Rational Developer for i Sandbox for IBM i Lab Exercise Workbook

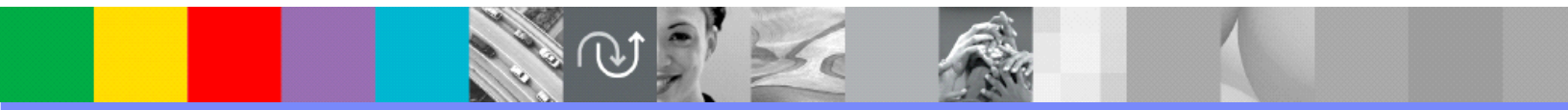
Rational Developer for i

Lab 02 – Editing RPG source

This exercise guides you through using the LPEX editor to edit RPG source code members.

Version 7, January 2021

The most up to date version of this document can be found on Rational Developer for i - Hands-On Labs at http://ibm.biz/rdi_labs.



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Lab 02 – Editing RPG source

Overview

This tutorial teaches you how to maintain an IBM i application written in ILE RPG using the Remote System Explorer.

Learning objectives

Use tools and views in the Remote System Explorer (RSE) perspective to edit, a source member.

Skill level and prerequisites

Introductory.

Important!

You should complete **RDi Lab01** 'Getting started' before you work on this lab. Lab01 contains the following information and instructions:

- Which IBM i server to connect to
- Which User ID to use
- How to start RDi, create a connection and connect
- How to setup the correct library list for this lab

Knowledge of basic Microsoft Windows operations such as working with the desktop, mouse operations such as opening folders and drag-and-drop is assumed. It will also be helpful if you understand DDS and ILE RPG.

Conventions used in this workbook

Bold font	is used to highlight user interface controls
`Mono-spaced font`	is used for user input text and code blocks
Italic font	is used for variable names and glossary terms

The following icons are also used to identify categories of information:

Icon	Purpose	Explanation
	Important!	This symbol calls attention to a particular step or command. For example, it might alert you to type a command carefully because it is case sensitive.
	Information	This symbol indicates information that might not be necessary to complete a step, but is helpful or good to know.
	Trouble-shooting	This symbol indicates that you can fix a specific problem by completing the associated troubleshooting information.

Client System requirements

The labs require IBM Rational Developer for IBM i (RDi) to be installed on your workstation. If you do not yet have this, you can download it for free from http://ibm.biz/rdi_trial.

Host System requirements

The easiest way to ensure you have everything you need, is to use the demonstration IBM i server that is set up and ready to use with these lab exercises. These labs use the RSELABxx library on that system. For those who want to run these labs on to their own system, you can load a SAVF with the RSELABxx library from rselabxx.savf.

1 Opening source members in the Remote System Explorer

This module teaches you about the Live Parsing eXtensible (LPEX) editor - how to edit source members and how to navigate through source members.

The following topics are covered:

- Open a member for edit from the Table view or the Remote Systems view
- Maximize the editor space
- Open another member for edit
- Switch from one edit session to another edit session
- Open multiple views of the same source member
- Display a structural outline of items defined in a source member.

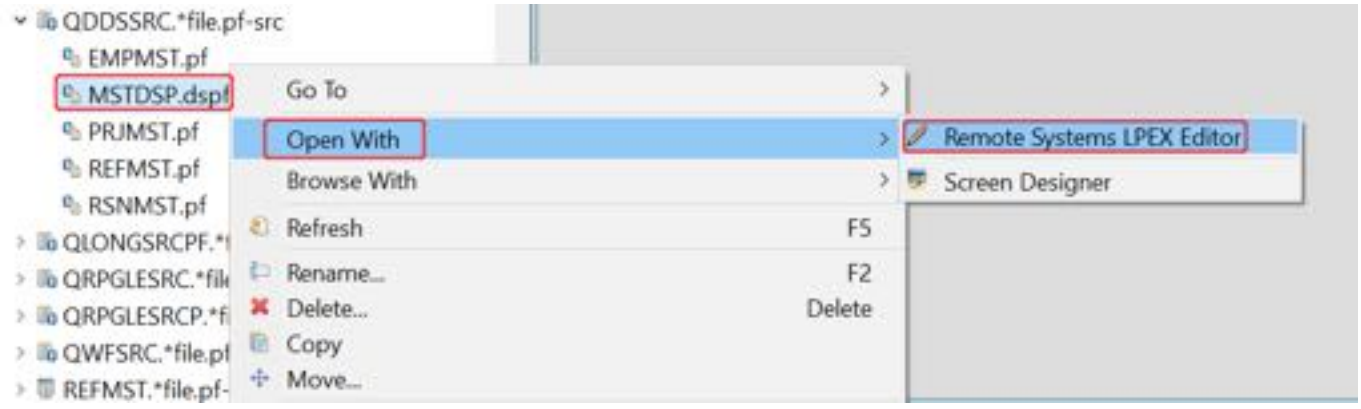
1.1 Opening a source member

You are going to use the Remote Systems LPEX Editor to edit the member MSTDSP found in QDDSSRC.
As part of Lab 01 – Getting started, you will have already learned how to launch RDi, connect to the demonstration server and navigate objects in the Remote Systems view – this lab picks up from this point.

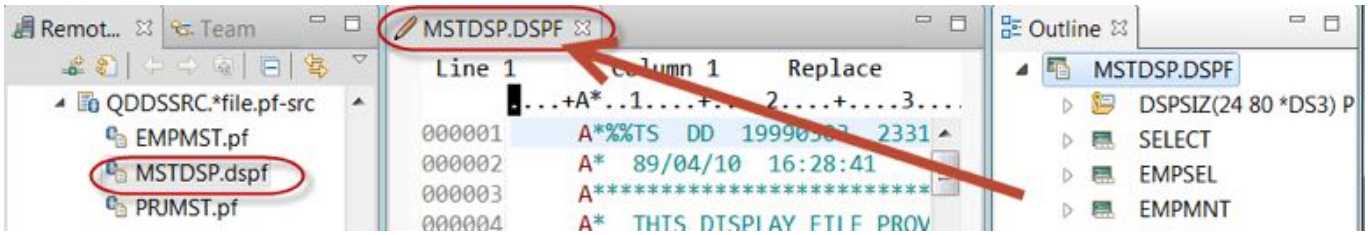
__1. From the Remote Systems view **right-click** member **MSTDSP** in the **QDDSSRC** source file.

Select **Open With**, then **Remote Systems LPEX Editor**.
The Remote Systems LPEX Editor opens. It is built right into the workbench, with rich editing functions and is IBM i aware! It is a superset of SEU! The syntax checker is ported from SEU, and the reference manuals are built-in and F1 cursor sensitive.

__2. Double-click the **MSTDSP** tab to maximize the Editor window.



__3. Double-click the **MSTDSP** tab again to return the view to its original size.

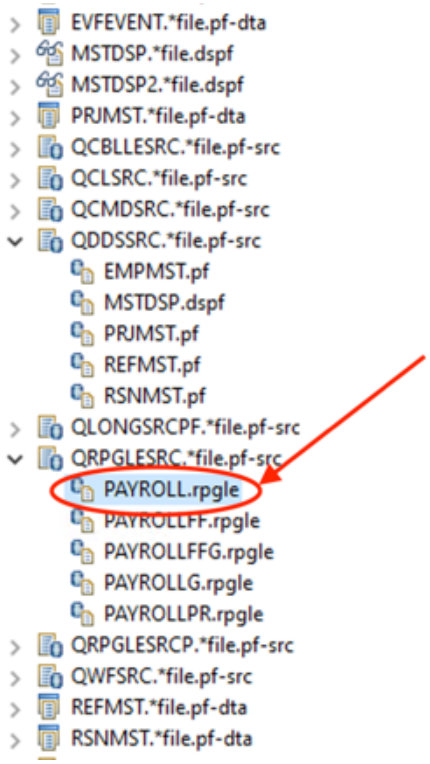


Tip: To open IBM i™ members quickly, you can use the keyboard shortcut Ctrl+Alt+Q.

1.2 Opening a second source member and multiple views

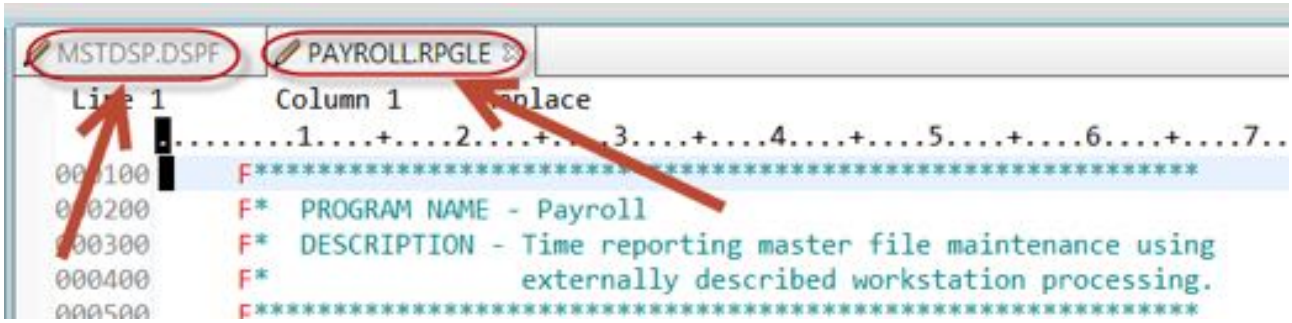
Next let's open a second member in the editor.
To open a second source member:

__1. In the Remote Systems view, double-click member PAYROLL in the QRPGLESRC source file.



You can easily switch between the two edit sessions.

__2. Click on each tab to switch from one edit session to another edit session.

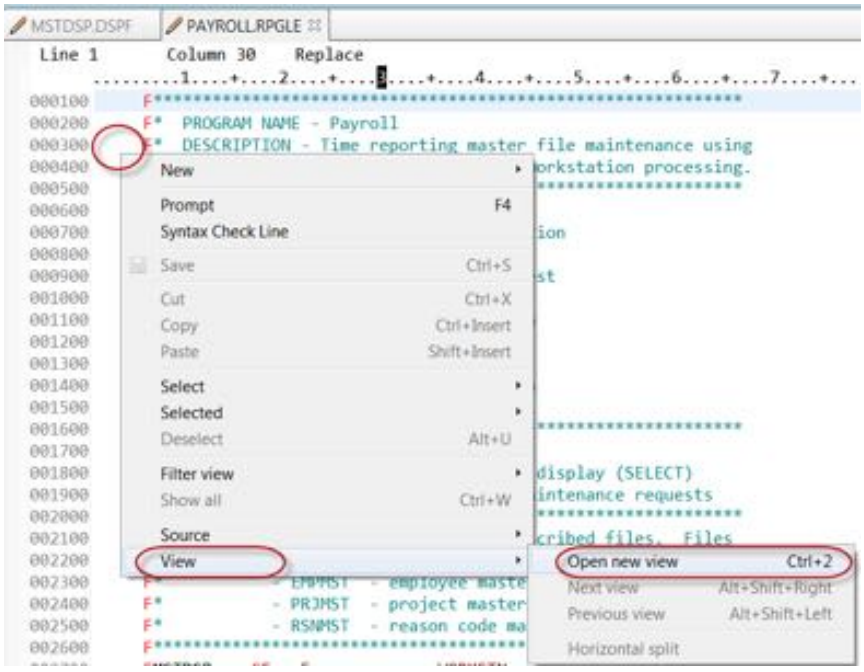


Tip: You can also switch between files that are open in the editor view by pressing **CTRL+F6**.

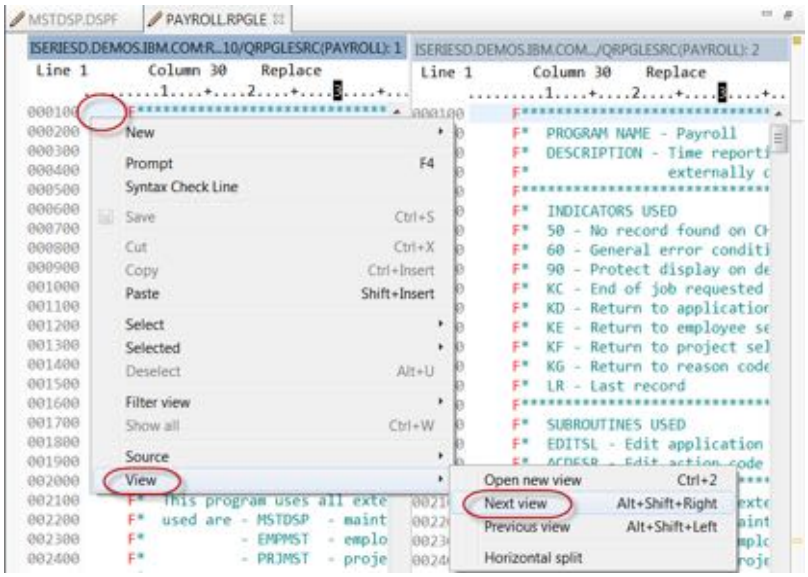
You can open multiple views of the **same** source member while editing in the Remote Systems LPEX editor. To open multiple views of your RPG source:

__3. Double-click the **PAYROLL** tab in the editor to maximize the Editor window.
__4. Right-click this source in the Editor view and click **View > Open new view**.

Tip: You can open a maximum of five views of the same source.



__5. Right-click in one of the source views and select **View > Next view** or **View > Previous view** to navigate among the views.

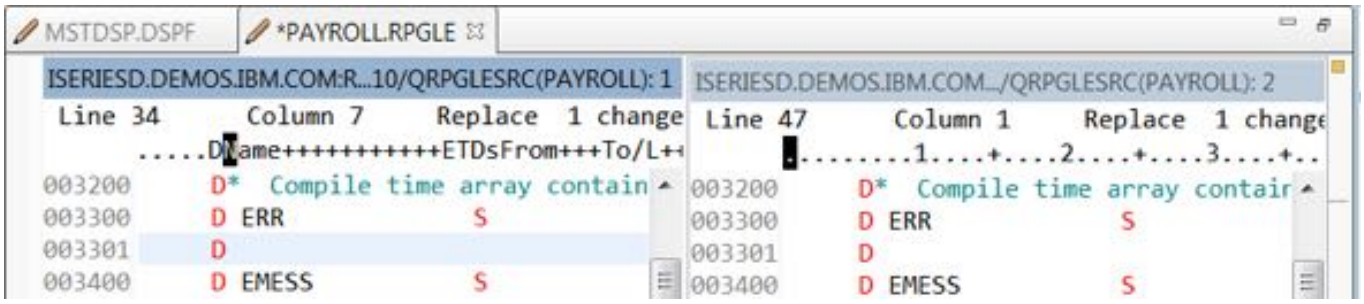


Note:

Any changes made in one of the views will automatically update all other views of the same source.

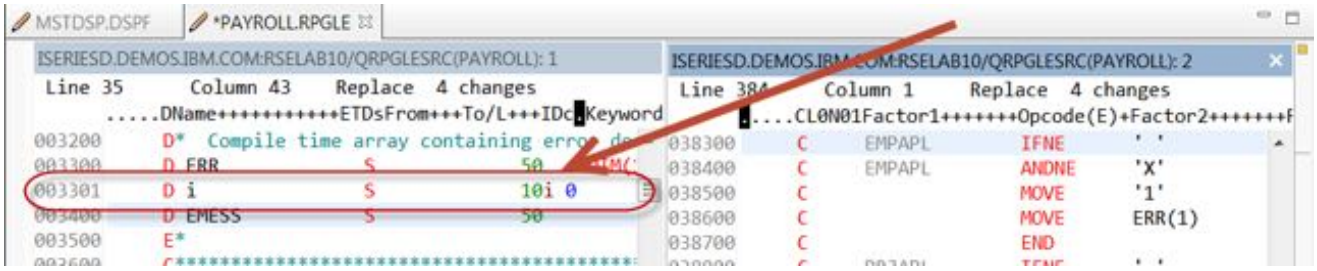
__6. Scroll down and place the cursor at line 33 in the left view of the Payroll source. The line number is displayed at the top left of the source view.

__7. Press **End** key, then press **Enter**.



A new line is inserted in both views and since the previous line is a D-spec, the new line is also marked as a D-spec.

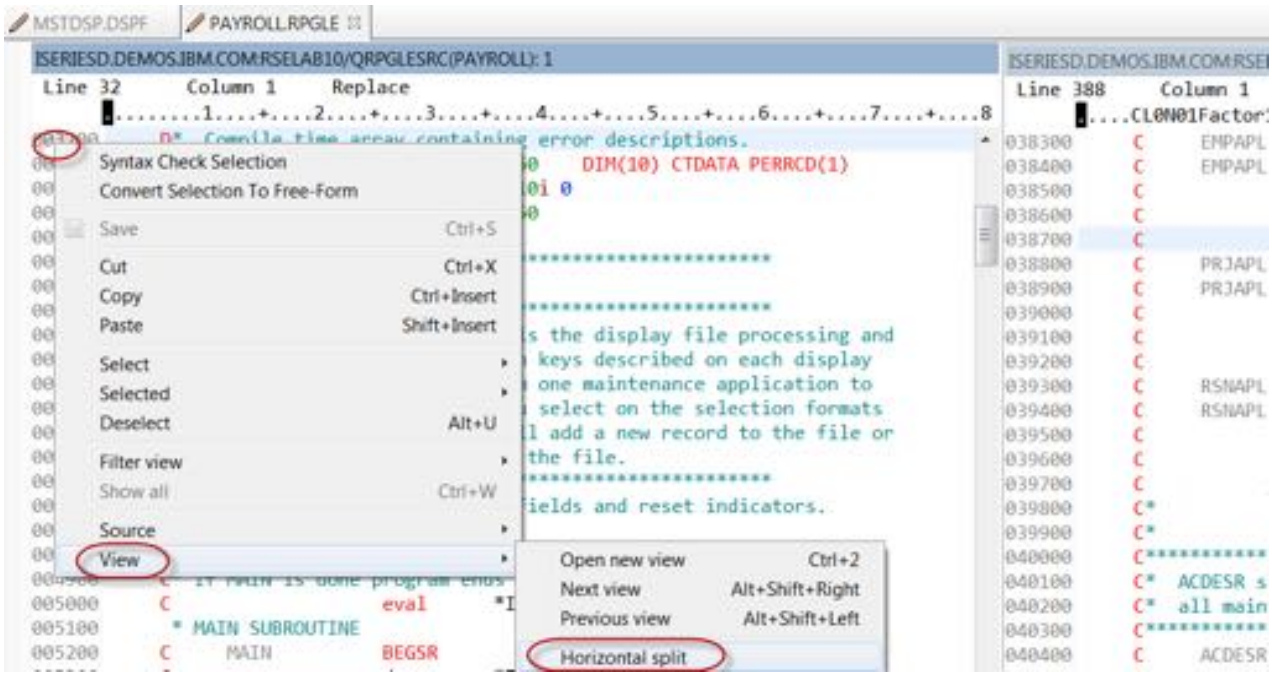
__8. Define a new variable, i as shown in the screenshot below, with length 10:



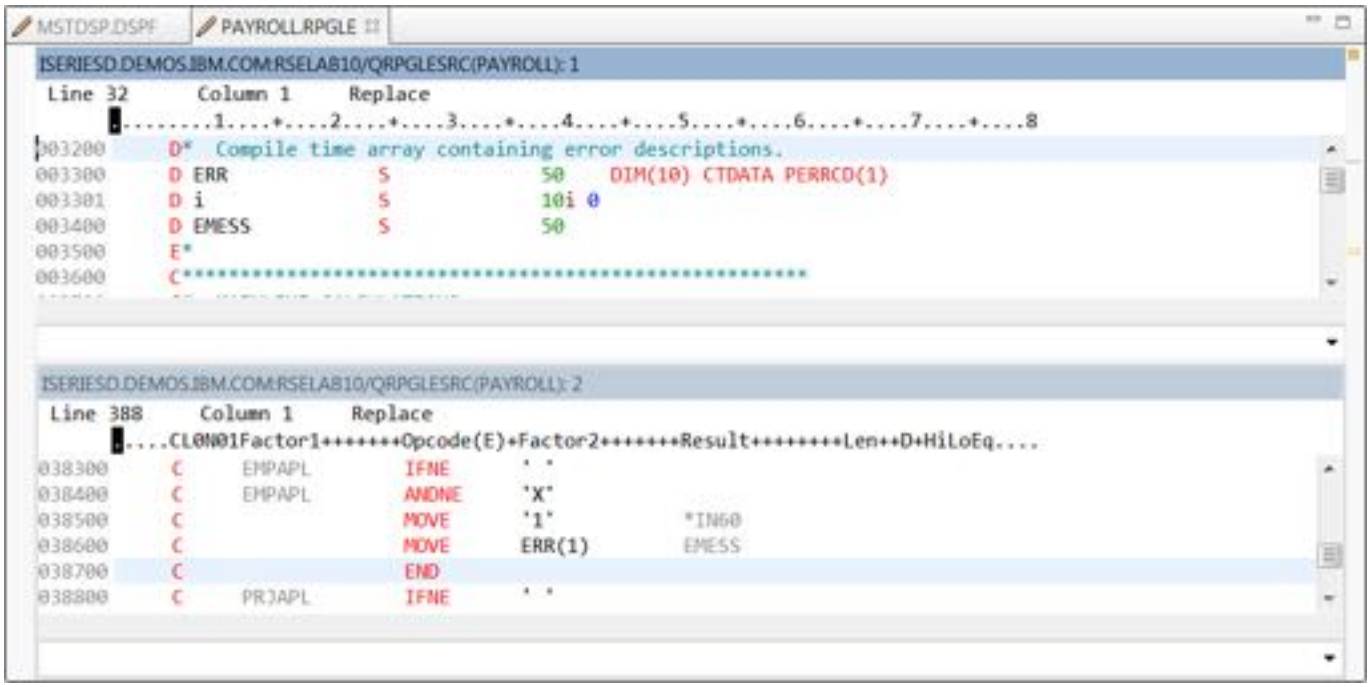
Now, in the view on the right, you can start using the new variable while being able to maintain your view on the left on the definition of the variable.

Another nice feature is the ability to change the way the views split, if you don't like the vertical split you can specify to split horizontal instead. Let's try that:

__9. Right-click a source view and select **View > Horizontal split** to change from a vertical split of the views to a horizontal split of the views.



Here is how your edit view should look now:



If you want to close the extra views:

__10. Right-click the source view that you want to close (**RSELABXX/QRPGLESRC(PAYROLL): 2**)

__11. Select **View > Close view:**

Tip:
This option is not available on the first view

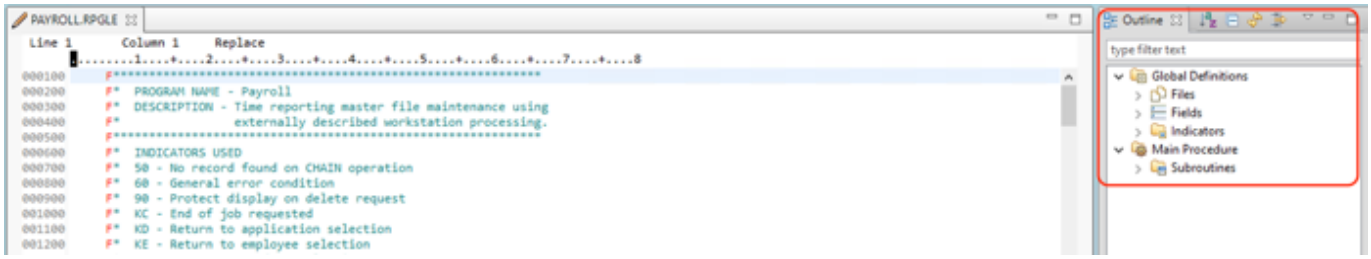
You have opened another member for edit and seen multiple views of a member.

1.3 Using the Outline view of a source member

The Outline view acts as an excellent resource when you want to navigate through RPG, COBOL and DDS source in the Remote Systems LPEX editor. The Outline view displays a structural outline of items defined in the file that you currently have opened in the Remote Systems LPEX editor window. With the editor active, you can expand the file structure in the Outline view and click various elements in the view to jump to that location in the source itself.

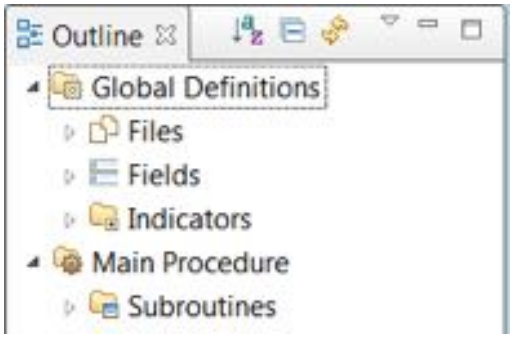
To see an Outline view of your RPG source:

__1. Click the **PAYROLL** tab in the editor and take a look at the **Outline view** on its right.



Tip:
If you have closed the Outline view previously, you can reset the perspective by selecting **Window > Reset perspective** from the workbench menu or **Window > Show view > Other** then expand **General** and click **Outline** in the Show view dialog.

The Outline view contains your source program in a tree view without the lines containing logic.



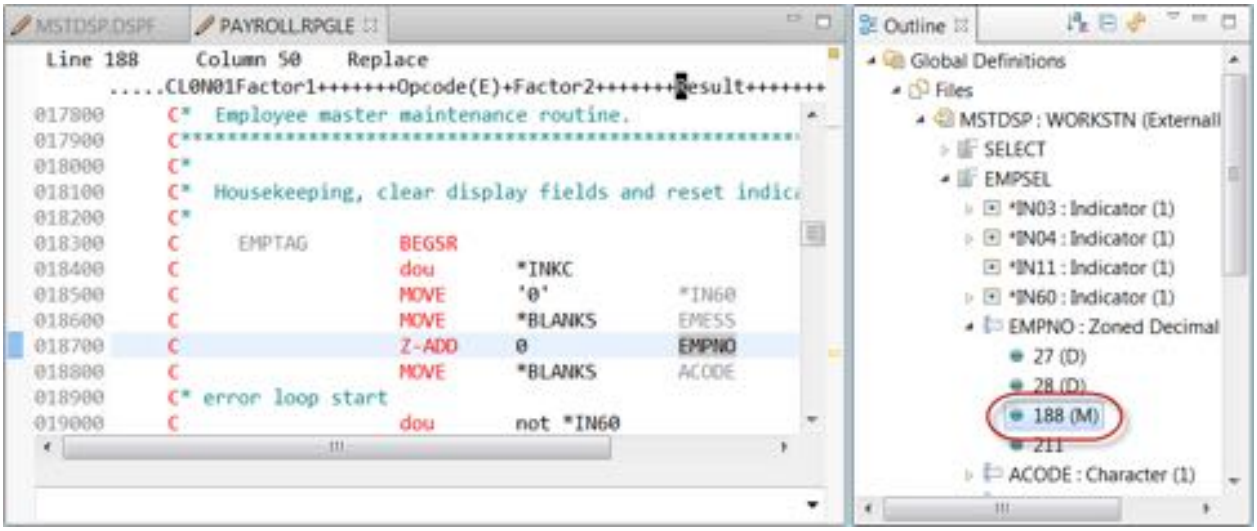
Now you want to see more details of your source member:

__2. Expand Files.
__3. Expand the MSTDSP workstation file.
__4. Expand the EMPSEL record format.
__5. Expand EMPNO.

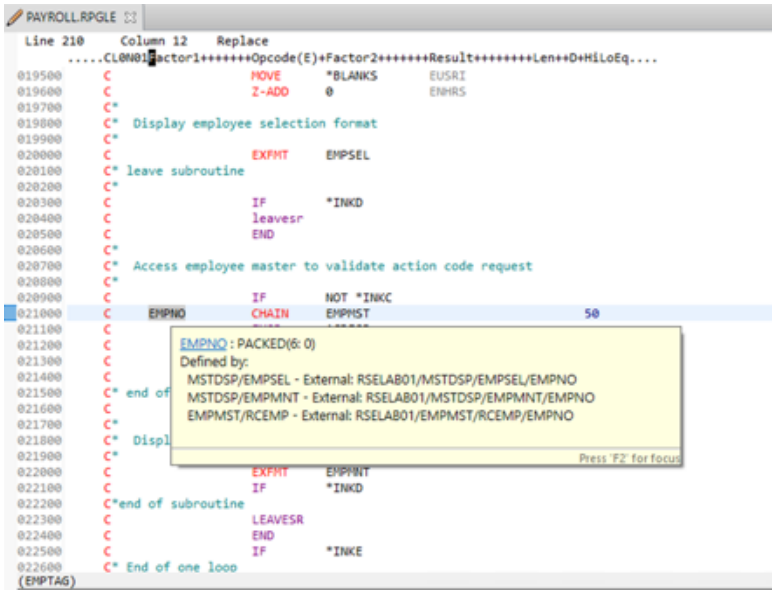
__6. Click on any line number in the Outline view.

This will position the source editor accordingly.

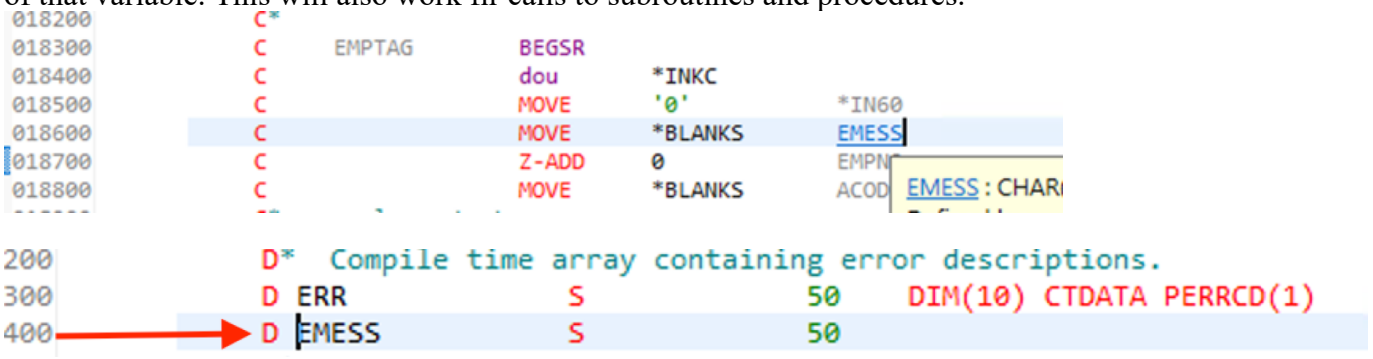
Tip:
Clicking a field or a variable in the Outline view will position the editor to its definition.



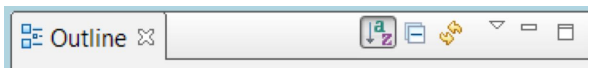
__7. Hover the mouse over the EMPNO variable for a little while and notice the hover that appears and shows the definition of the variable. This will work for all other references as well.



__8. Hold down the Ctrl key and hover over any variable, for example the EMESS variable and it will appear underline like a hyperlink. If you click on it at this point, it will take you to the definition of that variable. This will also work fir calls to subroutines and procedures.



__9. The other buttons on the outline view allow you to sort entries alphabetically, instead of in the order they appear in the source, as well as collapse all sections. The yellow arrows allow you to refresh the outline view in case external files have changed and you want to pick up the new set of records and fields. The final divot brings up a menu that will take you to preferences to customize your ILE RPG editor behavior.



__10. Click the **PAYROLL** tab to get the PAYROLL editor window in focus for the next lesson.

You have displayed an outline of a source member while editing RPG or DDS sources.

2 Working with the Remote Systems LPEX editor

This module teaches you how to edit an RPG source member and some of the Remote System Explorer LPEX Editor's language support features.

The following topics are covered:

- Change the default settings of the LPEX Editor Parsers
- Change the color settings and font used by the Editor
- Change the default behavior of the Enter key
- Use SEU commands to edit source
- Undo and redo source changes
- View language sensitive help for the MOVE operation code
- View a list of all help contents
- Limit the search of help to specific documents
- Search the help
- Request a prompt for a specification line
- Display context sensitive help for any field in the IBM i Source Prompter
- View the beginning and ending of constructs in your source
- Use the Find and Replace window to search for an item in your source
- Filter or subset your source
- Filter lines based on line type
- Search through members in a source physical file
- Compare different versions of a program and identify the differences
- Syntax check source by line
- View help on syntax errors

Your program editing tasks are simplified with the Remote Systems LPEX Editor. The editor can access source files on your workstation or your IBM i system directly. When a compilation results in errors, you can jump from the compiler messages to an editor containing the source. The editor opens with the cursor positioned at the offending source statements so that you can correct them.

Here is a list of some of the basic editor features that you would expect in a workstation editor:

- Cut, copy, and paste
- Block marking of lines, characters, or rectangles with copy, move, and delete operations
- Powerful find and replace function
- Unlimited undo and redo

In addition, there are a few more functions that you may not have seen in a workstation editor:

- Token highlighting where different language constructs are highlighted using different colors to help identify them in a program
- SEU-like format-line rulers to show the purpose of each column for column-sensitive languages like RPG and DDS. These rulers can automatically update themselves to reflect the current specification.
- SEU-like specification prompting for CL, RPG, and DDS
- Sequence numbers, which allow SEU-style commands in the prefix area
- Intelligent tabbing between columns for column-sensitive languages

- Automatic uppercasing for languages that expect uppercase
- Settings for column-sensitive languages that simplify text insertions and deletions
- On-line language reference

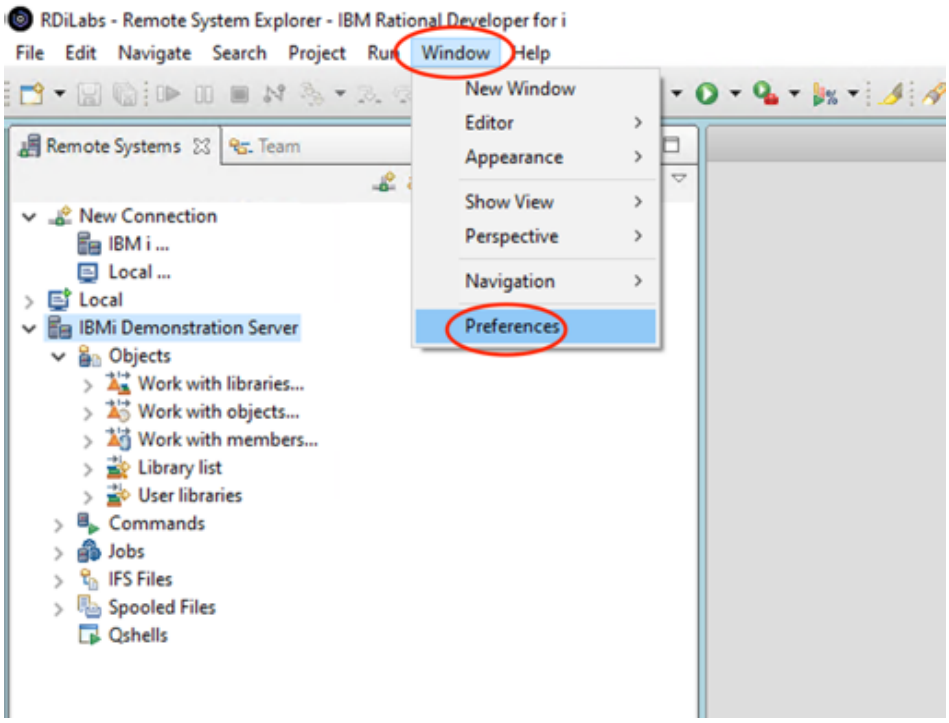
2.1 Changing default editor settings

The LPEX Editor has predefined settings, but also has an associated preferences page containing settings that you can modify. The name of the preference category is LPEX Editor and it appears in the left pane of the **Preferences** window.

You will change the default settings of LPEX Editor Parsers, Appearance and User Key Actions. LPEX provides special support for insertion and deletion in column-sensitive languages. When column-sensitive editing is selected, each column is considered as a separate entry space. For example, in an RPG source member, if you are inserting into or deleting characters from a string that is in the Factor 2 entry, the Result field entry does not move. The default editor preference is that column-sensitive editing is off. You can switch this support on by going to the workbench preferences window.

To set column sensitive editing:

__1. In the workbench menu, click **Window > Preferences** from the workbench menu.
The Preferences window opens.

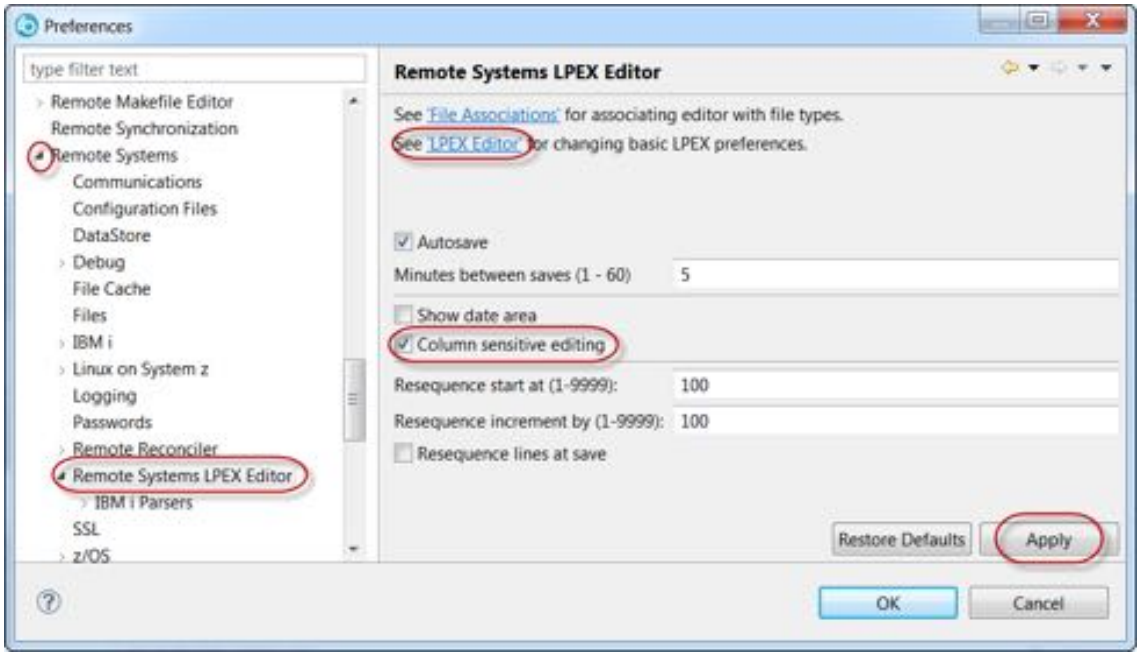


In the left pane of the Preferences window, expand **Remote Systems.**

__2. Select **Remote Systems LPEX Editor.**
The right pane allows you to set preferences for this feature.

__3. In the right pane of the Preferences window, select the **Column sensitive editing** check box.
When selected, each column is considered as a separate entry space.

__4. Click the **Apply** button.



2.2 Autosave while editing source

To enable or disable autosave while editing source in the Remote Systems LPEX Editor, select or de-select the Autosave check box in the preference dialog. By default, autosave is enabled and the value for the minutes is set to 5. You can specify a value between 1 and 60 minutes

Note: The **Autosave** action will perform a local backup onto the workstation disk. It will not remotely save the member onto the IBM i server. Use the **Save** or **Save as** actions to save the member back onto the IBM i server.

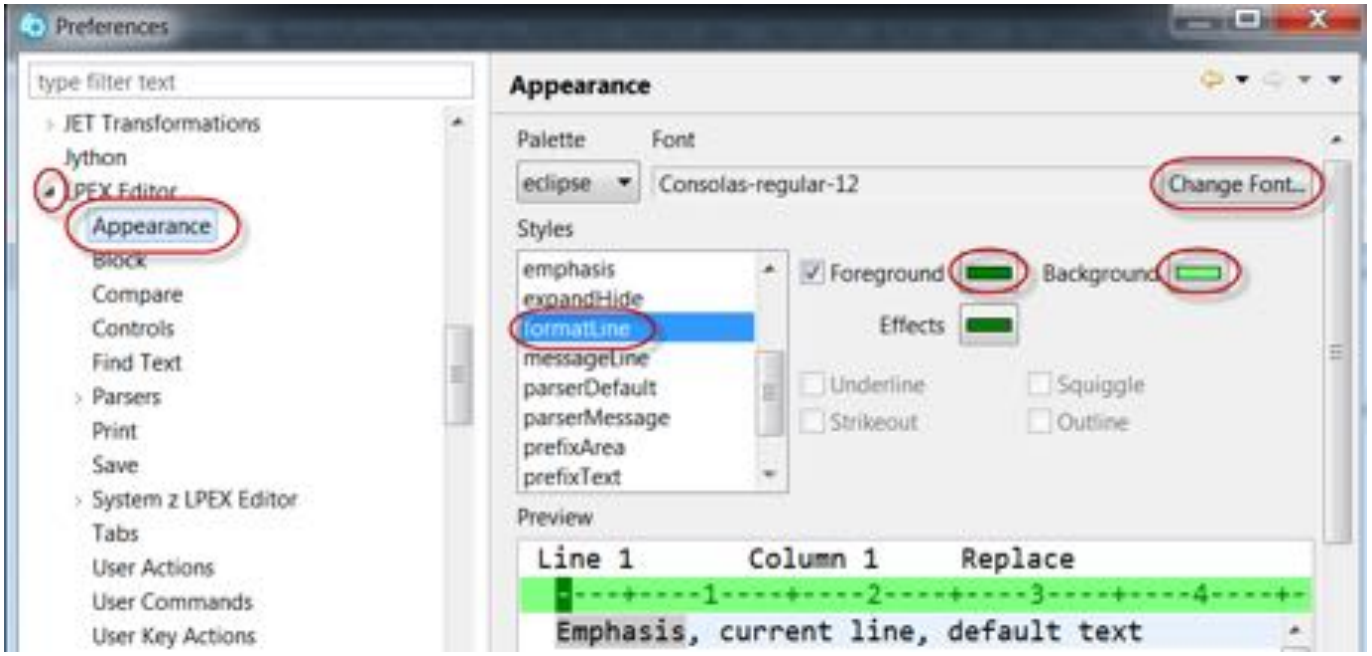
2.3 Changing the editor's appearance

Other interesting preference settings are located under LPEX Editor. You can use the link at the top of the page to quickly jump to the LPEX Editor preferences. **Appearance** allows you to modify color settings and font used by the Editor.

To change the editor **appearance:**

__1. In the left pane of the **Preferences** window, expand **LPEX Editor**.
__2. Select **Appearance** under LPEX Editor.
__3. In the right pane under the **Styles** list, select **formatLine.**
__4. Change the **Foreground** color to dark green.
__5. Change Font to 12.
__6. Change **Background** color to light green.

Notice, how your changes are reflected in the sample edit view.



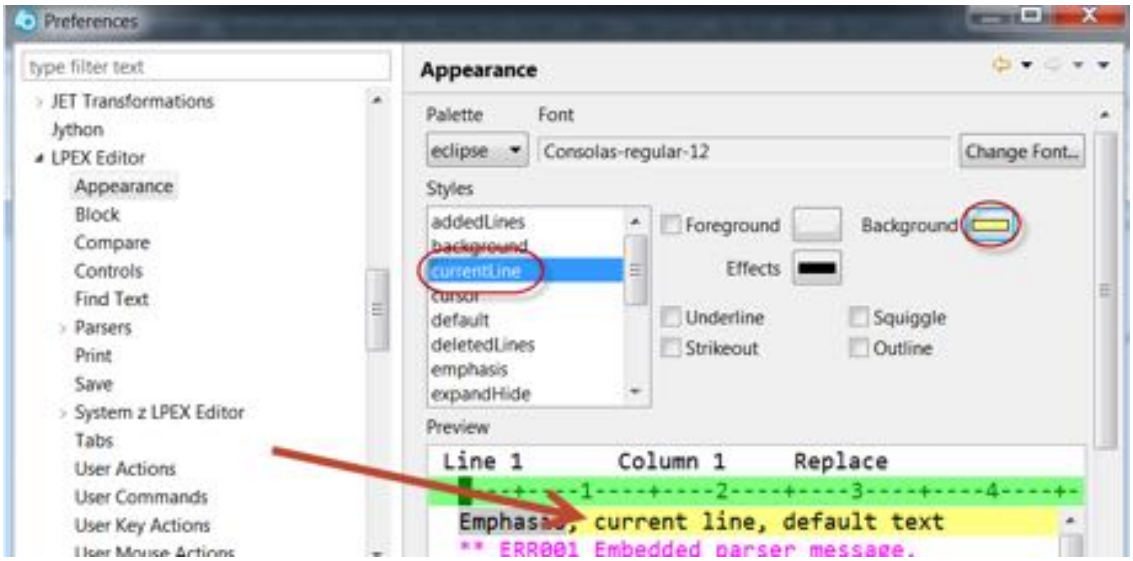
To change the current line appearance to make it more visible when editing:

__7. Select **currentLine** under the **Styles** list.

This option highlights the line that the cursor is on. The option applies to all source files opened in the editor area.

__8. Change the **Background** color to light yellow.

__9. If you don't like the changes you made, you can click **Restore Defaults** to return to the original settings.



2.4 Changing key behavior in the editor

To modify the default behavior of the Enter key.

__1. Expand **LPEX Editor** if not already expanded.
__2. Select **User Key Actions**.

The LPEX Editor has a predefined behavior for the **Enter** key to always add a new line and not split the line when the Enter key is pressed. To change the default behavior for the Enter key to split the line, use the following instructions.

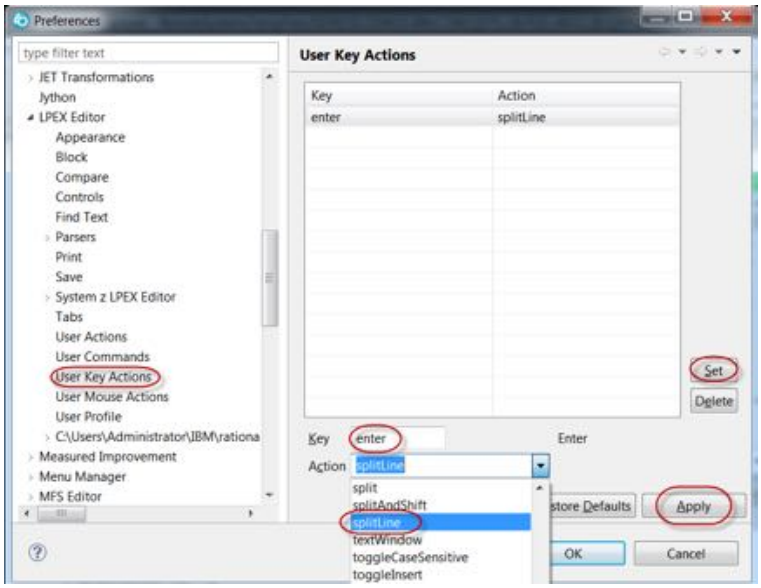
__3. Type **enter** in the Key field**.**

Tip:
The Key and Action fields are case sensitive. Make sure that the values typed in the Key and Action fields are exactly as shown above.

__4. Type **splitLine** in the **Action** field.

Tip: Use the drop-down list to select the value

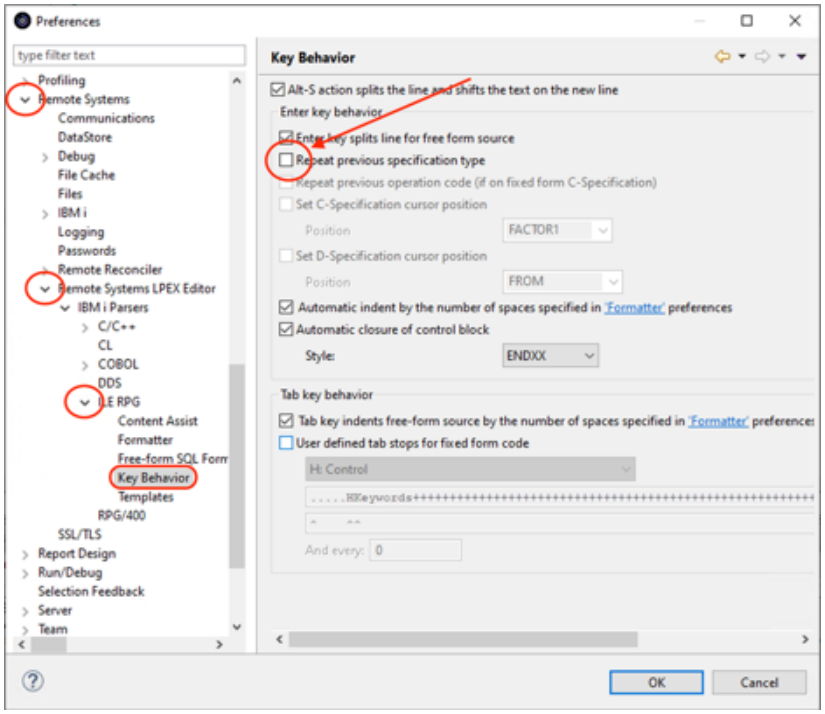
__5. Click the **Set** button.



We go through one other preferences entry that users like to change. Adding the previous specification type to a new line when editing RPG source is not liked by all users. Here is how to change this behavior:

__6. Expand **Remote Systems.**
__7. Expand **Remote Systems LPEX Editor**, and then **IBM i Parsers.**
__8. Expand **ILE RPG.**
__9. Click **Key Behavior.**
__10. Clear the **Repeat previous specification type** check box.

__11. Click **OK** on the Preferences window.



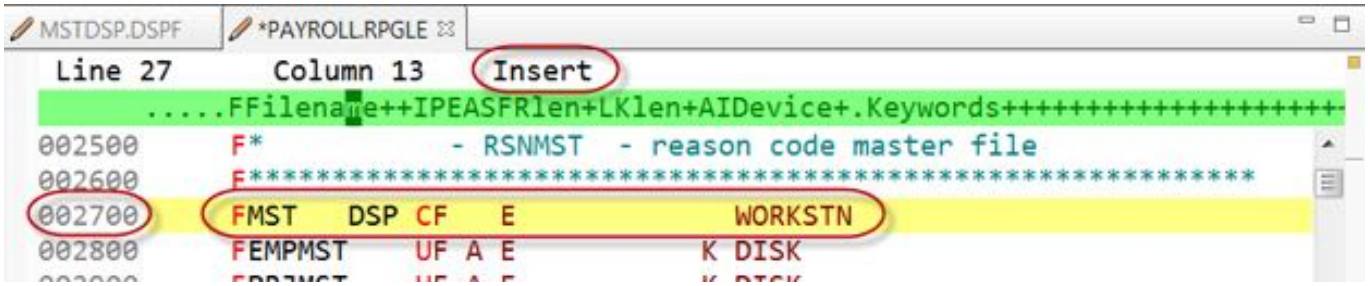
__12. Return to the Editor window.

Next let's see the results of the customization.

2.5 *Testing the editor customization*

Notice that the line the cursor is on is now highlighted in the color you selected for it in the preference setting for highlight current line.

__1. Move the cursor to line 27, column 10.
__2. Make sure the editor is in **Insert** mode. If the status area shows **Replace** press the **Insert** key.
__3. Press the spacebar 3 times**.**

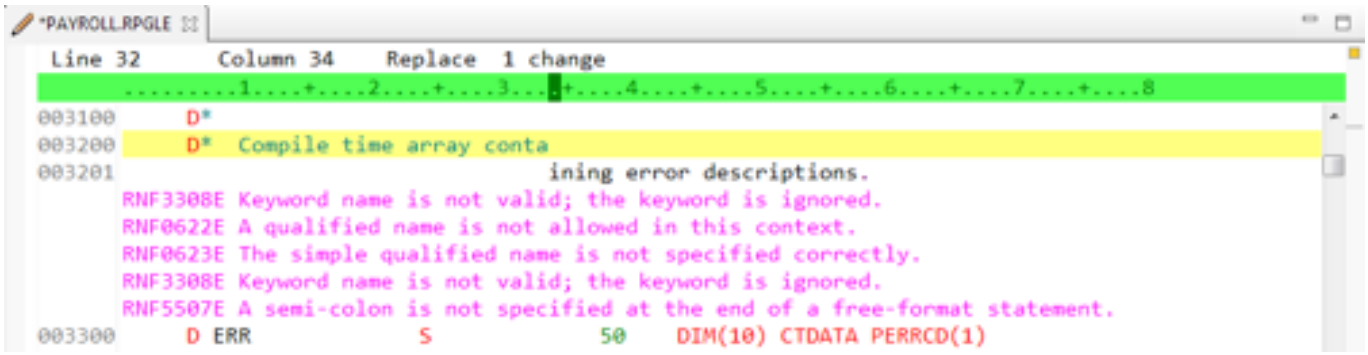


Notice that only the file name is shifted but none of the other columns to the right are affected.

__4. Press the **Backspace** 3 times. Once again, the filename is shifted but no other columns are affected.

Next let's see the results of splitLine.

__5. Position your cursor on line 32, in the middle of the comment text.
__6. Press the **Enter** key.



The text to the right of the cursor is moved to the next line.

You have changed some of the default editor settings and seen the results of the changes. Feel free to change the preferences to your preferred settings.

2.6 Using SEU commands in the LPEX editor

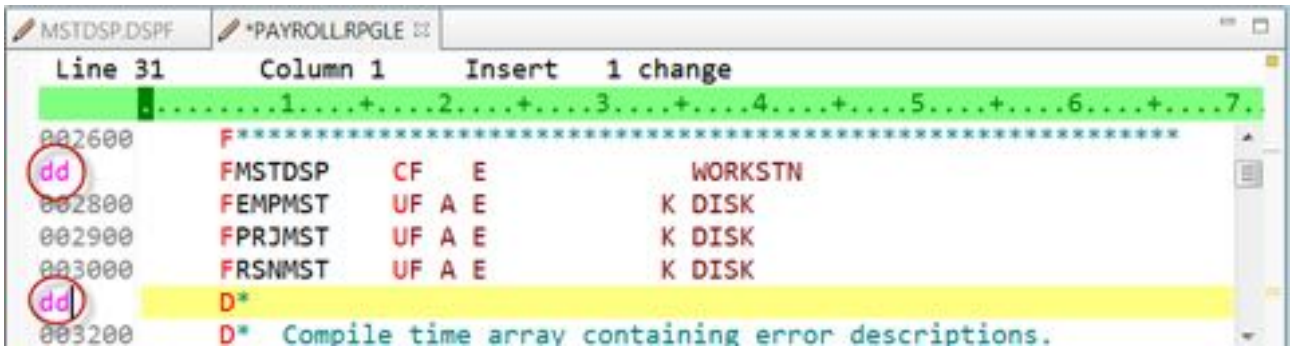
You can configure the LPEX Editor to adopt the keyboard and command personalities of many popular editors. Most editor profiles differ only in the keys and commands used to perform various editor tasks. Some base editor profiles, listed below, also add prefix information and a command area at the start of each line:

- ispf
- seu
- xedit

The editor recognizes prefix commands used by these editor profiles. Depending on which profile you are using, you can enter SEU, XEDIT, or ISPF commands when the prefix area is active. If you are an SEU expert, you will appreciate the ability to use SEU commands.

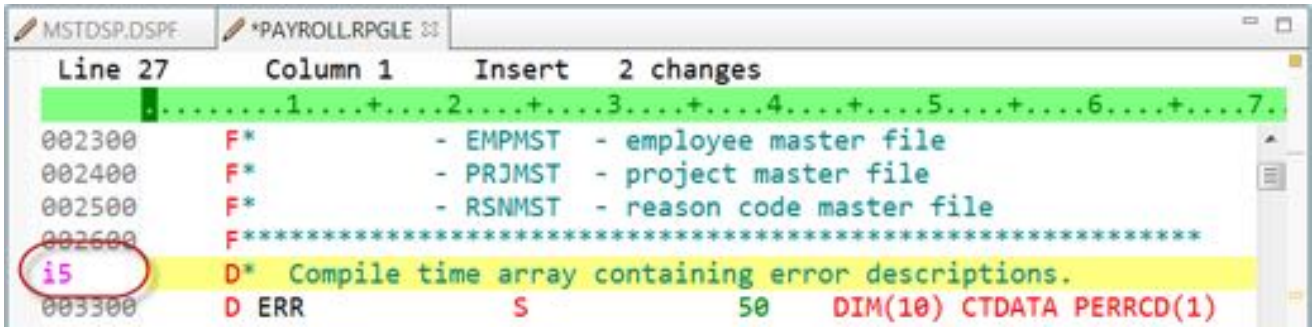
To enter SEU commands:

__1. Move the cursor into the gray sequence number area to the left of the edit area.
__2. On any sequence number type **dd**.
__3. Go down a few lines and type **dd** again and press **Enter.**



Notice that the lines have been deleted**.**

__4. Now type **i5** in the sequence number area.
__5. Make sure the cursor is within the sequence number area.
__6. Press **Enter.**



Five new lines are inserted.

You have learned how to use SEU commands in the editor.

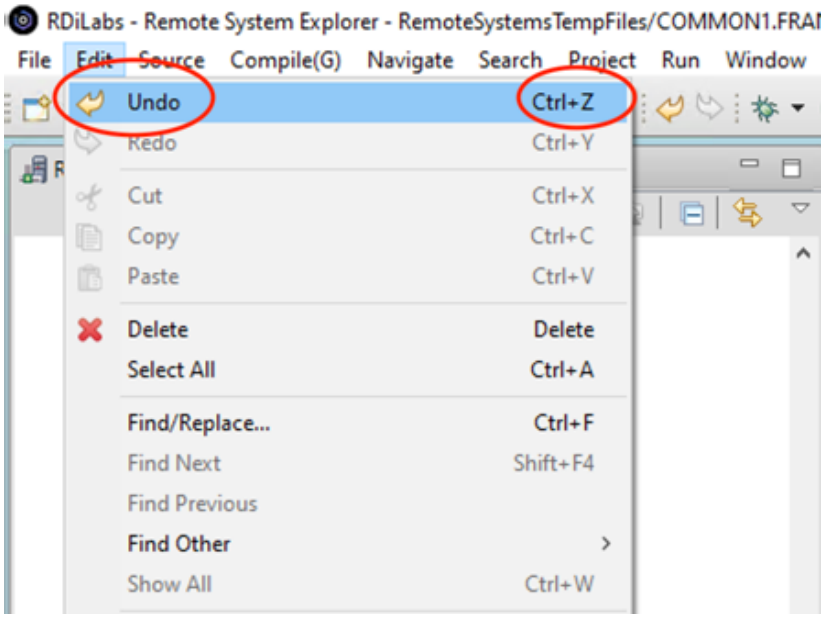
2.7 Requesting undo and redo operations

The editor records each set of changes you make to a file in the Editor window. The number of changes made since the last file save is displayed on the status line. If you want to undo a set of changes made to a

file you use the Undo operation. You can also cancel the effects of an Undo operation by using the Redo operation.

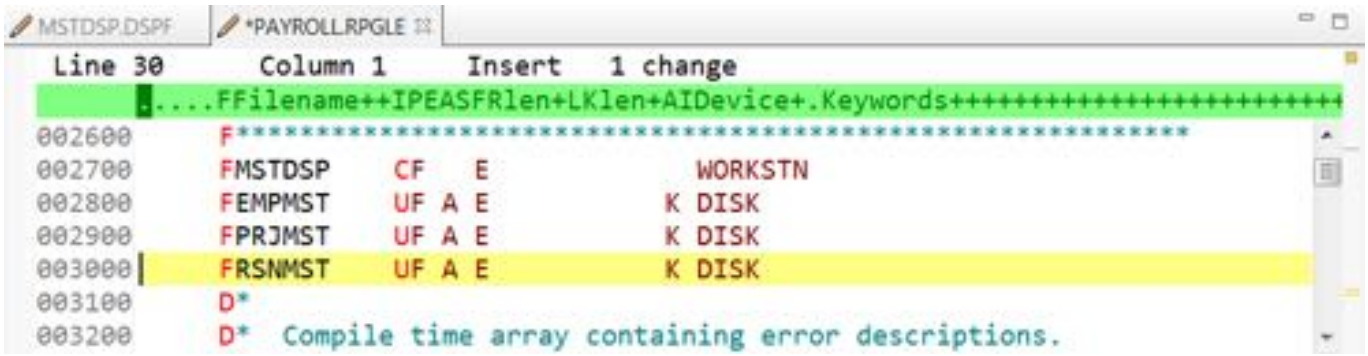
Now you are going to undo some of the changes you just made to the file. Then you will cancel the Undo operation by using the Redo operation. Finally, you will reload the source so that it is back to its original content.

__1. Click **Edit > Undo** from the workbench menu. Notice that the 5 new lines disappear.



__2. Press **Ctrl+Z** to undo the last change.

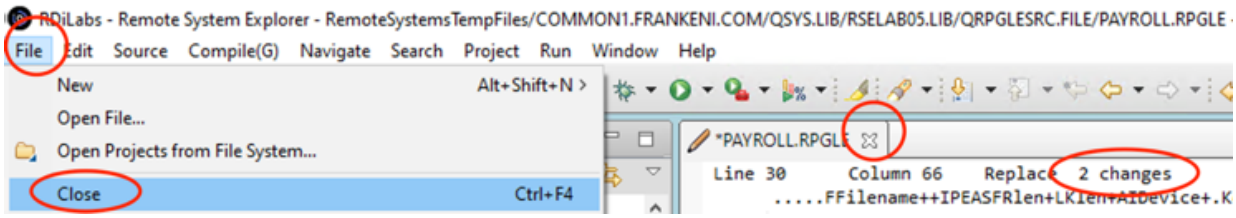
Notice that the deleted lines reappear.



__3. Click **Edit > Redo** from the workbench menu.

Notice that the lines are deleted again.
At this point you will reload the source from the IBM i server to make sure that it is back in its original form.

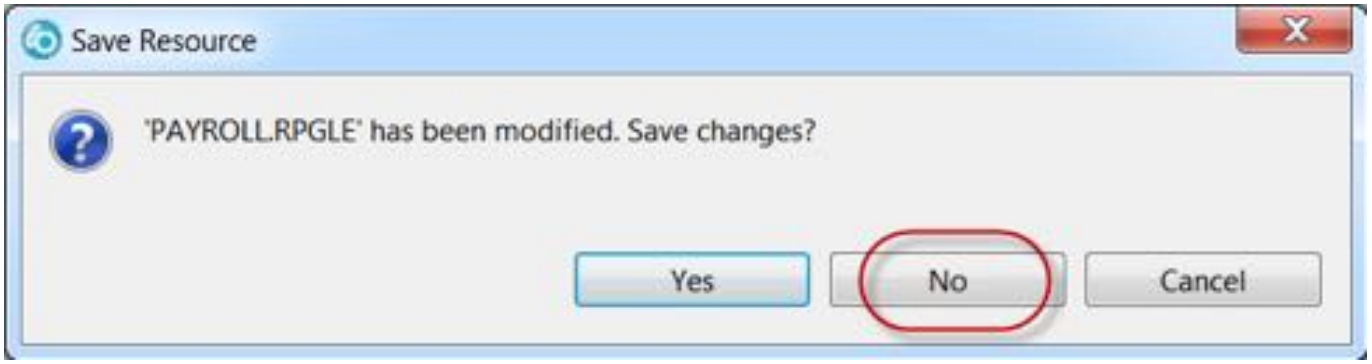
__4. Click **File > Close** on the workbench menu.



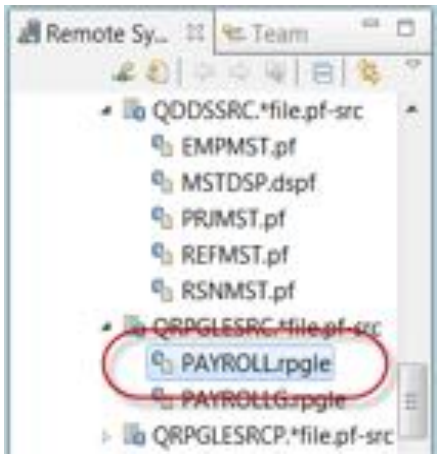
Tip:
You can also click the **X** on the **PAYROLL** tab.

A Save Resource dialog opens asking if you want to save the latest changes.

__5. Click **No.**



__6. In the workbench, in the **Remote Systems** view, open the **PAYROLL** member in the QRPGLESRC file by double clicking on it.



You have learned how to undo and redo changes that you made to a file.

2.8 Invoking language-sensitive help

Inside the editor, there is cursor-sensitive language-reference help available.

This help is invaluable if you cannot remember the order of fields in an RPG specification or the allowed values for a variable field. This help is available from the LPEX Editor window.

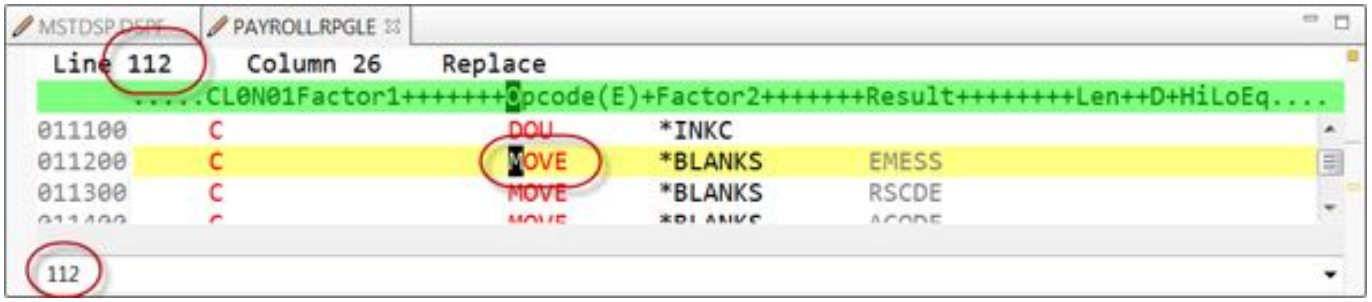
To receive language sensitive help, press F1 in an Editor window. If the cursor is on an operation code, you receive help for that operation code; otherwise, you receive help for the current specification.

To access language sensitive help:

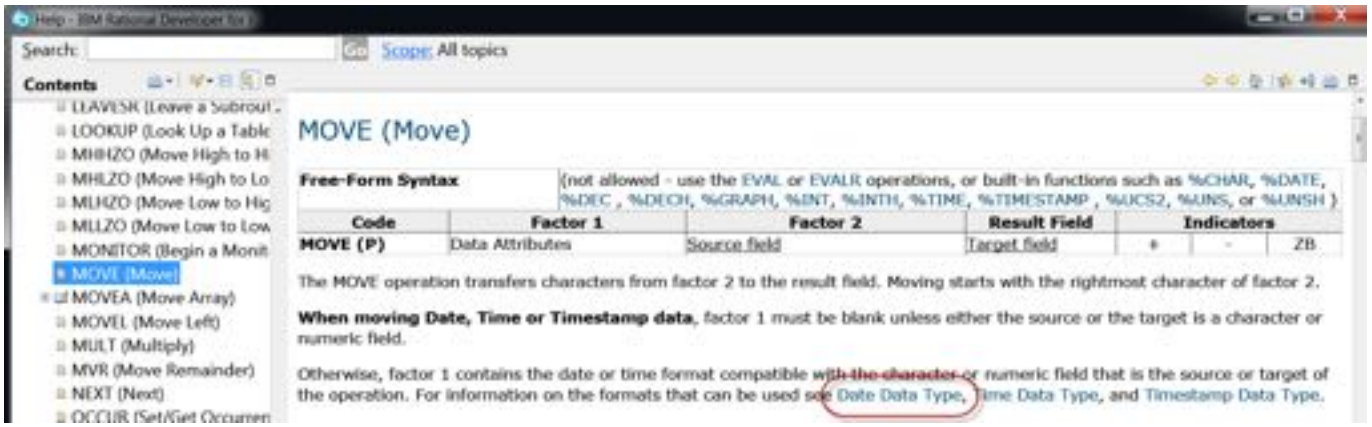
__1. Position the cursor over the **MOVE** operation code in line 112 of the ILE RPG source.

Tip:
To jump to a specific line, type the number into the editor's command entry line and press Enter.

__2. Press **F1**



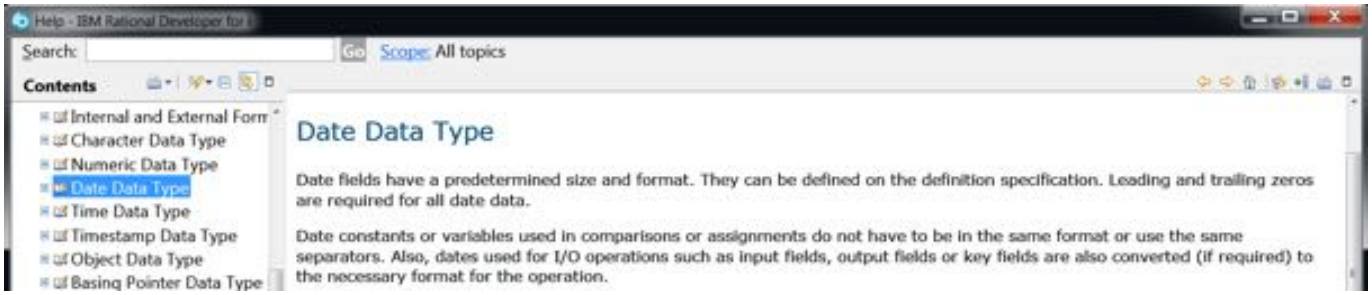
Language-sensitive help for the MOVE operation code appears in a Help window.
Text marked in blue in the Help window contains the link to detailed information about the topic in blue.



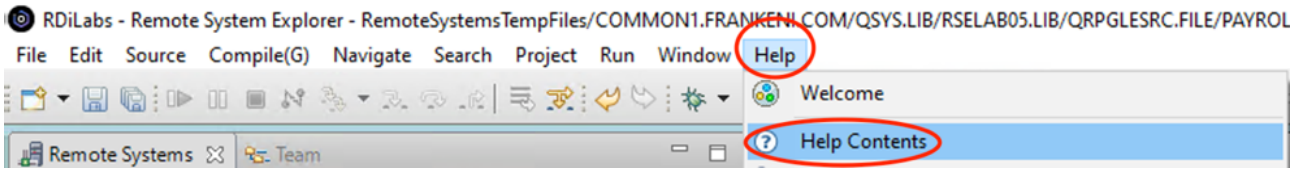
__3. Click the link **Date Data Type.**

.

The Help page for **Date Data Type** is displayed.



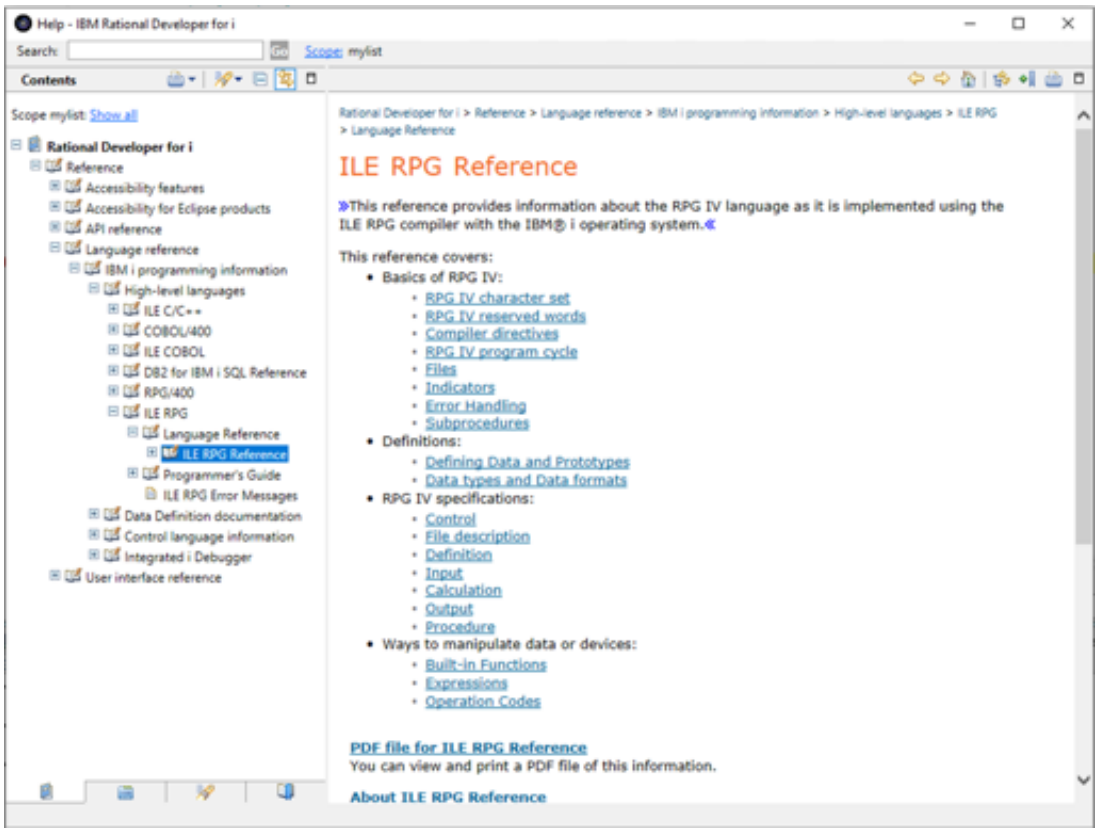
__4. Explore the Help window to see what else is available.
__5. Close the Help window.
__6. Select **Help > Help Contents** on the workbench menu.



You can see the help that is available in the product.
To locate the language reference information for ILE RPG, in the left pane of the Help window:

__7. Expand **Rational Developer for i 9.X**.
__8. Expand **Reference.**
__9. Expand **Language reference**.
__10. Expand **IBM i programming information**.
__11. Expand **High-level languages**.
__12. Expand **ILE RPG**.
__13. Expand **Language Reference**

__14. Click **ILE PRG Reference.**

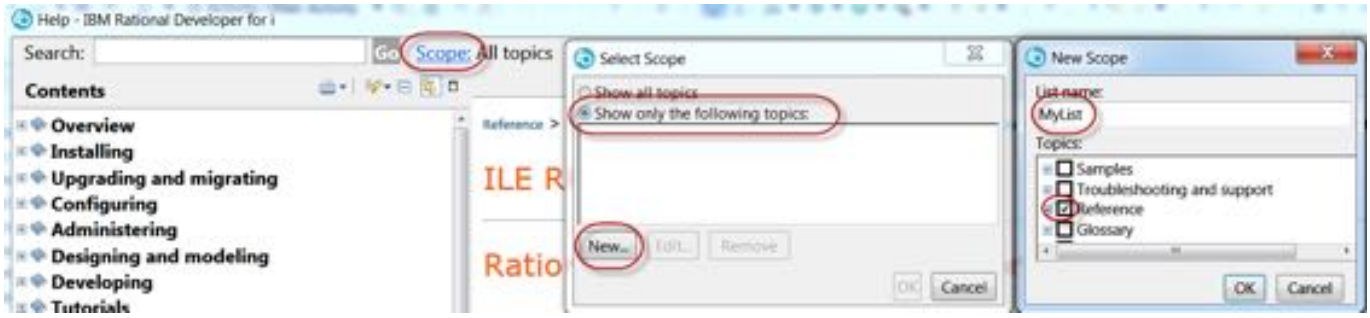


Having the latest version of the manuals at your fingertips will make it easier to find programming information. There is also the option to search the help by specifying a search string. By default, the complete help will be searched.

You can limit the search scope to specific documents to avoid getting search results from all the documentation in the workbench:

__15. Click **Scope**. The Select Search Scope dialog opens.
__16. Select **Search only the following topics** radio button.
__17. Click **New.**
The New Search List dialog opens.
__18. In the **List name** field, type **MyList.**
__19. If necessary, expand the topic “Rational Developer for i”
__20. Select the **Reference** check box to limit the search to this help area.

__21. Click the **OK** button on the **New Search List** dialog.



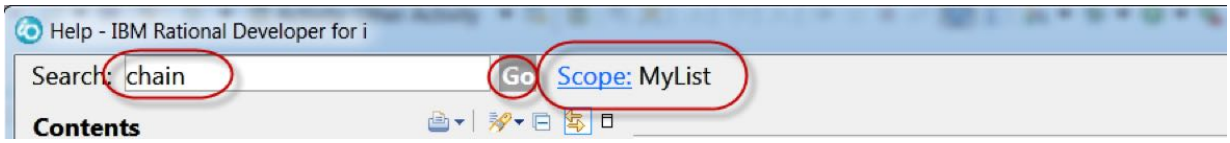
The Select Search Scope dialog reopens with **MyList** selected in the topic list.

__22. Click **OK** on the **Select Search Scope** dialog.

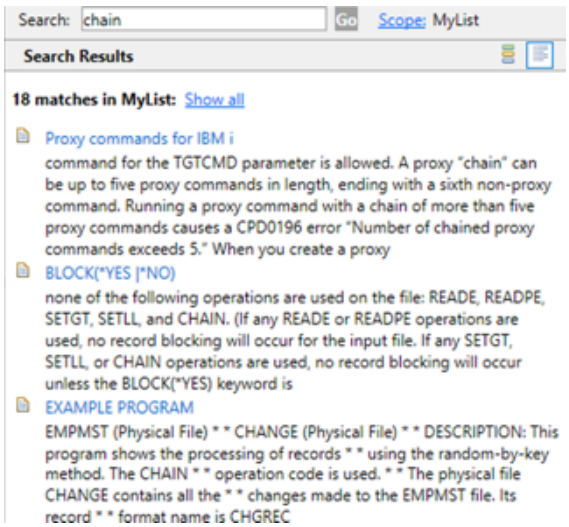
__23. In the **Search** field, type **chain** for example.

Searching requires a help index and it takes a bit of time to create the index in your workspace. If you **don't** want to wait for the index to be built, **skip** this step.

__24. Click **GO.**



The search results from the selected topic area display:



You have accessed language sensitive help.

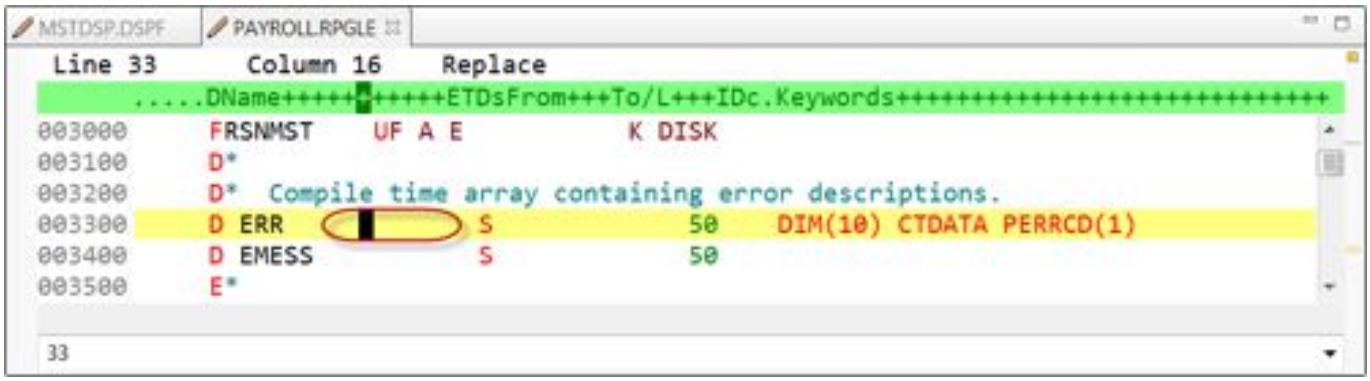
2.9 Prompting language specifications

Now back to editing the source code, let's look at prompting and more.

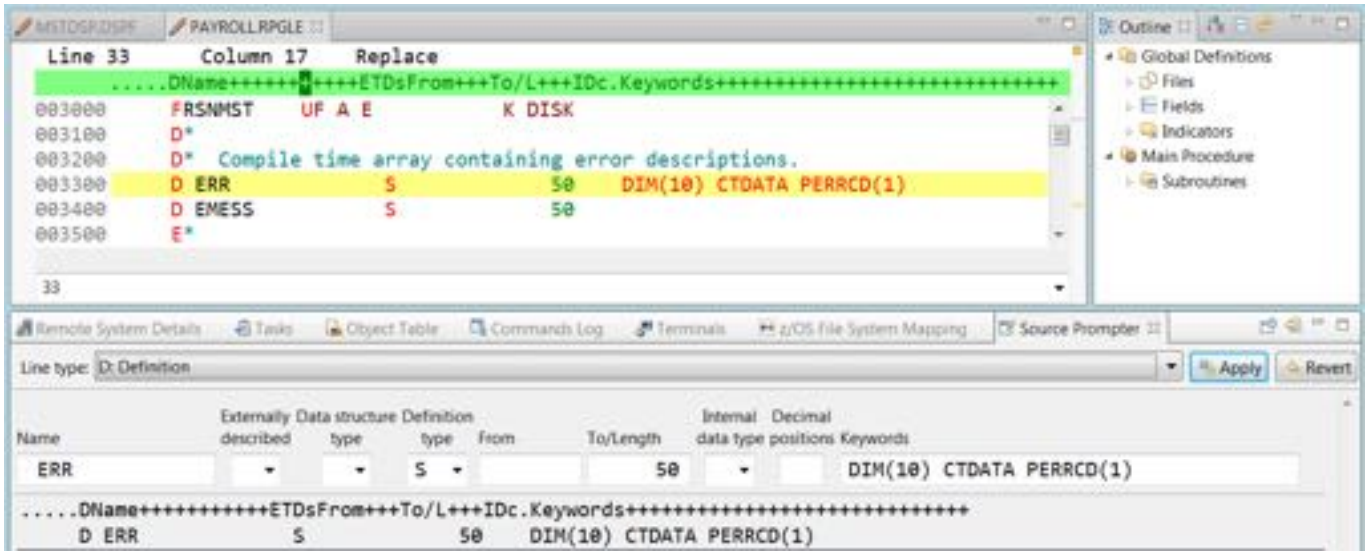
Instead of entering or changing code directly in the Editor window, you can use prompts. When you request a prompt for a specification line, a window appears where you can enter or change that line using entry fields.

To access prompts:

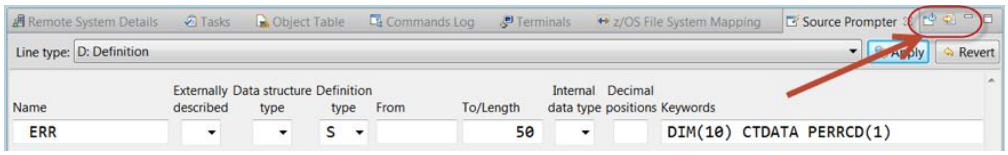
__1. Return to the workbench.
__2. In the Editor window move your cursor to the D-spec on line 33.
__3. Press **F4** (You can also click **Source** from the workbench menu and then click **Prompt**)



You see the Source Prompter at the bottom of the workbench. The Source Prompter shows the specification line broken down into its individual fields.



On the Source Prompter toolbar you can use the two push buttons to:
__a. Disable source prompt view
__b. Change to insert mode

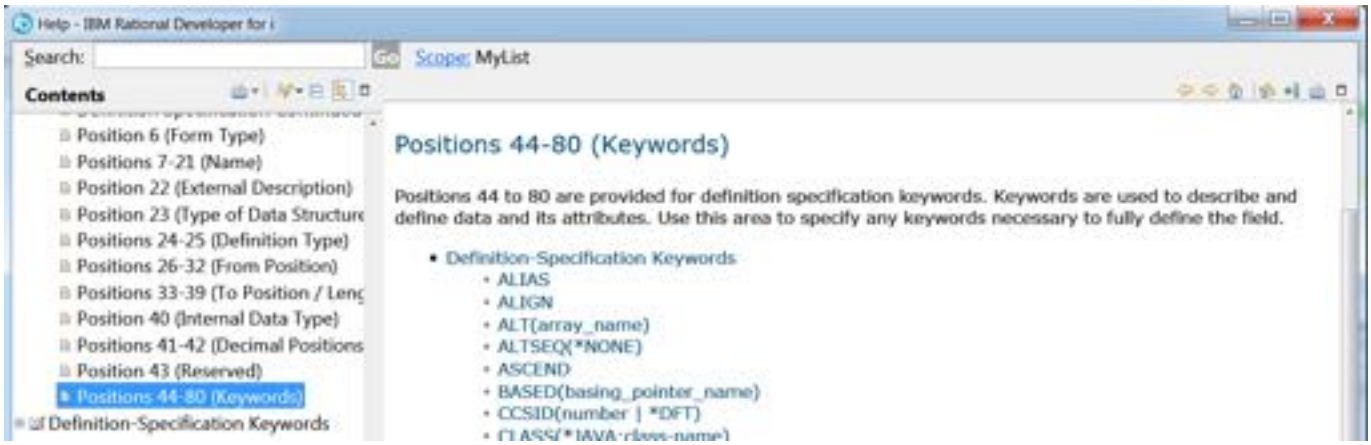


To display context sensitive help for any field in the Source Prompter

__4. Tab to the **Keywords** field.

__5. Press **F1** to see help for this field.

The Help window with help for the D- spec keywords opens. If it doesn't appear automatically, you might have to bring it to the foreground by clicking on its icon on the Windows taskbar.



You will see words in the help that appear in a different color than the regular text. These are help links, and they show that there is additional help available on that word or phrase.

__6. Click on any link to see specific help for that item.
__7. Close the Help window.

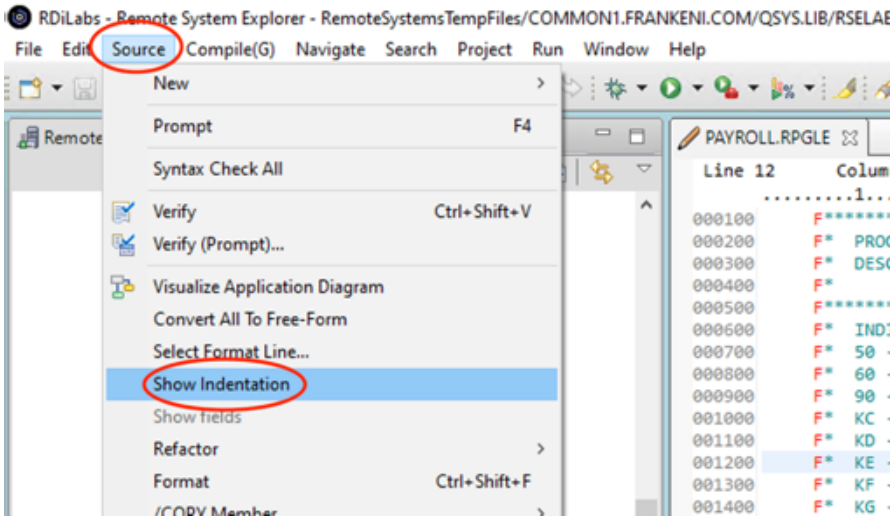
Prompting is easy, let's look at more good stuff.

2.10 Indenting source

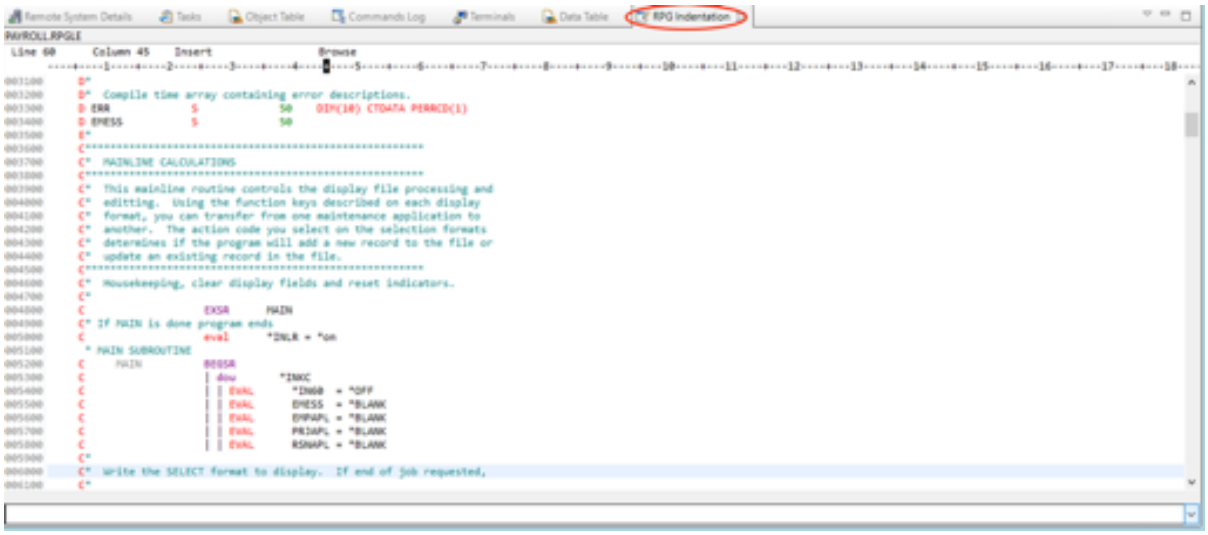
When editing ILE RPG source, it can be difficult to determine the beginning and ending of constructs. The RPG Indentation view allows you to see your source with constructs in an indented mode.

To indent source:

__1. Click on the editor tab for the PAYROLL member to make it active.
__2. Click **Source > Show Indentation** on the workbench menu.



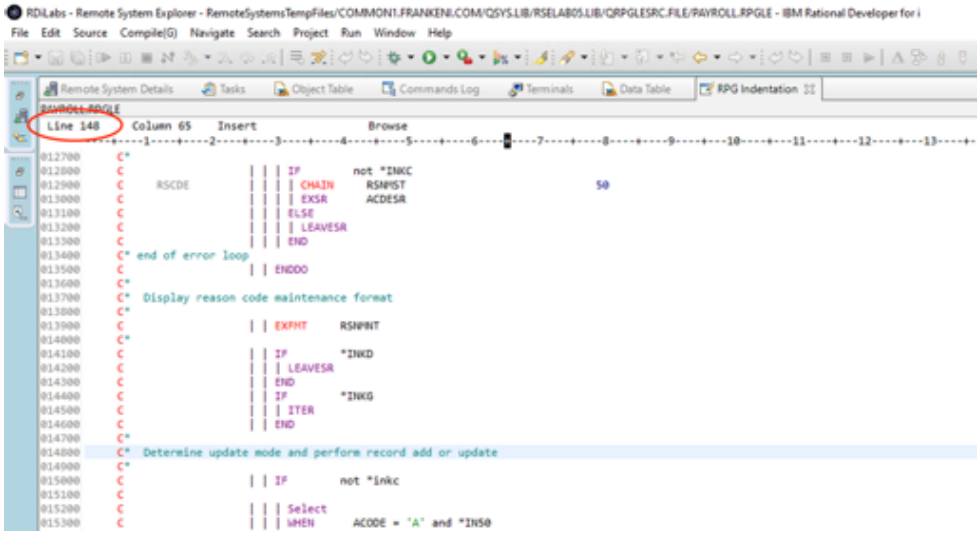
You see the RPG Indentation view below the edit dialog.



You can display the RPG Indentation view as a full view.

__3. Double-click **RPG Indentation** tab highlighted in the previous screen shot.

__4. Go to line 148.



The line shown on the status bar is the cursor position. In the Indent view you see some nested conditions with indented lines. As you will notice this helps to recognize the beginning and ending of these conditions.

Tip:
The RPG Indentation view is Browse mode only and cannot be edited.

__5. Click the **X** in the top right corner of the Indentation view to close it.
__6. If necessary, double-click on any of the tabs to restore the perspective from its maximized state.
__7. Click any of the tabs to show the editor again.

You have used the RPG Indentation view to see the beginning and ending of constructs.

2.11 Finding and replacing text

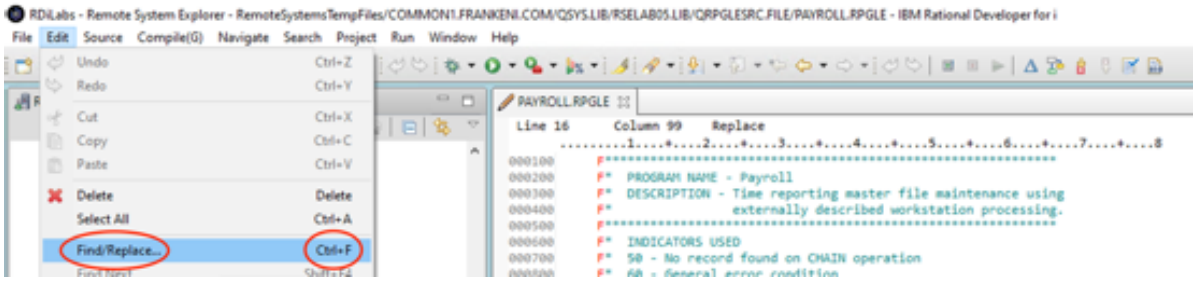
The LPEX Editor also has a powerful find and replace text feature. You use the Find and Replace window to search for an item. You can search for a word, a partial word, or a sequence of such. You can also enter a pattern you want to match, provided that the pattern follows the rules of regular expression. You can replace the found search item. If the entered text or pattern is found, the cursor moves to either the next or previous occurrence of the search item, according to your chosen search direction, and replaces the found text according to your selections.

To find and replace text:

__1. Click anywhere in the editor to give it focus then press **Ctrl+Home** to go to the top of the file.

Tip:
When you press **Ctrl+Home to** go to the top of a file or **Ctrl+End** to go to the bottom of a file, a quick mark is set at your cursor position. This allows you to return to that line by pressing **Alt+Q**. **Ctrl+Q** will set a quick mark.

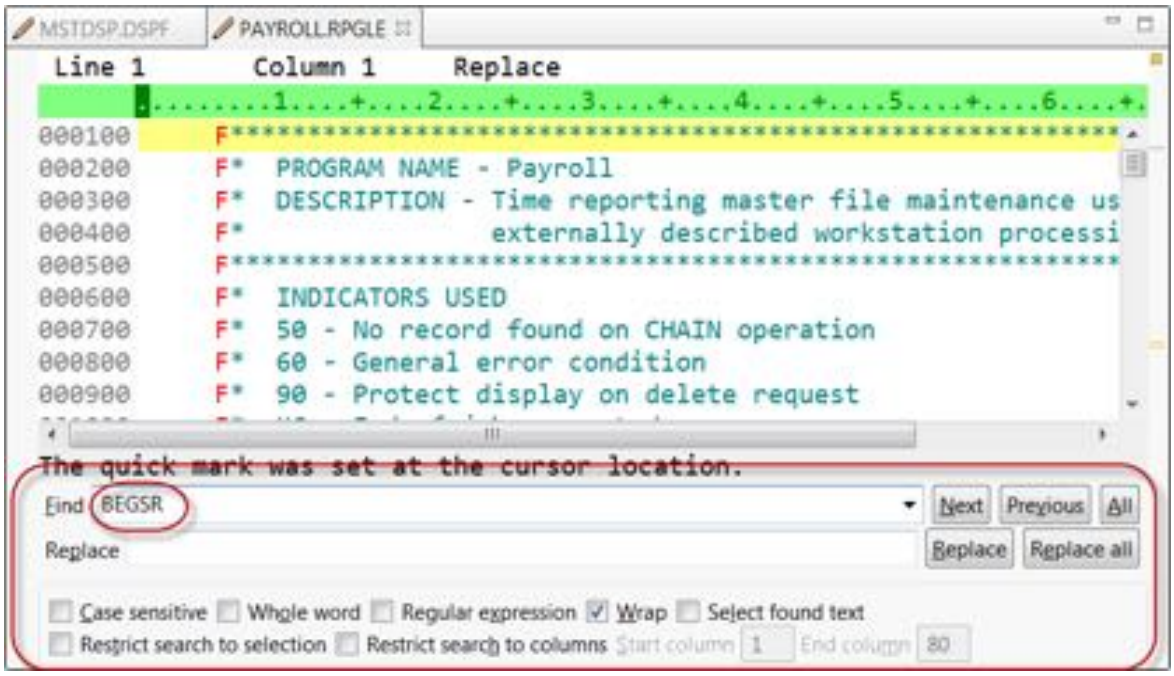
__2. Click **Edit > Find/Replace** from the workbench menu or press **Ctrl+F**.



The Find/Replace window opens at the bottom of the Editor window.

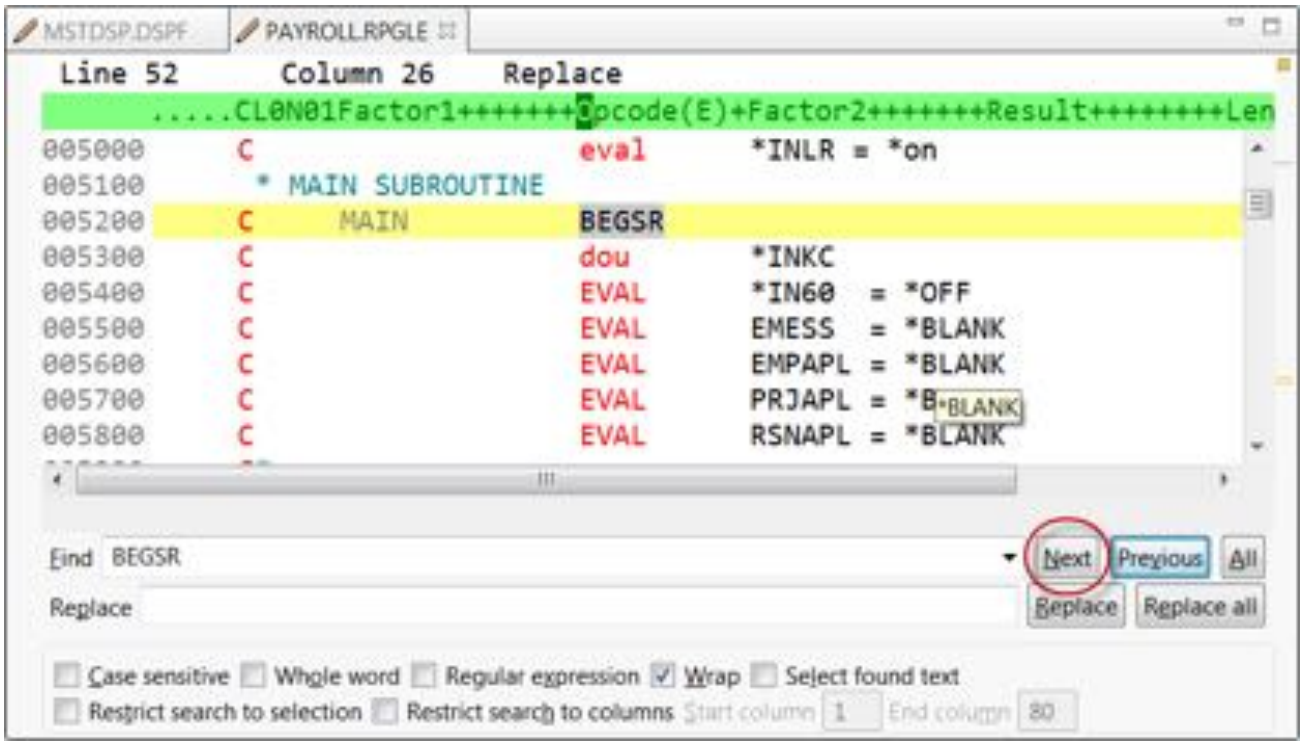
At the bottom of this window, you will notice that you have some options to select from, for example, search only in certain columns. You want to find the first occurrence of BEGSR.

__3. In the **Find** field, enter BEGSR to find the start of a subroutine.
__4. Make sure the **Replace** field is blank.
You would use this field for text replacement.

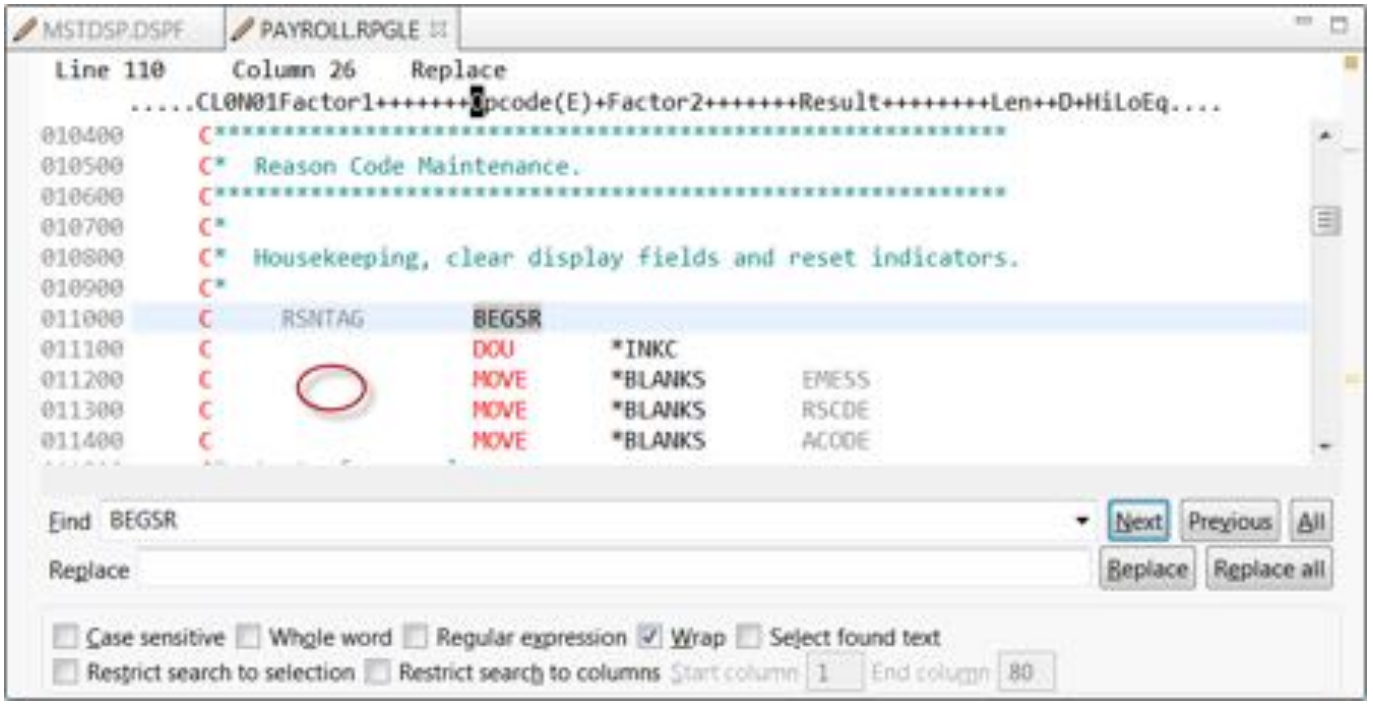


The Editor moves the active line to line 52, which contains the first BEGSR phrase in the file.

__5. Click **Next** to go to the next location of BEGSR in the file.



__6. Click anywhere in the Editor window to close the Find/Replace window.



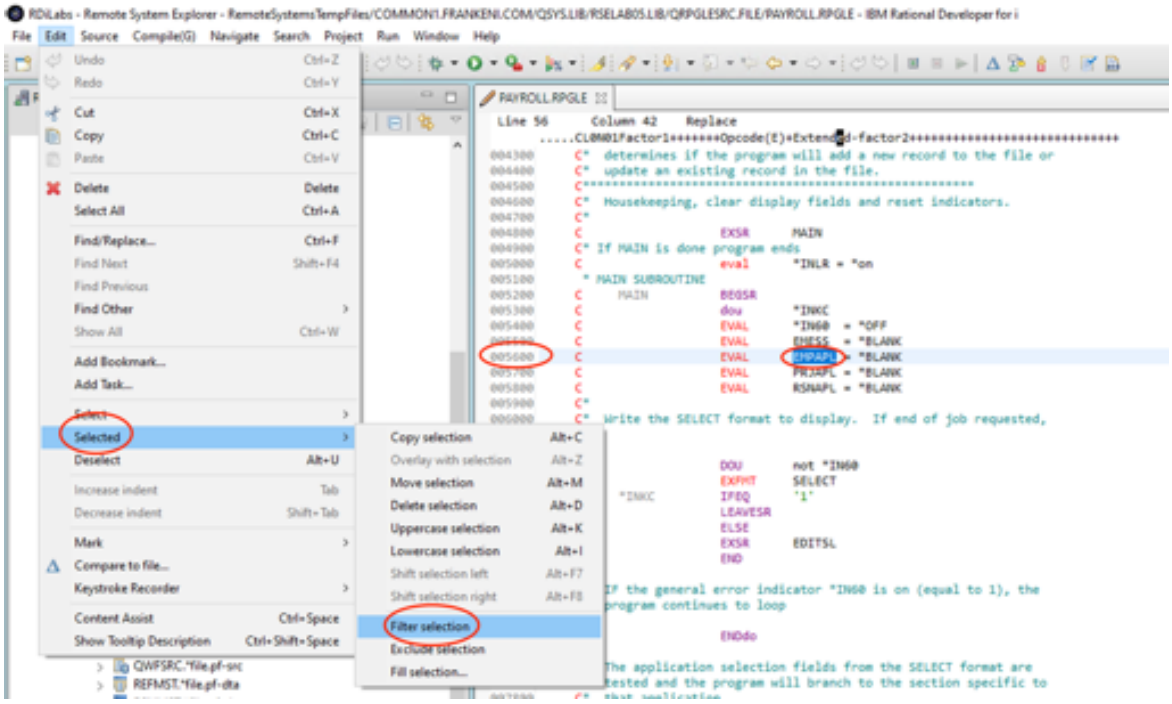
You have searched for a string in your source using the Find/Replace window.

2.12 Filtering lines by string

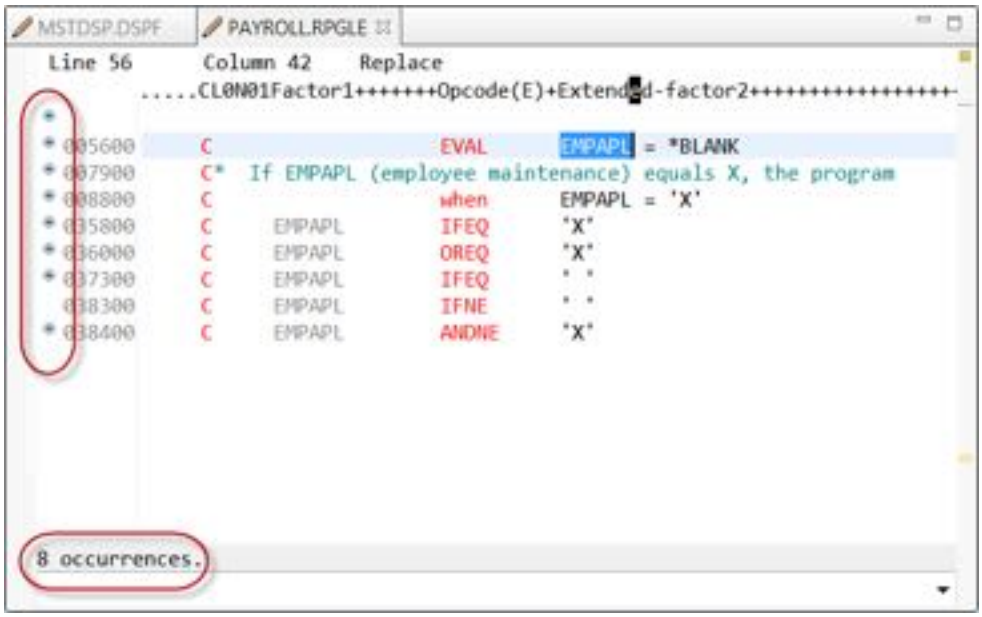
The editor allows you to filter or subset your source so that you see only lines containing a given string. Filtering lines makes it quick and easy to find lines without having to scroll through your source.

To filter source by string:

__1. Double-click the variable EMPAPL, on line 56 in the Editor window, to select it.
__2. Select **Edit > Selected > Filter Selection** from the workbench menu.

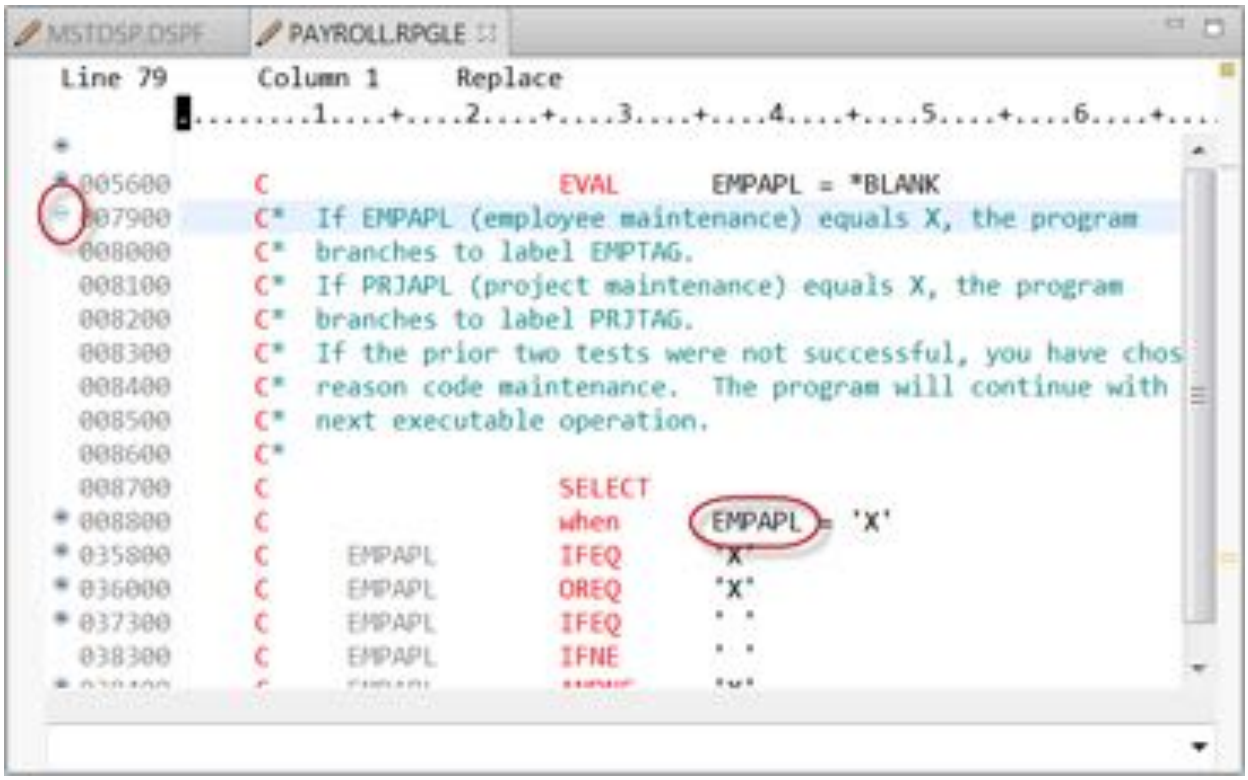


A compressed source view is shown only displaying the lines that contain the string EMPAPL. Plus signs in front of the line numbers allow you to expand the source lines following the line containing the string.



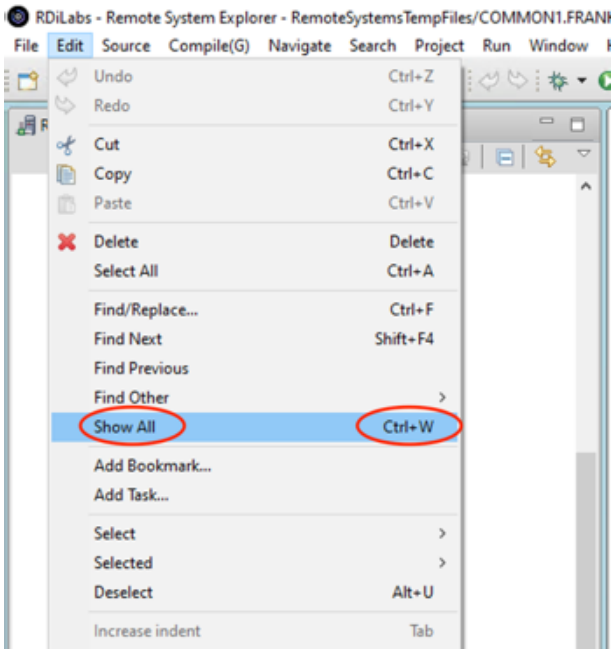
The number of occurrences is shown at the bottom of the editor view.
To expand the section of source after line 79 up to the next occurrence of the string:

__3. Expand line 79.



This expands the section up to the next instance of EMPAPL.
Now you want to show the entire source again:

__4. Click **Edit > Show all** from the workbench menu**,** or right click in the editor and select **Show all** from the context menu or press **Ctrl+W.**



The entire source member is displayed again.

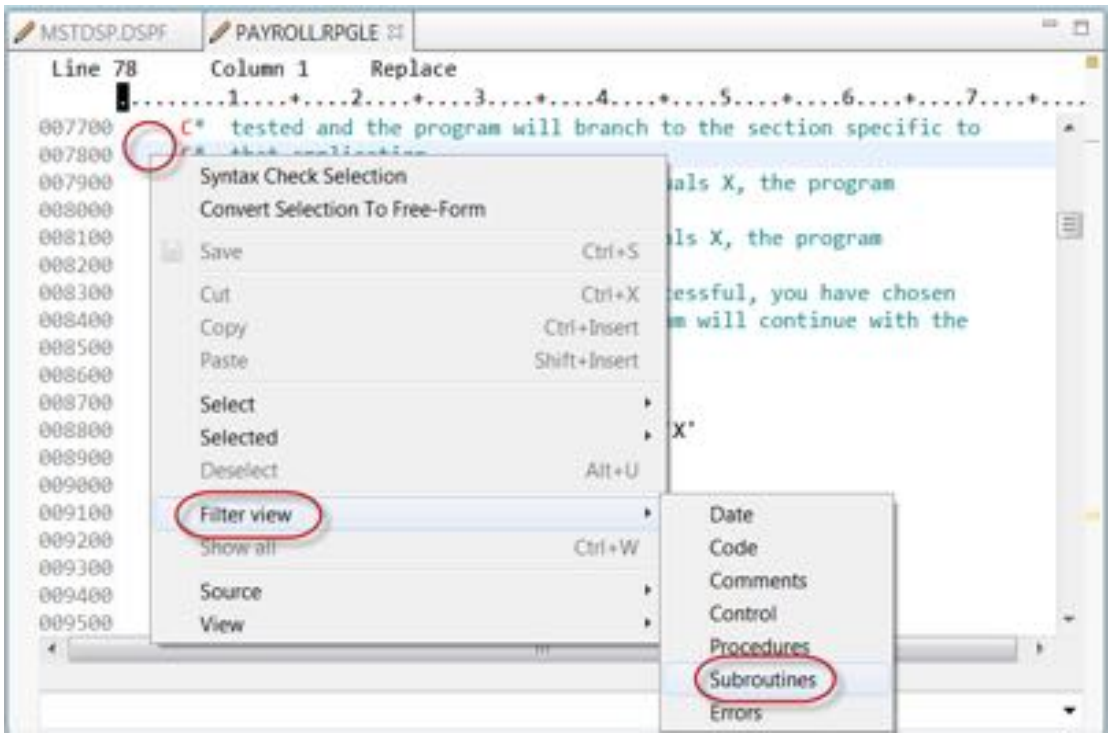
You have filtered your source so that you see only lines containing a given string.

2.13 Filtering lines by type

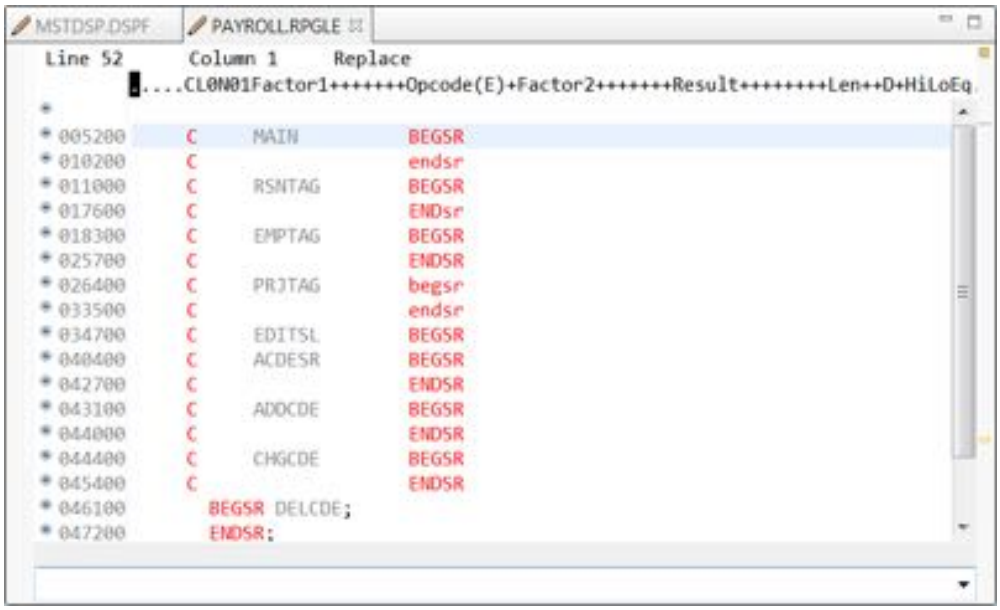
To help you navigate quickly through your ILE RPG source the editor allows you to filter lines based on the line type. Imagine you want to see where all the subroutines are defined in your source.

To filter lines by type:

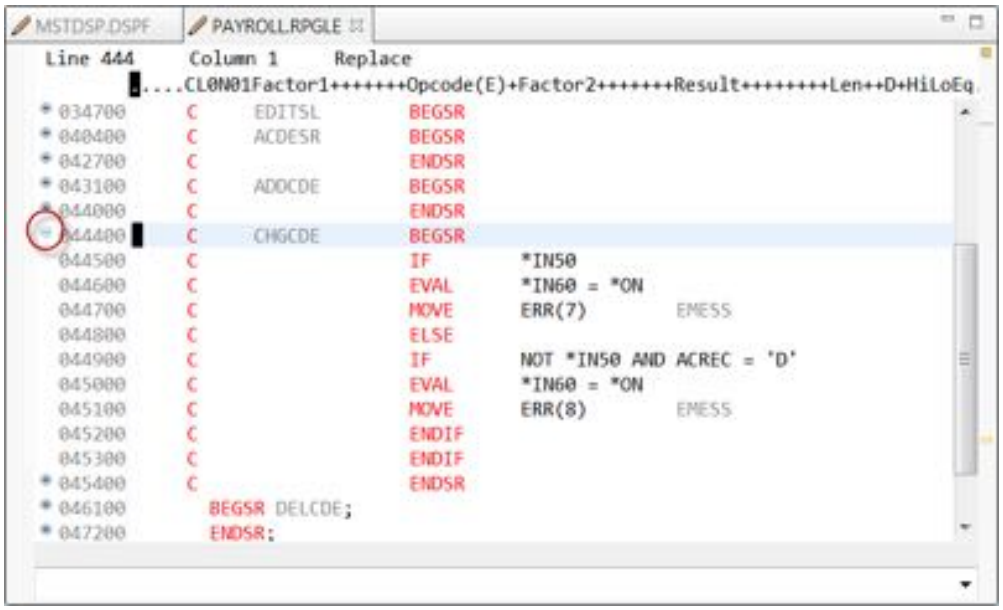
__1. Right-click in the Editor view for the PAYROLL member.
__2. Click **Filter view > Subroutines** in the context menu.



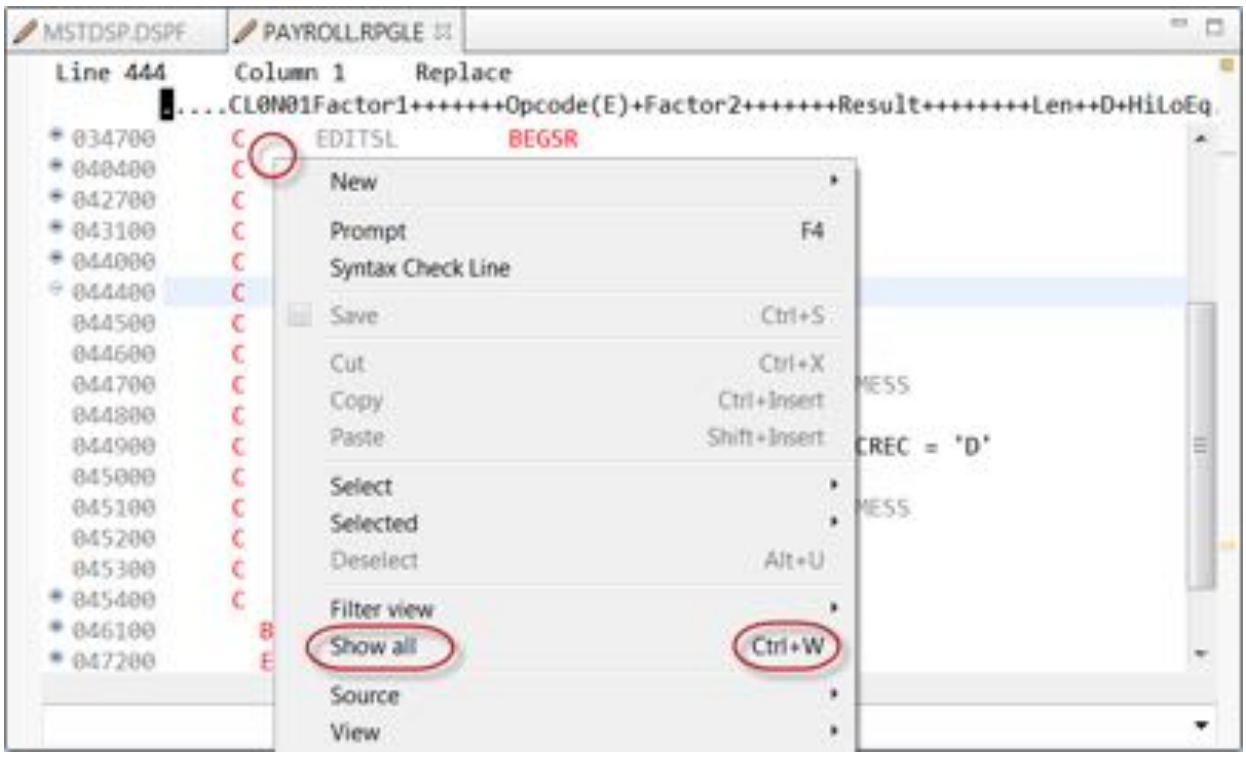
All source lines containing the BEGSR or ENDSR operation codes are displayed allowing you to move quickly and easily to the desired subroutine in your file.



__3. Expand the subroutine declaration for **CHGCDE** (line 444). to show all lines in this subroutine.



Now you could work with the source inside this subroutine.



__4. Right-click in the Editor window and click **Show all** on the context menu to show all lines.

You have filtered lines in your source by line type.

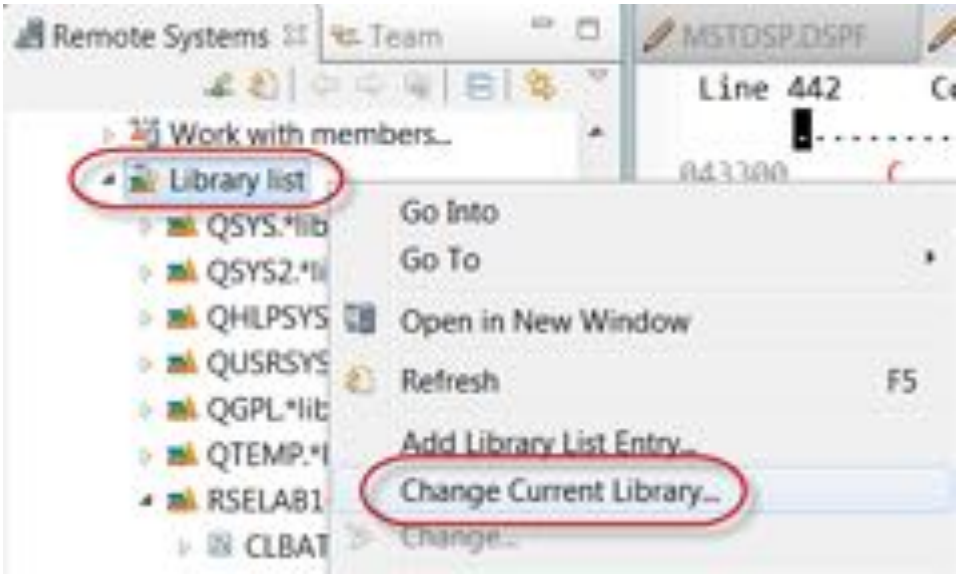
2.14 Searching multiple files

If you would like to search through the members in a source physical file or through the files in a local directory, you can use the Search tool. The Multi-File Search utility allows you to search for a particular string of text in many members on the host. This function can also be used on local files.

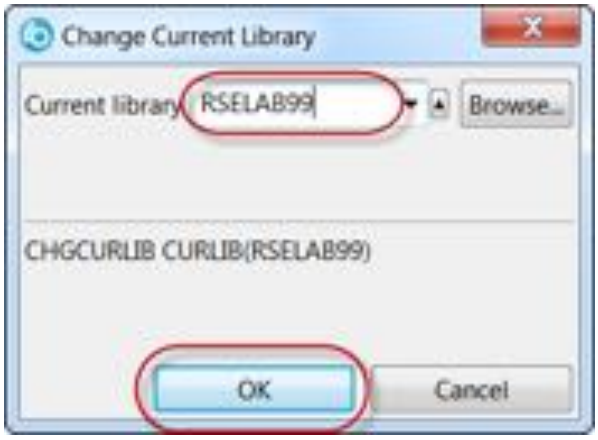
You need to change the current library for your RSE job to your development library, so the results of the SEARCH are placed in this library and not into the default current library QGPL.

To change the current library:

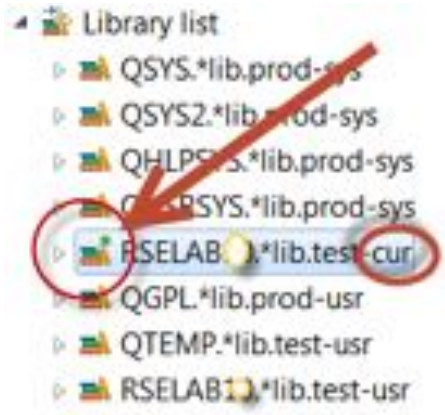
__1. In the RSE view, right click on the **Library List** filter.
__2. Click on the **Change Current Library** action.



__3. In the **Change Current Library** dialog.
__4. Key in the library name RSELABxx (do not use xx or 99, use your User ID number).
__5. Click the **OK** button.

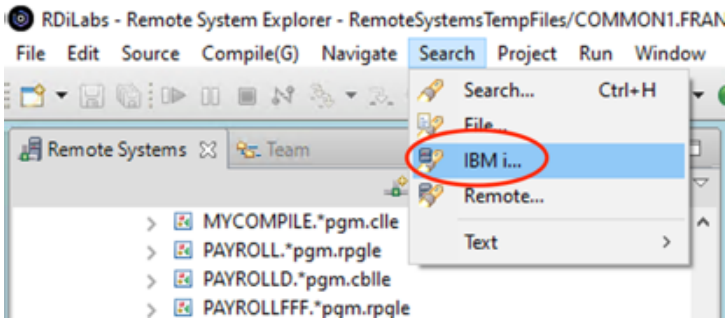


You are done setting the current library and RSELABxx now shows a decorator (a little star) that indicates this is the current library.



To search multiple files:

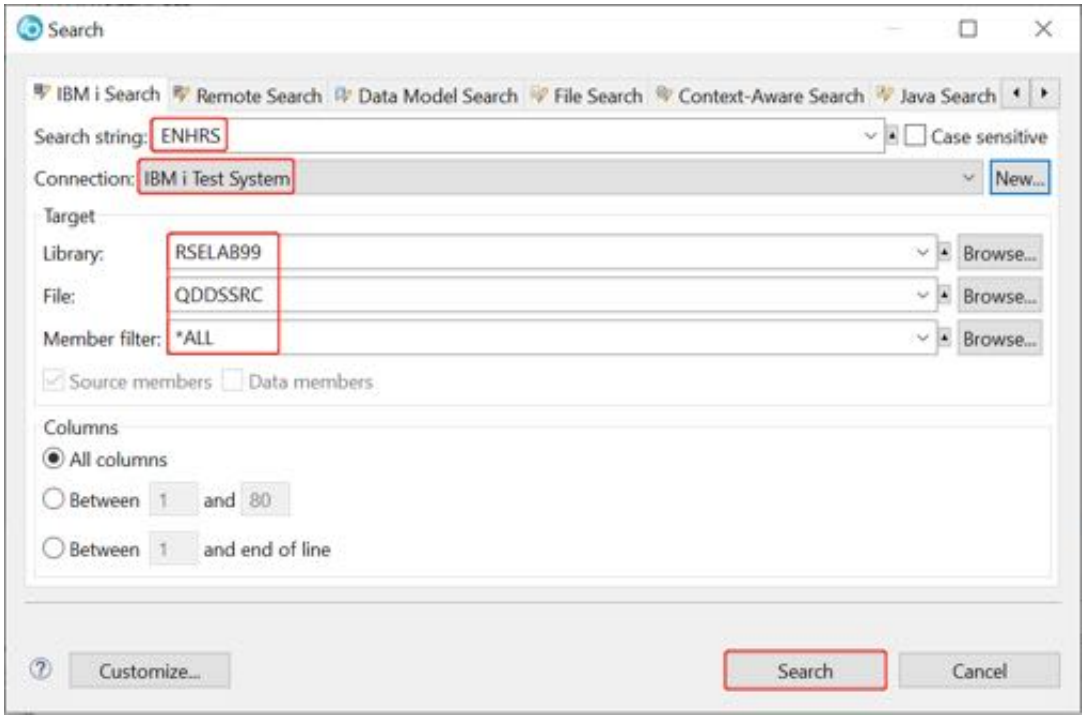
__6. Click **Search --> IBM i** on the workbench menu.



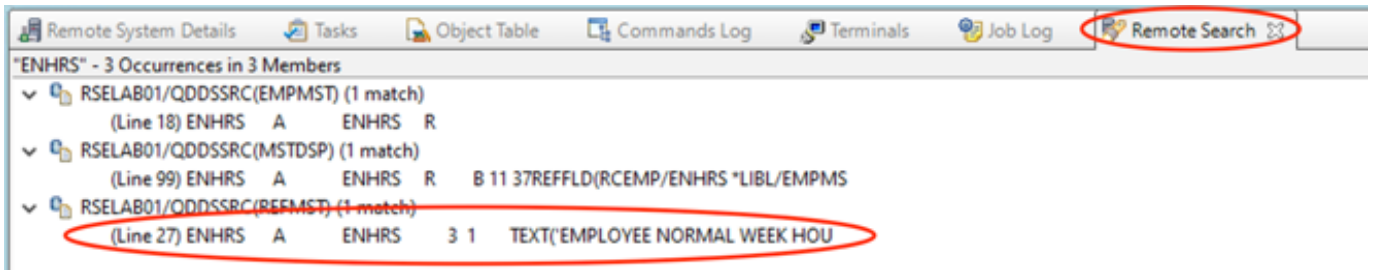
The Search window opens.

__7. In the **Search string** field, type ENHRS.

__8. Use the drop-down list for **Connection** and ensure you use your **IBM i Test System.**
__9. Under **Target** in the **Library** field, type RSELABxx. (do not use xx or 99, use your User ID number).
__10. Under **Target** in the **File** field, type QDDSSRC to search all members in this source physical file.
__11. Under **Target** in the **Member** field, select ***ALL**
__12. Click **Search.**



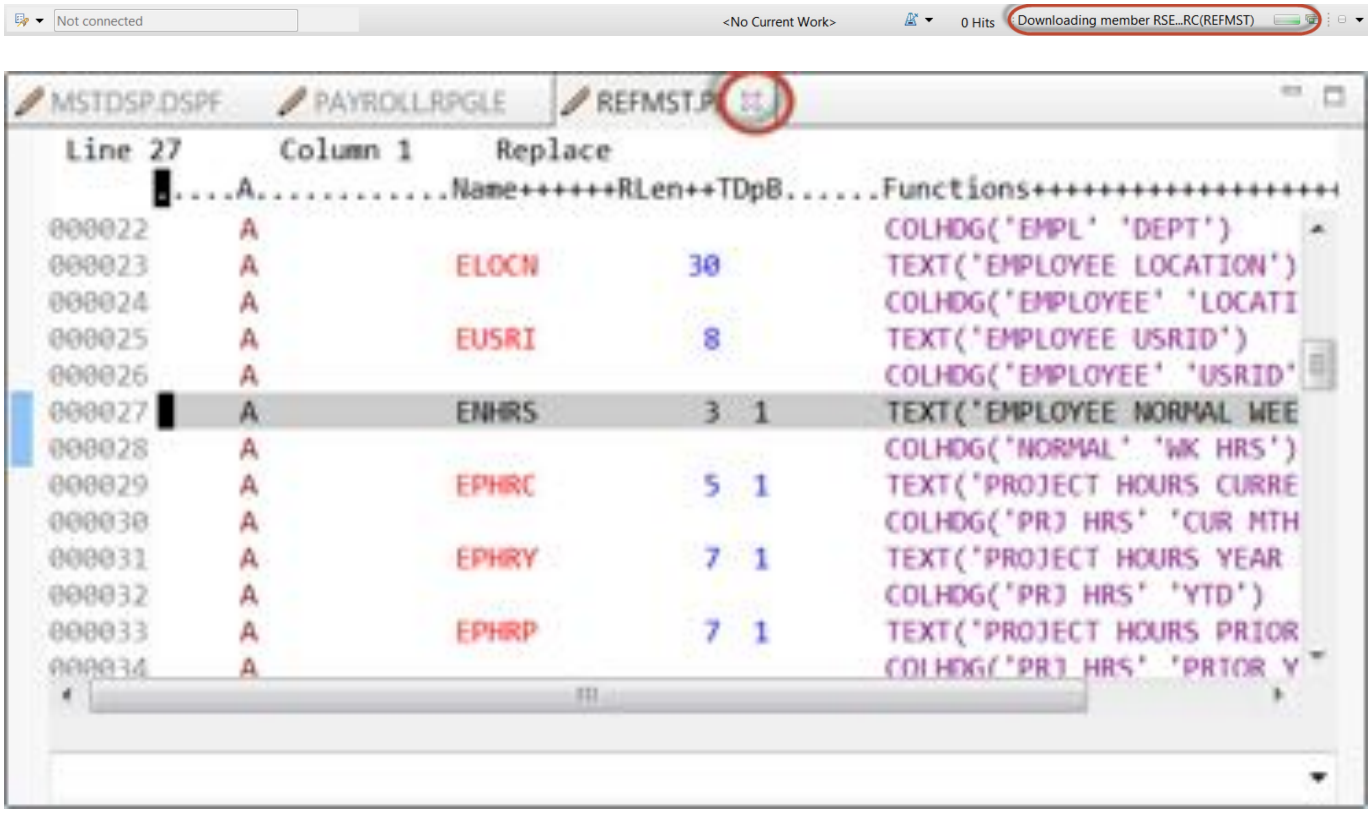
The Multi-File Search window lists all the lines in all the files that reference ENHRS.



__13. Double-click the last line in the list at:

```
A          ENHRS 3 1          TEXT('EMPLOYEE NORMAL WEEK HOURS')
```

The member REFMST is automatically loaded into the editor (it may take a few seconds to load, see messages at bottom of workbench) and the cursor is placed on the correct line.



__14. Click the X in the **REFMST** tab to close the REFMST file.

You have searched through members in a source physical file.

2.15 Comparing files using the Remote System Explorer

If your code undergoes many changes, you will find the Compare utility useful. It allows you to compare different versions of a program and find the differences.

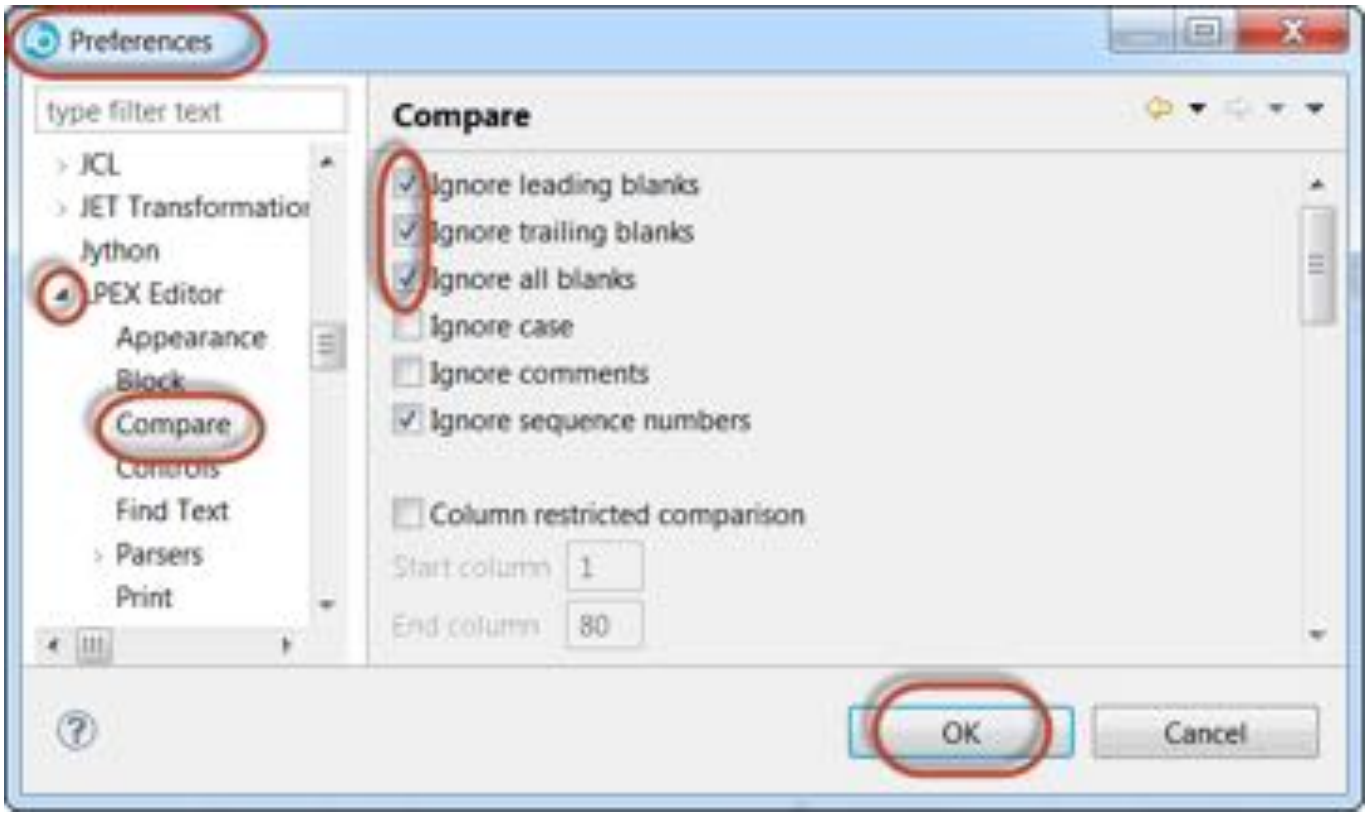
Using the compare utility in the workbench you can view the differences between two files by comparing them. You can compare different files, and you can compare versions in the workbench with versions in the repository or with the local edit history.

After a comparison is carried out, the Compare Editor opens in the editor area. In the compare Editor, you can browse through all the differences and copy highlighted differences between the compared resources. You can save changes to resources that are made in the comparison editor.

Tip:
Make sure all lines show in the source before starting the Compare tool.

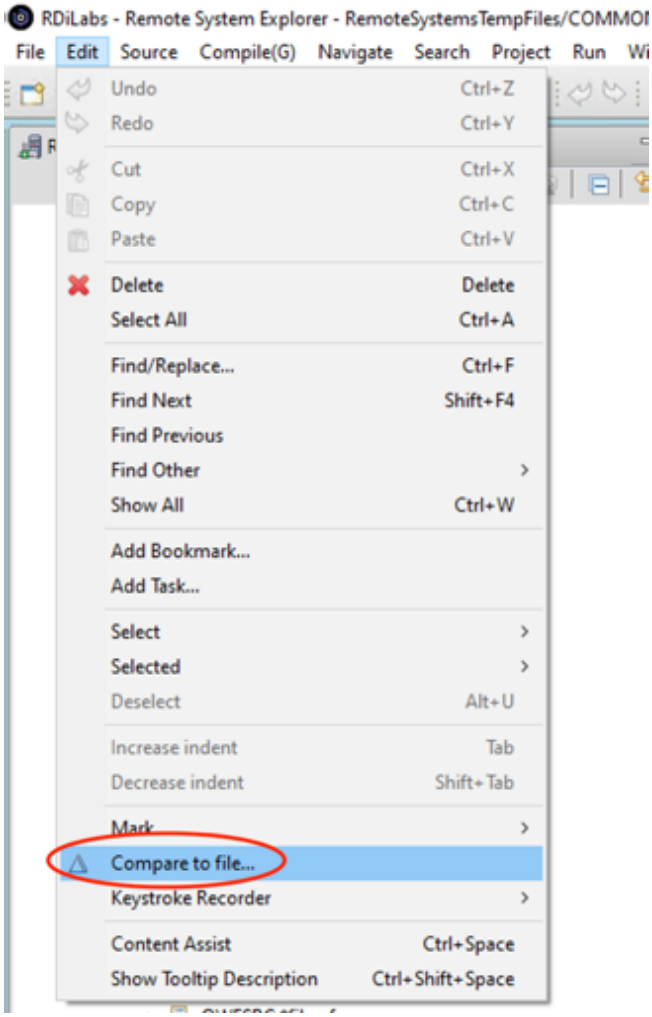
First let's setup some preferences to get the best results from the Compare tool:

__1. Click **Window > Preferences** from the workbench menu. The Preferences window opens.
__2. In the left pane of the Preferences window, expand **LPEX Editor**.
__3. Click **Compare** under **LPEX Editor**. In the right pane of the Preferences window make sure that the **Ignore all blanks** check box is selected.
__4. Click **OK** in the Preferences window.



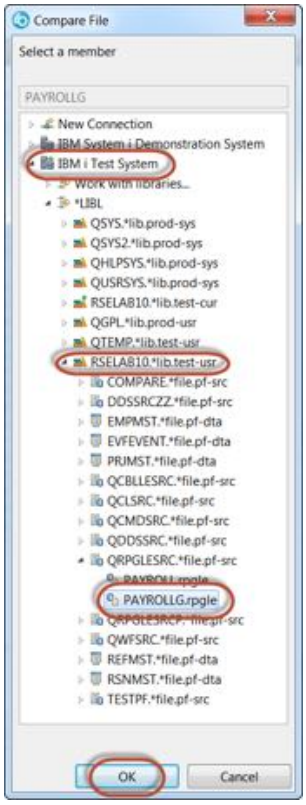
Back in the Editor window of the PAYROLL member.

__5. Double-click the **PAYROLL** tab to show the edit view in full screen mode.
__6. Click **Edit > Compare to file** on the workbench menu.

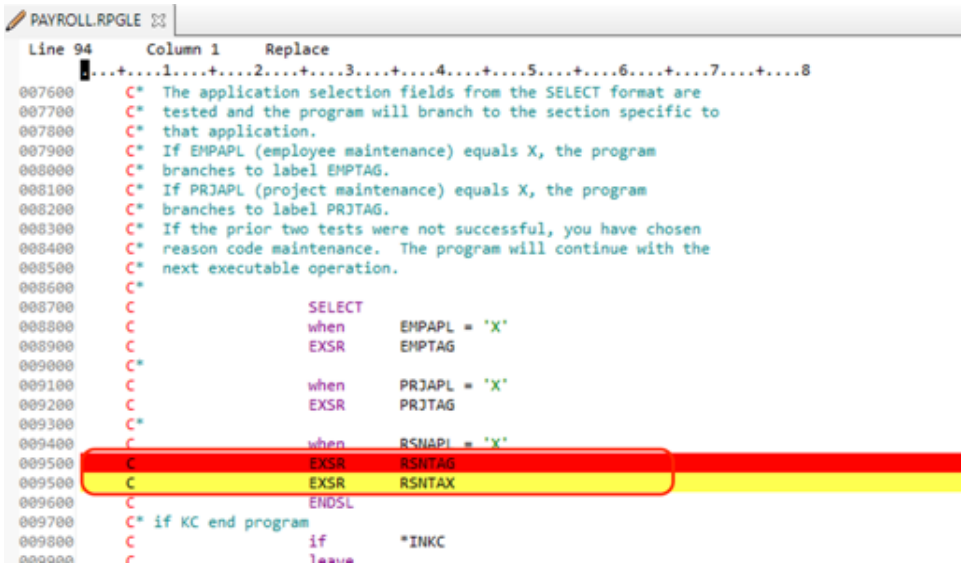


The Compare window opens.
__7. Expand your connection.
__8. Expand *LIBL.
__9. Expand RSELABxx.
__10. Expand QRPGLESRC.
__11. Select member PAYROLLG.

__12. Select **OK**.



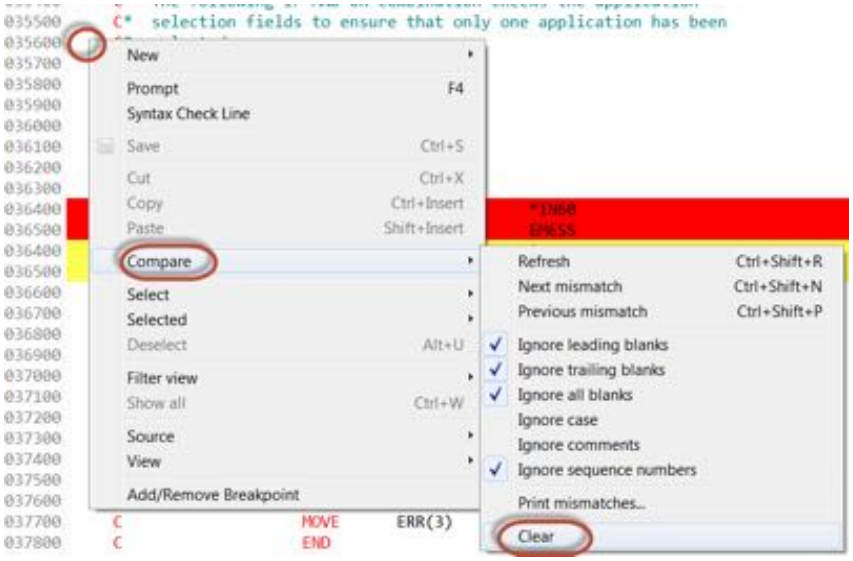
The editor now will show the differences of these two members PAYROLL and PAYROLLG. You can move from mismatch to mismatch by right-clicking the source and selecting **Compare -> Next Mismatch**, or by using Ctrl+Shift+N.



Mismatches in PAYROLL and PAYROLLG are highlighted in different colors so that you know where the mismatched lines are in each file.

__13. Click **Ctrl+Shift+N** to find the next mismatch.
Next, end the compare session.

__14. Right-click the source and select **Compare > Clear.**

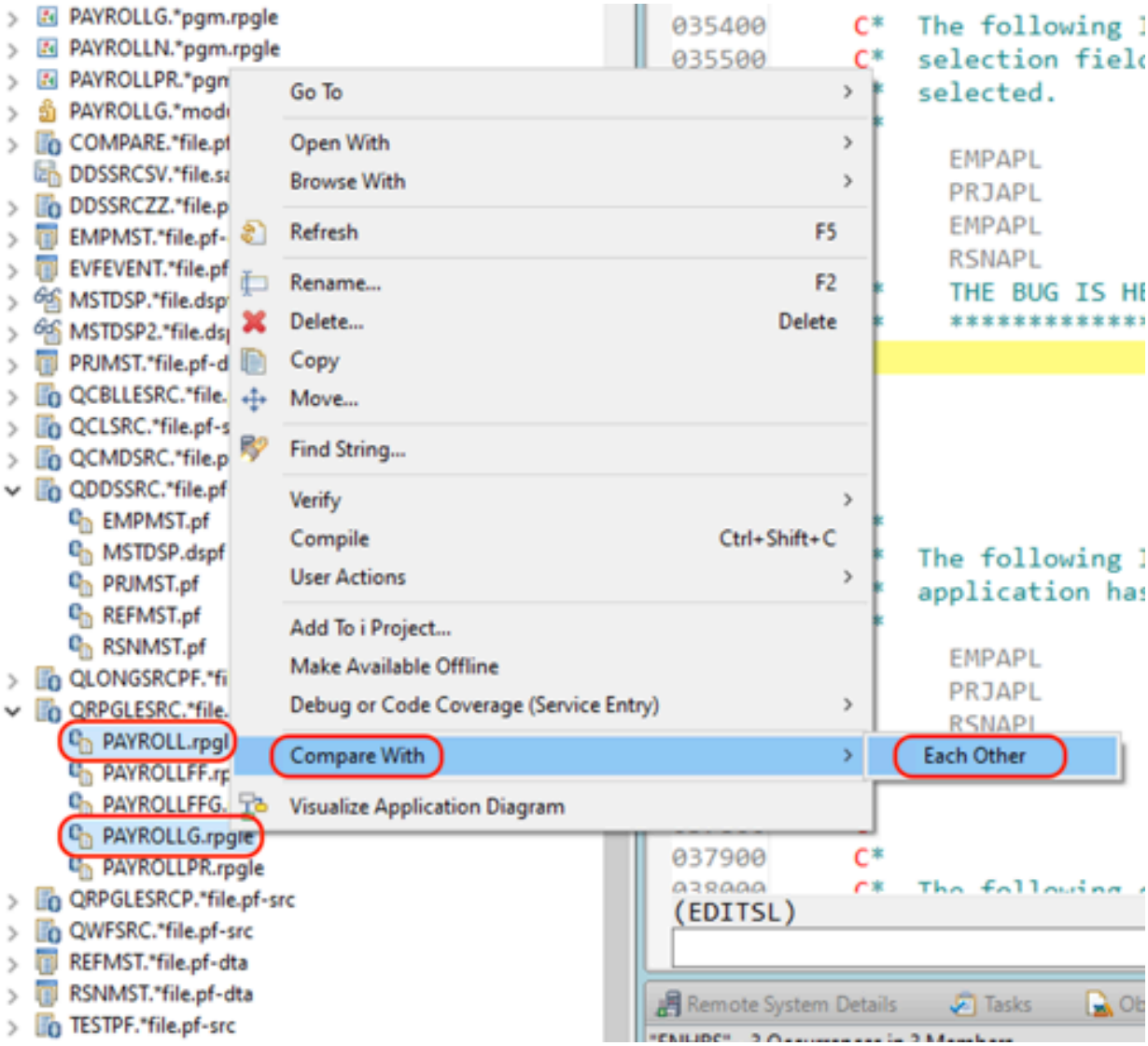


You have compared different versions of the program and found the differences.
There is a second compare tool that provides a different user interfaces it is the built in Eclipse compare tool. Let's give that a try and you can then decide which of the two tools you prefer and use in your day-to-day work.

This tool is not based on the editor, so you actually invoke it in the RSE view.

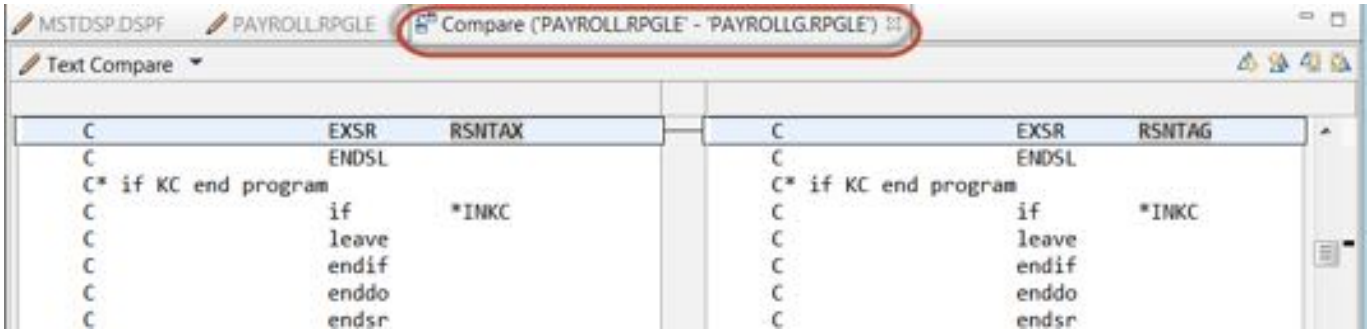
__15. Click on the PAYROLL member in source file QRPGLESRC in library RSELABxx (use your User ID number, not xx)
To select a second member to compare with:

__16. Press the CTRL key then select member PAYROLL and PAYROLLG in the same source file.
__17. Once both members are highlighted, right click on them for the context menu.
__18. Click the **Compare with --> Each other** actions on the content menu.



The compare editor displays - it is best to maximize this view:

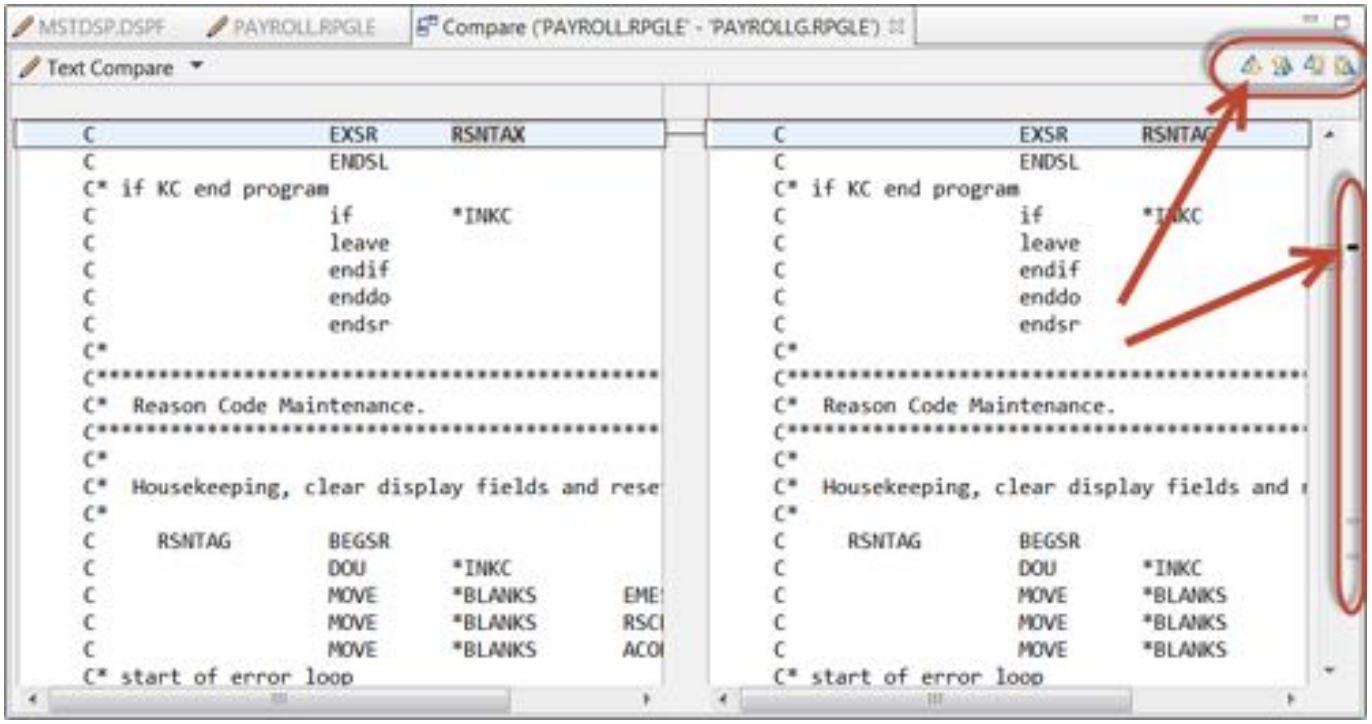
__19. Double-click on the Compare editor tab.



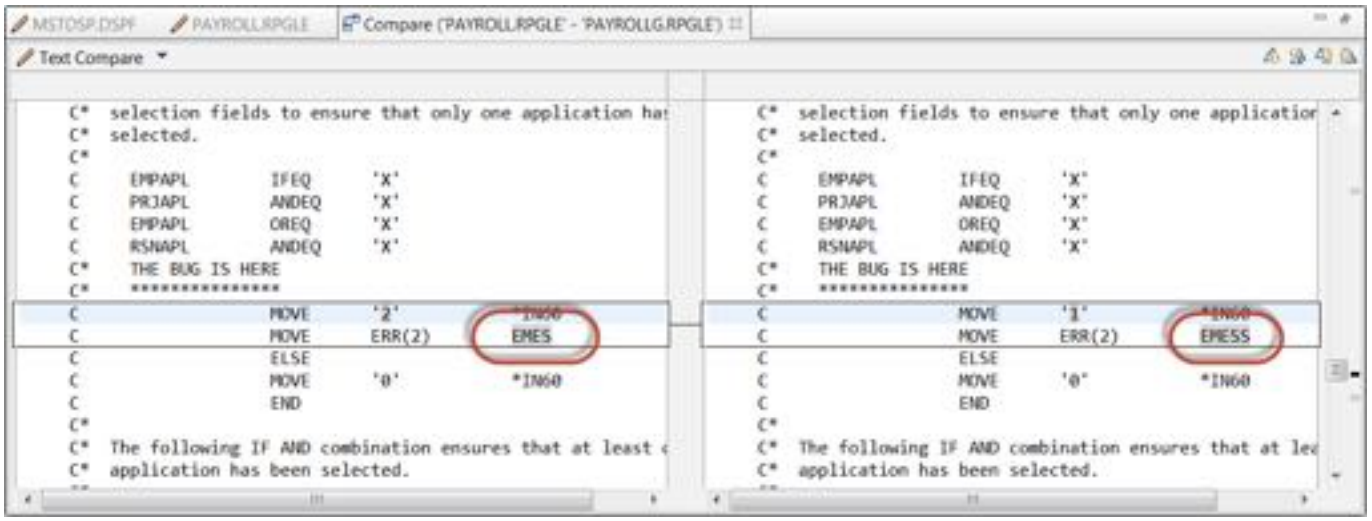
You see both members side by side; the differences are marked by markers in the right-side bar. The tool buttons allow you to position to next or previous line with a difference.

The editor is positioned at the first difference. To position it to the next.

__20. Click on the next difference button.

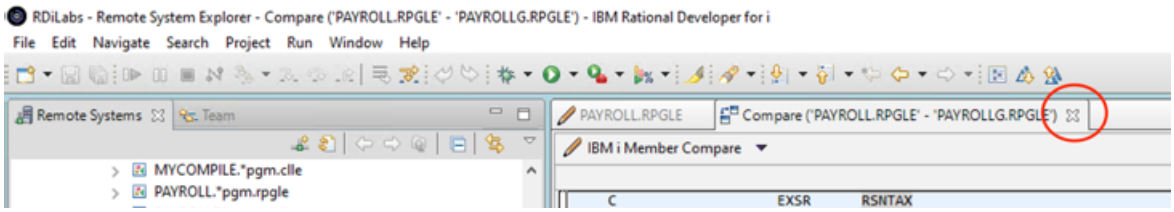


It now shows the next line with differences.



To close the Compare Editor:

__21. Click the **X** on the Editor tab.



Let's have a look at the syntax checker.

2.16 Checking syntax

One of the powerful features that the LPEX Editor shares with SEU is its ability to syntax check your source. Syntax checking can be done either when the cursor leaves each line of source or all at once on either the currently selected source or on the entire source member.

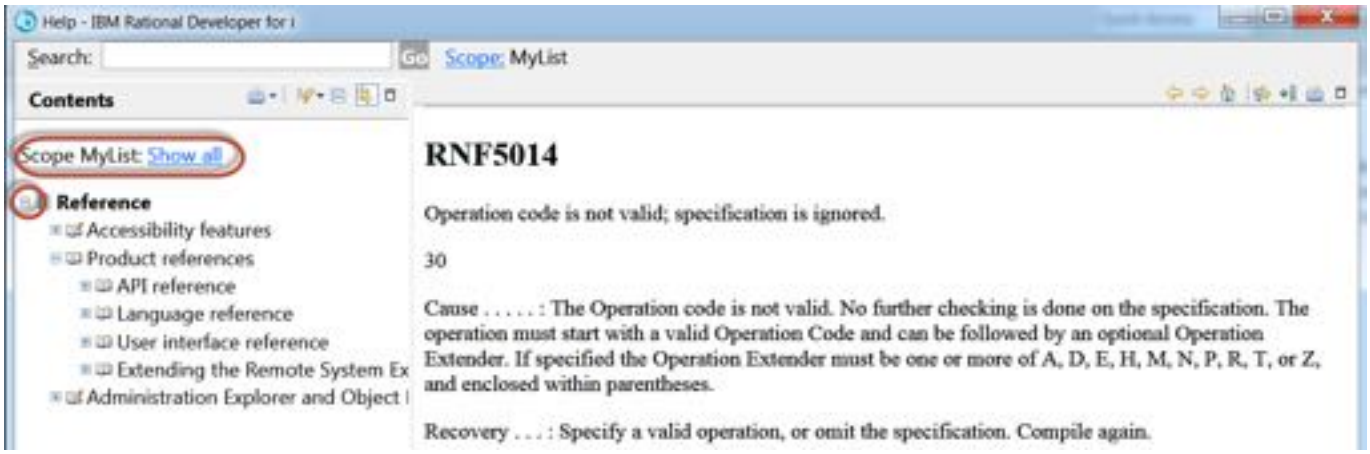
Now you will create a syntax error and watch for the prompt to correct it. To syntax check the file:

__1. In the PAYROLL Editor window move the cursor to line 211 by typing the line number in the sequence number column or by scrolling down.
__2. Append an **X** to the **EXSR** op-code to make it **EXSRX.**
__3. Move the cursor off of the line.

A red annotation appears in front of line 211 and the token in error is underlined.

__4. If you hover the cursor over the opcode EXSRX, a hover containing the error message appears.

__5. Click the link RNF5014 in the error message in the hover.



This opens a window with second level help for the error.

__6. Close the Help window.
__7. Change EXSRX to EXSR to correct the error. (Similarly, you can use **Edit > Undo** to correct this)
__8. Move the cursor off the line you just fixed.

The error message is automatically removed from the editor.

Tip:

You can toggle automatic syntax checking. Click **Window > Preferences** from the workbench menu and then expand **Remote Systems > Remote Systems LPEX Editor > IBM i Parsers**. Now, select the language you want to change the settings for in the left pane of the Preferences window, select or deselect the **Automatic syntax checking** check box and then click **OK**

Tip:

You can syntax check the whole source member currently in the editor by clicking **Source > Syntax Check All.**

Congratulations!

You have successfully completed the RDi Lab02 – “Editing RPG Source” lab exercises.

We recommend that you move on to the next lab in the sequence; browse the list of labs on Rational Developer for i - Hands-On Labs at http://ibm.biz/rdi_labs to choose a lab of interest.

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