

new!

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new!

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PTC Product Focus

Routed Systems Designer 7.0

PTC has recently released the latest version of our stand-alone 2D schematic tool, Routed Systems Designer. This latest release contains many new user interface enhancements, data management enhancements, and a new capability to manage the RSD catalog in a central network location. These enhancements have improved the performance and user experience within RSD.

RSD can be purchased in both a lite and a full version. In addition, customers on active maintenance that currently own PTC's legacy schematic package (Pro/DIAGRAM) or any of the routing applications for Pro/ENGINEER (Cabling or Piping) are entitled to a license of RSD lite at no charge. The software can be downloaded from the support page on [ptc.com](http://www.ptc.com/support/): <http://www.ptc.com/support/>. A license for the software can be requested from PTC's license management group.

RSD 7 enhancements:

Central Catalog

In previous versions of RSD the catalog of symbols, fibers, and data tables were stored within the RSD design file. Users typically created a template design (much like a start part in Pro/E) with a populated catalog to utilize for new design files. Hence, when a new design was to be created, the user would copy of the existing template design and begin work on a new design with a populated catalog. This architecture had the advantage of being very portable and easy to setup, but had a couple disadvantages as well. PTC wanted to create a new architecture for the RSD catalog that maintained both the advantages of an internal catalog, but also solved the main disadvantages of an internal catalog as well. The solution was to allow symbols in RSD to be either internal to a design file or exist in a new networked central catalog architecture.

One of the main problems with an internal RSD catalog was the performance of the software when a template design contained a very large catalog. The problem was that even if a new RSD

design only had a few sheets utilizing a small number of symbols, the design file could be very large due to the fact that the entire catalog was contained within the file. This could potentially lead to slower than expected performance of the software. With the central catalog, only the symbols that are utilized on the design sheets are contributing to the size of the design file. Hence, many users will see a dramatic reduction in file size of their RSD designs and thus an increase in performance by upgrading to RSD 7.

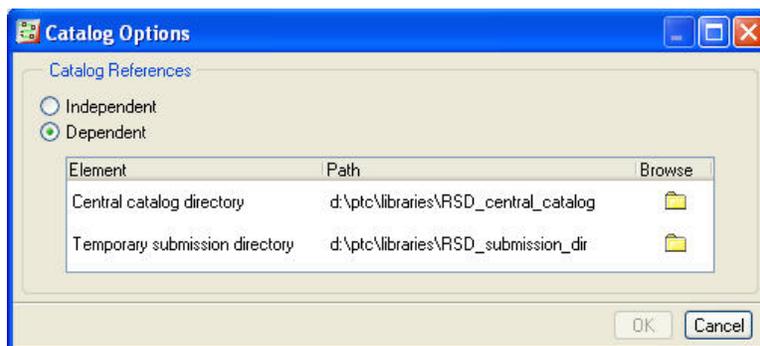
Another disadvantage of an internal catalog was the inability to populate new symbols into the catalogs of existing RSD designs. Users could utilize the package functionality to populate new symbols into existing designs, but this required the users to open existing designs and import package files. With the new architecture of the central catalog, a symbol can be added to a central catalog. Once that symbol has been added, users will automatically see this new symbol whenever an existing RSD design is opened. Changes to existing symbols are also handled in a similar manner.

Even with the central catalog architecture, the portability of an RSD design file is maintained in 7.0. That means that a user can pack up a design that utilizes symbols from the central catalog and email the design off to a user that does not have access to their central catalog. The designs can still be opened and utilized off the network from the central catalog.

Setting up the Central Catalog

RSD 7 utilizes two network directories for the central catalog, a submission directory and a catalog directory. Customers should create these two directories in a location on their network where all RSD users have access. The submission directory is a location that users can submit new or changed catalog items. An administrator can then review the new or changed items in the submission directory and copy them into the catalog directory if approved. The permissions of the catalog directory should be set such that only people approved to administer the central catalog have write permission to the that directory.

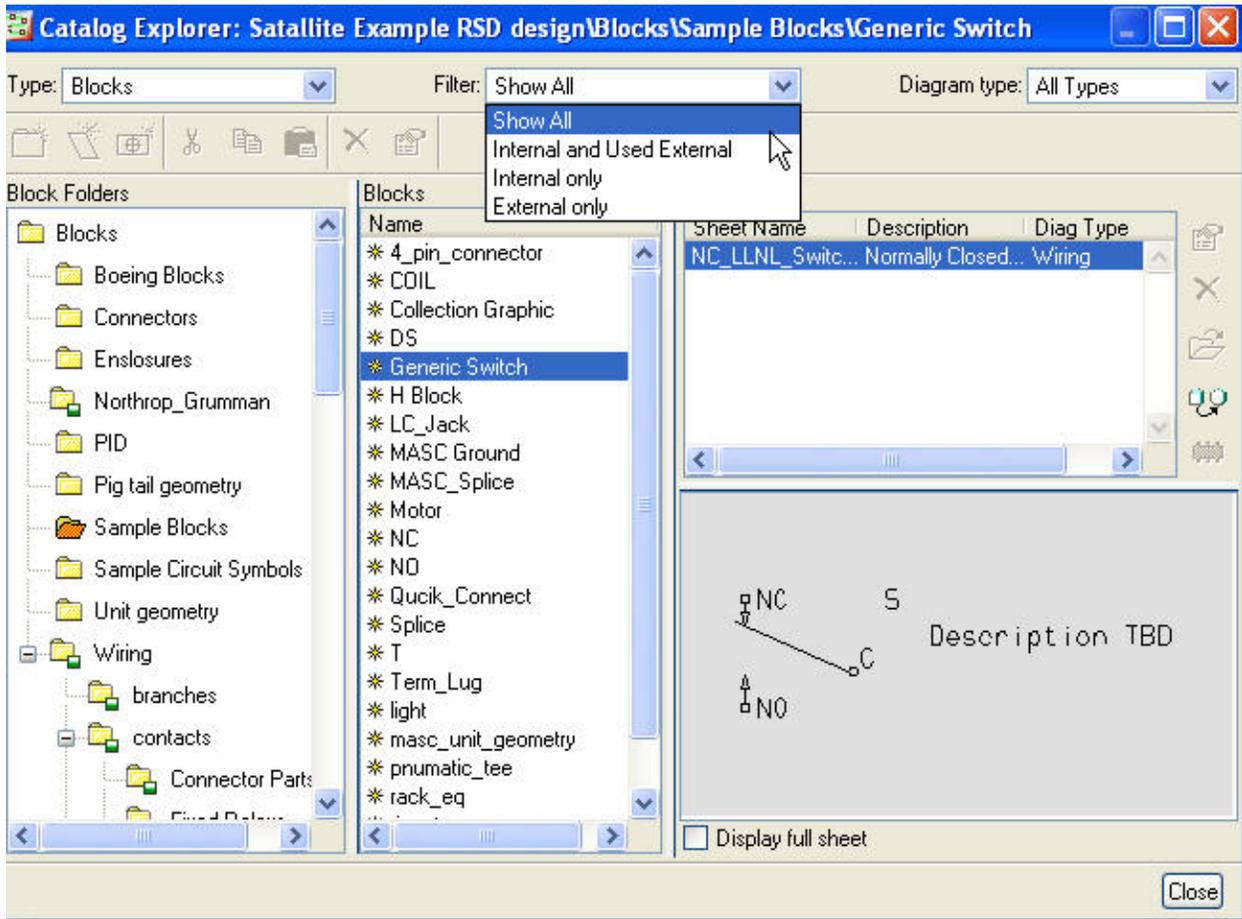
The directory locations need to be set in the RSD template design. RSD 7 still utilizes the concept of template designs due to the fact that not all the information in a template design exists in the catalog. Items like global properties, design templates, directory locations, and other items will still be set by the template design. To set the location for the central catalog, open the RSD template design and select Options, Catalog. This will bring up a dialog box like the one shown. This dialog box allows a user to set the directories for both central catalog and the submission directory.



Once the directories are set, save off the template design and any new design created from the template will reference the new central catalog.

Populating a Central Catalog

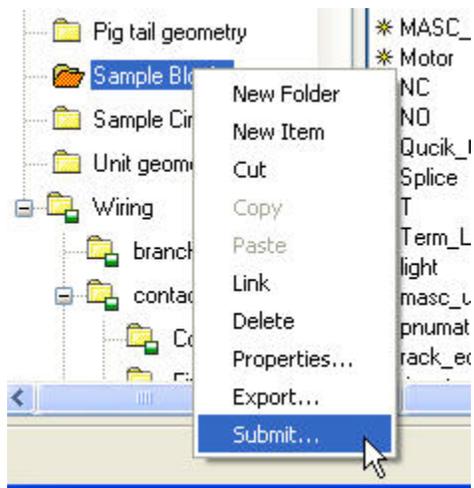
The central catalog can be populated by submitting items from an existing RSD design. To submit a new catalog item, open an RSD design file and go to the catalog explorer. RSD 7 now has new icons next to the artifact names within the catalog. There is also a new filter to control what items are shown in the catalog. The user can choose to show only items in the internal catalog, central catalog, or both.



The new icons next to the artifact names will change depending on the artifacts status to the central catalog. The following four icons can appear next to an artifacts name:

-  Used for artifacts only in the internal catalog.
-  Used for artifacts in the central catalog.
-  Used for artifacts placed in the design from the central catalog and are now both internal and external.
-  Used for artifacts submitted to the central catalog and are pending approval.

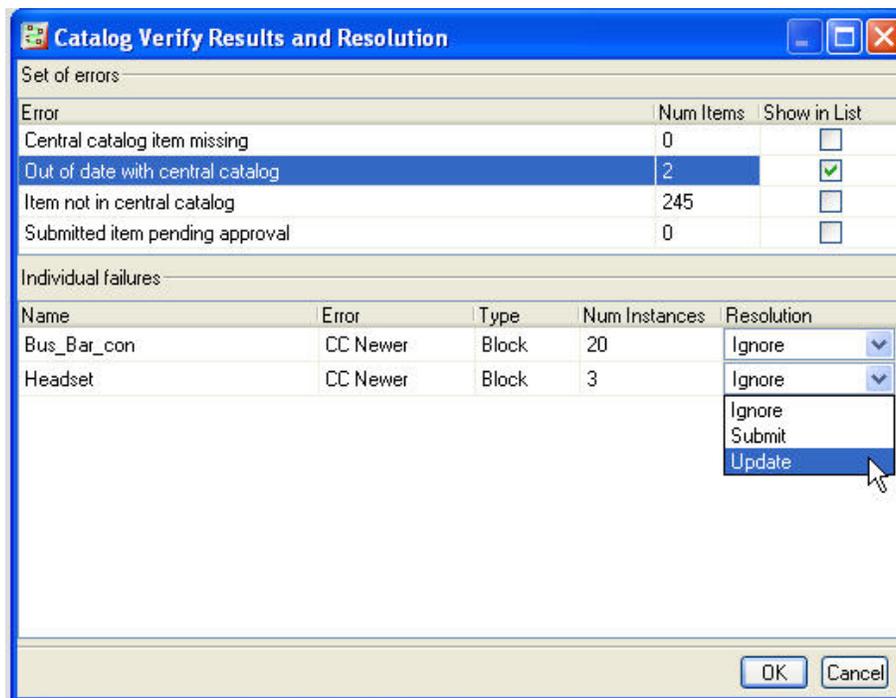
The central catalog can be populated by submitting artifacts or folders that are only in an RSD designs internal catalog. To submit a folder or artifact, highlight the item in the catalog explorer and use the right mouse button (RMB) pop up menu to select submit.



By selecting submit, a copy of the folder and/or artifacts will be placed in the submission directory. A submission log will also be written to the submission directory. A catalog administrator or librarian could then review the submission log and artifacts. If approved, the administrator can simply copy these files to the catalog directory using the file system. Once the items are copied to the central catalog they will be available to all the users. Hence, to populate a new central catalog from an existing RSD template design, a user could simply open the design file and submit the top level folders for the blocks, groups, fibers, and ports. Data tables can be submitted in a similar manner from the data table explorer.

Once the items have been submitted and copied to the central catalog, an RSD design needs to be used to maintain the items in the central catalog. Typically this would be the design used to first populate the central catalog. This design needs to be set as a design that can “unlock” the central catalog. To do this, a password.exe executable has been written. Please refer to the README.pdf located in the *loadpint\rsdesigner\pdf\usascii* subdirectory of the RSD software for instructions on how to use this executable. Once this function has been executed, the catalog can be unlocked from this base design while within RSD. Simply open the RSD design, select Options, Unlock catalog, and enter in the password. The central catalog will then be available for manipulation.

Users can ensure that the catalogs for their RSD designs are in synch with the central catalog by using a new catalog verification tool. This tool allows a user to find out if items used in the design are out of date, how many items within the catalog are not in the central catalog, as well as other functions. To use this tool, select Tools, Verify Catalog from the RSD pull down menus. A dialog box will appear like the one shown.



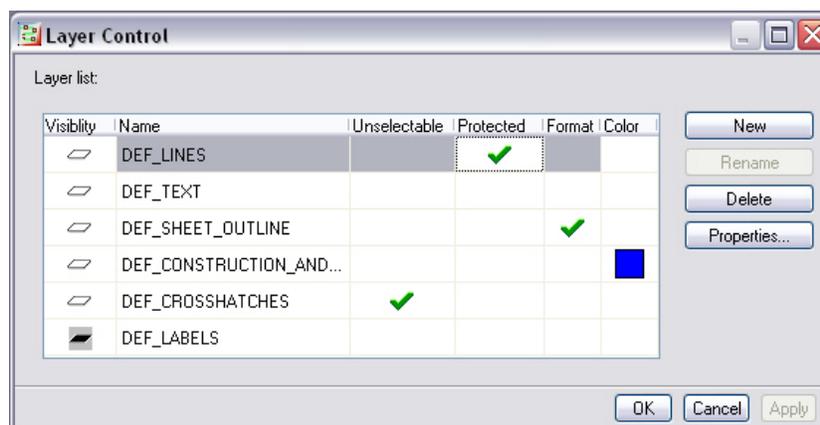
The check boxes in the upper right can be select to show the specific items in the list on the bottom. A user can then update the items in the list or submit new items.

This new central catalog feature is a powerful new way to manage multi user implementations of RSD and improve the performance of RSD designs.

User Interface Enhancements in RSD 7

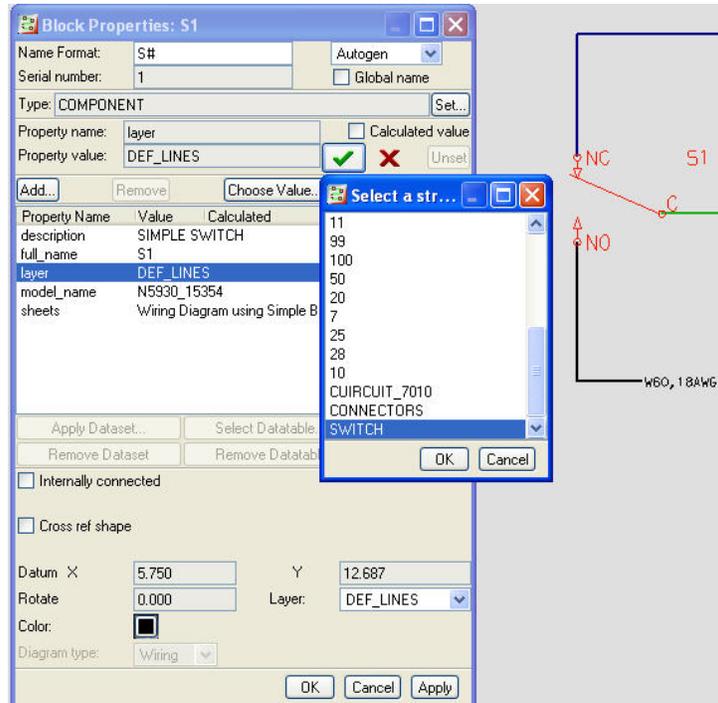
Many user interface enhancements have gone into RSD 7. These enhancements include a new layer control and UI, new UI for placing variable groups, and the ability to inline connectors into cables.

Layer control for RSD 7 has been dramatically enhanced. The layer control dialog box can now be accessed by selecting View, Layer Control from the RSD pull down menus. This will bring up the dialog box shown below.

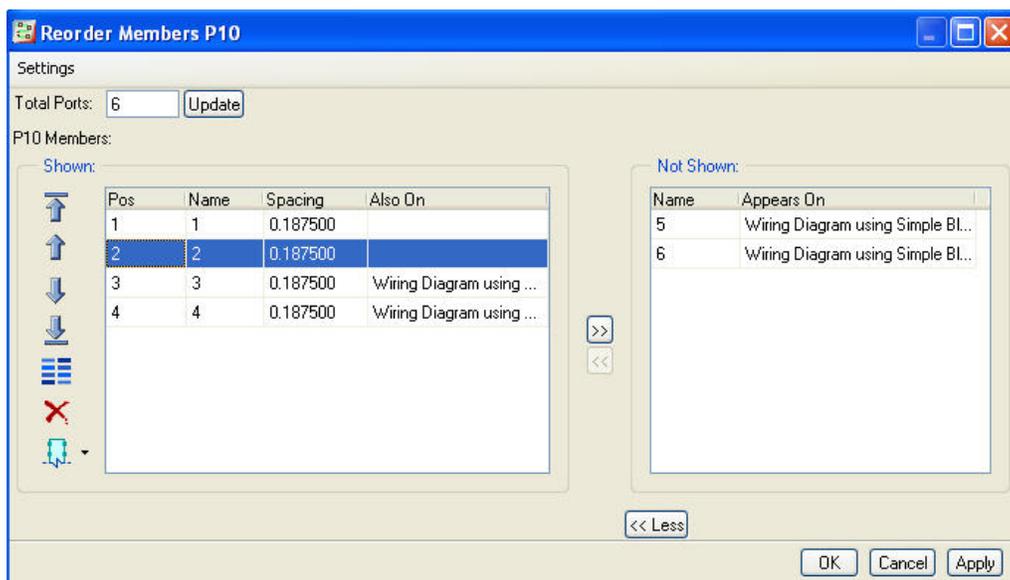


This dialog box allows the user to create and delete layers using alphanumeric naming. Layers can be sorted by name, the display can be turned on and off, the color can be set, as well as other functions.

All items placed on a design sheet contain a layer property. The value of this property can simply be set in the items properties dialog box to place items onto a specific layer.

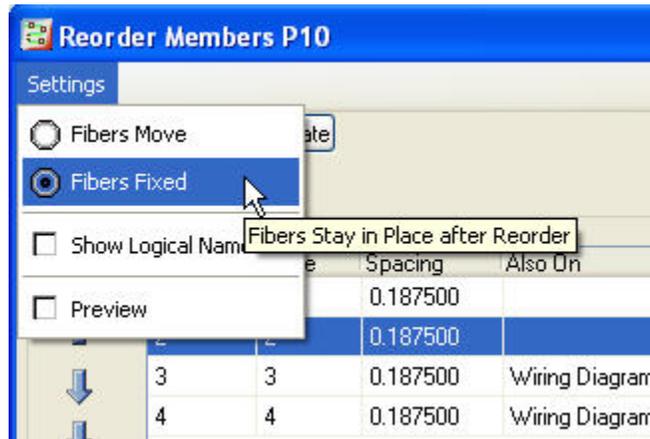


The variable group dialog box has been improved for placing variable groups. This new dialog box has a simplified interface for setting the total number of elements in the group rather than a two input system in previous releases of RSD. It also has an enhanced way to view what items are in the group and what sheets these items appear on. A sample of the dialog box is shown below:

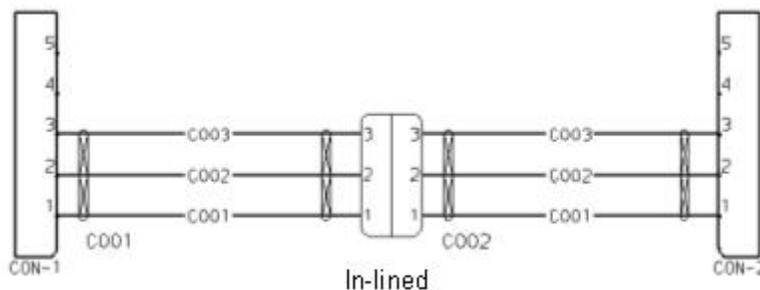
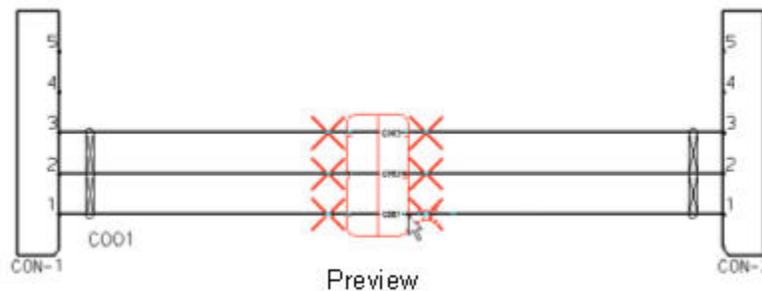


The buttons down the left hand side allow the user to control the position of the members, flip the order (new in 7), and choose how the cutaway will be shown. The “Not Shown” portion of the dialog box can be hidden by selecting the <<Less button to simplify the interface.

The settings pull down menu at the top of the dialog box will allow the user to control how any attached fibers will react when members are moved in the dialog box. The user can choose to have the fibers move or have the fibers stay fixed as the members are reordered. This functionality is new in 7.



In RSD 7 users can now use in line connectors to break cable groups. Previously this was not possible. Users were required to delete or disband the cables before performing an inline operation. Users can now simply drop an inline group into a cable and get visual confirmation of the break. The cable to the left or to the top of the inline remains the original cable and a new cable is created.



More Information on Routed Systems Designer

To find out more about Pro/ENGINEER's [Routed Systems Designer](#) visit our Website.

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Tips of the Month

Dealing with Backshells in Cabling

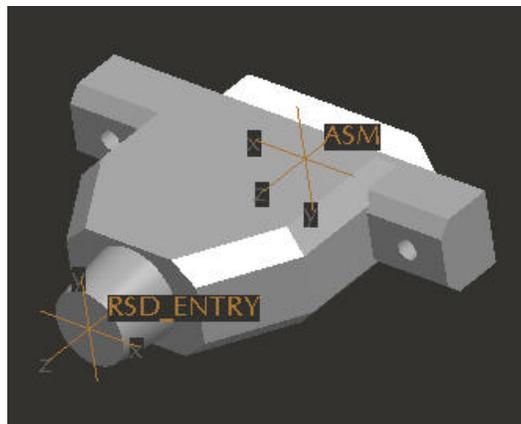
The way to handle electrical connector backshells in Pro/Cabling is not always obvious. Getting these backshells to appear on a flattened harness drawing can also be challenging. In the picture below, the connectors are the silver metal components containing the pins and the backshells are the blue plastic parts wrapping around the cables and connectors.



The problem stems from the fact that the cables are typically modeled to route to the connectors, not to the backshells. Should the geometry of the backshells be modeled within the connector part? If not, how can the backshell be added in the harness manufacturing environment? Is it necessary to route the cables through the backshells to the connectors in order to get an accurate model? The matter is further complicated when utilizing XML connection data from RSD in order to utilize the auto-routing functionality in Cabling. Fortunately all these questions and issues can be easily answered and solved.

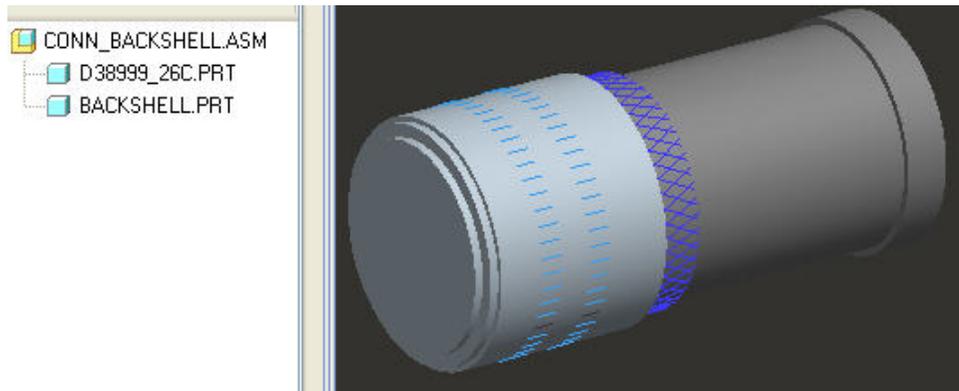
There are three different ways the combination of connector and backshell can be modeled in Pro/E.

1. Model the connector and the backshell as a single Pro/E part. This option is typically the easiest option, but it can lead to inaccurate BOMs (the backshell and connector would obviously not be listed as separate items in the BOM). Also, the wide variety of combinations between connectors and backshells could lead to a complicated library.

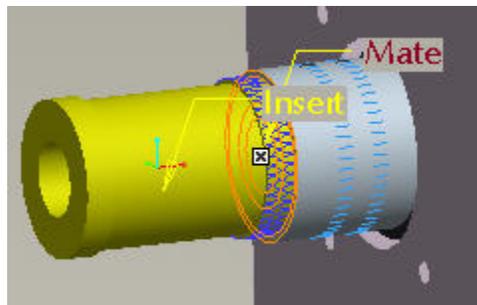


2. Model the connector and the backshell as an assembly. This option works well for routing and the BOM output will typically be accurate. However, if XML routing

information is used from RSD, the assembly file name will need to be set as the model_name property in RSD. This may not be the most functional way to set this property due to the fact that many times the electrical designer does not know exactly what backshell to use (a typical example of this would be a straight versus 90 degree backshell that the mechanical engineer may decide due to clearance issues). Further, many times the model_name property is set in RSD using a data table and will typically only contain the plug name. Hence, if RSD data is utilized this option may not be the best.



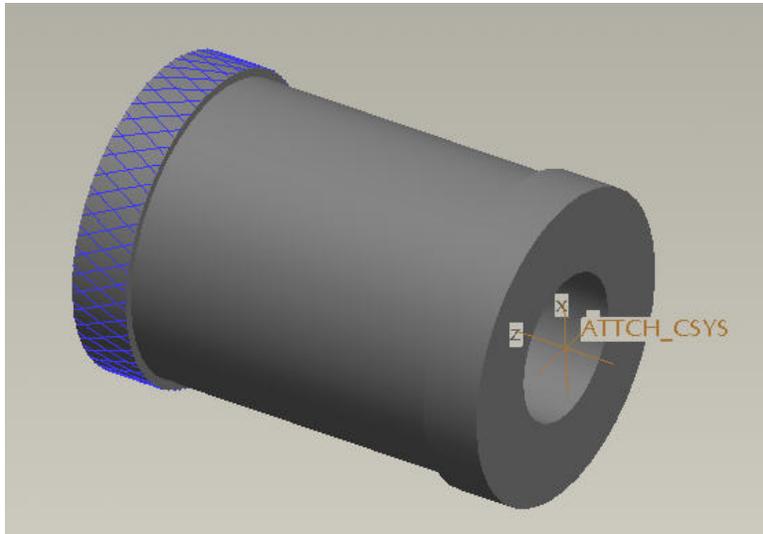
3. Model the connector as an individual part and assemble the backshell as a separate part. This option is the preferred method for handling backshells. It works well if the wires/cables are routed manually or auto-routed utilizing RSD data. If utilizing RSD data for routing, the connector can be modeled as a single part and placed in a library. The model_name property can be set to this part name for the connector symbol in the RSD catalog. The cables will then route to the connector as they do in real life. The backshell can then be assembled by the mechanical engineer and added to the harness assembly (more on this later).



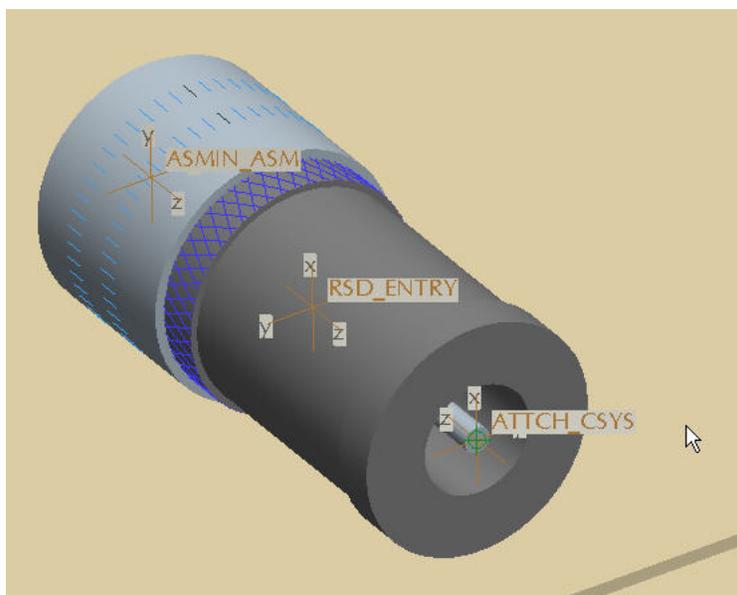
Adding the Back Shell to the Harness Assembly

As mentioned, the 3rd option listed above is the preferred method for handling backshells. However, some additional work needs to be done to ensure proper routing and that the backshell is added to the harness assembly in the harness manufacturing environment. In order to easily accommodate for this process, the backshell model should have a datum point or coordinate system modeled in the backshell part file at the exit point of the wires/cables. Coordinate systems work better than points due to the fact that their z axis orientation can help control how

the backshell is placed in the harness manufacturing environment. In the picture below, the backshell would be assembled to the connector on the side with the blue hatching and the “ATTCH_CSYS” coordinate system would be used for a location when routing. Note that the z axis of this coordinate system is pointing into the backshell model. This will assure proper orientation in the manufacturing environment.

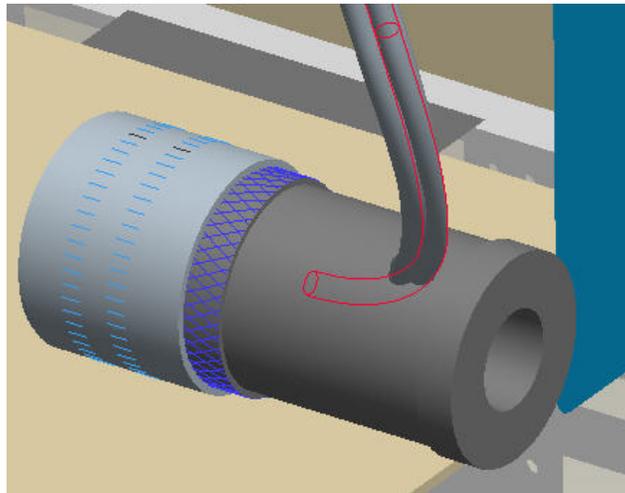


With the backshell model set up, it can now be used in the cabling assembly. Once the backshell is assembled into the assembly using standard assembly methods, the cables need to be routed through the backshell. If the cables are routed manually, this is an easy process. Simply start the route of the wire/cable at the entry port of the connector (RSD_ENTRY in the picture below). Then use the “Pt/Vtx/Csys” to route to the coordinate system on the backshell model as shown below.

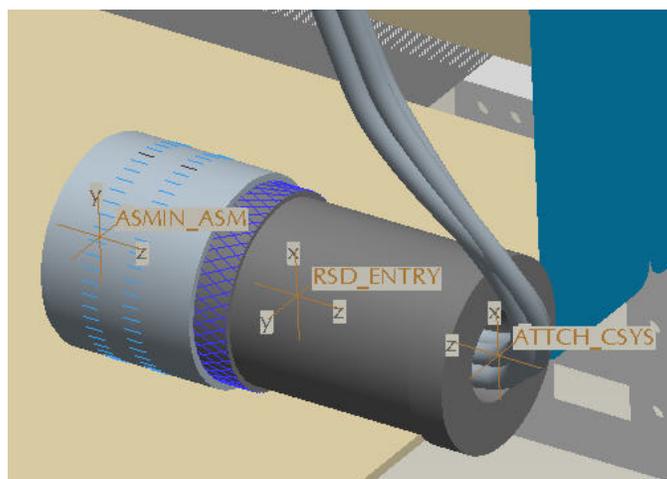


This will create a cable location point on the coordinate system in the backshell and ensure proper routing through the backshell.

The process becomes a bit more complicated when using RSD data to auto-route the wires/cables. Typically, the connector will be the part designated and the wires/cables will be auto-routed to the connector's entry port. Further, the network used for auto-routing will typically not be routed all the way to the connector. So, the auto-route function will know nothing about the back shell and may route the wires/cables through the backshell model. An example of this is shown in the picture below:



Fortunately, this problem is easily resolved. To solve this, a location can be added along the wires/cables that references the coordinate system in the backshell. This process does two things: fixes the routing and ensures the backshell can be attached to the manufacturing harness assembly. To add a location, simply select "Location, Add" from the Cabling menu. Select a location on the wires/cables near where the cables should exit the backshell. A list of wires/cables will then be shown in the menus. Select all the wires/cables on the list. Then use the "Pt/Vtx/Csys" pick in the Add Location menu and select the coordinate system on the backshell. A new location point will be created at the coordinate system and all the wires/cables will be routed properly.

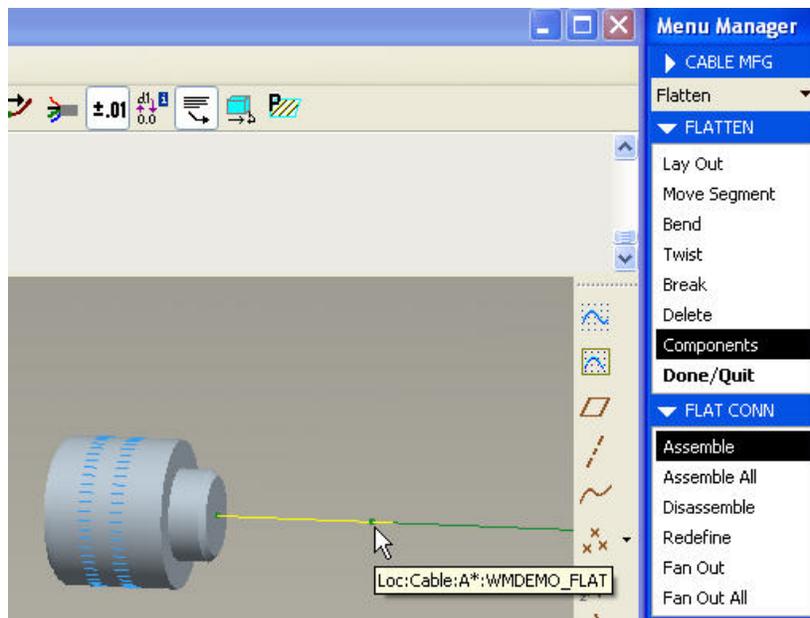


Now that the wires/cables are routed through the backshell, one additional function needs to be performed in order to ensure the backshell is added to the harness assembly in the manufacturing environment. To do this, simply select "Components, Attach to Harn" from the cabling menu as shown below.

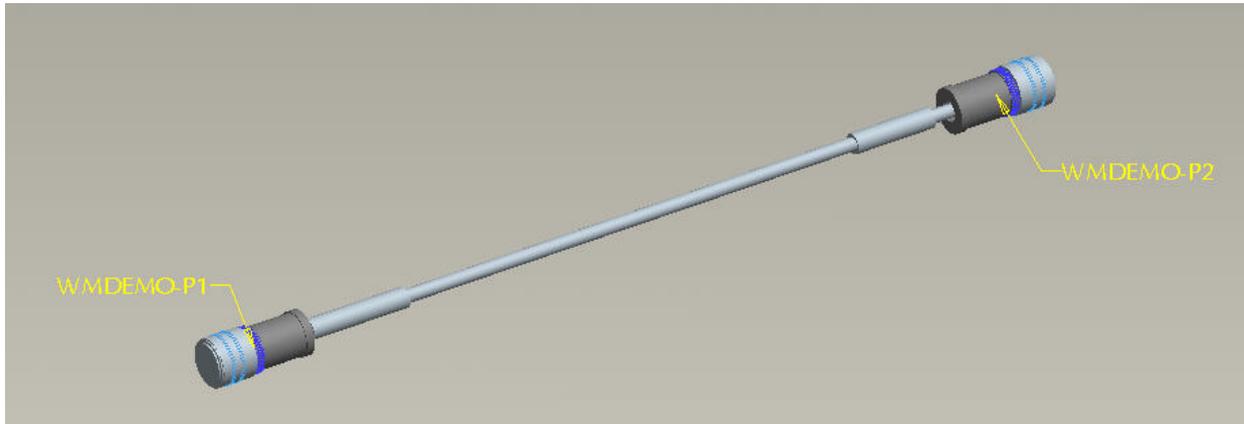


Select Add from the menu and select the backshell model from the graphics window. A note in the message window will state “Component has been attached to flat harness”. The component can now be assembled to the flattened harness in the harness manufacturing environment.

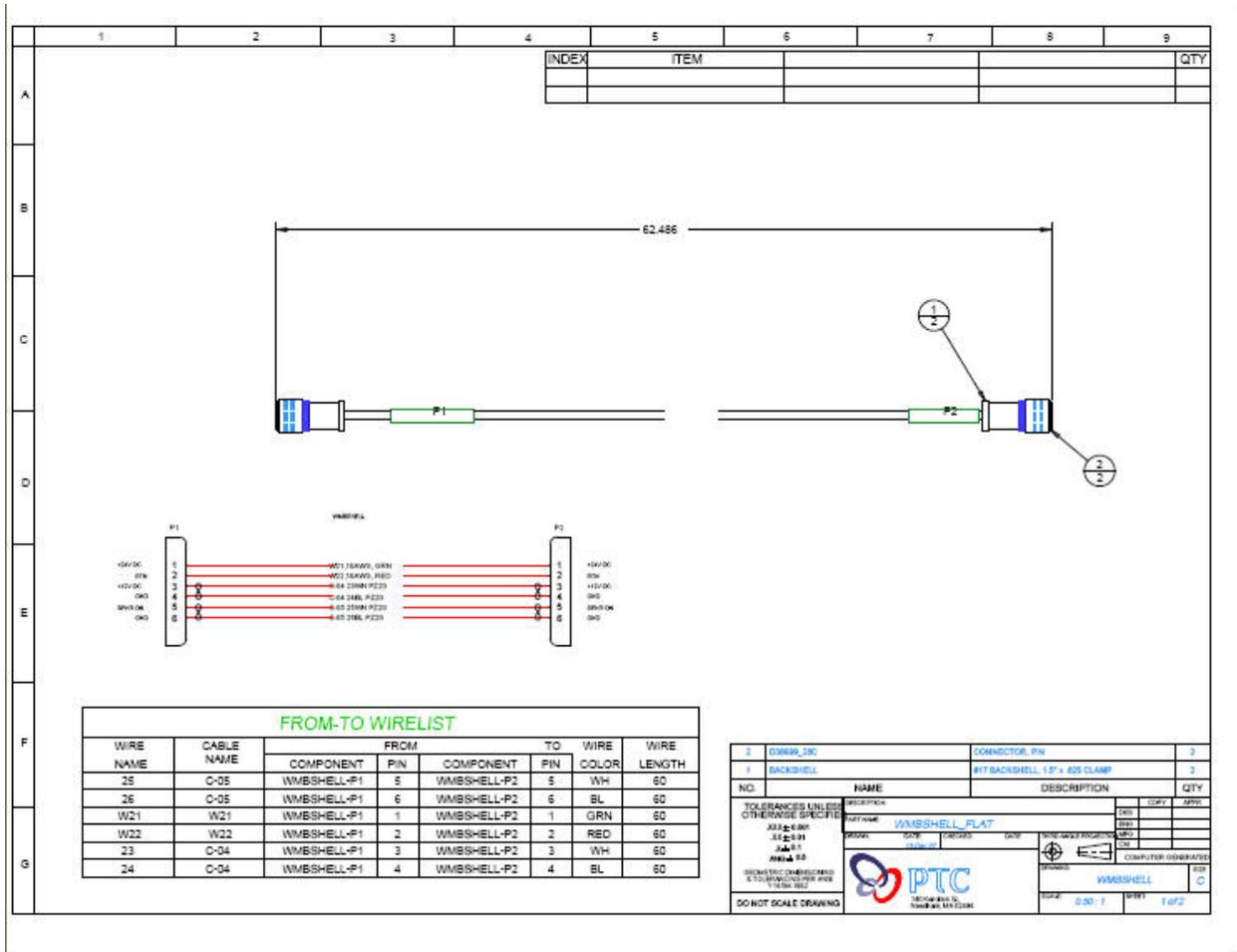
If the above process is followed, the backshell can now easily be added to the flattened harness in the harness manufacturing environment. When in the manufacturing environment, flatten out the harness using standard methods. To add the backshell, simply select “Flatten, Components, Assemble” from the Cable MFG menu. Then select the location point near the end of the connector and the backshell will be assembled.



Finished flattened harness:



With the flattened harness setup correctly, a cable assembly drawing can easily be created with an accurate BOM including the backshells. A sample drawing is shown below.



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Tips of the Month

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Announcements

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E-PROFILES IS HERE!!

We have been eagerly anticipating the debut of the new electronic version of Profiles Magazine and now it is here! This new web site will supplement the print edition of the magazine and will

provide new useful features not feasible with paper media. e-Profiles will provide you with 24x7, worldwide access to key information previously available exclusively in the print version. "Tips & Tricks," a popular feature pioneered by Pro/USER, has also moved to the web and will be expanded as the site matures.

Please take a few minutes to check out this new web site. We don't think you will be disappointed.

<http://profilesmagazine.com/>

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Upcoming Events & Training Class Schedules

Upcoming, 2008 Your local Pro/Engineer User Groups
<http://www.ptcuser.org/rugs/>

June 1 – 4, 2008 Long Beach, CA USA
PTC/USER World Event
<http://www.ptcuser.org/>

Events

Our seminars and conferences seek to provide you with relevant information regarding product development trends in your industry as well as innovative software learning experiences. Think of them as a constructive day off where you can share experiences and swap ideas with your peers.

If you can't manage to get away, we'll bring it to you. Check back often for regularly scheduled live webcast events.

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Sessions are performed just like a traditional ILT (including interactive exercises where you and the instructor can work on lab exercises together) and feature some of our most popular ILT courses. These sessions cover the exact same material as the traditional ILT in-center courses. Also look for some of our most frequently requested mini-topics delivered in the same format that are only an hour - two hours in duration.

If you have any questions about these sessions or would like to see getting other courses, not on this list, on the schedule please feel free to contact me for more details. They are a great way to bring training to you without you having to worry about location or being out from work for long stretches.

You can register for these sessions just as you would for any normal ILT class either by:

1. calling order admin at <http://www.ptc.com/services/edserv/training/registra.htm> or
2. you can go to PTC University directly at <http://www.ptc.com/learning> and submit a registration request directly. All you have to do is search the catalog by typing in “virtual” in the search field and you will see a listing.

PTC

Note: This PTC E-Newsletter will continue to be used for the following:

- 1) Inform you on events related to PTC products (user groups, conferences, training schedules, etc.)
- 2) Educate you on solutions that are available at PTC
- 3) Tips & Techniques using PTC Products

Note: These messages are compiled in the local PTC office and will be distributed via e-mail.

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