Fitrix™

Product Configurator ♦ Product Guide

Version 7.0

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Fourth Generation Software Solutions
700 Galleria Parkway, Suite 480
Atlanta, GA 30339
http://www.fitrix.com

Corporate: (770) 432-7623
Fax: (770) 432-3447
E-mail: sales@fitrix.com

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Chapter 1

Introduction

Features/Function Highlights

- **Modular Integration** – Direct integration with Fitrix Bill of Material, Standard Routing, Inventory Control, Order Entry, and Production Order Processing.
- **Configuration Definition** – defines optional features to be selected and included in the production of an item. Features are defined in the form of questions to be answered at the time an order is placed for a 'configurable' item. Questions have one or more answers that in turn:
    - Include specific additional component items to be included on the production order
    - Include specific additional routing steps to be included on the production order
    - Include additional miscellaneous costs to be added on a production order
    - Activate/deactivate other related questions
    - Activate/deactivate other related answers
    - Automatically set answers to other related questions
    - Configured items can be produced for direct sale on a sales order, or produced to stock, for later sale. When creating an order for a configured item, a previous full configuration can be used as the base for a new order, allowing the user to focus on making only the necessary changes.
- **Formula Definitions –** provides a flexible approach to defining the quantity and text-related details for a configuration:
    - Component Quantities can be defined as the result of a computation of one or more answers, with other constants
    - Component Descriptions can be defined as the combination of fixed text merged with answers to configuration questions
    - Routing Descriptions can be defined as the combination of fixed text merged with answers to configuration questions
- **Configuration Generation** – allows the user to create a custom configuration for an item by prompting with questions and processing answers from a defined configuration. The prompting will happen automatically when a sales order or production order is entered for a configurable item. Configurations can also be generated for items as a standalone option, then saved for later re-use in sales or production.

- **Configurations in Inventory** – views the inventory status of any configured items which were produced and placed in stock. Shows the inventory status of the item, along with its serial number an configuration details.

Overview

This overview describes the powerful features of the Product Configurator module. Information regarding the specifics of setting up this module and detailed descriptions of the various screens are contained in subsequent chapters of this User Guide.

We strongly recommend you read this Overview before reading the other sections of this User Guide. The Overview consists of the following sections:

Configuration Definition Basics

The Product Configurator defines items which can be produced with a combination of standard components and operations, and options which may include additional components, operations and costs. The resulting item is composed of a customized bill of material and routing, and costs and price specific to the single item. The item can be placed into inventory, or directly sold on a sales order.

Defining the configuration for an item brings together multiple disciplines within an organization:

- **Engineering** – the list of component materials that could be used to produce the item must be identified as:
    - The common list of components that should be included, regardless of the options selected
    - The additional components needed when an option is selected
    - The common list of labor and machine operations that should be included, regardless of the options selected
    - The additional labor and machine operations needed when an option is selected
- **Production and Inventory Control** – base and optional components must be identified as either stocked, non-stocked or phantom items. When defined as phantom items, components can be 'exploded' to lower level items that will be included in the component list on a production order
- **Cost Accounting** – All costs to produce a configurable item must be classified as:
    - **Material** – stock or non-stock components consumed in production
    - **Labor and Overhead** – added at standard labor and overhead rates per hour, when labor hours are reported during production
    - **Outside Process** – added at a cost per piece when reported against routing steps defined as 'outside process'
    - **Miscellaneous** – other costs such as packaging, administration, handling, etc.
- **Sales and Marketing** – The base configured item is established with a list price, and options will be defined with their own prices, to be accumulated with the base item to calculate a total price for the fully configured item.

Configuration Groups

Configurations are defined in configuration groups. A group typically relates to generic collection of similarly configurable items. For example: bicycles, computers, desks, etc. You may decide to establish multiple end item numbers for bicycles, but they may all be configured by the group 'BICYCLE'.

Within a configuration group, other configuration properties are also defined:

- Options
- Questions, Answers and Responses
- Formulas

Configuration Options

Options are a key building block in configuring an item. An item can be composed of an unlimited number of options, and each option contains details about how to add component materials, labor operations, and miscellaneous costs to the item.

Component Materials

Each option is defined with its own bill of material, The bill of material is appended to the base item's bill of material, to create a customized list of components for the specific unit being produced.

Labor Routing

Each option is defined with its own routing, The routing is appended to the base item's standard routing, to create a customized list of labor and/or machine operations for the specific unit being produced.

Miscellaneous Costs

Each option can be defined with a list of extra costs to be charged to the production order. The costs are added to component materials and labor routing to compute a total cost to produce the configured item.

Configuration Questions, Answers, and Responses

While options define the details behind configured items, selecting the proper options for an item can be a very complex process:

- Options must be selected in a specific order, to ensure that the resulting configuration is logically 'manufacturable'
- Certain options may be mutually exclusive with other options
- Complex options can require a level of product knowledge that is not practical for some-one placing sales orders.

As a result, the configuration for an item is defined as a series of text-based questions to be answered by the end user. Questions are presented in a specific order, with predefined answers which are selected or entered by the user. The answers to these questions will trigger responses, which the configurator uses to ultimately define the options to be added to the base item.

Questions and Answers

Questions and answers are typically expressed in complete sentences:

- Question – 'What size bicycle do you want?'
    - Possible answers:
        - 20 inch
        - 26 inch
        - 28 inch
- Question – 'What color should the bicycle be?'
    - Possible answers:
        - Red
        - Blue
        - Green
- Question – 'How Many gears should the bike have?'
    - Possible answers:
        - 1-speed
        - 6-speed
        - 12-speed
        - 18-speed
- Question – 'How many spare tires do you want to include?'
    - Possible answer – From 1 to 10

Responses

Responses are actions taken by the configurator, based on the selected or entered answers, to:

- Alter subsequent questions
- Alter answers to subsequent questions
- Auto-fill an answers to a subsequent questions
- Choose the options to be added.

Examples, based on the questions above:

- The bicycle designer knows that when a 20-inch bicycle is selected, the only color possible is black, so the question ‘What color should bicycle be’ should be turned off altogether.
- Sales history shows that 26 inch bikes are only sold in Red and Blue, so if the user selects a 26 inch bike the Green color answer should be turned off.
- The service department has seen a high incidence of flat tires on 28 inch bikes, so when the user selects a 28 inch bike, the ‘How many spare tires do you want to include’ question will be automatically filled with ‘10’

Each answer can have more than one response. So, an answer could cause one or more responses that:

- Turn on a later question
- Turn off a later question
- Turn on/off the answer to a later question
- Set a default answer to a later question
- Select an option

Ordering of Questions

The Product Configurator does not perform any testing of selected options relative to other selected options:

Examples:

- ‘A 26 inch bike cannot be selected in the color Green’
- ‘A 20 inch bike cannot be selected with 18-speed gearing’
- ‘A 20 inch bike cannot be sold with spares’

To manage the compatibility of options in a configuration, the questions must be structured in a sequence that controls the ‘selectability’ of options:

Examples, based on the above conflicts:

- Ask the question about bike size first, and when ’26 inch’ is selected, turn off the ‘Green’ answer in the color question
- Ask the question about bike size first, and when ’20 inch’ is selected, turn off the ’18-speed’ answer
- Ask the question about bike size first, and when ’20 inch’ is selected, turn off the question ‘How many spare tires do you want’

It is helpful to compare the order of questions to a decision-tree, where:

- A decision point is similar to a ‘question’

- Selecting a branch is similar to an 'answer' to a question
- Selecting a branch may lead to other decision point
- Selecting a branch precludes the possibility of going back an earlier decision point
- An end branch with no more decision points is similar to an 'option'

Configuration Formulas

Formulas add flexibility to options being generated. As noted earlier, options can include the addition of component materials to a configured bill of material, labor steps with detailed instructions, and additional costs.

Component Material Quantities

Components in a bill of material are typically based on the number of units of the component to produce one unit of the parent item. Options allow components to be added with a 'Quantity Type' that is one of the following choices:

- A quantity to be multiplied by the number of unit of the parent item
- An absolute quantity, which does not change based on the parent item order qty
- A 'formula', which is the result of:
    - Answers selected for one or more questions
    - Answers combined with one or more 'constants'
    - Other formulas

Example:

- The component item '1001-20-FRAME' (20-inch bike frame) should be added to the production order, with a quantity of 1 times the number of bikes ordered
- The component item '1001-BOOK' (operator's manual) should be added to the production order, with an absolute quantity of 1 (only 1 manual is needed, regardless of the number of bikes produced).
- The component item '1001-SPARE' (spare tires) should be added to the production order to make a bike, and it's quantity will be based on the answer to the 'How many spare tires do you want to include?'

When a formula is used, it is assumed that the formula has been set up in advance. The formula is referenced as part of a specific configuration group, with a unique identifier. It contains a text value, which is the formula to be calculated.

Example:

- Formula 'SP' is set up with a value of:
  &SPARES
    - The quantity will be based only on the answer to the question &SPARES (the internal identifier created for the question 'How many spare tires do you want to include?')
- Formula 'SP2' is setup up with a value of:

&SPARES * 2

    - The quantity will be based on the answer to the question &SPARES, times 2
- Formula ‘SPEXTRA’ is setup up with a values of:
  &&SP + (&SPARES / 4)

    - The quantity will be base on:
        - The result of formula &SP, plus
        - The answer to question &SPARES, divided by 4

Component Item Descriptions

When components from options are added to the bill of material, their descriptions can be defined as fixed text (from the component item’s description in the Item Master), or a combination of text and answer values:

Example:

- When setting up item ‘1001-PAINT’ as a component in the Item Master table, we enter a description of ‘Bicycle Paint - &COLOR’
- When a user entering an order for the bicycle selects the ‘Red’ answer to the question ‘What color should the bicycle be?’ (internal identifier &COLOR)
    - The component ‘1001-PAINT’ is added on the bill of material for the production order of the bike, and it’s description will be loaded as:
      ‘Bicycle Paint – Red’

Routing Step Descriptions

When routing steps from options are added to the configured item’s routing, their descriptions can be defined as fixed text (from the routing step’s description in the option), or a combination of text and answer values:

Example:

- When setting up routing step ‘0100’ in the routing for option COLOR on the bicycle’s configuration definition, we enter a description of ‘Paint bicycle in the &COLOR spray booth’
- When a user entering an order for the bicycle selects the ‘Red’ answer to the question ‘What color should the bicycle be?’ (internal identifier &COLOR)
    - The routing step is added to the routing for the production order of the bike, it’s description will be loaded as:
      ‘Paint bicycle in the Red spray booth’

Configuration Generation

This function uses a defined configuration to interact with the end user to configure an actual item being produced. The generation window presents the questions, allows the user to select or manually enter answers to the questions, then save the resulting configuration under a uniquely assigned configuration ID.

The generation can be accessed in one of three ways:

- Automatically when a configurable item is added to a sales order
- Automatically when a configurable item is entered as the end item on a production order
- Via the Configuration Generation menu option – but no production order generated.

When a configuration is generated, a user-defined 'Catalog' identifier can also be assigned. This is especially useful when a specific configuration is requested frequently. When a configurable item is entered on a sales or production order, and the user is prompted to enter a configuration, they may select or enter this catalog, and the configuration questions and answers will automatically display as there were originally defined. This saves additional keystrokes and ensures that configurations are entered exactly the same as a previous occurrence. The catalog-based configuration can be accepted as-is, or adjusted to reflect specific requirements.

Example:

- Blue, 26 inch, 16-speed bicycles with 2 spare tires are ordered frequently. A configuration is generated for this combination, and saved as catalog 'BLUE26/16/2'. So anytime a configurable item is entered on a sales order, the user can enter this catalog, and the questions will display, with the above answers automatically selected.

Configured Items in Inventory

When a configured item is produced, it is most typically shipped to a customer on a sales orders. It is possible, though, that a configured item might be manufactured, then placed in inventory for a later sale. The Configured Inventory function lets you review these items in inventory, including:

- The serial number assigned to each unique unit produced
- The cost/price of the base item, and the cost/price of the added options
- The configuration details of the item (components used, labor steps, and miscellaneous costs)

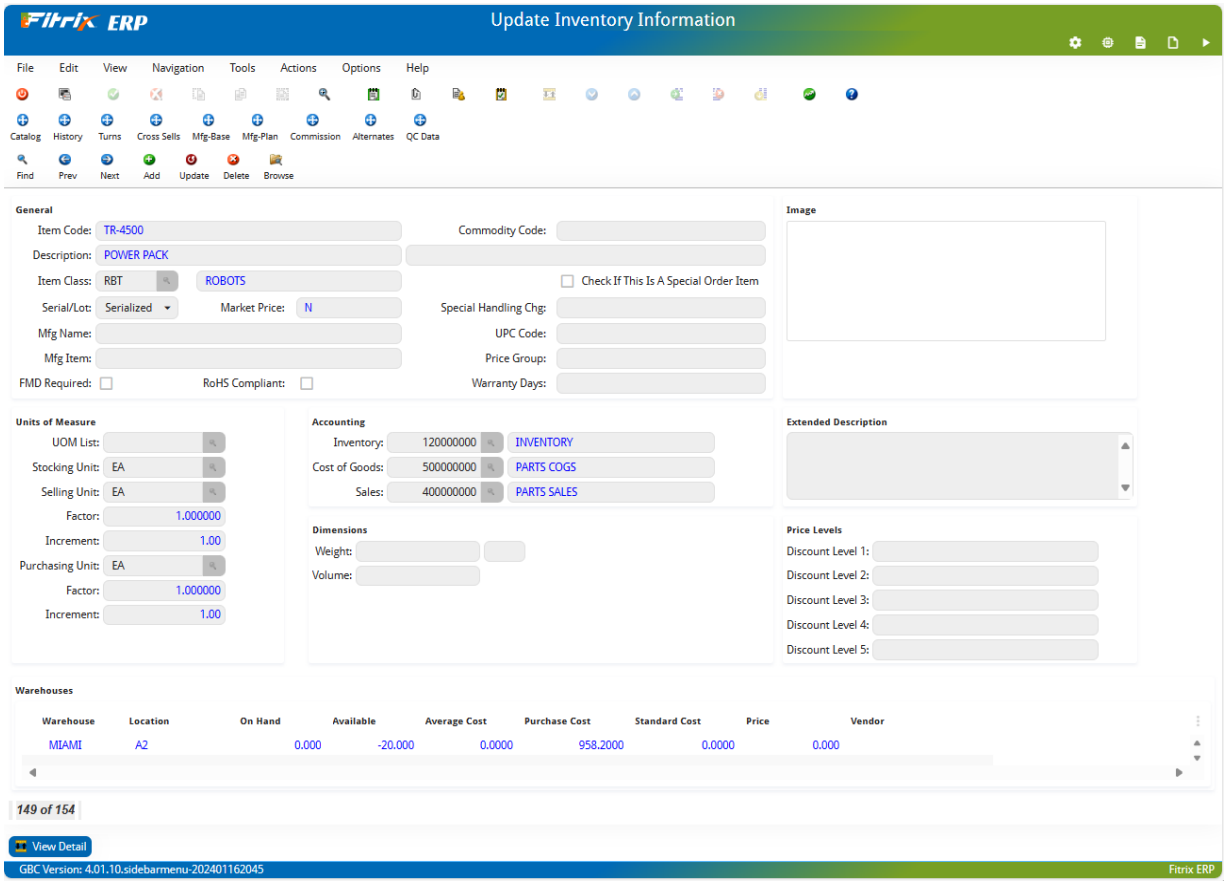
Chapter 2

Configurable Items

This chapter describes how items indentified as ‘configurable’.

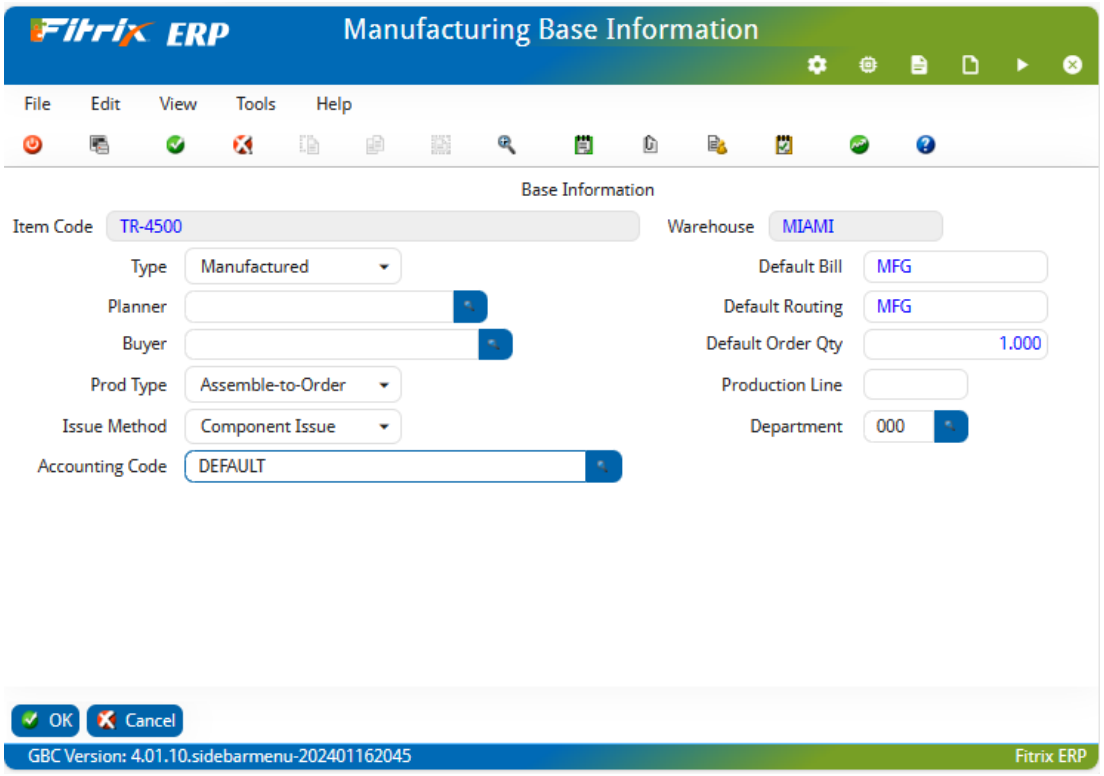
Update Inventory Information

Configurable items are set up using the Update Inventory Information, in the Inventory Control/Inventory Maintenance menu. They are entered very similarly to other stocked items.



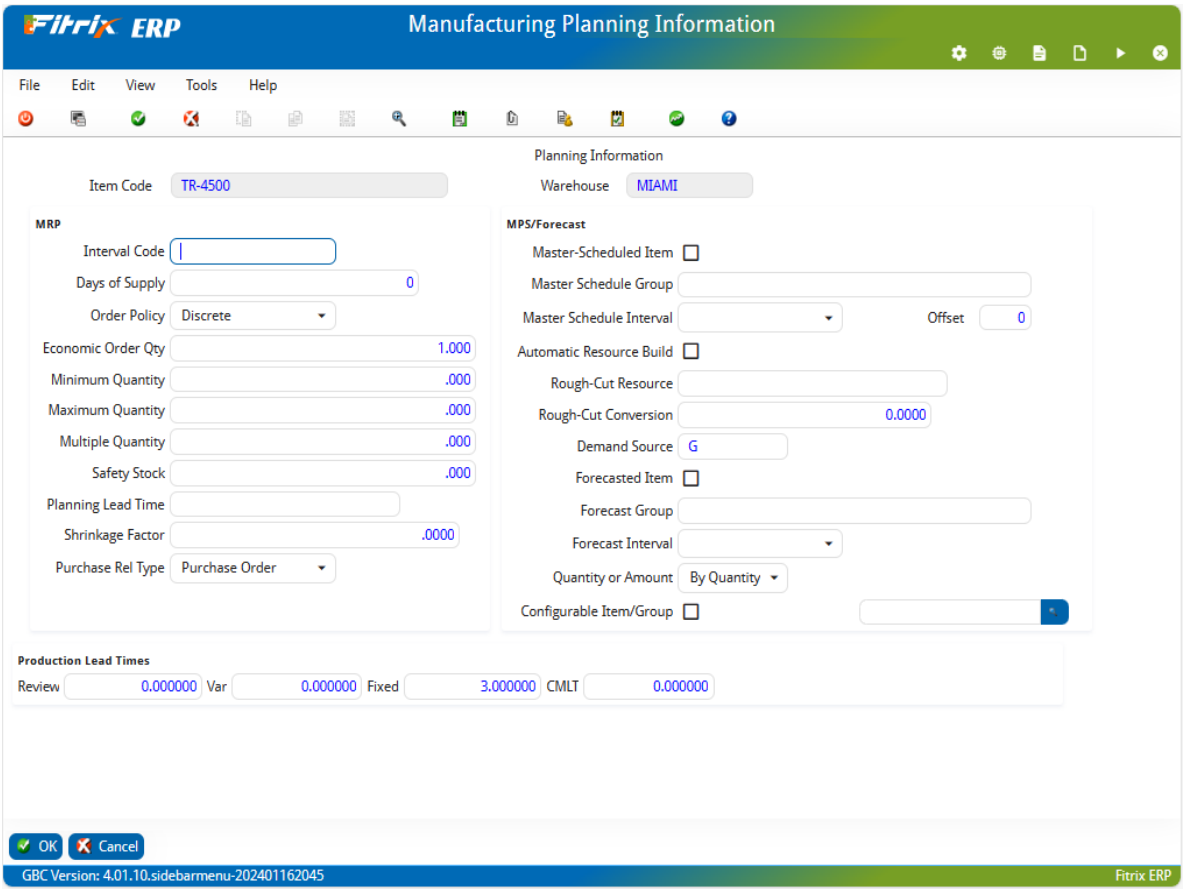
Configurable items must have their 'Serial/Lot' value set to 'Serialized'. Each unit of a configured item can have different characteristics, and since configured items can be stored in inventory, they must be identifiable by serial number, to view their configuration details.

To make an item in the Item Master configurable, it must also have properties set in the Warehouse Detail definition, for each warehouse in which the item can be stocked. While maintaining the item in Update Inventory Information, navigate to the Warehouses section, on the applicable warehouse for the item, then click the Mfg/Wh-Base button. The following window will display:



On the Prod Type (Production Type) column, select the 'Assemble-To-Order' button.

Also click the Mfg/Wh-Plan button from the Warehouses section, and the following window will display:



Make sure the Configurable Item is checked, and enter an option configuration group (or zoom to select from a list). This group will automatically display during configuration generation for the item.

Defining Components to be used on Configuration Options

Component items must be set up using Update Inventory Information before they can used on options for a configuration group.

Defining Routing Steps to be used on Configuration Options

Resources needed on routing steps used on options for a configuration group, must be set up first, using the Standard Routing/File Maintenance options, for:

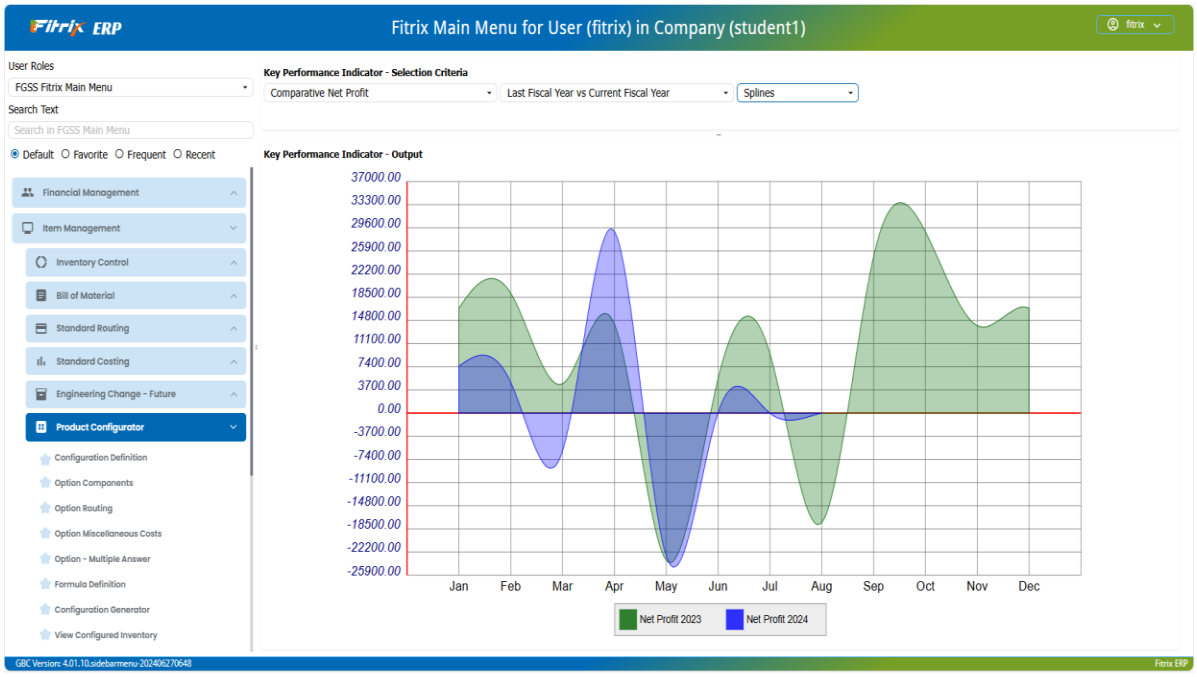
- Departments
- Work Centers
- Machines

- Teams

Chapter 3

The Product Configurator Menu

This chapter provides a brief explanation of the options on the Product Configurator menu. All options for working with configurations are on this menu. The main menu is accessed from the Item Management menu:



The following options are accessible on this menu

- Configuration Definition – add, update or delete configuration groups, as well as work with the questions, answers and responses for a group
- Option Components – Define options within a group, and their associated component items.
- Option Routing – Define options within a group, and their associated routing steps.
- Option Miscellaneous Costs – Define options within a group, and their associated miscellaneous cost elements
- Formula Definition – Add, update or delete formula codes and formulas within a configuration group.
- Configuration Generator – Create or change a configuration
- View Configured Inventory

Chapter 4

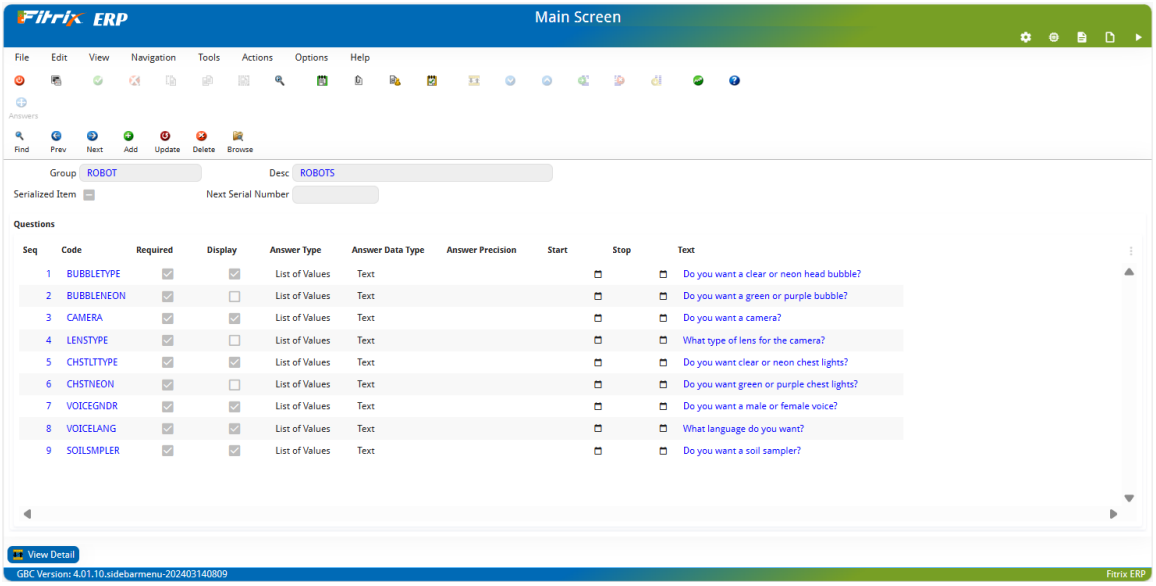
Defining Configurations

This chapter describes the detail and flow of setting up and defining configuration groups.

Configuration Definition

This is menu option 1 on the Product Configurator menu. Use this function to perform the following tasks:

- Add, Update or Delete configuration groups
- Define questions
- Define answers to questions
- Define responses for answers



Group

Enter a unique group code, up to 15 characters, representing the group. This is a required field.

Desc (Description)

Enter a free-form description for the group. This description will display when using the Configuration Generation option.

For each group, enter one or more questions:

Seq (Sequence)

Enter a number to specify the order in which the question will display.

Code

Enter a unique code, up to 10 characters, to uniquely identify this question within the group. It is usually entered as an abbreviation for the question text.

Required

Check if an answer to this question is required. Uncheck if an answer is optional

Display

Check if this question should be displayed initially, when beginning a new configuration

Answer Type

Select one of the following values:

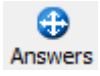
- List of Values – The allowed answers will be included individually. The user must enter or select an answer from one of the allowed answers
- Range of Values – The answer must be in a range of number values defined in the answer to this question

Start/Stop

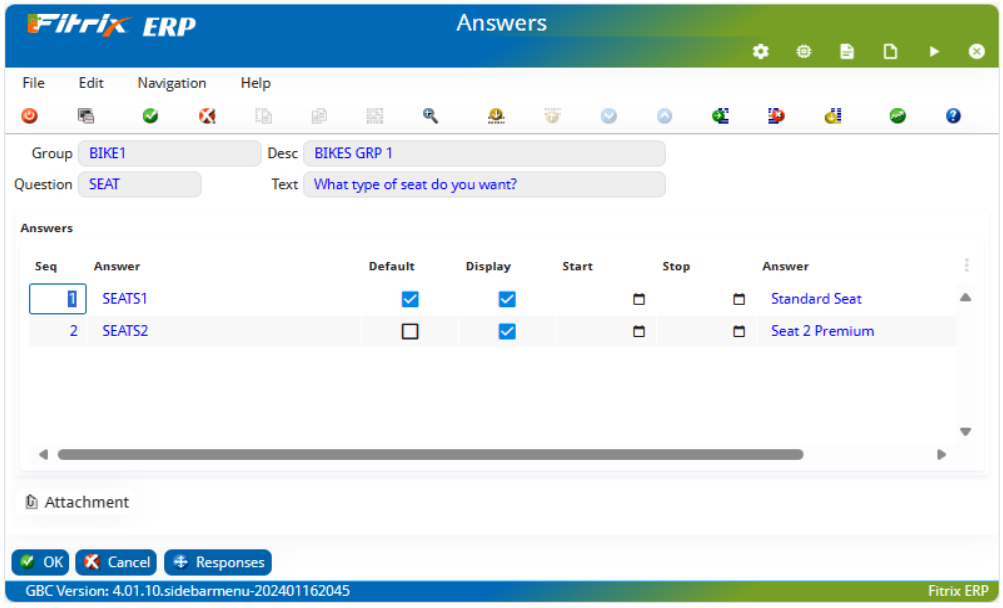
Enter the start and stop dates for this question. If a configuration is generated on a date before the 'Start', or after the 'Stop', the question will not display. Leave these values blank if you wish to always ask the question.

Text

Enter the text of the question the user will see when generating a configuration.

For each question, click the 

button to see the following window:



Seq (Sequence)

Enter a number to specify the order in which the answer will display. In configuration generation, the user can enter an answer to a question, or zoom to see a list of allowed answers (if the answer type is 'List of Values'. The answers will display sorted in Sequence order.

Answer

Enter a unique code, up to 30 characters, to uniquely identify this answer to the question within the group. It is usually entered as an abbreviation for the answer text.

Default

Check if this answer should display as the default answer to the question when generating a configuration. Uncheck if this is not the default answer.

NOTE: Only one question can be checked per question

Display

Check if this answer should display as a possible choice initially. Uncheck if it should NOT display initially.

Start/Stop

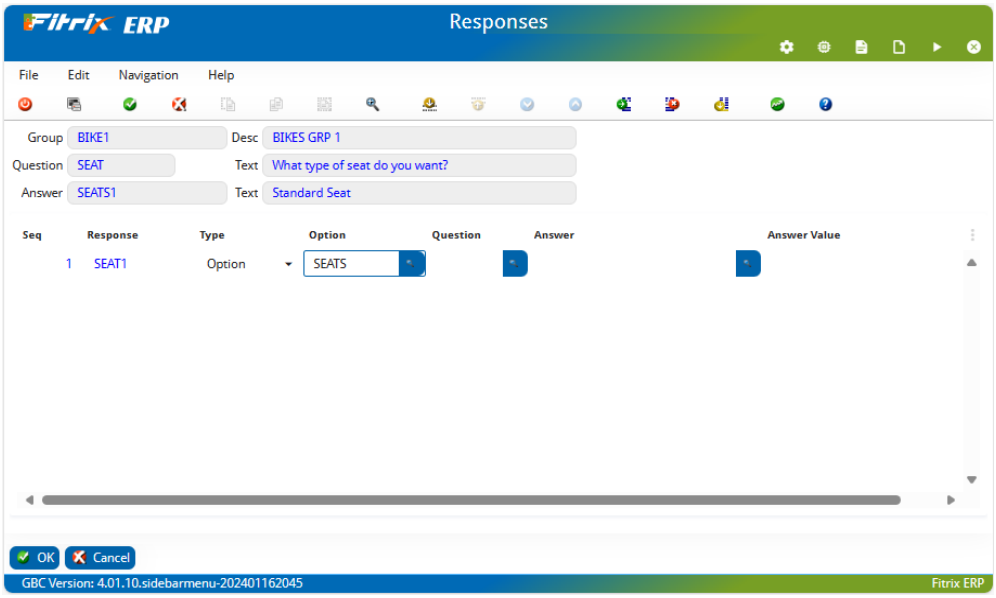
Enter the start and stop dates for this answer. If a configuration is generated on a date before the 'Start', or after the 'Stop', the answer will not display. Leave these values blank if you wish to always display the answer.

Answer (Text)

Enter the text of the answer the user will see when generating a configuration.

For each answer specified, click the 

button to see the following window:



Seq (Sequence)

Enter a number to specify the order in which the response will be processed. In configuration generation, when the user selects an answer to a question, the associated responses are execute immediately. See the 'Type' column below to understand what types of responses are possible.

Response

Enter a unique code, up to 10 characters, to identify this response.

Type

Enter one of the following values:

- Option – activates the associated option, defined in the column 'Option'
- Question Off – tells configuration generation to remove the associated question from the list of questions. If this question is currently being displayed, it will immediately be re-moved from the display

- Question On– tells configuration generation to add the associated question to the list of questions. If this question is currently not being displayed, it will immediately be added to the display, in the proper location, based on the question's 'Sequence' value.
- Answer Off – tells configuration generation to remove the associated answer from the associated question. If this answer is currently being displayed, it will immediately be replaced on the display, by the question's default answer. If the answer begin turned off is the question's default answer, the answer will be blanked out.
- Answer On– tells configuration generation to add the associated associated answer to the list of answers for the question.
- Answer Set – tells the configuration generation to automatically answer the associated question with answer entered in the 'Answer Value' column.

Option

If the Type is 'Option', enter or select an option already defined for the group.

Question

If the Type is 'Question Off/On', 'Answer Off/On', or 'Answer Set', enter the question code to be affected.

NOTE: the question code must have an associated sequence number which is HIGHER than the question associated with this response. The configurator does not allow a 'later' question to affect the existence of an 'earlier' question.

Answer

If the Type is 'Answer Off/On' enter the answer code to be affected.

Answer Value

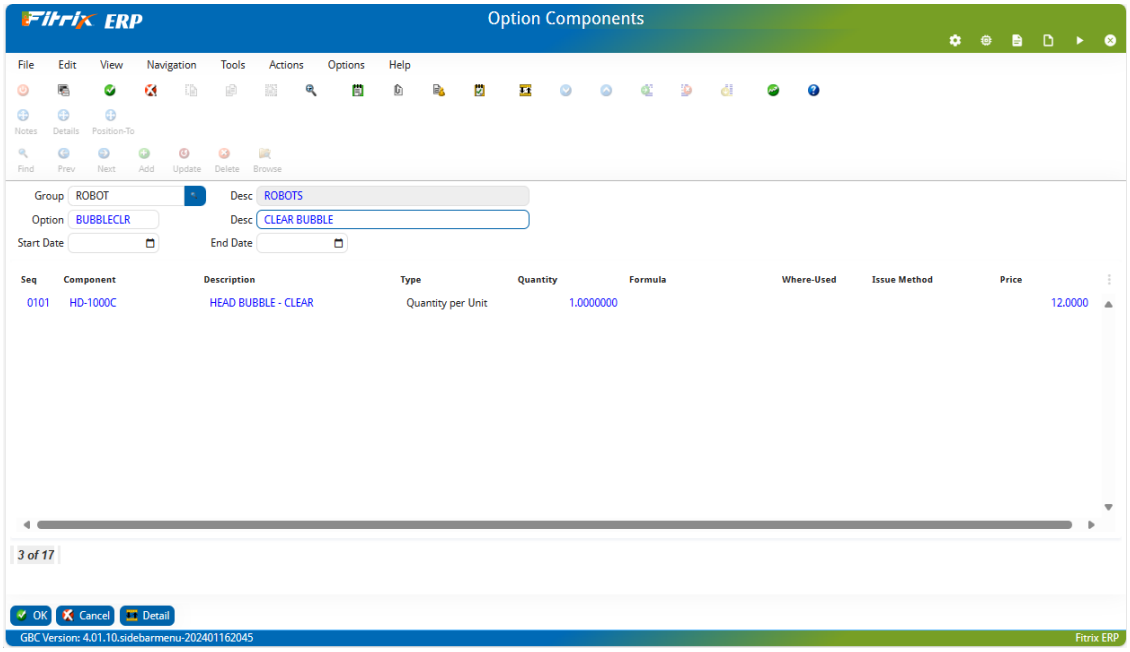
If the Type is 'Answer Set' enter the answer to be supplied.

NOTE 1: if the question type is 'List of Values', the Answer value should be on one of the listed values.

NOTE 2: if the question type is 'Range of Values', the Answer value should be within the required range of values.

Option Components

This is menu option 2 on the Product Configurator menu. Use this function to define an option within a configuration group, and to add or change component items to be added to a base configuration, for the group, when the option is selected during configuration generation. When you select the menu option, the following screen displays:



Group

Enter an existing configuration group. The group description will display automatically

Option

Enter a code, up to 10 characters, to uniquely identify this option within the group.

NOTE: A newly entered option, if added here, will create the option for the other Option-related menu options as well. When working with the option using Option Routing or Option Misc Costs, select ‘Find/Update’ to work with it.

Desc (Description)

Enter a free form description for the option.

For each option, enter one or more component items.

Seq (Sequence)

Enter a sequence used to sort this component within the overall list of components.

NOTE: Plan carefully how to use this sequence, as it will be merged with:

- Components from the configured item's base bill of material
- Other components from options selected during configuration generation

The objective should be to use sequence numbers that will display an overall list of components that avoids duplicates, and is meaningful from a business perspective.

Component

Enter a valid item code, or use 'zoom' to display a list of valid items.

Description

The item's description from the Item Master will display as a default, but can be changed. You may enter:

- Free-form text, or
- Text, and variables for text to be substituted at runtime (see Formulas)

Quantity Type

Enter one of the following values:

- Quantity per Unit – The total quantity required of the component will be the 'Quantity' times the number of units ordered for the configurable item.
- Absolute Quantity – The quantity required of the component will be the 'Quantity'
- Formula-Based – The quantity required will be based on a formula (see Formulas)

Quantity

Enter a quantity, if the Type is either 'Quantity per Unit' or 'Absolute Quantity'

Formula

If the Quantity Type is 'Formula-Based', enter the formula code to be used to compute the quantity during configuration generation.

Where-Used

Enter an optional routing step, where this component is expected to be used. When the component is printed on the production order 'Production Packet', the component's where-used value can be helpful in identifying where the component item should be staged for usage.

Issue Method

Enter one of the following values:

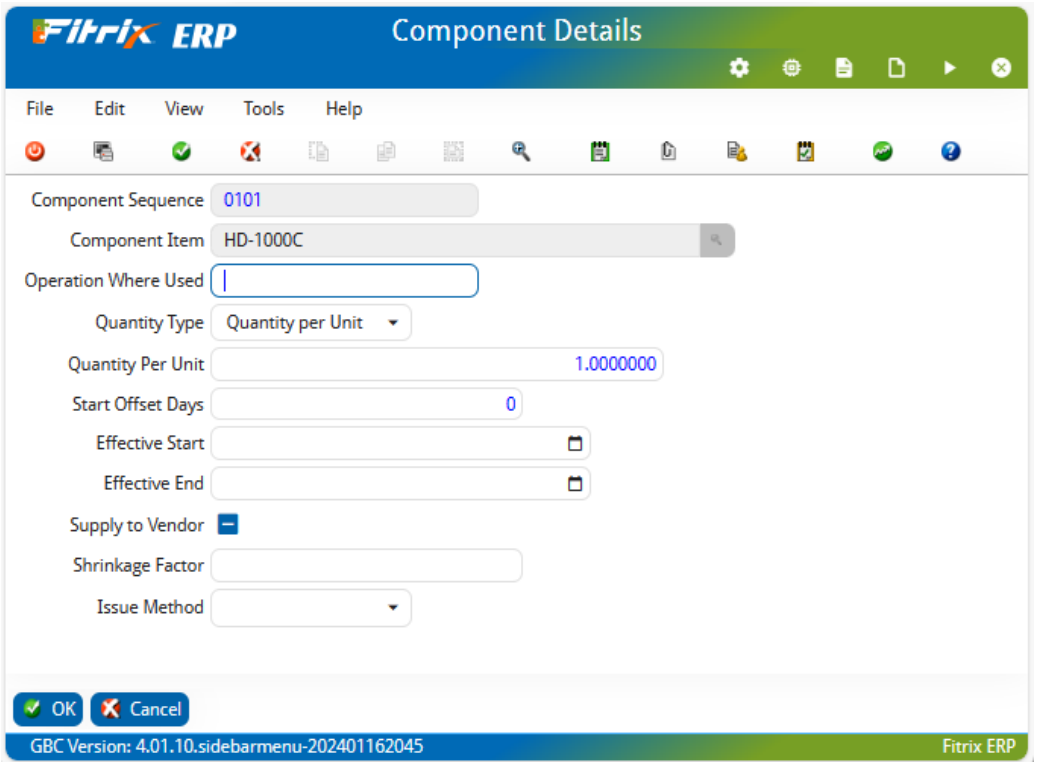
- Production Receipt – component will be issued at the same time as the production receipt for the end item
- Component Issue – component will be issued before the Production Receipt, during the Component Issue transaction.
- Operation Issue – this value is reserved for future use.

Price

Enter unit price to be added to the base item's price when configuring. If the component uses the 'Quantity per Unit' type, the quantity * order qty * price will be added to the base item's price.

Use the Notes button to enter additional notes describing the component in more detail.

Use the Details button to display the following window:



Many of the columns on this window were also displayed on the previous window. The additional columns are:

Start Offset Days

Enter the number of working days after the start of a production that this component is needed. The default is 0.

Effective Start/End

Configurations entered before the start date or after the stop date will not include this component. If you leave these dates blanks, no date checking will be performed

Supply to Vendor

This field is reserved for future use

Shrinkage Factor

Enter a value to reflect the expected loss of the component during production. See the Bill of Material User Guide for more details describing shrinkage factor.

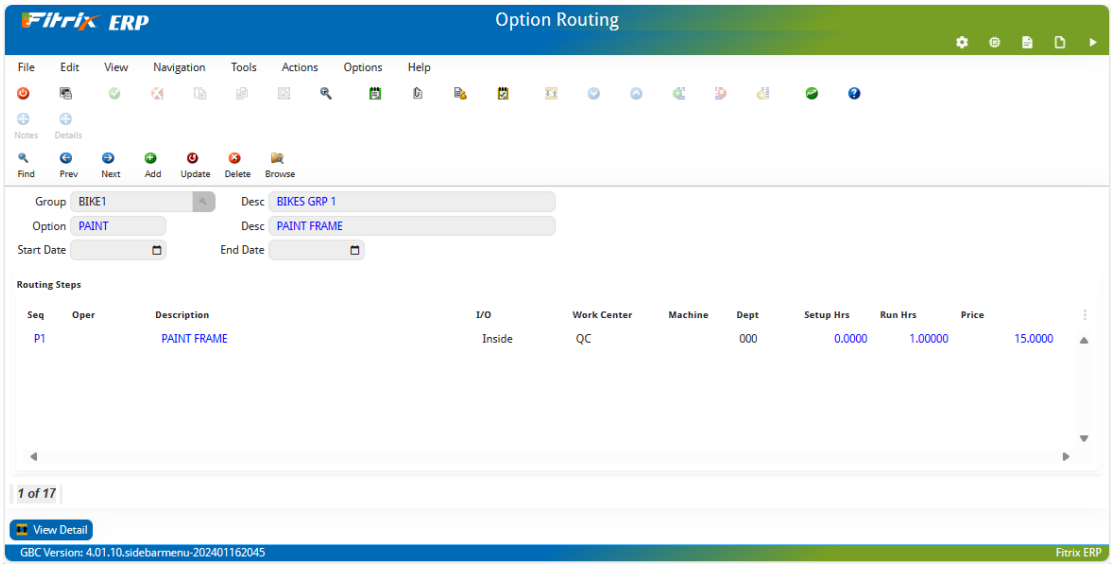
Issue Method

Enter one of the following values:

- Production Receipt – component will be issued at the same time as the production receipt for the end item
- Component Issue – component will be issued before the Production Receipt, during the Component Issue transaction.
- Operation Issue – this value is reserved for future use.

Option Routing

This is menu option 3 on the Product Configurator menu. Use this function to define an option within a configuration group, and to add or change routing steps to be added to a base configuration, for the group, when the option is selected during configuration generation. When you select the menu option, the following screen displays:



Group

Enter an existing configuration group. The group description will display automatically

Option

Enter a code, up to 10 characters, to uniquely identify this option within the group.

NOTE: A newly entered option, if added here, will create the option for the other Option-related menu options as well. When working with the option using Option Components or Option Misc Costs, select ‘Find/Update’ to work with it.

Desc (Description)

Enter a free form description for the option.

For each option, enter one or more routing steps.

Seq (Sequence)

Enter a sequence used to sort this routing step within the overall list of steps.

NOTE: Plan carefully how to use this sequence, as it will be merged with:

- Routing steps from the configured item's base routing
- Other routing steps from options selected during configuration generation

The objective should be to use sequence numbers that will display an overall routing that avoids duplicates, and is meaningful from a business perspective.

Oper (Operation)

Enter an operation code that would have been set up earlier in the Standard Routing module. Entering a valid operation will automatically display an associated description, work center, department, machine, setup hours and run hours. If you leave this column blank, you must enter the remaining columns values.

Description

Enter the routing step's description. You may enter:

- Free-form text, or
- Text, and variables for text to be substituted at runtime (see Formulas)

I/O (Inside/Outside)

Enter one of the following values:

- Inside – This labor step will be performed in the manufacturing facility and appropriate standard labor and overhead rates may be applied to the cost of manufacturing the item
- Outside – This labor step will be performed by an outside business partner, and the partners quoted cost per piece will be added to the cost of manufacturing the item

Work Center

Enter the work center where this work will be performed. The selected work center has associated standard labor and overhead rates, used to calculate the cost of the step. This column is required.

Machine

Enter an optional machine on which the work will be performed.

Department

Enter an optional department in which the work will be performed.

Setup Hrs (Setup Hours)

Enter the time required to prepare resources needed to perform this step.

Run Hrs (Run Hours)

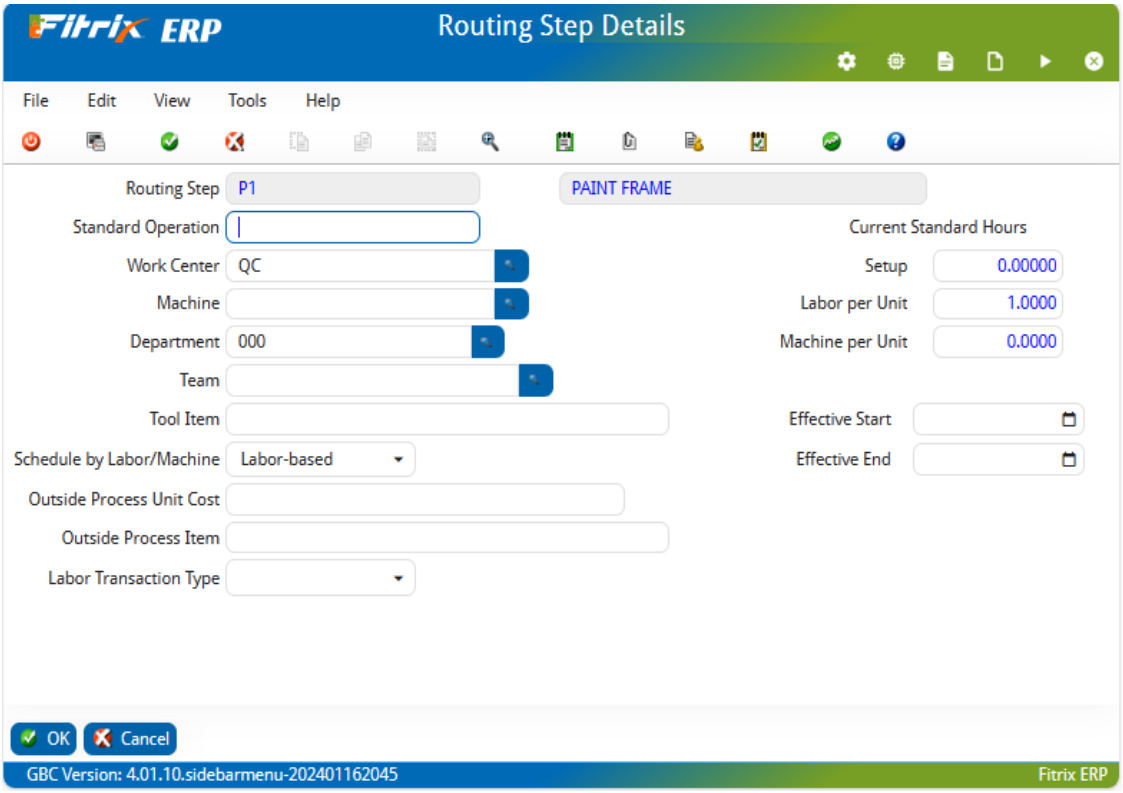
Enter the time required to process this labor step. The time should be interpreted as the hours per piece.

Price

Enter the price amount to be added to the total price of the produced item. This amount should be expressed as a total amount per unit of produced item, NOT as a price per hour.

Use the Notes button to enter additional notes describing the labor step in more detail.

Use the Details button to display the following window:



Many of the columns on this window were also displayed on the previous window. The additional columns are:

Team

Enter a reference to the team of workers responsible for this step.

Tool Item

Enter a reference to the tool or tools needed to perform this step.

Schedule by Labor/Machine

For scheduling purposes, is this step loaded based on labor hours, or machine hours?

Outside Process Cost per Unit

For steps entered with I/O=Outside Process, enter the cost per piece for the process.

Labor Transaction Type

This column is reserved for future use.

Current Standard Hours – Machine per Unit

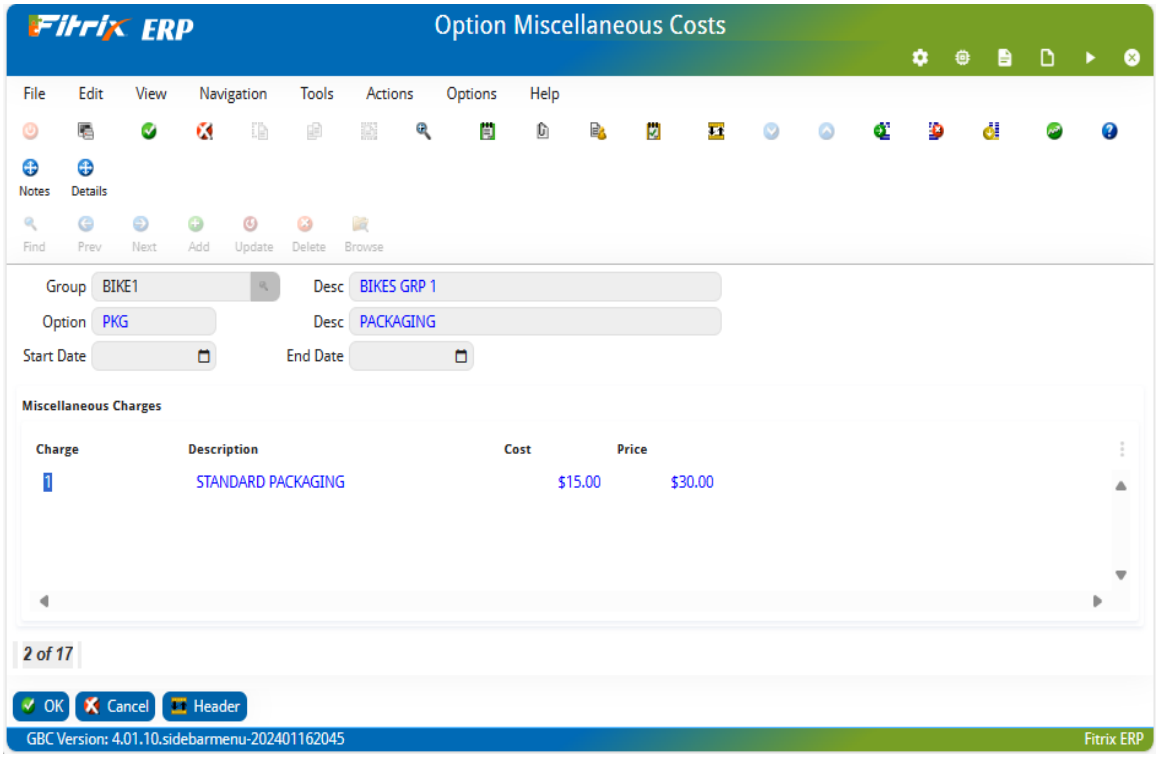
Enter an optional number of hours of machine time to complete this step. These hours can be used to compute a overhead-only cost element.

Effective Start/End

Configurations entered before the start date or after the stop date will not include this routing step. If you leave these dates blanks, no date checking will be performed.

Option Miscellaneous Costs

This is menu option 4 on the Product Configurator menu. Use this function to define an option within a configuration group, and to add or change miscellaneous costs to be added to a base configuration, for the group, when the option is selected during configuration generation. When you select the menu option, the following screen displays:



Group

Enter an existing configuration group. The group description will display automatically

Option

Enter a code, up to 10 characters, to uniquely identify this option within the group.

NOTE: A newly entered option, if added here, will create the option for the other Option-related menu options as well. When working with the option using Option Components or Option Routing, select ‘Find/Update’ to work with it.

Desc (Description)

Enter a free form description for the option.

For each option, enter one or more miscellaneous charges.

Charge

Enter a unique charge code, up to 15 characters, for each charge

NOTE: Plan carefully how to use this charge code, as it will be merged with other charge codes from options selected during configuration generation

The objective should be to use charge codes that will avoid duplicates, and is meaningful from a business perspective.

Description

Enter the charge's description in free-form text.

Cost

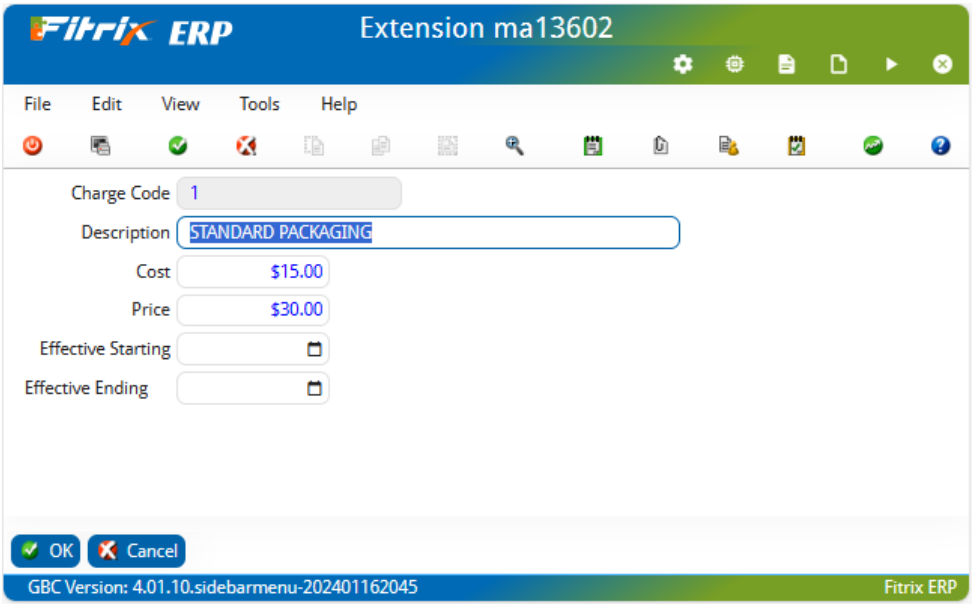
Enter the fixed additional cost for this charge code. This cost will be added to the total cost to produce the configured item.

Price

Enter the fixed additional price for this charge code. This price will be added to the total price to sell the configured item.

Use the Notes button to enter additional notes describing the charge in more detail.

Use the Details button to display the following window:



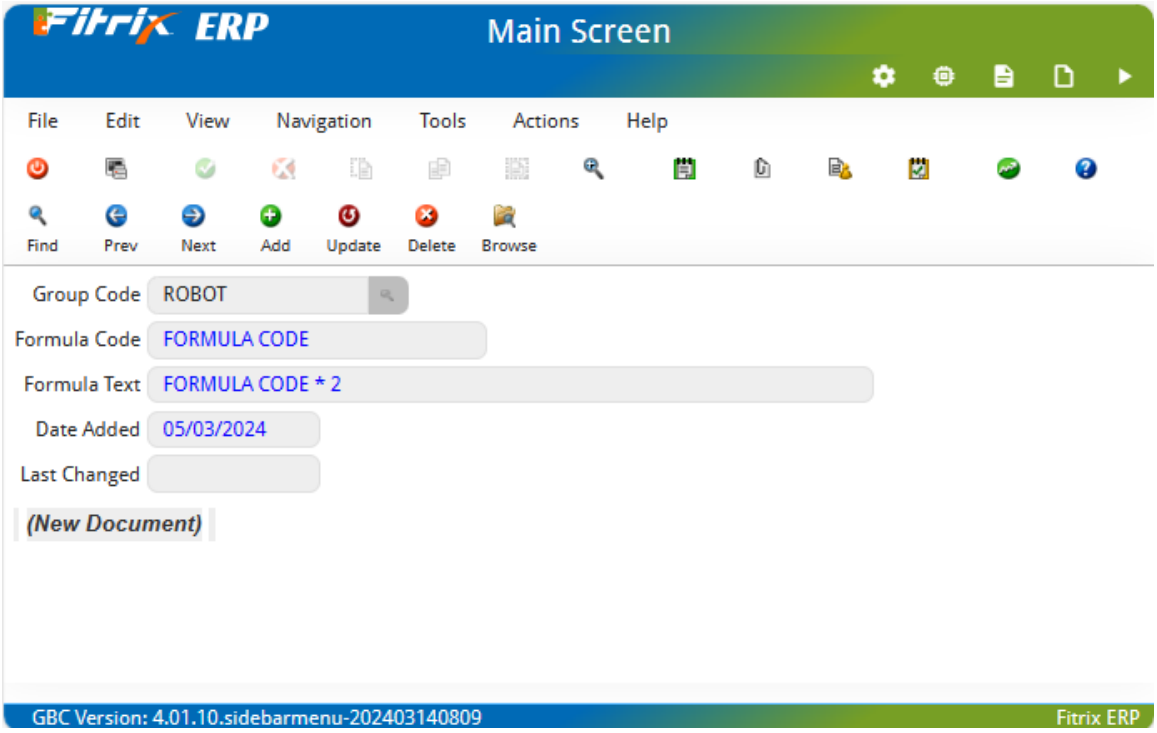
Many of the columns on this window were also displayed on the previous window. The additional columns are:

Effective Starting/Ending

Configurations entered before the start date or after the stop date will not include this routing step. If you leave these dates blanks, no date checking will be performed.

Formula Definition

This is menu option 5 on the Product Configurator menu. Use this function to define formulas to calculate quantity values for component quantities. When you select the menu option, the following screen displays:



Group

Enter an existing configuration group

Formula Code

Enter a unique code for the formula within the configuration group.

Formula Text

Enter a free-form combination of numeric value, arithmetic operators and variable representing answers given to question code, or other formula codes.

Example 1:

Formula Text: &TIRES * 2.0

Description: The resulting value is the answer supplied to question with code TIRES, multiplied by a constant of 2.0

Example 2:

Formula Text: ((&LENGTH * &WIDTH) / 4) * &&FRMLA1

Description: The resulting value is:

- The answer to LENGTH times the anser to WIDTH, divided by 4, THEN
- multiplied by the result of another formula FRMLA1

NOTES: Formulas can be used inside other formulas to compute a resulting value

Date Added

Date the formula was added to the table

Last Changed

Date the fomula was last changed in the table

Chapter 5

Generating Configurations

This chapter describes the step to generate a configuration for an item, based on a previously defined configuration. Configurations are defined for ‘groups’. These groups can now be attached to a configurable item, to generate a configuration that will be manufactured, then sold or stocked in inventory.

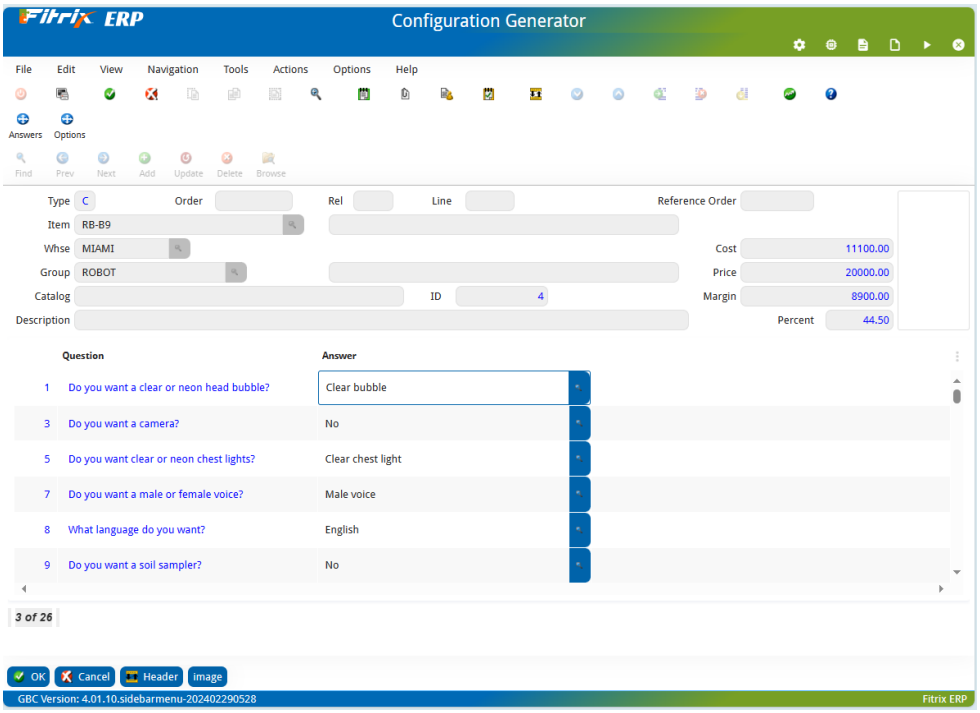
Configuration Generator

This is menu option 6 on the Product Configurator menu. Use this function to generate a configuration for a configurable item. This program can be accessed from one of three functions within Fitrix:

- In Sales Order Entry, when a user enters an item and warehouse that is associated with an item whose Production Type is 'Assemble-To-Order'. The user is automatically asked to begin a configuration. If the response is 'Yes', the generation screen begins in 'Add' mode with heading information pre-filled to indicate that the generation is being created from a sales order.
- In Production Order Entry, when a user enters an end item and warehouse that is associated with an item whose Production Type is 'Assemble-To-Order'. The user is automatically asked to begin a configuration. If the response is 'Yes', the generation screen begins in 'Add' mode with heading information pre-filled to indicate that the generation is being created from a production order.
  NOTE: When access is via either Order Entry function, and the user is prompted to begin a configuration, if 'No' is selected, the line item will be processed with its base bill of material and routing only. Any additional components or routing steps must be added manually to the created production order.

- From the menu option 'Configuration Generator' on the Product Configurator menu. If this option is selected, the user can request 'Add' to generate a new configuration, or 'Update' to update answers for an existing configuration. For a new configuration, the heading information is pre-filled to indicate that the generation is being done manually.

When the menu option is selected, the following window displays:



Type

This value is automatically filled in with one of the following values:

- C - Generated from a manual generation
- S - Generated from a sales order
- P - Generated from a production order

Order

If the configuration is being generated by a sales or production order, the order is displayed

Rel (Release)

If the configuration is being generated by a production order, the order release is displayed

Line

If the configuration is being generated by a sales order, the sales order line for the item is displayed

Item

The end item being configured

Warehouse

The warehouse in which the end item will be produced.

NOTE: The item/warehouse definition must have its Production Type set to ‘Assemble-To-Order’

Group

Enter the configuration group to be used. If the item/warehouse definition has a Default Configuration defined, it will display automatically. The default can be changed.

Catalog

When the configuration is saved, if you want this configuration to support later re-use and copy, enter a unique catalog identifier, up to 30 characters. This identifier must be unique for the combination of the item/warehouse.

ID

A unique number assigned automatically by the system when the configuration is saved.

NOTE: Each configuration generated by this program is retained with its ID, know as a select number, for future reference.

Cost

The computed cost of the configured item. The cost is a sum of:

- The item’s Purchase Unit Cost – in the item/warehouse definition
- The cost of component items added from options – the component item’s Purchase Unit Cost in the item/warehouse definition is used
- The cost of routing steps added from options – the steps Setup and Run Hours are multiplied by the Labor and Overhead Rate from the steps Associated Work Center/Warehouse entry (defined in Standard Routing/File Maintenance)
- The cost of miscellaneous costs added from options

This is an estimated cost only. The actual cost of the item placed into inventory will be the cost of the actual components and options used plus any labor and miscellaneous costs charged to the production work order (not the estimate miscellaneous and labor costs displayed on the configuration screen. See the Production Order Processing User Guide for more details on how to input labor and miscellaneous costs

Price

The computed price of the configured item. The price is a sum of:

- The item's Price – in the item/warehouse definition
- The price of component items added from options
- The price of routing steps added from options
- The price of miscellaneous costs added from options

Description

A free-form description of the generated configuration, for reference purposes

Questions/Answers

Questions and answers will be automatically displayed, when the main window first displays, if the generation was requested from a previously defined catalog. If a catalog was not referenced, the questions will automatically display when the user presses TAB while in the 'Description' column.

Each question is numbered for easy reference

Question

A text question for the user to respond to.

Answer

The user may enter a text response, or press Zoom to select a response from a list of possible answers. If the question requires an answer from a list, the Zoom button will display the list of text answers allowed. If the question requires an answer in a range of values, and window will display the range allowed, and the user must enter a number within the range.

Required

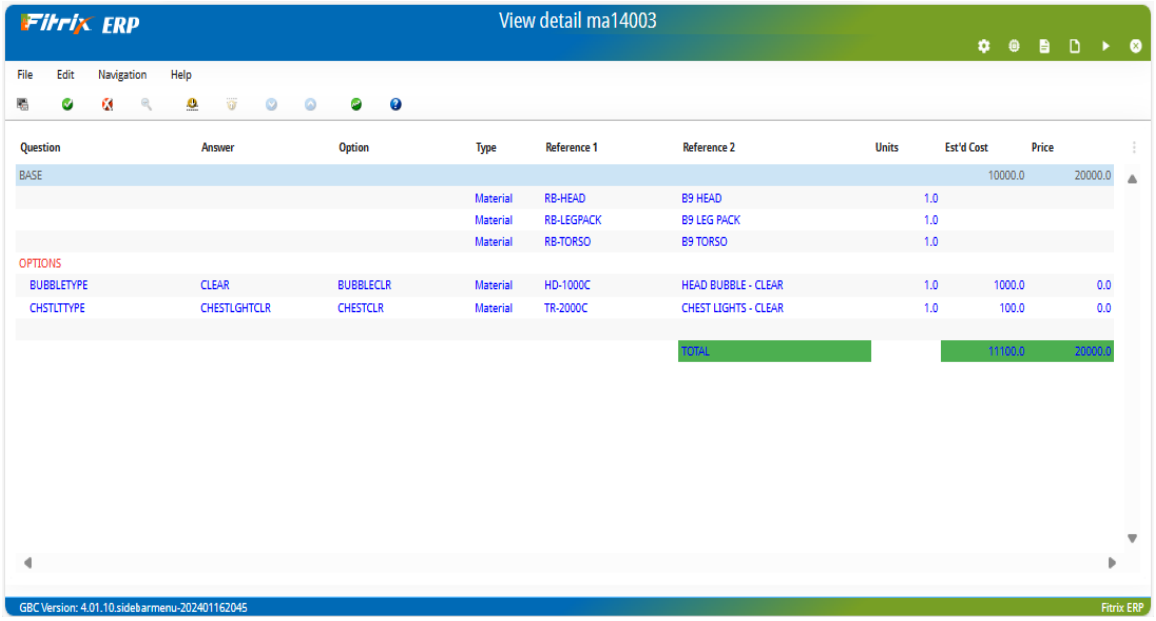
Indicates if an answer to the question is required (checked) or not required (not checked)

General Processing

The user may notice that as questions are answered, other questions may added or removed from the list, and the overall list of questions may expand or shrink. In addition, if the user navigates from a question to an earlier question, and changes the answer, the subsequent questions may change again. This is the normal behavior, depending on how the question, answers and responses were structured in the configuration definition steps.

At any point while answering questions, the user can press the 

button to see a display of the current configuration for the item:



The Options window is divided into 2 sections:

- **BASE** – identifies the components and routing steps originating from the items base bill of material and routing.
    - The ‘Est’d Cost’ comes from the Purchase Unit Cost column in the definition of the item/warehouse
    - The ‘Price’ comes from the Price column in the definition of the item/warehouse
- **OPTIONS** – identifies, by individual option, the components and routing steps originating from the selected option’s base bills of material and routings.
    - The ‘Est’d Cost’ comes from:
        - For type ‘Material’, the Purchase Unit Cost column in the definition of the component’s item/warehouse
        - For type ‘Labor’, the routing steps Setup and Run Labor hours, multiplied by the associated Work Center Labor and Overhead Rates per hour
        - For ‘Misc’, the Miscellaneous Charge cost
    - The ‘Price’ comes from:
        - For type ‘Material’, the Price entered for the component in the configuration option table, multiplied by the quantity
        - For type ‘Labor’, the Price entered for the routing step in the configuration option table

- For ‘Misc’, the Price entered for the miscellaneous charge in the configuration option table

The columns displayed identify:

Question

The internal question code from the configuration definition

Answer

The internal answer code from the configuration definition

Option

The option code activated by the answer

Type

One of the following values:

- Material – refers to component items
- Labor – refers to routing steps
- Misc – refers to miscellaneous costs

Reference 1

- If type is Material, displays the component item
- If Type is Labor, displays the routing step
- If Type is Misc, displays the miscellaneous charge code

Reference 2

- If type is Material, displays the component item description
- If Type is Labor, displays the routing step description
- If Type is Misc, displays the miscellaneous charge description.

Units

- If type is Material, displays the component total quantity required.
- If Type is Labor, displays the run labor hours
- If Type is Misc, this value will be blank

Cost

Displays the total cost for the line item. It will be added to the base cost, to compute the total cost displayed on the main generation screen.

Price

Displays the total price for the line item. It will be added to the base price, to compute the total price displayed on the main generation screen.

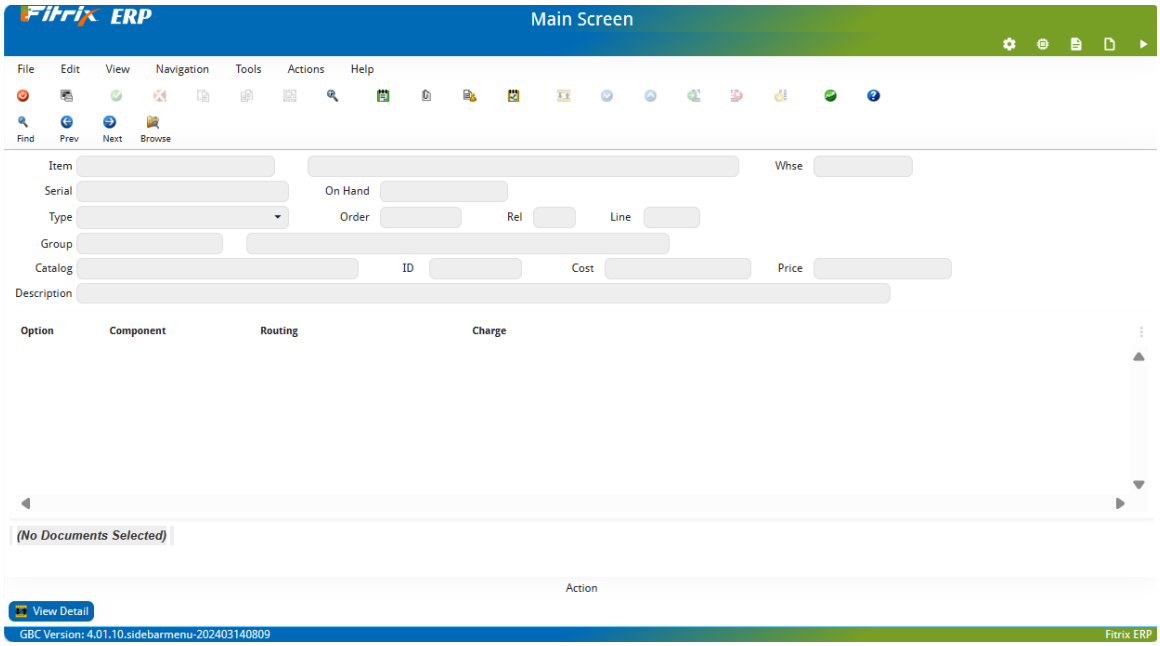
Chapter 6

Inquiries

This chapter describes the menu options available to view the status of configurations and configured items in inventory

View Configured Inventory

This is menu option 7 on the Product Configurator menu. Use this function to display the inventoried status of items produced and placed in inventory. The user can search by item code, configuration group, serial number, or many other criteria, to determine if a configured item is in inventory, and if so, what the configuration details are. When you select the menu option, the following screen is displayed:



Item

The configured item produced

Whse (Warehouse)

The warehouse in which the item was produced

Serial

The serial number of the produced unit

On Hand

The current on-hand balance of the item in the warehouse

Type

One of the following values:

- C - Generated from a manual generation
- S - Generated from a sales order
- P - Generated from a production order

Order

If the configuration was generated by a sales or production order, the order is displayed

Rel (Release)

If the configuration was generated by a production order, the order release is displayed

Line

If the configuration was generated by a sales order, the sales order line for the item is displayed

Group

The configuration group used when the item was produced.

Catalog

The catalog identifier assigned to the item (if any) when it was saved.

ID

The unique number assigned to this configuration.

NOTE: Each configuration generated by this program is retained with its ID, know as a select number, for future reference.

Cost

The computed cost of the configured item. The cost is a sum of:

- The item's Purchase Unit Cost – in the item/warehouse definition
- The cost of component items added from options – the component item's Purchase Unit Cost in the item/warehouse definition is used
- The cost of routing steps added from options – the steps Setup and Run Hours are multiplied by the Labor and Overhead Rate from the steps Associated Work Center/Warehouse entry (defined in Standard Routing/File Maintenance)
- The cost of miscellaneous costs added from options

Price

The computed price of the configured item. The price is a sum of:

- The item's Price – in the item/warehouse definition
- The price of component items added from options
- The price of routing steps added from options

- The price of miscellaneous costs added from options

Description

A free-form description of the generated configuration, for reference purposes

The Options detail section is divided into 2 sections:

- BASE – identifies the components and routing steps originating from the items base bill of material and routing.
- OPTIONS – identifies, by individual option, the components and routing steps originating from the selected option's base bills of material and routings.

The columns displayed identify:

Option

The option code activated by the answer

Component

If the option used component materials, the component items are listed

Routing

If the option used additional routing steps, the routing step descriptions are listed

Charge

If the option used addition miscellaneous costs, the charges are listed

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