

COMMON Europe

Enterprise Modernization Tour



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, 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. Charles can be reached at cguarino@centralparkdata.com. LinkedIn - <http://www.linkedin.com/in/guarinocharles> Twitter - @charlieguarino

What We'll Cover ...

- The Path to Application Development Tools Modernization
- Crash Course on RSE and LPEX
- Out Of This World Debugging
- Hot Off The Press!
- Wrap-up

Who are you?

20

10 * 2

4 * 5

1 * 20

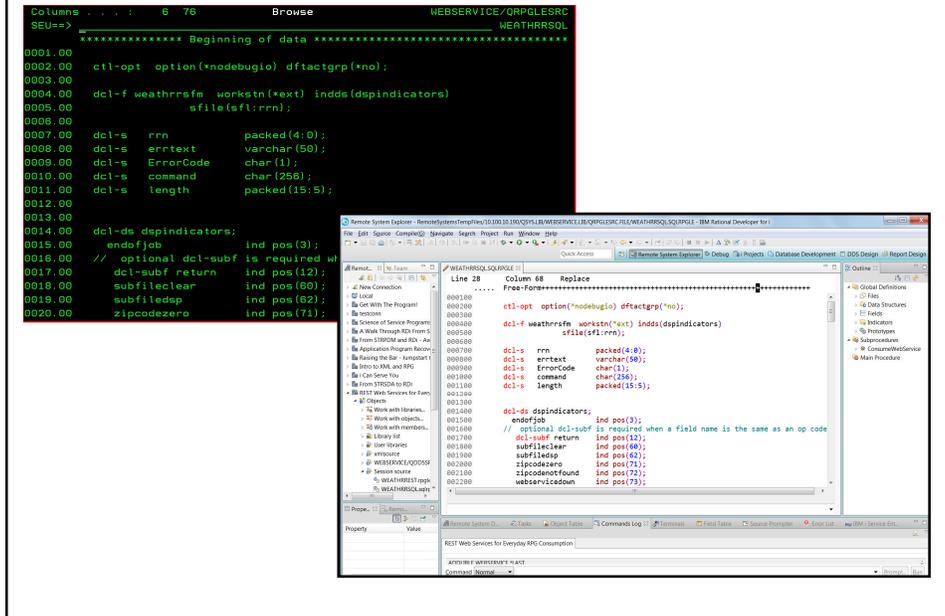
Scary Myths



Application Development Tools Modernization Myth #1

"I can develop faster using what I already know"

CLI versus IDE



Application Development Tools Modernization Myth #2

“LPEX is just another editor, just like SEU”

SEU vs LPEX – It's Not Even A Fair Fight

SEU features

“Full Screen” Source code editing

Can prompt fixed format specs

Left side SEU commands (“D”, “P”, “CC” etc.)

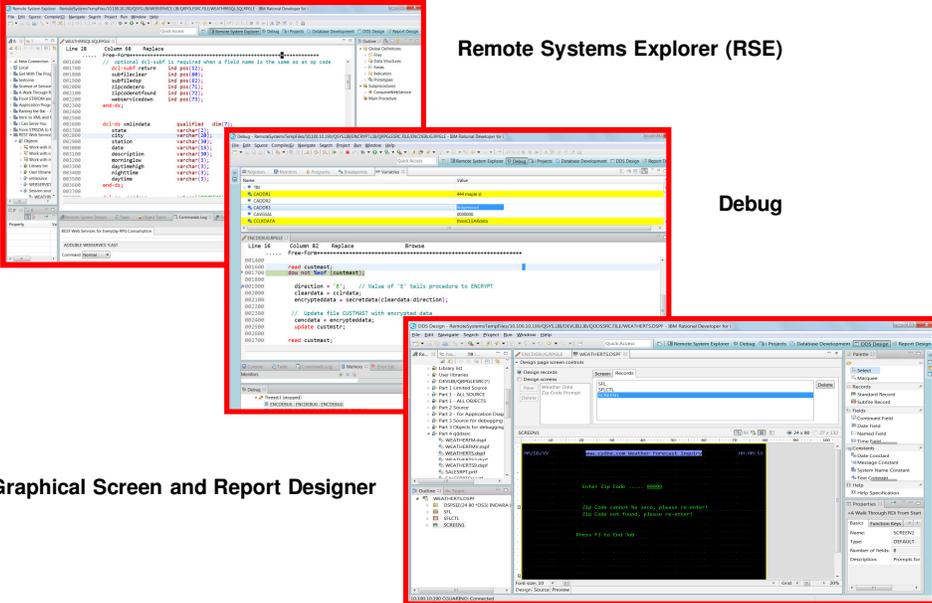
- Supports RPG free form enhancements
- Tokenization (colorized)
- Copy and Paste
- Edit multiple members at once
- Hyperlinks
- Windows functions (CTRL-Z, CTRL-Y, Up/Down)
- Member and source code filtering
- Data Structure and Procedure Wizards
- Split screen view of source code editor
- Automatic update of Outline view
- Source Code Verification
- Content Assist and source code prompting
- Set breakpoints while editing source code
- Automatic closure of control blocks
- Show block nesting
- Change font size
- Customize screen for maximum productivity
- Display help text for prompted statements
- Control block indentation and auto complete



Application Development Tools Modernization Myth #3

“The new tooling is difficult to learn”

Meet the Perspectives...



The image shows a screenshot of the Visual Studio IDE with several windows open. The 'Remote Systems Explorer (RSE)' window is visible in the top right, showing a tree view of remote systems. The 'Debug' window is open in the bottom right, displaying a list of debug events and a console window. The main editor area shows a code file with a search and replace dialog open. The 'Graphical Screen and Report Designer' window is also visible in the bottom left.

Remote Systems Explorer (RSE)

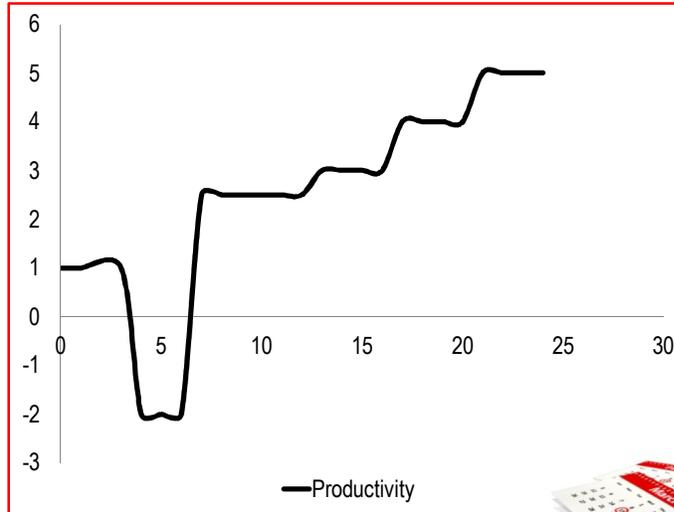
Debug

Graphical Screen and Report Designer

Application Development Tools Modernization Myth #4

"I'm too busy and it will take too long to learn RDI"

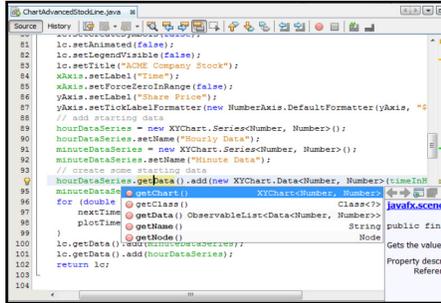
Productivity Gains Over Time



RDi Truths



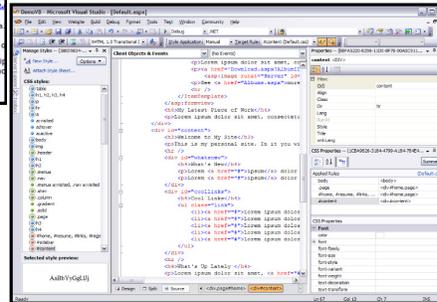
Application Development Tools Modernization Truth #1



NetBeans IDE for Java
www.netbeans.org

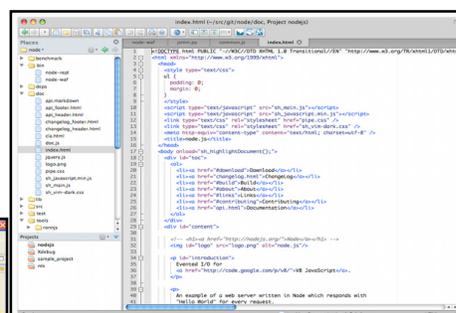
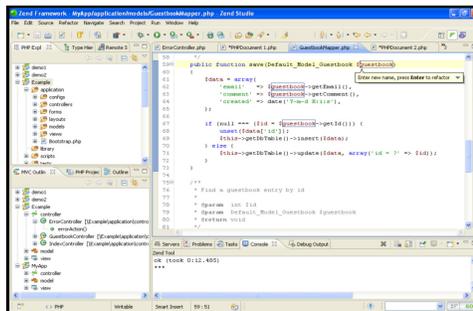


Visual Studio
www.visualstudio.com



Application Development Tools Modernization Truth #1

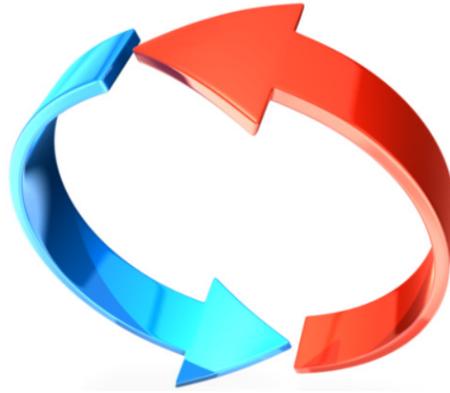
Komodo Edit
<http://www.activestate.com/komodo-edit>



Zend Studio for PHP
www.zend.com



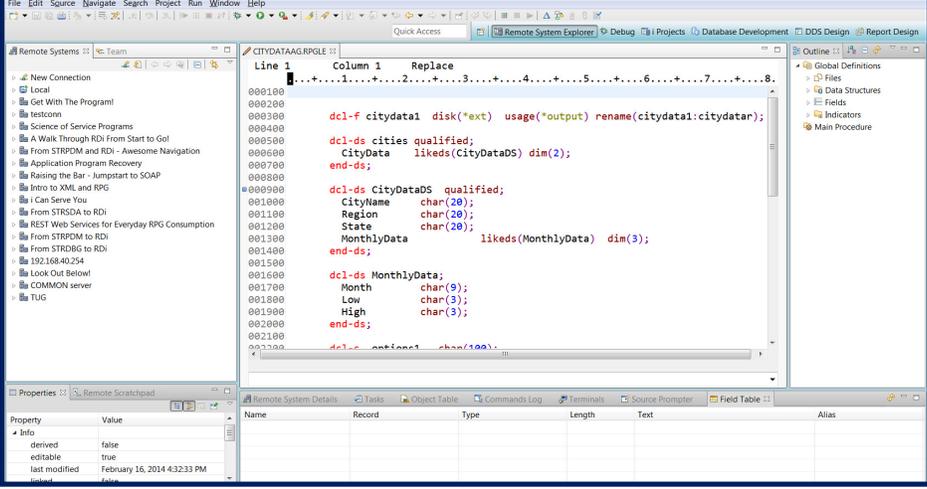
Application Development Tools Modernization Truth #2



What We'll Cover ...

- The Path to Application Development Tools Modernization
- **Crash Course on RSE and LPEX**
- Out Of This World Debugging
- Hot Off The Press!
- Wrap-up

RSE and LPEX – A Winning Combination



```
Line 1      Column 1      Replace
...+...1...+...2...+...3...+...4...+...5...+...6...+...7...+...8...
000100
000200
000300      dcl-f citydata1 disk("ext") usage("output") rename(citydata1:citydata);
000400
000500      dcl-s cities qualified;
000600      CityData      liked(CityDataDS) dim(2);
000700      end-s;
000800
000900      dcl-s CityDataDS qualified;
001000      CityName      char(20);
001100      Region        char(20);
001200      State          char(20);
001300      MonthlyData   liked(MonthlyData) dim(3);
001400      end-s;
001500
001600      dcl-s MonthlyData;
001700      Month         char(9);
001800      Low            char(3);
001900      High           char(3);
002000      end-s;
002100
002200      dcl-s options1 char(100);
```

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Debugging free form RPG using RDI

The screenshot shows the debug console for the program ENCDBUGRPGLE. The source code is displayed with line numbers and column markers. The code includes variable declarations for CCMP, CCSNAM, CCUSNO, CDTLSPM, CDTLSSL, CENDATA, CLEARDATA, and CPGMRUN. It also shows logic for reading CUSTMAST, setting the direction to 'E' for encryption, and updating CUSTMAST with encrypted data.

```

Line 21 Column 63 Replace Browse
..... Free-Form+++++
000306 ..... 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 cendata = encrypteddata;
002500 update custmstr;
    
```

Can debug multiple jobs at the same time

The screenshot shows multiple debug consoles for different jobs. The consoles display source code for various programs, including CUSRCHRPGL, ENCDBUGRPGLE, CICYDATALRPGLE, and CUSNQRPGL. The code includes logic for reading and updating CUSTMAST, and for displaying a sample customer inquiry.

```

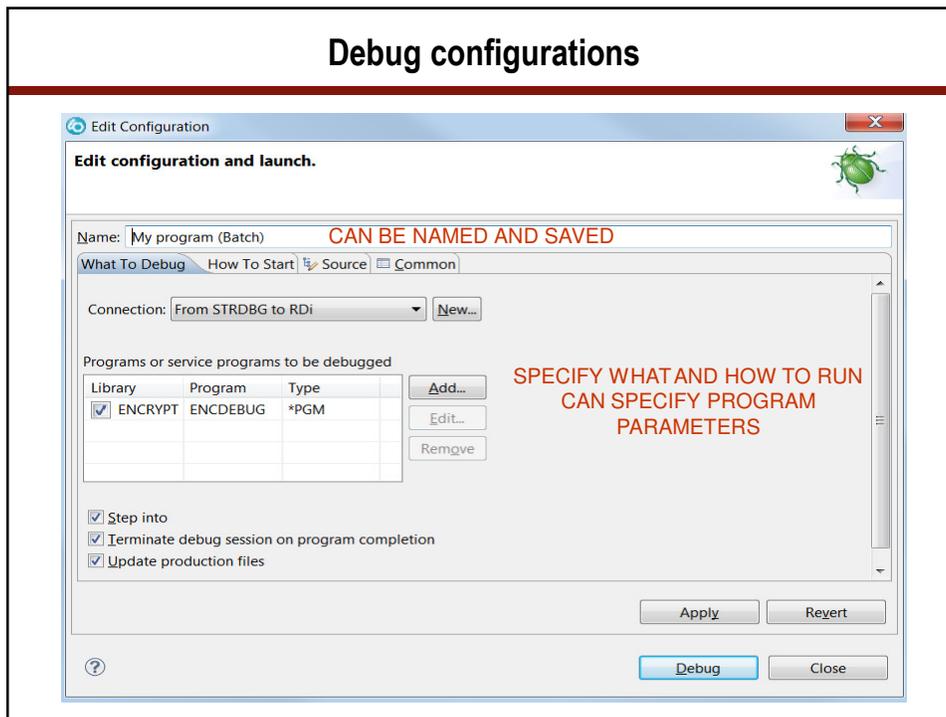
CUSRCHRPGL
Line 31 Column 1 Replace Browse
.....1.....2.....3.....4.....5.....
000015 D dspindicators ds
000016 D endofjob 3 3n
000017 D return 12 12n
000018 D custnotfound 71 71n
000600
000700 /free
000704
000705 // Prompt user for customer number
000706 dou endofjob;
000707
000708 exfmt screen1;
000709
000710 // Was E0? requested?
000711 if endofjob;

ENCDBUGRPGLE
Line 19 Column 11 Replace Browse
.....1.....2.....3.....4.....5.....
000100 H bmdir('UTILITIES' : 'QCL2LE') dfactgrp(*no) act-
000200 H option(*srcstat : *nodebugio) debug(*input)
000300 *
000400 Fcustmast if e k disk
000500 *
000600 * Identify prototypes
000700 D secretdata ps 24 value
000800 D
000900 D 1 value
001000
001100 D cleardata s 24
001200 D encrypteddata s 24
001300 D direction s 1
001400

CICYDATALRPGLE
Line 8 Column 10 Replace Browse
.....DName+++++ETDsFrom+++To/L+++IDC.Keywords+++++
000200 Fcitydata1 o a e disk
000300
000400
000500 D Cities ds qualified
000600 D CityData likeds(city)
000700 D
000800 D CityDatads ds qualified
000900 D CityName 20
001000 D Region 20
001100 D State 20
001200 D MonthlyData
001300 D MonthlyData likeds(Month
001400 D Month ds
001500 D Month 9

CUSNQRPGL
Line 1 Column 1 Replace Browse
.....1.....2.....3.....4.....5.....
000001 * A sample customer inquiry to demonstrate inter-
000002
000003 h debug(*input) option(*nodebugio)
000004
000005 Fousingfm cf e workstn indds(dspind
000006 Fcustmast if e k disk
000010
000014
000015 D dspindicators ds 3 3n
000016 D endofjob 12 12n
000017 D return 71 71n
000018 D custnotfound 71 71n
000600
000700 /free
    
```

Debug configurations



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Version 9.1 is Announced and Available Shortly

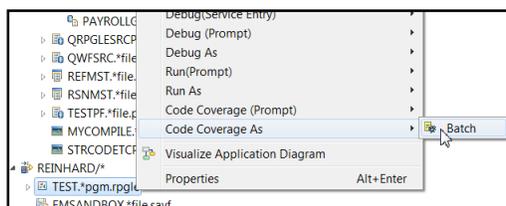


Passport Advantage
May 23 – Electronic Availability
June 6 – Physical Availability

Advanced Administration System (AAS)
June 13

RD9.1 Line level Code Coverage Analysis Capability

- Code coverage can be launched on any program or service program that can be debugged – independent of language



- You can see exactly which lines were covered and not.
- This can be used to determine the effectiveness of automated or manual tests
- Can help focus additional testing on code paths that have not been executed
- Can aid in detecting duplicate tests
- Can help recognize dead code

Code Coverage Report

- After running code coverage, a report is shown as an editor.
- You can drill down through programs, modules and procedures and see the coverage statistics for each

Element	Coverage	Covered	Total
*PGM MKWAN/RBC4NNF1C	88%	617	699
RBC4NNF1C	88%	617	699
RBC4NNF1C.RPGL	88%	617	699
GRHPRCCMP100	0%	0	6
UCSPRCCMP80	0%	0	6
INDPRC10	0%	0	6
CHRPRCCMP120	0%	0	6
PUT_TC_MSG0	0%	0	13
finish_tc0	78%	7	9
chk_result0	89%	8	9
show_error0	90%	18	20
RBC4NNF1C0	91%	406	444
chk_subres0	92%	24	26
DATPRCISO0	100%	3	3
DATPRCUSAO	100%	3	3
DATPRCEUR0	100%	3	3
DATPRCYMD0	100%	3	3

Coverage annotated in the editor

- Drilling down from the report, the editor will be opened on the related member with green and red annotations showing which lines were covered.

```

Line 1490 Column 50 Replace Browse
.....PName+++++.....B.....Keyword+++++.....Comments+++++
P finish_tc b export
D finish_tc pi
D tc liked(tc_t)
/free

// If all variations passed, set the test case status to successful
if tc_succ_v = tc.run;
  RptTest (tc.testname: tc.succ_v: tc.fail_v: SUCCESS);
return;
endif;

// Otherwise, write a summary line and close the output file
VarFail ('*CLOSE': tc.succ_v);
RptTest (tc.testname: tc.succ_v: tc.fail_v: FAILURE);

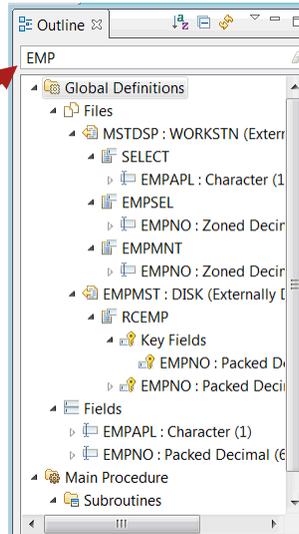
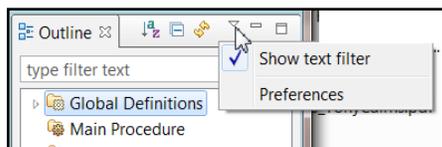
close qprint;

/end-free
P finish_tc e

P put_tc_msg b export
D put_tc_msg pi
D msgPtr * value options(*string)
D MAX LINE c 52
    
```

RD i 9. 1 - Filterable outline view

- The following 2 RFEs were implemented using an optional filter field at the top of the outline view that subsets the view as you type, quickly zeroing in on the definition you had in mind.
- RFE 10188 Search within Outline VIEW - 28 votes
- RFE 24677 Outline View: Filtering - 20 votes
- As you can see in the screen cap below, after type EMP, only those definitions containing EMP are visible in the outline view



Extend IBM i member filters to be able to use member text

- CAAC AD0150 – IBM is listening!
- With 10 characters, names are too restrictive for filtering

IBM Toronto: File REINHARD/QSRC (54 Members)

Name	Type	Attribute	Text
CBLTESTLE	CBLE	SRC	PAYROLL
CBLTEST2	CBL	SRC	Accounts receivable
CCSIDPF	PF	SRC	Accounts receivable
CCSIDPMR	DSPF	SRC	PAYROLL
CLP401F1	RPGLE	SRC	

New Member Filter

Member Filter

Create a new IBM i member filter

Library: REINHARD

File: QSRC

Member filter: *

Member text: payroll

Member type: Enter partial text of the items to be subset. Do not need *

More Types >>

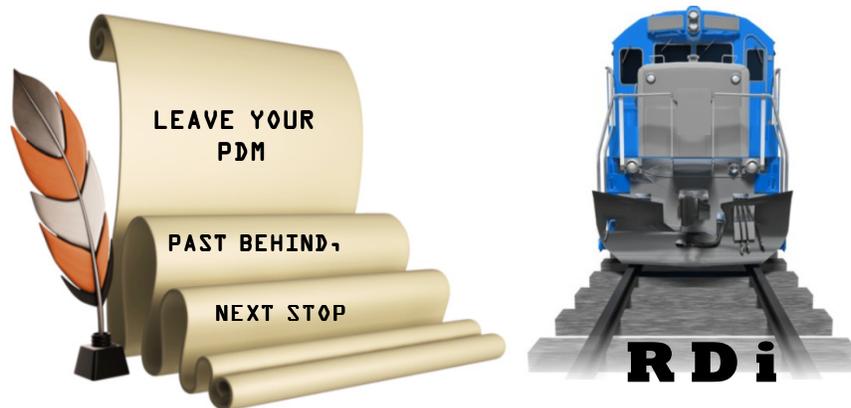


- REINHARD/QSRC(*)-Payroll
- CBLTESTLE.cbile
- CCSIDPMR.dspf

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