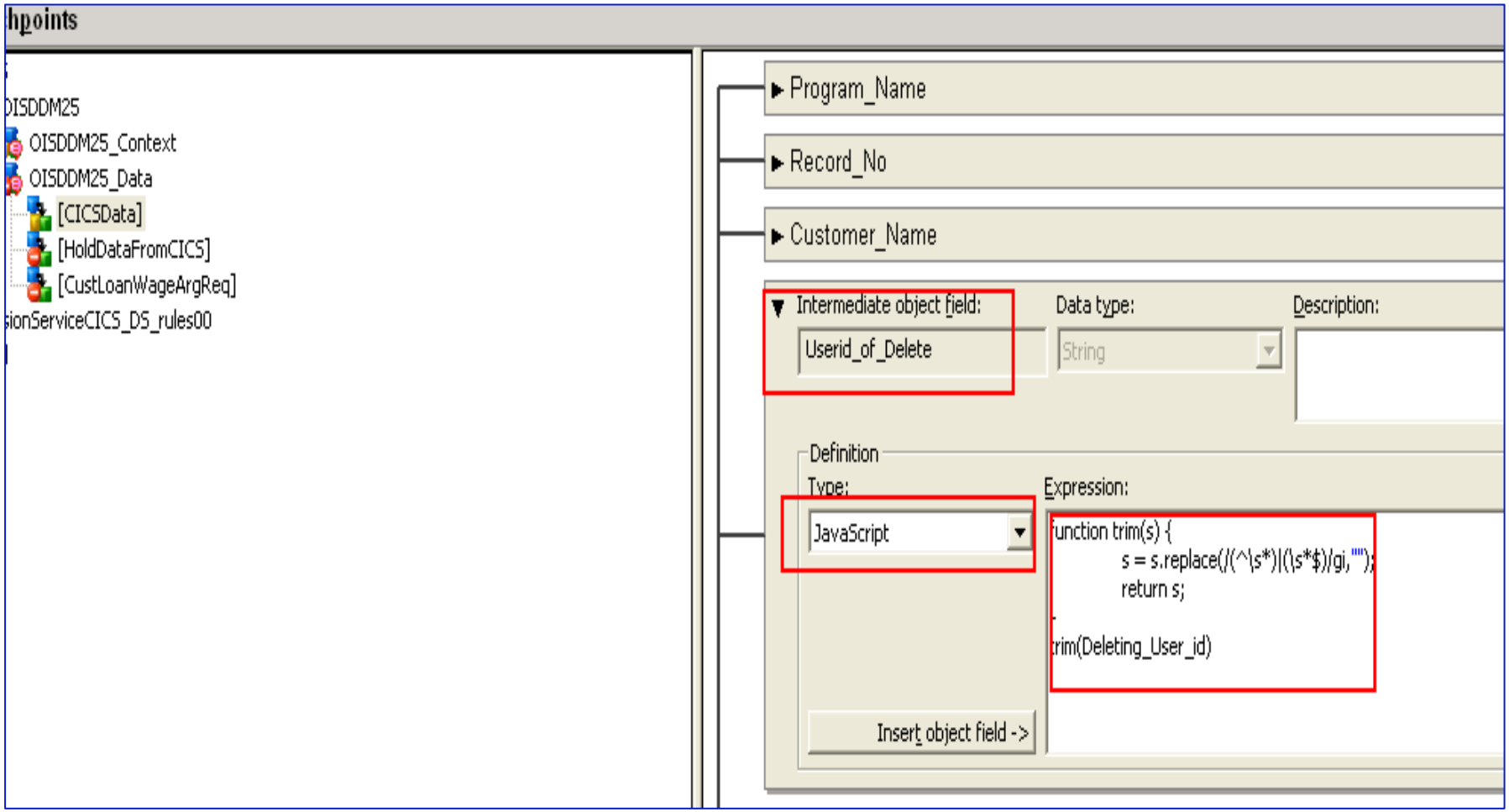

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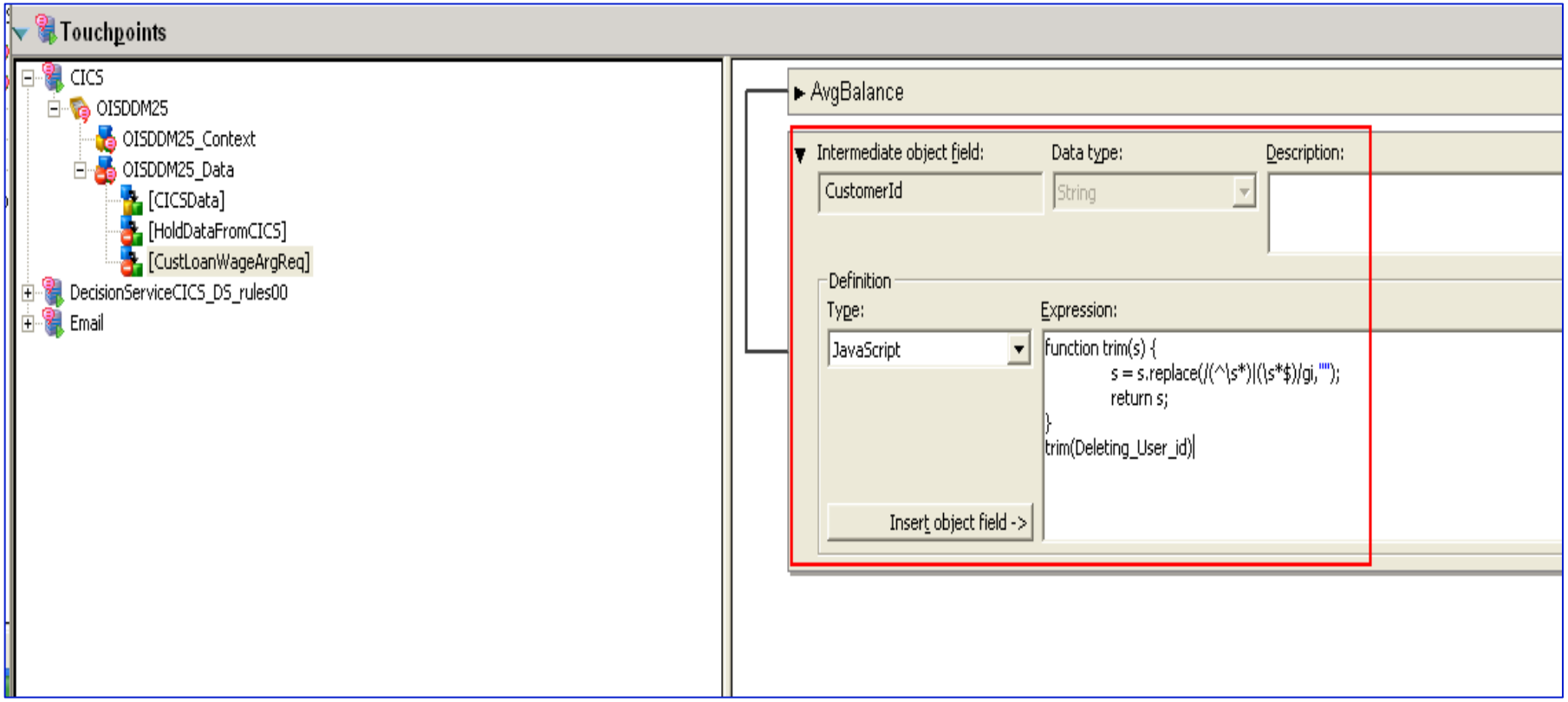
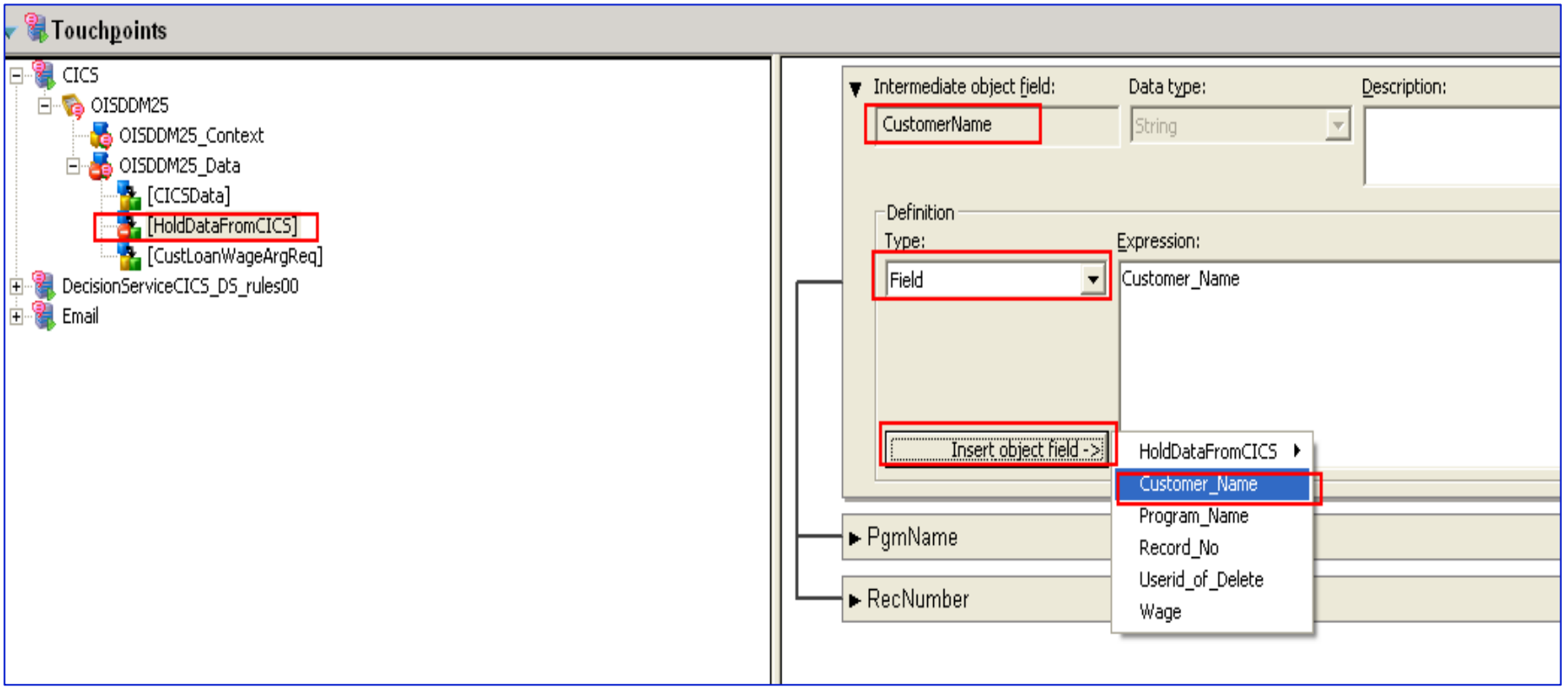

Touchpoints
CICS
OISDDM25
OISDDM25_Context
OISDDM25_Data
[CICSData]
[HoldDataFromCICS]
[CustLoanWageArgReq]
DecisionServiceCICS_DS_rules00
Email
AvgBalance
Intermediate object field:
Data type:
Description:
CustomerId
String
Definition
Type:
Expression:
JavaScript
function trim(s) {
s = s.replace(/(^\s*)|(\s*$)/gi,"");
return s;
}
trim(Deleting_User_id)
Insert object field ->

Step by step in Design data



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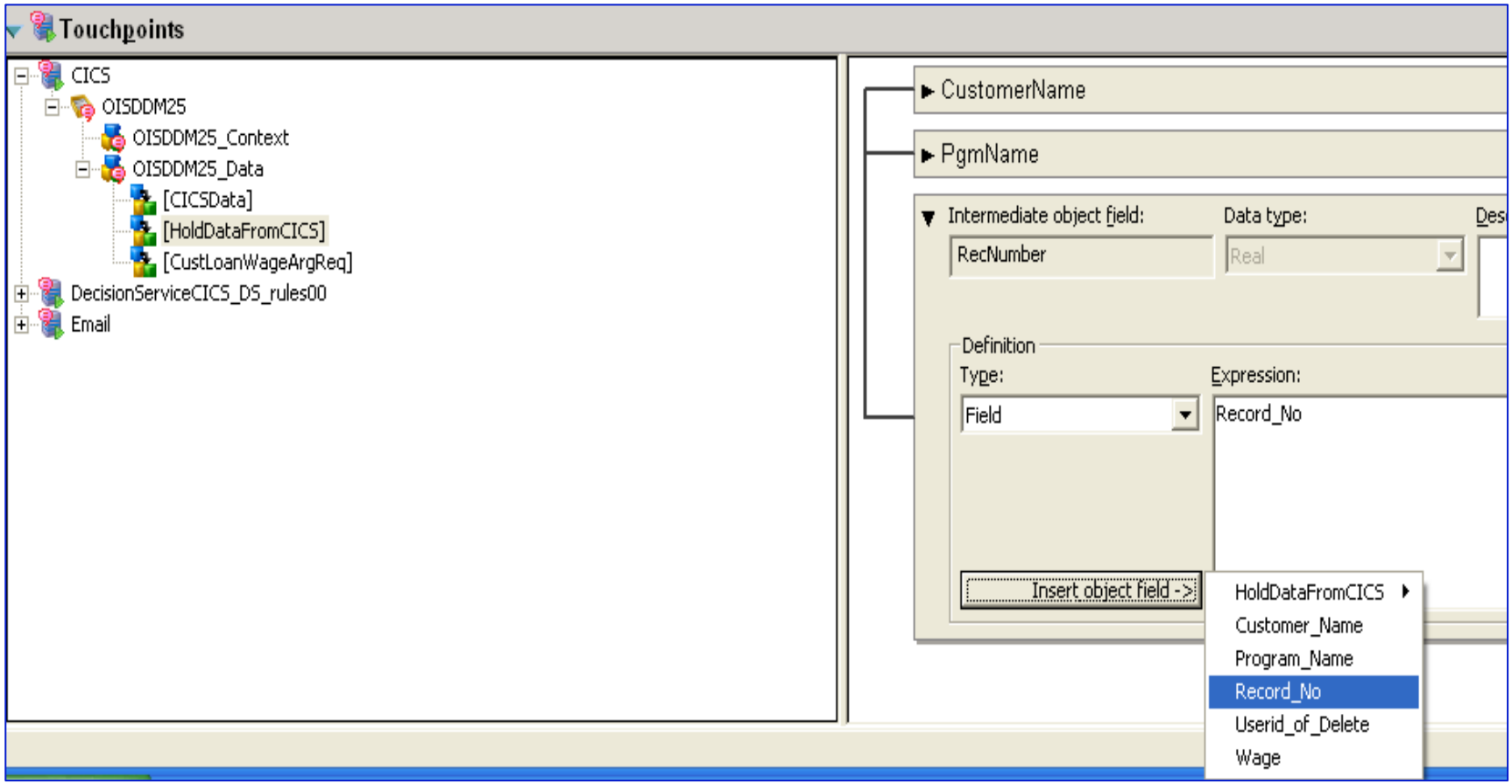

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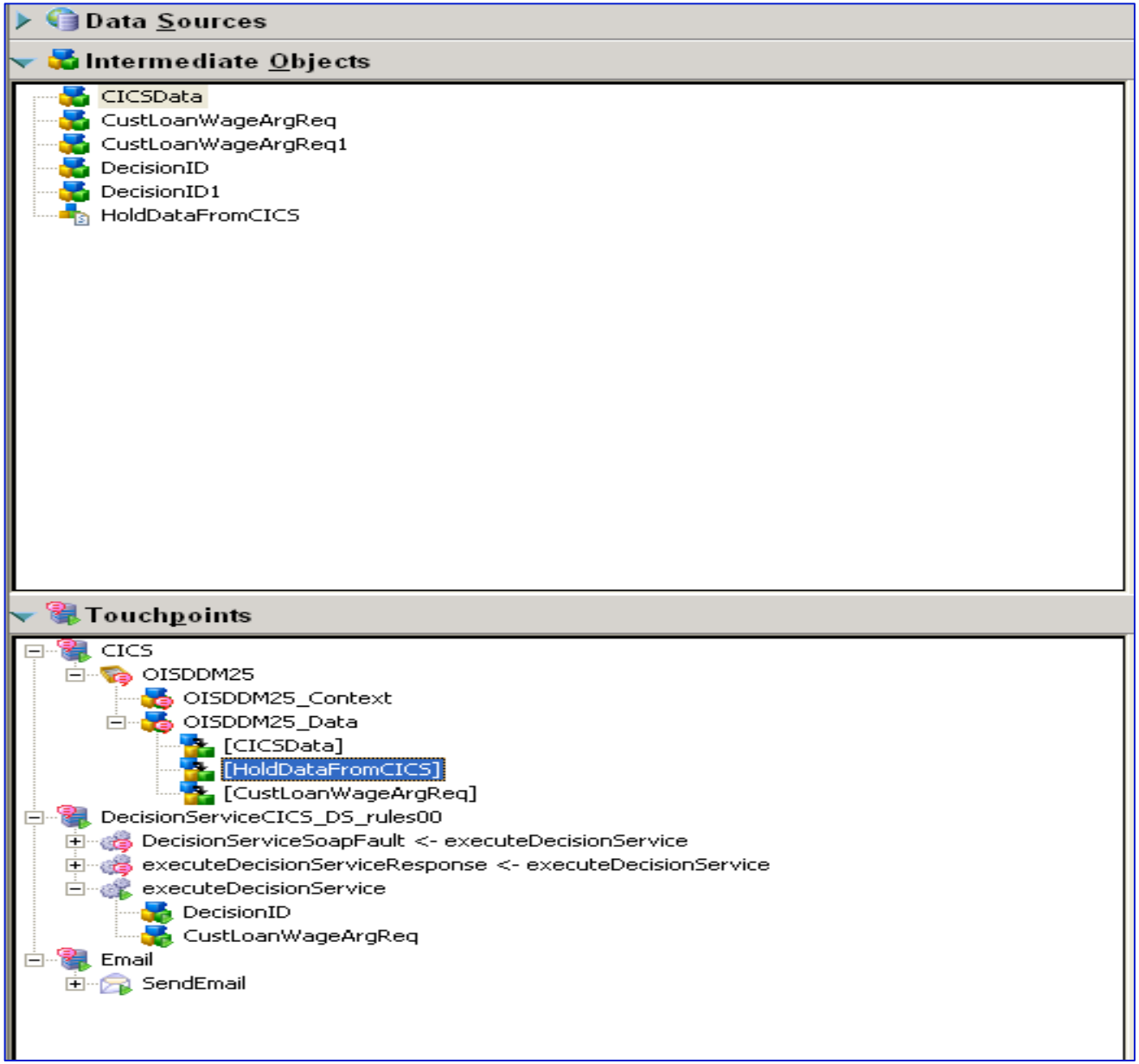

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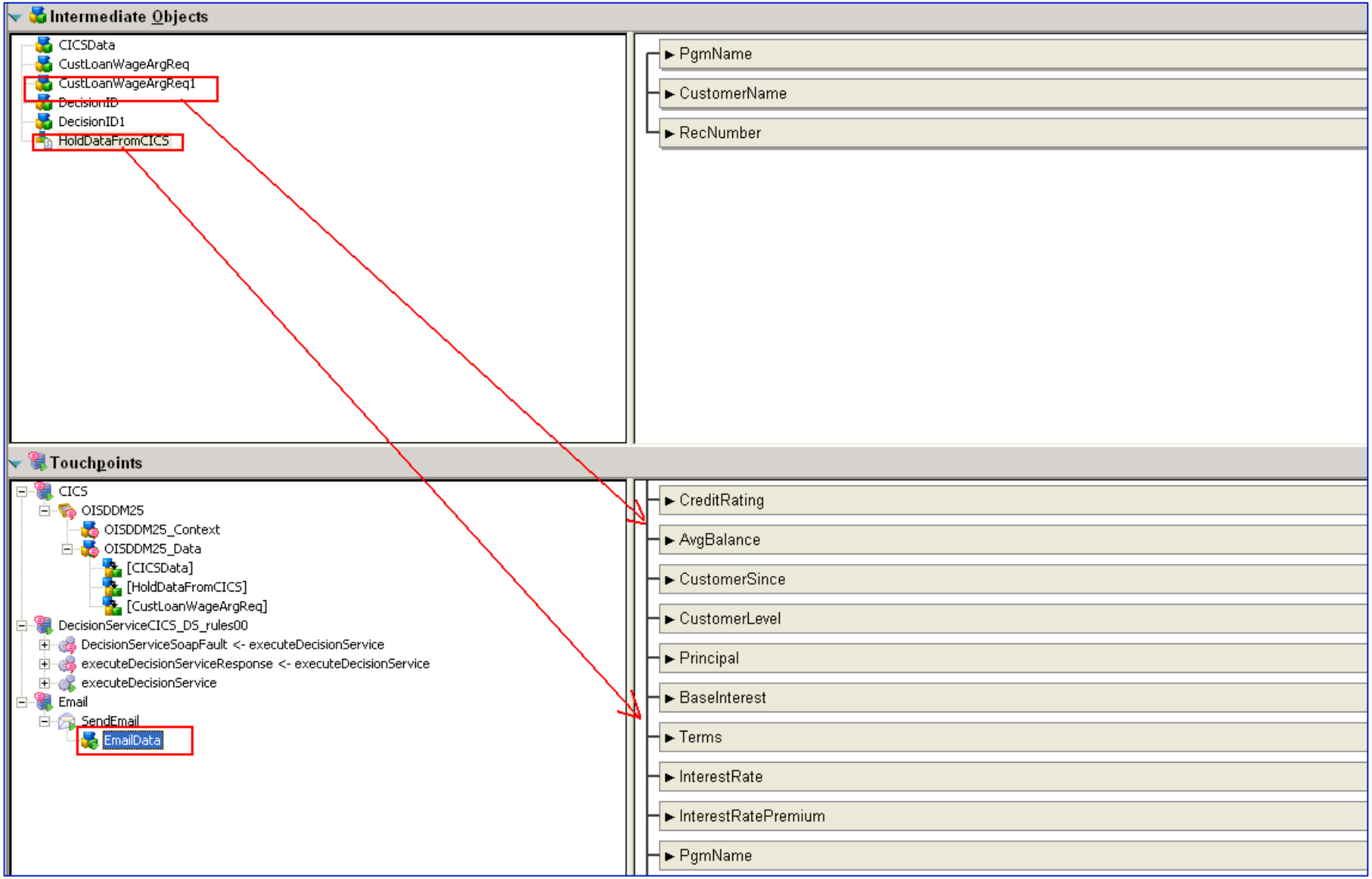
Step by step in Design data



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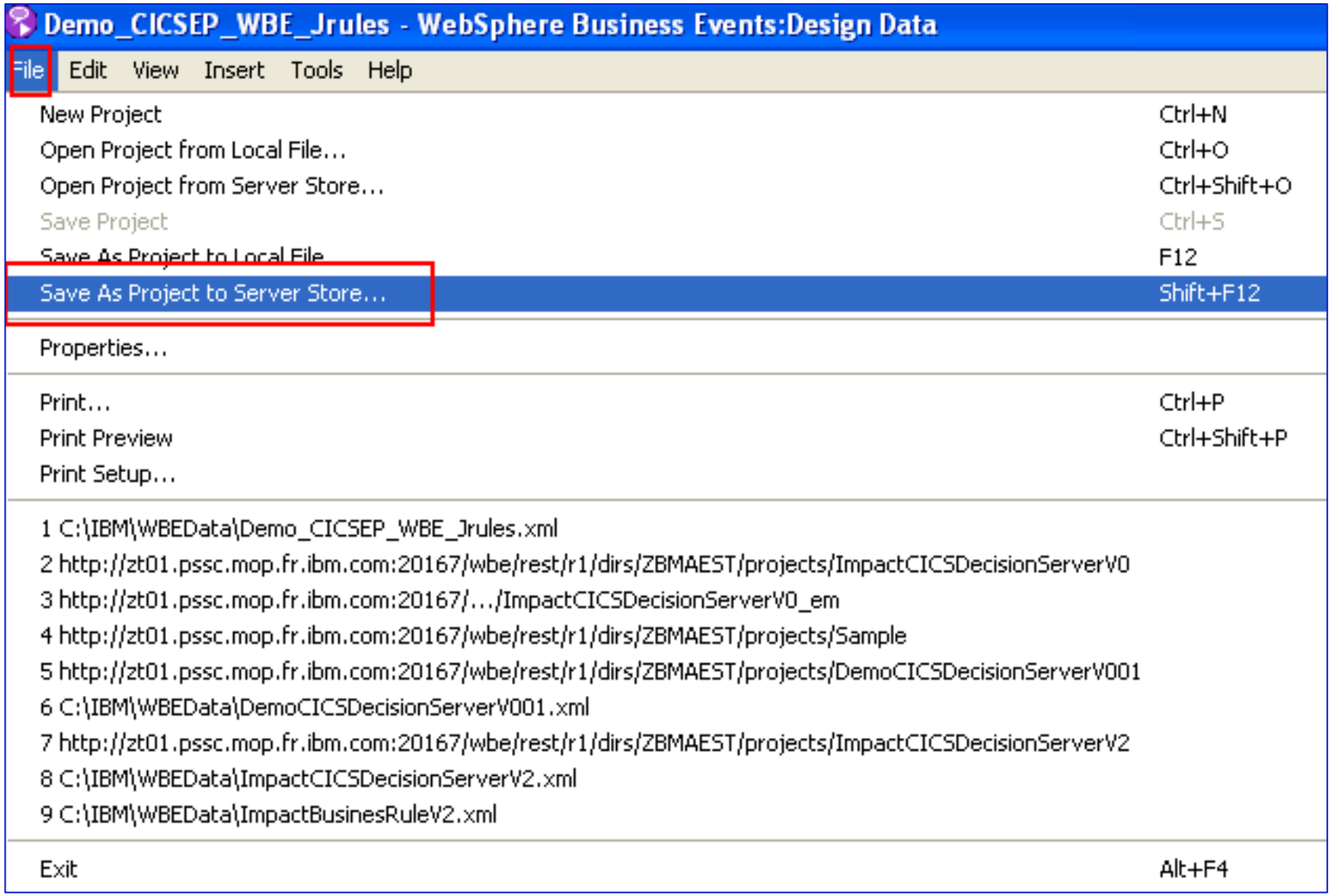
Step by step in Design data



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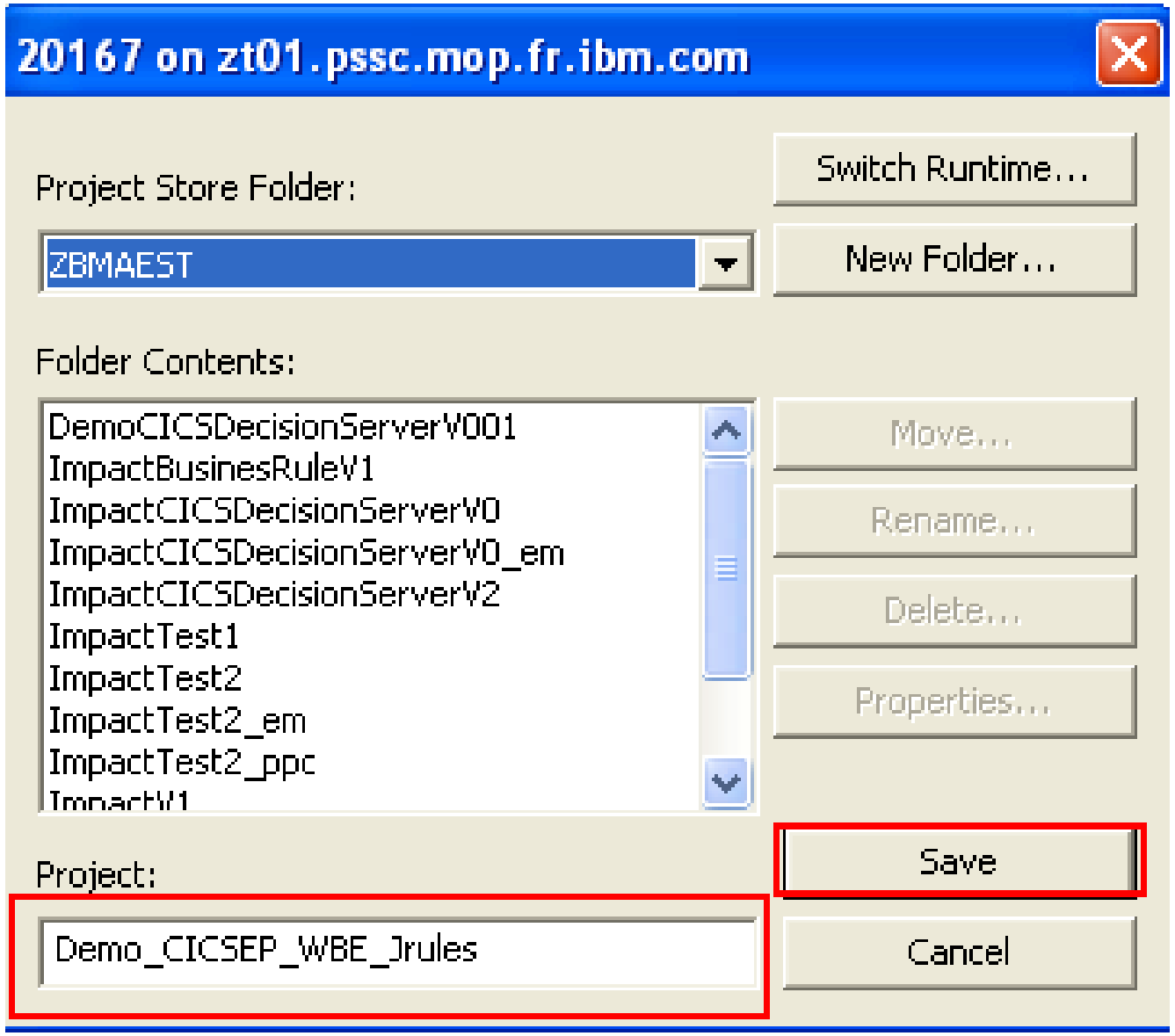

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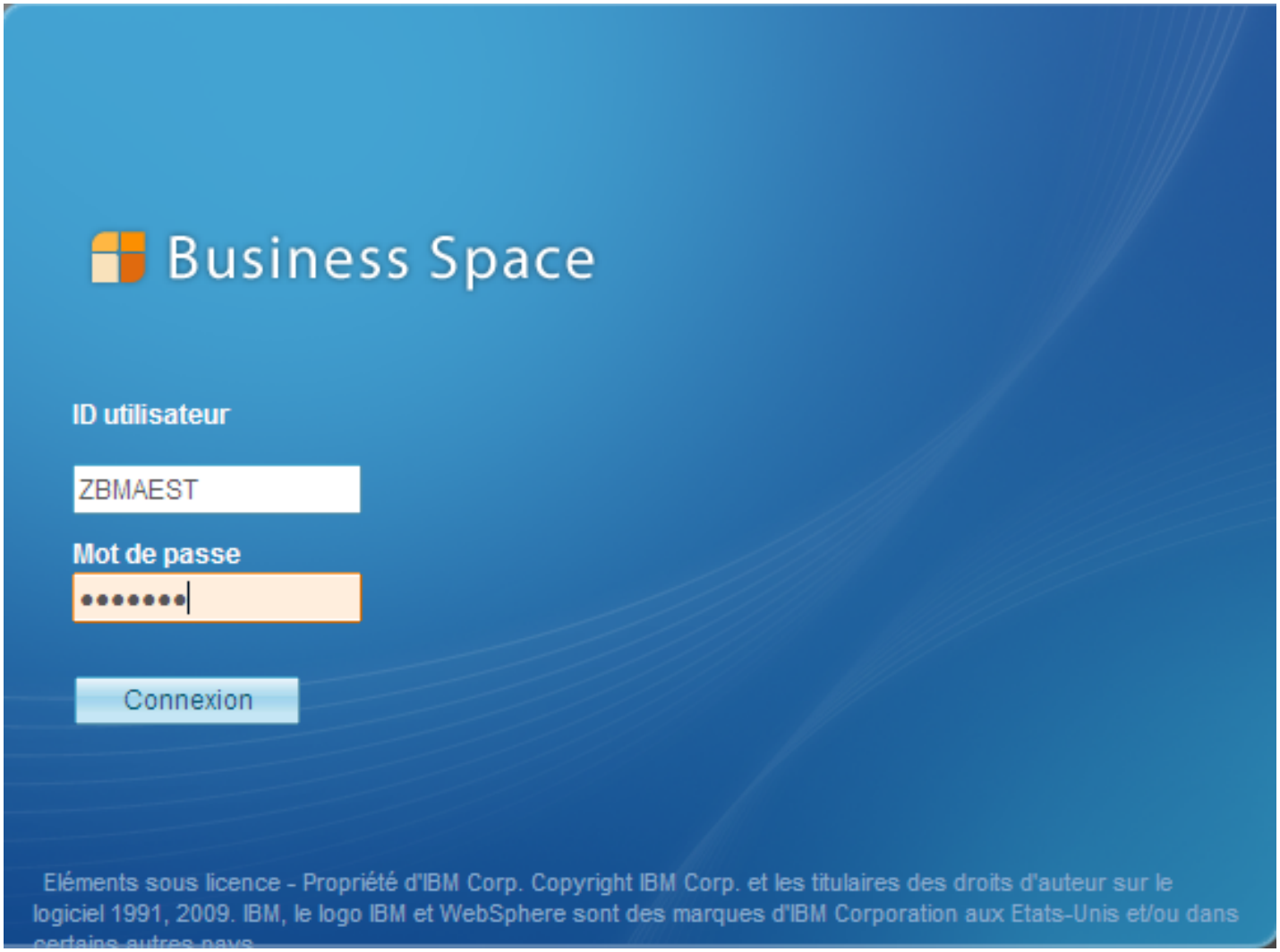
Step by step in Business Space



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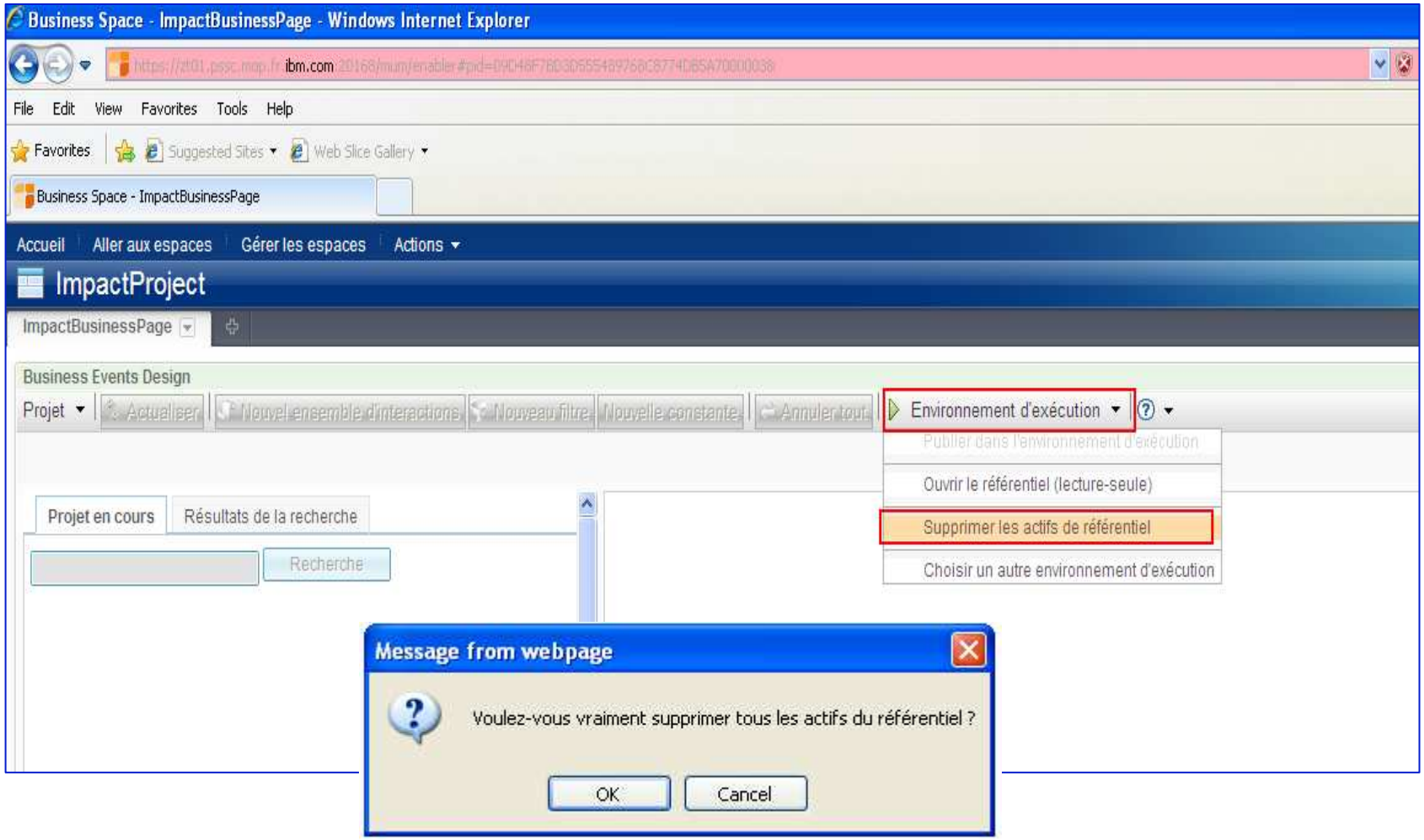

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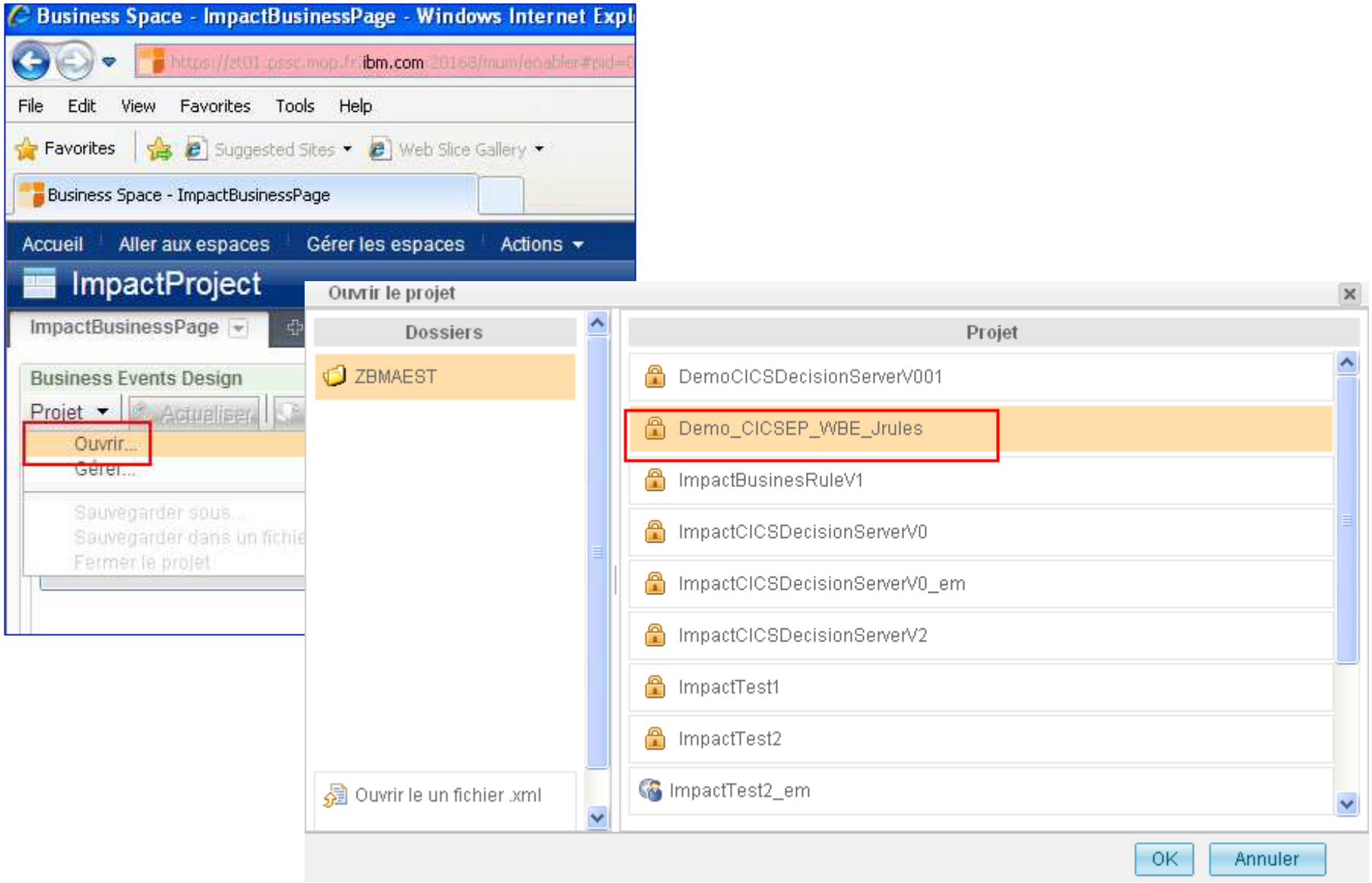

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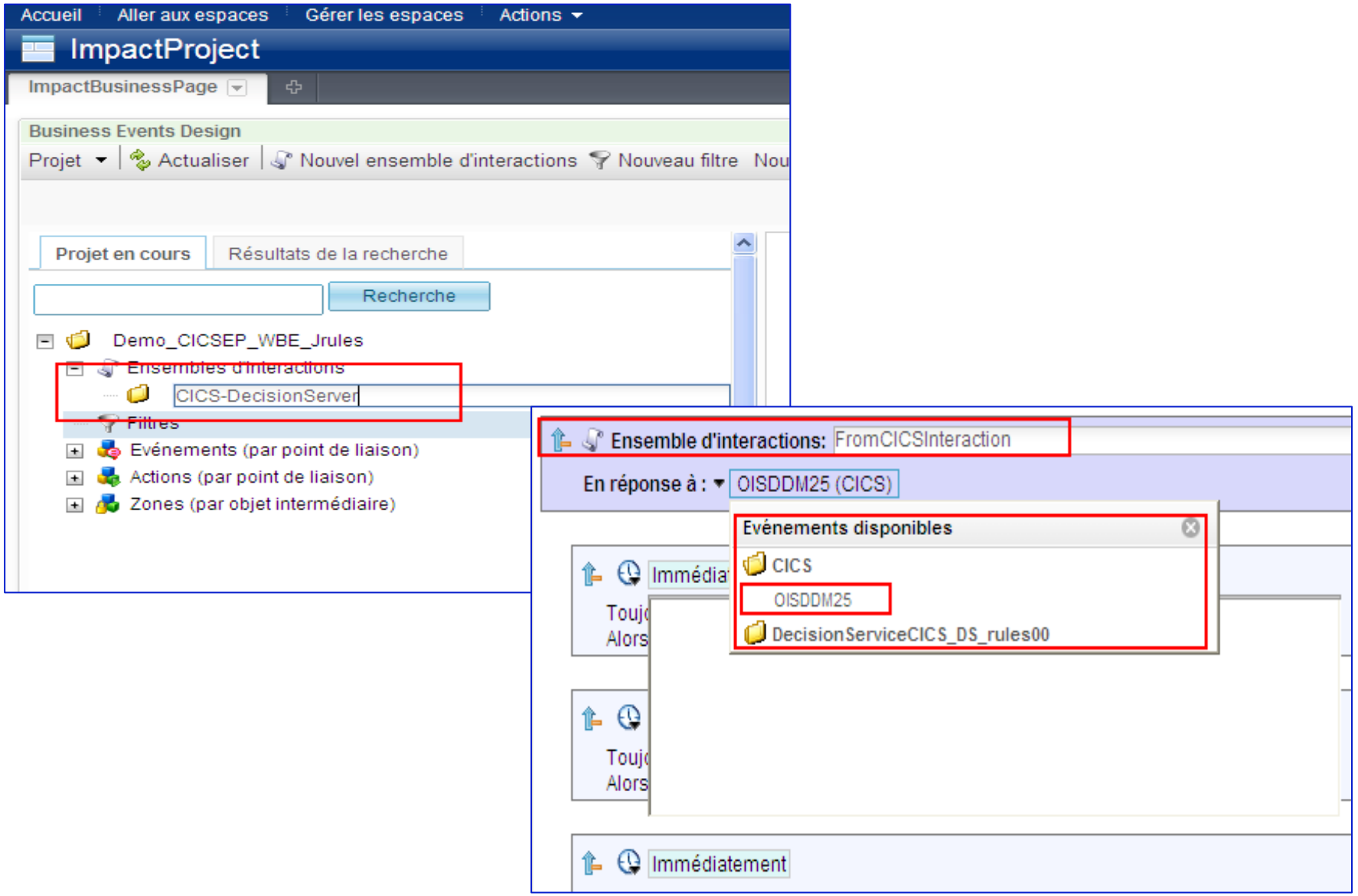

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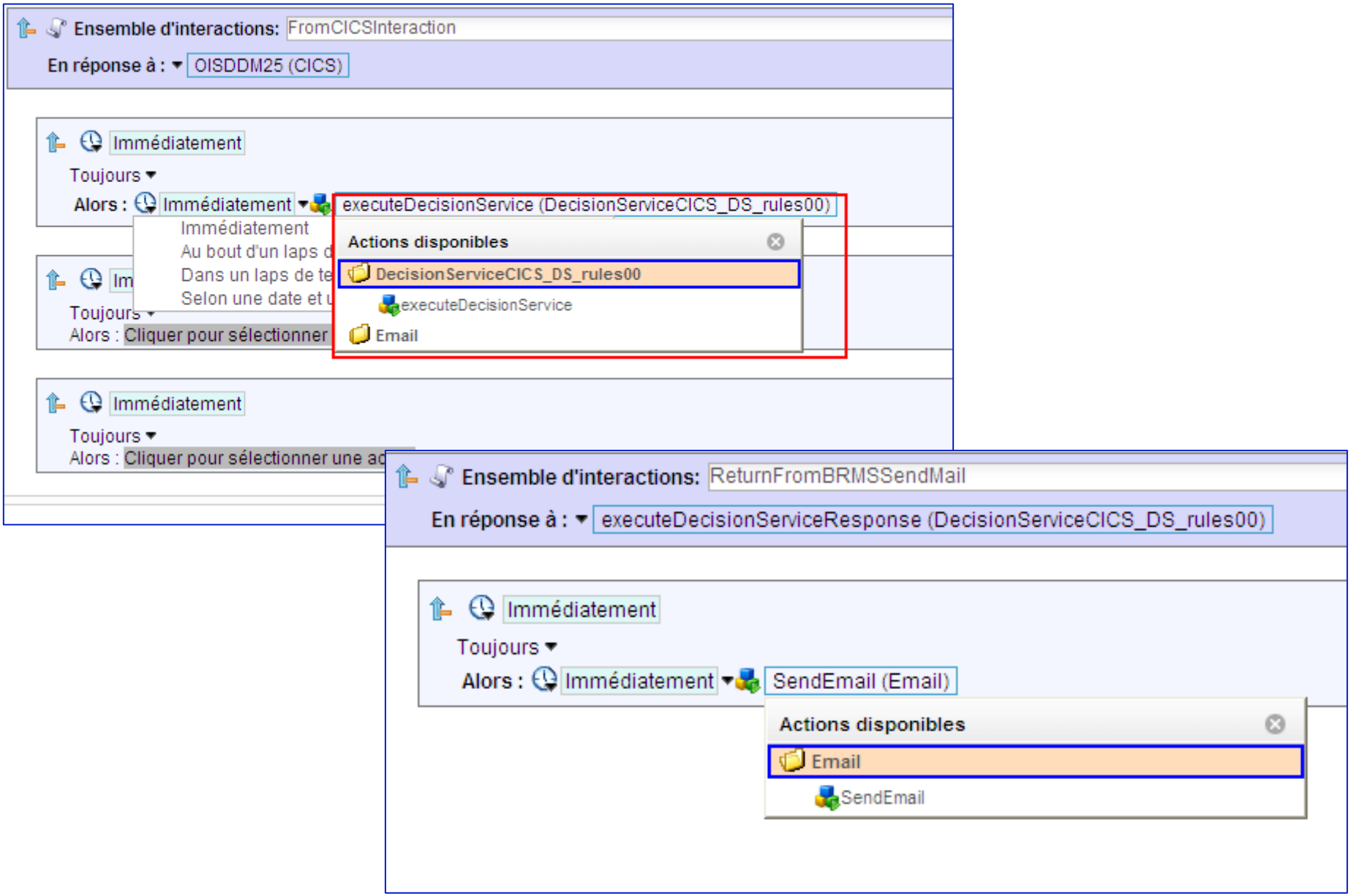
Step by step in Business Space



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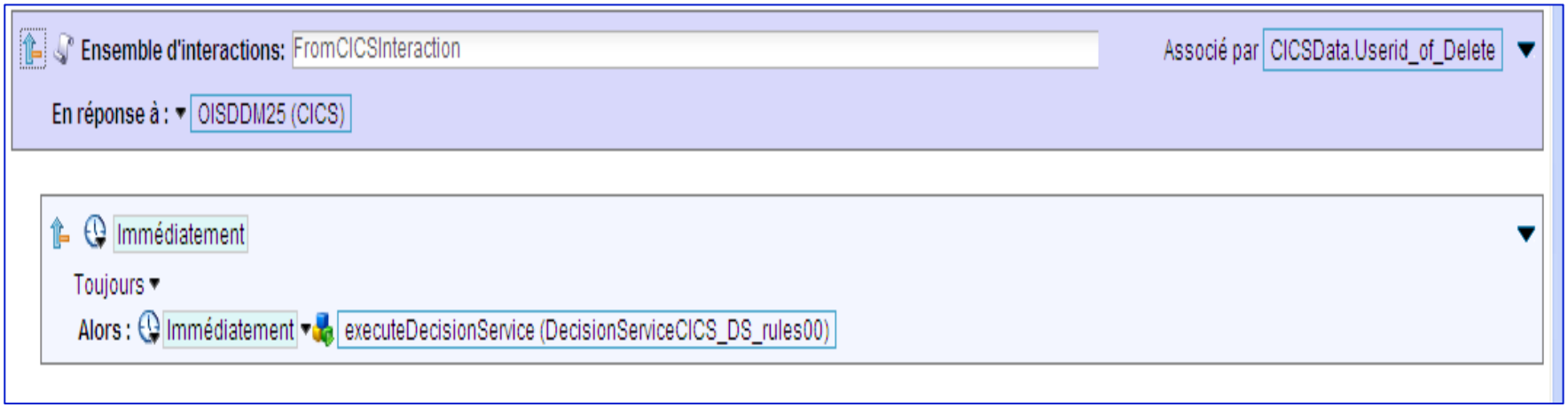
Step by step in Business Space



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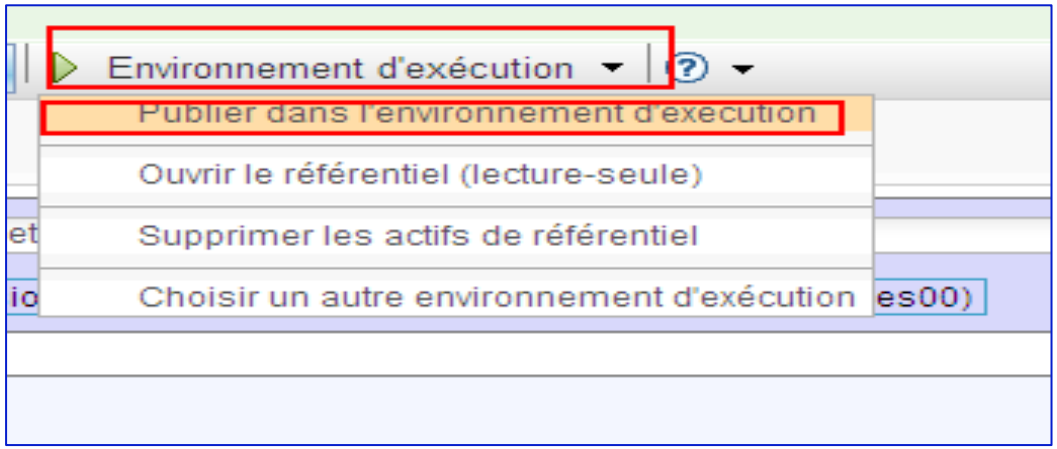
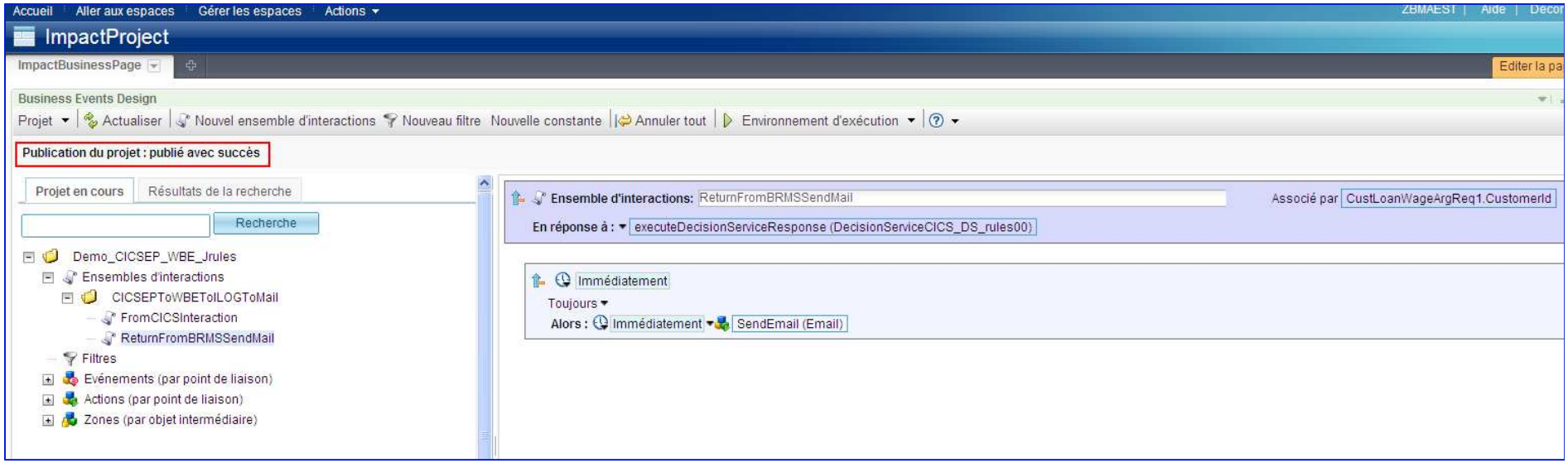
Step by step in Business Space





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Agenda – Decision Management

Solution Overview

1. Decision Server Concepts
2. Business Events
3. Business Rules

Solution and Demonstration

4. CICS Business Events
5. Business Event Processing
6. Business Rule Processing

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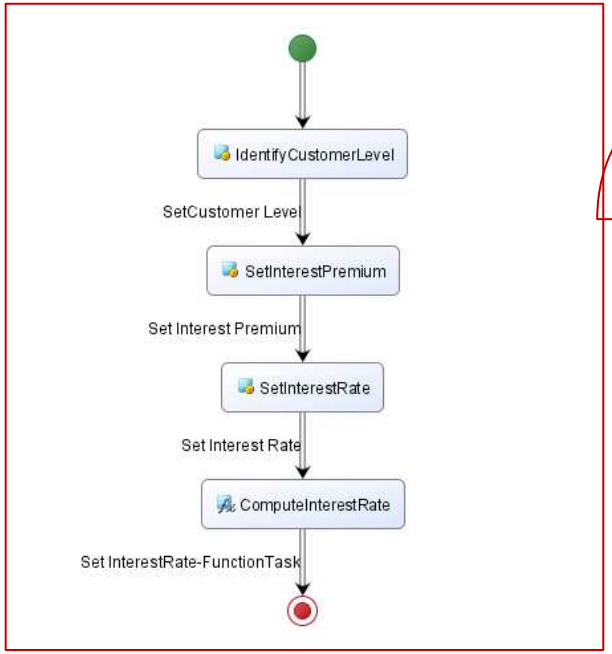
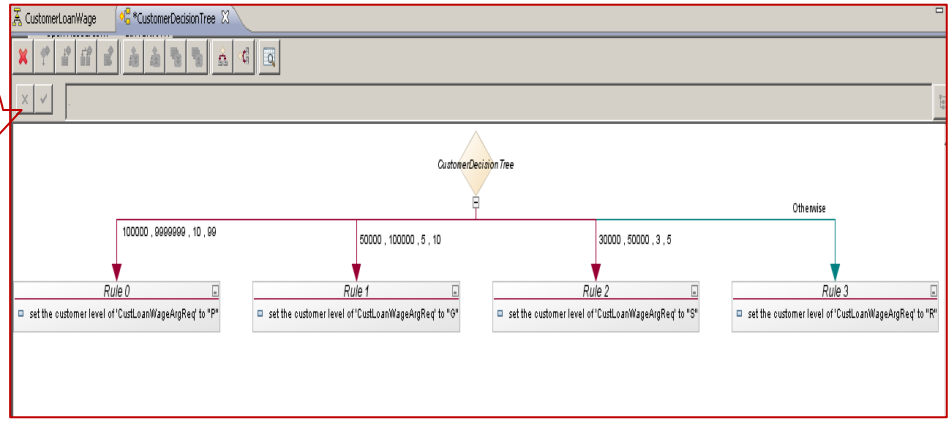
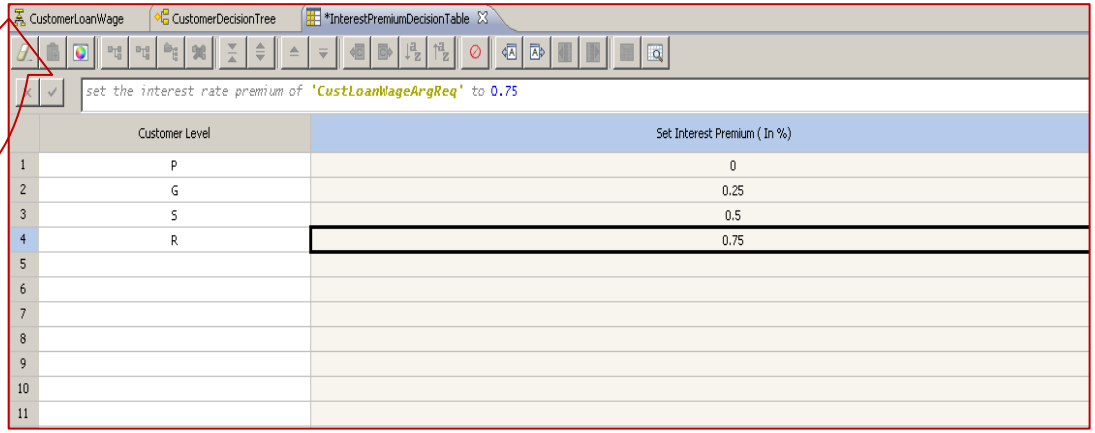
Rules implementation







	Customer Level	Set Interest Premium (In %)
1	P	0
2	G	0.25
3	S	0.5
4	R	0.75
5		
6		
7		
8		
9		
10		
11		

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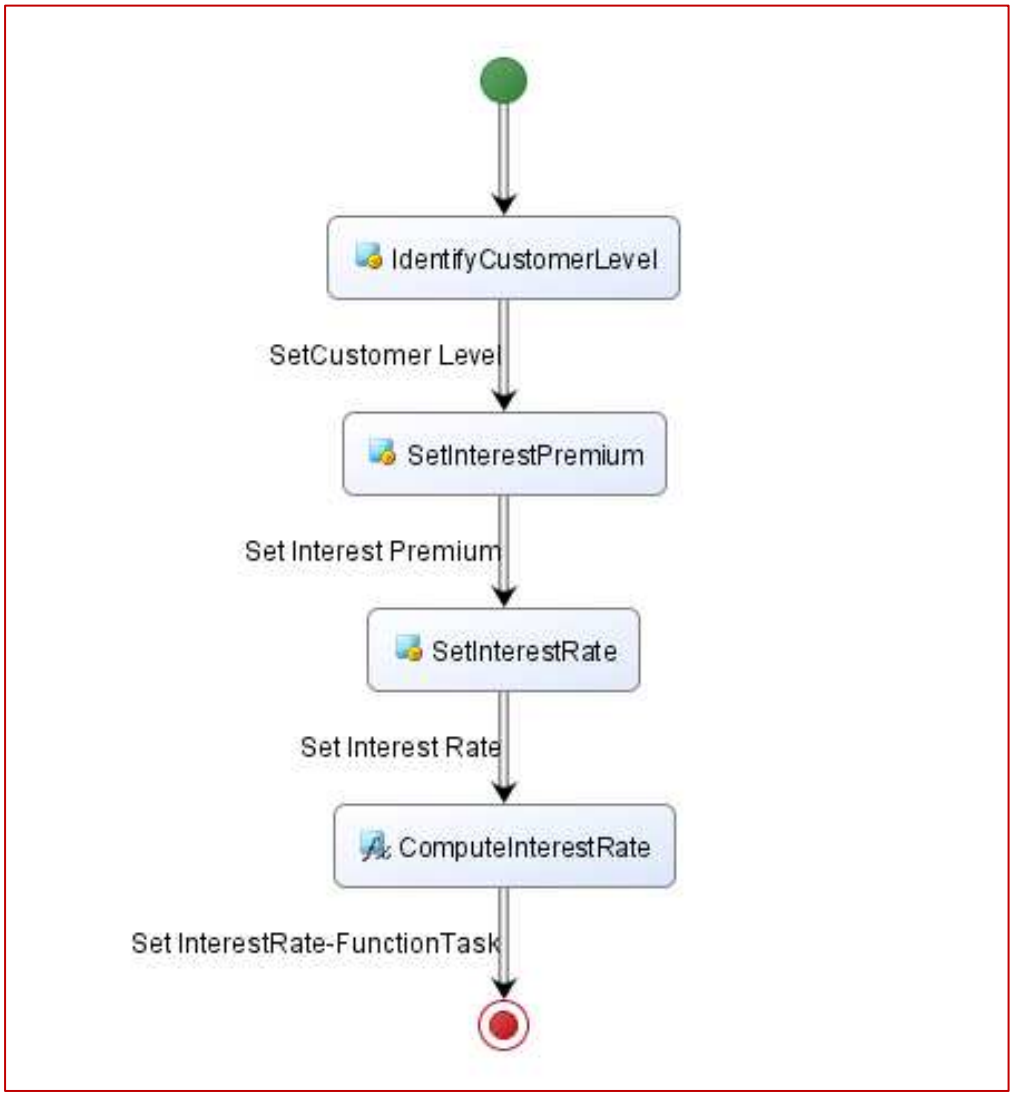
Rule flow



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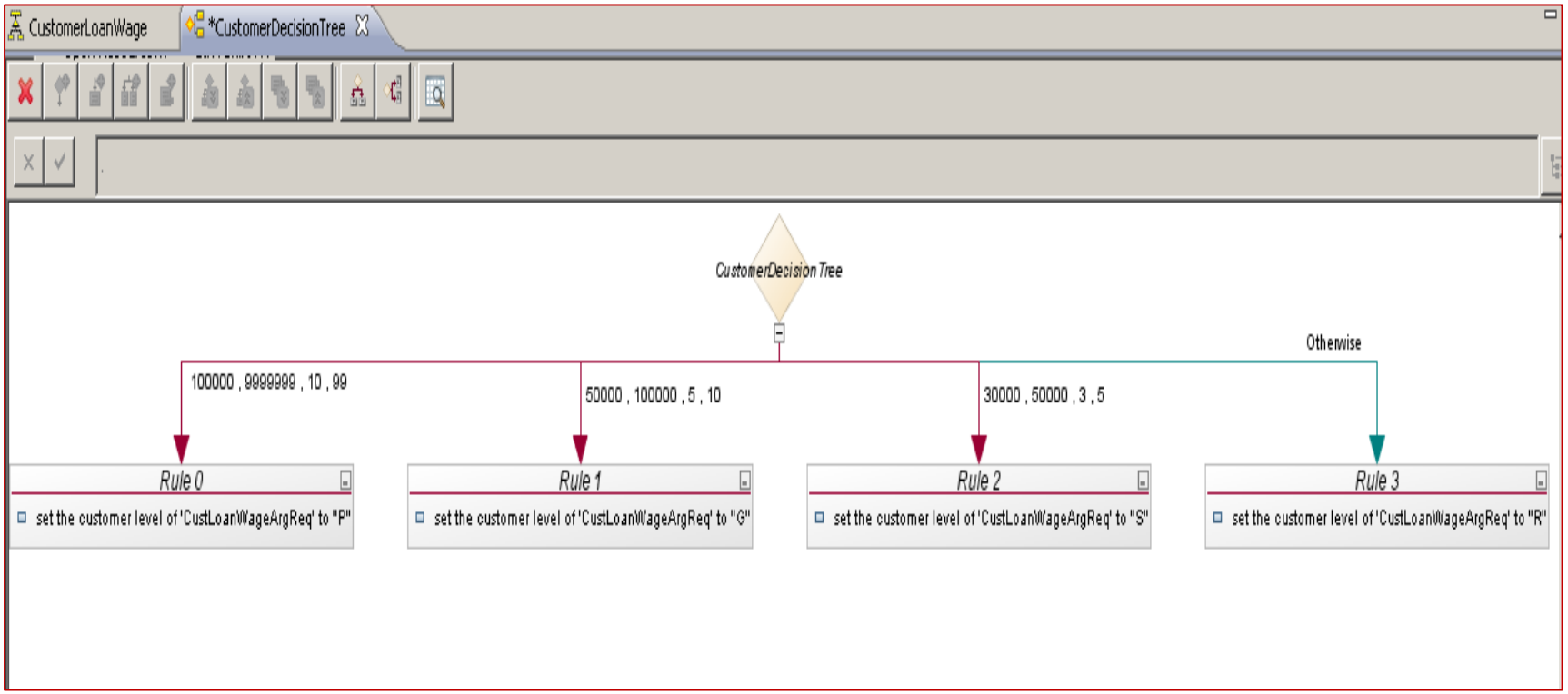
Business Rule Type

-Identify Customer Level using a Decision Tree



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Business Rule Type

- Set Interest Premium using a Decision Table

CustomerLoanWage | CustomerDecisionTree | *InterestPremiumDecisionTable

set the interest rate premium of 'CustLoanWageArgReq' to 0.75

	Customer Level	Set Interest Premium (In %)
1	P	0
2	G	0.25
3	S	0.5
4	R	0.75
5		
6		
7		
8		
9		
10		
11		

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Business Rule Type

- Set Interest Rate using a Decision Table

CustomerLoanWage | CustomerDecisionTree | InterestPremiumDecisionTable | *InterestRateDecisionTable

the principal of 'CustLoanWageArgReq' is at least <a number> and less than <a number>

	Credit Rating		Principal		Terms	Set Interest Rate
	min	max	min	max		
1	540	700	0	430,000	15	1.9
2					20	2
3					30	2.5
4			430,000	999,999	15	1.95
5					20	2.05
6					30	3
7	700	830	0	430,000	15	1
8					20	1.5
9					30	1.8
10			430,000	999,999	15	1
11					20	1.5
12					30	1.8
13						
14						
15						
16						
17						
18						

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Test

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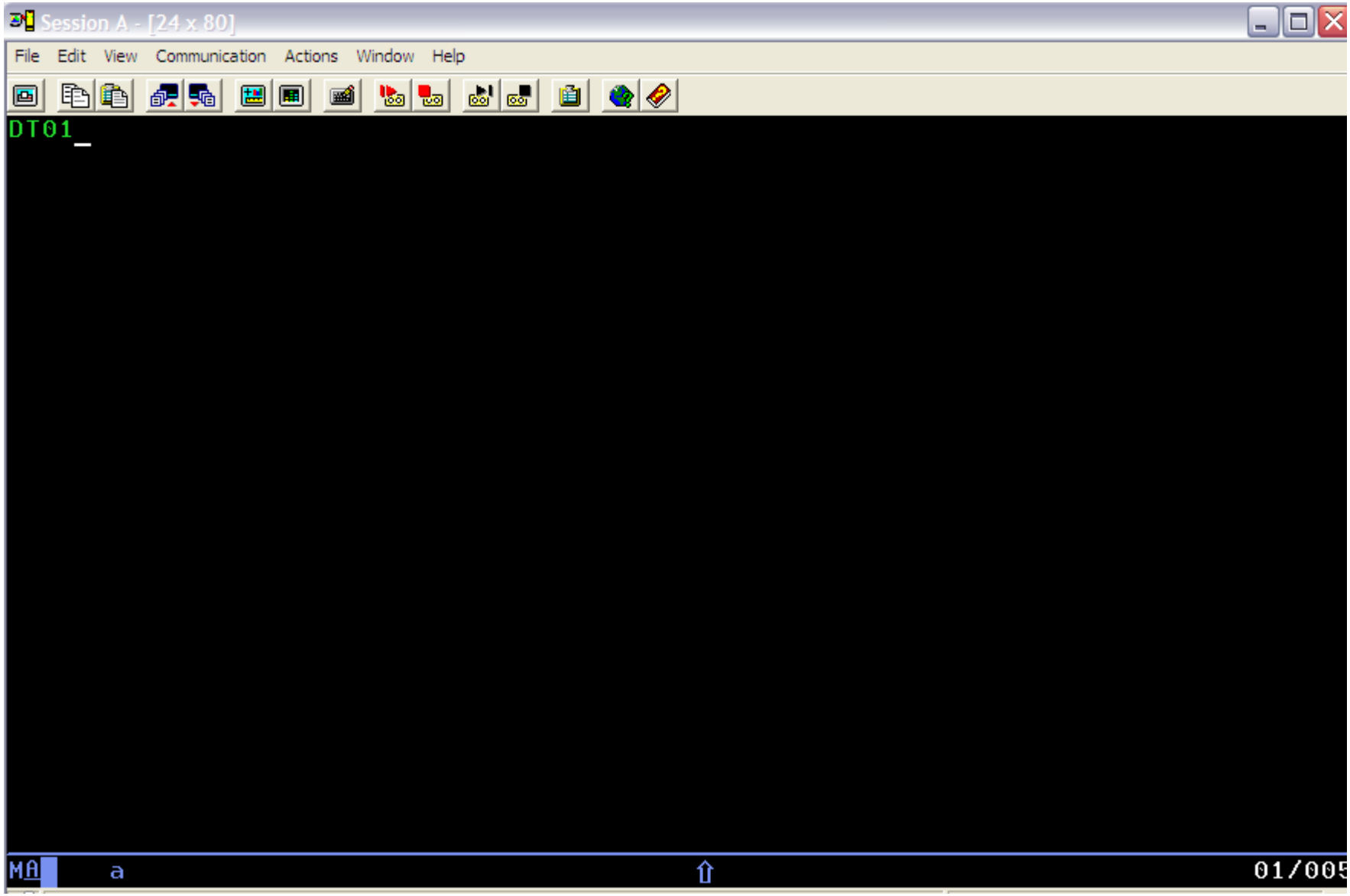
Scenario



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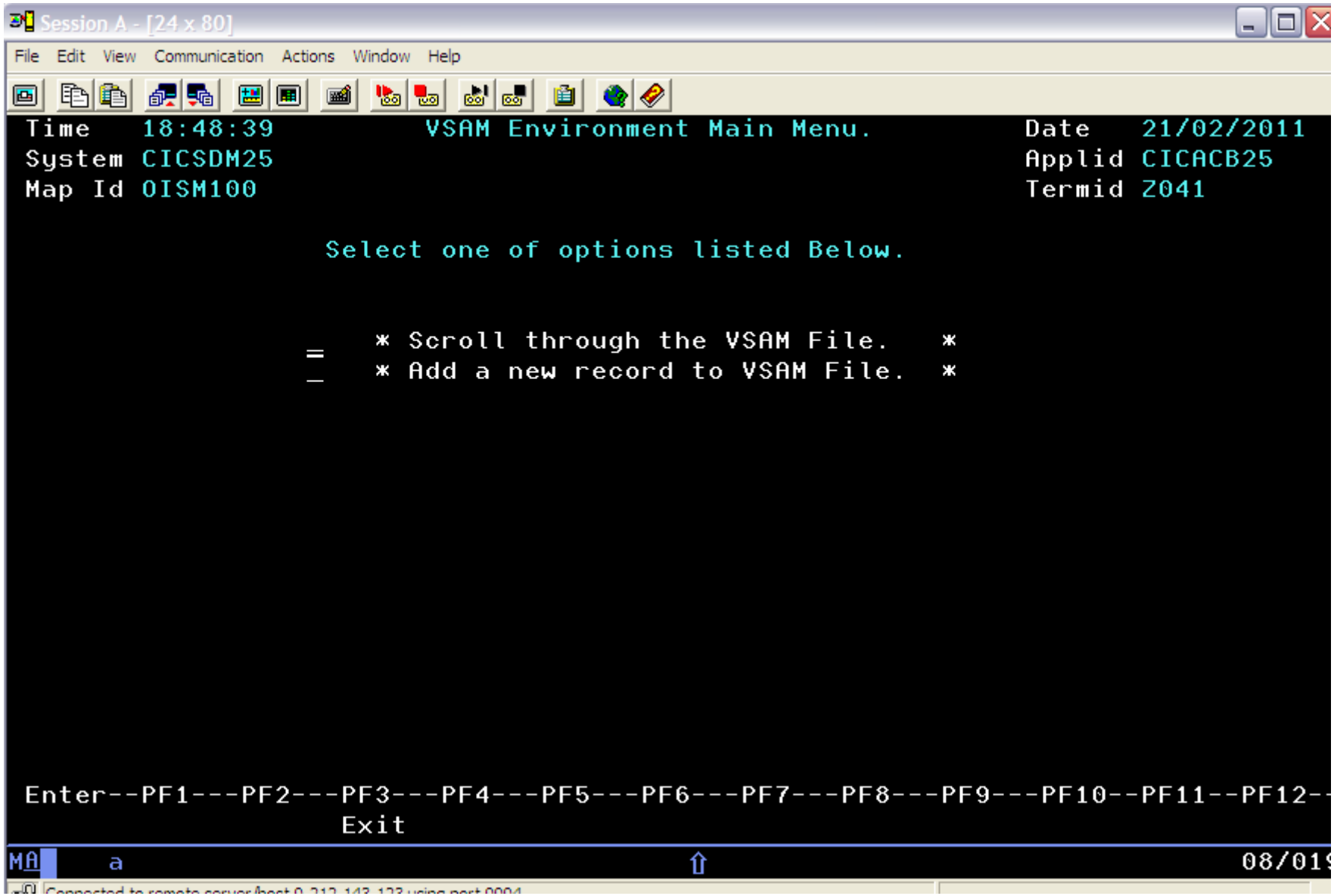
Scenario



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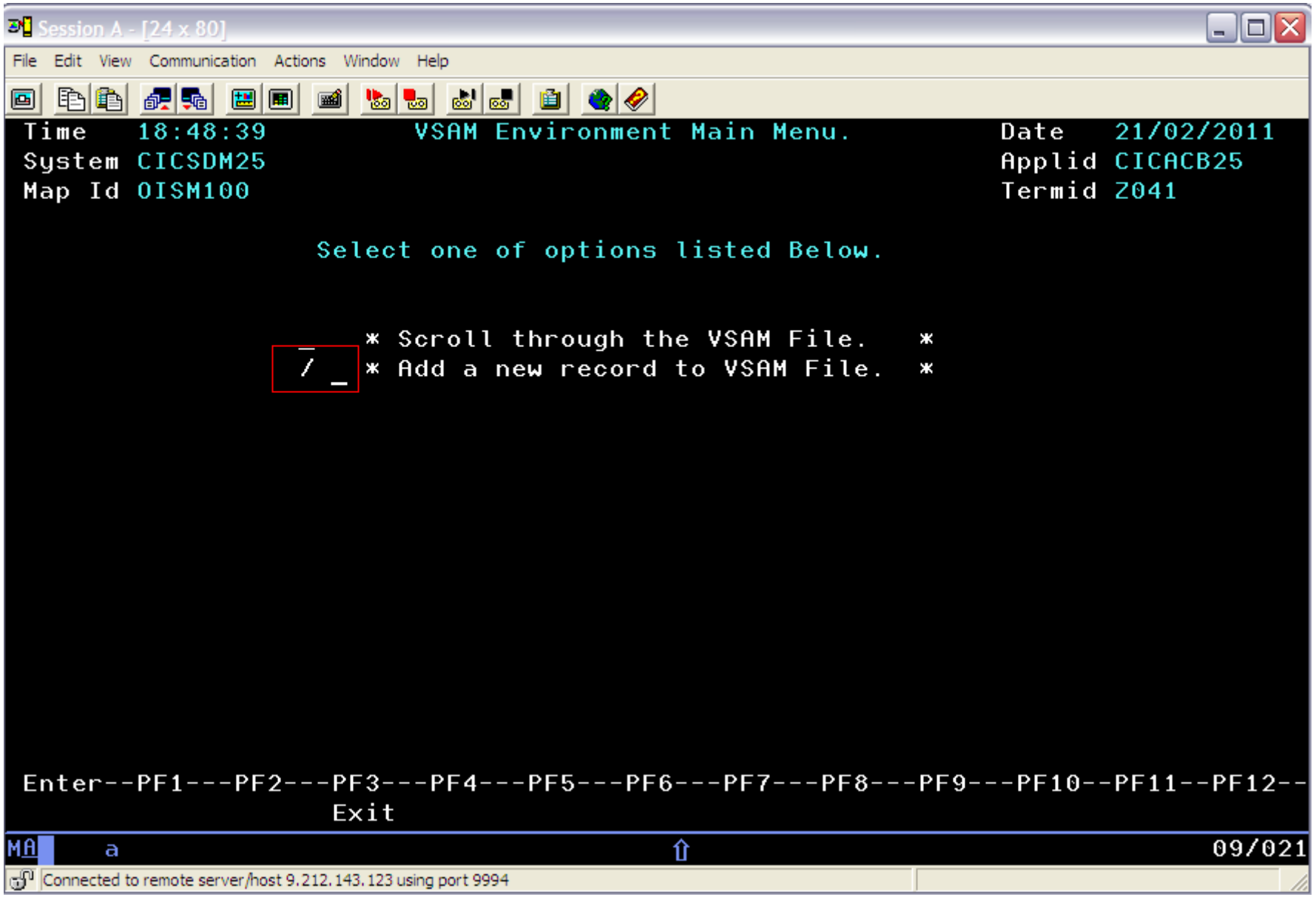
Scenario



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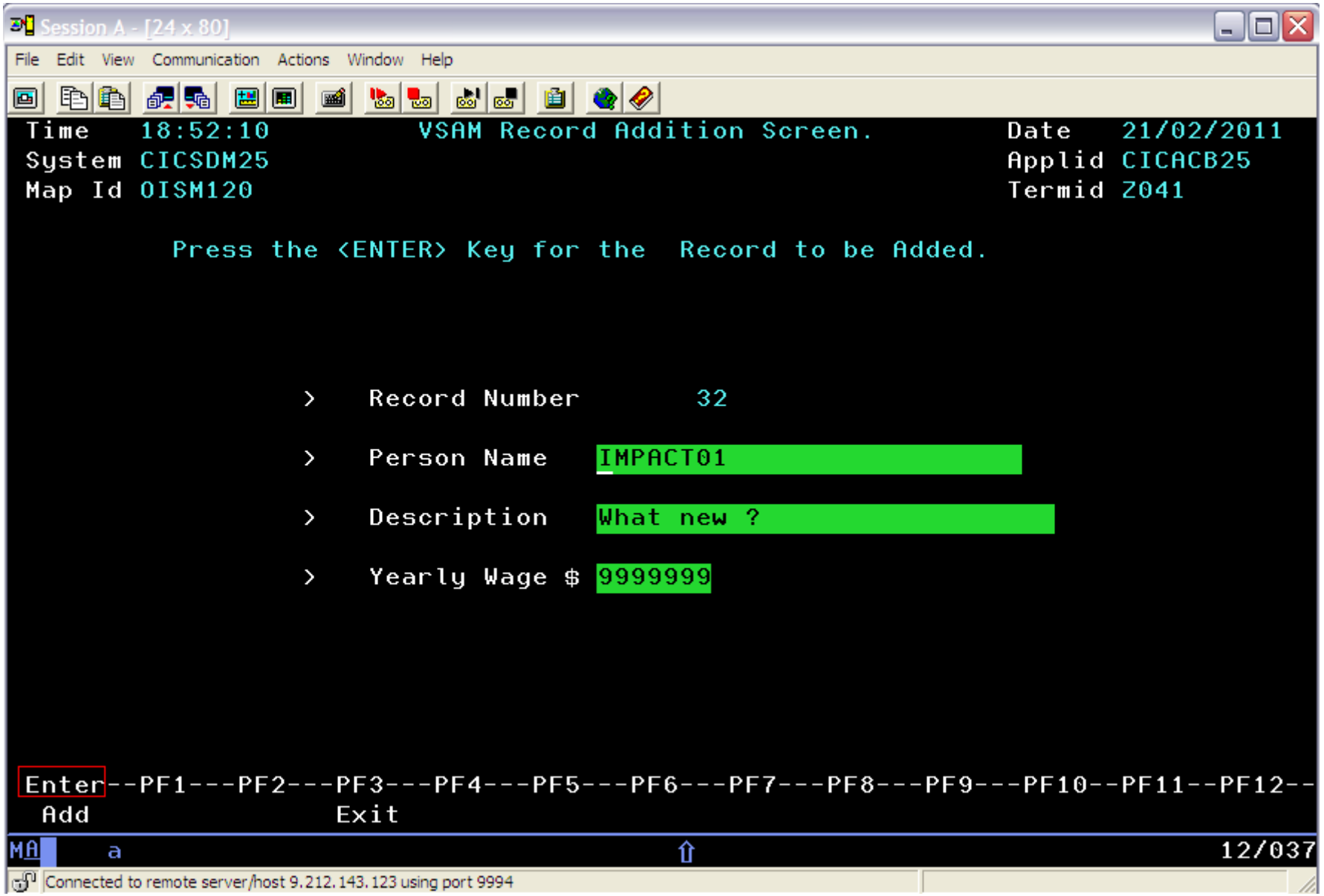
Scenario



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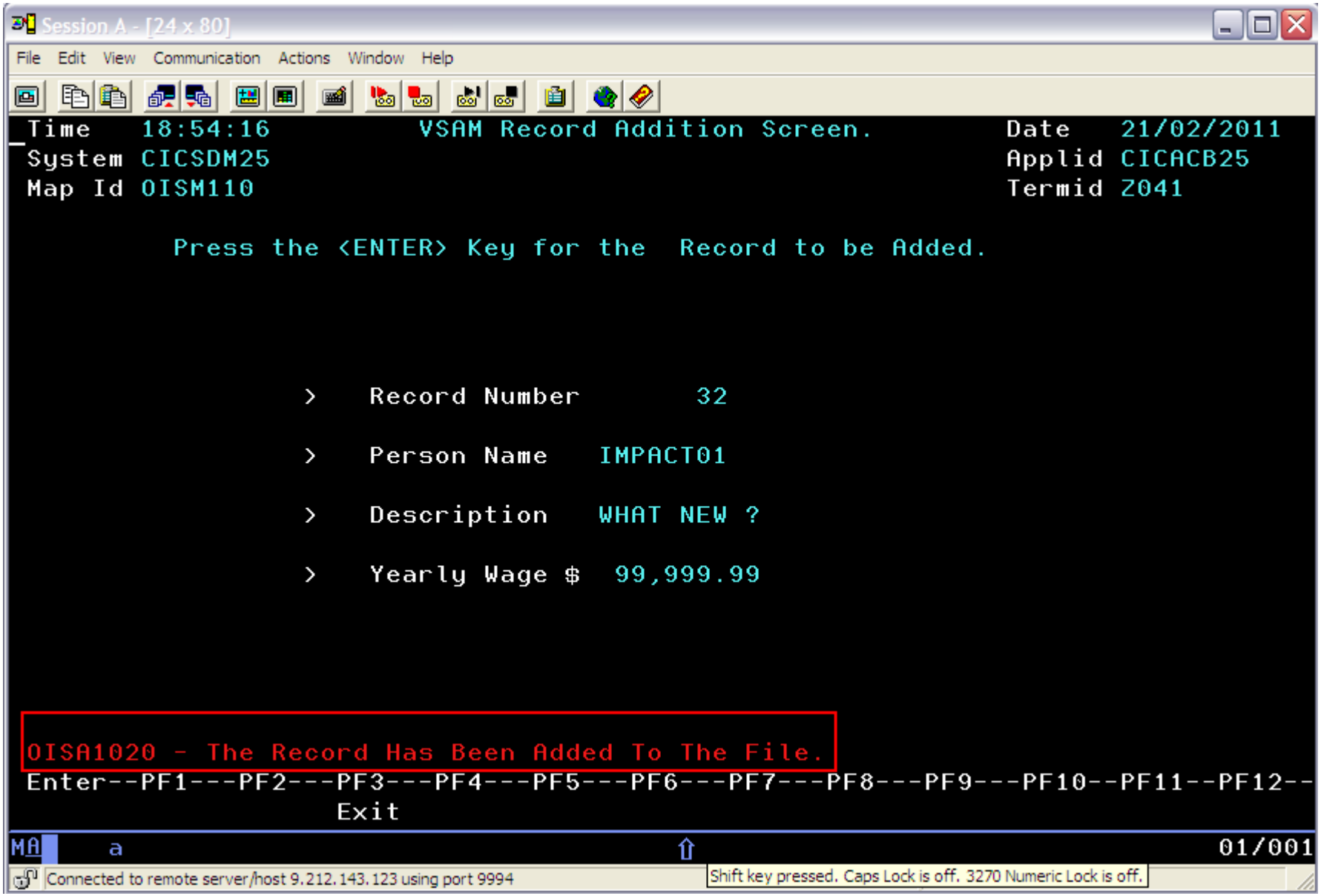

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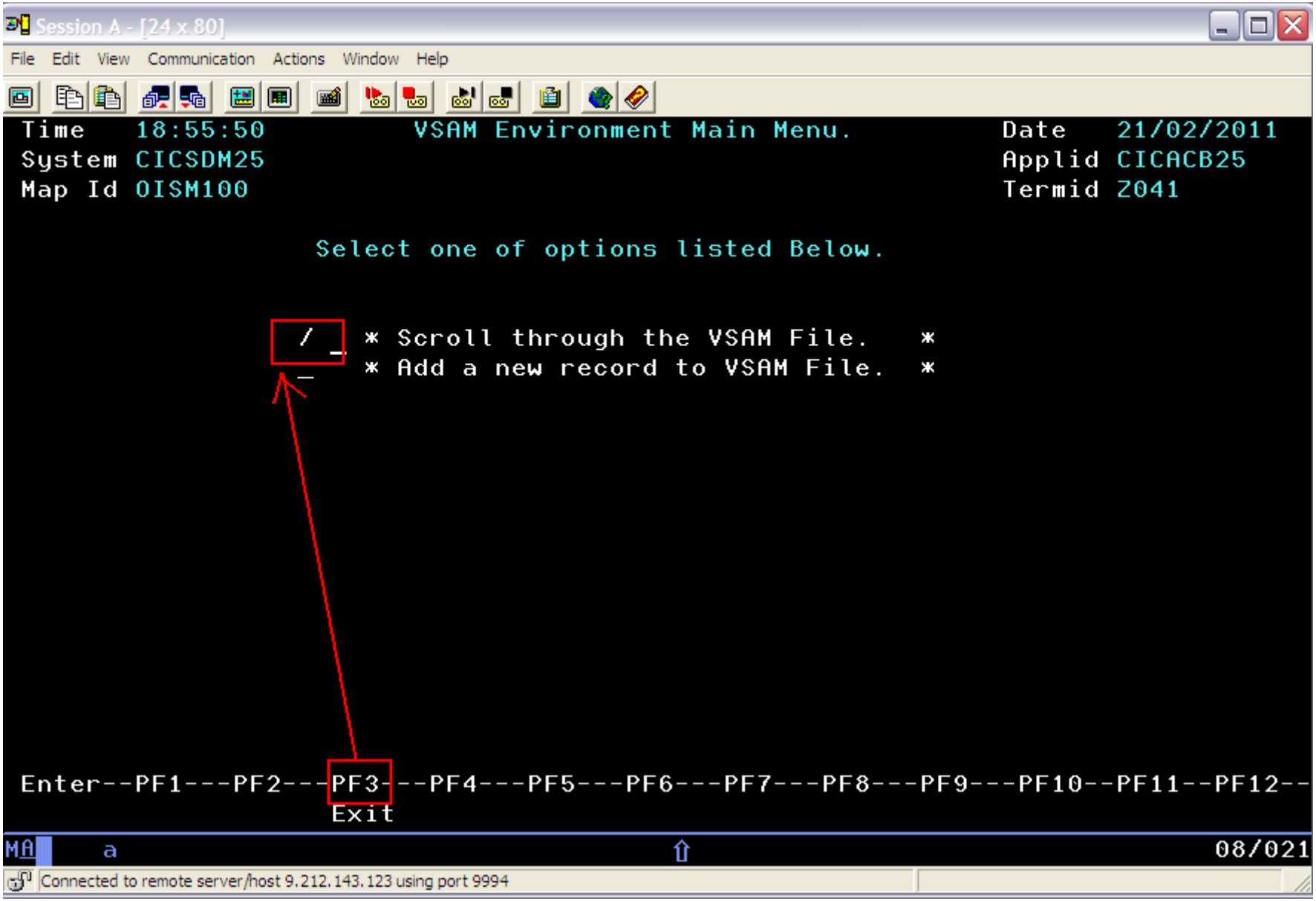

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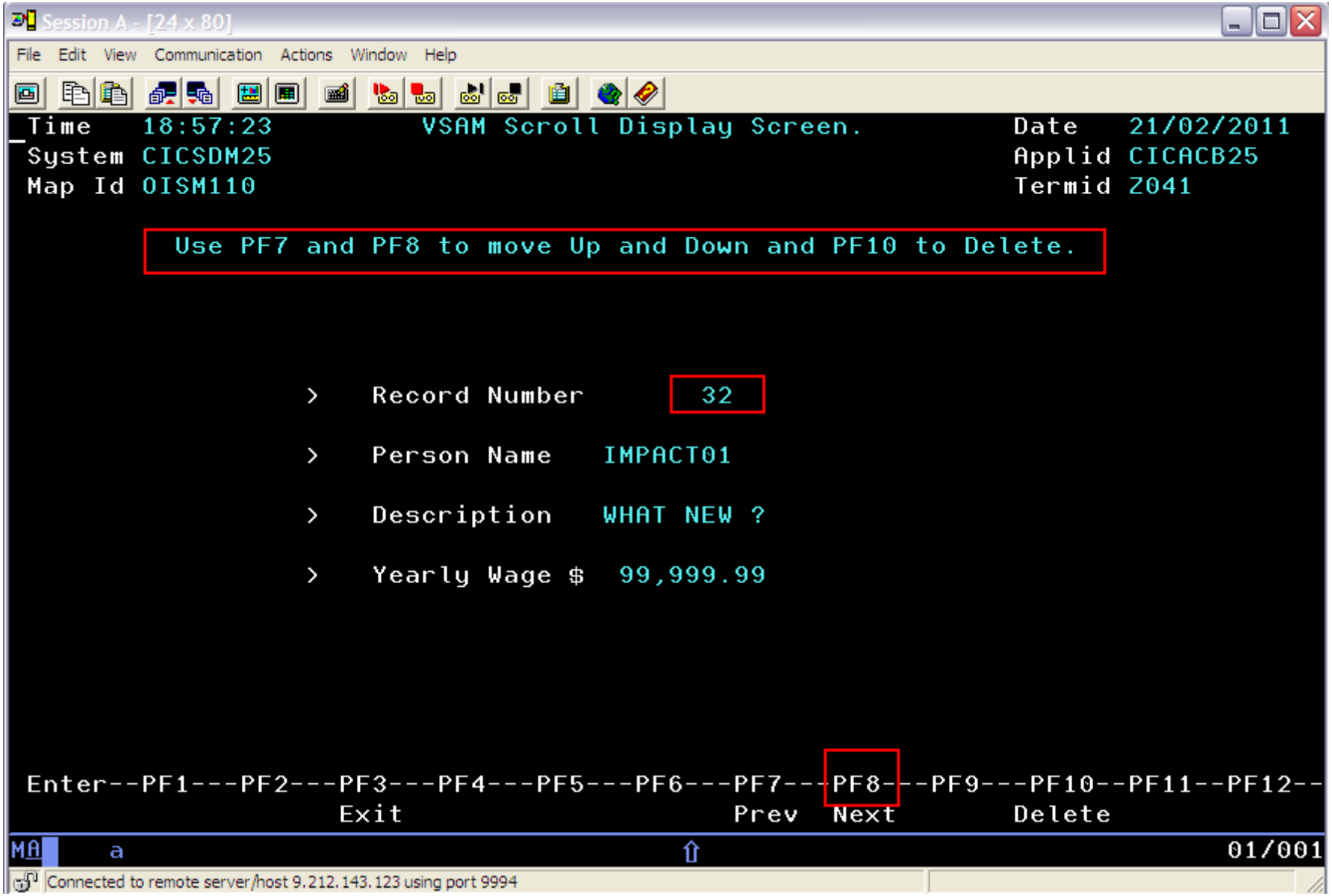

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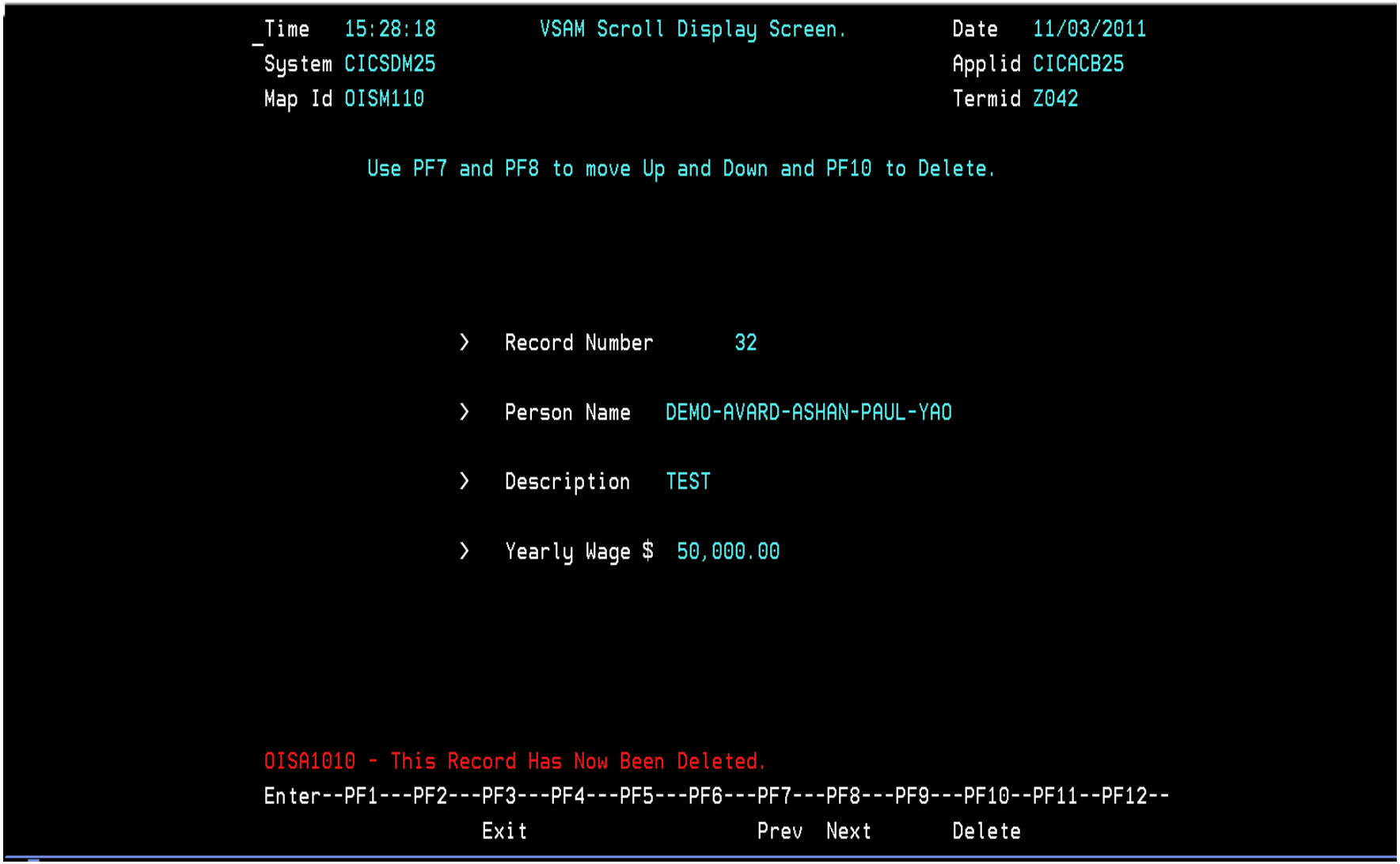

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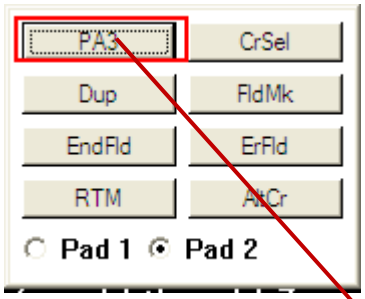
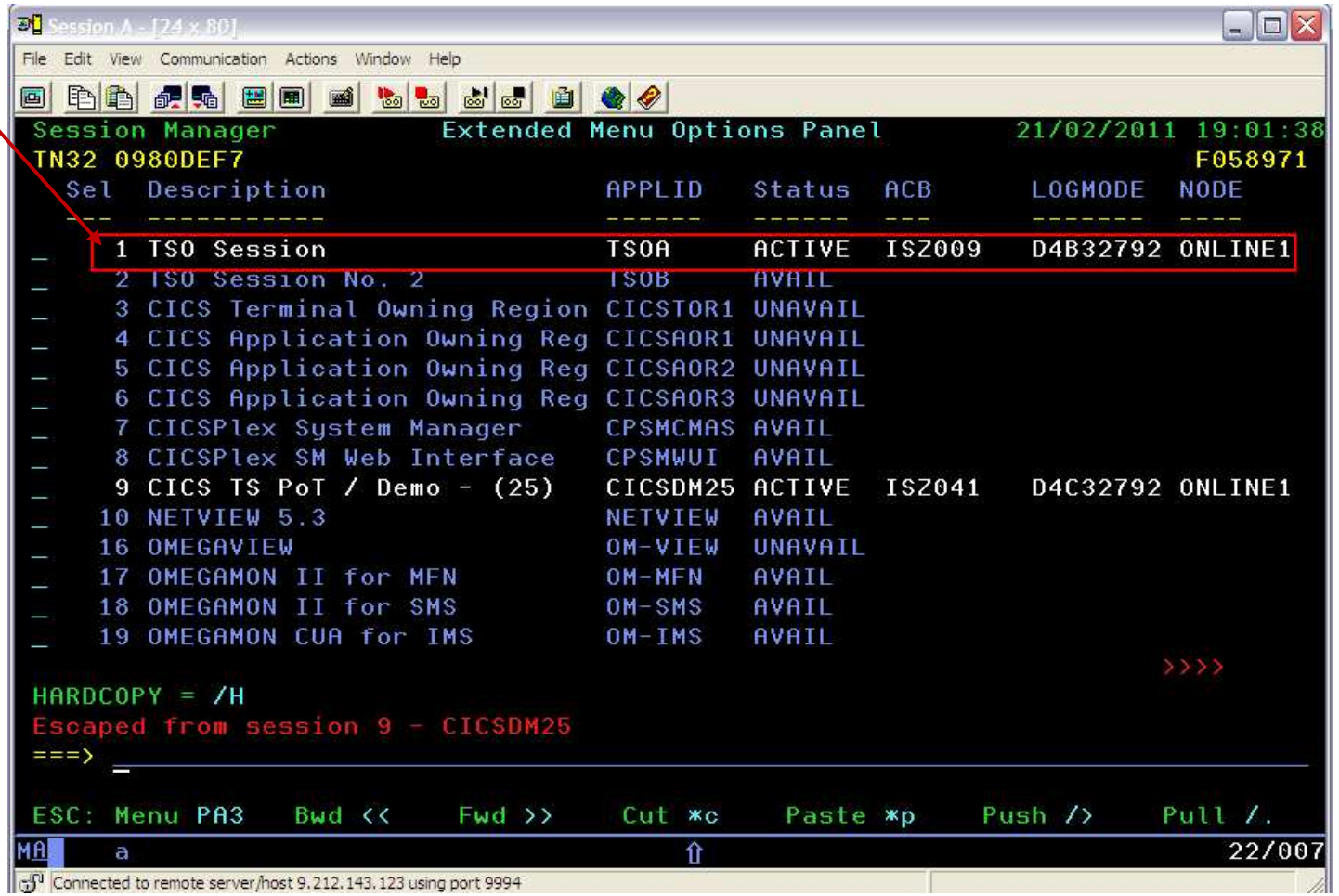
Scenario





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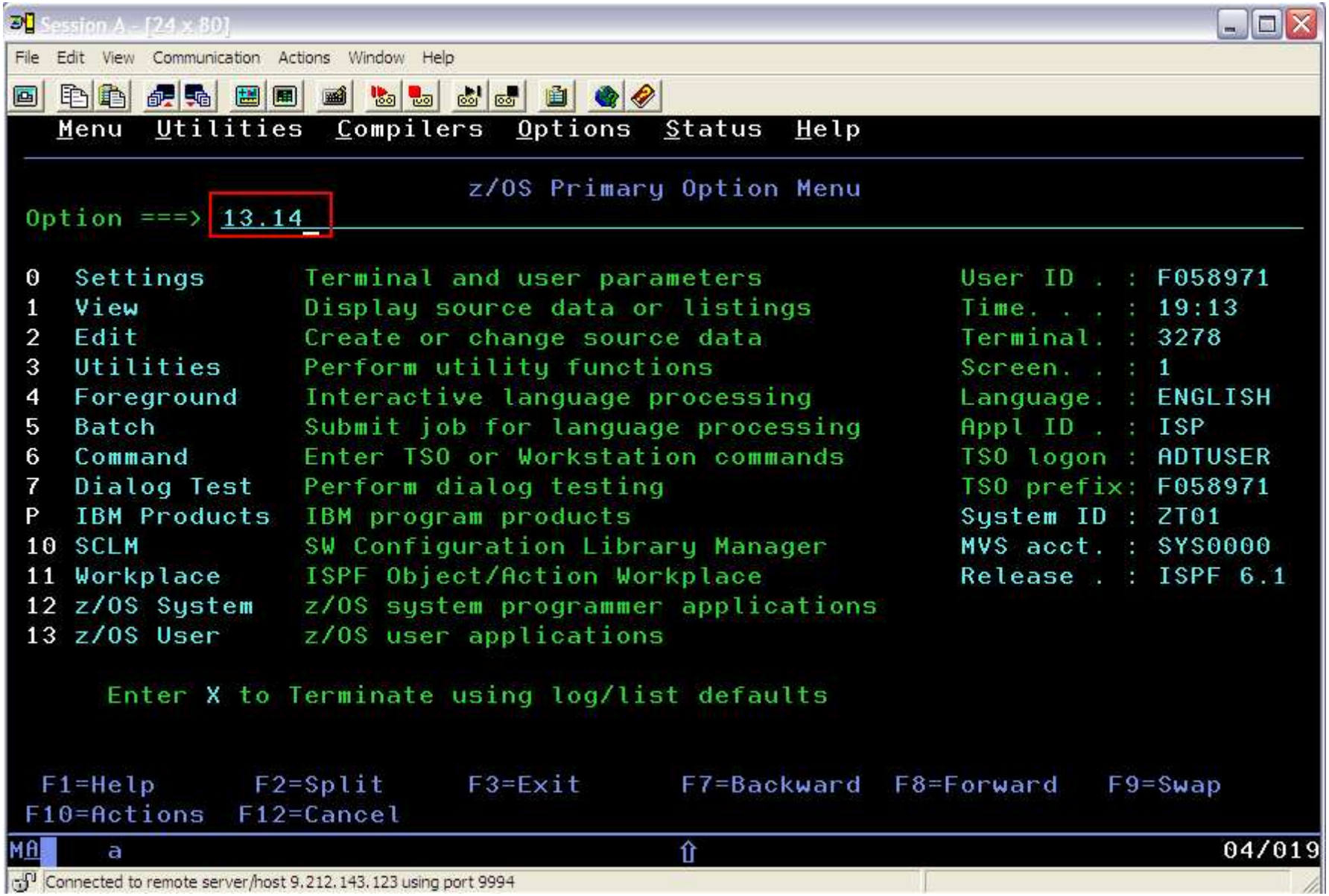

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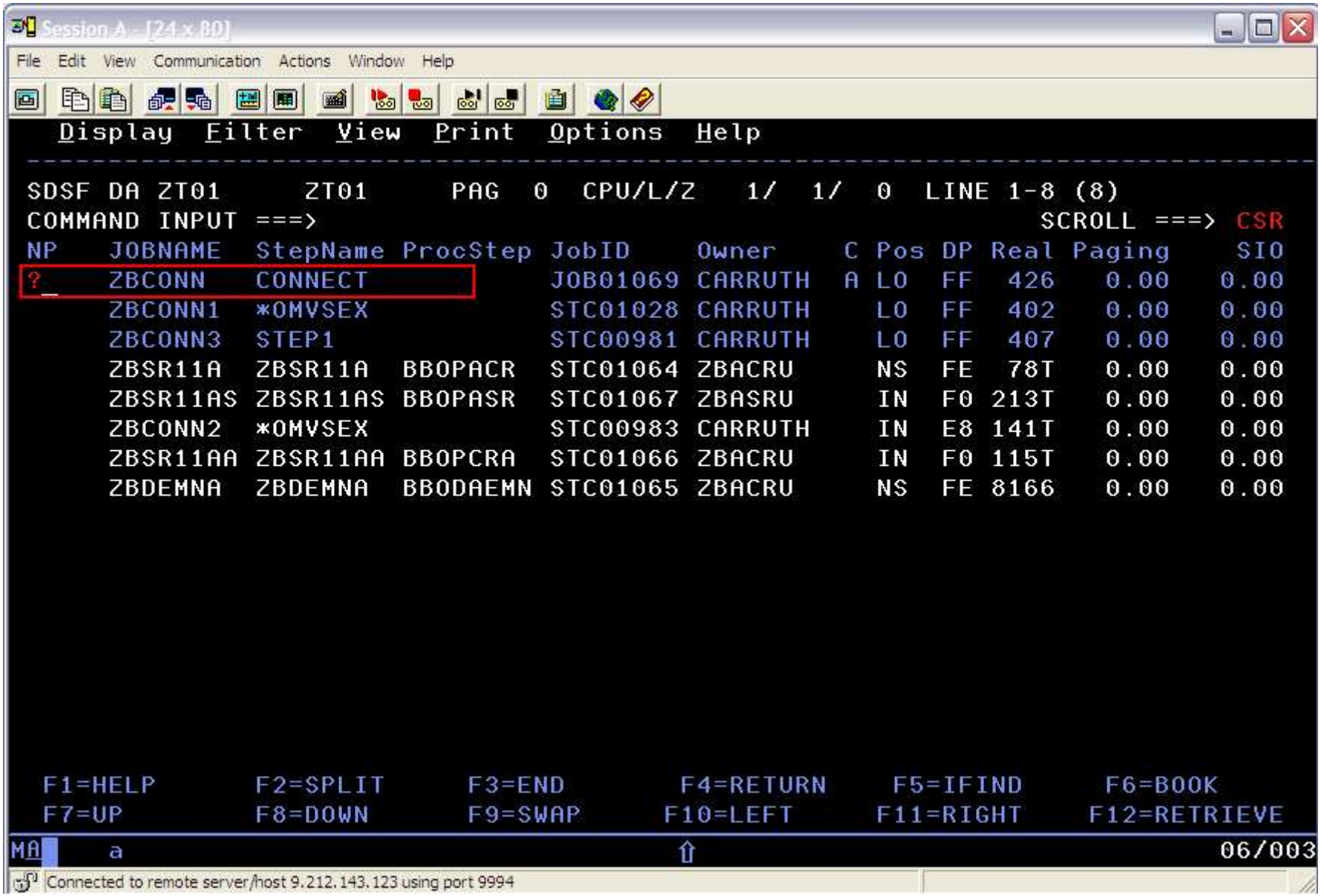

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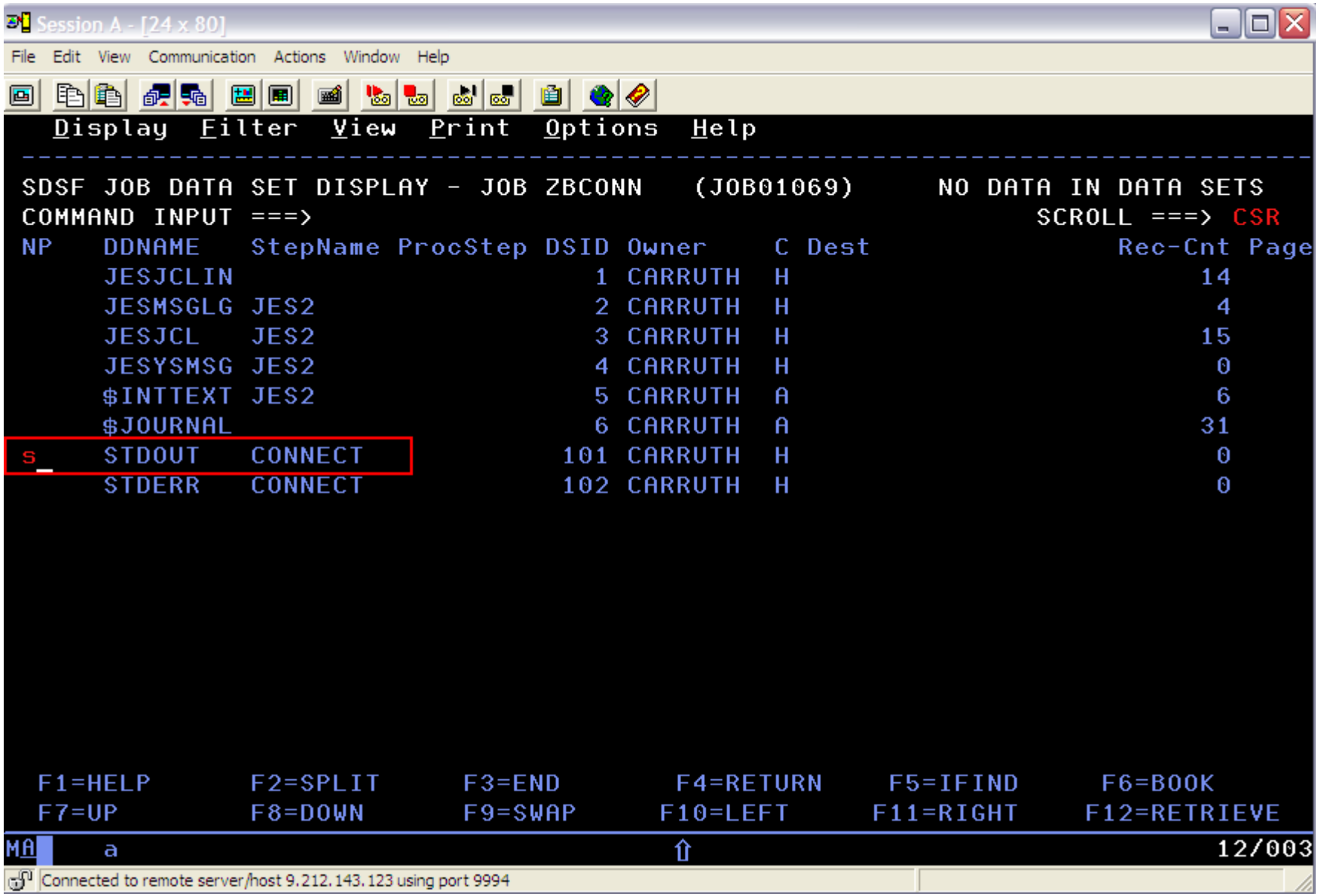

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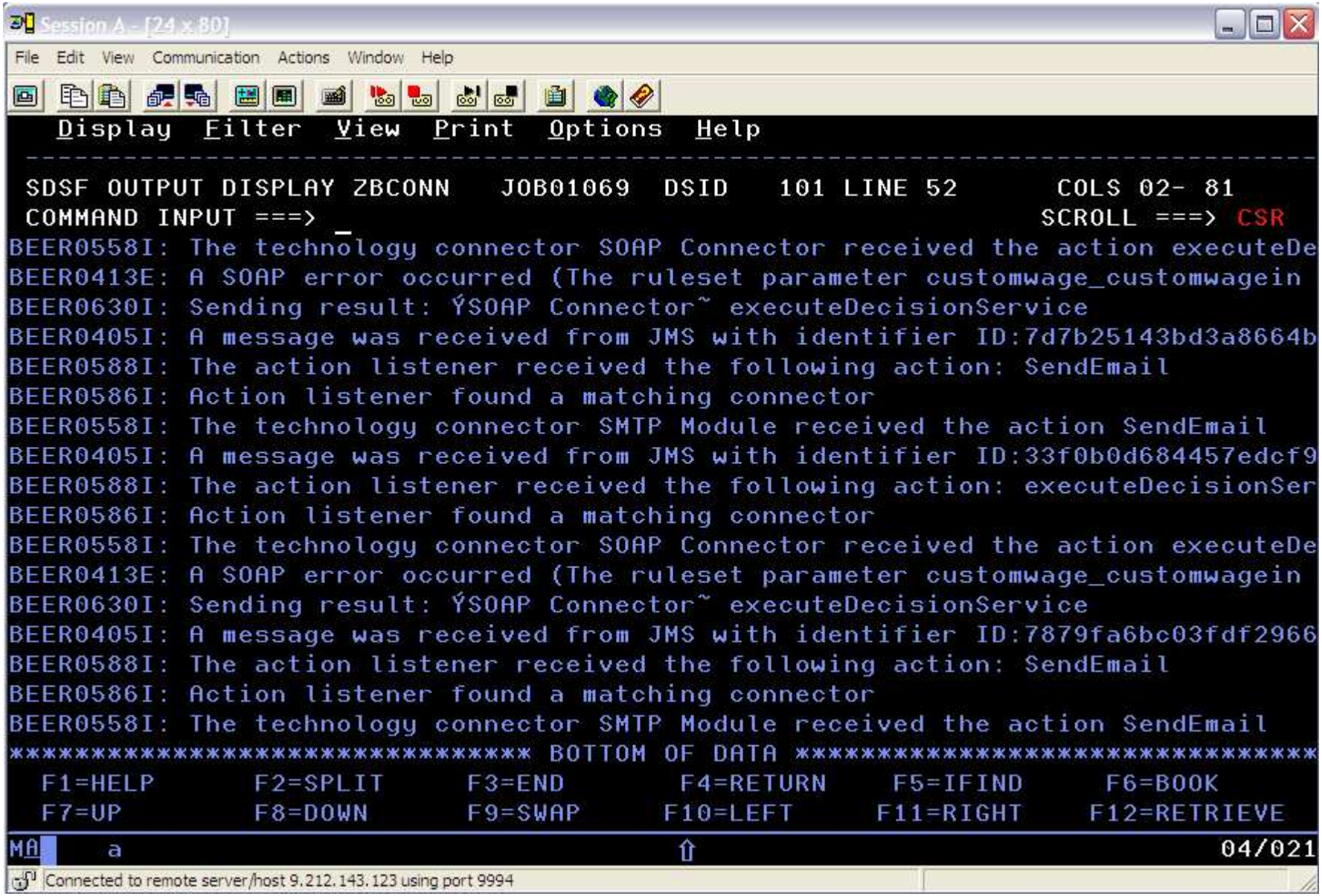

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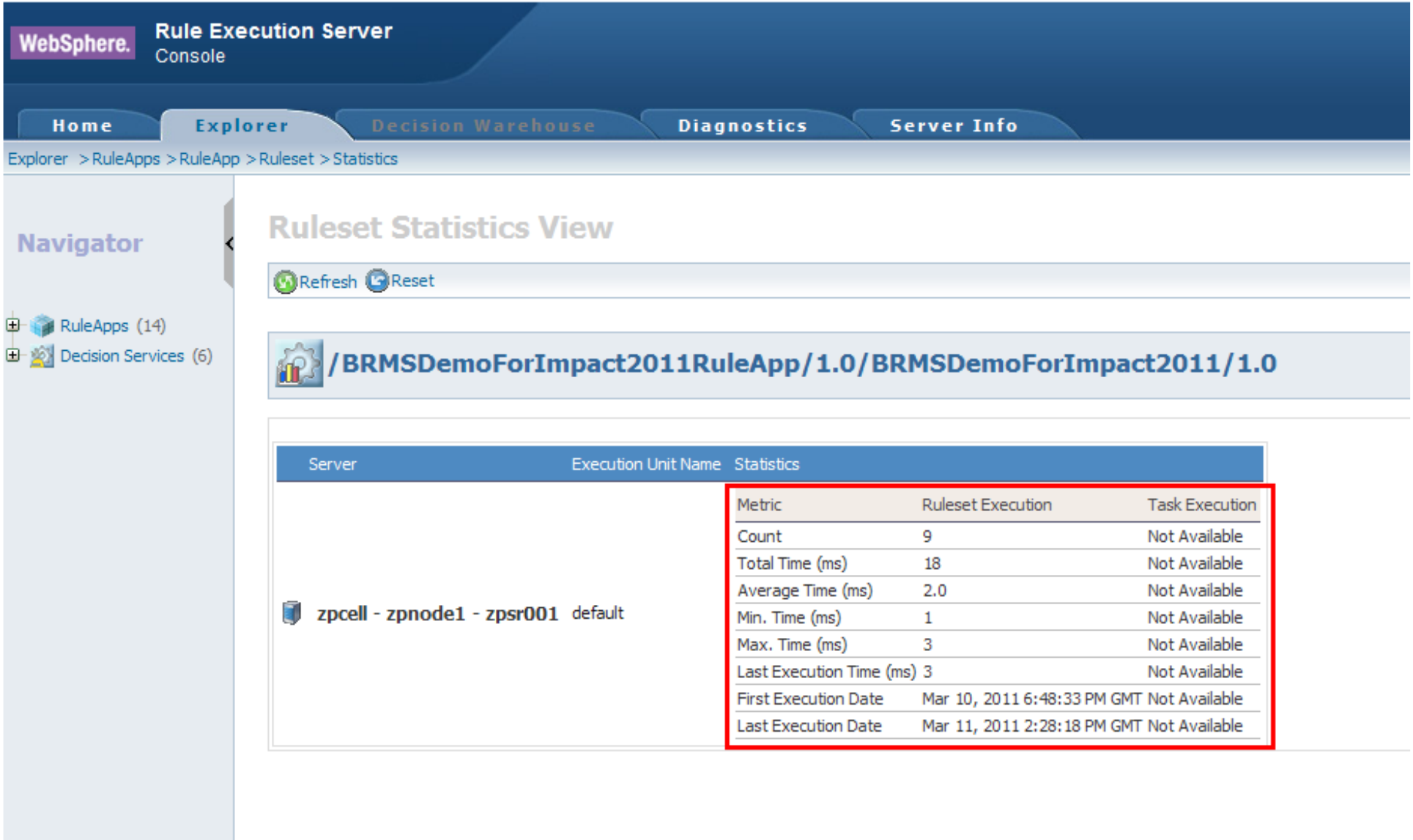

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Scenario

System z and WebSphere Decision Server (WBE - ILOG BRMS) Integration Demo

Yao Assou to: Yao Assou, aksaiyed, avardh, Paul_P_Carruthers

Default custom expiration date: 10/03/2012

CICS Event

AvgBalance:	1000.0
BaseInterest:	3.0
CreditRating:	600
CustomerId:	DEMO-PAUL-ASHAN-AVARD-YAO
CustomerLevel:	SILVER
CustomerSince:	3
DeleteUserId:	F058971
InterestRate:	5.45
InterestRatePremium:	0.5
Principal:	500000.0
ProgramName:	OISA1010
Terms:	15

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Questions

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Lunch

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