Microsoft Dynamics® AX 2012

Migrate from Product builder to Product configurator

White Paper

Product configurator is scheduled to replace the Product builder module in the next major release after Microsoft Dynamics AX 2012. This document provides information for partners and customers who want to migrate product models in Product builder to product configuration models in Product configurator.

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Author: Sverre Thune, Senior Program Manager

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Introduction

Microsoft Dynamics® AX 2012 introduces a new module titled Product configurator. This module offers product modeling functionality that is similar to what is available in the existing Product builder module. Both modules are available in Microsoft Dynamics AX 2012. However, Product configurator is scheduled to replace Product builder in the next major release. Therefore, businesses that are using Product builder and want to upgrade to a future release of Microsoft Dynamics AX must migrate to Product configurator.

This document compares the functionality that is currently available in the modules, and identifies the similarities and key differences to consider when preparing for migration. For each key difference, a recommended area of investigation is provided to help partners and customers determine the best approach to use for migration. All descriptions are based on Microsoft Dynamics AX 2012.

Migration from Product builder to Product configurator

The concepts and functionality in Product builder and Product configurator are similar in many ways. Most elements in Product builder can be converted to corresponding elements in Product configurator. However, there are some key differences that require partners and customers to work together to determine how to migrate product models in Product builder to product configuration models in Product configurator.

This document identifies and describes the differences and suggests migration methods to consider.

For more information about the features and concepts that are available in the Product configurator, see Setting up and maintaining product configurations.

Customization

Some features in Product builder cannot be converted directly to their counterparts in Product configurator, but require customization. However, before you begin customization, note that, although Product builder allows X++ code in product models, Product configurator does not allow X++ code in product configuration models. Therefore, you may need to use the application programming interface (API) to implement these elements in Product configurator. The API is represented by the PCAdaptor classes.
Product builder features that require investigation

Some of the elements and concepts that are available in a product model will require investigation before they can be migrated to a product configuration model. These elements are displayed in the **Product model form** in Product builder. In Product configurator, they are displayed in the **Constraint-based product configuration model details** form. The forms are shown in the following images.
Variables

Variables in Product builder are similar to attributes in Product configurator, and most variables can be converted to attributes relatively easily. However, Product builder extends the concept of variables and enables users to define special types of variables that can include, for example, classes.

These types of variables cannot be converted to attributes in Product configurator. We recommend that you investigate any extended variables individually to determine how best to convert them to attributes.

The following table lists all the variable types and provides a recommendation for migrating them.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Recommended method for migration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modeling variables</td>
<td>Use attributes.</td>
</tr>
<tr>
<td>System</td>
<td>Consider using the API to extend product configuration models. Note that the API is invoked only when a user has finished a configuration session by clicking OK in the configuration form.</td>
</tr>
<tr>
<td>Simple</td>
<td>Use attributes.</td>
</tr>
</tbody>
</table>
### Variables

<table>
<thead>
<tr>
<th>Data type</th>
<th>Recommended method for migration</th>
</tr>
</thead>
</table>
| Data type | Consider using an attribute with an appropriate attribute type. Product configurator supports the following data types:  
- **Enum**  
- **Integer**  
- **Boolean**  
- **Real**  
- **String(text)**  
  Note that Product configurator does not support the **Date**, **Time GUID**, and **UICDateTime** data types. |
| Table | Consider using a combination of the API and a system-defined table constraint. |
| Class | Consider using the API. |
| Table constraints | Use a system-defined table constraint. |

### Variable groups

In Product builder, variable groups determine the order of the tabbed pages in the configuration form.

In Product configurator, attribute groups perform a similar function. Attribute groups collect the attributes of a subcomponent on FastTabs that a user can collapse or expand. Consider using the **User interface setup** action in Product configurator to migrate the Product builder variable groups.

### Print

In Product builder, you can specify whether to include or exclude information about a variable when you document a configuration.

In Product configurator, if the setup option to include a note with each configuration is selected, an attribute cannot be excluded from the note. Consider customizing a report to display the relevant configuration attribute values.

### Priority

In Product builder, the priority setting controls the order in which variables are displayed.

In Product configurator, you can determine the order of the attributes in the **User interface setup** form.

### Arrays

In Product builder, both **Simple** and **Data type** variables can be arrays.

In Product configurator, consider creating several subcomponents that reference the same component. You can also bind an attribute to the **Quantity** field of the bill of materials (BOM) line that is associated with each subcomponent.

### Default values

In Product builder, you can specify default attributes for variables.

When you convert variables to attributes in Product configurator, you can specify the same default values for the attributes.
Inherit and Return values
In Product builder, you can establish parent/child relationships between product models.

In Product configurator, you can use subcomponents to represent the hierarchy. When you assign a subcomponent to a component in a product configuration model, all attributes of that component are included. You do not have to select the attributes explicitly.

You can also consider using constraints to ensure that the product configuration model inherits attribute values on lower levels. Because components are reusable, a constraint can reference attributes only on the component or its subcomponents.

Field properties
In Product builder, you can specify whether a variable is mandatory and must be selected. You can also specify whether it is displayed or hidden in the UI.

In Product configurator, you use the attribute modifiers to indicate whether an attribute is mandatory or hidden. Consider using a condition to determine the behavior. For the Read only setting, consider using a constraint that specifies a fixed value for the attribute.

Validations
In Product builder, the following kinds of validation are used:

- Action
- Formula
- Constraint

The following statements apply to these validations:

- X++ code cannot be included in a product configuration model.
- You can use the API to implement the expression.

The following table lists the validations, provides suggested methods for migrating them, and provides examples.

<table>
<thead>
<tr>
<th>Validation</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Action     | Consider using a constraint with the Implies syntax to represent the IF logic in the expression. | **Product builder**
  (IF A == True {B == False} Else {B == True})
  **Product configurator**
  (Implies[A,!B] & Implies![A,B]) |
| Formula    | Consider using constraints to represent the calculation logic. | **Product builder**
  (A = varMap.get('B',1);return B * 2;)
  **Product configurator**
  (A == B * 2) |
| Constraint | Consider using constraints to represent the logic. | **Product builder**
  (Error IF A > 17)
  **Product configurator**
  (A < 18) |

Product configurator does not support the use of attributes of the Real number type in constraints. Consider using the API to address cases that include real numbers.
**User profiles**
In Product builder, user profiles can be set up and related to variables to specify the variables that are available to users.

Product configurator does not support this concept. Customization is required.

**Groups of variables**
In Product builder, you can create groups of variables.

In Product configurator, consider using attributes, subcomponents, and user requirements to represent the groups of variables in Product builder.

**Modeling tree**
The modeling tree in Product builder is comprised of nodes that represent several concepts. The following table lists these nodes, together with recommendations for representing them in Product configurator.

A product configuration model cannot include X++ code. Consider using the API to implement the required X++ functionality.

<table>
<thead>
<tr>
<th>Node</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>If</td>
<td>Consider using the API to implement the IF – Then – Else clause.</td>
</tr>
<tr>
<td>For</td>
<td>Consider using the API to implement the FOR loop, including steps and exit criteria.</td>
</tr>
<tr>
<td>BOM</td>
<td>In Product configurator, subcomponents are related to item masters and can include zero or more BOM lines. For each BOM node in a product model in Product builder, add a BOM line on the BOM lines FastTab for the relevant subcomponent in Product configurator. You can associate the specific item and set the properties of the BOM lines in the BOM line details form.</td>
</tr>
<tr>
<td>Route</td>
<td>In Product configurator, you add route operations to the subcomponents on the Route operations FastTab. For each route node in a product model in Product builder, create a route operation for the relevant subcomponent. You can associate and set the properties for the specific operation in the Route operations details form.</td>
</tr>
<tr>
<td>Default route</td>
<td>In Product builder, you can add a default route to the modeling tree as a collection of route operations. The system then adds the route operations in the default route to any route operation that is expressed through the Route node. In Product configurator, you can achieve this by adding a set of route operations to a user requirement. The system then adds the route operations to the operations that are assigned to the user requirement’s parent component. The association between a user requirement and a component ensures that the route operations can be included in more than one product configuration model.</td>
</tr>
<tr>
<td>Default</td>
<td>In Product builder, the default node can be used to reference a default route that is created for a product model, a route that is maintained in Production control, or a BOM that is maintained in the Inventory and warehouse management. The following are recommendations for each option:</td>
</tr>
<tr>
<td></td>
<td>• Default route – Consider adding route operations to a user requirement. Alternatively, you can use the API to manipulate the route.</td>
</tr>
<tr>
<td></td>
<td>• Route – Consider adding route operations to a user requirement. Alternatively, you can use the API to manipulate the route.</td>
</tr>
<tr>
<td></td>
<td>• BOM – Consider adding BOM lines to a user requirement. You can also include a BOM line and select a sub-BOM value to represent a default BOM. Alternatively, you can use the API to manipulate the BOM or reference a BOM through the sub-BOM field on the source document line, such as a sales order line.</td>
</tr>
</tbody>
</table>
### Table
Consider using the API to reference the table, including query and field selections.

### Information
Consider using the API to implement an Infolog that is displayed when the user completes a configuration session.

### Warning
Consider using the API to implement a warning that is displayed when the user completes a configuration session.

### Error
Consider using the API to implement an error message that is displayed when the user completes a configuration session.

### Document handling
Documents cannot be attached to product configuration models. Consider using the API to attach documents to the configuration.

### Simple
Most of the operators that are available in the Simple expressions are also available in the Optimization Modeling Language (OML) that is used to write constraints in Product configurator. A Simple node can be implemented as a constraint or by using the API.

### Switch, Case, and Default
A Switch node, and its underlying Case and Default nodes, can be implemented either through a set of constraints that use a combination of Implies, And, and Or operators, or by using the API.

### Versions
Both Product builder and Product configurator use the version concept to link a product model to a product. The product can then be selected and configured on an order line.

Product builder can have several active versions of each product model at any time.

Product configurator can have only one active version of each product configuration model at any time.

### Price combinations
Product configurator does not support this concept. Customization is required.

### Generate items and dimensions
Product configurator uses the Configuration dimension to generate new product variants for each configuration. Other product dimensions cannot be generated from a product configuration model.

### Reuse configurations parameter
Product builder lets you specify whether and when you want to reuse configurations. The options are never, always, and when prompted.

Product configurator creates a unique identifier for each configuration, based on a number sequence. Configurations are not reusable.

### Include graphics
In Product builder, you can include graphics in a product model. The graphics are displayed in the Product Builder configuration form during a configuration session.

In Product configurator, you cannot include graphics in a product configuration model. Customization is required.

### Configuration user interface
In Product builder, the configuration process typically includes a configuration step and an approval step. The Product Builder configuration form can use either a tabular format or a tree structure to represent the variable groups.
In Product configurator, there is only one step in the configuration process. Approval occurs automatically when the user clicks **OK** in the **Configure line** configuration form. The form always displays the component structure in the left pane and the attributes for the selected component in the center pane.

**Setup requirements in Product builder to consider**

The configuration process for product models in Product builder can be controlled through a number of setup options.

This section lists these options, and also provides a migration scenario and setup recommendations.

**Appearance of the configuration form**

In Product builder, a user can switch between a tabular layout and a tree structure layout in the configuration form.

Product configurator supports only the tree structure layout in the configuration form, and customization is required to modify it. Note that the **Configure line** configuration form in Product configurator is written in Windows Presentation Framework (WPF) and is much harder to extend than X++ forms.

**Sales price calculation**

In Product builder, you can specify whether to use sales price calculations or standard BOM calculations when you calculate prices for configurations.

Product configurator supports only standard BOM calculations. Using sales price calculations requires customization.

**Print**

In Product builder, you can generate a note that documents the configuration selections in a product model. You can also attach the note to a sales order line.

Product configurator supports the same concept.

**Lookup**

In Product builder, a user can select whether products that represent product models are displayed on separate tabs, or whether they are displayed together with other products in the product list on a sales order line.

Product configurator supports the same concept.

**Graphic setup**

In Product builder, you can specify the document type to use for a graphics file that is created when you configure a product model.

Product configurator does not support this concept. Customization is required.

**Automatic calculation**

In Product builder, you can set up auto-calculation for both prices and ship dates for product models.

Product configurator does not support this concept. Customization is required.

**Show all variables**

Product builder provides a two-step configuration process that includes a configuration step and an approval step. You can use the **show all variables** option to ensure that all variables are displayed during the approval step.
Product configurator requires only one step, and the attributes are always available.

**Reuse**

In Product builder, you can specify whether configurations for product models are reusable. Reuse can occur either automatically or only after the user is prompted.

In Product configurator, new configurations are always assigned a unique identifier when the configuration session is completed. Configurations are not reusable.

**Hiding the configuration form**

In Product builder, you can specify whether to display or hide the configuration and approval forms.

In Product configurator, you must use the **Configure line** configuration form to configure a product. Therefore, it cannot be hidden.

**Autostart configuration**

In Product Builder, the **Product Builder configuration** form can be automatically opened when you save or leave a line on an order line for a configurable item.

In Product configurator, you must select the **Configure line** option to open the configuration form.

**Mandatory configuration**

In Product Builder, you can specify that the user is required to complete the configuration of an item before he or she can save or exit the sales order.

In Product configurator, this is always optional. You can save the sales order and then return to complete the configuration later.
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U.S. and Canada Toll Free 1-888-477-7989
Worldwide +1-701-281-6500
www.microsoft.com/dynamics