impact
DESIGN SOLUTIONS FOR PACKAGING

Impact CAD link with Advantzware

OVERVIEW

Impact CAD is a world class, database driven, packaging design and manufacturing software developed specifically for the packaging and diemaking industries. Impact includes a comprehensive range of interactive drawing tools, an extensive library of reusable parametric display standards and the packaging industry's most powerful virtual 3D sampling features.

Advantzware is a suite of software modules designed for the Folding Carton, Corrugated Box and Sheet Plant converters which includes the traditional business application modules of estimating, quotations, order processing, billing, sales service, purchasing, finished goods, raw materials, shop floor data collection, job costing, production reporting, sales history and financial accounting

There is a need to share Impact CAD data with Advantzware. An Impact plugin has been developed to transfer Impact CAD data to Advantzware via XML file.

TERMS & DEFINITIONS USED IN THIS DOCUMENT

- **Form/Sheet/Die/Layout** – these are all synonymous and basically define the multi-up layout which can consist of one or more different one-up designs.
- **Blank** – this is the overall knife to knife size of a One-Up CAD design
- **Set** – Multiple Sheets and/or Blanks to create a final product (i.e. Display base, header, tray and partitions)
- **Combo** – Multiple items on a Form/Sheet/Die/Layout

PREREQUISITES

- **Impact 2013** is required to run this plugin. Earlier versions of Impact are not supported.
- Database Impact Fields – need DBS
  - `LAYERS.L_LAYRSTAT:ST_STATUS`
- **Panel Scoring Plugin** *(for corrugated companies)*

Impact will create an XML file as a method of sharing its data with Advantzware. The amount of information transferred to the XML file can be controlled using the plugin preferences. There are two methods for creating the XML files from Impact:

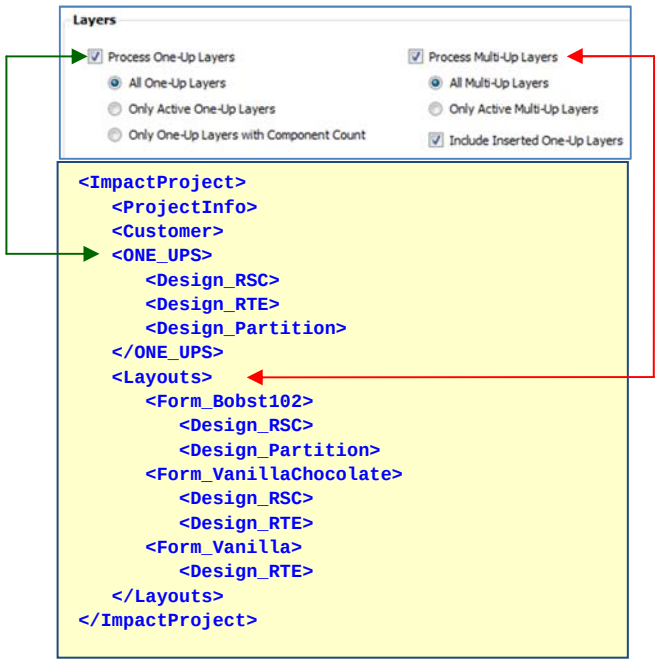
1. Automatically generate the XML files as the Impact project is updated to the Impact database. This will trigger the creation without user intervention

2. Manual creation – the user will click a button at anytime when a saved Impact rpoject is open. The plugin will create an XML file and images for the current project.

The file name of the XML file will be the name of the Impact project. The XML will be saved in a folder specified within the plugin preferences.

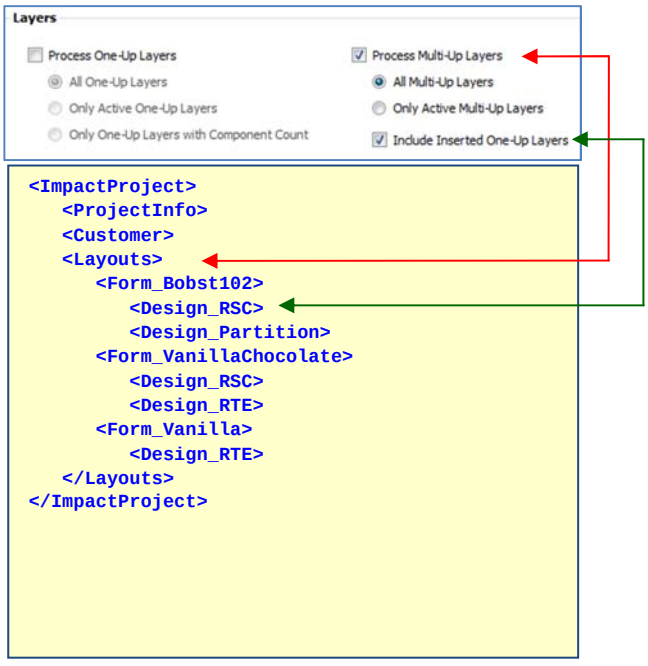
Layer processing

Impact stores one-up designs and multi-up layouts on layers within projects. The XML plugin allows the end user to control what types of layers are exported to the XML file. The diagram below illustrates how the XML file is formatted based on different preference options:



Example XML File # 1

One-Ups and Layouts are both processed.



Example XML File # 2

*One-Ups **not** processed. Only one-up insertions are included (nested under layouts)*

Include in XML Options

There are a number of options that can be configured that determines the content that is included/excluded from the resulting XML file.

These options are defined below:

- **Include Customer Information** – this will provide detailed information regarding the customer that is associated to the current Impact project. The customer field names to include in the XML file must be specified on the "Customer Fields" tab of the plugin Preferences.

- **Include Rule Lengths (Individual Palettes)** – this will add an entry in the XML file for each individual palette (line type) that is used within each included layer and display the total length of rule for the respective palette.

- **Include Rule Lengths (Palette Types)** – this will add an entry in the XML file for each palette type within each included layer and display the total length of rule for the respective palette type. Impact palette types include Cut, Crease, Score, Perf, Cut/Crease, Reverse Score, Reverse Crease, Matrix, Laser, Other, Secondary, Rubber, Strip Knife, Delamination, Milling, Balance Knife, Profile Rubber, and Non Print.

- **Include Project/Layer Variables** – this will include project and layer variables that are present in the Impact project that is being processed. These variables are generally used for parametrics and standards and are not required for the link to ASI.

- **Include Panel Scoring**– this will include the panel scoring for both the horizontal and vertical panels. The horizontal panels are calculated from left to right while the vertical panels are calcuated from bottom to top. There are up to 24 panels calculated for each direction. This should be used in conjunction with the Panel Scoring plugin for Impact.

XML File Format

The following describes the different sections/elements within the XML file created by Impact.

- **XML Declaration** – this specifies that the file is an XML file. It also specifies the version of XML being used along with the encoding of UTF-8 which is a variable-width encoding that can represent every character in the Unicode character *set*.

```
<?xml version="1.0" encoding="utf-8"?>
```

- **Comment Header** – the comment header contains a few lines of information that include the Impact and plugin version number as well as other configuration options that are useful

```
<!--XML file written with Impact version 7.0.1.6-->
<!--ImpactXML Plugin version 1.0.0.0-->
<!--Database Name: Total Impact-->
<!--Server Name: DM-MAC15\SQL2012-->
<!--Server Type: Microsoft SQL Server-->
<!--Server Version: 11.00.2100-->
<!--Export XML files to Folder 'C:\Temp\Testing'-->
<!--Export Image files to Folder 'C:\Temp\Images\ASI' in a PNG format-->
<!--Process One-Up Layers based on Component #-->
<!--Process ACTIVE Multi-Up Layers w/ included One-Up Inserts-->
<!--Created on 3/25/2013 9:43:35 AM.-->
```

- **Project**

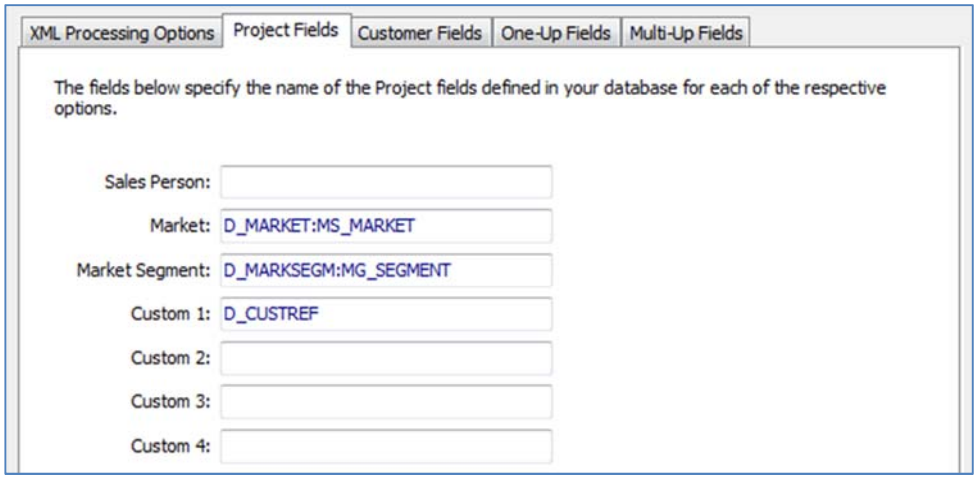
The Project information will include a variety of information about the Impact project including:

Project Name	Project Code	Project Key
Project Revision	Description	GUID
Project Status Key	Project Customer Key	Project Customer
Project Customer Contact Name	Project Customer Contact Key	Created Date/Time
Modified Date/Time	Created By Name	Created By Key
Modified By Name	Modified By Key	Project Folder Name
Master Project		

In addition to the fixed database information above, you can specify to include custom database information from the project (DRAWINGS) table. This includes Sales Person, Market, Market Segment and four custom fields. To include a custom field within the XML file, simply enter a valid field name (i.e. **D_CUSTREF** is enter below in **Custom 1**).

It is also possible to include lookups to Impact custom tables by specifying the local (DRAWINGS in this case) field name and the custom table field name to display. In order for this to work, the following must be true:

- These two field names must be separated by a colon (i.e. **D_MARKET:MS_MARKET**)
- These two field names must exist
- The relationship of these tables must be defined in Impact under **Options > Environment > Database Installation > Advanced Queries**. Failure to define the relationship will cause the data to not output.

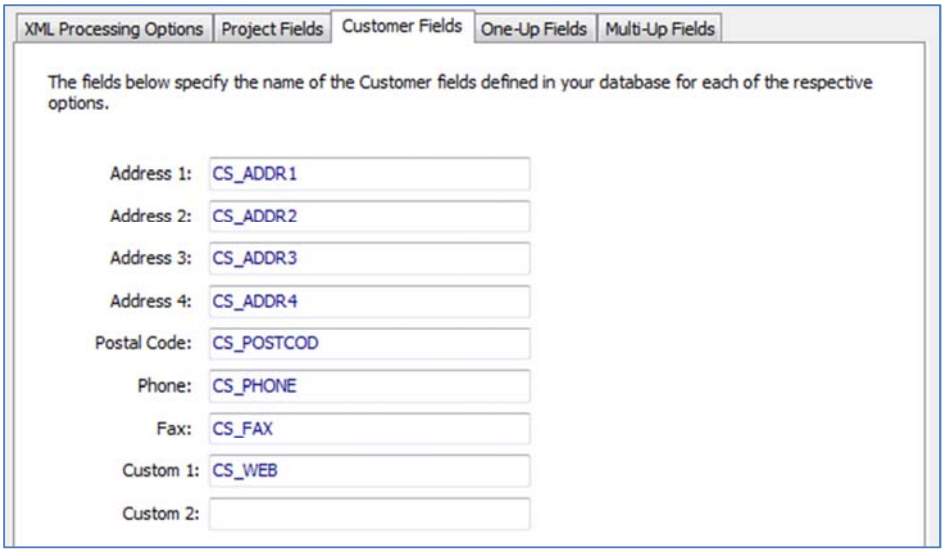


- **Customer**

The Customer information will include a variety of information about the Impact project customer including:

Customer Name	Customer Code/Number	Customer Key

In addition to the fixed database information above, you can specify to include custom database information from the project (CUSTOMER) table. This includes Address, Phone, Fax and two custom fields. To include a custom field within the XML file, simply enter a valid field name (i.e. **CS_WEB** is enter below in **Custom 1**).



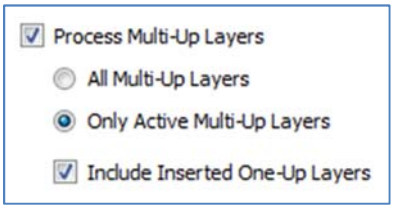
Below is an example of customer information within the XML file:

```
<Customer>
  <CustomerName>Arden Software</CustomerName>
  <CustomerCode>AS</CustomerCode>
  <CustomerKey>4</CustomerKey>
  <CustomerActive>True</CustomerActive>
  <CustomerAddress1>1790 Sun Peak Drive</CustomerAddress1>
  <CustomerAddress2>Suite B 101</CustomerAddress2>
  <CustomerAddress3>Park City</CustomerAddress3>
  <CustomerAddress4>UT</CustomerAddress4>
  <CustomerPostalCode>84098</CustomerPostalCode>
  <CustomerPhone>435-709-3100</CustomerPhone>
  <CustomerFax>435-709-3104</CustomerFax>
  <CustomerCustomField1>www.ardensoftware.com</CustomerCustomField1>
  <CustomerCustomField2></CustomerCustomField2>
</Customer>
```

- **Layouts**

The Layout information will include a variety of information about each layout within the respective Impact project.

Layout information can be suppressed from the XML file by deselecting the option “Process Multi-Up layers” in the plugin preferences. If layout information is processed, you can specify whether to process ALL layouts, or only those layouts marked with a status of “Active”. Choosing the option to “Include Inserted One-Up Layers” will cause all one-up layers that are included in the respective layout (Multi_up) layers to also be output to the XML file. This option is not related and works independently of the “Process One-Up Layers” option.

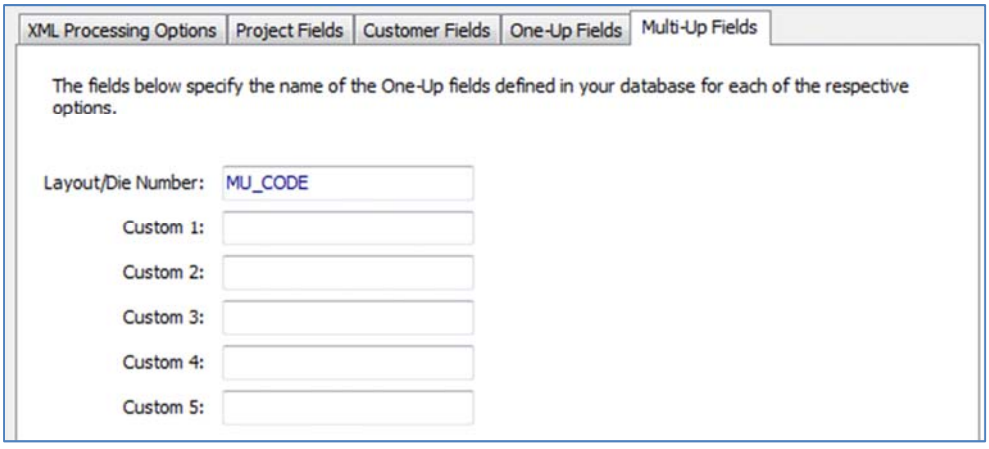


The following list contains the information that is output for each Layout (Multi_Up) layer.

Layout Name	The layout name is also known as the Layer Name
Layer Status	This is the status of the given layout (Active, Inactive, Obsolete, etc.). When processing layouts, the plugin can write information about ALL layouts or only layouts with a status of ACTIVE
Layout/Die Number	This is a number (usually set by an auto-numbering mechanism) that uniquely identifies this layout. This field must be configured on the Multi-Up fields in the plugin preferences.
Flute/Grain Direction	This specifies the flute/grain direction of the layout as set within the Impact layer. The values for this are either **Vertical** or **Horizontal**
Machine Direction	This specifies the machine direction of the layout as set within the Impact layer. The values for this are either **Up, Down., Left** or **Right**
Number Up	The total number of designs within the layout
LayoutSheetBackEdgeTrim	The amount of trim on the back edge of the sheet
LayoutSheetLeftSideTrim	The amount of trim on the left side of the sheet
LayoutSheetRightSideTrim	The amount of trim on the right side of the sheet
LayoutSheetGripperEdge	The amount of trim on the gripper (front) edge of the sheet

LayoutSheetGroupGutterX	On a combination layout (where there are different designs on the same sheet), this is the horizontal spacing between each one-up grouping
LayoutSheetGroupGutterY	On a combination layout (where there are different designs on the same sheet), this is the vertical spacing between each one-up grouping
LayoutStockSheetX	The horizontal width of the stock (gross) sheet size
LayoutStockSheetY	The vertical height of the stock (gross) sheet size
LayoutStockSheetPercent	The utilization percentage of the stock sheet
LayoutFittedSheetX	The horizontal width of the fitted (net) sheet size
LayoutFittedSheetY	The vertical height of the fitted (net) sheet size
LayoutFittedSheetPercent	The utilization percentage of the fitted sheet
LayoutKnifeToKnifeX	The horizontal rule-to-rule size of the Cut type entities in the layout
LayoutKnifeToKnifeY	The vertical rule-to-rule size of the Cut type entities in the layout
***LayoutCustomField1**	Layout Custom field #1
***LayoutCustomField2**	Layout Custom field #2
***LayoutCustomField3**	Layout Custom field #3
***LayoutCustomField4**	Layout Custom field #4
***LayoutCustomField5**	Layout Custom field #5
LayoutRowsDesign0	The number of rows in the first design of the layout. If this is NOT a combo layout, then this will be the total number of rows in the layout
LayoutColumnsDesign0	The number of columns in the first design of the layout. If this is NOT a combo layout, then this will be the total number of columns in the layout
LayoutRowsDesign1	The number of rows in the second design of the layout. This item will only ever display in the XML file if this is a combo layout.
LayoutColumnsDesign1	The number of columns in the second design of the layout. This item will only ever display in the XML file if this is a combo layout.
LayoutRuleInchesByPaletteName	This is a dynamic listing of palette names and the inches of rule. Due to the restrictions of XML element naming, the palette names have had the invalid characters removed from the name.
LayoutRuleInchesByPaletteType	This is a listing of palette types and the inches of rule for each
Total_Inches	This is the sum total inches of rule in the layout (excluding palette type OTHER and palette type NON-PRINT)

In addition to the fixed database information above, you can specify to include custom database information from the project (MULTI_UP) table. This includes Layout/Die Number and *five custom fields.



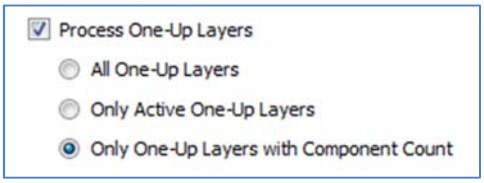
- Layout elements follow the following structure

```
<Layouts>
      <Form_LayoutLayerName>
         <Design_One_UpLayerName>
             …
         </Design_One_UpLayerName>
      <Form_LayoutLayerName>
</Layouts>
```

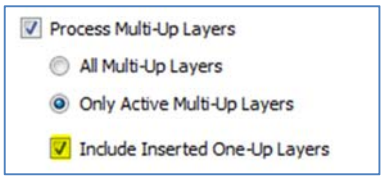
- **One-Ups**

The One-Up information will include a variety of information about each design within the respective Impact project.

One-Up information can be suppressed from the XML file by deselecting the option “Process One-Up layers” in the plugin preferences. If One-Up information is processed, you can specify whether to process ALL One-Up layers, only those One-Ups marked with a status of “Active” or Only One-Ups that have a component number for Bill of Materials (BOM).



Note: if the option “Process One-Up layers” is deselected, you can still have One-Up layers added to the XML providing that they are inserted into a layout and you have the option “Include Inserted One-Up Layers” checked. This option will cause the One-Up layer information to be nested within each respective layout within the resulting XML file. When using the “Include Inserted One-Up Layers” option, this will output ALL one-up layers that are inserted into the respective layouts, regardless if they are ACTIVE or not.



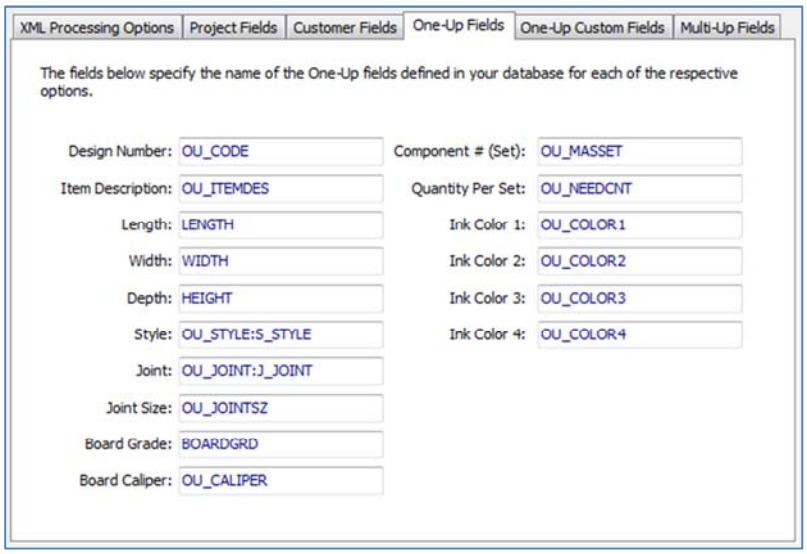
The following list contains the information that is output for each One_Up layer.

OneUpLayerName	The One-Up name is also known as the Layer Name
OneUpLayerStatus	This is the status of the given layout (Active, Inactive, Obsolete, etc.). When processing layouts, the plugin can write information about ALL layouts or only layouts with a status of ACTIVE
OneUpLayerDescription	Description of the layer
OneUpLayerMaterialName	The material associated to the layer
OneUpLayerGUID	The layer GUID
OneUpDesignNumber	This is a number (usually set by an auto-numbering mechanism) that uniquely identifies this one-up. This field must be configured on the one-up fields in the plugin preferences.

OneUpFluteGrainDirection	This specifies the flute/grain direction of the One-Up as set within the Impact layer. The values for this are either **Vertical** or **Horizontal**
OneUpMachineDirection	This specifies the machine direction of the One-Up as set within the Impact layer. The values for this are either **Up, Down., Left** or **Right**
OneUpItemDescription	The item description that describes the respective one-up. This field must be configured on the one-up fields in the plugin preferences.
OneUpLength	The Length of the respective one-up. This field must be configured on the one-up fields in the plugin preferences.
OneUpWidth	The Width of the respective one-up. This field must be configured on the one-up fields in the plugin preferences.
OneUpWidth	The Depth of the respective one-up. This field must be configured on the one-up fields in the plugin preferences.
OneUpStyle	This is the Box Style. This can be a static field or a lookup to a custom table. This field must be configured on the one-up fields in the plugin preferences.
OneUpJoint	This is the Joint. This can be a static field or a lookup to a custom table. This field must be configured on the one-up fields in the plugin preferences.
OneUpJointSize	This is the Joint size. This field must be configured on the one-up fields in the plugin preferences.
OneUpBoardGrade	This is the Board grade. This field must be configured on the one-up fields in the plugin preferences.
OneUpBoardCaliper	This is the Board Caliper. This field must be configured on the one-up fields in the plugin preferences
OneUpBlankX	This is the Blank dimension of the horizontal (X) direction
OneUpBlankY	This is the Blank dimension of the vertical (Y) direction
OneUpFirstWay	This is blank dimension of the corrugation/grain direction
OneUpSecondWay	This is blank dimension of the corrugation/grain direction
OneUpComponentSetNumber	This is the component set number used for BOM. This field must be configured on the one-up fields in the plugin preferences.
OneUpQtyPerSet	This is the quantity for the component used for BOM. This field must be configured on the one-up fields in the plugin preferences.
OneUpOUInkColor1	Ink Color 1. This field must be configured on the one-up fields in the plugin preferences.
OneUpOUInkColor2	Ink Color 2. This field must be configured on the one-up fields in the plugin preferences.
OneUpOUInkColor3	Ink Color 3. This field must be configured on the one-up fields in the plugin preferences.
OneUpOUInkColor4	Ink Color 4. This field must be configured on the one-up fields in the plugin preferences.
OneUpCustomField1	Custom Field 1. This field must be configured on the one-up fields in the plugin preferences.
OneUpCustomField2	Custom Field 2. This field must be configured on the one-up fields in the plugin preferences.
OneUpCustomField3	Custom Field 3. This field must be configured on the one-up fields in the plugin preferences.
OneUpCustomField4	Custom Field 4. This field must be configured on the one-up fields in the plugin preferences.
OneUpCustomField5	Custom Field 5. This field must be configured on the one-up fields in the plugin preferences.
OneUpCustomField6	Custom Field 6. This field must be configured on the one-up fields in the plugin preferences.
OneUpCustomField7	Custom Field 7. This field must be configured on the one-up fields in the plugin preferences.
OneUpCustomField8	Custom Field 8. This field must be configured on the one-up fields in the plugin preferences.
OneUpCustomField9	Custom Field 9. This field must be configured on the one-up fields in the plugin preferences.

OneUpCustomField10	Custom Field 10. This field must be configured on the one-up fields in the plugin preferences.
OneUpPanelScoring_X1 – X24	Panel scoring across the horizontal direction - up to 24 scores
OneUpPanelScoring_Y1 – Y24	Panel scoring across the vertical direction - up to 24 scores
OneUpRuleInchesByPaletteName	This is a dynamic listing of palette names and the inches of rule. Due to the restrictions of XML element naming, the palette names have had the invalid characters removed from the name.
OneUpRuleInchesByPaletteType	This is a listing of palette types and the inches of rule for each
Total_Inches	This is the sum total inches of rule in the layout (excluding palette type OTHER and palette type NON-PRINT)

In addition to the fixed database information above, you can specify to include custom database information from the project (ONE_UP) table. This includes ten custom fields. See the screenshots below that allow you to define the database fields to include in the XML. These fields are included on two different tabs in the Preferences.



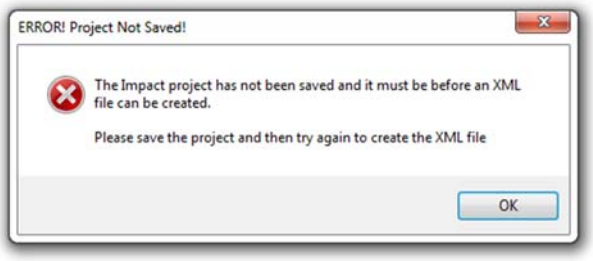
- One-Up designs elements follow the following structure

```
<ONE_UPS>
   <Design_One_UpLayerName>
            …
   </Design_One_UpLayerName>
</ONE_UPS >
```

IMPACT RULES FOR OPERATION

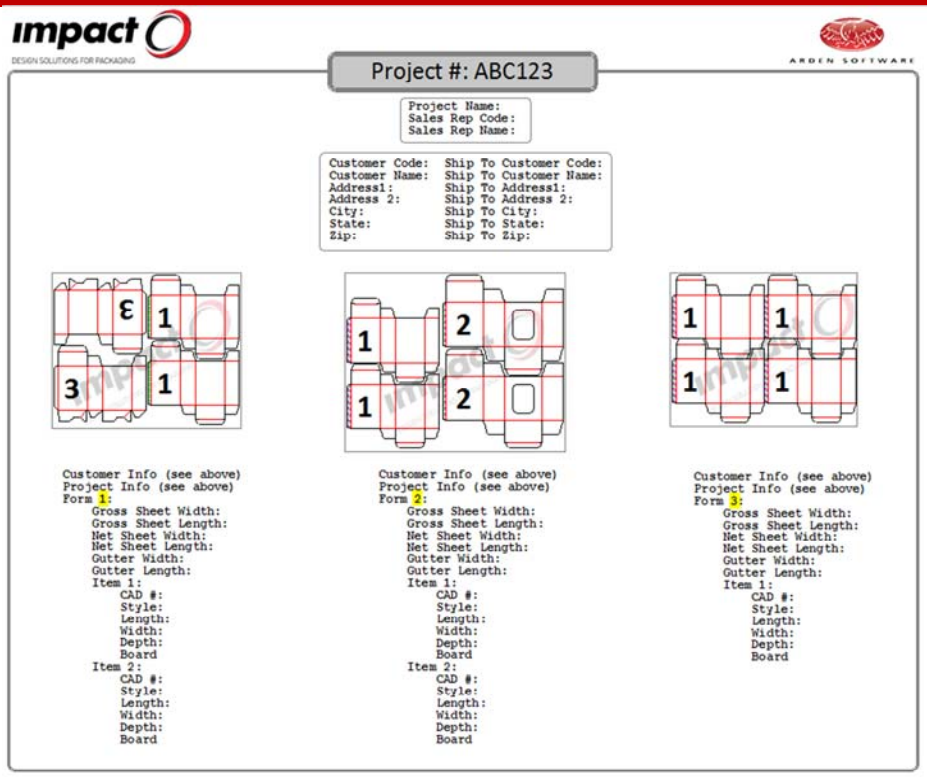
There are a number of requirements that must be satisified before an XML file can be created using the ImpactXML plugin.

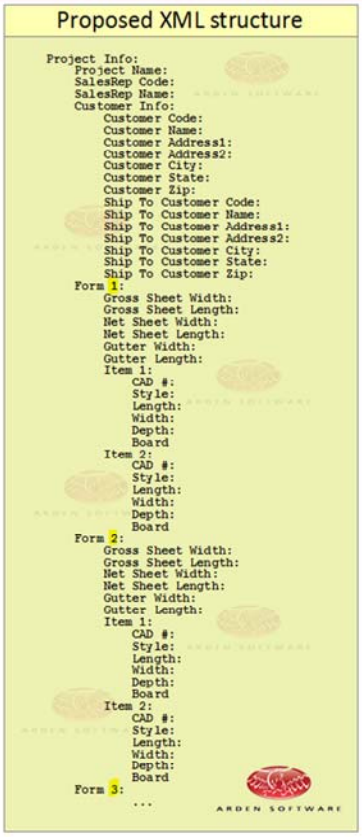
- **Project must be saved before creating XML** – the project must be saved in the Impact database before an XML file can be created. Attempts to create an XML file on an unsaved project will result in the following error:



- XML files created by the plugin will automatically overwrite any existing XML file of the same name without prompting.
- Layouts **must** be created using either the Layout Creator or the Quick Layout tools. Manually created layouts will not generate all of the calculated information required for the XML file.
- In order to only include one-up layers that would be part of a BOM, you need Quantity and/or Component Numbers to filter from sending to ASI
- Optionally, Layers can use **Active/Inactive** status to determine which layers (including MULTI_UP) to send to ASI *(for example, you may not want to send layouts that have been created for a sample maker)*
- All distance values should be specified in decimal format with **6** decimal places (this would also need to be set in the Options > Environment > Units and Settings?)
- The plugin needs to implement both a XML Creator and a Settings/Preferences plugin. This will allow the XML Creator to be run automatically (and silently) against an AutoTask.

EXAMPLE DIAGRAM – SHOWS IMPACT PROJECT W/ 3 MULTI-UP COMBINATION LAYOUTS AND THE XML

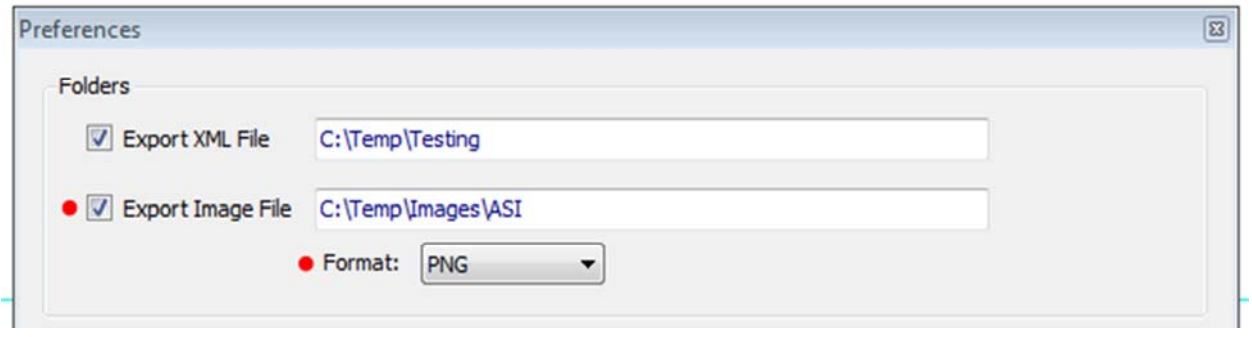




CAD IMAGES

An image will be generated for all of the included one-up designs and multi-up layouts. Images are exported at a fixed image resolution of **1280 x 1024**.

- **Path/Folder** – the folder for the exported images is specified within the plugin preferences
- **Image Format** - the iamge format for the exported images is specified within the plugin preferences. The valid options are PNG, JPG, WMF and BMP.



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