Putting the Pedal to the Metal
RDi from *ZERO to *SIXTY

Charles Guarino

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About the Speaker

With an IT career spanning over 30 years, Charles Guarino has been a consultant for most of them. Since 1995 he has been founder and President of Central Park Data Systems, Inc., a New York area based IBM midrange consulting company. In addition to being a professional speaker and corporate trainer, he is a frequent contributor of technical and strategic articles and webcasts for the IT community. He is a proud member of COMMON's Speaker Excellence Hall of Fame and also Long Island Software and Technology Network's Twenty Top Techies of 2009. Charles currently serves as a member of COMMON's Strategic Education Team (SET) and is also Immediate Past President and monthly Q&A host of LISUG, a Long Island IBM i User's Group www.lisug.org.

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Twitter - @charlieguarino

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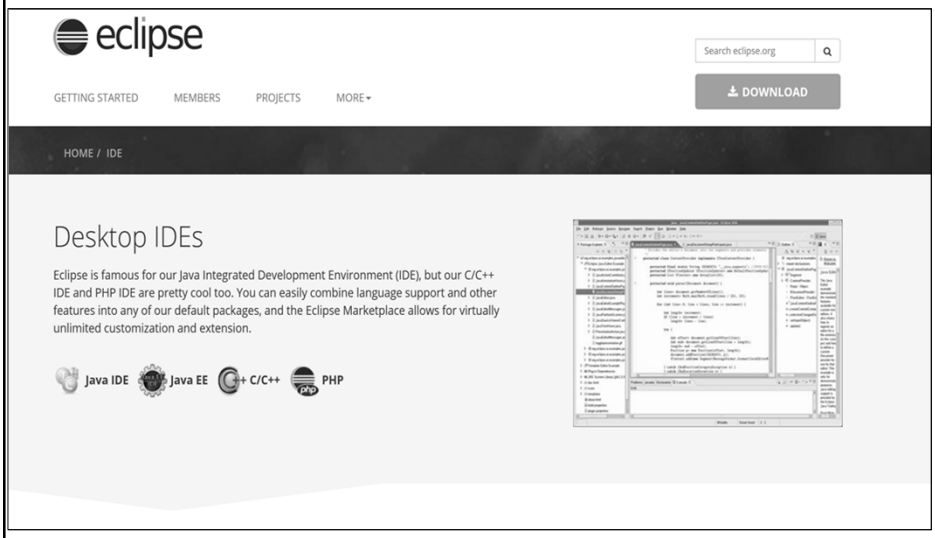
What We'll Cover …

- **What is it?**
- **Perspectives and views**
- **The Remote System Explorer (RSE)**
- **Live Parser Extensible Editor (LPEX)**
- **Using the Debug Perspective**
- **Using the DDS Design Perspective**
- **Wrap Up**

What is it?



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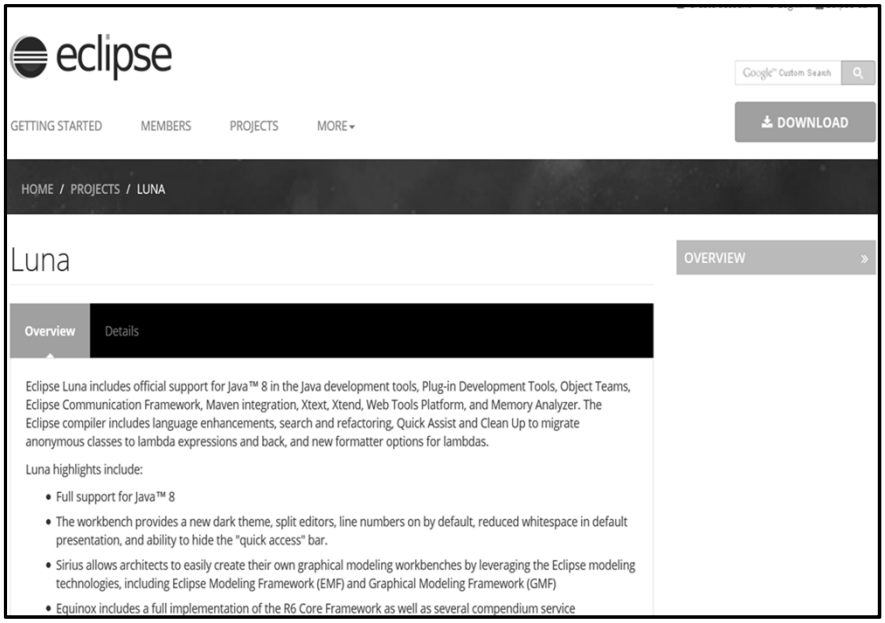
Eclipse 4.4 Luna



IBM Rational Developer for i

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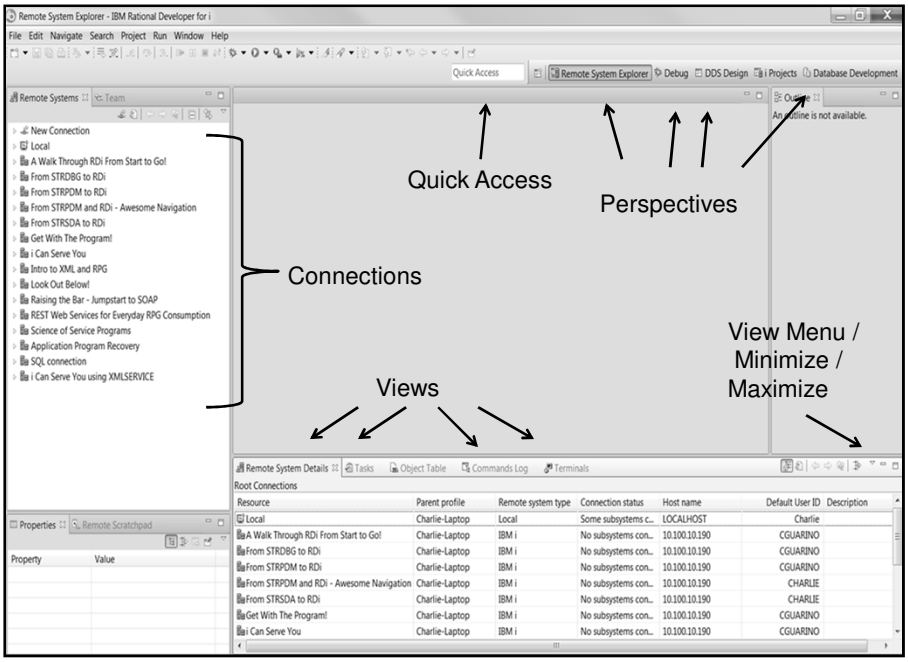

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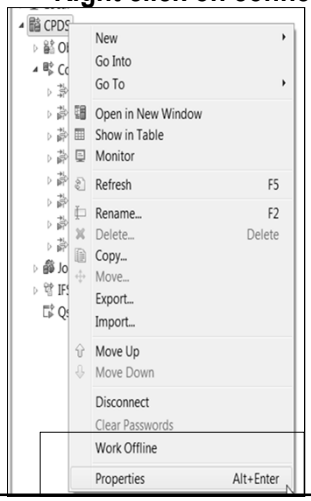
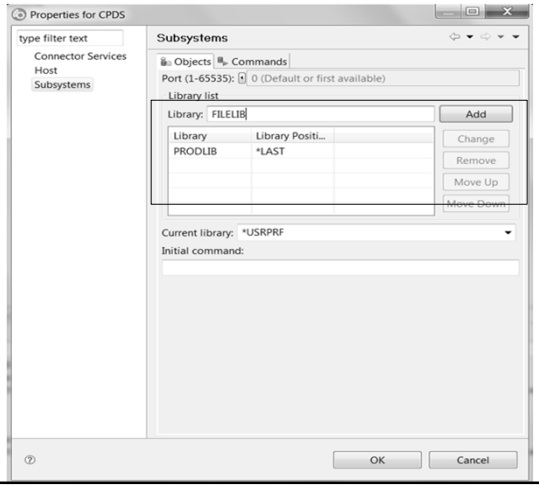
Setting up your initial connection environment

- Initial library list, current library, initial command to run
  - Initial command helpful for dynamic library lists
  - Right click on connection name





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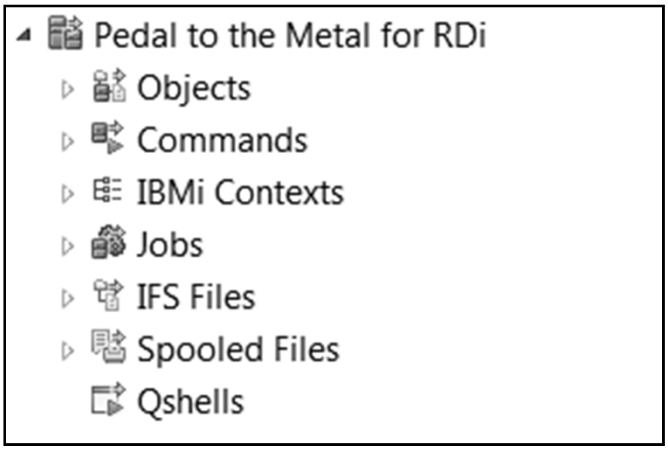
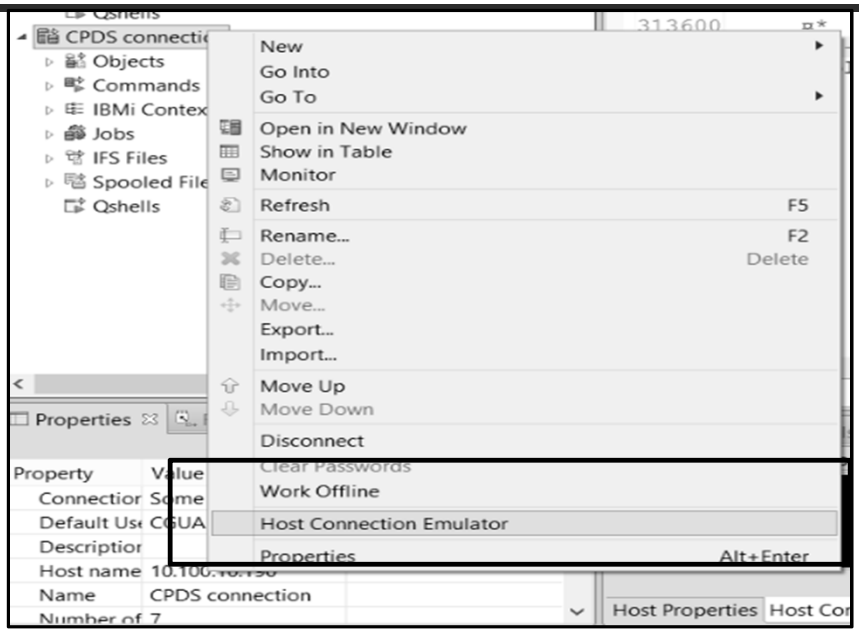
Climbing down the connection navigation tree

- Subsystems are added for each connection that you create
- Let's explore each one and discuss how each one adds value to your tool kit



New with RDi Version 9.5!



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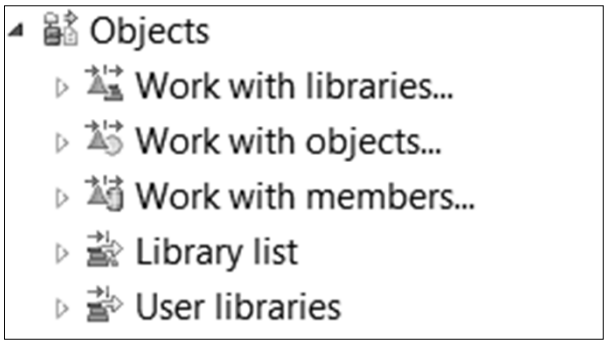
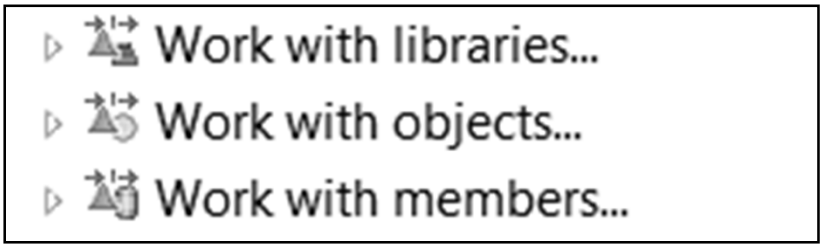
Introducing Objects

- Use to create filters
- Manipulate the connection's library list
- Explore the contents of user libraries



Objects > Work With

- Only looks like PDM ☺
- Used to create filters
- Far more powerful than PDM could ever be



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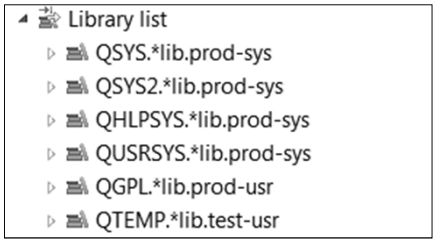
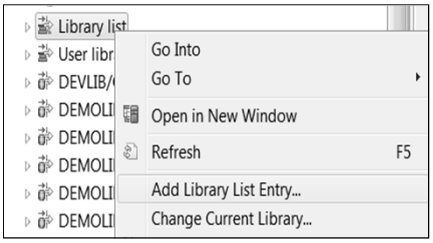
Objects > Library List

- Since each connection is its own session, it will have its own library list
- If you don't configure your session with a permanent entry to your library list you'll only have the basic one shown below.
- Full object authority is in effect
- Right-click to add an entry to this list





Introducing Commands

- A "command" is really a script of multiple commands
- There are several pre-defined commands

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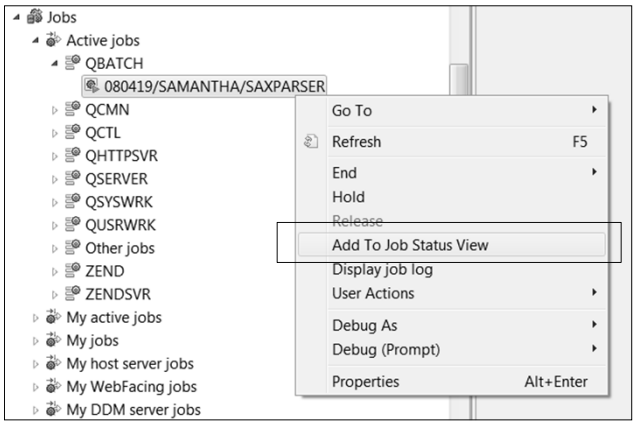
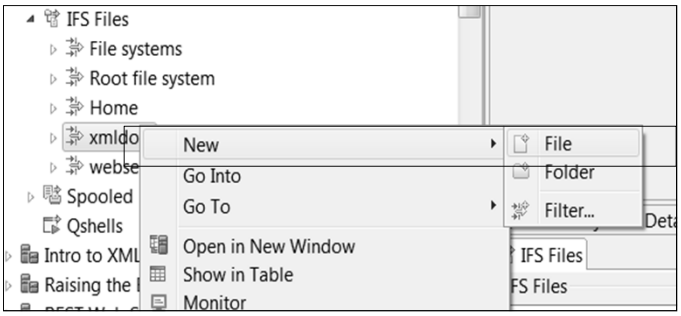
Introducing Jobs

- The jobs list is segregated into different active subsystems
- Right clicking on a job allows you to control and monitor it



Introducing IFS

- A very easy way to navigate through the IFS
- Can create filters as a shortcut to a particular folder
- Makes copying documents to folders a snap using copy and paste
- Can also easily create files and folders in a particular directory



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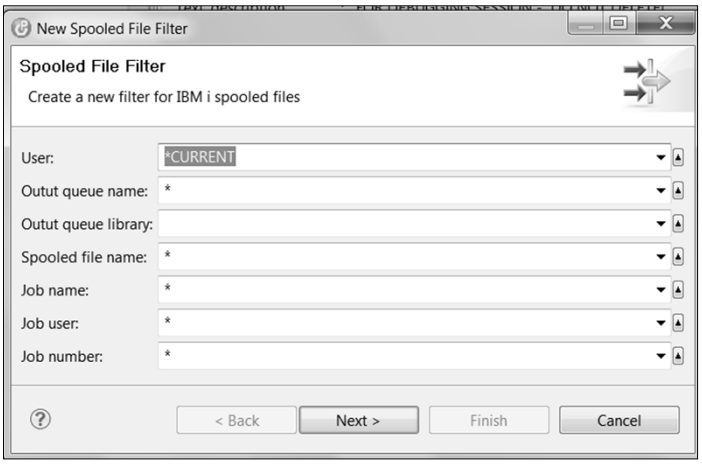
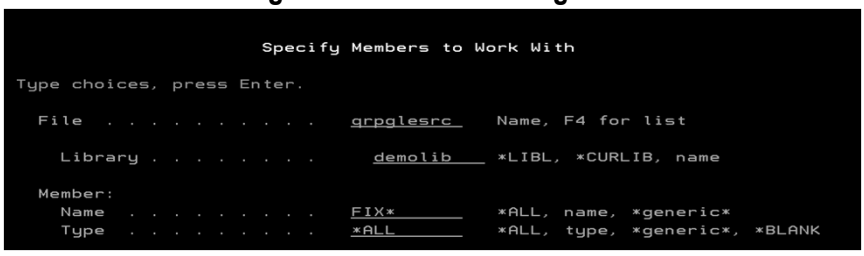
Introducing Spooled Files

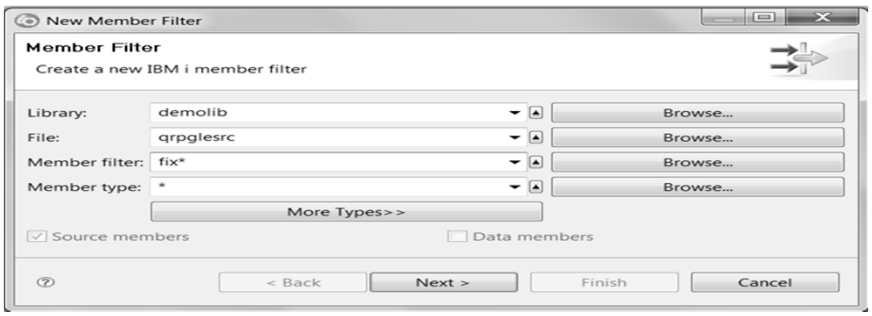
- **Multiple filters can be created to further speed up your searches**



A FILTER limits what objects appear in your current selection

- **You've been using filters in SEU all along**





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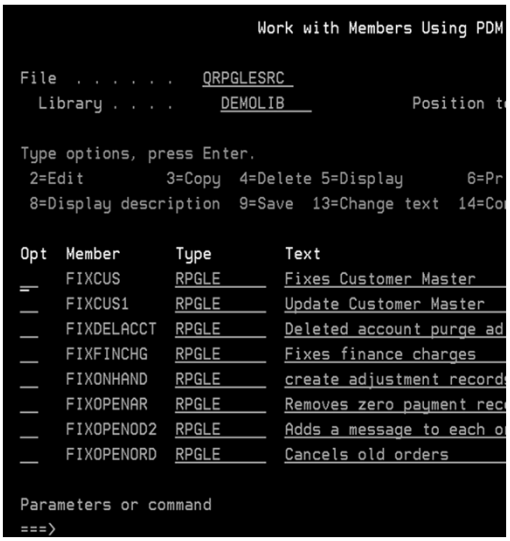
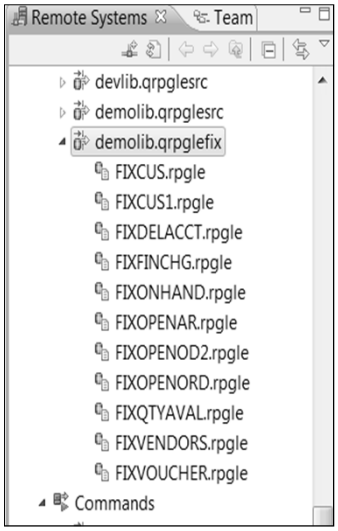
demolib.qrpglefix is the name chosen for this filter

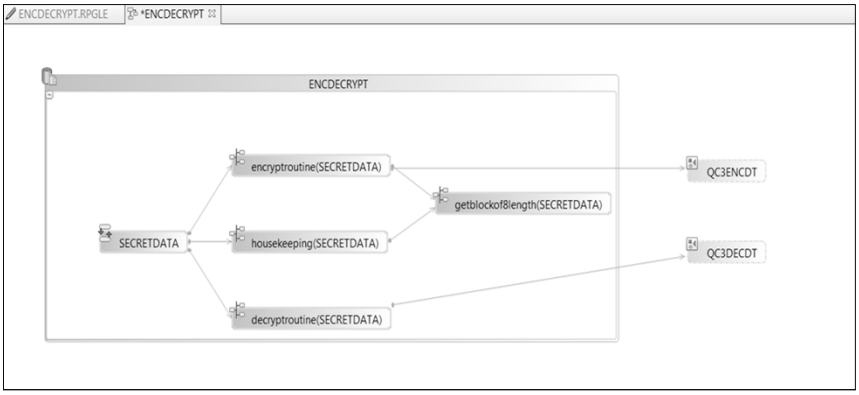
- Click on any filter and its contents open





Visual Application Diagram

- Presents a graphical view of your program flow
- Can be edited and saved as a separate image file in a variety of formats such as .png, .jpeg, .bmp etc.



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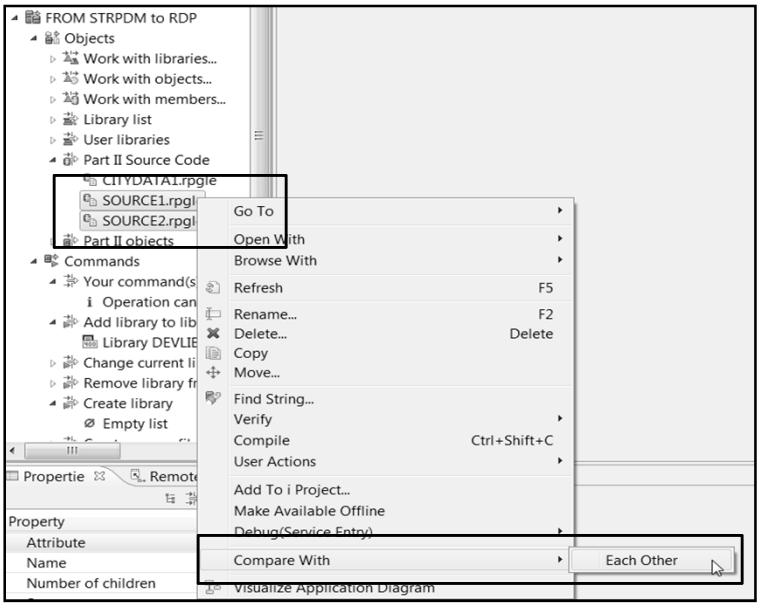
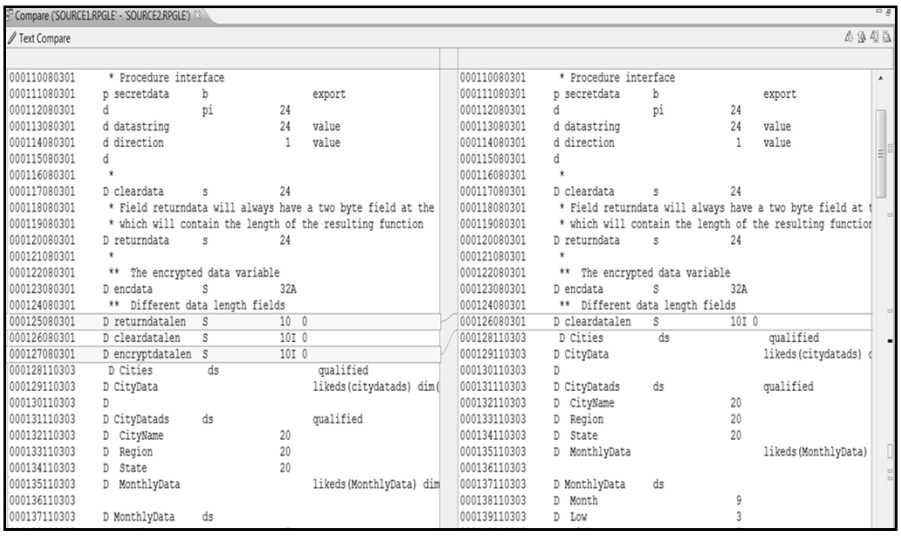
Source Code comparison



Interactive Display Result from Code Comparison



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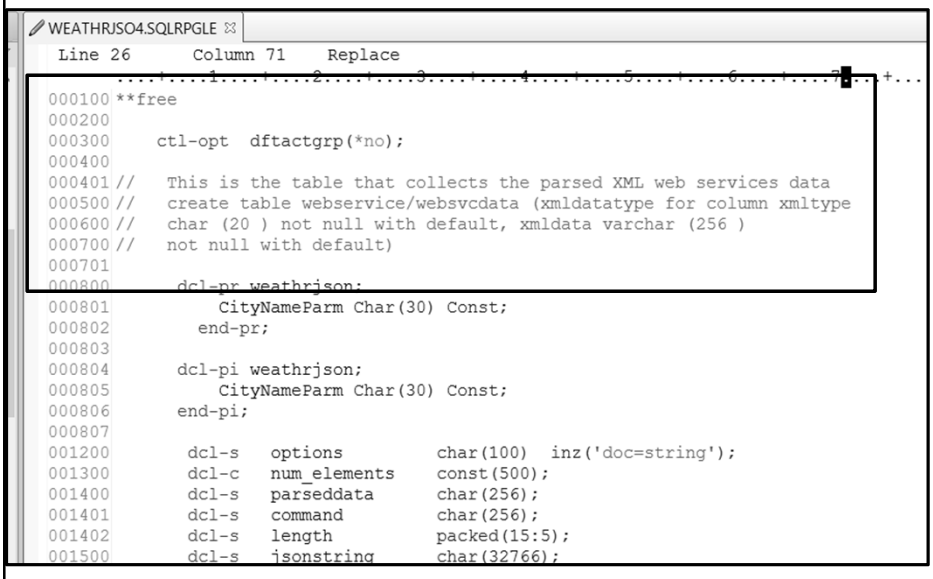

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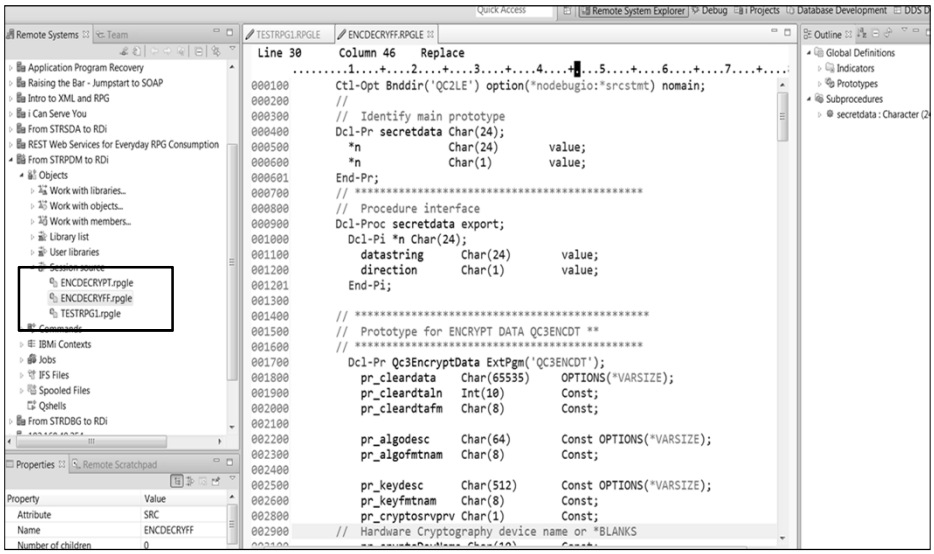
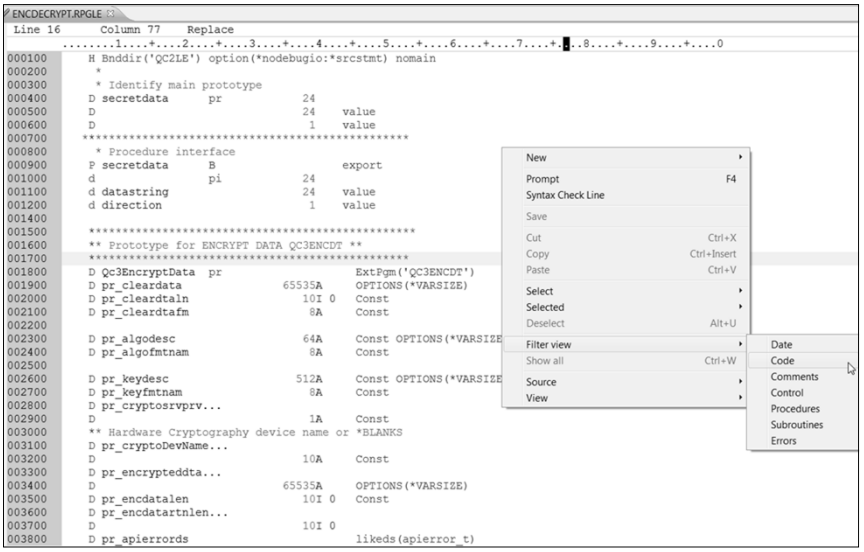
Source code editing in LPEX

- Can select “Open with LPEX” or just double click on member



Source code filtering helps you quickly locate what you need

- Right click anywhere in the source code



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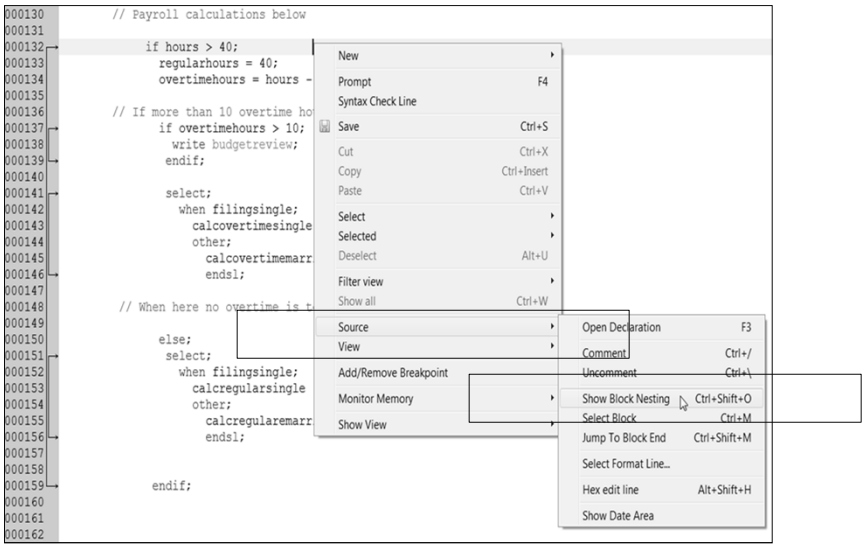
When you select a block of code other options are available

- **Select the block of code, right click and select your function**

Block nesting displays arrows at start and end of logic blocks

- **Position on start of block>Right click>Source>Show Block Nesting**



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Content Assist helps you fill in the blanks

- Ideal for built in functions (bifs)
  - Type a portion of the bif and press CTRL-SPACE
  - Also works with your own procedures

```
25900          // ***************************************************
26000              begsr getblockof8length;
26100         // ***************************************************
26200         //  This routine will receives a random field length and
26300         //  returns a value which is a multiple of 8.
26400         //  Field name is datastringlen.
26500
26600                if  datastringlen <= 8;
26700                  datastringlen = 8;
26800                elseif datastringlen <= 16;
26900                  datastringlen = 16;
27000                elseif datastringlen <= 24;
27100                  datastringlen = 24;
27200                endif;
27300
27301                a = %sub
     RNF0604E The token
27302
27303
27304
27305
27400                end
27500
27600          /end-free
27700       P
```

```
%subarr(array:start-index|numeric-field)
%subarr(array:start-index|numeric-field:nu
%subdt(date|time|timestamp:*ms|*s|*mn|*
%subst(string:start-index)
%subst(string:start-index:length)
```

%SUBST(string:start-index:length)

%SUBST (Get Substring) returns a portion of argument string. It may also be used as the result of an assignment with the EVAL operation code.

Source verification – Out of the park!

- Source>Verify – or – Shift-Ctrl-V
  - Simulates the compiler but doesn't create an object
  - Can be used while offline
  - Double click on an error and RDi goes right to the line

ENCDECRYPT.RPGLE

```
Line 86      Column 7      Replace
.....Name++++++++++ETDsFrom+++To/L+++IDc.Keywords++++++++++++++++++++++++++++Comments++++++++++++
008800     D Algorithm                     10I 0
008900     D BlockLength                   10I 0
009000     D Mode                           1A
009100     D PadOption                      1A
009200     D PadChar                        1A
009300     D Reserved1                      1A
009400     D MACLength                     10I 0
009500     D KeySize                       10I 0
009600     D InzVector                     32A
009700      *
009800      ************************************************
009900      * Define template keyd0200_t                   *
010000      ************************************************
010100      *
010200      * keyd0200_t is the template for the key data structure pgmkeyds
010300     D keyd0200_t      DS                Qualified Based(dummy_template)
010400     D keytype                       10I 0
010500     D keylength                     10I 0
010600     D keyformat                      1A
010700     D reserved                       3A
010800     D value                        256A
010900      *
011000      ************************************************
011100      * Define template aplerror_t                   *
011200      ************************************************
011300      *
Syntax check action completed with no errors.
```

Error List

192.168.2.21>DEMOLIB/QRPGLESRC(ENCDECRYPT)

ID	Message	Severity	Line	Location	Connection
RNF7031	The name or indicator RESERVED is not referenced.	0	70	DEMOLIB/QRPGLESRC(ENCDECRYPT)	CPDS
RNF7031	The name or indicator SECRETDATA is not referenced.	0	4	DEMOLIB/QRPGLESRC(ENCDECRYPT)	CPDS
RNF7031	The name or indicator ALGORITHM is not referenced.	0	86	DEMOLIB/QRPGLESRC(ENCDECRYPT)	CPDS
RNF7031	The name or indicator BLOCKLE... is not referenced.	0	87	DEMOLIB/QRPGLESRC(ENCDECRYPT)	CPDS
RNF7031	The name or indicator MODE is not referenced.	0	88	DEMOLIB/QRPGLESRC(ENCDECRYPT)	CPDS

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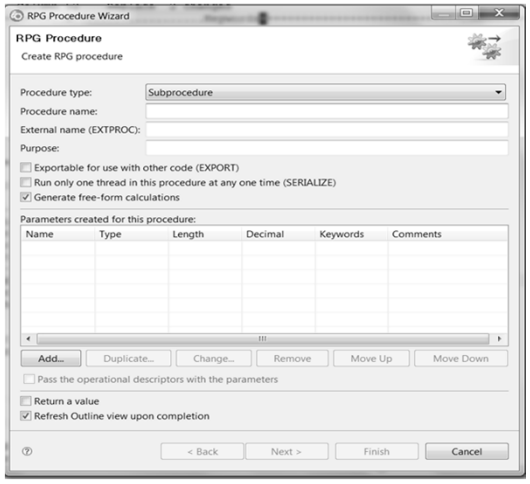
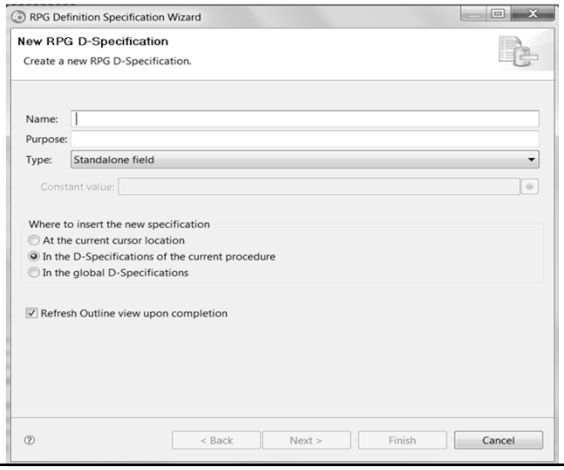
RPG Procedure Wizard removes the complexity

- Source>New>Procedure
  - Creates the procedure interface as well as the prototype



D-Spec wizard – Never have to remember the keywords!

- Source>New>D Specification
  - Used for standalone fields, named constants, program-described, externally-described, program-status and file-information data structures



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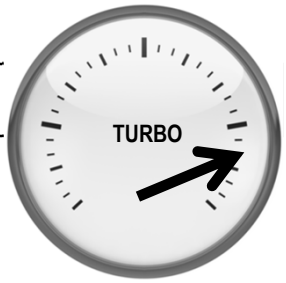

Program we will be debugging

*ENCDEBUG.RPGLE

```
 Line 31      Column 72    Replace  1 change
      .....  Free-Form++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
000100       ctl-opt bnddir('UTILITIES' : 'QC2LE') dftactgrp(*no) actgrp('QILE')
000101
000200           option(*srcstmt : *nodebugio) debug(*input);
000300      *
000301       dcl-f  custmast disk(*ext) keyed usage(*update);
000302
000303       dcl-pr secretdata   char(24);
000304                *n         char(24)  value;
000305                *n         char(1)   value;
000308       end-pr;
000309
000311       dcl-s   cleardata      char(24);
000312       dcl-s   encrypteddata  char(24);
000313       dcl-s   direction      char(1);
000317
001400
001600       read custmast;
001700       dow not %eof (custmast);
001800
001900         direction = 'E';    // Value of 'E' tells procedure to ENCRYPT
002000         cleardata = cclrdata;
002100         encrypteddata = secretdata(cleardata:direction);
002200
002300        //  Update file CUSTMAST with encrypted data
002400         cencdata = encrypteddata;
002500         update custmstr;
002600
002700       read custmast;
002800       enddo;
002900
003000       *inlr = *on;
```

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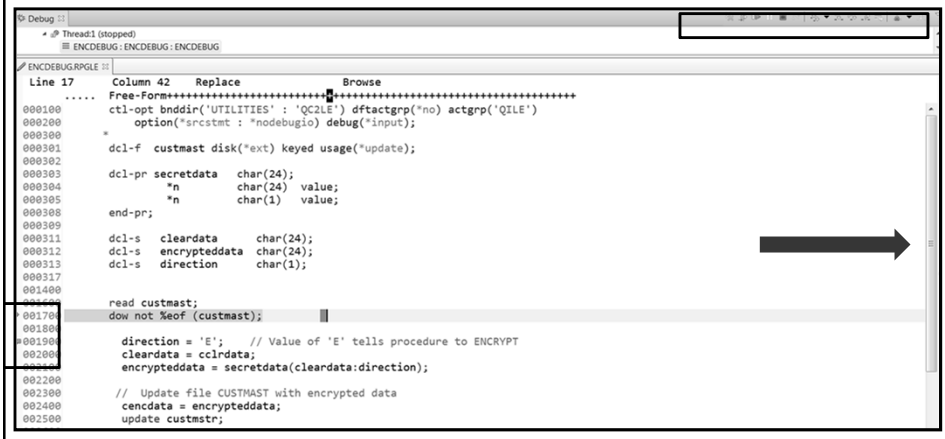
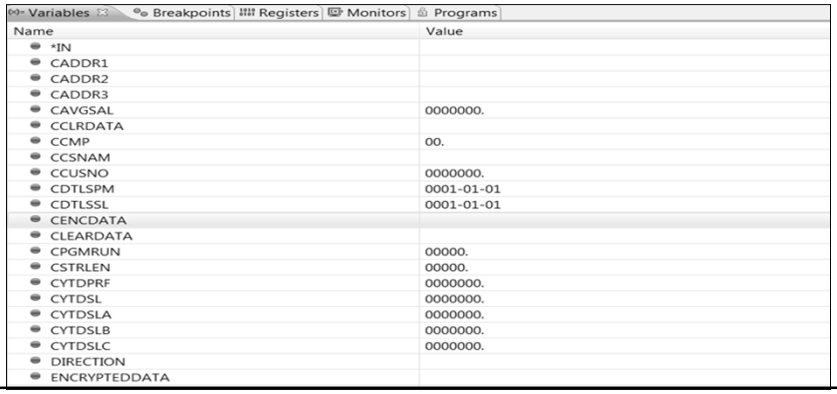
Introducing the DEBUG perspective

- "Wakes up" automatically when a program launched in debug mode or an active service entry point is encountered
- Green line is the current line of execution
- Boxes shows shortcuts, breakpoints and current line of execution pointer



Introducing the VARIABLES view

- All program variables are displayed and updated in real time
  - Each variable will change color when its value changes
- This view is customizable using the drop-down menu
- Right click to change view and add to monitors view
- Values can be changed by simply over-typing



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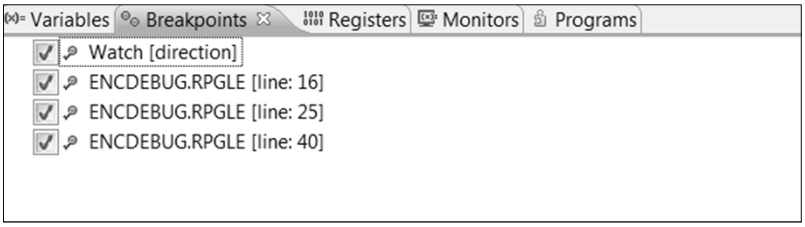
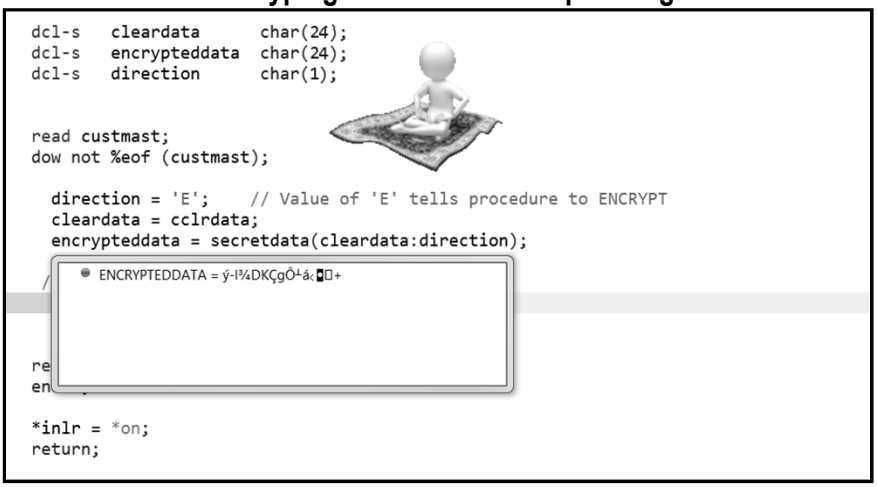
Introducing the BREAKPOINTS view

- Breakpoints can be set at the source level or at runtime
- Breakpoints can be conditional or unconditional
- Can also be disabled so you don't have to delete them
- Watch breakpoints are set at runtime – here we're watching the variable named "direction"



Field hovering

- Position the cursor over a field and its value appears.
- Much easier than typing "ev cleardata" or pressing F11!



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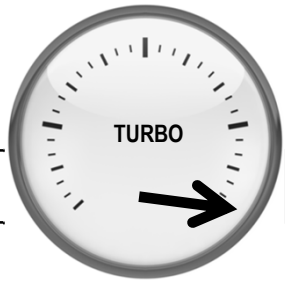
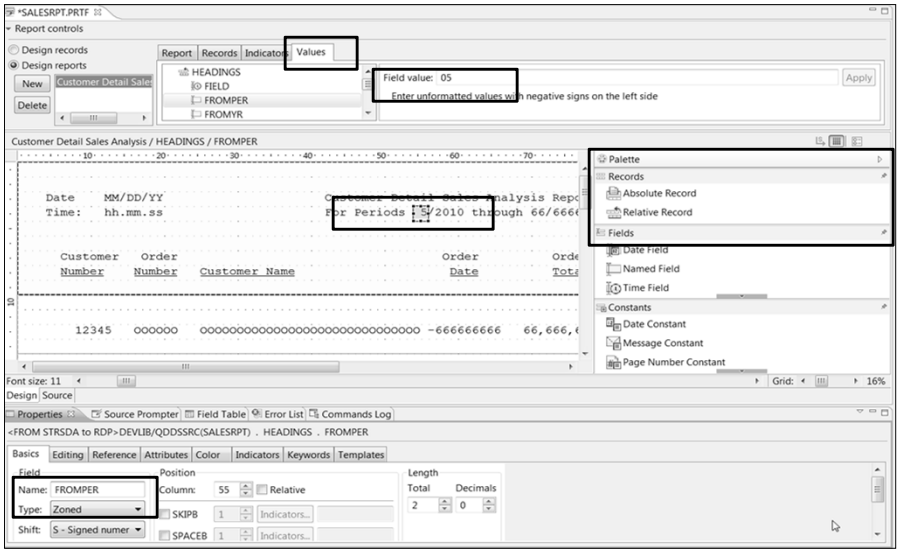


Field "FROMPER" displayed in Properties view



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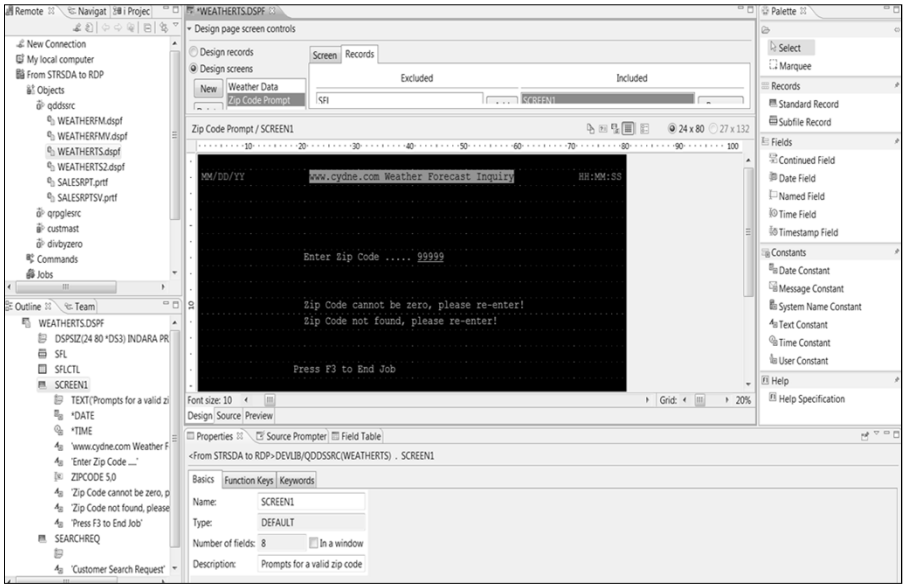
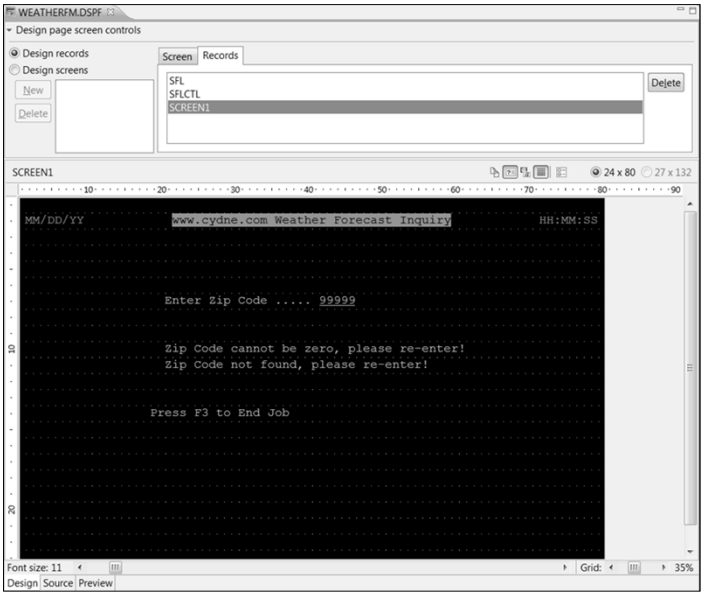
The “out of the box” Screen Design perspective



Introducing the SCREEN EDITING area



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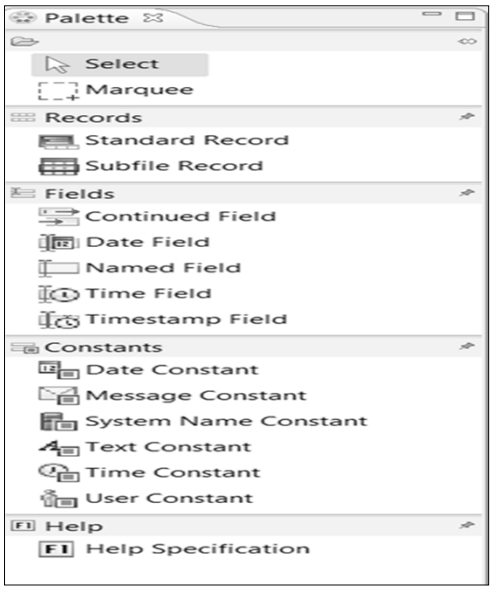
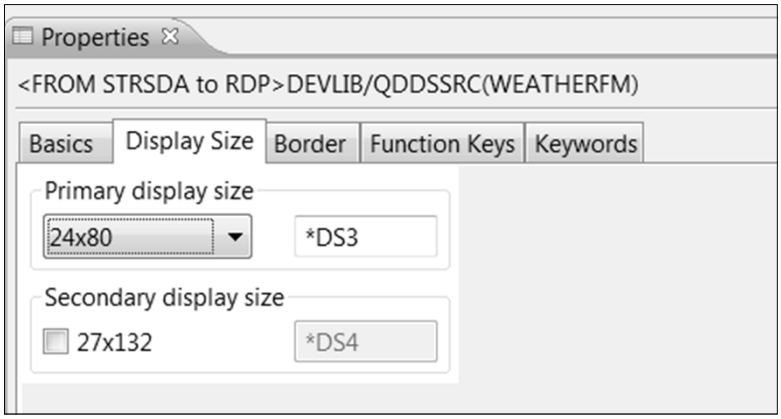
Introducing the PALETTE view



Introducing the PROPERTIES view

- **This is a "smart" real-time view**
  - **Its contents change as you click on different screen or report objects**



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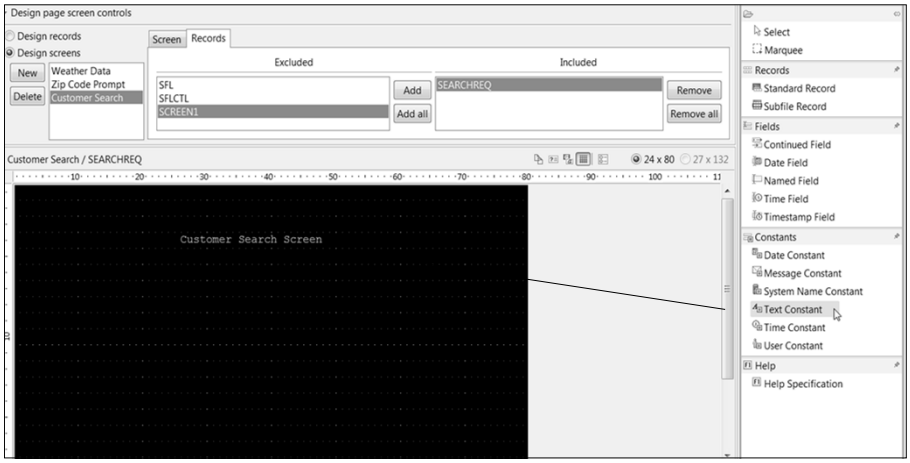
Populating the screen

- Drag the various elements from the palette to build your screen
  - Here a Text Constant was just added



What We'll Cover …

- What is it?
- Perspectives and views
- The Remote System Explorer (RSE)
- Live Parser Extensible Editor (LPEX)
- Using the Debug Perspective
- Using the DDS Design Perspective
- Wrap Up

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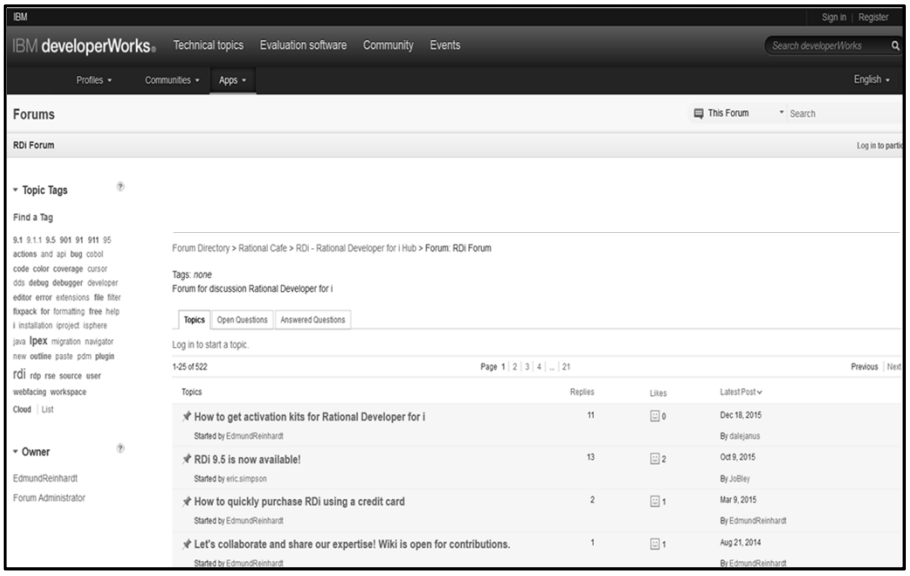
You're not alone Join the conversation!



Putting the Pedal to the Metal
RDi from *ZERO to *SIXTY

Charles Guarino

THANK YOU !!!

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