

PTC® Live Global

CUST 202 - Import Data Doctor

For the rest of us

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About this presentation

PTC® Live
Global

- Mark Ganzer
 - CAE Application support at Harris
 - mganze01@harris.com
 - PTC software user for 25 years
- Not an Import Data Doctor Expert
 - You shouldn't have to be either...
- There are a core set of tools within Import Data Doctor we'll concentrate on
 - Most of what you need to do is there





RF Communications

Tactical and land mobile radios, systems and networking applications.

Primary Markets:

- U.S. Tactical Radios
- International Tactical Radios
- Public Safety

Sample Customers:

- U.S. Department of Defense
- NATO Military Forces
- State and Local Governments



Integrated Network Solutions

IT services, managed services, and clinically integrated solutions.

Primary Markets:

- IT Services
- Energy
- Healthcare

Sample Customers:

- U.S. Government
- Energy Providers
- U.S. Dept. of Veterans Affairs



Government Communications Systems

Advanced technology and systems integration.

Primary Markets:

- Civil
- National Intelligence
- Defense

Sample Customers:

- U.S. Department of Transportation
- U.S. Intelligence Community
- U.S. Department of Defense

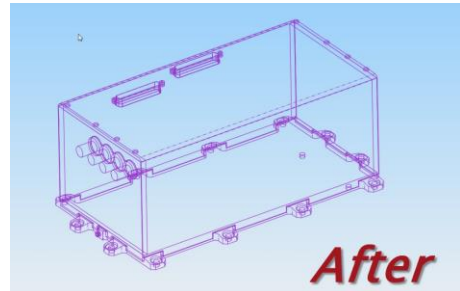
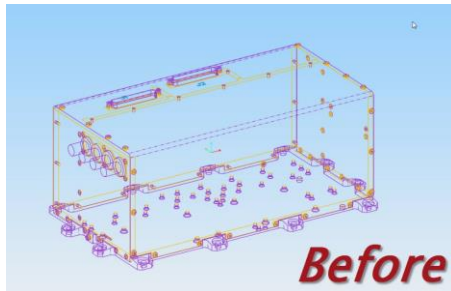
- Move in Jan 2015
- 6 Floors
- 464,000 ft²
- 8 Elevators
- 1480 employees
- 300 seat cafeteria
- State of the art conference facilities
- LEED Silver certification
- LED lighting
- Smart meeting rooms with AirMedia content sharing
- Ergonomic furniture and fixtures



About Import Data Doctor (IDD)

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- Import Data Doctor is an environment and set of tools for editing imported geometry
 - Largely devoted to surfaces, edges, and corrections that will allow for solidification
- Imported geometry can have a host of issues
 - Missing surfaces
 - Duplicate surface
 - Disjoined surfaces
 - Unwanted detail

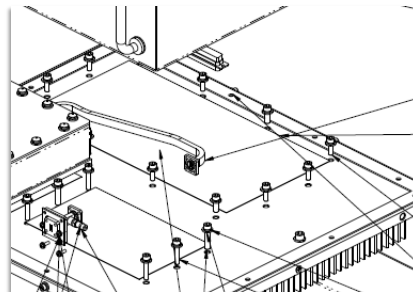
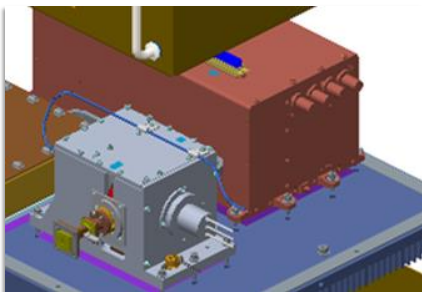


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Drawing Issues

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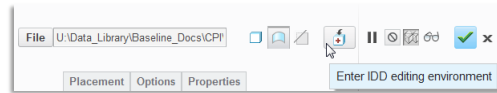
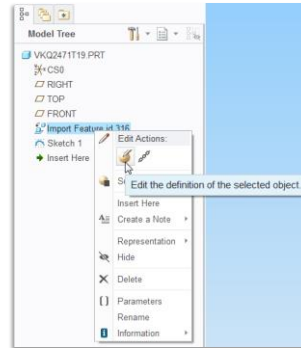
- Import geometry problems can lead to puzzling drawing issues with hidden line calculation



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Launching IDD

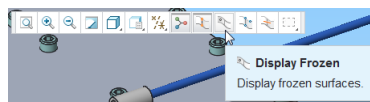
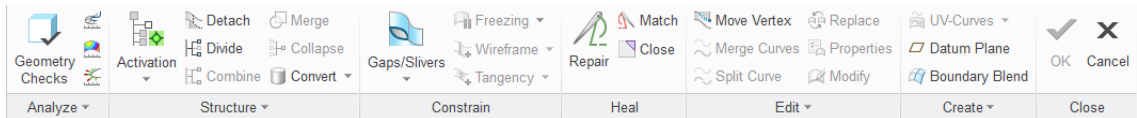
- Begin by editing the definition of the import feature in the model tree
 - At this point you're in the import feature dashboard
- IDD is launched by choosing entering the IDD Environment button in the dashboard



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The IDD Dashboard

- The IDD dashboard is full of buttons that you largely won't have to use
 - For the most part you'll be interested in the Constrain & Create areas
 - Lots of right mouse button shortcuts
- There are additional picks in the in-graphics tool bar
 - These picks are enabled for an activated node only
 - These are about displaying wireframe, vertex, and surface information
 - Activating a node will be covered in gap fixing



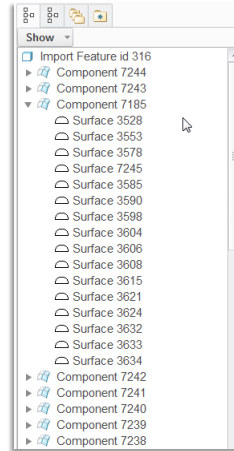
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- The Geometry & Topology Structure (GTS) tree
- Imported geometry is organized into nodes
 - Individual surfaces are grouped under nodes
 - Nodes generally represent sub components in an assembly
- Reorganization
 - You can drag and drop the order of nodes
 - Surfaces can be moved to nodes
 - Surfaces can be moved to a different node
- Geometry within a node will do its utmost to resolve itself



Trick

– Use the power of the node rather than external surfacing tools when possible

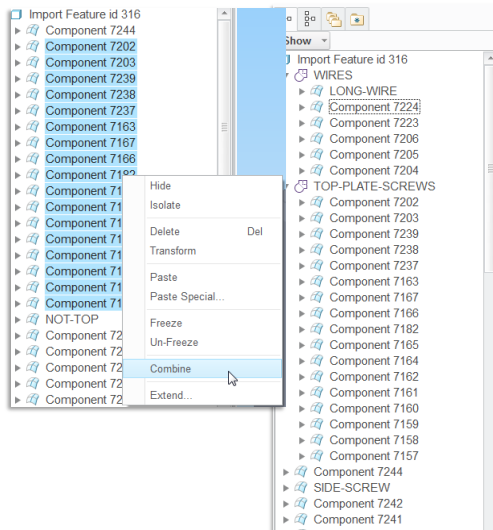
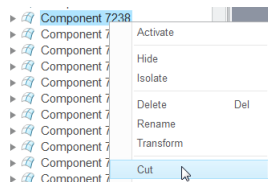


Combine

- Group nodes together for organizational purposes
- Works like the group command for features in Creo
 - Once you have a combine set up you can drag new nodes into it
- Can copy/paste nodes into combines as well
 - You *cannot* copy a surface that is inside a combine feature

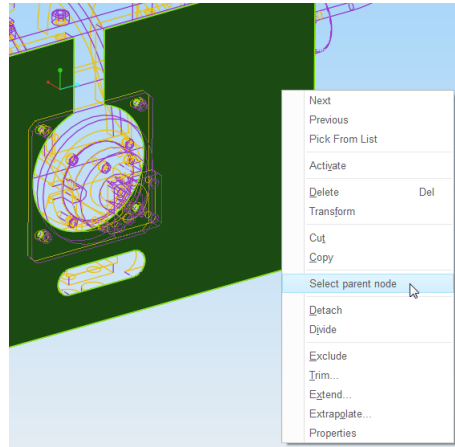


Trick



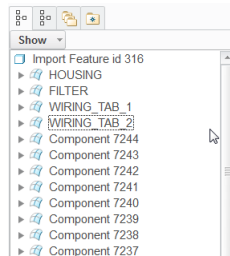
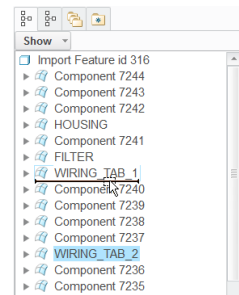
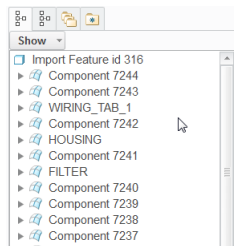
What Node?

- What node does geometry belong to?
 - Select surface
 - From right mouse button pop up menu choose Select parent node
- Node highlights in GTS Tree



Reorganize Structure

- Nodes can be named
 - If you're going to be working a model for a while this can be handy
- Nodes can be re-ordered
 - Place nodes you are working on together in the GTP tree
- Place a node you are repairing at the top of the GTP tree
 - It is easier to find and add surfaces to it

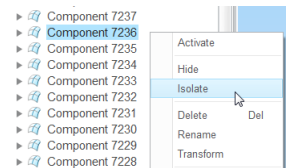
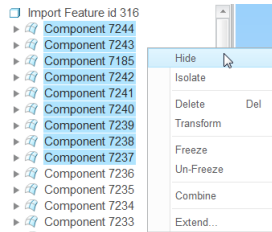
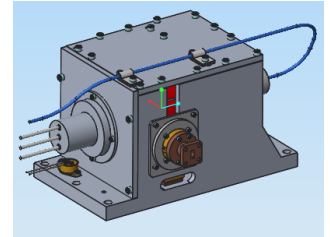
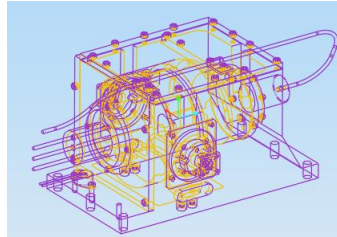


Visibility

- It is easiest to work with wireframe mode
- Shaded with edges is a good second mode
- Hide the visibility of nodes you are not working on or are otherwise in the way
- The Isolate command hides all nodes not selected
 - You can use isolate with several nodes selected



Trick

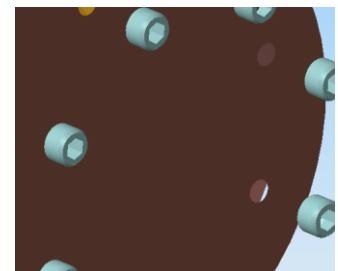
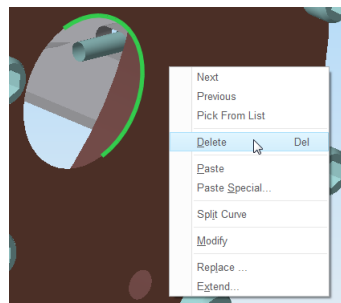
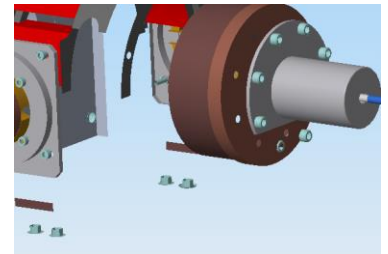
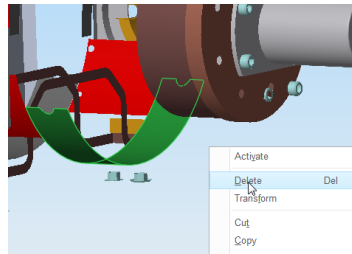


Removing Surfaces & Edges

- Individual surfaces and edges can be removed
 - Node need not be activated
 - Can delete from any node
 - Use CTRL to select multiple surfaces
- Removing an edge causes node to reevaluate itself
 - Removing the edge of an opening cause the opening to collapse
- Default selection filter is “Geometry”



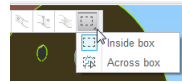
Trick



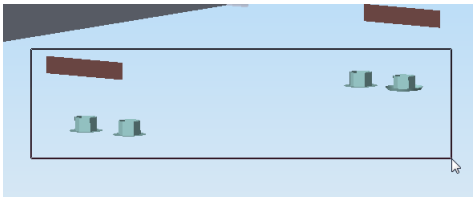
Multiple Selection



- By setting the selection filter from smart to a single entity type the pick box tool is activated
 - Default is inside box, but across box can be chosen instead

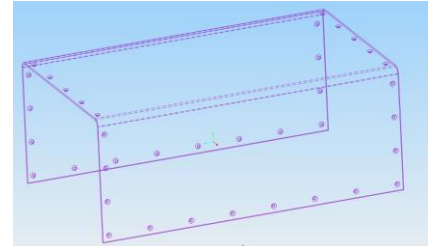
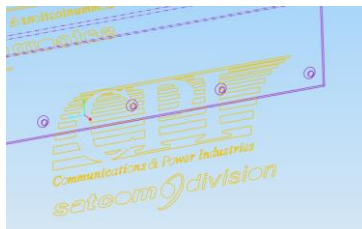


- Selected items can then be deleted



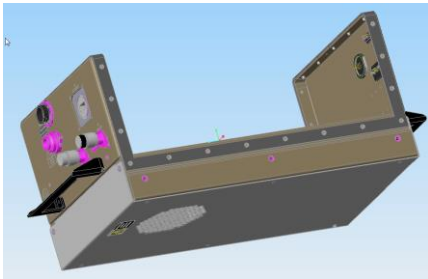
Simplifying Models

- By removing surface you can streamline models
 - Reduce file size
 - Decrease regeneration time
- Use the pick box mode
 - Remove remaining edges
 - Within node the surface will resolve and not leave gaps
- There is no parent child relationship between “components”
 - There are no assembly constraints
 - Remove a hole w/o the hardware in it failing

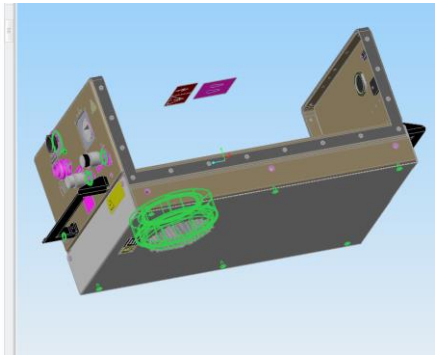


Removing Detail

- You can remove entire component nodes
 - Reduce file size
 - Decrease regeneration time
 - Same lack of parent/child issues apply to entire nodes as well



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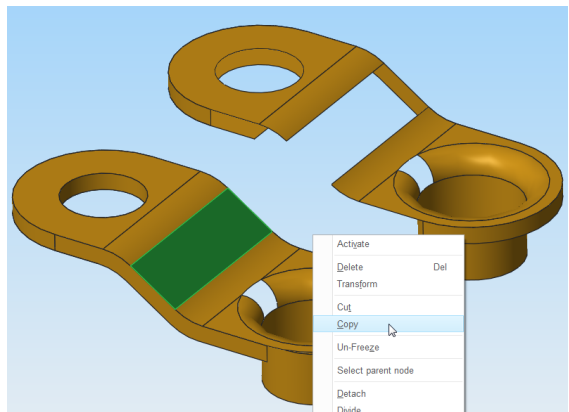
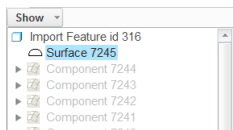
Copy/Paste

- Existing surfaces can be copied
- Trick
 - Pasting adds a new surface to the GTS
 - New surface can be moved to a different node
 - Think outside the node
 - Copy what you have to use where it's missing
 - Leverage existing surfaces where possible
- Pasted surface appears at top of GTS tree



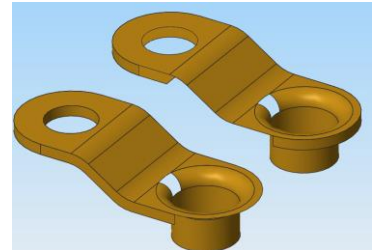
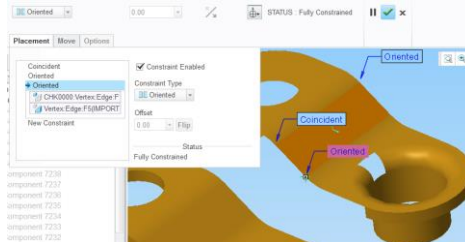
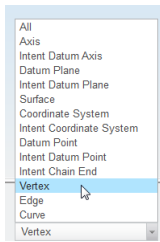
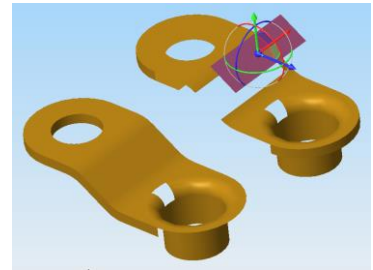
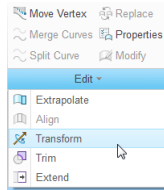
Pasting adds a new surface to the GTS

- New surface can be moved to a different node
 - Think outside the node
- Copy what you have to use where it's missing
- Leverage existing surfaces where possible



Transform

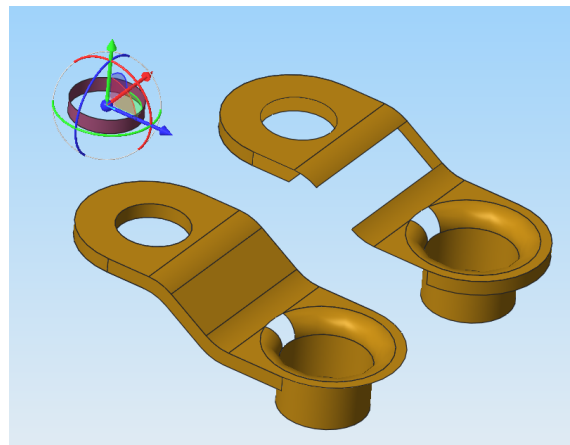
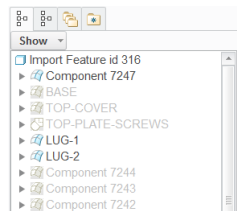
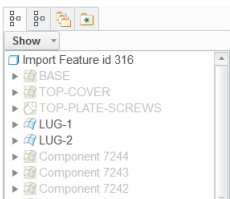
- The transform tool lets you move the new surface
 - With new surface chosen pick Transform
 - Drag and drop close to location
 - Assemble to model
 - Vertex to vertex constraints are very effective
 - Be sure to move surface to desired node



Copy/Paste Special

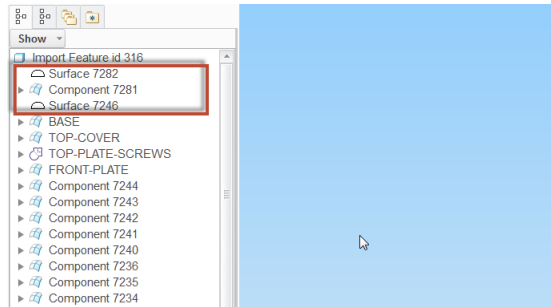


- Using paste special puts you into the transform of the copy
- Copy will not appear in GTS tree until it is constrained



New Surfaces

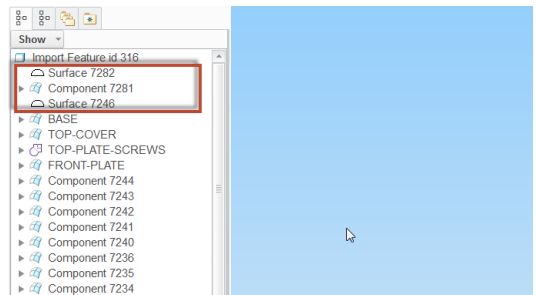
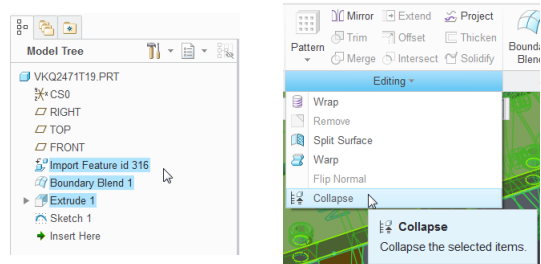
- Newly created surfaces can be added to structure
 - All new surfaces appear at top of GTS tree
- The only surface tool within IDD is the surface by boundaries
 - These are automatically added to GTS tree
- Externally created surfaces
 - Single surfaces come in as a surface
 - Feature with multiple surfaces come in as a new node
 - All normal surface creation tools can be used and later placed in IDD mode via collapse tool
- Surfaces will still need to be placed in the correct node



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Collapsing Geometry

- Newly created external surfaces can be collapsed into the import
 - Single surfaces come in as a surface
 - Quilts come in as a new node
- Collapse commands done in regular PTC Creo mode
 - Not in redefine of import feature



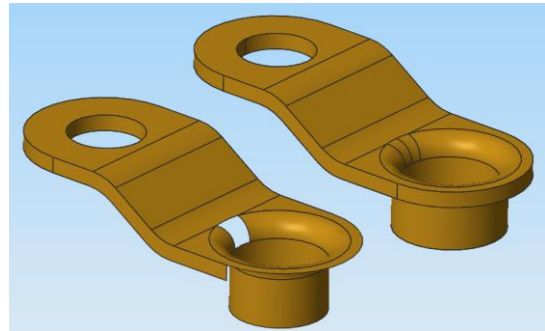
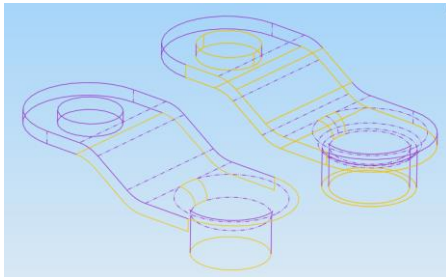
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Merging Surfaces

- Surfaces created within, or collapsed into, need to be merged into the import structure
 - Merge a surface into others by moving it into that node
- Component to the right looks intact in shaded mode

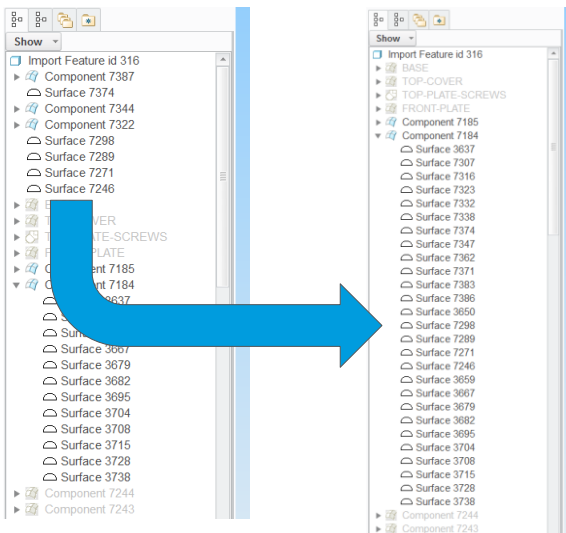
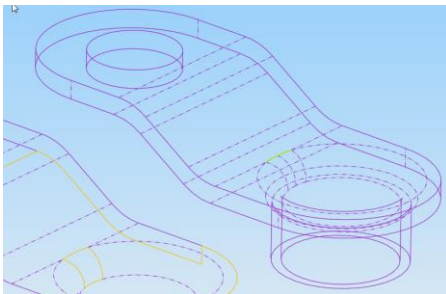


– The wireframe tells a different story



Merging Surfaces

- Surfaces created and collapsed, and surfaces transformed to the component location are *not* part of the node
- Move surface to node so they are associated
- System will repair and merge all that it can for you

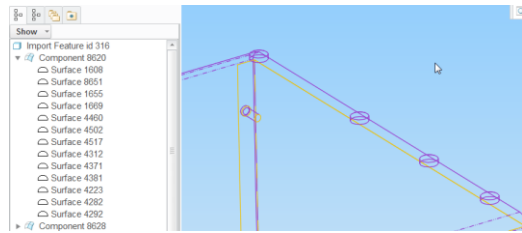
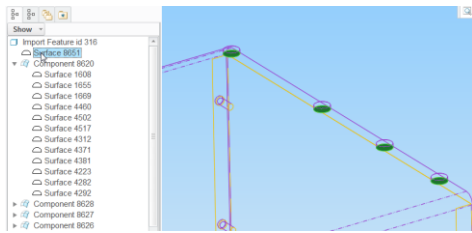
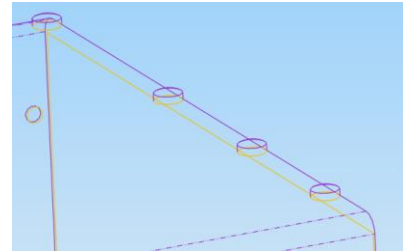


Minimize New Surfaces Technique

- You can move the surface from one node into another node
 - This can consolidate tree and reduce clutter
 - You can also minimize the number of fill surfaces needed for patching
- EX: Four screw heads are four separate nodes
 - Would required four separate circular fill surfaces and four repair steps
- Place all surfaces into one node
 - Create one fill surface with four circular entities

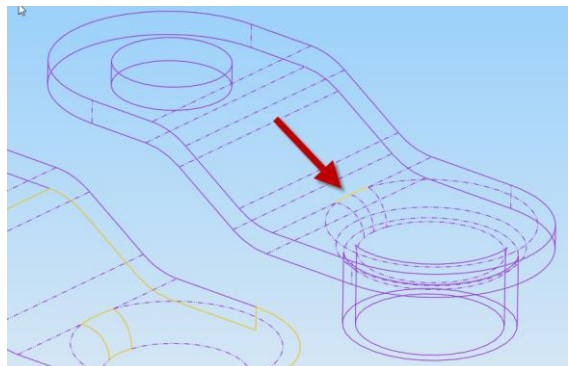


Trick



Zippping Gaps

- Gaps may exist between surfaces
 - Poor import
 - Gap outside of scope if import settings
- Gaps show in yellow in wireframe
 - Can be very difficult to detect in shaded mode
- Gaps need to be zippped before a model or node will solidify
- Gaps can be found using search tool or manually defined by the user
- Activate node for component you're zippping

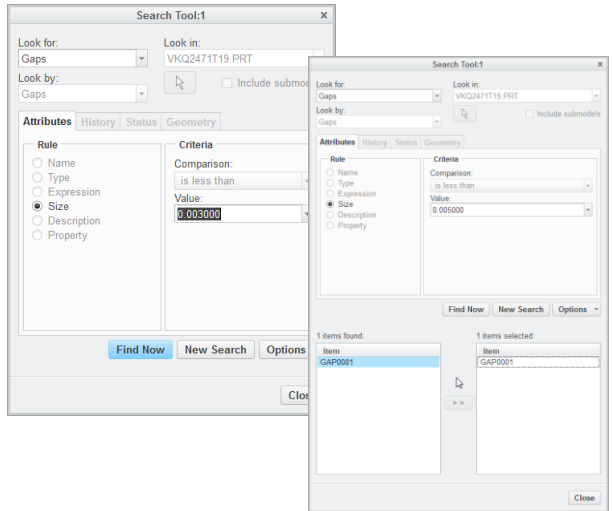


Search for Gaps

- Open search tool with icon or CTRL+F
- Look for gaps
 - Value setting automatically comes in with setting for gaps used to fix on import
 - Values this size or smaller will find nothing
 - Set gap for a larger size
- Hit Find Now
- Move gaps from found to selected using arrow
- Close search tool

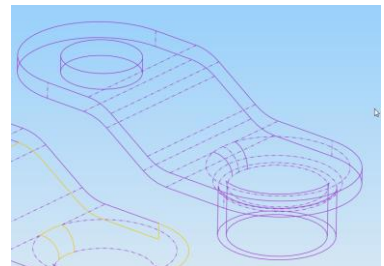
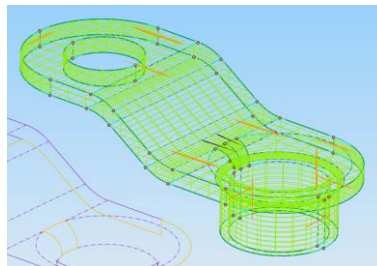
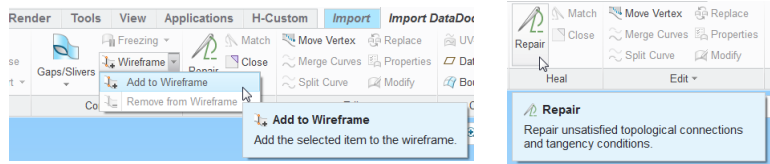


Trick



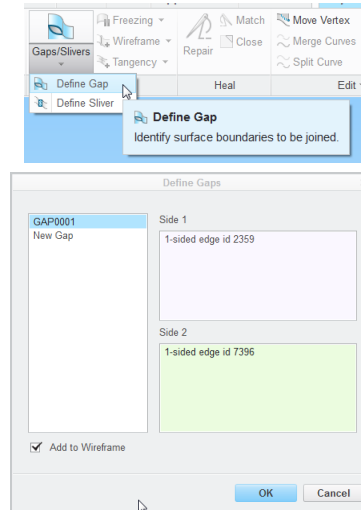
Repair the Gap

- Add gap to active wireframe
- Repair the gap
 - Accept the conditions
 - Finish the repair
- Gap is closed
- W/O gaps the node should solidify



User Defined Gap

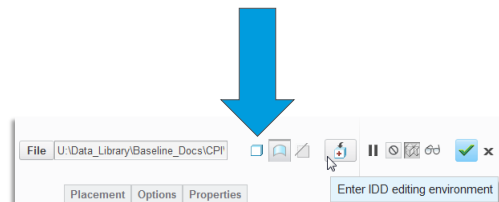
- Gaps can be defined if search does not identify them
- Active the desired node
- Use the Define Gap
- Specify each side of the gap by choosing edges
- Add new gaps to fix additional instances
- Ensure Add to Wireframe is checked
- Repair as with a found gap



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Solidifying Imports

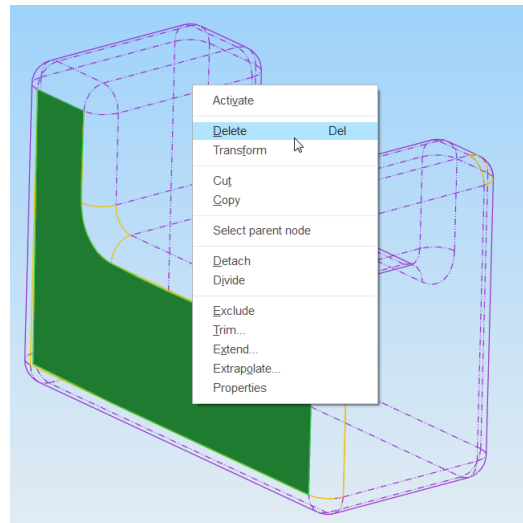
- Once you have all defects repaired you can solidify the import within the redefine
- Convert the import feature from surface to solid within the redefine



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Partial Use

- Don't feel you need to solve the world's problems within IDD
 - Use it to get rid of problems
 - Create needed new surfaces using standard PTC Creo tools
 - Merge surfaces
 - Collapse new surface into import
 - Solidify normally



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The basic rule of IDD



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- Your feedback is valuable
- Don't miss out on the chance to provide your feedback
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