Infor Distribution A+

Value Added Services Overview

The Value Added Services module provides high quality light manufacturing functionality, which enables you to manufacture finished products for sale to customers. It can be used for assembly/ disassembly work, in-house repair/refurbishment work, and other value-add operations. It can also be useful for cutting and slitting sheets and/or rolls into multiple end items.

Environments supported by this module include those where material is made to stock (Make-to-Stock Processing) or those where material is made special for a customer order (Make-to-Order Processing). To provide for both types of environments, you can create work orders manually through an on-line entry program in Value Added Services, on-demand for special orders through Order Entry, and from suggested work orders through Purchasing.

Additional functions available with this module enable you to keep track of work orders, the steps that have taken place for work orders, and the labor (costing) that is associated with the work orders. You can inquire into multi-level bills of material, utilize product routings, assign needed components on-the-fly, generate multiple picks, assign lot/serial designations, inquire into work order history, purge individual history files, and optionally create bills consisting of a parent item, components, and/or co-products.

To ensure a seamless work flow, the following modules are integrated with Value Added Services:

- Bill of Material
- General Ledger
- Inventory Management & Planning
- Order Entry
- Purchasing
- Radio Frequency (Picking only)
- Warehouse Management

Important

Value Added Services consists of Work Order Processing and Bill of Material functionality. This manual focuses on both types of functionality so that you can successfully manufacture finished products for sale to customers.

Module Integration

In order to use Value Added Services, the following modules are required:

- Base package of Distribution A+:
  - Accounts Receivable
  - Inventory Accounting
  - Order Entry
  - Sales Analysis
- Bill of Material
- Purchasing

You can optionally use the following modules to interface with Value Added Services:

- Accounts Payable
- General Ledger
- Inventory Management & Planning
- Radio Frequency (Picking only)
- Warehouse Management

For details about each module's interface with Value Added Services, refer to Modules Affected by Value Added Services on page 3-10.

Value Added Services Uses

The Value Added Services module can be used for assembly/disassembly work, as well as base functionality for in-house repair/refurbishment work. It also can be useful for cutting and slitting sheets and/or rolls into multiple end items.

Assembly/Disassembly Work

You can use Value Added Services to assemble one or more components into a single manufactured parent item. You also can disassemble standard finished products to return the component items back into inventory and to deplete the parent's quantity.

Co-Product Uses

A co-product is a finished item that is produced concurrently with the parent on a single work order. Value Added Services supports the manufacture of one parent along with one or more co-products on a work order. There are numerous processes that may require the use of this feature:

- Cutting/Slitting: Cutting/slitting is the process of cutting an item (like a sheet of paper, metal, or plastic) or slitting a wide roll (of paper or metal) into multiple widths. This involves consuming one or more component items (the large sheet or roll that is issued from inventory) and producing multiple finished items (the cut pieces). You can set up one of the cut pieces as the parent item and track the remaining cut pieces as co-products. The parent and co-products can either be received into stock inventory or be linked to a special order for shipment to a particular customer. The cost of the work order is distributed over the parent and the co-products on a user defined percentage basis.

Important

Database support and job-costing support is provided for "co-products." However, industry-specific requirements for co-product use is not supported by Distribution A+. For example, Value Added Services is not responsible for calculations that determine how a sheet, roll, length, etc. should be cut, the item numbers and quantities yielded, scrap quantities, and so on.

- Conversions/Change-Outs: Conversions/change-outs is the process of "tearing down" an existing parent item in order to use a common component for another parent item that is needed. This process involves assigning the "tear down parent" as a component on the work order (as it will be picked and consumed). When the parent is broken down, one or more of its components will be consumed in the new parent. However, other unused components may need to be put back into inventory under their own item numbers. These "extra" components can be entered as co-products on the work order.

- Repair/Refurbishment: Repair/refurbishment is the process of repairing or refurbishing existing parent items. This process is normally different than the original production of the item in that not all of the components will be needed and the routing steps required may be slightly or completely different. For each work order, you can alter both the bill of material and routing steps in order to "customize" the work order for this particular repair.

  With repair/refurbishment, it is not always known which components will be needed until a "tear down" operation is required. Even then, a technician may overlook needed materials. To accommodate this need, Value Added Services provides for multiple Work Order Pick Lists for each work order. If, after the first Work Order Pick List has been printed, more components are needed, you can simply enter the additional components and print another Work Order Pick List.

  Additionally, bad components that are removed from the original parent are sometimes returned to inventory under a different item to be refurbished at a later point in time. These items can be entered as co-products on the work order.

Make-To-Order and Make-To-Stock Processing

You can use Value Added Services to custom manufacture finished items for a particular customer (Make-To-Order Processing). Your customer service representative can take the order from the customer and immediately generate a work order from within Order Entry by special ordering the item from the work order vendor. In some cases, intervention from other departments (engineering, purchasing, etc.) is required before a work order can be generated. For those cases, the customer service representative can simply generate a work order request from within Order Entry. This work order request can then be reviewed by the appropriate personnel before the actual work order is created.

In addition to Make-To-Order Processing, Make-To-Stock Processing is supported by Value Added Services. You will be able to make finished items to stock.

Value Added Services Inputs

In all manufacturing processes, a variety of inputs are required in order to produce the desired output - the "finished" item. These inputs include component materials, routings, labor, value added services from vendors, special charges, and overhead. Functionality to track and cost each of these inputs is provided by Value Added Services. To ensure that the module fits well in your operating environment, this functionality can be tailored and/or is optional in areas where this is appropriate.

Work Order Types

Two types of work orders may be created in Value Added Services: Planned and Production Orders.

A planned work order is used if the item is not ready to be released to the shop floor, such as for customer quotes, future orders, or custom manufacturing. This type of work order may not have been given final approval by the customer, and may require review by engineering or purchasing departments. A planned order does not allocate component inventory.

A production order work order is used for releasing the item to the shop floor and running the job. A production order does allocate component inventory. Also, the Automatic Backorder Release function attempts to fill backorder quantities.

Work Order Elements

The following elements, if applicable, make up a work order:

- Parent

- Co-products
- Components
- Routings
- Outside Services

Parent

One parent per work order may exist; the parent item is the finished product received from a work order. You will be able to retrieve the parent's bill by effective date, revision level, or customer number, and retrieve the work order by entering a unique work order number.

Co-products

Co-products are additional items that are being manufactured concurrently with the parent. You may pre-define co-products in through Bill of Material Maintenance, or you may key co-products on-the-fly through Maintain Work Orders. You also will be able to assign cost distribution percentages for co-products.

Components

Components are copied into the work order when the work order for a parent number is created. Components may be added, changed, or deleted on any work order without affecting the original bill. Changes made to the original bill of material after a work order is created will have no affect on the work order.

Additionally, scrap factors increase pick quantity to account for anticipated scrap quantities. They represent the planned percentage of quantity scrapped in making a finished product (i.e., the additional quantity needed in order to make the correct amount of "good" units for the finished product).

Routings

The use of routings is optional. A routing is a list of operations you are required to perform in order to make an item. A routing is considered part of the bill and is used to describe the process or work-flow that is required to make a finished product or sub-assembly. In many Make-to-Order Processing environments, this process will vary based on a customer's particular need and/or requirement. You may setup a generic routing through Bill of Material Maintenance and then change it or add to it for any particular work order.

Value Added Services also has the ability to treat outside service operations as special types of routing steps. The following routing operations are supported:

- In-house Operations - those types of routings performed in-house under the direction of the distributor
- Outside Service Vendor - those types of routings performed by an outside service provider

Associated with a routing process are departments, work centers, and operations:

- Departments are used in Value Added Services to track work in progress within the routing process of a particular work order. Each routing step has a department associated with it to identify where the work in that routing is being performed.
- Work centers are associated with departments and are used for costing purposes. A work center is an individual location in the routing of an item where assembly or customization of a component is performed. There can be one or several work centers in a routing, and the work center code is used to track work in progress within the routing process.
- Operations are used to describe the particular process or customization that occurs in a routing process (e.g., paint, stamp, stain, and so on).

Example:

Routing = Sequence 10

Department = Wood (which indicates the wood department)

Work center = W1 (which is a particular work center used for painting/staining the wood)

Operation = Stain (which is the operation of staining the wood)

Routing = Sequence 20

Department = Wood (which indicates the wood department)

Work center = W1 (which is a particular work center used for painting/staining the wood)

Operation = Ship (which is the operation of shipping the wood to an outside service vendor for the purpose of having an art picture engraved onto the wood)

Routing features include:

- Up to 9998 routing steps per parent item
- User defined departments, work centers, and operation codes for each step
- Labor/time information for each step
- Ability to alter routing steps at the work order level
- Master file maintenance and definition as part of Bill of Material Maintenance
- Work center and operation code definition for each routing step
- Setup and runtime cost information
- The option to track the status and quantity completed for each routing step, based on the total quantity ordered
- The option to track actual labor activity for each routing step, including hours worked on a task, quantity completed, employee number, and so on (refer to "Report Production Activity against Work Order" on page 2-3)
- The option to pick items based on a particular routing step; this is useful when:
  - One or more components are picked and delivered to a work center for processing; later, additional components are picked for delivery to another work center for additional processing.
  - More of a component is scrapped than anticipated and additional quantities are needed to finish the run.
  - The need for a particular item is not known (repair orders) until a particular routing step (e.g., tear down) is performed. Additional components may be picked on-demand to replace parts that are not perfect.
- Support for outside service shipment and receipt operations

- An Outside Service Shipping Document is available to ship and track components at service vendors.
- Support for comments
  - Up to 998 comments can be keyed for each routing step; comments can be designated to print on Work Order Pick Lists and/or the Work Order Traveler, and will display in inquiries where routing detail can be viewed

Outside Services

Special routing steps exist for outside services: outside service shipments and receipts.

- Outside Service Shipments
  - Generate PO for value added services
  - Track up to 99 shipments to a single vendor
  - Track shipment of components, parent, or both
- Outside Service Receipts
  - Track receipt of items back from vendor
  - Track costs associated with value add services

Important

This relates to service transactions, not inventory transactions. Since the inventory quantities are not relieved from your perpetual inventory, inventory costs still remain in your General Ledger.

Work Order Creation

You may create work orders manually through an on-line entry program in Value Added Services, on demand for special orders through Order Entry, or from suggested work orders through Purchasing.

Manual Work Order Creation

Work orders and all component and routing detail information can be created manually and maintained through the Value Added Services module. You can enter a work order as either a planned order or a production order. A planned order is useful in situations such as customer quotes, future orders, and custom manufacturing (where the order does not allocate component inventory). A planned order can be entered into Value Added Services and then released and allocated close to production time to allow for the allocation of component inventory. Whereas, a production order automatically allocates component inventory when a work order is created.

Special Order Work Order Creation

You can also create work orders on-demand via Order Entry Special Order Processing. Value Added Services utilizes the special order code in order to create special order requests. The requests can then be reviewed, modified, if necessary, and eventually converted into a work order.

Alternatively, the work order can be generated immediately and modified from within Enter, Change & Ship Orders (MENU OEMAIN). This enables a customer service representative to customize the manufacturing of a product while the customer is on the phone.

If you are working in a Make-to-Order Processing environment and choose to initiate a work order via special order requests (where material is made custom for an individual customer order), you will be able to perform the following functions from a sales order line item to accommodate this type of processing:

- Create a work order request (this is performed after a call is received by a customer who requests a custom item, thereby determining the environment to be a Make-to-Order Processing environment, and once the custom item is assembled)
  - Reviewed with other requests later

-OR-

- Create an actual work order
  - Customize work order from within Order Entry
  - Create with "planned" or "release ready" status

Suggested Work Order Creation

Suggested work orders are created for items that fall below their minimum stocking level in a warehouse or all warehouses. Suggested work order quantities are generated for the quantity that should be ordered to replenish that item in inventory.

Suggested work orders can be created manually through the Purchasing module. You can enter a work order created from a suggested work order as either a planned order or a production order. Suggested work orders can be printed and automatically converted to a work order for any of the items that fall below their minimum stocking level or fall below their specified minimum range percentage.

Work Order Tracking

With Value Added Services, you will be able to track work orders, the steps that have taken place for work orders, and the costing that is associated with work orders. Also, through the use of codes and locations, you will be able to track and manage all of your orders.

Management tools include the following:

- Department code
- Work center code

- Plant code
- Operation code
- Due date revision code
- Work order hold code
- Overhead code
- Revision level
- Work-in-process location
- Work order status
- Multi-level bills
- Effective dates for bills of material
- Labor cost

Bill of Material Support

Value Added Services supports Bill of Material by providing multi-level bills, date sensitive bills, the copy bill feature, sub-assemblies, lot/serial tracked items, and scrap factors.

Note:	Value Added Services uses manufactured items only (that is, only those items that must be built first before they can be received into inventory). Kits and assortments are not affected by this module.

Multi-Level Bills

Multi-level bills represent those bills of material that can be broken down through sub-levels to show specifications of all the sub-assembly components making up that product. The Bill of Material Inquiry enables you to display the specifications and levels of all components that make up a parent item. Level depths can be assigned to show only the levels you want to see. Also, lower levels of a bill can be viewed, as well as detail, availability, and routing information.

A bill is comprised of components and routings. Components are those materials required to make a parent item. Routings, as described later in this section, are a list of operations performed in order to make an item.

Date Sensitive Bills

Distributors who require continual modification and rework of items can, through the use of effective dates or revision levels on a bill of material, assign date sensitive bills to ensure the retrieval of the most up-to-date bill for an item. Value Added Services also has built in mechanisms to retrieve the most up-to-date version of the item you requested.

Copy Bill Feature

With Value Added Services, you have the ability to copy an existing bill when adding a new bill of material for a work order. This can be used as a keying aid. Both routing and components are copied in this procedure. You can also select to have the comments and/or outside service information from the existing bill copied into the new bill of material you are adding.

Lot Items & Serial Items

Value Added Services allows the use of lot items or serial items at both the work order level and at the parent level. The option of associating lots or serials of components with the lot/serial number of a specific parent also is provided.

Scrap Factor

A scrap factor facility for each component is used by Value Added Services in order to ensure enough quantity is picked for each parent item. Because a percentage of components may be scrapped in order to make a finished product, this function of Value Added Services provides the ability to factor these scrapped units into the work order. This is used as a percentage field and reflects the additional quantity that should be picked in order to make enough of the finished product. Additionally, Value Added Services enables you to designate which particular item has been scrapped with the use of lot/serial item identification through lot/serial assignment in Receipt Entry.

Modules Affected by Value Added Services

Value Added Services interfaces with the following modules:

- Bill of Material
- General Ledger
- Inventory Management & Planning
- Order Entry
- Purchasing
- Radio Frequency (Picking only)
- Warehouse Management

Bill of Material

Use Bill of Material to create your bill. When a work order is created using that bill, the bill's parent, components, co-products and routings are copied into the work order for you. If you do not have standard bills that you normally use, then set up generic ones and alter them at the time of work order creation. Additionally, since Distribution A+ supports multi-level bill of material processing, use the multi-level BOM Inquiry to display all levels of a bill and their relationships.

Important

All bills are maintained in a single level mode. Any single work order represents only a single level bill.

Bill of Material (BOM) provides additional functionality that accommodates Value Added Services. This functionality is active in BOM only if you have the Value Added Services module installed.

In addition to the features provided for BOM Maintenance and BOM Listing, the components of a particular product, as with routings, may vary according to the needs of individual customers, engineering changes, and component obsolescence. The bill of material for a finished product or sub-assembly is setup at the master file level and copied into the work order at the time of creation. The component usage in the work order can then be modified.

BOM also provides support for the use of co-products. Co-products are additional items besides the parent that are produced (received into inventory) as part of the manufacturing process. Typical uses of co-products are cutting sheets of material into multiple pieces or slitting or cutting rolls or lengths of material into multiple rolls or lengths. Another common use is the customization of existing finished goods. This involves removing one or more components from the parent item, putting them back into inventory (a receipt of a component), and possibly replacing them with one or more different components.

BOM Maintenance

Bill of Material Maintenance provides the following features for manufactured items only:

- Multi-level support/inquiry
- Multiple co-products for a bill
- Allow for the issue of a component to be assigned to a routing step
- Co-product cost percentage assignment and override cost
- Co-product entry (negative quantity per)
- Routing definitions with each bill
- Effective date/revision level for each parent
- Scrap factors for each component
- Ability to alter at the work order level
- Sub-assembly support (manufactured items as components of other manufactured items)
- Up to 5 decimals in quantity per parent for manufactured items only
- Maintenance of routings via a function key
- Copy bill feature
- Allow the assignment of lot/serial components to a specific lot/serial parent

General Ledger

The Value Added Services interface with the General Ledger module causes general ledger transactions to be initiated when parent items are received into inventory.

Inventory Management & Planning

An item's demand, used in IM&P forecasting analysis, is updated by BOM. IM&P "explodes" a BOM parent item before using the data in its forecasts. This allows for accountability to the component usage level. Depending upon the type of bill of material, the demand for component usage may be affected differently.

- For kit items, demand will be updated for the list of components of the kit, including any alterations made to the list of component items during order entry.
- For assortments, demand will be updated for the items actually selected from the assortment list during order entry.
- For manufactured items, the **Upd Demand for Mfg Items** field in System Options Maintenance (MENU XAFILE) will determine which bill of material list of components will have demand updated:
  - the generic and customer-specific bills of material defined in Bill of Material Maintenance (MENU OBFILE)
  - the bills of material processed through Receipt Post (MENU WOMAIN)

  Refer to System Options Maintenance (MENU XAFILE) in the Cross Applications User Guide for further details.

Regardless of which method is chosen for the **Upd Demand for Mfg Items** field in System Options Maintenance (MENU XAFILE), the list of components for which demand will be updated will include all levels on multi-level bills of material. The only component of a manufactured item that will not have its demand updated is a manufactured item that is listed as a component of itself. The demand will only be updated for the highest level in which the manufactured item exists. For the remaining times that the manufactured item is listed as a component of itself, it will be considered a purchased item.

Order Entry

Value Added Services interfaces with the Order Entry (O/E) module to enable you to create a work order special order request (similar to the existing creation of a PO special order through O/E). This is useful for customers who request a custom (special) order. You also will be able to customize the work order from within O/E or select a specific **Revision Level** and **Effective Date** for the customers specific needs.

Purchasing

Value Added Services interfaces with the Purchasing module to enable you to create an Outside Service Purchase Order document. This document may be used to track items sent to and received from an outside service vendor. It contains items and quantities that must be shipped to the vendor, as well as special instructions for the vendor. This document also contains the vendor ship-to address and a return shipment address. The return shipment address can either be the warehouse, another vendor, or your customer.

Important

This relates to service transactions, not inventory transactions. Since the inventory quantities are not relieved from your perpetual inventory, inventory costs still remain in your General Ledger.

Suggested work orders can be created manually through the Purchasing module.

Radio Frequency

Radio Frequency supports the picking of work orders with an RF device allowing individual components or entire work orders to be picked and automatically pick confirmed with Radio Frequency. Once all reservations of a work order line have been picked, the status of the work order line is updated to "Pick Confirmed."

If a work order line cannot be picked completely because one or more components were material short, the line will be split. Splitting the line will update the quantity committed with the quantity picked. The system will create a new line for the component where the quantity ordered is the quantity that was unable to be picked. This new line will have a status of "Material Short."

Once all lines of the work order have been RF picked, the system will pick confirm the entire work order and update the Pick List Confirmation File (WOPLR) with the date and time the work order was confirmed. The user ID of the handler who picked the last line on the work order is designated as the user who pick confirmed the work order, even if other handlers previously picked other lines.

Pick confirmed work orders put inventory in the work order Work-In-Process (WIP) location. If there is not WIP location or it is not being used, inventory is allocated in the original location.

Warehouse Management

Value Added Services interfaces with the Warehouse Management module to provide you with the following additional features:

- A Work Order Pick List, which prints pick locations. A Summary Pick List is also available
- The ability to receive in the parent item and perform auto or manual put-away
- Logic similar to Warehouse Management's "stock-to-dock" to reflect picking components and bringing them to the work station (when pick confirmation is performed, items will be removed from the stock location and put in the "Work-In-Process" location).

Value Added Services Inquiries

Value Added Services is comprised of the multi-level BOM Inquiry and the Work Order Inquiry.

The BOM Inquiry allows you to inquire into a bill and display all levels of sub-assemblies needed to build a parent item. You also may display all parents that are built using a specified component, and inquire into the routing of each parent.

The Work Order Inquiry allows you to access information for work orders, including both open work orders and those in history. You also may allocate or release work orders through this inquiry.