



IBM Software Group

WebSphere Developer for System z

Using eclipse based tooling for the mainframe

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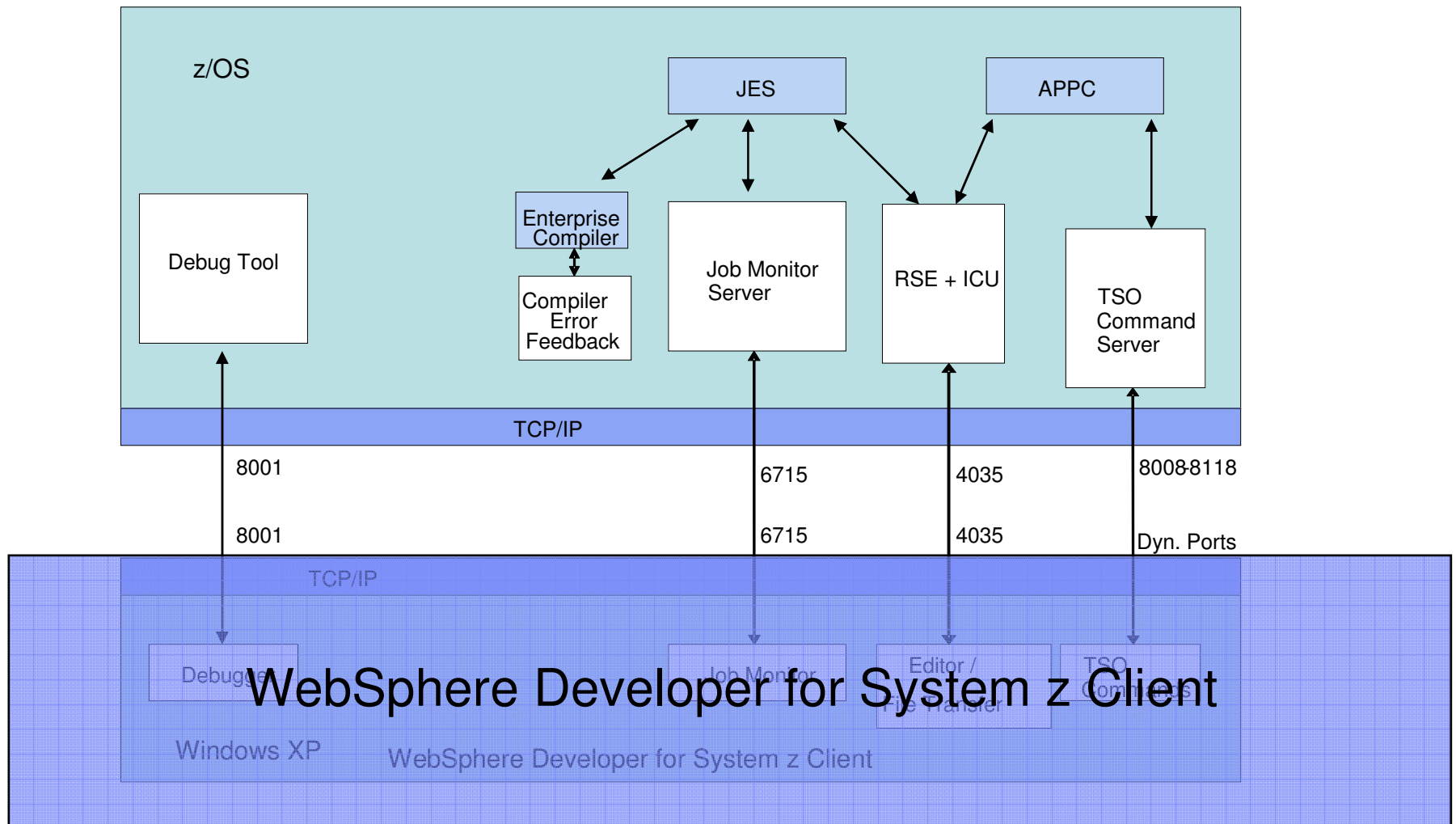


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What is it

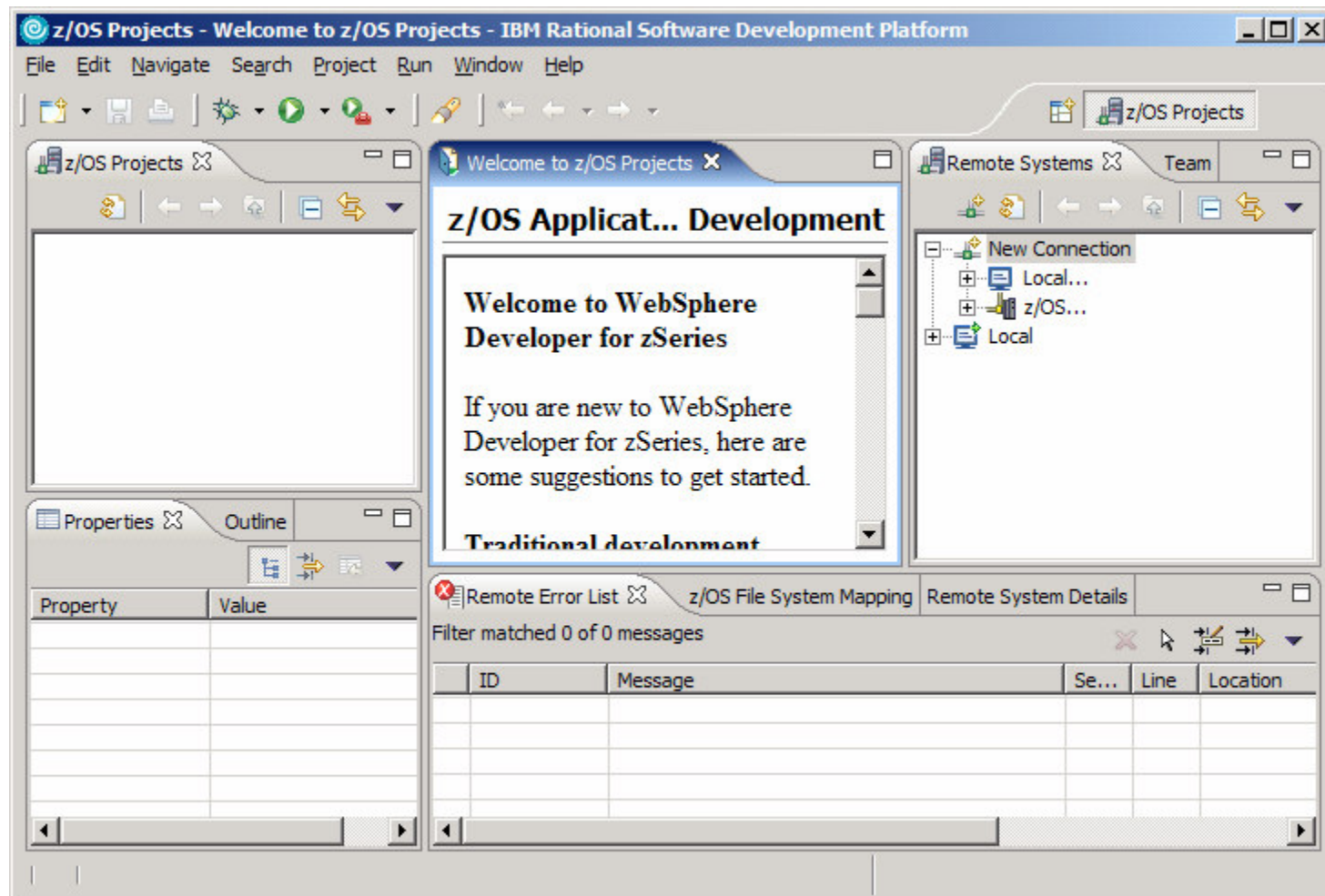
- **Eclipse based – inherits Look&Feel**
 - Drag & drop
 - Right-click context sensitive menus
 - Workbench principle
- **Main target groups**
 - “new” mainframe developers who are used to eclipse
 - Host modernization developers
 - Everybody who is interested
- **Extends Rational Application Developer**
- **Supports a project structure for building zOS applications**
 - COBOL, PLI, HLASM, C/C++
 - TSO/Batch, CICS, IMS, DB2
 - DB2 Stored Procedures – COBOL, PLI, Java, SQL
- **Goal: Development without a need for ISPF**

WDz Kommunikation



WDz setup

A first Hello From your Workbench



Move, close or open new views

The screenshot displays the IBM Rational Software Development Platform interface for z/OS Projects. The main workspace is divided into several views:

- Outline:** A table showing properties of the current project.
- Remote Systems:** A tree view showing connections to remote systems.
- z/OS Projects:** A tree view showing the project structure.
- z/OS File System Mapping:** A view showing file system mappings.
- Team:** A view showing team information.

Two panels are open on the right side:

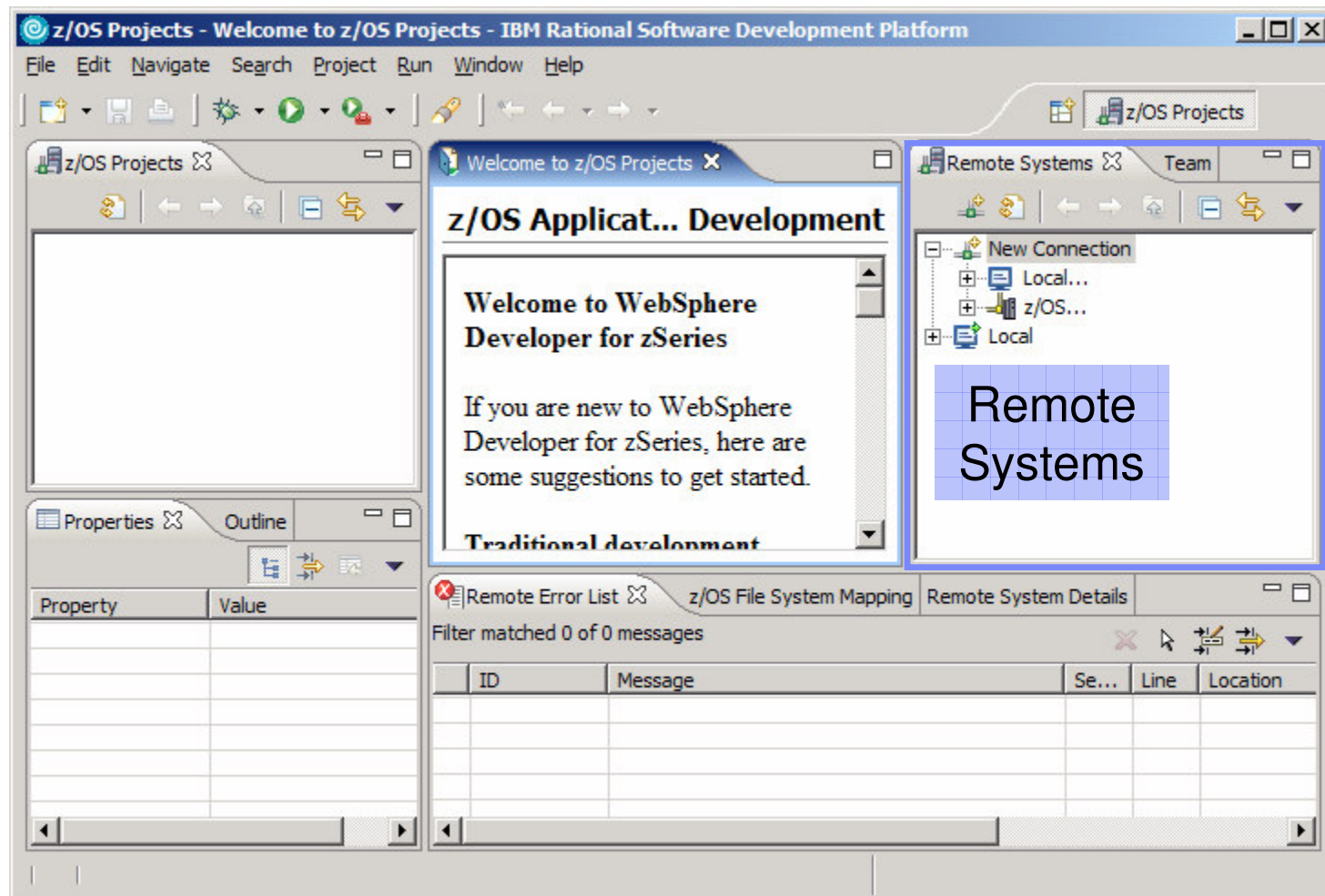
- Select Perspective:** A list of perspectives including CVS Repository Exploring, Data, Debug, EGL, Generic Log Adapter, J2EE, Java, Java Browsing, Java Type Hierarchy, Plug-in Development, Profiling and Logging, Remote System Explorer, Resource, Service Flow Modeler, Team Synchronizing, Test, Web, and z/OS Projects (default).
- Show View:** A list of views including Process, Profiling and Logging, Remote Systems, Remote Scratchpad, Remote Search, Remote Shell, Remote System Details, Remote Systems, Remote z/OS Search, Team, Server, Service Flow Modeler, Struts, Test, TPF Toolkit, Web, z/OS Project Views, z/OS File System Mapping, and z/OS Projects.

A large blue arrow points from the 'z/OS Projects' view in the main workspace to the 'z/OS Projects (default)' perspective in the 'Select Perspective' panel. Several black arrows point from the 'z/OS Projects', 'z/OS File System Mapping', and 'Team' views in the main workspace to their corresponding entries in the 'Show View' panel.

Property	Value
derived	false
editable	true
last modified	11/21/06 8:38 PM
linked	false
location	C:\Documents and
name	RemoteSystemsCo

ID	Message

A first Hello From your Workbench



Remote Systems - Connect to the Host

New
Remote z/OS System Connection
 Define connection information

Parent profile: Schnatterinchen for POK

Connection name: POK

Host name: wtsnet.itso.ibm.com

Description: Poughkeepsie Host

Verify host name

< Back Next > Finish Cancel

New
MVS Files
 Define subsystem information

New
USS Files
 Define subsystem information

Server Launcher Settings:

Indicate how the remote server should be launched

Remote daemon

 Daemon Port (1-65535) 4035

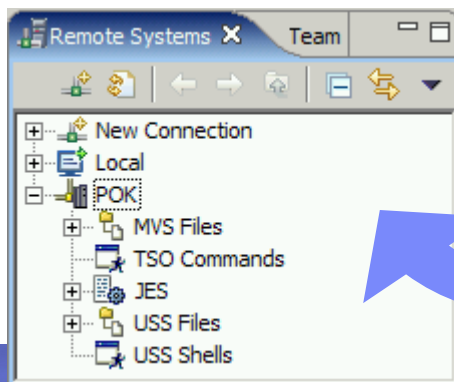
REXEC

 Path to installed server on host
 dstore

 Server launch command server.zseries Port (1-65535) 512

Connect to running server

< Back Next > Finish Cancel



Remote Systems - Filter based views

The image illustrates the process of creating filter-based views in Remote Systems Explorer. It shows a tree view of remote systems with folders like 'MVS Files', 'TSO Commands', 'JES', and 'USS Files'. A 'New' menu is open, showing 'Filter...' as an option. Three dialog boxes show the steps to create a filter:

- New Filter:** A dialog box where the filter string is set to 'ARNOLD.COBO'.
- New File Filter:** A dialog box where the folder is set to '/u/arnold/java/' and the filter is set to 'Subset by file name' with a file name filter of '*'. There is also a 'Show files only' checkbox.
- New JES Job Filter:** A dialog box where the filter is set to 'JES Job Filter' with fields for Job Owner (ARNOLD), Job Prefix (COMP*), Job Status (*), Job Class (*), and Job Output Class (*).

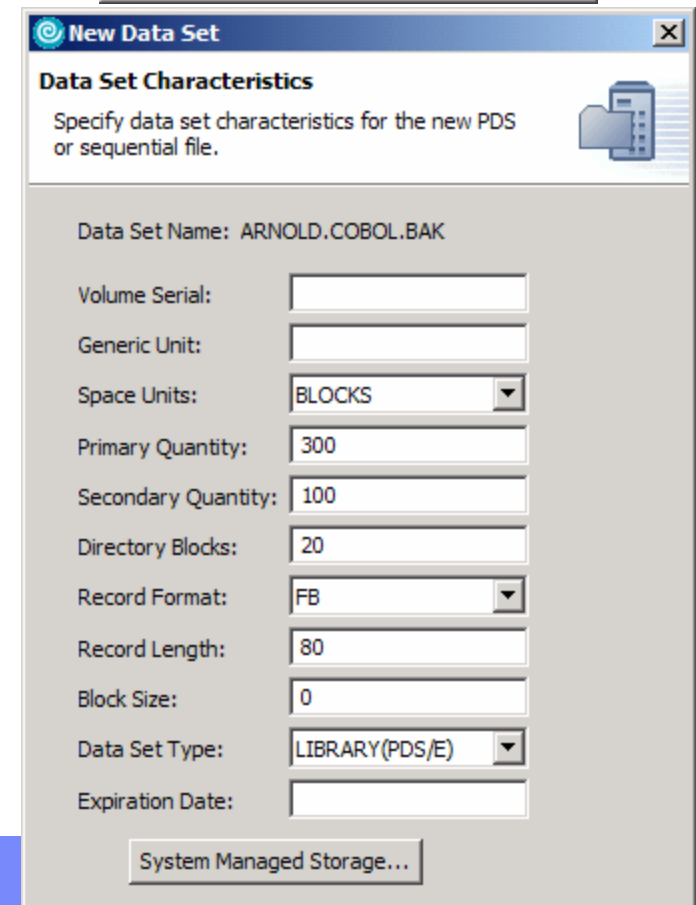
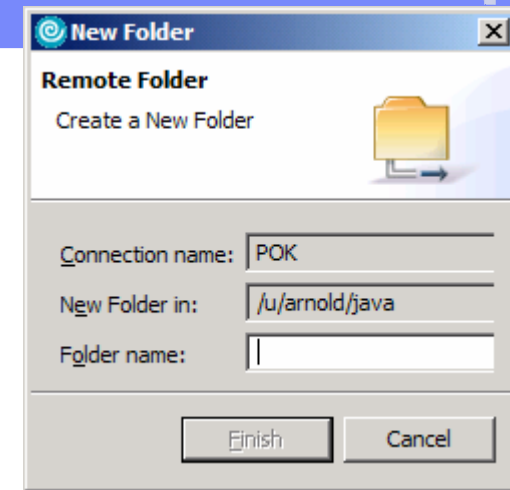
Below these are three 'New Filter' dialogs for naming the filter:

- New Filter:** Name the new filter: programming
- New File Filter:** Name the new filter: java
- New JES Job Filter:** Name the new filter: compile_jobs

Filters are saved for easy re-use. Specify a unique name for this filter. This name will appear in the Remote Systems view, and will be expandable.

Remote Systems - Files

- Allocate, Create PDS/PDSE, Member, etc....
- PDS allocation models, example PDS for COBOL source, Listing, etc.
- Compress, Compress with Backup, Migrate
- Copy files between different systems (local or remote)
- Etc.



Remote Systems – Submit JES Jobs & review output

The screenshot displays the ISPF interface for submitting and reviewing JES jobs. The main window shows the JES2 JOB LOG for SYSTEM SYS1 on node BOEER. The log contains the following entries:

```

08.24.08 JOB06506 ---- FRIDAY, 04 AUG 2006 ----
08.24.08 JOB06506 IRR010I USERID ARNOLD IS ASSIGNED TO THIS JOB.
08.24.08 JOB06506 ICH70001I ARNOLD LAST ACCESS AT 08:04:52 ON FRIDAY, AUGUST 4, 2006
08.24.08 JOB06506 $HASP373 GEN076 STARTED - INIT 1 - CLASS A - SYS SYS1
08.24.08 JOB06506 IEF403I GEN076 - STARTED - TIME=08.24.08
08.24.08 JOB06506 - --TIMINGS (MINS.)--
08.24.08 JOB06506 -JOBNAME STEPNAME PROCSTEP RC EXCP CPU SRB CLOCK SERV
08.24.08 JOB06506 -GEN076 STP0000 COBOL 00 772 .00 .00 .01 3115
08.24.08 JOB06506 -GEN076 LKED LINK 00 174
08.24.08 JOB06506 IEF404I GEN076 - ENDED - TIME=08.24.08
08.24.08 JOB06506 -GEN076 ENDED. NAME-
08.24.08 JOB06506 ENDED
  
```

A secondary window shows the job's JCL code:

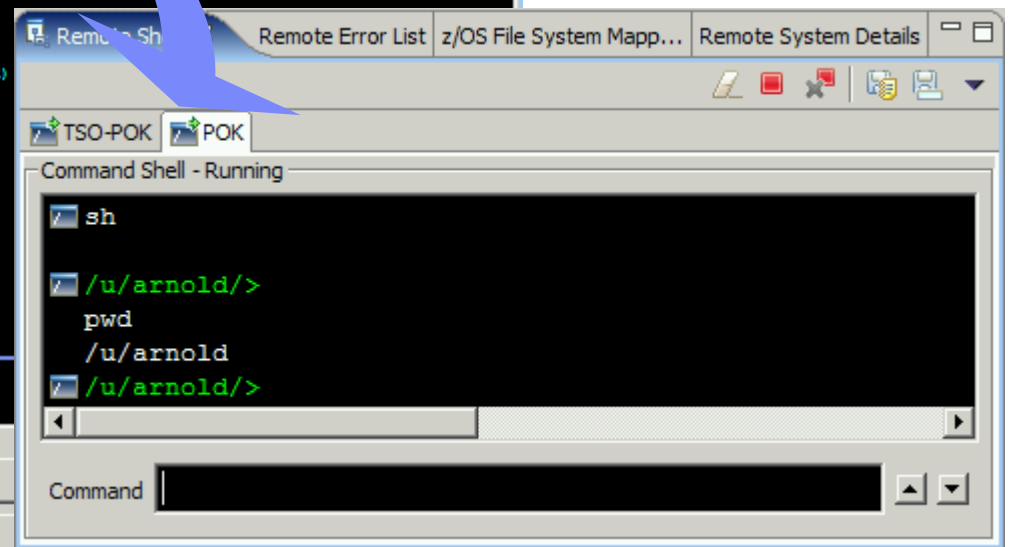
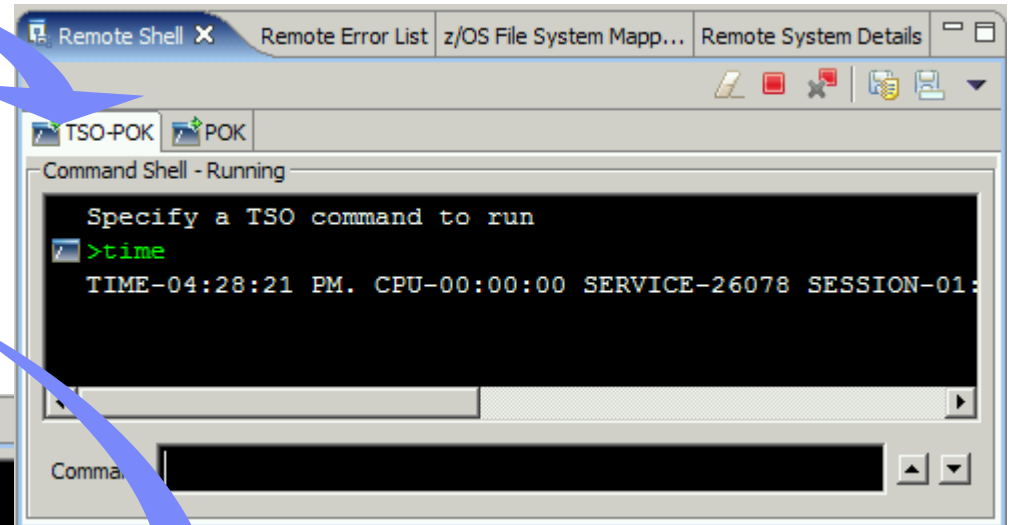
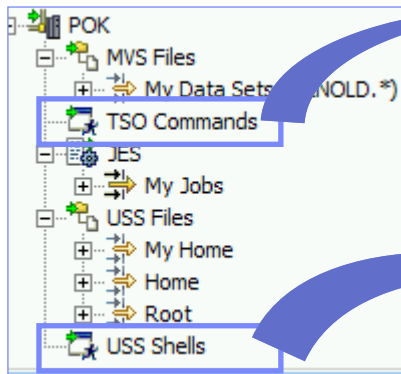
```

Line 25 Column 1 Ins
//-----1-----2-----
000019 //COBOL.SYSIN DD DSN=ARN
000020 //*
000021 //***** ADDITIONAL JCL
000022 //LKED EXEC PROC=ELAXFLM
000023 //LINK.SYSLIB DD DSN=ARN
000024 // DD DSN=S3
000025 // DD DSN=S3
000026 //LINK.OBJ0000 DD DSN=AR
000027 //LINK.SYSLIN DD *
JOBID: Job JOB06506 accepted.
submit
  
```

The Remote Systems tree on the right shows the following structure:

- Remote Systems
 - Local
 - Padme76
 - TMCC
 - MVS Files
 - TSO Commands
 - JES
 - My Jobs
 - gen
 - GEN076:JOB06506
 - JES2:JESMSG LG
 - JES2:JESJCL
 - JES2:JESYSMSG
 - LKED:SYSPRINT

Remote Systems – Shells & Emulations



Host Connection Emulator Support



Working with WDz

The Editor

The screenshot displays the IBM Rational Software Development Platform interface for editing a COBOL program named SAMPLE.cbl. The editor window shows the following code:

```
Line 49      Column 34      Insert
B-----2-----3-----4-----+
MOVE DATE-OUT TO DATE-TEMP.
MOVE TIME-OUT TO TIME-TEMP.
MOVE "=>" TO MSG-OUT (1:3)
MOVE DATE-OUT (1:8) TO MSG-OUT (6:8)
MOVE " " TO MSG-OUT (14:1) .
MOVE TIME-OUT (1:8) TO MSG-OUT (15:8)
EXEC CICS SEND
                FROM      (MSG-OUT)
                LENGTH  (30)
END-EXEC.
```

The editor includes a menu bar (File, Edit, Navigate, Search, Project, Run, Window, Help), a toolbar, and a project browser on the right showing the file structure:

- z/OS Projects
- Remote Systems
- Team
- New Connection
- Local
- POK
- MVS Files
 - My Data Sets (ARNOLD.*)
 - programming
 - ARNOLD.COBOLE
 - CATDB2.cbl
 - CATISD.cbl
 - CPO01D.cbl
 - CTG76.cbl
 - EC01.cbl
 - EC02.cbl
 - EXCHANGE.cbl

At the bottom, there is a Remote Error List and a z/OS File System Mapping table:

ID	Message	Se...	Line	Location
Filter matched 0 of 0 messages				

The status bar at the bottom indicates the DataSet Member: SAMPLE.cbl.

Editor – Little Helpers

- **Code Completion**
- **Online Help(F1)**
- **Syntax Check**

```

PROCEDURE DIVISION.
    DISPLAY "enter name or Q to quit" UPON CONSOLE
    DISPLAY "test" UPON
    ACCEPT Input-name
    IF Input-name = 'Q'
    STOP RUN
    END-IF
    DISPLAY "Hello " Inp
    Initialize Program-w

```

ABC C07
ABC C08
ABC C09
ABC C10
ABC C11
ABC C12
ABC CONSOLE
ABC CSP

F1

```

PROCEDURE DIVISION.
    DISPLAY "enter name or Q to quit" UPON CONSOLE
    DISPLAY "test UPON CONSOLE
CBL005 Closing delimiter for literal not found.

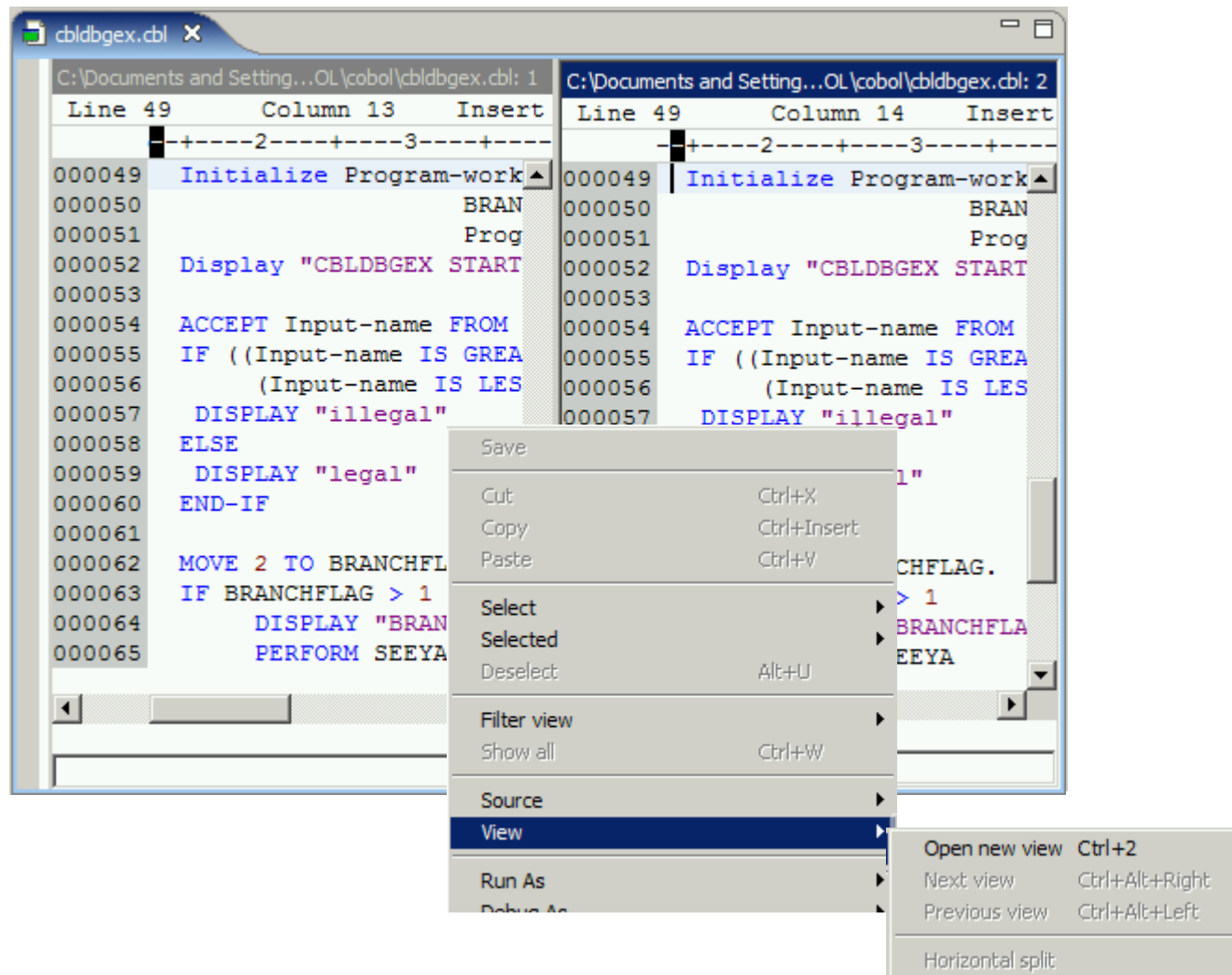
```

DISPLAY

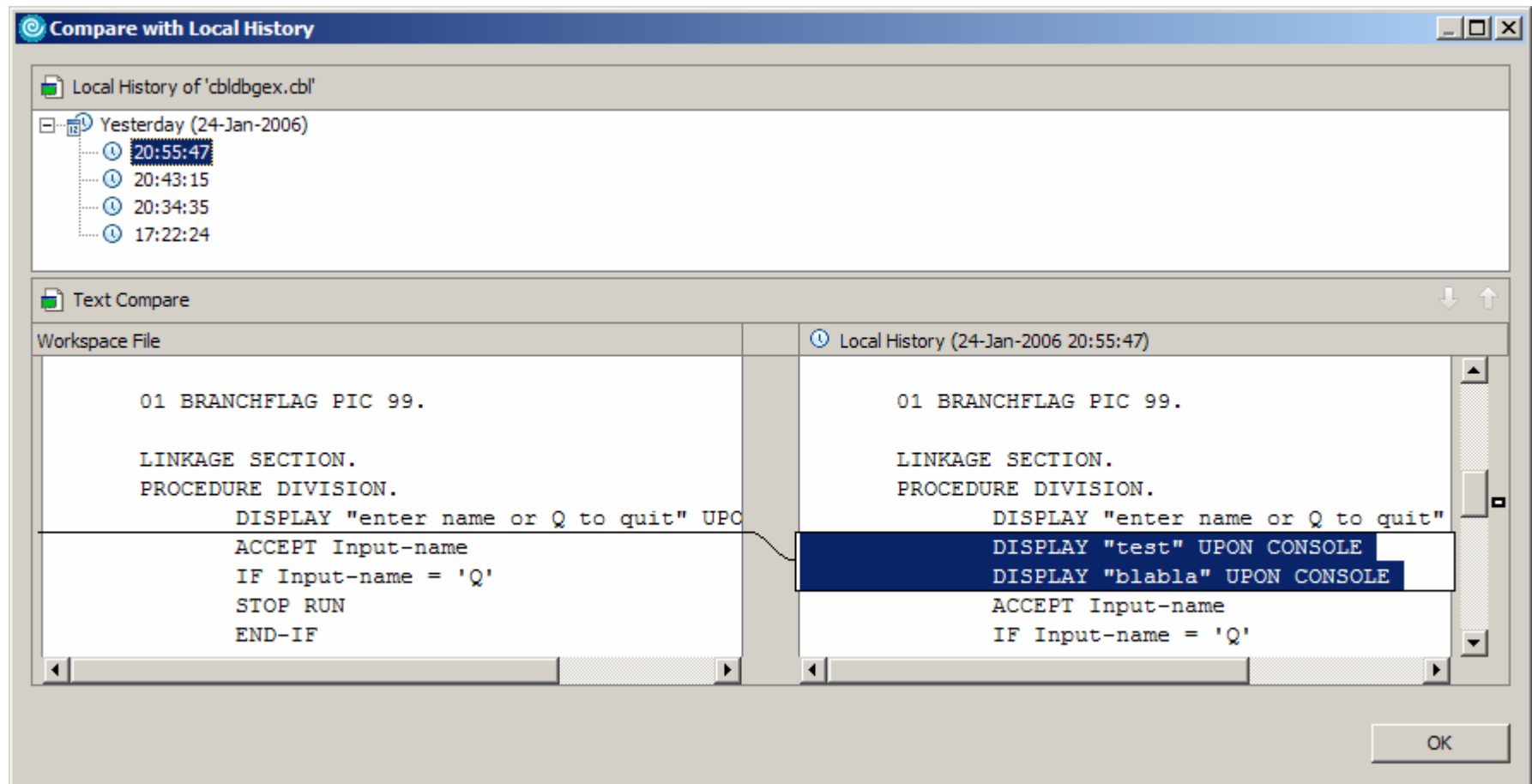
- [DISPLAY phrase](#) of the USAGE clause
- [DISPLAY statement](#)

[Terms of use](#)
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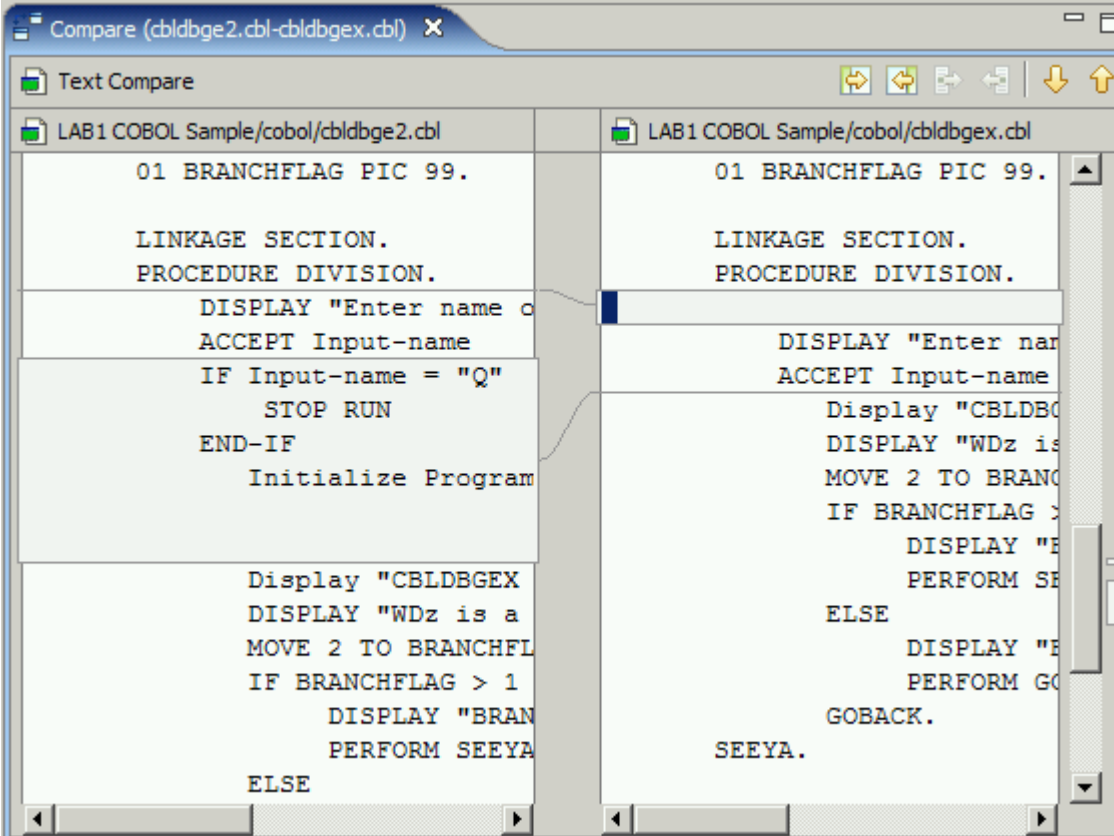
Split Screen



Compare with → Local History



Compare with → each other



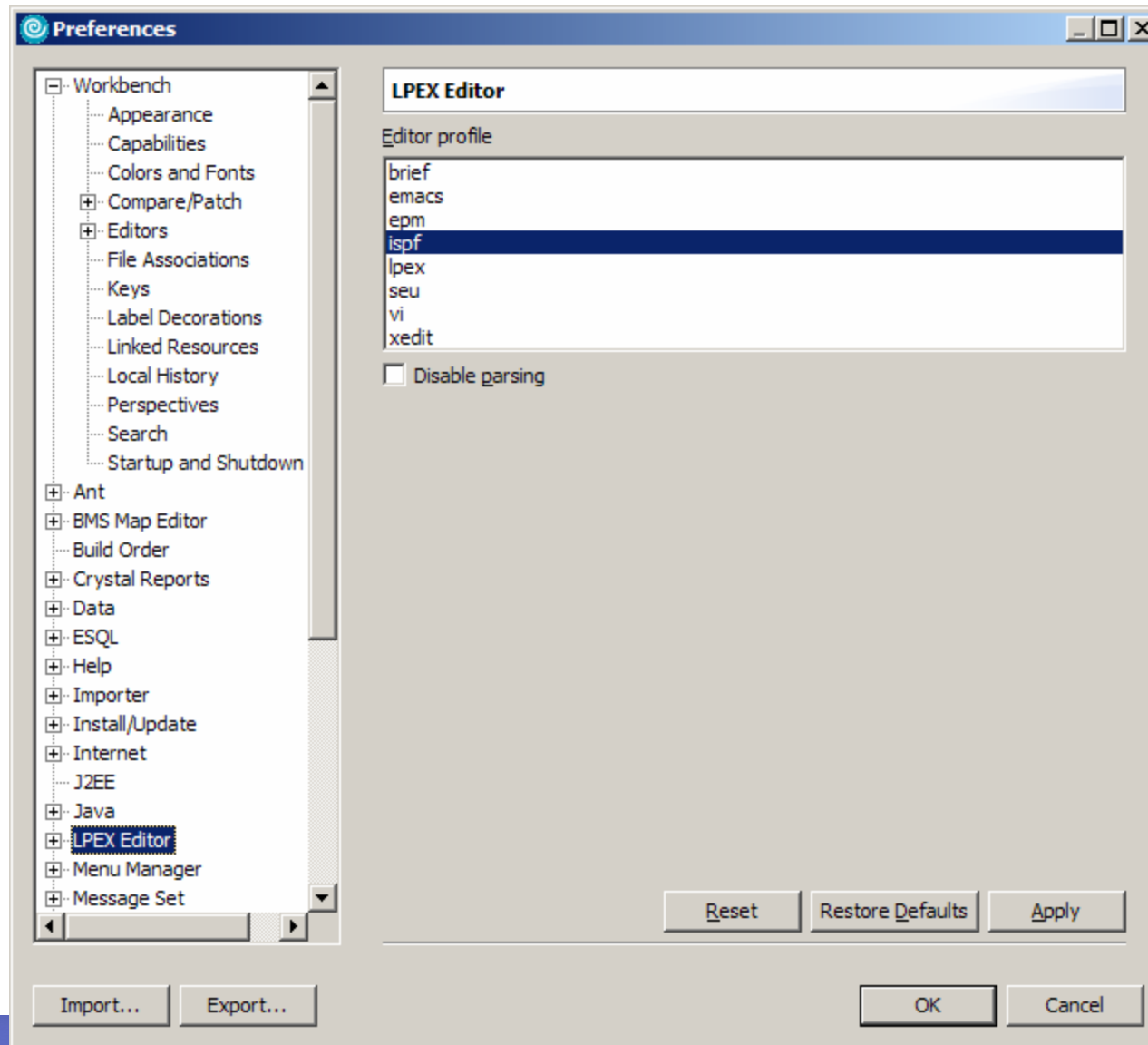
The screenshot shows a 'Text Compare' window with two panes. The left pane is titled 'LAB1 COBOL Sample/cobol/cblldbge2.cbl' and the right pane is titled 'LAB1 COBOL Sample/cobol/cblldbgex.cbl'. Both panes contain COBOL code. The left pane code is as follows:

```
01 BRANCHFLAG PIC 99.  
  
LINKAGE SECTION.  
PROCEDURE DIVISION.  
    DISPLAY "Enter name of  
    ACCEPT Input-name  
    IF Input-name = "Q"  
        STOP RUN  
    END-IF  
    Initialize Program  
  
    Display "CBLDBGEX  
    DISPLAY "WDz is a  
    MOVE 2 TO BRANCHFL  
    IF BRANCHFLAG > 1  
        DISPLAY "BRAN  
        PERFORM SEEYA  
    ELSE
```

The right pane code is as follows:

```
01 BRANCHFLAG PIC 99.  
  
LINKAGE SECTION.  
PROCEDURE DIVISION.  
    DISPLAY "Enter nar  
    ACCEPT Input-name  
    Display "CBLDBO  
    DISPLAY "WDz is  
    MOVE 2 TO BRANC  
    IF BRANCHFLAG >  
        DISPLAY "E  
        PERFORM SE  
    ELSE  
        DISPLAY "E  
        PERFORM GO  
    GOBACK.  
    SEEYA.
```

Editor - Properties for Editor – and everything else



Editor - Pick the right parser

The image shows two overlapping 'Preferences' dialog boxes from the LPEX Editor. The left dialog is for 'Parser Styles', and the right is for 'Parser Associations'. Below them is a 'z/OS File System Mapping' table.

Parser Styles Dialog:

- Document parser: `cobolSqlCics`
- Styles list: Function, Date format, Numeric literal, Picture string, Nonnumeric literal, Pseudo-text, Comment, **Sequence number**
- Preview: `123456* Sample COBOL document.`
`Title "Sample".`

Parser Associations Dialog:

Document Type	Document Par...
ASM	hlasm
C	cpp
C++	cpp
CBL	cobolSqlCics
CC	cpp
CCS	cppCics
CMD	rexx
COB	cobolSqlCics
CPP	cpp
CPY	cobolSqlCics
CXX	cpp
F	fortran
H	cpp
H++	cpp
HH	cpp

Document type: `CBL`
Document parser: `cobolSqlCics`

z/OS File System Mapping Table:

Mapping Criterion	Workstation File Extension	Transfer Mode	Host Code Page	Local Code Page
**SDFHSAMP	<undefined>	text	IBM-037 (inherited)	Cp1252 (inherited)
**MFS	mfs	text	IBM-037 (inherited)	Cp1252 (inherited)
**COBOL	cbl	text	IBM-037 (inherited)	Cp1252 (inherited)
**COBCOPY	cpy	text	IBM-037 (inherited)	Cp1252 (inherited)
**PLI	pli	text	IBM-037 (inherited)	Cp1252 (inherited)
**ASSEMBLE	asm	text	IBM-037 (inherited)	Cp1252 (inherited)
**OBJ	obj	binary	IBM-037 (inherited)	Cp1252 (inherited)
**LOAD	exe	binary	IBM-037 (inherited)	Cp1252 (inherited)

Special Editors - CICS BMS Map Support

Create BMS Project

- Wizard for creating new BMS map set files
- Drag & Drop BMS editor
- Design, Source and Preview views
- Create new or import/edit existing BMS maps
- Works with local and remote scenarios

The screenshot shows the IBM CICS BMS Map Editor interface. On the left, a project tree displays a folder named 'BmsMapSets' containing a sub-folder '.project' and files 'FAADCMA.BMS' and 'FAADCMA.TRL'. A red arrow points from the 'Create BMS Project' text to the 'FAADCMA.BMS' file. The main editor window shows a BMS map design for 'Lab9 Solution'. The design includes a title 'Lab9 Solution', a section 'Operator Instructions', and a list of menu items: 'Operator Instr - Enter MENU', 'File inquiry - Enter INQY and a number', 'File browse - Enter BRWS and a number', 'File add - Enter ADDS and a number', and 'File update - Enter UPDT and a number'. Below this is a prompt 'PRESS CLEAR TO EXIT' and a field 'ENTER TRANSACTION' followed by a green box labeled 'NUMBER' and another green box. A status bar at the bottom of the editor shows 'Row: 13, Column: 3, Width: 9'. At the bottom of the interface, a palette contains various BMS map elements, with 'Output field' highlighted by a red box and a red arrow pointing to it.

Special Editors - IMS MFS Support

The screenshot displays the IBM Special Editors interface for IMS MFS. The main workspace shows a terminal window with the following content:

```

*** IMS/VS PRIMER:      CUSTOMER ORDER ***

CUST. ID 00          ORDER STATUS:
ORDER ID:          STATUS CODE :
RECEIVED:

PART ID  QTY  TAX LN  UNIT PRICE  U/M  DESCRIPTION  STATUS

```

The left-hand pane shows the project tree structure:

- z/OS Projects
 - test
 - MFS Device - PORDER
 - MFS Division (unnamed)
 - MFS Device Page - A1203
 - MFS Physical Page (unnamed)
 - Field - (unnamed)
 - Field - MSGTLE
 - Field - (unnamed)
 - Field - (unnamed)
 - Field - CUSTID
 - Field - (unnamed)
 - Field - STATS
 - Field - CADR
 - Field - (unnamed)
 - Field - GSTA
 - Field - (unnamed)
 - Field - CITY

The bottom pane shows the Properties window for the selected field:

Basic	Label:	CUSTID
Attributes	Value:	
Extended Attributes	Width:	27
Features	Row:	3
	Column:	12
	Page Number:	

More Editor goodies

```

cbldbgex.cbl x
Line 29      Column 1      Insert
-----+*A-1-B-+-----2-----3-----4-----
000029
000030      IDENTIFICATION DIVISION.
000031      PROGRAM-ID.      "CBLDBGEX".
000032      AUTHOR.          Programmer.
000033      *This program has been changed by XX
000034      ENVIRONMENT DIVISION.
000035      CONFIGURATION SECTION.
000036      DATA DIVISION.
000037      WORKING-STORAGE SECTION.
000038      *****
000039      01 Program-Work-Fields.
000040          05 Input-name      Pic :
000041          05 Output-name   Pic :
000042      01 Program-flags.
000043          05 Loop-flag      Pic :
000044          88 Loop-done     Valu
000045
000046      01 BRANCHFLAG PIC 99.
000047
  
```

- Save
- Cut Ctrl+X
- Copy Ctrl+Insert
- Paste Ctrl+W
- Select
- Selected
- Deselect Alt+J
- Filter view
- Show all Ctrl+W
- Source
- View
- Run As
- Debug As
- Profile As
- Validate
- Analysis
- Team
- Compare With
- Replace With
- Link Utilities
- Add Breakpoint
- Browse Copy Member
- Open Copy Member
- Syntax Check
- Content assist Ctrl+Space
- Start Flagging Changed Lines

- Divisions Ctrl+G
- Comments
- Outline
- Embedded SQL/CICS/DLI
- Errors
- Tasks

- Comment Ctrl+/
- Uncomment Ctrl+\
- Hex edit line

- Open new view Ctrl+2
- Next view Ctrl+Alt+Right
- Previous view Ctrl+Alt+Left
- Horizontal split

- Each Other
- Local History...

- Previous from Local History
- Local History...

Editor – Java inherited from Eclipse

```

HelloWorld.java  *HelloCICSWorld.java X
package com.ibm.cics.samples;

import com.ibm.cics.server.*;

public class HelloCICSWorld
{
    public static void main(CommAreaHolder CAH)
    {
        Task t = Task.getTask();
        if ( t == null )
            System.err.println("HelloCICSWorld example: Can't get Task");
        else
            t.out.println("Hello Isabel from a Java CICS application");
        if
    }
}
    
```

- if
- if - if statement
- ifelse - if else statement
- If - org.apache.xalan.xsltc.compiler
- IF_ACMPEQ - com.ibm.xslt4j.bcel.generic
- IF_ACMUNE - com.ibm.xslt4j.bcel.generic
- IF_ICMPEQ - com.ibm.xslt4j.bcel.generic
- IF_ICMPGE - com.ibm.xslt4j.bcel.generic
- IF_ICMPGT - com.ibm.xslt4j.bcel.generic

```

if (condition) {
} else {
}
    
```

Undo	Ctrl+Z
Revert File	
Open Declaration	F3
Open Type Hierarchy	F4
Open Call Hierarchy	Ctrl+Alt+H
Open Super Implementation	
Show in Package Explorer	
Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V

Source	Alt+Shift+S	
Refa	Toggle Comment	Ctrl+/
Local	Remove Block Comment	Ctrl+Shift+\
Refa	Format	Ctrl+Shift+F
Decla	Correct Indentation	Ctrl+I
Add	Organize Imports	Ctrl+Shift+O
	Add Import	Ctrl+Shift+M
Open	Override/Implement Methods...	
Comp	Generate Getters and Setters...	
Save	Generate Delegate Methods...	
	Add Constructors from Superclass...	
	Generate Constructor using Fields...	
	Add Javadoc Comment	Alt+Shift+J
	Externalize Strings...	
	Add method to J2C Java bean	

z/OS Projects

The screenshot displays the IBM Rational Software Development Platform interface for z/OS Projects. The main window shows a project tree on the left, a code editor in the center, and a file explorer on the right. Annotations with callout boxes point to specific elements:

- remote:** Points to the 'remoteCICSCOBOL [demo...]' project in the project tree.
- local:** Points to the 'LAB1 COBOL Sample' project in the project tree.

The code editor shows the following COBOL code snippet:

```

Line 49      Column 31      Insert
-----*A-1-B-----2-----3-----
MOVE DATE-OUT TO DATE
MOVE TIME-OUT TO TIME
MOVE "==">" TO MSG-OU
MOVE DATE-OUT(1:8) TC
MOVE " " TO MSG-OUT(1
MOVE TIME-OUT(1:8) TC
EXEC CICS SEND
                                FROM
    
```

The file explorer on the right shows a tree structure under 'MVS Files' with subfolders like 'My Data Sets (ARNOLD...)' and 'programming', containing files such as 'ARNOLD.COBO', 'CATDB2.cbl', 'CATISD.cbl', 'CPO01D.cbl', 'CTG76.cbl', and 'FC01.cbl'.

At the bottom, a 'Remote Error List' panel is visible, showing a filter for 'matched 0 of 0 messages' and a table with columns for ID, Message, Se..., Line, and Location.

MVS Project - Creation

New MVS Subproject

MVS Subproject Name and Location
Create an MVS Subproject

Host Short Name: demomvs

Project Name: hostProject

Subproject Name: remoteCOBOL

Subproject Type: MVS

High Level Qualifier: USER01

New MVS Project

Linkage Editor Name Choice
Choose linkage editor name for JCL generation.

Procedures and Steps | JCL Substitution

Procedure Name	Step Name
<input type="checkbox"/> ELAXFLNK	
	LINK

New MVS Project

JCL Job Card and Data Set
Enter Job Card to use for this project and the name of the existing data set to hold the generated JCL.

JCL Job Card: Enter Job Card to use for t

```
//COMPARN|JOB ,
//MSGCLASS=H,MSGLEVEL=(1,1),TIME=(,4),REGION=28M,COND=(16,LT)
```

JCL Data Set:
ARNOLD.JCL

New MVS Project

COBOL Settings
Enter COBOL Settings for this Project. To specify multiple entries for a field, separate your entries with a space "*".

Procedures and Steps | IMS | Local Compile Options | JCL Substitution

Use DB2 (contains EXEC SQL statements)

Use CICS (contains EXEC CICS statements)

Procedure Name	Step Name
<input type="checkbox"/> ELAXFCOP	
<input type="checkbox"/> ELAXFCOT	
<input type="checkbox"/> ELAXFCOC	COBOL

MVS Project – Step properties

Cobol Compile Step Options

Compile Procedure Name:
ELAXFCOC

Compile Procedure Step Name:
COBOL

Compiler Options:
CICS("COBOL3") LIB |

Listing Output Data Set:

Debug Data Set:
ARNOLD.DEBUG

Object Deck Data Set:
ARNOLD.OBJ

Copy Libraries:
ARNOLD.COPYLIB CICSTS31.CICS.SDFHSAMP

Data Set Qualifier for Compiler Errors:
ARNOLD.ERRCOB

Additional JCL:
//***** ADDITIONAL JCL FOR COMPILE HER

Use integrated CICS compiler

Search for Copybooks

Link Step Options

Linkage Editor Procedure Name:
ELAXFLNK

Linkage Editor Procedure Step Name:
LINK

Link Options:

Link Libraries:
CICSTS31.CICS.SDFHLOAD CEE.SCEELKED

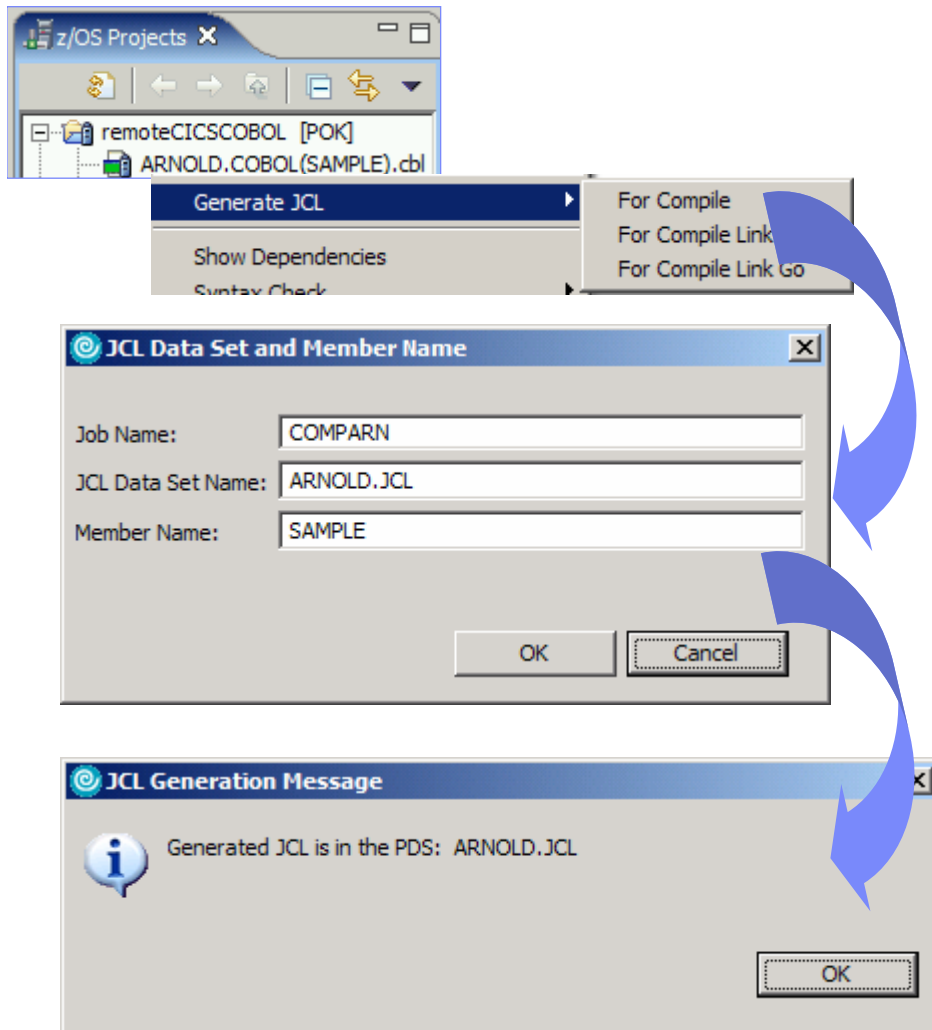
Append to: Position...

Use specified link instructions:

ORDER CEESTART

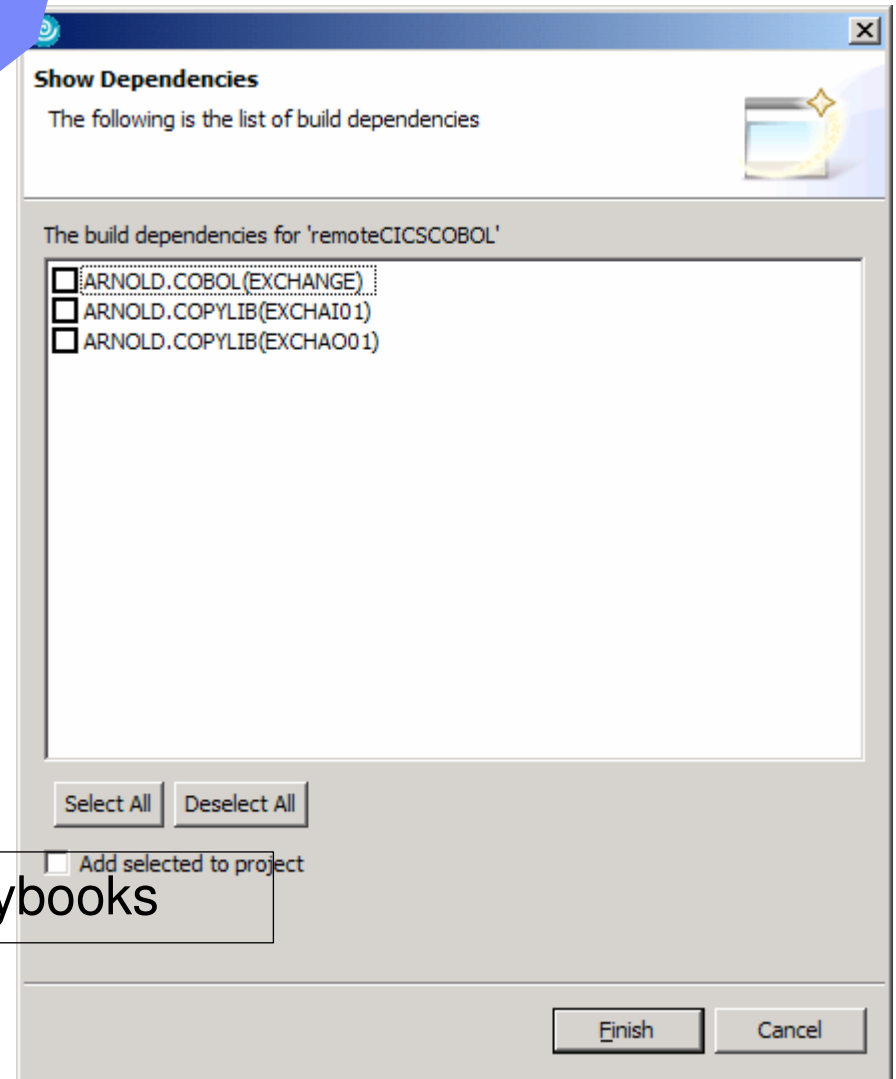
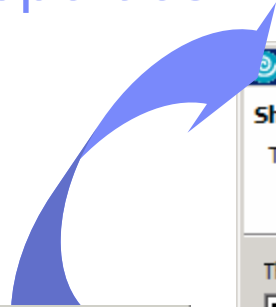
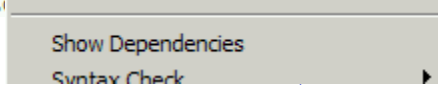
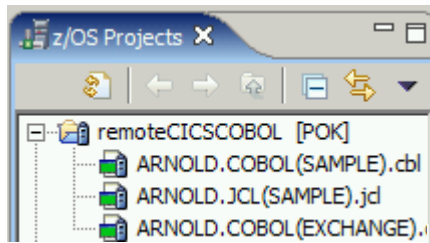
Load Module Location:
WTSCPLX1.CICSCOB1.LOADLIB

MVS Projects – how properties help - Compile



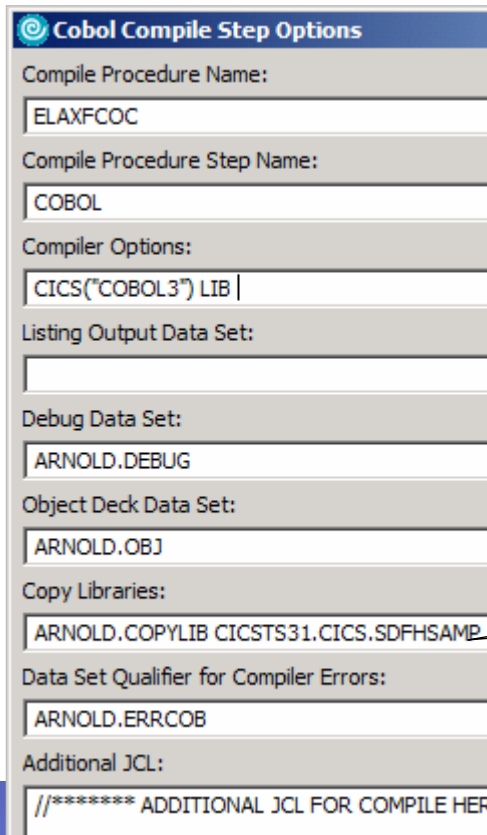
```
//COMPARN JOB ,
// MSGCLASS=H,MSGLEVEL=(1,1),TIME=(,4),REGION=28M,COND=(16,LT)
//*
//STP0000 EXEC PROC=ELAXFCOC,
// CICS=,DB2=,COMP=,PARAM.COBOL=('ADATA','EXIT(ADEXIT(ELAXMGUX))',
// 'CICS("COBOL3'),'LIB')
//COBOL.SYSDEBUG DD DSN=ARNOLD.DEBUG(SAMPLE),DISP=SHR
//COBOL.SYSLIN DD DSN=ARNOLD.OBJ(SAMPLE),DISP=SHR
//COBOL.SYSLIB DD DSN=ARNOLD.COPYLIB,DISP=SHR
// DD DSN=CICSTS31.CICS.SDFHSAMP,DISP=SHR
//COBOL.SYSXMLSD DD DUMMY
//COBOL.SYSIN DD DSN=ARNOLD.COBOL(SAMPLE),DISP=SHR
//*
//***** ADDITIONAL JCL FOR COMPILE HERE *****
//LKED EXEC PROC=ELAXFLNK
//LINK.SYSLIB DD DSN=CICSTS31.CICS.SDFHLOAD,DISP=SHR
// DD DSN=CEE.SCEELKED,DISP=SHR
//LINK.OBJ0000 DD DSN=ARNOLD.OBJ(SAMPLE),DISP=SHR
//LINK.SYSLIN DD *
// INCLUDE OBJ0000
//
//LINK.SYSLMOD DD DSN=WTSCPLX1.CICSCOB1.LOADLIB(SAMPLE),DISP=SHR
//*
```

MVS Projects – how properties help - Dependencies

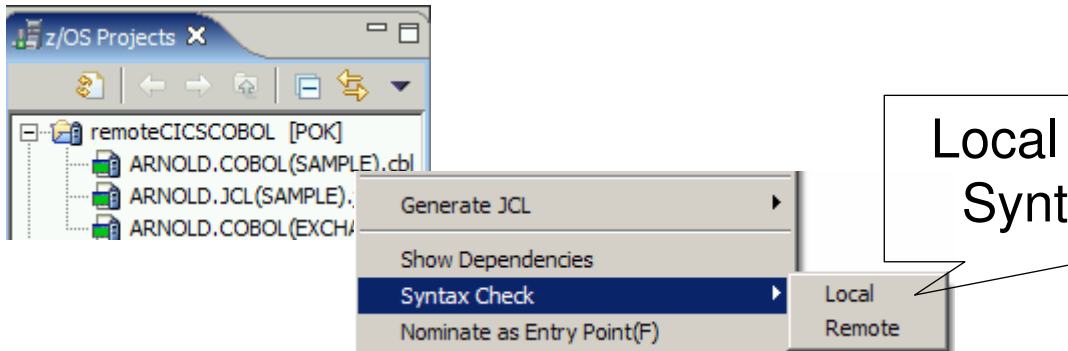


- **Resolve Copybooks using Remote Project Properties in Compile Step**

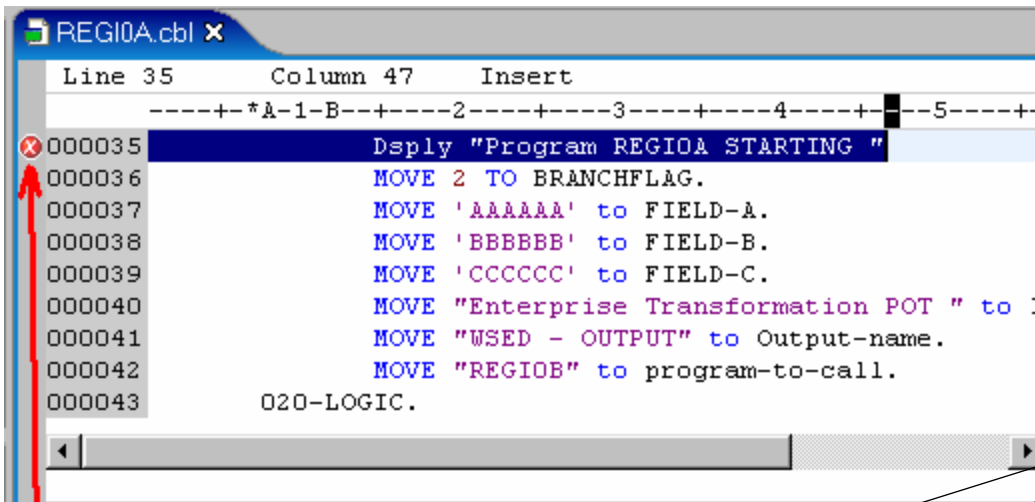
Search for Copybooks



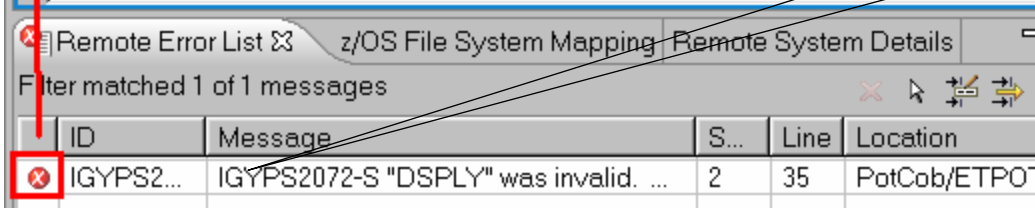
MVS Projects – how properties help – Syntax Check



Local or Remote
Syntax Check



Just double click
to locate error



Local uses local CPU

Java Syntax Check – during Edit

A lot of places telling you about an error

```
package com.ibm.cics.samples;

import com.ibm.cics.server.*;

public class HelloCICSWorld
{
    public static void main(CommAreaHolder CAH)
    {
        Task t = Task.getTask();
        if ( t == null )
            System.err.println("HelloCICSWorld example: Can't get Task");
        els System.out.println("Hello Isabel from a Java CICS application");
    }
}
```

Mouse Hover explains error

Error Bar

Problems View summarizing all errors, double-click to jump to code location

Description	Resource	In Folder	Location
Syntax error on token "els", else expected	HelloCICSWorld.java	jcics/com/ibm/cics/samples	line 12

Other Views

Mapping Criterion	Workstation File Extension	Transfer Mode	Host Code Page	Local Code Page
**COBOL	cbl	text	IBM-037 (inh...	CP 1252 (inhe...
**COBCOPY	cpy	text	IBM-037 (inh...	CP 1252 (inhe...
**PLI	pli	text	IBM-037 (inh...	CP 1252 (inhe...
**ASSEMBLE	asm	text	IBM-037 (inh...	CP 1252 (inhe...
**OBJ	obj	binary	IBM-037 (inh...	CP 1252 (inhe...

Properties Outline

- IDENTIFICATION DIVISION. TIMEZONE.
- ENVIRONMENT DIVISION.
- DATA DIVISION.
 - WORKING-STORAGE SECTION.
 - 77 RAWTIME
 - 01 DATE-TEMP
 - 01 TIME-TEMP
 - 01 DATE-OUT
 - 01 TIME-OUT
 - 01 WS-MESSAGE
 - 01 MSG-OUT
- LINKAGE SECTION.
- PROCEDURE DIVISION.

Properties Outline

Property	Value
Attribute	
BLKSIZE	32720
DSNTYPE	DATA_LIBRARY
DSORG	PO
EXTENTS	1
LRECL	80
PRIMARY	301
RECFM	FB
SECONDARY	100
SPACE UN...	BLOCK
VOLUME	TSTO1A
Info	
Mapping	
Extension	cbl
Host Code...	IBM-037
Local Code...	CP1252
Transfer	text
Misc	

Remote System Details

Name	Parent profile	Remote system	Time	Default User ID	
Local	Schnatterinchen	Local	Some subsyst...	LOCALHOST	Schnatterinch...
ITSO	Schnatterinchen	z/OS	Some subsyst...	WTSC47.ITS...	ARNOLD

Remote System Details

Filter matched 4 of 4 messages

ID	Message	Se...	Line	Location	Host Name	Date
IGYPS2072	IGYPS2072-S "DISPLA" was invalid. Skipped to the next verb, period or procedure-name definition.	2	33	/localCobol2/cobol/c...	Local	24-Jan-2006 20:4
IGYSC0162	IGYSC0162-W Message catalog not found using "LANG=en_GB". Using "en_US" catalog instead.	1	1	/localCobol2/cobol/c...	Local	24-Jan-2006 20:4
IGYSC0162	IGYSC0162-W Message catalog not found using "LANG=en_GB". Using "en_US" catalog instead.	1	1	/localCobol1/cobol/Pr...	Local	24-Jan-2006 17:2
IGYSC0162	IGYSC0162-W Message catalog not found using "LANG=en_GB". Using "en_US" catalog instead.	1	1	/localCobol1/cobol/St...	Local	24-Jan-2006 17:2

Integration with other tools

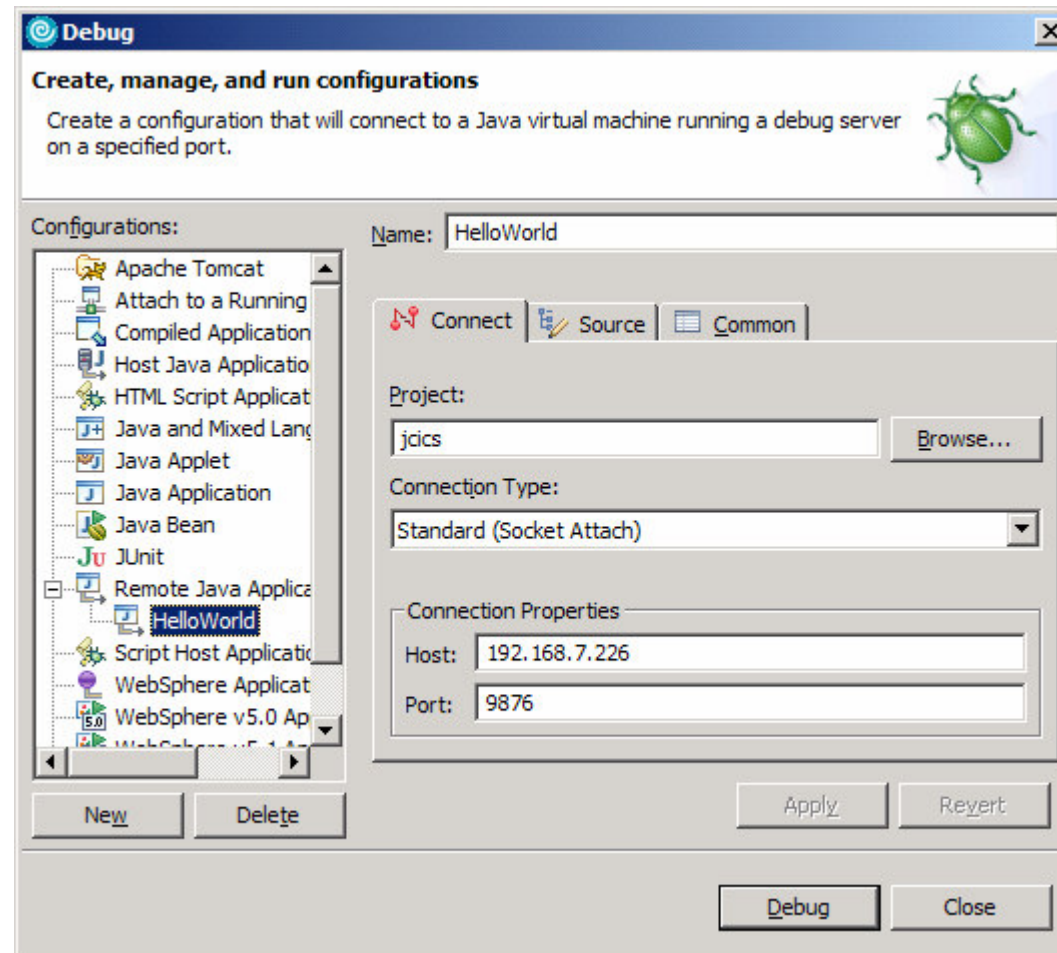
End 2 End Debugging with IBM Debug Tool

The screenshot displays the IBM Debug Tool interface. The top toolbar includes icons for file operations, debugging (run, stop, step), and navigation. The 'Servers' pane on the left shows a stopped application 'com.ibm.debug.load' with a thread 'Thread: 1 (Runnable)' and process '313214936 Program: EXCHANGE'. A blue circle highlights the 'Debug' icon in the toolbar. The 'Variables' pane on the right lists: WS-OPERATION-LENGTH = +0320868351, WS-CONTAINER-NAME = 'DFHWS-OPERATION', COMMAND-RESP = +0000000000, and COMMAND-RESP2 = +0313242708. The bottom pane shows the source code for 'ARNOLD.DEBUG(EXCHANGE)'. Line 106 is highlighted in cyan and contains the instruction: EXEC CICS GET CONTAINER (WS-CONTAINER-NAME). A tooltip for this line shows: WS-CONTAINER-NAME = 'DFHWS-OPERATION'. The 'Outline' pane on the right indicates 'An outline is not available.'

Line	Column	Insert	Browse
000103	103	*	
000104	104	MOVE 'DFHWS-OPERATION'	
000105	105	TO WS-CONTAINER-NAME	
000106	106	EXEC CICS GET CONTAINER (WS-CONTAINER-NAME)	WS-CONTAINER-NAME = 'DFHWS-OPERATION'
000107	107	INTO (WS-OPERATION-NAME)	
000108	108	RESP (COMMAND-RESP) RESP2 (COMMAND-RESP2)	

End 2 End Debugging with JPDA

Java Platform Debugger Architecture



File Manager Integration into WDz (Preview)

Each cell becomes editable by double-clicking inside the field.

Note: Field validation is handled by the formatted data editor.

Name	Employee Number	Age	Salary
Grant Smith	771235	7	5000
Andrew Apple	664553	7	8500
Graham Prescott	8	4	8000
Bill Somers	3	6	8000
Ted Dexter	2	6	0250

Single Mode
Record 4 of 10, Top Line is 1 of 2

Field	Data
Name	Andrew Apple
Employee Num...	664553
Age	7
Salary	8500
Month	30

Table / Single Character

Fault Analyzer Integration into WDz (Preview)

Fault Summary

Module COBBLOW, program COBBLOW, source line # 49
: Abend S0C9 (Fixed-Point-Divide Exception)

Synopsis

```

I B M   F A U L T   A N A L Y Z E R   S Y N O P
S I S

A system abend 0C9 occurred in module COBBLOW
program COBBLOW at offset X'3B2'.

A program-interruption code 0009 (Fixed-Point-
Divide Exception) is associated
with this abend and indicates that

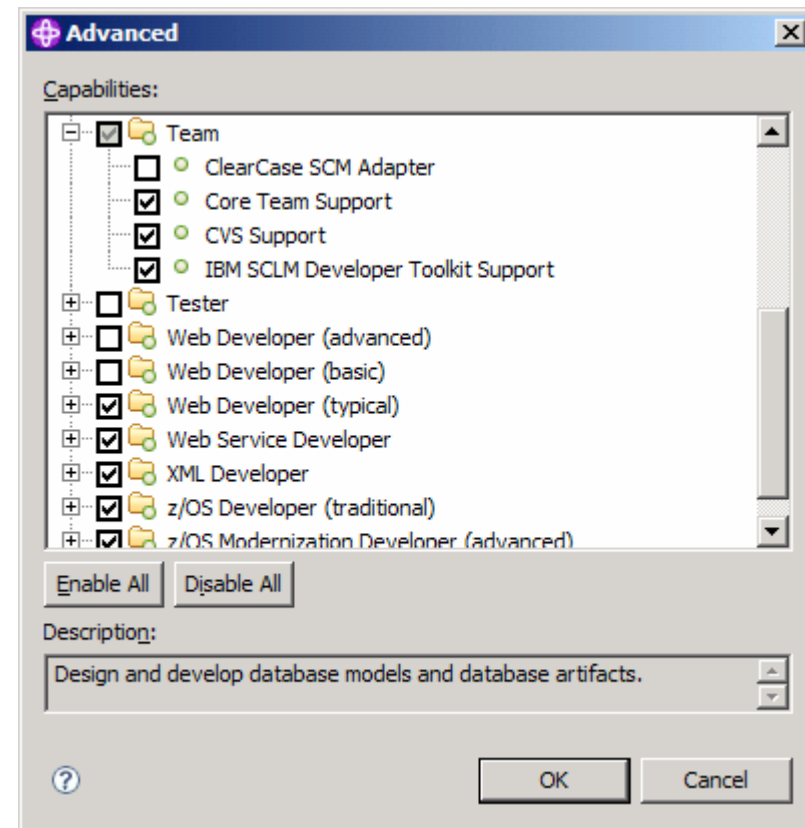
```

Remote Error List | z/OS File System Mapping | Remote System Details | Default

Fault_ID	Date	Job/Tran	User_ID	Sys/Job	Abend	I_Abend
F00011	March 12, 2004	WPSBMS	CBPSBMS	C2C2	SEC3	n/a
F00009	March 12, 2004	WPSBMS	CBPSBMS	C2C2	SEC3	n/a
F00012	March 12, 2004	WPSBMS	CBPSBMS	C2C2	SEC3	n/a
IMS00104	October 28, 2003	IMCB0010	BILLU	MVS2	S0CB	n/a
F00006	August 1, 2003	PSTRAND4	PSTRAND	STLABF1	S0C9	n/a
F00001	June 7, 2003	BILLUIR	PSTRAND	MVS2	S0C9	n/a
F00031	January 11, 2007	COBBLOW	PSTRAND	FAE1	S0C9	S0C9

Software Configuration Management

- **Rational ClearCase SCM adapter plug-in**
- **SCM adapter for Concurrent Versions System (CVS)**
- **Common Access Repository Manager (CARMA)**
 - WDz offers Common Access Framework
 - Host connection to SCM via Repository Access Manager (RAM) on Host
 - Q-Group developed e.g. ENDEVOR plugin
- **SCLM developer toolkit**



SCLM Developer Toolkit

The screenshot displays the SCLM Developer Toolkit interface. A file explorer window titled "SCLM Explorer Mode" shows a project structure with folders like ARCHDEF, J2EEBLD, and SOURCE, and files like HELOWF, PRINTAPP (COBOL), and STARTAPP (COBOL). A context menu is open over the STARTAPP file, listing actions such as "Show Long Names", "Clear View", "Switch View Mode", "Show Differences", "Edit / Check out", "Browse", "Build", "Promote", "Cancel Edit / Unlock", "Delete from SCLM", "Update / Reset Account Info", "View / Refresh SCLM Status", "Retrieve Versioning Information", "Retrieve Audit and Versioning Information", "Import", "Update Member Details", "Update Authorization C", "Database Contents Re", and "Operations Log". A dialog box titled "SCLM controlled artifact" is overlaid on the left, containing the message: "Resource STARTAPP is under SCLM control. File will be opened in read-only mode." and an "OK" button. A yellow callout box on the right contains the following text:

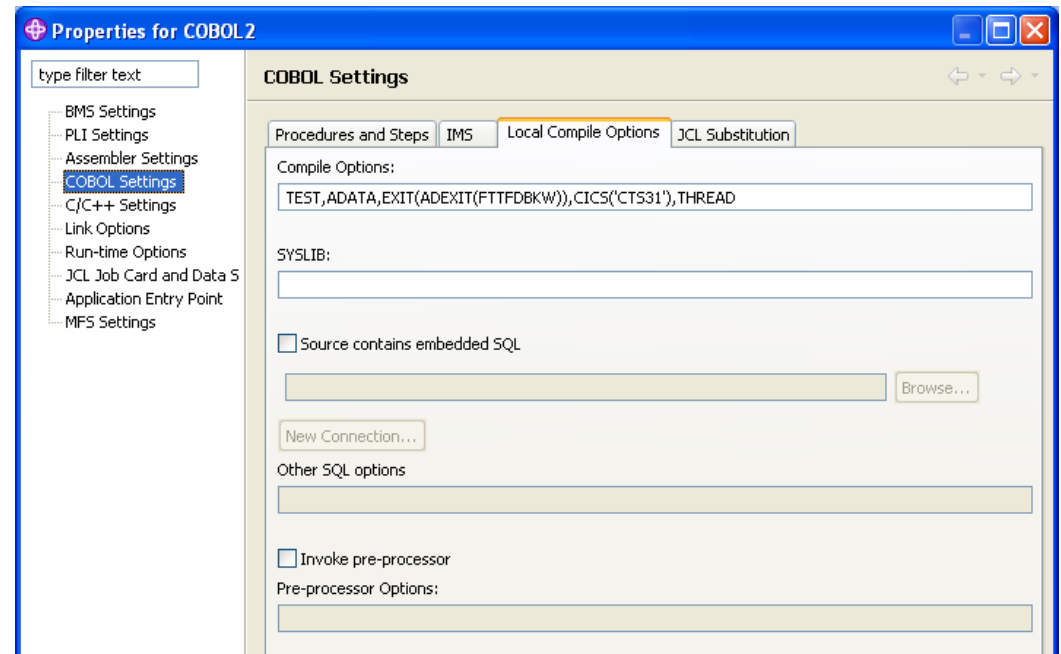
Highlighting a member and RMB gives us the SCLM options available.

Note that simply double clicking on the member will bring it into LPEX in Browse mode, but SCLM actions won't be available, editing and saving will only save it locally, not in the SCLM project.

Edit / Check Out is needed for SCLM saves.

CICS Transaction Server TXSeries

- **Integration of CICS TXseries v6.1**
- **Provides local syntax check**
 - CICS TS 3.1
 - CICS TX
- **Provides a local CICS TXseries runtime**
- **Bundled with WDz 7**



ID	Message	S...	Line	Location	Host N
IGYP50226	IGYP50226-E ERZ004025E: Command requires the option: 'TOKEN'.	2	60	CICS PROJ/COBOL2/...	ctfmvst
IGYP50226	IGYP50226-E ERZ004025E: Command requires the option: 'INTO'.	2	60	CICS PROJ/COBOL2/...	ctfmvst

Integrated Test environments

- New
- Open
- Delete
- Debug
- Start
- Profile
- Restart
- Stop
- Disconnect
- Publish
- Monitoring
- Restart Project
- Add and remove projects...
- Enable/Disable EGL Debugging
- Run universal test client
- Restart universal test client
- Run administrative console
- Reconnect debug process
- Create tables and data sources
- Run external admin script

New Server

Define a New Server

Choose the type of server to create

Server's host name: localhost

Select the server type: [Don't see your server listed? Click here](#)

- Apache
 - Tomcat v3.2 Server
 - Tomcat v4.0 Server
 - Tomcat v4.1 Server
 - Tomcat v5.0 Server
 - Tomcat v5.5 Server
- BEA Systems
- IBM
 - WebSphere Express v5.1 Server
 - WebSphere Express v5.1 Test Environment
 - WebSphere v5 Server Attach
 - WebSphere v5.1 Server
 - WebSphere v5.1 Test Environment
 - WebSphere v6.0 Server
 - WebSphere v6.1 Server
- JBoss
- ObjectWeb
- Oracle
- Other

View By: Vendor

Description: Runs J2EE projects on the WebSphere v6.1 Server.

Server runtime: WebSphere Application Ser Installed Runtimes...

Back Next > Finish Cancel

Server	Status	State
WebSphere v6.1 Server @ localhost	Started	Synchronized
CTGWebClientEAR	Started	

Host Modernization

Host Modernization Wizards

Enterprise Service Tools Wizard Launch

Specify options to start a web service wizard

Runtime:

Scenario:

Conversion type:

Scenario description:
Generate a Web service description and runtime specific XML message processing from a high level language data structure. You can use this option when you expose an application program as a service provider.

Save generation properties

Web Services for CICS
SOAP for CICS
IMS SOAP Gateway
Batch, TSO, USS

Java Bean

Adapter Selection

resource adapter:

- ECIResourceAdapter (IBM : 5.1)
- IMS Connector for Java (IBM : 9.1)

Diagram illustrating the architecture flow:

```

    graph TD
        J2CWizard[J2C Wizard] -- generate --> JavaBean[Java bean]
        Client[Client] --> JSP[JSP]
        Client --> WebService[WebService]
        Client --> EJB[EJB]
        JavaBean --> ECIAdapter[ECI adapter]
        ECIAdapter --> TransactionGateway[Transaction Gateway]
        TransactionGateway --> TransactionServer[Transaction Server]
    
```

Welcome to SFM | processOrder.seqflow

Palette

- Selection
- Connection
- Receive
- Reply
- Throw
- Flow
- Invoke
- Assign
- Switch
- While

Graph

```

    graph LR
        orderInvoice[orderInvoice] --> retrieveCustomer[retrieveCustomer]
        retrieveCustomer --> isVIP{isVIP}
        isVIP --> orderVIPShipping[orderVIPShipping]
        isVIP --> orderRegularShipping[orderRegularShipping]
        isVIP --> Error[Error]
        orderVIPShipping --> shippingInfo[shippingInfo]
        orderRegularShipping --> shippingInfo
    
```

Questions

THANK



YOU

