

14.0 Interacting with other Windows Applications

Pro-Designer allows you to export the drawing of a design case as well as all the data and the reports generated (see Chapter 11) so that they can be shared by other applications used frequently by engineers (such as word processors, spreadsheets, or more advanced graphic editors).

The drawing(s) can be exported in one of several different ways:

- (a) Using the clipboard (as a metafile picture)
- (b) Using the clipboard (as a “Pro-Designer” object)
- (c) Through a “wmf” (Windows Metafile Format) file, or

The reports can be created and saved in many different file formats, see Chapter 11 for more information.

The scheduling data can be exported to SchedulePro, MS Project and MS Excel.

Similarly, the program can receive pictures or spreadsheet fragments or anything else supported by other Windows applications that can be Object Linking and Embedding OLE servers (i.e., provide the necessary services that support the exporting of their documents - in total or in part - using the OLE-2 standard for information exchange between Windows applications).

Starting with version 6.0, Pro-Designer features a rich COM interface that enables interoperability with other applications. Detailed documentation on how to use the Pro-Designer COM library module can be found in the on-line help manual. You can access it through **Help \ COM interface & Library** from the main help menu.

14.1 Exporting Drawings (Pictures)

Depending on whether you wish to copy the entire flowsheet or just a part of it, your options for exporting the corresponding picture will be different. If you just need to copy a part of the flowsheet, then please read section 14.1.1 below. If you want to export the entire flowsheet, then you may either follow the directions in 14.1.1 or you may opt to use the technique described in 14.1.2 or in 14.1.3. It all depends on what is more convenient and what constraints exist at the receiving application's end. For most users, employing the procedure as described in 14.1.1 will be the most often used technique for drawing(s) export.



14.1.1 Exporting a Process Drawing Using the Clipboard

This would be the most frequently used method for sharing either the entire flowsheet or just a section of it with another application:

➔ To Copy Partial or Entire Drawing Using the Clipboard...

1. Select the elements (process steps, streams and visual objects) of the design case that you wish to include in the exported picture. If the entire flowsheet needs to be

copied, you may choose **Edit \ Select All** in order to select all elements in the currently active design case.

2. From the **Edit** menu select **Copy** (alternatively you may simply hit **Ctrl+C** or click on the Copy button of the menu bar: )
3. Bring up the program where you want to include the drawings (e.g., MS-Word) and open the document that will receive the drawings. Go to the **Edit** menu; you have two choices:
 - a. Select **Paste** (or alternatively, hit **Ctrl+V** or **Ctrl+Ins**, or click on the paste button: )
 - b. Select **Paste Special...** from the **Edit** menu. After you have chosen **Edit \ Paste Special...** the following dialog will appear:

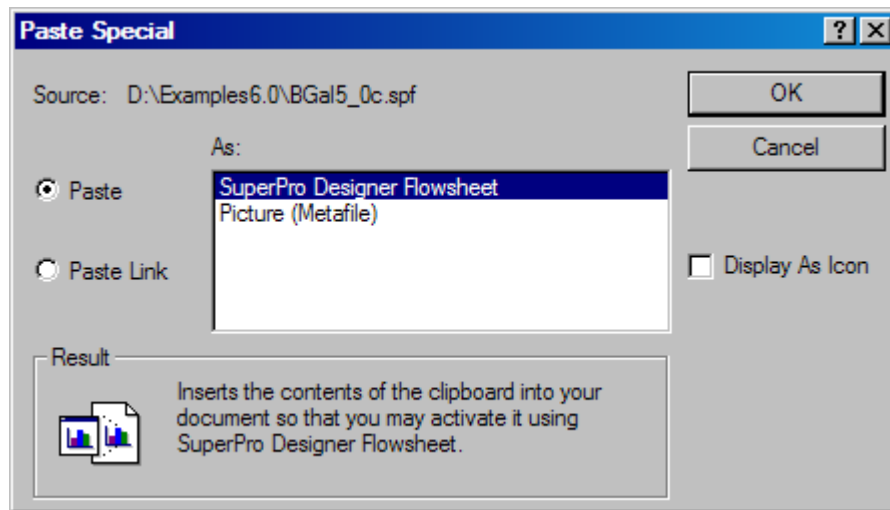


Figure 14.1: Pasting the contents of the Clipboard into another application using the **Paste Special...** option.

Notice that you have two decisions to make in this dialog. The first decision refers to the nature of the pasted object as it will continue to exist in the receiving application. Your choices are displayed in the listbox:

- (a) “xxxPro Designer Flowsheet Object”, or
- (b) “Picture”

If you select Picture, then the advantage is that most word processors will allow you to edit that picture locally, in case you need to add or remove anything from it. If you select “Pro-Designer Flowsheet Object”, then only your copy of Pro-Designer will be able to edit the contents of the pasted picture.

The second decision that you must make in this dialog is whether you wish the pasted picture to be:

- (a) Pasted, or
- (b) Paste-Linked

into the receiving document. There is a significant difference between options (a) or (b) above. If you choose (b), the picture will be paste-linked into the receiving document, which means that there will continue to be a ‘live’ connection (sometimes referred to as “hot-connection”) between the receiving document and the source of the pasted image, the “Pro-Designer” design case file. If you modify the contents of the source file, then the image in the receiving document

will change as well to reflect the most current version of the design case. However, this behavior sometimes is not what you want. Instead you may want to insert a “frozen” picture of the design case as is now and not have it change later. In this case you must choose (a) (i.e., simple pasting will do fine).

- NOTES:**
- a. Choice (3.a) above is equivalent to (3.b) with decisions (a) and (a) selected from the dialog of Figure 14.1.
 - b. You can paste a selected set of “Pro-Designer” elements into a “Pro-Designer” document. The destination document could be the same document as the source or an entirely different document. When you paste a group of process steps and streams into a “Pro-Designer” document, the system will rename the pasted objects in order to avoid naming conflicts. Remember that each process step must have a unique name and the same is true for each process stream. Once the objects are pasted, you can go and edit the names of the pasted elements. All of the parameter values of the source objects are copied into the pasted objects.
 - c. If the document where a set of “Pro-Designer” objects are pasted is not the same as the source document, then the system first makes sure that all the necessary component information is carried over from the one design case to another. This is important, as it is possible that the destination design case has not defined all the components of the source design case. If that is the case, then the system automatically registers all components that are not identified in the destination design case and then it copies over the objects placed in the clipboard. Remember that the only way the system distinguishes one component from another is from its local name.

**Tip**

If the destination flowsheet has already defined a component under the same local name as the source flowsheet, yet the two components don't represent the same substance, any such component-related specifications (flowrates, separation factors, etc.) will incorrectly be copied over into the destination flowsheet. This is another reason why you should be very careful with the selection of component local names during component registration.

14.1.2 Exporting the Drawings as a “metafile” (‘.wmf’) File

Most graphic as well as word processor Window applications allow you to insert in their document a picture (read from a file). By far, the most popular graphics format in the Windows world is the so-called Windows “Metafile” (wmf) format. It is very popular because it allows graphics to be saved and later pasted within a frame of a given size with minimal distortion of picture quality. Furthermore, several of the leading word processing and graphics applications can recognize each component in a “wmf” graphic and allow you to edit the picture using their own picture editor. MS-Word, for example, has its own metafile picture editor. Therefore, you can insert a picture into MS-Word from a “wmf” file, resize it, edit it and later save it again as part of the MS-Word document. All members of the “Pro-Designer” software family allow you to export the drawing of a design case or parts of it in a file with the Windows Metafile format. Here's how:

➔ To Export Process Drawings as a “wmf” File...

1. First, open (if it is not already open) the design case whose flowsheet you want to export as a “wmf” file.
2. First select the entire flowsheet (using **Edit \ Select All**) or parts of it. Then, pick the **File \ Export to Metafile...** option; the usual **Save As...** dialog will appear, prompting you to type the name of a file. Type in the filename that you wish to contain the description of the flowsheet in “wmf” format.
3. After you have typed in the file name and clicked **OK**, wait a few seconds, as the program will be creating the file and writing in it the necessary metafile-formatted description of the selected items of the flowsheet. When this process is done, you can go to your favorite graphics or word processor application and import the file you have just created.

14.1.3 Exporting the Drawings in AutoCad (‘.dxf’) Format

SuperPro Designer allows you to export either the entire flowsheet or parts of it into a file that is compatible with AutoCAD. The picture file is in "DXF" vector format and can be opened directly by AutoCAD (or AutoCAD Lite) or other CAD and graphic programs (e.g., Visio, Corel Draw) that allow you to import this vector format (DXF).

1. Select the set of icons that you would like to include in your exported picture (if you wish to include the entire flowsheet, then, first select **Edit \ Select All** to select the entire drawing).
2. Select **File \ Export to AutoCAD**.
3. Type a filename in the ensuing dialog.



Tip

When SuperPro converts the drawings to vector format, the images are converted to a set of elemental shapes (lines etc.) but it does not group them into compound objects. If you want to edit a SuperPro icon, e.g. a vessel, in AutoCAD or Visio, select and group all its graphical components.

14.1.4 Exporting the Gantt Chart

The scheduling information of a SuperPro recipe (batch flowsheet) can be exported to SchedulePro, MS Project, and Excel. Detailed information on exporting procedures can be found in Chapter 6 of this manual.

14.2 Importing OLE Objects

The “Pro-Designer” family of software not only do they make it easy for you to share their pictures and data reports with other programs, but also they allow you to import foreign documents or document fragments and make them part of your design case file. Using the latest OLE technology, you can import an object copied into the clipboard from another OLE-server application (e.g., MS-Excel, Corel Draw, MS-Word, etc.). For instance, let us assume that you have been working on some side calculations with MS-Excel (related with a particular aspect of a design case) and you would like to include them next to the process step’s icon that they refer to. Here’s what you have to do:

→ To Import a Spreadsheet into the Flowsheet of a Design Case...

1. Go to Excel and copy the spreadsheet cells that you wish to display in the flowsheet.
2. Then, open SuperPro and first click with the mouse to the location around which you wish the spreadsheet to be pasted.
3. Now, select **Edit \ Paste** (or **Ctrl+C**). That’s it.

NOTE: If you wish to edit the contents of the spreadsheet you have two options:
(a) Activate Excel and edit the spreadsheet there, or
(b) Simply double-click on the spreadsheet’s picture (as displayed in your SuperPro window). Notice how the menu bar and the menu tool bar are now taken over by Excel in order to facilitate the editing of the spreadsheet right there. When you are done editing the spreadsheet, simply click anywhere outside the spreadsheet’s bounding rectangle.

14.3 Using the Pro-Designer OLE server

The Pro-Designer OLE / COM library module is the **Designer** type library. The Designer type library is common to SuperPro and EnviroPro Designer Applications. It can behave as an automation server for other window client applications such as Excel, using a common scripting language such as VBA.

The library initially exposes two objects:

- a document class and
- an "enum" variable.

The document class contains all functions/subroutines necessary to perform many actions on a ProDesigner document such as:

- Open, close, etc.
- Run the M&E balances, perform economic calculations, scale up/down, etc.
- Fetch or set variable values for the process, any unit procedure, any operation, any stream, any component, etc. included in an existing document.

The other class exposed by the library, is an "enum" (list of constants) that identify the nature of the variable whose value we want to retrieve or set by the library calls.

The first version of the library as contained in this release is not meant to be a substitute for the entire user-interface of ProDesigner. For instance, users of the library cannot create (synthesize) a process using library calls. It is rather intended to deal with an existing process, already contained in a 'spf' file. It is mainly geared towards offering all the services needed by a user who is interested in:

(a) Performing parametric studies for sensitivity analysis, process optimization, process economic evaluation, etc. or

(b) Integrating ProDesigner with stochastic risks analysis tools in order to carry out risk assessment studies and stochastic modeling using as a basis an existing 'spf' file as base-case.

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