



Infor LN Integration Guide for CPQ Configurator

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About this guide

This guide provides information about the integration of Infor LN with Infor CPQ Configurator through SOAP based web services.

Intended audience

This guide is intended mainly for system administrators who manage the integration between Infor LN and CPQ Configurator or who troubleshoot or trace back data between Configurator and LN.

Related documents

You can find these documents in the product documentation section of the Infor Xtreme Support portal, as described in "Contacting Infor" on page 5:

- *Infor LN Integration Guide for Infor CPQ Sales Portal*
- *Infor LN Manufacturing User Guide (U9711E US)*
- *Infor LN Manufacturing User Guide for Configuration (U9856A US)*

Contacting Infor

If you have questions about Infor products, go to the Infor Xtreme Support portal.

If we update this document after the product release, we will post the new version on this website. We recommend that you check this website periodically for updated documentation.

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Chapter 1 Overview

This chapter provides an overview of the integration of Infor LN and Infor Product Configurator.

The Infor Product Configurator (CPQ Configurator) is a visual configurator as part of the Configure Price Quote product. Having this available with Infor LN, allows the customer to make use of the modeling and configuration capabilities of CPQ configurator while combining these with the sales order management and manufacturing capabilities of Infor LN. As such it can be used for configured products in both Assemble to Order as well as Engineer to Order type of environments.

Note that earlier versions of LN did have an internal configurator, called PCF. This internal configurator can co-exist with the CPQ configurator to transition from the PCF to the CPQ configurator.

Three key players, actors are involved in using the integration: the product engineer, sales manager, and project engineer.

- The product engineer maintains the products and models.
- The sales manager handles the sales quotations and orders.
- The project engineer deals with estimates, budgets, and warehouse requests.

For both the sales manager and the project engineer two scenarios can apply:

1 Configuration with selection of configurable item

In this scenario, the sales person / project engineer has selected a specific item, model. Therefore, the model selection will have to be done automatically after starting the configurator.

2 Reconfiguration

In this scenario, the sales person / project engineer continues based on work done earlier. First an existing product variant is selected. The Configure option is used. The configuration screen will show. The choices made previously show. One or more changes are made and the updated configuration is stored both in the CPQ configurator and in Infor LN.

Figure 1 show the supported use cases.

When the user enters an order line, and wants to configure the product (item), CPQ configurator is started. Figure 2 shows the order entry process.

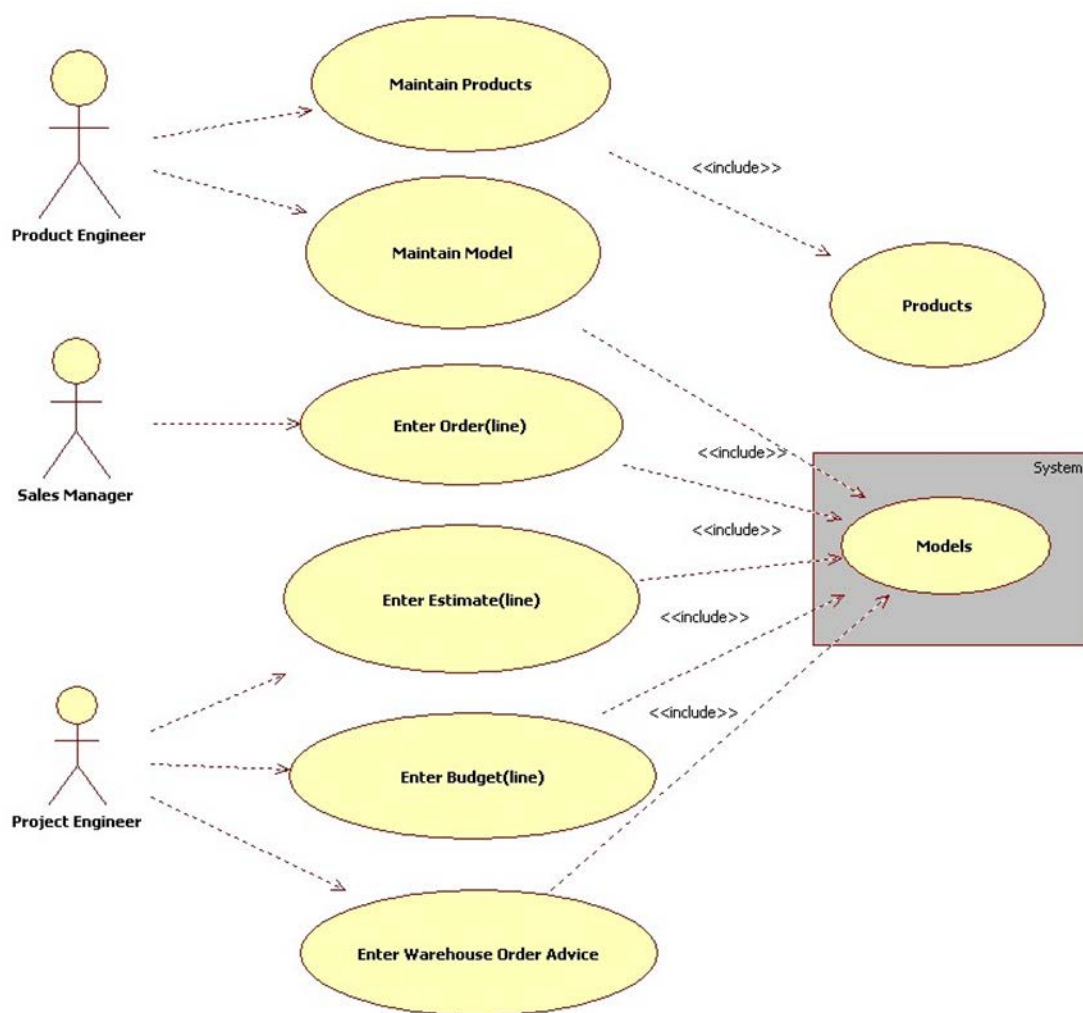


Figure 1 Use cases

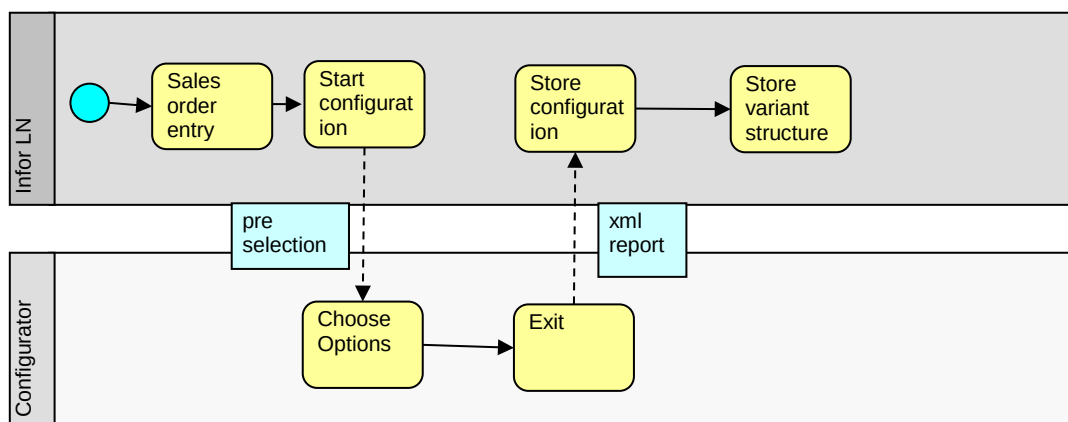


Figure 2 Order entry process

Chapter 2 Prerequisites

The Configurator integration is only supported in Ming.le and LN UI 11.2.

Microsoft Internet Explorer, Google Chrome, Firefox and Safari are supported as browsers. Check the Ming.le documentation to see which versions are supported and to verify the limitations.

Prerequisites for Infor CPQ

For the integration of CPQ Configurator with Infor LN, CPQ Configurator 8.1 or later is required, which is available from the Infor Download Center.

Prerequisites for Infor LN

These Infor LN components are required for the integration of CPQ Configurator with Infor LN:

- Infor LN 10.4.0 or later.
- *License for Product ID 7056, which is for the Infor LN Adapter.*
- Enterprise Server 10.4 or later.
- Connector for Web Services (through Infor Enterprise Server Extensions).

Chapter 3 Known limitations

Not supported

The integration does not support all CPQ features. The following list shows the most obvious capabilities that might be relevant for LN but are not supported by this integration:

- Option based sourcing, which means the plant to build the item can depend on options.
- Background configuration.
- Engineering process, in the context of Infor LN – CPQ – PLM.
- Cross selling, offering an additional (standard) item based on the requested configurable item.
- Master data synchronization, for keeping configurable items, standard parts and related entities in sync.

Note that this is not complete list of all unsupported features, thus if something is not on the list it does not imply it is part of the integration.

Chapter 4 Setup and configuration

Configurator

Profiles

Within the Infor Design Studio of CPQ one can find Profiles on the Users tab. At least one profile is needed for the integration.

Templates

On Infor Design Studio's Manage tab, Templates can be defined. These are required in order to have manufacturing rules defined in your item models. A set of rules will be delivered, and these correspond to the Bill of Material (BOM) and Routing entities within LN. These templates are created as soon as a CPQ connection is defined in LN. See also the description of LN Master Data.

The following templates are required when using Assembly Items in LN:

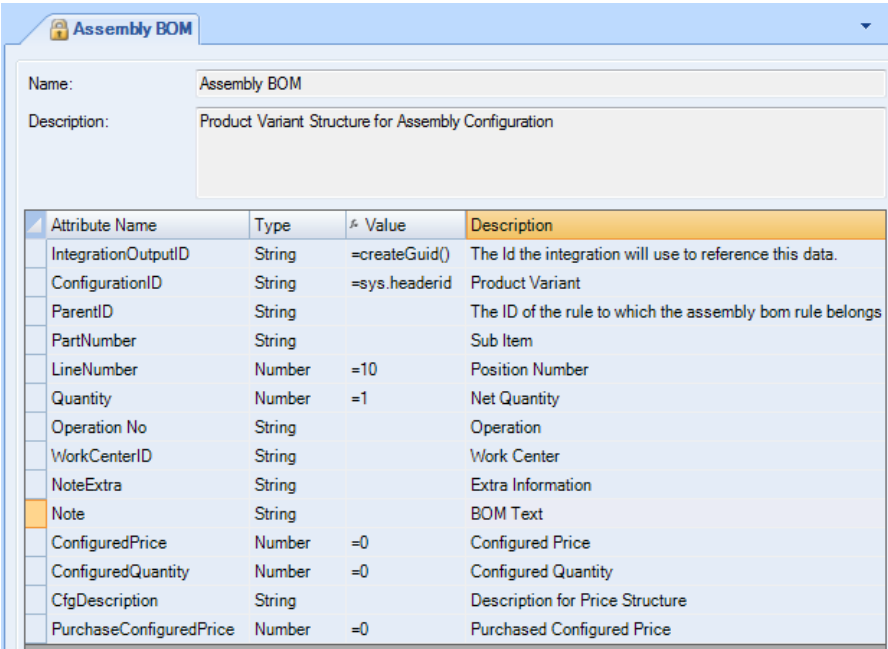
CPQ Template	CPQ Rule Type	LN Entity	LN Session	
Assembly BOM	 Integration	BOM	Product Variant Structures	tiapl3510m000
Assembly BOM Features and Options	 Integration	Product Variant	Product Variant Options	tipcf5520m000

The next set of templates relate to configurations for Shop Floor:

CPQ Template	CPQ Rule Type	LN Entity	LN Session	
Alternative Materials	 Integration	BOM	Use Up and Alternative Materials	tibom0150m000
MFG Material	 MFG Material	BOM	Bill of Material	tibom1110m000
MFG Material Features and Options	 Integration	Product Variant	Product Variant Options	tipcf5520m000
MFG Operation	 MFG Operation	Routing	Routing Operations	tirou1102m000

Operation Phantom Routing Relationships	Integration	Routing	Phantom Routing Relationships	tirou1103m000
Operation Process Variables for Operation	Integration	Routing	Operation (Step) - Process Variables	tirou1111m000
Operation Setup Classes and States	Integration	Routing	Setup Classes and States	tirou1104m000
Operation Step Instructions for Operation	Integration	Routing	Instructions	tirou1112m000
Operation Steps for Operation	Integration	Routing	Operation Steps	tirou1105m000
Reference Designator for BOM	Integration	BOM	Reference Designators by BOM	tibom0120m000

The template attributes correspond to the table fields of LN. See for example Figure 3: attributes *PartNumber* and *LineNumber* correspond to the *Item* and *Position Number* field of the Product Variant Structure (tiapl3510m000) session in LN.



Attribute Name	Type	Value	Description
IntegrationOutputID	String	=createGuid()	The Id the integration will use to reference this data.
ConfigurationID	String	=sys.headerid	Product Variant
ParentID	String		The ID of the rule to which the assembly bom rule belongs
PartNumber	String		Sub Item
LineNumber	Number	=10	Position Number
Quantity	Number	=1	Net Quantity
Operation No	String		Operation
WorkCenterID	String		Work Center
NoteExtra	String		Extra Information
Note	String		BOM Text
ConfiguredPrice	Number	=0	Configured Price
ConfiguredQuantity	Number	=0	Configured Quantity
CfgDescription	String		Description for Price Structure
PurchaseConfiguredPrice	Number	=0	Purchased Configured Price

Figure 3 Assembly BOM template attributes

Rulesets

The Infor Design Studio first tab holds the Design elements. The Rulesets and Include Rulesets do hold the configuration model, and has rules for the configuration as well as the manufacturing

process. The options that are chosen during the configuration process do not all need to be set up beforehand in LN, as these will be synchronized at run time.

The LN Item needs to match the Ruleset in CPQ. See the example below:

- CPQ has ruleset *Wood-Door* within namespace AMC.
- This matches LN item WOOD-DOOR (case insensitive).

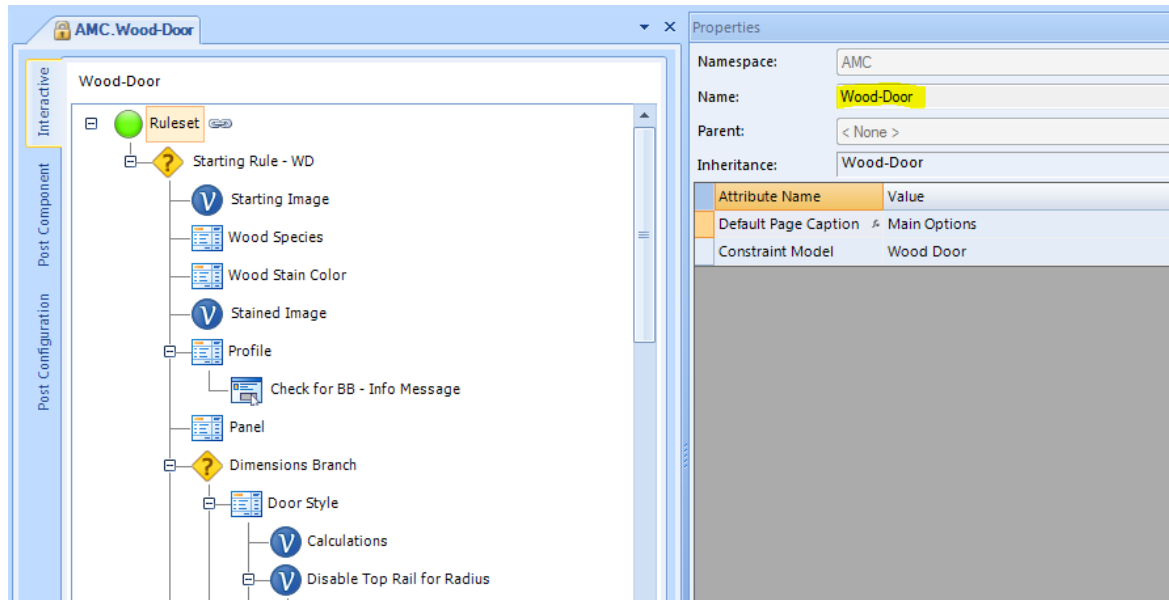


Figure 4 Configurator ruleset

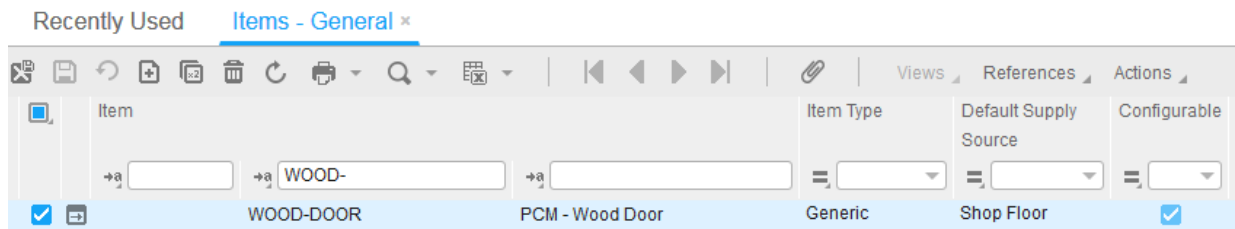


Figure 5 Ruleset name and item code

Starting the configuration without a preselected configurable item is not supported. The item is used to find the corresponding model (ruleset).

Features and options are sent to LN and used for identifying the configurations.

- Features and options need to be set up in CPQ by integration rules, based on the 'MFG Material Features and Options' or the 'Assembly BOM Features and Options' template.
- These are synchronized per configuration. Note that feature and options codes in LN can hold 15 characters only.

Migration of rulesets

Rulesets that are used in an earlier LN – CPQ integration (LN 10.0 till LN 10.3) need to be changed manually in order to run properly in LN 10.4.

Use ruleset as before

Feature – Option Rules

In order to operate in the same way as in an earlier LN version, Feature-Option Rules need to be added to the ruleset. These are **Integration** Modeling Rules based on the **Assembly BOM Features and Options** template in case of assembly items and based on the **MFG Material Features and Options** template in case of models for shop floor.

In the earlier LN – CPQ integration (LN 10.0 till LN 10.3) all Component Attributes of a ruleset were mapped to features and options in LN. In the new integration, one has to define an integration rule per feature to have the feature and option stored in LN.

Material Rules

Next Material Rules need to be defined for the configurable item as well as for configurable subassemblies. For the subassemblies, the **PositionNumber** and **SequenceNumber** attributes in CPQ needs to match BOM line and sequence numbers of the Generic BOM in LN.

Full configuration in CPQ

Earlier LN versions only supported a so-called ‘option integration’ with CPQ. The Bill of Material and routing of a configuration were still taken from the Generic BOM and Routing data of LN.

LN 10.4 supports an integration where CPQ can provide the BOM and operations for the configuration. To do so, a ruleset not only needs to have Integration Rules for Features, but also Manufacturing rules for defining the Bill of Material and List of Operations. See the list of templates in section Templates.

Pricing

The price for a standard (non-configurable) item is communicated from Infor LN to CPQ Sales Portal. CPQ uses the LN CustomerPrice web service for this.

LN

Master Data

Supply or verify this information:

- Implemented Software Components
- CPQ Configurator Profiles
- CPQ Configurator User Profiles
- CPQ Configurator Settings
- Configuration Groups.

To use the Configurator from Infor LN:

- 1 Ensure that the integration is switched on by the **CPQ Configurator Integration** parameter in the Implemented Software Components (tccom0500m000) session, on the *Concepts (Logistics)* tab. Note: The **Product Configurator (PCF)** parameter is additionally needed if one also wants to use the embedded PCF Configurator, e.g. in case of migration of product variants of an earlier LN version.
- 2 Specify the CPQ Profiles to be used in the **CPQ Configurator Profiles** (tipcf0120m000) session.
- 3 Link the profiles to the users (sales manager / product engineer / project engineer). This is done in the **CPQ Configurator User Profiles** (tipcf0125m000) session. Per user one can define if it's allowed to select another (then the predefined) profile when launching the configurator.
- 4 Define the items to be configured by CPQ and set the parameters needed for the connection with CPQ such as application URL, instance name and namespace. See Figure 6. Within the **CPQ Configurator Settings** (tipcf0111m000) session 3 levels are available:
 - a Item
 - b Configuration group
 - c All items, by leaving both item and configuration group empty. This can be used either to have all configurable items handled by CPQ, or to define global settings and add additional settings for an item (or group) to overrule.

The application URL has to refer to the *ProductConfigurator* web service that LN will be using, and has pattern: <http://<server>/CPQ/ConfiguratorService/v2/ProductConfigurator.svc/basic> (or <http://<server>/PCM/ConfiguratorService/v2/ProductConfigurator.svc/basic>). The CPQ Simulator (<https://<server>/CPQ/Simulator/>) can be used to find the values for fields *Instance Name*, *Application Name* and *Namespace*.

When a URL is defined, LN will add the standard templates if these are not present yet.

The screenshot shows the 'CPQ Configurator Settings' window. At the top, there are tabs for 'Recently Used', 'CPQ Configurator Settings', and 'CPQ Configurator Settings' (selected). Below the tabs is a toolbar with icons for file operations and a 'Views' dropdown. The main content area displays the following settings:

- Configuration Group:** DEMO
- Demo models**
- Item:**
 - ☒ Configured by CPQ Configurator
 - ☐ Structure by PCF
- ☒ **Specific Settings**
 - Application URL:**
 - Currency:**
 - Instance Name:**
 - Application Name:**
 - Namespace:**
 - ☒ Partial Save Allowed
 - Profile:**

Figure 6 LN settings for CPQ connection

- 5 In CPQ Configurator, manually create the data that was not synchronized. The data that you create must match the data in Infor LN. Create data for the following:
 - The CPQ Ruleset code needs to match the Configurable Item in LN.
 - In case of multilevel models, rulesets are needed for sub levels also.
 - Unit. Use ISO code from Units (tcmcs0101m000) session; otherwise, use unit code.
 - Currency. Use ISO code from Currencies (tcmcs0102m000) session.

The sessions of step 2 till 4 can be found in menu 'Manufacturing / Product Configuration / CPQ Configurator'.

Migration

In case of migration from LN 10.0 till LN 10.3 the URL of the **CPQ Configurator Settings** (tipcf0111m000) must be changed from:

<http://<server>/CPQ/ConfiguratorService/IntegrationService.svc/..>

to:

<http://<server>/CPQ/ConfiguratorService/v2/ProductConfigurator.svc/basic>

Configuration Groups

Configuration Groups (session tcmcs1150m000) can optionally be used to define CPQ settings for a range of items.

Items

The CPQ Configurator applies for all configurable items in LN, thus all items with Configurable check box in Items – General (session tcibd0501m000) selected. This means both Assembly as well as Shop Floor items are supported by CPQ.

Within the same Item – General session the item can be linked to a Configuration Group. See the example of Figure 7 which has item *WOOD-DOOR* linked to configuration group *DEMO*.

The screenshot shows the 'Item - General' session in SAP CPQ. The 'Item' field is 'WOOD-DOOR' and the 'Description' is 'Wood Door'. The 'Grouping Data' tab is selected, showing the 'Selections' section. The 'Product Type' is 'DR' (Doors), 'Product Class' is 'PCMC' (PCM configurable), and 'Configuration Group' is 'DEMO' (Demo models). The 'Manufacturer' and 'Country of Origin' fields are empty.

Figure 7 Item link to Configuration Group

Note that item data needs to be defined for configurable items, but Generic Bill of Material (BOM), Routing and constraints do not apply. In case CPQ is implemented, and the **Product Configurator (PCF)** parameter in Implemented Software Components (tccom0500m000) is off, a range of sessions in the PCF module is disabled:

Session name	Session code
Product Features by Configurable Item	tipcf1101m000
Configurable Item - Constraint IDs	tipcf2101m000
Configurable Item - Constraints	tipcf2110m000
Constraint Validation Messages	tipcf2120m000
Compile Constraints by Configurable Item	tipcf2201m000
Configurable Item - Structure	tipcf3100m100

Generic Item - Settings for Data Generation	tipcf3101m000
Generic BOMs	tipcf3110m000
Generic Routing	tipcf3120m000
Where-used Components	tipcf3515m000
Generic Price Lists	tipcf4101m000
Price List Matrices	tipcf4120m000
Price List Matrix Codes	tipcf4510m000
Calculate Product Variant Sales Price Structure	tipcf5230m000
Calculate Product Variant Purchase Price Structure	tipcf5235m000
Print Product Variant Statistics	tipcf6410m000

LN and CPQ instances

Multiple LN implementations can be linked to one CPQ implementation and the other way around. Figure 6 shows how an item or set of items is linked to a CPQ environment.

With these settings one LN company can relate to:

- Multiple namespaces or instances of one CPQ implementation, or
- Multiple CPQ environments, by using different Application URLs.

The other way around is also possible:

- Multiple LN companies relate to one CPQ implementation, using same instance and namespace.
- Multiple LN implementations relate to one CPQ implementation, using same instance and name space. For this situation, it is important to avoid using the same company numbers in the LN implementation, since the configuration is identified by company number and product variant number.

Chapter 5 Business processes

This chapter describes the business processes included in the integration.

The integration can be part of a hybrid solution: both the internal PCF configurator and the CPQ configurator can be used next to each other in one LN company. This facilitates a transition period where gradually more and more models are moved from the PCF Configurator to CPQ.

Configuration

This section describes the configuration process.

Processes with configuration

Configuration usually is done for a demand order, which can be a Sales Order or Quotation, or a Project. However, in Infor LN, one can also start configuration from scratch to design a kind of standard configuration.

Relevant sessions that allow launching a configuration are:

- Sales Quotation Lines (tdsls1501m000)
- Sales Order Lines (tdsls4100m900/tdsls4101m000)
- Estimate Lines (tpest1100m000)
- Element Budget (Material) lines (tpptc1110s000)
- Activity Budget (Material) lines (tpptc2110s000)
- Contract Deliverable Line (tpctm1600m000/tppdm7100m100)
- Product Variants (tipcf5501m000/tipcf5101s000)
- Product Variants – Assembly (tiapl3500m000/tiapl3100s000)
- Generate (Project) Structure from Product Variant (tipcs2220m000).

Order entry

This section describes the configuration process for a sales order. The other processes mentioned above (Configuration

This section describes the configuration process.

Processes with configuration) behave similarly.

Order entry

When a configurable item is entered on a sales order line, the question '*Configure product variant now?*' is raised. The system detects whether the internal PCF configurator or the CPQ configurator should be started and finds the URL for the web service – via the **CPQ Configurator Settings** (tipcf0111m000).

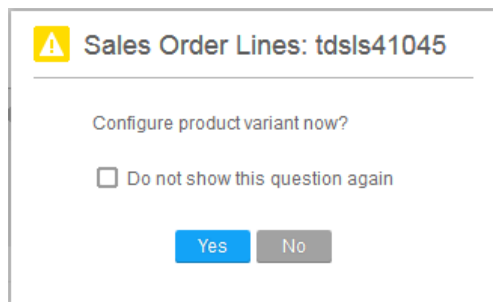


Figure 8 Configure question

This CPQ profile is taken from user or item settings. If the user is allowed to change the profile, he/she can use another profile than this predefined one.

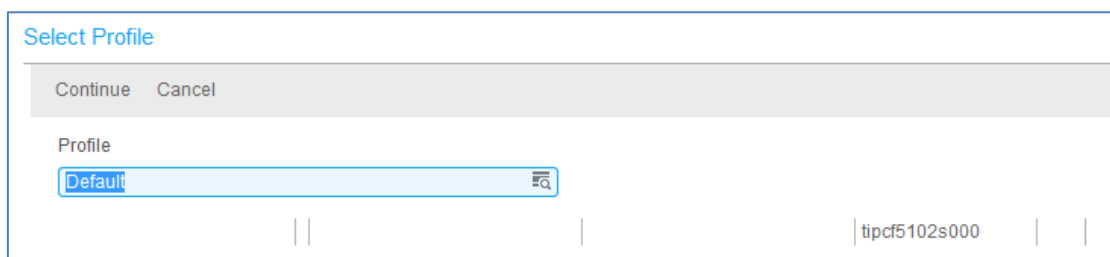


Figure 9 Profile selection

Configurator

If the user chooses to configure now, and CPQ is responsible for the item, the CPQ Configurator will be started. The configurator will start in a new tab within Ming.le. See Figure 10.

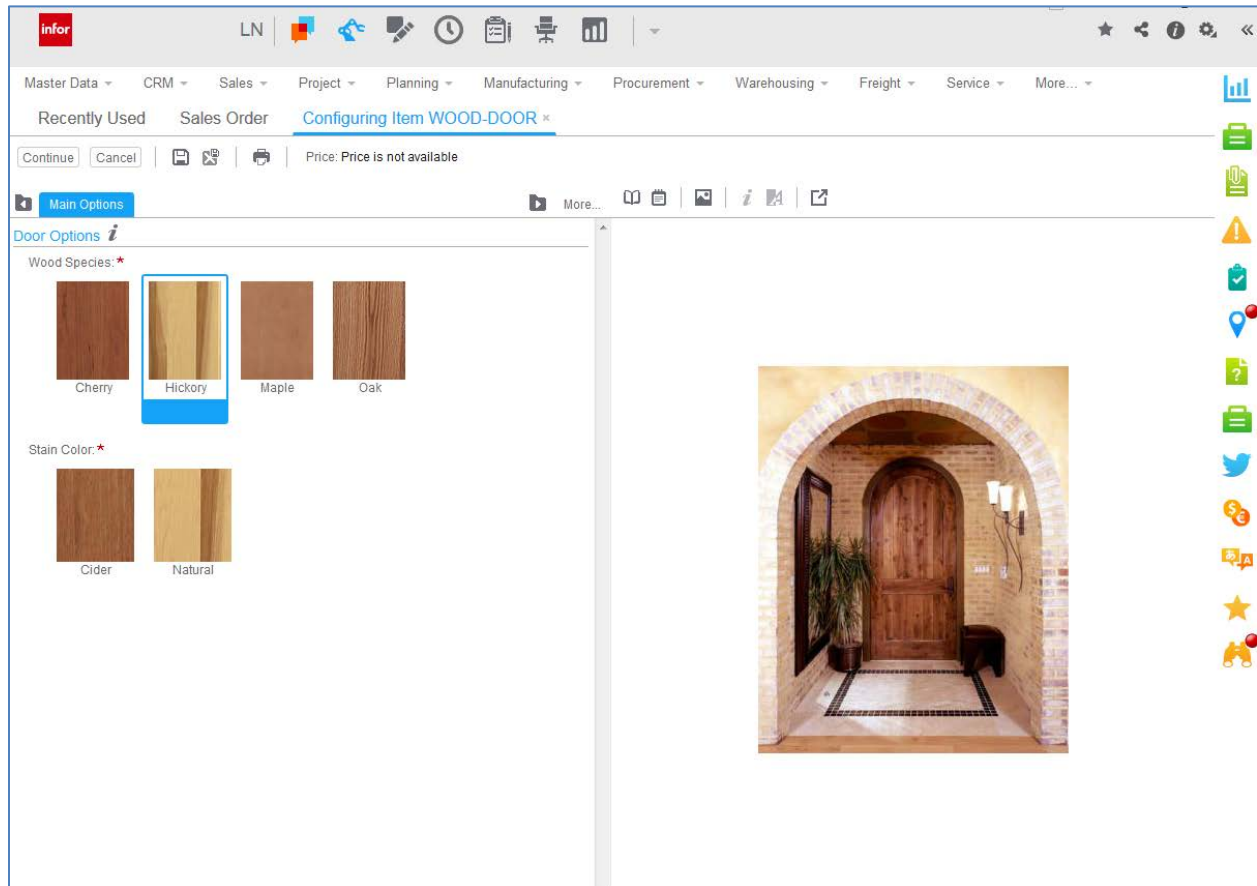


Figure 10 Configurator invoked from Sales Order

Close Configuration

When options are done, the Continue turns into a **Finish** button. One can leave the configurator via **Finish** or **Cancel**.

The screenshot displays the Infor LN CPQ Configurator interface for configuring a 'WOOD-DOOR'. The top navigation bar includes tabs for Master Data, CRM, Sales, Project, Planning, Manufacturing, Procurement, Warehousing, Freight, Service, and More. The 'Sales' tab is selected, and the 'Configuring Item WOOD-DOOR' window is open. The interface shows a 'Main Options' tab and a 'Dimensions' tab. The 'Dimensions' tab is active, displaying various configuration fields:

- Door Style: Square Panel, Square Top
- Width: 30.00
- Height: 80.00
- Thickness: 1 3/8
- Show 2D Image: ☐
- Dimensions:
 - Stile Width: 4.00
 - Top Rail: 6.00
 - Lock Rail: 8.00
 - Lock Rail Location: 41.00
 - Bottom Rail: 8.25
- Top Panel:
 - ☐ Flat Panel
 - ☒ Raised Panel
 - ☐ Glass Panel
- Bottom Panel:
 - ☐ Flat Panel
 - ☒ Raised Panel
 - ☐ Glass Panel
- Dimensions: ☐
- Hinges: ☐
- Additional Features: ☐
- Create New Item: ☐

A 3D model of a wooden door is displayed on the right side of the configuration area. The price is shown as 225.38 EUR.

Figure 11 Finalizing the configuration

Product Variant

Now the sales order line shows a product variant. The variant is created with the options and features and sales price. CPQ has a sales price calculation based on the options. In LN, the total price is stored on the sales order and the price structure is stored as product variant sales price structure.

For assembly items, the bill of material is retrieved from CPQ and stored as Product Variant Structure (tiapl3500m000). For shop floor items, this is done in the Generate Structure process.

ATP Handling

ATP applies for shop floor items only. In case the *CTP Check for Sales* check box is checked (in Planning Parameters, cprpd0100m000), a capable-to-promise (CTP) check can be performed at sales order line entry taking the chosen options into account. This CTP checks invokes a web service call to retrieve the bill of material and the operations, and checks availability of critical materials and critical work centers.

Reconfigure

After configuration is done, it still can be changed. For a sales order with a variant, or from the **Product Variant** (tipcf5501m000) session itself, one can choose the Configure option to do the change the configuration in CPQ. The chosen options are shown and can be changed.

When the Configurator is closed, the product variant and the list of options are updated in Infor LN.

Generate Structure

When configuration is done, configurations for shop floor need the Generate Structure process to proceed. This process creates a customized item for the product variant with bill of material (including customized subassemblies) and routing.

In case of sales quotes and order this is done by the **Generate (Project PCS) Structure** (tdsls4244m000) session. Contract Deliverables and other Project sessions do have a **Generate Structure** option. This process works the same as it does for variants created by the internal configurator.

This session does use the web service to retrieve the bill of material, routing and customized item codes of the configuration. With this information, the customized items (main item and subassemblies) are created, with the related bill of material, operations and optionally related entities such as operations steps, instructions and reference designators.

Copy and delete

When a product variant in LN is copied or deleted, the web service is called to do the same action in CPQ in the background.

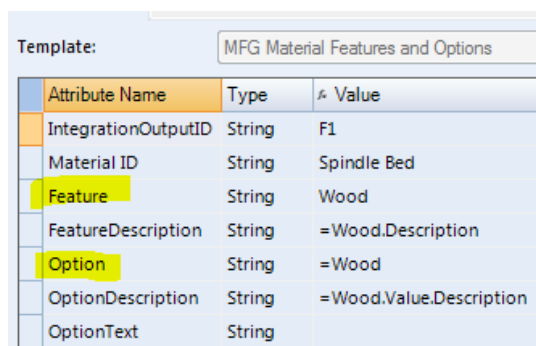
Chapter 6 Modeling tips

This chapter provides tips for creating rulesets in CPQ. The do's and don'ts and other points of attention.

Options

Feature and option codes

Feature and option codes in LN cannot contain spaces: Option 'MF 50900' is not allowed, 'MF-50900' is fine. This means that **Feature** and **Option** attributes in the Features and Options Integration rules should have values with no space.



Template: MFG Material Features and Options			
Attribute Name	Type	Value	
IntegrationOutputID	String	F1	
Material ID	String	Spindle Bed	
Feature	String	Wood	
FeatureDescription	String	=Wood.Description	
Option	String	=Wood	
OptionDescription	String	=Wood.Value.Description	
OptionText	String		

Figure 12 Feature and Options Integration rule

Do not use multibyte text for Feature and Option codes.

Do not use '<' in option text (**OptionText** attribute).

Mandatory

The configuration should have at least 1 feature. LN cannot store a variant with no features.

Material Rules

Configurable Item Code

For the configurable item, the LN item code should match the CPQ **Ruleset Name**. This is case insensitive: If for example the configurator is launched for LN item 'SPINDLE BED', CPQ ruleset 'Spindle Bed' will be used.

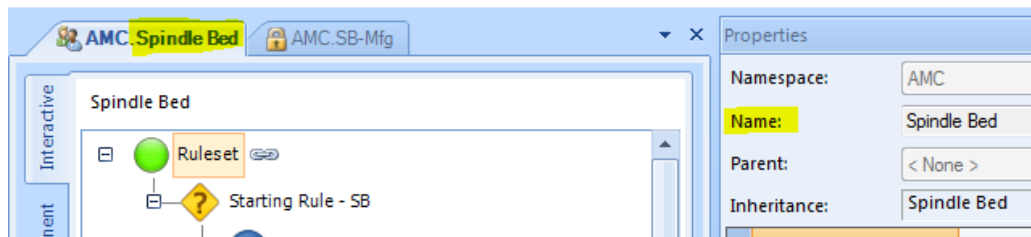


Figure 13 Ruleset Name

Furthermore, the first material rule should refer to the configurable item:

- Rule attribute **PartNumber** should be set to this item code
- Attribute **ParentID** should be empty.

Customized item code

Configurations for shop floor will have customized items created for the variant structure. Since the customized item relates to the product variant – this item code should be unique for the variant.

For CPQ variants, CPQ will provide the customized item code – more precisely the item segment of the item code. LN will add a project code in case check box **With PCS** is selected (Items, tcibd0501m000, before LN 10.6: Items Ordering). This means LN features related to the *Identifying Item Code* Parameter (Product Configuration Parameters) and *Generic item – Settings for data generation* (session tipcf3101m000) will be ignored.

In case PCS (Project Control System) is used in LN, the item code consists of a project and an item segment. The project code can guarantee uniqueness, as long as the same item is configured once for the project. In other cases (same configurable item is configured multiple times for the project or in case no PCS is used) the CPQ ruleset needs to guarantee item code uniqueness.

This should be done via the **ConfigurationCode** attribute of the 'MGF Material' rule. Typically, one can use:

- Add variant number via the **sys.HeaderID** system variable.
- The **IPN** (Intelligent Part Number) variable, and construct a string based on options.

See examples below:

1. Item code with variant number:

Materials	Attributes					
Material ID	Parent Component or Material ID	Operation No	PartNumber	ConfigurationCode		
FF	FishFinder	10	=Model	=Model+ "/" + sys.HeaderID		
*						

2. Item code with option values:

Name	Value
CfgDescription	=Model
IPN	= "Smart" + Model + IF(Cable,"-Ca","") + IF(BPM,"-BPM","") + IF(SSD,"-SSD","") + IF(MountKit,"-MK","")

Materials	Attributes					
Material ID	Parent Component or Material ID	Operation No	PartNumber	ConfigurationCode		
FishFinder			Fish Finder	=IPN		

This logic also applies for standard parts that have **With PCS** set within the Items session (LN 10.6: tcibd0501m000, earlier versions: tcibd2500m000).

Multibyte

Do not use multibyte text for ruleset names and part numbers.

Numbers

Number attributes cannot be left empty – should be set, or if unused be deleted.

Example: Within the MFG Material rule either **CycleTime** or **ProductionRate** needs to be set. If **CycleTime** is set, **ProductionRate** should be removed from the rule.

ID attributes

The material, operation and integration rules have ID attributes for identifying the rules and for references:

- The **IntegrationOutputID** attribute (Integration rules, like *Assembly BOM* and *Feature and Options* Rules) and the **Material ID** attributes must be unique. The **createGuid()** function can be used to do so.

- The **AssemblyBOMID** attribute of an **Assembly BOM Features and Options** Rule points to the **IntegrationOutputId** of the component/item. Similarly, the **Material ID** attribute of an **MFG Material Features and Options** Rule points to the **Material ID** of the component/item.
- The **ParentID** attribute of an Assembly BOM Rule points to **IntegrationOutputID** attribute of the parent rule, like the **Parent Component or Material ID** does for MFG Material rules.
- The **MFG Operation** rule has **Operation No** as identifying attribute. Note that this is a *string*, whereas the operation number in LN is a *number*, and also referring Operation attributes (like in the Operation Steps for Operation Integration rule) are of type number.

Create Component

Create Component can be used to create multilevel structures, like a multilevel generic BOM. This may be, for example, when a configurable bike has a configurable wheel as component.

The rules of the component can use parameters of the parent ruleset. Syntax: **parent.<Variable>**:

- To reference a parent variable, the parent variable must be a Predefined Component Attribute.
- When referencing a parent variable, it is good practice to check whether the parent exists. In that case the component can also be configured directly from LN.

Syntax: *if (NULL(Parent), "value without parent", "value with parent")*.

Predefined Component Attributes

CPQ has predefined component attributes. A few of these are taken as configuration (variant) content in LN:

- **CfgDescription** as product variant description of the configuration.
- **ConfiguredPrice** as sales price of the product variant.
- **ConfiguredQuantity** as the order quantity for the configuration.

In addition to the product variant sales price, one can store a sales price structure in LN. This is based on the **ConfiguredPrice** attribute of the MFG Material rule (which can be set for the first rule – for the main item – and for the rules of the configurable subassemblies).

Chapter 7 Runtime usage

This chapter provides information you use to verify and troubleshoot the integration.

Verifying data flow

When configuration is done, and product variant is created, one can check whether this is done by CPQ or the internal configurator. The Product Variant (tipcf5501m000) session will show the **CPQ Configurator Variant** indicator in case of a hybrid situation (with also PCF implemented), a **Status** field and a **Product Variant Valid** indicator.

☐	Product Variant		Item		CPQ Variant	Status	Product Variant Valid
	=	+a	+a	+a	=	=	=
☐		430	CX579	FISH FINDER	☒	Success	☒
☐		431	GZ144	FISH FINDER	☒	Success	☒
☐		432	CX346	FISH FINDER	☒	Success	☒
☐		433	Custom Bike: TA-UT-RB	BIKE RAL	☒	Success	☒
☐		436	Custom Truck: SLP-LW-ST	TRK100	☒	Success	☒
☐		437	Custom Door:30 x 80	WOOD-DOOR	☒	Success	☒
☐		438	Custom Door:30 x 80	WOOD-DOOR	☒	Success	☒
☐		440	Custom Door:30 x 80	WOOD-DOOR	☒	Success	☒

Figure 14 Product Variant Status

The status can have these values:

- Initial
- Success
- Partial Save
- Error

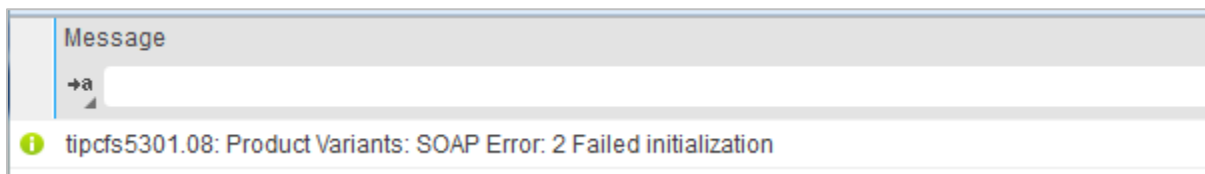
The CPQ Simulator (<https://<server>/CPQ/Simulator/>) can be used to check rulesets and to trace configurations. The configurations are identified by

- CPQ *HeaderID* is set to LN product variant number
- CPQ *ConfigurationID* is set to LN company number

Error handling

Following typical errors can show up in the configuration process:

- CPQ Configurator cannot be started and *SOAP Error 7 (Could not connect to server)* is given.
Possible reason: Server is not running.
- Configurator cannot be started; error message *Cannot find configuration file* pops up.
Reason: wrong URL is defined in LN.



- The profile as specified in LN does not exist in CPQ.

