

Remote System Explorer (RSE) in WDS 5.0

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Hello and welcome back. This is the second article in our series, which we introduced last month. In that issue, we introduced a simple roadmap for moving along the line from RPG or COBOL to Java 2 Enterprise Edition, making it clear we expect that most people will not go all the way to full, pure J2EE but will probably find themselves very happily staying at one of the steps along the way.

The first step in that roadmap calls for “better tools”, not to change what you develop initially, but to change what you develop it with. These new tools for RPG and COBOL give you transferable skills to the other steps in the roadmap, and set the culture in your shop to one that embraces change. There is inertia to any change that must be overcome to embark on any path for

modernization. To that end, this month we introduce you to the Remote System Explorer, or RSE, within WebSphere Development Studio Client 5.0.

This is the new generation of PDM and SEU, by the same team in Toronto who brought you PDM and SEU. We hope you will find it compelling enough to overcome the natural resistance to change.

Have you heard of WebSphere Development Studio Client? Hopefully you have, and maybe you are already using it. If not, you should know that if you have RPG or COBOL, and you are at V5R1 or higher (or maybe even V4R5), then you have already paid for it and are entitled to unlimited licenses of it, as described last month. Your job now is to find or order the CDs for it.

Remote Systems Lpex Editor – The New SEU

The editor in the RSE can edit any member, IFS file, local file or even remote Unix, Linux or Windows file. However, it is for RPG, COBOL, C, C++, CL and DDS that it has special language-sensitive support, including colorization of the tokens (even when printed!). The 4.0 release was the first release of this brand new editor, which is a Java port of

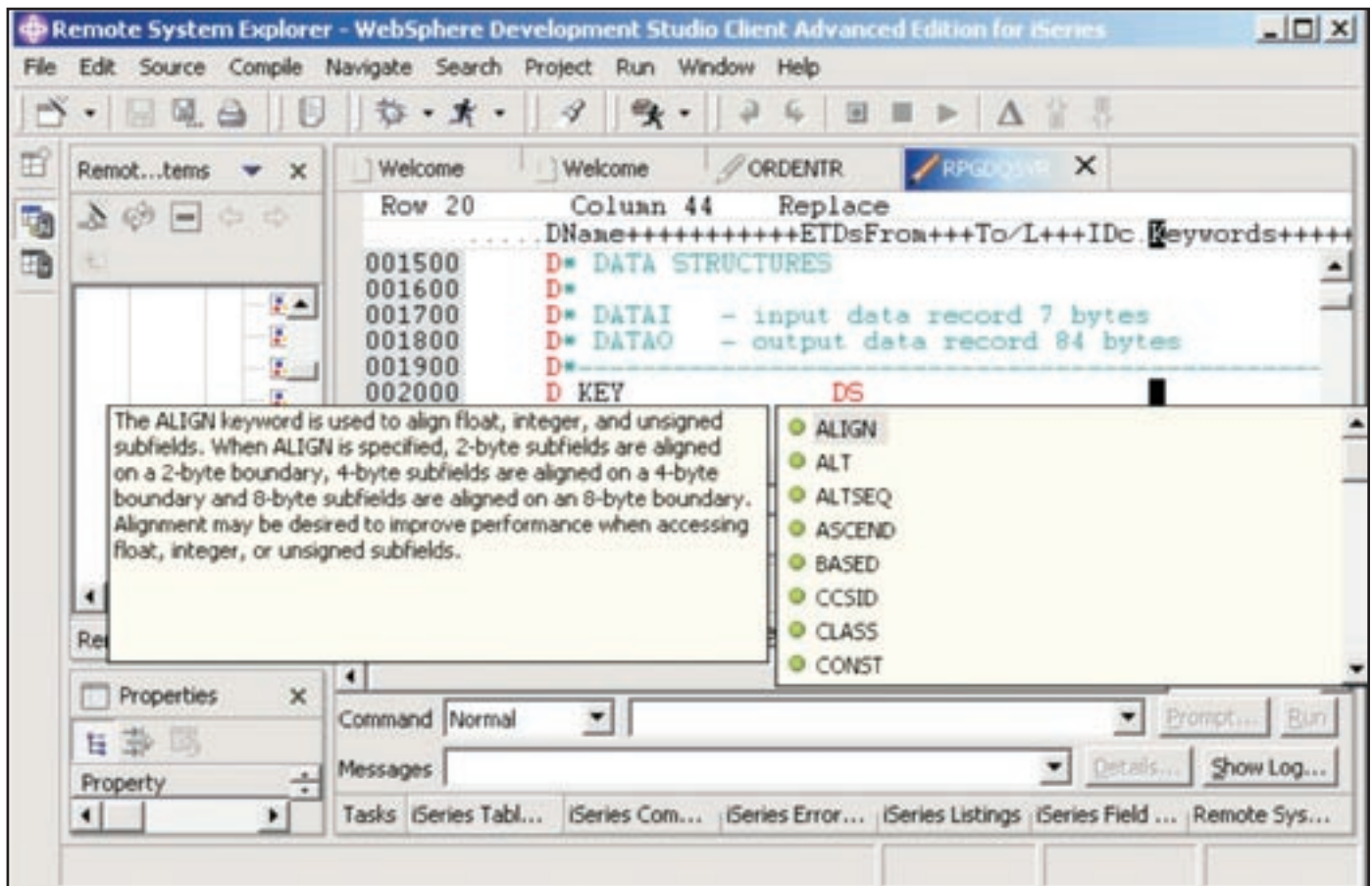


Figure 1. Code assist

the CODE editor. In release 5.0 we have added considerable new functionality to this editor, both in terms of ported CODE function and totally new function. It now offers a superset of SEU's functionality, although there are a few things still to be ported from CODE's editor, which can easily be launched from the RSE too. The biggest enhancements in the editor are the introduction of Syntax Checking, Program Verification (PV) and F1 language-sensitive help. The syntax checkers are ported from SEU, but the PV and F1 help are unique and come from CODE. The PV allows you to do full compile without the generation of target code, to find any and all errors before compile submission. For the F1 help, if you are editing a source member, just position the cursor at a specific specification and then press F1. The browser will open and you will be presented with specific help for the token under the cursor, from the appropriate RPG, COBOL, DDS or CL reference manual. The programmer's guides for RPG and COBOL are also shipped in the product.

We have also added two new and very interesting enhancements that are not even in the CODE/400:

- Code assist (for RPG only, until next release)
- Outline view (for both RPG and COBOL)

Code assist (Or what is referred to as Content assist in Java) gives you the ability to get help anywhere in the editor as you type in your source code. For example, **Figure 1** shows an example of getting a list of the allowable keywords on the D specification.

To get this list you only have to press "Ctrl Space". You can start typing the keyword and as you type you will see the list narrowing down to the specific

characters that you type. The list is specific to the position where your cursor is. For example, if you are on an "F" specification in the keyword area then the list of keywords of the F specification will be displayed. As you scroll down the list another pop-up window is displayed with detail information about the selected item in the list. In addition, this enhancement has what is called auto activation characters. In RPG, the two auto activation characters are "." and "%". If you type in the name of a qualified data structure, say in free form factor two, the minute you press the "." character you will

be presented with the list of subfields for that data structure. If you type in the character "%", you will be presented with the list of all built-in functions in RPG. Nice? Better than SEU?

The second very interesting enhancement is the outline view. If you press the Refresh button in this view you will be presented with a tree listing of all fields, structures, subfields, subroutines, and procedures that are defined and used in your source member. By clicking on a node in the tree you are positioned in the source to that entry. This offers a great bird's eye view of your source for easier understanding and navigation.

Another great enhancement that was added in the editing area is the ability to browse or edit a copy member, in RPG or COBOL. This can be accomplished by placing the cursor on a "/COPY" statement (in RPG, for example) and selecting "Source → /COPY member" from the drop down menu as shown in **Figure 2**.

As you see from the figure above, for RPG we have also added the ability to show indentation in your source member. If you select "Show Indentation", a new view will be displayed of your source member showing all RPG structures

indented, similar to the functionality you have today in CODE.

Along the lines of cool stuff, there is also a menu item in the pop-up menu to show fields when the cursor is on a file declaration in RPG, COBOL or CL. This will open a table view showing all the fields in the declared file, with the fields attributes shown in sortable columns.

There are many other neat things in this editor, many of them configurable in the preferences window (see Lpex Editor under Remote Systems), including auto-uppercasing, CL formatting, RPG and DDS column-sensitive editing (so insert/delete are restricted to the current section of the spec), and auto-generation of signature stamps in the first 5 columns for RPG and DDS. Of course, all usual SEU line commands like I and DD/CC are supported, as well as prompting and rich find/replace support.



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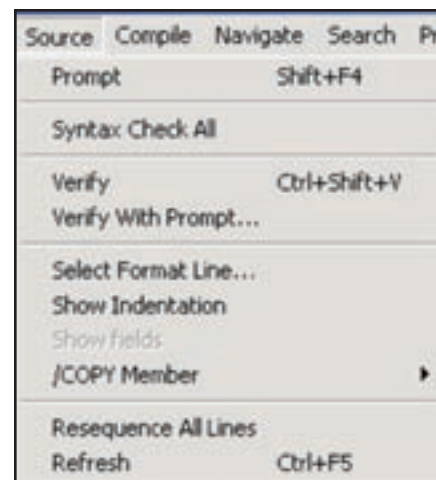


Figure 2. Source menu for the editor

Of course, if you want to add new capability to the editor, it is easily extended by writing Java macros. This is a great way for you to learn a bit of Java, or to put that student to good use.

While this just scratches the surface of the existing functionality, in future releases of WDS we will continue to dramatically improve the editor functionality to make writing RPG, COBOL, CL and DDS not only easier, but indeed fun again! Stay tuned...



The Remote Systems Tree View – The New PDM!

So how do I get to that great editor? You start in the Remote Systems Explorer perspective, (collection of views and editors) which is the first one you see when you start WDS. You create a connection to your iSeries machine, specifying its host name. You expand the connection to see a number of functional areas to work with, what we call subsystems. These include iSeries Objects, iSeries Commands, iSeries Jobs and IFS Files. To edit source members, expand iSeries Objects and then one of the pre-defined filters for library list or user libraries.

You then simply drill down by expanding libraries and files. To subset what you see, you can use the new Expand To menu item on a library, or create a

When working with libraries, objects and members in the RSE there are many right-click actions for renaming, copying/pasting, deleting, moving, changing and working with the properties, among other things. You can also use drag and drop to copy members between files on the same or different servers, or even to or from your local PC. When working with a library list filter, you can now use actions to manipulate the library list, just like in PDM. There are also GUI wizards for easily creating new things like libraries, files and members. If you don't see an action you like, create your own user action, using the same substitution variables PDM supports, but unlike PDM, scopable by object type or attribute. Business partners can also contribute actions to the menus, via plug-ins, as SoftLanding, MKS, Aldon and ASC already are.

many people do prefer to work in a table view where the properties are shown as sortable columns. The RSE supplies such a view named the iSeries Table View, which is available in the lower right by default. In fact, just like in PDM, this view also has a command line at the bottom where you can enter OS/400 commands.

To populate the iSeries Table View, you can use the Show In Table right-click action on filters, libraries, objects and members, from the Remote Systems tree view. This will populate the table with the children of the selected node. You can also “unlock” the view so it automatically populates from the selected node. There is also a Work With pull down menu item from within the table itself.

Once populated, you can change the content by double clicking on a library or file to show its children, and arrow back to the previous contents just like in a Web Browser. Further, the table is sortable by clicking on a column heading, and it has all the same actions in the popup menus as the tree view, including user actions and business partner actions. It also has a cascading PDM Actions menu that offers all the PDM-like options, as menu items, to reduce your learning curve. Also like PDM, you can use the dropdown menu to subset the list, position you in the list and print the list. In **Figure 3** we see the table view.

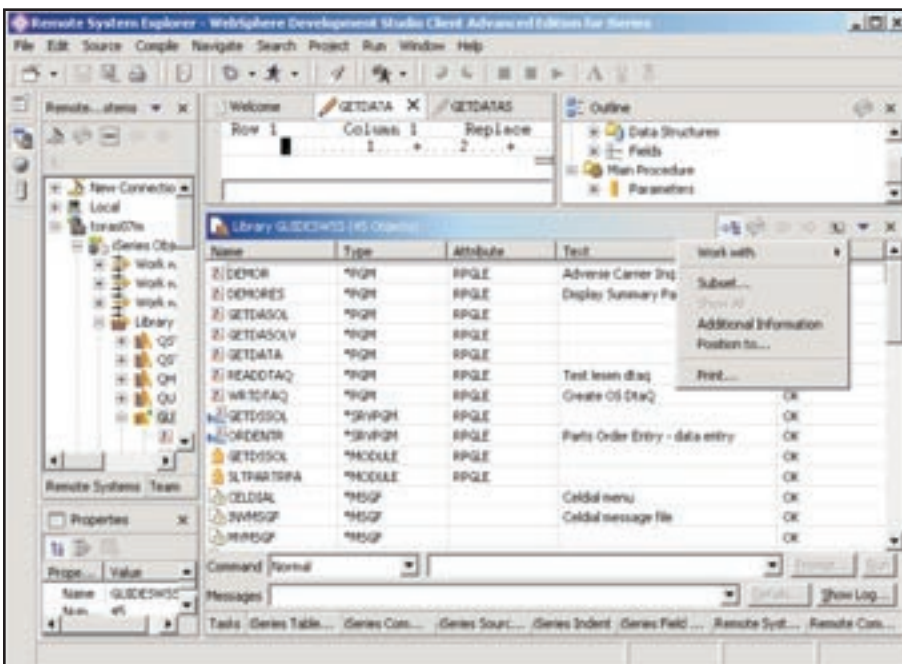


Figure 3. Table view

persistent filter. There are 3 prompts for filters within iSeries Objects, to allow you to easily create a library filter, object filter or member filter. When a filter is created it appears from then on in the list. When expanded, only the libraries, objects or member meeting the filter criteria are shown. This is identical to WRKxxxPDM, except the filter criteria is named so as to allow easy re-use.

Beyond iSeries objects, you can create command sets for easy execution, and work with your jobs or IFS folders and files, again with very rich filtering capability.

The Table View

While the Remote Systems tree view is very powerful, and allows you to see common properties of the selected object in the property view or dialog,

Working Offline

One of the design goals of WDS is to allow for an effective editing environment while disconnected from your iSeries. To enable this, much of the remote information extracted by the RSE is cached locally each time it is accessed. This enables you to enter “work offline” mode and do a number of actions, such as expanding lists and doing program verification, without requiring a live connection.

Of course though, the offline support is really not that interesting until you make local copies of your source members so you can access them for editing. One

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way to do this is to use drag and drop in the iSeries to copy to a local folder. Another way is to use the iSeries project support. An iSeries project is a local eclipse project, into which you can copy iSeries members. In fact, this is as easy as right clicking on the member in the RSE and selecting Make Available Offline, which creates a project with the same name as the member's library, if necessary, and copies the member(s) to the project. You can subsequently work with the local member copy, doing editing and program verification, and when done use the iSeries project support to push the changed members back to the iSeries.

iSeries projects contain considerable functionality in themselves, and are of value beyond just use in a disconnected mode. We will go into more details on these in the next article.

Summary

Remote System Explorer with its single Eclipse-based development environment for all programming tasks is the new PDM and SEU of the 21st century. It is where you will spend your day, and what software vendors will target their tools for.

In next month's column we will cover the iSeries project support and the enhancements we did in this area for version 5.0, rounding out our introduction to "Better Tools", the first step in our modernization roadmap.



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