

## ML-115-1P Create Your Own Content Center In Autodesk Inventor

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**ML-115-1P** Learn how to create components and categories in Autodesk Inventor 2009 Content Center. This class will illustrate the steps required to convert standard Inventor parts to Content Center components while creating all new defined categories within Content Center. Learn how to move existing Content Center components into a custom library of your choosing. Supercharge Content Center performance with the tips and workflows obtained from this class.

### Session Highlights:

- Lifting the curtain on Content Center
- Creating a Custom Library
- Creating Categories
- Creating Component Families
- Converting iParts to Content Center components
- Improving Content Center performance
- Moving existing Content Center components

### About the Speaker:

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## Lifting the Curtain on Content Center

Content Center provides a database interface for user configurable parts. The database allows Inventor to do rapid searches for specific parts, and then to quickly create the selected part from the attached table. Once located, the selected content center part behaves in a similar fashion as a table driven iPart.

### When to create a new content center component

Content Center components have an additional advantage over iParts because many other portions of Autodesk Inventor utilize Content Center components. Custom content center components may be used in:

- Design Accelerator
- Frame Generator
- Tube and Pipe
- Structural Shapes
- Connector Authoring (Cable & Harness)

### When to use iParts

Standard parts that are often reused in other designs, and seldom used table driven components (iParts) should be located in a library subfolder within the project. My definition of a standard part is the part that is not table driven, but is utilized in multiple designs. Since standard parts are simply reused, they should be placed within a read-only library to prevent them from being modified accidentally.

In order to easily convert a part to a Content Center component, the part should first be converted into an iPart. The table should then be developed with all iterations that will be present within the conversion to a Content Center component. Once the iPart is created be sure to test all variations before converting to a Content Center component.

## Step 1 - Create and test your part

When creating your prospective content center part, develop the part in such a way that you preserve the design intent of the part in features that can be associated as table driven entries. If the part is scalable, consider making certain dimensional parameters related to a different parameter using a mathematical formula. This will reduce the number of variables that must be selected when inserting a Content Center component. You could make a hole diameter a function of for example, a shaft diameter. Changing the shaft diameter would then calculate a new hole diameter automatically.

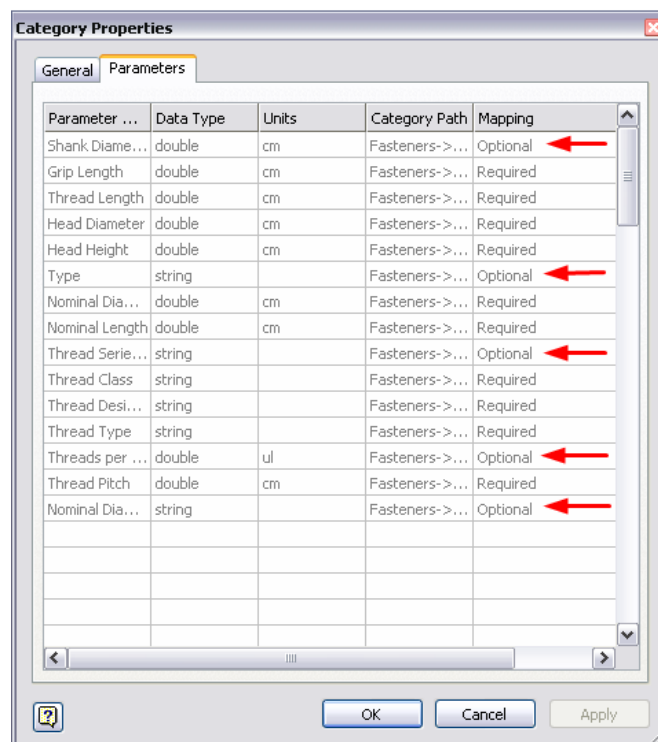
## Parameter names

When creating parameter names, you must follow certain rules. Parameter names must be a single word (or a word string created with an underline instead of a space, i.e.

***Extrusion\_Length*** instead of Extrusion Length).

If you're planning on using an existing Content Center category, then you must create your iPart parameters keeping the existing content center properties in mind. Your iPart properties do not need to be the same names as the Content Center category properties, but the iPart properties will need to correspond to existing category properties.

One of the steps in publishing your content center component will be to map the iPart properties to corresponding category properties. If this will not be possible, you will need to create a new category within a custom read/write library database. The illustration below shows the category parameters of a socket head bolt copied from the ANSI standard database.



In the above illustration, notice that there are only five optional parameter types available when mapping your parameters. All of the rest of the category parameters are required to be mapped to a property within your iPart. Therefore, a parameter must exist within your iPart that may be mapped into this category. If you cannot do this with your iPart, then you will either need to choose another existing category, or in Inventor 2009 and above, create a new content center category.

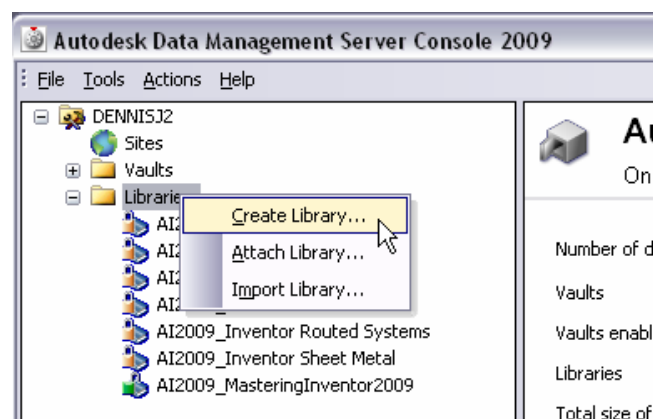
When the part is complete, with all features present and available, convert the part into an iPart. Once it's converted into the iPart format with an attached table, create new table rows that represent all iterations that will be present in the finished Content Center component.

After the iPart has been created and saved, open a new blank assembly file, and insert every iteration possible into the assembly file. Take the time now to check each member for accuracy of dimensions and features. It's much easier to fix problems within the iPart table than it will be to find the problem later and have to modify the Content Center table.

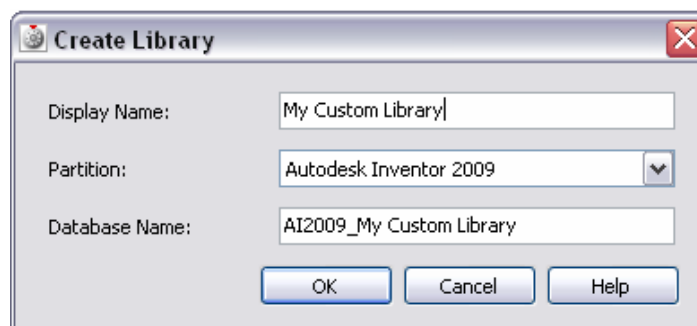
## Step 2 - Creating a Custom Library

Content Center databases supplied with Autodesk Inventor are flagged as read-only databases. Because of this, and the fact that these databases contain parts that are considered standard and will be reinstalled with the next version of Inventor, they should not be modified. Instead, simply create a new custom library or libraries to place your often used standard components and any specialized custom components that you wish to create. This custom library may be migrated to future version content centers easily.

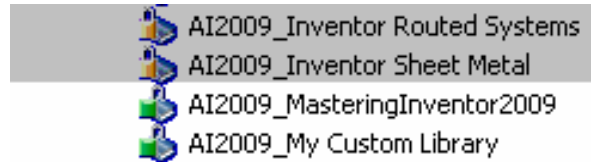
To create a new custom library, open the **ADMS Server Console** as administrator. Expand the browser tree, go to libraries, right mouse click and select Create Library. The ADMS server console is located under **Programs > Autodesk > Autodesk Data Management**.



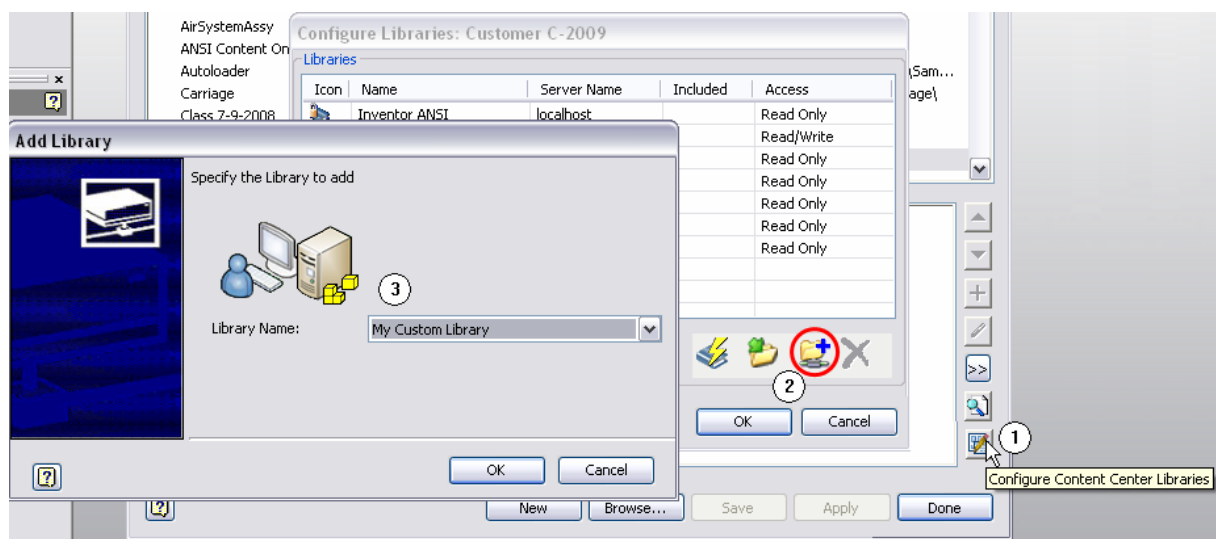
Give your library a descriptive name. The ADMS console will automatically create a prefix for the custom library depending on which version of Inventor you are using. In the example below, I created a custom library called "My Custom Library". Be sure to name your library to something more descriptive such as "ANSI custom parts". You can create as many custom libraries as you like.



You'll note that your new library will have a different icon color and style preceding the library name. In my example below, the new Read/Write custom libraries are visible with the standard Inventor Read Only libraries shown grayed out.



Before the newly created library or libraries may be used inside of Inventor, they must first be added into the active Project File content center configuration. Be sure to close out of all Inventor files before attempting to edit the project file.



## Creating and using Categories

Now that we have created a new blank custom library, we need to populate the library with component categories. There are several ways to create a component category:

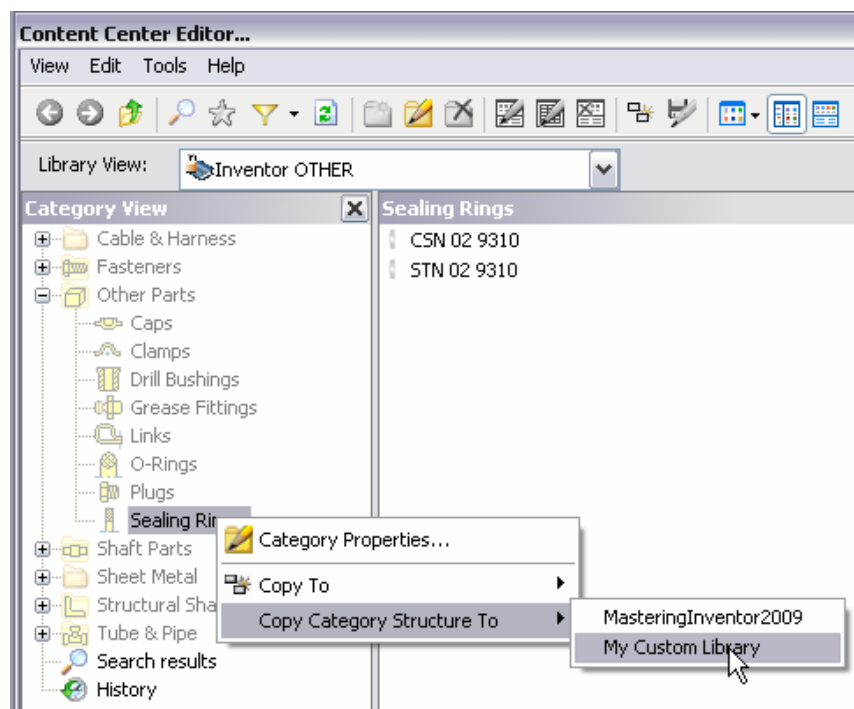
- Create the category and populate the parameters list.
- Copy a category from an existing read-only standard library
- Publish an iPart as a Content Center component, and allow the parameters of the iPart to be used to define the component family. When publishing a part, the target category must first exist within the custom library.

### Create the category

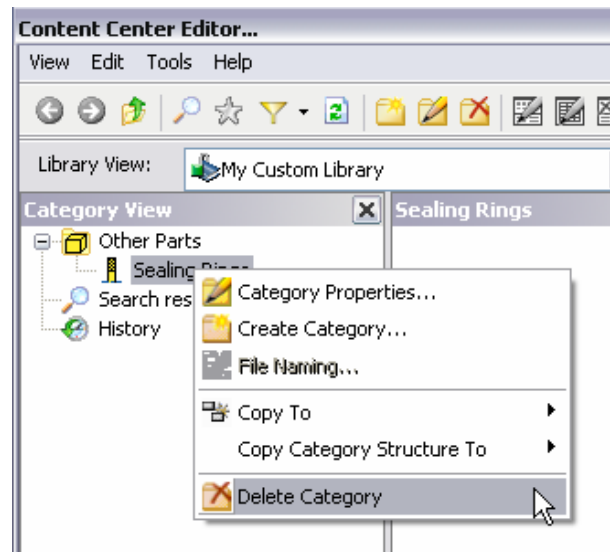
Now comes the hard part. Inventor 2009 **Content Center Editor** (located under Tools pulldown) does not have the capability to create the initial category in a new custom Content Center

library. However, the editor does have the ability to copy Category Structure without copying the actual Content Center parts.

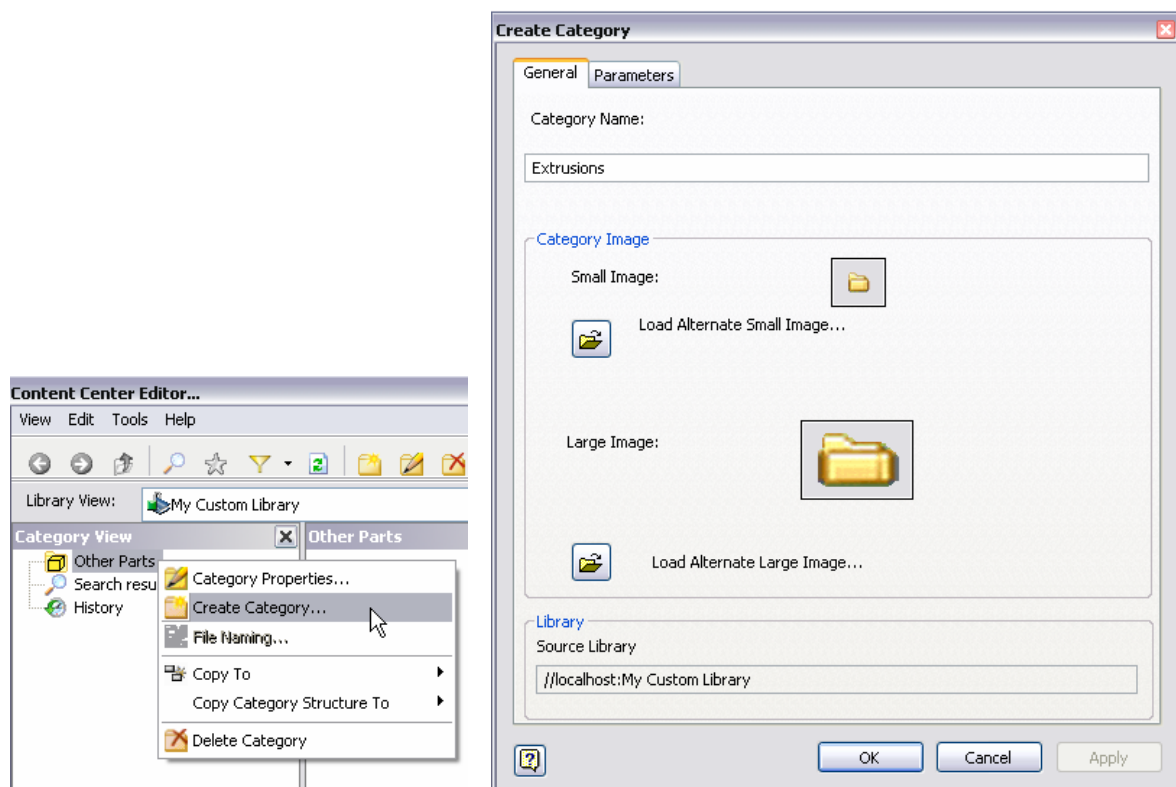
In the example shown in the illustrations below, I've selected the **Inventor OTHER** library which contains miscellaneous parts. I'm going to use this library to create a main category within My Custom Library. I selected the category **Other Parts** because as a main category, it possesses no category parameters. I then select a category in the expanded Other Parts folder, right mouse click and select **Copy Category Structure** to, accessing the fly out to select My Custom Library as the destination for the copied structure.



Once the category structure has been copied to My Custom Library, I can then delete the unneeded category as shown below. Simply set the library view from the merged view to show only the newly created custom library.



Once I have created a main category in my custom content center library, I can then add new categories to this library by selecting the **Create Category** icon or by right mouse clicking on the main category and selecting it from the context menu.



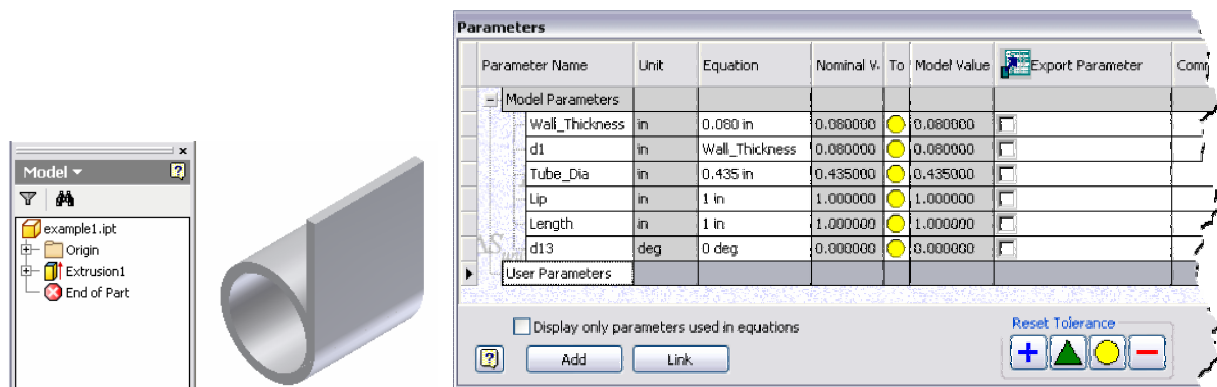
In the example above, I have created a category name called Extrusions. You'll notice that there is a second tab within this Create Category dialog box that allows for the creation of named parameters, complete with characteristics related to the parts that will be included. Since, at this point we don't know what the parameters will be called, we will leave this main category blank



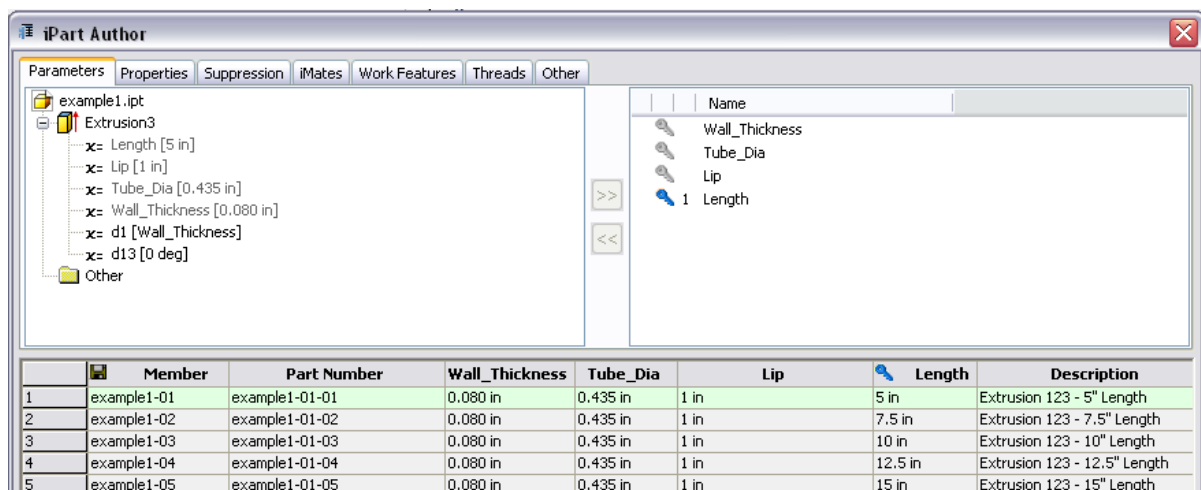
other than the name “Extrusions”. Under this main category, we may have several different types of extrusions, some only requiring a length value. Other types might require additional parameters, but we will want them all to be accessible through this category. Next, right mouse click on the "Extrusions" category and create a new category called “D-Shapes”. We will use this category to publish our first part.

## Publish an iPart as a Content Center component

In this phase of content center creation, we will take an existing iPart called example 1.ipt, convert the parameters to named parameters, then convert this part to an iPart. This part consists of a simple extrusion as shown below. After the part was created, I accessed the parameters and changed the values as shown.



The next step will be to convert this part with the named parameters to an iPart. Let's select **Tools > Create iPart** to start the conversion process. In addition to the named parameters, I'll add Description and Stock Number to the table row and define Length as a Key Column. Next, I'll fill in the additional fields with descriptions and stock numbers. Once this is completed, I can insert additional rows and populate them with different values as shown below:



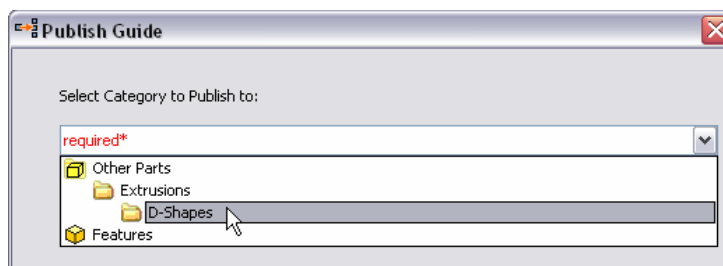
Once my table is complete, I'll save my iPart, create a new assembly file and insert every variation of the part that exists in my tables. When all members work successfully, I'm ready to convert this iPart to a custom Content Center part.

### Create a new project file for publishing

In order to isolate my content center library for the purpose of placing this part in the Extrusions folder, I will create a new project file with only my custom library configured. In this way, when I go to publish a new part, I've isolated the list of possible locations to just this library. I've found that having more than this one library open during the publish process can give some inconsistent results where the previously created category "Extrusions" will not appear in the list, even though it currently exists as a category within the library. (AIP2009 SP1).

### Publish the part

Next, go to **Tools > Publish Part**. You will be presented with a dialog box that will take you step by step through the component creation process. You can select the library database that you wish to publish to from the drop-down list. If you've created a new project file as recommended, there should only be one selection. Pick Next. In the following segment, select "D-Shapes" as the location where you want this part published. Pick Next.

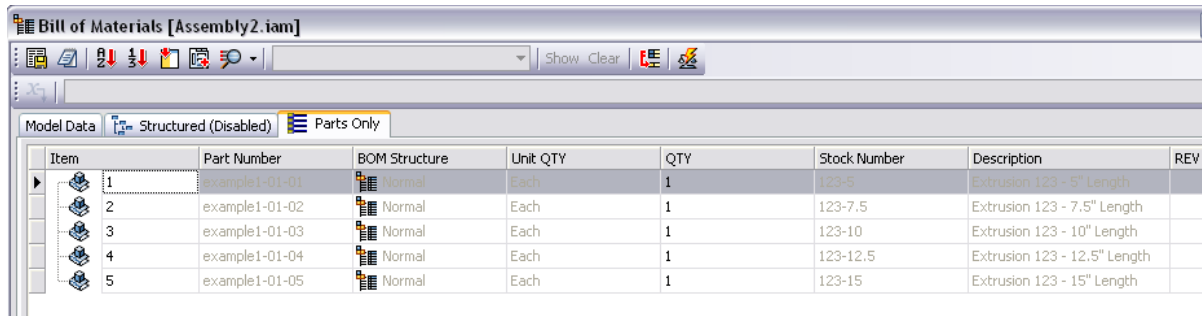


In the next page of this dialogue, you will be asked to map family columns to category parameters. In our example, the only category parameter that will be listed is Length. Pick Next to continue to the next page.

The next page allows you to define Family Key Columns. At least one family key column must be defined in order to continue with the publishing process. Since the column "Length" is already defined, we can proceed by picking Next.

The publishing process consists of creating Family Properties of this part within the category "D-Shapes". Family properties define one part family. In this exercise, the family name is called "Example1". After entering a choice of manufacturer name, you may pick Next where you will be prompted to load an alternate thumbnail image if the one displayed is not adequate. Pick **Publish** to finish converting the part to Content Center component.

Once the component has been published, test the component by inserting each variation into a new assembly file. Check your work to make sure everything has been published accurately. Be sure to check the bill materials editor in the assembly file to make sure all of the descriptions and other column values are accurate. The result of this example is shown below:



Item	Part Number	BOM Structure	Unit QTY	QTY	Stock Number	Description	REV
1	example1-01-01	Normal	Each	1	123-5	Extrusion 123 - 5" Length	
2	example1-01-02	Normal	Each	1	123-7.5	Extrusion 123 - 7.5" Length	
3	example1-01-03	Normal	Each	1	123-10	Extrusion 123 - 10" Length	
4	example1-01-04	Normal	Each	1	123-12.5	Extrusion 123 - 12.5" Length	
5	example1-01-05	Normal	Each	1	123-15	Extrusion 123 - 15" Length	

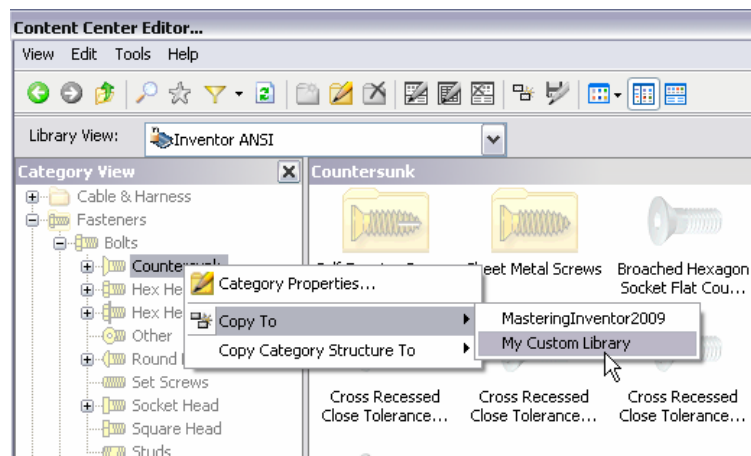
## Improving Content Center Performance

OK, I think we may all realize that not everyone has a brand-new blazing 64 bit system with tons of RAM, coupled to a gigabit network connection. While content center performance constantly improves, the amount of data stored within the various databases will increase from version to version, as well as the components that we add to our own custom libraries. Here are a few suggestions for improving your content center performance. You may want to incorporate some or all of these suggestions, depending upon your need for speed.

### Moving existing Content Center components

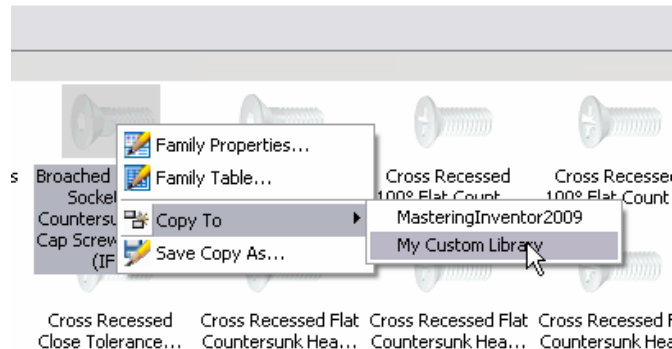
I think we all can agree that the ANSI content center database is a beast. It's the largest of all the libraries, and selection of any main category within the database will result in an overload of possible parts and families. If you only use a small portion of this standard read-only database, then create a new custom library, and copy only the components that you will use into the new library. In effect, you'll only be loading this library, along with any custom content center libraries that you've created.

Depending on what you select in the Merged View of the Content Center Editor, you can copy single families along with the category structure where they are located, or you may copy categories including all of the parts contained within that category. Let's look at a couple examples. The first example will show the copying of an entire category to a custom library. In the illustration below, we will copy the "Countersunk" category to the read/write library called "My Custom Library". This will copy all of the components that are listed under this category.

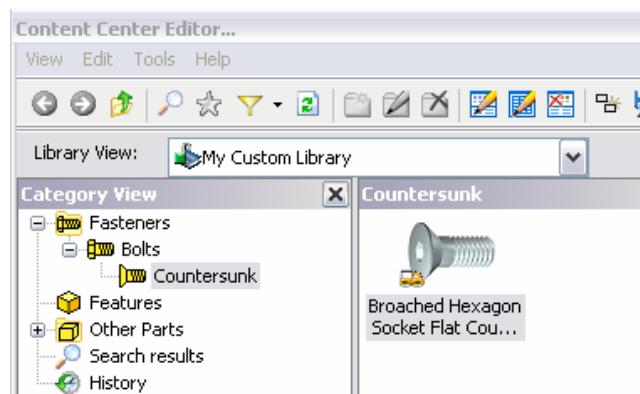


Obviously, this will take some time to copy all of the subcategories and components to the new custom library. Take this approach only if the majority of the components will be used. Components that are not needed after the copy may be deleted from the custom library on an individual basis.

Let's say that we only need one component family located in this category. If this is the case, and only a few individual components will be used within your company, browse down to the individual component and copy that family to the custom library.



The end result will be that the custom content center library will only include that family, and the category tree where it was originally located. If we change our Library View to "My Custom Library" we will see that the structure has been properly copied from the original ANSI library, and only includes the individual component family that we selected. Copying and additional component from the same category will not alter The Fasteners category tree.



Once you have copied all of your commonly used components into a custom library, you may now stop using the original ANSI database. You may now safely **Detach** (not Delete) the original library in ADMS console. If you have not deleted this database, you can attach it at any time you need to add additional components from the library into your custom content center library. If you accidentally delete the original database, you will have to reinstall it from the DVD.

## Trimming the fat out of your project file

The easiest way to improve load times when accessing a content center component from inside of Inventor is to reduce the number of databases that are configured within your project file.

When only one or two databases are configured within a project file, the initial load will be faster.

My recommendation would be to create a project file that would include all of my ANSI standard components, plus sheet-metal and other specialized databases that you will use on a regular basis. I might create a second project file that accesses the exact same search path as the first project file, but might include the DIN standard components and other specialized databases. When you activate a project file, only the configured content center databases will be available within that project. Since all of your projects are essentially the same except for the configuration of content center, it will not matter whether you are creating a single user project file, or a Vault project file.

## Review Questions

The questions posted below will help reinforce your understanding of this subject. Please take the time to answer each one of these questions correctly.

1. How does a part created from a content center component differ from a standard part or an iPart?
2. What is the difference between a standard Autodesk supplied content center library and a custom library?
3. What is the purpose of inserting every instance of an iPart into an assembly?
4. What program do I access to create a custom library?
5. What tool do I access inside of Inventor do I use to create categories in my custom library?
6. How do I create an initial category in my custom library?
7. How do I create an initial component family in my custom library?
8. How do I copy a component structure from an existing database into my custom library without copying components?
9. How would I copy a single component family into the custom library?
10. What is the purpose of copying standard components from an Autodesk supplied library into my custom content center library?

Additional, updated information, including any corrections or additions to this paper, along with sample files will be posted at <http://teknigroup.com/AU2008> by the end of the second week of December 2008.