A Practical Guide to Teamcenter Engineering Workflow Designer

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What we will cover...

- Who we are
  - BorgWarner Morse TEC that is...
- Tips and techniques with Workflow Designer
- Practical examples
  - What the end user sees when setting certain Rule Handlers.
- Limitations of the out-of-the-box handlers
- Home grown handlers
BorgWarner - We Are Powertrain Focused

- **Sales**: $4.3 Billion
- **Employees**: 17,300
- **Operations**: 62 Locations, 17 Countries
- **Products**: Powertrain Systems
- **Drivers**: Fuel Economy, Performance, Air Quality, Vehicle Stability
Company Profile - Drivetrain

Drivetrain Group

DualTronic® Clutch Module
Solenoids / Control Modules
Transmission Bands
Friction Plates

Transmission Systems

4WD Transfer Cases
AWD Systems
Synchronizer Rings
Electronic Control Units

TorqTransfer Systems

One-way Clutches
Company Profile - Engine

Engine Group

Cars
Trucks (Light, Medium, Heavy Duty)
Off Highway

Turbochargers

Engine Timing Chain
Variable Cam Timing
Gemini™ Chain Systems
HY-VO® Transmission Chain
Oil Pumps / Drives

Chain Systems

Emission Controls
Secondary Air Systems
Actuators

Emission Systems

Thermal Management Components and Systems
Visctronic® Systems
Fans / Fan Drives

Thermal Systems

Diesel Cold Start Technology
Electronic & Sensor Technology
Gas Ignition Technology

Beru Technologies
From the **Workflow Management Coalition**:

The automation of a business process, in whole or part, during which documents, information or tasks are passed from one participant to another for action, according to a set of procedural rules.

TcEng is Workflow!

So according to that definition TcEng Workflow is a workflow system !!!!

Despite what some people say about “business” processes not belonging in a PDM system!
How do I get there.....

First go to Admin Applications
Then go to Workflow Designer
Select the process
And then hit the edit button....
But before we go...

Limit the number of process template choices to prevent the user from selecting the wrong process.
But before we go...

You find the Template Filter command in Workflow Designer, under Edit:
Implement rule handlers here to prevent the user from selecting the wrong objects from entering the workflow.
Starting Control...

Handler Type: 
Quorum: -1

Task Action: Start

Rule Handler: EPM-validate-target-objects

<table>
<thead>
<tr>
<th>Argument</th>
<th>Value(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-allowed_type</td>
<td>B/WPart Revision, Image, DirectModel, UCR</td>
</tr>
</tbody>
</table>
Here is what the user will see if the wrong type is selected as target:

![Error Message]

**UGS Note:** Would be nice if it showed what were the valid types at this point.
Implement action handlers that auto add the specification and BOM Views if so desired. Makes it so the user only has to select the Item Revision as the target and everything is added “automagically”.
Ta Da To Do...

Do Task at the start of a process to double check accuracy (non value added task the first time through) but more importantly to have some place to reject back to!

**UGS Note:** Would be nice if any task could be skipped the first time through.
To Do – What the User sees

Nice place showing instructions, but you can’t type that much in the Workflow Designer application instruction window (would be nice).

**UGS Note:** Would be nice if this space conformed to amount of text, allow more text and graphics.
Adhoc Review task which means that someone must pick the users to do the signoffs!
Selecting the reviewers...
Selection is fun...

Works great if you are in the same group as the user you want to select. Works OK if you know what group/role the user you want is in. Doesn’t work at all if you don’t know where they are!

**UGS Note:** Would be nice if there were easier ways to select adhoc signoff team members. (Reported fixed in 9.1.3.1 😐) Could you just allow the organization application to be open with this dialog? Or cascade down a group hierarchy?
Auto Selection for one...

Auto assigned Review task to one person (this is much easier to take than adhoc for the end users).
Auto Selection for many...

Auto assigned Review task to more than one person and auto completed.

**UGS Note:** Make the argument –reviewer accept more than one user at a time.
Forcing Comments!
Forcing Comments!

If the user does not enter some text then he gets this:

UGS Note: Excellent! 😊
Caveats:
1. Cannot reject past a decision task in 9.1.2.4. (fixed 9.1.2.10)
2. Cannot reject out of sub task in 9.1.2.4. (Fixed in 9.1.2.10?)
Rejection!

Demote at the undo of the top level review task needs to be removed.

**UGS Note**: Can you fix this?
Obviously its nice to be able to send a rejection email to someone if his job is rejected.

**UGS Note**: Can you remove from the help documentation: “Do not use this value unless you want the process to always send a rejection notice.”
Adding Late Notifications...

1. **Select Task Template**: Choose the task template from the list.
   - **Name**: select-signoff-team
   - **Instructions**: Do not delete or change the name of this task template.

2. **Set Duration**: Configure the duration in years, weeks, days, hours, and minutes.
   - Hours: 1

3. **Select Recipients**: Choose the recipients for the notifications.
   - **To**: Hilfiger Tanya (thilfiger)
-----Original Message-----
From: Forker, Brent (Morse TEC Ithaca)
Sent: None
To: Hilfiger, Tanya (Morse TEC Ithaca)
Subject: Late Notification

You have new Teamcenter Engineering mail from infodba (infodba)

Task Name:
Late Task Notification from Late Task Monitor

Process "Reason Sheet CAG536A/8-Check Val", Task "perform-signoffs" has passed its due date of "7-Apr-2006 15:10:38".

Distribution List
-------------
Hilfiger Tanya

To view envelope, please see:
http://ith-tceng:8080/cgi-bin/iman/qdGRJ1111HHvP
Detour...
Adding Status!

First you create then you add.
Sometimes you want to be able to just have one status applied to an object if it goes through more than one job.

So you have options of Append, Replace and Rename.

Remember that status is used to configure BOM’s in PSE via Revision Rules!
Ok so at the end of the process you want to notify someone about its completion. To do that you can use a Route Task.

**UGS Note:** Please make it an argument to select the default button selection.
How many Routes are there?

Can be placed anywhere in a process.
Only notifies via Office mail unless $PROCESS and/or $TARGET are present.
Subject and Comments controlled by what string we enter.

Can ONLY be placed in the perform-signoffs task according to the docs.
Only notifies via Office mail, period.
Beauty of this handler is the report options.
Subject and Comments controlled by what string we enter.

Can be placed ONLY in the Complete Action of the Route task.
Only notifies via OS mail unless $PROCESS and/or $TARGET are present.
Subject and Comments controlled by what string we enter.
You have mail!

From: BForker@morse.norse
To: bforker@morse.bwauto.com
Cc: 
Subject: Release progress report review task subject

Please see following URL for more information: http://ith20001man:8080/cgi-bin/iman/AqLBXr4911HKyP

job name: mail test 6

current release level Mail Review Task
target: name type

----------------------
testfor2files MSWord
----------------------
references: name type

no reference objects found

----------------------
Release Level: Mail Review Task
Reviewer Decision Date Comments
----------------------

----------------------
Release Level: Review Task
Reviewer Decision Date Comments
----------------------

review task comments

The others are just “You have mail from TcEng go there and do something !”
Forget the Route and create your own!

People at Morse do everything via Outlook mail. Therefore it was easier to just email the owner and let them use Outlook to forward.

**UGS Note**: Will you implement our code if we “give” it to you?
Ahhh....my own!

From: bforker@ith-exchange-3.ithaca.morse.borgwarner.net
To: Forker, Brent (Morse TEC Ithaca)
Cc: 
Subject: [Self Approval] Your data has now been R1 Released Successfully

Please see following URL for more information:
http://ith-tceng:8080/cgi-bin/iman/ATMRjGnHi1HHvD

Job Name: 5008043/A-Brents cn
Workflow Process: Global R1 Drawing Release
Task Name: Self Approval

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<td>BWPart Revision</td>
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<tr>
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<td>Image</td>
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<td>3D_5008043/A-Brents cn</td>
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R1 Release has been completed
For more on “my own”!

See Richard Meagher’s Presentation on Thursday at 9:30 AM!
Don’t get me started!

Portal link, and portal is not running already, this works fine. However if portal session is already running, it starts a new one.

DHTML link, and web not running, when you log in you are then in the main Home page. If you are already logged in the link works properly.

Please see following URL for more information:
http://ith-tceng:8080/cgi-bin/iman/ATMRjGnHi1HHvD

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R1 Release has been completed

**UGS Note:** Make this work for portal and web, and go to the spot after I log in!
The Family Tree!

So what if you want some logic in your workflow? Hope it’s not fuzzy 😊

**UGS Note:** Please supply branching by a value!
The Automatic Branch!

Select the task then the Task Attribute Panel. Click on the Condition Query and you end up in Query land.
The Manual Branch!

The Condition Query is left empty....
The Manual Branch Interaction!

Perform Condition Task

- Task Name: Does this go to PMO
- Task Instructions: Please check true if this goes to PMO and false if not.
- Task Result: true, false, unset

Cancel
Sometimes is nice to be able to create new forms as part of a process. We create a work request form here at the start of the Do Task which is then added as a Target of the job.
You can use the EPM-display-form to display a form created this way but there is no OOTB way to complete the task 😞. You must customize...

**UGC Note:** Wouldn’t it be cool if out of the box you could use this with a “form” task that includes a done check box?
Verifying that the data is there!

We had this requirement with V8 so we had to write our own. We want to replace it with OOTB handler.

You can use the EPM-check-object-properties rule handler to check for values and nulls on the perform action, however again this did not work in 9.1.2.4. It was reported fixed in V9.1.2.9 and V10.0.
In our case the handler returns specific information on what is not met and transverses object types.
At some point you want to connect to ERP so you may want to ensure that all components of an assembly have been released.
Talking to the other side!

This handler checks to see if the components in the Assembly have been released or are targets of the current job.

**UGS Note:** Current assembly related handlers, EPM_Check_Assembly_Status and/or EPM-attach-assembly-components, do not meet our requirements again but come close.
Telling the other side!

This handler grabs the Item Revision Master information and the BOM’s out of TcEng and puts them in an xml file. A process then picks the file up and creates the data in ERP (JDE).
Wrap Up!

- TcEng Workflow is quite good but:
  - It takes a LARGE amount of time configuring and testing to ensure workflows work as intended.
  - UGS needs to understand that once people start to run their businesses using workflows in TcEng it is no longer acceptable to have ANY issues with workflows not working!
    - E.G. 100% inspection required !!!
  - And once again the documentation cannot be trusted.
Questions ?