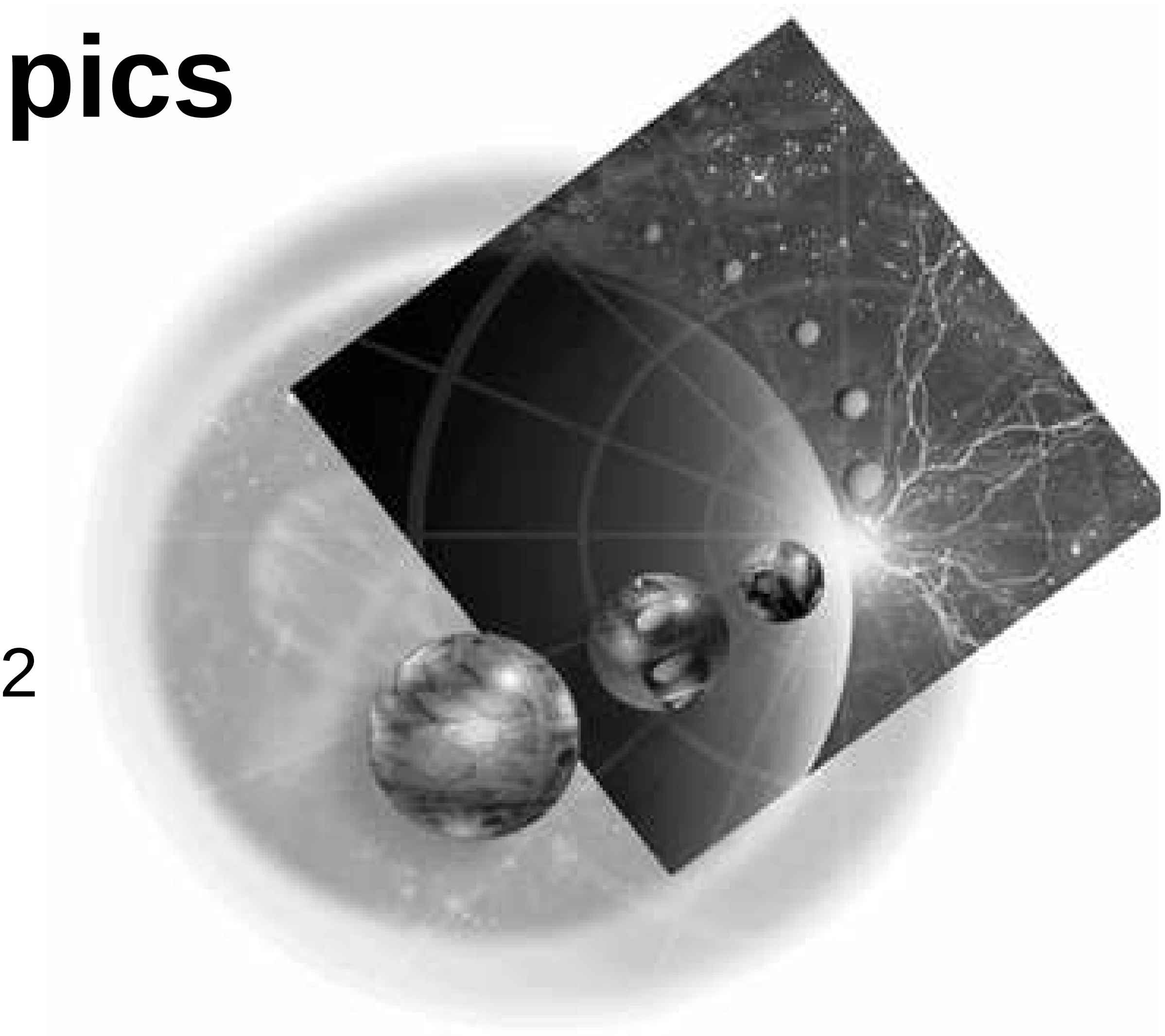
CODE - Selected Advanced Topics



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Acknowledgement and Disclaimer

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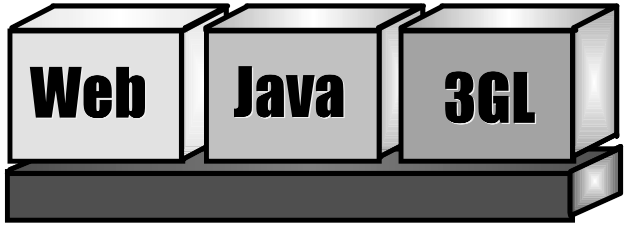
The Agenda

- WDT - Where does CODE fit in?
- Communication Console
- Advanced functions
- Working Disconnected
- Programming the Editor
- Demo

CODE



- ✓ For RPG, COBOL, CL, C, C++, DDS

VisualAge RPG

- ✓ For RPG GUI

VisualAge for Java for iSeries

- ✓ For Java
- ✓ Pro plus Enterprise Toolkit for iSeries

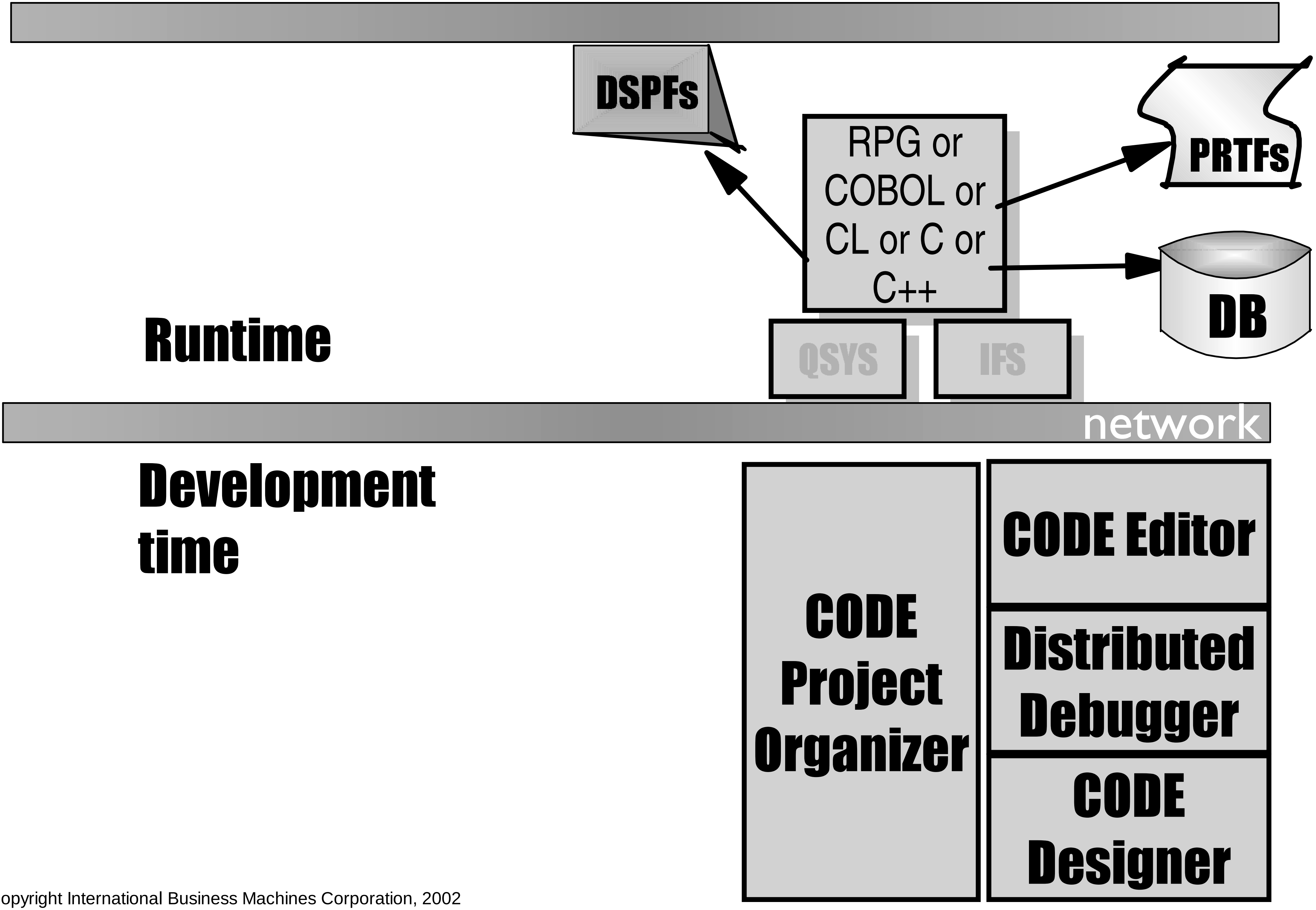
WebSphere Studio For iSeries

- ✓ For Web sites and Web pages
- ✓ Standard plus Affinity Toolkit for iSeries

WebFacing

- ✓ Build a Web interface to existing 5250 applications

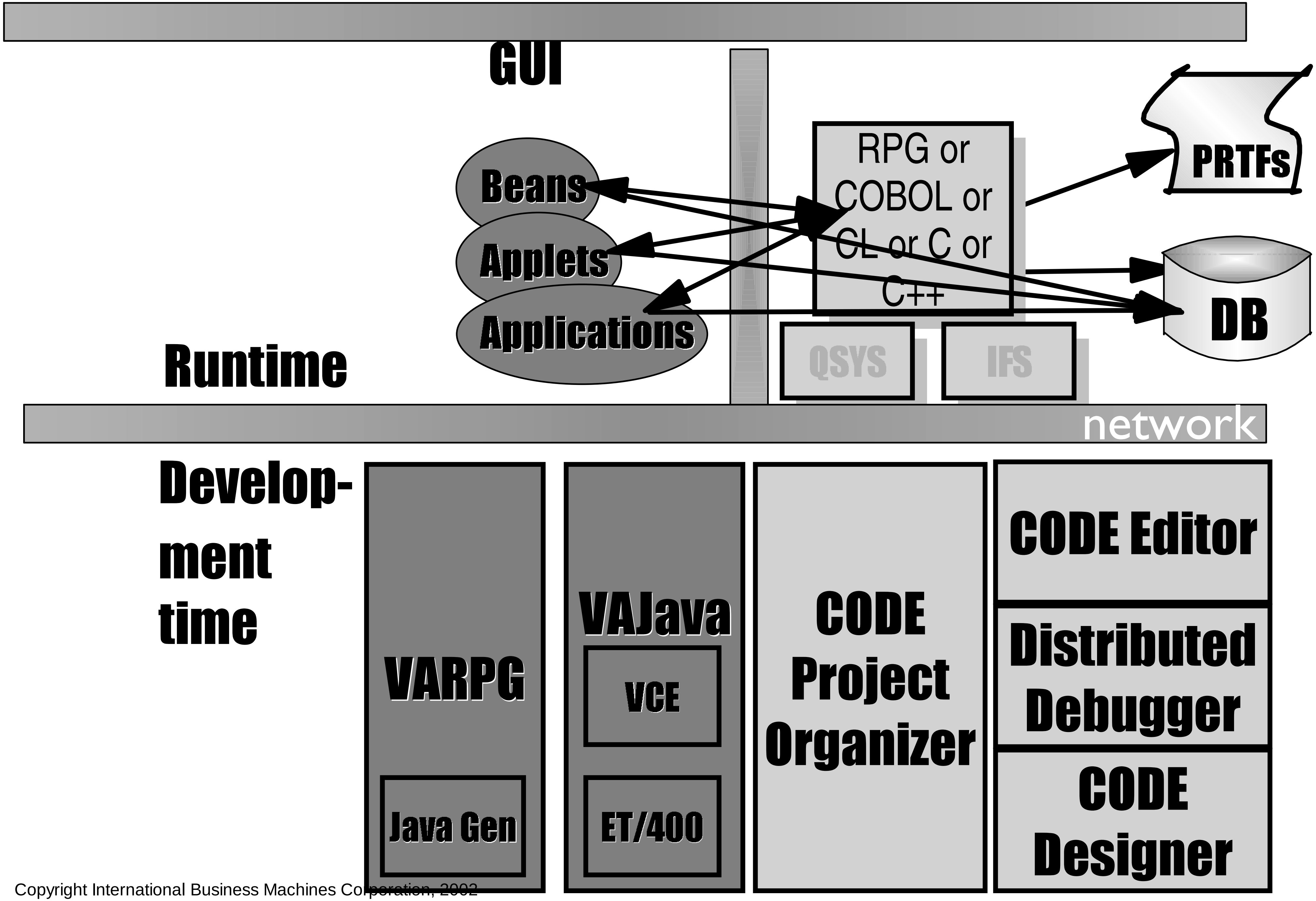
Application Model 1



Runtime

Development time

Application Model 2



GUI

Beans

Applets

Applications

Runtime

RPG or COBOL or CL or C or C++

QSYS

IFS

PRTFs

DB

network

Develop-ment time

VARPG

Java Gen

VAJava

VCE

ET/400

CODE Project Organizer

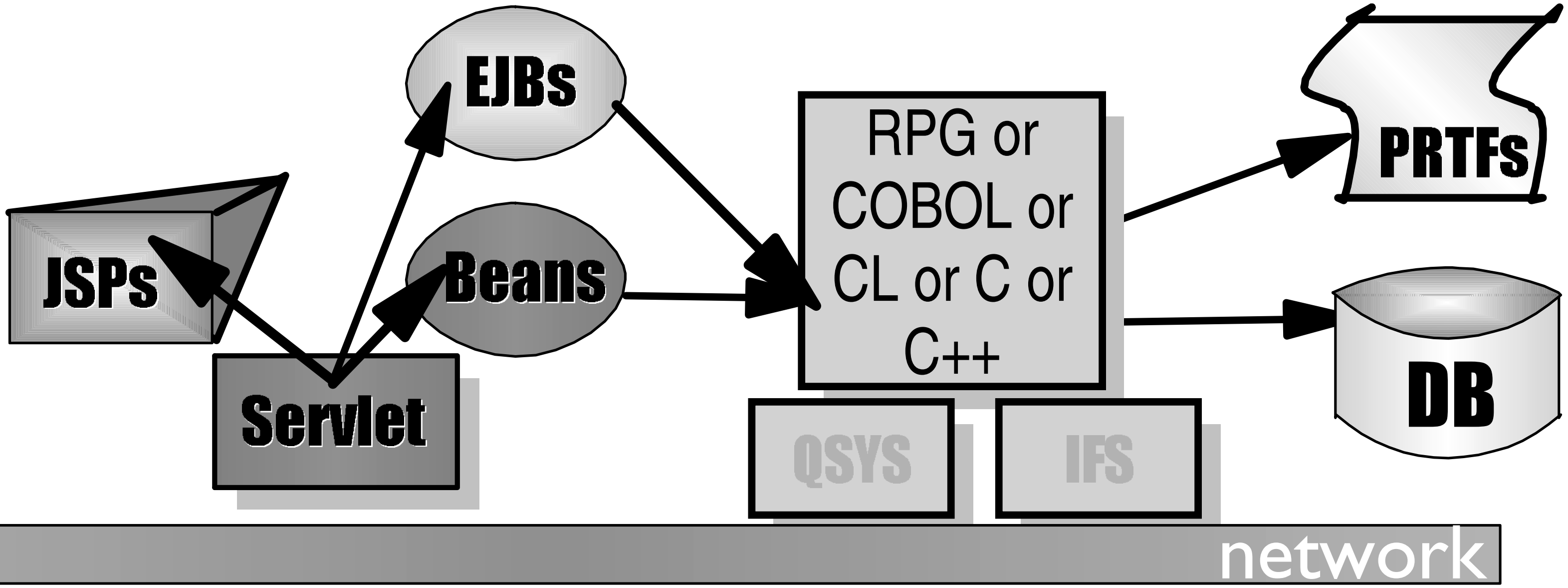
CODE Editor

Distributed Debugger

CODE Designer

Application Model 3

Runtime



JSPs

Servlet

EJBs

Beans

RPG or COBOL or CL or C or C++

QSYS

IFS

PRTFs

DB

network

Develop-ment time

Web Facing

Web Sphere Studio

AS/400 Affinity

VAJava

EE

ET/400

CODE Project Organizer

CODE Editor

Distributed Debugger

CODE Designer

The Agenda

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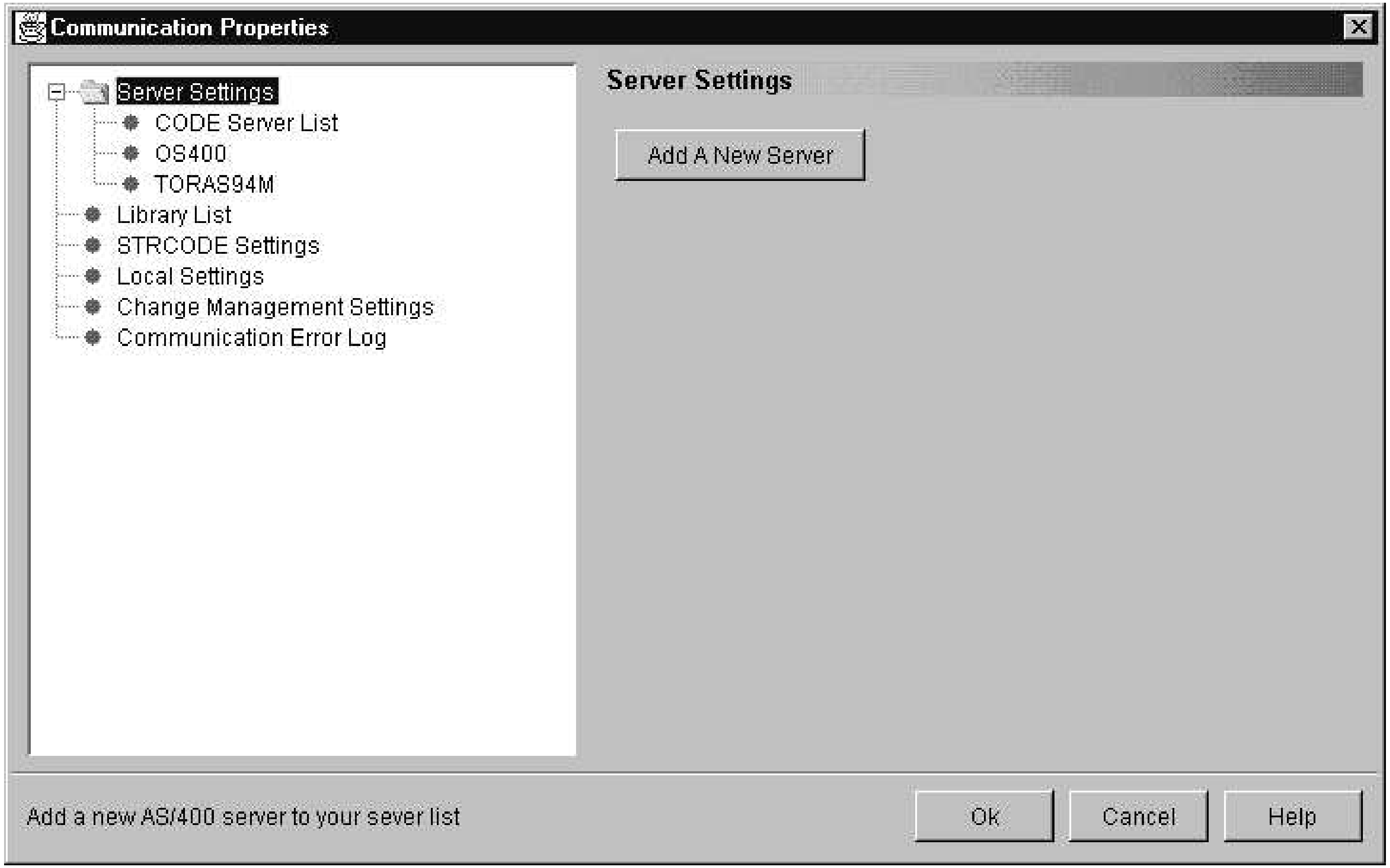
STRCODE vs TCP/IP auto-connect servers

STRCODE	TCP/IP
Started from 5250 emulation	Defined in Properties dialog Started at first use
Libraries defined in Communication Properties are added to the ones set from user profile	Libraries defined in Communication Properties are added to the ones set from user profile
Shutdown for single session from Communication Properties Shutdown all from Editor, Action bar, Daemon context menu	Deleted from Properties
Use whenever iSeries screen I/O is required: Prompting for iSeries commands or CL , CL Help Program Generator Debugging pgms with screen I/O	Edit sessions, Program Verifier, Designer, etc. Debugging programs without screen I/O

Communication Console



Add a new AS/400 server to your sever list

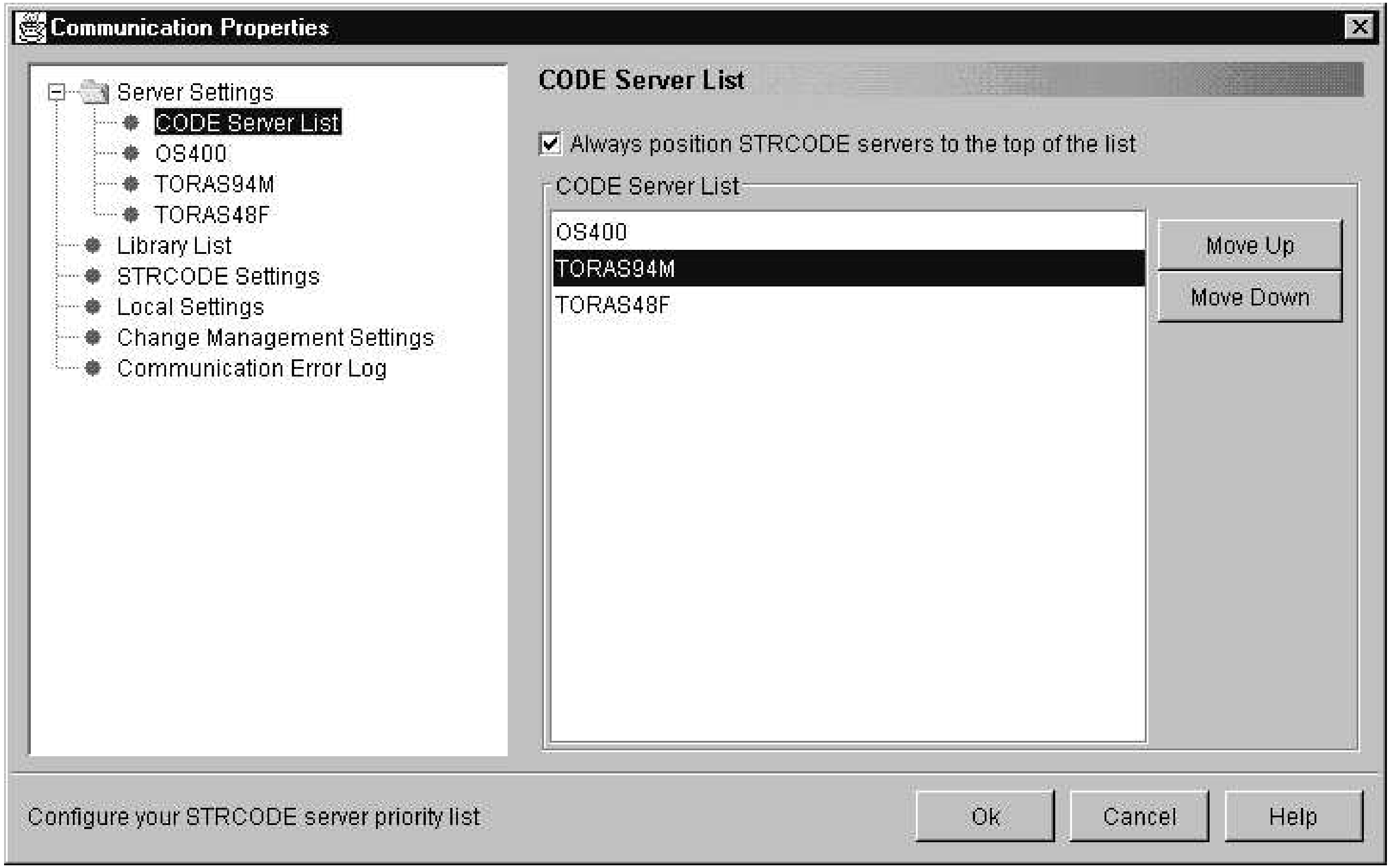
Available from:

Start menu -> Programs -> IBM WebSphere Development Tools for iSeries -> Communications -> Communications Console

Editor -> Windows -> Communications -> Properties

CODE Daemon context menu -> Properties

Comm. Properties - CODE Server List



☑ Always position STRCODE servers to the top of the list

CODE Server List

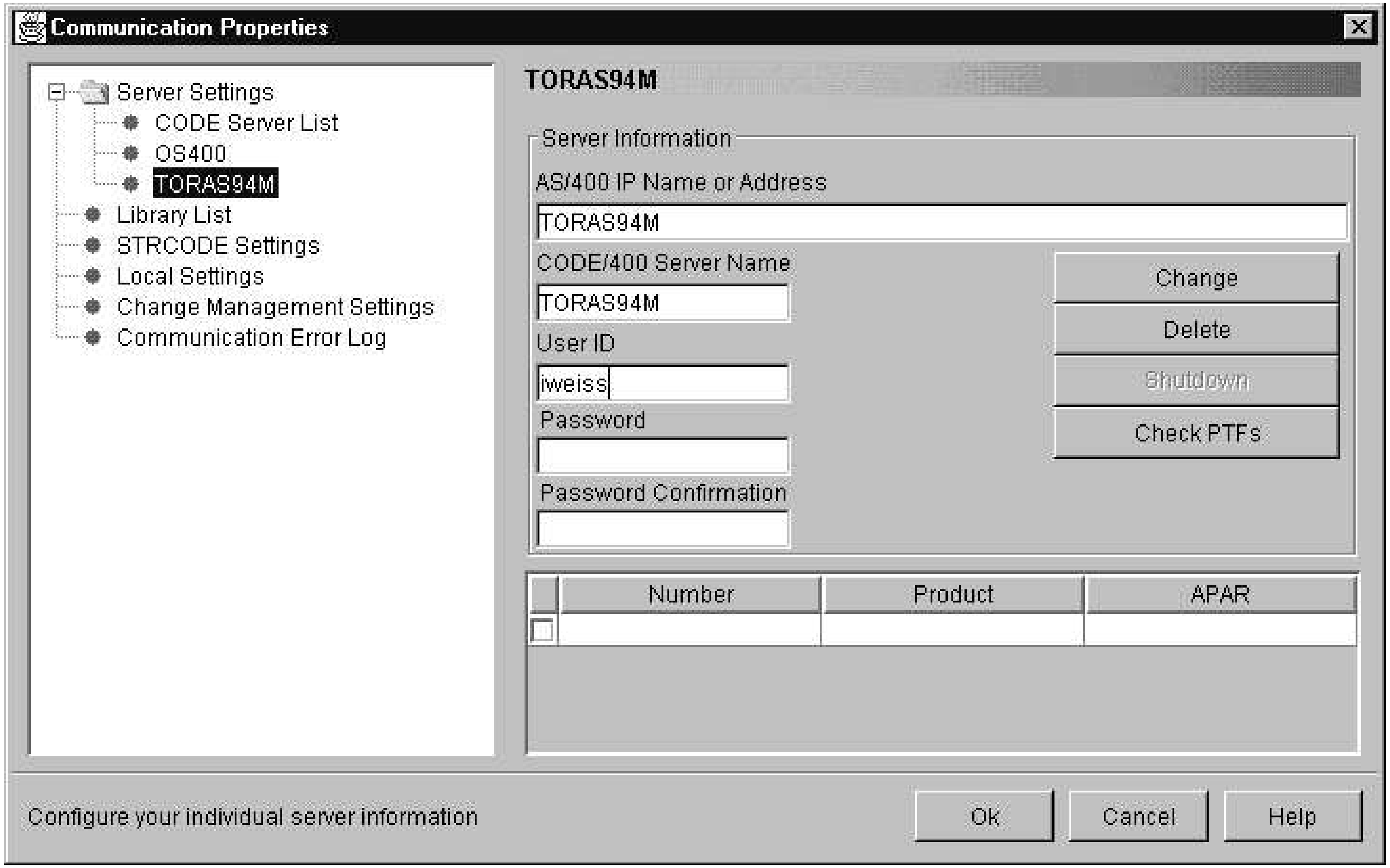
OS400
TORAS94M
TORAS48F

Configure your STRCODE server priority list

Used to:

- select to have STRCODE servers first in the list
- reorder the servers - some functions like Verifier use first available server

Communication Properties - Server Info



AS/400 IP Name or Address: TORAS94M

CODE/400 Server Name: TORAS94M

User ID: iweiss

Password:

Password Confirmation:

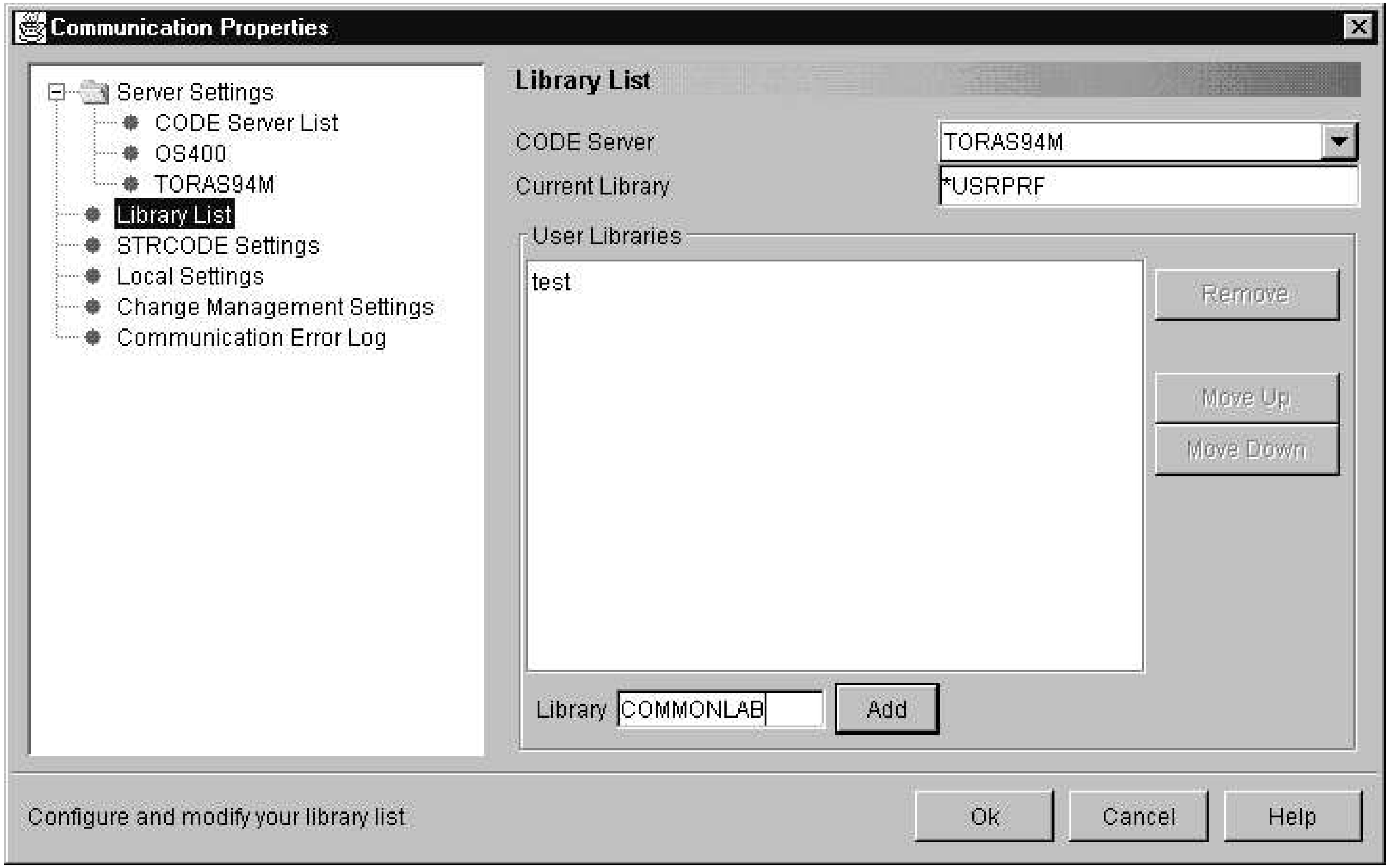
	Number	Product	APAR
□			

Configure your individual server information

Used to:

- add, modify or delete TCP/IP auto-connect servers
- Shutdown the selected STRCODE server
- Check PTFs for all installed components of WDT

Communication Properties - Library List



Library List

CODE Server: TORAS94M

Current Library: *USRPRF

User Libraries

test

Library: COMMONLAB

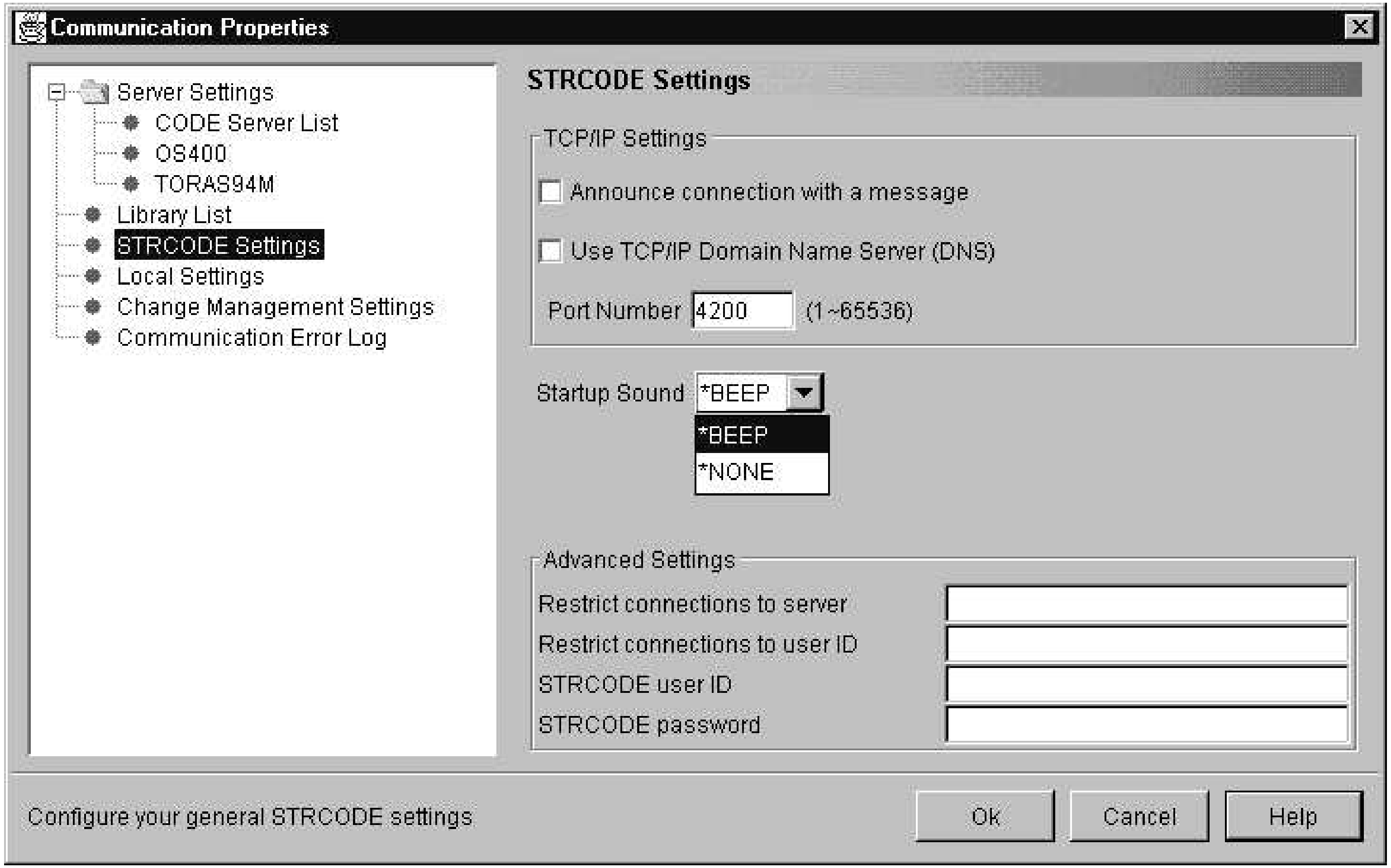
Configure and modify your library list

Set or change the library list to be used for the specific server.

Use Move Up and Move Down buttons to change the order.

If CODE server is set to *ALL, that library list is used for all servers

Comm. Properties - STRCODE Settings



STRCODE Settings

TCP/IP Settings

□ Announce connection with a message

□ Use TCP/IP Domain Name Server (DNS)

Port Number 4200 (1~65536)

Startup Sound *BEEP

*BEEP
*NONE

Advanced Settings

Restrict connections to server

Restrict connections to user ID

STRCODE user ID

STRCODE password

Configure your general STRCODE settings

Used to specify settings for all STRCODE servers

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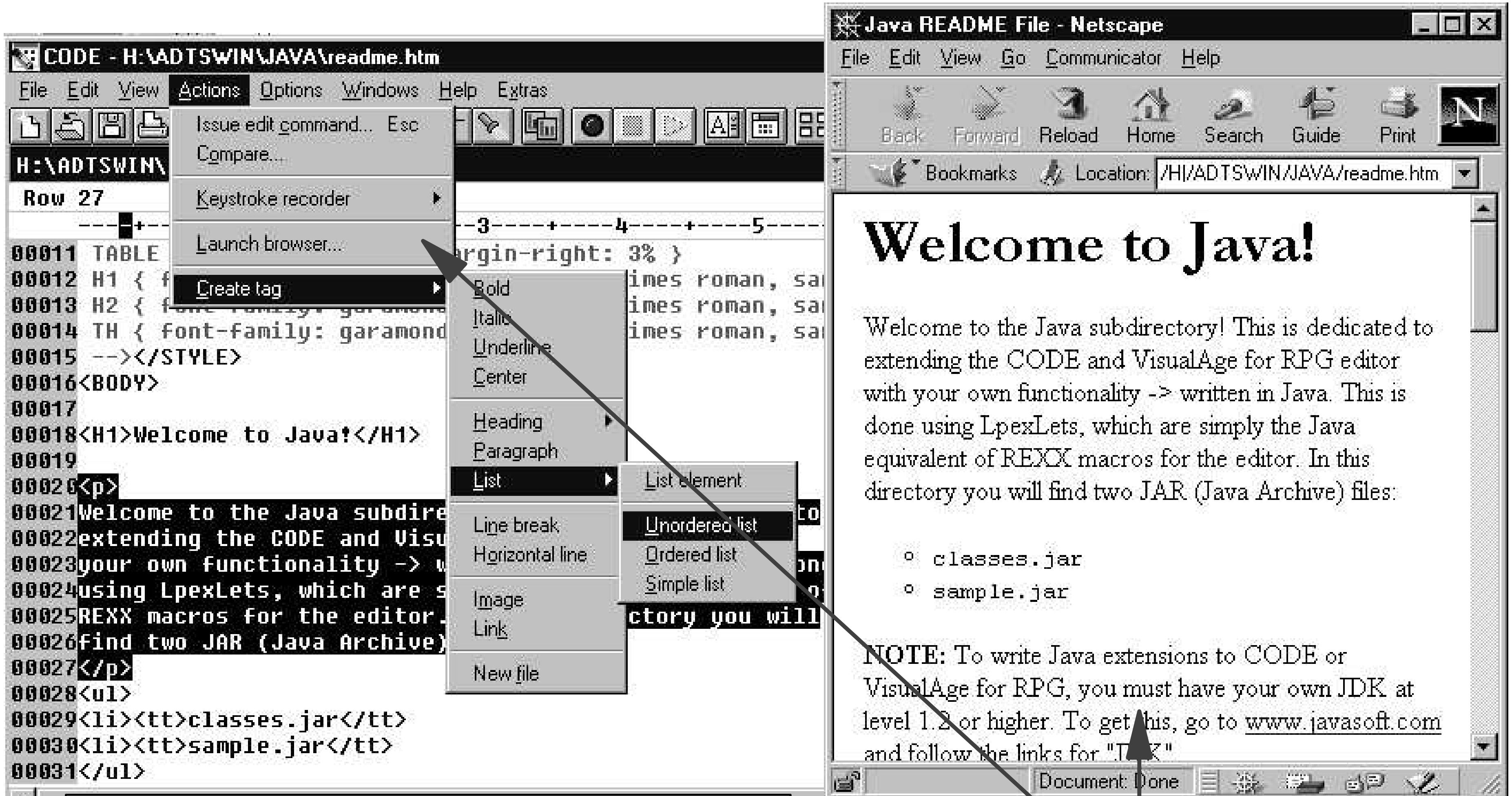
HTML Support


CODE - H:\ADTSWIN\JAVA\readme.htm
File Edit View Actions Options Windows Help Extras
Issue edit command... Esc
Compare...
Keystroke recorder
Launch browser...
Create tag
Bold
Italic
Underline
Center
Heading
Paragraph
List
Line break
Horizontal line
Image
Link
New file
List element
Unordered list
Ordered list
Simple list
H:\ADTSWIN\
Row 27
Java README File - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Guide Print
Bookmarks Location: /H|/ADTSWIN/JAVA/readme.htm
Document: Done

```
 TABLE                                     argin-right: 3% }
 H1 { f                                    imes roman, sa
 H2 { f                                    imes roman, sa
 TH { font-family: garamond                imes roman, sa
 --></STYLE>
<BODY>

<H1>Welcome to Java!</H1>

<p>
Welcome to the Java subdire                                to
extending the CODE and Visu
your own functionality -> w                                on
using LpexLets, which are s                                o
REXX macros for the editor.                ctory you will
find two JAR (Java Archive)
</p>
<ul>
<li><tt>classes.jar</tt>
<li><tt>sample.jar</tt>
</ul>
```

Welcome to Java!

Welcome to the Java subdirectory! This is dedicated to extending the CODE and VisualAge for RPG editor with your own functionality -> written in Java. This is done using LpexLets, which are simply the Java equivalent of REXX macros for the editor. In this directory you will find two JAR (Java Archive) files:

- `classes.jar`
- `sample.jar`

NOTE: To write Java extensions to CODE or VisualAge for RPG, you must have your own JDK at level 1.2 or higher. To get this, go to www.javasoft.com and follow the links for "JDK"

- Token highlighting
- Ctrl+M, Ctrl+Shift+M to select matching tag
- Create tags from Actions menu

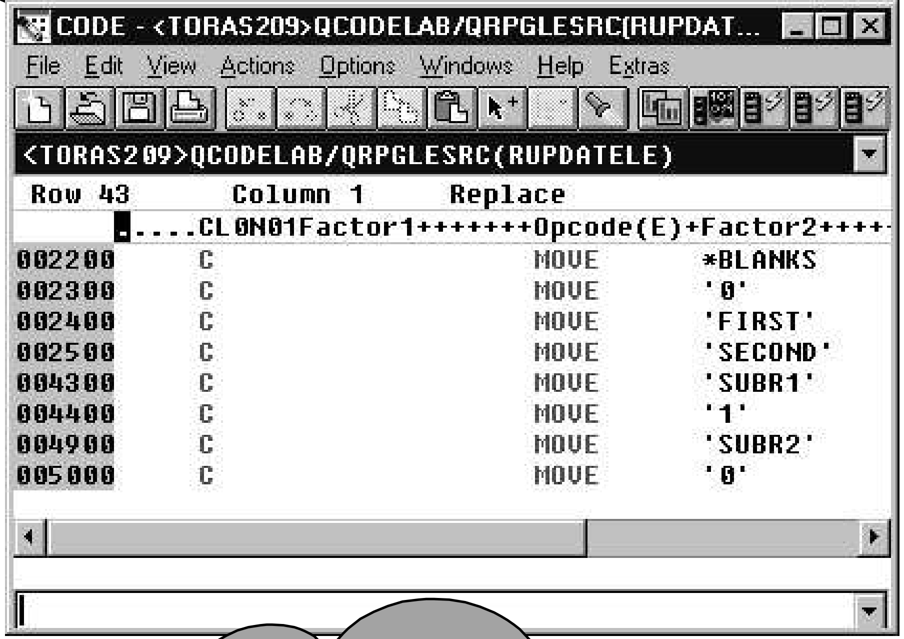
Launch browser from Actions menu

CODE Editor - Filters

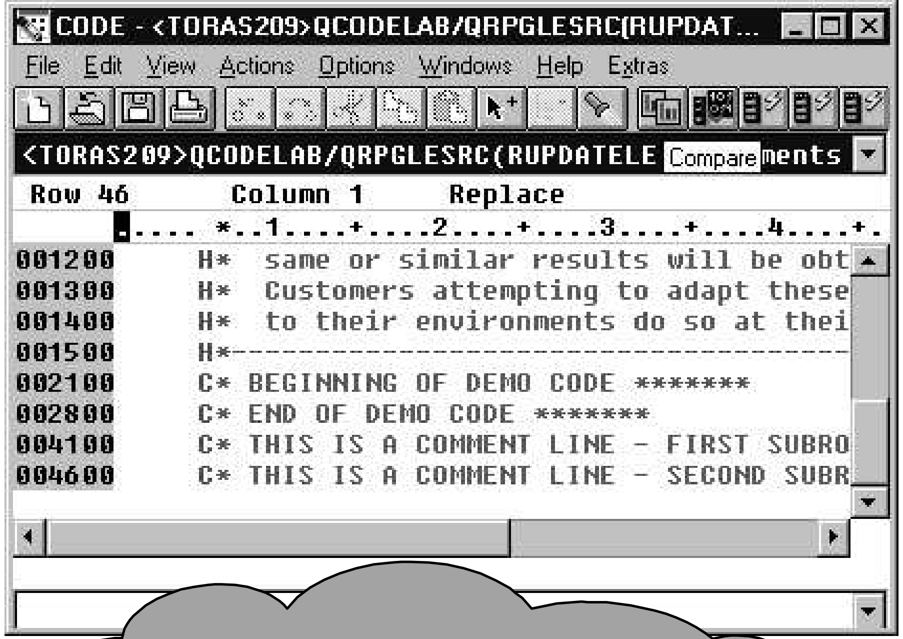
Various Text Filters

To filter by text, select **'View'->'Filter'**

To filter by line type, select **'View'->'Show'**


CODE - <TORAS209>QCODELAB/QRPGLESRC(RUPDAT...
File Edit View Actions Options Windows Help Extras

```
<TORAS209>QCODELAB/QRPGLESRC(RUPDATELE)
 Row 43       Column 1      Replace
       ....CL0N01Factor1+++++++Opcode(E)+Factor2++++
002200       C                    MOVE      *BLANKS
002300       C                    MOVE      '0'
002400       C                    MOVE      'FIRST'
002500       C                    MOVE      'SECOND'
004300       C                    MOVE      'SUBR1'
004400       C                    MOVE      '1'
004900       C                    MOVE      'SUBR2'
005000       C                    MOVE      '0'
```

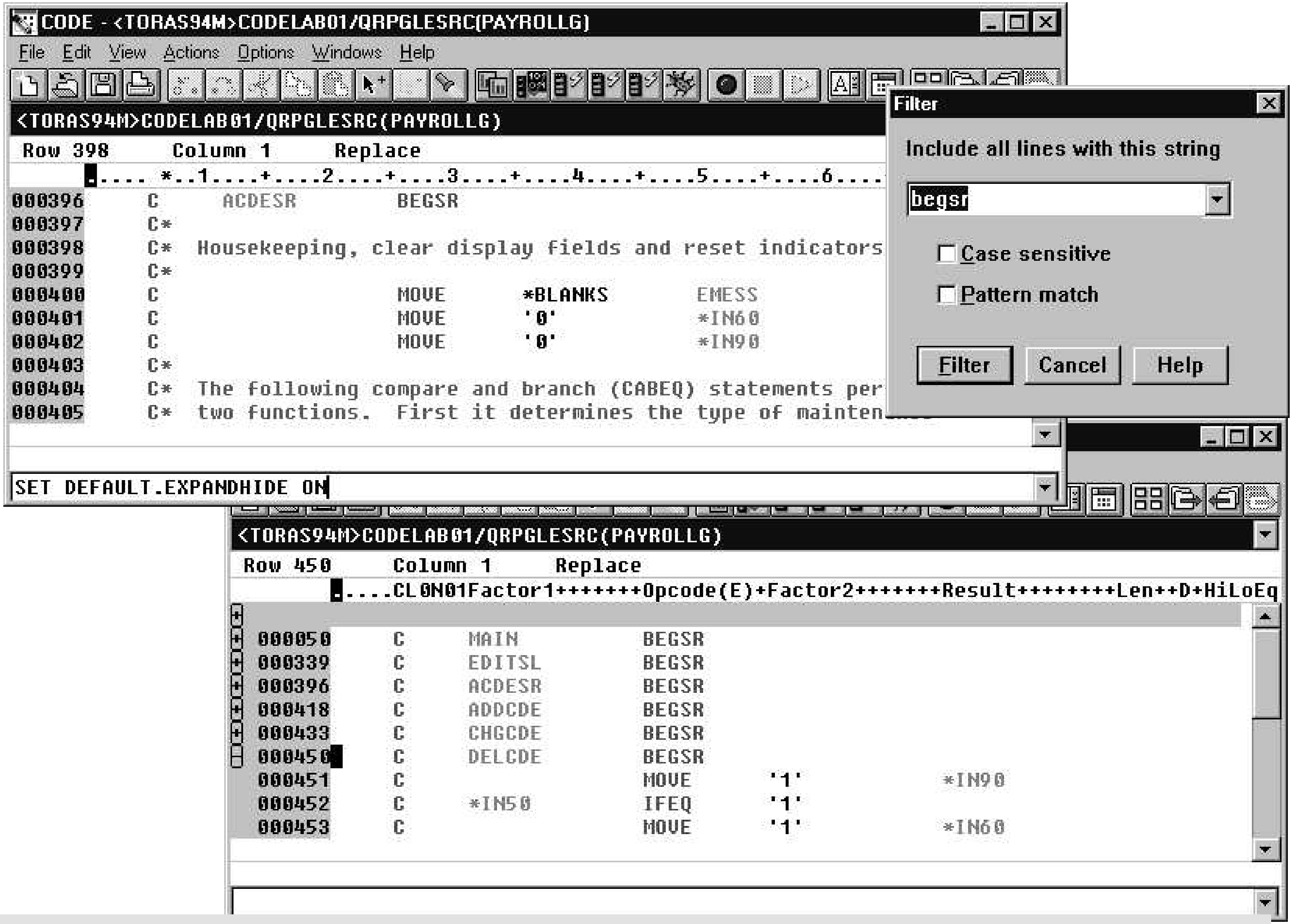

CODE - <TORAS209>QCODELAB/QRPGLESRC(RUPDAT...
File Edit View Actions Options Windows Help Extras
Compare

```
<TORAS209>QCODELAB/QRPGLESRC(RUPDATELE Compare ments
 Row 46       Column 1      Replace
       .... *..1....+....2....+....3....+....4....+.
001200      H*  same or similar results will be obt
001300      H*  Customers attempting to adapt these
001400      H*  to their environments do so at thei
001500      H*--------------------------------------
002100      C* BEGINNING OF DEMO CODE *******
002800      C* END OF DEMO CODE *******
004100      C* THIS IS A COMMENT LINE - FIRST SUBRO
004600      C* THIS IS A COMMENT LINE - SECOND SUBR
```

To filter by date, select **'View'->'Filter date'**

Ctrl+A to show everything

CODE Editor - SET DEFAULT.EXPANDHIDE ON



CODE - <TORAS94M>CODELAB01/QRPGLESRC(PAYROLLG)
File Edit View Actions Options Windows Help

```
<TORAS94M>CODELAB01/QRPGLESRC(PAYROLLG)
 Row 398      Column 1      Replace
      ..... *..1....+....2....+....3....+....4....+....5....+....6....
000396     C     ACDESR        BEGSR
000397     C*
000398     C*  Housekeeping, clear display fields and reset indicators
000399     C*
000400     C                   MOVE      *BLANKS       EMESS
000401     C                   MOVE      '0'           *IN60
000402     C                   MOVE      '0'           *IN90
000403     C*
000404     C*  The following compare and branch (CABEQ) statements per
000405     C*  two functions.  First it determines the type of mainten
```

```
SET DEFAULT.EXPANDHIDE ON
```

Filter

Include all lines with this string

begsr

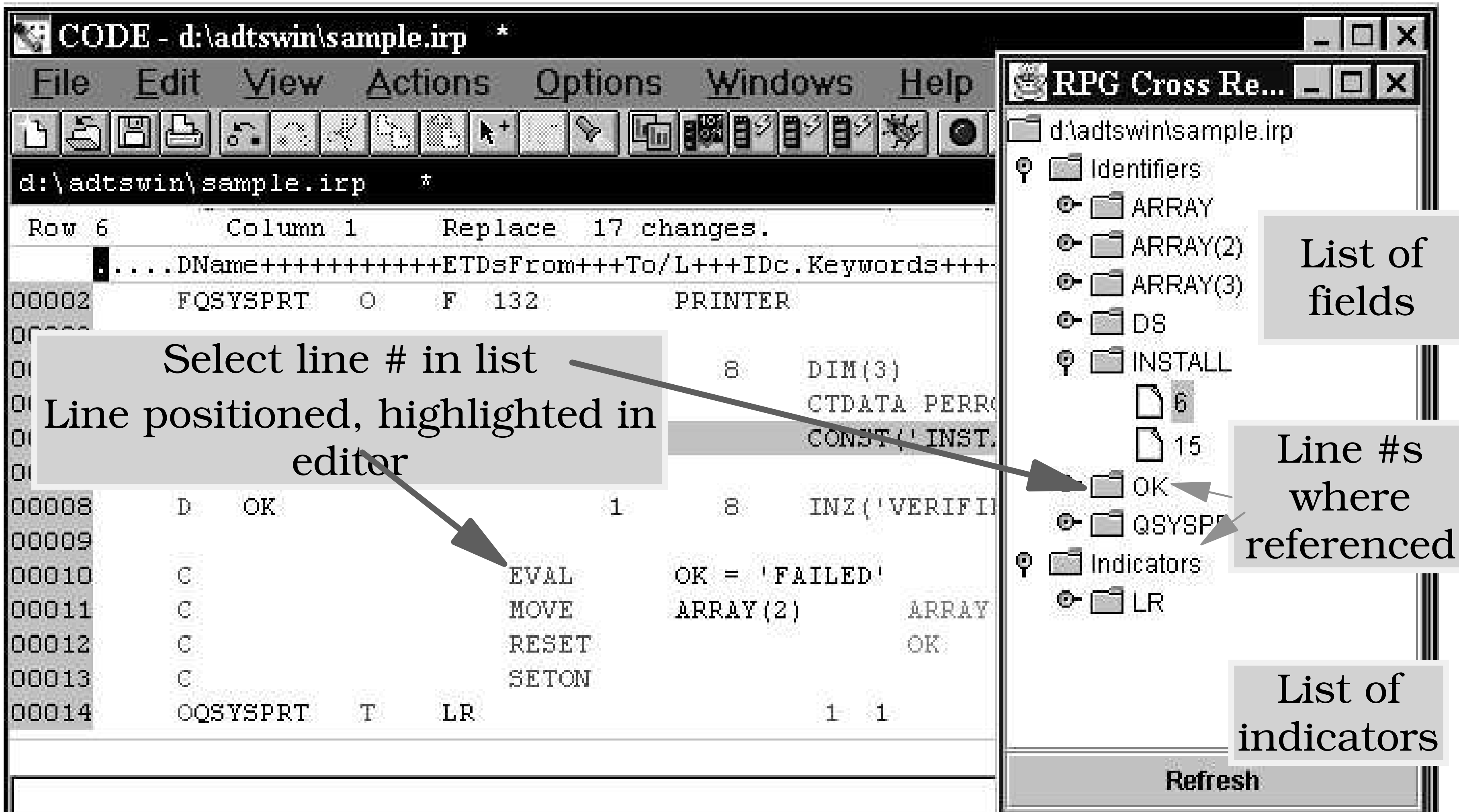
☐ Case sensitive

☐ Pattern match

```
<TORAS94M>CODELAB01/QRPGLESRC(PAYROLLG)
 Row 450      Column 1      Replace
      .....CL0N01Factor1+++++++Opcode(E)+Factor2+++++++Result++++++++Len++D+HiLoEq
+
+ 000050     C     MAIN          BEGSR
+ 000339     C     EDITSL        BEGSR
+ 000396     C     ACDESR        BEGSR
+ 000418     C     ADDCDE        BEGSR
+ 000433     C     CHGCDE        BEGSR
- 000450     C     DELCDE        BEGSR
  000451     C                   MOVE      '1'           *IN90
  000452     C     *IN50         IFEQ      '1'
  000453     C                   MOVE      '1'           *IN60
```

Stays on until explicitly switched off. SET DEFAULT.EXPANDHIDE OFF

Field Cross Reference



```
d:\adtswin\sample.irp   *
Row 6      Column 1     Replace  17 changes.
     .....DName+++++++++++ETDsFrom+++To/L+++IDc.Keywords+++
00002     FQSYSPRT   O    F  132        PRINTER
0
0                                          8    DIM(3)
0                                               CTDATA PERR
0                                               CONST('INST.
0
00008     D   OK                  1        8    INZ('VERIFI
00009
00010     C                     EVAL       OK = 'FAILED'
00011     C                     MOVE       ARRAY(2)      ARRAY
00012     C                     RESET                    OK
00013     C                     SETON
00014     OQSYSPRT   T    LR                       1  1
```

- d:\adtswin\sample.irp
  - Identifiers
    - ARRAY
    - ARRAY(2)
    - ARRAY(3)
    - DS
    - INSTALL
      - 6
      - 15
    - OK
    - QSYSPR
  - Indicators
    - LR

Select line # in list
Line positioned, highlighted in editor

List of fields

Line #s where referenced

List of indicators

available for RPG and COBOL

CODE Editor - RPG Conversion

- Convert RPG III to ILE RPG

  Actions -> Convert RPG Source

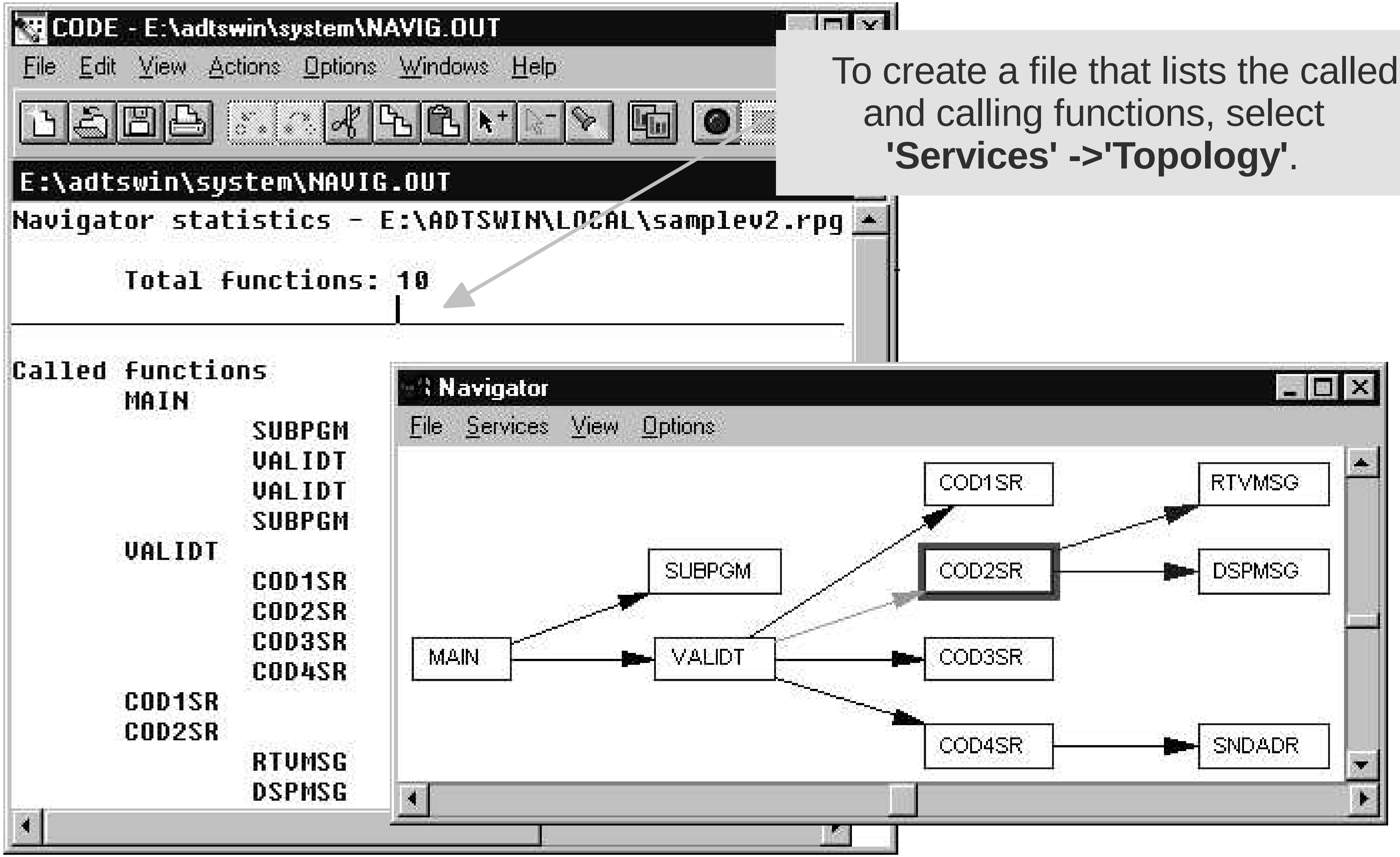
  - Converted RPG gets stored locally
  - Same result as iSeries command CVTRPGSRC

- Convert ILE RPG free-form

  Actions -> Convert selection to C Free-Form

  Actions -> Convert all to C Free-Form

The Navigator



CODE - E:\adtswin\system\NAVIG.OUT
File Edit View Actions Options Windows Help
E:\adtswin\system\NAVIG.OUT
Navigator
File Services View Options
MAIN
SUBPGM
VALIDT
COD1SR
COD2SR
COD3SR
COD4SR
RTVMSG
DSPMSG
SNDADR

```
Navigator statistics - E:\ADTSWIN\LOCAL\samplev2.rpg

       Total functions: 10

Called functions
       MAIN
               SUBPGM
               VALIDT
               VALIDT
               SUBPGM
       VALIDT
               COD1SR
               COD2SR
               COD3SR
               COD4SR
       COD1SR
       COD2SR
               RTVMSG
               DSPMSG
```

To create a file that lists the called and calling functions, select **'Services' ->'Topology'**.

CODE Editor - Key shortcuts

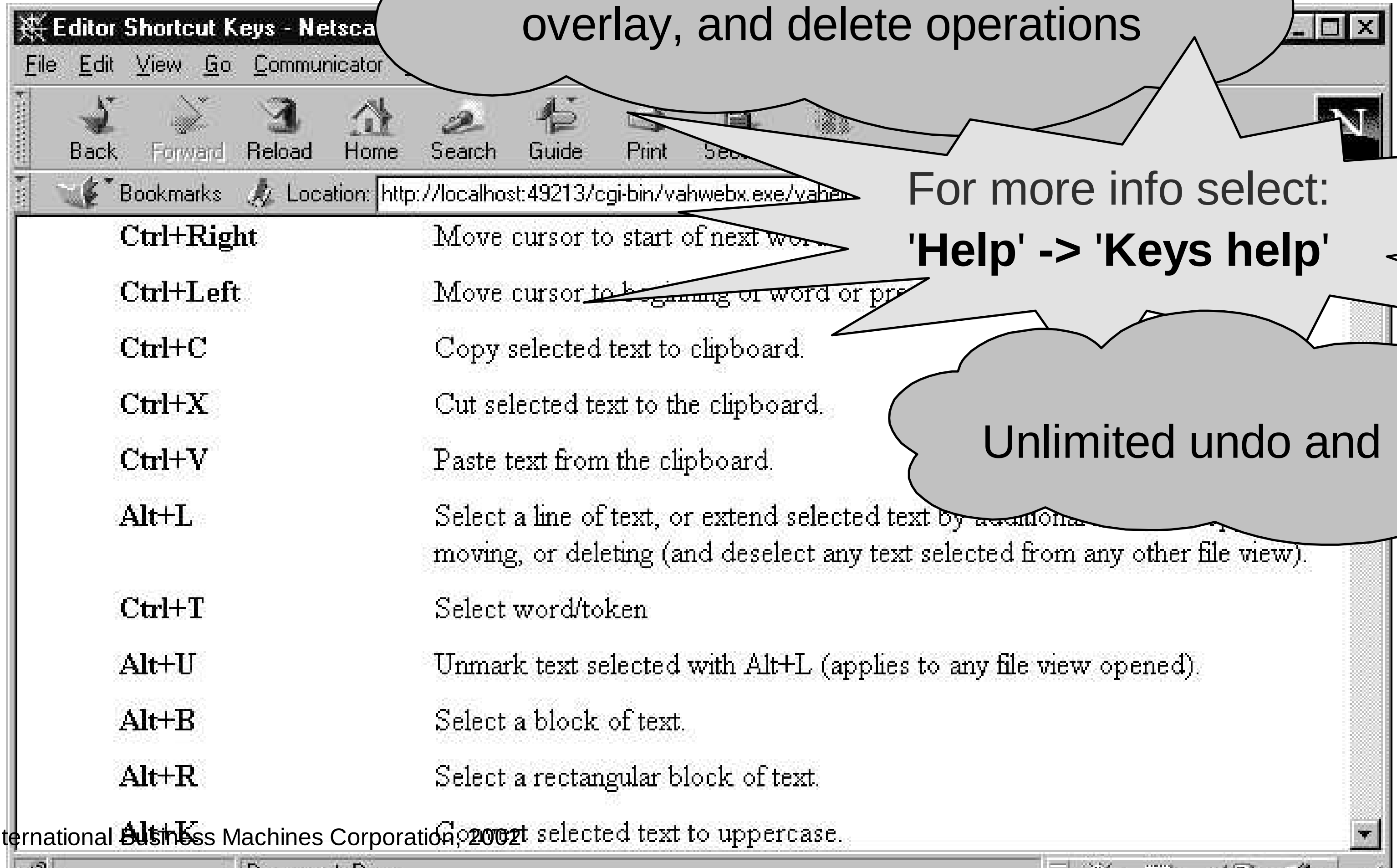
Navigate open files

Block marking of lines, characters, or rectangles with copy, move, overlay, and delete operations

Select text

For more info select: **'Help' -> 'Keys help'**

Unlimited undo and redo

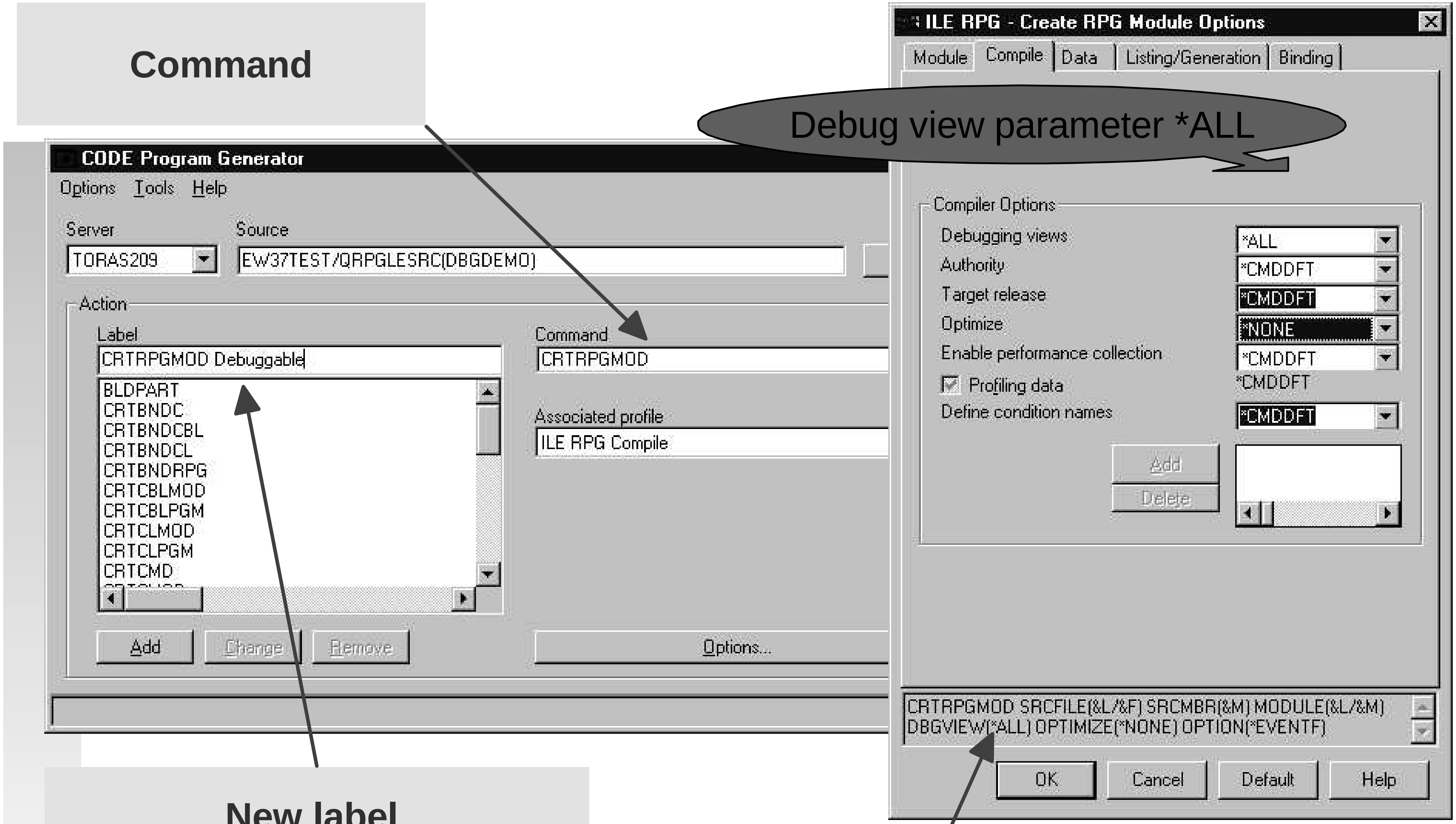


http://localhost:49213/cgi-bin/vahwebx.exe/vahe

Ctrl+Right	Move cursor to start of next wor
Ctrl+Left	Move cursor to beginning of word or pr
Ctrl+C	Copy selected text to clipboard.
Ctrl+X	Cut selected text to the clipboard.
Ctrl+V	Paste text from the clipboard.
Alt+L	Select a line of text, or extend selected text by additional moving, or deleting (and deselect any text selected from any other file view).
Ctrl+T	Select word/token
Alt+U	Unmark text selected with Alt+L (applies to any file view opened).
Alt+B	Select a block of text.
Alt+R	Select a rectangular block of text.
Alt+K	Convert selected text to uppercase.

CODE Program Generator

Command



Debug view parameter *ALL

Server: TORAS209

Source: EW37TEST/QRPGLESRC(DBGDEMO)

Action

Label: CRTRPGMOD Debuggable

Command: CRTRPGMOD

Associated profile: ILE RPG Compile

BLDPART
CRTBNDC
CRTBNDCBL
CRTBNDCL
CRTBNDRPG
CRTCBLMOD
CRTCBLPGM
CRTCLMOD
CRTCLPGM
CRTCMD

Compiler Options

Debugging views	*ALL
Authority	*CMDDFT
Target release	*CMDDFT
Optimize	*NONE
Enable performance collection	*CMDDFT
☑ Profiling data	*CMDDFT
Define condition names	*CMDDFT

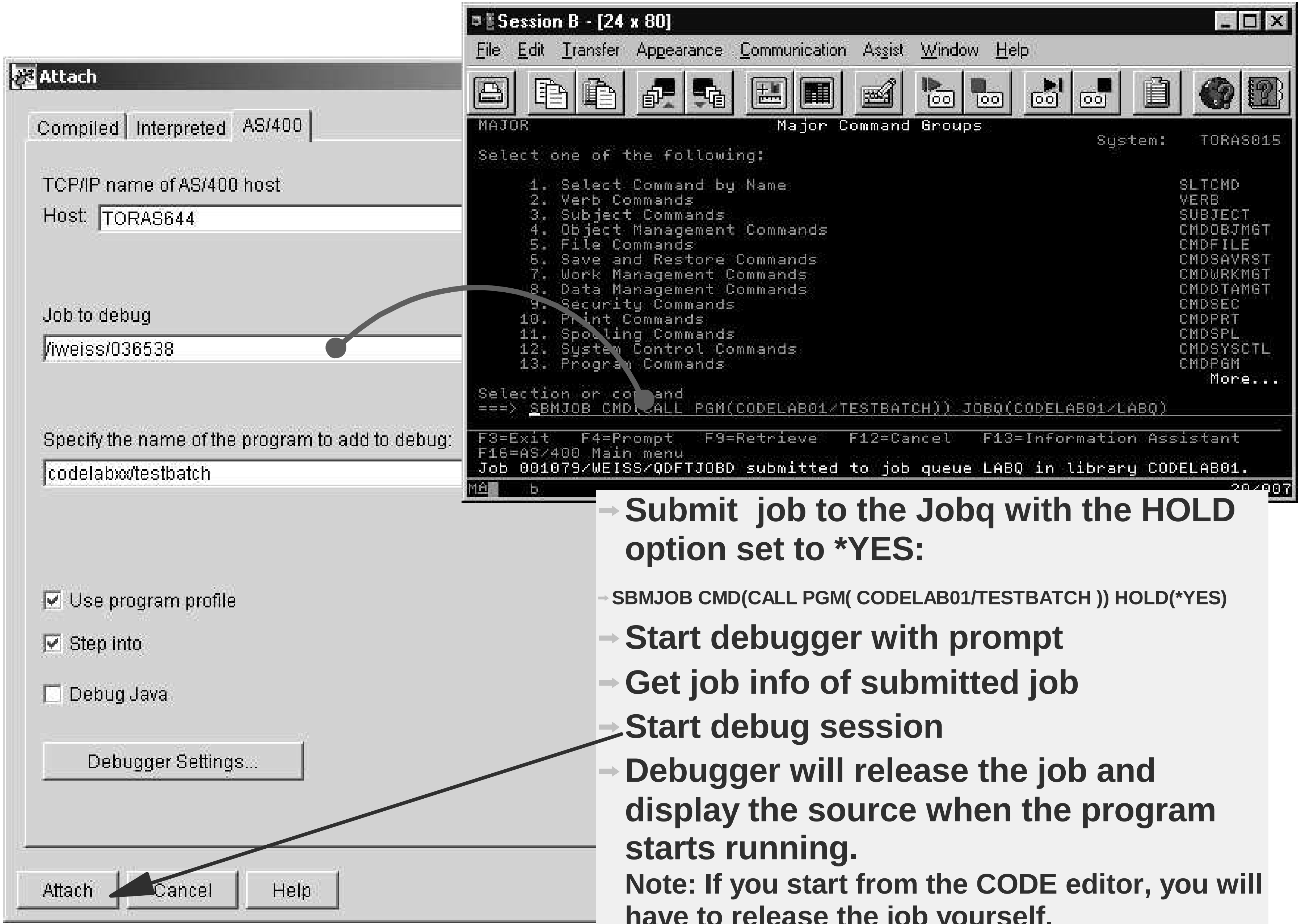
```
CRTRPGMOD SRCFILE(&L/&F) SRCMBR(&M) MODULE(&L/&M)
DBGVIEW(*ALL) OPTIMIZE(*NONE) OPTION(*EVENTF)
```

New label

Create Debuggable ILE RPG module

Command parameters

Debugging batch jobs



TCP/IP name of AS/400 host

Host: TORAS644

Job to debug

/iweiss/036538

Specify the name of the program to add to debug:

codelabxx/testbatch

☑ Use program profile

☑ Step into

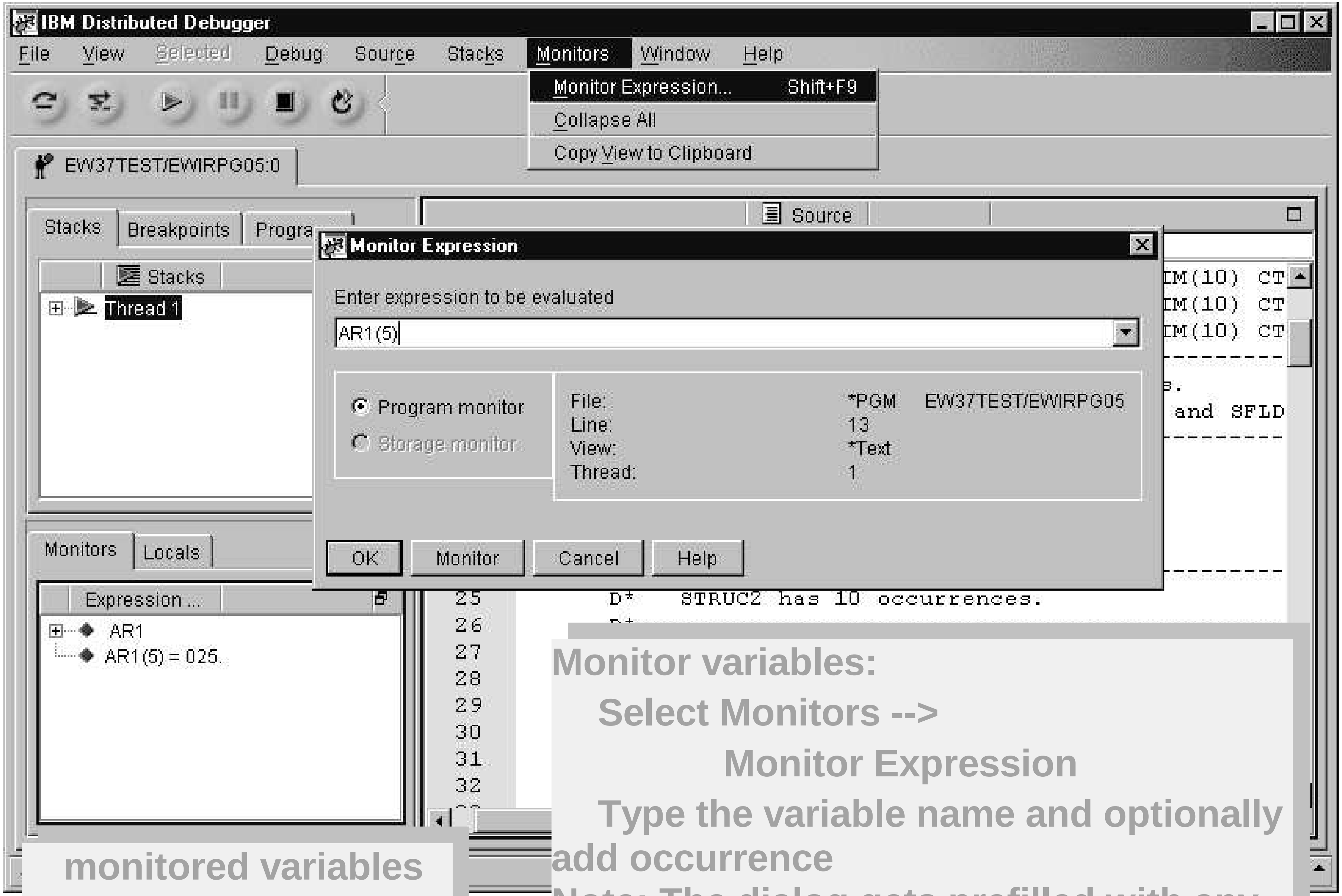
☐ Debug Java

```
MAJOR                          Major Command Groups
                                                          System:   TORAS015
Select one of the following:

      1. Select Command by Name                                    SLTCMD
      2. Verb Commands                                             VERB
      3. Subject Commands                                          SUBJECT
      4. Object Management Commands                                CMDOBJMGT
      5. File Commands                                             CMDFILE
      6. Save and Restore Commands                                 CMDSAVRST
      7. Work Management Commands                                  CMDWRKMGT
      8. Data Management Commands                                  CMDDTAMGT
      9. Security Commands                                         CMDSEC
     10. Print Commands                                            CMDPRT
     11. Spooling Commands                                         CMDSPL
     12. System Control Commands                                   CMDSYSCTL
     13. Program Commands                                          CMDPGM
                                                                      More...
Selection or command
===> SBMJOB CMD(CALL PGM(CODELAB01/TESTBATCH)) JOBQ(CODELAB01/LABQ)

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F16=AS/400 Main menu
Job 001079/WEISS/QDFTJOBD submitted to job queue LABQ in library CODELAB01.
MA     b                                                          20/007
```

- **Submit job to the Jobq with the HOLD option set to *YES:**
  - **SBMJOB CMD(CALL PGM(CODELAB01/TESTBATCH)) HOLD(*YES)**
- **Start debugger with prompt**
- **Get job info of submitted job**
- **Start debug session**
- **Debugger will release the job and display the source when the program starts running.**

Note: If you start from the CODE editor, you will have to release the job yourself.

Debugger - Monitor Expression dialog



Enter expression to be evaluated

AR1(5)

● Program monitor
○ Storage monitor

File:	*PGM	EW37TEST/EWIRPG05
Line:	13	
View:	*Text	
Thread:	1	

```
IM(10)  CT
IM(10)  CT
IM(10)  CT
----------
s.
 and  SFLD
----------
----------
25         D*    STRUC2 has 10 occurrences.
26         D*
27
28
29
30
31
32
```

monitored variables

Monitor variables:

Select Monitors -->

Monitor Expression

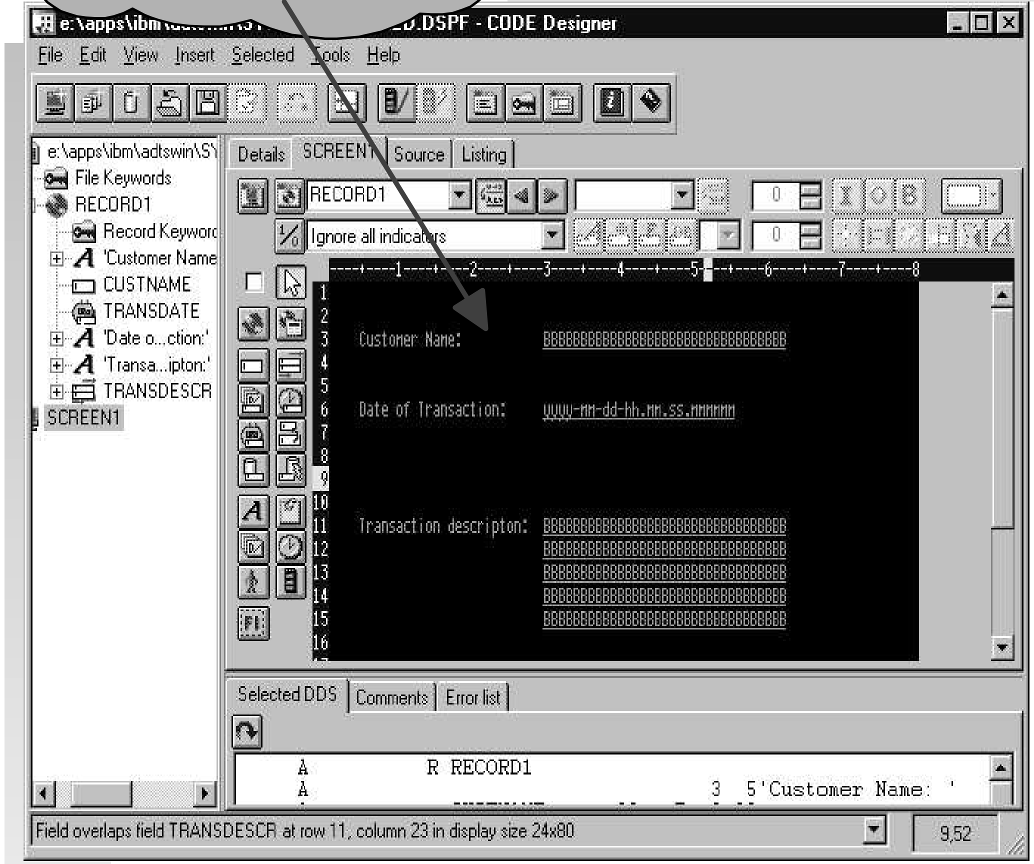
Type the variable name and optionally add occurrence

Note: The dialog gets prefilled with any selected variable.

CODE Designer - Editing DDS

You can switch between 'Design' and 'Edit' modes. Use '*File*'->'*Edit DDS source*' and '*File*' -> '*Design DDS source*' respectively

Design Mode

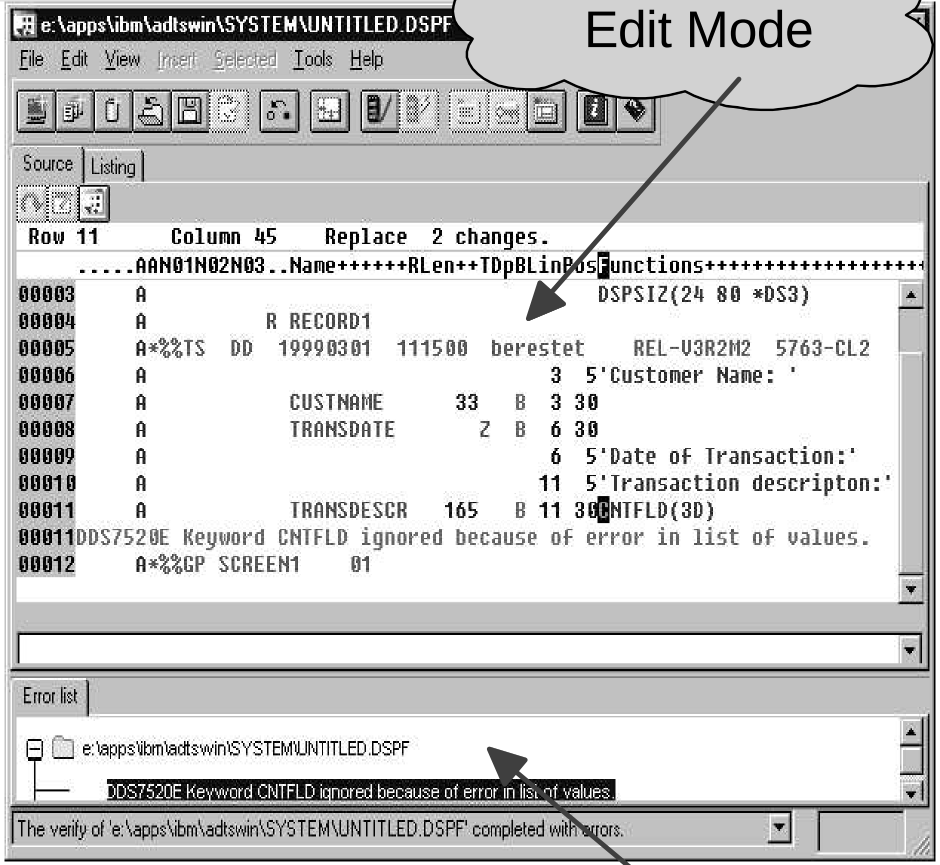


```
Customer Name:          BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB

Date of Transaction:    yyyy-mm-dd-hh.mm.ss.mmmmmm

Transaction descripton: BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
                        BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
                        BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
                        BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
                        BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
```

```
     A          R RECORD1
     A                                3  5'Customer Name: '
```

Field overlaps field TRANSDESCR at row 11, column 23 in display size 24x80   9,52

Edit Mode


e:\apps\ibm\adtswin\SYSTEM\UNTITLED.DSPF
File Edit View Insert Selected Tools Help
Source
Listing
Error list

```
Row 11      Column 45    Replace  2 changes.
.....AAN01N02N03..Name++++++RLen++TDpBLinPosFunctions++++++++++++++++++
00003     A                                     DSPSIZ(24 80 *DS3)
00004     A          R RECORD1
00005     A*%%TS  DD  19990301  111500  berestet    REL-V3R2M2  5763-CL2
00006     A                                3  5'Customer Name: '
00007     A            CUSTNAME      33    B  3 30
00008     A            TRANSDATE       Z   B  6 30
00009     A                                6  5'Date of Transaction:'
00010     A                               11  5'Transaction descripton:'
00011     A            TRANSDESCR    165   B 11 30CNTFLD(3D)
00011DDS7520E Keyword CNTFLD ignored because of error in list of values.
00012     A*%%GP SCREEN1    01
```

e:\apps\ibm\adtswin\SYSTEM\UNTITLED.DSPF

DDS7520E Keyword CNTFLD ignored because of error in list of values.

The verify of 'e:\apps\ibm\adtswin\SYSTEM\UNTITLED.DSPF' completed with errors.

NOTE: Some of the changes made in the 'Edit Mode' may cause problems going back to the 'Design Mode'!!!

e.g. Deleting the record line

When you verify DDS source in the 'Edit Mode', all errors go to the integrated 'Error List' window.

CODE Designer - Checkpoints

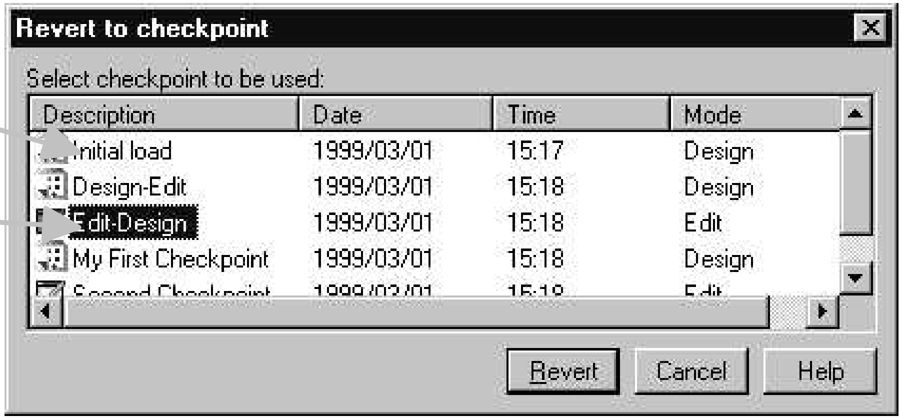
- Checkpoints
  - Snapshot of the entire DDS source at a given point in time.
  - Two types: automatic and user-defined
  - User-defined checkpoints are saved between sessions.
  - You can 'revert' back to a checkpoint.

Certain 'drastic' changes in 'Edit Mode' (e.g. delete a record line) may get you in trouble!

Revert to previous checkpoint in such cases.

Checkpoints taken in 'Design Mode'

Checkpoints taken in 'Edit Mode'

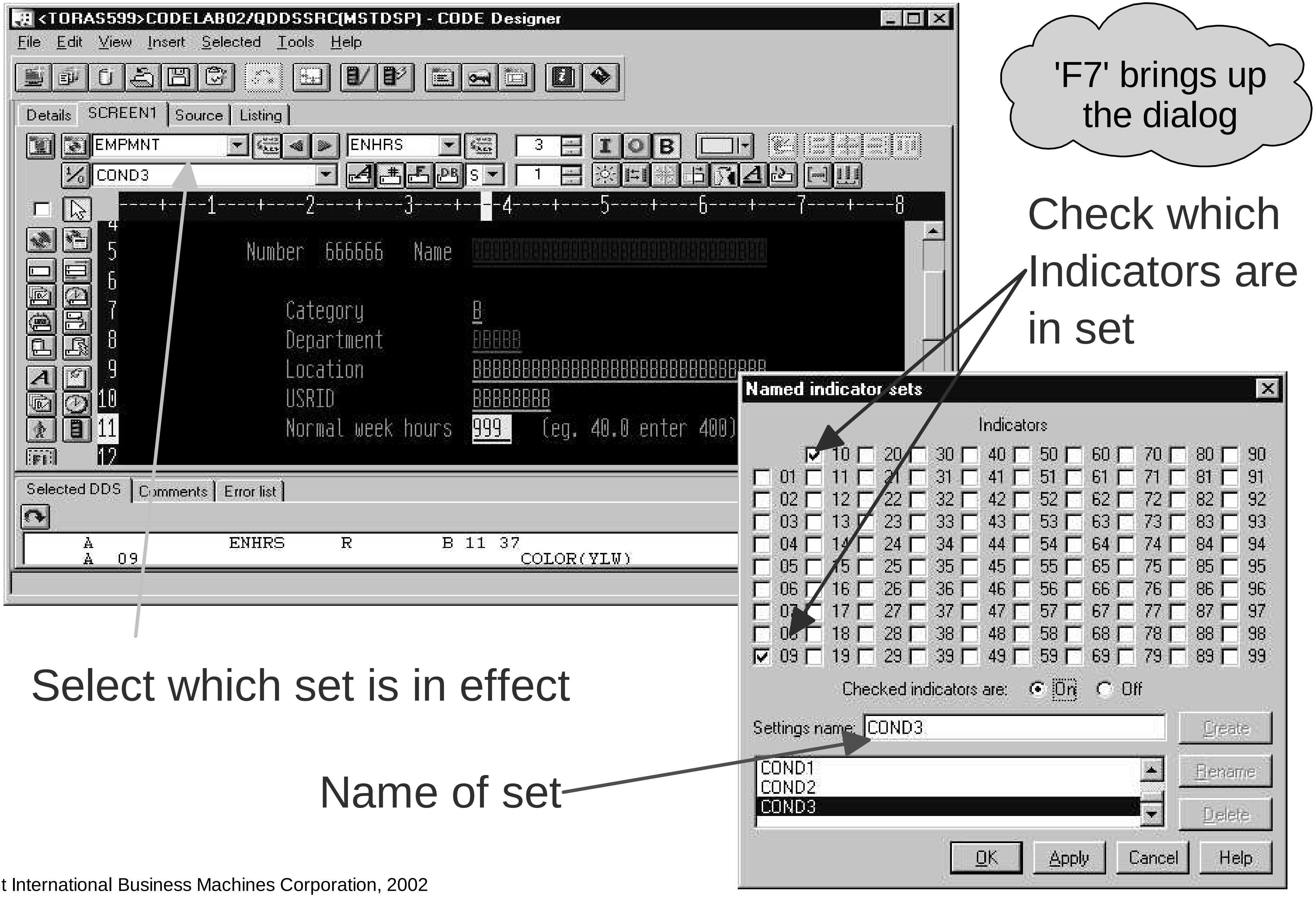


Revert to checkpoint

Select checkpoint to be used:

Description	Date	Time	Mode
Initial load	1999/03/01	15:17	Design
Design-Edit	1999/03/01	15:18	Design
Edit-Design	1999/03/01	15:18	Edit
My First Checkpoint	1999/03/01	15:18	Design
Second Checkpoint	1999/03/01	15:19	Edit

CODE Designer, Named Indicators sets



File Edit View Insert Selected Tools Help
Details SCREEN1 Source Listing
Selected DDS Comments Error list

<TORAS599>CODELAB02/QDDSSRC(MSTDSP) - CODE Designer

EMPMNT ENHRS 3
COND3 S 1

```
 5          Number  666666   Name  BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
 6
 7             Category             B
 8             Department           BBBBB
 9             Location             BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
10             USRID                BBBBBBBB
11             Normal week hours    999    (eg. 40.0 enter 400)
12
```

```
     A                 ENHRS      R          B 11 37
     A  09                                         COLOR(YLW)
```

Named indicator sets

Indicators

	☑ 10	□ 20	□ 30	□ 40	□ 50	□ 60	□ 70	□ 80	□ 90
□ 01	□ 11	□ 21	□ 31	□ 41	□ 51	□ 61	□ 71	□ 81	□ 91
□ 02	□ 12	□ 22	□ 32	□ 42	□ 52	□ 62	□ 72	□ 82	□ 92
□ 03	□ 13	□ 23	□ 33	□ 43	□ 53	□ 63	□ 73	□ 83	□ 93
□ 04	□ 14	□ 24	□ 34	□ 44	□ 54	□ 64	□ 74	□ 84	□ 94
□ 05	□ 15	□ 25	□ 35	□ 45	□ 55	□ 65	□ 75	□ 85	□ 95
□ 06	□ 16	□ 26	□ 36	□ 46	□ 56	□ 66	□ 76	□ 86	□ 96
□ 07	□ 17	□ 27	□ 37	□ 47	□ 57	□ 67	□ 77	□ 87	□ 97
□ 08	□ 18	□ 28	□ 38	□ 48	□ 58	□ 68	□ 78	□ 88	□ 98
☑ 09	□ 19	□ 29	□ 39	□ 49	□ 59	□ 69	□ 79	□ 89	□ 99

Checked indicators are: ● On ○ Off

Settings name: COND3

COND1
COND2
COND3

'F7' brings up the dialog

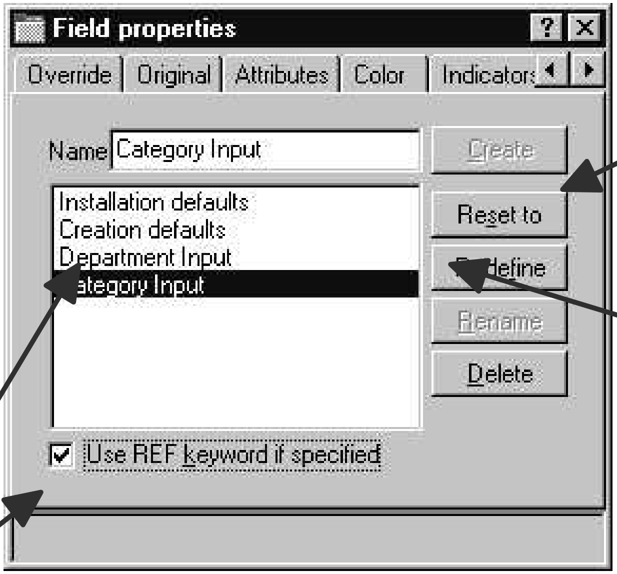
Check which Indicators are in set

Select which set is in effect

Name of set

CODE Designer, Styles page

- Save the settings of an object as a style and then reset other objects of the same type to that style.
- Change creation defaults of objects.
- Alternatively can use REF keyword for DB Reference fields



Name: Category Input

Installation defaults
Creation defaults
Department Input
Category Input

☑ Use REF keyword if specified

Change the DDS object (record/field) to be like selected style

Change style to be like the current DDS object

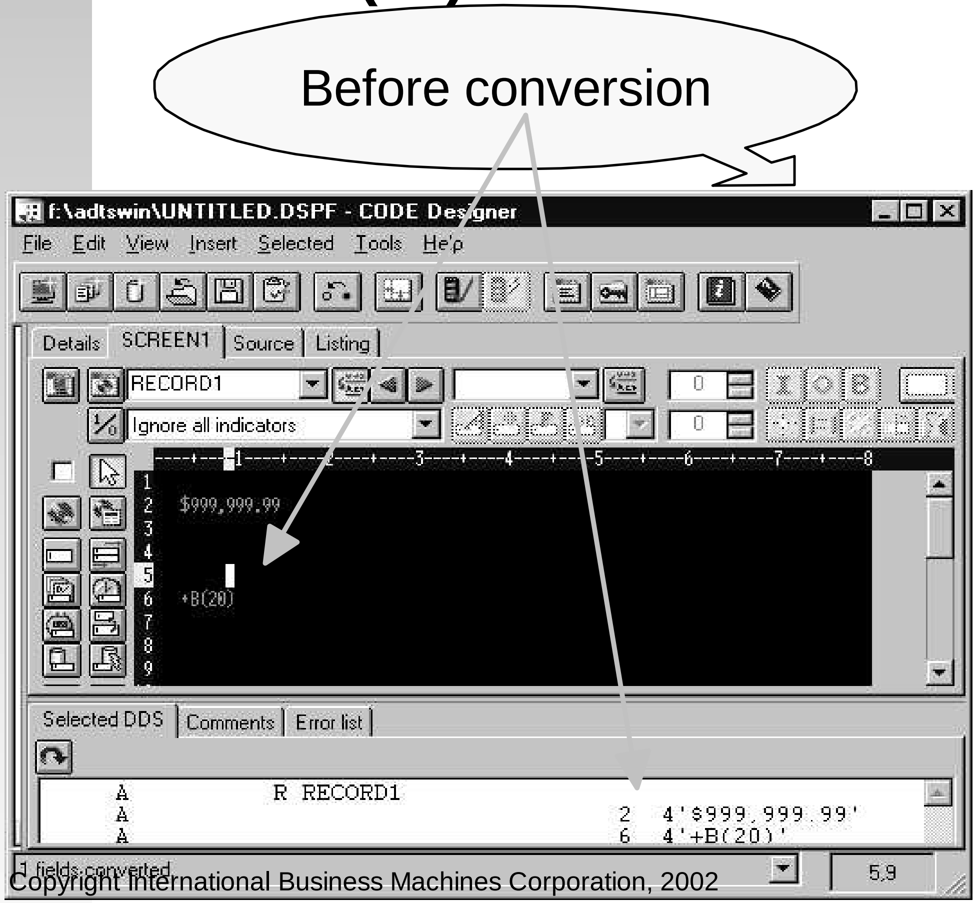
New fields are created using:

REF keyword if checked

Otherwise Creation defaults

CODE Designer, Convert to Field

- Convert text constant to field with F11.
- All appropriate editing codes are created.
  - $999,999.99
- Allows SDA syntax.
  - +B(10)

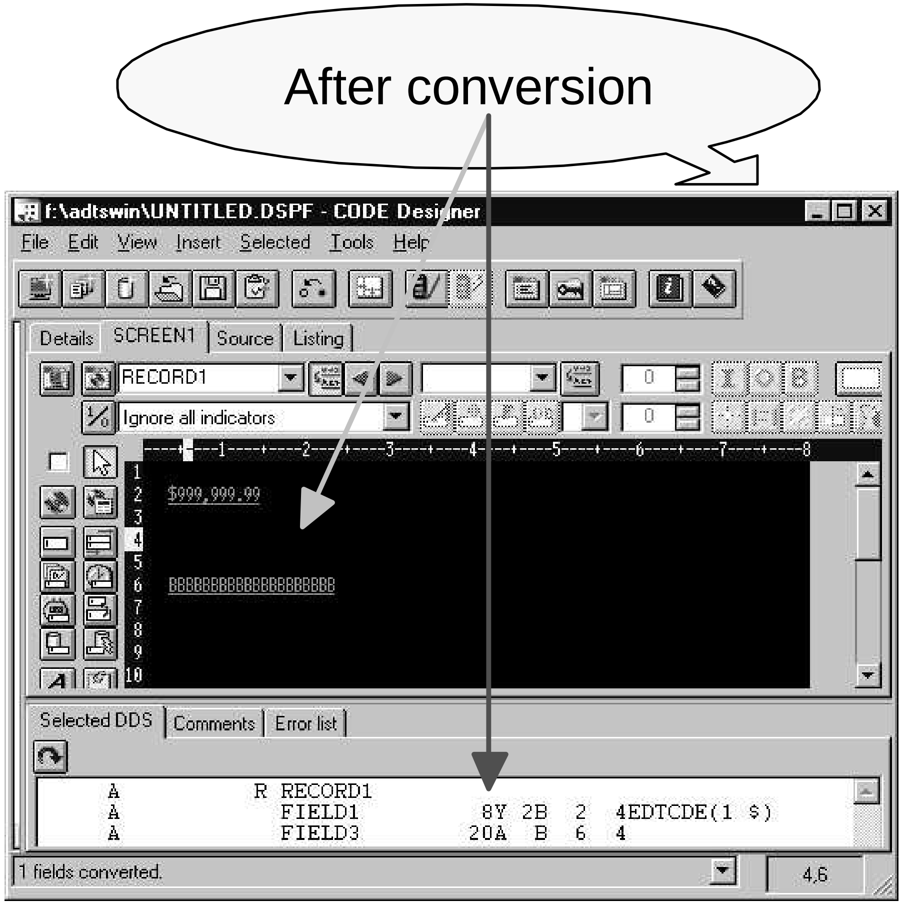


Before conversion

f:\adtswin\UNTITLED.DSPF - CODE Designer
File Edit View Insert Selected Tools Help
Details SCREEN1 Source Listing
RECORD1
Ignore all indicators
$999,999.99
+B(20)
Selected DDS Comments Error list
5,9

```
     A            R RECORD1
     A                                      2  4'$999,999.99'
     A                                      6  4'+B(20)'
```

1 fields converted.



After conversion

f:\adtswin\UNTITLED.DSPF - CODE Designer
File Edit View Insert Selected Tools Help
Details SCREEN1 Source Listing
RECORD1
Ignore all indicators
$999,999.99
BBBBBBBBBBBBBBBBBBBB
Selected DDS Comments Error list
4,6

```
     A            R RECORD1
     A              FIELD1         8Y 2B  2  4EDTCDE(1 $)
     A              FIELD3        20A  B  6  4
```

1 fields converted.

Start CODE tools from PDM

- You can create user-defined options in PDM to invoke CODE tools.
- To invoke the CODE Editor on a source member you would use the following syntax:

```
CALL QDEVTOOLS/EVFCFDBK PARM('37' 'Y'  'OS400'
'<LOCAL> CODEEDIT "<server>&L/&F(&N)" ')
```

- For V4R5 iSeries use:

```
CALL QCODE/EVFCFDBK PARM('37' 'Y'  'OS400'
'<LOCAL> CODEEDIT "<server>&L/&F(&N)" ')
```

Project Organizer - Team Environment

Share actions and types

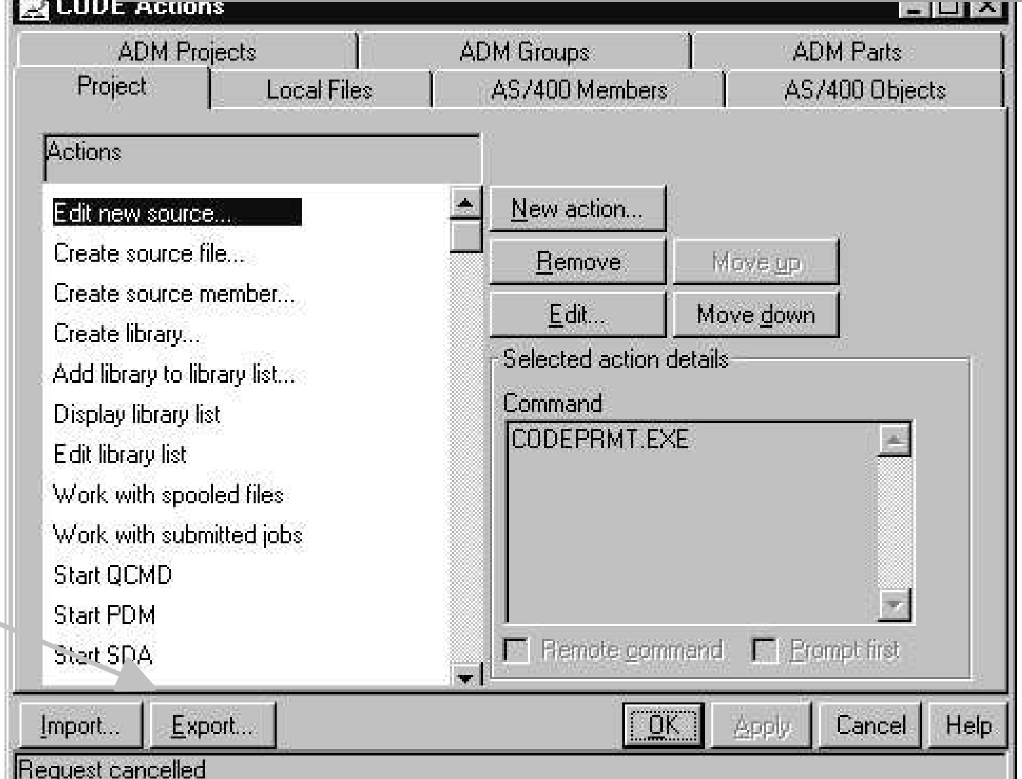
- Import or export actions and named types from CODE Actions notebook. Imported entries are added to current set of entries.

Share projects

- **Import or export projects to share list of filters from Project menu.**

Use **'Shift+F4'** to bring up '**Code Actions**' notebook from the **CODE Project Organizer** window

'Import' and 'Export' buttons are used for action sharing...

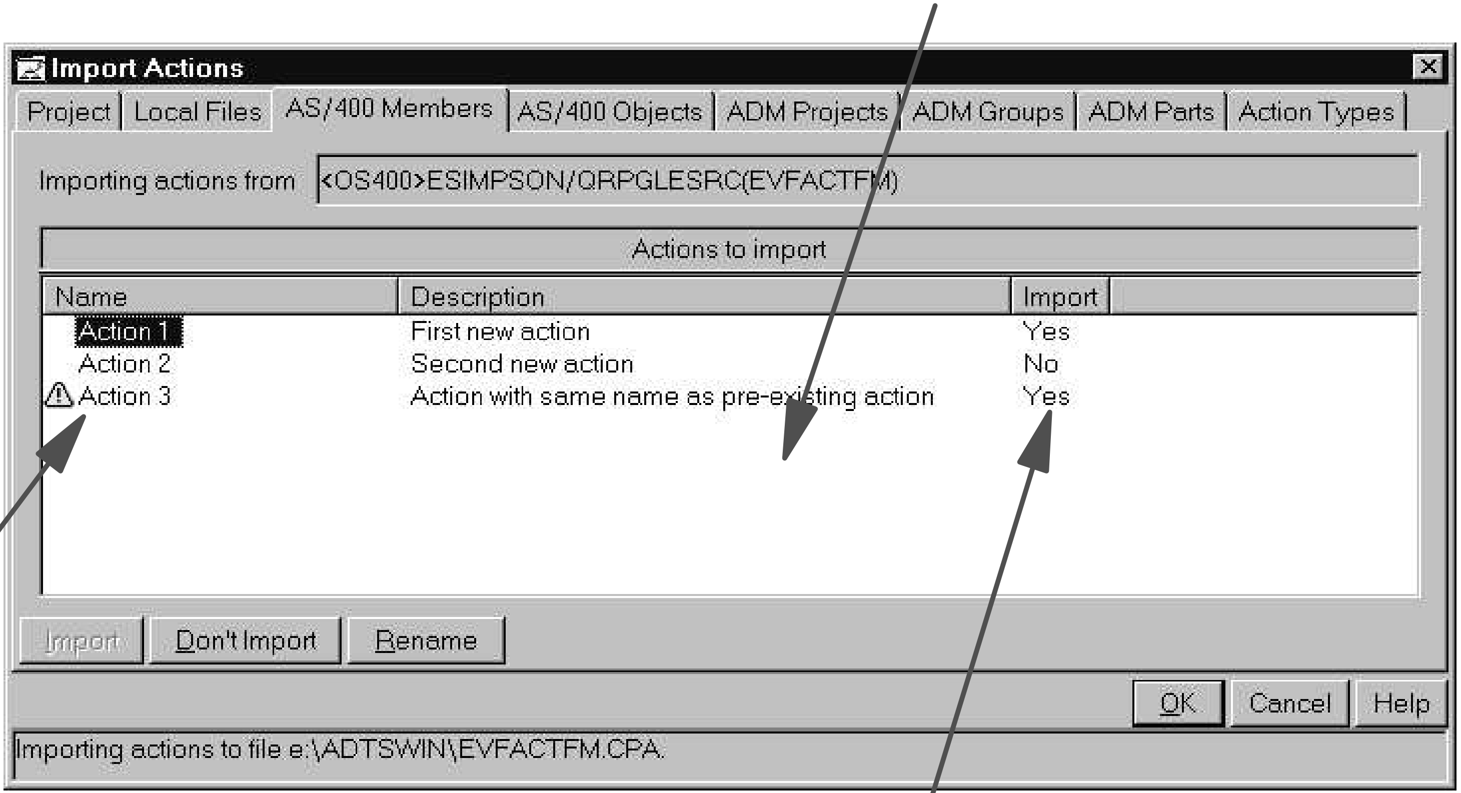


CODEPRMT.EXE

Request cancelled

Project Organizer, Import Actions

List of AS/400 member actions in exported file that are not on the workstation



Importing actions from <OS400>ESIMPSON/QRPGLESRC(EVFACTFM)

Name	Description	Import
Action 1	First new action	Yes
Action 2	Second new action	No
⚠ Action 3	Action with same name as pre-existing action	Yes

Importing actions to file e:\ADTSWIN\EVFACTFM.CPA.

Action with same name already exists on workstation

Specify which actions you want to import

The Agenda

- WDT - Where does CODE fit in?
- Communication Console
- Advanced functions
- Working Disconnected
- Programming the Editor
- Demo

Working disconnected

What You CAN DO while disconnected

Work with local source.
Syntax check RPG, ILE COBOL, and DDS
Prompt RPG, COBOL, and DDS.
Access language reference help for RPG, COBOL, and DDS.
Verify RPG, COBOL, and DDS (without caching, copy members and information on database fields will not be available).
Use Project Organizer's filters (without caching, host filters will not work).

What You CAN **NOT** DO while disconnected

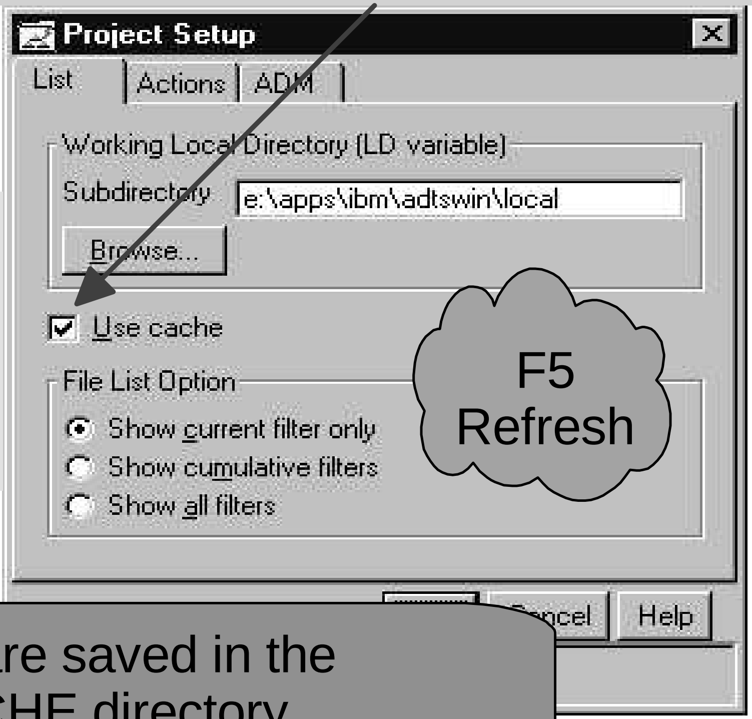
Edit, design, or compile host source.
Debug host programs.
Execute host commands.
Prompt CL statements.

Caching

Information retrieved from the iSeries during your session is saved locally. CODE searches locally for the host information. If all the necessary information is cached, no host connection is needed.

For Program Verifiers, select '**Verify program**'->'**Prompt**', specify "Use cache". Shortens verify times, since subsequent verifies do not need to access the host.

For **CODE Project Organizer**, select '**Project Setup**' and specify "Use Cache".



Project Setup

Working Local Directory (LD variable)

Subdirectory: e:\apps\ibm\adtswin\local

☑ Use cache

File List Option

● Show current filter only

○ Show cumulative filters

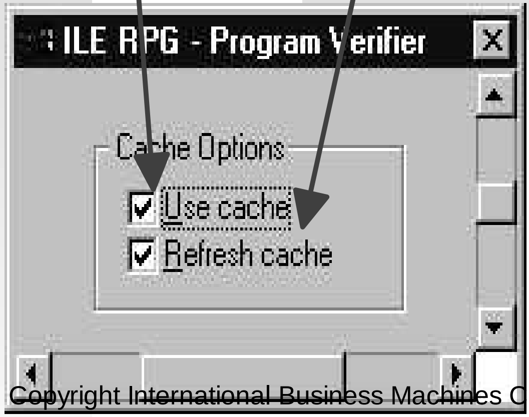
○ Show all filters

F5 Refresh

If host information changes, you have to "refresh" the contents of the cache.

For verifiers, select "Refresh cache".

For CODE Project Organizer use F5.



ILE RPG - Program Verifier

Cache Options

☑ Use cache

☑ Refresh cache

The local files are saved in the WDT400\CACHE directory

(Occasionally, you will want to clean up this directory to free up space)

The Agenda

- WDT - Where does CODE fit in?
- Communication Console
- Advanced functions
- Working Disconnected
- Programming the Editor
- Demo

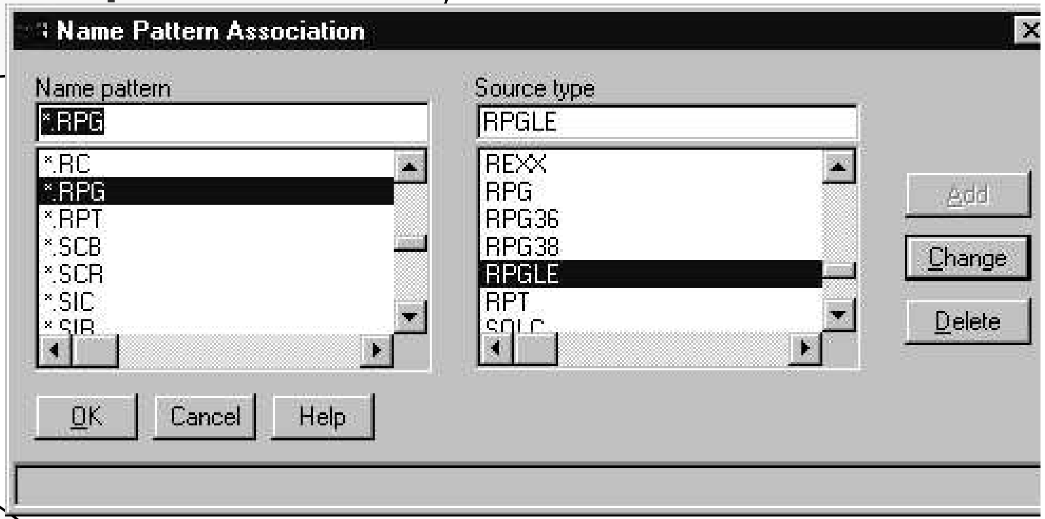
Editor Programming

- ✓ Why program it?
  - ▸ Need for a new editor function
  - ▸ Repetitive task, fastpath key for heavily used function
  - ▸ Tailor the editing environment for your shop
- ✓ What can you do?
  - ▸ Specify editor default settings
  - ▸ Add editor functions and your own macros to the menus and toolbar
  - ▸ Assign/re-assign keys and/or line commands to editor functions and your own macros
  - ▸ Interact with the host via the CODESRV command
- ✓ How do you do it?
  - ▸ Write macros in REXX or Java + editor commands
  - ▸ Use the 'profiles' to load in the macros.

CODE Editor - Associations

To map file name to source types select:

Options -> Associations -> Name patterns



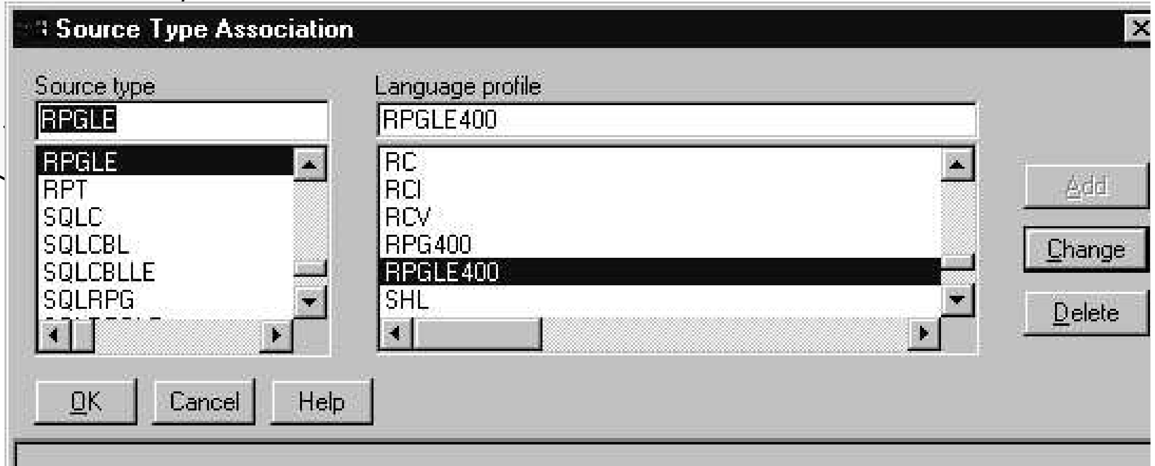
Name Pattern Association

Name pattern: *.RPG

Source type: RPGLE

To map source type to a specific language profile select:

Options -> Associations -> Source types



Source Type Association

Source type: RPGLE

Language profile: RPGLE400

Editor Programming - commands

- Editor Commands
  - To issue a command, press ESC and enter the command.
  - To position to line number 12.

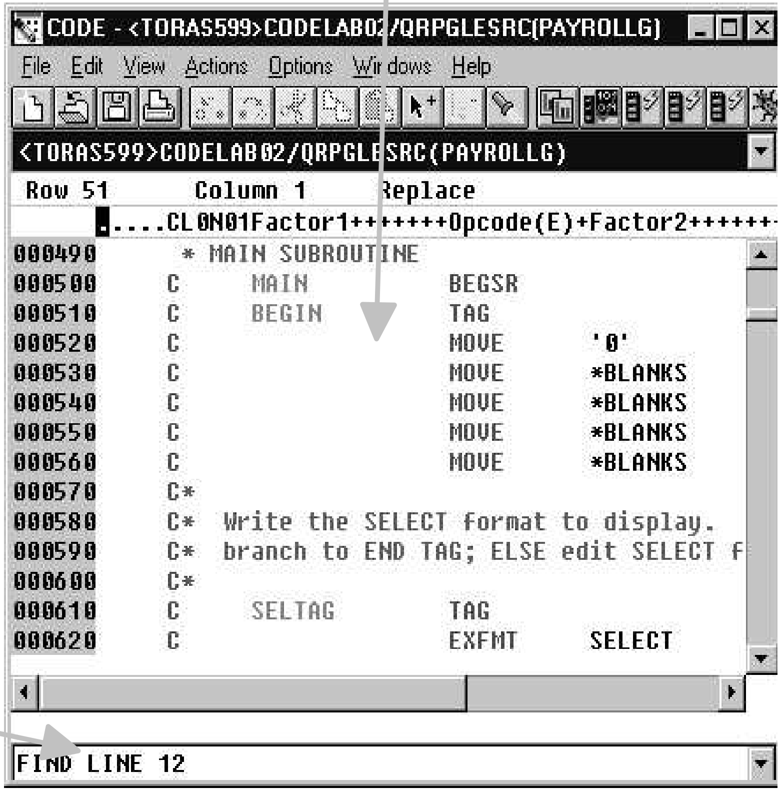
    FIND LINE 12
  - To insert a new line.

    INSERT
  - To change the current line's text.

    SET CONTENT this is new
  - To display message on message line.

    MSG this is a message

Editor Source Editing Area


CODE - <TORAS599>CODELAB02/QRPGLESRC(PAYROLLG)
File
Edit
View
Actions
Options
Windows
Help
<TORAS599>CODELAB02/QRPGLESRC(PAYROLLG)

```
Row 51        Column 1        Replace
        .....CL0N01Factor1+++++++Opcode(E)+Factor2++++++
000490       * MAIN SUBROUTINE
000500      C     MAIN          BEGSR
000510      C     BEGIN         TAG
000520      C                   MOVE      '0'
000530      C                   MOVE      *BLANKS
000540      C                   MOVE      *BLANKS
000550      C                   MOVE      *BLANKS
000560      C                   MOVE      *BLANKS
000570      C*
000580      C*  Write the SELECT format to display.
000590      C*  branch to END TAG; ELSE edit SELECT f
000600      C*
000610      C     SELTAG        TAG
000620      C                   EXFMT     SELECT
```

```
FIND LINE 12
```

Editor Command Line

Editor Programming - commands

- Add function to the menubar

  SET ACTIONBAR.pulldown.item command

- Add function to the toolbar

  SET TOOLBAR.button_text position command

- Assign keyboard shortcut

  SET ACTION.key command

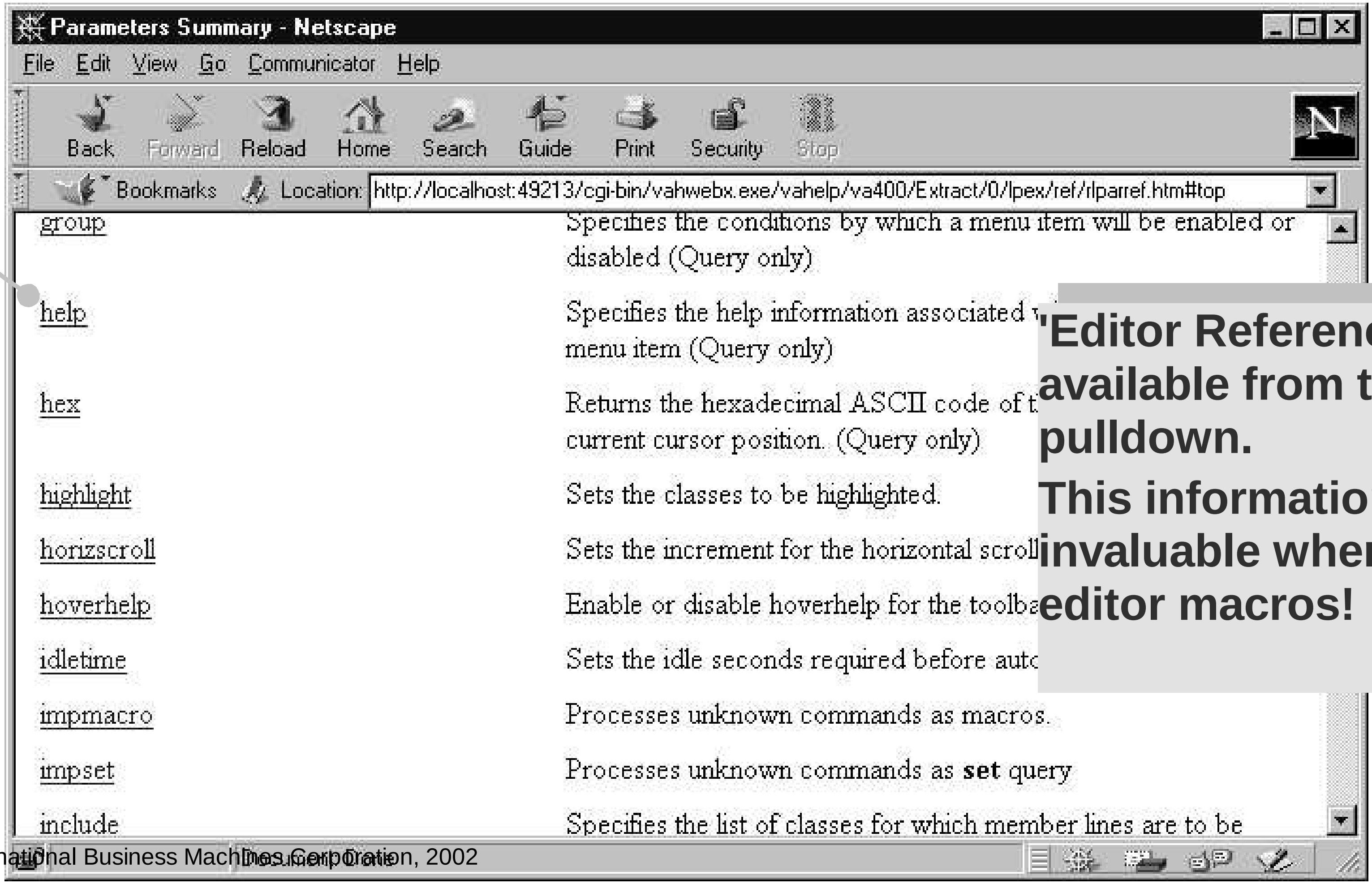
- Add function to the popup menu

  SET POPUPMENU.menuitem command

- Get help when editor command fails
  - **Windows->Macro log** to view messages.

Editor Programming - Reference

'Editor Reference' online documentation contains help for all editor commands, sorted alphabetically!



http://localhost:49213/cgi-bin/vahwebx.exe/vahelp/va400/Extract/0/lpex/ref/rlparref.htm#top

group	Specifies the conditions by which a menu item will be enabled or disabled (Query only)
help	Specifies the help information associated w menu item (Query only)
hex	Returns the hexadecimal ASCII code of t current cursor position. (Query only)
highlight	Sets the classes to be highlighted.
horizscroll	Sets the increment for the horizontal scroll
hoverhelp	Enable or disable hoverhelp for the toolba
idletime	Sets the idle seconds required before auto
impmacro	Processes unknown commands as macros.
impset	Processes unknown commands as **set** query
include	Specifies the list of classes for which member lines are to be

'Editor Reference' is available from the 'Help' pulldown.

This information is invaluable when writing editor macros!

Editor Programming - Macros

- Text files with extension **.LX**
- Contain REXX statements and embedded editor commands
- Query and set attributes of the editor
- Use CODESRV command to invoke iSeries commands, retrieve lists, etc.
- Invoked from editor by "MACRO macro_name parameters"

Editor Programming - EXTRAS

- EXTRAS macro updates path the editor searches when macros are executed.
  - Default is WDT400\MACROS
- Add WDT400\EXTRAS (which contains many example macros) to path

  Actions -> Enable EXTRAS

- Add your own directory to path

  EXTRAS ON d:\mymacros

  - Use **d:\mymacros** to store your own macros and profiles. This helps prevent changes being lost on release upgrades.

Editor Programming - EXTRAS

- Remains on until disabled

  EXTRAS OFF or **EXTRAS -> Disable Extras**

- Change at any time

  EXTRAS ON d:\myothermacros

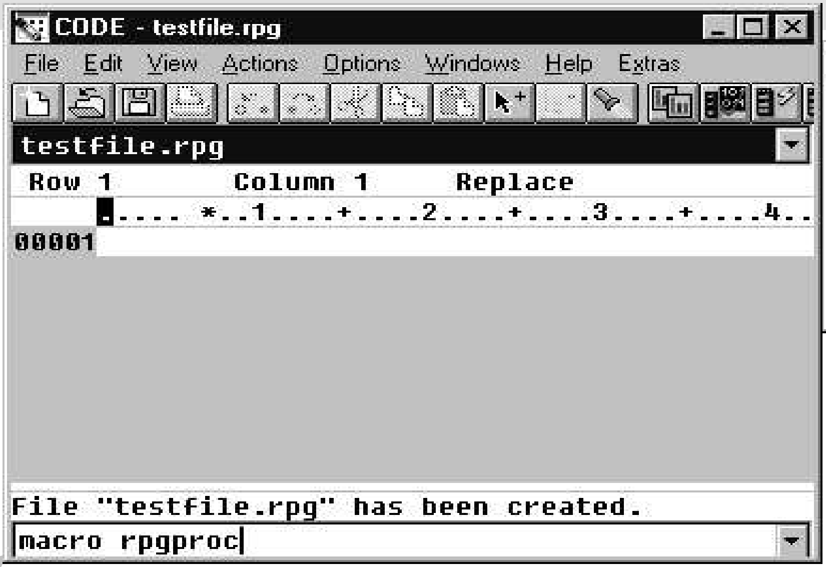
- Specify multiple directories

  EXTRAS ON d:\mymacros;e:\workmacros

- Open local files
  - The LX editor command used to open files uses same search path for local files.

Writing a REXX macro

1 Open a new ILE RPG file: 'testfile.rpg'

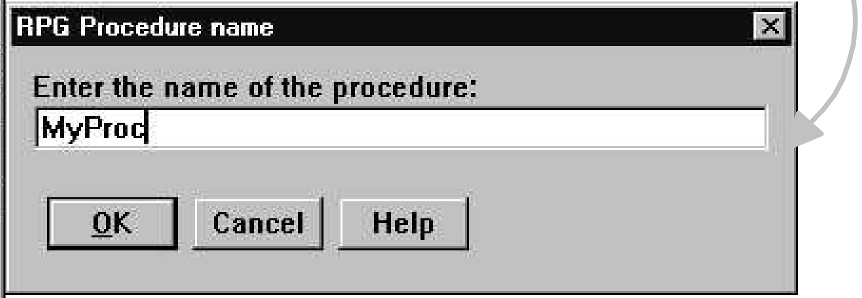


```
testfile.rpg
 Row 1          Column 1        Replace
      .... *..1....+....2....+....3....+....4..
```

```
File "testfile.rpg" has been created.
macro rpgproc
```

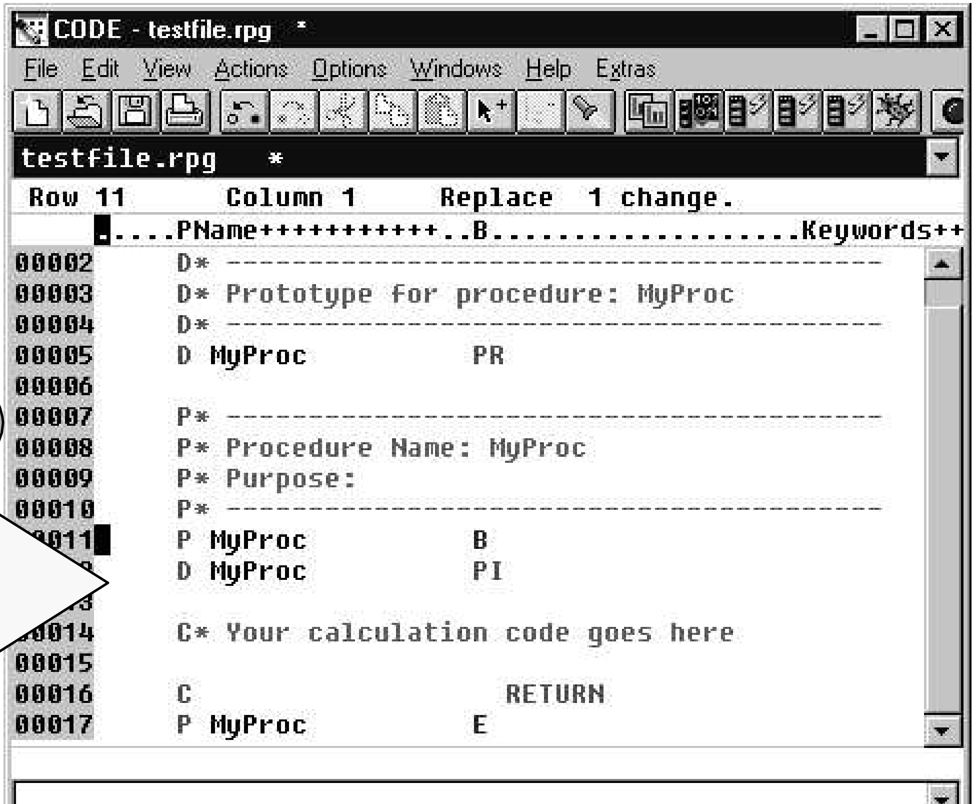
2 Execute macro rpgproc

3 Prompt for the name of the new procedure. User enters name and clicks OK.



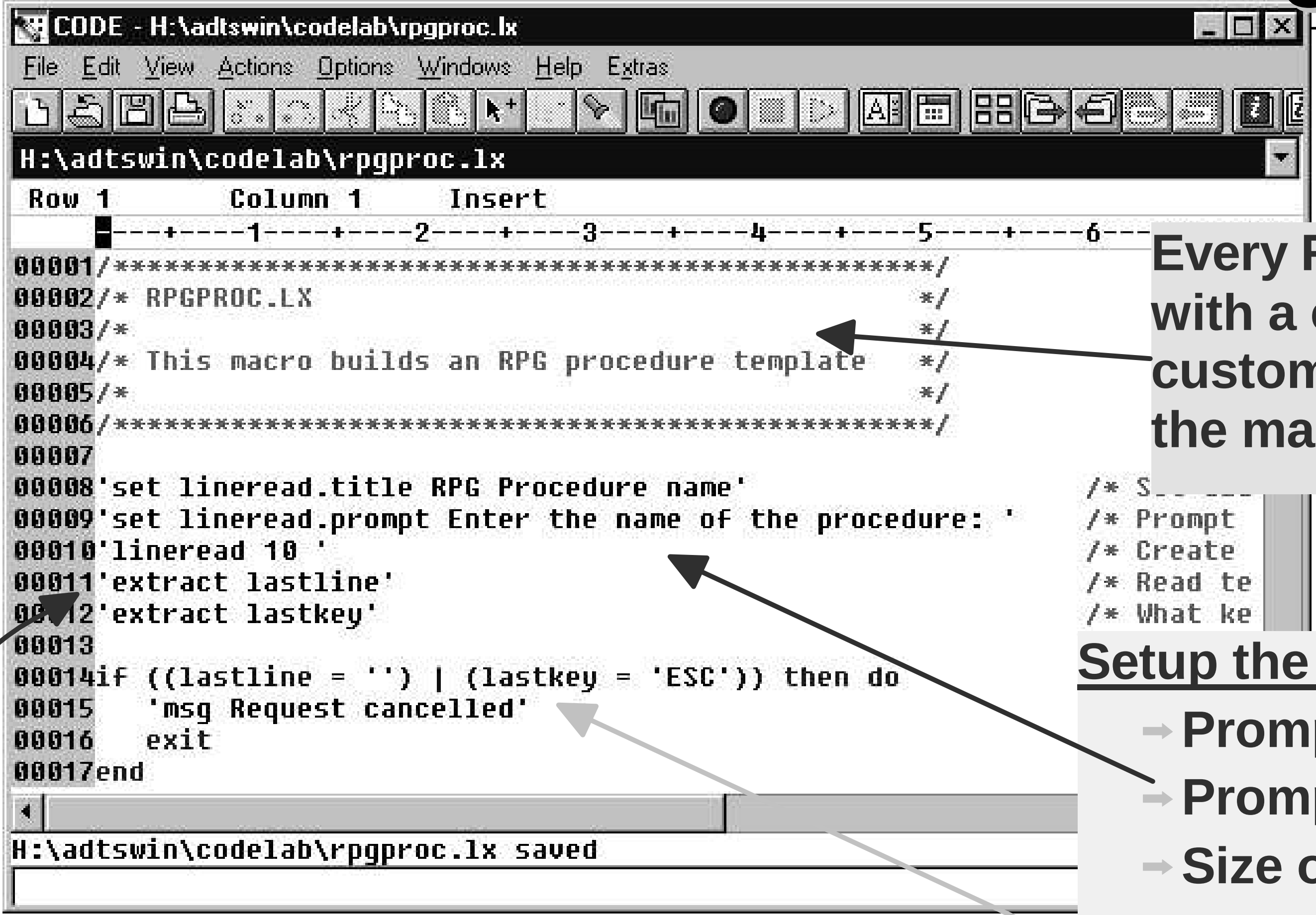
Enter the name of the procedure: MyProc

4 Create a template for the procedure **MyProc** (name, entered by the user...)



```
testfile.rpg    *
 Row 11        Column 1      Replace    1 change.
      ....PName+++++++++++..B..................Keywords++
        D* ---------------------------------------------
        D* Prototype for procedure: MyProc
        D* ---------------------------------------------
        D MyProc          PR

        P* ---------------------------------------------
        P* Procedure Name: MyProc
        P* Purpose:
        P* ---------------------------------------------
        P MyProc          B
        D MyProc          PI

        C* Your calculation code goes here

        C                   RETURN
        P MyProc          E
```

REXX macros - creating prompts



H:\adtswin\codelab\rpgproc.lx

Row 1 Column 1 Insert

```
/*****************************************************/
/* RPGPROC.LX                                        */
/*                                                   */
/* This macro builds an RPG procedure template       */
/*                                                   */
/*****************************************************/

'set lineread.title RPG Procedure name'                  /* S
'set lineread.prompt Enter the name of the procedure: '  /* Prompt
'lineread 10 '                                           /* Create
'extract lastline'                                       /* Read te
'extract lastkey'                                        /* What ke

if ((lastline = '') | (lastkey = 'ESC')) then do
   'msg Request cancelled'
   exit
end
```

H:\adtswin\codelab\rpgproc.lx saved

Every REXX program starts with a comment. It is customary to explain what the macro is doing...

Setup the following parameters:

- Prompt box title
- Prompt box label
- Size of the entry field

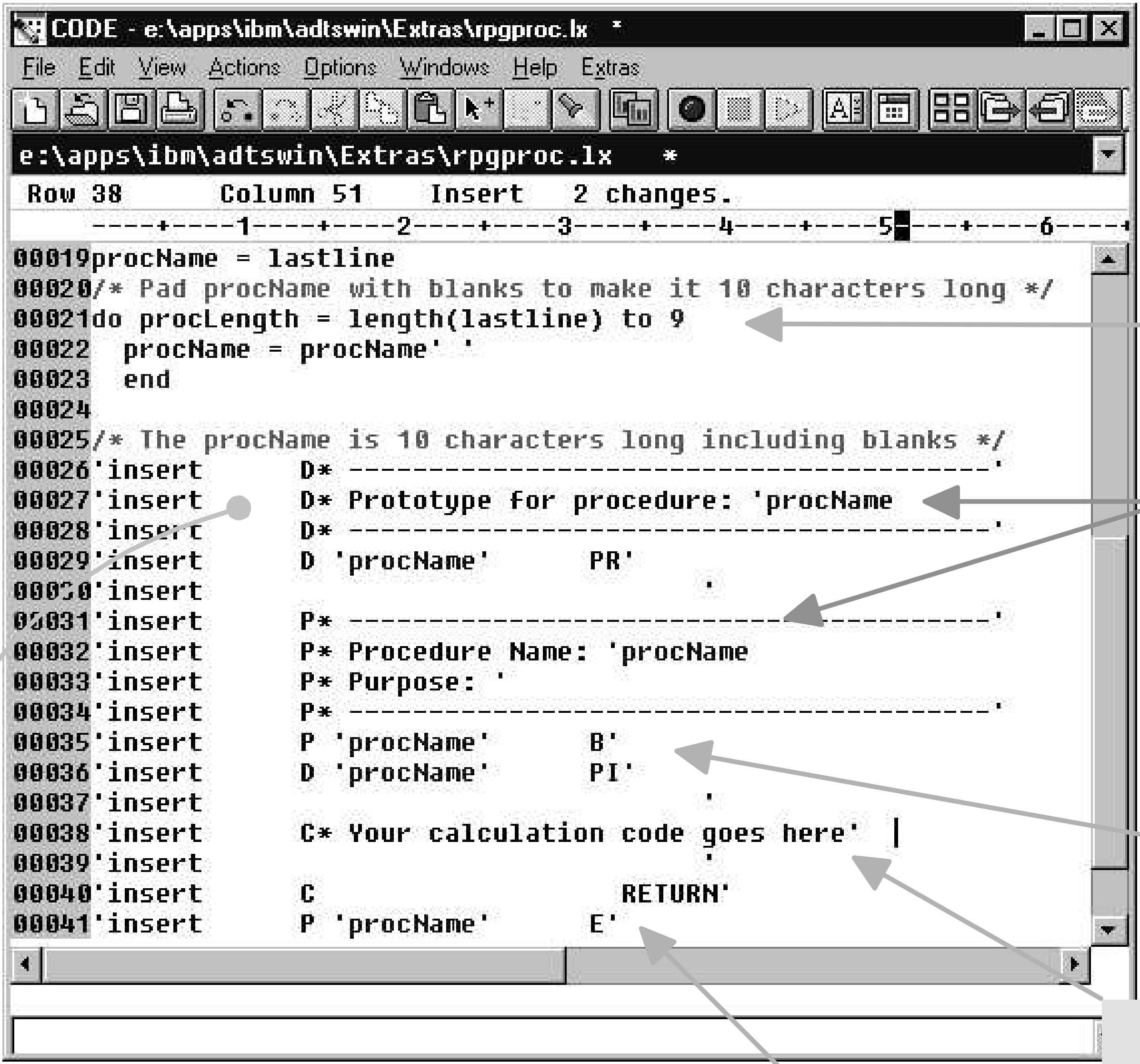
Retrieve the following

- Text typed in the entry field
- Which button was pressed

NOTE:The 'Cancel' button is equivalent to 'ESC' key...

If the user did not enter any text, or pressed 'Cancel', put up an error message and bail out...

REXX macros - creating template


CODE - e:\apps\ibm\adtswin\Extras\rpgproc.lx *
File Edit View Actions Options Windows Help Extras
e:\apps\ibm\adtswin\Extras\rpgproc.lx *
Row 38 Column 51 Insert 2 changes.

```
procName = lastline
/* Pad procName with blanks to make it 10 characters long */
do procLength = length(lastline) to 9
  procName = procName' '
  end

/* The procName is 10 characters long including blanks */
'insert      D* -----------------------------------------'
'insert      D* Prototype for procedure: 'procName
'insert      D* -----------------------------------------'
'insert      D 'procName'      PR'
'insert                                '
'insert      P* -----------------------------------------'
'insert      P* Procedure Name: 'procName
'insert      P* Purpose: '
'insert      P* -----------------------------------------'
'insert      P 'procName'      B'
'insert      D 'procName'      PI'
'insert                                '
'insert      C* Your calculation code goes here'
'insert                                '
'insert      C                   RETURN'
'insert      P 'procName'      E'
```

Pad procName with blanks if needed to make sure it is 10 characters long!!!

Substitution variables are placed outside the quotes!

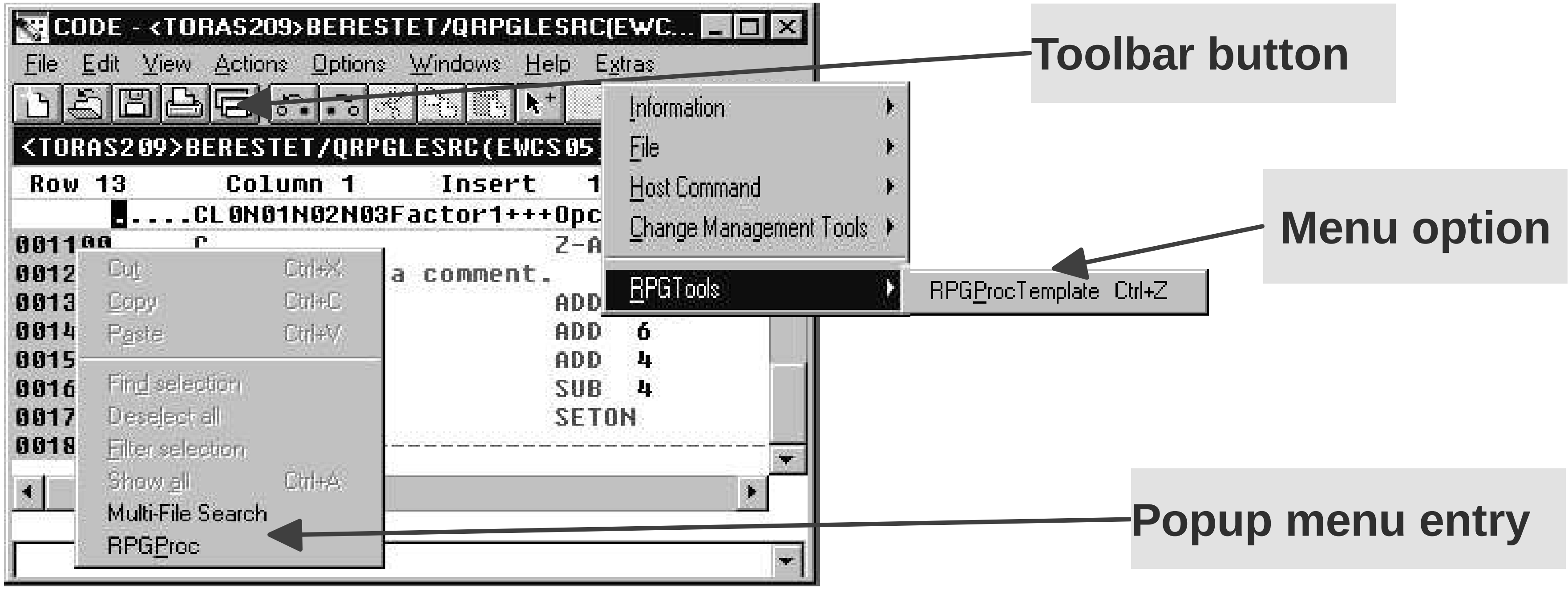
Setup procedure beginning

The C specs of your procedure will be inserted here!

Setup Procedure declaration part.

Setup procedure end

Setting up toolbar and menus



```
<TORAS209>BERESTET/QRPGLESRC(EWCS05
 Row 13       Column 1       Insert     1
       ....CL0N01N02N03Factor1+++Opc
0011..      C                  Z-A
0012                  a comment.
0013                           ADD
0014                           ADD   6
0015                           ADD   4
0016                           SUB   4
0017                           SETON
0018                 ----------------------
```

Toolbar button

Menu option

Popup menu entry

- Add rpgproc macro to the toolbar

  SET TOOLBAR.RPGProc BITMAP _33 HELP "Proc template" 4 macro rpgproc

- Add rpgproc macro to the 'Extras' menu

  SET ACTIONBAR.E~xtras.~RPGTools.RPG~ProcTemplate\tCtrl+Z macro rpgproc

- Add rpgproc macro to the popup menu

  SET POPUPMENU.RPG~Proc rpgproc

Editor Profiles

Special editor macros run at specific times

Profile	When does it run?	Can I change it?
PROFINIT.LXU	When the editor starts.	Yes
PROFSYS.LXU	Just before each file is loaded.	Yes
xxx.LXL xxx = cbl,rpgle400, etc.	After PROFSYS.LXU, but before a file of type xxx is loaded.	No
xxx.LXU	After xxx.LXL but before the file is loaded.	Yes. Add your own xxx specific commands here.
PROFILE.LX	The last profile run before each file is loaded.	Yes
xxx.LXS	Whenever a file of type xxx is saved.	Yes

Editor Profiles: RPGLE400

Sample of the RPGLE400.LXL

```
'SET ACTIONBAR.LP_VIEW.Inden~t RPGIND '
'SET HELP. 12451'

/* Add Navigator */
'LXR NAVIG.LX'

'SET ACTIONBAR.LP_VIEW.~Match.~Select MACRO MATCH '
'SET HELP. 16154'
'SET ACCELERATOR. C-M'
'SET ACTIONBAR.LP_VIEW.~Match.~Jump MACRO MATCH JUMP'
'SET HELP. 16155'
'SET ACCELERATOR. C-S-M'

'SET ACTIONBAR.LP_VIEW.~Cross_reference macro runjava RPGXReference'
'SET HELP. 16196'

'SET ACTIONBAR.LP_VIEW.~/COPY_member_(SEE) MACRO RPGINC'

'SET ACTIONBAR.LP_ACTIONS.SEPARATOR ;'
'SET ACTIONBAR.LP_ACTIONS.Smart~Guides.Create_~procedure... macro runjava LpexRPGProcSG'
'SET GROUP. WRITEABLE'
'SET HELP. 16197'
```

User defined sample of the **RPGLE400.LXU**

```
/* Setup the menu, tollbar, and pop-up menu item */
'SET ACTIONBAR.E~xtras.~RPGTools.RPG~ProcTemplate\tCtrl+Z macro rpgproc'
'SET TOOLBAR.RPGProc  BITMAP _33 HELP "Create RPG proc template" 4  macro rpgproc'
'SET POPUPMENU.RPG~Proc rpgproc'
```

CODESRV command

- CODESRV is a workstation command that can be used to:
  - Get a list of active host CODE servers.

    ```
    CODESRV SERVER
    ```

  - Shutdown all or specific servers.

    ```
    CODESRV SHUTDOWN

    CODESRV /S OS400
    ```

  - Send commands to the iSeries.

    ```
    CODESRV EXEC OS400 STRSEU OPTION(6)
      SRCFILE(CODELAB01/QDDSSRC)
    SRCMBR(MSTDSP)
    ```

CODESRV command, cont'd

- Download source

```
CODESRV GET OS400
"CODELAB01/QDDSSRC(MSTDSP)" c:\mstdsp.dspf
```

- Upload source

```
CODESRV PUT OS400 c:\mstdsp.dspf
  "CODELAB01/QDDSSRC(MSTDSP)"
```

- Get lists of objects that match a filter

```
CODESRV LIST OS400 "CODELAB01/QDDSSRC(*)"
```

- You can imbed the command in your macros.

Using CODESRV in a macro

SEUPRINT macro prints the current member being edited on the host. It is shipped with CODE.

```
/* SEUPRINT - a macro to print the current member being edited on the host. It uses the  */
/*            SEU print option.                                                         */

/* Blank out the message line */
'msg' '   '
/* Get full name of file being edited */
'extract name'
/* Get the name of the server, file and member */
parse var name '<' server '>' fn '(' mn ')'
/* Drop /ADM from server name if it exists */
parse var server host '/' junk
/* Issue error if this is a LOCAL file... */
if host = 'LOCAL' then do
  'msg Host Print is not valid for local files.'
  'ALARM'
  exit
end

/* Prompt user to save source, then print it on host... */
'SAVEALL PROMPT START CODESRV EXEC 'host' STRSEU SRCFILE('fn')
SRCMBR('mn') OPTION(6) (LOG'

'msg Member printed using STRSEU. See Command Shell for status.'
```

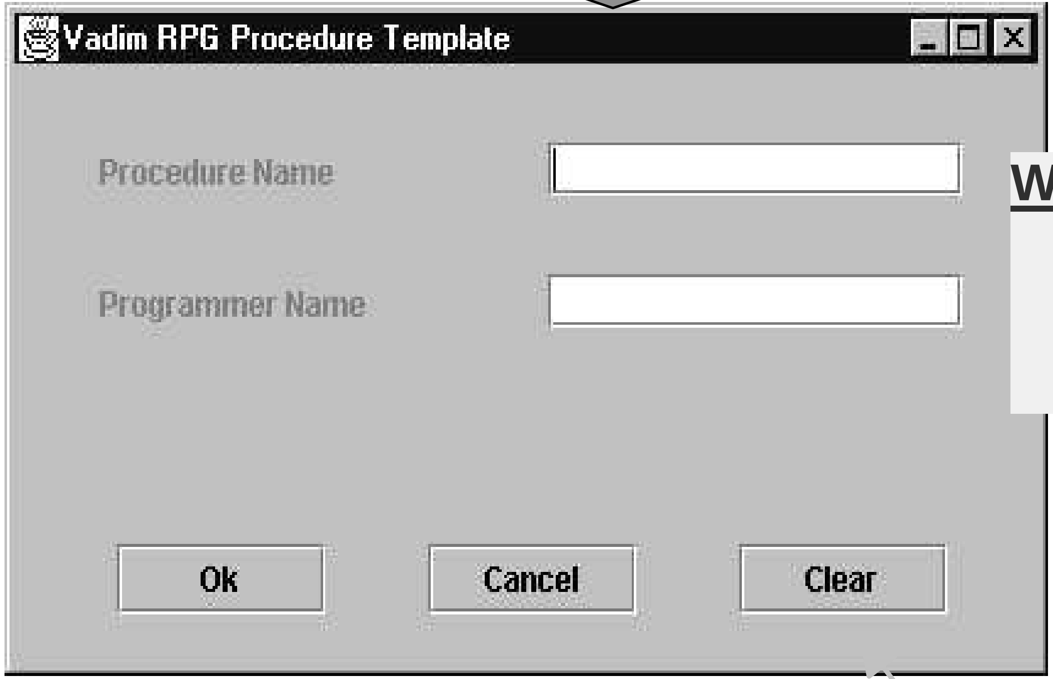
Use the CODESRV command to save the source and print it using SEU print option.

Editor Programming - Lpexlets

- Lpexlets
  - Use Java to customize the editor. Same capability as REXX but with power to create graphical-user-interfaces
  - Classes that can access the editor inherit from the LpexCommand class, the LPEX Java Programming Interface. These classes are called "Lpexlets".
  - Invoke from editor by "RUNJAVA class_name". The class file must be in the CLASSPATH and the class name is case-sensitive.
  - Many samples in sample.jar in WDT400\JAVA.
  - The Java Development Kit (JDK1.2.2) is required to develop Lpexlets. The JDK or Java Runtime Environment (JRE) is required to run them. Both are available from JavaSoft's web site www.javasoft.com.

Editor Programming - Lpexlets

We will enhance our RPGPROC macro with the dialog written in Java - an Lpexlet


Vadim RPG Procedure Template

Procedure Name

Programmer Name

We are going to ask for the

- ➡ Procedure Name
- ➡ Programmer Name

In addition to 'OK' and 'Cancel' we will add a 'Clear' button

Editor Programming - Lpexlets

Every Lpexlet must inherit from the *LpexCommand* class.

You will implement *lpexEntry( )*, main entry function.

Other *LpexCommand* members to be implemented include *lpexNotify( )* and *lpexExit( )*

```
import RPGProcFrame;

public class RPGProc extends LpexCommand
{
   static RPGProcFrame rpgProcFrame = null;

   /* lpexEntry() - main entry point from LPEX.  Overrides LpexCommand's. */
   public static int lpexEntry (String arg)
   {
      if( rpgProcFrame == null )
         rpgProcFrame = new RPGProcFrame();
      rpgProcFrame.setVisible(true);
      return 0;
   } // end lpexEntry()

    // Once the Ok button is pressed, need to set DOCVARs
   public static int setDocVars(String procName, String pgmrName)
   {
      lpexCommand("SET DOCVAR.PROCNAME " + procName);
      lpexCommand("SET DOCVAR.PGMRNAME " + pgmrName);

      lpexCommand("MACRO RPGPROCJAVA");
      return 0;
   } // end setDocVars()
} // end class RPGProc
```

Create an RPGProcFrame object and show the dialog box...

***lpexCommand()* function executes editor commands.**

We need to <u>SET DOCVARs</u> so that these values can be read later by the REXX macro.

Our Lpexlet will call REXX macro to generate the procedure template code

Editor Programming - Lpexlets

Data definitions for the RPGProcFrame class.
Every GUI control has a *private* data member associated with it.

```
import javax.swing.*;
import javax.swing.event.*;
import java.awt.*;
import java.awt.event.*;

public class RPGProcFrame extends JFrame implements ActionListener
{
    private JPanel contentPane = null;

    private JButton cancelButton = null;
    private JButton clearButton  = null;
    private JButton okButton     = null;

    private JLabel pgmrNameLabel = null;
    private JLabel procNameLabel = null;
    private JTextField pgmrNameTextField = null;
    private JTextField procNameTextField = null;
               ...............................
               ...............................
} // end class RPGProcFrame
```

It is a good programming practice to initialize all data members to ***null***.

***RPGProcFrame* class extends *JFrame* class and implements *ActionListener* interface.**

Java's ideas of multiple inheritance!

***JPanel* object provides a 'home' for all other GUI controls. In the literature, people may call it a client canvas.**

Editor Programming - Lpexlets

```
/* Class constructor */
 public RPGProcFrame()
{
     super();
     setSize(426, 240);
     setTitle("Vadim RPG Procedure Template");

     // Create Ok button object
     okButton = new JButton("Ok");
     okButton.setBounds(42, 170, 85, 25);
     okButton.addActionListener(this);

     // Create text label for procedure nanme
     procNameLabel = new JLabel("Procedure Name");
     procNameLabel.setBounds(35, 27, 146, 20);
     // Creating an entry field for procedure name
     procNameTextField = new JTextField();
     procNameTextField.setBounds(218, 27, 169, 19);

     // Construct the JPanel object - client canvas and add all controls
     contentPane = new JPanel();
     contentPane.setLayout(null);

     // Add all entry controls and corresponding Labels to the client pane
     contentPane.add(procNameLabel, procNameLabel.getName());
     contentPane.add(procNameTextField, procNameTextField.getName());
     contentPane.add(okButton, okButton.getName());

     // Now that everything is constructed, set the client pane to contentPane
     setContentPane(contentPane);
                               ..........
                               ..........
 } // end constructor()
```

Every class needs a constructor!

Creating an 'OK' button and making the *JFrame* object listen to the button clicks.

Creating a label and an entry field for the Procedure Name

A *JPanel* object that resides inside the *JFrame!*

Adding freshly created GUI controls to the *JFrame*.

Editor Programming - Lpexlets

actionPerformed() **is defined by the *ActionListener* interface. It has to be implemented by any class that implements this interface!**

Usually used for processing button and menu events...

```
/**
 * Overwrite actionPerformed() method of the ActionListner interface
 * If any registered button is pressed, this method gets invoked
 */
public void actionPerformed(ActionEvent evt)
{
  // First of all figure which button was just pressed
  String arg = evt.getActionCommand();

  if( arg.equals("Ok") )
  {
    RPGProc.setDocVars(procNameTextField.getText(), pgmrNameTextField.getText());
    dispose();
  } // end if(Ok button is pressed)
  else if( arg.equals("Cancel") )
  {
    dispose();
  } // end if(Cancel button is pressed)
  else if( arg.equals("Clear") )
  {
    procNameTextField.setText("");
    pgmrNameTextField.setText("");
  } // end if(Help button is pressed)
} // end actionPerformed()
```

Figure which button was pressed.

In the case of 'OK' button, call into the RPGProc class to set the DOCVARS.

On 'Cancel' just dispose( ) of the dialog...

'Clear' button was pressed - clear up all entry fields.

Editor Programming - Lpexlets

Lpexlet has set the DOCVARs. That is how we retrieve the values of the Procedure and Programmer Name

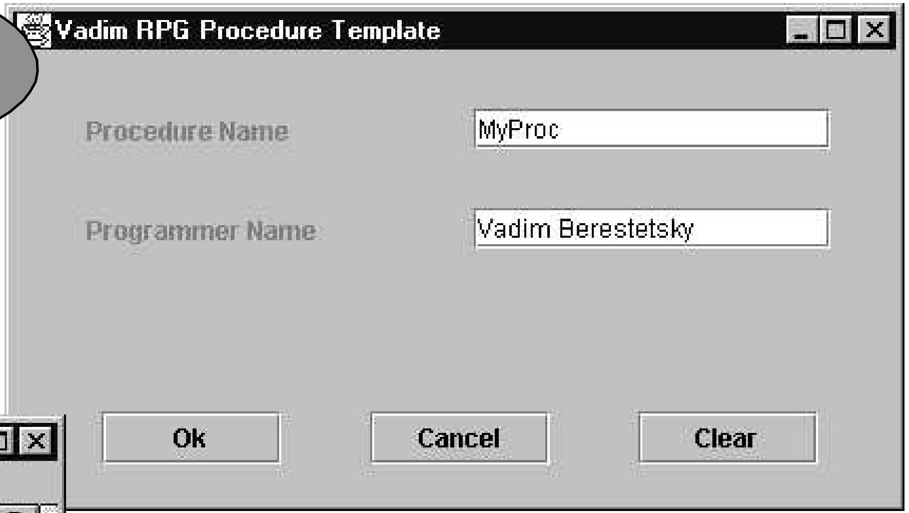
```
/* Read in the DOCVARs that are set by the Lpexlet */
'EXTRACT DOCVAR.PROCNAME INTO 'procName
'EXTRACT DOCVAR.PGMRNAME INTO 'pgmrName

/* Pad procName with blanks to make it 10 characters long */
do procLength = length(procName) to 9
  procName = procName' '
  end

/* The procName is 10 characters long including blanks */
'insert      D* ----------------------------------------'
'insert      D* Prototype for procedure: 'procName
'insert      D* ----------------------------------------'
'insert      D 'procName'      PR'
'insert                        '
'insert      P* ----------------------------------------'
'insert      P* Procedure Name: 'procName
'insert      P* Purpose:        '
'insert      P* Written by:     'pgmrName
'insert      P* ----------------------------------------'
'insert      P 'procName'      B'
'insert      D 'procName'      PI'
'insert                        '
'insert      C* Your calculation code goes here'
'insert                        '
'insert      C                 RETURN'
'insert      P 'procName'      E'

'trigger fullparse'
```

We will re-use the template generation code from the already written REXX macro RPGPROC.LX

(Just add Programmer's name)

Editor Programming - Lpexlets

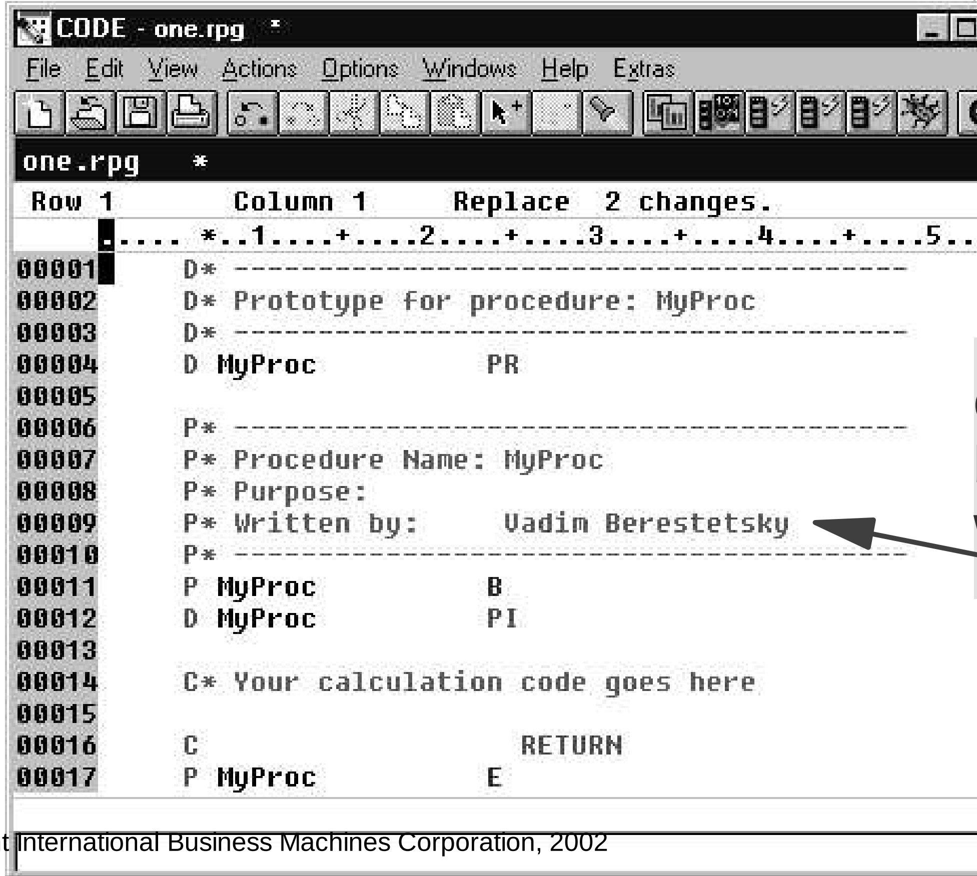
The Prompt



Procedure Name: MyProc

Programmer Name: Vadim Berestetsky

The generated template



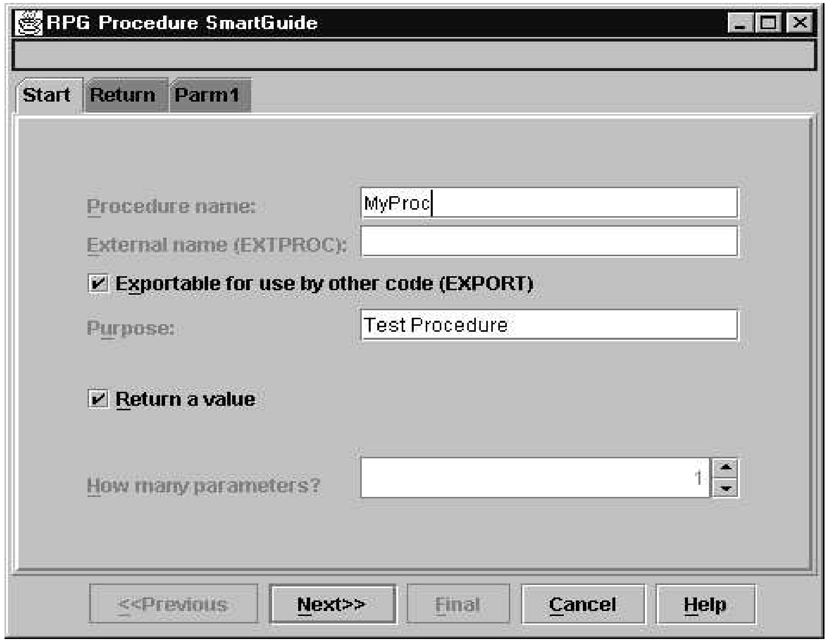
```
Row 1        Column 1     Replace  2 changes.
 ..... *..1....+....2....+....3....+....4....+....5....+
00001       D* ----------------------------------------
00002       D* Prototype for procedure: MyProc
00003       D* ----------------------------------------
00004       D MyProc          PR
00005
00006       P* ----------------------------------------
00007       P* Procedure Name: MyProc
00008       P* Purpose:
00009       P* Written by:     Vadim Berestetsky
00010       P* ----------------------------------------
00011       P MyProc          B
00012       D MyProc          PI
00013
00014       C* Your calculation code goes here
00015
00016       C                   RETURN
00017       P MyProc          E
```

Compare to the template generated by the REXX macro.

We added the Programmer's Name

Creating Smart Guides

The ultimate RPG procedure template Lpexlet. It is written based on the Java Smart Guide Framework that is shipped with CODE/400.



Procedure name: MyProc

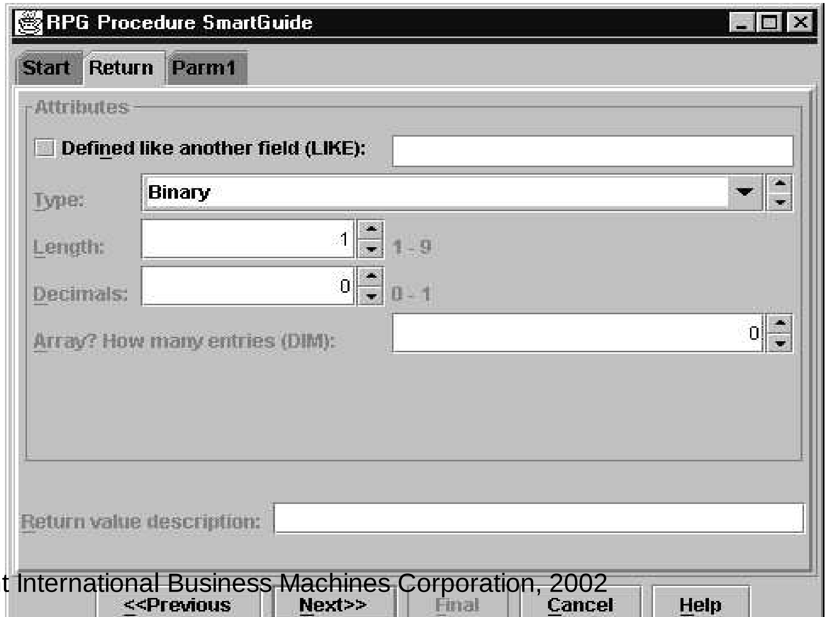
External name (EXTPROC):

☑ Exportable for use by other code (EXPORT)

Purpose: Test Procedure

☑ Return a value

How many parameters? 1



□ Defined like another field (LIKE):

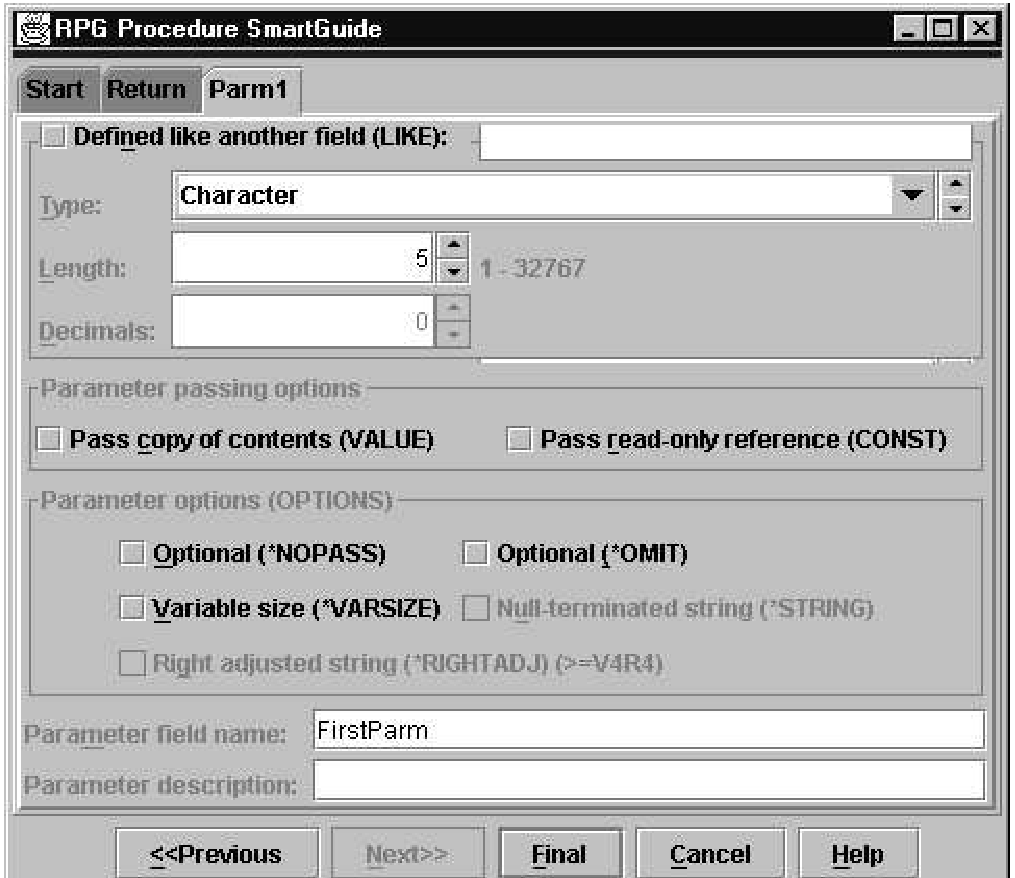
Type: Binary

Length: 1 1 - 9

Decimals: 0 0 - 1

Array? How many entries (DIM): 0

Return value description:



□ Defined like another field (LIKE):

Type: Character

Length: 5 1 - 32767

Decimals: 0

Parameter passing options

□ Pass copy of contents (VALUE) □ Pass read-only reference (CONST)

Parameter options (OPTIONS)

□ Optional (*NOPASS) □ Optional (*OMIT)

□ Variable size (*VARSIZE) □ Null-terminated string (*STRING)

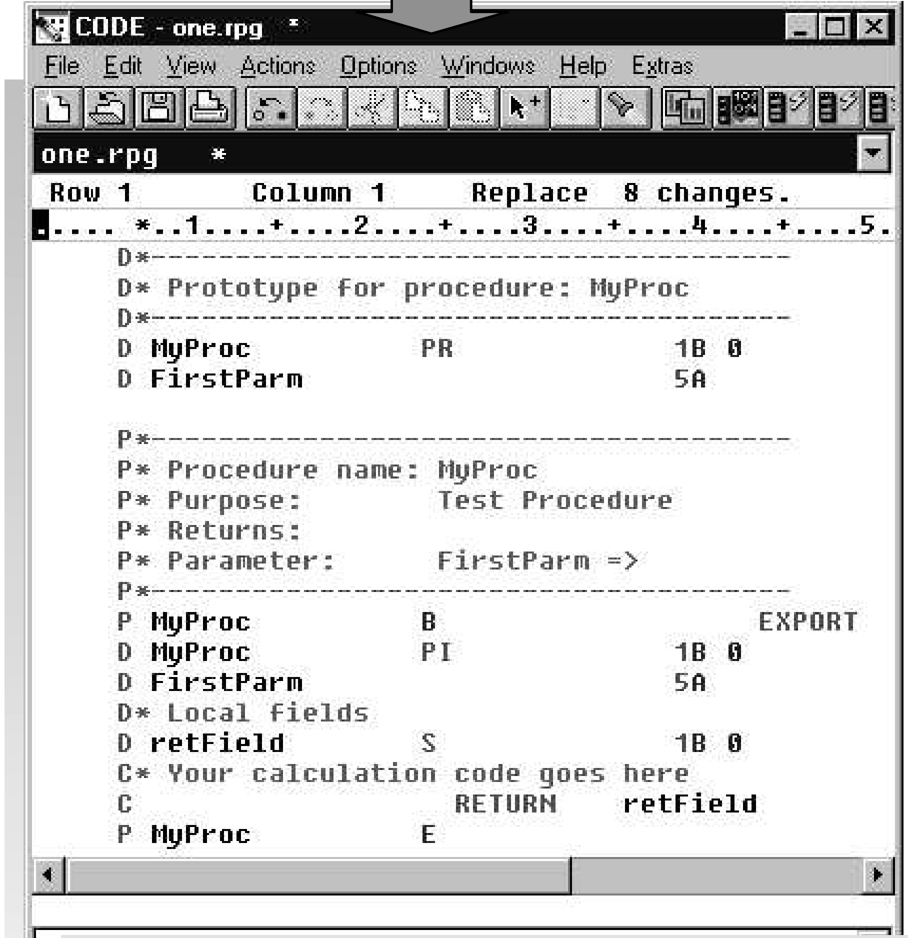
□ Right adjusted string (*RIGHTADJ) (>=V4R4)

Parameter field name: FirstParm

Parameter description:

Creating Smart Guides

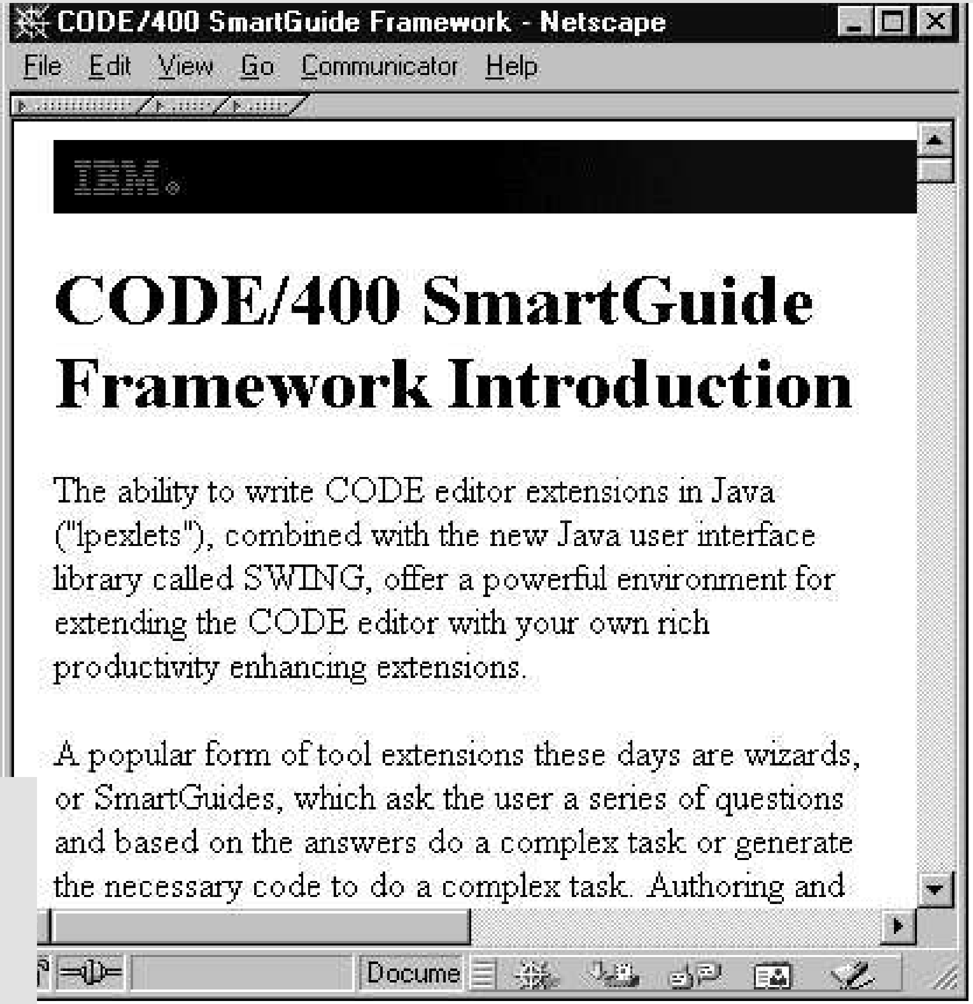
The resulting template



```
one.rpg   *
 Row 1       Column 1     Replace  8 changes.
..... *..1....+....2....+....3....+....4....+....5.
     D*----------------------------------------
     D* Prototype for procedure: MyProc
     D*----------------------------------------
     D MyProc          PR               1B 0
     D FirstParm                        5A

     P*----------------------------------------
     P* Procedure name: MyProc
     P* Purpose:        Test Procedure
     P* Returns:
     P* Parameter:      FirstParm =>
     P*----------------------------------------
     P MyProc          B                     EXPORT
     D MyProc          PI               1B 0
     D FirstParm                        5A
     D* Local fields
     D retField        S                1B 0
     C* Your calculation code goes here
     C                   RETURN    retField
     P MyProc          E
```

To get help for the CODE SmartGuide Framework, select '**Java help**' -> '**SmartGuid** **framework**' from the Help menu.

NOTE: The '**Java help**' option is only availabl when editing Java source.


CODE/400 SmartGuide Framework - Netscape
File Edit View Go Communicator Help
IBM
Docume

CODE/400 SmartGuide Framework Introduction

The ability to write CODE editor extensions in Java ("lpexlets"), combined with the new Java user interface library called SWING, offer a powerful environment for extending the CODE editor with your own rich productivity enhancing extensions.

A popular form of tool extensions these days are wizards, or SmartGuides, which ask the user a series of questions and based on the answers do a complex task or generate the necessary code to do a complex task. Authoring and

Suggestion

To unpack SmartGuide Framework examples, read '**LPEX Java readme**'. It is available from: '**Help** -> '**Java help**'.

Summary

- **IBM's follow-on to SEU, PDM, RLU, SDA**
- **New world, new servers, new tools!**
  - ► **Much higher productivity**
  - ► **Much more fun programming again**
  - ► **Much easier to attract/retain talent**
  - ► **Much more flexibility**
    - ▪ Working disconnected, at home, on the road
    - ▪ Tailor extensively to suit your needs
  - ► **Much easier transition to future**
    - ▪ Today: host applications, new tools
    - ▪ Tomorrow: Web applications!
      - RPG IV, ILE, GUI, VisualAge, Java, WebSphere. . .

WDT Information

- **homepage**
  - ► www.ibm.com/software/ad/wdt400
- **Education**
  - ► S6186 CODE/400 for iSeries -- Basic (2 days)
  - ► S6205 CODE/400 for iSeries -- Advanced (1 day)
- **Order number**
  - ► V4R5M1: 5769-WDS
  - ► V5R1:   5722-WDS
- **Newsgroup**
  - ► news://news.software.ibm.com/ibm. software.code400

iSeries & WebSphere Resources & Deliverables

Series site
www.iseries.ibm.com/

Series WebSphere Application Server
http://www-1.ibm.com/servers/eserver/iseries/software/websphere/wsappserver/

PartnerWorld for Developers, iSeries & WebSphere
http://www.iseries.ibm.com/developer/websphere/

BM eServer Solutions
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Series e-business Solutions
http://www-1.ibm.com/servers/eserver/iseries/ebusiness/

Series B2B Solutions
http://www-1.ibm.com/servers/eserver/iseries/btob/

Connect for iSeries
http://www-1.ibm.com/servers/eserver/iseries/btob/connect/v11high.html

WebSphere Commerce Suite for iSeries
http://www-1.ibm.com/servers/eserver/iseries/ebusiness/wcs51.html

Series and e-commerce
http://www-1.ibm.com/servers/eserver/iseries/ebusiness/ecommerce.htm

Series HTTP Server
http://www-1.ibm.com/servers/eserver/iseries/software/http/index.html

WebSphere Development Studio for iSeries
http://www-3.ibm.com/software/ad/wds400/

Series and WebSphere References
http://www.as400.ibm.com/developer/java/solutions/jjem.html
http://www2.software.ibm.com/casestudies/swcsweb.nsf/platform

Series Solution Finder
http://www.iseries.ibm.com/btobpartner/

iSeries & Domino
http://www-1.ibm.com/servers/eserver/iseries/domino/

Dedicated Server for Domino
http://www-1.ibm.com/servers/eserver/iseries/domino/dsd.htm

Workload Estimator for iSeries, WAS, WCS & Domino, HTTP Server, Java, etc.
http://as400service.ibm.com/estimator/

iSeries Custom Technology Center
http://www-1.ibm.com/servers/eserver/iseries/service/ctc/

iSeries Technical Support
http://as400service.ibm.com/

iSeries Technical Studio
http://www.as400.ibm.com/tstudio/

1st Install for iSeries & WebSphere Application Server
http://www.iseries.ibm.com/developer/websphere/assistance.html

iSeries ToolsNet (Tools & Middleware)
http://www.iseries.ibm.com/developer/tools/

iSeries & Services Network
http://as400service.ibm.com/supporthome.nsf/document/19251245

iSeries e-business Handbook (SG24-5694-01)
http://www.redbooks.ibm.com/abstracts/sg245694.html

WebSphere Commerce Suite With Back-End Order Mgmt.
http://ibm.com/redbooks

iSeries Technology Center
http://www.iseries.ibm.com/service/itc/ebiz.htm

iSeries University
http://www-3.ibm.com/services/learning/community/as400/

iSeries & WebSphere Resources & Deliverables

WebSphere Application Server Overview
http://www-4.ibm.com/software/webservers/appserv/

WebSphere Commerce Suite
www-4.ibm.com/software/webservers/commerce/

WebSphere Payment Manager
www-4.ibm.com/software/webservers/paymgr/

MQSeries
www.ibm.com/software/ts/mqseries

iSeries & WebSphere Documentation

Redbooks & Red Pieces	Form Numbers/Web Sites
Building iSeries Applications for WebSphere Advanced Edition	SG24-5691
Building Java Applications for the iSeries with VisualAge for Java	SG24-6245
Integrating WCS with Domino Back-End Applications	
· http://ibm.com/redbooks (search for REDP0141)	

Java & WebSphere Performance on iSeries

- http://publib-b.boulder.ibm.com/Redbooks.nsf/RedpieceAbstracts/sg246256.html?Open

iSeries Application Development Directions white paper is now available

- http://www.iseries.ibm.com/developer/tools/documents/addir/index.html

Connect for iSeries with WebSphere Commerce Suite Red Paper

- http://www.redbooks.ibm.com/redpapers/pdfs/redp0127.pdf

Tools for Application Reface and Redesign

- http://www.as400.ibm.com/developer/comm/pidtechpapers.html?Tools

Introduction to Enterprise JavaBeans for AS/400	SG24-5192-00
Web enabling AS/400 Applications with WebSphere Studio	SG24-5634-00
Building AS/400 Applications with WebSphere Standard Edition 2.0	SG24-5635-00
Building AS/400 C/S Apps with Java	SG24-2152-02
Building AS/400 Internet-based applications with Java	SG24-5337-00

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