PTC | PTC user WORLD EVENT 2010

Configuration Management 101: Best Practices for using Baselines, Effectivity and Configurations

Jeff Zemsky
PTC

Configuration Management 101

Configuration Basics –

- Why we need these tools

Baselines

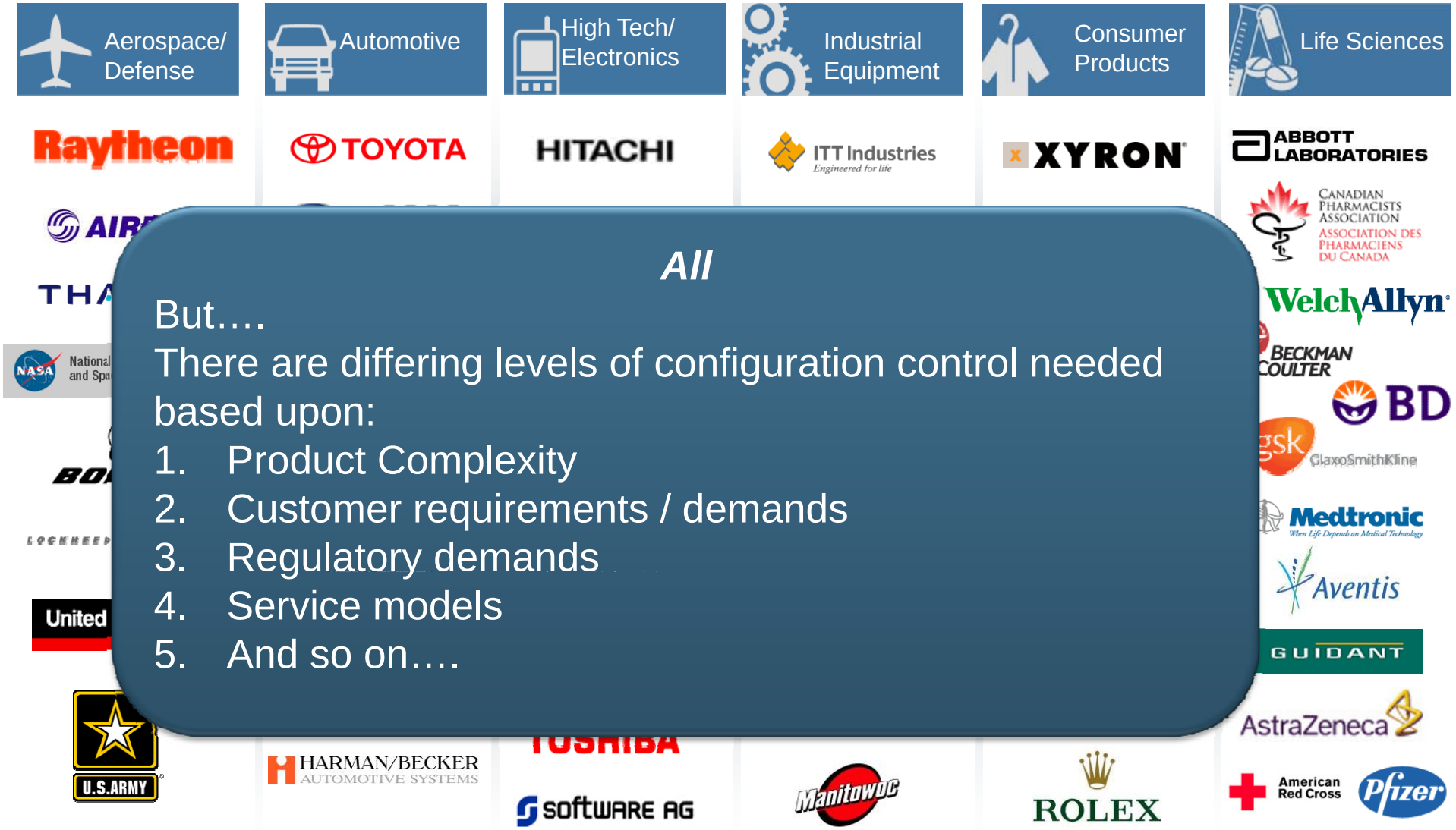
Effectivity

Configurations

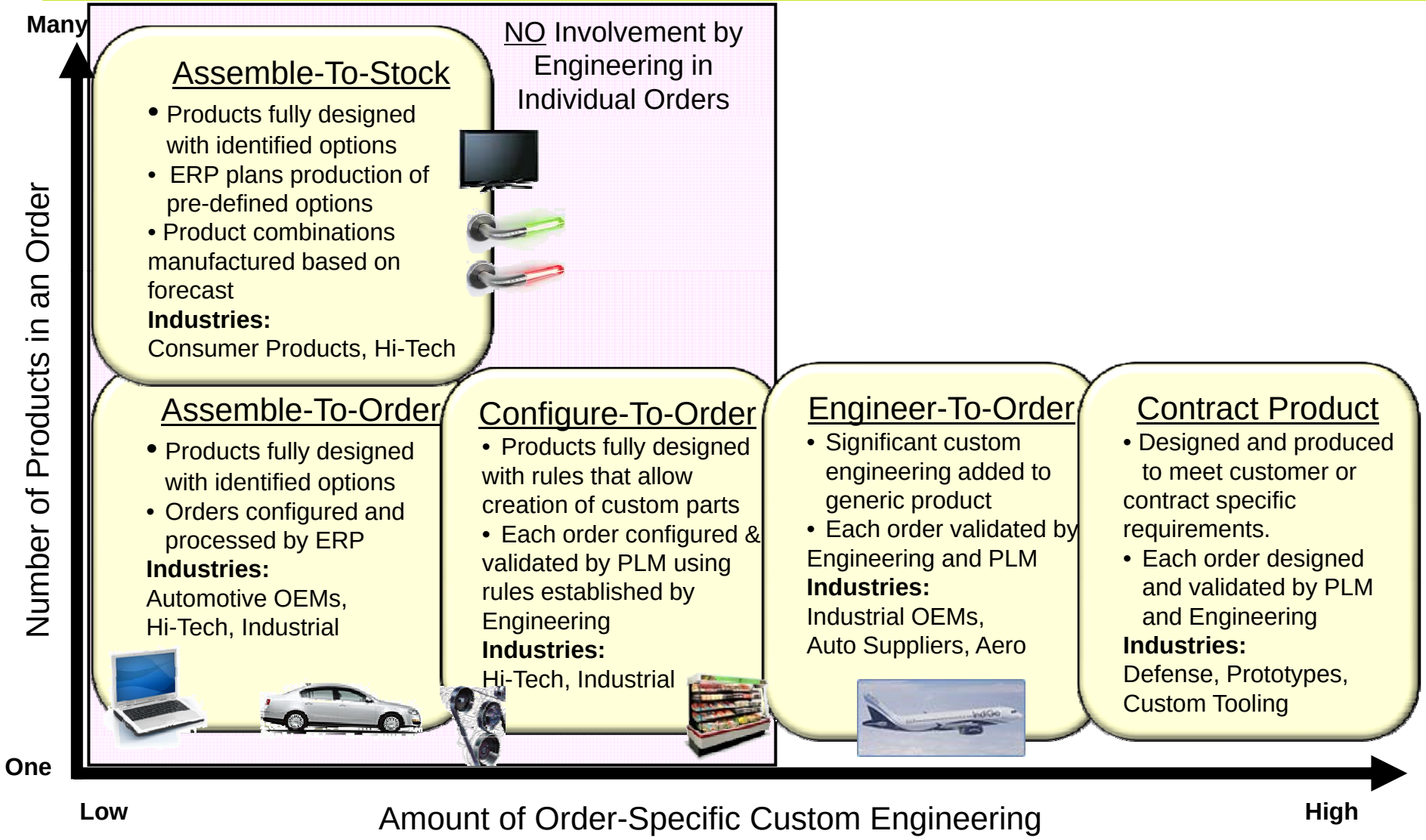
Appendix

- Preferences

Which Verticals depend on Configuration Management?



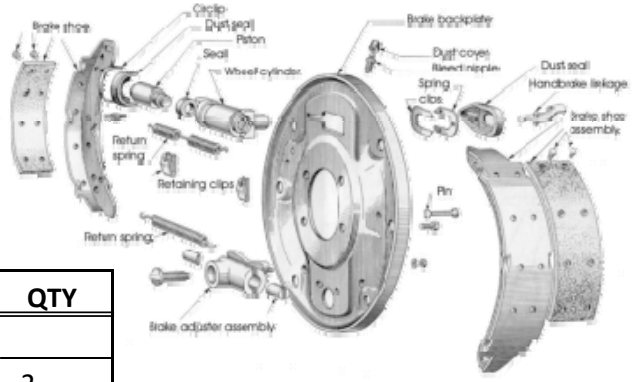
Business Strategies that use these Configuration techniques



Configuration Basics

Why we need these tools?

- Designs change
- Latest alone is insufficient
- We need to understand these impacts over time
- We need to capture the configurations for downstream needs
  - Supply Chain
  - Manufacturing
  - Safety and Certification
  - Field Service
  - Customers



Part Number	Name	QTY
44-33252-A	Brake Assembly	
23-2311235	Bracket	2
32-97302-2	Bolt-1/4-UNF	6
73-428083	Spindle	1
77-298379	Housing-1	1
23-83276	Washer-960	6
66-23908	Shoe support	
23-138930	Spring	
88-237398	Pad Assy-HT	
48-2398908	Pad-HT-L	
78-323980	Mtg Supp	

Part Number	Name	QTY
44-33252-B	Brake Assembly	
23-2311235	Bracket	2
32-97302-38	Bolt-3/8-UNF	4
73-4280822	Spindle-HF	1
76-5694824	Housing-2	1
23-83276	Washer-860	4
66-23908	Shoe support	2
23-138930	Spring	2
77-238392	Pad Assy	2
38-2398908	Pad-LR-M	1
68-323340	Mtg Sup-LT	1

Tools to help understand our Configurations

Baselines

"A managed baseline is essentially a snapshot of an evolving collection of product data objects."

Effectivity

"Effectivity is the planned date, lot, or serial number at which old part versions are replaced with new part versions in production."

Configurations & Instances

"A configuration identifies the versions of parts used to build the part instance."

"An instance identifies, by serial number, a unique, manufactured instance of a part, built according to a specific configuration."

Configuration Management 101

Configuration Basics –

- Why we need these tools

Baselines

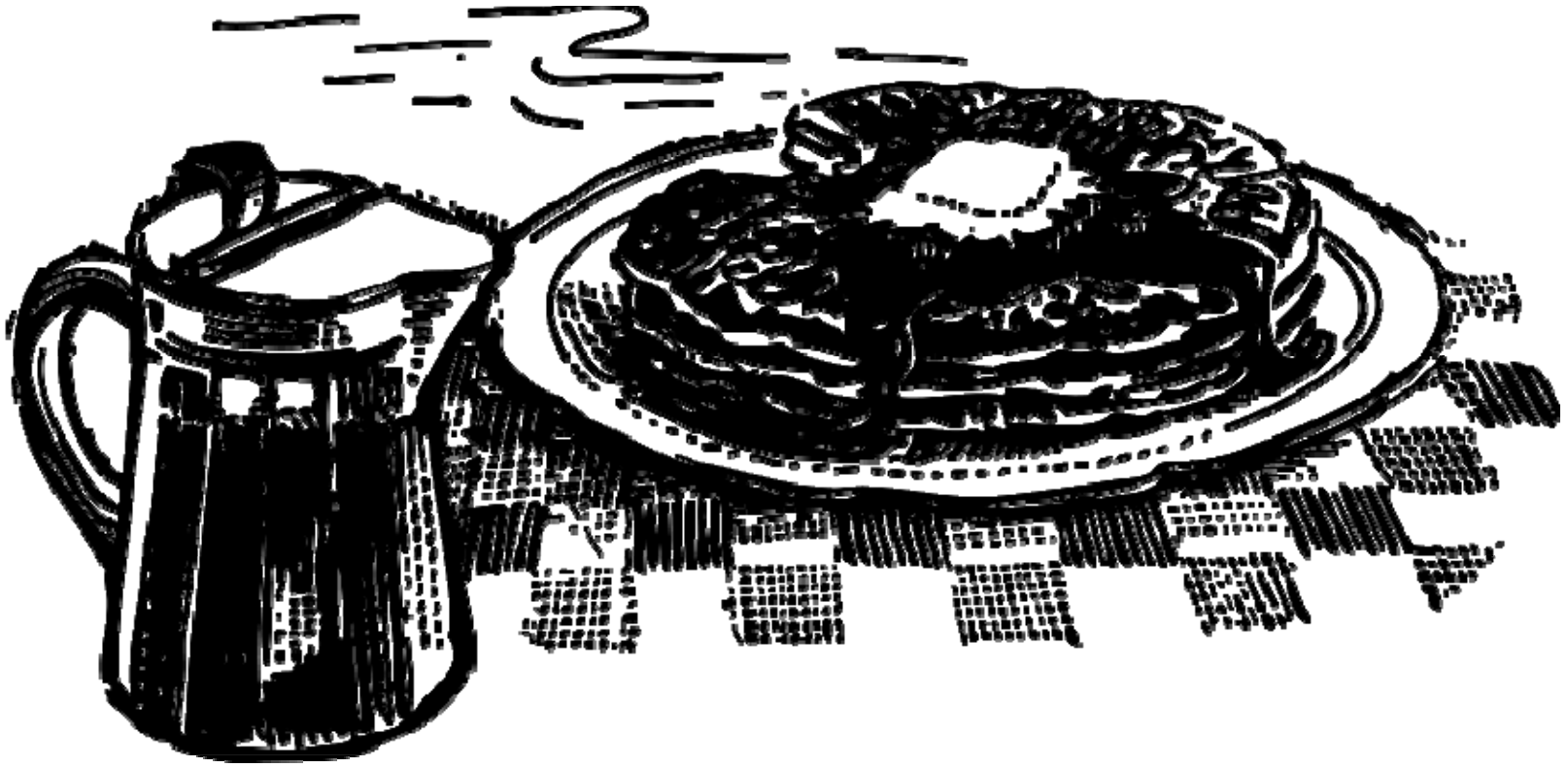
Effectivity

Configurations

Appendix

- Preferences

Baselines can help with Pancakes



Pancake Recipes

The weekends are time to make pancakes….but…..

So – which pancake recipe (or BOM) to use?

Decisions, decisions?

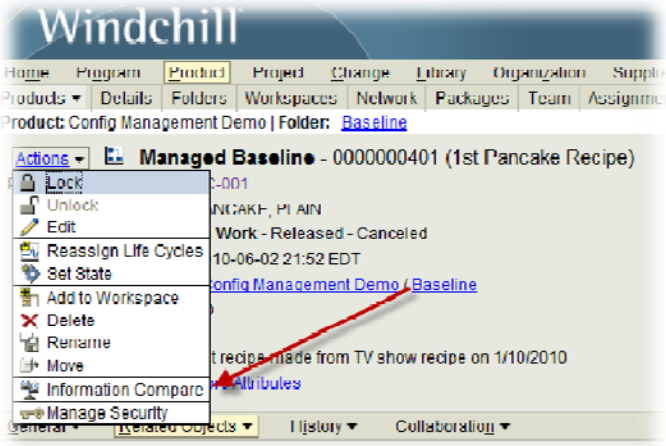
- Baking soda
- Baking powder
- Eggs mixed in
- Eggs separated and the whites whipped and folded in
- Add butter or not
- Milk
- Buttermilk
- Sour cream
- Cast iron pan
- Teflon griddle

But if we had Baselines for our Pancakes

Problem is – we update the recipes all the time

If we had baselines to reference we could see

- What changes we made
- Compare the differences
- Use the baselines to make sure we had the right BOM



Comparison Report

Choose new obje

Attributes:

0000000401 (1st Pancake Recipe)		0000000402 (2nd plain pancake)	
Name	1st Pancake Recipe	Name	2nd plain pancake
Description	1st recipe made from TV show recipe on 1/10/2010	Description	switch to buttermilk and fold in egg whites to improve richness and make them lighter

Baseline Members:

0000000401 (1st Pancake Recipe)		0000000402 (2nd plain pancake)		Actions
0000004046 (Demo Organization) - Eggs, whole, A.1 (Design)		--		
0000004052 (Demo Organization) - Milk, 1%, A.1 (Design)		--		
PC-001 (Demo Organization) - PANCAKE, PLAIN, A.2 (Design)		PC-001 (Demo Organization) - PANCAKE, PLAIN, B.2 (Design)		
Checkin Comments	First recipe	Checkin Comments	recipe revision	
Version	A.2	Version	B.2	
--		0000004047 (Demo Organization) - Eggs, yolk, A.1 (Design)		
--		0000004055 (Demo Organization) - Buttermilk, A.1 (Design)		
--		0000004048 (Demo Organization) - Egg whites, whipped, A.1 (Design)		

Pancakes – great but what does this mean to me?

Capture snapshots of important Configurations

- Design review configurations
- Production Releases
- Significant configurations to share with partners, suppliers and customers

Enable the organization to see the configuration and its related data

Actions **Managed Baseline** - HSPDR_BOM-20090408163010.6 (hspdr_bom-20090408163010.6)

State: In Work

Primary Object Number: 015000
Primary Object: HSPDR
State: In Work - Released - Canceled
Last Modified: 2010-06-03 10:51 EDT
Location: / HPSDR
Protected: Yes
Locked By:
Description: Phase Gate 1.0 Pre-Production Release Design Configuration
More Attributes

General | Related Objects | History | Collaboration

Baseline Objects (10 of 10 total objects) View: All

Name	Actions	Number	Version	State	Last Modified	Context
Lab Data - Power Supply Test 0512	Actions	0000001306	A.1	In Work	2010-06-03 10:50 EDT	HPSDR
ATLAS_Docu_USLetterLowRes	Actions	0000001308	A.1	In Work	2010-06-03 10:50 EDT	HPSDR
RMZRoHSDeclaration	Actions	0000001309	A.1	In Work	2010-06-03 10:50 EDT	HPSDR
Mercury_Operation_with_PowerSDR_v1-0	Actions	0000001311	A.1	In Work	2010-06-03 10:50 EDT	HPSDR
Simple change type	Actions	00101	A.1	Open	2009-05-22 09:49 EDT	HPSDR
ATLAS BACKPLANE	Actions	010000	C.2 (Design)	Released	2009-04-08 12:30 EDT	HPSDR
HSPDR	Actions	015000	A.2 (Design)	Released	2009-04-08 12:32 EDT	HPSDR
MERCURY RECEIVER	Actions	014000	B.2 (Design)	Released	2009-04-08 12:31 EDT	HPSDR
JANUS A/D - D/A	Actions	010200	B.2 (Design)	Released	2009-05-08 16:46 EDT	HPSDR
PENELOPE TRANSMITTER	Actions	013000	A.2 (Design)	Released	2009-04-08 12:32 EDT	HPSDR

(0 objects selected)

Baselines basics

Baselines may include:

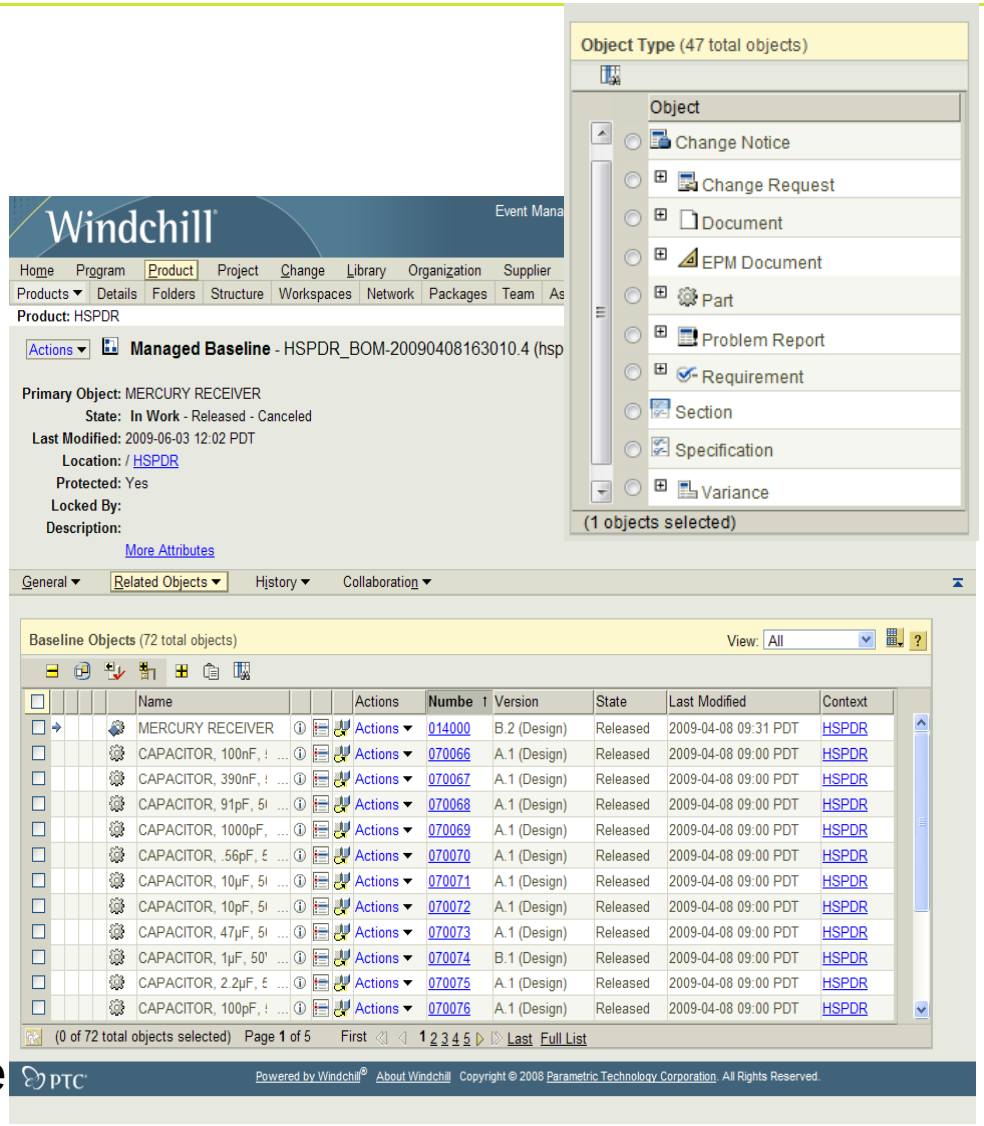
- Parts
- Documents
- Dynamic documents
- CAD documents
- Requirements
- Change Objects

Baseline Types

- Windchill Created – for example: Promotion Requests
- User created: Managed Baselines

Managed Baselines can be:

- **Protected**: Objects in that baseline cannot be deleted without deleting baseline
- **Locked**: Locking makes the baseline private to the person who locked it



Creating and Updating Baselines

You can create baselines:

- Manually (i.e. Folder ⇨ File ⇨ New ⇨ Baseline)
- During Check In of CAD Documents
- During Import from Spreadsheet

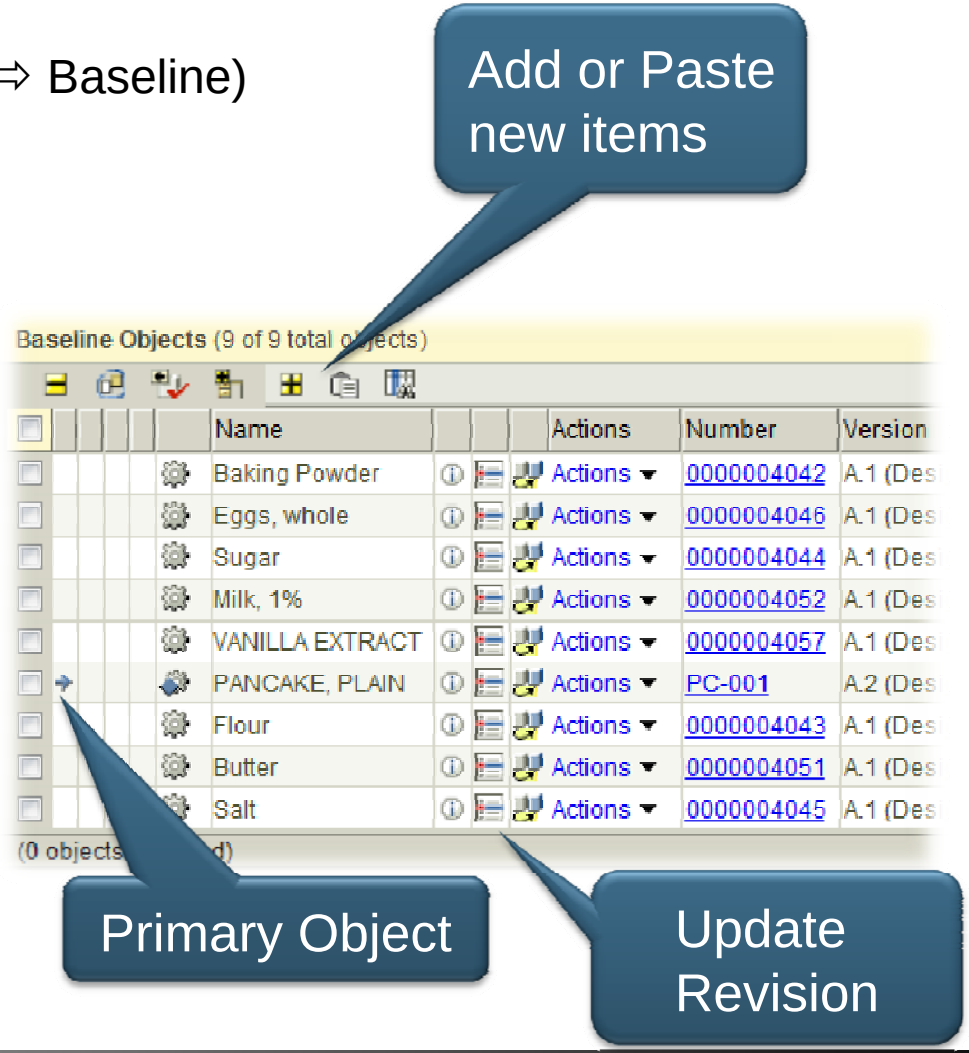
Updating can include:

- Changes to attributes
- Add, remove or change content
  - – Add or Paste items
  - – Update Revisions of existing items

Primary Object

- Indicates which object is the reason for creating the Baseline

Note: As-Stored Configuration for CAD Document is not a Baseline, it is a dynamic configuration. It can change!



What can you do with Baselines

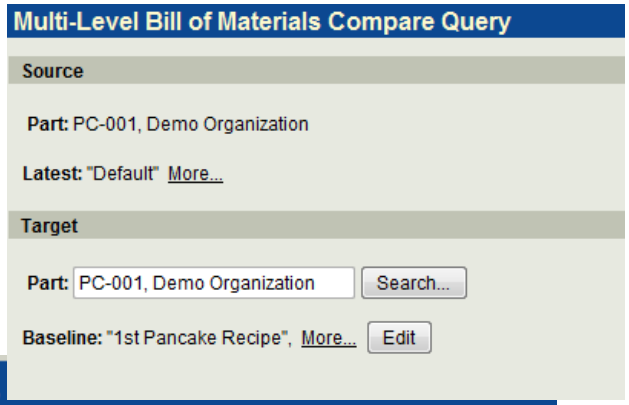
Add to or Check out to Workspace

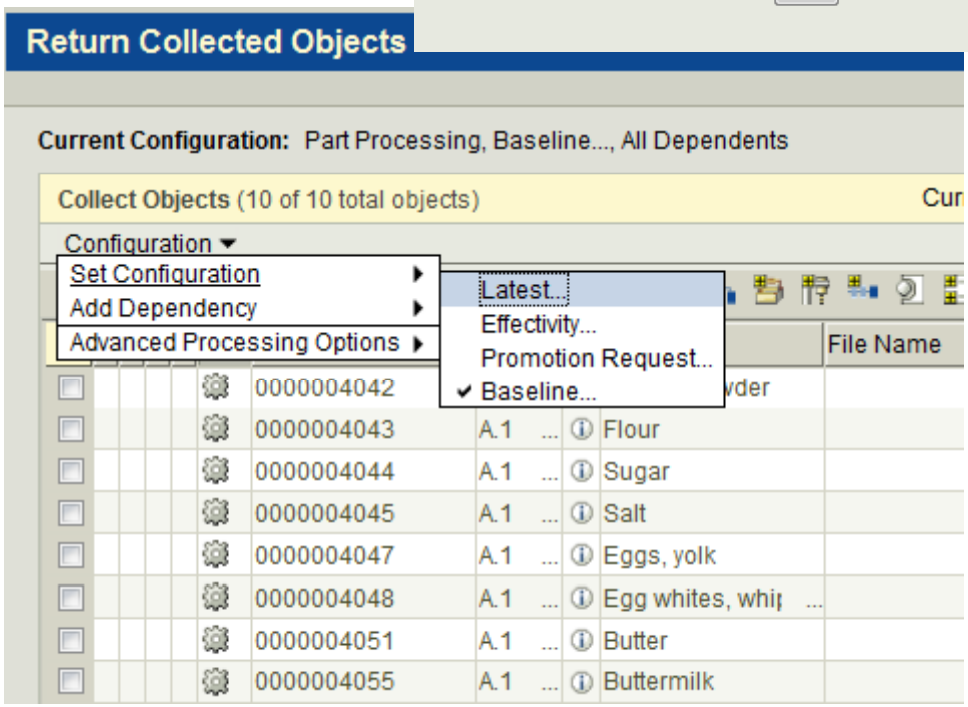
Use a Configuration Criteria to show product structure

- In PSB and PSE
- Multi-level BOM Compare
- Information Compare

For Collecting items

- Any place the Collector is used
- Changes, Packages, etc.
- Set Configuration to Baseline





Configuration Management 101

Configuration Basics –

- Why we need these tools

Baselines

Effectivity

Configurations

Appendix

- Preferences

Effectivity

Effectivity and the Kitchen plan

Ever start a project with a simple goal

Like…"Let's repaint the cabinets"

From there the project grew and grew to

Let's add

- Lights
- New Hardware
- Rebuild the pantry

With Effectivity I can know what versions of Parts are effective on specific dates

Effectivity – let's get deeper

Effectivity is the planned date, lot, or serial number at which old part versions are replaced with new part versions in production.

- Let's us view what versions of parts are in the product structure based upon Date, Serial number or Lot

Effectivity is set or updated from a change notice or a change task.

- When the change notice has been approved, the planned effectivities get copied over as actual effectivities on the given object.
- Effectivity can also be updated manually on the Part properties page

Effectivity can be applied to:

- Parts
- MPMLink objects inlcuding
  - Process plans (manufacturing process plans, sequences, and operations)
  - Manufacturing resources (plants, resource groups, skills, process materials, tooling, and work center)

What did you just say?

Effectivity Concepts

Effectivity Type

- Effectivity applicability is determined by the Trace Code of the Part
- If it is set to Serial Number one can apply Serial Number, MSN or Date effectivity
- If it is set to Lot or Lot/Serial one can apply Lot, Block or Date effectivity

Context

- Effectivity has a context so that a part can be effective in one assembly on one date or serial number and in another assembly on a different date or serial number
  - Example – The new Cooling Fan, Part 123 should be Effective in the Desktop Computer, Part 500 from July 5, 2010 and will be Effective in the Server, Part 600 on September 21, 2010

Effectivity Concepts - Propagation

Propagation Type

- STRUCTURE PROPAGATION would propagate the new effectivity settings throughout the selected structure; to all the children
- SIBLING PROPAGATION will close the open-ended date ranges on the previous revision of the assembly based on our new settings for the new revision
- RECURSIVE SIBLING PROPAGATION will propagate the closure of effectivity on the previous revision of the assembly down including all of its components.

Propagation can only be done using a Change Notice

Effectivity format examples

Date

Effectivity Format	Means
6/23/2010	Effective only on June 23, 2010
6/23/2010, 8/15/2010	Effective only on June 23, 2010 and August 15, 2010
6/23/2010 -	Effective from June 23, 2010 onwards
6/23/2010 – 12/10/2010	Effective from June 23, 2010 to December 10, 2010

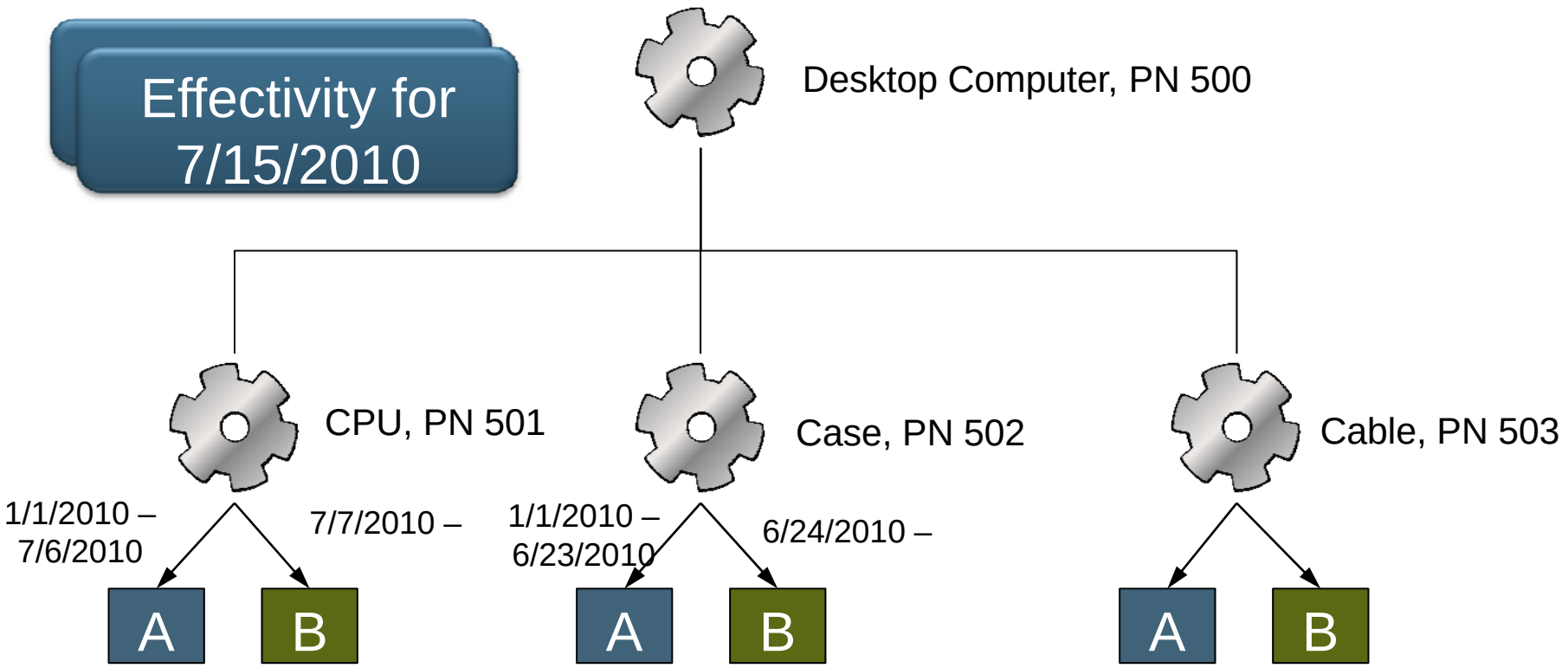
(Note – Date Effectivity format is controlled by Locale of the server)

Serial and Lot

Effectivity Format	Means
5	Effective for serial number (or lot) 5 only
5, 23	Effective for serial number (or lot) 5 and 23 only
5 -	Effective from serial number (or lot) 5 onwards
5 - 23	Effective serial number (or lot) 5 through 23

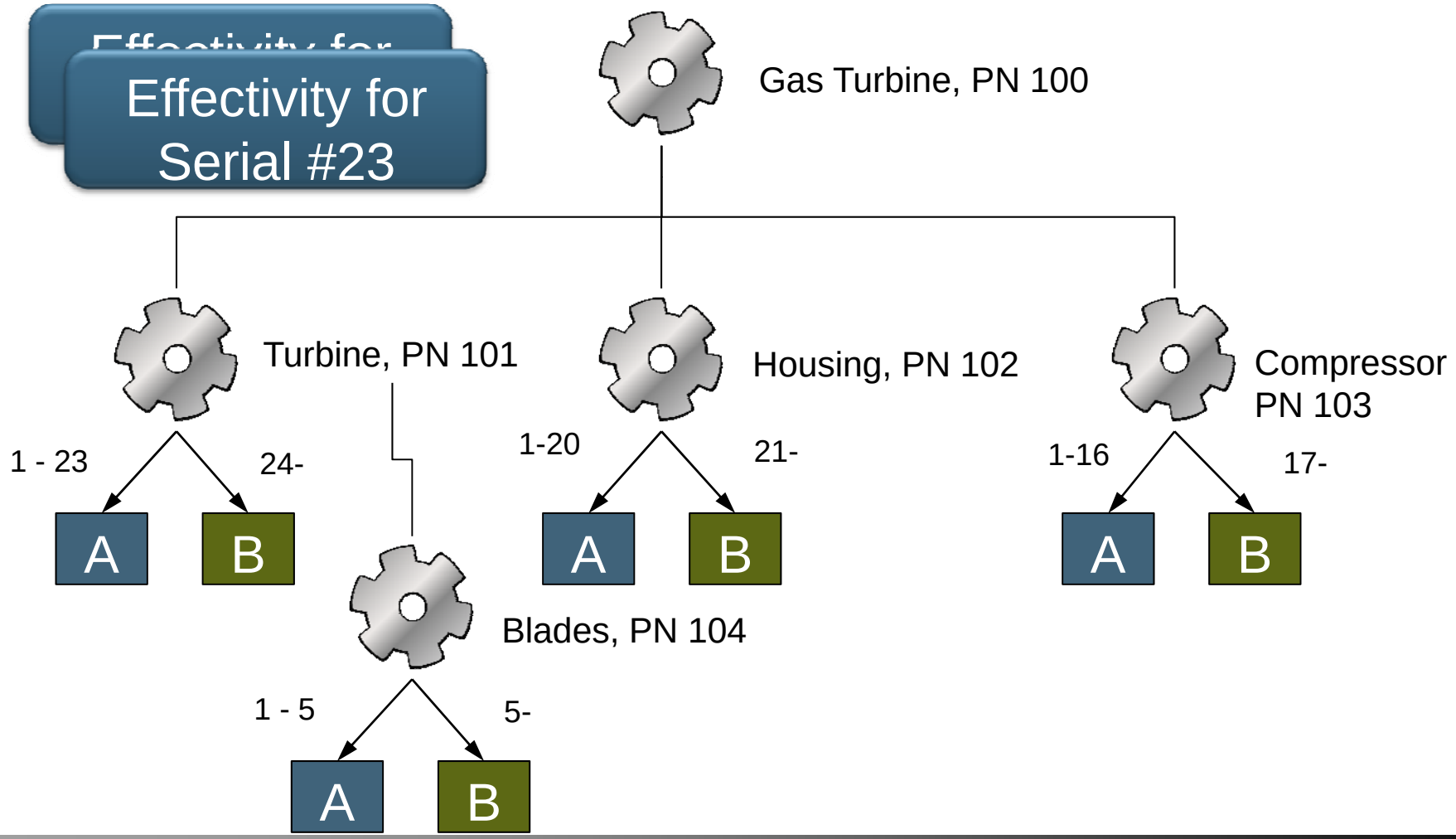
Effectivity – some examples

Date Effectivity Example

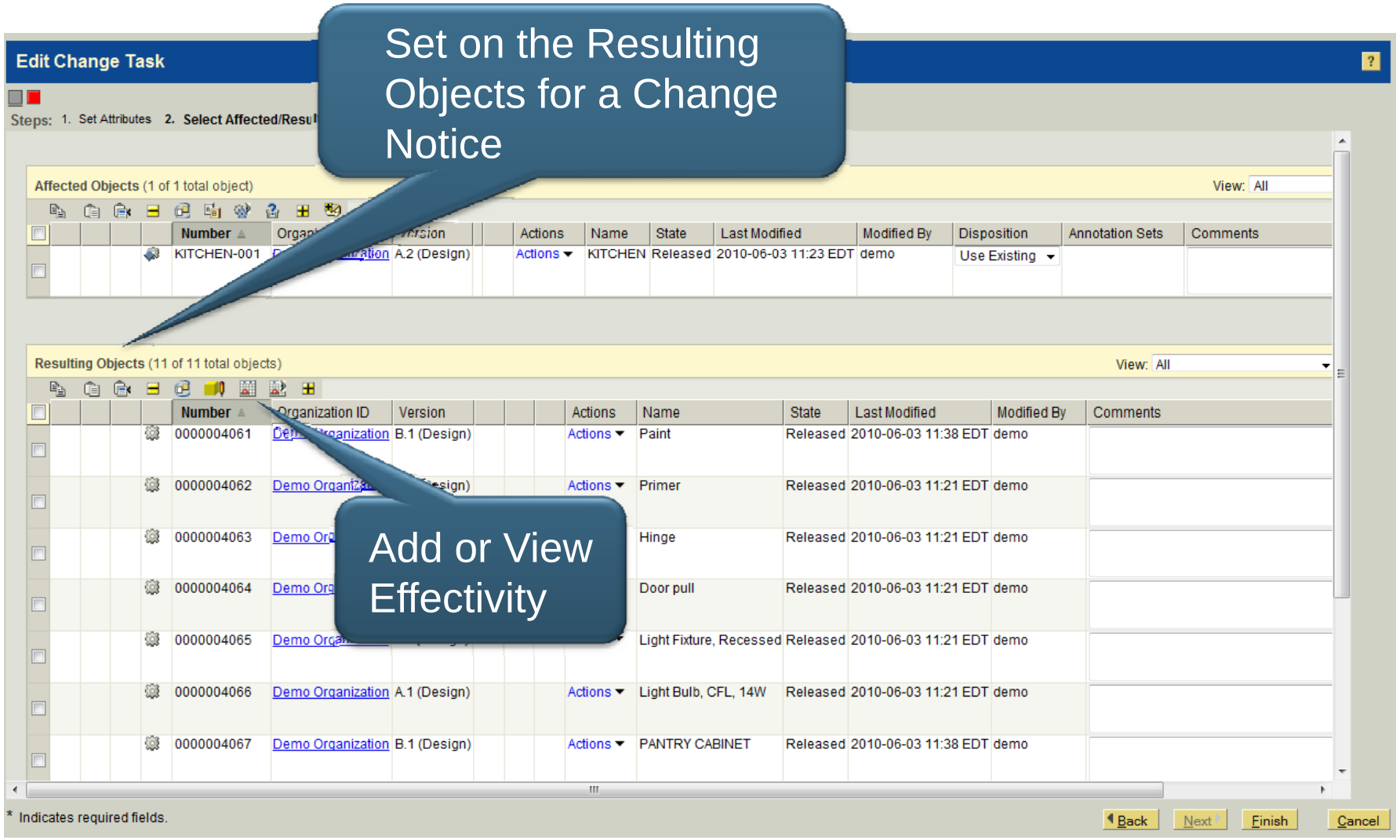


Effectivity – some examples

Serial Effectivity Example



Applying Effectivity



Applying Effectivity

Specify Effectivity on all selected Items

Specify Effectivity one at a time

Copy from one row to another

Set Effect

Define the ...ivity parameters for selected parts.

Set Effectivity (10 total objects)

Number	Organization ID	Version	Name	Effectivity Context	*Effectivity Type	Effectivity Qualifier	*Effectivity Range	Propagation
0000004061	Demo Organization	B (Design)	Paint		Date			No
0000004062	Demo Organization	A (Design)	Primer		Date			No
0000004063	Demo Organization	A (Design)	...ings		Date			No
0000004064	Demo Organization	A (Design)	...ing		Date			No
0000004065	Demo Organization	A (Design)	...re, Recessed		Date			No
0000004066	Demo Organization	A (Design)	..., CFL, 14W		Date			No
0000004067	Demo Organization	A (Design)	...CABINET		Date			No
0000004068	Demo Organization	B (Design)	PANTRY PULL OUT		Date			No
0000004069	Demo Organization	A (Design)	DOOR		Date			No
0000004070	Demo Organization	A (Design)	DRAWER		Date			No

Specifying Effectivity

Set the Context (determines if Date, Serial or Lot is available)

Select Effectivity type & set range

Information attribute (Exact or No Later than)

If Propagate preference is set, determine whether to use it and where to stop (i.e. Stop at the next lower level Serial traced Part)

Specify Effectivity

Effectivity context

Number: KITCHEN-001 Find... Clear

Organization ID Demo Organization

Name: KITCHEN

*Effectivity type: Serial

Effectivity qualifier:

*Effectivity range: 1-

Propagate effectivity through structure? No / Yes

Stop propagation at lower-level traceable objects?

* Indicates required fields.

OK Cancel

Release the Change and Effectivity is applied

Applied in the Workflow

Process Effectivities → Set State Released → Change Notice Complete Notification → Set State Resolved → Set Change Notice Resolution Date → End

Actions (Go to Latest) **Part** - 0000004064, Demo Organization, A

Name: Door pull
State: In Work - **Released** - Canceled
Status: Checked in
Modified By: demo on 2010-06-03 11:21 EDT
Location: / Config Management Demo / Effectivity
Default Trace Code: Serial Number
More Attributes

Structure | General | Related Objects | History | Collaboration

efine the effectivity parameters for selected parts.

Effectivity (2 of 2 total objects)

Number	Organization ID	Version	Name	Effectivity Context	Effectivity Type	Effectivity Qualifier	Effectivity Range
0000004064	Demo Organization	A (Design)	Door pull	KITCHEN, Organization ID:Demo Organiz: ...	Date		6/10/2010 -
0000004064	Demo Organization	A (Design)	Door pull	KITCHEN-001, Organization ID:Demo Organiz: ...	Serial		001 -

(0 objects selected)

Note Multiple Effectivity statements

Effectivity Sibling Propagation

Update the Effectivity on the next Revision and it closes the previous

In this example –

PANTRY CABINET, PN 4067 Rev C specified Serial Number 8 and higher

PANTRY Cabinet, PN 4067 Rev B was then set to Serial Number 1 – 7

Actions **Part** - 0000004067, Demo Organization, C.1 (Design)

Name: PANTRY CABINET
State: In Work - **Released** - Canceled
Status: Checked in
Modified By: demo on 2010-06-03 14:13 EDT
Location: / Config Management Demo / Effectivity
Default Trace Code: Serial Number
More Attributes

State: Released

Structure | General | Related Objects | History | Collaboration

Define the effectivity parameters for selected parts.

Effectivity (1 of 1 total object)

Number	Organization ID	Version	Name	Effectivity Context	Effectivity Type	Effectivity Qualifier	Effectivity Range
0000004067	Demo Organization	C (Design)	PANTRY CABINET	KITCHEN-001, Organization ID:Demo Organiz:	... Serial		008 -

(0 objects selected)

Effectivity (2 of 2 total objects)

Number	Organization ID	Version	Name	Effectivity Context	Effectivity Type	Effectivity Qualifier	Effectivity Range
0000004067	Demo Organization	B (Design)	PANTRY CABINET	KITCHEN-001, Organization ID:Demo Organiz:	... Serial		001 - 007
0000004067	Demo Organization	B (Design)	PANTRY CABINET	KITCHEN, Organization ID:Demo Organiz:	... Date		7/30/2010 -

(0 objects selected)

Be aware - Sibling Propagation …

Actions **Change Task** - 00082, A

Change Notice: Change Notice - 00082, A

Name: Incorporate new Junction exten…

Description: Set effectivity from 20/12/2007 onward

Assignee: Peter Product Manager

State: Open - Implementation - Under Review

More Attributes

General | Related Objects | History

Affected Objects (1 of 1 total object)

Number	Version	Acti	…me	State	Last
PTC-00001	A.5 (Design)	Acti	…tyo Assembly	Released	24/10.

(0 objects selected)

Resulting Objects (2 of 2 total objects)

Number	Version	Actions	Name
0000000582	A.1 (Design)	Actions	New Junction Extension
PTC-00001	B.2 (Design)	Actions	Cryo Assembly

(0 objects selected)

New rev of assembly, swapping in a new component.

Effectivity of these 2 new items set for 20/12/2007- with NO structure propagation

Rev A of assembly now has it's effectivity close down to the previous day

Effectivity (1 of 1 total object)

Number	Version	Name	Effectivity Context	Effectivity Type	Effectivity Qualifier	Effectivity Range
PTC-00001	A (Design)	Cryo Assembly		Date		24/10/2007 - 19/12/2007

(0 objects selected)

Effectivity (1 of 1 total object)

Number	Version	Name	Effectivity Context	Effectivity Type	Effectivity Qualifier	Effectivity Range
PTC-00001	B (Design)	Cryo Assembly		Date		20/12/2007 -

(0 objects selected)

Rev B of assembly is effective as specified in the change notice

… and the effect of Recursive Sibling Propagation … be careful ..

Change Management Baseline Report

Physical Object Number: PTC-00001

Date: 2007-12-24 11:13:46 GMT

Physical Object Name: Cryo Assembly

Physical Object Hierarchy						Supporting Documents							Changes		
Hierarchy	Part Number	Part Name	Org ID	Quantity	Units	Doc Type	Document Number	Org ID	Version	Release Date	Effective Date	Change Notice	A/D	Effectivity	Change Notice
0	PTC-00001	Cryo Assembly	Demo Organization	1.0	each		PTC-00001	Demo Organization	B.2	2007-12-24	20/12/2007 -	00082			
1	0000000544	Cryo Fitting	Demo Organization	1.0	each		0000000544	Demo Organization	A.1		24/10/2007 - 19/12/2007				
1	0000000582	New Junction Extension	Demo Organization	1.0	each		0000000582	Demo Organization	A.1	2007-12-24	20/12/2007 -	00082			
1	0000000564	Link	Demo Organization	1.0	each		0000000564	Demo Organization	A.1		24/10/2007 - 19/12/2007				
1	0000000542	Bottle	Demo Organization	2.0	each		0000000542	Demo Organization	A.1		24/10/2007 - 19/12/2007				

NOTE: The closure of effectivity on version A of the assembly has propagated down to it's components, which are also re-used in version B

So if you were wondering why propagation is only available as part of the change process, here is a good example why – the result of effectivity propagation need to be considered and hence this why we use a change process to manage this …

Ad-hoc Effectivity

Effectivity can be edited, added or remove on the Part Info Page

- Why?
  - Last minute changes in delivery or production schedule
  - Typo in Change Notice

Using Effectivity

Similar to Baselines, Effectivity can be used to:

- Set the Configuration Specification to show product structure in PSE, PSB
- Determine the items to gather using the Collector
- Determine what to compare in Multi-Level BOM Compare
- Change Mangement Baseline Report

Change Management Baseline Report

Physical Object Number: KITCHEN-001
Physical Object Name: KITCHEN
Date: 2010-06-03 16:17:39 EDT

Physical Object Hierarchy						Supporting Documents						Changes		
Hierarchy	Part Number	Part Name	Org ID	Quantity	Units	Doc Type	Document Number	Org ID	Version	Release Date	Effectivity Context/Effective Date	Change Notice	A/D	Effectivity	Change Notice
0	KITCHEN-001	KITCHEN	Demo Organization	1.0	each		KITCHEN-001	Demo Organization	C.1	2010-06-03	KITCHEN-001 8/25/2010	00521			
1	0000004068	PANTRY PULL OUT	Demo Organization	1.0	each		0000004068	Demo Organization	D.1	2010-06-03	KITCHEN-001 8/25/2010	00521			
1	0000004070	DRAWER	Demo Organization	12.0	each		0000004070	Demo Organization	C.1	2010-06-03	KITCHEN-001 8/25/2010	00521			
1	0000004063	Hinge	Demo Organization	28.0	each		0000004063	Demo Organization	B.1	2010-06-03	KITCHEN-001 8/25/2010	00521			
1	0000004061	Paint	Demo Organization	4.0	liters		0000004061	Demo Organization	D.1	2010-06-03	KITCHEN-001 8/25/2010	00521			
1	0000004067	PANTRY CABINET	Demo Organization	2.0	each		0000004067	Demo Organization	D.1	2010-06-03	KITCHEN-001 8/25/2010	00521			
1	0000004065	Light Fixture, Recessed	Demo Organization	1.0	each		0000004065	Demo Organization	C.1	2010-06-03	KITCHEN-001 8/25/2010	00521			
1	0000004069	DOOR	Demo Organization	4.0	each		0000004069	Demo Organization	C.1	2010-06-03	KITCHEN-001 8/25/2010	00521			
1	0000004062	Primer	Demo Organization	4.0	liters		0000004062	Demo Organization	B.1	2010-06-03	KITCHEN-001 8/25/2010	00521			
1	0000004066	Light Bulb, CFL, 14W	Demo Organization	1.0	each		0000004066	Demo Organization	B.1	2010-06-03	KITCHEN-001 8/25/2010	00521			
1	0000004064	Door pull	Demo Organization	14.0	each		0000004064	Demo Organization	C.1	2010-06-03	KITCHEN-001 8/25/2010	00521			

Configuration Management 101

Configuration Basics –

- Why we need these tools

Baselines

Effectivity

Configurations

Appendix

- Preferences

Configurations & Instances

Configurations are used to define the versions of the parts used to create a Part Instance.

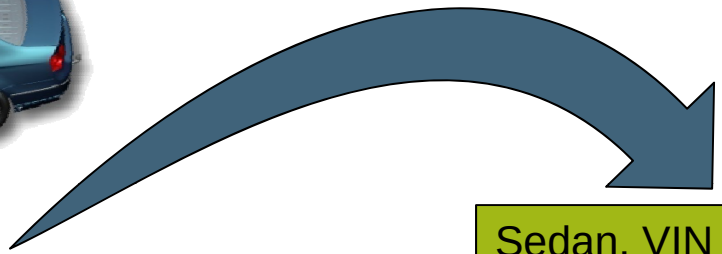
- The Part configuration allows you to track the versions of parts that are used to manufacture a specific line of end item parts for record keeping and ongoing maintenance of that end item part in the field.

An instance identifies, by serial number, a unique manufactured instance of a part, built according to a specific configuration. It allows you to identify exactly which part is used in that instance. Once the end item is built, the instance becomes a record that can be used to indicate changes to that particular copy of the end item part while it is in service. If the instance is changed (for example, one part is replaced by another), the replacement part is recorded in the instance.

Part instances can be created for parts that are traced by:

- Serial Number
- Lot Number
- Lot and Serial Number

Easier to show….



- Sedan, Rev A
  - Chassis, Rev A
  - Engine, Rev B
  - Transmission, Rev A
  - Interior, Rev C
- Sedan, VIN XYZ10
  - Chassis, Rev A
  - Engine, SN-10028
  - Transmission, SN-10
  - Interior, Rev C

But wait – what about Effectivity?

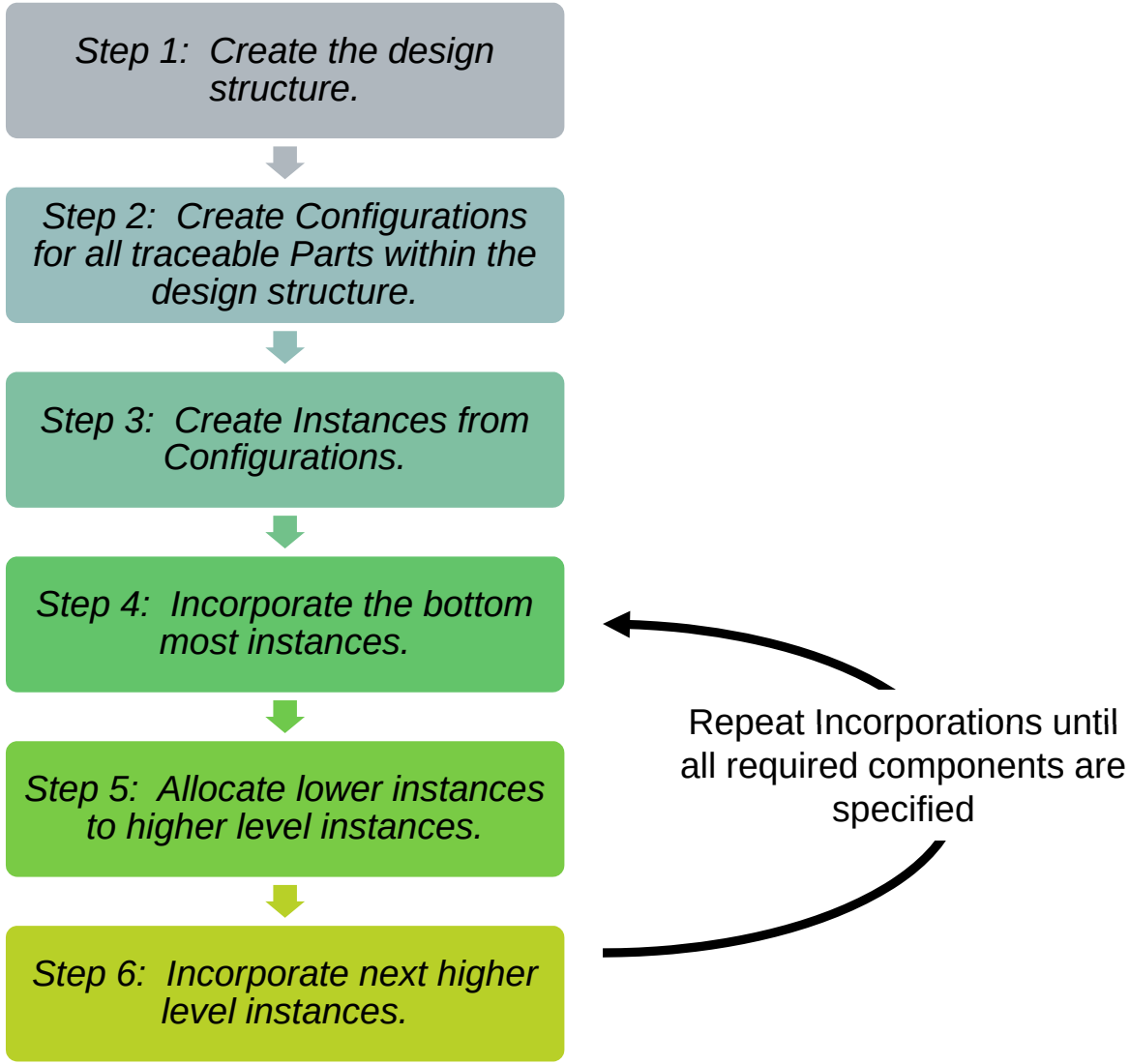
Effectivity tells you what ranges of Serial or Lot numbers can be used for a given revision

Instances track exactly which Serial or Lot number are used for a specific manufactured item.

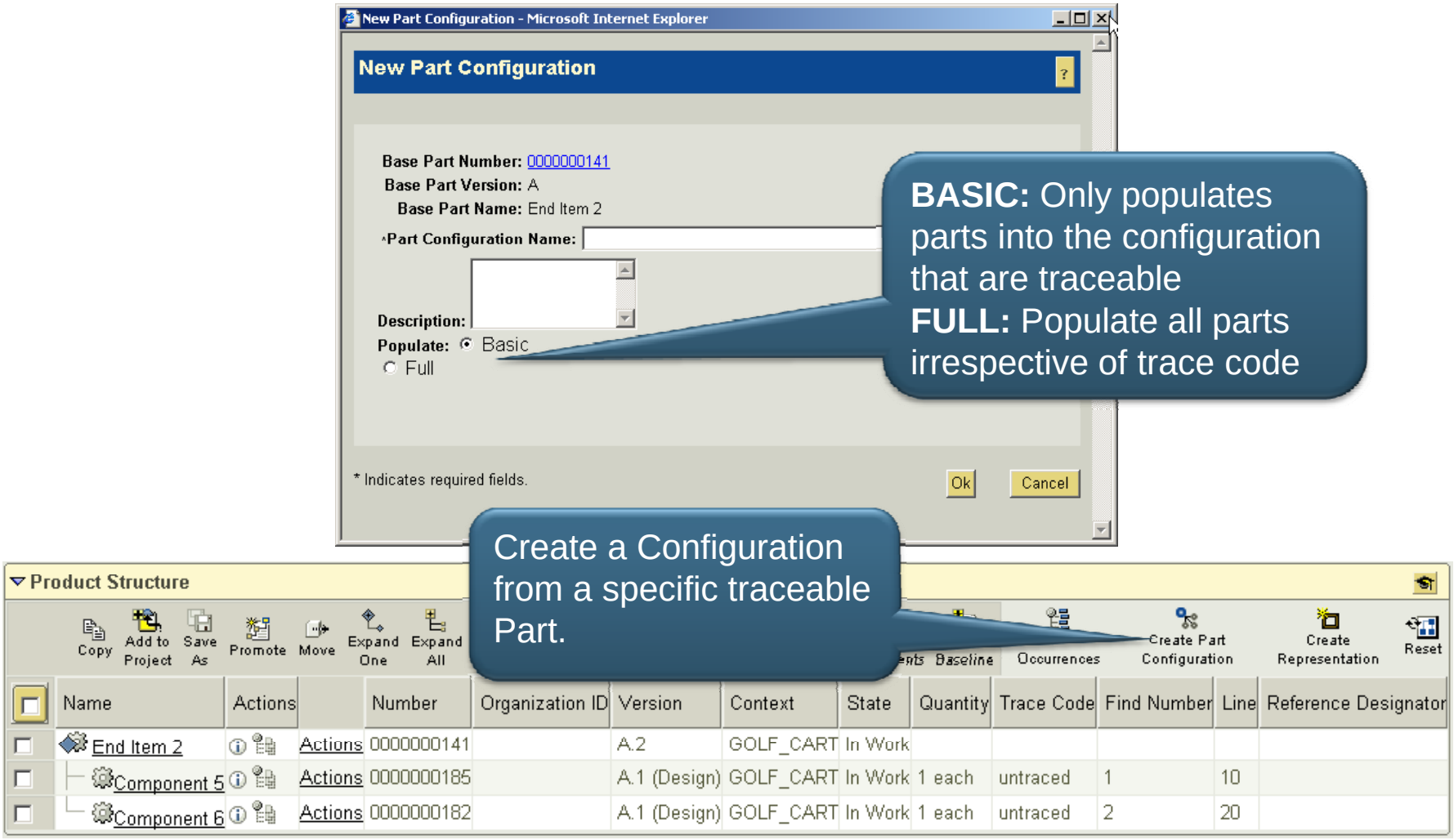
Example uses for Configurations and Instances:

- There is a need to trace which components are in which fielded item
- There is a need to trace components for warranty, regulatory or customer requirement

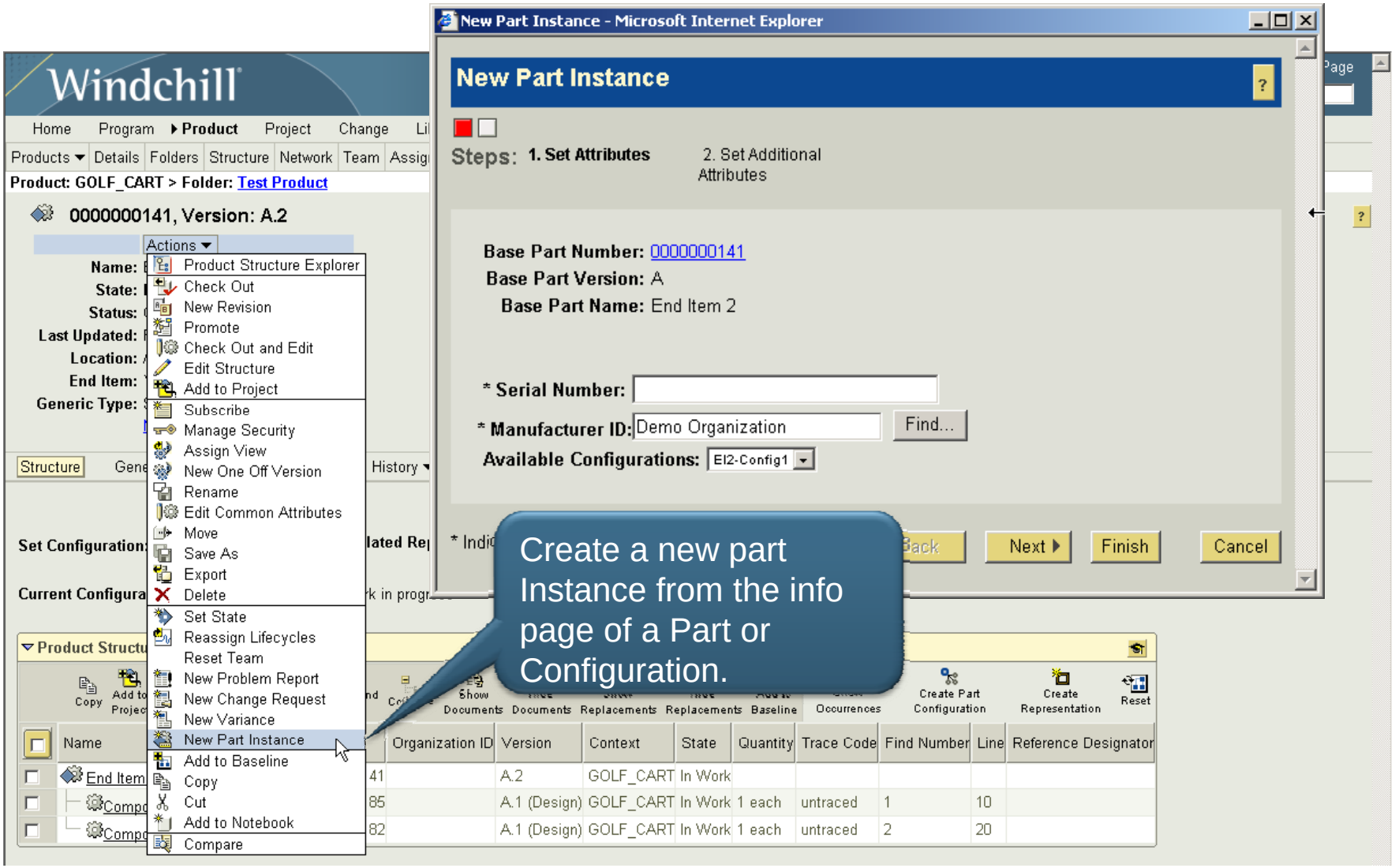
Steps in Configurations and Instances



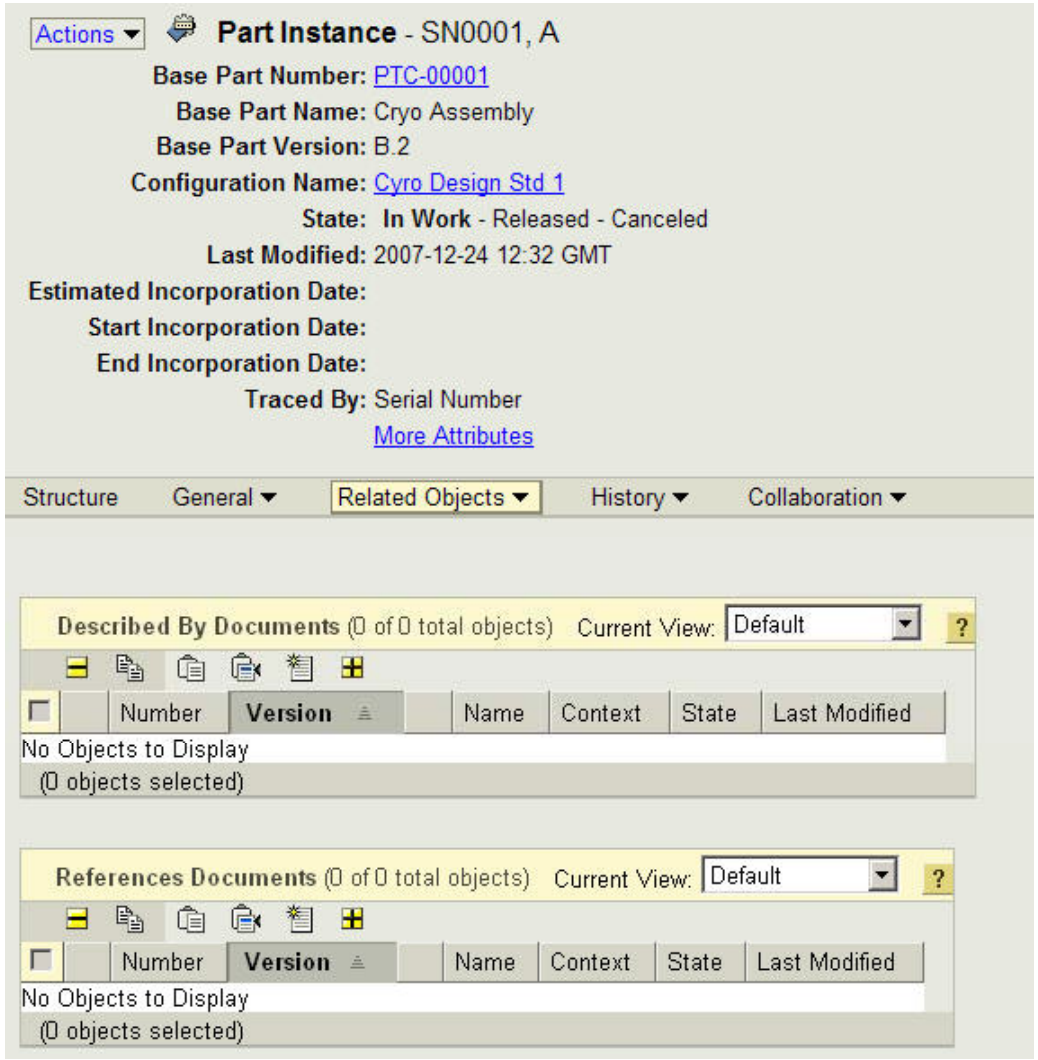
Creating the Configuration



Creating the Instance



Part Instances – Support Documents



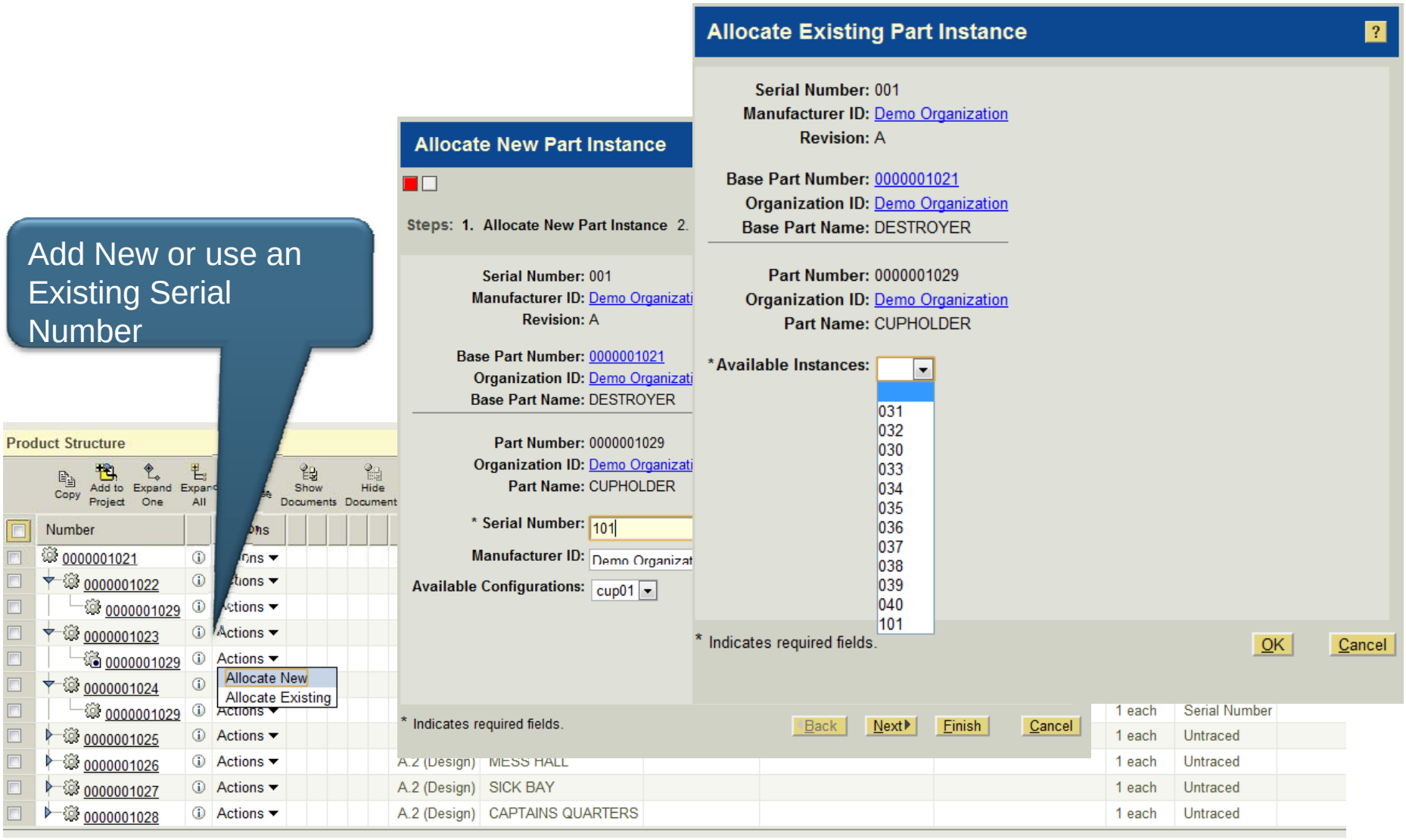
Use Cases

- Test Results
- Conformance Certification
- Repair Records
- Calibration Records

Also relate to Change objects:

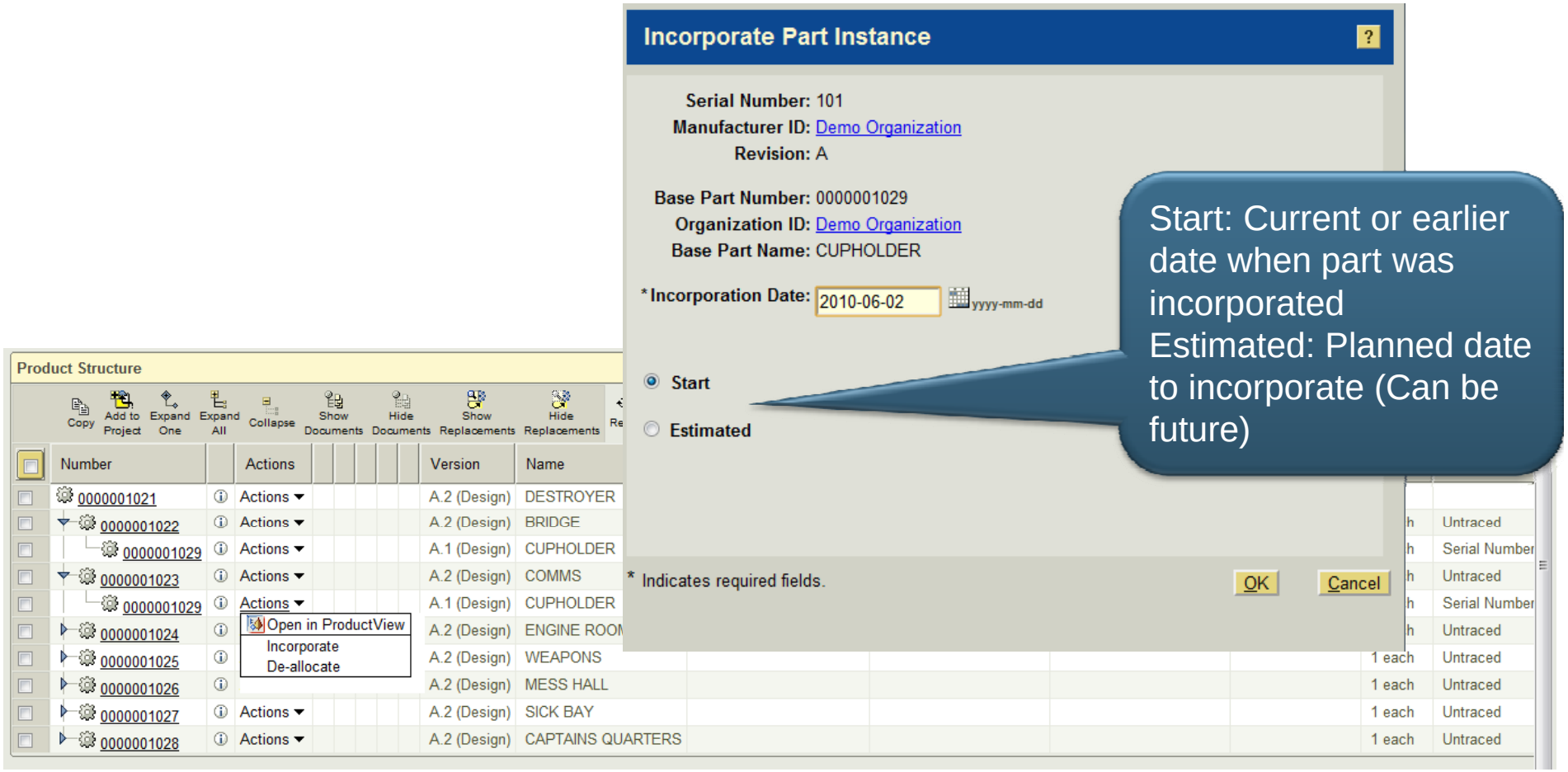
- Variances
- Problem Reports
- Change Requests
- Change Notices

Allocating a Part



Incorporating the Part

What date did the part go into service



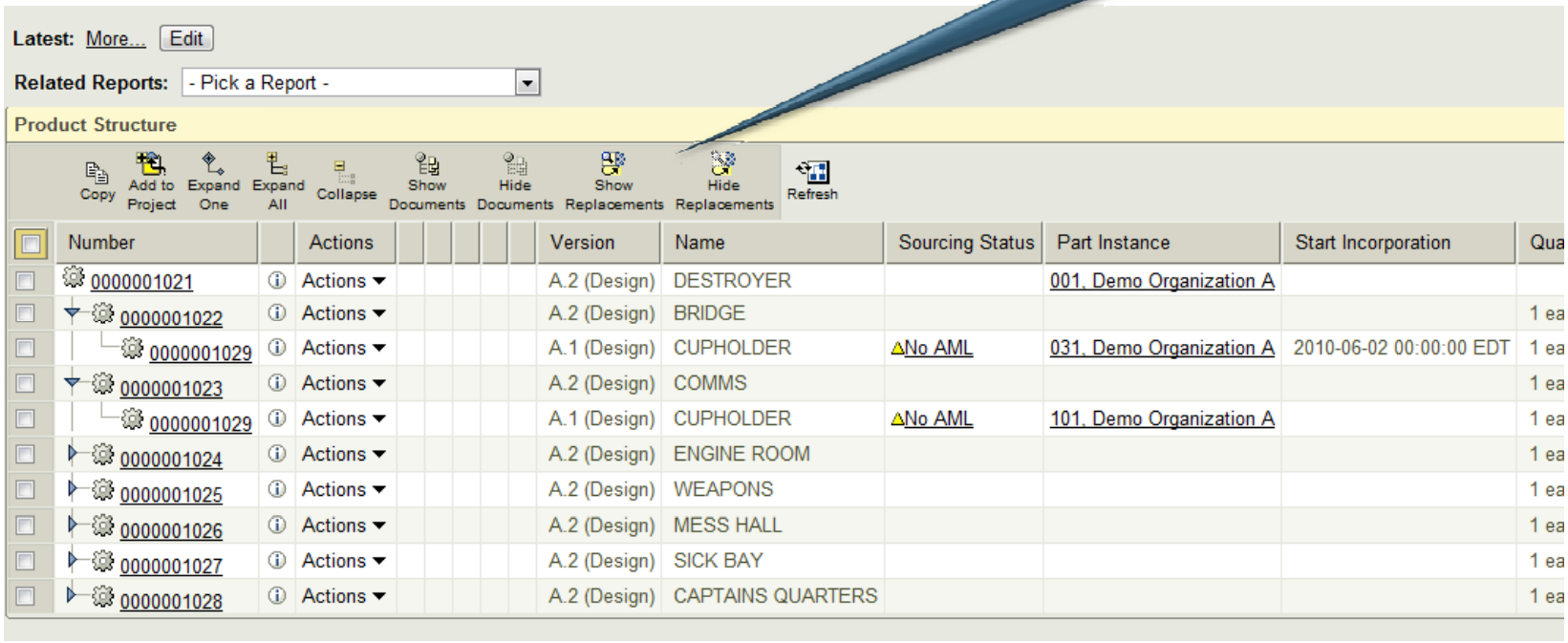
Instance Details

Instances Can support Soft Attributes

Parts in Instances can be updated:

- With new Revisions
- With Alternate and Substitues

Replacements shows Alternates and Substitutes



Number	Actions	Version	Name	Sourcing Status	Part Instance	Start Incorporation	Qua
0000001021	Actions	A.2 (Design)	DESTROYER		001, Demo Organization A		
0000001022	Actions	A.2 (Design)	BRIDGE				1 ea
0000001029	Actions	A.1 (Design)	CUPHOLDER	⚠No AML	031, Demo Organization A	2010-06-02 00:00:00 EDT	1 ea
0000001023	Actions	A.2 (Design)	COMMS				1 ea
0000001029	Actions	A.1 (Design)	CUPHOLDER	⚠No AML	101, Demo Organization A		1 ea
0000001024	Actions	A.2 (Design)	ENGINE ROOM				1 ea
0000001025	Actions	A.2 (Design)	WEAPONS				1 ea
0000001026	Actions	A.2 (Design)	MESS HALL				1 ea
0000001027	Actions	A.2 (Design)	SICK BAY				1 ea
0000001028	Actions	A.2 (Design)	CAPTAINS QUARTERS				1 ea

Wrap-Up

We covered three ways to help manage Configurations

- Baselines
- Effectivity
- Configurations and Instances

There is no one size, one answer solution

- Evaluate and Plan for your needs
- War game real world examples in test environments
- Consider downstream and upstream needs

Customer Visits

Every year, PTC Product Management visits hundreds of customers

Purpose of Visits

- Listen to your needs
- Understand your processes and products

You can help shape the future of PTC products!

Interested in hosting a PTC customer visit?

- Email your Product Manager
- Drop off a business card with customer visit written on the back

”Courage is what it takes to stand up and speak; Courage is also what it takes to sit down and listen”

- Winston Churchill

Email me at:

- jzemsky@ptc.com

Questions?

Configuration Management 101

Configuration Basics –

- Why we need these tools

Baselines

Effectivity

Configurations

Appendix

- Preferences

Preferences for Effectivity

Preference	Values	Description
Enable Recursive Sibling Propagation	Yes/No	Enables propagation of effectivity statements down a product structure for statements which result from a sibling propagation operation.
Enable Sibling Propagation	Yes/No	Enables propagation of effectivity statements to siblings.
Enable Structure Propagation	Yes/No	Enables propagation of effectivity statements down a product stucture.
Include Work in Process Parts for Part Configuration Specification for Structure Propagation	Yes/No	Includes work in process parts for the part configuration specification used in structure propagation of effectivity statements.
Lifecycle State of Part Configuration Specification for Structure Propagation	Released	Lifecycle state of the part configuration specification used in structure propagation of effectivity statements.
Lot number format	wt.eff.format.DefaultUnitEffFormat	Lot number format
Serial number format	wt.eff.format.NumericUnitEffFormat	Serial number format
View of Part Configuration Specification for Structure Propagation	(Select from Views or blank)	View of the part configuration specification used in structure propagation of effectivity statements.

Effectivity Format - wt.eff.format.NumericUnitEffFormat

This format supports fixed-length (max. length of 18) effectivity statements consisting of only numerical digits (0-9).

Use this format if your unit effectivity statements consist of only numbers and have a fixed length. This format implements the various comparisons and range arithmetic logic by converting the range value to an equivalent number. Hence all range value characters must be digits (0-9)

This format accepts the following configurable parameters:

- **Length**
  - Description: Enforces effectivity statements adhering to this format, to have a fixed length. This format supports a maximum length of 18 digits.
  - Type: Positive Integer (Number), less than 18.
  - Special Values: 0. This value states that the effectivity range values do not have a fixed length.
  - Required: Yes
  - Default: N/A
  - Examples: 3, 6, 8.

Effectivity formats in this package are driven by parameters that dictate operations they support. See the Windchill Customizer's Guide for explanation on how to specify the format a traceable business object supports along with the parameters it accepts.

Example:

wt.eff.format.NumericUnitEffFormat| length=3

Gives Serial effectivity of length 3 – numbers 000 - 999

Effectivity Format - wt.eff.format.DefaultUnitEffFormat

This format represents the default format for unit effectivity statements if no other effectivity format is supplied and thus acts like a placeholder. Since it is unaware of the actual format of effectivity statements, it provides rudimentary implementations of the various format-related operations.

This format accepts the following configurable parameters:

•length

- Description: Enforces effectivity statements adhering to this format, to have a fixed length.
- Type: Positive Integer (Number).
- Special Values: 0. This value states that the effectivity range values do not have a fixed length.
- Required: No (If not specified, range values can have an arbitrary length)
- Default: 0
- Examples: 3, 6, 8.

•contains-whitespace

- Description: Specifies whether effectivity range values contain space(s).
- Type: Boolean.
- Required: No (If not specified range values can contain space characters)
- Default: true. Allows spaces to be part of the effectivity range values.
- Other values: false. Does not allow spaces to be part of effectivity range values.

Effectivity formats in this package are driven by parameters that dictate operations they support. See the Windchill Customizer's Guide for explanation on how to specify the format a traceable business object supports along with the parameters it accepts.
The only parameter this format supports is the length of effectivity range values.
Use this effectivity format, if you do not intend to take advantage of any of the format-related capabilities like range value validation, comparisons and range arithmetic.


PTC
PTCuser
WORLD EVENT
2010
2010