PeopleSoft®

EnterpriseOne Base Configurator 8.9 PeopleBook

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Industry Environment and Concepts for Configurator

Customers today require manufacturers to build complex product configurations that follow detailed specifications. Manufacturers build a basic product to customer specifications and might even provide some level of customization.

Configured items are products that customers specify; they are not made-to-stock items that can be bought ready-made. Because customers specify configured products, features and options are associated with the final product. Thus, infinite combinations of the end item can exist.

In addition, customers want improved service, including detailed, real-time information at order entry and shorter lead times from order to delivery of the product.

Manufacturers need to respond to the pressure and opportunities that are presented by the configuration and customization needs of their customers. Currently, manufacturers struggle with manual paperwork, slow response times, lack of systems integration, and product volume versus complexity. Manufacturers need the agility to provide specialized (configured) products at a competitive price.

To be agile, manufacturers require assistance to input customer specifications that create a valid configuration of an end product. A manufacturer then needs to communicate the customers' requirements to the rest of its internal organization, associated branch/plants, and suppliers. A company's sales, manufacturing, and service organizations need a fast, accurate, and flexible system on which they can rely.

Configuration Methods Used Today

Typically, manufacturers use three different approaches to handling complex product configurations:

- The first approach is to create unique end-part numbers. This approach creates a part number for every combination of features and options that build a viable end-item product. This method can be cumbersome and not conducive to change because the number of parts can become too large to effectively manage.
- The second approach is to create generic end-part numbers with extended manual descriptions. Embedded in the text is critical information about the features and options that are included in a final product. All inventory records in the system appear as the same product because it bears the same part number, even though the features and options might be different for each end item. This technique leaves a poor audit trail for parts, priority and capacity planning are limited, and costs are distorted. These results occur because the (software) system has no way to retrieve and use the embedded text information.
- The third approach is to use a configurator-- a tool developed to handle complex products.

Definition of a Configurator

The configurator is a tool that automates the selection and configuration of highly complex products. Highly complex products have related features and options. A relationship results when an association or correlation between the features and options or associated parts exists within its subassemblies. A configurator allows a manufacturer to configure its existing product to the detailed and specific requests of its customers. It guides users to create a customized end-item product through product definition (features and options), rules, and calculations. The result is a valid, highly configured product.

The configurator formerly was called a *product configurator* because it configured an end-item product to customer specifications. Although the configurator performs the same function, the new term for a configurator is *sales configurator* because configurators are quickly becoming a vital part of automating the sales process.

Configurator: Sales Orders and Beyond

Historically, configurators have been used to assist sales order entry personnel during the sales process. The information gathered and generated during sales order entry is then communicated to the organization to support manufacturing and distribution processes.

In today's competitive business environment, the ability of a business to perform many types of transactions for configured items is becoming increasingly important. Thus, sales order systems need the ability to process sales quotes and manage credit, direct ship, transfer, interbranch, cross-docking, and combination orders for configured items. These transactions support companies that have global operations and work closely with their suppliers.

The ability to create a purchase order for configured items is also a necessity since some companies could have suppliers who manufacture a configured component that goes into the end item. This electronics industry is such a case.

Some manufacturers might want the ability to create work orders for configured items without having to create a sales order. This ability gives the manufacturer flexibility to build configured items to stock.

In some instances, a need for integration with an engineering project management module might exist. Engineer-to-order environments might have a component of the project that is a configured item. Thus, the ability to manage these items, whether purchased or manufactured, could be critical to the overall project.

Understanding Configurators and Your Manufacturing Environment

You need to understand your business environment to determine whether a configurator is suitable for it. Configurators are suited for to-order manufacturing environments. The basic to-order environments are:

- Pick-To-Order

  The pick-to-order environment is the selection of kits (parts lists of components). The pick-to-order environment can use kit processing or a configurator. The tool that you use depends on the product specifications. In general, kit processing can process features and options. Usually, no relationship exists between the kits or the parts in each individual kit. All combinations of kits and parts are allowed. Thus, the kit processing technique can be used for validation. Kit processing might not be appropriate for complex specifications or conditional part requirements.

  An example of a pick-to-order environment is the computer industry. When a customer chooses a monitor, printer, and other items, you can select kits to include the appropriate cables, user guides, packaging materials, and so on that are required to ship with the customer's product.

- Assemble-To-Order

  Assemble-to-order manufacturing is a manufacturing environment in which the customer is contacted after the features and options have been fabricated, but before final assembly of the product. Thus, the raw material and components are built up to

some subassembly level called features and options. After the customer has communicated specifications, the subassemblies are built into the final end-product.

An example of an assemble-to-order environment is the touch-free car wash machine. Although relationships exist between the features and options, the individual features, options, and frame can be sub-assembled. After the customer's specifications are identified, the feature and option subassemblies can be mounted to the frame to build the final complete machine.

- Make-To-Order

  In make-to-order manufacturing, the customer communicates specifications before production begins at any level in the product structure. No subassemblies exist in this manufacturing method, only raw material and components. Production begins after the customer identifies specifications.

  Examples of this production method are building products (lumber), windows, and doors. These products are make-to-order because the customer must specify the length, width, thickness, finish, style, and other attributes of these products before any production can begin.

- Engineer-To-Order

  Engineer-to-order starts at the raw material and component level, and builds to the end-item. No features and options exist at all in an engineer-to-order environment. Usually, engineer-to-order products are so specialized and for such a specific use that only one end-item is ever built. However, the use of the processes to build the product and some common components might be prevalent.

  Examples of engineer-to-order end-item products are space shuttles; satellites; custom homes; and architectural projects, such as buildings and bridges. These products are usually built to special specifications only once.

A configurator is best suited for assemble-to-order and make-to-order manufacturing environments. Kit processing is usually better suited to pick-to-order environments if no relationships exist between kits or components within kits. An engineer-to-order environment produces one-of-a-kind items that might never be built again. Thus, investing in a configurator and the associated setup is not cost-effective in such an environment.

Understanding Your Product

You need to understand your product and manufacturing processes. To assist you in better understanding your product and manufacturing processes, perform extensive data gathering and product analysis.

To understand your manufactured product, gather and review sales and marketing materials. Determine the way in which the sales and marketing team understands the features, options, final product, and relationships of your product. What is presented to the customer?

Review engineering drawings and bills of material. Also, review manufacturing routings for manufactured items and assemblies (features, options, final product). Determine how your engineering and manufacturing teams view the product. How is the product defined and manufactured?

Conduct interviews with people from sales and marketing, sales order entry, procurement, manufacturing, assembly, and engineering to better define and understand the features, options, final assembled product, and the relationships between these components.

Determine whether everyone has the same understanding of the product, and if not, clarify discrepancies.

Assessing the Need for a Configurator

After you determine your business manufacturing environment and gain an understanding of your product's features; options; final assembled product; and, most importantly, the relationships that exist between them, you can determine whether you need a configurator.

For a product that is manufactured in a to-order environment and that has no relationship between the features and options or the associated parts within those subassemblies, kit processing might be the best tool. However, a configurator is not a cost-effective tool for complex, one-of-a-kind end items that you manufacture in an engineer-to-order environment.

A basic decision point in determining the need for a configurator is that the final manufactured product is complex and based on customer specifications. Also, a relationship exists between features and options; and some might not be compatible with others. Manufacturing routings and product pricing also change, based on the final end-item configured product.

If the relationships between features and options need to be defined to prevent invalid product configurations in your to-order manufacturing environment, then a configurator might be a good tool for your company.

Benefits of a Configurator

Although a configurator requires an intensive, detailed, front-end setup, it provides benefits by allowing you to perform the following tasks:

- Specify features and options.
- Establish relationships between features and options.
- Generate a configured parts list.
- Create a configured routing.
- Establish a configured price.
- Reduce order lead time.
- Improve customer service.
- Create fewer end part numbers.
- Produce a configuration audit trail.

When selling complex, highly configurable manufactured products, the presentation and quoting assistance that a configurator provides can be a powerful sales tool. Customer service representatives do not need to know the product intimately to enter an order. The configurator leads the customer service representatives through the configuration and provides error messages so that the customer can order a valid configured product. Customer service representatives also can communicate real-time information, such as price and weight, to customers.

After an order is complete and the customer accepts it, the order communicates appropriate and correct information to the manufacturing and distribution departments. An integrated system facilitates a correct product build in a timely manner.

Although a configurator requires detailed setup, as well as timely and careful maintenance for product changes, it is a powerful tool for which the benefits cannot be overlooked. A configurator communicates accurate specifications and product requirements throughout the entire organization to the customer, as well as to suppliers.

Configurator: The Competitive Advantage

The following list contains examples of typical problems with the configuration process and Base Configurator features that resolve each problem:

We cannot change fast enough to respond to the customization and multiconfiguration needs of our customers.	Use the Base Configurator system to configure manufactured and assembled end-item products. The Base Configurator system features seamless integration with the Inventory Management system, Sales Order Management system, Procurement system, and the Manufacturing and Distribution modules. The Base Configurator system allows you to create configured bills of material, routings, pricing, and other important business information. It improves customer service levels by providing real-time, configured, product specifications and information at order entry. Seamless integration from the front office to the back office improves communication with other departments within the company, which, in turn, improves product quality by reducing errors.
High Tech/Electronics Industry - We cannot change fast enough to respond to the customization and multiconfiguration needs of our customers.	Use the Base Configurator system to configure manufactured and assembled end-item products. The Base Configurator system features seamless integration with the Inventory Management system, Sales Order Management system, Procurement system, and the Manufacturing and Distribution modules. As design-to-market speed becomes increasingly important, the rules-based Base Configurator system is becoming a staple in the electronics industry. For example, a computer manufacturer stocks assemblies but does not configure a computer until a customer orders it.
The Industrial Commercial Equipment (ICE) industry usually incorporates complex assemblies and mechanisms, and sophisticated control systems. They are usually highly engineered and highly customized with many modifications.	Use the Base Configurator system to configure manufactured and assembled end-item products. The Base Configurator system features seamless integration with the Inventory Management system, Sales Order Management system, Procurement system, and the Manufacturing and Distribution modules. The Base Configurator system provides the ability to expand customers' choices while reducing order lead times. The rules-based Base Configurator system decreases engineering involvement in the front end. Status codes can be integrated with the Sales Order Management system to allow changes to be made up to a specified point in the manufacturing process.
We have so many relationships between our product features and options that our order entry personnel are not always able to order them properly. We find many problems when we build the products on the manufacturing floor.	Use the Base Configurator system to solve this problem. You can define the features and options, as well as the relationship and limitations between those features and options. Order entry personnel do not need in-depth product knowledge. The Base Configurator system communicates the validity of a customer's choice of features and options through error messages and other visual cues. When order entry is complete, you have a configured bill of material and routing to use in manufacturing the product.

High Tech/Electronics Industry - Our product pricing structure for configured items is so complex that we are unable to give our customers real-time pricing at order entry.	Use the Advanced Pricing system with the Base Configurator system to create accurate and timely pricing at sales order entry. Because configurations are determined at the time of order, electronics industry companies use advanced pricing to provide customers with automatic price quotes at the time of ordering.
IFA - We can build our product to a certain point and then stock it. We can then customize the stocked item to customer specifications at the last operation. How can we communicate this information to manufacturing?	Use the Store and Forward feature in the Base Configurator system to communicate customer requirements when it fits your process. The IFA industry is moving towards a to-order/postponement environment whereby standard configurations are built and inventoried, and then customized at the last possible point in the manufacturing process. Store and Forward, used with the Base Configurator system, allows customer service representatives to work with the client on-site and then transfer the data at a later time.
We have special calculations that we need to run when we create a new order.	Use the Advanced Assembly Inclusion Rule features in the Base Configurator system to enable your order entry. You can use segment referencing, algebraic formulas, trigonometric and logarithmic functions, substrings, concatenations, external field references, external business function references, configured tables, and smart parts. You can perform calculations during product configuration validation. Thus, calculated values are available for use by order entry personnel and the customer.
When we create sales orders, all of the detail information is included. In most cases, the customer does not need the information on the order. We want to print only the pertinent lines on the customer order.	Use the Assembly Inclusion Rule feature in the Base Configurator system to customize the order. Use P Assembly Inclusion Rules to add parts to the order and work order parts list, and use Q Assembly Inclusion Rules to add parts to the work order parts list only. These assembly inclusion rules allow you to customize your order and work order parts list to communicate appropriate information.
Increased customization of products for customers increases process simplification within production.	Use the Base Configurator system to simplify production processes. This system creates configured bills of material and routings. Seamless integration from the front office to the back office improves communication between order entry and manufacturing. This integration improves product quality and reduces errors. This process, in turn, can increase throughput and simplify processes.
To be competitive, we need to communicate with our branch/plants and suppliers to get the configured components that we need to manufacture the configured end item. Currently, only manual processes exist.	Use the J.D. Edwards software to solve this problem. Base Configurator integrates with the Sales Order Management system, Procurement system, and Manufacturing systems to support such order types as transfer orders, direct ship orders, purchase orders, and work orders. Base Configurator even integrates with Engineering Project Management.

Base Configurator Overview

Many manufacturers sell configured items. A configured item is a product that is assembled from an arrangement of features and options. Features and options might include size, capacity, power rating, color, materials used, and so on. For example, a forklift is a configured item that is assembled from an arrangement of features and options that might include the power source, counterweight, and paint color, as well as the boom assembly, the engine type, the hydraulics system, and so on.

Additional examples of configured items include:

- Furniture and fixtures
- Paper products
- Building products
- Commercial printing
- Control and measurement equipment
- Transportation equipment
- Windows, doors, and other dimensional products

When customers place orders for configured items, they expect to be able to specify features and options about the items. The J.D. Edwards Base Configurator system allows you to respond to complex customer orders for configured items. Using the Base Configurator system, you can assemble a large variety of configured items from relatively few components. You can set up configurations of features and options that constitute the configured items that you want to have available for sale, based on your best business practices and the needs of your customers.

When you enter an order for a configured item, the Base Configurator system queries you about the features and options of the item that you requested. After you respond to the query about the configured item, the system verifies the information that you provide with the setup information that you previously defined. If the configuration is valid, the system processes the order.

J.D. Edwards also offers kit processing that enables feature and option processing. However, kit processing might not be appropriate for features or complex specifications, such as conditional part requirements. The Base Configurator system is appropriate for items that have the following characteristics:

- Complexity
- Routings that change, based on features or options
- Features that are not compatible with other features
- Multiple work orders to define an assembly

Using the Base Configurator system, you can do the following to facilitate your best business practices:

- Use fewer end-part numbers.
- Create dynamic work order parts lists and routings.
- Create order history and configuration audit trails.

- Improve order accuracy.
- Shorten lead times.
- Provide better margin information.
- Improve customer service.

Base Configurator System Integration

The Base Configurator system is a business enabler for configuring manufactured and assembled end-item products. It is a front-office-to-back-office product. The Base Configurator system features seamless integration with the Inventory Management, Sales Order Management, Procurement, Manufacturing, and Distribution systems. In its simplest form, it integrates sales with manufacturing-- from entering the sales order, to generating the work order, to shipping the product to the customer.

The Base Configurator system is used to define the configured components and configured end-items. Configured item segments define the features and options. Cross-segment editing rules then define the relationship and limitations between those features and options. Assembly inclusion rules define the parts; routing; price, cost, or both; and calculations. Configured tables can be used to reduce the number of assembly inclusion rules, thus improving processing time. Users can even attach media objects to features and options to provide additional product information.

The Base Configurator is a self-contained system because it contains its own tables and programming to support the configuration process. The Sales Order Management, Procurement, and Work Order Management systems interact with the Base Configurator system to create the specific order type that is required by a business process. The Base Configurator system does not rely upon other systems for configuration processing.

Once the Base Configurator and other required J.D. Edwards systems are set up, configured item orders can be taken. Order requests can come from various sources, such as customers, internal demand, and associated branch/plants. Order entry personnel do not need in-depth product knowledge to input orders. The configurator communicates the validity of a customer's choice of features and options through error messages and other visual cues.

The order entry points for configured items are:

- Sales Order Entry
- Transfer Order Entry
- Direct Ship Order Entry
- Purchase Order Entry
- Work Order Entry
- Engineering Project Management Workbench – Purchase Orders and Work Orders

The J.D. Edwards software also supports interbranch orders and combination orders for configured items.

If the configured item, order entry versions, and processing options are set up properly for the specific order type that is entered, then the appropriate business functions are performed in the system once the order is complete and approved.

If configured work orders are involved when the order entry is complete, you have a work order header to use in manufacturing the product. The following work orders can be generated through Order Processing (R31410):

- Works Orders (for configured components and configured end-item)
- Parts Lists
- Routings
- Work Order Costing

Configured items continue through the J.D. Edwards system for invoicing and shipment.

Supply Chain Management and Base Configurator

The Base Configurator system is one of many systems in the Supply Chain Management solution.

Use the Supply Chain Execution module to coordinate your inventory and labor resources to deliver products according to a managed schedule. It is a closed-loop manufacturing system that formalizes company and operations planning, and the implementation of those plans.

Features of Base Configurator

The Base Configurator system enables you to perform the following functions:

- Specify a variety of features and options within configured items.
- Establish relationships between segments to prevent invalid product configurations.
- Define multilevel configured items.
- Define multiple work orders resulting from and associated to each level of multilevel configured items.
- Establish default values or ranges for options and features.
- Calculate values for options with algebraic definitions.
- Create generic rules to use across branch/plants.
- Create assembly inclusion rules that control price adjustments, routings, and parts.
- Define a table of values that assembly inclusion rules reference

The Base Configurator system creates configured bills of material, routings, pricing, and other important business information. Customer service levels are increased by providing real-time configured product specifications and information at order entry. Seamless integration from the front office to the back office improves communication with other departments within the company. This process, in turn, improves product quality by reducing errors.

Analyzing Your Configured Items

Before you work with the Base Configurator system, ensure that you can answer the following questions about your configured items:

- How do your customers order the configured item?
- How will you price the configured item?
- Which features and options make up the configured items?
- Which routings do the configured items require?
- Which calculations are required to support prices, features, options, components, and routing steps?

The answers to these questions (and similar questions that arise) help you determine which features and options to consider for possible inclusion in the configured items that you intend to make available to your customers. You will also have solid information from which to develop the best strategy for assembling the configured items. Determining your strategy for assembling configured items can save time during the initial system setup and facilitate subsequent adjustments.

Terms and Concepts for Base Configurator

Configured item

A product that is assembled from an arrangement of features and options. Features and options might include size, capacity, power type, color, materials used, and so on.

Multilevel configured item

A configured subassembly within a configured item. A configured item, such as a forklift, is sometimes referred to as a *multilevel configured item* because it includes subassemblies such as the boom, engine, hydraulics, and so on. Each subassembly can also include a subassembly, such as the carburetor assembly within the engine. A multilevel configured item has a tree structure, or hierarchy such as the following:

1. Forklift
2. Engine
3. Carburetor

The Base Configurator system validates subassemblies in the same way that it validates end-product configured items. The segments that are included in each subassembly must be valid when the system queries the setup information which you provided.

See the graphic at the end of this overview for an example of a multilevel configured item.

Segment

The features and options that constitute a configured item. Each segment represents a characteristic of the configured item. For example, the forklift that is used in the pristine data (configured item 6000) includes the following segments:

- 10 Forklift rating
- 20 Power Type

- 30 Boom height
- 35 Interior
- 40 Paint
- 50 Propane Tank
- 60 Calculated Counter Weight

You can further specify the options that are available within each segment. For example, the following are available options within the forklift rating segment:

- 2000 pounds
- 4000 pounds
- 6000 pounds

Cross-segment editing rules

Logic statements that you use to establish the relationships between the segments of a configured item. For example:

If segment 10 (forklift rating) = 6000 pounds, then segment 20 (power type) must = GAS.

By using cross-segment editing rules, you can avoid invalid configurations, and end-users are less likely to enter invalid orders. The system validates the segments on the order with the cross-segment editing rules. Error messages appear for configurations that violate the rules.

Assembly inclusion rules

Rules that translate requested features and options from the order into the specific values, components, routing operations, and calculated values that are necessary to build and price the configured item. For example:

If segment 10 = 6000 and segment 30 >= 10, then use part F170 or part F175.

Duplicate Components

Multiple instances of a configured component item in a configured parent item. A single part number is used, and each new instance of the component can be configured uniquely or be the same. Duplicate components are set up using P assembly inclusion rules.

Configured Tables

A configured rules table is a collection of data that you define for a configured item. During order processing, assembly inclusion rules can refer to tables to retrieve information. Tables can be used to reduce the number of assembly inclusion rules that are required. Although time is added to the setup process, the system processing time is improved because of the reduced number of assembly inclusion rules.

Configuration ID

An identifier that represents a unique configuration. It is generated from an encryption algorithm. Regardless of the number of segments or levels in the configured item, the system always converts the information into a 32-character digest. The digest is always a full 32 characters in length, consists of numbers and characters, and does not contain any blanks. You cannot determine the initial value from the digest, and it has no significant meaning.

Tables used by Base Configurator

The Base Configurator system uses the following tables:

Configurator Master Table (F3201)	Stores the history for the configured items of all the configurations ordered. Information stored includes configuration ID number, order number, order type, line number, and component ID number.
Configurator Master History Table (F32019)	Stores the history for the Configurator Master Table (F3201).
Configurator Constants (F3209)	Stores constants that you define to control base configurator processing at the branch/plant level.
Configurator Segment Detail (F3211)	Stores segment information such as configuration ID number, component ID number, segment number, segment value, parent item number, and configuration string ID.
Configurator Segment Detail History (F32119)	Stores the history for the Configurator Segment Detail table (F3211).
Configurator Routings File (F3212))	Reserved by J.D. Edwards for future use. Stores configured routing information.
Configurator Component Table (F3215)	Stores component information such as configuration ID number, component ID number, parent component ID number, item number, branch, location, and lot number.
Configurator Component History Table (F32159)	Stores history for the Configurator Component Table (F3215).
Configurator Price/Cost Table (F3216)	Stores price/cost information such as configuration id number, component ID number, line type, price roll-up, price, and cost.
Configurator Price/Cost History (F32169)	Stores history for the Configurator Price/Cost Table (F3216).
Rules Table Definition (F3281)	Stores table information such as description, table type, number of segments, and return values.
Configured Item/Rules Table Cross Reference (F3282)	Defines which segment values will be used as keys to refer to tables for each configured item.
Rules Table Value Definition (F32821)	Defines calculated segments that will be populated with the returned values.
Rules Table Detail (F3283)	Stores the actual table values (parts, prices, and so on) for each combination of segment key values that you define for the table.
Configured Item Information (F3290)	Stores settings that you define to control printing of configured item information on order paperwork; and the transaction type that the configured item will generate, such as sales order, direct ship order, and so on.

Configured Item Segments (F3291)	Contains the segments for the configured items that are defined on the Item Master and Branch/Plant.
Cross Segment Editing Rules (F3292)	Defines the relationships between the segments of configured items.
Cross Segment Editing Rules - Values (F32921)	Stores the *VALUES definitions for cross-segment editing rules and assembly inclusion rules.
Cross Segment Editing Rules - Range (F32922)	Stores the *RANGE definitions for cross-segment editing rules and assembly inclusion rules.
Assembly Inclusion Rules (F3293)	Stores the components, routings, calculations, and price adjustments for configured items.
Item Master (F4101)	Stores basic information about each item in inventory, such as item numbers, description, category codes, and units of measure.
Branch/Plant File (F4102) **Item Branch File (F4102)**	Stores branch/plant information, such as quantities and branch-level category codes, and cost information for an item.
Item Location File (F41021)	Stores primary and secondary locations for an item.
Item Base Price File (F4106)	Stores base price information for an item.
Sales Order Header File (F4201)	Maintains information for a customer order, such as the billing instruction, address, and delivery.
Sales Order Detail File (F4211)	Defines which level of the configured item is related to a component, and defines complete information for each line of the sales order.
Purchase Order Header File (F4301)	Maintains information for a purchase order, such as supplier, payment terms for the order, delivery address, and date the order is due.
Purchase Order Detail File (F4311)	Defines the configured item and quantity of the purchase order.
Work Order Master File (F4801)	Contains one record for each work order. This table stores information about a work order, such as the description, estimated hours, responsibility, and costing information. It also stores planned start and end dates.

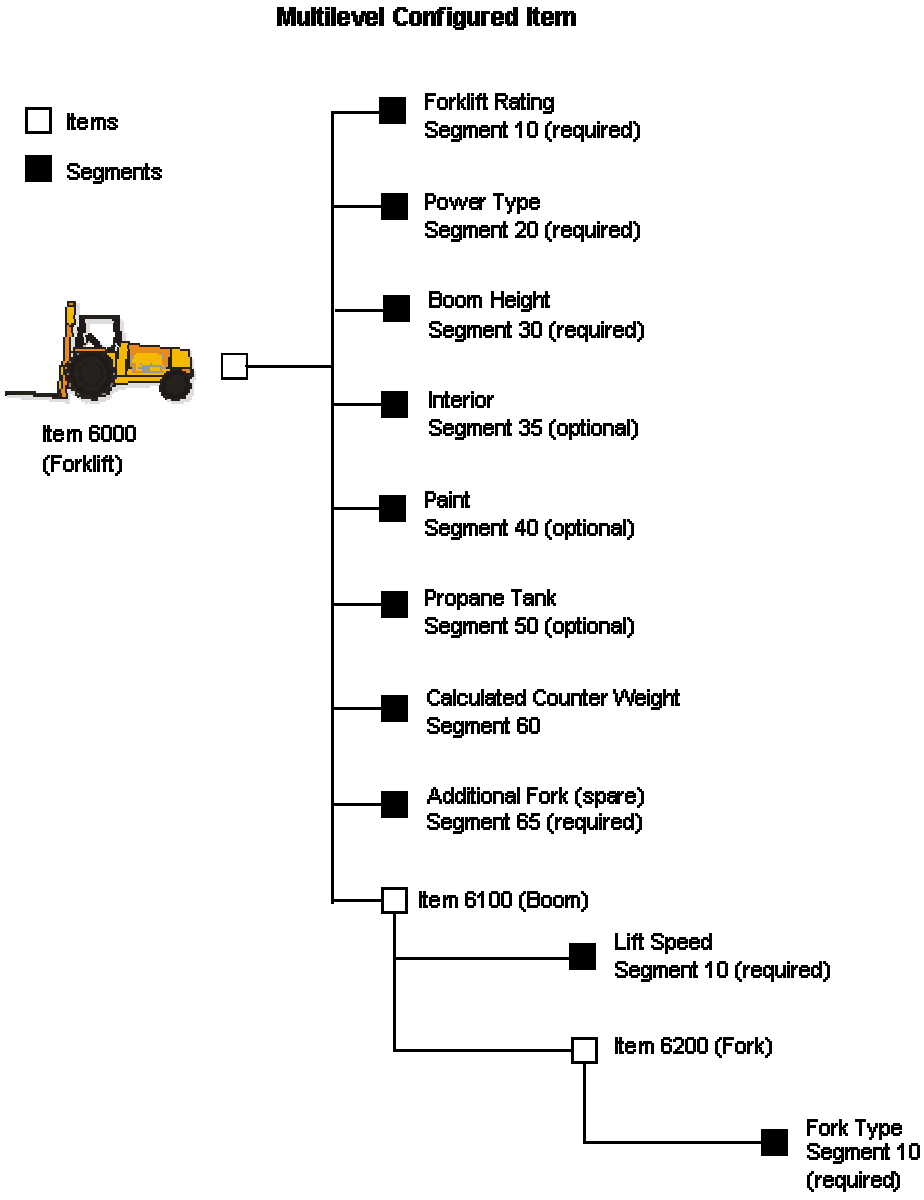
Menu Overview of Base Configurator

The J.D. Edwards Base Configurator system uses the following menus:

- Configurator G320
  - Daily Processing G32
  - Configurator Setup G3241

Example: Multilevel Configured Item

The graphic that follows this paragraph is an example of a multilevel configured item, a forklift (item 6000). Its subassemblies include the boom (item 6100) and fork (item 6200). For the forklift item and its subassemblies, segments represent features and options.



Base Configurator Setup

You must set up the Base Configurator system before you can enter orders for configured items.

You set up the following information for the Base Configurator system:

- Configurator constants
- Configured item information
- Configured item segments
- Cross-segment editing rules
- Assembly inclusion rules
- Tables
- Media object attachments

Configurator constants control the Base Configurator system processing by branch/plant for your business. For example, you use constants to control the following:

- Sales quote processing
- Availability checking
- Display of calculated segments

Configured item information defines the format in which configured item information appears on order paperwork and the transaction type that the configured item generates, such as sales order, direct ship order, and transfer order.

Segments are the features and options of a configured item. Segments represent product characteristics such as color, material, or size. For clarification purposes, you assign numbers to each segment of the configured item. Information from the Display Order field determines the order in which you specify the segment value during order entry.

You set up cross-segment editing rules with logic statements to establish the relationship between the segment values. Use these rules to prevent invalid configurations during order entry. You can define custom error messages for a cross-segment editing rule.

Assembly inclusion rules process requested features from order entry into the specific components and routing operations that are necessary to build the configured item. Different types of assembly inclusion rules allow you to define the following:

- Components
- Price/cost adjustments
- Routings
- Calculated values
- Hot spot values

Assembly inclusion rules also offer advanced logic, such as algebraic expressions, smart parts, and external program references.

You can also set up tables for assembly inclusion rules to reference information that is based on segment values. You can define tables for components, prices, and calculated values.

Using tables reduces the number of required rules, simplifies rule maintenance, and improves processing time.

You can attach media objects such as text, image, and OLE to configured items. Media object attachments provide additional information about the configured item, components, and configured item segment values. The information could be useful to order entry personnel.

Note

You can define segments, rules, and configured items that are specific to a branch/plant or generic across all branch/plants. A blank Branch/Plant field identifies a generic branch/plant. If you do not use the generic branch/plants, and then segment, rule and item information should be the same across branch/plants. If you define generic branch/plant segments, you must also define generic cross-segment editing and assembly inclusion rules.

Understanding Setup Prerequisites for Base Configurator

The Base Configurator system works with other J.D. Edwards systems. Before you set up the Base Configurator system, you should be familiar with the following systems:

- Inventory Management
- Product Data Management
- Shop Floor Management
- Sales Order Management
- Procurement
- Work Order Management
- Engineering Project Management

Note

The information provided here is specific to setting up the Base Configurator system. For more information regarding setting up these other systems, please refer to the respective guides.

Inventory Management and Base Configurator

The Inventory Management system stores item information, sales and purchasing costs, and quantities that are available by location. Within the Base Configurator system, you use Inventory Management to set up item information for configured items and their components, and configured subassemblies. Programs in the Inventory Management system define your configured item information, such as how the item is identified and stocked.

You enter Item Master (P4101) information, such item number, description, stocking type, cost, and price information, that is unique to the item across all branch/plants.

When processing Item Master Revisions, choose C for configured item in the Stocking Type field.

If you want the system to automatically generate work order headers at time of order entry, then choose the work order line type in the Line Type field. Choose the line type for stock item if you do not need work orders.

To gather accurate costs for a configured item, choose 3 in the Inventory Cost Level field, which identifies costs of the configured item at the item, branch/plant, location, and lot levels. Since configured items are specific and unique in their configuration, they must be identifies to this level of cost detail to obtain an accurate cost for configured components and the configured end-item.

The Configurator Costing Method field can also be used to indicate how the cost is calculated for a configured item on purchase orders only.

You have several options for pricing a configured item. This pricing is accomplished by choosing a value in the Kit/Configurator Pricing Method field. Choose from the following pricing methods:

- Total the list prices of components to determine the configured item price.
- Use the list price of the configured item.
- Use assembly inclusion pricing rules to determine the price.
- Total the discounted price of components.

Base prices can be established in the system for components and configured items. Advanced pricing can be used with any price method code. You can also use price adjustment, or X assembly inclusion rules, to affect the price for the configured item, regardless of the price method that you chose.

Since configured items have the same item number in the Item Master (for example, the forklift is item 6000), the system requires additional information to stock the configured item in inventory. This information allows the system to differentiate one configuration from another. Thus, configured items must be lot controlled. Configured items also need to be stocked in a specific location. Using lot and location control identifies each configured item as unique.

Lot numbers can be automatically assigned to configured items by setting a value in the Lot Process Type field. Instead of turning on lot control, the system can be set up to assign the lot and location automatically during work order completions (via the processing options), or the lot and location can be manually entered (at completions). The method that is used to assign lot and location information to a configured item is a business process that must be determined by your company.

On Item Master, take the Row exit to Additional System Info. The Leadtime Level field is on the Manufacturing Data tab. The system uses this value to calculate the start dates for work orders by using fixed leadtimes. The work order header start dates are usually back-scheduled, based on the request date of the order (such as a sales order). Since each configured item is unique and difficult to plan for in the planning system, this field is used to schedule the configured item work orders accurately.

After you enter generic item information, you can enter Item Branch (P41026) information that is unique to an item for a specific branch/plant. You can define the stocking type, line type, lot process type, and location at the branch/plant level for the configured item, configured subassemblies, and components.

See Also

- *Entering Item Master Information* in the *Inventory Management Guide*
- *Entering Branch/Plant Information* in the *Inventory Management Guide*

Product Data Management and Base Configurator

The Product Data Management (PDM) system enables you to organize and maintain information about each item that you manufacture. The Base Configurator system further defines the relationship between items and how they can be manufactured.

Although you do not need to create a bill of material for a configured item, you can create a bill of material for the manufactured components for the configured item. Use assembly inclusion rules to define component relationships for configured items. The system adds configured components to sales orders and work orders, based on these rules.

During setup, consider creating modular bills of material that group common parts for a specific feature or option. For example, a car might have an interior trim package with two choices: standard or deluxe. Each choice includes specific parts and might represent two different modular bills.

Although planning bills of material are not required for the Base Configurator system, you can use them to help manage demand for specific features and options.

You can define all possible routings for the configured item and define assembly inclusion rules to choose which routing to attach to the work order. The routing assembly inclusion rule allows you to specify a complete routing or specific routing operations to attach to a configured item work order. You do not need to enter a routing for the configured item unless you also enter a routing inclusion rule.

See Also

- *Bills of Material* in the *Product Data Management Guide*
- *Entering Routing Instructions* in the *Product Data Management Guide*
- *Working with Multilevel Master Schedules* in the *Requirements Planning Guide*

Shop Floor Management and Base Configurator

The Shop Floor Management (SFM) system enables you to control the flow of materials inside the plant by managing and tracking manufacturing work orders. It provides an effective way to maintain and communicate information that the system requires to complete production requests.

The Base Configurator system integrates with the SFM system to manage the work orders for configured items. Before you can process work orders for configured items, you must enter information that is specific to your business in the SFM programs within the Manufacturing system.

The system gives you the ability to generate work order headers at the time of sales order entry. The user must ensure that the Sales Order Management system is set up so that the interface exists with the Work Order Management and Shop Floor Management systems to support these order types.

The system also allows you to enter work orders for configured items directly through the Manufacturing Work Order Processing (P48013) process. This step gives you the ability to

generate work orders for configured items that you might want to pre-build or stock in inventory to better meet the demands of your business.

Once the work orders are created, they move through the SFM system using Order Processing (R31410) and other shop floor programs as dictated by your business processes.

See Also

- *Work Orders and Rate Schedules* in the *Shop Floor Management Guide*

Sales Order Management and Base Configurator

The Sales Order Management system controls all aspects of processing sales orders. The Base Configurator system works with the Sales Order Management system to customize the way that you enter and process sales orders for configured items.

Besides regular sales orders, the Sales Order Management system also supports sales quotes, credit, transfer, direct ship, interbranch, cross-docking, and combination orders for configured items.

Before you can enter orders for configured items, you must enter information that is specific to your business in the Sales Order Management programs within the Distribution system.

You must set up order line types and document types (order types) for your system to use. The order line type tells the system how to process each detail line that you enter for a specific order type (for instance, T is a text line). The document type identifies the origin and purpose of the transaction (for instance, SO is a sales order). The order activity rules are then set up by combination of an order type and a line type. The order activity rules define the specific steps in the order processing cycle for your business.

You set up new line types to generate work orders (in addition to sales orders) for configured items during sales order entry.

A typical sales order cycle includes sales order entry, packing, shipping, and invoicing. For a work order-generated line type and sales order document type, you can add to the cycle steps for creating the work order parts lists and completing work orders for configured items. Optionally, both of these manufacturing processes can update associated sales order activity.

A work order-generated line type and sales quote document type are typically used for entering sales quotes for configured items. However, additional system setup prohibits the creation of associated work order headers when a quote order is generated.

A credit order line type and credit order document type are used for entering credit orders for configured items. Since credit orders facilitate receiving product back from a customer, the system must be set up so that the configured item will be put back into inventory.

The appropriate line types, document types, and order activity rules should be set up to support transfer, direct ship, interbranch, cross-docking, and combination orders for configured items. The user must also ensure that the Procurement system is set up so that the interface exists with the Sales Order Management system to support these order types.

Understanding Pricing for Configured Items

The first step in pricing configured items is to set the Kit/Configurator Pricing Method field on Item Master Revisions. The kit/configurator pricing method is used to specify how the system determines the sales price of a kit or configured item. The price method code determines whether to price components or parent items.

Kit/Configurator Pricing Method 1	The system totals the list prices of components to determine the price of the configured item. All of the component prices from the Item Base Price File table (F4106) are added to calculate the configured item price. The price of the configured item can then be discounted. The system also checks for any X assembly inclusion rules. Any existing X rules are added to the price of the configured item. The X rules could be used for price add-ons, such as shipping or freight charges.
Kit/Configurator Pricing Method 2	The system retrieves the price of the configured item from table F4106. This price is the price of the configured item on the sales order and cannot be discounted. The system also checks for any X assembly inclusion rules. Any existing X rules are added to the price of the configured item. The X rules could be used for price add-ons, such as shipping or freight charges.
Kit/Configurator Pricing Method 3	The X assembly inclusion rules are the only source of pricing for the configured item. The base price can be pulled into the configuration by using the Derived Calculation field in the assembly inclusion rule. The Derived Calculation field should be populated with &BPUPRC to pull in the base price from table F4106. Any other X rules are added to the price of the configured item. These X rules could be used for price add-ons, such as shipping or freight charges.
Kit/Configurator Pricing Method 4	The system uses the sum of the components' discounted prices for the price of the configured item. The parent has no discount. Thus, the configured item gets no further discounts. The system also checks for any X assembly inclusion rules. Any existing X rules are added to the price of the configured item. The X rules could be used for price add-ons, such as shipping or freight charges.

Note

If the Item Base Price File table (F4106) is used for pricing the configured item and the X assembly inclusion rule contains &BPUPRC in the Derived Calculation field to pull the base price, the price is doubled on the order. If table F4106 is used to pull the base price, the X assembly inclusion rules should be used only for other price adjustments, such as shipping or freight charges.

After you define the Kit/Configurator Pricing Method on Item Master Revisions, you must define base prices for the components and the configured item in table F4106. The system uses the base price to price the item. If you define special pricing or discounts for the item, the system bases the calculation of the discounted price on the base price.

Use base pricing to define prices for the following:

- An item or group of items
- A specific time period
- Different units of measure
- Different currencies

Use pricing groups to group items or customers with similar characteristics. This method streamlines the processes of entering and maintaining base prices.

Advanced pricing can also be used with any price method code. Advanced pricing supports placing a new line item on the sales order, such as a line item for free goods.

You can use price adjustment, or X assembly inclusion rules, to affect the price for the configured item, regardless of the price method that you selected. X rules work with Base and Advanced Pricing as well.

See Also

- *Setting Up Document Type Information* in the *Inventory Management Guide*
- *Schedules and Adjustments* in the *Advanced Pricing Guide*
- See the following topics in the *Sales Order Management Guide*:
  - *Setting Up Order Line Types*
  - *Setting Up Order Activity Rules*
  - *Setting Up a Base Pricing Structure*
  - *Setting Up Customer Price Groups*
  - *Setting Up Base Prices*
  - *Working with Standard Price Adjustments*

Procurement and Base Configurator

The Procurement system controls all aspects of purchasing activities. The Base Configurator system works with the Procurement system to customize the way that you enter and process purchase orders for configured items.

Besides regular purchase orders, the Procurement system also supports purchase orders that are created at the time of sales order entry for transfer, direct ship, cross-docking, and combination orders for configured items.

Before you can enter purchase orders for configured items, you must enter information that is specific to your business in the Procurement programs within the Distribution system.

You must set up order line types and document types (order types) for your system to use. The order line type tells the system how to process each detail line that you enter for a specific order type (for instance, T is a text line). The document type identifies the origin and purpose of the transaction (for instance, OP is a purchase order). The order activity rules are then set up by combination of an order type and a line type. The order activity rules define the specific steps in the order processing cycle for your business.

You set up a line type for configured items and a document type for the purchase order.

You also set up order activity rules to define the specific steps in the purchase order processing cycle for your business. A typical purchase order cycle includes purchase order entry, printing and communicating the order, and receiving goods or services.

The appropriate line types, document types, and order activity rules should be set up to support transfer, direct ship, cross-docking, and combination orders for configured items. The user must also ensure that the Sales Order Management system is set up so that the interface exists with the Procurement system to support these order types.

See Also

- *Setting Up Document Type Information* in the *Inventory Management Guide*
- *Supplier Information* in the *Accounts Payable Guide*
- See the following topics in the *Procurement Guide*:
  - *Setting Up Order Line Types*
  - *Setting Up Order Activity Rules*
  - *Setting Up Supplier and Item Information*

Work Order Management and Base Configurator

The Work Order Management system controls the processing of work orders. The Base Configurator system works with the Work Order Management system to customize the way that you enter and process work orders for configured items.

Before you can enter work orders for configured items, you must enter information that is specific to your business in the Work Order Management programs within the Manufacturing system.

The Work Order Management system is specifically designed to handle small, short-term tasks that are part of a major project. It is also designed for quick setup, simple cost accounting, and basic scheduling for projects that can be completed quickly.

Generating a work order is the activity that starts the process of completing a task. The work order identifies the work that needs to be done, and the information collected captures the history of the work that is performed.

The system allows you to enter work orders for configured items directly through the work order entry process. This process gives you the ability to generate work orders for configured items that you might want to pre-build or stock in inventory to better meet the demands of your business.

To input work orders for configured items, the Manufacturing Work Order Processing (P48013) program and processing options must be set appropriately.

Once the work orders are created they move through the Shop Floor Management system by using Order Processing (R31410) and other shop floor programs as dictated by your business processes. Thus, the user must ensure that the Shop Floor Management system is set up.

The system also gives you the ability to generate work order headers at the time of sales order entry. The user must ensure that the Sales Order Management system is set up so that the interface can support the order types in the Work Order Management and Shop Floor Management systems.

See Also

- *Work Orders and Rate Schedules* in the *Shop Floor Management Guide*

Engineering Project Management and Base Configurator

The Engineering Project Management (EPM) system controls all aspects of project management, primarily in an engineer-to-order (ETO) environment. The Base Configurator system works with the EPM system to customize the way that you enter and process various order types for configured items which are part of a project.

The EPM system supports sales orders, purchase orders, and work orders for configured items.

You must ensure that the appropriate J.D. Edwards systems (such as Sales Order Management, Procurement, and Work Order Management) are set up for integration with EPM and Base Configurator.

Setting Up Configurator Constants

Use configurator constants to control the Base Configurator system processing for your branch/plants. For each branch/plant, you can do the following:

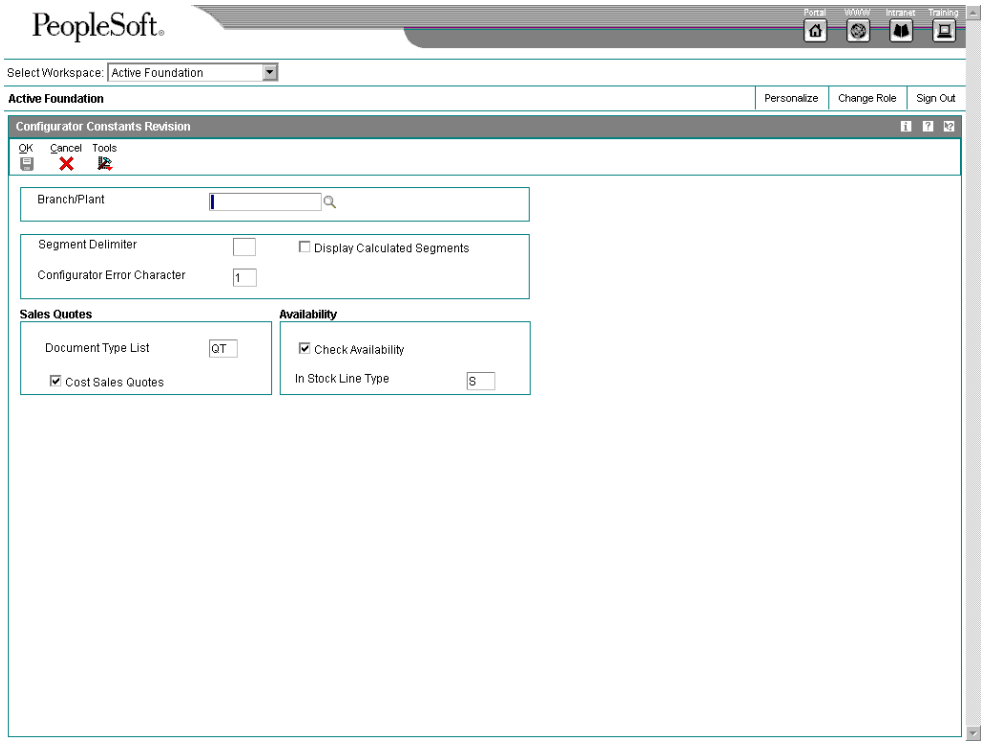
- Define the configured segment (string) delimiter.
- Define whether the calculated segments appear during order entry.
- Indicate the configurator error character.
- Verify parent availability during sales order entry.
- Determine if the sales quote cost will include manufacturing labor and overhead.
- Define which stocked line type to use if the system finds a matching configuration in stock during sales order entry.
- Indicate sales quote document types.

The system stores configurator constants in the Configurator Constants table (F3209).

► To set up configurator constants

From the Configurator Setup menu (G3241), choose Configurator Constants.

1. On Work With Configurator Constants, click Add.



2. On Configurator Constants Revision, complete the following fields:
   - Branch/Plant
   - Segment Delimiter
   - Configurator Error Character
3. Click the following options:
   - Display Calculated Segments
   - Check Availability

Note
Checking the availability of the configured parent item only works for sales order entry.

   - Cost Sales Quotes

     Order Processing (R31410) calculates the cost of the configured item based on the P, Q, R, and X (cost) assembly inclusion rules. However, for sales quotes, you can use this function to cost your sales quote accordingly.
4. Complete the following fields and click OK:
   - Document Type List
   - In Stock Line Type

Setting Up Configured Item Segments

Setting up segments is the starting point for the Base Configurator system. Segments define the features and options of complex configured items. Each segment is a specific feature or option group within a configured item, such as color, size, fabric, and power type.

Segments define the choices that are available within a specific feature or option by using user defined codes (UDC), ranges of values, or calculations.

You assign segments for a configured item in a numeric sequence.

Item 6000 (forklift) contains the following segments:

- 10 Forklift Rating
- 20 Power Type
- 30 Boom Height
- 35 Interior
- 40 Paint
- 50 Propane Tank
- 60 Calculated Counterweight
- 65 Additional fork (spare)

You can define the following three types of segments:

Required	During order entry, you must provide this required information. The system performs edit checking against a user defined code table of values, a range of values, or numeric validation.
Optional	During order entry, this information is optional. The system performs edit checking against a user defined code table of values, a range of values, or numeric validation.
Calculated	During order entry, the system calculates the value for this segment. You define the calculation with a C (calculation) assembly inclusion rule. Calculated segments do not need a UDC or range of values defined. Calculated segments can be numeric or alphanumeric.

Note

The segment information for a configured item should be the same across branch/plants to allow transfers to other branches.

During order entry, you can enter a value for each segment. The system restricts this value, using one of the following:

- Numeric or alphabetic checking
- Range checking
- A user defined code table that contains all valid values

You can define multilevel configured items with no limit on the number of levels. In addition, no limits are on the number of segments per level. You use assembly inclusion rules to define item levels and associated work orders.

You use segments to define cross-segment editing rules that ensure valid configurations. During order entry, the system verifies the combination of features and options to ensure that the item can be manufactured. You also use segments to define assembly inclusion rules that determine configuration-specific prices, components, calculated values, and routing steps.

Note

The segments can be set up so that a value from a C (calculated) assembly inclusion rule populates the answer field for a non-C segment (a required or optional segment).

Before You Begin

- Verify that the stocking type for a configured item is C (configured). See *Entering Item Master Information* in the *Inventory Management Guide* for more information.
- Verify that the manufactured configured components have bills of material. See *Bills of Material* in the *Product Data Management Guide* for more information.
- Create routings for the configured item and for the components that are manufactured. See *Entering Routing Instructions* in the *Product Data Management Guide* for more information.
- Set the Kit/Configurator Pricing Method on Item Master Revisions. See *Entering Item Master Information* in the *Inventory Management Guide* for more information.

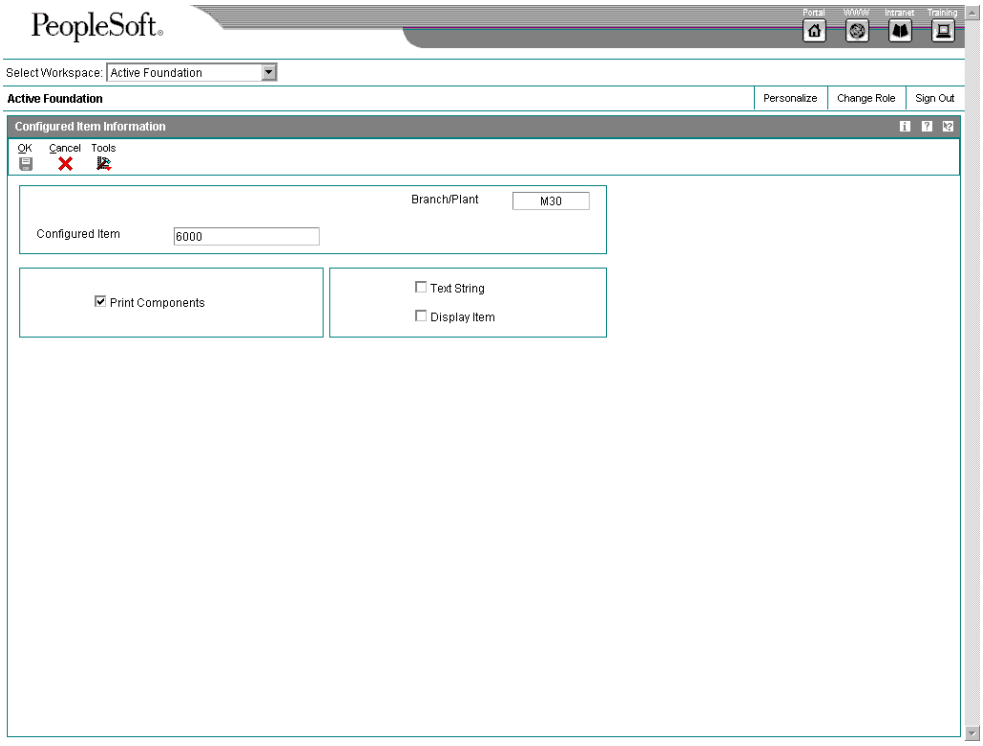
Defining Configured Item Information

The Configured Item Information form gives you the ability to define the format in which configured item information appears on order paperwork.

► To define configured item information

From the Configurator Setup menu (G3241), choose Configured Item Segments.

1. On Work with Configured Items, complete the following field and click Find to locate a configured item:
   - Skip to Branch/Plant
2. Choose a configured item and take the row exit to Config Item Info.



3. On Configured Item Information, click the following options to print component and segment information on the order:

   - Print Components
   - Text String
   - Display Item

Note
You should try the various options of system defined and user defined printing formats to determine which settings work best for your business.

Defining a Configured Item Segment

To begin using the Base Configurator system, you must define the segments of each configured item. Both cross-segment editing rules and assembly inclusion rules use segments within logic statements.

When adding new segments to a configured item, enter them at the end of the list of existing segments. This process keeps the configuration information in order, which is important if you will be using the Check Availability functionality.

Note

You cannot delete a configured item segment if cross-segment editing or assembly inclusion rules exist for that configured item.

► To define a configured item segment

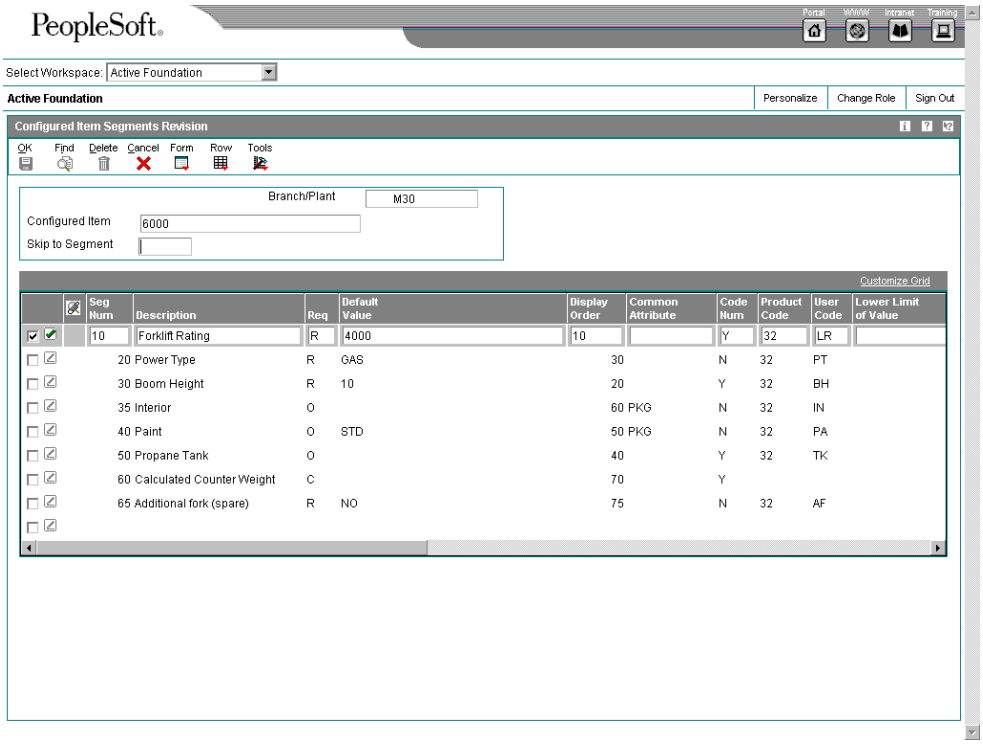
From the Configurator Setup menu (G3241), choose Configured Item Segments.

1. On Work with Configured Items, complete the following field and click Find to locate a configured item:

   - Skip to Branch/Plant

     You can define segments, rules, and configured items that are specific to a branch/plant, or generic across all branch/plants. A blank Branch/Plant field identifies a generic branch/plant. If you do not use the generic branch/plants, then segment, rule, and item information should be the same across branch/plants. If you define generic branch/plant segments, you must also define generic cross-segment editing and assembly inclusion rules.

2. Choose a configured item and click Select.



3. On Configured Item Segments Revision, identify the segment by completing the following fields:

   - Seg Num

- Description

  The name of the feature or option that is associated with the segment number.

- Req

- Default Value

  An initial value to use during order entry. Usually, the default values that are set up produce a valid configuration in order entry.

- Display Order

  Since new segments should always be entered at the end of the list of existing segments to maintain the integrity of the configuration information, this field is used to reorder the segments that appear on the Configured Item Specifications form at order entry.

- Code Num

- Save Seg

  This field allows the user to define which segment answers will be used in the configuration information to identify a unique configuration of the configured item.

4. Complete the following optional fields for segment user defined code table values:

   - Product Code

   - User Code

   If you define a calculated segment, you do not need to enter a user defined code.

5. To specify a range of acceptable values, complete the following fields:

   - Lower Limit of Value

   - Upper Limit of Value

   If you define a calculated segment, you do not need to define range checking.

Note
When using a range of values, the entire range of values from the lower limit to the upper limit is acceptable. You cannot limit the answer to, for instance, even numbers, 2 decimal places, ¼", and so on. Any value within the range of values is a valid answer.

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6. To control the printing of configured item information on sales orders, purchase orders, and work orders, complete the following fields:

   - SpB Nbr

   - SpA Nbr

   - Return and Start New Line

- Print Segment Number
- Print Segment Description
- Print Segment Value
- Print Segment Value Description

You can choose the format for displaying configured item text. You can display the system-generated configuration information or use the detail area to create custom text that prints on sales orders, work orders, pick lists, and invoices.

7. Complete the following optional fields and click OK:
   - Common Attribute
   - D C
   - Updt CC

     You can specify which work order category code will be populated with the segment value during order entry.

Defining Common Attributes

A Common Attribute in the Base Configurator system is a trait or characteristic that is shared by several segments in a configured item. You can set up and define a common attribute in UDC table 32/CA. You then attach the common attribute to a particular segment via the Common Attribute field in Configured Item Segments (P3291).

Note

If using common attribute functionality, set the Common Attribute Display and Common Attribute Display Scope processing options on the Processing Tab in Configured Item Specifications (P32942).

The value for the common attribute is input at order entry. When the value is input in the Attribute Value field on the Configurator Common Attributes form, the value automatically fills the answer field for all of the segments that are associated with that common attribute. This process makes order entry input easier; reduces order entry time; and also reduces potential, costly order entry errors.

Example: A Common Attribute

The furniture industry often uses common attributes. In a configuration for a sofa, a common attribute might be Color. The Color common attribute is associated with the segments for the sofa frame, bottom sofa cushions, sofa arm covers, and decorative pillows. After the customer picks a color, that value can be input in the attribute field on the common attribute form. The color is then applied as the answer to all segments that are associated with that particular common attribute.

Setting Up User Defined Segment Values

You can create a user defined code (UDC) table of segment values for a noncalculated segment. The user defined code table that the segment references presents the choices that are available within that particular feature or option. This task is optional.

During order entry, if you have associated a required segment with a user defined code table, you must select a value from the table. If you have associated an optional segment with a user defined code table, you can enter either no value or a value from the user defined code table.

► To set up user defined segment values

From the Configurator Setup menu (G3241), choose Configured Item Segments.

1. On Work with Configured Items, complete the following field and click Find to locate a configured item:
   - Skip to Branch/Plant
2. Choose a configured item and click Select.
3. On Configured Item Segments Revision, choose a row, and then choose User Defined Codes from the Row menu.
4. On Work With User Defined Codes, complete the following fields and click Add:
   - Product Code
   - User Defined Codes
5. On User Defined Codes, complete the following fields and click OK:
   - Codes
   - Description 1
   - Special Handling
   - Hard Coded

Note

You can use codes 55 through 59 for the user defined code (UDC) types. When you set up custom UDC tables for use with the Base Configurator system, J.D. Edwards strongly recommends using these system codes so that the custom UDCs are not over written during a software upgrade.

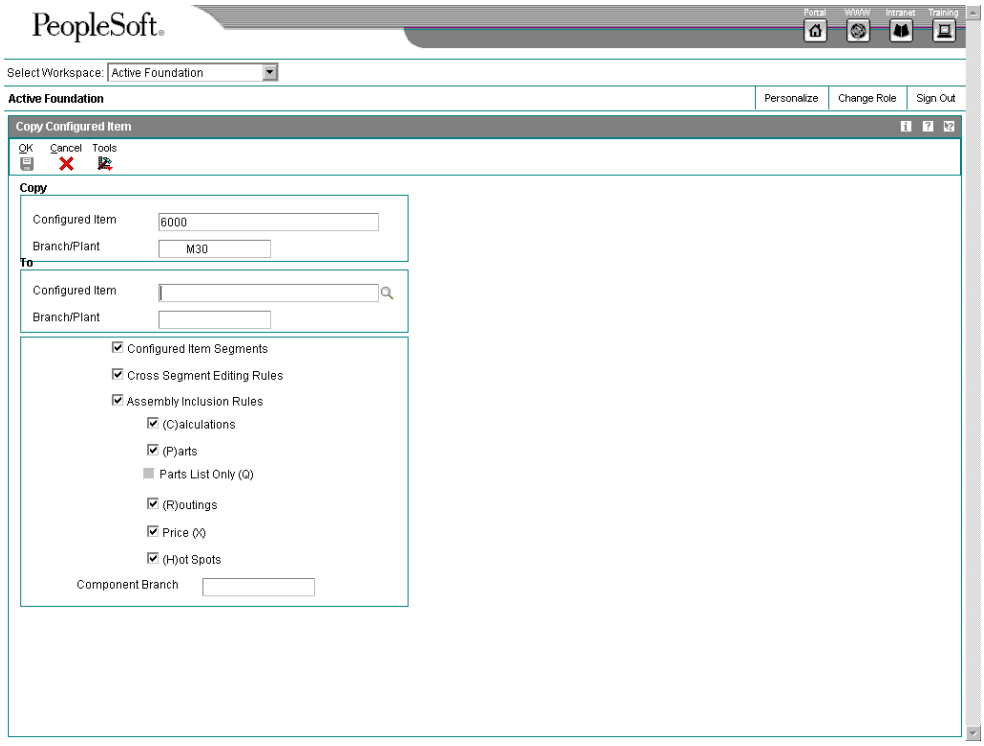
Copying a Configured Item

After you set up a configured item, you can copy its segments, cross-segment editing rules, and assembly inclusion rules to a new or existing configured item. Consider copying configured items to simplify your setup.

► To copy a configured item

From the Configurator Setup menu (G3241), choose Configured Item Segments.

1. On Work with Configured Items, complete the following field and click Find to locate a configured item:
   - Skip to Branch/Plant
2. Choose a configured item and click Copy.



3. On Copy Configured Item, complete the following fields in the To area:
   - Configured Item
   - Branch/Plant
4. To choose what to copy from a configured item, click any of the following options:
   - Configured Item Segments
   - Cross Segment Editing Rules
   - Assembly Inclusion Rules
   - (C)alculations
   - (P)arts

- Parts List Only (Q)
- (R)outings
- Price (X)
- (H)ot Spots

Note

When you copy a configured item, you can copy any attribute from the original item. However, you cannot copy from one rule type to another. For example, if your original item was set up with a P assembly inclusion rule, you cannot copy it to a Q assembly inclusion rule.

5. Complete the following field and click OK:
   - Component Branch

     You can use the Component Branch field during the Copy Configured Item process to populate the assembly inclusion rules with the specific branch/plant that is noted in the Component Branch field. No impact is made to segments and cross-segment editing rules since no branch/plant field appears on these forms. The specified component branch will be reflected in all lines, except those that contain a branch other than the branch for which the rule is written. The component branch will not be changed for components that are sourced from alternate branches. Any changes to components that are expected to come from alternate branches need to be done manually. If a copy is made from one branch/plant to another (for instance, M30 to M10) without specifying a value in the Component Branch field, the system populates the assembly inclusion rule records with the Copy From branch/plant values.

     Remember that branch/plant master records are required for an order to be created.

     If you create a branch/plant that is different from the demand branch/plant, nothing populates after running the Master Planning Schedule – Multiple Plant program (R3483). You must create the appropriate Branch Relationships Revisions (P3403T) for each item that will be provided from another branch/plant. Simply adding the designator to the Component Branch field does not drive the planning system.

     A configured item itself cannot be planned across branches, but the components and configured components to complete the configured item can be planned as supply from various branches.

Locating Configured Item Segment Information

For the user defined code table that you specify, you can locate all configured items and segments that reference the table. This procedure is useful for reviewing the effect of table changes on configured items.

► To locate configured item segment information

From the Configurator Setup menu (G3241), choose Segment UDC Where Used.

1. On Segment UDC Where Used, complete the following fields and click Find:
   - Branch/Plant
   - Product Code
   - User Defined Codes
2. Review the following fields:
   - Configured Item
   - Branch/Plant
   - Parent Segment
   - Description
   - Required or Optional
   - System Code
   - Us Cd
   - Lower Limit of Value
   - Upper Limit of Value
   - Default Value
   - Parent Item No
   - Second Item

Printing Configured Item Segments

Configured item segments can be printed to provide hard-copy documentation. The hard copy can also be used for easily verifying the accuracy of the configured item segment setup.

► To print configured item segments

From the Configurator Setup menu (G3241), choose Configured Item Segments.

1. On Work with Configured Items, complete the following field and click Find:
   - Skip to Branch/Plant
2. Choose a configured item and click Select.
3. On Configured Item Segments Revision, take the Form menu exit to Print Segments (R32491).

4. On Work With Batch Versions – Available Versions, choose a row and click Copy.

Note

J.D. Edwards suggests that you leave the pristine version that comes with the software as it is and copy that version to create your own version of the program to modify.

5. Complete the following fields with user defined information and click OK:
   - New Version
   - Version Title
6. On Batch Version Design, click Cancel.
7. On Work With Batch Versions – Available Versions, choose your version and click Select.
8. On Version Prompting, prompt for Data Selection to limit the process to your specific configured item, and then click Submit.
9. Input your data selection.
10. Verify the print location and click OK.

Setting Up Cross-Segment Editing Rules

The Base Configurator system uses cross-segment editing rules to ensure feature and option compatibility during order entry. These rules establish the relationships among the configured item segments with Boolean logic statements. During order entry, the cross-segment editing rules validate that the feature and option values which you choose create a valid product configuration. This validation enables you to avoid invalid combinations of segments and prevent invalid orders. Error messages about invalid configurations appear, based on segment information from the order and cross-segment editing rules.

Understanding Boolean Logic

Overview

British mathematician George Boole (1815-1864) developed what is called Boolean Logic or Boolean Algebra. In basic terms, Boolean logic was derived by incorporating logic into mathematics and reducing it to simple algebra. Boolean logic is based on the binary number system, so it uses the bit system of 1 or 0 (true or false). Thus, it is very important to computers and digital electronics.

Boolean logic uses statements written in an algebraic format to derive deductions using algebraic operations. The statements define the relationships between sets of ideas or objects. Boolean statements produce precision and control. The logic uses English words to make the statements more intuitive. However, it is not always simple or easy.

Boolean logic uses words that are called *operators* to determine if the value of a statement is either true or false. Boolean operators are conjunctions that are used with terms and phrases to create precise conditional statements. Although the most common operators are AND and OR, different systems use varying symbols for the Boolean logic operators.

Nesting

Nesting is the method of combining Boolean operators in a logical order when more than one Boolean operator is used in a statement. Parentheses are used to effectively sequence the operators and group variables. The parentheses offer substantial control in limiting and ordering the relationship between the variables.

Note

Complex nesting requires additional processing time.

When writing a nested Boolean logic statement using the operator OR, you must enclose the terms in parentheses.

Example

(Gas or Propane) and (08 or 10)

Conditional Logic

In its simplest form, a conditional statement is an IF-THEN statement and consists of two parts:

- Hypothesis

  The hypothesis is preceded by an IF.

- Conclusion

  The conclusion can be preceded by a THEN.

The IF-THEN statement is typically formatted as follows:

IF *condition,* THEN *statement.*

IF is the beginning of the IF-THEN statement, and THEN identifies what actions should be taken if the condition in the IF statement is met.

Example

If the power type is not propane, then no propane tank (should be selected).

Several Variables

Using nesting, the condition and/or statement portions of the IF-THEN statement can be compound (several variables).

Example

If the forklift rating is 6000 pounds and the power type is propane, then the propane tank must be 50 pounds.

Conditional Statement with Else

The IF-THEN-ELSE statement is also used. The ELSE portion of the statement identifies what actions should be taken if the condition in the IF statement is not met.

The IF-THEN-ELSE statement is typically formatted as follows:

IF *condition,* THEN *statement* (ELSE *statement*).

Example

If the paint color is standard, then select part number S-200 or else select part number C-100.

Defining Cross-Segment Logic

For each cross-segment editing rule, you can define an if/then/else logic statement for many conditions. For example, a forklift might require a different value for segment 30 (boom height), depending on the value of segment 10 (lift rating). The following cross-segment editing rule illustrates this situation:

If segment 10 equals 6000, then segment 30 must equal 12, or else segment 30 must be less than or equal to 10.

Each phrase of the conditional logic statement is a separate record (written on a separate line).

The system automatically separates rules by highlighting them with different colors.

The system automatically assigns a rule number that is based on the order in which each rule is entered into the system. The rule number is the order in which the rules will be processed by the calculation function at order entry. The rule number can be changed when setting up cross-segment editing rules by using the Insert Before and Insert After buttons on the Row menu exit on the Work with Cross Segment Editing Rules form.

The system automatically assigns a sequence number to each line within a rule, based on the order in which each line of each rule is entered into the system. The sequence number is the order in which each line within a rule will be processed during calculation functionality. The sequence number can be changed by using the Insert Before and Insert After buttons on the Row menu exit on the Cross Segment Edit Group Revision form.

Note

No limit exists on the nesting of cross-segment editing rules. However, nesting does have an impact on system performance. The deeper the rules are nested, the slower the processing time.

► To define cross-segment logic statements

From the Configurator Setup menu (G3241), choose Cross Segment Editing Rules.

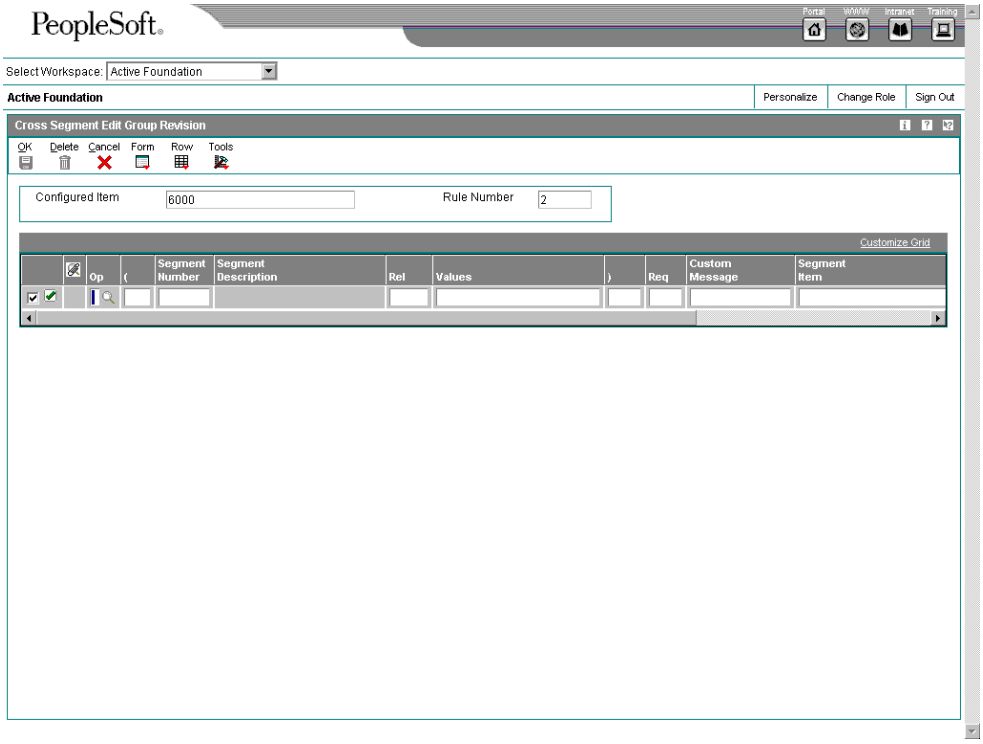
1. On Work with Cross Segment Editing Rules, complete the following fields and click Find to locate a configured item:

   - Branch/Plant

     A blank Branch/Plant field identifies a generic branch/plant. If you define segments for a generic branch/plant, you must also define cross-segment editing and assembly inclusion rules for a generic branch/plant.

- Configured Item

2. To add the first rule, choose Revisions from the Form menu.
3. To add additional rules, choose a row and choose Insert Before or Insert After from the Row menu.



4. On Cross Segment Edit Group Revision, use one grid row for each phrase of the conditional logic statement. To define a logic statement, complete the following fields and click OK:

- Op
- (
- Segment Number
- Segment Description

  The name of the feature or option that is associated with the segment number. This field automatically populates, based on information from the Configured Item, Branch/Plant, Segment Number, and Segment Item fields.

- Rel
- Values
-)

- Req
- Custom Message
- Segment Item

  Use this field to reference a previously chosen segment from a different configuration level.
- Segment Branch

  Use this field to reference the branch/plant of the item in the Segment Item field.
- Effective From
- Effective Thru

Note

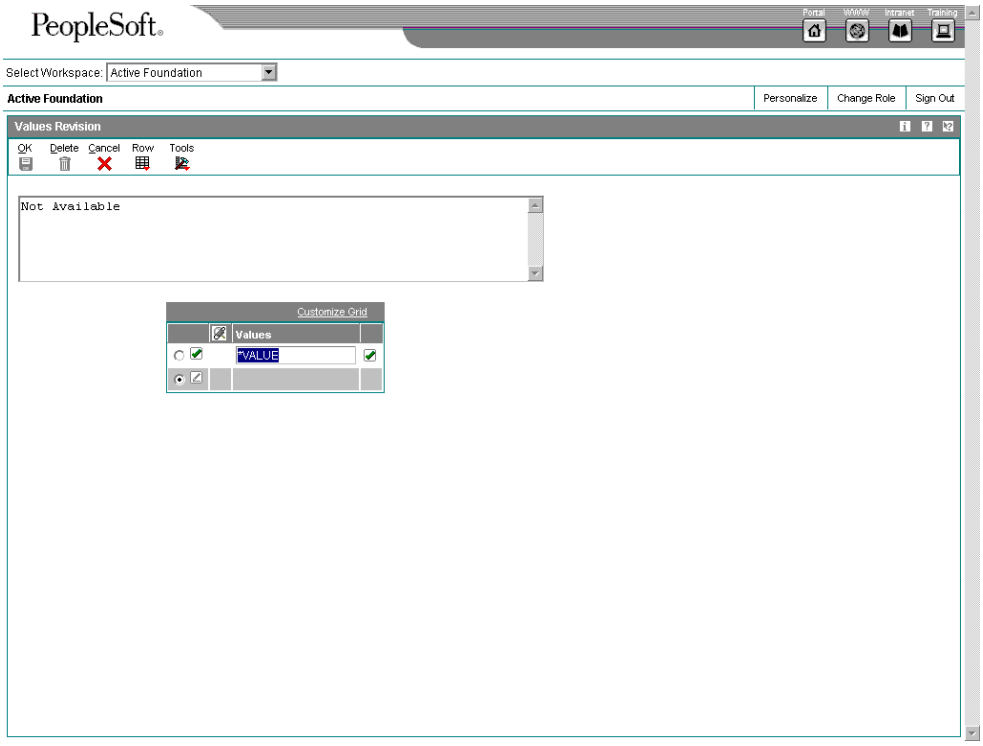
You can reference upper-level items in a cross-segment editing rule by using the Segment Item and Segment Branch fields. When writing the rule, you must first input information in the Segment Item field before inputting the segment number in the Segment Number field. This process tells the system from which configured item to pull segment information for the cross-segment editing rule.

► To define values for cross-segment logic statements

From the Configurator Setup menu (G3241), choose Cross Segment Editing Rules.

1. On Work with Cross Segment Editing Rules, complete the following fields and click Find to locate a configured item:
   - Branch/Plant
   - Configured Item
2. Choose a record and choose Edit Group, Insert Before, or Insert After from the Row menu.
3. On Cross Segment Edit Group Revision, as you begin writing the statement, complete the following field with *VALUES (or *VALUE), and then tab to the next field:
   - Values

   The system prompts you for the valid values for the rule.



4. On Values Revision, complete the following field and click OK:
   - Values

Note

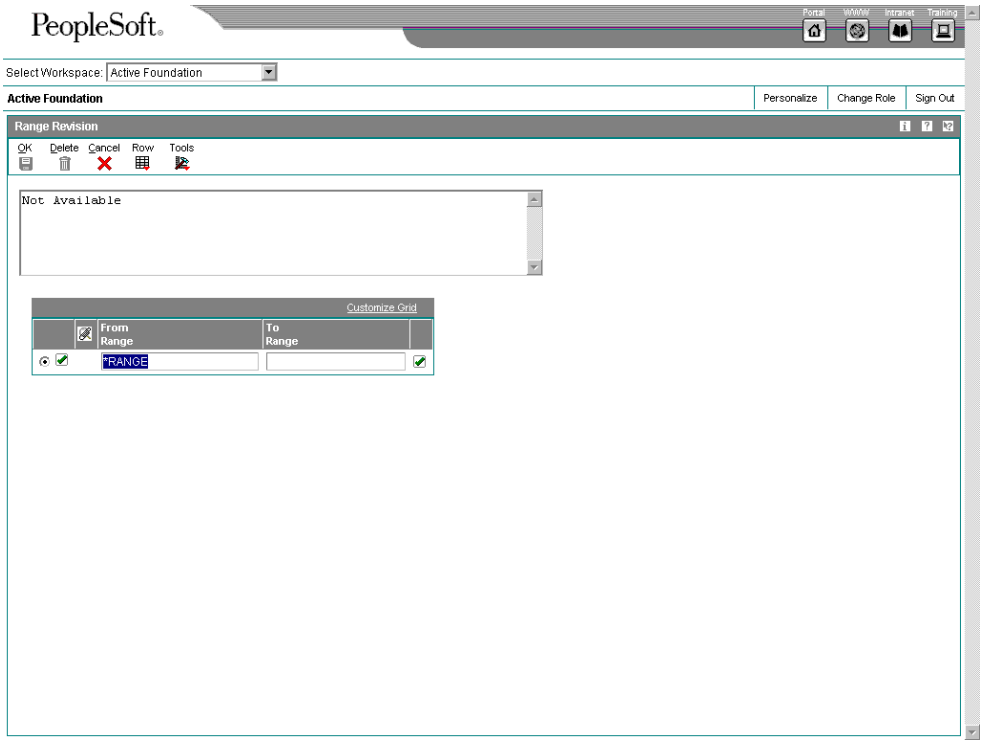
On Work with Cross Segment Editing Rules, you can review the *VALUES for a rule by choosing the grid row, and using the IF Values or THEN Values buttons on the Row menu.

► To define ranges for cross-segment logic statements

From the Configurator Setup menu (G3241), choose Cross Segment Editing Rules.

1. On Work with Cross Segment Editing Rules, complete the following fields and click Find to locate a configured item:
   - Branch/Plant
   - Configured Item
2. Choose a record and choose Edit Group, Insert Before, or Insert After from the Row menu.
3. On Cross Segment Edit Group Revision, as you begin writing the statement, complete the following field with *RANGE (or *RANGES), and then tab to the next field:
   - Values

The system prompts you for range from and range to values.



4. On Range Revision, complete the following fields and click OK:

   - From Range
   - To Range

     When using a range of values, the entire range of values from the lower limit to the upper limit is acceptable. The answer cannot be limited to, for instance, even numbers, 2 decimal places, ¼", and so on. Any value within the range of values is a valid answer.

Note

On Work with Cross Segment Editing Rules, you can review the *RANGE for a rule by choosing the grid row, and using the IF Range or THEN Range buttons on the Row menu.

► To copy a cross-segment editing rule

Note

To save time during setup, you can copy a cross-segment editing rule from one configured item to another.

From the Configurator Setup menu (G3241), choose Cross Segment Editing Rules.

1. On Work with Cross Segment Editing Rules, complete the following fields and click Find to locate a configured item:
   - Branch/Plant
   - Configured Item
2. Choose a record and choose Edit Group, Insert Before, or Insert After from the Row menu.
3. On Cross Segment Edit Group Revision, choose a blank line, and then choose Copy from the Row menu.
4. On Rules Copy Window - Cross Segment Editing Rules, locate the configured item from which you want to copy a rule.
5. Choose a record or several records, and click Select.
6. On Cross Segment Edit Group Revision, modify as required and click OK.

See Also

- *Copying a Configured Item* in the *Base Configurator Guide* for information on copying the entire configured item, including cross-segment editing rules

Setting Up Custom Error Messages

As you enter an order, error messages appear for invalid combinations that are defined by cross-segment editing rules.

The following error messages might appear:

Hard error message For an invalid combination with a required condition, a hard error message appears. To proceed, you must correct the problem by changing segment values.

Soft error message For an invalid combination with an optional condition, a soft error message appears. You can either correct the segment value, or override the error message and continue configuring the item.

Two other types of error messages are:

- A system-generated message
- A custom or user-defined message

System messages When an error occurs, the system automatically generates an error message. System-generated error messages contain the cross-segment editing rule (Boolean logic) that has been violated. The system displays calculated segment values in cross-segment editing rule error messages.

Example:

IF Power Type {Seg 020} is not equal to PROPANE, THEN Propane Tank {Seg 050} should be equal to *BLANK. Power Type {Seg 020} is BATTERY. Propane Tank {Seg 050} is 50(Lb)TK.

Custom messages Error messages can be created for cross-segment editing rules that contain specific or custom information. Custom error messages could include more detail or simplify the content

to make the error message easier to understand.

Example:

A 6000 LB capacity forklift requires a gas or propane engine.

You have three options for controlling which error messages appear during order entry. You can choose to display only the system message (cross-segment editing rule), only the custom message, or both the cross-segment editing rule and the custom message. You must select a value from user defined code 32/CM in the Custom Message field on the Cross Segment Edit Group Revision form.

Note

You must add the custom message to the first sequence of the cross-segment editing rule. If a message is attached to any other sequence of the rule, it does not appear when the error occurs.

► To set up custom error messages

From the Configurator Setup menu (G3241), choose Cross Segment Editing Rules.

1. On Work with Cross Segment Editing Rules, complete the following fields and click Find to locate a configured item:
   - Branch/Plant
   - Configured Item
2. On Work with Cross Segment Editing Rules, choose a record, choose Insert Edit Group from the Row menu, and then choose either Insert Before or Insert After.
3. On Cross Segment Edit Group Revision, complete the following field with the appropriate value:
   - Custom Message

     You must add the custom message to the first sequence of the cross-segment editing rule. If a message is attached to any other sequence of the rule, it does not appear when the error occurs.
4. Choose Custom Message from the Row menu.
5. On Media Objects, choose New, and then choose Text from the File menu.
6. Enter the text for the error message.
7. From the File menu, choose Save & Exit.
8. Click OK.

Reviewing Cross-Segment Editing Information

Review cross-segment editing information to help you maintain the rules. For the item number and segment that you specify, you can review rule logic and segment values.

► To review cross-segment editing information

From the Configurator Setup menu (G3241), choose Cross Segment Where Used.

1. On Cross Segment Where Used Inquiry, complete the following fields and click Find to locate a configured item:
   - Branch/Plant
   - Item Number
   - Segment Number
2. On Cross Segment Where Used Inquiry, review the following fields:
   - Segment Number
   - Rel
   - Value
   - Rule #
   - SEQ #
   - Effective From
   - Effective Thru
   - Segment Item
   - Segment Branch
   - Item Number
   - Branch Plant

Printing Cross-Segment Editing Information

Cross-segment editing rules can be printed to provide hard-copy documentation. The hard copy can also be used to easily verify the accuracy of cross-segment editing rule setup.

► To print cross-segment editing information

From the Configurator Setup menu (G3241), choose Cross Segment Editing Rules.

1. On Work with Cross Segment Editing Rules, complete the following field and click Find:
   - Branch/Plant
   - Configured Item
2. Take the Form menu exit to Print Rules (R32492).

3. On Work With Batch Versions – Available Versions, choose a row and click Copy.

Note

J.D. Edwards suggests that you leave the pristine version that comes with the software as it is and copy that version to create your own version of the program that you then modify.

4. Complete the following fields with user defined information and click OK:
   - New Version
   - Version Title
5. On Batch Version Design, click Cancel.
6. On Work With Batch Versions – Available Versions, choose your version and click Select.
7. On Version Prompting, prompt for Data Selection to limit the process to your specific configured item, and then click Submit.
8. Input your data choice.
9. Verify the print location and click OK.

Understanding Assembly Inclusion Rules

Assembly inclusion rules translate the requested values from order entry into the specific components, operations, user display information, and calculated values that you need to build and price a configured item. An assembly inclusion rule includes logic statements and optional advanced information.

The six types of assembly inclusion rules include:

Component Part (P) Rules	Define the component parts to include on the sales order and work order parts list. You also define multilevel configured items with these rules. For example, if segment 10 equals 6000 and segment 30 is greater than or equal to 10, then use part F170 or else use part F175.
Work Order Component Part (Q) Rules	Define the components to include on the work order parts list. The Order Processing program (R31410) attaches the parts list. For example, if segment 10 equals standard, then include part R100 and part R105.
Calculation (C) Rules	Define the mathematical calculation for the calculated segments for a configured item. You must first define the segment as calculated on Configured Item Segments. You can use a calculated segment value in derived calculations for other rules.
Hot Spot (H) Rules	Define information and messages about a configured item that are processed for display purposes only. This information appears on the order entry form in a Hot Spot field. H rules are calculated similar to C rules. However, the results do not affect the configuration identifier.

Pricing (X) Rules	Define the price and cost adjustments. The system processes X rules independently, based on the kit/configurator pricing method that you selected. Typically, you should not set up cost adjustments when you use work order-generated line types. X rule cost adjustments affect only the sales order. Order Processing (R31410) recalculates the cost without the X rule. For example, if segment 40 equals CUS, then adjust the price by 650.00 USD. The Line Type for X rules should be one that has the Inventory Interface set to N. You must also be certain that the Edit Item Master for the Non-Stock Item option does not have a checkmark on the Line Type Constants Revisions. This situation prevents the Item Number Invalid error at order entry. Based on whether the rule roll-up option is turned on, adjustments are either reflected in the price of the parent item or entered in a new extended sales order detail line.
Routing (R) Rules	Define the work order routing and routing operations. The Order Processing program (R31410) attaches work order routings. You must first define the routings on Work With Routing Master (P3003) before you define routing rules. For example, if segment 40 equals STD, then use the routing for standard paint or else use the routing for custom paint.

Note

You must have at least one P assembly inclusion rule for the configurator system to function.

Business Case: Assembly Inclusion Rules

Problem to Solve

When sales orders are created, all of the detail information shows up on the sales order. In most cases, the customer does not need all of the information, and it crowds the sales order. Also, some detailed information is not appropriate for the customer to see. Only pertinent lines should be printed on the customer sales order.

Solution

Use the Assembly Inclusion Rule application in the Base Configurator system to customize the sales order. Use P assembly inclusion rules to add parts to the sales order and work order parts list, and use Q assembly inclusion rules to add parts to the work order parts list only. These assembly inclusion rules allow you to customize your sales order and work order parts list to communicate the appropriate information.

Understanding (H)ot Spot Assembly Inclusion Rules

Hot spots are used to provide visual information during order entry. Allowing certain kinds of information to display during the order entry process can improve the overall effectiveness for the user. Hot spot information allows the user to view either pre-defined (hard-coded) values or user-defined calculated values. Hot spots are for display purposes only.

The hot spot information is available after the successful (no errors) calculation process has been run. The initial hot spot selection values are displayed, based on the Configured Item Specification (P32942) processing option settings. The user is then able to dynamically

change the hot spot display. The user clicks on a hot spot icon and selects a different hot spot to display from the user defined code (UDC 32/HS) table.

The UDC contains a list of all valid hot spot entries. It also contains a numeric reference to the hot spot, a description, and an indication if the hot spot is hard-coded. Hard-coded entries are not changeable and are numbered descending from 999. Examples of hard-coded hot spot entries include price (as defined by the order entry mode), cost (as defined by the order entry mode), and weight.

Understanding Hard-Coded Hot Spots

Hard-coded hot spots are defined by J.D. Edwards and are not changeable. These hot spots are numbered descending from 999.

999 – Weight is calculated by adding up the weight of all the components that are included in the configuration. The weight of the component is calculated by converting the quantity or unit of measure to the weight unit of measure of the parent item. Any components that are included for a sales quote (Q rule results) are not included in the weight rollup.

998 – Cost (Foreign) is calculated by adding up the foreign cost of all the non-configured components in the configuration, which includes component for a sales quote (Q rule results). Any cost included by X rules and User-Added cost with Price Roll Up = Y is also accumulated.

997 – Cost (Domestic) is accumulated in the same way Foreign 998 is done, except that the domestic amount is accumulated. Both amounts are accumulated separately and are not converted one from the other.

996 – Cost (Order Currency) displays Foreign 998 or Domestic 997, based on the mode that the user entered in the sales order. This process allows the user to enter both modes of sales order and not have to change the hot spot selection.

995 – Price (Foreign) is calculated based on Kit Pricing Method on the Item Master record. This method determines which items have their prices accumulated.

994 – Price (Domestic) is accumulated in the same way Foreign 995 is done, except that the domestic amount is accumulated. Both amounts are accumulated separately and not converted one from the other.

993 – Price (Order Currency) displays Foreign 995 or Domestic 994, based on the mode that the user entered in the sales order. This process allows the user to enter both modes of sales order and not have to change the hot spot selection.

992 – Price Not Rolled (Foreign) is accumulating the foreign price that is being extended as independent sales order lines. This process includes all of the prices that are included by X rules and User-Added prices with Price Roll Up = N.

991 – Price Not Rolled (Domestic) is accumulated in the same way as Foreign 992, except that the domestic amount is accumulated. Both amounts are accumulated separately and not converted one from the other.

990 – Price Not Rolled (Order Currency) displays Foreign 992 or Domestic 991, based on the mode that the user entered in the sales order. This process allows the user to enter both modes of sales order and not have to change the hot spot selection.

989 – Volume is calculated by adding up the volume of all the components that are included in the configuration if the items set up in the Configurator include a volume.

Note

Prices do not include blanket discounting from advanced pricing.

Defining User-Defined Hot Spots

User-defined hot spots are controlled by the user and must be set up in the software. The hot spot must first be set up in the user defined code 32/HS. Once the hot spot name has been defined, an assembly inclusion rule with the corresponding calculation can be defined.

▶ To define user-defined hot spots

From the Configurator Setup menu (G3241), choose Hot Spot Description.

1. User defined code table 32/HS display with the following columns:
   - Codes

     The number of the hot spot being defined.
   - Description 01

     The description of the hot spot.
   - Description 02

     This column is used to define if a given code (hot spot) is to be processed as a numeric or non-numeric statement.

     The default value for hot spots is non-numeric. If the Description 02 column is blank or the value is N, then the hot spot formula is treated as a string (it displays the formula rather than a calculated value).

     (Blank) is equivalent of a default value from data dictionary item CNUM, usually defined as N (non-numeric).

     If the expected answer is numeric and the hot spot is not hard-coded, then the Description 02 column should contain YX, where Y shows that the result is numeric and X is the number of decimal places to be rounded to.

     Hard-coded hat spots are predefined as numeric; therefore, the first digit is not significant for them. The user need only input the second digit for rounding purposes.

Example

User-defined hot spot with a calculated value of 1.2345.

If N, then the formula displays, not the calculated value.

If Y2, then 1.23.

If Y9, then 1.2345 (no rounding since decimals do not exceed 9).

- Special Handling

  This field can be used for language preferences, but it has no impact on hot spot calculations.

- Hard Coded

  This column indicates if a particular hot spot is defined as hard- or soft-coded. J.D. Edwards-defined hot spots are hard coded (Hard Coded field value is Y). All hot spots set up by the user should be defined with a Hard Coded value of N.

2. If the column named Description 02 does not appear in the UDC table, you need to change the setup of UDC 32/HS as follows:
   a. Select Code Types from the Form menu.
   b. Type HS in the Code Types QBE (query by example) line and click Find.
   c. Click Select to get to the User Defined Code Types form.
   d. Type Y in the Second Line (2nd Line (Y/N)) field.

      This step displays the second description field in the initial user defined code table.

   e. Verify that the Numeric (Y/N) field is set to Y.
   f. Click OK and then Close.
3. Once the Description 02 column appears in the table on the Work With User Defined Codes form, click Add.
4. On User Defined Codes, define a hot spot by completing the following fields:
   - Codes
   - Description 1
   - Description 2
   - Special Handling
   - Hard Coded
5. Click OK, and then Close.

Defining (H)ot Spot Assembly Inclusion Rules

Note

Before you can define H, or Hot Spot, assembly inclusion rules, you must define the hot spot user defined code value in user defined code table 32/HS.

User-defined hot spots are determined by using the H assembly inclusion rule. The hot spot rules function similarly to a calculation (C) assembly inclusion rule. This process means that the power of the derived calculation, external program interfaces, and more can be leveraged. Configured tables are also supported for the H rule type.

Hot spots (H rules) are processed in the same way as calculated values (C rules). This situation means that if the validation fails, the displayed value is the customer-defined error character as defined in the Configurator Constants. The H rule differs from a C rule in that processing is done last for the parent item. In addition, anything from any level can be referenced.

The values from UDC 32/HS are used by F3293 Evaluate AIR (B3200460) to process the hot spot (H Rule) as numeric or non-numeric. If the result of the rule matches the Numeric Y/N definition, then it is rounded, based on the UDC definition. The second description for UDC 32/HS allows the entry of an edit code that will be used to scrub the result before it appears on the form. The edit codes are standard programming edit codes.

Note

If a hot spot is defined in UDC 32/HS but a corresponding H assembly inclusion rule has not been defined, the hot spot displays a value of zero on the Configured Item Specifications (P32942) form at order entry.

Understanding Assembly Inclusion Rule Logic

For each assembly inclusion rule, you can define a logic statement for many conditions. This statement can determine which parts to include or how to price an item. The logic is similar to that used in cross-segment editing rules. The main difference is that assembly inclusion rules logic statements can be either conditional or unconditional.

An unconditional statement is identified by an asterisk (a *then* condition) in the And/Or Selection field. Use unconditional rules when you want to apply the same rule, regardless of the segment answers. You must define unconditional rules before you define conditional rules. All unconditional rules must be grouped together in the first rule (rule number one). Unconditional rules are used, for example, when a part is always included as a component or when a price adjustment is always performed.

Conditional rules use Boolean logic to control or condition an action, based on segment answers. You can also use and/or operators to create conditional rules that are compound statements of logic. The following P assembly inclusion rule is an example of a compound logic statement:

> If Segment 10 equals 6000, and segment 30 is greater than 10, then include part F170, else include part F175.

Each phrase of the conditional logic statement is a separate record (written on a separate line).

The system automatically separates rules by highlighting them with different colors.

The system automatically assigns a rule number, based on the order that each rule is entered into the system. The rule number is the order that the rules will be processed by the calculation function at order entry. The rule number can be changed when setting up cross-segment editing rules by using the Insert Before and Insert After buttons on the Row menu exit on the Work with Cross Segment Editing Rules form.

The system automatically assigns a sequence number to each line within a rule, based on the order that h each line of each rule is entered into the system. The sequence number is the order in which each line within a rule will be processed during the calculation function.

The sequence number can be changed by using the Insert Before and Insert After buttons on the Row menu exit on the Cross Segment Edit Group Revision form.

Note

No limit exists on the nesting of assembly inclusion rules. However, nesting does have an impact on system performance. The deeper the rules are nested, the slower the processing time.

Understanding Calculation (Calc) Processing

During order entry, the calculation feature verifies Configurator processes level-by-level in the following order:

- Segment agreement

  System processing includes user defined code validation, range checking, alpha versus numeric checking, length checking, and required versus optional checking.

- C assembly inclusion rules

  The system processes C rules first because the calculated segment answer might be required to validate the configuration. The calculated segment answer might also be needed to perform additional calculations for the configured item.

- Cross-segment editing rules

  The system validates the configuration before processing the remaining rules.

- P assembly inclusion rules
- Q assembly inclusion rules, as needed

  The system processes Q assembly inclusion rules during Sales Quotes (P4210) (to establish cost) and Order Processing (R31410) (to create the parts list and establish cost), depending upon system setup.

- R assembly inclusion rules, as needed

  The system processes R assembly inclusion rules during Sales Quotes (P4210) (to establish cost) and Order Processing (R31410) (to create the routing and establish cost), depending upon system setup.

- X assembly inclusion rules
- H assembly inclusion rules

Understanding Advanced Assembly Inclusion Rules

In addition to the logic statements, you can set up optional advanced assembly inclusion rule function. You set up advanced assembly inclusion rules on either the Assembly Inclusion Edit Group Revisions form or the Advanced Rule Functions form.

Advanced assembly inclusion rule features vary, according to the type of assembly inclusion rule that you set up, as illustrated in the following table:

	P Rules	Q Rules	C Rules	H Rules	X Rules	R Rules
Derived Calculations	X	X	X	X	X	X
External Program References	X	X	X	X	X	X
Configured Tables	X	X	X	X	X	
Smart Parts	X	X				

Derived Calculations

For each rule type, you can define calculations that refer to the values of one or more segments. You can define a derived calculation on either the Assembly Inclusion Edit Group Revisions form or the Advanced Rule Functions form.

Segment References

You can reference any segment within a formula. To reference a segment within the same configured item, enter S and the segment number.

For example, `S3` indicates segment three.

To reference a segment from a different configured item, enter S, the segment number, and the configured item name. Enclose the item name within equal signs.

For example, `S3=Piston=` indicates segment three of item Piston.

Algebraic Formulas

Use algebraic formulas to combine different mathematical operations with the following operators: + , - , * , and /. You can embed calculations by enclosing them in parentheses. You might want to embed segment numbers in the formula to include segment values as part of the calculation.

For example, the following formula calculates the counterweight that is necessary to keep the forklift from tipping over when its boom is fully extended with a full load:

Derived Calculation S10/(4*COS(2*S30*3.1416/360*2*3.1416))

Trigonometric and Logarithmic Functions

You can use trigonometric or logarithmic functions independently or as part of a complex formula.

The following trigonometric functions are available (values expressed in radians):

SIN(1.5) Indicates the sine of 1.5

COS(S3) Indicates the cosine of segment three

TAN(S3) Indicates the tangent of segment three

ARC(S3) Indicates the arctangent of segment three

The following logarithmic functions are available:

LOG Indicates log to base 10.

LN Indicates natural log.

**** Indicates an exponent. 2**5 represents 2 to the fifth power.

The following function is available:

SQR Indicates square root

Substrings

You can use the SUBSTR (substring) function to include a portion of a larger string of characters in a formula.

To calculate a substring, you must provide the following references:

- The segment from which you want to take the substring
- The starting position within the string where you want to begin referencing values
- The length of the string that you want to reference.

For example, if segment 10 is 400012, then the following is true:

SUBSTR(S10,1,4) Indicates that the substring from segment 10 starts at the first position of the string and includes the next 4 positions. The substring value is 4000.

SUBSTR(S10,5,2) Indicates that the substring from segment 10 starts at the fifth position of the string and includes the next 2 positions. The substring value is 12.

Concatenations

You can use the CONCAT (concatenate) function to combine the values of two different segments. For example:

CONCAT(S3,S4) Combines the values of segments 3 and 4. If the segment value of segment 3 is 1001 and the value of segment 4 is WH (white), the concatenated value is 1001WH.

External Field References

You can reference fields that are external to the configurator system to use in derived calculations.

Using the External Files Reference program, you select a field from the following tables:

F0101 Address Book Master

F03012 Customer Master by Line of Business

F41002 Item Units of Measure Conversion Factors

F4101 Item Master

F4102 Item Branch File

F41021 Item Location File

F4105 Item Cost File

F4106 Item Base Price File

F41092 Item Supplemental Data Base User Defined Codes

After you reference a field value, the information appears in the Derived Calculation field, preceded by an ampersand (&). The ampersand is then followed by the table identifier and then the field alias. You can use the field independently or within a complex expression.

You can also include field values through External Files Reference. For example, a pricing assembly inclusion rule for item 6000 (forklift) uses a field reference to retrieve a base price from table F4106. The formula &BPUPRC appears in the Derived Calculation field, where BP is the table identifier for table F4106 and UPRC is the alias for price.

The system uses the component item number and branch from the rule to retrieve the appropriate tables. It also uses the Address Book number to retrieve data from the address book or billing instructions tables.

To reference a supplemental database field, you must also specify the data type. Enter the data type after the field, as follows:

&T2AMTU(WD) Indicates an amount field on the Item Supplemental Database table and the WD data type.

When you reference the Unit of Measure in table F41002, you must specify the unit of measure in the same manner.

External Program References

You can use a program that is external to the J.D. Edwards software to define a calculation. You refer to an external custom business function for special calculations that are particularly complex or involved.

For R, P, and Q rules, the external business function refers to the component number, component branch, and sold-to number. For H, C, or X rules, the external business function refers to the configured item number, branch/plant, and sold-to number

Several set ups must be completed before an external business function can be called. A business function object must be created for the external program. This business function object must then be added to the Object Librarian.

The Function Use processing option value on Assembly Inclusion Rules (P3293) must be equal to the Object Use value on the Object Librarian for the function being called.

On Assembly Inclusion Edit Group Revisions (P3293), you must enter EXTVAR in the Derived Calculation field. Enter the name of the external business function to be called in the External Program field.

After the system runs the external function, it places the results in EXTVAR, a 30-character variable in the inclusion rule.

The external business function can also access and use the values of previously entered segments that are sorted in cache. The system passes the B3200000 data structure to the external business function.

Configured Tables

You can set up configured tables to simplify assembly inclusion rules. Although they take time to set up, tables reduce the number of rules and reduce processing time. Each table uses an assembly inclusion rule to reference return calculated segment values, prices, parts, and display information to the sales or work order.

Smart Parts

Depending on your item numbering scheme and your need for reducing assembly inclusion rules, you can set up smart parts, or customized item numbers, to derive defined variable segments. Using smart parts is a simplified version of using assembly inclusion rules.

For example, a manufacturer might have 100 different paint options for a configured item. Rather than set up 100 different assembly inclusion rules to allow for variations in paint color, the manufacturer might want to set up customized item numbers, or smart parts, to keep track of the different paint values. These smart parts combine the segment item and the paint color into one item number, as defined in the smart part field on the Advanced Rule Functions form.

Smart parts work with P and Q rules. You can build smart part numbers by using the segment values from order entry. The system calculates smart parts in a similar manner to derived calculations. However, the resulting smart part is an alphanumeric string. You must define item numbers that are the result of smart part calculations in the Item Master (F4101) and Item Branch File (F4102) tables.

Smart part formulas can define short, second, or third item numbers. Smart parts use the part numbering symbol conventions that are defined in Branch/Plant Constants. For example, if the smart part formula uses the symbol to identify the third part number, the system places the third part number on the sales order and work order detail line.

You can build a smart part number by using the following functions:

Segment referencing	To reference segments that have already been entered on a different level, specify the item number of that level with the segment number. For example, the notation for Segment 4 of Piston is: Derived Calculation S4=Piston=
Substring	To remove a particular string within a larger string, use the substring function. It removes a string when you define the segment, beginning position, and length. For example, if Segment 4 equals 1234, the last three positions (234) can be used with the notation SUBSTR(S4,2,3), where 2 is the beginning position and 3 is the length of the substring.
Concatenation	To combine two fields, use the concatenation function. For example,

	CONCAT(S3,S1) combines the values of Segment 3 and 1 into one field.
Literal text	To combine a literal (constant) with a segment value (variable). When using literal text in a smart part calculation, the literal must be placed in single quotes. In this example, the smart part consists of the literal P and the value of segment 4. Thus, the formula would be 'P'S4. If the value of Segment 4 is 2000, then the smart part is P2000.

Business Case: Advanced Assembly Inclusion Rules

Problem to Solve

A business has special calculations to run when a new order is created.

Solution

Use the Advanced Assembly Inclusion Rule features in the Base Configurator system to enable the order entry to take advantage of segment referencing, algebraic formulas, trigonometric and logarithmic functions, substrings, concatenations, external field references, external business function references, configured tables, and smart parts. This feature allows you to perform calculations when you validate product configuration. Thus, calculated values are available to order entry personnel and the customer.

Setting Up Assembly Inclusion Rules

You must set up assembly inclusion rules that process requested feature and option values from order entry into the specific components, operations, user display information, and calculated values that you need to build and price the configured item.

Depending on the functionality that you need from your assembly inclusion rule, you can choose from the following rule options:

Component (P and Q) Rules	Quantity multiplier (similar to quantity per assembly)
Calculation (C) Rules	Value for a calculated segment
Hot Spot (H) Rules	User defined calculations for display purposes only
Pricing (X) Rules	Price multiplier
Routing (R) Rules	Run or machine hours multiplier for a routing or routing step

Note

You must have at least one P assembly inclusion rule for the configurator system to function.

Defining Assembly Inclusion Rule Logic

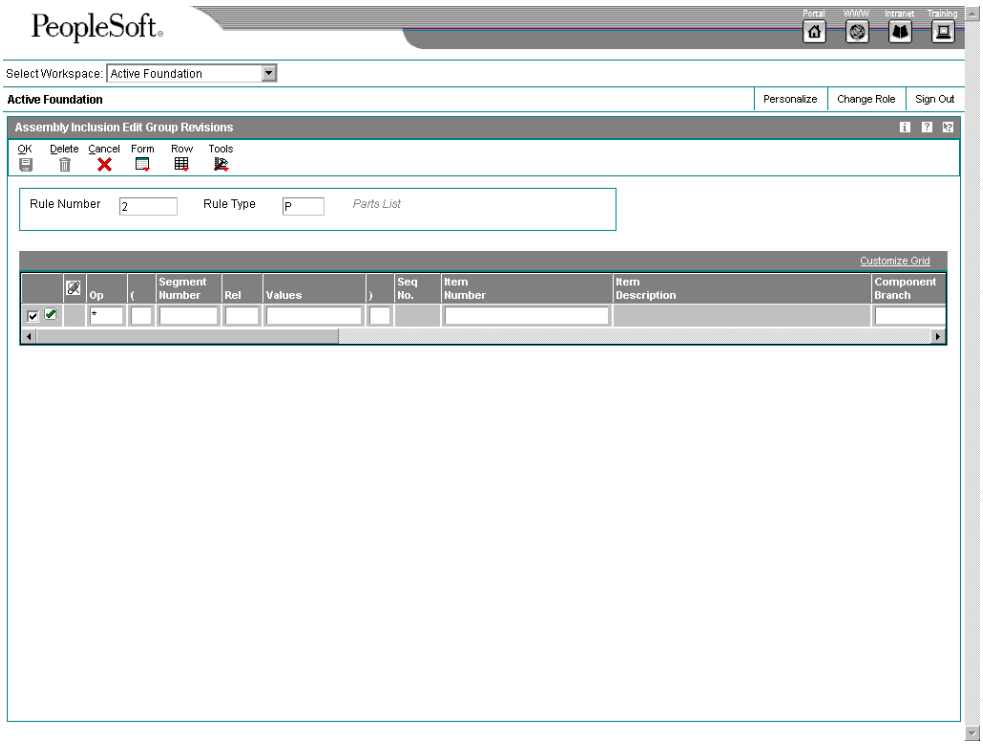
For each assembly inclusion rule, you can define the unconditional or conditional rules by using Boolean Logic.

▶ To define unconditional assembly inclusion rules

Before you define conditional rules, you can define unconditional rules to include parts, price adjustments, calculated values, display values, or routing steps, regardless of the segment values. All unconditional rules must be grouped together in the first rule (rule number one).

From the Configurator Setup menu (G3241), choose Assembly Inclusion Rules.

1. On Work With Assembly Inclusion Rules, complete the following fields and click Find to locate a configured item:
   - Rule Type
   - Configured Item
   - Branch/Plant
2. To add the first rule, select Revisions from the Form menu.
3. If an unconditional rule already exists, highlight the row and click Select.



4. On Assembly Inclusion Edit Group Revisions, complete the following field with an asterisk:

- Op

5. To reference a segment from another level in the configured item, complete the following fields:

   - Segment Item

     Use this field to reference a previously selected segment from a different configuration level.

   - Segment Branch/Plant

     Use this field to reference the branch/plant of the item in the Segment Item field.

     For this functionality to work, you must:

     - Input a value in the And/Or field.
     - Complete these fields.
     - Return to complete the next required field.

6. Complete the following fields for a P rule:

   - Item Number
   - Component Branch
   - Print Part
   - Quantity
   - U/M
   - Operation Seq No.
   - Issue Type
   - Line Type
   - Write Attchd Detail Line

     This field works only with a P type rule. If set appropriately, details will be written to the sales order and cost also rolled up to the sales order. This field does not work with purchase orders.

     Turn the detail lines off whenever possible so that the lines are not processed.

   - Trans Type

     This field specifies the type of transaction that the component of a configured item should generate. This field works with sales orders only.

   - Smart Part

7. Complete the following fields for a Q rule:

   - Item Number

- Component Branch
- Quantity
- U/M
- Operation Seq No.
- Issue Type
- Line Type
- Smart Part

8. Complete the following fields for an R rule:
   - Item Number
   - Component Branch
   - Operation Seq No.
9. Complete the following fields for an X rule:
   - Unit Price
   - Unit Cost
   - Price Rollup
   - Line Type
10. Complete the following fields for a C rule:
    - Segment Number
    - Rel
11. Complete the following fields for an H rule:
    - Segment Number
      This is the HotSpot Number field.
    - Rel
12. Complete the following fields for any rule type and click OK:
    - Effective From
    - Effective Thru
    - Description
    - Derived Calculation

- Rule Table

  You can create a configured table for any rule type except R (routing) rules.

- External Program

► To define conditional assembly inclusion rules

From the Configurator Setup menu (G3241), choose Assembly Inclusion Rules.

1. On Work With Assembly Inclusion Rules, complete the following fields and click Find to locate a configured item:
   - Branch/Plant
   - Configured Item
   - Rule Type
2. To add the first rule, select Revisions from the Form menu.
3. To add additional rules, select a row, and choose Insert Before or Insert After from the Row menu.
4. On Assembly Inclusion Edit Group Revisions, use one grid row for each phrase of the conditional logic statement. To define a logic statement, complete the following fields:
   - Op
   - (
   - Segment Number

     For an H assembly inclusion rule, this field is the HotSpot Number field.
   - Rel
   - Values
   -)
5. To reference a segment from another level in the configured item, complete the following fields:
   - Segment Item
   - Segment Branch/Plant

   For this functionality to work, you must:
   - Input a value in the And/Or field.
   - Complete these fields.
   - Return to complete the Segment Number field in order.
6. Complete the following fields for a P rule:
   - Item Number

- Item Description

  The Item Description field is populated automatically with the associated description of the item number.

- Component Branch
- Print Part
- Quantity
- U/M
- Operation Seq No.
- Issue Type
- Line Type
- Write Attchd Detail Line
- Trans Type
- Smart Part

7. Complete the following fields for a Q rule:
   - Item Number
   - Item Description

     The Item Description field is populated automatically with the associated description of the item number.

   - Component Branch
   - Quantity
   - U/M
   - Operation Seq No.
   - Issue Type
   - Line Type
   - Smart Part
8. Complete the following fields for an R rule:
   - Item Number
   - Item Description

     The Item Description field populated automatically with the associated description of the item number.

- Component Branch
- Operation Seq No.

9. Complete the following fields for an X rule:
   - Unit Price
   - Unit Cost
   - Price Rollup
   - Line Type
10. Complete the following fields for a C rule:
    - Component Branch
11. Complete the following optional fields for any rule type and click OK:
    - Effective From
    - Effective Thru
    - Description
    - Derived Calculation
    - Rule Table

      You can create a configured table for any rule type except R (routing) rules.
    - External Program

Note

You can use the Insert Before, Insert After, and the delete line option to revise the assembly inclusion rules.

► To define values for assembly inclusion rules

From the Configurator Setup menu (G3241), choose Assembly Inclusion Rules.

1. On Work With Assembly Inclusion Rules, complete the following fields and click Find to locate a configured item:
   - Branch/Plant
   - Configured Item
   - Rule Type
2. Highlight a row, and select Insert Before or Insert After from the Row menu.

3. On Assembly Inclusion Edit Group Revisions, as you begin writing the statement, complete the following field with *VALUES (or *VALUE); and tab to the next field:

   - Values

   The system prompts you for the valid values for the rule.

4. On Values Revision, complete the following field and click OK:

   - Values

Note

On Work With Assembly Inclusion Rules, you can review the *VALUES for a rule by selecting the grid row and using the Values button on the Row menu.

► To define ranges for assembly inclusion rules

From the Configurator Setup menu (G3241), choose Assembly Inclusion Rules.

1. On Work With Assembly Inclusion Rules, complete the following fields and click Find to locate a configured item:

   - Branch/Plant
   - Configured Item
   - Rule Type

2. Highlight a row, and select Insert Before or Insert After from the Row menu.
3. On Assembly Inclusion Edit Group Revisions, as you begin writing the statement, complete the following field with *RANGE (or *RANGES); and tab to the next field:

   - Values

   The system prompts you for range from and to values.

4. On Range Revision, complete the following fields and click OK:

   - From Range
   - To Range

     When using a range of values, the entire range of values from the lower limit to the upper limit is acceptable. The answer cannot be limited to, for instance, even numbers, 2 decimal places, ¼", and so on. Any value within the range of values is a valid answer.

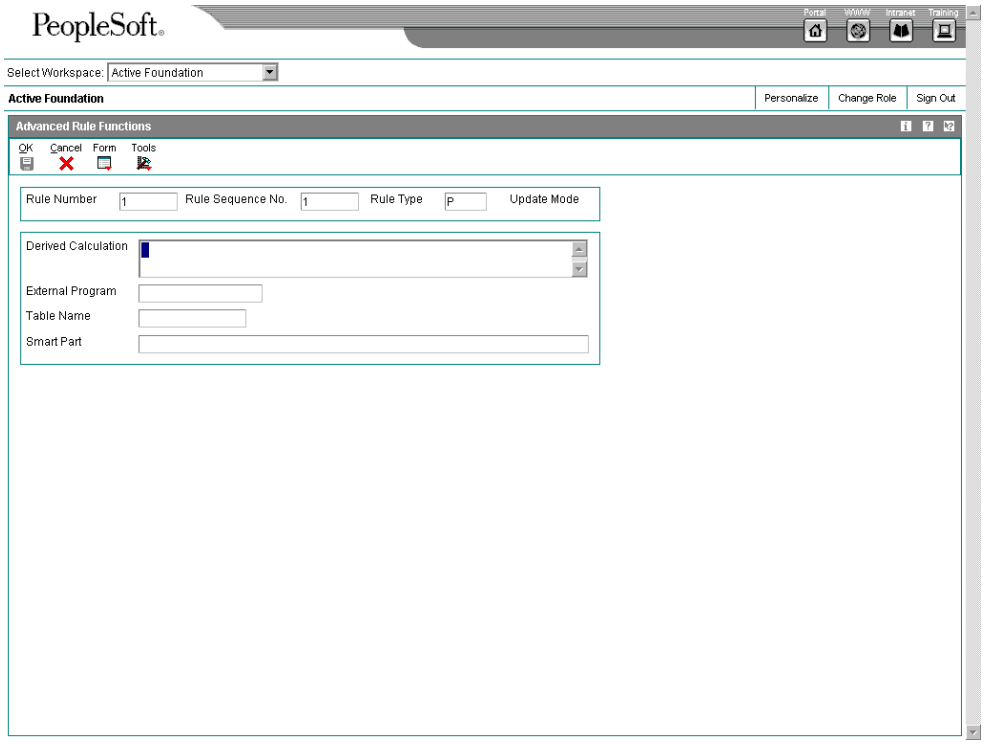
Note

On Work With Assembly Inclusion Rules, you can review the *RANGE for a rule by selecting the grid row and using the Range button on the Row menu.

► To set up advanced rules

From the Configurator Setup menu (G3241), choose Assembly Inclusion Rules.

1. On Work With Assembly Inclusion Rules, complete the following fields and click Find to locate a configured item:
   - Branch/Plant
   - Configured Item
   - Rule Type
2. Select a rule and click Select.
3. On Assembly Inclusion Edit Group Revisions, select a row and select Advanced Rules from the Row menu.



Note

Advanced rule information can also be set up in the applicable field directly on the Assembly Inclusion Edit Group Revisions form.

4. On Advanced Rule Functions, complete one or more of the following fields, and click OK:
   - Derived Calculation

- External Program
- Table Name
- Smart Part

► To copy an assembly inclusion rule

Note

To save time during setup, you can copy an assembly inclusion rule from one configured item to another.

From the Configurator Setup menu (G3241), choose Assembly Inclusion Rules.

1. On Work With Assembly Inclusion Rules, complete the following fields and click Find to locate a configured item:
   - Branch/Plant
   - Configured Item
   - Rule Type
2. Select a record and choose Edit Group, Insert Before, or Insert After from the Row menu.
3. On Assembly Inclusion Edit Group Revisions, choose a blank line.
4. Choose Copy from the Row menu.
5. On Rules Copy Window - Assembly Inclusion Rules, locate the configured item from which you want to copy a rule.
6. Choose one or more lines, and click Select.
7. On Assembly Inclusion Edit Group Revisions, modify as required and click OK.

Processing Options for Assembly Inclusion Rules (P3293)

Defaults
1. Enter the default Rule Type.

Rule Type

Line Type for X Rules
Edits
1. Enter the Function Use for validating external programs. If left blank, no validations against the Function Use code will be done for Business Function and UBE objects selected as external programs.

Function Use

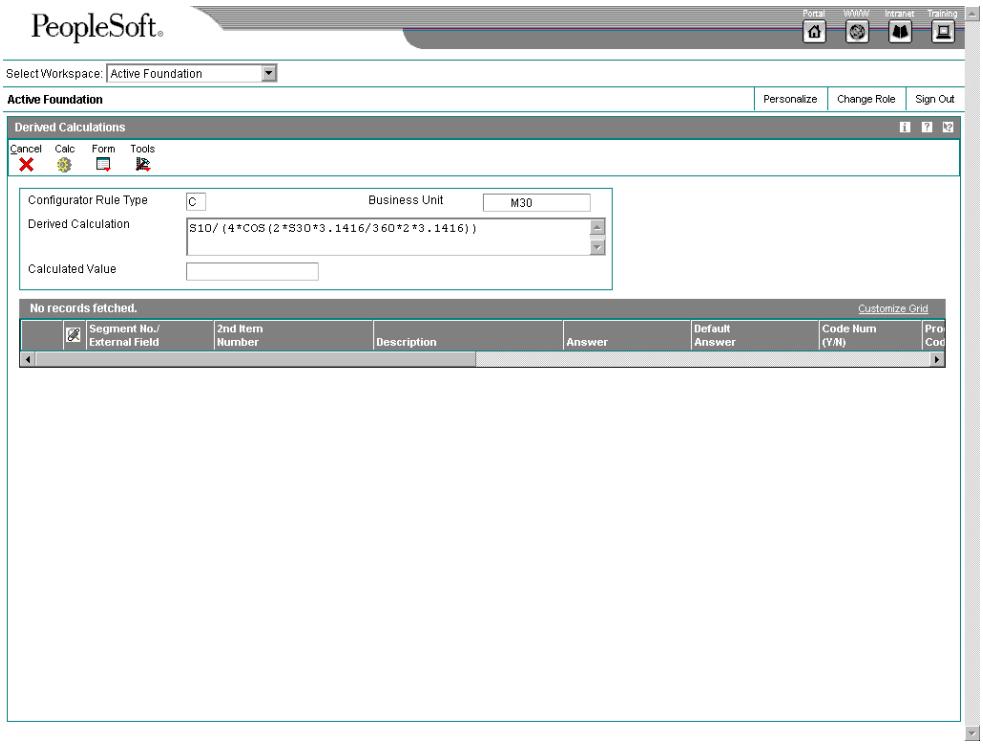
Running the Assembly Inclusion Rule Tester

The Assembly Inclusion Rule Tester tests the derived calculation for any of the six assembly inclusion rules. The tester performs the derived calculation based on segment values input by the user. This process gives the user the ability to test the derived calculations for accuracy without having to run sales quotes to verify the calculated values.

► To run the assembly inclusion rule tester

From the Configurator Setup menu (G3241), choose Assembly Inclusion Rules.

1. On Work With Assembly Inclusion Rules, complete the following fields and click Find to locate a configured item:
   - Branch/Plant
   - Configured Item
   - Rule Type
2. Select a row and choose Edit Group, Insert Before, or Insert After from the Row menu.
3. On Assembly Inclusion Edit Group Revisions, choose a row and select Derived Calc from the Row menu.



The derived calculation to be tested appears at the top of the form. The segments that relate to the derived calculation appear in the middle of the form.

4. On Derived Calculations, complete the following field for each segment listed and click Calc:
    - Answer
5. Review the following field for accuracy:
    - Calculated Value
6. Click Cancel when testing is complete.

Reviewing Assembly Inclusion Rule Information

You review assembly inclusion rule information to help you maintain these rules. Rules and tables can be very complex. Using inquiry programs can help you pinpoint segments and components within the many rules and tables that you might set up. You can determine the effect of component changes, such as shortages and substitutions, and determine the effect of changes on valid segment values. For example, if a vendor discontinues a paint color, you can determine how many configurations are affected.

► To review component information

From the Configurator Setup menu (G3241), choose Component Where Used.

1. On Work With Component Where Used, complete the following fields and click Find to locate a component:
    - Branch/Plant
    - Configurator Rule Type
    - Component Item
2. Review the following fields:
    - Configured Item
    - Branch/ Plant
    - Rule Number
    - Rule Sequence
    - Line Type
    - Quantity Per
    - UM
    - Stocking Type
    - Description
    - Effective From

- Effective Thru
- Oper Seq#
- Derived Calculation
- L T
- Component Branch

► To review segment information

From the Configurator Setup menu (G3241), choose AIR Segment Where Used Inquiry.

1. On Work With AIR Segment Where Used Inquiry, complete the following fields and click Find to locate an assembly inclusion rule:
   - Rule Type
   - Item Number
   - Segment Number
   - Branch/Plant
2. Review the following fields:
   - Values
   - Rule #
   - SEQ #
   - Effective From
   - Effective Thru
   - Segment Item Number
   - Segment Branch
   - Rule Type

► To review configured table information

From the Configurator Setup menu (G3241), choose Tables in AIRs Where Used Inquiry.

1. On Work With AIR Used for Tables, complete the following fields and click Find:
   - Branch/Plant
   - Table Name
   - Rule Type

2. Review the following fields:
    - 2nd Item Number
    - Description
    - Rule Type
    - Rule Number
    - Rule Sequence
    - Quantity
    - Line Type
    - Effective From
    - Effective Thru
    - Oper Seq#
    - Issue Code
    - Branch/ Plant
    - Table Name

Printing Assembly Inclusion Rule Information

Assembly inclusion rules can be printed to provide hard-copy documentation. The hard copy can also be used to accurately verify the assembly inclusion rule setup.

► To print assembly inclusion rule information

From the Configurator Setup menu (G3241), choose Assembly Inclusion Rules.

1. On Work With Assembly Inclusion Rules, complete the following fields and click Find:
    - Branch/Plant
    - Configured Item
    - Rule Type
2. Take the Form menu exit to Print Rules (R32493).
3. On Work With Batch Versions – Available Versions, select the version for the appropriate rule type and click Copy.

Note

J.D. Edwards suggests that you leave the pristine version that comes with the software as it is and copy that version to create your own version of the program that you can then modify.

4. Complete the following fields with user defined information and click OK:
   - New Version
   - Version Title
5. On Batch Version Design, click Cancel.
6. On Work With Batch Versions – Available Versions, select your version and click Select.
7. On Version Prompting, prompt for Data Selection to limit the process to your specific configured item, and then click Submit.
8. Input your data selection.
9. Verify the print location and click OK.

Understanding Duplicate Components

You can add multiple instances of a configured component item to a configured parent item. Each new instance of the component can be configured uniquely or be an exact copy of an instance of the component that you previously configured. You can use a single part number to represent the various configurations of a component item, thus reducing the number of part numbers that you must manage.

To include multiple instances of a configured component item in a parent item, you add the appropriate P-type assembly inclusion rules to the parent item. You can include multiple instances of the configured component item to the configured parent item with unconditional or conditional rules, depending on your business needs.

Whether multiple instances of the configured component item are included as part of the default configuration (using unconditional rules) or as part of a subsequent configuration (using conditional rules), each instance can be configured differently, but have the same part number. Using a single part number allows you to set up all of the associated segments, assembly inclusion rules, and cross-segment editing rules for a single item; and then customize various configurations for that item.

The system uses a Sequence ID to help identify duplicate components in a configuration. The Sequence ID is a next number type sequence id. The id's are assigned sequentially. This Sequence ID facilitates multiple instances of a configured component item in a configured parent item, each having a unique segment value.

Currently, you can refer to an upper level configured item in cross-segment editing rules, assembly inclusion rules, and derived calculations. The configurator correctly processes the rules, based on the upper level configured item segment selection. With the introduction of duplicate components, referring to an upper level duplicate configured item adds complexity because no ability to identify the Sequence ID of the referred duplicate component currently exists. Thus, when processing rules where the duplicate configured items have different segment values, the system encounters difficulty identifying which duplicate component

segment value to use. Therefore, the system must make an assumption to resolve this issue. When the referred upper level configured item is a duplicate component, the system processes rules that are based on the first duplicate item value which is stored in cache. Cache is evaluated from the top down so the first component that it finds will be used.

Example: Duplicate Components

The following cabinet can be configured with two or three drawers, depending on the height of the cabinet:

- * body (unconditionally add a configurable cabinet body to the configuration)
- * drawer (unconditionally add a configurable drawer to the configuration)
- * drawer (unconditionally add a configurable drawer to the configuration)
- I height = 36 * drawer (if the height of the cabinet is 36 inches, add a third configurable drawer to the configuration)

Each instance of the drawer in this example can be configured differently but have the same part number.

Setting Up Configured Tables

A configured rules table is a collection of data that you define for a configured item. During order processing, assembly inclusion rules can refer to tables to retrieve component parts, calculated segment values, price adjustments, or display information.

You can use tables to reduce the number of assembly inclusion rules that are required when segment answers vary greatly. The table type should be the same as the assembly inclusion rule type that refers to it.

Setting up tables adds time to the setup process. However, tables can dramatically reduce the number of assembly inclusion rules and their complexity, thus improving processing time and simplifying setup.

When you enter an order for a configured item, you select answers for the segments that are defined for the item. For example, for a forklift, you might select a value of 4000 for segment 10 (Lift Rating) and a value of PROPANE for segment 20 (Power type).

Depending on the values that you define for each segment, you can specify the information that returns to the order. You must define the values for each segment as a key to the table.

You can define the following tables, which correspond to the matching assembly inclusion rule types:

P Table	Defines part tables that can return multiple part numbers. To produce the configured item, P tables return part numbers to the sales order and, eventually, to the work order parts list.
Q Table	Defines part tables that can return multiple part numbers. Conceptually similar to P tables, Q tables return part numbers only to the work order parts list. They do not return values to the sales order.
C Table (Calculated	Defines a calculated segment table that can return multiple numeric or alphanumeric values as defined on Configured Item Segments. C tables return calculated values to

values)	values as defined on Configured Item Segments. C tables return calculated values to segments. Other rule types can then use these values to control or affect actions.
H Table (Hot Spots	Defines numeric information about a configured item to be returned to the Hot Spot field on the order entry form for display purposes only. H tables are limited to one return value. H tables are conceptually similar to C tables. Examples of hot spot information include price, foreign price, domestic price, cost, foreign cost, domestic cost, and weight.
X Table (Pricing	Defines a price table that returns one numeric value. X tables return prices to the sales order, based on one or more segment answers. Unless otherwise specified, the Line Type defaults as an M. Whatever the Line Type is in the assembly inclusion rules, the rules for the Price Rollup Flag prevail – that is, either break out separately or roll into the parent.

No table corresponds to the assembly inclusion rule for routing.

Because only one value can be returned for H and X tables, the system limits setup options when you specify the return dimensions for these table types.

Because a table might contain many segments (keys) and values, you must decide how the table information appears before you can review table information.

As you work with table information, you can speed data entry by setting a processing option for copying rows of data.

Note

The tables used for rules processing within the Base Configurator system are not user defined codes.

Defining Table Names for Configured Tables

Prior to setting up a table, you must first define the table name. Table names are user defined values and are stored in user defined code table 32/TN. This table is not accessible from a menu.

Defining Table Definitions with Dimensions for Configured Tables

To create a configured table, you must define the table type and dimensions. The dimensions refer to the number of segments that are used as keys to the table and the number of values that the table returns to the configured item. The maximum number of keys to the table is 20. The maximum number of return values is 99,999.

Tables can have the following dimensions:

- One segment and one return
- One segment and multiple returns
- Multiple segments and one return
- Multiple segments and multiple returns

You should have an idea of what you want your table to do prior to defining its dimensions. A one segment, one return table is particularly helpful when you want to define price, cost, hot spot values, or other specific information.

You might choose to create a one-segment, multiple return table when one segment can return multiple information consistently. Many component item numbers might be related to a specific segment answer. For example, a paper manufacturer might configure a certain size of letterhead to return a correspondingly sized envelope and response card.

You might choose to create a multiple-segment, multiple return table when using P or Q tables. P and Q tables are based on P and Q assembly inclusion rules, which return parts to the sales or work order.

Note

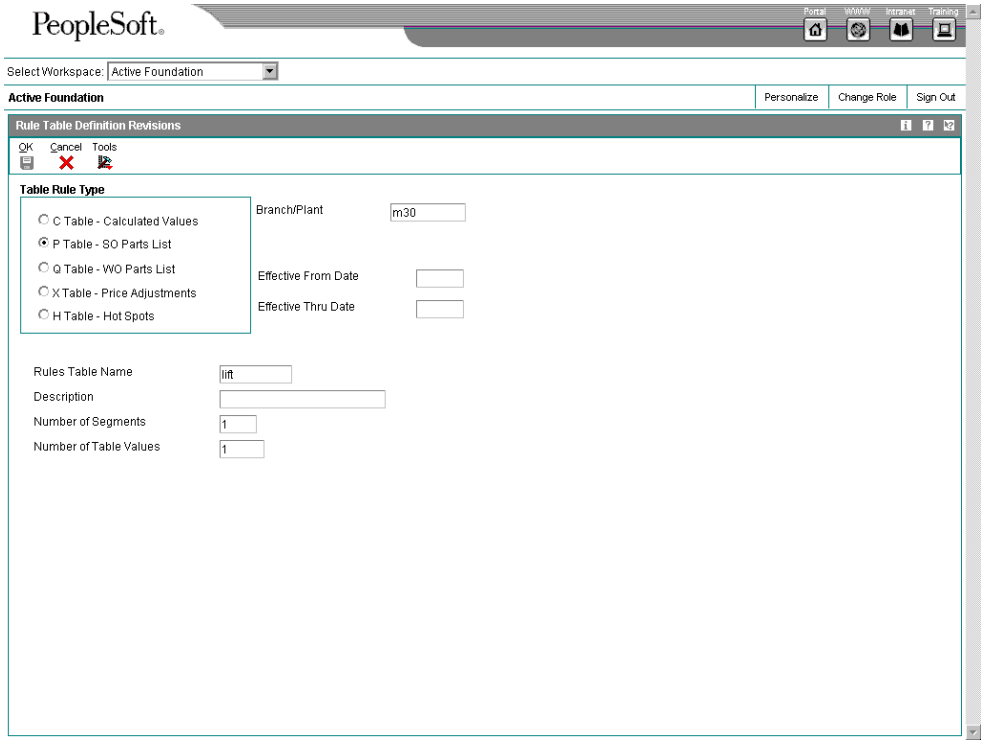
When working with tables with multiple segments and multiple returns, remember that the form displays segment information in columns and values in rows.

You also have the ability to define effectivity dates for the table.

► To define table definitions with dimensions for configured tables

From the Configurator Setup menu (G3241), choose Configured Table Definition.

1. On Work with Configured Table Definitions, click Add.



2. On Rule Table Definition Revisions, complete the following fields:

- Branch/Plant

  You can define tables that are specific to a branch/plant or generic across all branch/plants. A blank Branch/Plant field identifies a generic branch/plant. If you do not use the generic branch/plants, then segment, rule, table, and item information should be the same across branch/plants. If you define generic branch/plant segments, you must also define generic tables.

- Rules Table Name

- Description

3. To select the type of table, click one of the following options under the Table Rule Type heading:
   - C Table - Calculated Values
   - P Table - SO Parts List
   - Q Table - WO Parts List
   - X Table - Price Adjustments
   - H Table - Hot Spots
4. Complete the following fields to define the table dimensions:
   - Number of Segments

     The number of segments that are used as keys to the table. The maximum is 20 keys.

   - Number of Table Values

     The number of values that the table returns.

     With H and X tables, the Number of Table Values field is automatically populated with 1.
5. Complete the following fields to define table effectivity dates and click OK:
   - Effective From Date
   - Effective Thru Date

Processing Options for Configured Table Definition (P3281)

Data Defaults
1. Rule Table Type (Optional)

Rule Table Type

Defining the Configured Table/Configured Item Cross Reference

After you define a table, you must specify the configured item that references the table and define the specific segments that access it. To create a cross-reference, the number of segments that you specify must equal the number of segments that you defined for the table. You can also specify a segment that accesses a different configuration level.

Multiple configured items can refer to a single table, and a single configured item can refer to multiple tables.

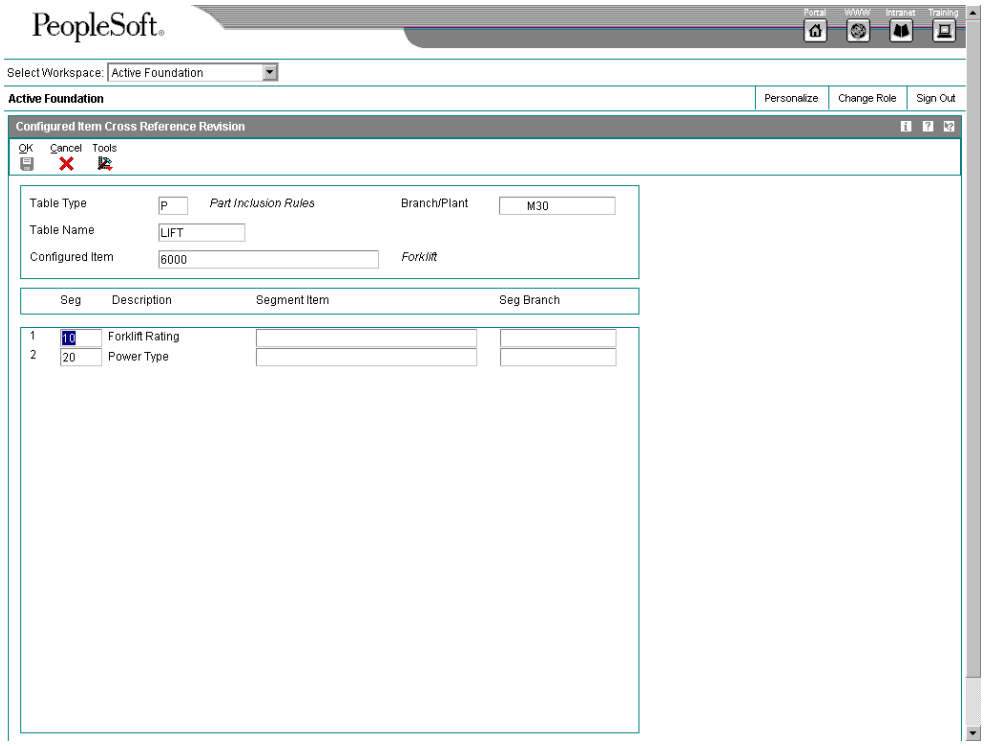
Note

You can enter an item *ALL to define a generic cross-reference for all configured items. If you use *ALL, you must use the same segment numbers for all configured items.

► To define the configured table/configured item cross reference

From the Configurator Setup menu (G3241), choose Table/Item Cross Reference.

1. On Work with Configured Item Cross-Reference, complete the following fields and click Add:
   - Branch/Plant
   - Table Type
   - Table Name
   - Configured Item



2. On Configured Item Cross Reference Revision, click OK.
3. To define the segment that accesses the table, complete the following fields and click OK:

   - Seg

     The segment number is used as a key to retrieve information from the table. The number of segments is the same as you defined on Configured Table Definition (P3281).

   - Segment Item

     The configured item that contains the segment. This field provides the capability to reference segments from a higher-level configured item.

   - Seg Branch

     If a higher-level configured item is referenced, it can also be in another branch/plant.

Note

When creating C tables that return multiple values, you must define destination segment numbers during the Table/Item Cross Reference step. The Table Return Segment Values form automatically appears when entering a C table.

Processing Options for Table/Item Cross Reference (P3282)

Defaults
Defaults for the Work With Cross Reference form.

Default Rule Table Type.

Defining Table Return Segment Values for C Tables

When creating C tables that return multiple values, you must define destination segment numbers during the Table/Item Cross Reference step. The Table Return Segment Values form automatically appear when entering a C table.

► To define table return segment values for C tables

After defining the configured item cross-reference table for a configured table, the Table Return Segment Values form appears. If it does not automatically appear, then take the Row menu to Return Segments on Work with Configured Item Cross-Reference.

1. On Configured Item/Rules Table Return Segment Values, complete the following field with segment information:
   - Return Segment
2. Click OK and close the Configured Table Definition form.

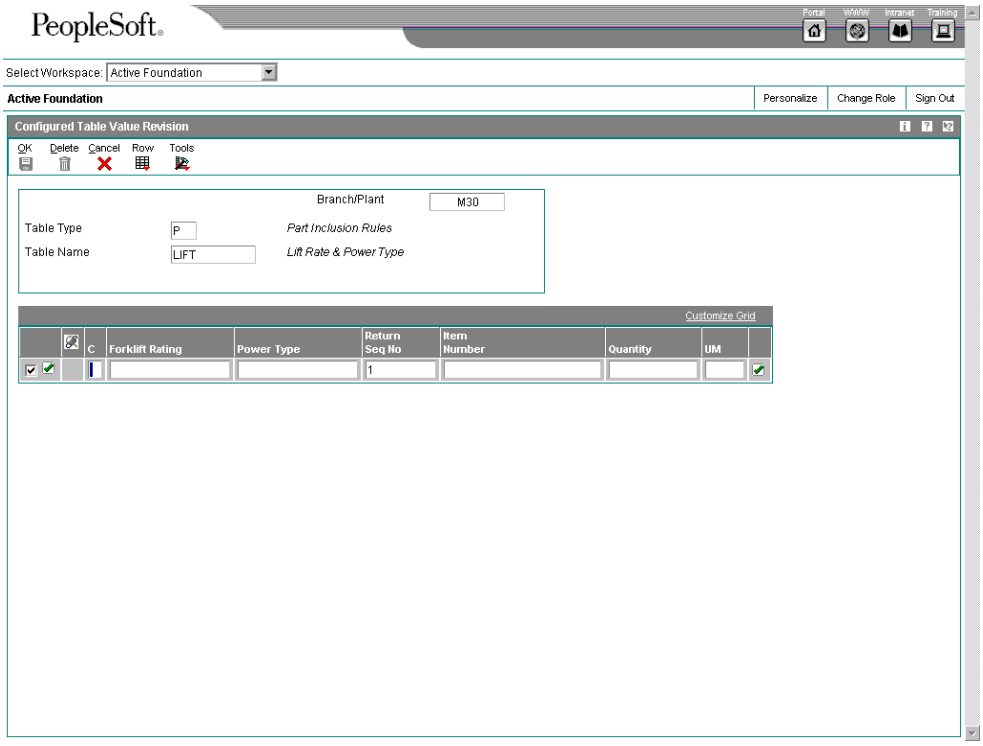
Defining Values for Configured Tables

After you define dimensions and create your table/item cross reference, you are ready to define values. For each segment, you must define the specific value that is a key to the table. Then you specify the part number, calculated value, price adjustment, or display information that is returned to the order when a particular value is chosen for the segment.

► To define values for configured tables

From the Configurator Setup menu (G3241), choose Configured Table Values.

1. On Work with Configured Table Values, complete the following fields and click Add:
   - Branch/Plant
   - Table Type
   - Table Name



2. On Configured Table Value Revision, complete the following field with segment information:

   - Segment Value 1

   - Segment Value 2

   You complete as many segment value fields as you defined on the Rule Table Definition Revisions form when you defined dimensions for your table. The names of your segment value fields are defined when you create your table/item cross reference.

3. Complete the appropriate fields and click OK.

   Each time that you enter a value for a segment and the associated item number, a new blank row appears.

Note

As you work with table information, you can speed data entry by setting a processing option for copying rows of data. You can use one of two methods to copy rows. The first method is to select a row, and then choose Copy row from the Row menu. You can then change the row data as necessary for your table. The second method is to enter 1 in the C field of the row that you want to copy. After you complete the fields in a row and press the Enter key, that row is copied into the next row. When you no longer want to automatically copy a row or if you need to make changes, clear the C field.

Processing Options for Configured Table Values (P3283)

Defaults

1. Rule Table Type (Optional)
Processing

1. Enter '1' to enable Row Copying

Linking a Configured Table to an Assembly Inclusion Rule

After you define table values, you must provide access to the table so that the part number, calculated value, price adjustment, or display information is retrieved to the order. The table is linked to the corresponding assembly inclusion rule. The table can be accessed through either unconditional or conditional rules. During order processing, the assembly inclusion rule causes the table to be read and the values are brought back to the order.

► To link a configured table to an assembly inclusion rule

From the Configurator Setup menu (G3241), choose Assembly Inclusion Rules.

1. On Work With Assembly Inclusion Rules, complete the following fields and click Find to locate the assembly inclusion rule for your configured item:
   - Branch/Plant
   - Configured Item
   - Rule Type
2. Select a row, and choose Insert Before or Insert After from the Row menu.
3. On Assembly Inclusion Edit Group Revisions, as you begin writing the assembly inclusion rule, select a row and then choose Advanced Rules from the Row menu.
4. On Advanced Rule Functions, complete the following field and click OK:
   - Table Name
5. On Assembly Inclusion Edit Group Revisions, click OK.

Copying a Configured Table

After you set up a configured item table, you can copy its definition, cross reference, and values to a new or existing table. Copying existing tables reduces setup time.

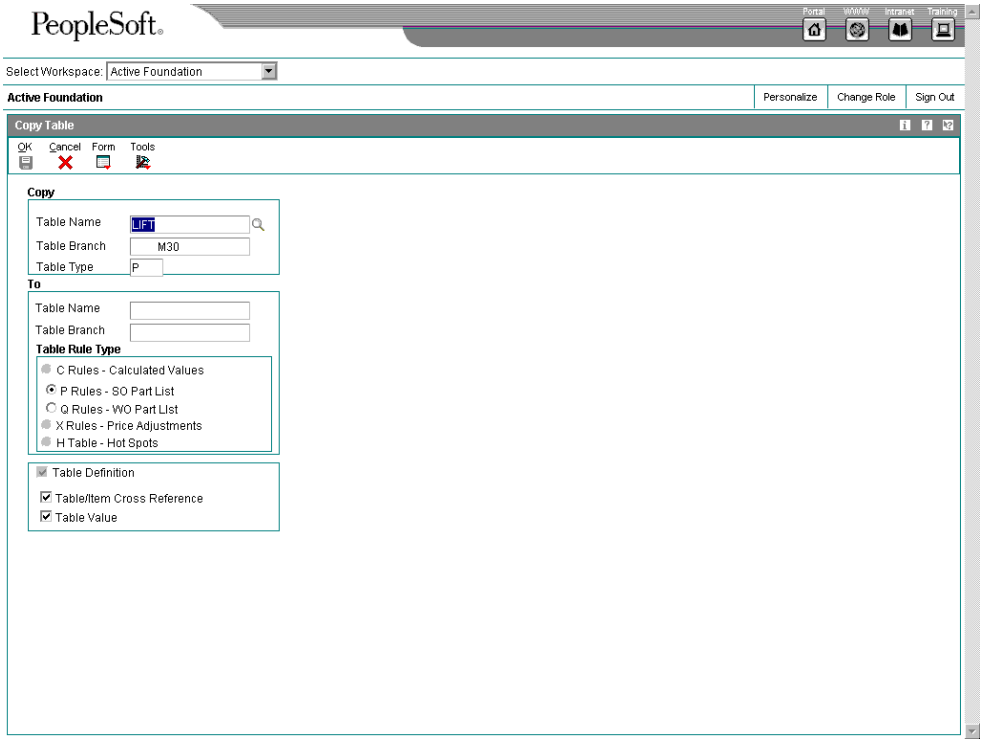
► To copy a configured table

From the Configurator Setup menu (G3241), choose Configured Table Definition.

1. On Work with Configured Table Definitions, complete the following fields to locate the table that you want to copy and click Find:
   - Branch/Plant

- Rules Table Type

2. Select a configured table and click Copy.



3. On Copy Table, to name the new table, complete the following fields under the To heading:

   - Table Name
   - Table Branch

4. To select which parts of the configured table to copy, click the following applicable options, and then click OK:

   - Table Definition
   - Table/Item Cross Reference
   - Table Value

Reviewing a Configured Table

You can search for components or values used within configured tables by using the Component/Value Table Where Used Inquiry (P32830). You can search for returned values or for specific components. The system indicates where the values or components exist within your configured tables.

► To review a configured table

From the Configurator Setup menu (G3241), choose Component/Value Table Where Used Inquiry.

1. On Work with Rules Table Detail, click one of the following options to define your search:
   - Value
   - Component

   The fields available to you might be different, depending upon whether you search for a component or a returned value.
2. If you selected the Value option to search for a value returned by a table, complete the following field:
   - Table Value
3. If you selected the Component option to search for a component, complete the following field:
   - Component Item
4. Click Find.
5. For each table, review the following fields:
   - Table Name
   - T T
   - Table Seg Val 1
   - Table Seg Val 2
   - Item Number
   - Quantity
   - UM
   - Table Value
   - Branch Plant

Printing Configured Table Information

Configured tables can be printed to provide hard-copy documentation. The hard copy can also be used to verify the accuracy of the configured table keys and return values. You can review the table segments and values for the table name and table type that you specify.

► To print configured table information

From the Configurator Setup menu (G3241), choose Configured Rules Table Values.

1. On Work With Batch Versions – Available Versions, choose a row and click Copy.

Note

J.D. Edwards suggests that you leave the pristine version that comes with the software as it is and copy that version to create your own version of the program that you can then modify.

2. Complete the following fields with user defined information and click OK:
   - New Version
   - Version Title
3. On Batch Version Design, click Cancel.
4. On Work With Batch Versions – Available Versions, choose your version and click Select.
5. On Version Prompting, prompt for Data Selections to limit the process to your specific configured table, and then click Submit.
6. Input your data selection.
7. Verify the print location and click OK.

Setting Up Media Objects for Configured Items

The software gives you the ability to attach media objects to item master records, segments, and user defined codes to use within the Base Configurator system. This feature of the system allows you to include a visual cue of configured items, configured item segments, and user defined code values, which can be used for segment answers within order entry. Media objects can be photos, graphics, files, or text documents, including information that might initially exist on a paper document.

Note

The media object is attached to the Item Master through the Internal Attachment Row menu, not to the Item Branch/Plant.

The media objects that you define appear on the Configured Item Specifications form at order entry. Within the tree structure that appears for the multilevel configured item, you can click a level; and the media object displays the image from the item master for the related configured item number. The segment or segment-answer user defined code displays the media object when a row is selected.

The display of media objects at order entry is controlled by the Configured Item Specifications processing options. The Media Object Display processing option controls whether or not an attached media object displays on the form during order entry. The Media Object Display Order processing option specifies the order in which media objects appear on the form if

more than one media object type is attached to a configured item, configured segment, or user defined code segment value.

You can also retrieve media objects by using either a Form exit (for item master media objects when the tree control is selected) or a Row exit (for segment or user defined code-related media objects when the row is selected).

Working with Configured Item Specifications

After you have set up the segments, cross-segment editing rules, assembly inclusion rules, configured tables, and media object attachments for a configured item, you can enter orders for the configured item.

The Configured Item Specifications (P32942) form is used to designate the features and options of a configured item on an order. You use Sales Order Entry (P4210), Purchase Orders (P4310), and Manufacturing Work Order Processing (P48013) to enter an order for a configured item. As with any order, you input information in the order header and order detail areas. Once you input the item number and tab off that order line, the system automatically calls and displays Configured Item Specifications. This process occurs because the item number of the configured item is coded as a C stocking type in the Item Master. Thus, the system is programmed to automatically call Configured Item Specifications so that the configured item can be defined for the order.

The processing options for Configured Item Specifications control the display of information on the Configured Item Specifications form.

The four sections to the form are:

- Tree
- Segment
- Attachment
- Hot spot

These sections give the user the ability to define the configured item and then view related information concerning the configured product.

You can view the multilevel nature of your configured item with the tree structure that appears on the Configured Item Specifications form. The tree is controlled by user defined processing options and can display the following information on each level:

- Item number
- Description
- Branch/plant
- Unit of measure
- Quantity

The tree gives you access to the configured items and associated segments at various levels in the parent-configured item when you click on the item number that is shown in the tree.

The segments that represent the features and options of the configured item highlighted in the tree appear. Several fields are displayed to further define the segments. The user inputs a value for each segment in the Answer field. The Answer field gives the user access to any user defined codes that might be defined for the segment. The system edits each segment value by using user defined code tables, ranges, and numeric specifications.

Many configured order line items can share a common attribute. A common attribute that is used in a configured item can be set at the start of an order. The chosen value can be applied as the default to each subsequent line item is entered. This feature is useful in a high attribute selection and high line item order environment. The feature can save time and labor during the order entry process. It also prevents unnecessary errors during order entry. The

common attribute can then be revised in the middle of order entry to accommodate changes in customer specifications.

Processing options control the prompting for common attributes. The common attribute can be set to automatically appear at the beginning of order entry (between the order form and the Configured Item Specifications form). It can also be manually selected from a Form exit within Configured Item Specifications.

For example, the furniture industry can use common attributes to configure a sofa. In a configuration for a sofa, a common attribute might be Color. The Color common attribute is associated with the segments for the sofa frame, bottom sofa cushions, sofa arm covers, and the decorative pillows. After the customer picks a color, you can input that value in the attribute field on the Common Attribute form. The color is then applied as the answer to all of the segments that are associated with that particular common attribute.

The attachments section gives the user the ability to review any media objects that are attached to a configured item, segment, or user-defined code that represents a segment answer. The user must click on the part number in the tree structure to view the item master internal attachment for that item. To view the segment attachment, click on the segment in the segment section and take the Row exit to Attachment. To view the user defined code attachments, click on the visual assist in the segment Answer field; you can view the attachment from the form that appears.

The hot spot section is initially blank. Hot spots do not appear until the calculation functionality has been performed successfully, and no errors exist. You can display up to three different hot spot values on the Configured Item Specifications form. The initial hot spots that appear after successful calculation are set by the processing options. To select other hot spot values, click on the hot spot icon and select another hot spot user defined code.

The Base Configurator system also calculates the weight of a configured item based on the multilevel items that comprise the parent item. You can choose to designate a base weight for the configured item. The weight is calculated as the item is entered within order entry. You must enter the same weight units of measure for each segment that comprises the configured parent item. Weight is calculated by using P rule components only.

Within the order entry process, you use the calculation feature to process your configured answers as they are entered. The calculation feature expands the multilevel structure of the configured item. This feature is set up to calculate when you reset the configuration to the default segment answers from a Form exit, when you return string history, or when you manually click the Calc button on the Tool menu.

The calculation functionality uses the cross-segment editing rules to validate feature and option compatibility. After calc functionality is performed, the system highlights any configuration errors with a red X next to a configured item in the tree, a purple highlight in the Answer field in the segment section, and a stop sign at the bottom of the form. You can read the error messages to determine how to fix the configuration choices to create a valid configuration.

If no errors exist and the configuration is valid, a green check mark appears next to each item in the tree. The system processes derived calculations and assembly inclusion rules according to the segment values.

Understanding Calculation (Calc) Processing

During order entry, the calculation feature verifies Configurator processes level-by-level in the following order:

- Segment agreement

  System processing includes user defined code validation, range checking, alpha versus numeric checking, length checking, and required versus optional checking.

- C assembly inclusion rules

  The system processes C rules first because the calculated segment answer might be required to validate the configuration. The calculated segment answer might also be needed to perform additional calculations for the configured item.

- Cross-segment editing rules

  The system validates the configuration before processing the remaining rules.

- P assembly inclusion rules
- Q assembly inclusion rules, as needed

  The system processes Q assembly inclusion rules during Sales Quotes (P4210) (to establish cost) and Order Processing (R31410) (to create the parts list and establish cost), depending upon system setup.

- R assembly inclusion rules, as needed

  The system processes R assembly inclusion rules during Sales Quotes (P4210) (to establish cost) and Order Processing (R31410) (to create the routing and establish cost), depending upon system setup.

- X assembly inclusion rules
- H assembly inclusion rules

Before You Begin

- ❑ Set the Sales Order Entry (P4210) processing option for the work order line type to create work orders, or define the W line type in the branch/plant record for each configured item. If you leave the processing option blank, the system supplies the line type from the branch/plant.
- ❑ Set the processing options for the Sales Order Entry versions that you will use for Sales Quote, Transfer Order Entry, and Direct Ship Order Entry for configured items.
- ❑ Set the processing options for the Purchase Order Entry (P4310) version that you will use for configured items.
- ❑ Set the processing options for the Work Order Entry (P48013) version that you will use for configured items.
- ❑ Set the processing options for Configured Item Specifications (P32942) in the Base Configurator system. Use the Interactive Versions application (GH9011) to define versions and set processing options. The order entry versions that you create and set refer to a version of Configured Item Specifications. These processing options control media objects, cross-segment editing rule processing, form and tree display characteristics, initial hot spot selections, defaults for nonstandard components and

price adjustments, defaults for the display of common attributes among configured items, and Component Revision form options.

► To enter an order for a configured item

From the Daily Processing menu (G32), choose Sales Order Entry.

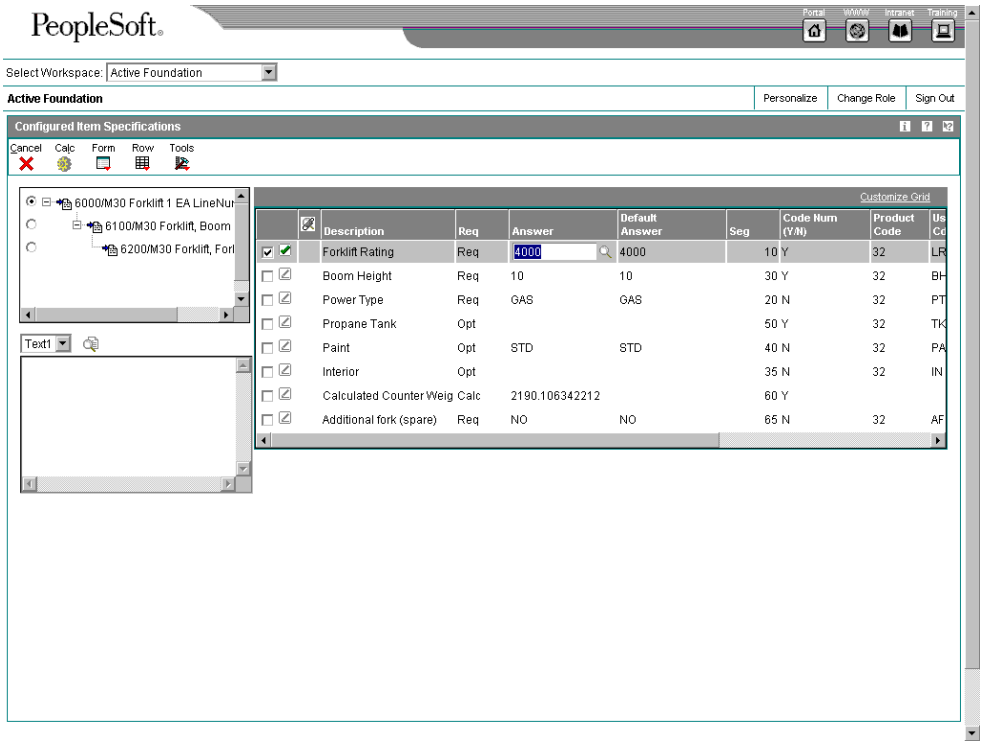
Note

A sales order is being used for ease of understanding. You can use Sales Order Entry (P4210), Purchase Order Entry (P4310), or Work Order Entry (P48013) to enter an order for a configured item.

1. On Customer Service Inquiry, click Add.
2. On Sales Order Detail Revisions, complete the following required fields with information about the customer:
   - Branch/ Plant
   - Sold To
   - Order Date
   - Ship To
3. Complete the following required fields with information about the configured item and click OK:
   - Quantity Ordered
   - UoM
   - Item Number

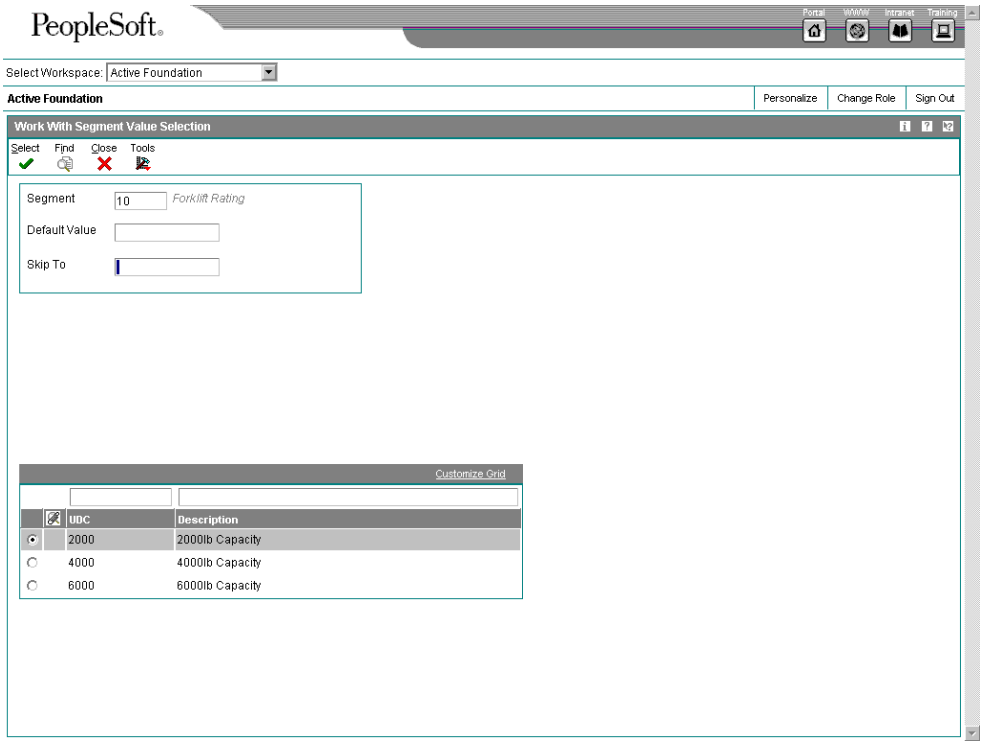
Note

The Configurator Common Attributes form might appear before Configured Item Specifications, depending upon the processing option setting.



4. On Configured Item Specifications, to accept the default values, click the Calc button and go to step 8.
5. To change values for the segments, click the Search button in the Answer field.

   Optionally, you can select the segment row and take the Row exit to Values.



6. On Work With Segment Value Selection, choose a row and click Select.

   Repeat this step for every segment that you want to change within your configured item.

   You can take the Form exit to Defaults to reset the Answer field to the default configuration values that are set up in Configured Item Segments, which gives you the ability to start the configuration over or to take the default configuration.

7. When you have finished configuring your item, click the Calc button.
8. If you do not receive any errors, click OK.

Note

You cannot complete your order until you correct all hard errors.

► To view configured item attachments during order entry

From the Daily Processing menu (G32), choose Sales Order Entry.

Note

A sales order is being used for ease of understanding. You can use Sales Order Entry (P4210), Purchase Order Entry (P4310), or Work Order Entry (P48013) to enter an order for a configured item.

1. On Customer Service Inquiry, click Add.
2. On Sales Order Detail Revisions, complete the following required fields with information about the customer:
   - Branch/ Plant
   - Sold To
   - Order Date
   - Ship To
3. Complete the following required fields with information about the configured item and click OK:
   - Quantity Ordered
   - UoM
   - Item Number
4. On Configured Item Specifications, click on a part number in the tree structure.
5. Take the Form exit to Item Attachment.

   The item master internal attachment for that item appears in the media object window of the form.
6. To view the segment attachment, click on the segment row header and take the Row exit to Segment Attachment.
7. The two ways to view a user defined code attachment are:.
   a. Click on the segment row header and take the Row exit to Value Attachment. You can view the attachment on the Work with Segment Value Selection form.
   b. Click on the visual assist in the segment Answer field, and you can view the attachment on the Work With Segment Value Selection form.
8. When you have finished viewing the attachments for your configured item, click the Calc button.
9. If you do not receive any errors, click OK.

Note

You cannot complete your order until you correct all hard errors.

Assigning Common Attributes to Configured Items

To better organize your configured items and simplify configurations that are entered during order entry, you can assign common attributes to configured item segments. Common attributes are initially linked to a segment in Configured Item Segments (P3291). You assign common attribute values on the Configurator Common Attributes form.

Common attribute values operate as default answers for each configuration level. For example, a common attribute code defined as Color might have a value Red. With common attributes activated, each configured level with the common attribute code of Color automatically returns the Red value.

You set a processing option to either view common attributes for all configured items or view them as they apply within the current configuration. Additionally, you can change common attribute values during order entry.

Before You Begin

- Set the processing option for Configured Item Specifications (P32942) to automatically appear to display common attributes.

► To assign common attributes to configured items

From the Daily Processing menu (G32), choose Sales Order Entry.

Note

A sales order is being used for ease of understanding. You can use Sales Order Entry (P4210), Purchase Order Entry (P4310), or Work Order Entry (P48013) to enter an order for a configured item.

1. On Customer Service Inquiry, click Add.
2. On Sales Order Detail Revisions, complete the following required fields with information about the customer:
   - Branch/ Plant
   - Sold To
   - Order Date
   - Ship To
3. Complete the following required fields with information about the configured item and click OK:
   - Quantity Ordered
   - UoM
   - Item Number

   Because you set the processing options for Configured Item Specifications to automatically display common attributes, the Configurator Common Attributes form appears.
4. On Configurator Common Attributes, complete the following field and click OK:
   - Attribute Value

   When you click OK, the Configured Item Specifications form appears, and you can continue to enter the order.

Note

If you choose not to set the processing option to automatically prompt for common attributes, you can access Configurator Common Attributes by selecting the Common Attributes Form exit on Configured Item Specifications.

Even if you automatically display common attributes, you can use the Form exit to access the Configurator Common Attributes form during order entry to change the value for all associated segments.

You also have the ability to change a single segment value via the Answer field.

Adding Nonstandard Components and Price Adjustments

When you need to add special parts or prices to further customize a configured item, you can enter nonstandard configured components and price adjustments. Entering nonstandard components and price adjustments allows you to customize your configured item without creating new assembly inclusion rules, tables, or smart parts.

Nonstandard components are priced according to the Kit/Configurator Pricing Method for the configured parent item. Price or cost adjustments are similar to the X assembly inclusion rules that are set up for the configured item. They affect only the sales order, not the work order.

Nonstandard components and price adjustments are added on the Component Revision form. This form allows you to review all of the order components and prices before the line item is confirmed.

► To add nonstandard components and price adjustments

From the Daily Processing menu (G32), choose Sales Order Entry.

Note

A sales order is being used for ease of understanding. You can use Sales Order Entry (P4210), Purchase Order Entry (P4310), or Work Order Entry (P48013) to enter an order for a configured item.

1. On Customer Service Inquiry, click Add.
2. On Sales Order Detail Revisions, complete the following required fields with information about the customer:
   - Branch/ Plant
   - Sold To
   - Order Date
   - Ship To

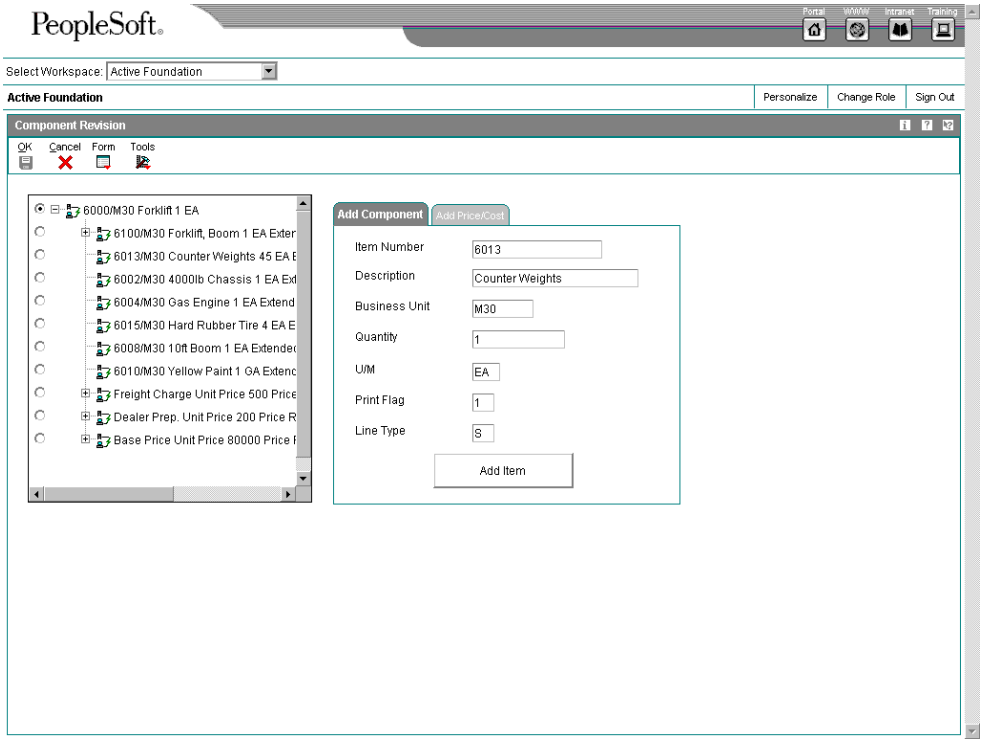
3. Complete the following required fields with information about the configured item and click OK:

   - Quantity Ordered
   - UoM
   - Item Number

4. On Configured Item Specifications, choose Component Revision from the Form menu.

   Items in the tree were added by the P assembly inclusion rule. Prices in the tree were added by an X assembly inclusion rule. The icon next to each line in the tree designates if the line was system-generated from an assembly inclusion rule or user-added.

5. On Component Revision, click the Add Component tab.

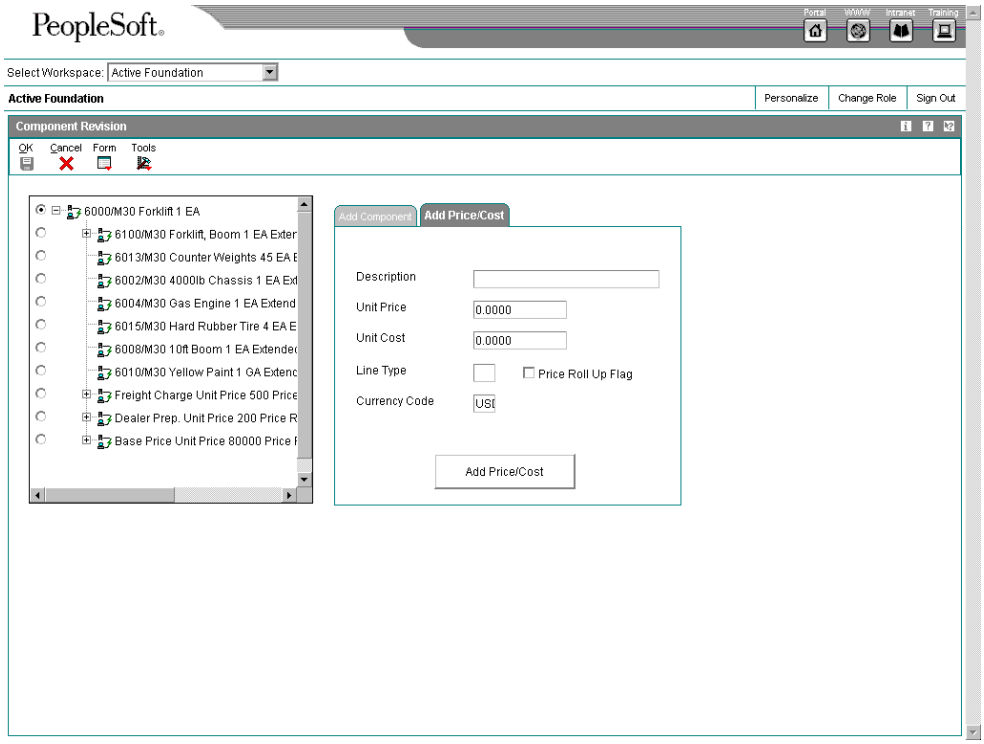


6. On the Add Component tab, complete the following fields with item information and click the Add Item button:

   - Item Number
   - Description
   - Business Unit
   - Quantity

- U/M
- Print Flag
- Line Type

7. Click the Add Price/Cost tab, complete the following fields, and click the Add Price/Cost button:
   - Description
   - Unit Price
   - Unit Cost
   - Line Type
   - Price Roll Up Flag
   - Currency Code



8. To review your nonstandard configuration, choose Refresh Tree from the Form menu.

Note

You can delete nonstandard components or price adjustments for your configured parent item. You cannot delete standard components and price adjustments. A nonstandard

component or price adjustment can be distinguished from a standard component or price by the icon that precedes it in the navigation tree on the Component Revision form.

9. When you have finished adding nonstandard components and price adjustments, click Cancel.
10. On Configured Item Specifications, click the Calc button.
11. If you do not receive any errors, click OK.

Note

You cannot complete your order until you correct all hard errors.

Working with Error Messages for Configured Items

During the calculation process within order entry, the system verifies the segment values that you enter with the cross-segment editing rules and configured item segments. The system verifies that you have not entered any values that violate the editing rules. If a segment value violates an editing rule, either a hard or a soft error message appears.

Hard error messages indicate significant errors from cross-segment error checking. When you receive a hard error message, you cannot proceed with the order until you correct the error.

Soft error messages do not prevent you from completing the order, but they do provide error information. You can choose either to correct the error or leave it as it is, and the order processes either way.

If the system finds errors in cross-segment editing rules, you receive notification that error messages exist after the calculation processes.

► To work with error messages for configured items

From the Daily Processing menu (G32), choose Sales Order Entry.

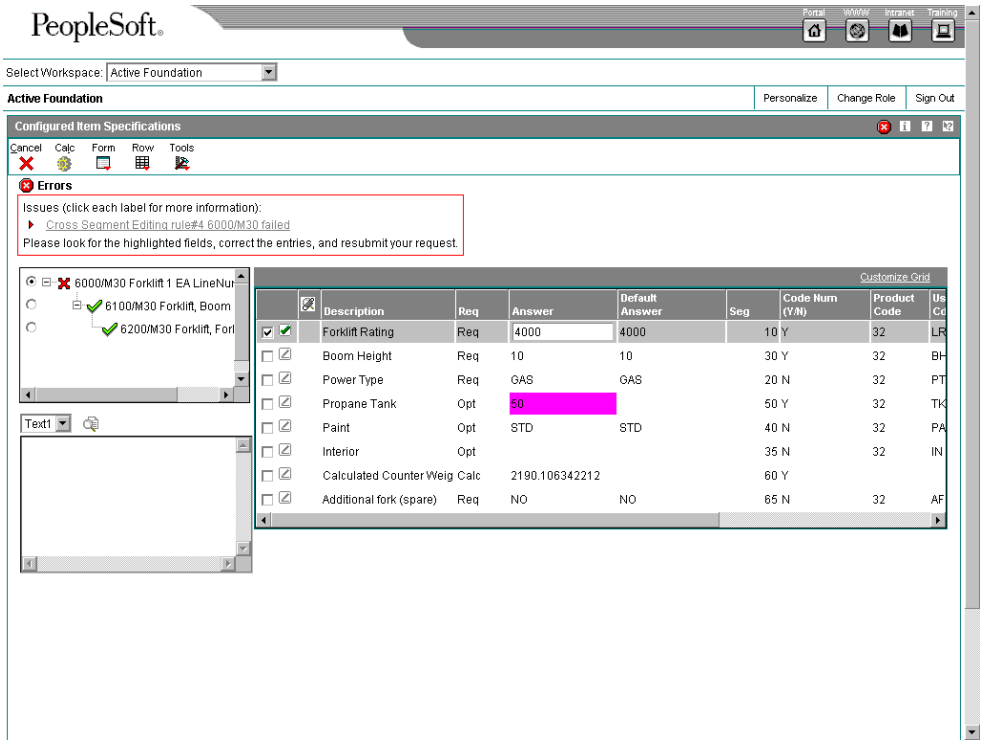
Note

A sales order is being used for ease of understanding. You can use Sales Order Entry (P4210), Purchase Order Entry (P4310), or Work Order Entry (P48013) to enter an order for a configured item.

1. On Customer Service Inquiry, click Add.
2. On Sales Order Detail Revisions, complete the following required fields with information about the customer:
   - Branch/ Plant
   - Sold To

- Order Date
- Ship To

3. Complete the following required fields with information about the configured item and click OK:
   - Quantity Ordered
   - UoM
   - Item Number



4. On Configured Item Specifications, any errors encountered during Calc processing appear.

   A red X appears next to the configured item on the navigation tree, a red highlight appears in the segment Answer field, and a red stop sign appears on the bottom of the form.

   Click the Display Errors button to view your cross-segment editing error.

5. To change values for the segments, click the visual assist in the Answer field.
6. On Work with Segment Value Selection, choose a row and click Select.
7. When you have finished, click the Calc button to verify that the error has been corrected.
8. Click OK.

Note

You cannot complete your order until you correct all hard errors.

Entering an Order for a Previously Ordered Configured Item

If a customer calls and wants to order a configured item that is the same as or similar to one he or she ordered in the past, you can use the old order as a basis to create the new one. You can use Configured String History to find the applicable order and then select the associated configuration information. The configuration information is brought back to the new order where it can be revised or used as is. Once the configuration information is selected, you proceed with the order entry process.

► To enter an order for a previously-ordered configured item

From the Daily Processing menu (G32), choose Sales Order Entry.

Note

A sales order is being used for ease of understanding. You can use Sales Order Entry (P4210), Purchase Order Entry (P4310), or Work Order Entry (P48013) to enter an order for a configured item.

1. On Customer Service Inquiry, click Add.
2. On Sales Order Detail Revisions, complete the following required fields with information about the customer:
   - Branch/ Plant
   - Sold To
   - Order Date
   - Ship To
3. Complete the following required fields with information about the configured item and click OK:
   - Quantity Ordered
   - UoM
   - Item Number
4. On Configured Item Specifications, select a row and choose Config History from the Row menu.
5. On Work with Configured String History, complete the search fields and click Find.

6. Select a sales order line and take the Row exit to Display Config.
7. On Work with Configuration, review the configuration tree and segment values and click Close when finished.
8. On Work with Configured String History, choose a sales order and click Select.
9. On Configured Item Specifications, make any necessary changes and click Calc.

   Note that the values in the Answer field change to those of the order htat you selected on Work with Configured String History.

10. If you do not receive any errors, click OK.

Revising an Order for a Configured Item

If a customer calls and needs to add or change information on an order, you can revise the order for a configured item. The Base Configurator system also allows you to revise the work order for a configured item.

Revising orders can include the following:

Changing quantity — The system changes the order quantity and, if you set a processing option, also changes the quantity on the work order.

Changing segment value — The system changes the segment values on the order and, if you set a processing option, also changes the segment values on the work order. Changing a segment value might produce new configured components or prices. You might need to run work order processing again.

Changing pick date — The system recalculates work order start dates, based on lead times. When you change the pick date for an order, the system supports multilevel back-scheduling for the associated work orders.

Purging order lines — The system purges order lines for components that are no longer required after the change.

Calculating new order line numbers — The system uses the base line number for the configured item and increments by .001 for each configured component.

Canceling an order — When you cancel an order for a configured item, the system cancels the subassemblies and lower-level segments for the item.

Reassigning work order numbers — The system retains work orders that are still valid after revising the order. The system might cancel work orders that are no longer required after the change by changing the status code of the work order.

Changing the work order cutoff status code — When working with Work Order Entry (P48013), if the work order status is less than the cutoff status, the system changes the work order. If the begin status code is not blank, the system updates the status to what is defined in the processing option.

If the work order status is greater than or equal to the cutoff status, the system does not change the work order. If the change status code is not blank, the work order status is updated to what you defined in the processing option.

Placing the order on hold (hold status code)	If the work order status in Work Order Entry (P48013) is less than the cutoff status and the hold status code is not blank, the system updates the work order status to the hold status code that is defined in the processing option. If the work order status is greater than or equal to the cutoff status, the system does not update the work order.
Canceling the order (cancel status code)	If the work order status is less than the cutoff status and the cancel status code is not blank, Work Order Entry (P48013) updates the work order status to the cancel status code that is defined in the processing option. If the work order status is greater than or equal to the cutoff status, the system does not update the work order.
Creating new work orders	The program creates a new work order, if required, after the change.

► To revise an order for a configured item

From the Daily Processing menu (G32), choose Sales Order Entry.

Note

A sales order is being used for ease of understanding. You can use Sales Order Entry (P4210), Purchase Order Entry (P4310), or Work Order Entry (P48013) to enter an order for a configured item.

1. On Customer Service Inquiry, locate the sales order for the configured item.
2. Choose the row and click Select.
3. On Sales Order Detail Revisions, select a row and choose Kits/Configurator from the Row menu.
4. On Configured Item Specifications, revise the answers and click the Calc button.
5. If you do not receive any errors, click OK.

   The changes appear on the Sales Order Detail Revisions form.

Reviewing an Order for a Configured Item

After you enter an order, you can review the multilevel structure of your configured item in a navigation tree structure.

► To review an order for a configured item

From the Daily Processing menu (G32), choose Sales Order Entry.

Note

A sales order is being used for ease of understanding. You can use Sales Order Entry (P4210), Purchase Order Entry (P4310), or Work Order Entry (P48013) to enter an order for a configured item.

1. On Customer Service Inquiry, locate the sales order for the configured item.
2. Choose the row and click Select.
3. On Sales Order Detail Revisions, select a row and choose Kits/Configurator from the Row menu.
4. On Configured Item Specifications, choose Component Revision from the Form menu.
5. On Component Revision, review the navigation tree structure of your configured item.

   Items in the tree were added by either a P assembly inclusion rule or Add Component. Prices in the tree were added by an X assembly inclusion rule or Add Price/Cost. The icon next to each line in the tree designates if the line was system-generated from an assembly inclusion rule or user-added.

6. To accept the structure, click Cancel.
7. On Configured Item Specifications, click the Calc button.
8. When the calculation function completes processing without errors, click OK.

Reviewing Configured Text

Configured or generic text for a configured item is displayed in a media object. The generic text generated for a configured item is based on the setup defined on Configured Item Segments (P3291).

Configured text can include the following:

- Part number of the configured parent
- Segment number
- Segment description
- Segment value
- Description of the associated user defined code table value

During order entry, the configurator system generates one copy of text for each configured item and attaches it to the Configurator Master Table (F3201). The generic text can be accessed from a Row menu exit on an inquiry form in an order entry program such as Sales Order Entry (P4210), Purchase Order Entry (P4310), or Manufacturing Work Order Processing (P48013).

Attaching the generic text to table F3201, rather than directly to an order, allows for both greater control of the text and use of the text for each order.

The Substitute Configured Item Text processing option on the Processing tab of the Configured Item Specifications program (P32942) controls how the generic text is generated.

The processing option gives the user the option either to replace all of the text every time a change is made or to append the new text to the bottom of the existing text.

► **To review configured text**

From the Configurator Daily Processing menu (G32), choose Sales Order Entry.

Note

A sales order is being used for ease of understanding. You can use Sales Order Entry (P4210), Purchase Order Entry (P4310), or Manufacturing Work Order Processing (P48013) to enter an order for a configured item.

1. On Customer Service Inquiry, locate the sales order for the configured item.
2. Select an order in the detail area.
3. From the Row menu, choose Confg Generic Text.
4. On Media Objects, review the text for the configured item order.

   The information that displays in the media object was defined in Configured Item Segments.

Processing Options for Configured Item Specifications (P32942)

Defaults Tab

These processing options specify the default information that the system uses during Configured Item Specifications (P32942).

Hot Spots:

1. Hot Spot Selection (Top)

A user defined code stored in table 32/HS that indicates the type of information that appears in the Hot spot field, for example, the domestic price, foreign price, or weight.

2. Hot Spot Selection (Middle)

A user defined code stored in table 32/HS that indicates the type of information that appears in the Hot spot field, for example, the domestic price, foreign price, or weight.

3. Hot Spot Selection (Bottom)

A user defined code stored in table 32/HS that indicates the type of information that appears in the Hot spot field, for example, the domestic price, foreign price, or weight.

User Added Items:

4. Configurator Print Flag

Use this processing option to determine whether configured parts print on sales orders and work orders. This processing option is used in the Pick Slip,Invoice Print, Bill of Lading, and Print Parts List programs.

Valid values are:

Y Print on the sales and work order. You can also use 1.

N Do not print on the sales and work order. You can also use 0.

2 Print on the sales order only.

3 Print on the work order only.

User Added Price/Cost:

5. Line Type

Use this processing option to control how the system processes lines on a transaction. The line type controls the systems with which the transaction interfaces (General Ledger, Job Cost, Accounts Payable, Accounts Receivable,and Inventory Management). It also specifies the conditions under which a line prints on reports and is included in calculations.

This processing option uses line type to group X rule prices added on the fly.

Valid values are:

S Stock item

J Job cost

N Non-stock item

F Freight

T Text information

M Miscellaneous charges and credits

W Work order

Processing Tab

These processing options specify how the system processes and displays values within Configured Item Specifications (P32942).

Cross Segment Editing:

1. Error Display

Use this processing option to specify whether to process and display all cross-segment editing errors from calculation functionality.

Valid values are:

1 Continue cross-segment editing processes and display all errors.

Blank Stop cross-segment editing processes at the first error.

Component Revision:

2. Pre-expand Tree

Use this processing option to control the tree display of a configured item on the Component Revisions form.

Valid values are:

1 Load the component revisions tree pre-expanded.

Blank Load the component revisions tree without expanding.

Media Objects:

3. Media Object Display

Use this processing option to specify whether to display media objects on the Configured

Item Specifications form. This option controls context sensitive display of media objects related to items, segments, and user defined code values.

Valid values are:

1 Display media objects.

Blank Do not display media objects.

4. Media Object Display Order

'1' - Text

'2' - Image

'3' - OLE

If left blank, '2' will be used

Use this processing option to specify the order in which media objects appear on the Configured Item Specifications form, if there is more than one media object type attached to a configured item or segment. If there is more than one media object of the same type, the first attached object in the selected type will be displayed.

Valid values are:

1 Text

2 Image

3 OLE

Blank Image

Configured Item Tree Display:

5. Primary Item Number

Use this processing option to control how the tree structure appears on the Configured Item Specifications form.

Valid values are:

1 Suppress the primary item number on the tree structure.

Blank Do not suppress the primary item number on the tree structure.

6. Branch/Plant

Use this processing option to control how the tree structure appears on the Configured Item Specifications form.

Valid values are:

1 Suppress branch/plant on the tree structure.

Blank Do not suppress branch/plant on the tree structure.

7. Item Description

Use this processing option to control how the tree structure appears on the Configured Item Specifications form.

Valid values are:

1 Suppress the item description on the tree structure.

Blank Do not suppress the item description on the tree structure.

8. Quantity

Use this processing option to control how the tree structure appears on the Configured Item Specifications form.

Valid values are:

1 Suppress the quantity on the tree structure.

Blank Do not suppress the quantity on the tree structure.

9. Unit of Measure

Use this processing option to control how the tree structure appears on the Configured Item Specifications form.

Valid values are:

1 Suppress the unit of measure on the tree structure.

Blank Do not suppress the unit of measure on the tree structure.

10. Component Revision Price

'1' = Suppress

'2' = Foreign only

'3' = Order Mode

'4' = Both Domestic and Foreign

Blank - Domestic only

Use this processing option to specify whether to display a particular price such as domestic, foreign, or order mode on the Component Revision form.

Valid values are:

1 Suppress the price.

2 Display only foreign price.

3 Display only order mode price.

4 Display both domestic and foreign prices.

Blank Display domestic price only.

11. Component Revision Cost

'1' = Suppress

'2' = Foreign only

'3' = Order Mode

'4' = Both Domestic and Foreign

Blank - Domestic only

Use this processing option to specify whether to display a particular cost such as domestic, foreign, or order mode on the Component Revision form.

Valid values are:

1 Suppress the cost.

2 Display the foreign cost only.

3 Display the order mode cost only.

4 Display both the domestic and foreign costs.

Blank Display the domestic cost only.

12. Component Revision Weight

Use this processing option to specify whether the system displays the weight of your configured items on the Component Revision form.

Valid values are:

1 Do not display weight of configured items.

Blank Display weight of configured items.

Price/Cost on Tree:

13. Price/Cost Description

Use this processing option to control how the tree structure appears on the Configured Item Specifications form.

Valid values are:

1 Suppress the price/cost description on the tree structure.

Blank Do not suppress the price/cost description on the tree structure.

14. Unit Price

Use this processing option to control how the tree structure appears on the Configured Item Specifications form.

Valid values are:

1 Suppress the unit price on the tree structure.

Blank Do not suppress the unit price on the tree structure.

15. Price Rollup Flag

Use this processing option to control how the tree structure appears on the Configured Item Specifications form.

Valid values are:

1 Suppress the price rollup flag on the tree structure.

Blank Do not suppress the price rollup flag on the tree structure.

16. Unit Cost

Use this processing option to control how the tree structure appears on the Configured Item Specifications form.

Valid values are:

1 Suppress the unit cost on the tree structure.

Blank Do not suppress the unit cost on the tree structure.

17. Common Attribute Display

'1' - On, No Automatic Prompt

'2' - On, Automatic Prompt

Blank - Off

Use this processing option to specify whether the system displays common attributes among configured items.

Valid values are:

1 Display common attributes without automatic prompt.

2 Display common attributes with automatic prompt.

Blank Do not display common attributes.

18. Common Attribute Display Scope

'1' - Display all Common Attributes

Blank - Display active Common Attributes

Use this processing option to specify whether to display common attributes specific to the configured item.

Valid values are:

1 Display all common attributes.

Blank Display only common attributes used in configuration.

19. 'C' Rules Calculation

'1' - Omit upon entry

Blank - Perform upon entry

Use this processing option to specify whether to perform calculations using C rules for configured items upon entry. Valid values are:

Blank Perform upon entry

1 Omit upon entry

20. Substitute Configured Item Text

'1' - Substitute all existing text

Blank - Append existing text

Note: Store and Forward mode disregards this option (always replaces text)

Use this processing option to specify whether to substitute Configured Item Text (which exists as a media object) or to append it. Valid values are:

Blank Append existing text

1 Substitute all existing text

Versions Tab

These processing options specify the versions to be used by the configurator during Configured Item Specifications (P32942).

1. Transfer Order Version - This version of Transfer Orders will be used if any Transfer Orders are created during the configuration process.

Use this processing option to specify the version of the Transfer Orders program (P4210) that the system uses when it configures the order. Based on the needs of your customers, you can create multiple versions of this program.

Entering Orders for Configured Items

After you set up the segments, cross-segment editing rules, assembly inclusion rules, configured tables, media object attachments, and Configured Item Specifications (P32942), the Base Configurator system is ready to process orders for your configured item. Orders for configured items can be created in Sales Order Entry (P4210), Purchase Orders (P4310), Manufacturing Work Order Processing (P48013), and in Engineering Project Management.

The Sales Order Management system supports the following order processing for configured items:

- Sales Orders
- Sales Quotes
- Credit Orders
- Direct Ship Orders
- Transfer Orders
- Interbranch Orders
- Combination Orders
- Store & Forward Orders

You can also create sales proposals within the Sales Order Entry program. Sales proposals contain information such as sales configuration, quotation, company's financial highlights, product information, pricing and discount information, and product availability. You can use an automated document generation system to gather the various pieces of information-- such as sales, accounting, marketing, and inventory-- from different departments.

Note

The Base Configurator system supports most preference profiles. However, it does not support preference profiles for multibranch commitments.

The Procurement system supports regular purchase orders for configured items. It also supports purchase orders for configured items that are created at the time of sale order entry for direct ship and transfer orders.

The Work Order Management system supports entering work orders for configured items directly through the work order entry process.

The Engineering Project Management system supports purchase orders and work orders for configured items. The EPM Project Workbench (P31P001) gives you access to Manufacturing Work Order Processing and Purchase Orders.

Note

To support the successful creation and completion of the various order types, you must ensure that your configured item is set up appropriately in each branch/plant.

Before You Begin

- Set the processing options for Configured Item Specifications (P32942) in the Base Configurator system.

Working with Sales Orders for Configured Items

You enter a sales order when your customer calls and requests a configured item. The sales order is entered, and the item is configured according to customer specifications. For a configured item with a work order line type, the corresponding work orders are created. The item is then built and shipped to the customer.

Technical Considerations for Configured Item Sales Orders

Multicurrency	The system applies pricing (X) rules to foreign currency sales orders. The system processes price adjustments as a base currency amount and converts the amount to a different currency amount, if necessary. During setup, you must define the pricing (X) rule in domestic currency. During sales order entry, the system converts the domestic price to the foreign currency.
Line Item Discounting	The system supports line item discounting for configured items at sales order entry.
Availability Checking	The system does not support availability checking of configured components.
Commitments	The system supports sales order commitments for work order line types for all items. The Sales Order Entry (P4210) program commits component parts to the sales order at order entry time. The commitments move to the parts list when Order Processing (R31410) is run. Thus, work order generation does not need to run immediately upon order entry to get the commitments. The Order Processing program commits component parts that are related to the configured parent.
Substitutes/Cross Reference	Substitutes are not set up for configured items because no standard bill of material exists. The cross-reference functionality can be set up and used. It works at Sales Order Entry.
Additional order processing	For configured items, the Sales Order Management system does not support the following additional order processing: • Blanket orders • Backorders

Setup Considerations for Configured Item Sales Orders

To correctly process the sales order for your configured item, you must set the Sales Order Entry (P4210) processing option for the work order line type to create work orders. Alternatively, you can define the W line type in the branch/plant record for each configured

item. If you leave the processing option blank, the system supplies the line type from the branch/plant.

Setting the line type to W allows the corresponding work order headers for the configured item to be generated after acceptance of the sales order. Thus, the configured item can be properly manufactured and shipped to the customer.

Note

To successfully complete a sales order for a configured item, you must have a working knowledge of the Sales Order Management system and its integration with other J.D. Edwards systems.

Working with Sales Quotes for Configured Items

You enter a sales quote when your customer requires a formal price quote prior to actually placing an order. You enter a sales quote in the same way that you enter a sales order. However, specific configurator constants and processing option settings must be set up to support the configured item sales quote. You enter quote orders to:

- Provide information about price and availability of items.
- Record the quantity and price quotes for future reference.
- Hold the quote until the customer authorizes the order.
- Honor an obligation for a quoted price for a period of time.

When the customer confirms the order, you convert the quote order into an actual sales order.

Note

When a sales quote is entered, the cost for the transfer of a parent configured item or a component does not accumulate.

Setup Considerations for Configured Item Sales Quotes

To successfully process a sales quote for a configured item, you must set configurator constants and processing options appropriately.

You must specify the document type for sales quotes in the Document Type List field in Configurator Constants. This user defined code is used to define valid document types for sales quotes in your company. The Document Type List value is generally set to QT.

You set the Cost Sales Quotes flag in Configurator Constants to specify how the sales quote cost will be accumulated.

You need to know that costing of configured sales quotes differs from costing of configured sales orders. Typically, the cost of a configured item only accumulates when the Order Processing program (R31410) is run to create the configured item work orders that are related to a sales order.

However, special functionality exists that allows the costs to accumulate for a configured item sales quote. Configurator Constants can be set to accumulate costs when a configured item sales quote is entered. This method of costing a configured item is an exception to the normal costing process and only works for configured sales quotes.

The Cost Sales Quotes field can be set as follows:

- If yes, all costs accumulate from P, Q, R, and X (cost) assembly inclusion rules at the time of sales quote entry.
- If no, only the costs of the P and X (cost) assembly inclusion rules accumulate at the time of sales quote entry.

Order Processing calculates the cost of the configured item based on the P, Q, R, and X (cost) assembly inclusion rules.

Verify that the order type for sales quotes has been set up in the user defined code table 40/BT (Blanket Order Types). The order type is generally SQ.

You now set the processing options for sales quotes, which is a version of Sales Order Entry (P4210).

On the Defaults tab, set the Order Type to your sales quote type, which is typically SQ.

On the Commitment tab, review the Activate Availability Checking field to verify that you have specified how sales quotes affect inventory availability.

The Commit to Quantity 1 or Quantity 2 field on the Commitment Tab should be set to a value of 1 or 2 to prevent work order headers from being created for the sales quote. It is usually set to 1 for quote orders. This field must not be blank for quote orders.

Note

To successfully complete a sales quote for a configured item, you must have a working knowledge of the Sales Order Management system and its integration with other J.D. Edwards systems.

Converting a Sales Quote to a Sales Order for a Configured Item

If you created a sales quote and your customer authorizes the purchase of the quoted items, you can use the sales quote to create a sales order.

In Sales Order Processing, three methods are available for converting a sales quote to a sales order:

- Creating a sales order from a quote order (automatic creation by using blanket order functionality)
- Releasing a quote order
- Copying a sales quote to a sales order

Since configured items have unique setup and processing requirements, the same holds true for converting a configured item sales quote to a configured item sales order. Not all sales

order processing methods for converting a sales quote to a sales order are available when using configurator.

The automatic creation of a sales order from a quote order is not supported for configured items. Specifying the quote (blanket order) to use before the Configured Item Specifications (P32942) form appears is impossible.

Releasing sales quote to sales order functionality is not supported for configured items. The configurator link is not taken along from the quote to the order during the release process.

Copying sales quote to sales order is the preferred process for configured quote processing and is the only method supported for configured items. The copying sales quote method has the logic to keep the configuration link intact. Thus, when the sales quote is copied to a sales order, the new sales order includes the link, insuring that you can get back into the configuration after sales order creation.

To support the creation of the sales order from the sales quote for the configured item, specific processing options must be set prior to the copy process.

Setup Considerations for Converting a Sales Quote for a Configured Item

To successfully convert a sales quote into a sales order for a configured item, you must set the sales order entry processing options for your version appropriately. You use your regular version of Sales Order Entry (P4210) to copy the quote to an order.

On the Defaults tab, you must set the Order Type to your sales order type, which is typically SO.

Set the Line Type to W to generate work order headers for the configured item.

On the Duplication tab, set the Order Type to a non-quote document type. Typically, it is set to SO.

On the Commitment tab, set the Commit to Quantity 1 or Quantity 2 field to blank. This field must be blank for sales orders to ensure that the appropriate work order headers are created at sales order entry.

During sales quote entry, this processing option was set to a value of 1 or 2 to prevent work order headers from being created for the sales quote.

Note

To successfully complete a conversion from a sales quote to a sales order for a configured item, you must have a working knowledge of the Sales Order Management system and its integration with other J.D. Edwards systems.

► **To convert a sales quote to a sales order for a configured item**

From the Daily Processing menu (G32), choose Sales Order Entry.

Note

Use your regular version of Sales Order Entry.

1. On Customer Service Inquiry, locate the sales quote.
2. Select the sales quote and click Copy.
3. Click OK.

   Process the sales order.

Working with Credit Orders for Configured Items

You use credit orders when a customer returns goods that you might return to inventory, or when you receive back damaged goods that you cannot return to inventory. In both cases, you need to issue the necessary credits and make adjustments for the returned merchandise.

If you previously created a sales order and your customer now wants to return the goods, you can use a credit order to manage the return process. You enter credit orders in the same way that you enter sales orders.

In Sales Order Processing, the two methods available for entering credit orders are:

- Entering credit orders manually
- Entering system-generated credit orders (create a credit order from history)

Since configured items have unique setup and processing requirements, the same holds true for creating credit orders. Not all sales order processing methods for creating credit orders are available when using configurator.

The manual entry of credit orders process is not supported for configured items. Ensuring that the original sales information for the parent-configured item is brought into the associated credit order is impossible.

Creating a credit order from history (a system-generated credit order) is the preferred method for configured credit order processing. When you create a credit order from history, you retrieve the original sales order information. This information is especially important for configured items because of the relationship of the parent configured item, configuration identifier, location, lot number, and price. This method ensures that you get the correct order information for the parent configured item that is being returned.

Regarding item price: the system issues the customer credit for the amount, based on the unit price that the customer actually paid. This price might be different from the current price. The system retrieves the order information from the S.O. Detail Ledger File table (F42199).

To support the creation of a credit order for a configured item, specific system setups and processing option settings need to be set. This setup includes not only the setup of the credit order, but also the setup of the sales order so that needed sales order history information is stored by the system.

A specific process must be followed during the initial input of a configured item sales order to ensure the successful input of a credit order later. In addition, a specific process must be followed to correctly process credit orders for configured items.

Setup Considerations for Configured Item Credit Orders

To successfully create a credit order for a configured item, you must verify certain system setups.

You must verify that the Order Activity Rules (P40204) for the document type and line type combination for a sales order are set to record the appropriate information to history. In Order Activity Rules, for your sales order order type and work order line type, ensure that the status for Ship Confirmation is set to update the Sales Ledger. This process writes a record to the history table, which includes important information, such as the lot number and location of the parent configured item.

You must set up a document type in Document Type Maintenance (P40040) for credit orders. The Document Type is usually CO.

You must set up a line type for credit orders. The Line Type is usually C.

In Line Type Constants (P40205), ensure that the line type used for the credit order is set to an Inventory Interface of Y. Also, ensure that the Reverse sign checkbox is checked, which puts the item back into inventory.

You must set up the Order Activity Rules for the document type and line type combination for the credit order. In Order Activity Rules, for the credit order order type and credit line type, ensure that the appropriate order activity rules have been set up.

Create a version of Sales Order Entry (P4210) for credit orders, and set the processing options appropriately.

Note

To successfully complete a credit order for a configured item, you must have a working knowledge of the Sales Order Management system and its integration with other J.D. Edwards systems.

Credit Order Process for Configured Items

To ensure the successful input of a credit order, complete the following process:

1. Enter a sales order for the configured item using Sales Order Entry (P4210).
2. Process the associated configured item work orders by running Order Processing (R31410).
3. Complete the configured item work orders including the parent-configured item. This action includes issuing inventory, reporting hours and quantities, and performing a completion.
4. Ship confirm the configured item in Shipment Confirmation (P4205).
5. Run Print Invoices (R42565).
6. Update customer sales in Sales Update (R42800).

Verify that the processing options are set to purge details to history for the header and detail. On the Update Tab, both the Purge to Sales Detail History File and Purge to Sales Header History fields should be Blank.

7. Enter a credit order from history.
8. Ship confirm the credit order.

   At this point, the material should be added back to inventory in the same location and lot number as the original sales order.

► To enter a credit order for a configured item

From the Additional Order Processes menu (G4212), choose Credit Orders From History.

1. On Customer Service Inquiry, click Add.
2. On Sales Order Detail Revisions, choose Credit Memo from the Form menu.
3. On Work With Sales Ledger Inquiry, enter the sales order number from which to create the credit order and click Find.
4. Highlight the parent item line (parent configured item).

Note

This line must be created at the point of ship confirm. It has the proper lot number, which will ensure the proper configuration identifier and price.

5. Click Select Line on the Row exit.

Caution

Click Select Line only once. You do not exit to any other form; the screen blinks but no other change is indicated.

6. On Work With Sales Ledger Inquiry, click Close.
7. On Sales Order Detail Revisions, click OK.

   The system creates the credit order.

Alternative Credit Order Process for Configured Items

If you do not want to create a credit order for a configured item, an alternative exists. The alternative consists of performing an inventory adjustment and entering a credit memo for the customer.

Adjusting Inventory for a Configured Item

An inventory adjustment is performed on the parent-configured item to adjust it back into stock. The stocked configured item can then be re-sold.

See Also

- *Adjusting Inventory* in the *Inventory Management Guide*

Before You Begin

- You might need to create automatic accounting instructions (AAIs) to support the financial transactions.
- You might need to create a new document type to keep track of the transactions.

► To enter an inventory adjustment for a configured item

From the Inventory Master/Transactions menu (G4111), choose Adjustments.

1. On Work With Inventory Adjustments, click Add.
2. On Inventory Adjustments, complete the following fields in the header:
   - Branch/Plant
   - Transaction Date
   - Document Number
   - Document Type
   - G/L Date
   - Explanation
3. Complete the following fields in the detail area:
   - Item Number
   - Quantity
   - UM
   - Branch/ Plant
4. Highlight the row and take the Row exit to Select from history, which displays the order history for the item.
5. On Work with Configured String History, highlight the appropriate order for use in the inventory adjustment and click Select.
6. On Inventory Adjustments, complete the following fields and click OK:
   - Location
   - Lot/Serial

   The system processes the transaction and displays a document number, document type, and batch number for the transaction.

Entering a Credit Memo for a Configured Item

After the parent-configured item has been adjusted into inventory, you create a credit memo for the customer. The memo gives the customer credit for the return of the configured item.

See Also

- *Standard Invoice Entry* in the *Accounts Receivable Guide*

Working with Direct Ship Orders for Configured Items

A direct ship order is the sale of an item that you purchase from a supplier, who then sends the item directly to your customer.

When you enter a direct ship order, the system simultaneously creates a sales order for the customer and a purchase order for the supplier. The purchase order specifies that you want the supplier to ship the item directly to your customer.

During order entry, the system verifies the item number; but it does not update quantities or check availability.

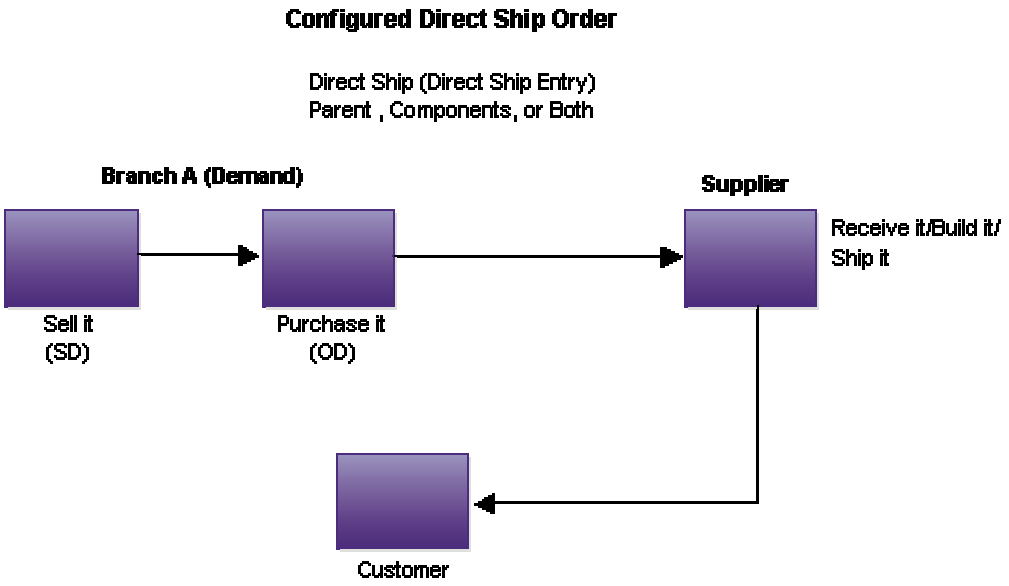
For configured items, direct ship orders work for the parent-configured item, as well as a component of the parent-configured item.

In a direct ship order for a parent-configured item, the sales order is used to configure the item and, later, to invoice the customer. The purchase order is sent to the supplier, who builds the parent-configured item and ships it to the customer.

In a direct ship order for the sale of a configured item and direct ship of a component, the sales order is used to configure the item, build it, and ship it to the customer. The purchase order is sent to the supplier who builds the component of the configured item and ships it to the customer.

The component of the parent-configured item could be a standard manufactured component, subassembly, or a configured subassembly.

The following graphic illustrates the direct ship process:



Setup Considerations for Configured Item Direct Ship Orders

To successfully process a direct ship order for a parent-configured item or a component of the parent-configured item, you must set up the items appropriately.

For any components of the configured item that will generate a direct ship order type, you set the Transaction Type field in Assembly Inclusion Rules (P3293).

Create a version of Sales Order Entry (P4210) for direct ship order entry and set the processing options appropriately. Set the processing options for your version of Purchase Orders (P4310) that will be used with sales order entry to generate the direct ship orders.

The supplier who is used to create the purchase order for a component of a configured item is pulled from the Supplier Number field in the item branch/plant record.

Note

To successfully complete a direct ship order for a configured item, you must have a working knowledge of the Sales Order Management and Procurement systems, and their integration with other J.D. Edwards systems.

Working with Transfer Orders for Configured Items

A transfer order ships inventory between branch/plants within your company. When you enter a transfer order, the system creates supporting purchase orders and sales orders that are used to maintain accurate inventory.

You have the ability to transfer configured items between branches. You use Transfer Order Entry version of Sales Order Entry (P4210) to create transfer orders for configured items.

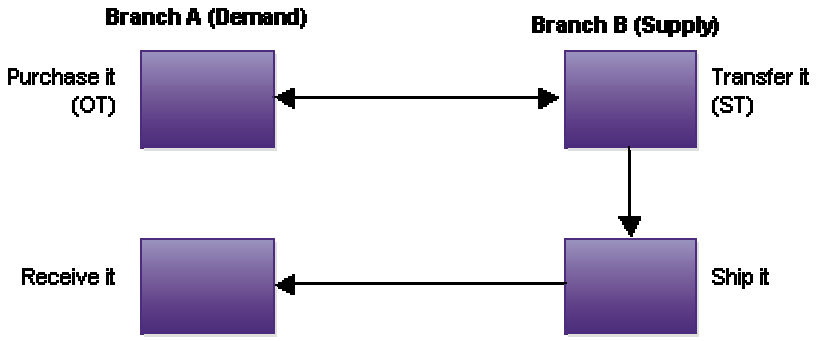
When you enter an order for a configured item directly through Transfer Order Entry, everything on the order is transferred. Thus, the complete parent-configured item is transferred.

In the transfer order scenario, Branch A has requirements for a configured item that is in Branch B. This configured item consists of the parent and all components. Transfer Order Entry (P4210) is used to configure the item on a purchase order. A corresponding sales order for the configured item is sent to Branch B. The configured item is shipped from Branch B to Branch A, where it is received and stocked in inventory.

The following graphic illustrates this process:

Configured Transfer Order

Transfer (Transfer Order Entry)
Parent and All Components

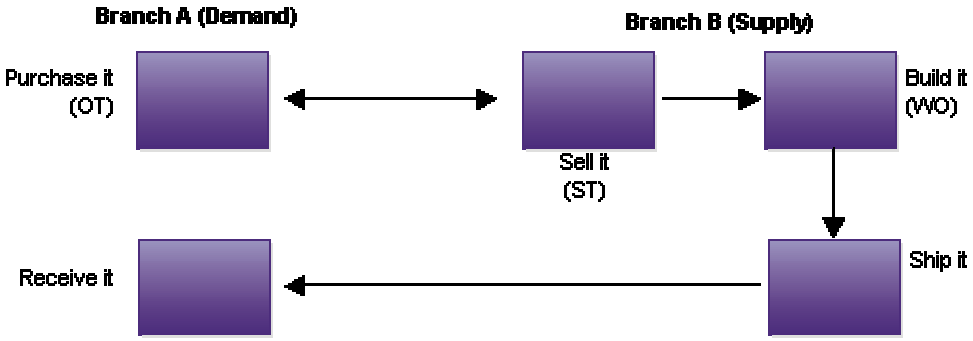


In some instances, Branch B might have to build the configured item before it can be shipped to Branch A.

The following graphic illustrates the step of generating work orders to manufacture the configured item before it is shipped to Branch A:

Configured Transfer Order with Work Order

Transfer with Work Order (Transfer Order Entry)
Parent and All Components



The system also supports transfer orders for components of the parent-configured item. The component of the parent-configured item could be a standard manufactured component, subassembly, or a configured subassembly. Although the setup requirements vary, the functionality is the same.

Note

Transfer orders are processed in the same way as a normal sales order, including the processing of P and X assembly inclusion rules.

Setup Considerations for Configured Item Transfer Orders

To successfully process transfer orders for a parent-configured item, you must set up the items appropriately.

On Configured Item Information (F3290) in Configured Item Segments (P3291), you set the Transaction Type for the configured item. The transactions type indicates to the system that this configured item will generate a transfer order.

Also, verify the branch/plant setting.

Create a version of Sales Order Entry (P4210) for transfer order entry and set the processing options appropriately. Set the processing options for your version of Purchase Orders (P4310) that will be used with sales order entry to generate the transfer orders.

Note

On the processing options, the Cost or Base Price Markup on the Process tab is supported for configured items.

To create transfer orders for a component of the parent-configured item, use the stock line type, usually S, on the order for the parent-configured item. This action drives transfers for the components of the configured item.

For any components of the configured item that generate a transfer order, you set the Transaction Type field in Assembly Inclusion Rules (P3293). Also, verify that the Component Branch is set up for your components.

When setting the processing options for Configured Item Specifications (P32942), identify a version of Sales Order Entry (P4210) to use to create orders for the components that require transfer orders.

Note

To successfully complete a transfer order for a configured item, you must have a working knowledge of the Sales Order Management and Procurement systems, and their integration with other J.D. Edwards systems.

Working with Interbranch Orders for Configured Items

Interbranch orders allow you to direct ship an item to your customer from another branch of your company. You have the ability to do interbranch orders for configured items.

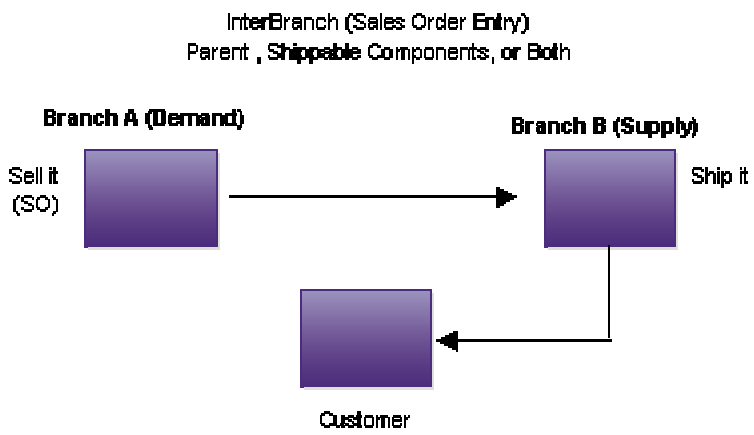
The sale and interbranch that takes place between Branches A and B could be for the parent-configured item or a component of the parent-configured item. The component of the parent-configured item could be a standard manufactured component, subassembly, or a configured subassembly.

In the case of a sale and interbranch of a parent-configured item, Branch A uses Sales Order Entry (P4210) to order and configure the item, based on customer request. However, Branch B supplies the parent-configured item. Thus, when the order for the configured item is entered, the detail Branch defaults to Branch B. Branch B then ships the item to the customer.

In the case of a sale involving an interbranch of a component of a parent-configured item, Branch A uses Sales Order Entry to configure and order the parent-configured item. The parent-configured item is built in Branch A; however, a component is supplied by Branch B. The component item is shipped separately from the parent item. Thus, Branch A ships the parent item to the customer; and Branch B ships the component item to the customer.

The following graphic illustrates this functionality:

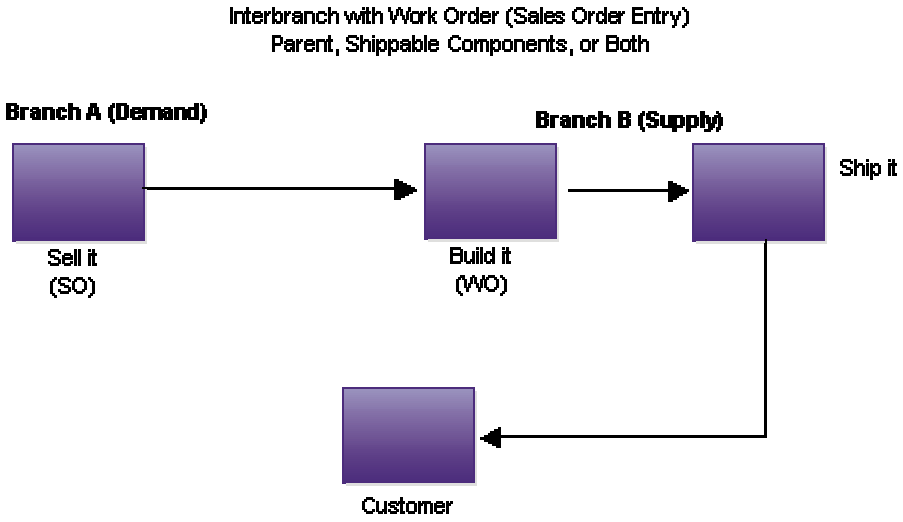
Configured Interbranch Order



In some instances, Branch B might have to build the parent-configured item or component of the configured item before it can be shipped to the customer.

The following graphic illustrates the step of generating work orders to manufacture the item before it is shipped to the customer:

Configured Interbranch Order with a Work Order



Setup Considerations for Configured Item Interbranch Orders

You can create interbranch orders for configured items. To successfully process interbranch orders for a parent-configured item or a component of the parent-configured item, you must set up the items appropriately.

In Configured Item Segments (P3291), verify the branch/plant setting of your configured item.

For any components of the configured item that will generate an interbranch order, you set the Transaction Type field in Assembly Inclusion Rules (P3293). Also verify that the Component Branch is set up for your components.

Set the processing options for Sales Order Entry (P4210) and the Transfer Order Entry version of Sales Order Entry.

Note

On the processing options, the Cost or Base Price Markup on the Process tab is supported for configured items.

For configured item interbranch orders, no additional orders are created at order entry time. Configurator follows the processing option for the running version of Sales Order Entry for the cost or base price markup.

Note

To successfully complete an interbranch order for a configured item, you must have a working knowledge of the Sales Order Management system and its integration with other J.D. Edwards systems.

Working with Combination Orders for Configured Items

The system gives you the ability to use various order types with one another to create a combination of orders for configured items. Although many combinations of orders can exist, examples of sales and transfer orders are outlined below.

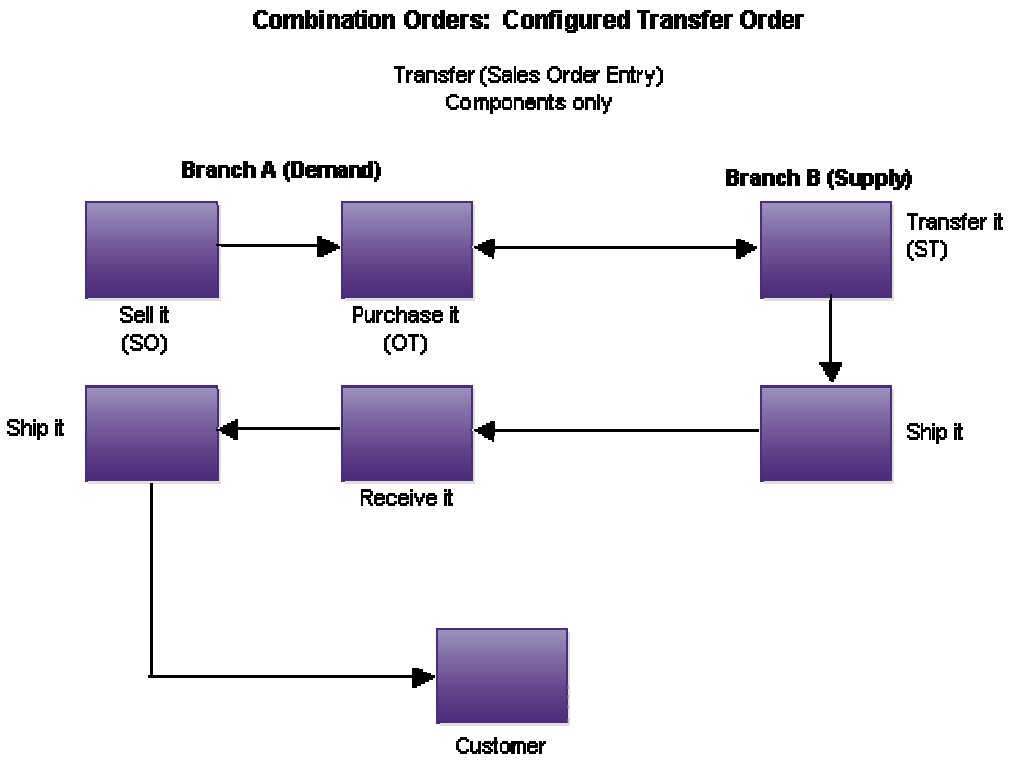
The sale and transfer that takes place between Branches A and B could be for the parent-configured item or a component of the parent-configured item. The component of the parent-configured item could be a standard manufactured component, subassembly, or a configured subassembly.

In the case of the sale and transfer of a component of a parent-configured item, Branch A uses Sales Order Entry to configure and order the parent-configured item. The parent-configured item is built in Branch A; however, a component is supplied by Branch B. The purchase order is sent to Branch B. Branch B uses the accompanying sales order to pick the configured item and ship it to Branch A. Branch A receives the item, issues the item, and completes the build of the parent-configured item. Branch A then ships the complete parent-configured item to the customer, using the original sales order that was created in Sales Order Entry.

Note

The version of Sales Order Entry that you use must reference the correct version of Configured Item Specifications (P32942) to call the correct Transfer Order Entry version of Sales Order Entry (P4210).

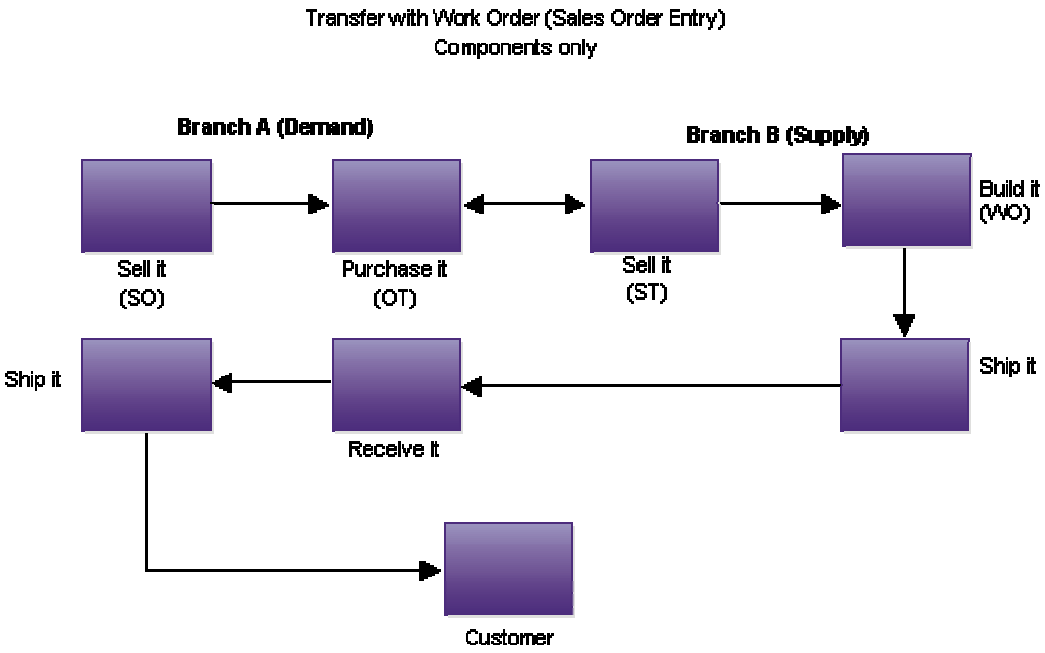
The following graphic illustrates this process:



In some instances, Branch B might have to build the item before it can be shipped to Branch A.

The following graphic illustrates the step of generating work orders to manufacture the item before it is shipped to Branch A:

Combination Orders: Configured Transfer Order with Work Order



Setup Considerations for Configured Item Combination Orders

To successfully process combination orders for a parent-configured item or components of the parent-configured item, you must set up the items appropriately and also verify the branch/plant setting.

For any components of the configured item that will generate an order, you set the Transaction Type field in Assembly Inclusion Rules (P3293). Also, verify that the Component Branch is set up for your components.

Create the required versions of Sales Order Entry (P4210) and Purchase Order Entry (P4310). Set the processing options appropriately.

When setting the processing options for Configured Item Specifications (P32942), identify a Transfer Order Entry version of Sales Order Entry that can be used to create orders for the components that require transfer orders.

Note

To successfully complete combination orders for a configured item, you must have a working knowledge of the Sales Order Management, Procurement, and Shop Floor Management systems, and their integration with other J.D. Edwards systems.

Storing and Forwarding Sales Orders for Configured Items

Store and forward sales order processing provides an efficient way to integrate a field sales force into the sales order management process. Store and forward sales orders ensure accuracy and timeliness. With store and forward, the field sales force can create sales orders on a PC and upload them to your server. If you are at a remote site and do not have a dedicated line with which to access the server, a more productive and cost-effective process might be to create sales orders on your PC during normal business hours. Then you can upload them to the server for processing during off-peak hours.

Note

The store and forward process only works for a regular sales order.

When you create sales orders that you store and forward, the system edits and validates each sales order, based on the information that you downloaded from the tables. It also creates a transaction control record for each sales order, assigns it a status of 1 (ready to process), and stores it in the Transaction Control File table (F0041Z1).

For configured items, the system performs the following task:

- Stores segments in the Configurator Segment Detail table (F3211)
- Prices, costs, and discounts the configured item
- Processes cross-segment editing rules and assembly inclusion rules
- Attaches configured text
- Stores configured item information in the Sales Order Header File (F4201) and the Sales Order Detail File (F4211) tables
- Stores configuration ID history information on the PC
- Stores configurator information in a variety of S/32 files, such as F3201, F3211, F3215, and F3216
- Supports adding nonstandard components and price adjustments
- Supports base pricing and discounting

The Store and Forward Sales Order process does not support the following for configured items:

- Order changes after you have updated transactions on the server
- Availability checking of stocked configured items from remote clients
- Line splitting for configured item availability

After you enter a store and forward sales order, the system transfers the header information to the table F4201 and the detail information to table F4211. Configuration information is stored in table F3211. The information remains in those tables until you are ready to process the orders.

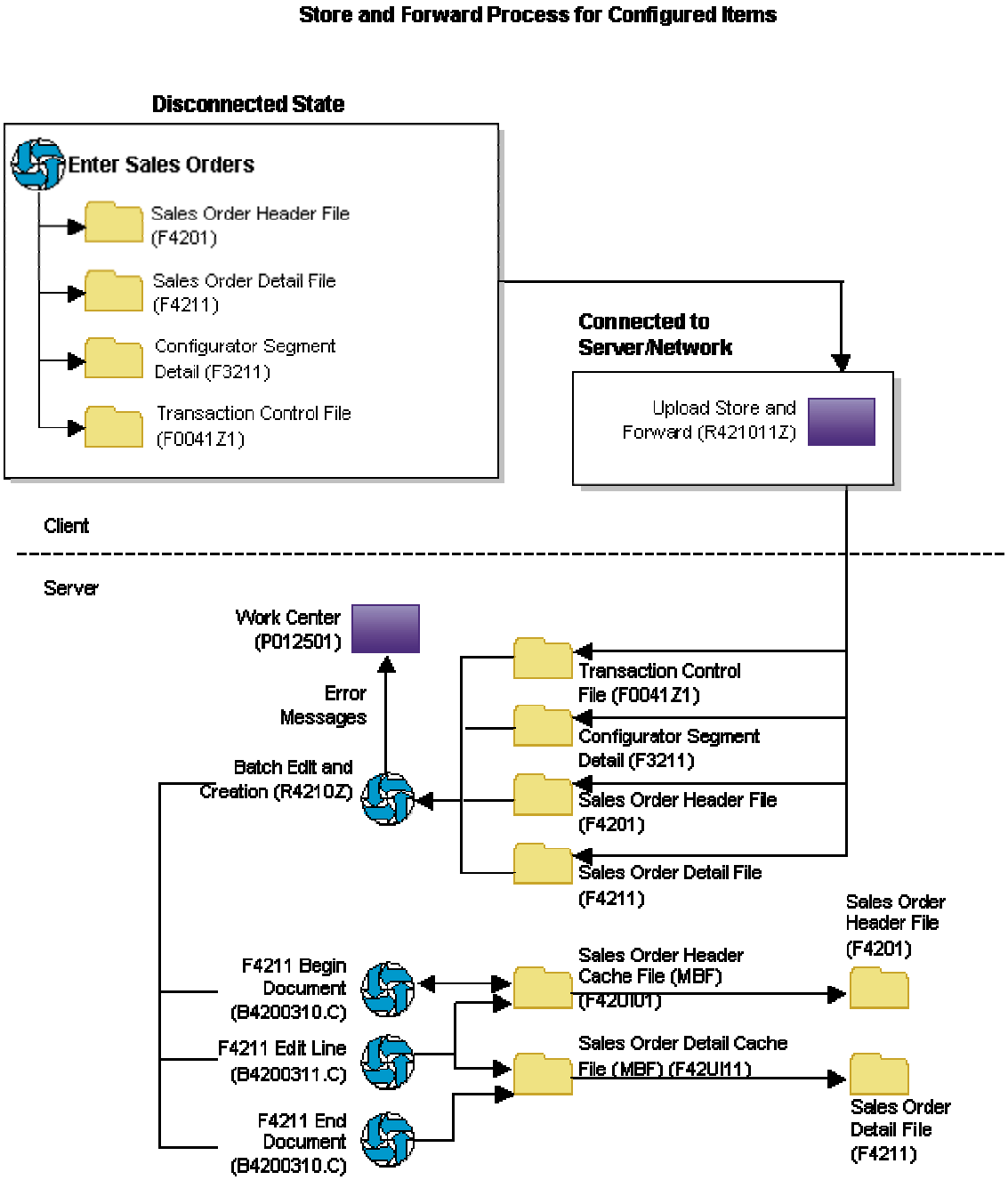
When you are ready to forward the sales orders, you must run the Upload Store And Forward program (R421011Z). The system edits the store and forward order information, and transfers it to a standard sales order.

You must run the Batch Edit and Creation (R4210Z) to generate the sales orders. After the system creates orders, you can either process the sales order as it is or change any detail information by using Sales Order Entry (P4210).

All setup files for the Base Configurator system are stored on the PC. You should download setup files to the PC whenever significant changes are made.

Store and Forward Process for Configured Items

The following graphic illustrates the store and forward process for configured items:



Before You Begin

- Verify that the system administrator downloads the necessary technical master tables before you complete the steps to store and forward sales orders.
- To download the master tables for your workstation, you must be connected to the server and signed on to your normal production environment.
- Choose the appropriate environment on Select User Environment when you log in to the system. Click Detail to access the name of the environment.

See Also

- *Working with Store and Forward Orders* in the *Sales Order Management Guide*

Creating Orders That You Store and Forward

After you download the master tables to your PC, you can create standard J.D. Edwards sales orders by using the store and forward environment. You store the sales orders on your PC until you are ready to upload, or forward, them to the server for processing.

When you create sales orders that you store and forward, the system:

- Edits and validates each sales order, based on the information that you downloaded from the tables
- Creates a transaction control record for each sales order, assigns it a status of 1 (ready to process), and stores it in the Transaction Control File table (F0041Z1)
- Creates a version of sales order entry and sets processing options

When you run the Upload Store and Forward program (R421011Z), the system checks the history fields for duplicate sales order numbers. If the batch order number is a duplicate, the system assigns a new number to the sales order and references the duplicate order number in the original order number field in the Sales Order Header File (F4201) and Sales Order Detail File (F4211) tables.

Before You Begin

- Set the processing options for Configured Item Specifications (P32942).
- Set the processing options for the store and forward version of Sales Order Entry (P4210) that will be used for configured items.

► To create orders for configured items that you store and forward

From the Daily Processing menu (G32), choose Store & Forward Orders.

1. On Store And Forward Order Inquiry, click Add.
2. On Store And Forward Detail Revisions, complete the following required fields with information about the customer:
   - Branch/ Plant
   - Sold To
   - Ship To

- Order Date

3. Complete the following required fields with information about the configured item, and click OK:
   - Quantity Ordered
   - UoM
   - Item Number

Note

The Configurator Common Attribute form might appear before Configured Item Specifications, depending on the processing option setting.

4. On Configured Item Specifications, to accept the default values, click the Calc button and go to step 8.
5. To change values for the segments, click the visual assist in the Answer field.

   Optionally, you can select the segment row and take the Row exit to Values.
6. On Work With Segment Value Selection, choose a row and click Select.

   Repeat this step for every segment that you want to change within your configured item.
7. When you have finished configuring your item, click the Calc button.
8. If you do not receive any errors, click OK.

Note

You cannot complete your order until you correct all hard errors.

9. To finish creating the sales order, do one of the following:
   - Submit the order for processing if the processing options are not set to automatically submit the order.
   - Process the sales orders later by running the Batch Edit and Creation program (R4210Z).

   Regardless of when you process the orders, the Batch Edit and Creation program edits the information and creates the sales orders. If no errors exist, the system adds information to the Sales Order Header File (F4201) and Sales Order Detail File (F4211) tables.

Uploading Configured Item Sales Orders to the Server

After creating sales orders on your PC, you must upload them to the server for processing. To do this uploading, you must connect to the server, sign on to your normal production environment, and submit your job locally.

Note

To maximize system performance, upload the sales orders during off-peak hours.

When you upload sales orders, the system performs the following tasks:

9. Creates records in the Sales Order Header File (F4201) and Sales Order Detail File (F4211) tables on the server.
10. Updates the transaction control status of each sales order to 5 (uploaded) on the PC. After a sales order is updated to this status, you cannot modify it on the PC; you can modify it only on the server.
11. If a sales order on the PC has a status of 1 (ready to process) or 2 (errors), you can make changes to it on the PC.
12. Creates a transaction control record for each sales order on the server and assigns it a status of 1 (ready to process).
13. For configured items, uploads the configured segment tables (F3201, F3211, F3215, and F3216).

After you upload your sales orders and process them, the system edits the transaction control status of the sales orders on the PC to match the status of the sales orders on the server.

Note

The Configurator Segment Detail table (F3211) is used on both the client and server sides. When the server version of the configuration is created, a new number is used to avoid problems with the client side.

► To upload configured item sales orders to the server

From the Daily Processing menu (G32), choose Upload Store and Forward Tran.

1. On Work With Batch Versions – Available Versions, choose the Upload Store And Forward version and click Select.
2. From the Form menu, choose Run.
3. To limit the information that the system uploads, choose the Data Selection option on Version Prompting; and then click Submit.
4. Set the data selection and click OK.
5. Click the Print or Preview option.
6. On Environment Overrides, enter the exact name of the target environment and click OK.

   The system creates a transmission upload report for all of the sales orders that you upload. Use this report to verify that the sales orders have been uploaded correctly.

Processing Batch Sales Orders for Configured Items

After the system creates orders, you can either process the sales orders as they exist or reprocess the configured item using rules that are defined on the server. To process the sales orders, you must run the Batch Order Edit and Creation program on the Additional

Order Processes menu (G4212). The system edits the information that you enter and creates all of the orders at one time. To ensure the integrity of the data, the system creates sales orders for batch orders only after the editing process is complete.

Any of the orders that contain errors remain in the batch receiver tables as unprocessed. You must correct this information, and then rerun the Batch Order Edit and Creation program.

On Work With Batch Versions – Available Versions, select an existing version or create a new version to process batch sales orders.

When processing the sales orders that you uploaded, use the same program that you use to process batch input sales orders.

For configured items, the system performs the following tasks:

1. Accepts the configured item as entered or revalidates the configured item by retrieving segment values
2. Retrieves segment order values from the Configured Item Segments table (F3291)
3. Processes cross-segment editing rules and assembly inclusion rules
4. Stores information in the appropriate sales order and configurator tables
5. Supports availability checking for stocked configured items
6. Reports errors, including:
    - Segment UDC values
    - Segment range
    - Required segments
    - Alphanumeric segment requirements
    - Cross-segment editing rules
    - Assembly inclusion rules
7. Creates a configured sales order for transactions with no errors

You can upload prices from the PC or recalculate them with the Sales Order Batch Transaction Editor version of the Batch Order Edit and Creation (R4210Z) program. If you upload prices, existing prices are overridden.

When you connect to the server, you can review errors and batch status codes for each transaction. The following batch status codes identify where orders are in the process:

1 - The transaction is available for processing.

2 - The transaction contains errors.

3 - The system is processing the transactions.

4 - The upload transmission is active.

5 - The transaction is unavailable and waiting for server response.

6 - Complete. The transactions are updated to the sales order header and detail files on the server.

You should correct errors with the server version of the Store and Forward Sales Order Entry version of the Sales Order Entry program (P4210), and then rerun the Batch Order Edit and Creation program.

See Also

- *Sales Order Processing* in the *Sales Order Management Guide* for more information about submitting sales orders and verifying sales order information

Processing Options for Sales Order Batch Trans. Editor (R4210Z)

Process

1. Enter '1' to perform Availability Check and Kit Balancing

2. Enter '1' to override prices. Blank = use the Unit Price in F4106.
Versions

1. Enter the Version ID of the Sales Order Entry
Configurator
Configured Item Inventory Split.

Future use.

Enter '1' to recreate configurator order, or blank to accept configurator order as is.

Working with Purchase Orders for Configured Items

You enter a purchase order for a configured item when you must send configured item specifications to suppliers.

Purchase Orders (P4310) can be accessed from a menu or the EPM Project Workbench (P31P001) in the Engineering Project Management system. The input of a purchase order for a configured item is similar to the input of a sales order.

Purchase Orders can be executed to display the Order Heading or Order Detail form. After the heading information is entered, the configured item is entered in the detail section. Once the configured segments are answered and validated via Configured Item Specifications (P32942), the Purchase Order Entry form is returned.

A stock line type, usually S, is used on the purchase order.

Purchase orders for configured items differ from sales orders in that purchase orders do not have components in the configuration that generate purchase order detail lines. The purchase order has a single line containing the parent-configured item only. The purchase order could be for a configured subassembly of the parent-configured item.

X assembly inclusion rules are processed for a configured purchase order, but all costs are rolled into the cost of the parent-configured item.

No automatic inventory search is performed even if the Configurator Constants are set to perform the search.

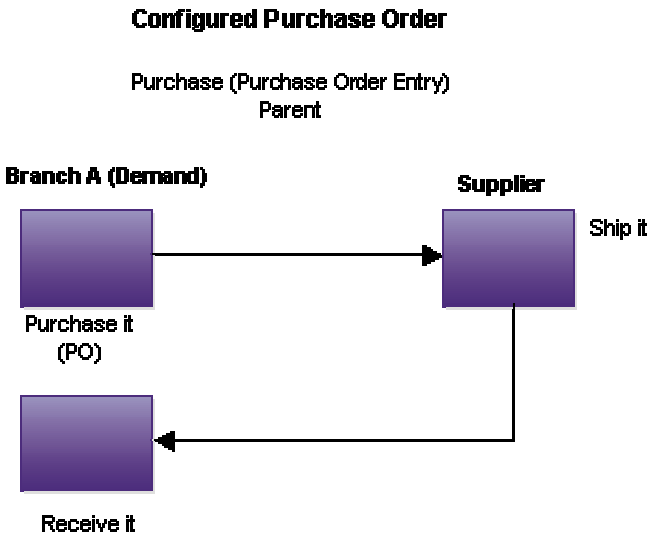
For configured purchase orders, the Add Component and Add Price/Cost tabs on the Component Revision form in Configured Item Specifications is not accessible.

A media object is attached to the line of the purchase order. The media object contains the generic configured text as set up in Configured Item Segments (P3291). This attachment is used to communicate the configuration to the supplier.

The Configurator Costing Method field in Item Master is used by the purchase order to cost the configured item on the order. Additionally, Advanced Pricing can be used to price the configured item. However, no general ledger entries are created.

As an example, suppose that Branch A needs to stock a configured item. Purchase Order Entry is used to order and configure the item. The purchase order is sent to the supplier, who then ships the configured item to Branch A. Branch A receives the configured item into inventory.

The following graphic illustrates this process:



Purchase orders are also created at the time of sales order entry for transfer, direct ship, and combination orders for configured items.

During PO Receipts (P4312), the configuration ID and lot number are linked to the purchase order. You can receive the configured item to stock or to a sales order.

Setup Considerations for Configured Item Purchase Orders

To correctly process the purchase order for your configured item, you must set the Purchase Orders (P4310) processing option for the stock line type. Alternatively, you can define the S line type in the branch/plant record for each configured item. If you leave the processing option blank, the system supplies the line type from the branch/plant.

You must also set the processing option to call the correct version of Configured Item Specifications (P32942).

In the Item Master, you can set the Configurator Costing Method field to facilitate costing the configured item on a purchase order. Additionally, Advanced Pricing can be used to price the configured item. However, no general ledger entries are created.

Note

To successfully complete a purchase order for a configured item, you must have a working knowledge of the Procurement system and its integration with other J.D. Edwards systems.

Working with Work Orders for Configured Items

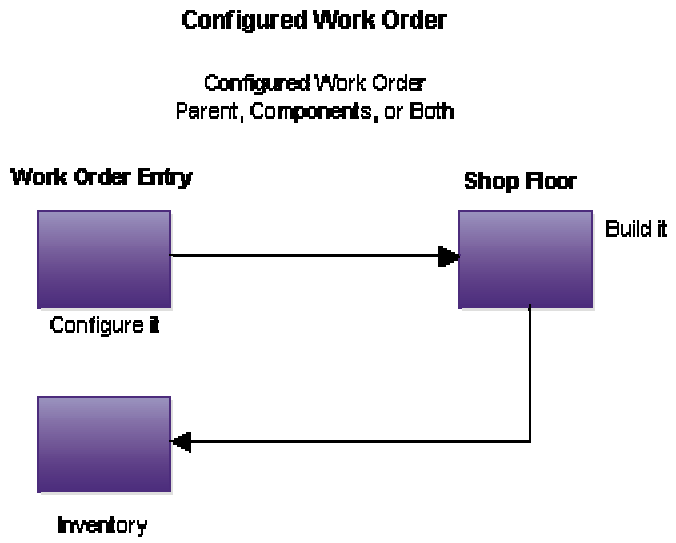
You enter a work order for a configured item when you want to build a configured item. The configured item could be intended to fill an order or it can be put into inventory for future use.

During sales order entry, work order headers are created for associated configured items based on system setup and processing option settings. Once created, the work order headers are used in the shop floor management process to manufacture the configured item. Work orders for configured items can also be created directly in Manufacturing Work Order Processing (P48013), which can be accessed from a menu or the EPM Workbench in the Engineering Project Management system.

The input of a work order for a configured item is similar to the input of a regular work order. Creation of a work order for a configured item is initiated from Work Order Entry. The parent-configured item is input on the work order, and Configured Item Specifications (P32942) is called to answer and validate the configured segments. Once the configuration is accepted, the Work Order Entry form is returned. Work orders are created for child-configured items, if necessary.

A media object is attached to the line of the work order. The media object contains the generic configured text as set up in Configured Item Segments (P3291).

The following graphic illustrates this process:



The work order entry process for configured items rolls up cost but not price.

Setup Considerations for Configured Item Work Orders

To process the work order for your configured item, you must set the Manufacturing Work Order Processing (P48013) processing option for Document Type. You define the document type that to use for work orders.

You must also set the processing option to call the correct version of Configured Item Specifications (P32942).

In the Branch/Plant, verify that the line type of each configured item is the work order line type.

Note

To successfully complete a work order for a configured item, you must have a working knowledge of the Product Data Management and Shop Floor Management systems, and their integration with other J.D. Edwards systems.

Working with Orders for Configured Items in Engineering Project Management

Engineering Project Management (EPM) supports the move from mass production to a product of one production methodology. In this engineer-to-order environment, project management becomes of prime importance, given the amount of unknown information with which to deal. EPM supports the full lifecycle of typical project-oriented operations, which includes the Initiation, Planning, Execution and Control, and Close phases of a project.

In Engineering Project Management, you can enter a work order or purchase order for a configured item. The EPM Project Workbench (P31P001) gives you access to Manufacturing Work Order Processing (P48013) through a Row exit. You can also attach existing work orders for a configured item to a project.

Purchase Orders (P4310) is accessed from the EPM Project Workbench by a Row exit to Part List Revision. During the configuration of a purchase order in EPM, P and X assembly inclusion rules are evaluated.

You can enter an order for the parent-configured item, also called root or top-level configured item, or a configured subassembly of the parent.

Note

On Configured Item Specifications (P32942), the Inventory Search Form exit is disabled for EPM. In EPM, all inventory is project-specific, and must be manufactured or purchased specifically for the project.

Adding New Work Orders for a Configured Item to a Project

On EPM Project Workbench (P31P001), you can add a new work order for a root-configured item. Once the work order is entered, you enter specifications for the configured item by taking the Row exit to Configurator WO. Configured Item Specifications (P32942) is called, and the configuration for the item can be set.

Configurator creates work orders for the children configured items, if necessary. Configurator also associates the generated children configured work orders to the EPM project.

The result is work orders created for the configured item and its configured components, as well as parts lists and routings.

Note

The system does not allow the addition of any other order types, such as Summary or Manufacturing, as children to the root configured work order or any of its children.

Attaching Existing Work Orders for a Configured Item to a Project

You have the ability to attach a pre-existing set of configured work orders to an EPM project via the EPM Project Workbench (P31P001). The configured work orders must have been created using Manufacturing Work Order Processing (P48013). Additional criteria must also be met:

- If the work order is a configured work order, it must be the root or top-level order.
- The configured work order cannot already be associated with a project.
- The work order can have no material issued to its parts list.
- The work order can have no activity reported against it.

You do not have the ability to attach a pre-existing set of configured work orders to an EPM project if the orders were created using Sales Order Entry (P4210). If the configured work orders created from a sales order are attached to an EPM project, two sets of sales orders could possibly exist against the work order. The first would be the original sales order, and the second would be the sales order against which the configured item can be shipped from the EPM Project Workbench. To avoid any issues, configured work orders created from sales order cannot be attached to an EPM project.

Viewing a Configuration Entry for a Project

After committing the work order records from EPM Project Workbench (P31P001) and Configured Item Specifications (P32942), you can view the specifications for the root configured work order and all its children by using Work with Segment Values (P32983).

Setup Considerations for Configured Item Orders in Engineering Project Management

Orders for configured items can be used in Engineering Project Management once the configurator system is set up.

Note

To successfully complete an order for a configured item in Engineering Project Management, you must have a working knowledge of the Product Data Management, Shop Floor Management, Procurement, and Engineering Project Management systems; and their integration with other J.D. Edwards systems.

Modifying Orders for Configured Items

The extensive functionality and flexibility in J.D. Edwards software makes change management an important consideration during system setup and the definition of business processes. The system supports linking multiple order types for configured items; and although system controls do exist in some areas (such as status codes), you need to know that the majority of order change management must be handled through business processes and, possibly, manual intervention.

Working with Configured Items

After you enter an order for a configured item, you can work on configured items in your business cycle along with other Manufacturing and Distribution systems.

Understanding the Configuration ID

The Configuration ID is an identifier that represents a unique configuration. It is generated from an encryption algorithm. Regardless of the number of segments or levels in the configured item, the system always converts the information into a 32-character digest. The digest is always a full 32 characters in length, consists of numbers and characters, and does not contain any blanks. You cannot determine the initial value from the digest, and it has no significant meaning.

Configurator maintains its configuration and identifies it by using the Configuration ID. The Configuration ID ties with the system order number and line number to create a unique identity in the configurator system. A Configuration ID is created for both parent and component configured items. The Configuration ID is created and stored in configurator tables that are used by the Configurator System. Thus, the user does not see or use the Configuration ID.

Note

The line number is not used in the Engineering Project Management (EPM) process because each configured item task in the EPM system has its own work order number, and only one configuration per work order can exist.

Reviewing the Configured Item History

You can review the configured item history to locate previously ordered configurations at any level of a configured item. The history includes information about customers, orders, order types, and branch/plant.

You retrieve historical orders according to values that are entered in the header of Configured String History (P3296). The order information that appears is retrieved from the Configurator Master Table (F3201) and the Configurator Component Table (F3215).

A Row exit to Display Config accesses and displays the configuration tree and segment answers for a particular order stored in the Configurator Segment Detail (F3211) table.

You can review this history by custom and item to analyze sales and generate custom reports and inquiries.

You can also view the configuration history during order entry, where you can select what to enter on the current order from previously ordered configured items.

► To review the configured item history

From the Daily Processing menu (G32), choose Configured Item History.

1. On Work with Configured String History, complete the following fields:
   - Branch/Plant
   - Configured Item
2. Complete the following optional fields and click Find:
   - Order Number
   - Or Ty
   - Order Co
   - Ord Suf
   - Address Number
   - Ship To Number
3. Review information in the following fields:
   - Order Number
   - Or Ty
   - Order Co
   - Ord Suf
   - Line Number
   - Address Number
   - Ship To Number
   - Header Branch
   - Short Item No
   - Branch Plant
4. Select a row in the grid and take the Row exit to Display Config.
5. On Work with Configuration, review the configuration tree and segment values.
6. Click Close when review is complete.

Reviewing Related Orders for Configured Items

The Related Configured Orders (P3201) program displays all of the orders that are related to a particular configuration. Related Configured Orders can be accessed through Configured Item Specifications (P32942) or the inquiry form in an order entry program, such as Sales Order Entry (P4210), Purchase Orders (P4310), or Manufacturing Work Order Processing (P48013).

Related Configured Orders gives you the ability to display the configuration tree and segment values, and review attachments. You can also cancel or delete related work orders.

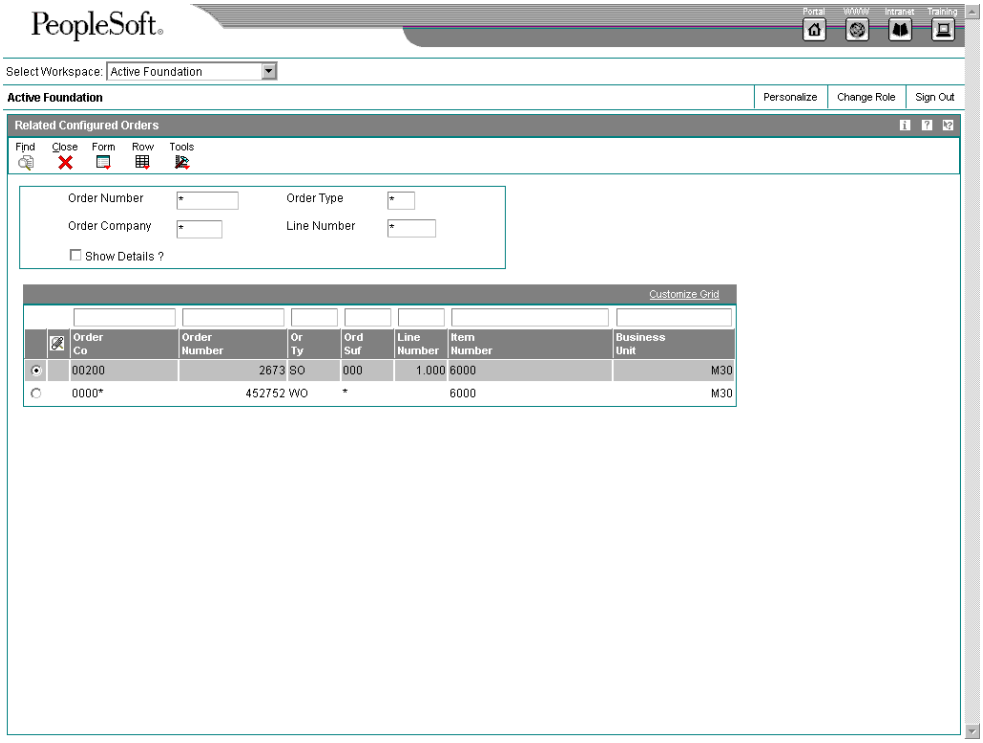
► To review related orders for configured items

From the Daily Processing menu (G32), choose Sales Order Entry.

Note

A sales order is being used for ease of understanding. You can use Sales Order Entry, Purchase Order Entry, or Work Order Entry to enter an order for a configured item.

1. On Customer Service Inquiry, locate the sales order for the configured item. Choose the row and click Select.
2. On Sales Order Detail Revisions, select a row and choose Kits/Configurator from the Row menu.
3. On Configured Item Specifications, choose Config Related Order from the Form menu.



Note

Related Configured Orders (P3201) can also be accessed from a Row exit on Sales Order Entry (P4210), Manufacturing Work Order Processing (P48013), and Purchase Orders (P4310).

4. On Related Configured Orders, review the following information for the orders that are related to your configuration.
   - Order Company
   - Order Number
   - Or Ty
   - Ord Suf
   - Line Number
   - Item Number
   - Business Unit

     Take the Form exit to Display Config to review the configuration tree and segment values. Take the Row exit to Attachments to view the attachments. Row and Form exits must be cancelled, and related work orders must be deleted.
5. When your review is complete, click Close.
6. On Configured Item Specifications, click the Calc button.
7. When the calculation function completes processing without errors, click OK.

Understanding Configured Items and Manufacturing

After you have entered an order for a configured item, you use programs in the Manufacturing system to monitor production of the configured item within the Manufacturing and Distribution Planning, and Shop Floor Management systems.

Understanding Planning for Configured Items

Configured items present a unique challenge for planning since the final configuration is unknown until an order is entered and accepted.

A configured end item cannot be planned in a branch/plant or across multiple facilities because the end item product is not yet defined. Planning bills are used to plan and acquire parts for the features and options of configured items before orders are entered in the system.

Once an order is entered and the final configuration is known, the system can plan the non-configured components of the configured items.

Note

The configured item must be set up in each of the branch/plants where the configured item is to be planned and built. If the configured item is only set up in one branch/plant, then it must be manufactured in that branch/plant.

Once configured item setup is complete, all setup data can be copied to each branch/plant. However, the management of changes to the configured item setup must be addressed in your business processes because the data in each branch/plant must be maintained and kept in synch.

A configured item itself cannot be planned across branch/plants, but the components to complete the configured item can be planned as supply from various branches.

During sales order entry, only some of the components can be written to the Sales Order Detail File table (F4211). Thus, all components are written to the Configurator Component Table (F3215). When a component does not generate a detail line for the sales order, the item is soft committed. Table F3215 records the soft commit in the Commitment field (COMM). Before Order Processing (R31410) is run, the components that are not in table F4211are invisible to material requirements planning (MRP). Thus, another business function reads selected records from table F3215 and accumulates requirements that represent the demand of a configuration.

Once Order Processing is run, the configured item has a bill of material and routing. Items in table F3215 are written to the Work Order Parts List table (F3111).

The Quantity Type CFD in user defined code 34/QT designates component demand from table F3215. Processing option settings in the planning programs determine configurator component inclusion in the planning process.

Setup Considerations for Configured Item Planning

To successfully plan components of a configured item, you must set the processing options appropriately.

A configurator processing option on the Mfg Mode tab in the MRP/MPS Requirements Planning (R3482) and Master Planning Schedule – Multiple Plant (R3483) programs allows the user to determine if the components of a configured item will be planned. To plan the components of a configured item, the processing option is set to 1 to include configuration components from the Configurator Component Table (F3215) and the Work Order Parts List table (F3111) as demand items. If you are not concerned with planning components of a configured item, set the processing option to blank, which saves processing time.

The MRP/MPS Requirements Planning and Master Planning Schedule – Multiple Plant programs use the quantity type and processing option in conjunction to determine if components for a configured item should be included in planning.

Note

To successfully complete planning for a configured item, you must have a working knowledge of the Product Data Management, Forecast Management, and Requirements Planning systems, and their integration with other J.D. Edwards systems.

Processing Work Orders for Configured Items

After you have created configured item work order headers through an order entry program such as Sales Order Entry (P4210) or Manufacturing Work Order Processing (P48013), you must run Order Processing (R31410) to perform the following:

- Generate the work order parts list from the sales order, if applicable, and P assembly inclusion rules.
- Include additional parts on the work order parts list from Q assembly inclusion rules.
- Create the work order routing instructions from the R assembly inclusion rules.
- Commit inventory.
- Back-schedule configured routings.

Note

Commitment of components is done at Sales Order Entry instead of only during Order Processing. The components will be committed to the sales order at order entry time and then will move to the parts list when Order Processing is run. Thus, you do not need to run Order Processing immediately to get commitments for components.

Processing Work Orders for Configured Items in Engineering Project Management

The creation of work orders for configured items in an EPM project is handled differently from the standard process.

The Process Project version of Order Processing (R31410) can be run from the EPM Project Workbench over the entire project structure. This action processes all of he configured work orders residing in the structure from the lowest level to the root level.

The Process Task version of Order Processing (R31410) can be run from the EPM Project Workbench at a singular task level. A warning is issued to the user to verify that all lower level configured work orders have been processed prior to processing the current level. Children tasks for the selected configured work order task must be processed before processing the current task.

Setup Considerations for Configured Item Work Order Processing

To correctly process work orders for your configured item, you must set the processing options for Order Processing (R31410) accordingly. You might want to create a separate version of Order Processing specifically for configured items.

On the Process tab, set the Generate Parts List and Routing Instructions field to create both the parts list and routing. This option must be used for configurator processing.

Set the Update Parts List and Routing Instructions field to update the existing parts list and routing instructions when changes are made to an order and Order Processing is re-run.

On the Parts List tab, leave the Substitutions field blank. Substitutions are defined in the bill of material. Since configured items do not have a standard bill of material, no substitutions can exist.

When a configured item is entered on a sales order, the original line type of the components has an inventory interface and drives commitments. The commitments remain against the sales order until Order Processing is run.

The only commitment that remains on the sales order is for the parent configured item. This commitment remains to drive demand and fulfill the sales order.

On the Sales/Config tab, identify a status in the Next Status field. This value identifies the next status of component lines on a sales order for a configured item. It can be any valid status for the line type that was entered in the Line Type processing option field.

On the Sales/Config tab, set the Standard Cost Calculation field to calculate the standard cost for the configured item.

Typically, the standard cost for an item is calculated based on the manufacturing bill of material and manufacturing routing. However, configured items do not have a manufacturing bill of material or manufacturing routing. The bill of material and routing for a configured item can be defined once the final configuration is known after order entry.

Order Processing determines the standard cost of a configured item from the configured parts list and routing. The cost of the configured item includes the labor on the configured routing, material and components on the configured parts list, and outside operation information. The cost is stored in the Production Cost table (F3102), which is also called the Work Order Variance table. The program also updates standard costs on the associated sales order detail line.

The option to calculate the standard cost only if it has not already been done gives the user some flexibility when processing sales quotes or changing a sales order. This processing option setting allows the user to keep the original cost or recalculate it.

The Printing 1 Tab processing options define how the work order parts list prints.

The Printing 2 Tab processing options define how the routing instructions print on the work order.

On the Printing 2 Tab, identify a value in the Sales Order Text Lines field. If you set the processing option to print work orders, the Sales Order Text Lines processing option setting specifies whether the system prints sales order text lines on the work order. The text lines print in the remarks area of the work order.

Configured items always print the sales order generic text on the work order, regardless of how this option is set.

The Configurator Generic Text processing option gives you the ability to print the generic text from the order on the work order.

Data Sequencing

Data sequencing is very important when generating the work orders for configured items. Data sequencing must be set in descending order, which creates the configured work orders in the proper order – from the bottom up. This process ensures that the work orders are generated with accurate standard cost and accurate back-scheduled dates.

During order entry, the system generates the associated work order headers for configured items with a work order line type. The actual work order number is assigned from the top level down, as illustrated by the following table:

Order Number	Item Number	Item Description	Work Order Number
3726	6000	Forklift	67890
3726	6100	Boom	67891
3726	6200	Fork	67892

During order entry, a requested date is entered for the configured item. The system uses the requested date on the order and lead-time information from the Leadtime Level field on the Additional System Information form in the Item Master (P4101) to back-schedule the work order headers that are generated during order entry.

When Order Processing is run, the work order headers are used to generate the work orders; no update to the work order header exists. Order Processing back schedules the start and end dates of each routing operation on the work orders, based on the dates in the work order headers.

Thus, Order Processing calculates lead times for multilevel configured items. However, Leadtime Rollup does not support configured items.

You can generate work orders without setting the data sequencing to descending order, and the work orders are then created correctly with the associated parts lists and routing. However, standard costing and back scheduling of the routing operations are not generated correctly.

Note

To successfully complete the generation of a work order for a configured item, you must have a working knowledge of the Shop Floor Management, and Product Costing and Manufacturing Accounting systems and their integration with other J.D. Edwards systems.

Working with Costing and Accounting for Configured Items

Costing for configured items is different from costing for non-configured items. After you enter an order for a configured item, you use programs in the Shop Floor Management system to work with product costing and manufacturing accounting for configured items.

You must also be aware of how configured item orders entered in the Sales Order Management and Procurement systems are costed.

Note

To successfully complete product costing and manufacturing accounting for a configured item, you must have a working knowledge of the Inventory Management, Sales Order Management, Procurement, Product Data Management, and Shop Floor Management systems; and their integration with other J.D. Edwards systems.

Working with Product Costing for Configured Items

Costing for configured items is different from costing for non-configured items because configured items do not have a standard bill of material or routing. Because no standard

configuration exists, costing cannot be established before you enter an order. The discrete standard cost roll-up concept does not apply to a configured item, so the Cost Simulation – Build Temp program (R30812) is never executed and no frozen standard costs exist in the Item Cost Component Add-Ons table (F30026).

However, standard costs for purchased parts and manufactured parts that are used by configured items must be established and frozen (07 Cost Method) in the Item Cost File table (F4105) to be factored into the calculated costs for configured item work orders.

The Order Processing (R31410) program performs a cost rollup when it attaches a parts list and routing to a work order for a configured item. A processing option instructs the program to calculate the costs. The costs are stored in the Column 1 - Frozen Standard field in the Production Cost table (F3102), not table F30026.

The costs are the accumulation of the standard costs for the components, the labor and overhead values that are defined in manufacturing constants, the attached routing and work center information, and work order values.

For a configured item, the A1 material cost is calculated from the total cost of its direct components. The components are defined by the P and Q assembly inclusion rules.

B1 direct labor cost is calculated from the item's routing, which is defined by the R assembly inclusion rule.

Cost defined by the X assembly inclusion rules affects only the sales order and not the work order. Thus, associated X assembly inclusion rule costs are not seen in table F3102.

Note

If you use cost method 02 (Weighted Average) or cost method 09 (Actual, Manufacturing), processes and configured items are not supported. The content in this topic does not apply.

After Order Processing establishes the standard costs for the configured items, journal entries for configured items are created in the same way as for non-configured items.

Sales quotes for configured items are an exception to the standard costing rule for configured items. The standard cost for a configured item on a sales quote is calculated without running Order Processing if the Cost Sales Quote functionality is turned on in Configurator Constants (P3209).

The following table indicates the source of cost generation in table F3102 for configured items:

Costing Method	Standard	Current	Planned	Actual	Completed	Scrapped	Unaccounted Completed	Unaccounted Scrapped
Standard Costing	R31410	Not used	R31802A	R31802A	R31802A	R31802A	Not used	Not used

Working with Manufacturing Accounting for Configured Items

Manufacturing accounting for configured items occurs during Work Order Completions (P31114).

The work orders for configured items must be completed from the lowest level configured item to the top level configured item. This order is the same as completing the highest work

order number down to the lowest. For example, the work orders for the forklift are completed in the following order:

- Item 6200, fork
- Item 6100, boom
- Item 6000, forklift

Completing the work order consists of issuing material, reporting labor, and then reporting the completion of the item that the work order represents. The cost of the work order is created, and the item can be issued to the next level. Thus, completing the configured item work orders in the correct order ensures that the associated costs are created and carried over to the next level work order.

At completions, the configured item is completed to a unique location and lot number. The Configuration ID is associated to the item and work order number by the system. When the configured item is completed, the system updates the Item Cost File table (F4105) at the item, branch/plant, location, and lot level. The system uses the configuration-specific standard costs in the Production Cost table (F3102) for related Manufacturing Accounting transactions.

The Item Ledger File table (F4111) is then created with the correct cost from table F4105.

Note

As you manufacture configured items, no engineering variance exists because the configured item has no standard bill of material or routing.

Working with Costing for Configured Items in Engineering Project Management

Engineering Project Management (EPM) requires the best estimate of cost for a configured item. When the user has defined the configuration via Configured Item Specifications (P32942) and all children configured work orders have been created, Estimated Cost is updated on the EPM Project Workbench (P31P001) for the root configured work order and all its children configured work orders. The Estimated Cost update is applicable both during the generation of children configured work orders via definition of the configuration or during changes to an existing configuration.

To obtain the best estimate of cost, the Q and R assembly inclusion rules are processed for EPM. This process is the same as the process for costing Sales Quotes.

Configured Item Specifications also return a cost value. This value is placed in the Total Estimated Cost field for the task.

Since cost records are not written to the Production Cost table (F3102) at the time of creation of EPM configured work orders, the Estimated Cost fields in the work order header records and EPM Project Workbench are blank. Therefore, the costs of the configured item and its children are not included in project costs until Order Processing (R31410) is run.

When Order Processing is run either for a single configured work order or over an entire EPM project, the Planned Production Costs should be rolled back into the EPM Project Workbench for the configured work orders.

When shop floor activities are performed against the configured work orders and Actual Production Costs are recorded, Rollup of Actual Costs to Project should accurately update the Actual Costs on the EPM Project Workbench.

You have the ability to rollup Estimated, Planned, and Actual Costs from table F3102 and update the EPM Project Workbench.

Whenever a new root configured work order is added to the EPM Project Workbench structure, Estimated Costs are *not* updated.

When the quote is accepted, Estimated Costs for all configured work orders are locked down; and the Total Estimated Costs are copied to the Total Budgeted Costs.

The following table indicates the source of cost generation in table F3102 for configured items in EPM:

Costing Method	Standard	Current	Total Planned	Total Actual	Quantity Completed	Scrapped	Unaccounted Completed	Unaccounted Scrapped
Standard Costing	P48013	P48013	Not used	R31410/ R31802A	R31802A	R31802A	R31802A	Not used

Working with Costing for Configured Item Sales Orders

The P assembly inclusion rules define components that appear as sales order detail lines on the order. The cost of each component that appears as a sales order detail line is shown as retrieved from the Item Cost File table (F4105).

Configurator retrieves the cost of all components and the X assembly inclusion rules, and rolls them up to arrive at the sales order cost of the parent configured item. Once these costs have been established, the system updates the unit cost and extended cost on the sales order for the top-level configured item only.

When Order Processing (R31410) is run, the Production Cost table (F3102) records for P, Q, and R assembly inclusion rules are calculated and written back to the sales order. These rules, in combination with X rules that have been defined to roll up to the parent, make up the cost of the parent configured item.

Cost that is defined by the X assembly inclusion rules affects only the sales order, not the work order. Thus, associated X assembly inclusion rule costs are not seen in table F3102.

Working with Costing for Configured Item Purchase Orders

Purchase Orders (P4310) uses the Supplier Price/Catalog File table (F41061) and the Item Cost File table (F4105) to determine purchase order cost. The Purchase Orders program searches table F41061 first and then searches table F4105 to find a cost for the item. The Purchase Order Cost Method (PCSM) on the Cost Revisions program (P4105) is used to retrieve the cost from table F4105.

The Configurator Costing Method field in Item Master (P4101) is used to cost configured items on purchase orders.

When creating a purchase order for a configured item using Configurator Costing Methods 1, 2, or 4, tables F41061 and F4105 are searched to find the component costs or the cost of the parent if using method 2.

Next, for Configurator Costing Method 1 and 2, any necessary X assembly inclusion rules are added.

Finally, any purchase order advanced price adjustment that exists is calculated, according to the Configurator Costing Method, to arrive at the final purchase order cost.

For Configurator Costing Method 4, as in the sales order Kit/Configurator Pricing Method 4, advanced pricing adjustments are applied to the components before the X assembly inclusion rules are added.

Understanding Differences in Costing of Orders

Given the differences in cost calculation between sales orders and purchase orders, these costs are probably different. The cost on a purchase order is different from the cost shown on the sales order detail line. This situation is especially true in a standard cost (Cost Method 07) manufacturing environment where standard cost is calculated and frozen with a number of variables accounted for beyond the cost of the item from the supplier.

Notes

The Configurator Costing Method field in the Item Master (P4101) is used by the purchase order system only, and not by the sales order system for detail line cost calculation.

Complications in costing can arise from other variables, such as currency and unit of measure conversions, edits, overrides, or other system variables that can affect sales order and purchase order costs.

Working with Costing for Configured Item Direct Ship Orders

For direct ship orders of configured items or configured components, the cost is driven by the purchase order and written back to the sales order detail line. In this case, a combination of both the Configurator Costing Method in the Item Master program (P4101) and the Cost Method in the Cost Revisions program (P4105) are used as the basis for calculating the cost. The Configurator Costing Method determines how to roll up the cost, after which the cost is either the standard or non-standard cost.

The only exception to this situation occurs when Sales Order Entry (P4210) is using standard cost (Cost Method 07), which is common in a manufacturing accounting environment. In this case, the purchase order detail line does not write to the sales order. The sales order rolls up costs as it would in a non-direct ship order.

Working with Costing for Configured Item Transfer Orders

Transfer orders derive their sales order detail cost from the shipping branch/plant. The transfer purchase order cost is equal to the unit price (not cost) of the related sales order.

For the parent of a configured item transfer order, the sales order cost is equal to the rolled-up cost of the components from the shipping branch/plant; and the related purchase order cost is equal to the unit price of the transfer sales order detail line.

For both configured and non-configured transferred components, the sales order cost on the original sales order is driven by the unit price of the related transfer order. The Cost or Base Price Markup processing option on the Process Tab in Sales Order Entry (P4210) determines

how this is calculated. A value of Blank in this field means that the sales order cost is equal to the rolled-up cost of the shipping branch/plant.

A value of 1 calculates the rolled-up cost of the shipping branch/plant, multiplies that by the mark-up percentage found in the Branch Relationships Master File table (F3403), and writes the resulting cost to the sales order detail line.

A value of 2 calculates the base price from the shipping branch/plant, using the price roll-up method, and returns that value to the sales order detail cost.

Again, in all cases, the cost on the transfer purchase order is equal to the unit price of the transfer sales order.

Working with Costing for Configured Item Interbranch Orders

Interbranch sales order detail lines derive their cost from the Cost or Base Price Markup processing option on the Process Tab in Sales Order Entry (P4210). This situation is similar to the costing process for transfer orders.

The cost is equal to either the cost from the shipping branch/plant, the cost from the shipping branch/plant multiplied by a mark-up percentage, or the price from the shipping branch/plant.

When the interbranch purchase order is created, the cost is equal to the cost that was calculated for the original sales order.

Modifying Work Orders for Configured Items

An existing configured work order can be modified only by the program that created the work order. When changing a configured work order, the user has the option of launching Configured Item Specifications (P32942) to modify its configuration and the configuration of all its children work orders.

The user can modify the configuration of an existing non-Engineering Project Management (EPM) configured work order by launching Configured Item Specifications only when the work order is at the top level in the configuration.

Any changes to a configured work order or its configuration impacts all of its children work orders. Thus, order quantity, dates, and parent work order number of the children work orders change. Changing the configuration in Configured Item Specifications can also result in the creation of additional work orders or existing work orders being excluded from the configuration.

Note

This functionality is relative to work orders that are created in Sales Order Entry (P4210) and Manufacturing Work Order Processing (P48013). This functionality does not include work orders that are created for a project in the Engineering Project Management system.

After you modify an existing configured work order, you can run the Order Processing program again to reattach the parts list and routing to a configured item.

The Held Status Code, Changed Status Code (Before Cutoff), Changed Status Code (After Cutoff), Canceled Status Code, and Cutoff Status Code fields on the Sales Process (Sales/Configured) tab of the Work Order Entry (P48013) processing options are used to define the work order cutoff status. The values in these fields are used to modify the status of

sales order-generated work orders and configured work orders that are created from Manufacturing Work Order Processing.

For sales order-generated work orders, the cutoff status determines when the changes to the sales order do not affect the work order. In other words, if the work order is already at that status or higher and you change the sales order, then the work order status changes; but the parts list and routing are not affected.

Net Change Logic for Configured Work Orders

When a configured work order or its configuration is changed, Net Change logic should not be executed for any work order in the configuration. Changes in the configuration can result in work orders being removed and new ones being added to the configuration. This situation might make the parts list and routings attached to existing work orders invalid. Therefore, automatically changing quantities on existing parts lists and hours in existing routings is invalid. They need to be re-attached by running Order Processing against all of the work orders in the configuration.

Modifying Work Orders for Configured Items Without Excluding or Adding a Work Order

The two ways to change the configuration of an existing configured work order without excluding any work order or adding new work orders are:

- Change the order quantity, dates, or unit of measure on any of the work orders in the configuration; and launch Configured Item Specifications (P32942). The user validates the configuration without making any changes, and then clicks OK.
- Set up the assembly inclusion rules for a configured item to change the order quantity and dates of lower-level work orders when a segment answer is changed. The user can launch Configured Item Specifications for any existing work order in the configuration and change the segment answers to satisfy the above-mentioned rule.

In both of these cases, order quantities and dates of all of the lower-level work orders should be recalculated correctly if the work orders are below the Cutoff Status. All work orders that were below the Cutoff Status are moved to Changed Status (Before Cutoff).

If the status of a work order being changed is greater than or equal to the Cutoff Status, the status is moved to Changed Status (After Cutoff). Order quantity, dates, and unit of measure of such work orders should not be changed.

Parts list quantities and routing hours for items that do not have a work order must be recalculated when Order Processing (R31410) is run against all of the work orders in the configuration.

Modifying Work Orders for Configured Items to Remove a Work Order

You can review the configuration of an existing configured work order in Configured Item Specifications (P32942) and change the configuration to remove an item from the configuration.

If the item has a work order that is associated with it, then the work order and all its children work orders (if any) should be moved to a Canceled Status if the existing status of the work order is less than the Cutoff Status. If the existing status of the work order is greater than or equal to the Cutoff Status, then the work order should not be moved to a Canceled Status.

The status of work orders that were retained in the configuration should be moved to Changed Status (Before Cutoff) if their existing status is below the Cutoff Status. If the status of the work orders being retained is greater than or equal to the Cutoff Status, then the status should be moved to Changed Status (After Cutoff).

If the status of a lower level configured work order is greater then the Cutoff Status, then it is not cancelled when it is removed from the configuration. However, its parent work order could have been moved to a Canceled Status. If Work Order Completions (P31114) is run against the lower-level work order, then the corresponding parts list line in its parent work order's parts list is split, updated, or both, with completions quantity, lot, and location. The parts list quantity in the updated line is hard-committed to the completions lot and location. The user is responsible for relieving these commitments.

If a configured work order is moved to a Canceled Status because it is removed from the configuration, the parent work order field should not be blanked out to prevent inaccurate processing.

If the item does not have a work order that is associated with it, then it should be excluded from the configuration and the parts list of its parent work order when Order Processing (R31410) is run against all of the work orders in the configuration.

Modifying Work Orders for Configured Items to Add a Work Order

You can review the configuration of an existing configured work order in Configured Item Specifications (P32942) and change the configuration to add an item into the configuration. If you add an item to the configuration, then the following functionality must happen, depending on the stocking type of the item.

If the item is a configured item, then it should be added to the configuration tree. If the configured item has a work order line type, then work orders must be created for it and any of its children that have a work order line type in the assembly inclusion rules.

If the item is a non-configured item with a work order line type in the assembly inclusion rules and then a work order must be created for the non-configured item.

The dates of all the newly added and existing work orders must be recalculated correctly.

All newly created work orders must be at the Beginning Status. All existing work orders in the configuration that have a status which is less than Cutoff Status must be moved to Changed Status (Before Cutoff). All existing work orders in the configuration that have a status greater than or equal to Cutoff Status must be moved to Changed Status (After Cutoff).

If the item does not have a work order line type, then it should be added to the parts list of its parent item's work order when Order Processing (R31410) is run against all of the work orders in the configuration.

Costing Modified Work Orders for Configured Items

Modifying existing configured work orders should not automatically change any costs that are reported against any work order in the configuration. Columns for standard costs and units in the Production Cost table (F3102) are populated when Order Processing (R31410) is run. The columns for current costs and units in table F3102 are not populated for configured work orders.

If the configuration is changed before Order Processing is run for any work order in the configuration, no changes in costs need to take place because no costs exist.

If a configured work order is changed after Order Processing was run against any or all work orders in its configuration, Order Processing needs to be re-run to recalculate the parts list, routings, and F3102 costs that are associated with the new parts list and routings.

Note

This process eliminates the planned variance for the work order.

Modifying Work Orders for Configured Items in Engineering Project Management

You can add configured work orders as tasks on a project in Engineering Project Management (EPM). After the orders are added, you can modify or delete the entire configuration from which the orders were originated.

Changes to configured work orders in an EPM project are done from the EPM Project Workbench (P31P001). Work orders can be changed for configured items that are created in an EPM project both before and after the work order records are committed.

Note

You cannot make any changes to an EPM project configured work order directly through the Manufacturing Work Order Processing (P48013) program.

Before allowing any modifications, EPM Project Workbench verifies that none of the configured work orders has any activity reported against it. In addition, if the user needs to delete an entire configuration, EPM Workbench needs to verify that the configured tasks do not have any existing dependencies.

When you enter Configured Item Specifications via EPM Project Workbench to make any changes, you are issued a warning if task dependencies exist either for the root configured work order or any of its children work orders.

Note

If you override the warning and make changes to the configuration resulting in the removal of an existing configured work order from the structure, your are responsible to manually remove any task dependencies to avoid any problems with scheduling.

Any changes to dates-- such as Planned Start and Planned End-- quantity, and unit of measure (UOM) launch Configured Item Specifications (P32942). For the root configured work order, EPM Project Workbench launches the Configured Item Specifications program in change mode, allowing the user to modify the configuration.

Before the work order records are committed from EPM Project Workbench or Configured Item Specifications, the user has the ability to re-enter only the root configured work order in EPM Project Workbench to access and revise Configured Item Specifications.

After the work order records are committed from EPM Project Workbench and Configured Item Specifications, the user can re-enter only the root configured work order in EPM Project Workbench to access and revise Configured Item Specifications. This action is only allowed if

no shop floor activity has been reported against the root configured work order or any of its children orders. Thus, no material should have been issued to the configured work order's parts list; and no activity should have been reported against the configured work order.

When the user changes the configuration of an existing EPM Configured Work order, then the resulting changes to other items and work orders in the configuration is the same as when a configuration of a non- EPM configured work order is changed in a similar manner. Statuses that are used to change the statuses of work orders in the configuration are read from the processing options of Manufacturing Work Order Processing (P48013).

When the entire EPM project is back-scheduled, then the dates on all EPM configured work orders, if any, also change. The work orders are not be moved to a "Changed" status as the work order project is not called to update the work orders with new dates. EPM Project Workbench calls another process to update the project work order records with new dates.

If the status of a lower level non-EPM configured work order is greater then the Cutoff Status, then it is not cancelled when it is removed from the configuration. However, its parent work order could have been moved to a Canceled Status. If Work Order Completions (P31114) is run against the lower level work order, then the corresponding parts list line in its parent work order's parts list is split and updated with completions quantity, lot, and location. The parts list quantity in the updated line is hard-committed to the completions lot and location. The user is responsible to relieve these commitments.

Net Change Logic for Configured Work Orders in EPM

When an EPM configured work order or its configuration is changed, Net Change logic should not be executed for any work order in the configuration. Changes in the configuration might result in work orders being removed and new ones being added to the configuration. This situation can make the parts list and routings that are attached to existing work orders invalid. Therefore, automatically changing quantities on existing parts lists and hours in existing routings is invalid. They need to be reattached by running Order Processing (R31410) against all of the the work orders in the configuration.

However, when changes to dates are made on configured work orders via the EPM Project Workbench, Net Change processing is executed if Net Change is enabled.

Modifying Work Orders for Configured Items in EPM to Remove a Work Order

Either before or after committing the work order records from EPM Project Workbench (P31P001) to the database, the user is allowed to delete only the root configured work order.

When the user selects an EPM configured work order in the EPM Project Workbench grid and cancels it using the Row exit Cancel Task, then only that work order is moved to a Canceled Status, regardless of its level in the configuration and its existing status. In this case, the Cancelled Status is read from the processing options of EPM Project Workbench.

If a work order with financial commitments, project-specific inventory commitments or any other activity reported against it is removed from the configuration, then it is not cancelled if its status is greater than the Cutoff Status. However, its parent work order could have been moved to a Cancelled Status. In such a scenario, the work order with activity reported against it is orphaned. The user is responsible to relieve the financial and project-specific inventory commitments created for the orphaned work order.

Deleting the root configured work order deletes all children configured work orders and configurator data that exists in System 32 tables.

The existing configuration is not deleted from the System 32 tables but kept as reference material.

However, reference to the work orders is removed from the Configurator Master Table (F3201), Work Order Master File table (F4801), and Work Order Master Tag File table (F4801T).

The corresponding project number in the cancelled work order header records is not erased.

Costing Modified Work Orders for Configured Items in EPM

Once the configuration for a root configured item has been defined via Configured Item Specifications (P32942) and all children configured work orders have been created, Estimated Costs should be updated on the EPM Project Workbench (P31P001) for all configured work orders (root configured work order and children configured work orders). This updating is applicable during the generation of children configured work orders via definition of the configuration and during the changing of an existing configuration.

When a new root configured work order is added to the EPM Workbench structure, Estimated Costs should *not* be updated.

Changes to the Configuration Once an EPM Project Quote is Accepted

If the user decides to make changes to the configuration or decides to add a new set of configured work orders, the user must consider the way that Engineering Project Management works if it interfaces with Job Cost; and be well aware of the repercussions.

Changes made to the configuration result in the addition of a new configured work order in the same structure are not a problem since the new task does not have an Original Budget. The functionality works this way if any manufacturing work order is added after the quote is accepted.

If changes to the configuration result in the deletion of a configured work order from the existing structure, then the Original Budget amount might require modification. Budgets that are associated with the work order which was deleted might exist, and these budgets might already have been uploaded to Job Cost. Nothing happens automatically in the system because tight integrity between EPM and Job Cost does not exist. No system checks are in place to verify if the user manually added Cost Code and Cost Type to the Project Structure in Job Cost and also manually added Budgets.

Thus, the user can unlock the project, and delete account and budget information that was manually added to ensure the accuracy of the budget amounts.

Working with Work-In-Process (WIP) Revaluation for Configured Items

Work-in-process (WIP) revaluation can be performed for configured items.

In the standard costing process, WIP revaluation includes both material and labor cost changes.

In the actual costing process, WIP revaluation includes only material cost changes.

Reviewing Hours and Quantities on Configured Item Work Orders

As production continues on the work order for a configured item, you must record the hours spent on production and the number of items completed in that time. This procedure allows you to monitor progress and costs, and compare them to the standard hours and quantities that you estimated for the job.

After you enter hours and quantities, either manually through Work Order Time Entry (P311221) or through payroll time entry, you can review and revise them before you post them to the Manufacturing system for further tracking and cost accounting.

You can review the quantities that are entered against the operations scheduled for the work order for a configured item, including the actual quantity ordered, completed, and scrapped for each operation. You can also view the standard and variance values, along with the status code, which can be updated for the operation.

Working with Work Order Completions for Configured Items

The Work Order Completions (P31114) program uses the information that is entered in the Shop Floor Management system to create general ledger journal entries. Shop Floor Management creates no interactive journal entries. Instead, it processes all journal entries in batch.

For configured items, the system updates new locations with standard costs from the Production Cost table (F3102) so that transactions in the Distribution system use the correct costs. For configured items, a unique lot number and location must be entered at completions. The Work Order Completions program hard-commits the associated sales order, and updates the lot and location information for the sales order.

The parts list of a parent configured work order contains a split, update, or both, when a completion is entered for a lower-level configured work order. The child work order number is written to the parts line of the parent work order. This record is written in the Work Order Parts List table (F3111).

Setup Considerations for Configured Item Work Order Completions

To successfully complete a work order for a configured item, you must set the processing options for Work Order Completions (P31114) based on your business processes.

Since configured items must be lot controlled, the Lot Process Type field on Item Master (P4101) is set appropriately to create a lot number that is based on your business process. Configured items must also be stocked in a specific location.

On Work Order Completions, the Sales Orders tab provides processing options that determine if the lot number and location are entered either manually by the user at completion or automatically by the system.

On the Sales Orders tab, set the Work Order Lot and Location Defaults field accordingly.

Note

You must turn off Location Control on the Branch/Plant Constants.

Set the Sales Order Lot and Location field accordingly to update the sales order with the lot and location information when the work order is completed.

Understanding Configured Items and Distribution

After you have entered a sales order and completed work orders for a configured item, use programs in the Distribution system to complete the sales order processing cycle.

Working with Configured Item Inventory

The Base Configurator system enables you to stock configured items. For stocked configured items, you can use programs within the Distribution system to do the following:

- Review configuration-specific costing information.
- Determine availability of configured end-items. You can search for segments or an exact configuration match.
- Select a stocked configured item during Sales Order Entry (P4210). The system hard-commits the item, does not generate a work order, and uses costs in the Item Branch File table (F4102).
- Perform inventory transactions, such as:
    - Simple issues
    - Transfers
    - Adjustments

The Inventory Management system does not support reclassifications of configured items.

You can adjust quantities for configured items in a specific location. The Base Configurator system supports adjustments for locations with existing inventory and adjustments from zero quantity, as long as the configuration-specific history is defined in the system.

Checking Availability of Configured Items

Use the Summary Availability, Detailed Availability, and Customer Service Inquiry forms to review configured item information.

You can use the Summary Availability form in the Item Availability (P41202) program to review inventory locations that contain stock for a configured item. Review information—such as on-hand, committed, and available quantities for each location—that is in the detail area.

You can use the Detailed Availability form in the Item Availability program to review the status of configured items in a specific location. Review information in the detail area, such as on-hand quantity of a configured item and related commitments for that quantity.

You can use the Customer Service Inquiry form in Sales Order Entry (P4210) to do the following:

- Locate current sales order information in the Sales Order Detail File (F4211) and the Sales Order History File (F42119) tables.
- Provide information at the sales order, customer, and item levels.
- Change associated text for the sales order line.

Checking Availability of Configured Items During Sales Order Entry

To check availability during Sales Order Entry (P4210), you must turn on the Check Availability option in Configurator Constants (P3209). If the system finds the exact item and configuration ID during sales order entry, all of the locations that contain the specific configuration appear. You can review segment values for all levels of the configured item and select an item to use on the sales order. Once an item is selected, sales order entry commits that configured item to the sales order with the Line Type that is defined in Configurator Constants. The system does not check the availability of components.

Note

The system does not perform automatic line splitting if the quantity ordered differs from the quantity selected.

Performing an Inventory Search for Configured Items

The Base Configurator system enables you to search for configured item inventory. You can search by configured item to display the configuration; and review segment information, location, lot/serial numbers, branch/plant, and availability.

Note

In Engineering Project Management (EPM), the inventory search functionality is disabled because it does not apply to EPM. All inventory for EPM is considered project-specific and must be acquired for the project.

► To perform an inventory search for configured items

From the Daily Processing menu (G32), choose Configured Item Inventory Search.

Note

You can also access Configured Item Inventory Search from the Form exit Inventory Search in Configured Item Specifications (P32942).

1. On Configured Item Segment Search, complete the following field and click Find:
   - Configured Item
2. Review the following segment information for the configured item:
   - Description
   - Answer
   - Seg
   - Item Number

- Branch

3. Choose a segment row and take the Row exit Segment Value.
4. On Work With Segment Value Selection, review the valid values for the selected segment. If applicable, select a different value and click Select.
5. On Configured Item Segment Search, take the Form exit to Search All.
6. On Select Configured Items – Sales Order Processing, review the following fields:
   - Location
   - Lot/Serial
   - Brn/Plt
   - Available

Note

On Select Configured Items – Sales Order Processing, you can take the Form exit Location Search to search for configured items in specific branch/plants and locations. You can also choose a row and take the Row exit to Display Config to review the configuration for the item.

7. Click Select or Close to return to the previous form.
8. On Configured Item Segment Search, use the Form exit Clear All Values to set the values in the Answer field to an *.
9. Click OK or Cancel when you have completed searching inventory for the configured item.

Working with Pick Lists

After you generate sales and work orders for configured items, use the Print Pick Slips program (R42520) to print pick lists. Pick lists include the following information:

- Order quantities picked and moved to the staging or shipping area of the warehouse
- Price by line item and for the order as a whole, which is useful for COD (cash on delivery) deliveries
- Driver signature line
- Customer signature line

Working with Shipments

The Base Configurator system supports shipments of configured items. However, the system does not allow you to backorder a configured item.

Use the Shipment Confirmation program (P4205) to do the following:

- Locate existing order information.
- Add additional line items (non-inventory items only).

- Change the shipped, backorder, and cancel quantities.
- Specify a container ID, carrier code, and shipment date for each line item.
- Override the ship to address.
- Ship from other or multiple locations.
- Adjust inventory (on-hand or hard-commits).
- Confirm shipment.
- Record serial numbers for shipped items.
- Review the Freight/Additional Charges Revisions program.

Understanding Partial Shipments for Configured Items

The system allows you to ship part of an order quantity for configured items so that you can do the following:

- Ship configured items as they are completed.
- Reduce inventory handling costs.
- Receive payments for shipped quantities of the order.

Sales orders for configured items can often have large order quantities, including parts and subassemblies. Typically, as configured items (and their components) are completed, they remain in inventory until the entire order is complete. However, by shipping partial quantities of configured items as they are completed, you can effectively manage inventory and reduce handling costs, and you can periodically bill for the quantity completed instead of waiting for the entire order to be completed.

Note

The back-order feature is not available when shipping partial quantities of a configured item.

Shipping a Partial Order Quantity of a Configured Item

When a customer orders a quantity of configured items, you can ship less than the total order quantity as you manufacture the items. For example, a customer might order a large quantity of personal computers. As you complete the computers, you can make multiple shipments of the personal computers until you complete the original order.

The following table illustrates a typical sequence of events that you can follow to ship a partial quantity of a configured item:.

Sales Order Entry (P4210)	You enter a sales order for a configured item. The system creates related work orders when the order line type is W (work order).
Order Processing (R31410)	You run the Order Processing program. The system attaches parts lists and routings for all related work orders.
Work Order Inventory Issues (P31113)	You issue parts for the work orders that are associated with a configured item, beginning at the lowest level work order. If the configured item consists of nested configured items, such as the forklift (item 6000) in the pristine data, the sequence is as

follows:

- Issue and then complete the work order for the fork (item 6200).
- Issue and then complete the work order for the boom assembly (item 6100).
- Issue and then complete the work order for the forklift (item 6000).

Work Order Completions (P31114)

The inventory is created in this step. For an order of configured items that is not shipped until the entire order quantity is completed, a scenario like the one illustrated with the forklift is typical. For a partial shipment, Work Order Completions is the first opportunity to split the sales order. When partially completing a work order for a configured item, the related sales order lines are also split through work order completions. For example, if the original quantity on the sales order for a configured item is ten, but only six are complete, the related sales order line is split into two lines to show the partial quantity that is complete (ready for shipment) on one line and the rest of the quantity that is not yet complete on another line.

For each order quantity of a configured item that you complete, you must assign a lot and location. When you ship partial quantities, you can assign each partial quantity of the original order to a different lot and location.

Note

Splitting the sales order from Work Order Completions does not prevent you from further splitting the sales order from Ship Confirm.

Print Pick Slips (R42520)

You run the Print Pick Slips program for the appropriate work orders. The system prints a pick list for warehouse workers to use when they pull the order.

Shipment Confirmation (P4205)

Continuing the partial completion scenario above (six of ten items are completed), you might choose to ship all six of the completed items; or you might choose to ship only some of them. If you choose to ship all six, the sales order displays two sets of lines for the configured item. One line is for the six items that are completed. The completed items have the original line number and a new status (next status). The completed items are also hard-committed to the lot number that was assigned to them on Work Order Completions. The other line is for the four items that are not yet completed. These items remain at the same status but have a new line number. When the sales order line is split, the new line number is the highest whole line number for the sales order, incremented by 1.00. The items do not have a lot number assigned to them. If you select the first line and ship the entire quantity (six) of completed items on that line, then that line is finished. You have completed a partial shipment.

If you choose to ship only some of the six completed items, you can use Shipment Confirmation to designate, by lot or location, which items you shipped. Just as you use Work Order Completions to designate which items are complete, you can use Shipment Confirmation to designate which of the completed items have been shipped to the customer. The sales order displays three sets of lines for the configured item:

- One line for the items that are completed and shipped
- One line for items that are completed but not shipped
- One line for the items that are not complete

You can continue to split the shipment as many times as necessary to meet your business needs.

After the sales order detail line is split, the work order line in the Work Order Master File (F4801) table is updated with the new sales order line number. This action is taken so that the work order always points to the sales order with incomplete quantity.

When you ship a partial quantity of a configured item, the system maintains the relationships of the configured item's components to their parent. The components become text line types and are included in the parent configured item. These text lines do not appear on Shipment Confirmation. Miscellaneous line types, such as freight charges, also do not appear on Ship Confirm.

Shipping a Partial Order Quantity of Components

In addition to shipping a partial quantity of completed configured items, you can also ship partial quantities of components. You can ship partial quantities of only those components for which the parent does not generate a work order to complete (a stock line type).

For example, a customer might order a large number of personal computers that include a monitor, CPU with preloaded software, keyboard, mouse, and cabling. To begin the transition from the old to the new personal computers, the customer might request that you ship the CPUs and the software prior to the rest of the components so that the customer can install the software and set up the CPUs before actually assembling the personal computer.

In this scenario, you can ship all or a part of the CPUs and software (components) separately from the personal computers (parent configured items). You can override the quantity to be shipped for the CPUs and software, and disassociate them from the parent configured item. The CPU becomes a new parent, and the software remains a child of the CPU; but both are disassociated from the personal computers. You must manage, track, and ship any remaining quantities of the CPUs and software separately from the personal computers until you have shipped the entire order quantity on the original sales order.

Working with Invoices

Use the Print Invoices (R42565) program to print sales order invoices. You can print invoices in proof mode, review them, and then print the final invoices and update the files. You can also print invoices in draft mode to review the invoice before updating it. In addition, you can print an invoice from history.

Understanding Configured Items and Procurement

After you have entered a purchase order for a configured item, you use programs in the Procurement system to complete the purchase order processing cycle.

Entering Purchase Order Receipts for Configured Items

When you receive goods, you verify that the details of the receipt correspond to the information on the purchase order. You use the PO Receipts (P4312) program to receive goods and enter information such as location, quantity, and cost into the system.

When a configured item is received, a unique Configuration ID is associated with it. This ID must match the one on the Item Location File table (F41021) when the item is put into inventory. If a new location is created, the Configuration ID must be recorded on it.

Kits, Base Configurator, and Advanced Order Configurator – A Comparison

Kits, Base Configurator, and Advanced Order Configurator are tools that can be used to support the order entry, manufacture, and shipment of configured items. Each tool has a niche in the manufacturing and distribution model. Having a basic understanding of these tools helps you know which tool is most appropriate to use in a given business situation.

A kit is a collection of inventory items, called components, that are associated with a parent item. The components are stocked inventory items but are sold collectively as a parent item. Kit processing assists order entry personnel in completing an accurate customer order. Kits are used in pick-to-order environments and can even be used for simple products in an assemble-to-order environment. Computers and stereo systems are examples of items that use kit processing for order entry.

The Base Configurator is used in the pick-to-order (if relationships exist between components), assemble-to-order, and make-to-order environments. Computers and garage doors are examples of items that use the Base Configurator for order entry.

Advanced Order Configurator (AOC) extends the functionality of the Base Configurator for more complex applications. AOC has a dynamic user interface that is very intuitive and provides graphical visual configuration of a product. AOC orders flow through the ERP system to process work orders, and manufacture and ship configured end items.

The Advanced Order Configurator can be used in assemble-to-order, make-to-order, and engineer-to-order environments. AOC does not cover the entire engineer-to-order environment, as it is not currently suited for use with one-of-a-kind engineer-to-order projects such as bridges, custom homes, and so on. Examples of products that work with AOC are windows, kitchen cabinets, and office furniture systems.

The configuration comparison chart that follows highlights some of the main features and differences in functionality between the three methods.

Configuration Comparison

	Kits	Base Configurator	Advanced Order Configurator
Product Structure	Single level	Multiple configured levels	Complex assemblies of multiple configured components
End Item Identification	Single item number	Unique Configuration ID	Unique Configuration ID
Order Entry Method	Heads-down data entry	Heads-down data entry	Customer interaction
Order Entry User Interface	Static grid	Static format	Customize to user's application
Configuration Validation	No cross-reference checking performed	Boolean (If-Then-Else) Logic and/or Tables used to perform cross- reference checking	Procedural rule format; dynamic feedback as configuration choices are made (selection limited by previous choices)
Graphic Confirmation	Static media object by sales order line item	Static media object by item or option	Dynamic drawing based on selection; might include spatial arrangement
Configuration Specific Calculations	No calculations	Calculations at the end of the entry process	Dynamic calculations during the entry process
Work Orders	Parent only; no child work orders	Multiple, multilevel work orders (parent/child relationship)	Multiple, multilevel work orders (parent/child relationship)
Bill of Material/Parts List	Defined by bill of material	Defined by assembly inclusion rules	Defined by scripts, assembly inclusion rules, or both
Routing	Basic routing for the parent item	Configured routing	Configured routing

Key

Product Structure refers to the levels, like levels of a bill of material or the configuration tree structure, and if the items within the structure are configured.

End Item Identification refers to the identification of the final parent end item.

Configuration Validation refers to the cross-checking of components, assemblies, and configured item selections to ensure a valid configuration of the final parent end item.