IBM System z Technology Summit

Revitalizing applications Part II – extending the reach of CICS

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Session 3. Abstract

- **If you want to identify applications that can be easily extended to act as Web services, CICS Tools such as CICS Interdependency Analyzer can be used to identify those applications that may benefit most from being extended into new business processes while CICS Performance Analyzer can be used to ensure and check that your system is still working in an optimum way. If you are interested in opening your key CICS data to a wider range of applications, we have a tool to migrate your VSAM data to DB2 without modifying your CICS or batch programs. In this session, we will cover these and other scenarios including a look at a rich IDE to develop new or extend existing programs for CICS in a range of application styles.**

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Agenda

- **CICS Interdependency Analyzer**
- **CICS VSAM Transparency**
- **Rational Developer for System z**
- **WSRR**
- **Rule enablement**

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Revitalizing CICS Applications

How CICS IA can help

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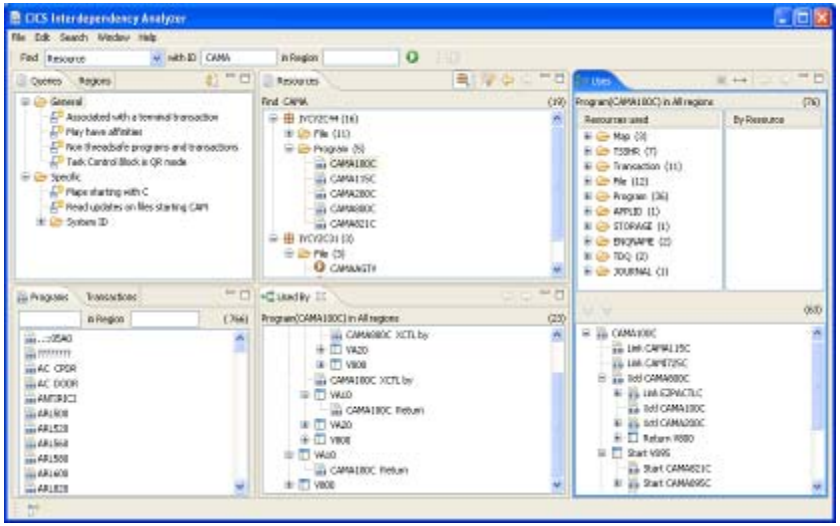
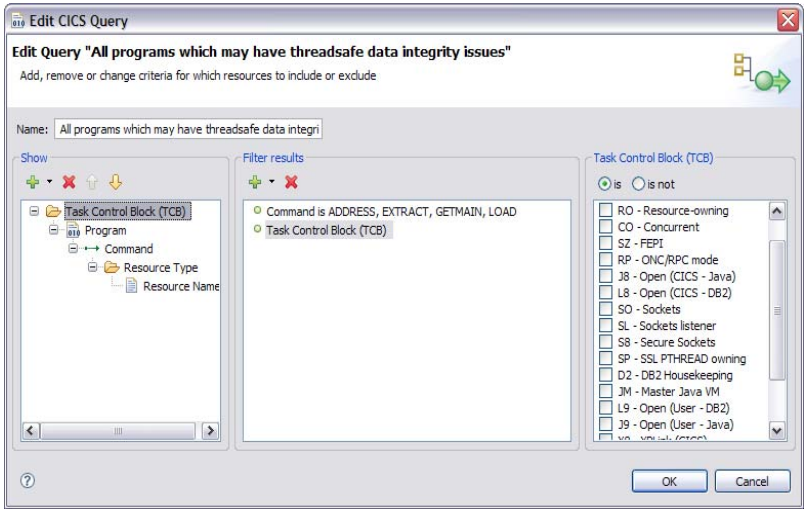
Application Insight
CICS Interdependency Analyzer

Need to extend existing CICS applications





Solution:

- **CICS IA collects key relationship data**
- **CICS Explorer plug-in provides insight:**
  - Using Programs as Web services
  - Locating Business Event sources
  - Identifying Atom feeds, thread-safe programs
  - Programs using files, message queues, and database tables
  - Command Flows, Natural and Adabas, etc etc

Value:

- **Reduced risk of problems changing complex applications when under time pressure or without deep CICS skills**
- **Bring new staff up to speed more quickly**
- **Deliver situational applications to broader user community**

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What is CICS Interdependency Analyzer ?

- **CICS Interdependency Analyzer for z/OS**
  - Run-time tool for use with CICS TS for z/OS
  - Identifies the sets of resources used by CICS transactions, and their
    relationships to other resources
  - Consists of,
    - run-time collector
    - query interface
    - batch reporter
    - load module scanner
    - CSECT scanner
    - CICS IA plug-in for CICS Explorer

- **Program Product - 5655-U86**
  - Not part of CICS Transaction Server for z/OS

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CICS IA Benefits

- **Enables you to understand the relationships between resources used by CICS and its applications.**

- **You can see**
  - what resources a CICS region uses
  - what resources a transaction needs in order to run
  - which programs use which resources
  - which resources are no longer used

- **Ability to maintain, enhance, modify or redistribute your applications is much improved**

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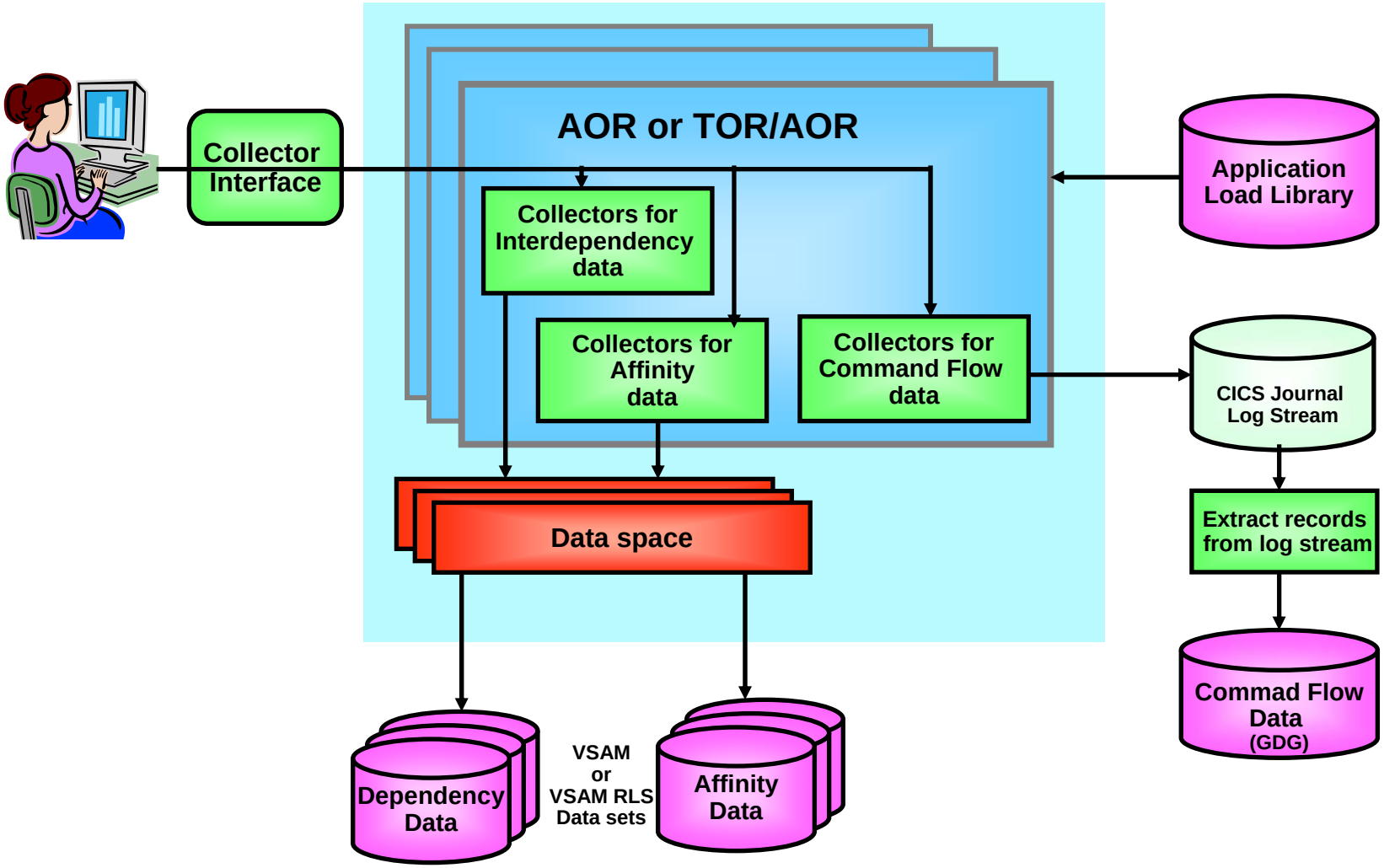
CICS IA Architecture (Collector structure)



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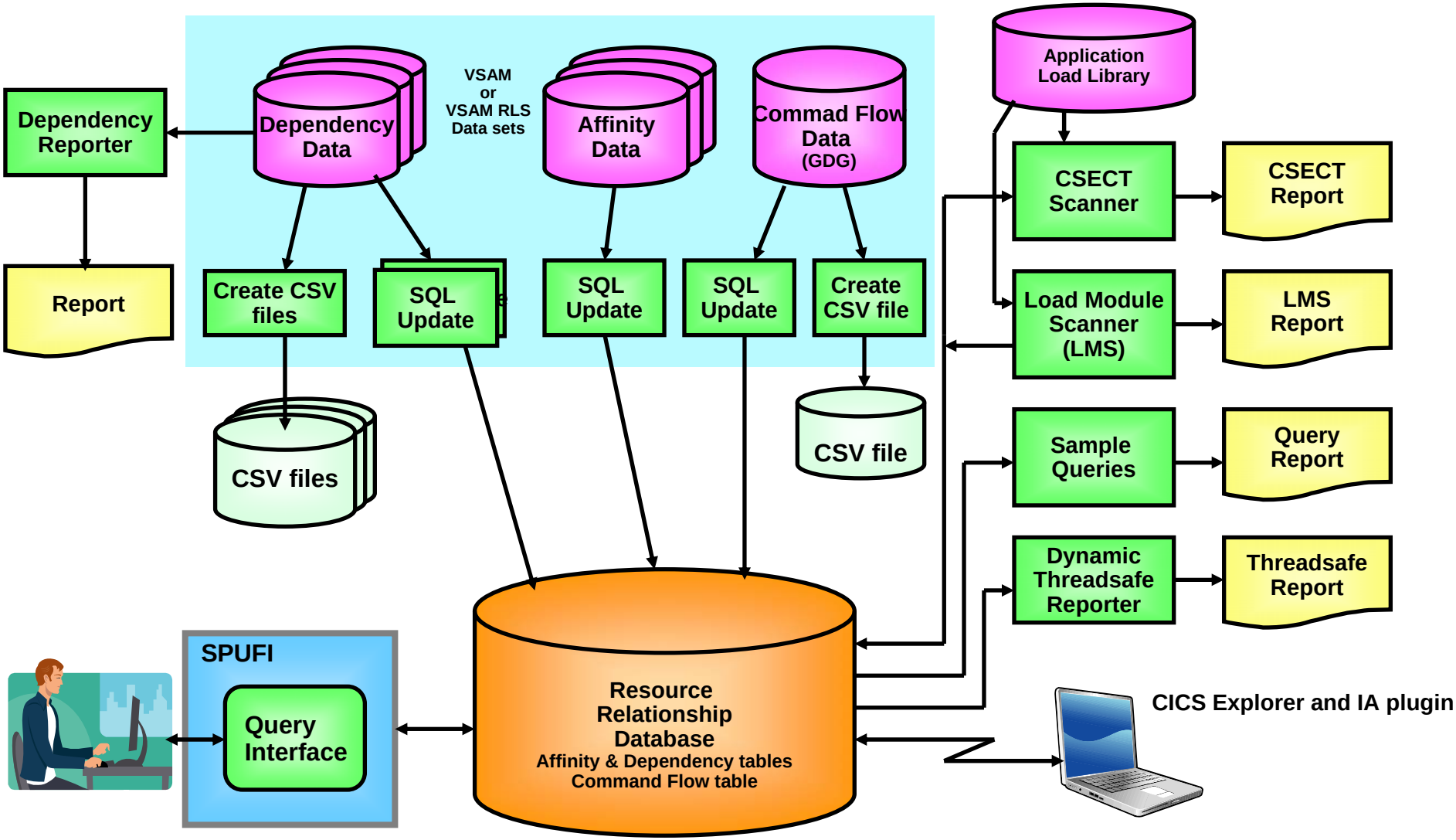
CICS IA Architecture (Reporting Structure)



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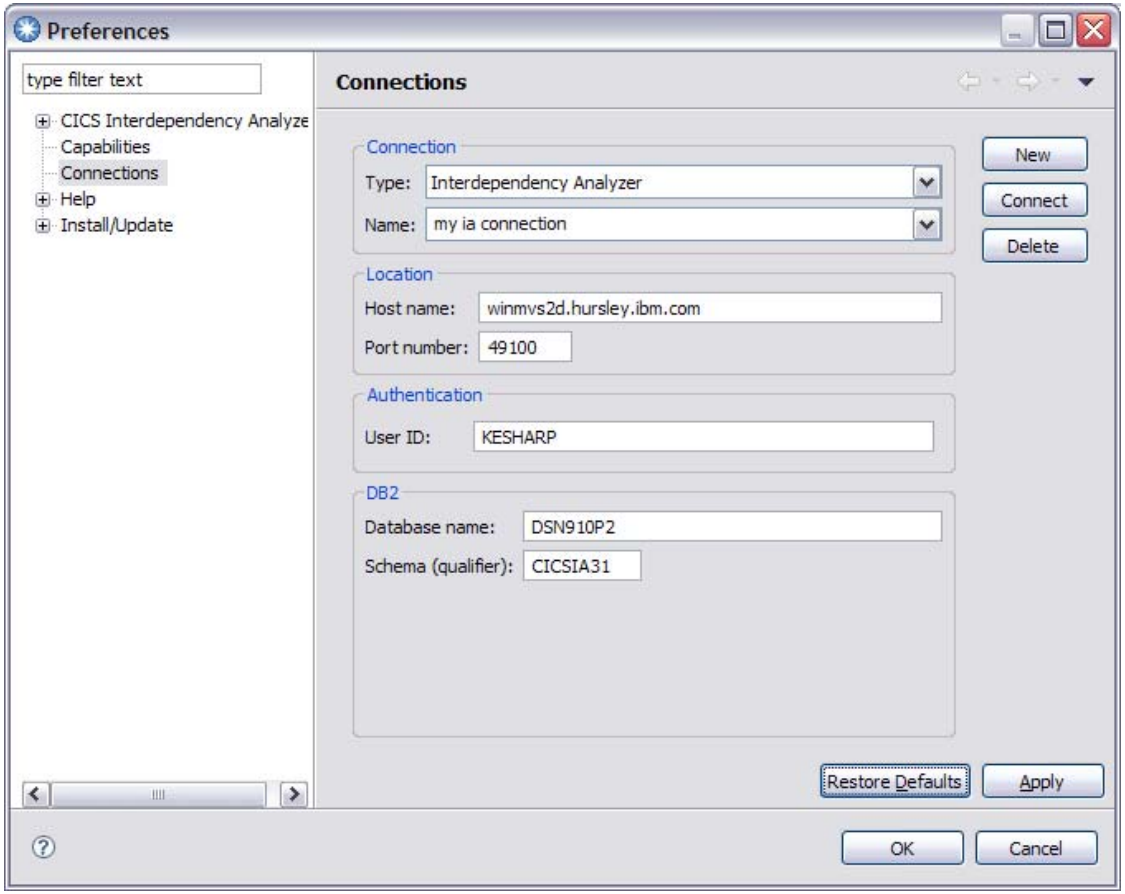
Defining a Connection



Use the Connections Preference page to define a connection of type “Interdependency Analyzer”

Click New to define a new connection, Apply to save.

Password prompted for on connect

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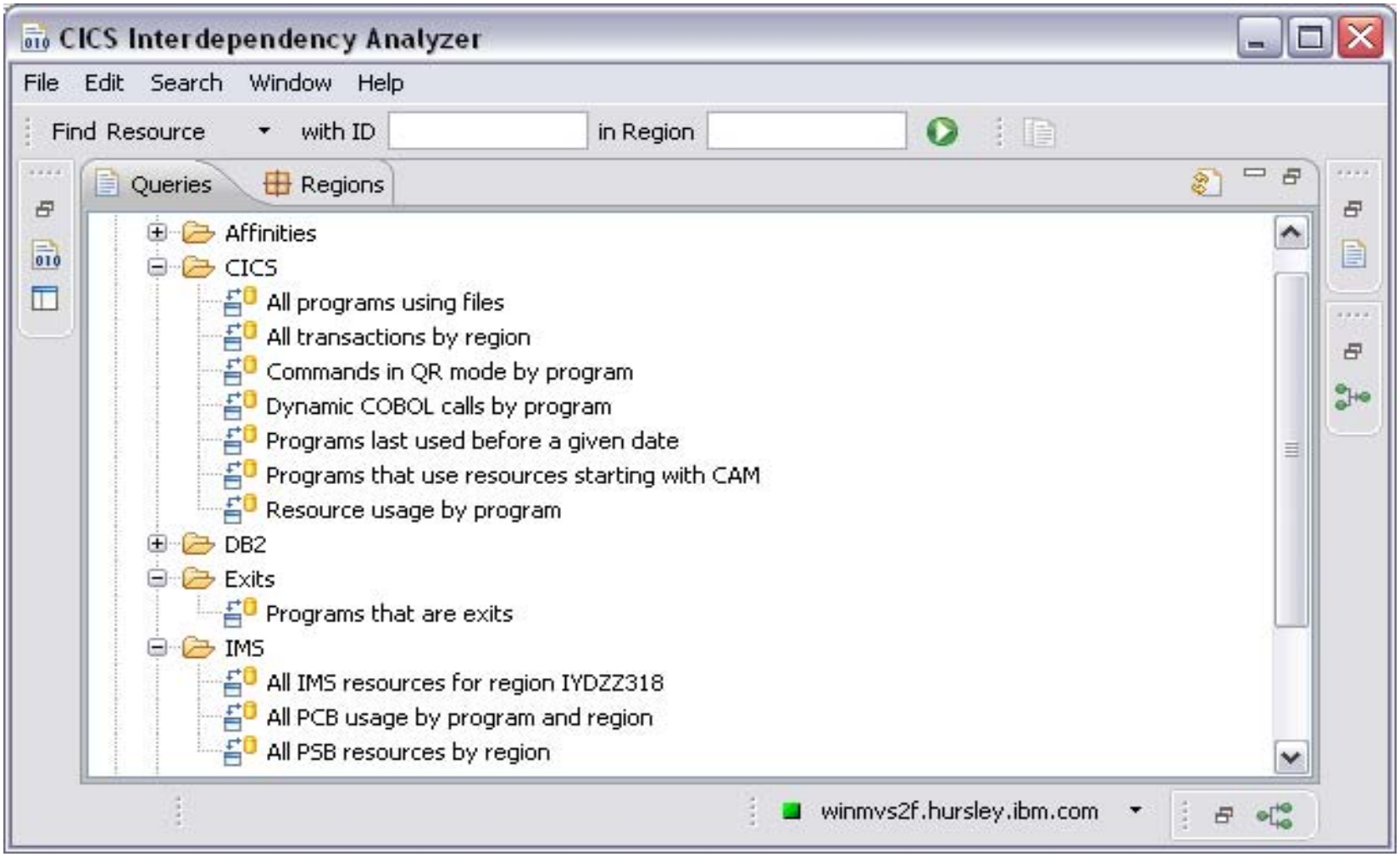
IA Explorer – Queries folder



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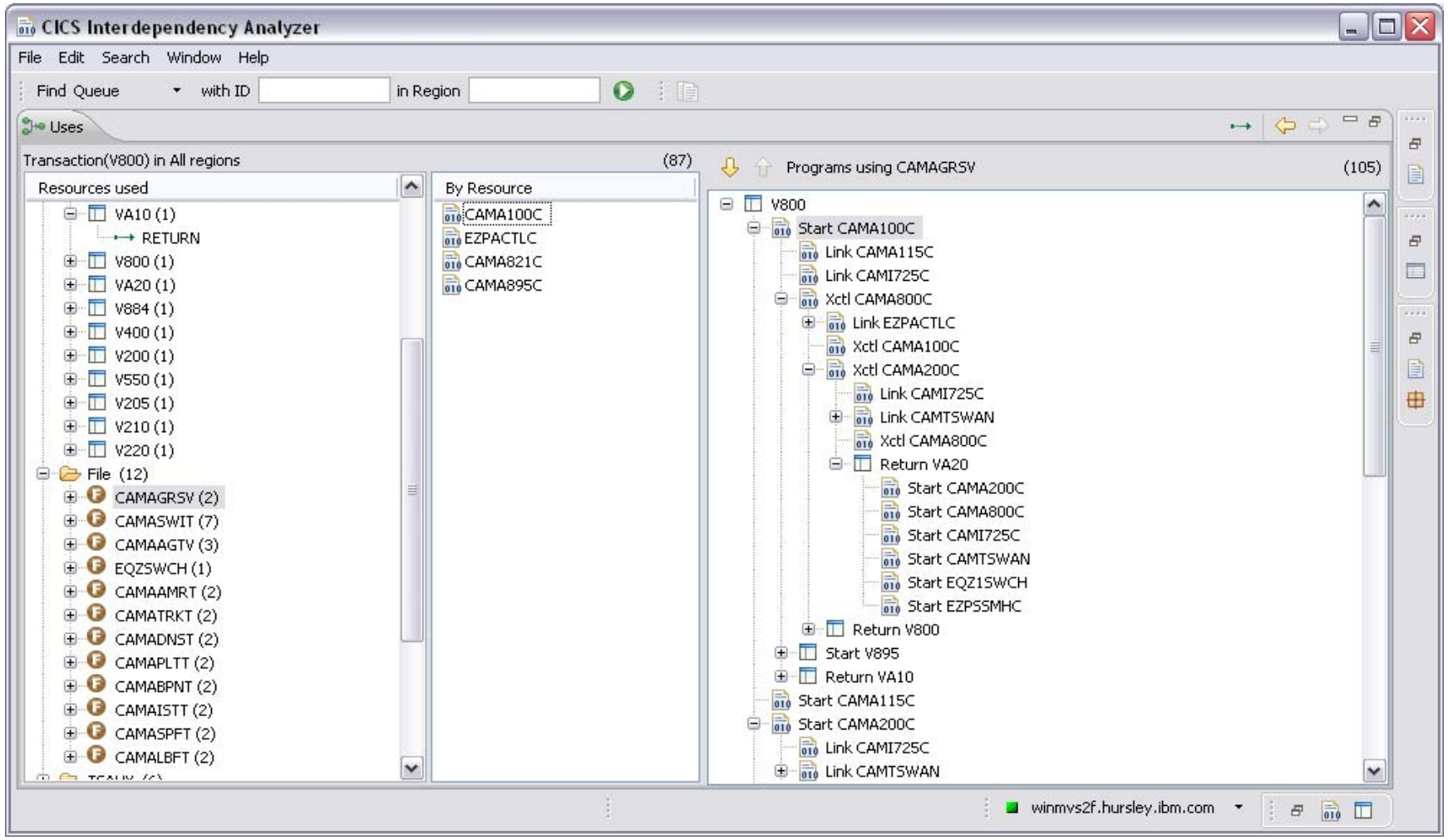
IA Explorer – Uses folder



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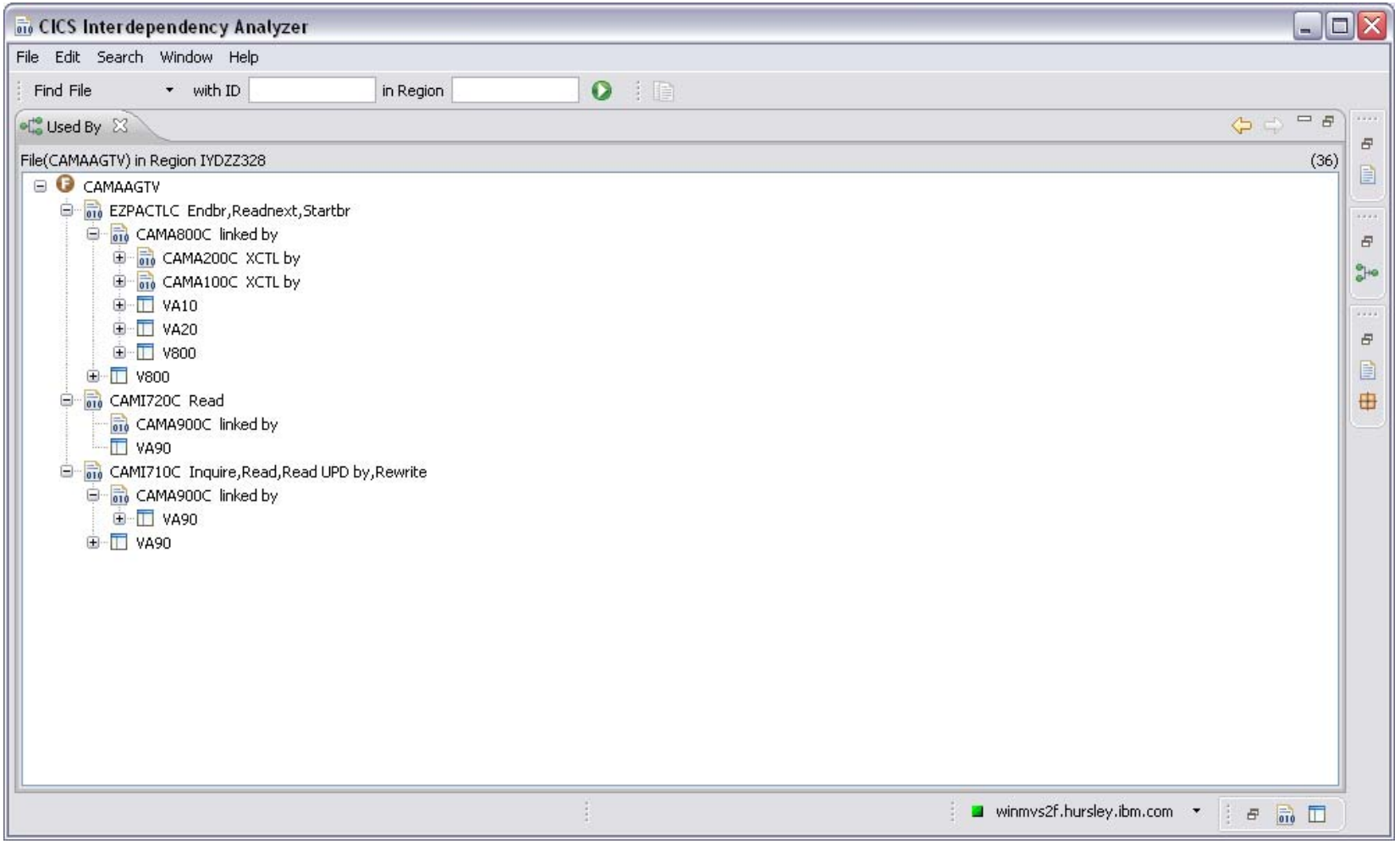
IA Explorer – Used by folder



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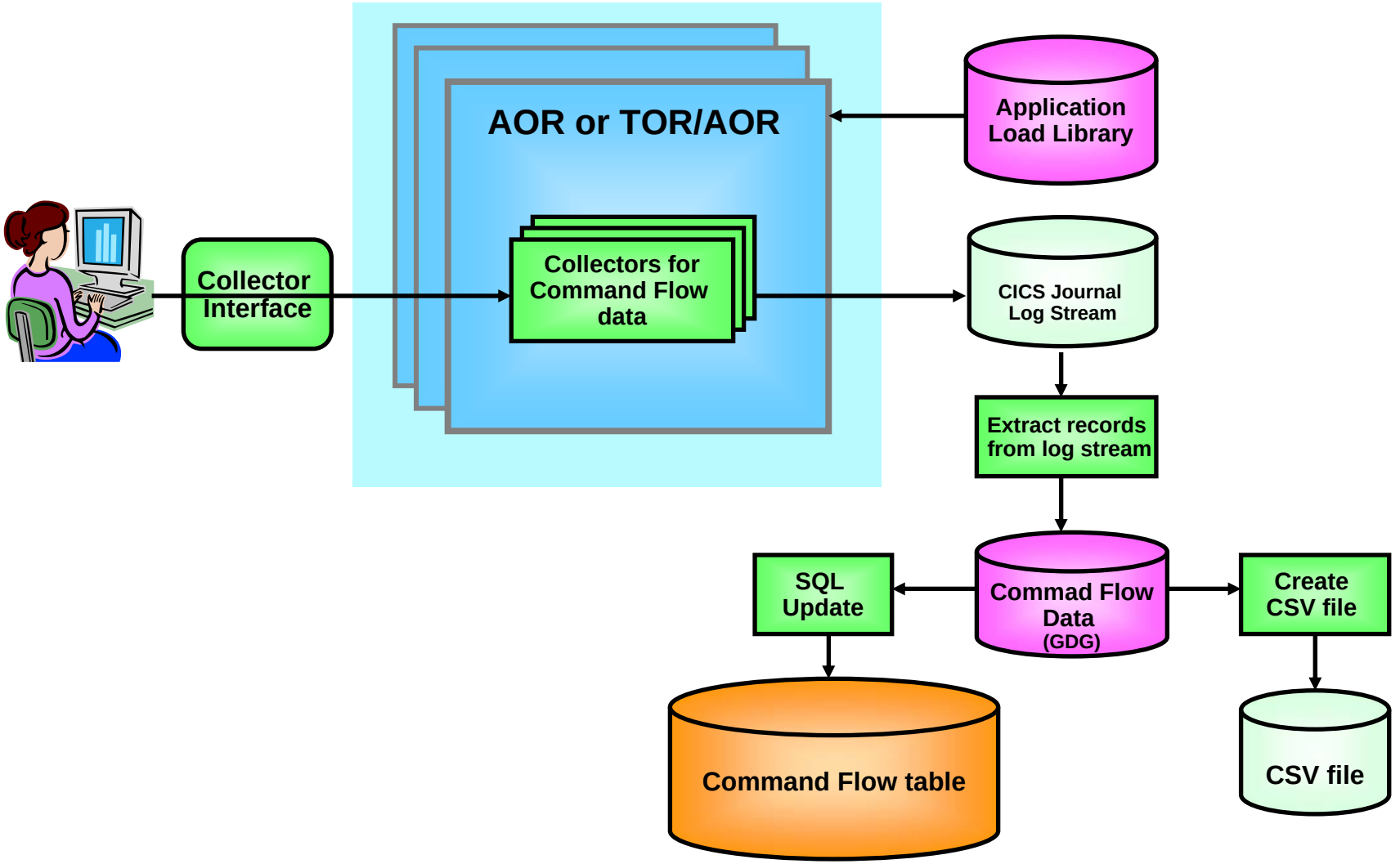
Command Flow option structure



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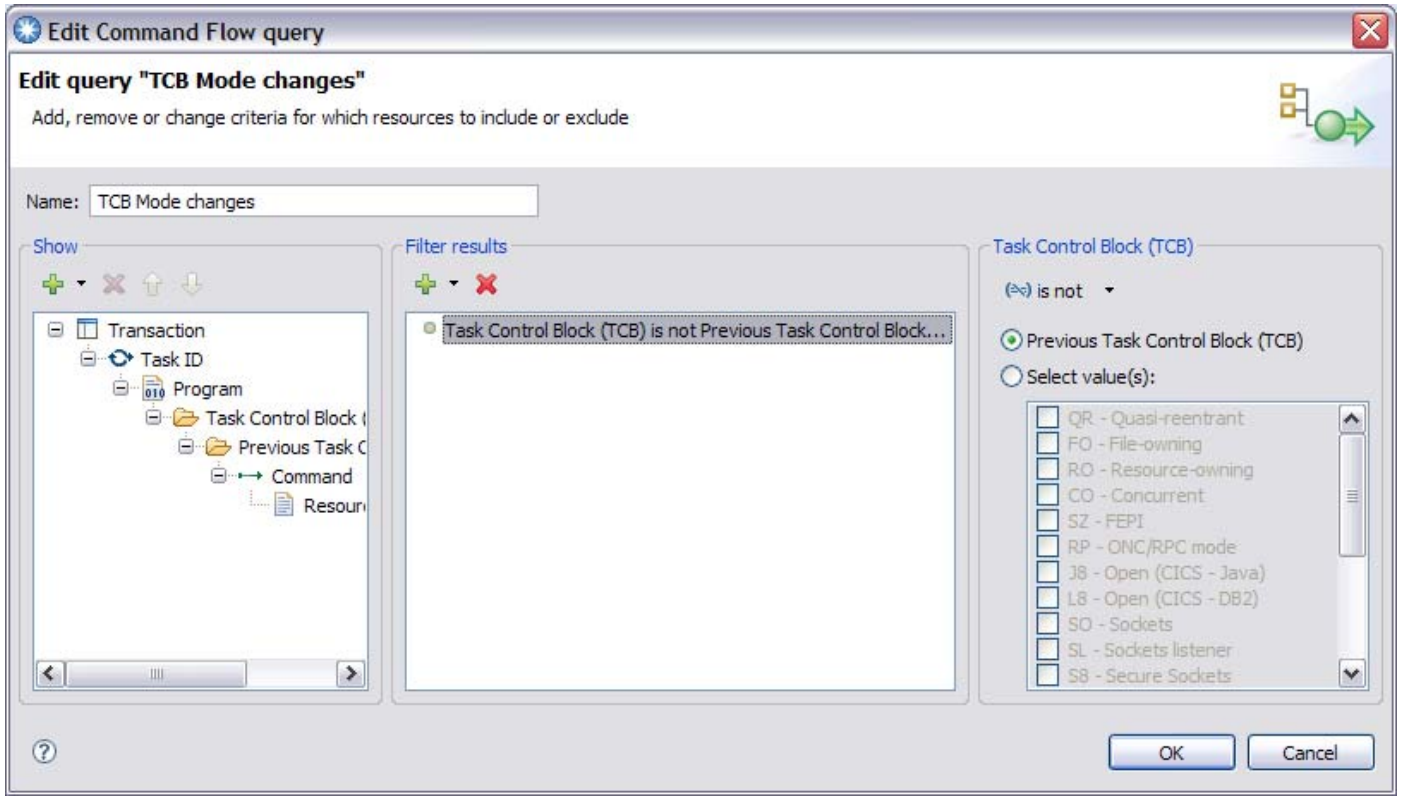
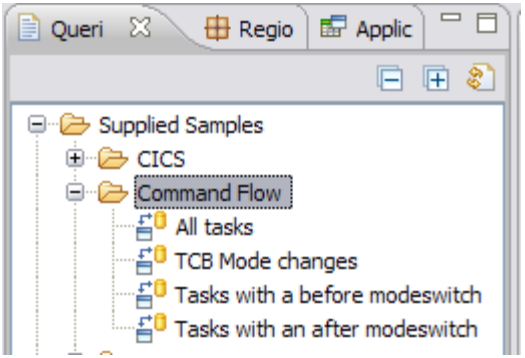
Command Flow queries

Use command flow query editor to query command flow table directly





Sample queries provided

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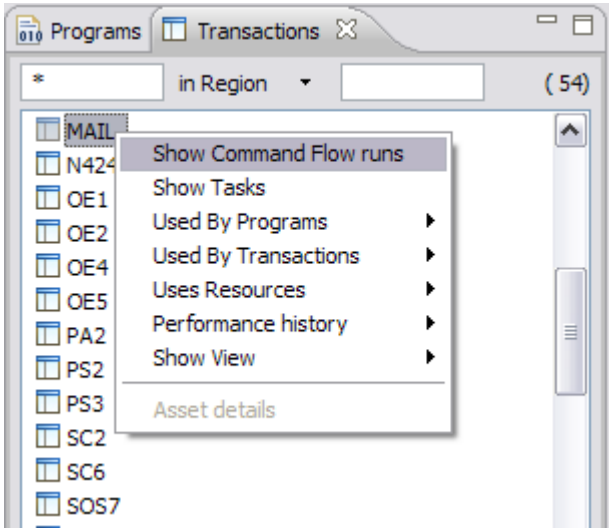
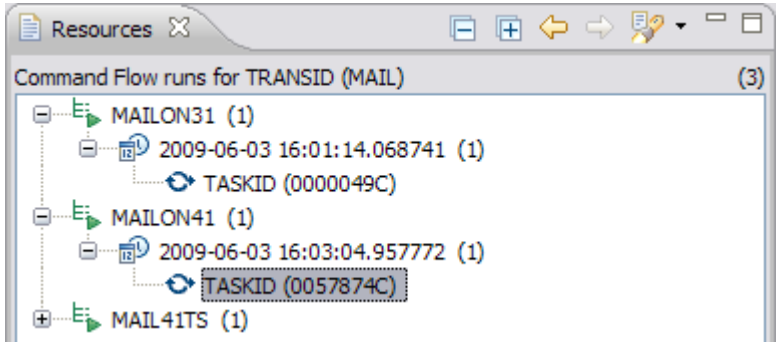
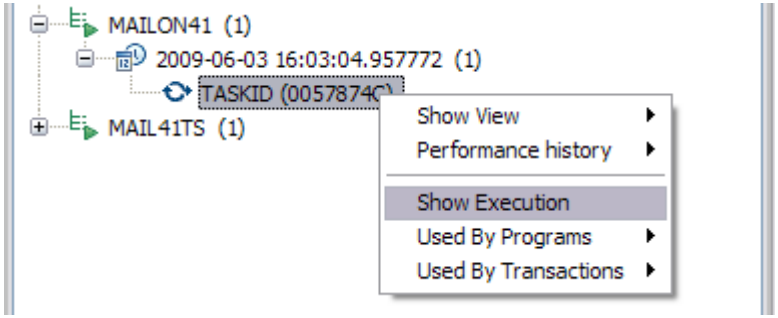
Command Flow



Show collected Command Flow runs for a Transaction



Select which task you are interested in



Show the execution of that task

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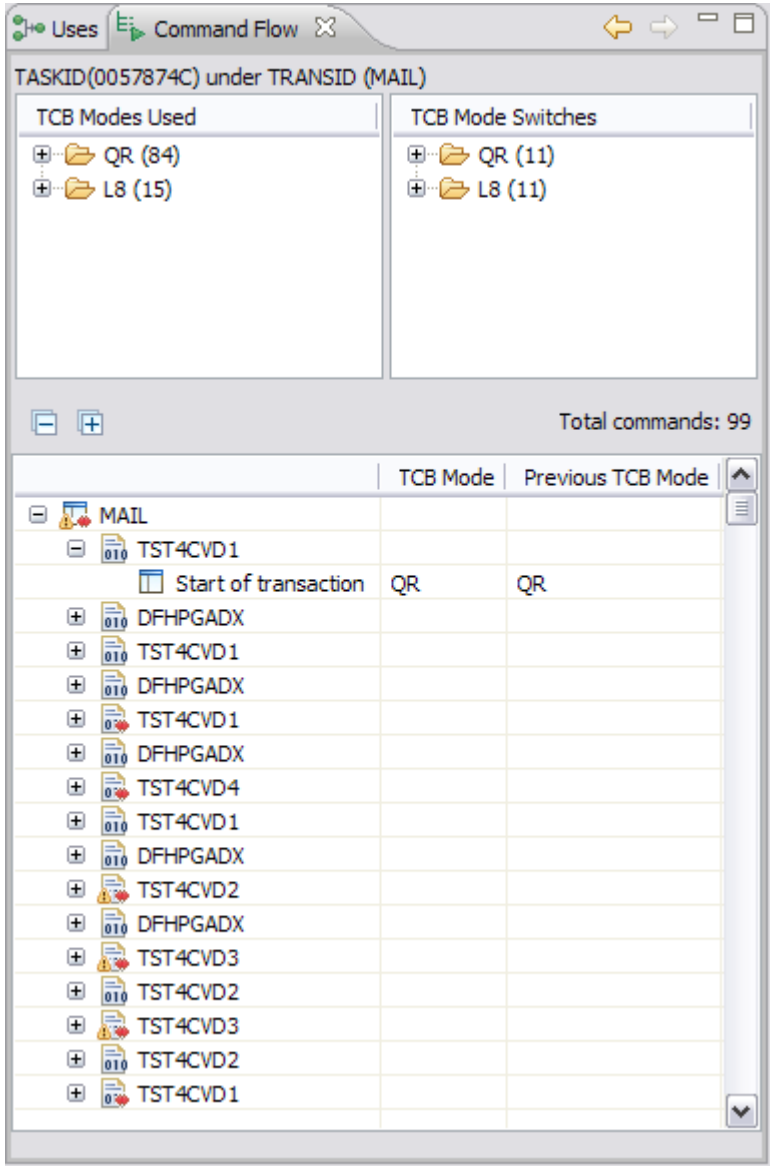
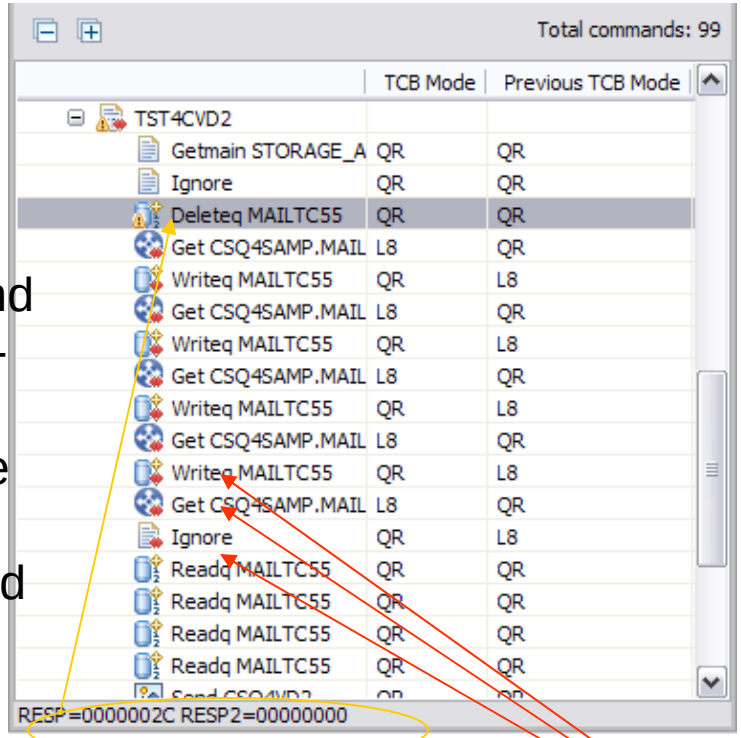
Command Flow Continued…



Displays commands in time order alongside summary of TCB Modes used and any TCB mode switches



Command with non-zero response code decorated with warning. Codes shown on selection

TCB Mode switches decorated with red switch arrow

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Revitalizing CICS Applications

Revitalizing your CICS Application data using CICS VT

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DB2 Benefits to Business and Application

- **Faster business need fulfillment**
  - Increase application productivity and functionality by leveraging a database platform that supports multiple 3rd party and rapid application development tools
- **Mitigate risk of losing market share**
  - Legacy database limits application development choices, programmer productivity and ability to meet the changing market demands
- **Reduce risk of application failures**
  - Avoid maintaining complex legacy applications and file structures that cannot be easily modified
- **Data Integrity**
  - The existing VSAM files do very little to ensure the data is accurate or consistent.
- **Separation of Data from Business Rules**
  - Today, master file data cannot be interpreted without applying business logic that is embedded in the programs
  - Data stored in a database needs to be viewed as having its own existence outside of the application processes that maintain it – ADHOC reporting

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Re-vitalizing application data using CICS VT

- Migrate VSAM files to DB2 without changing application programs
- Legacy programs access DB2 data using driver modules CICS VT generates for each migrated data set
- Migrated data can be accessed by SQL in new programs
- Existing programs can be enhanced using SQL
- Lowest risk migration strategy

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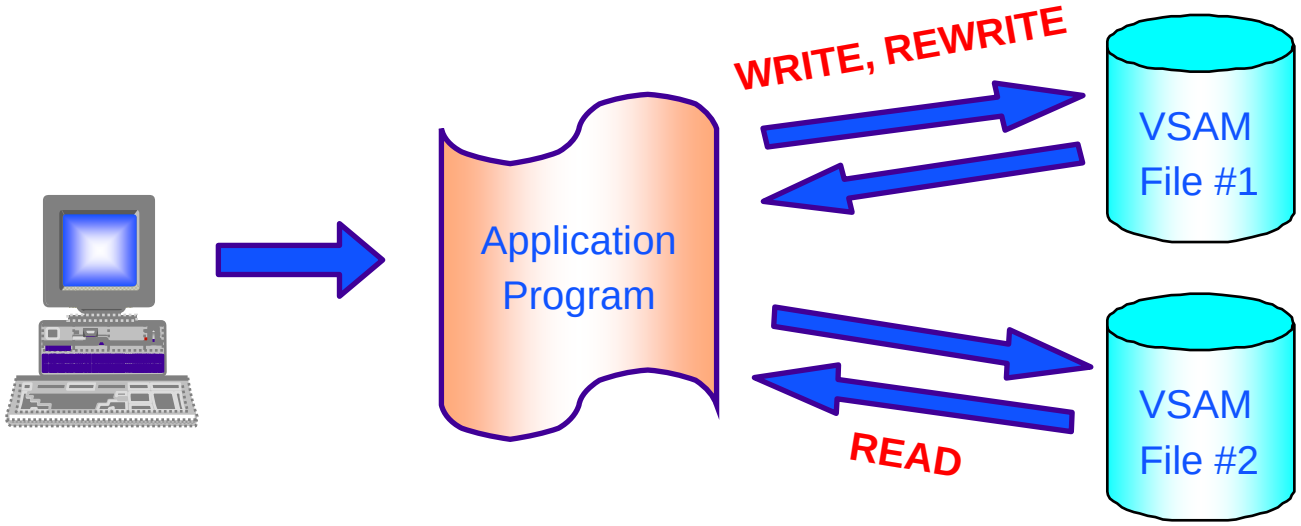
Re-vitalizing application data using CICS VT

- Before CICS VT



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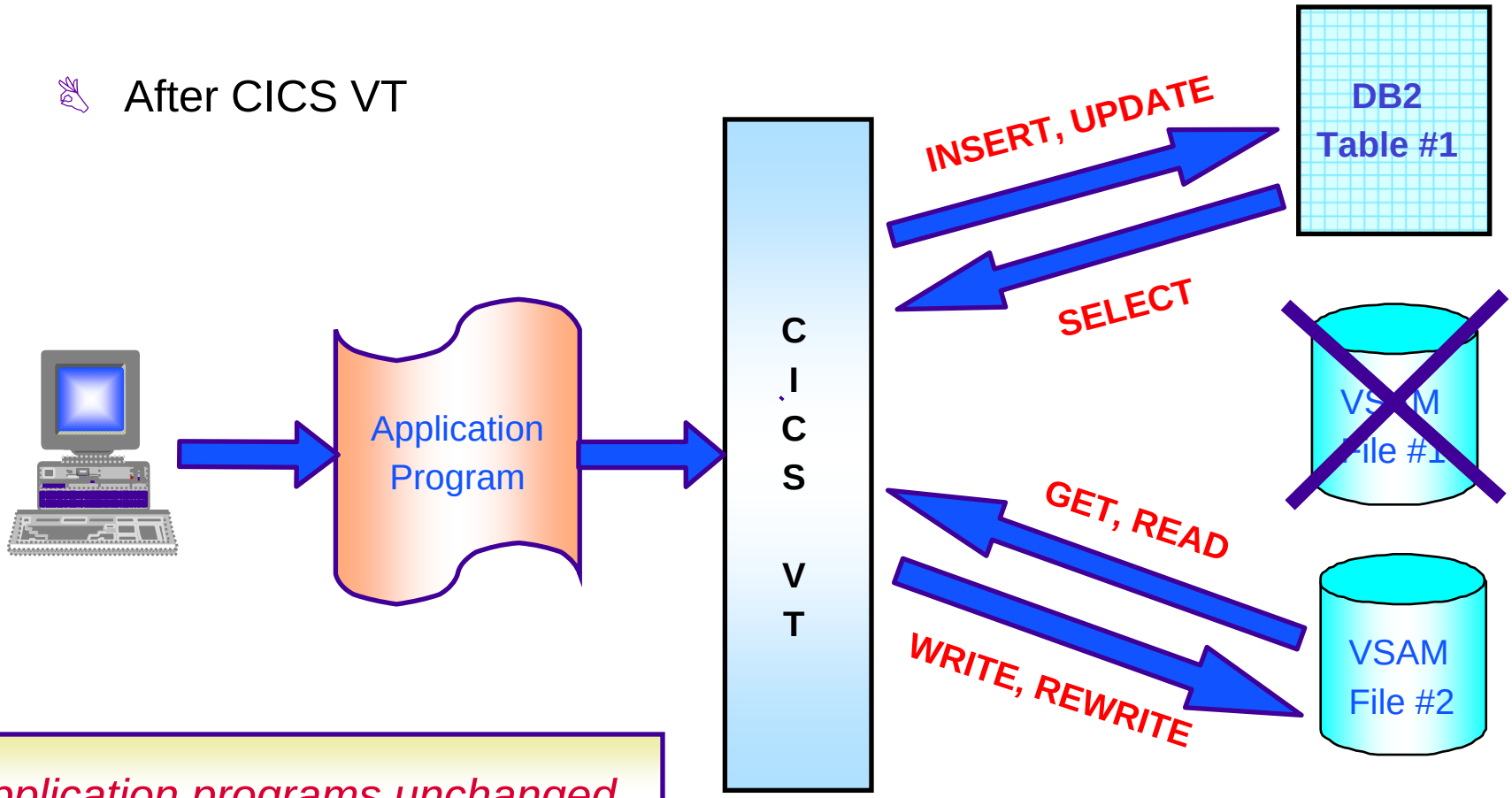
Re-vitalizing application data using CICS VT

- After CICS VT



Application programs unchanged

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CICS VT HIGHLIGHTS

- Completely separate from application program
- Transparent access to data in DB2
- 100% static SQL
- Migrate on a file by file basis
- Single live copy of data
  - Dual mode available for test purposes
- Data can be re-engineered
  - Same data returned to VSAM programs
  - Enhanced data available using SQL

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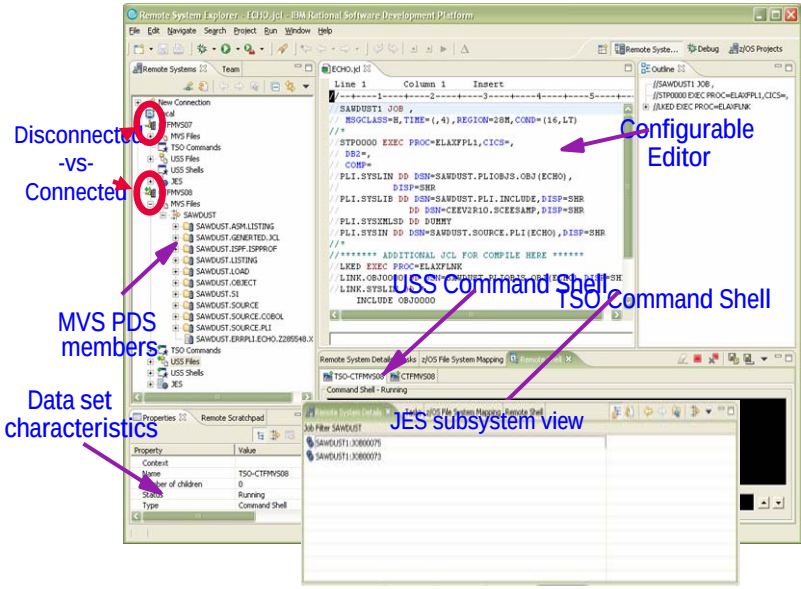
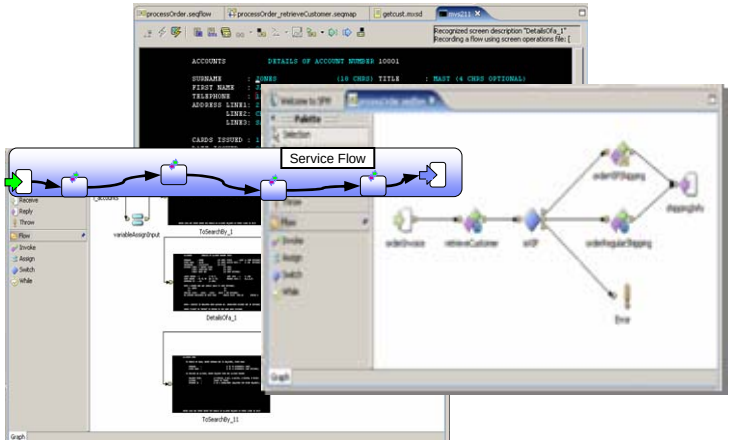
Rational Developer for System z (RDz)

- What is RDz
  - Eclipse-based IDE speeding modern composite (SOA) application development
- RDz supports Enterprise Modernization
  - Links WAS and core system z processing
  - Supports common IDE for COBOL, PL/I, C, C++, HLASM, Java, and web services
  - Transforms UML to COBOL source code
  - Provides interactive access to z/OS for development, debug, job generation, submission, monitoring, command execution
  - Supports new and existing runtimes (CICS, IMS, Batch, USS, DB2 SP, WAS)
- RDz supports SOA
  - Enables CICS and IMS applications for web services and SOA including System z runtime micro-flows
  - Supports for J2EE, JCA, XML, web services





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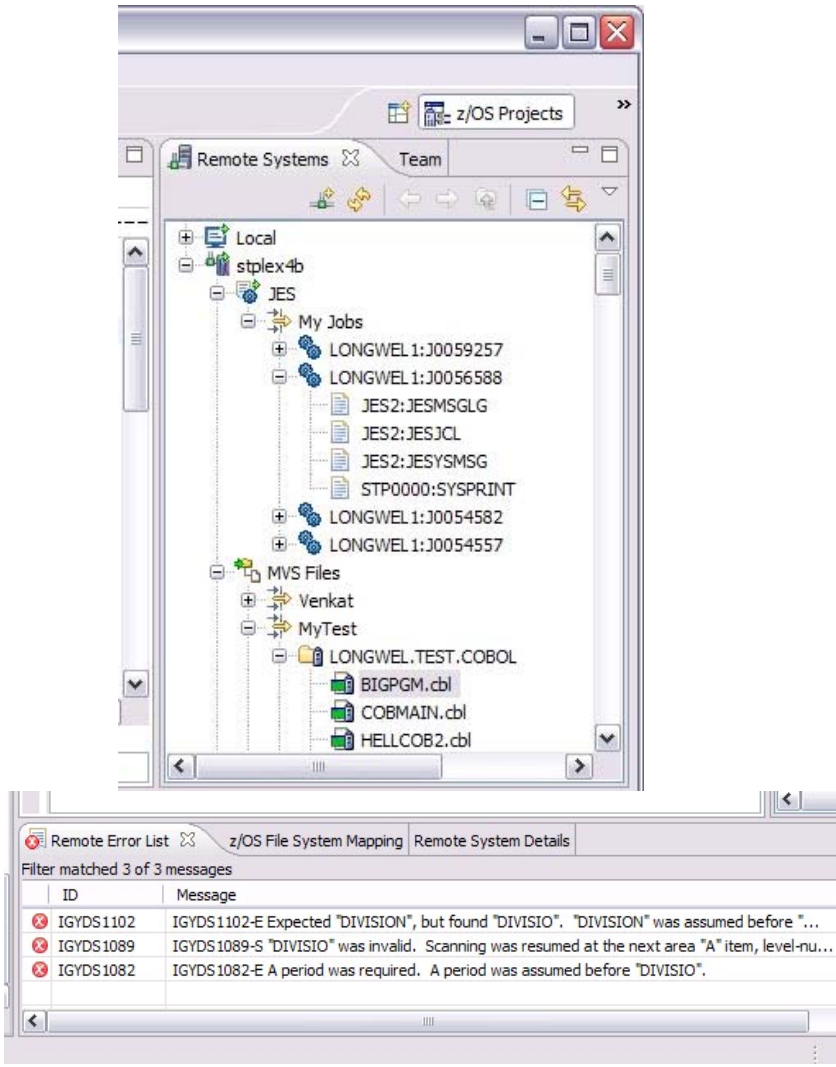
Gain productivity and ROI

- Real-time mainframe connection with Remote System Explorer
  - Direct access to host subsystems and file system
  - Project assets connected to host resources
- Eclipse-based editor (LPEX)
  - Green-screen compatible environment but with eclipse flavor
    - Content assist; Discover/Link to include files; Error markers, etc
- Local and Remote syntax check
  - Mainframe programs can be compiled and errors listed in the problems view
  - Saves time and cost (MIPS reduction) over traditional compile process on host
- Remote Debugging with Debug Tool integration
  - Debug programs as they execute on the host in real-time from eclipse unified debugger
  - Debug composite applications linking seamlessly from WAS to host runtimes



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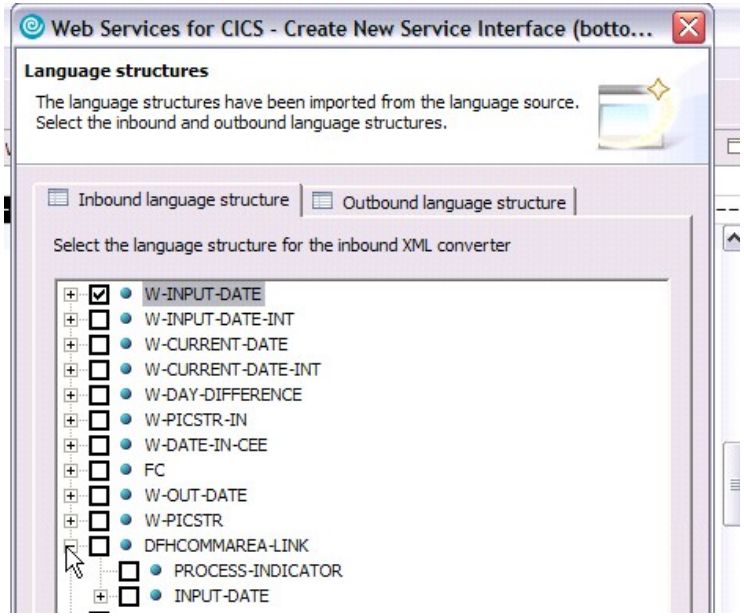
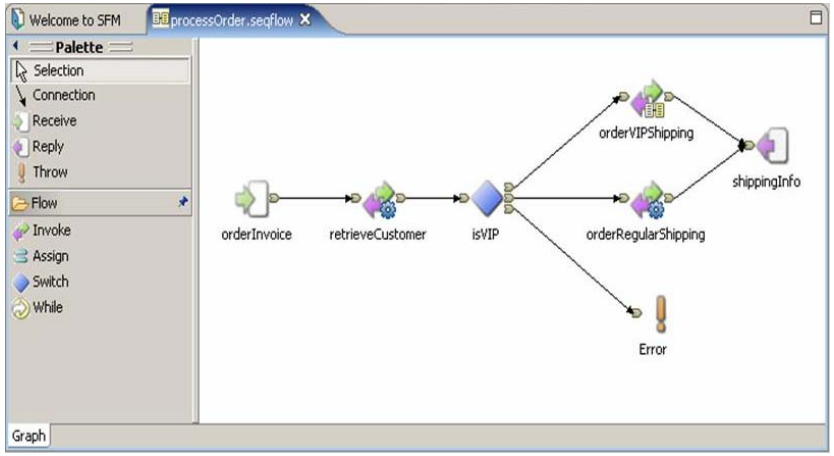
Move to SOA easily

- **Customers today tend to focus on applications which already exist on the mainframe (limited new workload creation)**
- **RDz can help maintain and componentise existing mainframe applications to prepare host systems for a SOA architecture**
- **RDz offers XML services for the Enterprise**
  - Wizard-driven web-service creation
  - Works with existing host programs without changing program code (lost cost, low risk)
  - Creates program skeleton for new program creation
  - Works for major mainframe runtimes (Batch, CICS, IMS)
- **CICS Service flow**
  - Create orchestration logic for combining multiple green screen transactions or service calls into a single web service





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RDz-based development

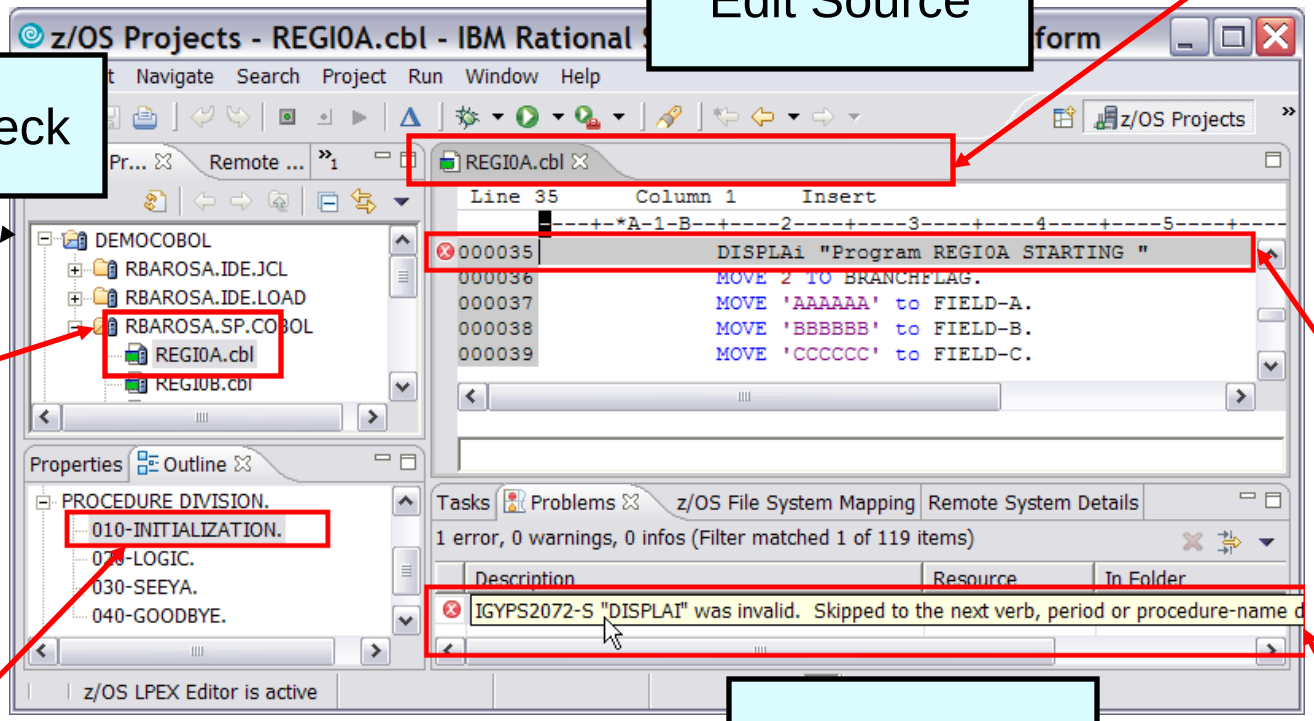
- **Common development environment for COBOL, PL/I, C/C++, and Java**
- **Simplified development with more information at your fingertips**

Edit Source

Syntax Check

Open and edit multiple source and JCL members simultaneously

Submit jobs, access job output, or open source members with a single click



Statement in error indicated in source

Outline view presents COBOL structure

Double-Click on the Error

Error list in Problems view

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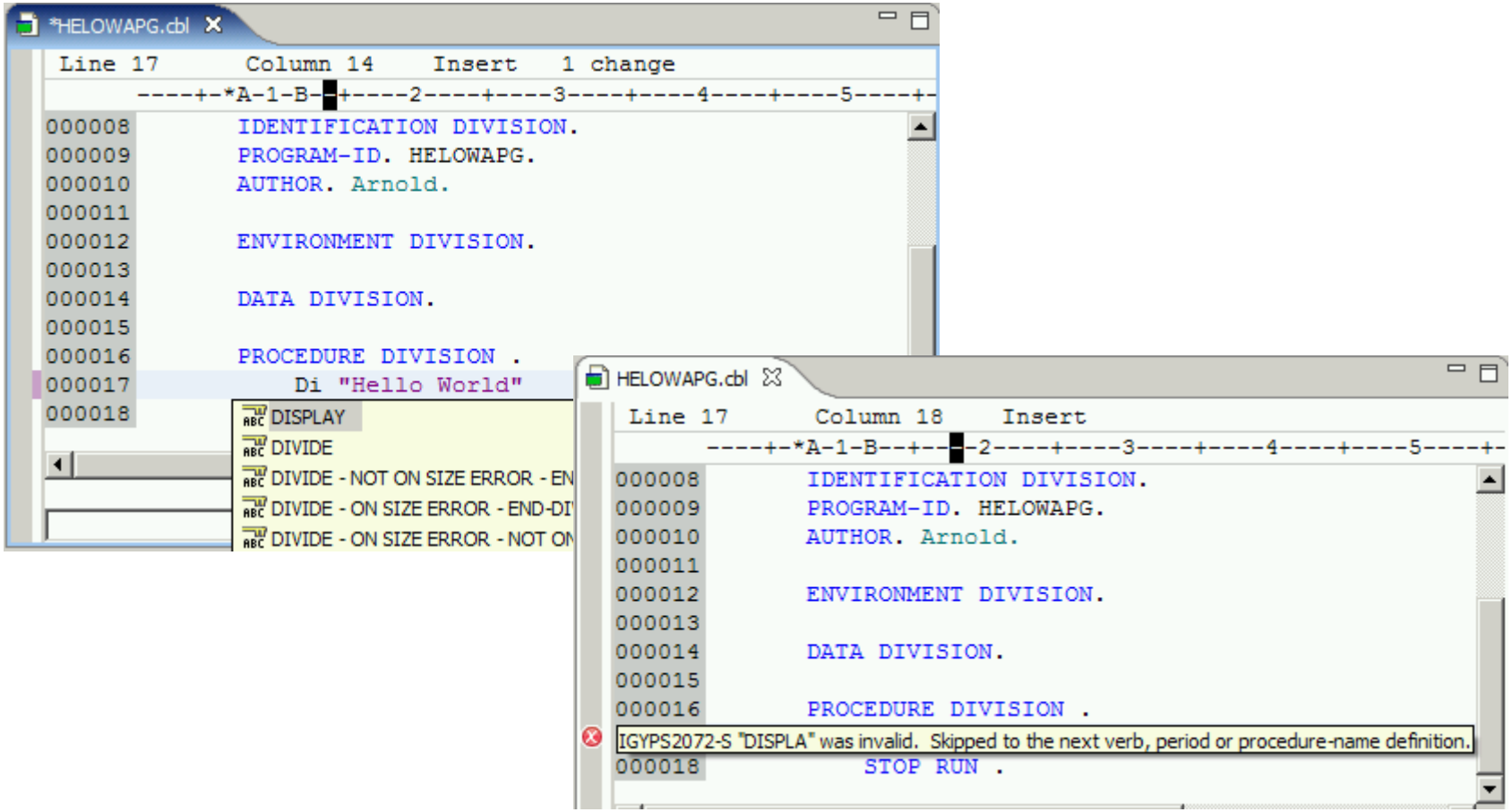
Member – Edit & Syntax Check RDz



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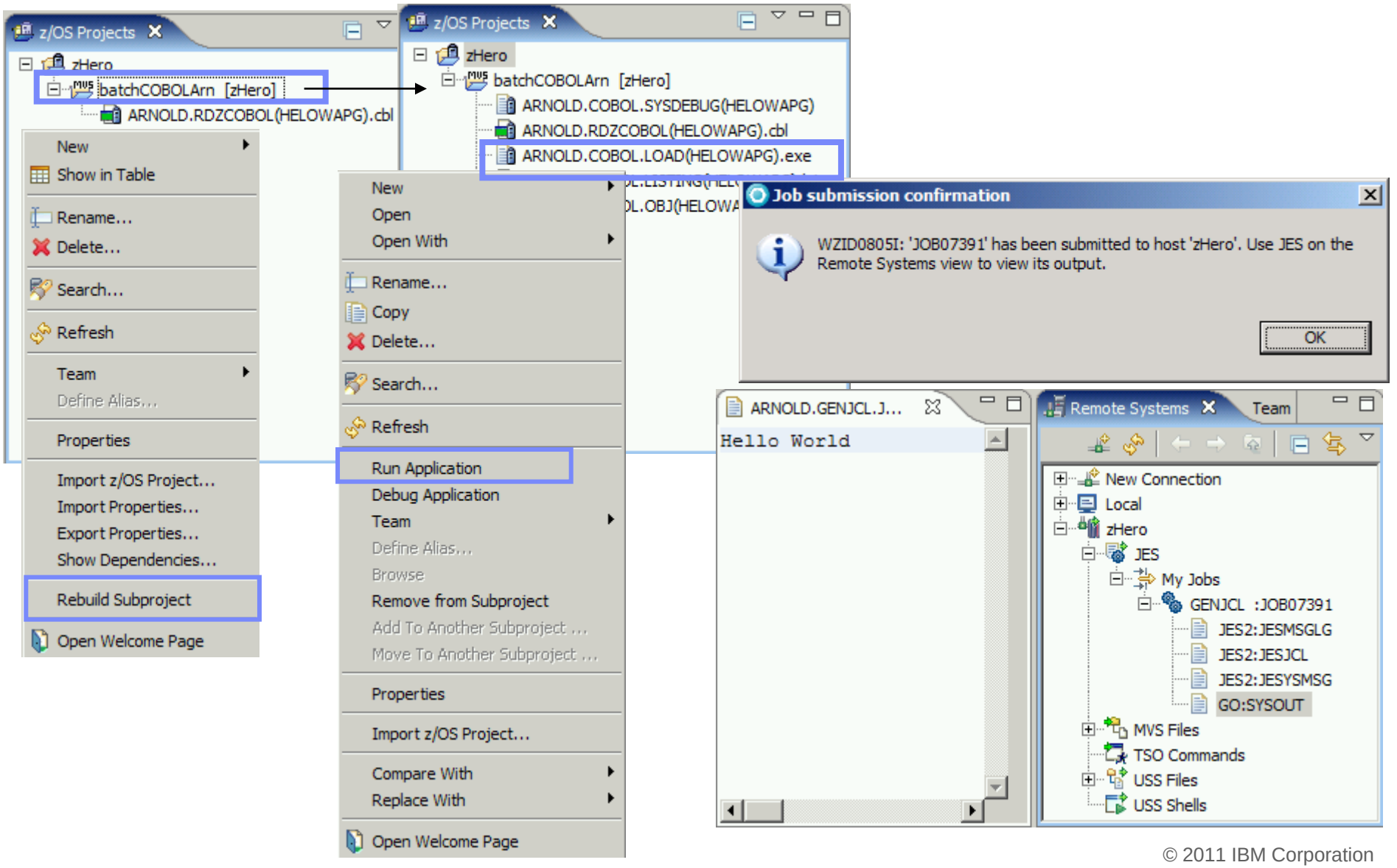
Member – Compile, Link, Go



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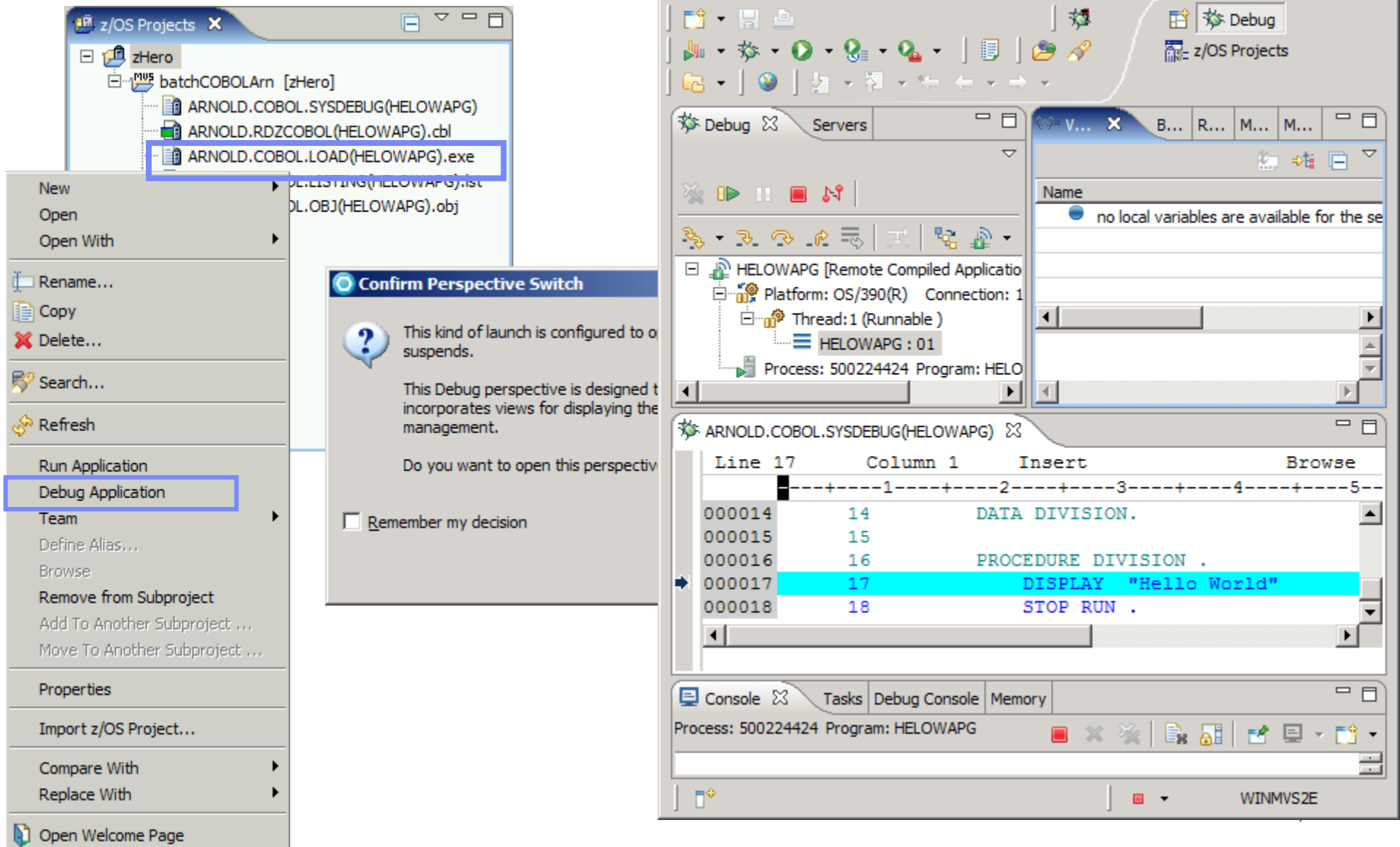
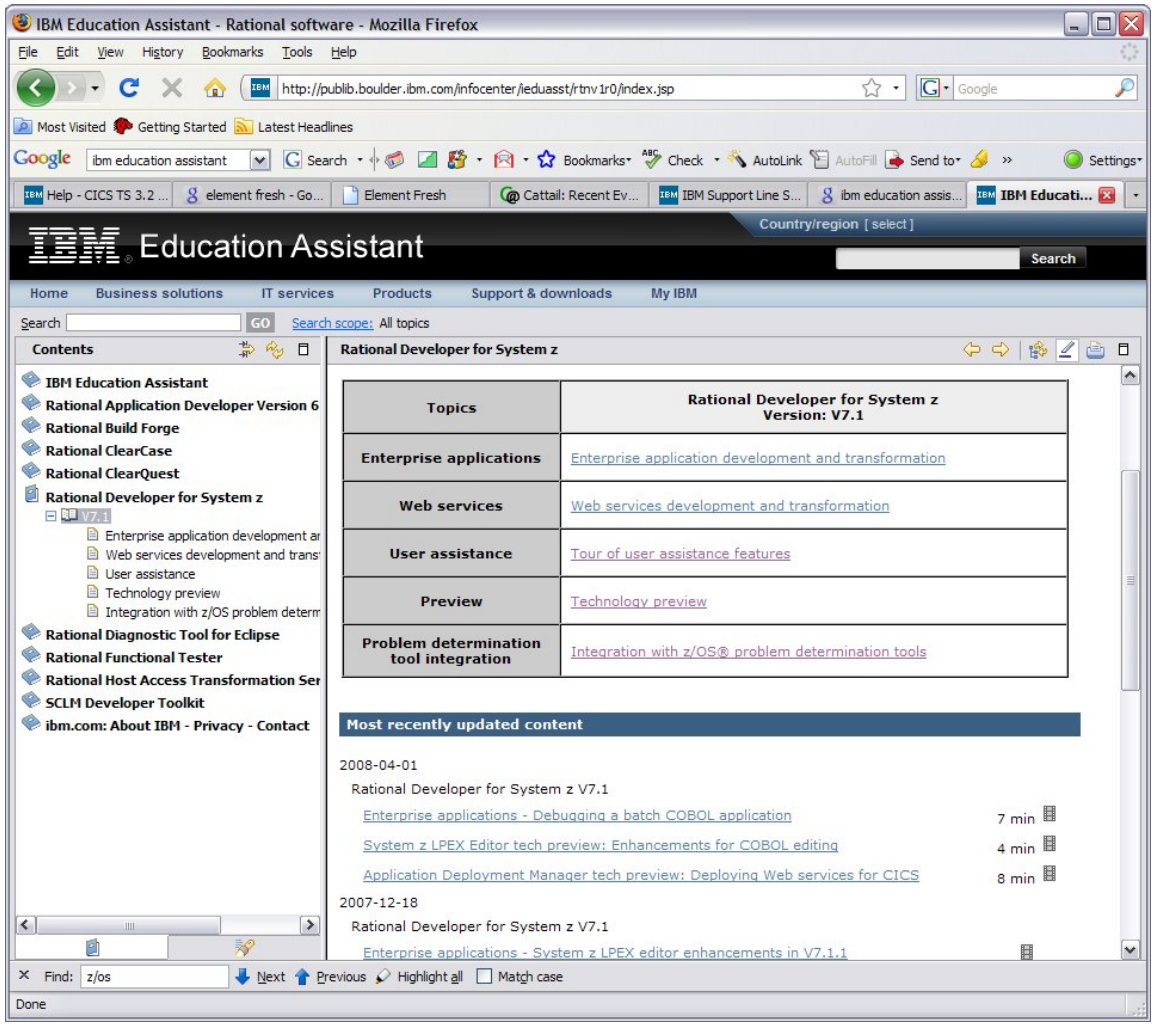
Member - Debug



And here are some more RDz flash demos to show you how it all works



http://publib.boulder.ibm.com/infocenter/ieduasst/rtnv1r0/index.jsp?topic=/com.ibm.iea.rdz/plugin_coverpage.html

Note : it is possible to hack around with the URL and download the swf files. There is over 30 RDz demos (>100MB total) of really good stuff to grab

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WebSphere Service Registry and Repository

- *Enables governance* – **Configurable service life-cycle, classifications and access controls**
- *Manages service meta-data* – **Providing better search granularity than most UDDI-based products**
- *User-friendly UI* – **Facilitates design time discovery**
- **Provides** *location transparency* **through runtime access**
- **Stores all service artifacts –** *Not just WSDL*
- **Provides** *fully configurable* **functionality to classify services**
- *Supports state model functionality* – **Manages service life-cycles in a shared environment**
- *Service notification* – **facilitates communication between service consumers and providers**
- *Enforces* **consumer access to services**
- *Simple* **version management functionality**

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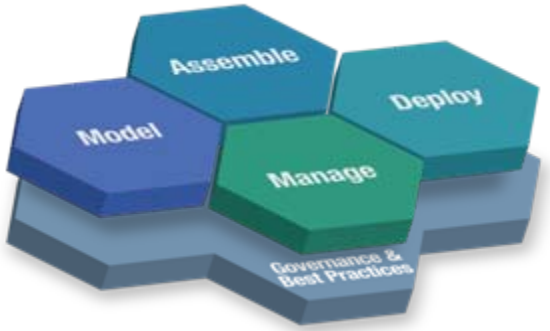
CICS Support for WSRR



- **DFHLS2WS**
  - Generate a WSDL file and WSBind file from copybooks and **publish WSDL file to WSRR**
  - Options to specify location of WSRR server, and meta-data that describes the WSDL to be published
- **DFHWS2LS**
  - **Extract a WSDL file from WSRR** and generate copybooks and WSBbind file
  - Options to specify the WSRR server, and the WSDL document to be extracted

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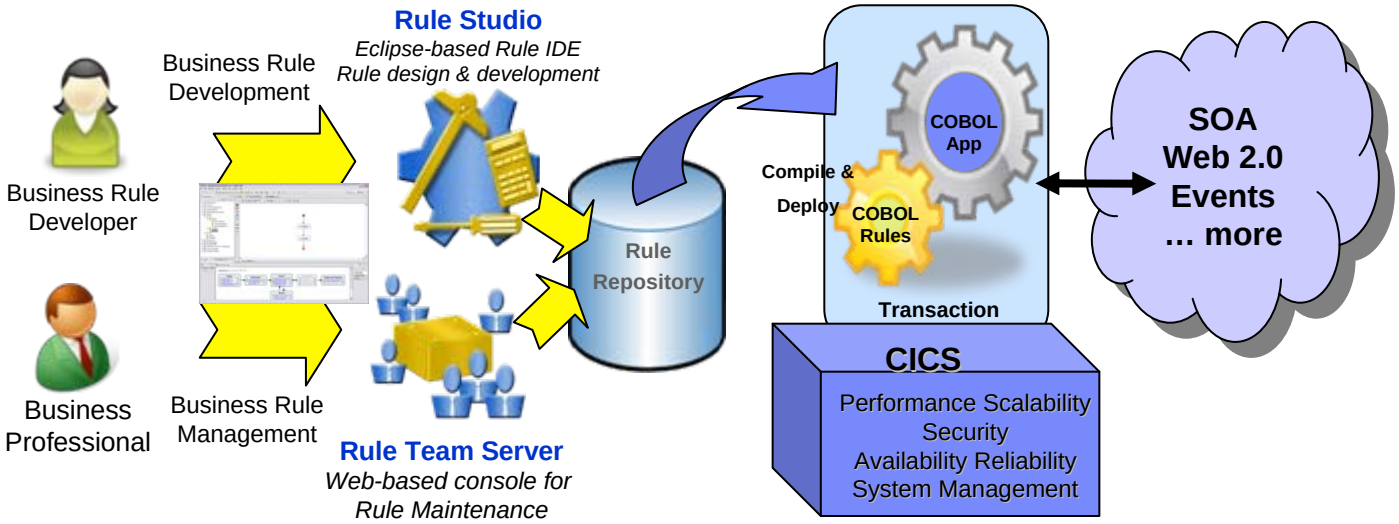
CICS with ILOG Rules for COBOL

Timely modification of offers to increase competitive edge



Solution

Developer authors rules to extend CICS COBOL applications to produce business behaviours, e.g. when orders are placed

Business users make rule adjustments in Rule Team sever and deploy changes to CICS applications

Business managers quickly identify what business decisions to change

Auditable change management process

Value

Simplified application modernization and consistent process compliance by introducing change in a single place

Avoid application change development cycle

LOB in control of the business changes

Reduced risk, disruption, cost and time to implement change

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Rules for COBOL with CICS Channels and Containers

- **Scenario**
  - A Rules for COBOL generated program is wrappered inside a program that receives CICS Channels and Containers
    - Normal Rules for COBOL programs must be statically linked with each calling program
- **Approach**
  - Instead of linking with each calling program, just link into the Load Library
  - Reasonably easy for a user to write a wrapper program, or modify a Rules for COBOL generated program
    - Was very straight forward to create the PoT
  - User can produce themselves with a reasonably small amount of effort.
  - A RedPaper will soon be released that describes how to write the wrapper program.
  - IBM will deliver a CICS SupportPac (CA0A) that generates the CICS Wrapper program automatically
  - Use with CICSPlex SM Workload Management to achieve best throughput

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Summary

- **Revitalize your applications using modern tooling**
  - Speed application modernization, threadsafe optimization, and more with CICS Interdependency Analyzer
  - Non-invasive DB2 support with CICS VSAM Transparency
  - Rational Developer for System z
  - Improve governance with WebSphere Service Registry and Repository
  - Simplify application modernization with ILOG Rule enablement

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Resources

For more information

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CICS Development Technical Services

Engage the IBM Hursley CICS development team to ensure that you get the maximum value from your CICS investments.

Consultants are now available via a funded services engagement directly from CICS development providing a complete range of CICS services - no one has more experience!

- **For more information please contact: CICSDTS@uk.ibm.com**

CICS On Demand Seminars

Free customised technical agenda of CICS TS and CICS tools products

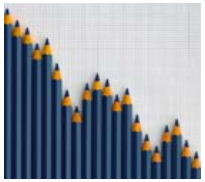
- Web Services, Events, Web 2.0, version upgrades, tooling etc.

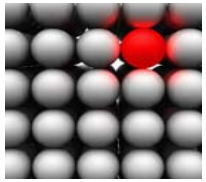
Targeted at AD, System Programmers and Architects at customers' own location

Demonstrates how to use the new features in the latest releases to leverage existing solutions

Can be tailored to customers interests

- **For more information please contact: cicssem@uk.ibm.com**





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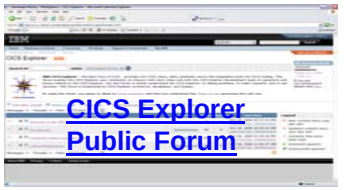
CICS Communities and Information

- **CICS Transaction Server V4.1**
  - http://ibm.com/cics/tserver/v41/
- **CICS Explorer**
  - Home page ibm.com/cics/explorer
  - Forum http://tinyurl.com/68bndw
- **Twitter**
  - Subscribe to the IBM_System_z channel & CICSfluff channel to get CICS news flashes
- **CICS Blog - Comment and opinion**
  - TheMasterTerminal.com
- **CICS eNews**
  - Subscribe for news about CICS and related products
- **CICS Links regular updates all in a single presentation deck**
- **YouTube channels**
  - CICS Explorer - Videos, demos and other cool stuff
  - CICSFluff - Other CICS videos



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Thank You !

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