PTC Technical Specialists E-Newsletter
Date: October 1, 2007

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PTC Product Focus

Distributed Pro/BATCH

Distributed Pro/BATCH was introduced with Pro/ENGINEER Wildfire as a new and improved batch processing utility. Most customers do not realize that a powerful standalone version of this product is included with Pro/ENGINEER Foundation! Standalone mode requires that the batch controller and Pro/ENGINEER session are both executed on the local computer. For more intensive requirements, there is an optional version that operates in true distributed mode. This uses a Distributed Services Manager (DSM) to administrate remote computers and tasks on the network as a compute farm. This article will focus on leveraging the standalone mode.

This version is a significant improvement over the former Pro/BATCH. It supports far more import/export formats, is extensible via custom tasks, and has direct access to Pro/INTRALINK 8.0 and PDMLink 8.0 workspaces.

Routine tasks such as the following are good candidates for this utility:

- Printing or Plotting drawings
- Exporting to PDF
- Importing / Exporting 2D & 3D data from supported interfaces (including ATB)
- Re-save models with display preview
- Running ModelCHECK

Getting Started

All required components are included with the Pro/ENGINEER distribution, but are not installed by default. Under Pro/ENGINEER **Product Features**, **Options** - select **Distributed Pro/BATCH** to install the standalone components. (PTC Distributed Services under **Other Products** on the main screen is for networked mode.)
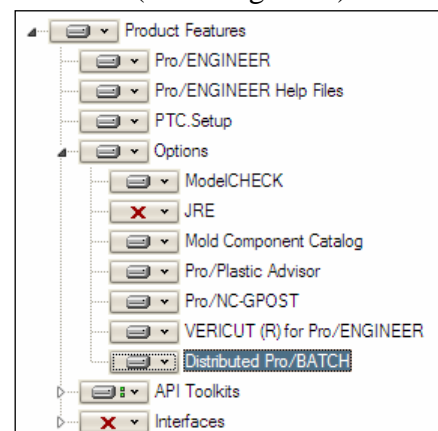
A "DSM Light" controller must be running to register client tasks. Create a shortcut, scheduled task, or service to run the following command:
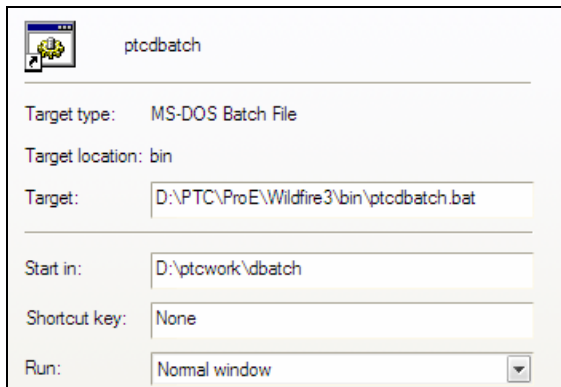
<proe_loadpoint>\bin\dcadsetup –force

This should reply with "DCAD setup succeeded", along with a listing of enabled services. This list must include Distributed Pro/BATCH (dbatchs).

Create a shortcut to the following command to start the interactive client:

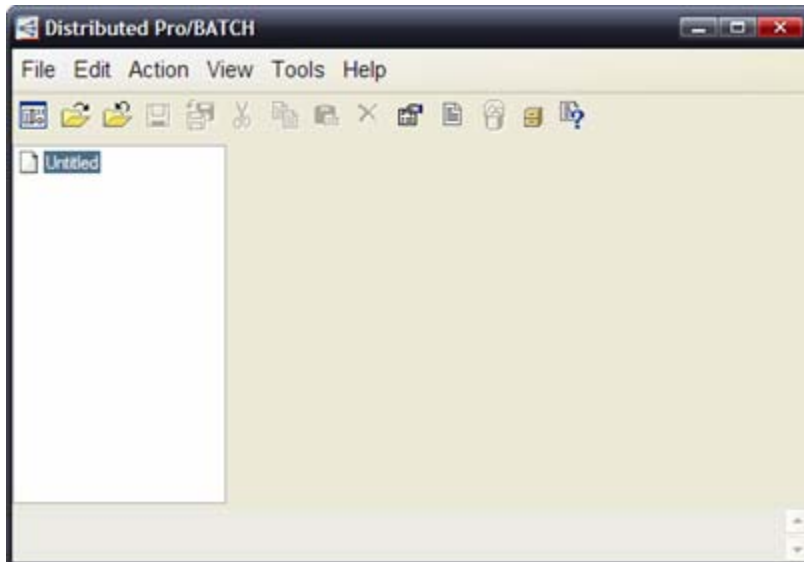**<proe_loadpoint>\bin\ptcdbatch.bat**

Specify the "Start in" folder to a working directory for log files, std.out, etc.

Distributed Pro/BATCH Client

Run the shortcut defined in the previous step.
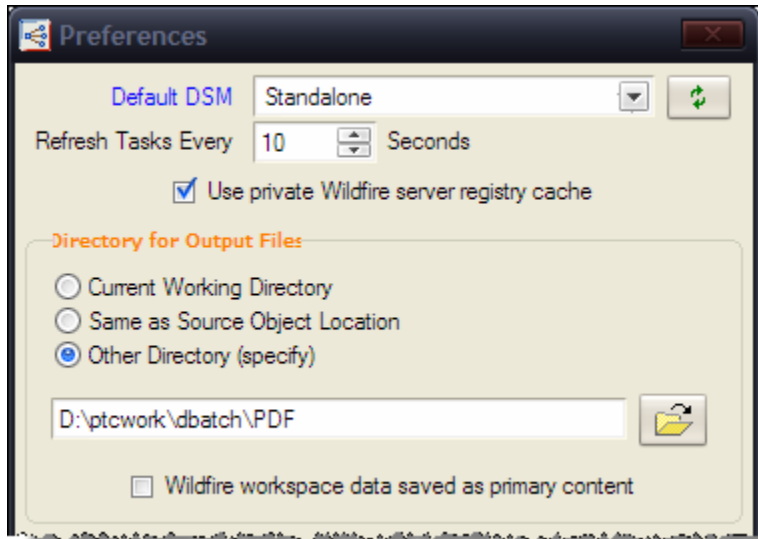(Note that the standalone and network modes use the same client.)

For this example, we will configure a task to export Pro/E drawings to PDF.

Global Preferences

Select **Edit > Preferences…** to set values for all batch tasks.

Set Default DSM to **Standalone**.

Use **Tools > Server Registry** to optionally add one or more Windchill servers to specify locations for source or output objects. Pro/INTRALINK 3.x is not supported.

Task Type Definitions (TTDs)

The DSM uses these XML files to communicate details of task(s) to be performed. Pro/ENGINEER includes several OOTB defaults located under <proe_loadpoint>\text\ttds. As a best practice, copy these to a central standards area to make them available to everyone, and to preserve site-specific customizations between software updates. From the Preferences dialog, you can specify these TTD Search Directories under Search Options panel.

```
plot_drw_to_pdf.ttd - WordPad
File  Edit  View  Insert  Format  Help

<?xml version="1.0" encoding="UTF-8"?>
<!-- 11-Mar-05 K-03-21 TWH  $$1  Submitted -->
<!-- 28-Apr-05 K-03-23 TWH  $$2  Security changes -->

<TTD version="1.0" created_by="PTC">
        <DESCRIPTION>PLOT DRW to PDF</DESCRIPTION>
        <DETAILS>Create PDF file using variable from Pro/E drw file</DETAILS>
        <SERVICE name="dbatchs"/>
        <TKFUNC func="ProPDFExport">
                <TKSTRUCT struct="ProPdfOptions">
                        <font enum="PRO_PDF_USE_TRUETYPE_FONTS"/>
                        <color enum="PRO_PDF_CD_COLOR"/>
                        <hlr enum="PRO_PDF_HLM_DASHED"/>
                        <layers enum="PRO_PDF_LAYERS_ALL"/>
                        <parameters enum="PRO_PDF_PARAMS_ALL"/>
                        <searchable_text>true</searchable_text>
                        <dpi>300</dpi>
                        <hyperlinks>true</hyperlinks>
                        <bookmark_zones>true</bookmark_zones>
                        <bookmark_views>true</bookmark_views>
                        <bookmark_sheets>true</bookmark_sheets>
                        <bookmark_flagnotes>true</bookmark_flagnotes>
                        <title></title>
                        <author></author>
                        <subject></subject>
                        <keywords></keywords>
                        <open_password></open_password>
                        <master_password></master_password>
                        <allow_printing enum="PRO_PDF_PRINTING_HIGH_RES">true</allow_printing>
                        <restrict enum="PRO_PDF_RESTRICT_NONE"/>
                        <allow_copying>true</allow_copying>
                        <allow_accessibility>true</allow_accessibility>
                </TKSTRUCT>
        </TKFUNC>
</TTD>

For Help, press F1
```
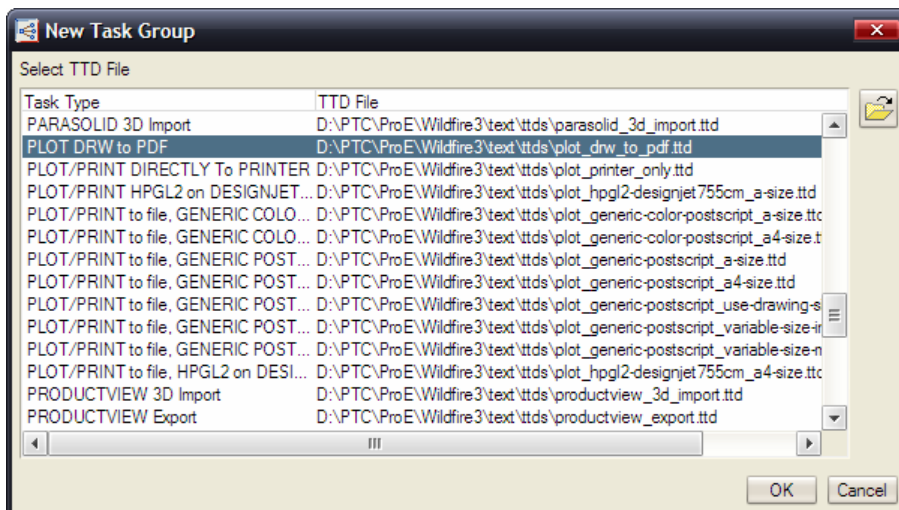
Create a Task Group

Select **Action > New Task Group... (Ctrl+G).**

For this case, select "**PLOT DRW to PDF**". Notice the significant listing of predefined tasks!
The matching default services are Pro/TOOLKIT applications, which are stored under
<proe_loadpoint>\protoolkit. A Pro/TOOLKIT license is not required to run these, but would be
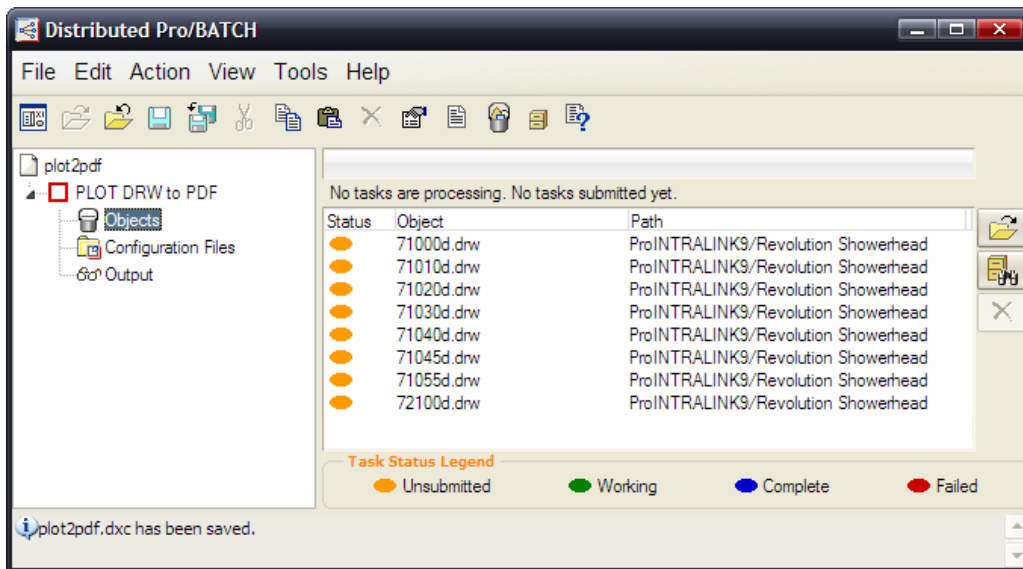required to write your own service.

The new task is added. The red box indicates that this is an unexecuted task.
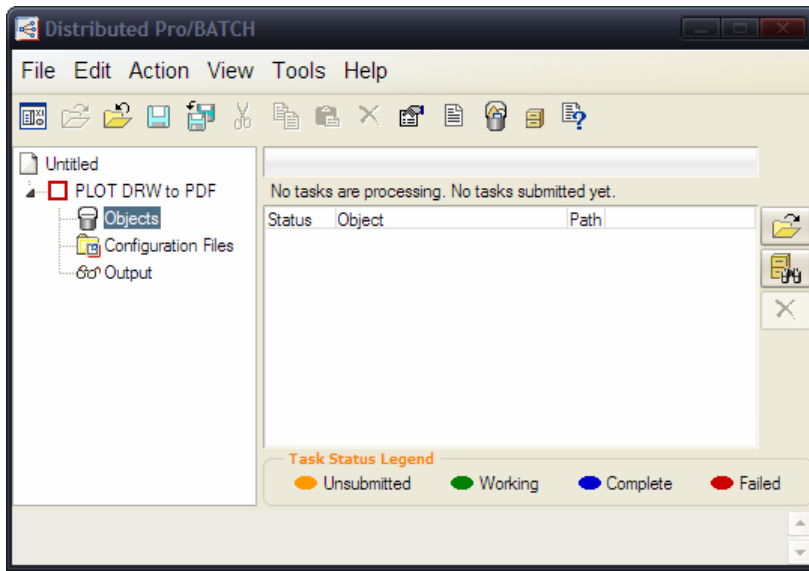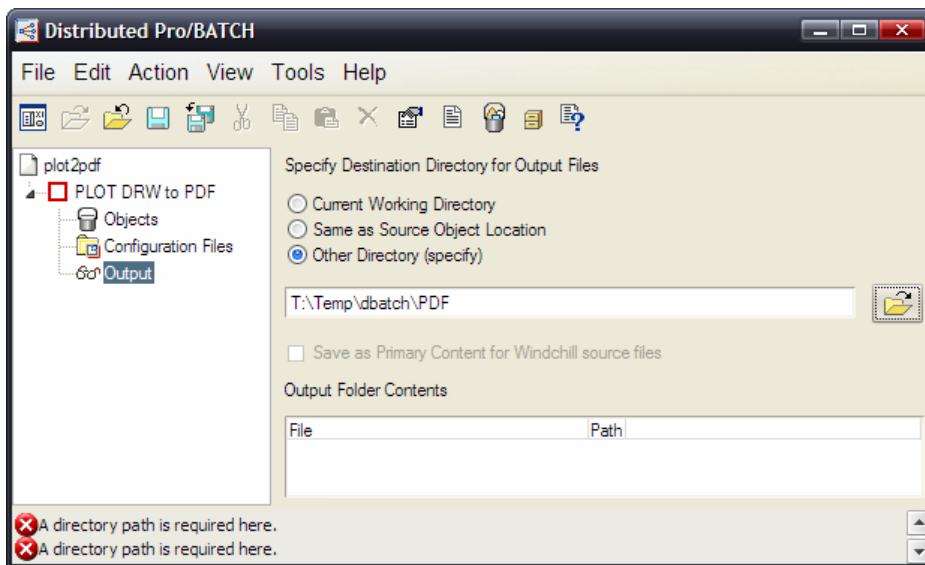

Add Objects

Select **Objects** node, use folder browser icons on the right, or bucket at the top to collect files.


Select the **Configuration Files** node to list job-specific config.pro, plot.pcf, etc. The same configuration will be used for all objects under this task.

Select the **Output** node to define location where deliverables will be written.

Select **File > Save As…** to store .dcx job file. This captures the batch process definition in an XML-style file, which can be edited manually or programatically.
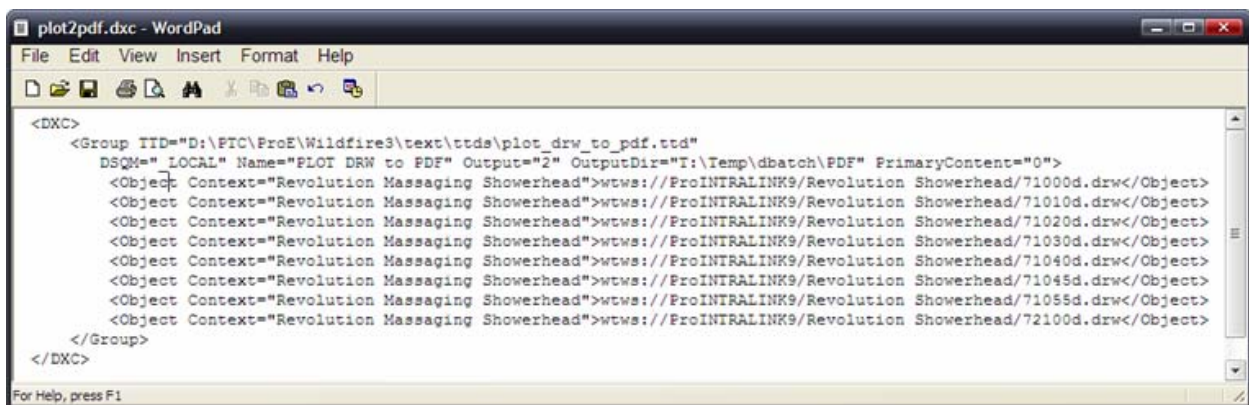

Execute the Task

Select the task group, then **RMB > Start**. (Note that this can also be scheduled.)

The task progress is visible from the **Objects** node. It will show which entries are Working (green), Complete (blue), or Failed (red). More detailed status information is available for any object with **RMB > View Details @ DSM**.

The Output node will summarize output files; use **RMB > View** to open in associated application. A log file is also written to the Output folder.
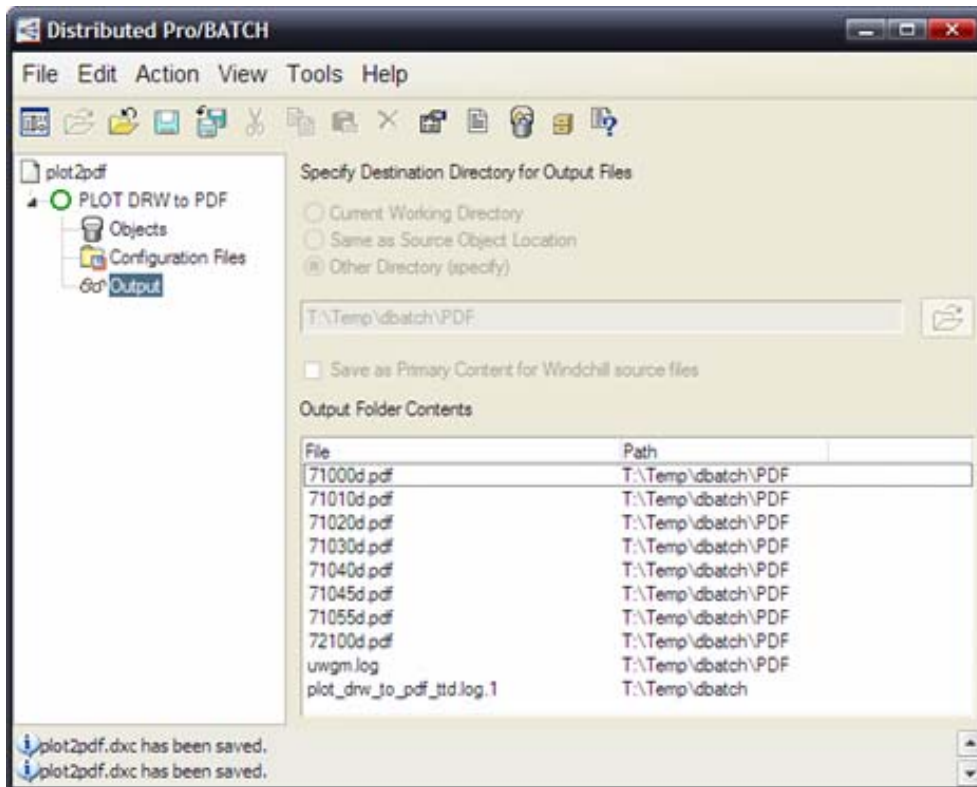
Execute from Command Line

Task groups can be executed using the syntax below. This is very useful to run from batch scripts and OS scheduled tasks.

<proe_loadpoint>\bin\ptcdbatch.bat –nographics –process <full path>\<task_name>.dcx

Distributed Pro/BATCH is a very powerful tool to automate various routine tasks. Since it is included with all Pro/ENGINEER licenses – give it a try on your next project!

More Information on Distributed Pro/BATCH

To learn more about this product, please refer to the online Help in the Distributed Pro/BATCH Client (F1):

<proe_loadpoint>\html\usascii\dbatchc\index.htm

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PTC Commentary

Enabling Distributed Design Collaboration Through PTC Products

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Tips of the Month

Inheritance Features

Inheritance features are a major enhancement to merge geometry features. They also provide many of the benefits of Family Tables – without the overhead and data management drawbacks. **This functionality is enabled by the Advanced Assembly Extension (AAX).**

These data sharing features provide a one-way associative propagation of geometry <u>and</u> feature information to derivative parts (slave). They enable visibility into the model tree for the base model (master), and are fully functional – even when the reference part is not In Session. In fact, there is an option to toggle the dependency (enabled by default). Because of the one-way associativity, "revision bumping" is prevented on the source model – while retaining the flexibility necessary for downstream / variant functions.

An Inheritance feature begins with all of its geometry and data identical to the reference part from which it is derived. The designer can then define the following varied items:

- Dimension & tolerance values
- Suppress or Resume features
- Annotations (including Geometric Tolerances & Symbols)
- Parameters
- References

Typical use cases for this powerful data sharing feature are:
- As-Cast / As-Machined models
- Analysis / Simulation models
- In-process models to show manufacturing evolution
- Design variants (without family tables)
- Hide IP from Suppliers (combined with family tables)
- Model localization for stock material availability

Multiple inheritance features can be created in the same model, and can even be nested. In many cases, they are a good alternative to external copy geometry. One advantage to this approach is the access to feature information directly and via relations.

Create an Inheritance Feature

An inheritance feature can be created in the context of an assembly, or in part mode as external. The benefit of creating as external is that no dependency is established to an assembly for relative placement. The dashboard allows converting from one type to another. Wildfire 3.0 even allows toggling between merge and inheritance, but be aware that varied items will be lost.

Create a new Part from the appropriate template, or Open an existing model.
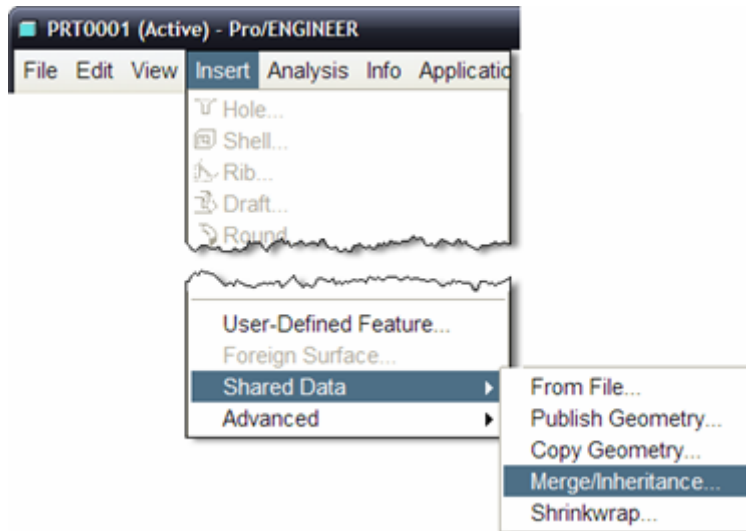
Select **Insert > Shared Data > Merge/Inheritance…**

Figure 1- Menu Structure
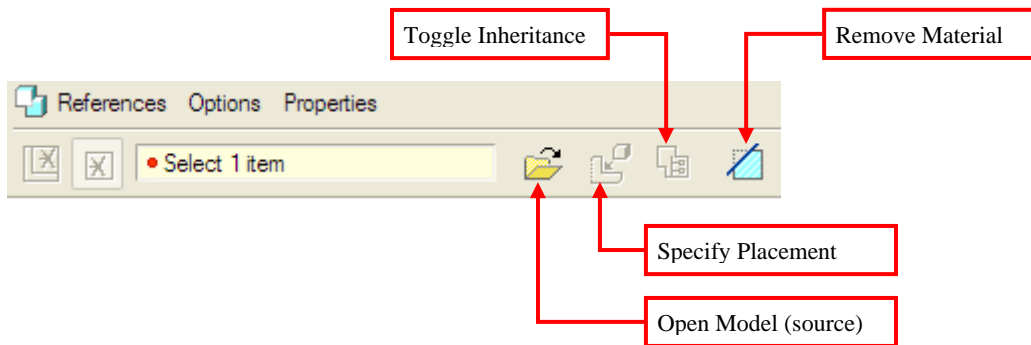
The following dashboard will appear:

Figure 2 – Inheritance Dashboard (Part mode)

Select or **Open** a reference model.

Place the reference model using assembly constraints.

By default, a MERGE feature will be created. Select [icon] to **Toggle Inheritance**.

If you are working in the context of an activated part in an assembly, the reference type will be "Assembly context", but it can be toggled to "External."
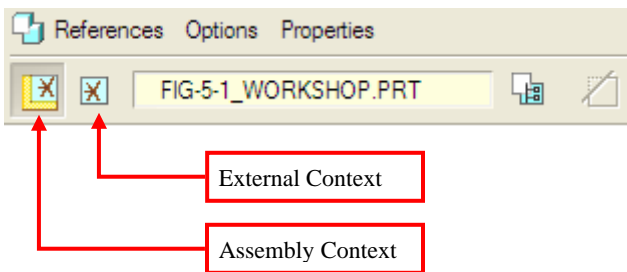

Figure 3 – Inheritance Dashboard (Assembly mode)
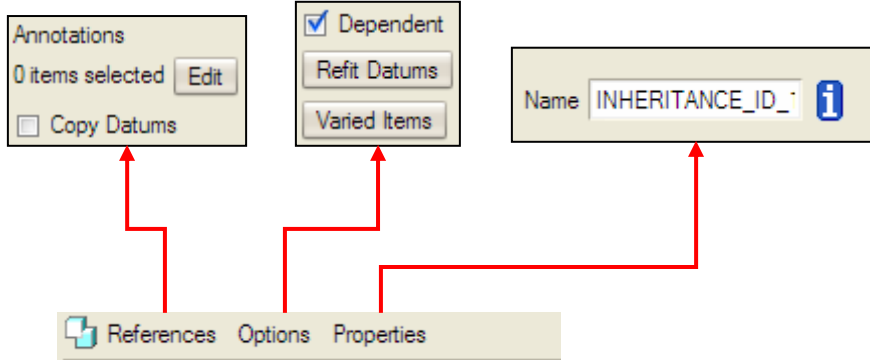
Dashboard Options

Figure 4 - Dashboard Option Panels

- **References** for Annotations and Copy Datums are only available for Merge (Don't worry…Annotation Features are included by default in Inheritance)
- **Refit Datums** & **Varied Items** are only available for Inheritance
- Note that **Dependent** status can be enabled / disabled.

Define Variations

This is similar to the functionality you may be familiar with from defining a family table. This captures the variations that are applied against the master model during regeneration. The tabs are self-explanatory.
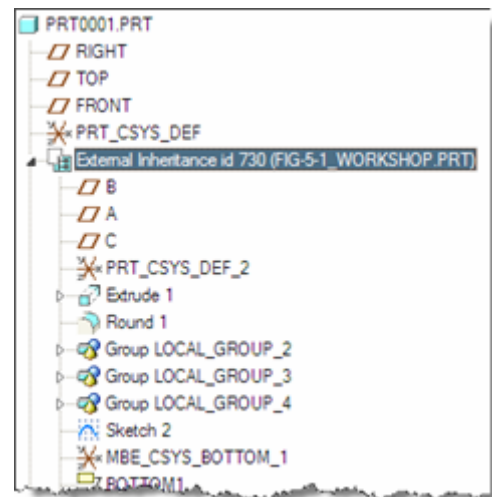
Select **Options > Varied Items**
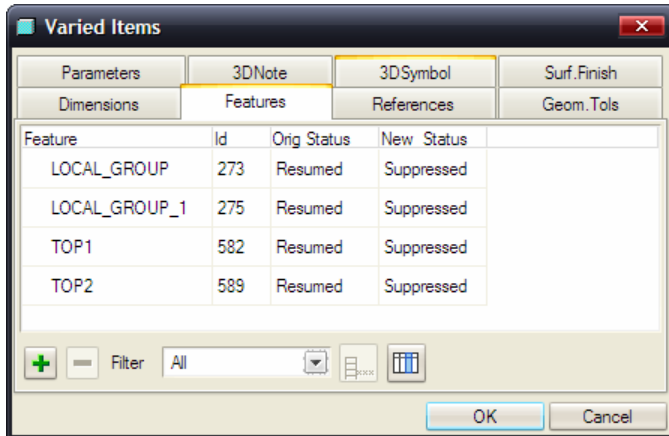
Use the fields and drop-down menus to specify "New" values or states.

Resulting Feature & Model Tree

- After completing the feature, notice that an expandable node appears in the Model Tree. The context menu (RMB) can be used to easily

Open Base model, Edit Definition, or Update Inheritance, etc.

- If features under the inheritance structure are directly modified, suppressed, etc. in this context – they will automatically be added to the Varied Items table shown in the previous section. This is a great ease-of-use technique!

Accessing Relations and Parameters

Use the following syntax to access the inherited parameters and dimension symbols of the base model:

symbolic_name:IID_#

- symbolic_name is the dimension symbol or parameter name
- # is the internal ID of the inheritance feature

Local parameters of the inheritance feature are accessed using:

param_name:FID_#

- # is the feature ID of the inheritance feature

These can be combined to access the feature parameters of a the inherited feature:

param_name:FID_#:IID_#

More Information on Inheritance Features

This was just an introduction to raise awareness about this powerful and flexible capability to add to your design toolbox. For more information, and some practial applications, please review the following great resources:

- Pro/ENGINEER Help Center - Assembly > Top Down Design > Data Sharing

- PTC Knowledge Base

- PTC Express, March 2007 – Data Sharing to Protect IP

- PTC/USER 2007 User Presentation – Inheritance Features vs. Family Tables

Good Designing!

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Commentary Tip of the Month

Important Factors for a Distributed Design Environment

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Announcements

Educational Resource Library

Learn things you always wanted to do - but didn't know you could.

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Get tutorials, how-to videos and expert advice for:

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  - Detailed Design
  - Simulation/Analysis
  - Production
  - Design Collaboration

- Windchill PDMLink

- Windchill ProjectLink

- Pro/INTRALINK

- PTC Online Tools

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Click below to see regularly scheduled Tips & Techniques technical Webcasts that are designed to provide you with the most popular time-saving tricks that Pro/ENGINEER users of all skill levels will find useful. Get more out of your maintenance dollars!

Tips & Techniques: Work Smarter Not Harder!

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, 2007   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.

You're Invited to Attend…

Please visit the PTC Education Services website for the latest training information including course descriptions, schedules, locations, and pricing.

- Attend a course at any PTC Center and receive a free copy of Pro/ENGINEER Wildfire Student Edition!

    http://www.ptc.com/services/edserv/index.htm

Live Instructor-Lead Virtual PTC Training Courses

Virtual Classrooms provide interactive learning with a trained PTC instructor in convenient and manageable sessions that last approximately 4 hours over a series of days. It's easy to join a class right from your desk using a phone or voice-over IP technology.

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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