

RPG and COBOL Tooling in WebSphere Development Studio Client

By Phil Coulthard & George Farr




Previous articles described the hot new release of WebSphere Development Studio Client, which is the follow-on to WebSphere Development Tools. This new product is available to every iSeries programmer at V4R5 or above. These articles also introduced the technology of “Eclipse” and its role in WebSphere Development Studio Client.

In this article we build on that information and go into more detail on the new Eclipse-based RPG and COBOL

tooling that is part of WebSphere Development Studio Client. We won't cover all the details here, but will get you excited enough to try it on your own! Maybe we will get you excited enough to read the help that comes with the product too!

The Remote Systems Explorer

The heart and soul of the new RPG and COBOL tooling is a perspective, in Eclipse terms, named Remote Systems Explorer. This perspective contains the Remote Systems view, which is a tree view. This view allows you to drill down and explore the files on any remote iSeries, Unix, Linux or Windows system, or even your local Windows personal computer. When you first start the product, this perspective is opened for you and ready for business!

In order to do exploring, you must first define a connection to a remote system, by selecting the New Connection item at the top of the tree, or by using the  button in the title toolbar, as shown in **Figure 1**.

For your very first connection you are prompted for a unique name to distinguish yourself from your fellow programmers. After specifying that and pressing Next> you see the wizard page shown in **Figure 1**. Enter an arbitrary name of the connection and specify the host name for the remote iSeries you wish to connect to (use the WRKCFG command if you don't know it). Also specify your user ID for signing on the system. This will subsequently be used by default for all your iSeries connections. You will be prompted for the password when you first connect. It is possible to create multiple connections to the same iSeries system if you desire. For the iSeries platform, no software is needed to be installed on the system. This is not the case for other system types, as the documentation will describe.

Once your connection is created you are ready to go! Expand it in the Remote Systems view to see a list of subsystems, as shown in **Figure 2**. These are simply a way to group the types of things you can do with your connection, and not to be confused with iSeries subsystems!

As you can see from **Figure 2**, for iSeries you can explore objects in libraries, pre-define iSeries commands to run, explore jobs and explore Integrated File System files.

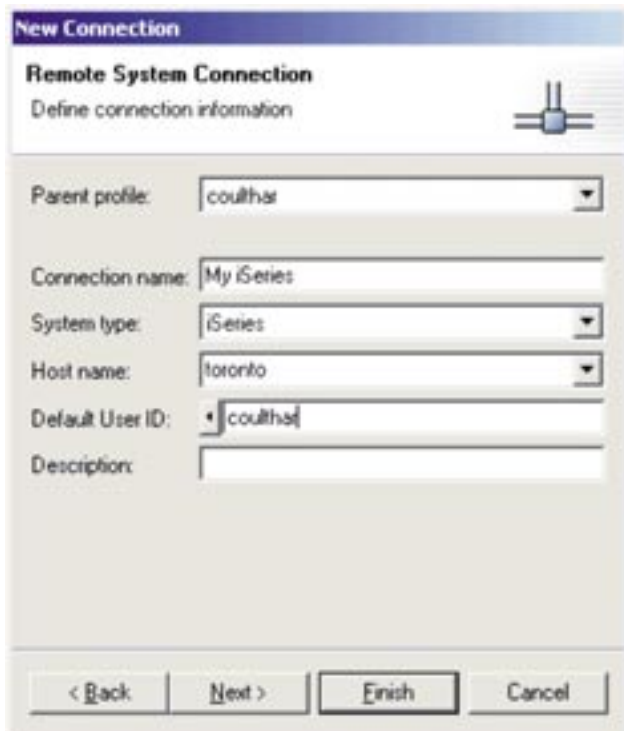


Figure 1. New Connection wizard

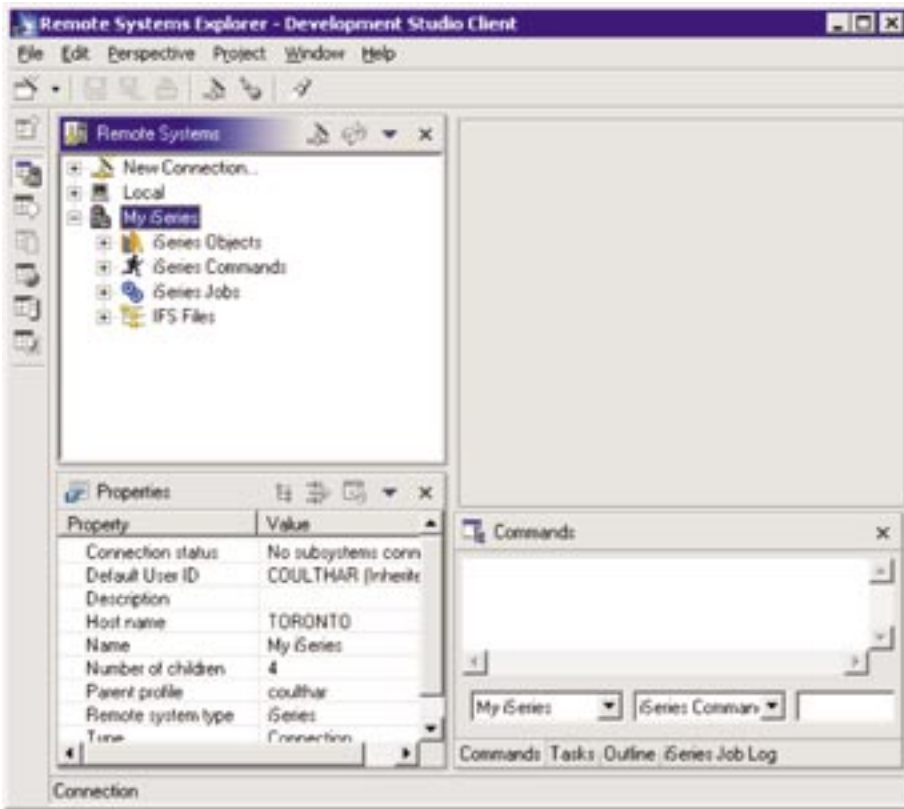


Figure 2. Connection subsystems

Notice the Properties view in the lower left, known affectionately as the Property Sheet. This is a common Eclipse view, and it shows interesting information about the selected object, much of which can be edited directly in the view. In the lower right you see a tabbed notebook with a number of views in it. The Commands view is in focus, and it is this view that allows entering of commands to be executed remotely, as well as logging all commands that are explicitly or implicitly run as you explore your remote system.

Let us start by exploring some iSeries Objects, by expanding this subsystem. You will see a list of filters. Filters are like what you enter in WRKXXXPDM commands ... generic names designed to subset the list you see. Like PDM, you can create filters for libraries, objects and members. One is supplied for you, for showing *LIBL libraries, and there are prompts to create your own new filters for libraries, objects and members. Unlike PDM, these filters are named and saved between sessions. We won't go into filters here, but in fact these are extremely useful productivity

devices that you are encouraged to use. Indeed, you will quickly find yourself with dozens of filters, at which point we encourage you to look up filter pools in the documentation.

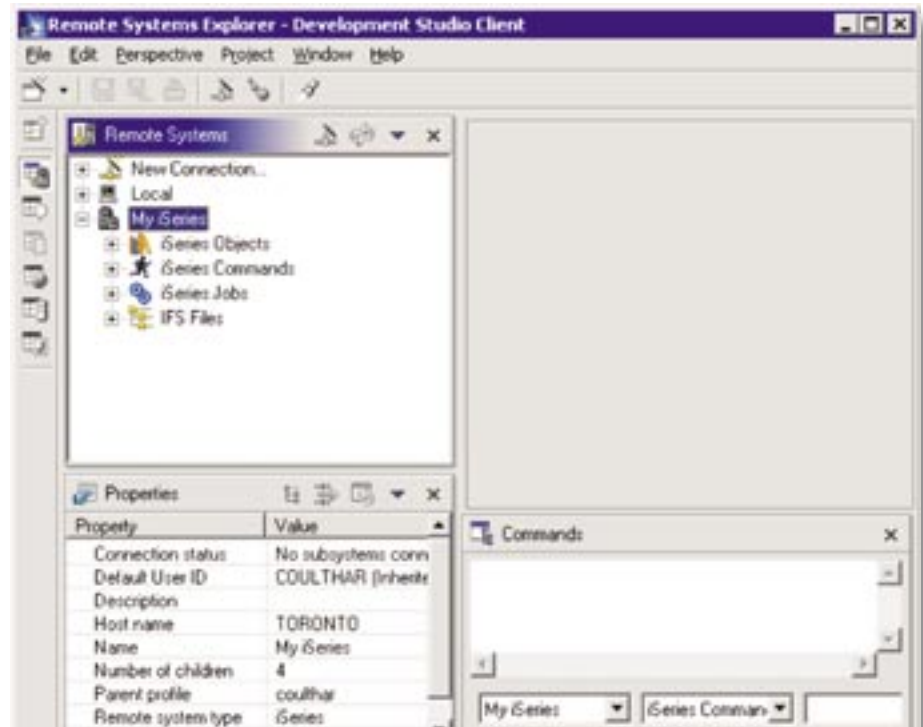


Figure 3. Exploring and editing on iSeries

These offer a way to group filters into named pools. Given the importance these quickly take on, all connections and filters can be shared within a team, if you have installed and configured an Eclipse-conforming team repository. See the documentation for help on team support.

If you expand a filter, such as the supplied Library list filter, you will be prompted to sign-on, and then you will be shown the list of library, objects or members that meet the filtering criteria, such as the libraries in your library list. You will see that libraries can be expanded to show all the objects in them, and source and data files can be expanded to show the members in them.

If these lists are huge, then you are again encouraged to create filters to subset the list to a reasonable, workable size. Display files and printer files can also be expanded to show the record formats in them, and those can be expanded to show the fields within them.

When you get to a source physical file member, then you can right click and select to edit it with either the built-in editor or the classic CODE editor.

In either case it is pulled down into local memory for the duration of the edit session.

Figure 3 shows an example after expanding a number of objects, and opening the built-in editor on a couple different members. Note that we have moved the property sheet to the tabbed folder to leave more real estate for the tree view.

The built-in editor today offers a subset of the functionality the classic CODE editor has, but even still it is a formidable challenger to SEU! For example, if you press F4 you get a nice prompting dialogue view in the lower right, as shown in **Figure 4**.

Further, many of the SEU line commands like DD for block delete are available, to reduce your learning curve. What is missing though is syntax checking and program verification. For these you will need to launch the classic CODE editor. Also, F1 language help is not yet enabled, although all the RPG, COBOL, DDS and C and C++ manuals are available and easily accessed in the Help perspective.

Beyond editing you will discover a rich set of actions on the right click menu of any library, object or member. For example, you can create new libraries, files and members. You can rename, copy, move and delete. You can also compile your source members. If there are errors they are returned and shown in a list view in the lower right. If you double click on an error it will open the editor, if necessary, and position you at the error.

If you right click on the iSeries Objects subsystem you will find an action to create your own user-defined actions that will appear in these pop-up menus. You can specify any non-interactive iSeries command and use PDM-like substitution variables. Software vendors and business partners can also create their own more advanced actions by using extension points and APIs created for this purpose. However, documentation for how to do this is only made available on demand for this initial release, to give those APIs a change to harden.

Beyond exploring the files, you can create command sets using the iSeries commands subsystem.

About the Authors:



George Farr



Phil Coulthard

George Farr and Phil Coulthard are coauthors of the Midrange Computing books "Java for RPG Programmers" and "Java for S/390 and AS/400 COBOL Programmers." George can be reached at farr@ca.ibm.com, and Phil can be reached at coulthar@ca.ibm.com.

These are one or more iSeries commands grouped and named. When a command set is expanded, all the commands in it are run and logged in the Commands view.

For commands and user defined options that start with a question mark, the prompting is done by converting the *CMD object to a GUI prompt on the fly. There is a way to run interactive commands as well, by using a new STRSESVR command to reserve an emulation window. Speaking of an emulator, one is supplied and launch-able from the popup menu for the iSeries Objects subsystem.

You can also use the explorer to work with IFS files and even with files in a Linux LPAR if you create a Linux connection and install the supplied server code first.

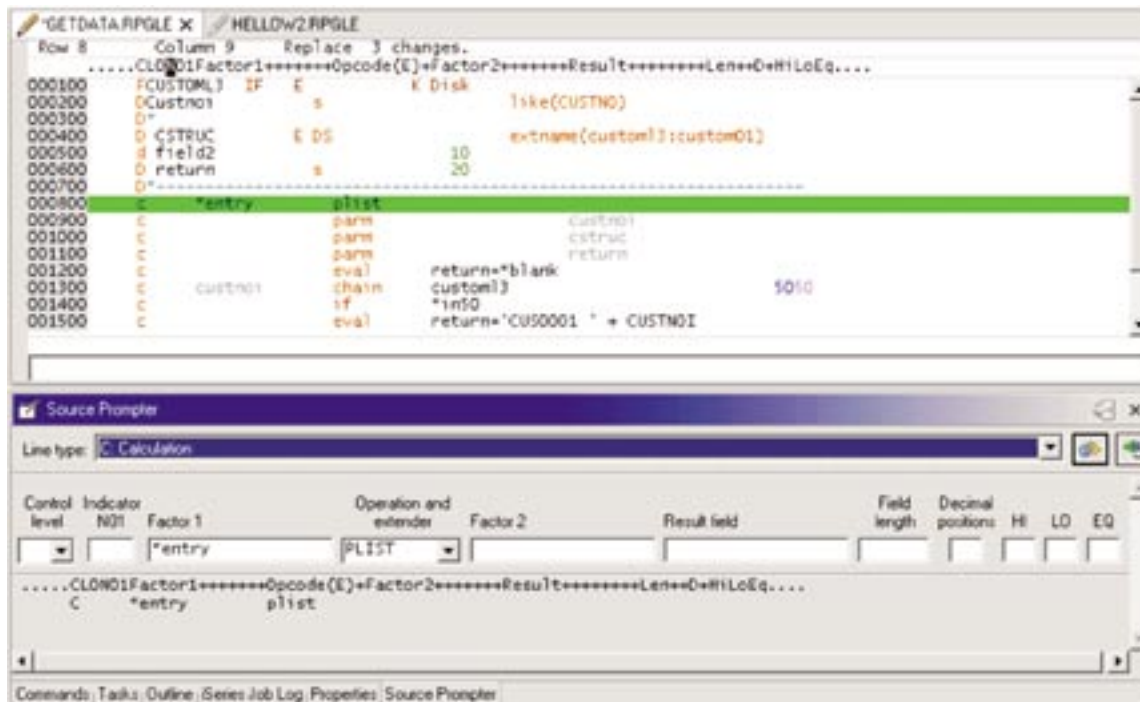


Figure 4. RPG Prompter

This introduction to the Remote Systems Explorer is just a very short teaser, and only scratches the surface of the rich functionality you will find within it. Before you next type STRPDM, give it a test drive!

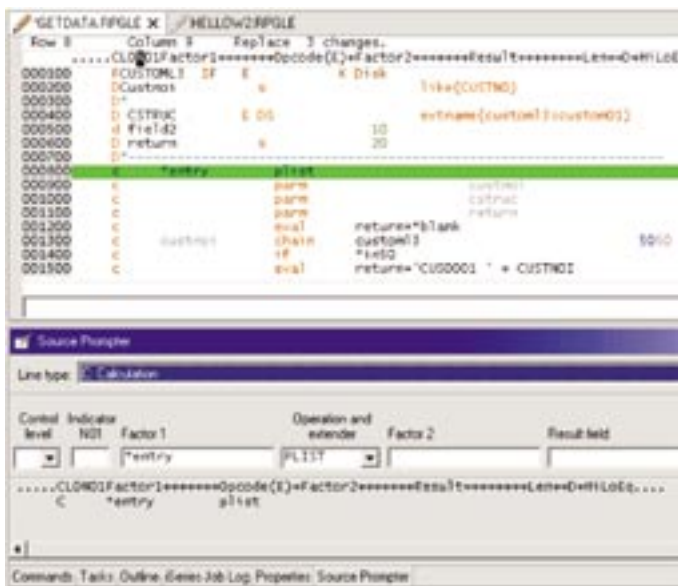


Figure 5. iSeries Project wizard

iSeries Projects

While the Remote Systems explorer is for random access to files in a remote file system, iSeries projects are for more structured development. When you select the iSeries Projects perspective using the Perspectives menu, you see a view showing all iSeries projects and actions for creating new projects. An iSeries project stores local copies of source members on your Windows personal computer, which you occasionally copy back to the iSeries. When you create an iSeries project you are prompted to specify an iSeries system and library, which it is associated with, as shown in Figure 5.

You are also prompted to optionally specify an iSeries build command that will be run when the Build action is selected. Once you create the project you can work with it in the iSeries Navigator view.

From the popup menu for the project you can create new source physical files and source members. These are just local folders and files. However, when you later right click and select to Push Changes, they will result in actual

source files and members in the associated library. You can also add existing files and members to the project, from the associated library. To do this, select the Show Remote Objects popup menu item, to see all the objects in the associated library right in the iSeries Navigator. Then select a source file or member, right click, and select Add to Project. It is copied down to the project.

Figure 6 shows a project that is showing remote objects, and has a few local files and members.

The objects with (Remote) adornment are not in the project but rather only in the associated library. The objects with (Local/Remote) exist both locally and in the associated library. A red double-arrow on the icon indicates they are out of sync. Any objects with no text adornment exist only locally within the project.

You work within a project by editing the source as usual, and doing renames, copies and deletes as usual. When you are ready to try the changes, you right click and select Push Changes, and then Submit Build. If the build fails, in most cases the errors are retrieved and shown in the Tasks view.

You will notice in Figure 6 that the Remote Systems view is also included in this perspective, for your convenience.

Because an iSeries project is in fact an Eclipse project, it inherits all the support Eclipse offers for projects, including team support. If a repository has been configured, then you can use the Team->Synchronize action to synchronize the project with the repository so as to share changes with others.

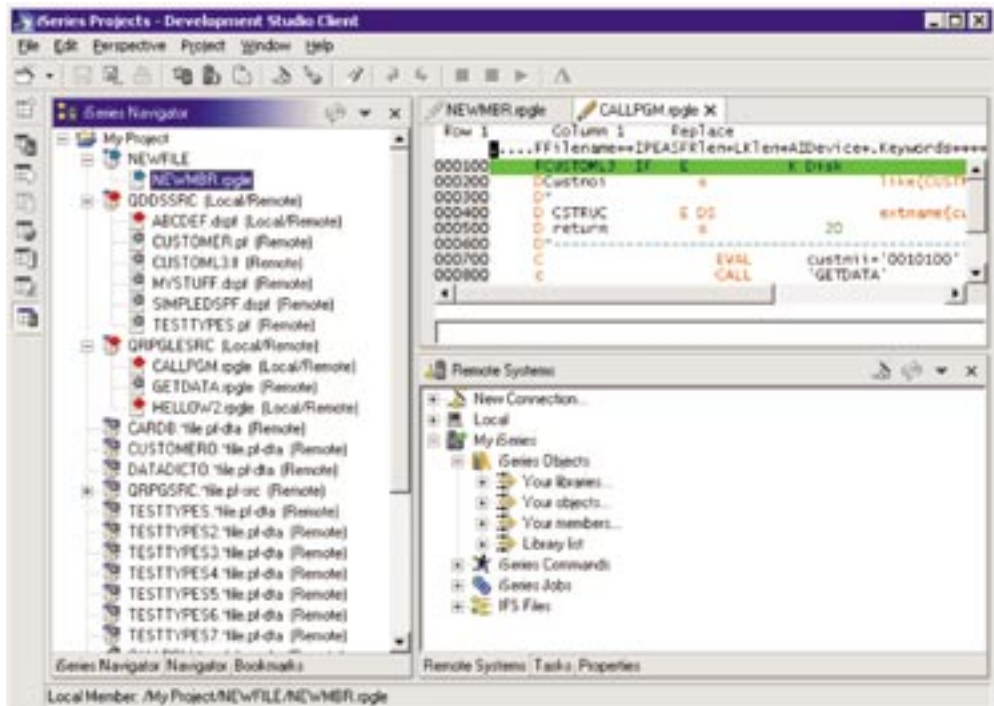


Figure 6. iSeries Navigator

* This article originally appeared in the eserver magazine, published by MSP Custom Communications.

What About CODE?


One day all of the existing CODE functionality will be available with this new tooling environment. Until then, you have the ability to launch the existing CODE tools from the right click menu of remote objects and members.


Preferences

As a tip, you are encouraged to select the Preferences item from the Window pull-down and look at all the settings you can configure for the LPEX editor and the Remote Systems Explorer. You will find a number of interesting options there, such as the ability to remember the state of the remote systems explorer so it automatically returns to where you left off when you next start it.

Summary

WebSphere Development Studio Client offers a rich development environment for RPG and COBOL. It is designed to let you be immediately productive leveraging your PDM and SEU skills, while at the same time letting you grow into more advanced functionality such as projects, and ultimately maybe even the Java and Web tools.

We definitely encourage you to try this new tooling. We think it will even change your day job! 

IBM, WebSphere, iSeries, and VisualAge are trademarks of International Business Machines Corporation in the United States, other countries, or both. 

Java is a trademark or registered trademark of Sun Microsystems, Inc. in the United States, other countries, or both. Windows, Windows NT, and Windows ME are trademarks of Microsoft Corporation in the United States, other countries, or both. Other company, product, and service names may be trademarks or service marks of others.

TORONTO USERS GROUP

for Midrange Systems

- Attend our regular meetings
- Network with hundreds of knowledgeable executives and technical professionals
- Receive our association magazine (free of charge for paid members)
- Enjoy the reduced rate at technical conferences
- Attend special events sponsored by your user group
- Join your peers on the golf course at the annual TUG "Golf Classic"
- Participate in the midrange-specific annual salary survey
- One low rate includes all your IS staff



TORONTO USERS GROUP
for Midrange Systems
36 Toronto Street, Suite 850
Toronto, Ontario M5C 2C5

Magazine Subscription: \$72
Individual Membership: \$199
Corporate Membership: \$325
Gold Corp. Membership: \$1200

Telephone: (905) 607-2546
Toll Free: (888) 607-2546
Fax: (905) 607-2547
E-mail: admin@tug.ca
Web Site: <http://www.tug.ca>

