



QAD Enterprise Applications
Standard Edition

User Guide

Project Realization Management

Overview of PRM
Setting Up PRM
Creating and Managing Projects
Setting Up and Creating PAOs
Realizing Projects
Invoicing Projects
Closing and Evaluating Projects

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Overview of PRM

The Project Realization Management (PRM) module provides features that support creating projects, tracking their activity, and creating project invoices. This chapter provides an overview of PRM.

Overview 2

Describes features of PRM.

Understanding Projects 3

Describes projects, subprojects, project lines and project orders.

PRM Programs 8

Lists the programs included in the PRM module.

Overview

Increasingly competitive markets are encouraging businesses to focus on providing complete solutions rather than simply selling products. A solution generally combines products and services in one package and is often delivered in a series of predefined increments over time. Typically, a solution is tailored to address specific customer requirements.

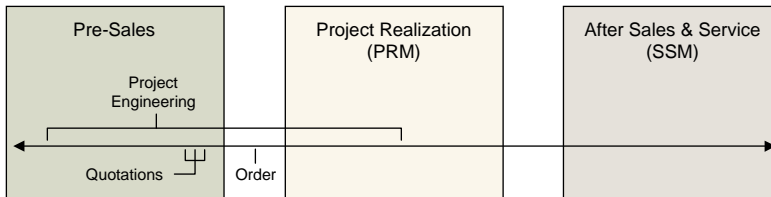
Solution providers often manufacture products that require complex field installations. They need the ability to plan and record the items and services required to deliver a solution, or project.

The Project Realization Management (PRM) module provides a set of functions that enable business organizations to manage and complete complex tasks that require items, labor, and expenses. A *project* is defined as a series of such tasks delivered to a customer in one or more steps over time.

Important PRM is not intended to perform the kinds of project management functions that are completed with desktop packages such as Microsoft Project.

Figure 1.1 illustrates where PRM fits into the standard sales cycle. After-sales service functions are provided by the Service/Support Management (SSM) module.

Fig. 1.1
Project Sales Cycle

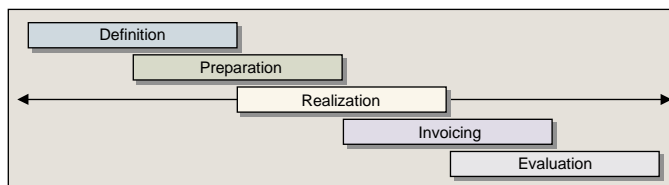


Major features of PRM include:

- Definition of a multi-level project structure
- Creation of budgets based on planned costs for a project
- Scheduling of invoices over the life cycle of the project
- Creation of work units, which combine related project lines for actual execution
- Management of project stock through material orders and project purchase orders
- Recording of items, labor, and expenses used for the project and comparison of actual and planned costs

The functions in PRM support all phases of the project life cycle from definition to preparation through realization, invoicing, and evaluation.

Fig. 1.2
Project Phases



Understanding Projects

Projects are designed during an engineering or planning phase. This phase can occur outside of the system using project planning software. Once the design is firm, the engineering structure of the project can be recorded in PRM.

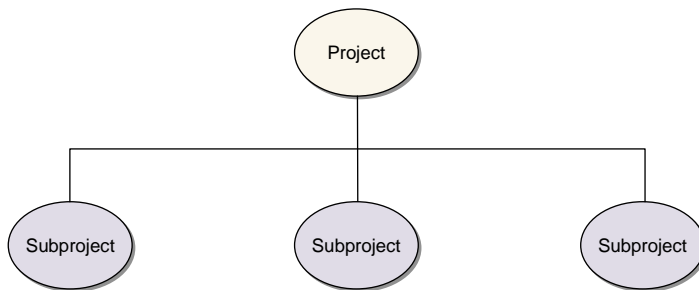
A project is designed hierarchically, starting with information that pertains to the entire project. This data includes the sold-to, ship-to, and bill-to addresses, currency, and other general information.

Subprojects

Each project can have multiple subprojects, identifying specific activities that need to be completed. Subprojects often represent engineering units. For example, a project for installing video equipment in a hospital might include a subproject for each room requiring modifications.

Subprojects support separate planning, invoicing, budgeting, and reporting for these distinct areas. Figure 1.3 illustrates the relationship between a project and its subprojects.

Fig. 1.3
Project Hierarchy

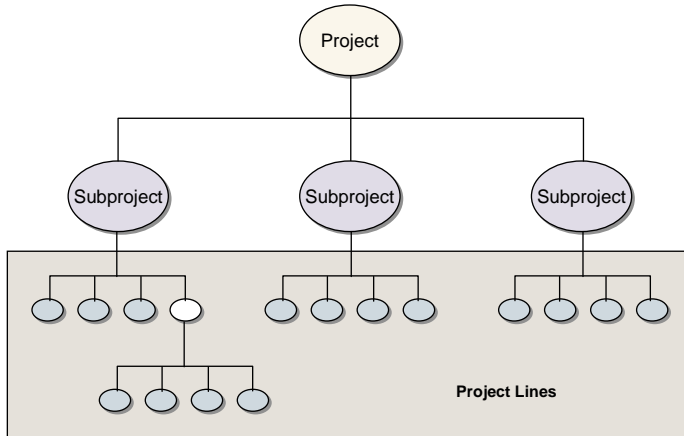


Project Lines

Each subproject can have many lines. The lines represent specific detailed requirements for labor, expenses, or items. Lines can have additional lines nested beneath them. This is especially useful for tracking subassemblies. All of the components of the subassembly can be loaded as detail lines beneath the subassembly lines and tracked as project costs.

In Figure 1.4, project lines have been added beneath the basic project structure. The white oval represents a subassembly with components beneath it.

Fig. 1.4
Project with Lines



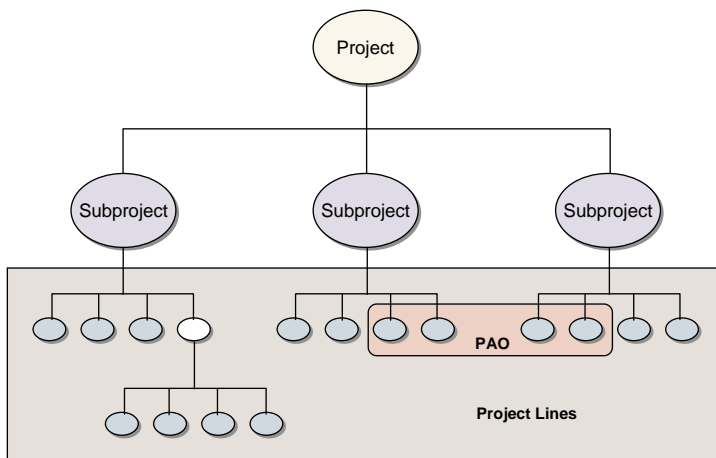
Project Activity Orders

Since subprojects are typically designed from an engineering point of view, they do not always represent the most efficient way to plan and complete work. For example, when installing similar video systems in multiple rooms, completing one room before moving on to the next may not be the most effective way to plan activity. It is often preferable to complete a set of related activities in multiple rooms at once.

Project activity orders (PAOs) are used to group related project lines into units of work. Lines can be selected from multiple subprojects and associated with the same PAO. In addition, a single project line can be split across multiple PAOs.

Figure 1.5 illustrates how a PAO groups lines from two subprojects.

Fig. 1.5
Project Hierarchy with PAO



Project Orders

Managing inventory for a project is an important aspect of project planning. In PRM, items used by projects are not issued directly from inventory. They are, instead, received or transferred into a special location associated with the project. This is done using the following types of orders:

Material Orders. These are similar to internal sales orders. However, stock is not issued from inventory. It is, instead, transferred from a supply location to a location designated for project use.

Project Purchase Orders. These purchase orders are used to obtain project items from external suppliers. Typically, you receive project purchase orders directly into a project location instead of into general stock.

Material Orders

Material orders create demand in the system. Once demand exists, Material Requirements Planning (MRP) and Distribution Requirements Planning (DRP) features can be used to ensure that the necessary items are available when needed, either through purchase or manufacture.

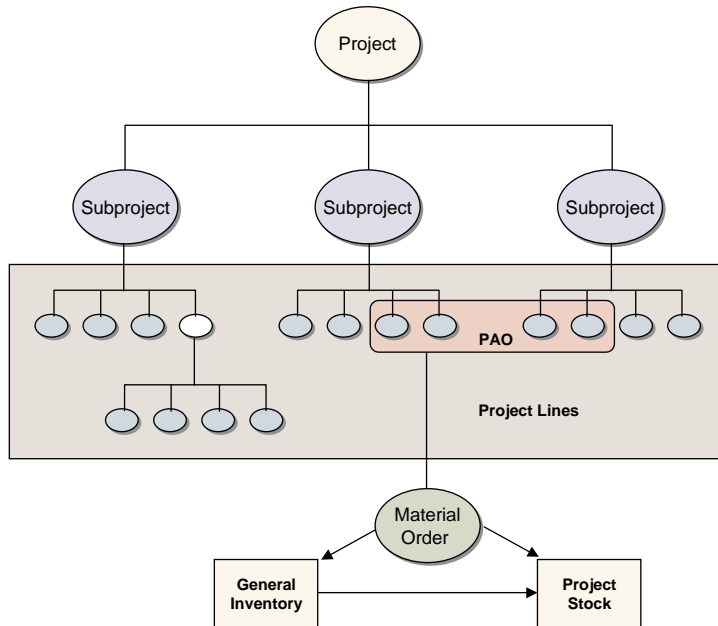
For details on EMT, see *User Guide: Distribution*.

Enterprise Material Transfer (EMT) features can also be used with material orders to generate purchase orders automatically for transmitting to internal suppliers or suppliers with which you regularly do business.

Material orders used to obtain project items are always associated with a PAO. Figure 1.6 illustrates how material orders move stock and make it available for the project.

Note The Service/Support Management (SSM) module also uses material orders to replenish service stock. The Material Order Menu appears on both on the SSM menu as 11.11 and the PRM menu as 10.7.

Fig. 1.6
Project with Material Order

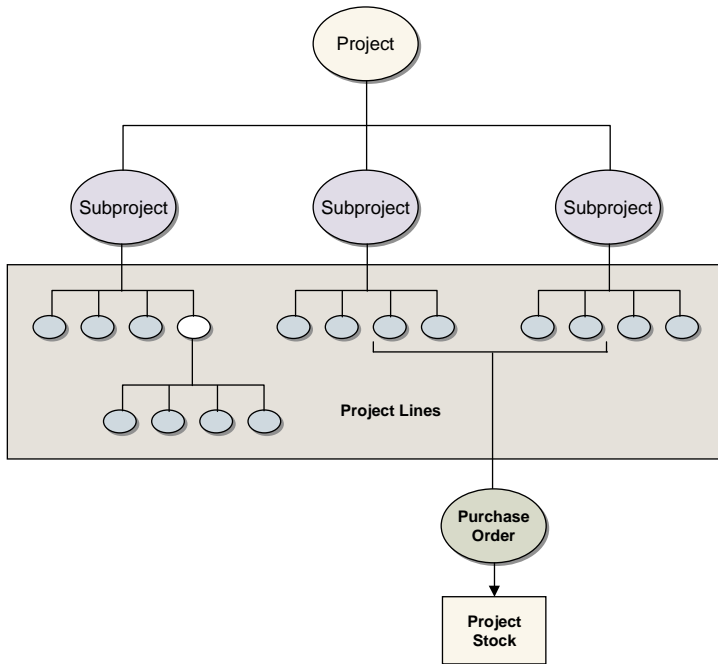


Project Purchase Orders

When you need to order project items from external suppliers rather than internal sites or locations, use a project purchase order. You can also use project purchase orders for non-inventory items or services, such as consulting or subcontracting, that are obtained from organizations outside your company.

Unlike material orders, project purchase orders are directly associated with project lines rather than PAO lines. Figure 1.7 illustrates how purchase orders are associated with a project and used to receive stock for project use.

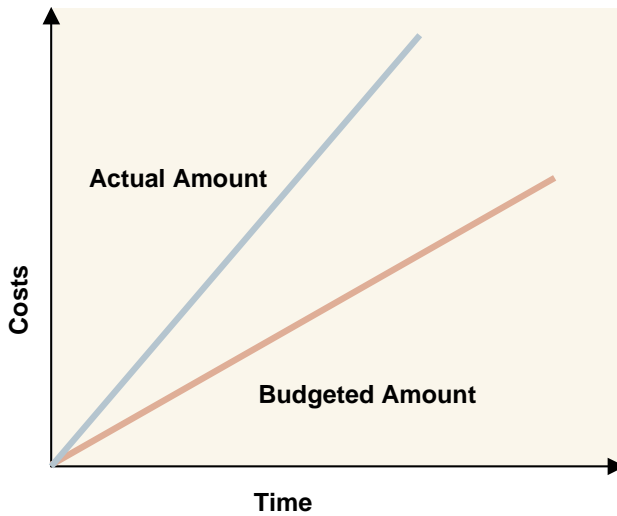
Fig. 1.7
Project with Purchase Order



Project Budgets

Budgets are another important element of a project. Once the costs of a project have been determined, a budget can be created to track any variances. Creating the budget can optionally freeze the project detail so that it cannot be changed. As work is done for the project, the system tracks the cost of labor, expenses, and items used. These costs consume the budgeted amount.

Fig. 1.8
Project Budgets

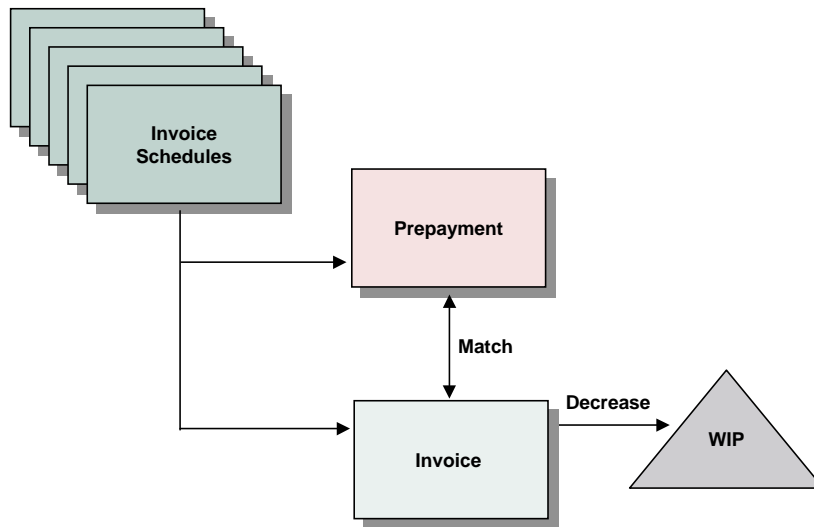


Invoicing

Since projects can continue over a long period of time, they have special invoicing requirements. PRM manages long-term invoicing through schedules. Schedules indicate when invoices should be generated and for how much. The invoice amount can be based on a percentage or a fixed amount that you specify. The amount can also be calculated using the prices from detail lines.

Figure 1.9 illustrates the elements of project invoicing.

Fig. 1.9
Invoice Schedules



Prepayments are supported and generate debit (DR) memos, which are then matched with project invoices. Project invoicing programs let you generate project invoices and determine the level of detail displayed on them. Posting a project invoice reduces Work in Process (WIP) and increases Cost of Goods Sold (COGS) and Expense Due.

Note Manage DR memos and invoices using standard functions in the Accounts Receivable and Sales Orders/Invoices modules.

All invoicing is based on amounts planned for the project. The system also tracks the actual costs of items, labor, and expenses used over the life cycle of the project. When a project is complete, or at various points in its life cycle, you can reconcile WIP and COGS amounts with an activity close program.

PRM Programs

Table 1.1 lists the programs included in the PRM module.

Note Some programs on the Project Realization menu, such as the material order, engineer, and end-user functions, are also available in the Service/Support Management (SSM) module. These programs are listed in *italic* typeface.

See *User Guides: Service/Support Management* for information about SSM.

Table 1.1
Project Realization Menu (10)

Menu Number	Description	Program Name
10	Project Realization...	
10.1	Project Definition Menu...	
10.1.1	Project Maintenance	pjpmnt.p
10.1.2	Project Inquiry	pjpjiq.p
10.1.3	Project Detail Inquiry	pjpjiq01.p
10.1.4	Project Print	pjpjrp14.p
10.3	Project Budget Menu...	
10.3.1	Project Budget Rollup	pjbgrol.p
10.3.3	Project Budget Maintenance	pjbgmt.p
10.3.13	Project Budget Report	pjbgrrp.p
10.5	Project Activity Order Menu...	
10.5.1	PAO Maintenance	pjclmt.p
10.5.2	PAO Inquiry	pjcliq02.p
10.5.4	PAO Planned Detail Inquiry	pjcliq03.p
10.5.5	PAO Print	pjclrp01.p
10.5.13	Project Activity Recording	pjcarmt.p
10.5.14	Project Labor Recording	pjlbrmt.p
10.5.16	PAO Close	pjclcls.p
10.5.21	PAO Setup Menu...	
10.5.21.1	PAO Status Code Maintenance	pjcasmt.p
10.5.21.2	PAO Status Code Browse	pjbr015.p
10.5.21.4	PAO Default Maintenance	pjcdfmt.p
10.5.21.5	PAO Default Browse	pjbr029.p
10.5.24	PAO Control	pjclpm.p
10.7	<i>Material Order Menu...</i>	
10.7.1	<i>Material Order Maintenance</i>	<i>fseomt.p</i>
10.7.2	<i>Material Order Confirmation</i>	<i>fseoco.p</i>
10.7.4	<i>MO Manual Allocations</i>	<i>fseoal.p</i>
10.7.5	<i>MO Automatic Allocations</i>	<i>fseoal1.p</i>
10.7.6	<i>Material Order Shipments</i>	<i>fseops.p</i>
10.7.8	<i>MO Direct/Pending Returns</i>	<i>fseore.p</i>
10.7.9	<i>MO Pending Return Report</i>	<i>fspenrp.p</i>
10.7.11	<i>Open Material Order Report</i>	<i>fseorp1.p</i>
10.7.12	<i>Material Order Backlog Report</i>	<i>fseodl.p</i>
10.7.13	<i>Material Order Shipment Report</i>	<i>fseorp2.p</i>
10.7.24	<i>Material Order Control</i>	<i>fseopm.p</i>
10.9	Project Invoice Schedule Menu...	
10.9.1	Invoice Schedule Maintenance	pjismt.p
10.9.2	Invoice Schedule Inquiry	pjisiq.p

Table 1.1 — Project Realization Menu (10) — (Page 1 of 3)

Menu Number	Description	Program Name
10.9.4	Project Invoice Layout	pjilmt.p
10.9.13	Invoice Generation	pjivgen.p
10.9.24	Invoice Schedule Control	pjivpm.p
10.11	Project Reports Menu...	
10.11.1	Project Report	pjpjrp01.p
10.11.7	Project Transactions Inquiry	pjshiq.p
10.11.8	Project Transactions Report	pjshrp.p
10.11.14	Project-PAO WIP Report	pjpjrp10.p
10.11.15	PAO WIP Status Report	pjpjrp11.p
10.11.19	Project Invoice Detail Report	pjpjrp12.p
10.13	<i>End User Address Menu...</i>	
10.13.1	<i>End User Address Maintenance</i>	adeumt.p
10.13.2	<i>End User Address Browse</i>	adbr007.p
10.13.3	<i>End User Address Report</i>	adeurp.p
10.13.24	<i>End User Control</i>	fseucpm.p
10.15	<i>Engineer Menu...</i>	
10.15.1	<i>Engineer Maintenance</i>	fsegmt.p
10.15.4	<i>Engineer Status Maintenance</i>	fsessmt.p
10.15.5	<i>Engineer Skills Maintenance</i>	fsegsmt.p
10.17	<i>Area Menu...</i>	
10.17.1	<i>Area Maintenance</i>	fsregmt.p
10.17.2	<i>Area Browse</i>	gpbr346.p
10.17.5	<i>Area Structure Maintenance</i>	fssvar.p
10.17.6	<i>Area Structure Inquiry</i>	fssvariq.p
10.19	Project Pricing Menu...	
10.19.1	Project Pricing Maintenance	pjfpamt.p
10.19.2	Project Pricing Inquiry	pjfpaiq.p
10.19.3	Project Pricing Report	pjfpacr.p
10.21	Project Realization Setup Menu...	
10.21.1	<i>Work Code Maintenance</i>	fsfwkmt.p
10.21.2	<i>Work Code Inquiry</i>	fsfwkiq.p
10.21.3	<i>Work Code Report</i>	fsfwkrp.p
10.21.5	<i>Invoice Sort Maintenance</i>	fsfismt.p
10.21.6	<i>Invoice Sort Inquiry</i>	fsfisiq.p
10.21.7	<i>Invoice Sort Report</i>	fsfisrp.p
10.21.9	<i>Service Category Maintenance</i>	fsfscmt.p
10.21.10	<i>Service Category Inquiry</i>	fsfsciq.p
10.21.11	<i>Service Category Report</i>	fsfscrp.p
10.21.13	Default PRM Site Maintenance	pjrdfmt.p
10.21.14	Default PRM Site Browse	pjbr030.p

Table 1.1 — Project Realization Menu (10) — (Page 2 of 3)

Menu Number	Description	Program Name
10.21.15	Default PRM Site Report	pjrdrfp.p
10.21.17	<i>Return Status Maintenance</i>	<i>fsfpstmt.p</i>
10.21.18	<i>Return Status Inquiry</i>	<i>fsfpstiq.p</i>
10.21.19	<i>Return Status Report</i>	<i>fsfpstrp.p</i>
10.21.21	Project Type Maintenance	pjsvmt.p
10.21.22	Project Type Browse	pjbr031.p
10.21.23	Project Type Report	pjsvrp.p
10.23	Project Close Menu...	
10.23.1	Project Line Close Report	pjclrp.p
10.23.2	Project Activity Close	pjpcjl.p
10.23.3	Project Accounting Close	pjclswip.p
10.23.23	Closed Project Delete/Archive	pjppup.p
10.24	Project Realization Control	pjpjpm.p

Table 1.1 — *Project Realization Menu (10)* — (Page 3 of 3)

Setting Up PRM

Before you can use PRM, you must set up different kinds of data:

- Base data standard to the system as a whole
- Base data specific to the PRM module
- Control program settings that determine defaults and processing options within PRM

Setting Up Base Data 14

Explains what base data is used by PRM and includes details on item/site data, address/tax data, financial data, product structure and formula data, service/support data, and manager functions.

Setting Up PRM Data 25

Describes the PRM setup workflow with required and optional steps with details on setting up invoice sorts, service categories, work codes, return statuses, areas, engineers, end users, price and cost lists, and project types.

Setting Up PRM Control 39

Lists the control programs which define settings for PRM, and gives details on Project Realization Control (10.24).

Setting Up Base Data

PRM uses much of the same base data used by other modules. This data includes item numbers, language codes, printers, batch queues, addresses, credit terms, currency codes, and exchange rates.

This section only highlights base data for which special setup requirements apply when using PRM.

Item/Site Data

PRM uses sites, locations, inventory statuses, product lines, and items that you set up in the Items/Sites module.

For more general information on setting up these records, see *User Guide: Master Data*.

Item Data

Define the inventory items used to fulfill project requirements in Item Master Maintenance (1.4.1). Every item has a default site defined in the item master. If this is not the project site, you should set up costs for the project site with Item-Site Cost Maintenance (1.4.18). This step is essential to properly track project costs.

Sometimes, you may plan projects using units of measure other than those specified in the item master. In this case, set up unit of measure (UM) conversion factors between the item master and project units of measure in Unit of Measure Maintenance (1.13).

Sites

To make it easier to control and track financial and inventory data for PRM projects, you should define a separate site or sites for project planning and execution. You can indicate the site that typically initiates projects as the project site in Project Realization Control (10.24). PRM can be used in a multiple-site domain.

See “Project Site” on page 41.

Product Lines

Every subproject on a PRM project has a default product line. Establish default product lines for PRM subprojects using project type codes defined in Project Type Maintenance (10.21.21).

See “Setting Up Project Types” on page 38.

The subproject product line defaults to all of the labor and expense lines beneath that subproject. Item lines can reference either the default product line for the subproject or the product line from the item master, depending on the setting of Use Item Product Line in Project Realization Control (10.24).

See “Use Item Product Line” on page 41.

The product lines associated with item, labor, and expense lines on a project determine the following:

- The cost accounts updated when project resources are consumed. These include the Service Labor and Service Expense accounts credited for labor and expense issues as well as the Work in Process (WIP) accounts debited for all types of resource issues.
- The cost accounts updated when project invoices are posted. These include Cost of Goods Sold (COGS) accounts for items and labor and Expense Due for expenses.
- The accounts used to track project revenue. These include Sales and Sales Discount accounts, also updated at invoice post.

Note Regardless of how Use Item Product Line is set, PRM always uses the item master product line, not the product line from the project, to determine which Inventory accounts to update for item issues and returns.

Since PRM uses product lines to find GL accounts to update for project-related transactions, you can use project types to establish default product lines to book activity for different types of projects. For example, if you need to book the sale of internal projects differently than external projects, create separate product lines and associate them with different project types.

Set up as many PRM-specific product lines as needed in Product Line Maintenance (1.2.1).

If necessary, you can use Sales Account Maintenance (1.2.17) to define COGS, Sales, and Sales Discount accounts that are specific to particular product lines, sites, sales channels, and customer types. The system uses these accounts in preference to the generic accounts defined in Product Line Maintenance.

See “Revenue Transactions” on page 175.

Project Locations

Each project has at least one designated location. Generally, project inventory is shipped to a project location on fulfillment orders and stored there prior to issue. Since projects can span long periods of time, designated locations are useful for tracking project inventory separately from other inventory in the system before it is actually consumed.

You can predefine project locations in Location Maintenance (1.1.18) or set them up while creating projects in Project Maintenance (10.1.1).

You can also create new project locations automatically while performing project activities in any of the following:

- PAO Maintenance (10.5.1)
- Purchase Order Receipts (5.13.1), when receiving an item line from a project purchase order
- Material Order Shipments (10.7.6), when shipping a project material order (MO)
- MO Direct/Pending Returns (10.7.8), when returning items ordered on a project MO

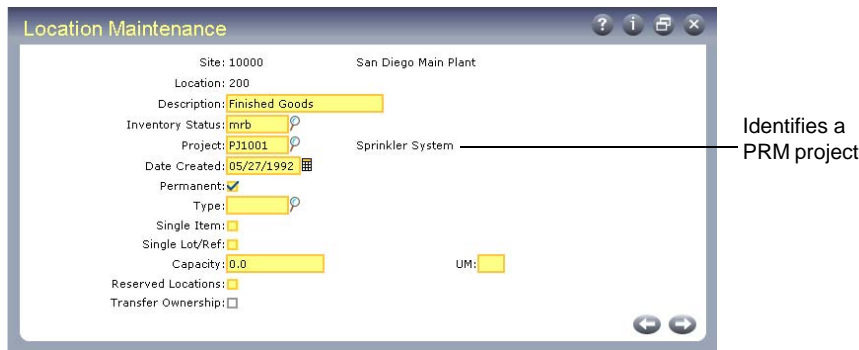
Note Setting Automatic Locations to No in Site Maintenance does not prevent users from defining new project locations interactively in Project Maintenance or PAO Maintenance.

To predefine a project location in Location Maintenance, you must first set up a corresponding GL project in Project Code Maintenance (25.3.11).

See “GL Projects” on page 20.

Note When you create a PRM project in Project Maintenance, the system generates a corresponding GL project automatically if it does not already exist.

Fig. 2.1
Location Maintenance (1.1.18)



In the Project field of Location Maintenance, specify the project that will consume items from that location. A project can have more than one location; however, each location can be associated with only one project.

Tracking Project Inventory

PRM tracks project-related quantities and costs, including the quantities and costs of items in project locations, using a set of fields referred to collectively as the *project sub-ledger*. Two sub-ledger fields, WIP Quantity and WIP Cost, are used to track the quantity and cost of items that are considered in use by the project.

See “WIP Quantity, Cost” on page 93.

Note The WIP values in the project sub-ledger are not related to the GL WIP accounts.

If you plan to keep inventory in project locations for extended periods before issuing it to the project, you may want to set the Project Inventory in Sub-Ledger WIP field to Yes in Project Realization Control (10.24). In this case, PRM tracks inventory in these locations similarly to inventory that has already been consumed by the project.

When Project Inventory in Sub-Ledger WIP is Yes, item costs consume project budgets and update the WIP amounts in the project sub-ledger when items are received into a designated project location using one of the following transactions:

- Material order shipments or returns
- Project purchase order receipts
- Project subassembly receipts

Also see “Project Inventory in Sub-Ledger WIP” on page 43.

Important Regardless of how Project Inventory in Sub-Ledger WIP is set, do not use transactions other than MOs, project purchase orders, or item receipts in Project Activity Recording (PAR) to transfer items into or out of project locations. Other transactions do not update the quantities and costs that PRM tracks in the project sub-ledger.

Return Sites and Locations

You can return items as part of project activity. When you return items, you assign them a status that indicates whether they are reusable (good) or scrap. Good items are typically returned to the project site and location or to a general stock location. Scrap items are typically returned to a designated scrap location.

See “Returns” on page 126.

You can set up PRM-specific return and scrap locations if needed and designate them as defaults in Default PRM Site Maintenance (10.21.13).

See “Return and Scrap Locations” on page 98.

Inventory Statuses

Inventory statuses, defined in Inventory Status Code Maintenance (1.1.1), can be used to define how inventory affects MRP and what kinds of transactions can take place in a location. The project location is typically given a status that:

- Is non-nettable. This prevents planning functions such as Material Requirements Planning (MRP) from considering items in project locations as a source of supply.
- Does not allow overissues. Order enough items in advance using MOs or project purchase orders so that a sufficient quantity is on hand in the project location when you record activity against the project.

Although you can assign project locations an inventory status that is unavailable, this is not recommended since it will prevent items from being allocated to project activity orders (PAOs).

You may also want to define a restricted inventory status for locations used to receive project returns. For example, returned items are generally inspected before they are made available for sales orders or work orders. To accommodate this, return locations should have an inventory status that is unavailable.

If most of your returns can be put into usable stock, use a nettable inventory status with each return location to make the items visible to MRP once they are received. Scrap locations are generally defined as non-nettable.

Restricting Transactions

The project location’s inventory status code must allow the following transactions:

- Receipts (RCT-TR) for material order shipments
- Issues (ISS-TR) for material order returns
- Purchase order receipts (RCT-PO) for receipts from project purchase orders
- Unplanned receipts (RCT-UNP) for customer returns and subassembly receipts
- Work order issues (ISS-WO) for issuing items to the project

Consider restricting other types of receipt transactions to prevent users from inadvertently receiving into project locations using transactions other than MOs or purchase orders.

For information on inventory transactions, see *User Guide: Master Data*.

Example Restricting transaction RCT-DO prevents users from receiving items from distribution orders directly into a project location.

Locations used to transfer required items and subassemblies must allow MO issues (ADD-SEO) and inventory transfers (ISS-TR) for MO shipments.

Locations used for item returns must allow inventory transfers (RCT-TR) for MO returns and unplanned receipts (RCT-UNP) for returns from the customer site.

Address/Tax Data

PRM uses multiple kinds of address records defined in the Addresses/Taxes module.

Customers

You can reference up to four separate address codes on each project. Sold-to and bill-to customers are defined in Customer Maintenance (2.1.1). Project ship-to customers can be defined in either Customer Ship-to Maintenance (2.1.13) or Customer Maintenance (2.1.1).

End users are another type of customer that is defined in PRM rather than using features on the Addresses/Taxes menu.

See “Setting Up End Users” on page 32.

Suppliers

Use Supplier Maintenance (2.3.1) to define external suppliers from which you obtain items on project purchase orders.

In environments that use Enterprise Material Transfer (EMT), you should also define records for the suppliers that fulfill the project demand represented by material orders. When the appropriate EMT setup has been performed, project material orders automatically generate EMT purchase orders at supplier sites, which can then be filled and shipped back to the demand site.

See *User Guide: Distribution* for information on setting up and using EMT.

Salespersons

If you track salesperson commissions for projects, set up salesperson records and default commission rates in Salesperson Maintenance (2.5.1). Associate salespersons with particular ship-to or sold-to customers as appropriate in Customer Maintenance (2.1.1).

Use Salesperson Commission Detail (2.5.6) to set up default commission rates for specific product lines, customers, or combinations of these.

Employees

Define the employees who work on projects in Employee Maintenance (2.7.1). These employees must also be defined as engineers in Engineer Maintenance (10.15.1).

See “Setting Up Engineers” on page 30.

You can optionally use employee pay rates defined in Actual Pay Rate Maintenance (14.13.21) to determine the cost of project labor. This is based on the Use Employee Pay Rate setting in Project Realization Control (10.24). If you choose to implement this option, make sure you set up appropriate pay rates for the employees defined as project engineers.

See “Use Employee Pay Rate” on page 41.

Taxes

PRM projects access the same tax data used by other types of orders in the system, such as sales orders and purchase orders.

Unlike other order types, however, PRM projects are not taxed at the line-detail level. All project components are either taxable or nontaxable, and you cannot tax some components at different rates than others.

The following sections highlight some special considerations that apply when setting up tax data for use with PRM projects.

For more general information on tax setup, see *User Guide: Master Data*.

Tax Environments

Since projects typically consist of a series of installation steps at a customer site rather than an actual shipment of goods, PRM uses the tax zone of the ship-to customer only, rather than separate ship-from and ship-to tax zones, to search for default tax environments on projects.

Specifically, PRM searches for a record where both of the following apply:

- The ship-from and ship-to tax zones both match the tax zone on the ship-to customer record.
- The tax class either matches the Tax Environment Tax Class on the project header, which defaults from the ship-to customer record, or is blank.

You can modify tax environments on individual projects as needed.

Tax Rates

On most order types, once the tax environment is determined, the system searches for the tax rates that apply to that order using the tax class associated with each line item and trailer charge.

Since projects are taxed at the header level rather than the line level, PRM uses the Tax Rate Tax Class from the project header in place of line-item and trailer charge tax classes to search for the tax rates to apply to projects.

See “Tax Rate Tax Class” on page 54.

If needed, you can set up project-specific tax classes in Tax Class Maintenance (2.13.1.5) and establish them as the defaults for particular kinds of projects using Project Type Maintenance (10.21.21). Then, use Tax Rate Maintenance (2.13.13.1) to assign these tax classes to the tax rates you want to apply to PRM projects.

See “Setting Up Project Types” on page 38.

Alternatively, you can use tax usage codes, also assigned on the project header, to differentiate the tax rates you want to use with PRM projects. Or, you can simply set up tax rates with blank tax class and tax usage codes and assign them to tax types that correspond to project tax environments.

Trailer Taxes

Since trailer charges do not apply to PRM projects, trailer taxes are not used in PRM.

Tax History

Some reports and inquiries on the Global Tax Management (GTM) Menu let you review tax history by transaction type. The transaction type for PRM projects is 39.

Financial Data

PRM uses the same chart of accounts as other functions. Other setup considerations are detailed in the following sections.

GL Projects

When you create a new PRM project, the system automatically generates a GL project record with a project code and description identical to the PRM project code and description. Alternatively, you can set up GL projects in Project Code Maintenance (25.3.11) before defining their associated PRM projects.

GL project codes used with PRM projects are identified by a unique project type, specified in Project Realization Control (10.24). PRM automatically applies this project type to each GL project it generates.

See “GL Project Type” on page 42.

If you set up GL projects manually before setting up projects in PRM, keep in mind the following considerations:

- The GL project must have the same ID as the project you define in PRM.
- The GL project must specify the GL project type from Project Realization Control.

You can track revenue and expenses against GL projects using the project activity reports on the General Ledger Reports Menu.

For more information, see *User Guide: Financials*.

Be careful that the codes you use for non-PRM GL projects and those for PRM projects do not overlap. You cannot create a PRM project with the same code as an existing GL project unless the GL project type matches the default specified in Project Realization Control.

Do not delete GL projects associated with PRM projects or mark them as inactive until the PRM projects have been closed and all related GL transactions have been posted. Otherwise, the system generates errors during transaction post.

Multiple Currencies

While project costs are always recorded and tracked in your system base currency, projects are priced and invoiced in your customers' currencies. If some of your project customers use different currencies than you do, be sure to set up valid currency exchange rates in Exchange Rate Maintenance (26.4).

Cost Management

The cost fields in the project sub-ledger are not updated to reflect changes to inventory costs that occur after project transactions are processed. For this reason, it is recommended that you avoid creating PRM transactions at sites where average costing is used to maintain the GL cost set.

See "Project Line Sub-Ledger Details" on page 91.

If your business environment uses average costing, set up a separate site for PRM projects and use the standard cost method at that site. Use Cost Set to Site Assignment (30.9) to select which costing method to use with the GL cost set at a particular site.

See *User Guide: Financials* for more information on costing methods.

Product Structure and Formula Data

When a project involves component assembly in addition to parent-item installation, PRM lets you track the assembly activities as part of the project. To simplify project definition, you can have the system automatically load the components of the parent assembly's product structure or formula into the structure of the PRM project.

For more information on subassemblies, see "Assembly Lines" on page 76.

When setting up the items, product structures, and formulas to include in project subassemblies, keep in mind the following considerations:

- To load the parent item's bill of materials (BOM) into the project structure automatically, the Purchase/Manufacture code of the item at the subproject site must be M (Manufactured), L (Line Manufactured), W (Flow), or blank.
- Only inventory items can be loaded into the project structure. If a structure contains intermediate BOM codes not defined in the item master, the system loads the underlying components of these bills, but not their parent BOM codes, into the project.
- The line number for each nested component in a project subassembly includes the sequence numbers of the parent subproject and any parent project lines directly above it, with decimal points separating each sequence number. The parent line number can consist of no more than 12 characters total, which may limit the number of product structure levels you can include in a project subassembly. See "Subassembly" on page 64.

Service/Support Data

Although the Service/Support Management (SSM) module is not required to implement and use PRM, several additional features are available for SSM users:

- You can update end-user installed base records with items issued to and returned from project customers to allow maintenance and tracking in SSM. See “Installed Base Updates” on page 128.
- You can automatically apply warranty data to issued items to allow support and preventative maintenance scheduling in SSM. See “Installed Base Updates” on page 179.

SSM programs used to set up these features include Service Item Maintenance (11.3.7) and Warranty Type Maintenance (11.3.15). For more information on executing this setup, see the installed base and contract chapters in *User Guide: Service/Support Management*.

Manager Functions

The fields in PRM programs include three standard types of validation common in the system: generalized codes, field-security validation, and language-detail validation. All three validation types are controlled using programs on the Manager Functions menu (36).

Validated fields are discussed in the following sections.

Generalized Codes

The system uses generalized codes defined in Generalized Codes Maintenance (36.2.13) extensively. They give you flexibility in organizing and implementing functions, since you can define values that are meaningful in your own business environment.

Table 2.1 lists generalized codes referenced by PRM functions. Many are used by other functions such as sales orders, and some are used by SSM. Use this table to plan which codes to set up for your implementation.

Table 2.1
Generalized Codes in PRM

Code	Label	Where Used
ad_county	County	End-user pop-up in Project Maintenance
ad_format	Format	End-user pop-up in Project Maintenance
ad_state	State	End-user pop-up in Project Maintenance
ca_severity	Severity	PAO Maintenance (ca_severity) PAO Default Maintenance (cdf_ca_severity)
fsskill	Skill	PAO Maintenance (ca_problem) PAO Default Maintenance (cdf_ca_prob)
pao-queue	Queue	PAO Maintenance (ca_que) Project Activity Recording (ca_que) PAO Default Maintenance (cdf_ca_que) PAO Control (pjc_dflt_que)
pao-type	Type	PAO Maintenance (ca_type) PAO Default Maintenance (cdf_ca_type)
pjs_inv_group	Invoice Group	Project Maintenance (pjs_inv_group)
prj_action_stat	Action Status	Project Maintenance (prj_action_stat)

Code	Label	Where Used
prj_status	Status	Project Realization Control (Project Status Control frame) Project Maintenance (prj_status, pjd_status)
pt_um	Unit of Measure	Project Pricing Maintenance (price-um) Project Maintenance (pjs_um)
so_channel	Channel	Project Maintenance (prj_channel)
so_cr_card	Credit Card	Project Maintenance (prj_cr_card)
so_cr_init	Cr Initials	Project Maintenance (prj_cr_init)
so_shipvia	Ship Via	Material Order Maintenance (so_shipvia)
so_stat	Action Status	Material Order Maintenance (so_stat)

Field Security

The system lets you restrict user access to particular fields. These fields generally contain financial data or represent significant life-cycle changes for a project or PAO. Security settings are defined using features on the System Security Menu (36.3).

See *User Guide: Manager Functions* for details on security.

Note To determine whether field security is active for a particular field, use the Dictionary Field Security Report (36.3.23.20).

Table 2.2 lists the fields in PRM functions that can be restricted. Use this table to plan how to set up data security for PRM functions.

Table 2.2
Field Security in PRM

Field	Label	Where Used
ca_status	Status	PAO Maintenance Project Activity Recording
ins_ar_acct	AR Account	Invoice Schedule Maintenance
ins_ar_cc	AR Cost Center	Invoice Schedule Maintenance
ins_ar_sub	AR Sub-account	Invoice Schedule Maintenance
ins_inv_amt	Invoice Amount	Invoice Schedule Maintenance
ins_inv_pct	Invoice Percent	Invoice Schedule Maintenance
ins_released	Release	Invoice Schedule Maintenance
ins_sched_date	Schedule Date	Invoice Schedule Maintenance
pjd_disc_pct	Discount	Project Maintenance, subproject
pjd_list_pr	Total List Price	Project Maintenance, subproject
pjd_pr_list	Price List	Project Maintenance, subproject
pjd_status	Status	Project Maintenance, subproject
pjd_total_price	Total Net Price	Project Maintenance, subproject
pjs_cost	Unit Cost	Project Maintenance, line detail
pjs_disc_pct	Discount	Project Maintenance, line detail
pjs_frozen	Frozen	Project Maintenance, line detail

Field	Label	Where Used
pjs_list_pr	List Price	Project Maintenance, line detail
pjs_price	Net Price	Project Maintenance, line detail
prj_curr	Currency	Project Maintenance, header
prj_pr_list	Price List	Project Maintenance, header
prj_status	Status	Project Maintenance, header
prj_taxable	Taxable	Project Maintenance, header
prj_taxc	Tax Environment Tax Class	Project Maintenance, header
prj_type_taxc	Tax Rate Tax Class	Project Maintenance, header
sal_limit_amt	Amount	Project Budget Maintenance

Language Details

Some program options appear on the screen using alphabetic codes or words. Internally, these options are controlled by numeric codes. Mnemonics and labels provided in English may not be appropriate in other languages. Use Language Code Maintenance (36.4.3) to change, add, and delete mnemonic codes and labels.

Table 2.3 lists the language detail codes referenced by PRM functions. Use this table if you need to change a mnemonic code or label.

Table 2.3
Language Detail Codes

Data Set	Field	Code	Mnemonic	Label	Where Used
fpc_mstr	fpc_amt_type	1	D	Discount %	Project Pricing Maintenance (amtype)
		2	M	Markup %	
		3	P	Price	
fpc_mstr	fpc_list_type	4	X	Project Costs	Project Pricing Maintenance (listtype)
		5	P	Project Prices	
ins_mstr	ins_inv_type	1	T	Total-only Invoice	Invoice Schedule Maintenance (inv-type) Invoice Schedule Control (inv-type)
		2	S	Summary Invoice	
		3	D	Detailed Invoice	
pjsh_hist	pjsh_tr_ind	1	I	Item	Project Transactions Inquiry and Report (Transaction Indicator)
		2	L	Labor	
		3	E	Expense	
pjsx_det	pjsx_type	1	A	Assembly	PAO Maintenance (ln-type)
		2	I	Issue	
		3	M	Move	
prm	sel-qty	1	I	Issued	Invoice Generation
		2	P	Planned	
		3	Z	Zero	

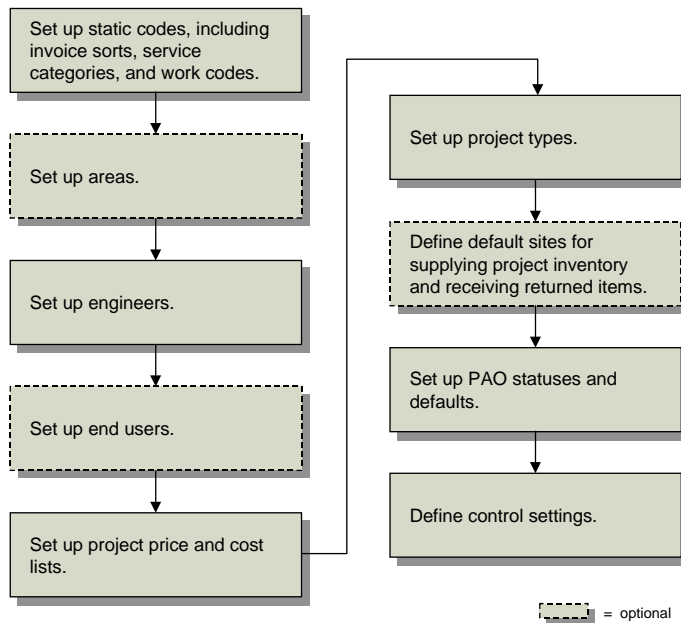
Setting Up PRM Data

Figure 2.2 illustrates a typical work flow for setting up PRM. Optional steps are indicated by a dotted outline.

Much of the required data consists of base codes and records used when setting up projects, budgets, and PAOs and recording project activity.

Note Many of the data types required to set up PRM are also used in the SSM module. For information on SSM setup, see *User Guide: Service/Support Management*. For a list of PRM programs shared with SSM, see page 9.

Fig. 2.2
PRM Setup Work Flow



- 1 Set up static codes used by PRM projects, including the following:
 - Invoice sort codes
 - Service categories
 - Work codes
 - Return status codes
- 2 Set up areas.
- 3 Set up engineers.
- 4 Set up end users.
- 5 Set up project price and cost lists.
- 6 Set up project types, which are used for defining project defaults.
- 7 Define default sites and locations for:

- Supplying project inventory
- Accepting reusable returned items
- Accepting scrap returns

8 Set up PAO status codes and defaults.

9 Define control program settings.

While most of these steps are described in detail in the sections that follow, several are covered in other chapters of this guide:

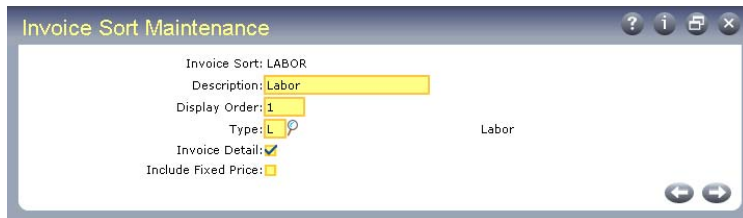
- For information on setting up PAOs, see Chapter 4, “Setting Up and Creating PAOs,” on page 73.
- For information on setting up material order data, see Chapter 5, “Realizing Projects,” on page 95.
- For information on setting up project invoicing, see Chapter 6, “Invoicing Projects,” on page 157.

Setting Up Invoice Sorts

Invoice sort codes organize project components into high-level groups. You should define at least three invoice sort codes for PRM: one for items, one for labor, and one for expenses.

Set up invoice sort codes in Invoice Sort Maintenance (10.21.5).

Fig. 2.3
Invoice Sort Maintenance (10.21.5)



Most of the fields in Invoice Sort Maintenance are for reference only in PRM. However, the Type field is used to determine whether the invoice sort and its associated service categories are for items, labor, or expenses.

You can use invoice sort codes for defining project budgets and printing details on project invoices.

Setting Up Service Categories

Service categories represent detailed ways of categorizing project activity. For labor and expenses, service categories play a role similar to item numbers in the item master.

Category Types

Each service category references an invoice sort code that indicates whether it is for items, labor, or expenses.

You should define at least one item service category to use on PRM projects. While item lines are always further qualified by inventory item numbers from the item master, you must also associate an item service category with each.

Labor service categories identify work performed on the project, such as installation labor. If you charge engineer travel time as labor, you should also set up labor service categories for in-transit time.

Expense service categories, in general, identify project costs not related to items and labor. Examples of project components you might identify with expense categories include travel-related expenses such as airline tickets and meal allowances and other miscellaneous expenses such as rental fees for warehouse or storage space.

You can reference expense quantities from PRM projects on project purchase orders and use Purchase Order Receipts (5.13.1) to register the actual purchase costs as consumed against the project. Because you can reference expenses, but not labor, on these purchase orders, you may want to define some types of labor as expense categories.

See “Project Purchase Orders” on page 112.

Example If you subcontract some of your project labor, you can define an expense category for subcontract labor so this can be managed with project purchase orders.

Category Usage

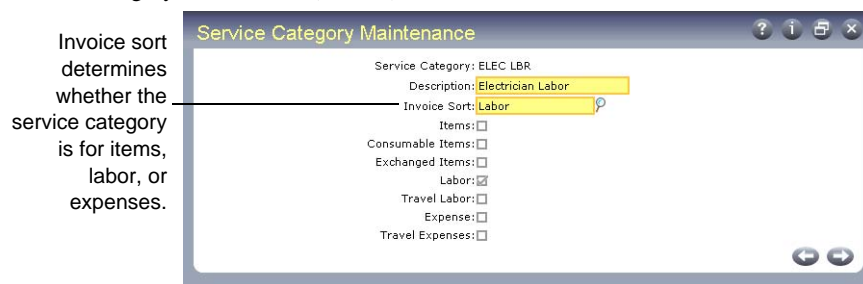
Service categories are used in the following key areas in PRM:

- Project price and cost lists for labor and expenses must be set up by service category. You can qualify each list with a work code or product line, if needed.
- Each line on a PRM project must reference a service category. Lines with blank service categories are for formatting only and cannot be issued or invoiced.
- When you generate project budgets, you can create a separate budget for each work code and service category combination on the project.
- Service category codes may print on project invoices, depending on the level of detail you choose to display.

Service Category Maintenance

Define service categories using Service Category Maintenance (10.21.9).

Fig. 2.4
Service Category Maintenance (10.21.9)



Associate each service category with an invoice sort code. The invoice sort determines whether the service category is for items, labor, or expenses and determines which logical fields you can update for that category.

- For items, either Items, Consumable Items, or Exchanged Items must be Yes.
- For labor, either Labor or Travel Labor must be Yes.
- For expenses, either Expenses or Travel Expenses must be Yes.

The system uses the logical value associated with each invoice sort to determine whether the service category is for items, labor, or expenses. However, it does not process project components differently based on which field is Yes within each related group of logical fields. For example, an expense service category is processed identically to a travel expense category.

Note The Taxable and Tax Class settings in Service Category Maintenance have no effect in PRM.

Setting Up Work Codes

Work codes let you classify project activities according to the type of work associated with each. In PRM, you can:

- Use work codes as qualifiers on project price lists.
- Define budgets by work code and service category combinations.
- Define PAO defaults by work code.

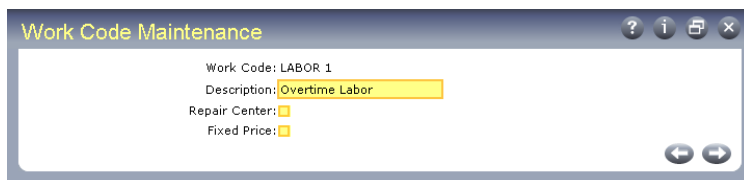
Each project has a default work code determined by the associated project type. This work code defaults to each PAO created for the project, where it can be modified as needed. The work code on a PAO, in turn, determines which default values, defined in PAO Default Maintenance (10.5.21.4), apply to that PAO.

See “Setting Up PAO Defaults” on page 79.

The work code on each subproject is also determined by the associated project type. Subproject work codes default to each underlying project line where they can be changed as needed. Project line work codes, in turn, can determine pricing and be used to categorize project budgets.

Set up work codes using Work Code Maintenance (10.21.1)

Fig. 2.5
Work Code Maintenance (10.21.1)



The screenshot shows a window titled "Work Code Maintenance". Inside the window, the following fields are visible:

- Work Code: LABOR 1
- Description: Overtime Labor
- Repair Center:
- Fixed Price:

At the bottom right of the window, there are two navigation arrows (left and right).

The Repair Center and Fixed Price fields in Work Code Maintenance are for reference only in PRM.

Setting Up Return Statuses

When you return items as part of project activity, you assign them a status that indicates whether they are reusable (good) or scrap. This status, in turn, determines the default site and location to which items are returned. This is either a return or scrap site and location set up in Default PRM Site Maintenance (10.21.13).

See “Returns” on page 126.

In addition to determining the default return-to site and location, the return status determines whether:

- The cost of the returned items is subtracted from the actual project costs tracked in the project sub-ledger. See page 92.
- Available budget amounts are increased by the cost of the returned items.

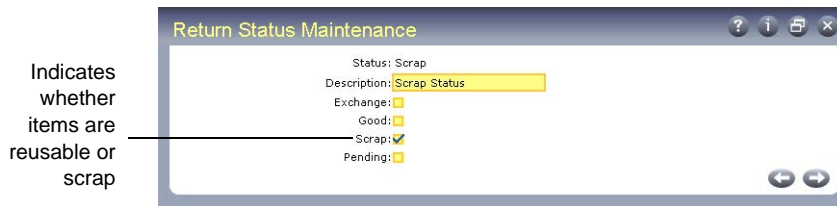
Both of these activities occur for non-scrap returns only.

Set up return statuses in Return Status Maintenance (10.21.17). Then, define default return and scrap statuses to use with PRM returns in PAO Control (10.5.24).

See “Setting Up PAO Control” on page 80.

Fig. 2.6

Return Status Maintenance (10.21.17)



The four options available for each return status are:

Exchange. Leave this option unselected when setting up return statuses for PRM. You cannot specify an exchange status for a PRM return.

Good. This field is for reference only in PRM. PRM uses the value in the Scrap field rather than this field to determine whether returned items are reusable or scrap. When Scrap is deselected, returned items are considered good. See “Unplanned Returns” on page 127.

Scrap. Determines whether returned items are considered reusable or scrap. See “Status” on page 147.

Pending. When items that were initially ordered on an MO are returned from the customer site, you can specify a pending return status during return processing. This status lets you return items to an intermediate location, such as an inspection location or the project location, before returning them back to stock on the MO.

Setting Up Areas

Features on the Area Menu (10.17) let you define geographical areas where project activities take place. You can set up default return and ship-from sites and locations by area, which may be useful when either of the following apply:

- Projects in a given area consume items from a central distribution site set up for that area.
- Scrap and return items processed within a given area should go to a central scrap or return location.

See “Setting Up Default Sites and Locations” on page 97.

You can also associate area codes with end-user records in End User Address Maintenance (10.13.1). When you create a new PAO, the area code on the header defaults from the project end-user record.

See “End User Address Maintenance” on page 32.

The PAO area, in turn, can determine the default sites and locations the system selects for material order shipments and item returns when records are set up by area in Default PRM Site Maintenance (10.21.13).

Area Maintenance

Define area codes in Area Maintenance (10.17.1).

Fig. 2.7
Area Maintenance (10.17.1)



The Type, Site, and Location fields in Area Maintenance are for reference only in PRM.

Area Structure Maintenance

Area Structure Maintenance (10.17.5) lets you group related areas into higher-level categories for reporting. These groupings are for reference only and are not used by the system.

Setting Up Engineers

Engineer records identify the individuals who perform work on projects. They are required for creating material orders and recording labor and expense consumption.

You can specify a default engineer on each project and modify the engineer code on subprojects and PAOs. You can also change the default engineer for each labor and expense quantity you report as consumed against a project.

Each engineer you set up in PRM must have a corresponding employee record defined in Employee Maintenance (2.7.1).

See “Employees” on page 18.

Engineer Status Maintenance

Prior to defining engineers, you must set up at least one engineer status code in Engineer Status Maintenance (10.15.4). Then, assign statuses to individual engineers as you set them up in Engineer Maintenance (10.15.1).

Fig. 2.8
Engineer Status Maintenance (10.15.4)



Status	Description	Avl
DAY	Daytime Availability	<input checked="" type="checkbox"/>
EVENING	Evening Availability	<input type="checkbox"/>

You can set up engineer status codes to indicate when an engineer is available to perform project activities.

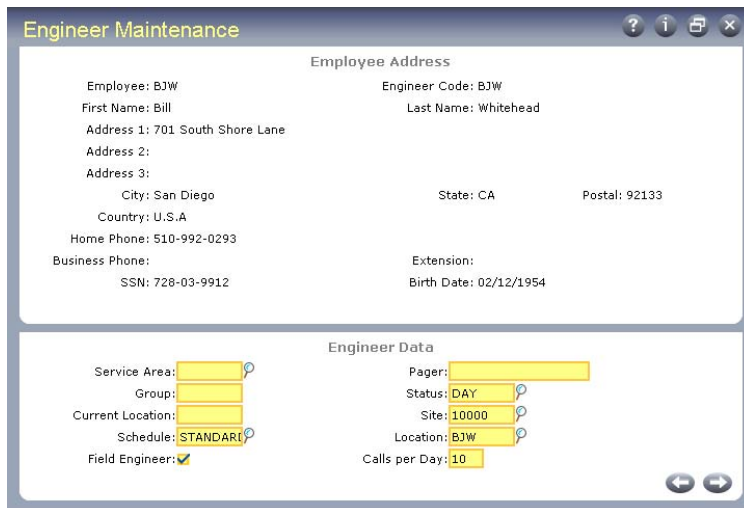
Example In your business environment, some engineers are available to work daytime shifts, some can work evening shifts, and some are available to work any shift. To allow for this, you set up three engineer status codes—DAY, EVENING, and ALL—and assign them to individual engineers based on their availability.

The Available field in Engineer Status Maintenance has no effect in PRM.

Engineer Maintenance

Define records for project engineers in Engineer Maintenance (10.15.1).

Fig. 2.9
Engineer Maintenance (10.15.1)



Employee Address

Employee: BJW Engineer Code: BJW
 First Name: Bill Last Name: Whitehead
 Address 1: 701 South Shore Lane
 Address 2:
 Address 3:
 City: San Diego State: CA Postal: 92133
 Country: U.S.A
 Home Phone: 510-992-0293
 Business Phone: Extension:
 SSN: 728-03-9912 Birth Date: 02/12/1954

Engineer Data

Service Area: Pager:
 Group: Status: DAY
 Current Location: Site: 10000
 Schedule: STANDARD
 Location: BJW
 Field Engineer: Calls per Day: 10

Define engineer address data as in other address maintenance programs. Then, define other values, including engineer status, in the Engineer Data frame. The fields in this frame are for reference only in PRM.

Engineer Skills Maintenance

Optionally, use Engineer Skills Maintenance (10.15.5) to define skill codes and associated them with particular engineers.

Project activity orders can also have associated skill codes, which are set up using Generalized Codes Maintenance (36.2.13). You can use PAO reports and inquiries to report PAOs by skill code, then use the report output to match PAO skill codes with engineer skill codes.

Setting Up End Users

End-user records identify the locations where items are physically installed as well as the people who will use the items, request maintenance for them, and report problems.

Although every project must specify an end user, you do not have to set up end users before you create projects. You can define end users interactively in Project Maintenance (10.1.1) if that is more convenient. However, setting up end users in advance using End User Address Maintenance (10.13.1) lets you access several additional data frames that are not available in Project Maintenance.

End User Control

Before defining end-user records, you must first configure values in End User Control (10.13.24).

Fig. 2.10
End User Control (10.13.24)



Next End User. This field displays the next ID number for the system to assign to a new end-user record.

Create ISB. This value defaults to the Create ISB field in End User Address Maintenance (10.13.1).

When you have the SSM module, the Create ISB setting in End User Address Maintenance determines the default value for the corresponding field in Project Activity Recording (10.5.13).

End User Address Maintenance

Use End User Address Maintenance (10.13.1) to create new end users or modify existing end-user records generated in Project Maintenance.

Fig. 2.11
End User Address Maintenance (10.13.1)

Define end-user address data as in other address maintenance programs. Use the other frames in this program to associate additional details with each end-user record. You can associate multiple end users with a single customer record, if needed.

Although many of the fields in End User Address Maintenance are for reference or SSM use only, several have applications in PRM.

Call Priority. Determines the default priority on PAOs created for projects with this end user. Priority is a reference-only code that indicates the importance of a PAO relative to other PAOs in the system. Priority can be used as a selection criterion in some reports and inquiries.

Service Area. Determines the default area on PAOs created for projects with this end user. PAO areas can determine default ship-from sites and locations for MOs and default return sites and locations for item returns. Area can also be used as a selection criterion in some reports and inquiries. See “Setting Up Areas” on page 30.

Create ISB. When you have the SSM module, this setting determines the default value for the corresponding field in Project Activity Recording (10.5.13). This field, in combination with the Installed Base field in Service Item Maintenance (11.3.7), determines whether item issues and returns in PRM update the installed base of the project end user. See the installed base chapter in *User Guide: Service/Support Management*.

Setting Up Price and Cost Lists

Each detail line on a PRM project has:

- A planned price, which may be used to determine the total price for the project
- A planned cost, used for defining budgets and comparison with actuals

When you record the consumption of items, labor, and expenses against a project, the system captures actual costs for those components and uses them to update the GL, project budgets, and project sub-ledger values.

Project Pricing Maintenance (10.19.1) lets you define standard prices and costs for project components. The pricing structures you set up in this function determine:

- Default prices and planned costs for project items, labor, and expenses
- Actual costs for expenses and, optionally, labor when you report these as consumed against the project

Project prices and planned costs are defaults only and can be manually adjusted for each project line in Project Maintenance (10.1.1). When recording project activity, actual costs can be manually adjusted for expenses but not labor.

Each pricing structure you set up is identified by a price list code. This code can represent any number of valid combinations of list types, currencies, work codes, product lines, service categories, item numbers, and so on, each with its own set of minimum quantities and prices or discount or markup percentages. Each of these combinations is referred to singly as a *price list*.

You can define two types of price lists:

- Type X lists specify the planned costs of items and service categories on a project. They also determine the actual costs that PAR uses to debit WIP for expenses and, optionally, labor.
- Type P lists specify the prices of items and service categories used in a project. These prices, in turn, determine the amounts that appear on project invoices when Auto Price Rollup is Yes. See “Project Pricing” on page 48.

Prices and Costs for Labor and Expenses

Set up prices and costs for labor and expenses based on service categories. You can use work codes and product lines to qualify the category, but only a category is required.

The system searches for prices and costs for labor and expenses in the following order, using the system base currency for labor costs and the project currency for labor prices and expense costs and prices. For expenses, unit of measure (UM) is also used as a search criterion.

- The work code, service category, and product line combination
- The work code and service category
- The category and product line
- The service category only

Note Actual costs for labor can be derived from a cost list or from Actual Pay Rate Maintenance (14.13.21), depending on the setting of Use Employee Pay Rate in Project Realization Control (10.24). Planned costs for labor are always based on cost lists, regardless of how Use Employee Pay Rate is set.

Prices and Costs for Items

Item prices are typically derived from the item master and item costs from the item-site GL cost data. However, you can also use PRM price and cost lists, if this is more convenient, when you define projects.

Since items needed by the project may not yet have been set up with GL costs, using PRM cost lists lets you create standard costs to use during the planning phase. However, when issuing project inventory, item costs are always derived from GL cost data at the issue-from site. If GL cost data are not available, the issue cost defaults to zero and cannot be updated.

Note If the issue-from site is the default site associated with the item in Item Master Maintenance, PAR uses the item master GL costs to debit WIP and credit Inventory. Otherwise, costs must be defined in Item-Site Cost Maintenance (1.4.18) for the project site.

When you define prices for items, you must specify either an item number or product line, but not both. You must also leave service category blank. You can qualify the item or product line with an optional work code.

For items, the system searches for prices and costs in the following order, using the project-line unit of measure in addition to the system base currency for costs and the project currency for prices:

- The work code and item number
- The item number by itself
- The work code and product line
- The product line by itself

If a price is not found, the system uses the item master price. If a cost is not found, it uses item-site cost data.

Amount Types

Each price list you set up has an associated amount type, which determines how it is used to calculate prices. Valid amount types for project price lists (type P) are:

- D (Discount): Discount price lists specify a percentage to be subtracted from the item master price. This amount type can only be used on item price lists (blank service category).
- M (Markup): Markup price lists specify a percentage to be added to the item or service category cost. Item, labor, and expense costs are based on the applicable type X price list. Item costs can also come from the item-site master.
- P (Net Price): Net price lists specify the price of an item or service category.

For cost lists (type X), only amount type P is valid.

Implementation Issues

Some of the business issues to consider when setting up PRM price lists include:

- Do you need to set up planned prices and costs for items? If you do not, these automatically default from the item master and item-site records.
- Do you want actual costs for labor to default from project price lists or pay rates defined in Actual Pay Rate Maintenance (14.13.21)? This is determined by the value of Use Employee Pay Rate in Project Realization Control (10.24).
- Should prices be the same no matter what kind of work is involved? If not, you may want to use work codes as price list qualifiers.

- Do your project customers use different currencies than you do? If so, set up price lists in each applicable currency.
- When should prices be effective? The start and expiration dates on project price lists let you limit effectivity and phase in pricing changes as needed.

Project Pricing Maintenance

Use Project Pricing Maintenance (10.19.1) to define pricing structures for projects.

Once defined, associate pricing structures with project type codes in Project Type Maintenance (10.21.21). The price list code on the project type defines the default pricing structure for projects that reference that type.

See “Setting Up Project Types” on page 38.

Fig. 2.12
Project Pricing Maintenance (10.19.1)

Min Qty	Price	Min Qty	Price	Min Qty	Price
1	10.0	0	0.0	0	0.0
11	9.5	0	0.0	0	0.0
21	9.0	0	0.0	0	0.0
31	8.5	0	0.0	0	0.0
41	8.0	0	0.0	0	0.0

Price List. Enter a code identifying a PRM pricing structure.

Type. Enter a PRM price list type, either P (Price) or X (Cost).

Currency. Enter an active currency code representing the monetary unit of the prices on this price list:

- For item and labor cost lists (type X), this must be the system base currency.
- For price lists (type P) and expense cost lists, any currency can be used.

Price lists (type P) and expense cost lists are only selected by the system when the project currency matches the price list currency. If you plan to use multiple currencies, you should set up price lists and expense cost lists in each one.

Work Code. Optionally enter a work code set up with Work Code Maintenance (10.21.1) indicating the type of work associated with this price list. Work codes are price list qualifiers. You must also specify a service category for a labor or expense price or cost list or an item number or product line for an item list.

Using work codes in pricing structures lets you set up pricing based on the type of work being performed. For example, skilled labor may have a higher price than unskilled labor.

See “Setting Up Work Codes” on page 28.

Product Line. Optionally enter a product line defined in Product Line Maintenance (1.2.1). If a service category is specified, the product line qualifies the service category. You cannot enter both a product line and an item number. These represent two alternate ways of pricing items.

Service Category. To define costs and prices for labor and expenses, enter a category defined in Service Category Maintenance (10.21.1). The service category must have one of the labor or expense fields (Labor, Travel Labor, Expense, or Travel Expenses) set to Yes. See “Setting Up Service Categories” on page 26.

Item Number. If you are setting up prices or costs for a specific item, enter the item number. If you specify an item number, you must leave Product Line and Service Category blank. However, you can qualify the item number with an optional work code.

Unit of Measure. For item (blank service category) and expense price lists, enter the unit of measure that applies to the specified prices or costs. For labor price lists, this field must be blank.

For a price list to be used for an item or expense, the unit of measure on the project line must match the unit of measure on the list. Unit of measure does not apply to labor lines.

Note Set up generalized codes for pt_um.

Start, Expiration. Enter the dates for the system to begin and stop using this price structure. If the start date is blank, the price list is effective any time up to the end date, if specified.

Start and expiration dates are useful for phasing in price changes. For example, if you set pricing on a yearly basis, always set the start date to January 1 and the expire date to December 31. At the beginning of the next year, old prices are automatically phased out and new prices used.

Amount Type. Enter the amount type to associate with this price list: either D (Discount), M (Markup), or P (Net Price). The Amount Type field is not part of the unique index identifying a price list. This means that for any given set of key values, you can create only one type of price list. See “Amount Types” on page 35.

Example You cannot create a price list for item number A-100 and work code WC-1 and specify amount types M and P.

Min Qty. Enter the minimum order quantity required for this price to apply. Use this field to associate different prices with different order quantities. For example, you may offer a base price of \$10.00 for 1 to 10 units and a lower price of \$9.50 for 11 or more units.

To calculate prices for partial units, set up a price for a minimum quantity of 0. The system uses this price if, for example, you record a half hour of labor. This is especially important for labor and expense price lists, since they are more likely to be used for partial units.

Price/Discount %/Markup %. Enter the discount percentage, markup percentage, or net price to use when calculating prices for this quantity level. The value you enter here depends on the amount type of the price list.

- When Amount Type is P (Net Price), enter a net price in the price list currency.
- When M (Markup), enter a markup percentage for the system to add to the unit cost.
- When D (Discount), enter a discount percentage for the system to subtract from the unit price.

Setting Up Project Types

Project types streamline the creation of similar projects by supplying common default values including price lists, product lines, work codes, and tax information.

Each project must reference a project type when it is created in Project Maintenance (10.1.1). As subprojects are created, the project type can be changed, updating the default price list, product line, work code, and tax status for the subproject.

The product line you associate with a project type is especially important, since this supplies the default for the project lines beneath each subproject that references that type. PRM uses the product line associated with each project line to find GL accounts to update for project-related transactions. Because of this, you can use project types to associate projects with default sets of GL accounts.

For more information, see “Product Lines” on page 14.

Note For item project lines, the default product line depends on the value of Use Item Product Line in Project Realization Control. See “Use Item Product Line” on page 41.

Define project type codes in Project Type Maintenance (10.21.21).

Fig. 2.13
Project Type Maintenance (10.21.21)

The screenshot shows a software window titled "Project Type Maintenance". The window contains the following fields and values:

- Project Type: PT01
- Description: Sprinkler System Install
- Product Line: W90P
- Work Code: PM
- Price List: PL001
- Priority: 0
- Taxable:
- Tax Class: 006
- Comments:

Project Type. Enter a code identifying a project type.

Description. Optionally enter a brief description of this project type.

Product Line. Enter a product line previously set up using Product Line Maintenance (1.2.1). This product line is used as the default for subprojects that reference this project type.

Work Code. Enter a work code previously set up with Work Code Maintenance (10.21.1). This work code defaults to subprojects that reference the project type in Project Maintenance. See “Setting Up Work Codes” on page 28.

When you create a new PAO for a project, the system uses the work code from the project type specified in the project header as the default. Default values for PAOs are defined by work code in PAO Default Maintenance (10.5.13).

See “Setting Up PAO Defaults” on page 79.

Price List. Optionally specify a price list set up with Project Pricing Maintenance (10.19.1). This value determines the default price list on new projects with this project type. It can be changed as needed on individual projects and subprojects.

See “Setting Up Price and Cost Lists” on page 33.

Priority. Enter a default priority number for PAOs created for projects with this project type. This default only applies when a priority is not defined for the project end user in End User Address Maintenance (10.13.1).

Taxable. Enter the default taxable status for projects created with this project type. The system uses the taxable status of the project type and the taxable status of the ship-to customer to determine the default taxable status of the project. Both must be Yes for the Taxable field to default to Yes in the project header.

For details on how PRM projects are taxed, see “Taxes” on page 19.

Tax Class. Enter the default tax class for the system to use to determine tax rates for new projects created with this project type. You can update this value on individual projects as needed.

The tax rate tax class on a project is equivalent to item and trailer-charge tax classes on sales and purchasing transactions. The tax rate tax class is specified in the project header rather than the line-item detail, however, since projects are not taxed at the line-item level.

See “Tax Rate Tax Class” on page 54.

Comments. Enter Yes to enter or update comments for this project type. Project type comments become the default header comments on projects that reference this type.

Setting Up PRM Control

A number of control programs define settings for PRM:

- Project Realization Control (10.24) contains general settings that affect PRM processing as well as default values for Project Maintenance (10.1.1). See page 40.
- PAO Control (10.5.24) defines defaults for PAO Maintenance (10.5.1) and the activity recording functions. See page 80.
- Material Order Control (10.7.24) contains settings that affect material order processing in PRM and SSM. For information on SSM setup considerations, see the control program chapter in *User Guide: Service/Support Management*. See page 100.
- Invoice Schedule Control (10.9.24) contains settings that affect invoice schedule defaults and processing. See page 159.
- End User Control (10.13.24) defines default settings for End User Address Maintenance (10.13.1). See page 32.

Project Realization Control

Define general PRM settings and project defaults in Project Realization Control (10.24).

Fig. 2.14
Project Realization Control (10.24)

The screenshot shows the 'Project Realization Control' window with the following settings:

- Project Prefix: PJ
- Next Project: 1251
- Auto Price Rollup:
- Global Invoicing:
- Project Site: 10000
- Project Header Comments:
- Subproject Comments:
- Project Line Comments:
- Subproject Details:
- Generate Transaction History:
- Project Inventory in Sub-Ledger WIP:
- Use Item Product Line:
- Use Employee Pay Rate:
- Credit Hold Option: 0
- GL Project Type: PR
- Use Budgets:
- Budget Warning Limit: 10.0%
- Budget Overrun Limit: 5.0%

Project Prefix. Optionally enter a short (three-character) prefix for the system to use when automatically generating project IDs.

Next Project. This field displays the next project number for the system to assign in Project Maintenance (10.1.1).

Auto Price Rollup. This field determines the default value for the Auto Price Rollup field on new projects created in Project Maintenance.

Yes: The system automatically calculates the sales price of each subproject by adding together the prices of the underlying lines.

No: Sales prices of subprojects are not calculated by the system. Instead, users must manually enter a price for each subproject.

See “Project Pricing” on page 48.

Global Invoicing. This field determines the default value for the Global Invoicing field for new projects created in Project Maintenance.

Note When Global Invoicing is No in the project header, individual subprojects can still use global invoicing.

Global Invoicing, in combination with the Auto Price Rollup field in the project header, determines whether invoicing is based on the entire project or selected project lines.

When Global Invoicing is Yes, the system generates an invoice by applying the percentage or amount specified on the invoice schedule to the entire project. You cannot select which project lines to invoice.

When Global Invoicing is No, the project invoicing method depends on the value of Auto Price Rollup. When Auto Price Rollup is Yes, the system generates invoices for the specific project lines and quantities you specify.

When Auto Price Rollup is No, although you still select project lines to book their costs to COGS and Expense Due, you must invoice for a fixed amount or percentage of the project price.

See “Global Invoicing” on page 56.

Note Global Invoicing is typically set to Yes when Auto Price Rollup is No, since this combination is easier to manage.

Project Site. Optionally specify the site generally responsible for projects, such as the site where project planning is done. This field determines the default header site for new projects created in Project Maintenance. For more information, see “Sites” on page 14.

Project Header Comments, Subproject Comments, Project Line Comments. These fields determine default values for the Comments fields on new projects created in Project Maintenance.

Subproject Details. This field sets the default value for the Subproject Details field in the subproject entry frame of Project Maintenance. This value can be changed as needed during subproject entry.

Yes: You can display and maintain detailed information such as start and end dates, project type, price list, and site and location detail, for each subproject.

No: You can enter only a subproject code and description for each subproject. Other subproject details default from the header and can be updated only when Subproject Details is Yes.

Use Item Product Line. This field indicates how the system determines default product lines for item project lines. You can manually modify these defaults in Project Maintenance.

When Use Item Product Line is Yes, the product line of the item is used by default.

When No, the product line of the parent subproject is used.

See “Product Lines” on page 14.

Note For labor and expense project lines, the product line from the subproject is always used as the default, regardless of how this field is set.

Use Employee Pay Rate. This field determines how Project Activity Recording (10.5.13) and Project Labor Recording (10.5.14) calculate costs for labor consumed on a project. These costs are used to update the GL and consume project budgets.

No: Labor costs are based on the applicable type X price list set up in Project Pricing Maintenance (10.19.1).

Yes: Labor costs are based on the pay rate defined in Actual Pay Rate Maintenance (14.13.21) for the engineer who performed the labor.

See “Setting Up Price and Cost Lists” on page 33.

Note In Project Maintenance, labor costs are always based on type X price lists, regardless of this setting.

Credit Hold Option. This field determines how the system handles new projects, PAOs, and material orders created for bill-to customers that are on credit hold. Valid values are 0, 1, or 2.

Note This setting does not affect project invoice schedules.

0: New projects, PAOs, and MOs can be created regardless of the credit hold setting of the project bill-to customer.

1: When a new project, PAO, or MO is created for a bill-to customer who is on credit hold, the following occurs:

- A warning displays.
- On projects and MOs, the Action Status field is set to HD (hold). On a project, you can reset this value manually as needed. On an MO, you must remove the hold status using Sales Order Credit Maintenance (7.1.13) or Sales Order Auto Credit Approval (7.1.17).
- For projects, the project status is set to the hold status defined in Project Realization Control.
- For PAOs, the PAO status is set to the hold status defined in PAO Control (10.5.24). You cannot create MOs for or record activity against PAOs that are on hold.

In addition, when Credit Hold Option is 1, warnings display in activity recording functions when you access a PAO associated with a customer on credit hold.

2: You cannot create a new project, PAO, or MO for a project bill-to customer that is on credit hold, nor can you record activity against existing PAOs.

Customer credit hold statuses are only checked during initial transaction entry. They do not apply when maintaining existing projects, PAOs, or MOs. You can manually change a customer's credit hold status in Customer Maintenance (2.2.1).

GL Project Type. Optionally enter a brief (one- or two-character) code for Project Maintenance to use as the default project type for the GL projects it generates.

See “GL Projects” on page 20.

Use Budgets. For new projects created in Project Maintenance, this field determines the default value for the Use Budgets field in the project header.

When Use Budgets is Yes for a project, you can use Project Budget Rollup (10.3.1) to generate project budgets automatically.

When Use Budgets is No for a project, you cannot calculate budgets for that project using Project Budget Rollup.

See “Use Budgets” on page 56.

Budget Warning Limit, Budget Overrun Limit. If you use budgets to track project costs, define percentages to use as budget warning and budget overrun limits. These set the default values for the corresponding fields in Project Maintenance.

When Budget Warning Limit has a nonzero value in Project Maintenance and a budget exists for the project, warnings display in activity recording functions when the recorded item, labor, and expense costs have consumed the budget up to the specified limit. When Budget Overrun Limit has a nonzero value, warnings display when budget consumption exceeds the overrun percentage.

Generate Transaction History. This setting determines whether the system generates project transaction history records for PRM projects.

No: Transaction history is not generated.

Yes: The system automatically generates history records whenever values in the project sub-ledger are updated. Each history record is identified by a type code, indicating the system activity that generated it.

Review project transaction history records using Project Transactions Inquiry (10.11.7) or Report (10.11.8).

For a complete list of project history transaction types, see Table 7.1 on page 189.

Note PRM transaction history records are not related to the inventory transaction records accessed from the Transaction History Menu (3.21).

Project Inventory in Sub-Ledger WIP. This field setting determines whether item costs immediately consume budgets and update the sub-ledger work in process (WIP) fields when they are transferred or received into a project location.

No: The system does not consume project budgets or update the sub-ledger WIP fields until items are issued in PAR.

Yes: Project budgets are consumed and sub-ledger WIP fields are updated immediately when items are transferred into project locations using appropriate functions.

For more information on the sub-ledger, see “Project Line Sub-Ledger Details” on page 91.

If you consider items as issued to the project as soon as they are moved into a designated project location, set Project Inventory in Sub-Ledger WIP to Yes. If you do not consider items as issued to the project until you record their consumption in PAR, set this field to No.

See “Project Locations” on page 15.

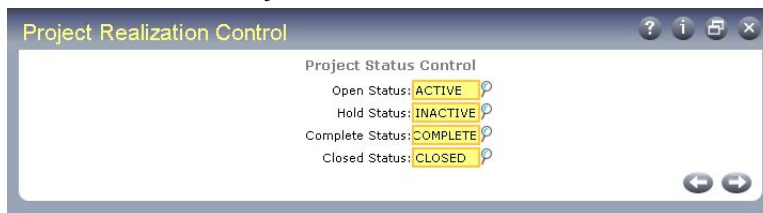
Important After you begin to transfer material to project locations, you should not change this setting. If you do, your project budget amounts and sub-ledger values may become inaccurate.

Project Status Control Frame

Four project statuses can be defined in the control program and affect how projects are managed by the system.

Note Set up project status codes in Generalized Codes Maintenance (36.2.13) before defining them in the control program.

Fig. 2.15
Project Realization Control, Project Status Control



Open Status. The system uses the open status as the default status for new projects and subprojects created in Project Maintenance. For a project with this status, you can:

- Order items with material orders and project purchase orders
- Create invoice schedules
- Create new PAOs and record activity against them

Note The system treats projects with status codes not defined in Project Realization Control identically to those with the open status.

Hold Status. The hold status indicates that a project is temporarily inactive. You can manually set a project or subproject to this status. When Credit Hold Option is 1 and you create a project for a bill-to customer that is on credit hold, the system automatically sets the project to this status.

You cannot do either of the following for projects or subprojects that are on hold:

- Order items with material orders or project purchase orders
- Create invoice schedules

Also, you cannot create new PAOs for projects that are on hold.

Complete Status. Manually assign the complete status to a project or subproject to indicate that it is complete. No further activity can take place for a complete project. You cannot record activity against it, order items on material orders or project POs, or update the project. However, you can reopen a complete project by changing its status.

Closed Status. The closed status indicates that all the lines in a project or subproject have been processed by Project Activity Close (10.23.2). You can have Project Activity Close assign this status automatically, or you can manually assign the closed status in Project Maintenance after running the close function.

See “Closing Projects” on page 180.

No further activity can take place for a closed project. You cannot create or release invoice schedules, record activity, order items on material orders or project purchase orders, or update the project. You can, however, generate invoices from already released invoice schedules and print and post the invoices as needed. You can also create vouchers for project purchase orders. A closed project cannot be reopened.

Note Only closed projects can be deleted and archived.

Creating and Managing Projects

This chapter describes how to set up and manage projects and project budgets in PRM.

Overview of Projects 46

Describes elements related to setting up projects and budgets, a typical project life cycle, project customer details, the effects of multicurrency in projects, and project pricing, subassemblies, and variations.

Creating a Project 51

Explains how to use Project Maintenance (10.1.1) and outlines project headers, subproject headers, project line details, and project trailers.

Managing Project Budgets 67

Explains the effects of budgets, Project Budget Rollup (10.3.1), and Project Budget Maintenance (10.3.3).

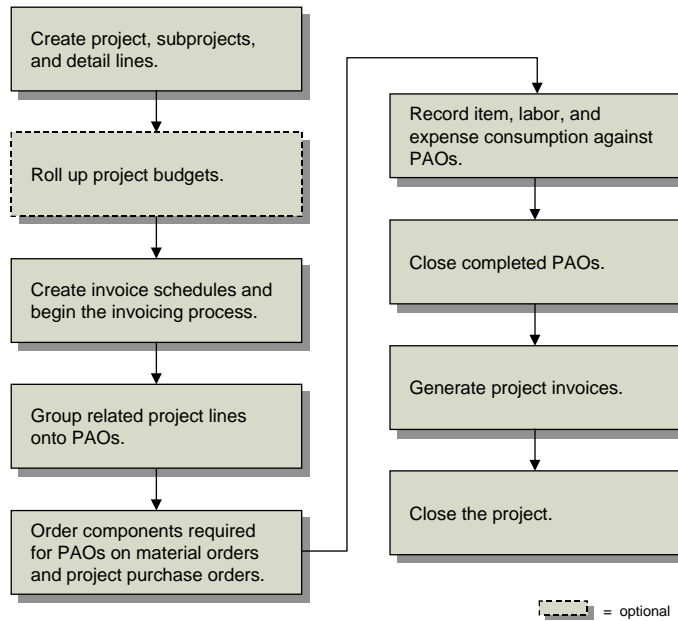
Overview of Projects

Chapter 1 introduced the general structure of a project, which involves multiple elements: subprojects, detail lines, budgets, project activity orders (PAOs), fulfillment orders, and invoicing. Because of the multiple elements, multiple related life cycles exist for projects, PAOs, fulfillment orders, and project invoices. See “Understanding Projects” on page 3.

Figure 3.1 illustrates a typical project work flow. This chapter discusses only elements related directly to setting up projects and budgets.

- PAOs are discussed in Chapter 4, “Setting Up and Creating PAOs,” on page 73.
- Project realization, including ordering components and recording activity, is discussed in Chapter 5, “Realizing Projects,” on page 95.
- Project invoicing is discussed in Chapter 6, “Invoicing Projects,” on page 157.
- Procedures for closing projects and PAOs are discussed in Chapter 7, “Closing and Evaluating Projects,” on page 177.

Fig. 3.1
Project Work Flow



After the initial PRM setup is performed, a typical project life cycle includes these steps:

- 1 Create the project in Project Maintenance (10.1.1) and define its structure. See page 51.
- 2 If budgets are used, roll up the budgets in Project Budget Rollup (10.3.1). See page 67.
- 3 Use Invoice Schedule Maintenance (10.9.1) to create invoice schedules to determine dates and methods for project invoicing. You can also schedule and process prepayments before actual work is done. See page 160.
- 4 Use PAO Maintenance (10.5.1) to group related project lines to be completed as distinct units of work. See page 83.

- 5 Order the items needed for each PAO from locations and sites within your company on material orders or from external suppliers using project purchase orders. Ship the MOs and receive the purchase orders into the project location or locations.
See page 102.
If needed, you can create memo lines on project purchase orders and link them to expense lines on the project. For example, you may want to use this type of purchase order line for handling services obtained from organizations outside your company, such as consulting.
See page 112.
- 6 Record items, labor, and expenses consumed against PAOs with Project Activity Recording (10.5.13) or Project Labor Recording (10.5.14). For expense lines referenced on project purchase orders, use Purchase Order Receipts (5.13.1) to register the expense detail against the project and consume project budgets.
See page 123.
- 7 Close completed PAOs using PAO Close (10.5.16). See page 179.
- 8 Use Invoice Generation (10.9.13) to generate invoices according to the predefined invoice schedules. See page 170.
- 9 If additional work is needed, add variation subprojects and lines to the project and update the budget effective dates in Project Budget Maintenance (10.3.3). See page 50.
- 10 When all activity is complete and invoiced, close lines, subprojects, or the entire project with Project Activity Close (10.23.2). See page 180.

Some aspects of project planning have considerable impact on the way a project is managed. These are discussed in more detail in the following sections.

Project Customers

In PRM, each project references the following four customer addresses:

Sold-To. Determines the default bill-to and ship-to addresses for a new project.

Bill-To. Pays the project invoices. All credit information defaults from the bill-to address, including credit limit, terms, and currency code. Invoicing and accounts receivable activities reference this address.

Ship-To. The delivery address for project items. Also determines the default end-user address, tax data, language, and salesperson for the project.

End User. The address where the project will be installed. The ship-to address and end-user address are often the same. See “Setting Up End Users” on page 32.

All four addresses print on some internal reports, while only the sold-to and ship-to print on customer documents such as the report generated by Project Print (10.1.4). The bill-to and sold-to addresses print on customer invoices and debit memos created by Invoice Generation (10.9.13).

Multicurrency in Projects

Since your project customers do not always use the same currencies that you do, PRM lets you create and invoice projects in currencies other than your system base currency. In this case, valid exchange rates must be defined and effective on project transaction dates.

See “Multiple Currencies” on page 21.

When you initially create a foreign-currency project, the exchange rate relationship effective on the project order date displays for review and update as shown in Figure 3.2.

For additional details, see *User Guide: Financials*.

Fig. 3.2
Exchange Rate Pop-Up

Use the Fixed Rate field in the exchange rate pop-up to indicate the exchange rate used to update Accounts Receivable when project invoices are posted.

- When Fixed Rate is Yes, the project exchange rate is always used to update AR.
- When No, the exchange rate effective on the invoice post date is used.

See also “Exchange Rates” on page 170.

The following list highlights areas of PRM that are affected by multiple currencies.

- Make sure you set up price lists for labor and price and cost lists for expenses in the appropriate foreign currencies in Project Pricing Maintenance (10.21.1). Also define multicurrency price lists for items if you do not want the system to use item master prices for these. See “Setting Up Price and Cost Lists” on page 33.
- In Project Maintenance (10.1.1), you can update the currency for a new project, but once the record is saved, it cannot be modified. On projects, prices display in the project currency while costs display in base currency. See “Currency” on page 54.
- You can specify a reporting currency when rolling up budgets with Project Budget Rollup (10.3.1). Prices and costs are converted to the reporting currency for display, but stored in the system base currency. See “Reporting Currency” on page 69.
- You can choose a reporting currency on reports such as Project Report (10.11.1) and Project Budget Report (10.3.13).
- In activity recording functions, all costs display in the system base currency.
- Invoice schedules are set up in the currency of the project. However, GL bookings are in the system base currency.

Project Pricing

PRM calculates the total price of a project by summarizing the prices of its underlying subprojects. The project price determines the amounts for which the customer is invoiced.

Subproject prices are calculated in one of the following ways, based on the value of Auto Price Rollup in the project header:

- When Auto Price Rollup is Yes, the system calculates the sales price of each subproject by adding together the prices of the underlying project lines.
- When Auto Price Rollup is No, the system does not calculate sales prices for subprojects. Instead, you manually specify a price for each.

Although you can still enter prices on individual detail lines when Auto Price Rollup is No, these are for reference only and are not used to calculate invoice amounts. Also, the output for project reports that display profit margins, such as Project Report (10.11.1) and Project Budget Report (10.3.13), will not display margins for individual project lines when Auto Price Rollup is No.

Invoicing Effects

When Auto Price Rollup is No on a project, you must invoice based on a fixed amount or percentage of the project or subproject price. You cannot invoice based on project-line quantities selected in Invoice Generation (10.9.13), regardless of how Global Invoicing is set.

Although you still select project-line quantities in Invoice Generation, these are used only to book project costs to Cost of Goods Sold (COGS) and Expense Due accounts and do not determine the total amounts that appear on project invoices. For details, see Chapter 6, “Invoicing Projects,” on page 157.

Note Global Invoicing is typically set to Yes when Auto Price Rollup is No, since this combination is easier to manage.

The Auto Price Rollup setting also determines which product line is used with the subproject site, project sales channel, and customer type of the project ship-to customer to find Sales accounts to update when project invoices are posted.

- When Auto Price Rollup is No, the system uses the product line specified on each subproject.
- When Auto Price Rollup is Yes, the product line specified on each project line is used.

See “Posting Invoices” on page 175 for further details on the GL impacts of project invoicing.

Project Subassemblies

When project tasks involve assembling component items in addition to installing them, you can create multilevel subassemblies and track their manufacture and receipt as part of the project activity.

To set up a project subassembly, create a parent subassembly line in Project Maintenance (10.1.1) and load components beneath it as needed. Create additional lines beneath the subassembly line to record any labor or expenses required to complete the subassembly.

See “Product Structure and Formula Data” on page 21.

Note When an item has an associated product structure or formula and a Purchase/Manufacture code of M (Manufactured), L (Line Manufactured), W (Flow), or blank, the system automatically loads component lines beneath the parent subassembly line. See “Subassembly” on page 64.

Reference project subassembly lines on PAOs as type A (Assembly) lines. This lets you receive the subassembly items once they are complete using Project Activity Recording (10.5.13). After receiving subassembly items, you must still issue them in order to book their costs against the project.

For more information, see “Assembly Lines” on page 76.

Project Variations

Even with careful planning, additional work is often needed to complete a project. Once work on a project has begun, it may be useful to introduce required additions and modifications as *variations*. You can mark entire subprojects or individual project lines as variations, indicating that they were created to accommodate a change in the amount of work initially planned.

After you create an invoice schedule for a globally invoiced project or subproject, you cannot add any additional subprojects or lines unless you indicate them as variations. In all other cases, creating variation lines and subprojects is not required.

See “Variation” on page 65.

There are several advantages to tracking changes to planned projects as variations.

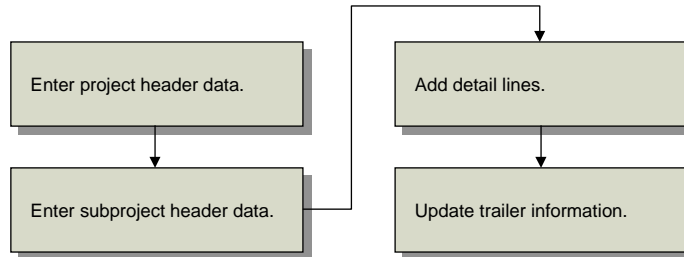
- **Budgeting.** When you roll up project budgets, you can choose whether to include the costs of variation lines and subprojects in the budget totals. See “Project Budget Rollup” on page 68.
- **Invoicing.** You can invoice variation subprojects differently from the rest of the project, if needed. For example, even if the project is globally invoiced, you can specify non-global invoicing for the variation subproject and invoice at the subproject level. See “Creating Invoice Schedules” on page 160.
- **Reporting.** On reports such as Project Print (10.1.4) and Project Report (10.11.1), you can choose to exclude variations from the report output or print a report consisting only of variation lines and subprojects. See “Project Reports” on page 192.

Variation lines can be added to existing PAOs, or you can create new PAOs to manage the work they represent.

Creating a Project

Use Project Maintenance (10.1.1) to create and maintain projects. The data-entry flow of Project Maintenance reflects the hierarchical organization of a project.

Fig. 3.3
Project Maintenance Flow



- 1 First, enter information in the project header frames. Data that apply to the project as a whole include the sold-to, bill-to, ship-to, and end-user addresses. Some header data default from the addresses specified: currency, language, salesperson, credit terms, tax status, and the tax class used to determine the default tax environment for the project.
Price list defaults from the project type. Most other values default from Project Realization Control (10.24): Site, Status, Auto Price Rollup, Global Invoicing, Use Budgets, Budget Warning Limit, Budget Overrun Limit, and Comments.
See Chapter 2 for information on setting up these defaults.
- 2 Next, enter header information for a subproject. Much of the subproject data mirrors the project header data and defaults from the header values.
- 3 Enter detail lines for each subproject. These lines can be added directly beneath the subproject or you can add lines as structures beneath other lines. The system determines planned costs and prices based on the service category or item number specified for each line. Prices and costs default from the subproject price list, set up in Project Pricing Maintenance (10.19.1).
- 4 When all project detail has been added, enter trailer information for the project in a trailer screen.

Project Header

Use the first header frame in Project Maintenance to enter customer codes, a project type, project dates, a default site and location, tax data, and other information that applies to the project as a whole.

Fig. 3.4
Project Maintenance (10.1)

Project. Enter a new project number or leave this field blank to let the system assign the next project number from Project Realization Control (10.24).

If a GL project with the same identifier as the PRM project does not already exist, the system generates one.

See “GL Projects” on page 20.

Description. Enter a brief description of the project. This description displays in reports and browses used to select projects.

Sold-To. Enter the address code of the project sold-to customer. This determines the default bill-to and ship-to addresses for the project. See “Project Customers” on page 47.

Bill-To. Enter the address code of the project bill-to customer. This value defaults from the bill-to address associated with the sold-to customer in Customer Maintenance (2.1.1), if defined. Otherwise, it defaults from the project sold-to address.

Ship-To. Enter the address code identifying where project items will be delivered. This value defaults from the sold-to address code. You can create a new, temporary ship-to address during project entry by leaving Ship-To blank or entering a new code.

The tax status of the ship-to customer is used in conjunction with the tax status of the project type to determine the default tax status for the project. Both must be Yes for Taxable to default to Yes. The ship-to customer’s tax zone is also used to determine the applicable tax environment for the project.

Note Temporary ship-to records are automatically deleted when their associated projects are deleted.

End User. Enter the code identifying the address where the project will be installed. This value defaults from the ship-to address code.

If you leave the field blank or specify a new code, you are prompted to create a new end-user record and can enter the address information during transaction entry. Fields in the end-user definition frame in Project Maintenance are identical to those in the first two frames of End User Address Maintenance (10.13.1).

See “Setting Up End Users” on page 32.

Project Type. Enter the project type code that applies to this project. This becomes the default project type for each subproject, where it can be modified as needed. See “Setting Up Project Types” on page 38.

Master Project. Optionally enter a project code identifying a master project to associate with this project. This can be the project code of the current project or a project previously defined in Project Maintenance.

Use master projects to group related projects for reporting and updating with programs such as Project Budget Rollup (10.3.1).

Order Date. Order date defaults from the system date and indicates when the project was created. You can use order date as a selection criterion in some project reports.

Start Date, End Date. Enter the dates when activity for this project is scheduled to begin and end. You cannot leave these fields blank.

Project start and end dates provide default values for subprojects and define the valid range for subproject start and end dates. Subproject dates must be within the range defined in the header.

When Use Budgets is Yes for the project, project start and end dates determine effective dates for project-level budgets during budget rollup.

Channel. Enter a code identifying the distribution channel through which this project originated.

Alternate Sales, Sales Discount, and Cost of Goods Sold (COGS) accounts can be set up in Sales Account Maintenance (1.2.17) based on sales channel. The project channel, in combination with the product line on each subproject or project line, the subproject site, and ship-to customer type is used to search for these accounts when project invoices are posted.

Note Set up generalized codes for so_channel.

Purchase Order. Enter the customer purchase order number related to this project, if applicable. Entering a customer PO number is mandatory when PO Required is Yes in the sold-to customer record.

You can use customer PO numbers to select information on some reports and inquiries. They are also passed to Accounts Receivable (AR) when an invoice is posted. The PO number can assist your company in responding to customer inquiries since the customer may know only their purchase order number.

Site. Site defaults from the Project Site specified in Project Realization Control (10.24) and determines the site responsible for this project, usually the site from which project inventory is issued. This site, in turn, determines the default site on each subproject.

Location. Enter the default location for items used by this project. This location sets the default for each subproject. If you enter a nonexistent location, you are prompted to create it. If you respond Yes, you can enter location attributes in a pop-up window. See “Project Location Pop-Up” on page 57.

Status. Enter a project status code set up in Generalized Codes Maintenance (36.2.13). For a new project, this value defaults from the project Open Status in Project Realization Control (10.24). The project status indicates the position of the project in the project life cycle. For details on project statuses, see “Project Status Control Frame” on page 43.

Currency. Enter a currency code identifying the currency in which payments are made for this project. Project currency defaults from the bill-to customer record. When you specify a non-base currency on a project, a valid exchange rate must exist for that currency in Exchange Rate Maintenance (26.4).

Once a project has been created, the currency cannot be changed.

See “Multicurrency in Projects” on page 48.

Language. Enter the language used by the project customer. Language defaults from the ship-to customer record, but you can change it as needed. Customer reports such as Project Print (10.1.4) let you select projects for printing by ranges of language codes. Master comments are also stored by language.

Taxable. Enter Yes if this project is subject to tax; otherwise, enter No. This field defaults to Yes only when the taxable status of the ship-to customer and the project type are both Yes.

For details on how projects are taxed, see “Taxes” on page 19.

Tax Environment Tax Class. Specify the tax class for the system to use to determine the default tax environment (set of tax types) for this project. The tax class from the ship-to customer record displays by default.

Tax Rate Tax Class. Specify the tax class for the system to use to determine which tax rates to use with the tax types applicable to this project. The tax class associated with the project type specified in the header displays by default.

The tax rate tax class on a project is equivalent to item and trailer-charge tax classes on sales and purchasing transactions.

Tax Date. Enter the date for the system to use to determine which tax rates apply to the project. When you enter a date in this field, the system selects only tax rate records with effective date ranges that include this date.

Entered By. The system displays the ID of the user that created the project.

After displaying the first header frame and additional pop-ups, the system displays the second project header frame. Use this frame to update the project engineer and salespersons and define values that affect pricing, invoicing, and budgeting.

Fig. 3.5
Project Maintenance, Second Header Frame

Engineer. Optionally specify the primary engineer responsible for this project. When you create PAOs for this project, the PAO engineer initially defaults from this field.

See “Setting Up Engineers” on page 30.

Salesperson. Specify the salesperson to receive commission and quota credit for this project. To enter more than one salesperson, set Multiple to Yes. Salespersons default from the ship-to customer record. The salesperson information on the project header defaults to each subproject where it can be modified if necessary.

If your company does not give commission or quota credit for projects, leave the Salesperson and Commission values blank.

See “Salespersons” on page 18.

Commission. Enter the percentage of the project sales price that this salesperson receives as commission. Commission defaults first from Salesperson Commission Detail (2.5.6) if a rate has been defined for the ship-to customer, the product line of the project type specified in the header, or both. Otherwise, commission defaults from Salesperson Maintenance (2.5.1).

Note If the project ship-to customer does not have a customer record set up in Customer Maintenance, the sold-to customer is used to search for a default commission rate.

Salesperson and commission information from the project header is passed to each project-level pending invoice generated for the project. The commission for projects is calculated in the same way as standard sales commissions.

Note Subproject-level invoices use the salesperson and commission information from the subproject.

Pricing Date. Enter the effective date for the system to use to determine the price and cost lists that apply to the items and service categories on the project. The default is the current system date.

Price List. Enter a price list code identifying the default pricing structure for this project. This value initially defaults from the price list code associated with the project type specified in the header.

The value you enter here defaults to each underlying subproject, where it can be modified as needed.

See “Setting Up Price and Cost Lists” on page 33.

Credit Terms. Enter the appropriate credit terms for this project, previously defined in Credit Terms Maintenance (2.19.1). Credit terms initially default from the bill-to customer record.

When you schedule invoices at the project level, credit terms default from the project header and can be changed as needed on individual invoice schedules. When you create a subproject-level invoice schedule, credit terms default from the subproject details.

See “Credit Terms” on page 168.

Auto Price Rollup. This field determines how the sales prices of subprojects are calculated.

Yes: The system automatically calculates each subproject’s price by adding the sales prices of the underlying project lines.

No: You manually enter the sales price for each subproject. In this case, there is no direct relationship between the subproject price and the prices of the underlying lines.

You cannot change this value once an invoice schedule exists for the project.

For more information, see “Project Pricing” on page 48.

Global Invoicing. This field, in combination with Auto Price Rollup, determines whether invoicing is based on the entire project or individual lines.

Yes: The system generates an invoice by applying the percentage or amount specified in Invoice Schedule Maintenance (10.9.1) to the entire project. You cannot invoice for specific project lines.

No: If Auto Price Rollup is Yes, the system generates an invoice for the project lines you specify in Invoice Generation (10.9.13). In this case, you can optionally link project lines to invoice groups and invoice by group. See “Invoice Group” on page 65.

This value defaults from the corresponding field in Project Realization Control. You cannot change this value once an invoice schedule exists for the project.

For more information, see “Global Invoicing” on page 161.

Note When Global Invoicing is No on the header, individual subprojects can still use global invoicing.

Use Budgets. This setting determines whether the system calculates budgets for this project when it matches the selection criteria defined in Project Budget Rollup (10.3.1). This value defaults from the corresponding field in Project Realization Control.

When Use Budgets is No, you can still create project budgets manually in Project Budget Maintenance (10.3.3). However, this is not recommended since it is less effective and more time consuming than using Project Budget Rollup.

See “Managing Project Budgets” on page 67.

Budget Warning Limit, Budget Overrun Limit. When Use Budgets is Yes, optionally define percentages to use as budget warning and overrun limits for this project. These values default from the corresponding fields in Project Realization Control.

When Budget Warning Limit has a nonzero value and a budget exists for the project, warnings display in activity recording functions when the recorded item, labor, and expense costs have consumed the budget up to the specified limit. When Budget Overrun Limit has a nonzero value, warnings display when budget consumption exceeds the overrun percentage.

For details on how these fields are used, see “Budget Warning Limit, Budget Overrun Limit” on page 42.

Example For project PJ-100, a single, total budget exists at the project level. The available budget for PJ-100 is \$1000.00 and the Budget Warning Limit is 10%. When more than \$900.00 of the budget is consumed in Project Activity Recording, the following warning displays: Percentage of budget remaining is less than 10%.

Comments. Enter Yes to update header comments for this project; otherwise, enter No. This value defaults from the Project Header Comments field in Project Realization Control.

Project Location Pop-Up

If you specify a location in the first header frame that does not exist in the project site, you are prompted to create it. Figure 3.6 illustrates the frame that displays for creating a new project location. The fields in this frame are exactly the same as in Location Maintenance (1.1.18).

For more information, see “Project Locations” on page 15.

Fig. 3.6
Project Maintenance, Auto Project Location

The screenshot shows a dialog box titled "Auto Project Location". The fields are as follows:

- Site: 10000 San Diego Main Plant
- Location: 101
- Description: Location for PJ1234
- Inventory Status: INSTALL
- Project: PJ1234
- Date Created: 07/19/2002
- Permanent:
- Type: [empty]
- Single Item:
- Single Lot/Ref:
- Capacity: 0.0
- UM: [empty]

Navigation arrows are visible at the bottom right of the dialog.

Note The value in the Project field defaults from the current project identifier and cannot be updated.

Follow these guidelines when setting up and using project locations:

- Define at least one dedicated location for each project. Some key fields in the project sub-ledger, such as Project QOH (quantity on hand), are updated only when the project code at the location where the project transaction occurs matches the project for which the transaction is recorded.
- Do not use transactions other than material orders, project purchase orders, or PAR subassembly receipts to transfer items into project locations. Other transactions do not update the quantities and costs the system tracks in the project sub-ledger.

See also “Project Locations” on page 15.

Tax Data Frame

After the project location pop-up, an additional frame displays for reviewing and updating the data used by Global Tax Management (GTM) to calculate the tax amount for the project.

For details on taxation in PRM, see “Taxes” on page 19.

Fig. 3.7
Project Maintenance, Tax Data Frame

The screenshot shows a form with the following fields and values:

- Tax Usage: [Empty]
- Tax Environment: USA/USA
- Tax Environment Tax Class: 006
- Taxable:
- Tax In:

Navigation arrows are visible at the bottom right of the form.

Tax Usage. Enter the tax usage code that applies to this project. This value defaults from the ship-to customer record.

The project tax usage code, along with the Tax Rate Tax Class and Tax Date settings, determine which tax rates apply to the project. Tax rates may vary depending on the project customer’s nature of operation or on the intended usage of project items. Common tax usage codes are retail, manufacturing, and industrialization.

Tax Environment. Enter the tax environment that applies to this project. To determine the default value for this field, the system searches for a tax environment record where both of the following are true:

- The ship-from zone and ship-to zone both match the tax zone on the ship-to customer record.
- The tax class matches the value in the Tax Environment Tax Class field or is blank

If a tax environment with a matching tax class is not found, the system searches for an environment where the ship-from and ship-to zones match the ship-to customer tax zone and the tax class is blank.

Tax Environment Tax Class. This field displays the value from the project header and can be updated as needed.

Tax In. This field determines whether the system calculates tax and adds it to the net price of the project or assumes the tax amount is already included in the project price.

No: Tax is calculated and added to the project net price.

Yes: The project net price includes tax. After you are finished entering project lines and subprojects, the system calculates the net price of the project, reverse-calculates the tax amount, and displays the total project exclusive of tax in the project trailer. The calculated tax amount displays in the Total Tax field.

The value of Tax In defaults from the ship-to customer record.

See “Project Trailer” on page 65.

Subproject Header

Use the subproject data frames to define header information for subprojects. Many of the values in these frames default from the project header.

Fig. 3.8
Project Maintenance, Subproject Header Frame

Subproject Details. Indicate the method you want to use to enter subprojects. This value defaults from the corresponding field in Project Realization Control (10.24).

Yes: You can display and maintain detailed information such as start and end dates, project type, price list, and site and location detail, for each subproject.

No: You can enter only a subproject code and description for each subproject. Other subproject details default from the header and can be updated only when Subproject Details is Yes.

Subproject. The system automatically displays the next available subproject number in this field. To create a new subproject, use the default subproject number or enter a new number.

Description. Enter a brief description of the subproject. This description displays in reports and browses used to select subprojects.

Total List Price. When Auto Price Rollup is No on the project header, enter the total price for the subproject. When Auto Price Rollup is Yes, this value is calculated by the system based on the cumulative prices of the underlying subproject lines and cannot be updated.

Discount. When Auto Price Rollup is No, enter a discount percentage to apply to this subproject, if appropriate. The total net price of the subproject is calculated by the system based on the value of Total List Price and Discount; however, you can modify this value as needed using the Total Net Price field.

You cannot modify this field when Auto Price Rollup is Yes on the project header.

Total Net Price. The system displays the total subproject price minus the discount percentage specified in the Discount field. You can modify this field only when Auto Price Rollup is No on the project header. When Auto Price Rollup is Yes, this value is calculated by the system based on cumulative prices and discounts from the underlying subproject lines.

Project Type. Enter the project type that applies to this subproject. The default is the project type specified in the project header.

When you change the project type on an existing subproject, you are prompted to change the price list, work code, product line, and tax status based on settings from the new project type. If you respond Yes, these values are updated.

See “Setting Up Project Types” on page 38.

Start Date, End Date. These default from the dates specified on the project header. You can specify different dates for each subproject. However, both dates must be within the range defined by the header start and end dates.

Subproject start and end dates determine default start and end dates for PAO lines when start and end dates are not defined in the PAO header. In addition, when Use Budgets is Yes for the project, subproject start and end dates determine effective dates for subproject-level budgets during budget rollup.

Original Start, Original End. The system displays the start and end dates established for the subproject when it was initially created.

Price List. Enter a price list code identifying the pricing structure to use to calculate prices and costs for the underlying project lines associated with this subproject. When the project type on the subproject matches the header project type, this value defaults from the header price list. Otherwise, it defaults from the price list specified on the project type. See “Setting Up Price and Cost Lists” on page 33.

Work Code. Optionally enter a work code to associate with this subproject. The default is the work code from the project type associated with this subproject. The subproject work code becomes the default work code for its underlying project lines. See “Setting Up Work Codes” on page 28.

Status. Enter a project status code set up in Generalized Codes Maintenance (36.2.13). For a new subproject, this value defaults from the Open Status field in Project Realization Control. See “Project Status Control Frame” on page 43.

Product Line. Enter a product line to associate with this subproject. This value initially defaults from the project type specified for this subproject. The subproject product line, in turn, defaults to its underlying project lines, where it can be changed as needed. See “Product Lines” on page 14.

Note For item project lines, the default product line depends on the value of Use Item Product Line in Project Realization Control. See “Use Item Product Line” on page 41.

Site. Site defaults from the site specified on the header and determines the site responsible for this subproject, usually the site from which subproject inventory is issued.

The GL entity associated with this site is used to book costs and revenue associated with this subproject in Project Activity Recording (10.5.13), Invoice Post (7.13.4), and other programs that update the GL. The system also uses item-site costs from the subproject site to determine planned costs for items that do not have corresponding cost lists defined in Project Pricing Maintenance (10.19.1).

Location. Enter the default project location for items used by this subproject. The default is the location specified on the header. If you enter a nonexistent location, you are prompted to create it. If you respond Yes, you can enter location attributes in a pop-up window.

When you create a PAO line for a project line that is associated with this subproject, the PAO line site and location default from the subproject details.

See “Project Location Pop-Up” on page 57.

Salesperson. Specify the salesperson to receive commission and quota credit for this subproject. The default is the salesperson from the project header. To enter more than one salesperson, set Multiple to Yes.

Commission. Commission defaults from the project header and determines the percentage of the subproject sales price this salesperson receives when invoicing is done at the subproject level.

When you specify a salesperson not referenced on the project header, Commission defaults first from Salesperson Commission Detail (2.5.6) if a rate has been defined for the ship-to customer, the subproject product line, or both. Otherwise, commission defaults from Salesperson Maintenance (2.5.1).

Note If the project ship-to customer does not have a customer record set up in Customer Maintenance, the sold-to customer is used to search for a default commission rate.

Subproject salesperson and commission information is passed to each pending invoice generated for the subproject. The commission for subprojects is calculated in the same way as standard sales commissions.

Global Invoicing. This field, in combination with the Auto Price Rollup setting on the project header, determines whether invoicing is based on the entire subproject or individual lines.

Yes: The system generates an invoice by applying the percentage or amount specified in Invoice Schedule Maintenance (10.9.1) to the entire subproject. You cannot invoice for specific project lines.

No: If Auto Price Rollup is Yes on the project header, the system generates an invoice for the project lines you specify in Invoice Generation (10.9.13).

If Global Invoicing is Yes on the project header, you cannot set it to Yes for a subproject unless the subproject has Variation set to Yes.

You cannot change this setting once an invoice schedule exists for the subproject. Also, when a project-level invoice schedule exists, you cannot change this value on any subproject unless it is marked as a variation.

For more information, see “Global Invoicing” on page 161.

Credit Terms. Enter the appropriate credit terms for this subproject. Subproject credit terms default from the header.

When you create a subproject-level invoice schedule, credit terms default from the subproject details.

See “Credit Terms” on page 168.

Variation. Enter Yes to indicate that this subproject is created to accommodate a change in the amount of work originally planned. Enter No to indicate that the subproject is part of the initial project plan.

See “Project Variations” on page 50.

Comments. Enter Yes to update comments for this subproject; otherwise, enter No. For a new subproject, this value defaults from the Subproject Comments field in Project Realization Control.

Engineer. Optionally specify the primary engineer responsible for this subproject. The default is the engineer specified in the header.

The engineer from the project header (not the subproject) becomes the default engineer on PAOs.

Project Line Details

Use the project line detail frames to enter detail lines beneath each subproject. You can use the Parent field to add lines as structures beneath the following types of project lines:

- Subassembly lines
- Lines with a blank service category, which are used to format the project structure

In all other cases, you add detail lines directly beneath the subproject.

Fig. 3.9
Project Maintenance, Line Details

Line	Category	Item Number	Description	Qty Planned	UM
1	items	44-1000	SENSOR UNIT,	30.0	EA

Project Line Details

UM Conversion: 1.0000	Status:	
Work Code: PM	Invoice Group:	
Product Line: W90P	Variation: <input type="checkbox"/>	
Subassembly: <input type="checkbox"/>	Frozen: <input type="checkbox"/>	
List Price: 0.00	Comments: <input type="checkbox"/>	
Disc Pct: 0.0%		
Net Price: 0.00	USD	Unit Cost: 0.00
Total Price: 0.00	USD	Total Cost: 0.00

Parent. Enter a parent subproject or project line to associate with the detail line you are creating. Parent defaults from the sequence number of the current subproject.

Line. Enter a sequence number identifying the project line you want to create or update. The system automatically displays the next available line number.

Category. Enter a service category representing the kind of activity associated with this project line. If the line is for an item, specify an item service category. In this case, you can modify the Item, UM Conversion, and Subassembly fields.

Leave this field blank to create a header line for formatting project detail. You can then create additional lines below the format line. For a line with a blank service category, you cannot specify line details other than a description and you cannot add the line to a PAO.

See “Setting Up Service Categories” on page 26.

Item Number. When applicable, enter an item number identifying the item to be used on this project line. You can update this field only when an item service category is specified for this project line.

Description. For a labor or expense service category, the description defined in Service Category Maintenance displays in this field. You can enter or modify the description as needed.

For an item, description defaults from the item master and cannot be updated.

Quantity Planned. Enter the quantity of the item or service category you plan to use. For example, you could use 4 items or 4 hours of labor.

If items will be returned from the customer for this project, enter a negative quantity. For example, you may be installing new equipment and plan to receive the old equipment back.

See “Planned Returns” on page 126.

UM. Enter the unit of measure (UM) that applies to this project line. For an item, UM defaults from the item master. For an expense line, there is no default. For a labor service category, this field defaults to blank and cannot be updated.

When the system searches for a default list price and unit cost for an item or expense line, it considers only price lists with a UM identical to the project-line UM. UM does not apply when searching for labor price lists.

See “Setting Up Price and Cost Lists” on page 33.

UM Conversion. For labor and expense lines, this field defaults to blank and cannot be updated. For an item line, the system calculates and displays a value based on the unit of measure (UM) specified for the line, the item master UM, and the conversion factor defined in Unit of Measure Maintenance (1.13).

If a conversion factor is not found, a warning displays and the UM Conversion value remains set to 1.0000. Adjust it manually as needed.

Project Maintenance uses the project-line UM conversion factor to calculate planned prices and costs for line items that do not have project price lists set up in Project Pricing Maintenance (10.19.1). Similarly, Project Activity Recording (10.5.13) uses the project-line UM conversion to calculate the actual unit cost of items when the item-master UM differs from the project-line UM.

Work Code. Optionally enter a work code to associate with this project line. The default is the work code from the parent subproject or project line.

The project-line work code can determine pricing when price lists are set up by work code. You can also roll up project budgets based on work code and service category combinations.

See “Setting Up Work Codes” on page 28.

Product Line. Enter a product line to associate with this project line.

For labor and expense lines, this value defaults from the product line of the parent subproject. For items, the default is determined by the setting of Use Item Product Line in Project Realization Control (10.24).

The system uses the product line specified for each project line to:

- Search for PRM cost and price lists defined by product line
- Find GL accounts to update for project-related transactions

Note When Auto Price Rollup is No, the product line from the subproject, not project lines, is used to find Sales accounts during invoice post.

Subassembly. Enter Yes if the project line item is a subassembly item to be manufactured and received as part of the project activity. Otherwise, leave this value set to No.

The system automatically sets Subassembly to Yes when both of the following are true:

- The specified item has an associated product structure or formula and references a Purchase/Manufacture code of M, L, W, or blank.
- You respond Yes when prompted to load the product structure as lines below the current line.

In this case, the components of the product structure are loaded as additional project lines below the current line. You can then track all the component items as part of the project. The system automatically sets the Subassembly field to Yes for each intermediate subassembly item in a multilevel product structure.

If you respond No when the system prompts you to load product-structure components, you can still manually add component lines beneath the subassembly line, if required.

Important When creating subassembly lines for items with complex, multilevel product structures, remember that component line nesting is limited by the length of the Parent field, which is 12 characters. This restriction may prevent the system from automatically generating project lines for components at lower levels of an item's product structure.

List Price. Indicate the amount per unit you charge the customer for the item or service category on this project line. The system calculates a default based on the pricing structure specified on the subproject or, for item lines, the item master price. List price displays in the project currency.

For details on how line prices are calculated, see “Setting Up Price and Cost Lists” on page 33.

Note The system does not retrieve default costs or prices for subassembly lines. Instead, the cumulative prices and costs of the components represent the price and cost of the parent subassembly.

Discount. Enter a discount percentage to apply to the list price for this line. For an item line, Discount is calculated as the difference between list price and net price, expressed as a percentage. For labor and expense lines, there is no default.

The net price for a project line is determined by subtracting the discount percentage from the list price. When Auto Price Rollup is Yes, the system factors the discount for each project line into the overall subproject discount.

When you change the value in this field, the system recalculates the net price for the line based on the new discount. Likewise, if you modify the net price for a project line, the system recalculates the discount.

Net Price. The system calculates the net price per unit for the line by subtracting the discount amount from the list price. You can modify this value as needed.

Total Price. The system displays the extended price for the project line, calculated as the product of the net price and quantity planned.

Status. This is a display-only field indicating whether the project line has been processed by Project Activity Close (10.23.2). Closed project lines are automatically assigned the Closed Status from Project Realization Control. See “Closing Projects” on page 180.

Invoice Group. If appropriate, specify an invoice group to associate with this line. When Global Invoicing is No on the project header and the parent subproject, you can use invoice groups to group project lines for selection in Invoice Generation (10.9.13).

Note Set up generalized codes for pjs_inv_group.

Variation. Enter Yes to indicate that this project line is created to accommodate a change in the amount of work originally planned for the project. Enter No to indicate that it is part of the initial project plan. This value defaults from the corresponding field on the parent subproject or project line. See “Project Variations” on page 50.

Note On a variation subproject, the Variation field defaults to Yes for each underlying project line and cannot be changed.

Frozen. This field indicates whether you can make changes to this project line. When Yes, this line cannot be modified unless this setting is changed to No.

The system automatically sets this field to Yes when Project Budget Rollup (10.3.1) is run with the Update and Freeze Planned Details fields set to Yes.

See “Project Budget Rollup” on page 68.

Comments. Enter Yes to update comments for this project line; otherwise, enter No. For a new line, this value defaults from the Project Line Comments field in Project Realization Control.

Unit Cost. Enter the cost per unit for the item or service category on the project line. The system calculates a default based on the pricing structure specified on the subproject or, for item lines, the item-site cost data. Costs display in the system base currency.

For details on how project costs are calculated, see “Setting Up Price and Cost Lists” on page 33.

Note The system does not retrieve default costs or prices for subassembly lines.

Total Cost. The system displays the extended cost for the project line, calculated as the product of the unit cost and quantity planned.

Project Trailer

Many of the fields in the project trailer are similar to those in the trailer for sales orders. However, there are fewer fields to update than on the sales order trailer since trailer charges, line-item taxes, packing lists, and so on do not apply to PRM projects.

Note With the exception of View/Edit Tax Detail, all of the fields in the middle frame are display only.

Fig. 3.10
Project Maintenance, Trailer

Non-Taxable. The system displays the amount of the project price not subject to tax. Since taxes are calculated at the header level, this will be either the total project price or 0 (zero), based on the Taxable value in the project header.

Taxable. The system displays the project amount subject to tax. This will either be the total project price or 0.

Tax Date, Currency. The system displays the tax date and currency code from the project header.

Total Project Amount, Total Tax, Total. The system displays the total project price excluding tax, the project tax amount, and the total project price including tax.

View/Edit Tax Detail. Enter Yes to review or edit tax details related to this project; otherwise, enter No. If Yes, an additional frame displays details such as tax date, tax rate, tax class, and other tax information.

If Update Tax Allowed is Yes in Tax Rate Maintenance (2.13.13.1) for the associated tax rate, you can modify the taxable base (amount subject to tax) and calculated tax amounts.

Credit Initials. Enter a code identifying the person who approved this project, generally the initials of the person who approved the credit and terms. This value is for reference only.

Note Set up generalized codes for field so_cr_init.

Credit Card. Enter a code identifying the credit card used to make payments against this project, when applicable. This value is for reference only.

Note Set up generalized codes for field so_cr_card.

Action Status. This reference-only field is used by the system to indicate whether the project bill-to customer is on credit hold. The system automatically sets Action Status to HD (hold) when you create a project for a bill-to customer that is on credit hold and Credit Hold Option is 1 in Project Realization Control (10.24). In all other cases, the default value for this field is blank.

You can define additional action statuses in Generalized Codes Maintenance (36.2.13), if needed. However, for PRM projects, it is recommended that you use project status codes rather than action statuses to indicate the position of a project in the project life cycle.

See “Credit Hold Option” on page 41.

AR Account. Enter the default GL account, sub-account, and cost center to use for reporting accounts receivable (AR) amounts for this project. These values set the defaults on each invoice schedule you create for the project.

AR account data default from the bill-to customer record, if specified. Otherwise, they default from the AR account, sub-account, and cost center specified in Invoice Schedule Control (10.9.24).

See “AR Account” on page 159.

Scheduled Prepayment Amount. This field displays the sum of the prepayment amounts scheduled for this project in Invoice Schedule Maintenance (10.9.1).

See “Prepayments” on page 160.

Prepayment Tax. This field displays the total tax amount that applies to the scheduled prepayments.

Managing Project Budgets

Tracking budgets is an important way to ensure that actual project costs do not exceed planned costs. You can automatically generate and track budgets for projects that have Use Budgets set to Yes in the project header.

Typically, a budget is initially created using Project Budget Rollup (10.3.1). While you can create budgets manually using Project Budget Maintenance (10.3.3), this method is not recommended. It is simpler and more effective to use Project Budget Rollup after you have created the project. Use Project Budget Maintenance to modify the budget, if necessary, after it has been created.

Effect of Budgets

When a project has budgets, the system tracks the cost of items, labor, and expenses consumed by the project against the budget amounts. When you begin to record activity for a project, a warning displays if Use Budgets is Yes for the project and a budget does not exist.

See “Budget Consumption” on page 130.

Warnings can also display when project costs have consumed a certain percentage of the budgeted amount or have exceeded it by a certain percentage, based on the budget limits defined in the project header.

See “Budget Warning Limit, Budget Overrun Limit” on page 56.

Labor and expenses always consume budgets when they are issued in Project Activity Recording (10.5.13) or Project Labor Recording (10.5.14). When the costs of item project lines consume budgets depends on the value of Project Inventory in Sub-Ledger WIP in Project Realization Control.

When Project Inventory in Sub-Ledger WIP is No, item costs do not consume budgets until items are issued in Project Activity Recording.

See “Project Inventory in Sub-Ledger WIP” on page 43.

When Project Inventory in Sub-Ledger WIP is Yes, item costs consume budgets when items are transferred or received into a project location in one of the following ways:

- Shipping a material order using Material Order Shipments (10.7.6)
- Receiving item lines on a project purchase order in Purchase Order Receipts (5.13.1)
- Receiving a subassembly item in Project Activity Recording
- Processing a return from a non-project location into a project location using MO Direct/Pending Returns (10.7.8)

Note The budget consumption warnings that display in Project Activity Recording and Project Labor Recording do not display when budget warning or overrun limits are exceeded in Purchase Order Receipts or material order programs.

To review budget details, including planned costs and consumed amounts, run Project Budget Report (10.3.13) for the appropriate range of selection criteria.

See “Project Budget Report” on page 194.

Project Budget Rollup

Use Project Budget Rollup (10.3.1) to summarize planned costs from the line detail of selected projects or subprojects into budgets. You can create budgets for either projects or subprojects using one of three available budget methods.

Note Use Budgets must be Yes in the project header for a budget to be created.

The system sets the effective dates on the budgets based on the project or subproject start and end dates. You can modify budget effective dates, if required, using Project Budget Maintenance (10.3.3).

The budgets you generate apply to an entire project or subproject and must be consistent at that level. For each project, you can budget at one level only. You cannot mix levels.

- If you generate project-level budgets, only one budgeting basis (work code/category, invoice sort, or level total) can be used for each project.
- If you generate subproject-level budgets, you can use a different budget basis for each subproject, if required.

If you need to regenerate project budgets using a different budgeting level or basis, you must first manually delete the applicable existing budgets in Project Budget Maintenance.

To regenerate project budgets without changing the budgeting level or basis, you do not need to delete the current budget records. The system automatically overwrites these with the new data.

When regenerating existing budgets, keep in mind the following considerations:

- The system recalculates the planned cost and price for each budget based on current values from Project Maintenance (10.1.1). Any changes made to budgeted amounts (costs) in Project Budget Maintenance are overwritten.
- Regenerating budgets does not update existing budget effective dates or consumed amounts.

You should always generate and review a report before updating the database with budget amounts. To run Project Budget Rollup in report-only mode, set Update to No.

Fig. 3.11
Project Budget Rollup (10.3.1)

Project, Subproject, Master Project, Category, Work Code. Use these selection criteria fields to determine which project lines to include in the generated budgets.

You cannot specify a subproject range unless Budget Level is set to Subproject. Similarly, you cannot specify a work code or category range when Budget by Work Code/Category is No.

Reporting Currency. Enter a currency code identifying the currency to use for displaying budget amounts (planned costs) and project prices in the report output. The default is the system base currency.

Functions that let you display and update project-related data, such as Project Maintenance (10.1.1), show project prices in the project currency and costs in the system base currency. When you report project budget amounts, however, both prices and budget amounts (costs) display in the reporting currency you specify.

See “Multicurrency in Projects” on page 48.

Report Date. Enter a date to use to search for an effective currency exchange rate for a non-base reporting currency.

Budget Level. This field determines whether budgets are generated at the project or subproject level.

Project: The budgets generated by this rollup apply to entire projects.

Subproject: The budgets generated by this rollup apply only to the selected subprojects.

How budgets are calculated is based on which of the following options you choose. One, and only one, of these options must be Yes.

Budget by Work Code/Category. When Yes, the system generates budgets based on the combination of work code and service category specified on each project line. This is the most detailed form of budgeting.

See “Setting Up Work Codes” on page 28.

Note When Budget by Work Code/Category is Yes, the system displays an error for each project line with a blank work code and excludes those lines from the budget.

Budget by Invoice Sort. When Yes, the system generates budgets based on invoice sort codes. Each service category is associated with an invoice sort code when it is defined. The system uses this relationship to summarize project details under the appropriate invoice sort code.

This form of budgeting is less detailed than budgeting by work code and service category, but more detailed than a total budget.

See “Setting Up Invoice Sorts” on page 26.

Budget by Level Total. When Yes, the system generates one budget amount (cost) for each selected project or subproject. This is the most general form of budgeting.

The remaining fields determine whether the budget rollup includes variations, whether project-line details are frozen after lines are budgeted, and whether the rollup updates the database.

Include Variations. This field determines whether project variations are included in or excluded from the generated budgets.

Yes: Subprojects and lines with Variation set to Yes are included in the budget rollup.

No: Subprojects and lines with Variation set to Yes are not included in the rollup.

See “Project Variations” on page 50.

Update. Set this field to Yes to have the budget rollup update the database. Set to No to run the rollup in report-only mode.

Freeze Planned Details. This option lets you freeze each project line included in the budget total. Freezing budgeted project lines helps ensure that planned costs do not change for those lines, enabling more accurate tracking against actual costs.

Yes: When Update is Yes, the system sets Frozen to Yes on each project line included in the generated budgets.

No: Project Budget Rollup does not freeze selected lines.

A frozen line cannot be updated unless Frozen is reset to No. When you freeze budgeted lines, be sure to use security validation to limit access to the Frozen field in Project Maintenance.

See “Frozen” on page 65.

Project Budget Maintenance

Use Project Budget Maintenance (10.3.3) to review the budgets generated by Project Budget Rollup (10.3.1) and manually modify them as needed.

Note You cannot use Project Budget Maintenance to add new records to those generated by Project Budget Rollup.

When you edit or review existing budgets in Project Budget Maintenance, the budget basis you specify (total, invoice sort code, or a work code and service category combination) must match the basis used during budget rollup. Also, if budgets were rolled up at the subproject level, the Subproject field must have a value.

Example You ran Project Budget Rollup for project PJ-100 with Budget Level set to Subproject and Budget by Invoice Sort set to Yes. To edit the generated budgets in Project Budget Maintenance, you must enter values in the Subproject and Invoice Sort fields.

Restrictions

Although it is recommended that you generate budgets using Project Budget Rollup, the system does not prevent you from creating them in Project Budget Maintenance. If you do use Project Budget Maintenance to manually create budgets, the following restrictions apply:

- The Quantity Budgeted fields in the project sub-ledger are not updated, nor are project history transactions generated to record the budget creation. See “Sub-Ledger Quantities” on page 189.
- Summarized project-line prices are not calculated or stored with budget records. When you use Project Budget Report (10.3.13) to review manually created budgets, the Price and Margin % values are blank for each budget.
- You cannot use Project Budget Rollup to generate budgets automatically when manually created budgets already exist for the selected project or subproject. To roll up project budgets, you must first delete the manually created ones.

Fig. 3.12
Project Budget Maintenance (10.3.3)

Project, Subproject. Enter the project and, when applicable, the subproject for which to update budgets.

Total, Invoice Sort, Work Code. These fields determine the type of budget being updated. Only one of Total, Invoice Sort, or Work Code can be entered.

- When Total is Yes, budget data apply to the entire project or subproject.
- When you specify an invoice sort code, budget data apply to that invoice sort.
- When you specify a work code, budget data apply to a combination of work code and service category (specified in the third frame).

Category. If you specified a work code in the second frame, enter the service category for which budgets are being updated.

Start, End Date. Enter the dates for the system to begin and stop consuming the budget. Project Budget Rollup sets these dates based on the project or subproject start and end dates.

Cost. Enter the total amount for this budget, expressed in the system base currency. This value is set by Project Budget Rollup based on planned costs specified for each project line.

Consumed. The system calculates the amount consumed for the selected budget and displays it in the system base currency.

Percent. This field displays the budget amount consumed, expressed as a percentage of the available amount.

Setting Up and Creating PAOs

This chapter describes how to set up and create project activity orders (PAOs) in PRM.

Overview of PAOs 74

Outlines the PAO workflow and discusses PAO statuses, lines, and worksheets.

Setting Up PAOs 78

Addresses how to set up data used with PAOs, PAO statuses, defaults, and PAO Control (10.5.24).

Creating PAOs 83

Discusses using PAO Maintenance (10.5.1), data entry flow, autoengineering MOs, deleting PAOs, and PAO maintenance.

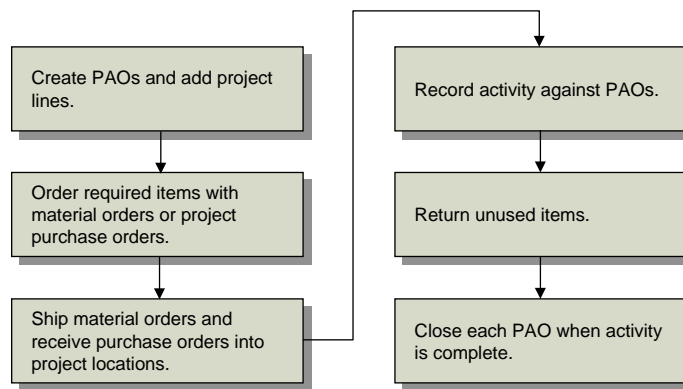
Overview of PAOs

Chapter 1 introduced the general structure of a project, which involves multiple elements: subprojects, detail lines, budgets, PAOs, fulfillment orders, and invoicing. Because of the multiple elements, multiple related life cycles exist for projects, PAOs, fulfillment orders, and project invoices. See “Understanding Projects” on page 3.

Figure 4.1 illustrates a typical PAO work flow. This chapter discusses only elements related directly to setting up and creating PAOs.

- Project and budget setup activities are discussed in Chapter 3, “Creating and Managing Projects,” on page 45.
- Project realization, including ordering components and recording activity against PAOs, is discussed in Chapter 5, “Realizing Projects,” on page 95.
- The invoicing life cycle is described in detail in Chapter 6, “Invoicing Projects,” on page 157.
- Procedures for closing projects and PAOs are discussed in Chapter 7, “Closing and Evaluating Projects,” on page 177.

Fig. 4.1
PAO Work Flow



The PAO life cycle begins after you have set up the project and project-related data such as budgets and invoice schedules.

- 1 Use PAO Maintenance (10.5.1) to group related project lines to be completed as distinct units of work. See page 83.
- 2 Order the items needed for the PAO from locations and sites within your company on material orders (MOs) or from external suppliers using project purchase orders. If needed, you can also create memo lines on project purchase orders and link them to expense lines on the project. See page 102.
- 3 Ship the MOs and receive the project purchase orders so that inventory is available in the project location or locations. See page 115.
- 4 Record activity for the PAO with Project Activity Recording (10.5.13) or Project Labor Recording (10.5.14). For expense lines referenced on project purchase orders, use Purchase Order Receipts (5.13.1) to register the expense detail against the project and consume project budgets. See page 123.

- 5 Use Project Activity Recording or MO Direct/Pending Returns (10.7.8) to return any items not consumed by the project. See page 153.
- 6 Close completed PAOs using PAO Close (10.5.16). See page 179.

The following sections discuss some general concepts you should understand when setting up and maintaining PAOs.

PAO Statuses

Each PAO has a status that indicates its position in the overall life cycle. Five system-significant statuses can be defined in PAO Control (10.5.24):

- The open status is automatically assigned to new PAOs when a default status is not found in PAO Default Maintenance (10.5.21.4).
- The hold status indicates that the PAO is temporarily inactive and no activity can be recorded until the status is changed.
- The complete status indicates that activity for the PAO is complete. Only completed PAOs can be closed by PAO Close (10.5.16).
- The closed status indicates that the PAO is complete and has been processed by PAO Close.
- The cancel status indicates that a PAO is inactive. A PAO can only be canceled if it does not have associated MO lines, worksheet detail records, or activity recorded against it.

For more information about these statuses, see “PAO Status Control Frame” on page 82.

In addition to these five significant status codes, you can also set up other PAO statuses in PAO Status Code Maintenance (10.5.21.1) and assign them to PAOs manually in PAO Maintenance (10.5.1) or Project Activity Recording (10.5.13). This can help give visibility to any intermediate life-cycle steps that apply to PAOs in your business environment.

Here is one possible scenario:

- 1 When a PAO is first created, its status defaults to NEW.
- 2 A project planner transfers the inventory required to complete the PAO to a project location using material orders or project purchase orders. The planner changes the PAO status to ORDERED.
- 3 A project supervisor reviews the PAO and assigns the engineers necessary to complete the scheduled work. The supervisor changes the PAO status to SCHEDULE.
- 4 A supervisor at the project site records items, labor, and expenses against the PAO for the first time in Project Activity Recording (PAR). The site supervisor changes the PAO status to STARTED.
- 5 All work on the PAO is complete. After making the final updates in PAR and processing any necessary returns, the planner changes the PAO status to the complete status specified in PAO Control, COMPLETE.
- 6 When completed PAOs are processed by PAO Close, their status changes to the closed status from PAO Control, CLOSED.

You can use PAO status as a selection criterion in most PAO reports and inquiries.

PAO Lines

As with other types of orders in the system, a project activity order consists of a header and multiple lines. Each line on a project activity order references a project line and a specific quantity that you expect to consume, move, or assemble. You can reference the same project line on multiple PAOs, if needed.

Example You create a project line for 200 meters of pipe and issue the pipe on two separate PAOs with a quantity of 100 meters each.

Every PAO line has an associated type. For labor and expense lines, this is always I (Issue). When you add an item line to a PAO, you can indicate one of three line types.

See “PAO Line Type” on page 89.

The line type determines how the line is managed by the system and whether you can reference it on an MO. Line type also determines whether the system creates a worksheet for issuing or receiving the line quantity in PAR.

See “PAO Worksheets” on page 77.

Issue Lines

Issue lines can be selected for recording project consumption (issues) in PAR. Items to be issued are typically ordered with an MO or project purchase order and shipped to or received into a project location.

You can create MOs automatically in PAO Maintenance (10.5.1) or manually using Material Order Maintenance (10.7.1). Create project purchase orders in Purchase Order Maintenance (5.7).

See “Creating Project Orders” on page 102.

Note In addition to creating issue lines in PAO Maintenance, you can also create them in PAR.

Move Lines

Move lines typically reference subcontracted items. Their assembly takes place off site and the assembled item is moved back to your site when complete. Use an MO to move the items to a project location or another internal location in preparation for subcontracting. When the subcontract operation is complete, create an issue line for the subcontracted items on the existing PAO or a different PAO so that the items can be issued in PAR. You cannot display or issue move lines in PAR.

Assembly Lines

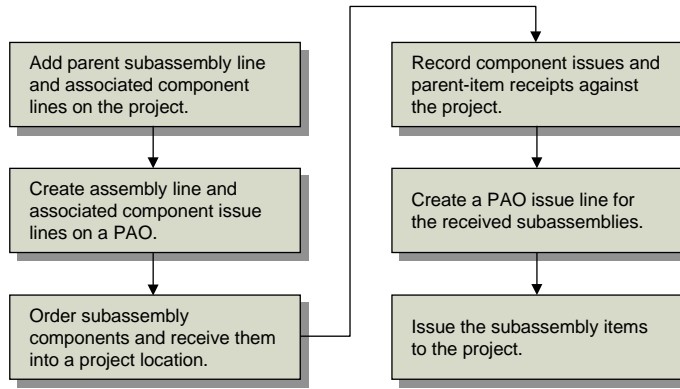
Assembly lines reference items that you manufacture as part of the project activity. Only items indicated as subassemblies in Project Maintenance (10.1.1) can be added to the PAO as assembly lines. When you enter an assembly line in PAO Maintenance, you are prompted to load the component lines from Project Maintenance as issue lines below the assembly line.

See “Project Subassemblies” on page 49.

The system creates a separate worksheet for each assembly line and its associated component lines. You cannot reference assembly lines on MOs.

The basic work flow for creating and managing project subassemblies is shown in Figure 4.2.

Fig. 4.2
Subassembly Work Flow



- 1 Create the subassembly line in Project Maintenance (10.1.1) and load component lines as needed. Create additional lines beneath the subassembly line to record any labor or expenses required to complete the subassembly.

See “Project Subassemblies” on page 49.

Note When an item has an associated product structure or formula and a Purchase/Manufacture code of M (Manufactured), L (Line Manufactured), W (Flow), or blank, the system automatically loads component lines beneath the parent subassembly line. See “Product Structure and Formula Data” on page 21.

- 2 When you are ready to place the subassembly line on a PAO, use a PAO line type of A (Assembly). When you create an assembly line in PAO Maintenance, you can automatically load the component lines from Project Maintenance as issue lines below the assembly line. Each intermediate subassembly must be loaded as a separate assembly line on the PAO.
- 3 Order the component items as needed on MOs or project purchase orders and receive them into a project location.
- 4 Receive the completed end items and register component, labor, and expense costs against the project in Project Activity Recording (10.5.13). See “Subassembly Receipts” on page 127.
- 5 After receiving the completed subassembly items in PAR, create a PAO line of type I (Issue) for the received items in PAO Maintenance (10.5.1).
- 6 Issue the subassembly items in PAR as you would with a standard issue line.

PAO Worksheets

Worksheets are a type of work order controlled within PRM. When you record labor and expense consumption and item issues and returns in PAR, you record this information against a PAO worksheet rather than directly against the PAO. The system automatically generates at least one worksheet for each PAO you create.

How the system handles each PAO line with regard to worksheets is determined by the PAO line type.

- By default, all issue lines on a PAO reference the same worksheet. This is the default worksheet indicated in the PAO header frame.
- The system creates a separate worksheet for each assembly line and its associated component lines.
- Move lines are not placed on worksheets and cannot be referenced in PAR.

You can create new worksheets in PAR and reference PAO issue lines on them as needed. However, you cannot create a new worksheet for an assembly line or any of its components.

See “Worksheets” on page 125.

Setting Up PAOs

The following sections describe how to set up data used with project activity orders.

Note The data setup described in these sections is typically performed when setting up the rest of PRM; however, it is discussed in this chapter because it has specific applications to PAOs.

For details on general PRM setup, see Chapter 2.

Setting Up PAO Statuses

You must associate a status code with each PAO you create. As a PAO progresses through various phases of its life cycle, you can change its status to reflect its current position, from open to closed.

See “PAO Statuses” on page 75.

Set up PAO status codes in PAO Status Code Maintenance (10.5.21.1). Then, define system-significant status codes in PAO Control (10.5.24). You can also associate status codes with PAO default records in PAO Default Maintenance (10.5.21.4).

See page 79 and page 82.

Fig. 4.3
PAO Status Code Maintenance (10.5.21.1)

The screenshot shows a software window titled "PAO Status Code Maintenance". Inside the window, there is a form with the following text: "Status: NEW", "Description: New Status", "Status ID: 10", and "Next Status: ORDERED". The "Description" field is highlighted in yellow. At the bottom right of the form area, there are two circular navigation arrows, one pointing left and one pointing right.

Status. Enter a PAO status code.

Description. Optionally enter a brief description of the status. This description prints on some reports and inquiries, as space permits.

Status ID. Enter a unique ID number to associate with this status code. In browses and inquiries, PAO statuses are organized sequentially by status ID. This lets you assign meaningful names to status codes and assign a sort order reflecting the typical PAO life cycle.

Next Status. Enter the status code that is normally assigned to a PAO after it completes this status. Next status codes are optional and for reference only. Use them to indicate the normal progression of a PAO through the PAO life cycle.

Example In your business environment, PAO statuses normally progress from NEW to ORDERED to STARTED. To provide greater life-cycle visibility in PAO Maintenance (10.5.1), set up NEW with the next status ORDERED and ORDERED with the next status STARTED.

The next status code on a new PAO generally defaults from PAO Default Maintenance. When you manually change a PAO's status, the next status code defaults from PAO Status Code Maintenance.

See "Next Status" on page 87.

Setting Up PAO Defaults

Use PAO Default Maintenance (10.5.21.4) to define a set of default values to apply to new PAOs created with a specific work code. Use these defaults to streamline the creation of similar types of PAOs.

The default work code for a new PAO is determined by the project type specified in the header of the associated project. Set up project types and associate them with work codes in Project Type Maintenance (10.21.21).

See "Setting Up Project Types" on page 38.

Fig. 4.4
PAO Default Maintenance (10.5.21.4)

The screenshot shows a software window titled "PAO Default Maintenance". At the top right, there are icons for help, information, and window control. The main area contains several input fields with dropdown menus:

- Work Code: Install
- Severity: A
- Type: (empty)
- Skill: Elec
- Status: New
- Next Status: Ordered
- Queue: Manager
- PAO Description: (empty)
- Remarks: (empty)

At the bottom right, there are navigation arrows.

On PAOs, Severity, Type, Skill, Queue, and Next Status are reference-only fields. All except Next Status are validated against generalized codes and can be used as selection criteria on some PAO reports and inquiries.

See "PAO Header" on page 85.

Work Code. Enter the work code to associate with this default record. Set up a default record with a blank work code to create a set of generic defaults to use when work-code defaults do not apply. See "Setting Up Work Codes" on page 28.

Severity. Enter a code indicating the default severity for PAOs with this work code.

Example Set up severity codes such as LOW, MEDIUM, and HIGH and use them to categorize PAOs by the length of time and quantity of resources required to complete them.

Type. Enter a code indicating the default type for PAOs with this work code.

Skill. Enter a code identifying a particular skill or certification required to complete the activity on PAOs with this work code.

You can assign skill codes to individual engineers in Engineer Skills Maintenance (10.15.5). To assign only certain engineers for particular kinds of work, you can use reports and inquiries such as PAO Print (10.5.5) to report PAOs based on skill code. Then, use the report output to match PAO skill codes with engineer skill codes. See “Setting Up Engineers” on page 30.

Status. Enter a PAO status to use as the default for PAOs with this work code. You cannot leave this field blank. See “Setting Up PAO Statuses” on page 78.

Next Status. Enter a PAO status code indicating the status that typically comes after the default status on PAOs with this work code. This value defaults to the Next Status field on new PAOs that reference the associated work code.

Queue. Enter a code indicating the default queue for new PAOs with this work code.

Example Use PAO queues to indicate individuals or groups who must review a PAO before it can proceed to the next status.

PAO Description. Optionally enter a brief description to default to each PAO that references the associated work code.

Remarks. Enter a brief description for this set of PAO defaults. This field is for internal reference only; it does not default to PAOs.

Setting Up PAO Control

Define general PAO settings and defaults in PAO Control (10.5.24).

Fig. 4.5
PAO Control (10.5.24)

The screenshot shows the 'PAO Control' window with the following fields and values:

- PAO Prefix: P-
- Next PAO: 304
- Queue: Manager
- PAO Comments: (empty)
- PAR Labor Start: PAO
- PAR Detail:
- Return Status: Return
- Scrap Status: Scrap
- Auto Generate MO: (empty)

PAO Prefix. Optionally enter a short (three-character) prefix for the system to use when automatically generating PAO IDs.

Note If you have the SSM module, the PAO prefix cannot be the same as the call or call quote prefix specified in Call Management Control (11.1.24). This is because PAOs, SSM calls, and call quotes are all stored in the same table.

Next PAO. This field displays the next PAO number for the system to assign in PAO Maintenance (10.5.1).

Queue. Enter the default queue to apply to new PAOs when a default queue is not set up in PAO Default Maintenance (10.5.21.4). PAO queues are optional and for reference only.

Note Set up generalized codes for field pao-queue.

PAO Comments. This field determines the default value for the header Comments field on new PAOs.

PAR Labor Start. This field determines how the system assigns default start dates to worksheet detail records created for labor and expenses in Project Activity Recording. Valid values are PAO and Worksheet.

PAO: The start date on a new labor or expense detail record defaults from the start date on the associated PAO line.

Worksheet: The start date on a new labor or expense detail record defaults from the Last Record Date field in the PAR worksheet header.

See “Last Record Date” on page 133.

The system uses worksheet detail start dates to search for default unit costs for expense details and, when Use Employee Pay Rate is No in Project Realization Control, unit costs for labor details. PAR selects only type X (Cost) price lists valid on the specified start date.

The system also uses worksheet detail start dates to find budgets to consume with the issue costs of their associated detail records. Only budgets that are effective on the specified start date are updated.

See “Setting Up Price and Cost Lists” on page 33.

PAR Detail. This field determines the default value for the Detail field in the header frame of Project Activity Recording (10.5.13). The header Detail field, in turn, sets the default for the Detail fields in the

Labor/Expenses and Item Usage frames in PAR. When either of these is Yes, an additional frame displays for updating PAR worksheet details such as engineer code, inventory data (for item issues and returns), description, and comments.

Setting this field to Yes helps streamline data entry in PAR when:

- You typically perform complex transactions involving returns.
- You issue multiple lot- or serial-controlled items in PAR.

See “Detail” on page 132.

Return Status, Scrap Status. Optionally enter return status codes to use as the defaults when project-item returns are processed in Project Activity Recording and MO Direct/Pending Returns (10.7.8).

The statuses you specify can have either Good or Scrap selected. However, they cannot have Exchange or Pending selected since:

- Return statuses with Exchange selected cannot be used with project returns.
- You cannot use a pending status in PAR for all returns.

See also “Setting Up Return Statuses” on page 29.

The value specified in the Return Status field is always used as the default when a project MO is selected in MO Direct/Pending Returns. It is also used as the default in PAR when either of the following is true:

- You do not use the SSM module.
- SSM is used and Repairable is set to Yes for the returned item in Service Item Maintenance (11.3.7).

When SSM is used and Repairable is No for the item being returned, return status defaults from the Scrap Status field.

See “Status” on page 147.

You can modify default return statuses when items are returned in MO Direct/Pending Returns and in PAR.

Auto Generate MO. This field sets the default value for the Auto Generate MO field in the line detail frame of PAO Maintenance. This default applies only to PAO lines where the following are true:

- The Category field references an item service category (Items, Consumable Items, or Exchanged Items is Yes).
- PAO Line Type is I (Issue) or M (Move).

See “Autogenerating MOs” on page 84.

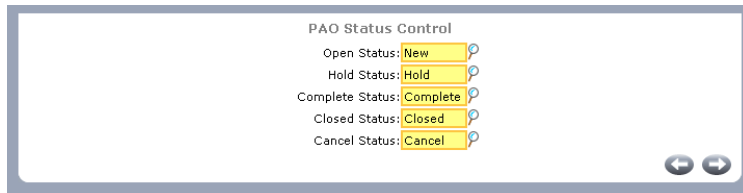
PAO Status Control Frame

Five PAO statuses can be defined in the control program and affect how PAOs are managed by the system. Set up PAO status codes in PAO Status Code Maintenance (10.5.21.1) before entering them in the control program.

See “Setting Up PAO Statuses” on page 78.

Fig. 4.6

PAO Control, PAO Status Control



Open Status. The system assigns this status to a new PAO when a default status is not defined in PAO Default Maintenance (10.5.21.4).

For PAOs with this status, you can:

- Order items with material orders.
- Record item and resource consumption in Project Activity Recording.

Note The system treats PAOs with status codes not defined in PAO Control identically to those with the open status.

Hold Status. The hold status indicates that a PAO is temporarily inactive. You can manually set a PAO to this status. When Credit Hold Option is 1 in Project Realization Control (10.24) and you create a PAO for a project where the bill-to customer is on credit hold, the system automatically sets the PAO to this status.

You cannot record activity against or create material orders for PAOs that are on hold.

See “Credit Hold Option” on page 41.

Complete Status. Manually assign the complete status to a PAO to indicate that all related activities have been completed and the PAO is ready to be closed. A PAO can be assigned this status only when:

- All activity has been processed successfully in Project Activity Recording (10.5.13) and Project Labor Recording (10.5.14). This means that no unprocessed worksheet detail records exist for the PAO.

- Any items ordered on MOs have been either issued in PAR or returned using PAR or MO Direct/Pending Returns (10.7.8).
- Quantity on hand (QOH) in project locations is zero for every project line on the PAO that is not referenced as an issue line on another PAO. See “Project QOH” on page 92.
- It does not contain any unprocessed move lines for project lines that are not referenced as issue lines on another open PAO. See “Move Lines” on page 76.

A move line is considered unprocessed when either of the following is true:

- The PAO line quantity exceeds the sum of the quantities shipped and returned on the associated MO line.
- An allocated quantity remains on the MO line.

You cannot record additional activity against or create material orders for complete PAOs. However, you can reopen a complete PAO by changing its status. Only PAOs with a status of complete can be closed by PAO Close (10.5.16).

Closed Status. The closed status indicates that a PAO has been processed by PAO Close. You cannot manually set a PAO to this status. Once a PAO has been closed, it cannot be reopened.

You cannot close a project line in Project Activity Close (10.23.2) until all the PAOs referencing that line are closed or canceled.

See page 180.

Cancel Status. Manually assign the cancel status to a PAO to indicate that it is inactive. You cannot modify, create material orders for, or record activity against canceled PAOs. However, you can reopen a canceled PAO by changing its status.

A PAO cannot be assigned the cancel status if it has associated material order lines, worksheet detail records, or recorded activity.

Creating PAOs

Use PAO Maintenance (10.5.1) to group related project lines into units of work to be managed and completed together. PAOs represent the project detail from a planning or management point of view rather than an engineering point of view.

Example A project to install video equipment in a hospital includes a separate subproject for each room requiring modifications. However, when creating PAOs, you may group similar activities onto the same PAO even when they occur in multiple rooms. For example, it may be more efficient to send an electrician once to work in many rooms than to send an electrician every time a room is completed.

Data-Entry Flow

PAOs consist of a header and associated lines. The basic data-entry flow in PAO Maintenance is as follows:

- 1 First, select a project with lines to be grouped in a PAO. PAOs can group lines across multiple subprojects, but not multiple projects.
- 2 Next, update PAO header data such as work code, severity, type, skill, assigned engineer, priority, start and end date, and comments. Many of these default either from the associated project or from defaults defined in PAO Default Maintenance (10.5.21.4) for the specified work code. See “Setting Up PAO Defaults” on page 79.
- 3 In the Project Line Selection frame, select project lines for inclusion in the PAO.
- 4 Enter additional details for each PAO line in the Line Details frame. Indicate the line type and the quantity you expect to move, assemble, or issue. For item issue or move lines, you can automatically generate a material order to transfer the items to an inspection or subcontract location or to a project location to be consumed in PAR. Other line details default from the PAO header or the associated subproject and can be modified as needed.
- 5 Finally, use the Sub-Ledger Details frame to review the quantities and costs the system tracks against the selected project line. Information presented in this frame includes the planned, actual, work in process (WIP), and issued quantities and costs for the line.

Autogenerating MOs

In PRM, material orders are used to transfer items required by a project into project locations for issuing or into other internal locations for pre-issue activities such as inspection or subcontract labor. In addition, you can use MOs to ship returned items back into a general stock or scrap location when you plan the returns as part of the project.

For more information on MOs, see Chapter 5, “Realizing Projects,” on page 95.

PAO Maintenance lets you automatically generate MO lines for these activities using the Auto Generate MO field in the PAO line details. When you set Auto Generate MO to Yes, the system searches for an existing MO where:

- The Order Ref field in the header references the current PAO.
- The ship-to site and location on the first MO line match the site and location on the PAO line.

If a matching MO is found, the system adds a new line on it. Otherwise, the system generates a new MO and references the PAO line on the first line of that MO.

You cannot generate an MO line for a PAO line if any of the following are true:

- The associated project line belongs to a project or subproject that is on hold or complete.
- The PAO is on hold, complete, canceled, or closed.
- Credit Hold Option is 2 in Project Realization Control (10.24) and the project bill-to customer is on credit hold.
- An engineer is not associated with the PAO or the project line’s parent subproject or project.
- An item-site record does not exist for the PAO line item at the default ship-from site selected by the system. See page 97 for details.

- The Purchase/Manufacture code for the item at the ship-from site is set to C (Configured), F (Family), or any value other than the standard, system-defined codes.

Sometimes, you may want to use an MO to order only part of the quantity planned on a project line; for example, when splitting the project-line quantity between an MO and project purchase order. In this case, you should create a separate PAO line for each inventory order rather than splitting the quantity on a single PAO line between orders. This makes item issues easier to manage in PAR.

Deleting PAOs

You cannot manually delete a PAO line unless:

- Quantity In Progress and Quantity Processed are both zero for that line. See page 91.
- It is not linked to an MO line.

When you delete a PAO assembly line or an entire PAO, all underlying PAO lines are automatically deleted. You cannot manually delete a PAO unless all of its associated lines can be deleted. Similarly, you cannot delete an assembly line unless all its underlying component lines can be deleted.

Note PAOs are automatically deleted by Closed Project Delete/Archive (10.23.23).

When all of the lines associated with a PAO worksheet are deleted, the worksheet record is also deleted.

PAO Maintenance

Use PAO Maintenance (10.5.1) to create and modify project activity orders.

PAO Header

In the PAO header, enter a project ID, PAO ID, and other header details.

Fig. 4.7
PAO Maintenance (10.5.1)

Project. Enter the project ID to associate with this PAO. The system displays the applicable project type, start and end dates, status, and description.

The project you select cannot have a status of closed or complete. In addition, when Credit Hold Option is 2 in Project Realization Control (10.24), the project bill-to customer cannot be on credit hold.

See “Credit Hold Option” on page 41.

PAO. To create a new PAO, manually enter an alphanumeric code or leave this field blank to let the system assign the next PAO number from PAO Control (10.5.24).

Work Code. Enter a work code to associate with the PAO. The default is from the project type specified in the header of the associated project.

The system uses the PAO work code to search for a set of default header values in PAO Default Maintenance (10.5.21.4). Changing the work code on an existing PAO does not reset the initial defaults.

See “Setting Up PAO Defaults” on page 79.

The system also uses the PAO header work code in combination with other criteria to search for a default site record in Default PRM Site Maintenance (10.21.13) when a new MO is created or item returns are processed in MO Direct/Pending Returns (10.7.8).

See “Setting Up Default Sites and Locations” on page 97.

Description. Enter a brief description of the PAO. The description prints on most reports and inquiries, as space permits. The default is from PAO Default Maintenance.

Severity, Type, Skill, Queue. Enter reference values to associate with the PAO. These fields default from PAO Default Maintenance and are validated against generalized codes. Each can be used as a selection criterion on some PAO reports and inquiries.

Note Queue defaults from PAO Control when a default is not found in PAO Default Maintenance. See “Queue” on page 80.

Engineer. Specify the primary engineer to assign to this PAO. The default is the engineer specified in the header of the associated project. The PAO header engineer determines the default engineer on all worksheets and MOs created for this PAO.

Engineer codes are mandatory on MOs and PAR worksheets. To generate an MO for a PAO line automatically, an engineer must be associated with either the PAO or the line’s parent subproject or project.

See “Setting Up Engineers” on page 30.

Priority. Optionally enter a priority code indicating the importance of this PAO relative to other PAOs in the system. Lower numbers typically indicate a higher priority. The system searches for a default value in the following sequence:

- The default priority associated with the project end user. See page 33.
- The priority associated with the project type in the header of the associated project. See page 39.

Priority codes are for reference only and can be used as a selection criterion on some PAO inquiries and reports. You may want to use priority codes to aid in dispatching engineers, ensuring that the highest priority PAOs are addressed first.

Status. Enter a PAO status code indicating the position of this PAO in the overall life cycle. Status defaults from PAO Default Maintenance or PAO Control (10.5.24). See “PAO Status Control Frame” on page 82.

Next Status. Enter a PAO status code indicating the status that typically comes after the current PAO status. The default is from PAO Default Maintenance or PAO Status Code Maintenance (10.5.1).

When you change the status on an existing PAO, the Next Status value defaults from PAO Status Code Maintenance.

See “Next Status” on page 79.

Next Status Date. Enter a date indicating when the status of this PAO should be updated. On new PAOs, the default is the current date. This field is for reference only and must be manually updated and tracked if used.

Default Worksheet. The system displays the identifier of the default worksheet created for the issue lines on this PAO. When no issue lines exist, this field is blank.

System-assigned worksheet IDs use the next sequence number from database sequence `woc_sq01`, also used to assign lot IDs to work orders. For details on setting up and maintaining database sequences, see *User Guide: Manager Functions*.

See “PAO Worksheets” on page 77.

Selected Lines Only. This field determines which project lines display in the Project Line Selection frame.

No: Accessing the browse or pressing Next or Previous in the Project Line field of the selection frame displays all the lines associated with the selected project, regardless of whether they belong to the PAO.

Yes: Only project lines already associated with the PAO display in the look-up browse or when you use Next/Previous. However, you can still add a new project line to the PAO by manually entering the line number in the Project Line field.

See “Project Line” on page 88.

Comments. Enter Yes to update header comments for this PAO; otherwise, enter No. For a new PAO, this value defaults from the PAO Comments field in PAO Control.

PAO header comments default to the header comments of all MOs that are automatically generated from or manually linked to the PAO.

Start Date, End Date. Optionally enter the dates when activity for this PAO is scheduled to begin and end. These dates must be within the range defined by the project header start and end dates.

The start and end dates on the PAO header provide the default start and end dates for PAO lines. Also, when you generate a new MO, the required and due dates on the MO header default from the start date on the PAO header.

See “Required Date, Due Date” on page 106.

Area. Leave blank or enter a valid area code identifying the geographic location where the PAO will be completed. On a new PAO, Area defaults from the project end user.

See “Setting Up Areas” on page 30.

The system uses the area code from the PAO header in combination with other criteria to search for default ship-from sites and locations on project MOs and default receipt sites and locations for project returns.

See “Setting Up Default Sites and Locations” on page 97.

Entered By. The system displays the ID of the user that created the PAO.

Project Line Selection

When you are finished entering header values, the Project Line Selection frame displays for selecting project lines to reference on the PAO.

Fig. 4.8
PAO Maintenance, Project Line Selection Frame

PAO - Project Line Selection					
Project Line	Category	Item Number	Subassembly	Qty Planned	Select
1.2	items	22-120	<input type="checkbox"/>	30.0	<input type="checkbox"/>

Project Line. Use this field to select a project line to review or add to the PAO. The Selected Lines Only field in the header frame determines which project lines display when you display the look-up browse or use Next/Previous in this field.

When Yes, only project lines already associated with the PAO (Select is Yes) display for selection.

When No, accessing the browse or pressing Next or Previous in this field displays all the lines associated with the selected project, regardless of whether they belong to the PAO.

See “Selected Lines Only” on page 87.

Category, Item Number, Subassembly, Qty Planned. The system displays the service category, item number, Subassembly value, and quantity planned associated with the selected project line in Project Maintenance (10.1.1).

Select. A Yes value in this field indicates that the project line is currently referenced on the PAO.

PAO Line Details

After you select a project line to reference on the PAO, the Line Details frame displays for entering an order quantity and other line-item data on the PAO line.

Note You cannot update PAO lines referenced on MOs. If you need to modify any details for these lines, you must first delete the associated MO lines. See “Material Orders” on page 102.

Fig. 4.9
PAO Maintenance, Line Details

The screenshot shows the 'PAO Maintenance' window. At the top, it displays 'Project: P11234' and 'Sprinkler System' with a 'Default Worksheet' field. Below this, 'PAO: PT01' and 'Cut and install pipe' are shown. A table titled 'PAO - Project Line Selection' contains one row with columns for 'Project Line', 'Category', 'Item Number', 'Subassembly', 'Qty Planned', and 'Select'. The row shows '1.2', 'items', '22-120', an empty checkbox, '30.0', and another empty checkbox. The main section is titled 'Line Details' and contains several fields: 'PAO Line: 1', 'PAO Line Type: I' (with 'Issue' next to it), 'Qty Ordered: 30.0', 'Start Date: 07/19/2002', 'End Date: 08/19/2002', 'Site: 10000', and 'Location: 101'. On the right side of this section, there are fields for 'UM: EA', 'Worksheet:', 'Auto Generate MO: 0', 'Confirmed Material Order: 0', 'Qty In Progress: 0.0', and 'Qty Processed: 0.0'. Navigation arrows are visible at the bottom right of the window.

PAO Line. Enter a sequence number identifying the PAO line to associate with the selected project line. The system automatically displays the next available PAO line number in this field.

For item lines, PAO line numbers are typically used to reference the item on an MO. For labor and expense lines, PAO line numbers identify PAO lines for selection in PAR.

PAO Line Type. Enter a code indicating the PAO line type. For labor and expense lines, PAO Line Type defaults to I (Issue) and cannot be updated. For items, you can indicate the line type as either I (Issue), M (Move), or A (Assembly). The default is I. For more information on line types, see “PAO Lines” on page 76.

Note Line type A cannot be specified unless Subassembly is Yes on the associated project line.

Quantity Ordered. Enter the quantity that you expect to issue in PAR, order on an MO, or assemble for this PAO line. For issue and assembly lines, the default is the quantity planned from the associated project line minus the quantity already ordered on PAOs. For move lines, quantity ordered always defaults from the quantity planned on the project line.

On a PAO line created for a planned return (negative-quantity) project line, quantity ordered must be negative. Likewise, when the PAO line is for a positive-quantity project line, the quantity ordered must be positive.

See “Quantity Planned” on page 63.

When you generate an MO line from a PAO line, the quantity ordered defaults to the MO line. When the PAO-line quantity is negative, the system multiplies it by -1 to calculate the default order quantity on the MO.

See “Qty Ordered” on page 110.

Start Date, End Date. Optionally enter the dates when activity for this PAO line is scheduled to begin and end. These dates must be within the range defined by the project header start and end dates.

PAO line start and end dates default from the dates on the PAO header, if specified. Otherwise, they default from the start and end dates defined for the applicable subproject in Project Maintenance (10.1.1).

When you create an MO line for this PAO line, the required and due dates on the MO line default from the start date on the PAO line. Also, depending on how PAR Labor Start is set in PAO Control (10.5.24), the PAO line start date may be used as the default start date for labor and expense detail records created in PAR.

See “PAR Labor Start” on page 81.

Site, Location. Specify the site and location responsible for this PAO line. The defaults are from the associated subproject. If the location you specify does not exist at the line detail site, the project location pop-up displays for you to create a new project location.

See “Project Location Pop-Up” on page 57.

When you create an MO line for this PAO line, the ship-to site and location on the MO line default from the PAO line.

Follow these guidelines when defining sites and locations on PAO issue and move lines for which you plan to create MOs:

- For an issue line, specify the site and location from which you want to issue the items in PAR. This is also the location to which you ship the items on an MO.

See “Project Locations” on page 15.

- For a move line, specify the site and location to which you will ship the MO. For example, if you need to transfer components of a subcontracted item to the subcontract location for assembly, set the PAO line site and location to the site and location where the subcontract work will be performed.

The system also uses the PAO line site and location to determine whether to add an automatically generated MO line to an existing MO or generate a new MO.

See “Autogenerating MOs” on page 84.

For labor and expense lines, PAO line site and location are for reference only.

Auto Generate MO. For item lines of type issue or move, this field defaults from PAO Control and determines whether the system automatically generates an MO line for this PAO line. For PAO lines that reference labor or expense service categories or have a line type of A (Assembly), this field defaults to No and cannot be updated.

See “Auto Generate MO” on page 82.

When Yes, the system automatically generates an MO line to transfer the quantity ordered on the PAO line to the site and location indicated for that line. When the PAO line is an issue line for a planned return (quantity ordered is negative), the MO line is used to ship the returned items back into stock after they are initially received in PAR.

See “Autogenerating MOs” on page 84.

If you set this field to No, you can still create an MO line later by setting Auto Generate MO to Yes or by manually referencing the PAO line on an MO in Material Order Maintenance (10.7.1).

See “Material Order Maintenance” on page 105.

Confirmed Material Order. When Auto Generate MO is Yes, this field determines whether the MO line generated for this PAO line is confirmed or unconfirmed. This value defaults from the Confirmed Orders field in Material Order Control (10.7.24).

See “Confirmed” on page 111.

For PAO lines that reference labor or expense service categories or have a line type of A (Assembly), this field defaults to No and cannot be updated. In addition, this setting has no effect when Auto Generate MO is No.

If you do not confirm MO lines upon generation, you must confirm them as a separate step before shipping them.

See page 112 for details.

Qty in Progress. This field displays the quantity considered as work in process for this PAO line. The significance of this value depends on the line type and whether or not an MO line has been generated.

For a move line, Qty in Progress is always the quantity ordered on an MO.

For labor and expense issue lines, Qty in Progress displays the quantity placed on a worksheet in PAR but not yet consumed.

For positive-quantity item issue lines, Qty in Progress displays either the quantity ordered on an MO or the quantity placed on a worksheet in PAR but not yet consumed, whichever is greater.

For the following types of lines, Qty in Progress displays the quantity referenced on a PAR worksheet but not yet received:

- Assembly lines
- Planned return (negative-quantity) issue lines

Qty Processed. This field displays the quantity considered fully processed for this PAO line. The significance of this value depends on the line type:

- For an issue line, this is the quantity issued against the PAO line in PAR.
- For a move line, this is the quantity shipped against the associated MO line.
- For an assembly line, this is the subassembly quantity received in PAR.

Project Line Sub-Ledger Details

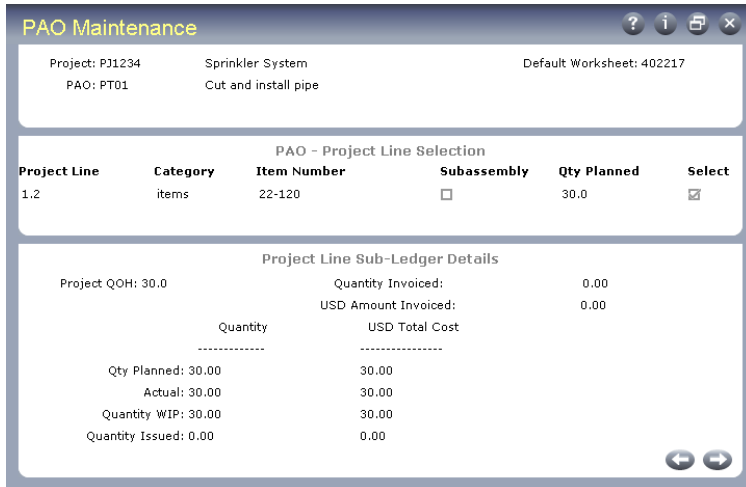
When you perform activity against a project line, such as receiving items into a project location, recording consumption in Project Activity Recording (10.5.13), or posting a project invoice, the system tracks the item, labor, or expense quantities and costs affected by the activity in a series of fields called a *sub-ledger*.

When you are finished entering or modifying line details for a PAO line, PAO Maintenance displays the sub-ledger values associated with the selected project line. You can also review these values for individual project lines using Project Detail Inquiry (10.1.3).

See “Project Reports” on page 192.

The following section gives a brief description of each field in the sub-ledger frame. For more detailed information on the specific transactions that update each field, see “Sub-Ledger Quantities” on page 189 in Chapter 7.

Fig. 4.10
PAO Maintenance, Project Line Sub-Ledger Details



Project QOH. This field displays the item quantity received into project locations on project MOs or purchase orders. This quantity is decreased when items are issued in PAR.

You cannot close a project line in Project Activity Close (10.23.2) unless Project QOH is 0 (zero) for that line.

Quantity Invoiced, Amount Invoiced. These fields display the project-line quantity and currency amount associated with posted project invoices. Amount invoiced displays in the project currency.

Planned Quantity, Cost. These fields display the project-line planned quantity and cost from Project Maintenance (10.1.1).

Actual Quantity. For labor and expense lines, this field displays the issue quantity recorded for the project line in PAR or Project Labor Recording (PLR). For items, it displays the quantity of items received into project locations on project POs or MOs or received as subassemblies in PAR.

Actual quantity is decreased when items are transferred from a project location to a non-project location on an MO or when items are returned to a non-project location in PAR or MO Direct/Pending Returns.

See “Processing MO Returns” on page 153.

Actual Cost. For labor and expense lines, this field displays the total issue cost for the line recorded in PAR or PLR. For items, it displays the cost of items received into project locations on project POs or MOs or received as subassemblies in PAR.

Actual cost is also increased by purchase price variance (PPV) amounts generated when project POs are received and accounts payable (AP) rate and usage variances generated when PO vouchers are created.

See “Receiving Purchase Orders” on page 119.

Actual cost is decreased when items are transferred from a project location to a non-project location on an MO or when items are returned to a non-project location in PAR or MO Direct/Pending Returns with a non-scrap return status.

See “Processing MO Returns” on page 153.

WIP Quantity, Cost. For labor and expense lines, these values are identical to Actual Quantity and Cost.

For item lines, the values displayed in these fields depend on the setting of Project Inventory in Sub-Ledger WIP in Project Realization Control. When No, these fields display the PAR issue quantity and cost minus any PAR return quantities and costs. When Yes, they display the Actual Quantity and Cost for the line plus any scrap return costs.

See “Project Inventory in Sub-Ledger WIP” on page 43.

Note The WIP values in the project sub-ledger are not related to the GL WIP accounts. Item, labor, and expense costs do not debit GL WIP accounts until they are issued in PAR or PLR, regardless of how Project Inventory in Sub-Ledger WIP is set.

Quantity Issued, Cost. These fields display the issue quantity and cost recorded in PAR for the associated line, decreased by the quantity and cost of any PAR returns. For labor and expense lines, Issued Quantity and Cost are identical to Actual and WIP Quantity and Cost.

Realizing Projects

This chapter describes how to order inventory required for project activities and record work completed for a project.

Overview of Project Realization 96

Describes the project realization workflow.

Setting Up Project Orders 97

Describes how to set up default sites and locations and control programs.

Creating Project Orders 102

Discusses using material orders and project purchase orders to obtain necessary items.

Receiving Project Orders 115

Discusses how project components are received and gives details on shipping material orders and receiving purchase orders.

Recording Project Activity 123

Outlines a data-entry workflow and includes information on worksheets, inventory processing, returns, subassembly receipts, installed base updates, inventory and operation history, GL transactions, budget consumption, Project Activity Recording (10.5.13), and Project Labor Recording (10.5.14).

Processing MO Returns 153

Describes how to use MO Direct Pending>Returns (10.7.8) to complete processing for pending returns, with details on the MO return header, and MO line items.

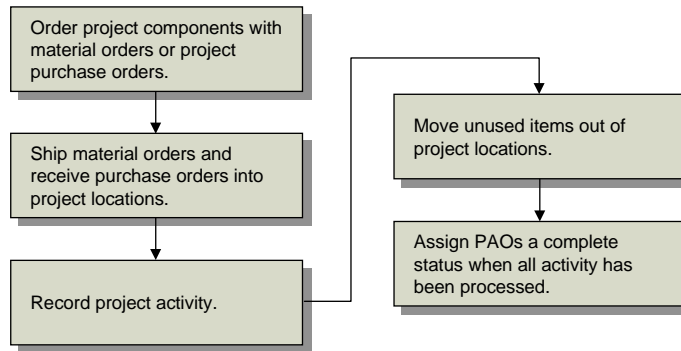
Overview of Project Realization

Chapter 4 introduced project activity orders (PAOs) and described how to enter related setup data, create new PAOs, and evaluate the values in the project sub-ledger. This chapter describes the methods used to order project components and record project activity.

Figure 5.1 illustrates a typical project realization work flow. This chapter discusses only elements related directly to setting up project order data, ordering project items, and recording activity.

- Project and budget setup activities are discussed in Chapter 3, “Creating and Managing Projects,” on page 45.
- PAO setup and creation are discussed in Chapter 4, “Setting Up and Creating PAOs,” on page 73.
- The invoicing life cycle is described in detail in Chapter 6, “Invoicing Projects,” on page 157.
- Closing projects and PAOs is discussed in Chapter 7, “Closing and Evaluating Projects,” on page 177.

Fig. 5.1
Project Realization Work Flow



Project realization begins after you have set up the project, PAOs, and project-related data such as budgets and invoice schedules.

- 1 Order the items required to complete the project from locations and sites within your company on material orders (MOs) or from external suppliers using project purchase orders (POs).
See page 102.
If needed, you can create memo lines on project POs and link them to expense lines on the project. For example, you may want to use this type of PO line for handling services obtained from organizations outside your company, such as consulting.
See page 112.
- 2 Ship the MOs in and receive the project POs so that inventory is available in the project location or locations.
See page 115.
- 3 Record activity against PAOs with Project Activity Recording (10.5.13) or Project Labor Recording (10.5.14).
See page 123.

For expense lines referenced on project POs, use Purchase Order Receipts (5.13.1) rather than Project Activity Recording to register the expense detail against the project and consume project budgets.

See page 119.

- 4 Use Project Activity Recording or MO Direct/Pending Returns (10.7.8) to return any items ordered on MOs and not issued in Project Activity Recording or items issued but not actually consumed by the project.

See page 153.

- 5 When all activity for a PAO is complete, set its status to the complete status from PAO Control (10.5.24).

See page 149.

Setting Up Project Orders

The following sections describe setup steps required to use material order features in PRM.

Note The data setup described in these sections is typically performed when setting up the rest of PRM; however, it is discussed in this chapter since it has specific applications to project orders. For details on general PRM setup, see Chapter 2.

Setting Up Default Sites and Locations

Two other types of locations besides project locations play a key role in project activities:

- The general stock (ship-from) locations that fulfill the project demand represented by material orders
- Locations used to receive items returned from project customers or project locations

Default PRM Site Maintenance (10.21.13) lets you define default sites and locations for these activities. Default site records can apply to particular product lines, items, areas, or valid combinations of these.

Ship-From Locations

Default ship-from sites and locations are referenced by the following programs:

- PAO Maintenance (10.5.1), when you automatically generate an MO line from a PAO line. See page 84.
- Material Order Maintenance (10.7.1), when you create an MO line and link it to a PAO line. See page 110.

PAO Maintenance and Material Order Maintenance search for default ship-from sites and locations for MO lines using these values:

- The item number from the PAO line
- The product line from the item master record
- The work code and area from the PAO header

Note When the PAO line is for a planned return (quantity ordered is negative), the PAO line site and location, rather than a site and location from Default PRM Site Maintenance, are used as the default ship-from values on the MO line. See “Planned Returns” on page 126.

When setting up default ship-from sites, ensure that items to which the defaults apply have item-site records defined at each ship-from site. You cannot automatically generate an MO line in PAO Maintenance unless a record exists for the PAO line item at the default ship-from site selected by the system.

Return and Scrap Locations

Default return and scrap sites and locations are referenced by the following programs:

- Project Activity Recording (10.5.13), when processing item returns. See page 148.
- MO Direct/Pending Returns (10.7.8), when processing returns against MOs with an associated PAO. See page 156.

Whether the system searches for a default return site and location or a default scrap site and location is determined by the return status you specify in MO Direct/Pending Returns or the Project Activity Recording (PAR) return detail. When the return status has Scrap selected, a scrap site and location are used as the defaults. Otherwise, a return site and location are used.

See “Setting Up Return Statuses” on page 29.

In both PAR and MO Direct/Pending Returns, return statuses initially default from PAO Control (10.5.24).

See page 80.

MO Direct/Pending Returns searches for a default return or scrap site and location using these values:

- The product line from the item master record of the ordered item
- The item number from the MO line
- The work code and area from the header of the associated PAO

PAR searches for a default site and location using these values:

- The item number and product line from the project line
- The work code entered in PAR
- The area from the header of the associated PAO

See also “Return Sites and Locations” on page 17.

Default PRM Site Maintenance

Set up default site and location records in Default PRM Site Maintenance (10.21.13) using valid combinations of product line, work code, item number, and area.

The system uses these values to search for an appropriate set of defaults in the following sequence:

- 1 Item, work code, and area
- 2 Product line, work code, and area

- 3 Product line and work code
- 4 Product line only
- 5 Area only
- 6 Item only
- 7 All blank

When you set up default site and location records, remember that only these seven key combinations are valid. For example, you cannot specify an item and product line together on the same record.

Fig. 5.2
Default PRM Site Maintenance (10.21.13)

Product Line, Work Code, Item, Area. Use these fields to create a set of defaults that applies to a specific product line, work code, item, area, or any valid combination of these. Leave all four key fields blank to define a set of generic sites and locations to use when none of the more specific defaults apply.

You do not need to use all the key fields when setting up default sites and locations. Use only key fields that are critical for the way you do business.

Example If projects in a given area consume items from a central distribution site, set up default ship-from sites by area.

Description. Optionally enter a brief description of this set of default sites and locations. This field is for reference only and displays on some reports.

Return Site, Return Location. Specify a default return-to site and location for the system to use when processing non-scrap returns in MO Direct/Pending Returns and Project Activity Recording.

Locations used for returns must allow inventory transfers (RCT-TR) for returns in MO Direct/Pending Returns and unplanned receipts (RCT-UNP) for returns in PAR. You may want to define a restricted inventory status for return locations.

See also “Inventory Statuses” on page 17.

Ship-From Site, Ship-From Location. Specify a default ship-from site to apply to line items on project MOs. Ship-from locations must allow MO issues (ADD-SEO) and inventory transfers (ISS-TR) for MO shipments.

Scrap Site, Scrap Location. Specify a default return-to site for the system to use when processing scrap returns in MO Direct/Pending Returns and PAR. Scrap locations typically have an inventory status that is unavailable and non-nettable.

Setting Up Control Programs

The following two control programs affect material order processing in both SSM and PRM:

- Sales Order Control (7.1.24)
- Material Order Control (10.7.24)

Sales Order Control

Because material orders are a type of internal sales order, they are affected by some of the same control program settings as standard sales orders.

Example The Limit Allocations to Avail to Allocate field determines how the system handles shortage situations when allocating to sales orders or MOs.

For details on which control program settings affect MOs, see the material orders chapter in *User Guide: Service/Support Management*.

The Enterprise Material Transfer (EMT) settings in Sales Order Control also affect EMT processing for MOs. For information on maintaining these settings, see the EMT chapter in *User Guide: Distribution*.

Material Order Control

Before creating material orders, you must configure values in Material Order Control (10.7.24).

The settings you define in this control program affect MO processing in both PRM and SSM. However, in the following section, only settings that apply specifically to MOs associated with PAOs (PRM MOs) are discussed. For information on the settings not described here, see the control programs chapter in *User Guide: Service/Support Management*.

Note Material Order Control is also available as option 11.11.24 in SSM.

Fig. 5.3
Material Order Control (10.7.24)

Allocate MO Lines Due in Days. Enter the number of calendar days for the system to use to determine the cutoff date for allocating items. This value defaults to the Allocate Days field in Material Order Maintenance (10.7.1), MO Manual Allocations (10.7.4), and MO Automatic Allocations (10.7.5).

Detail Allocations. This field determines the default for the same field in the header of Material Order Maintenance.

Yes: Specific sites, locations, lot or serial numbers, and lot references are assigned for line-item entry.

No: Only the line-item quantity is allocated (general allocation).

See “Material Order Allocations” on page 112.

Ln Format S/M. Indicate how you typically enter line items on MOs. This field sets the default for the same field in Material Order Maintenance.

Single: You can display and maintain detailed information for one line item at a time.

Multi: You can specify line numbers, associated PAO lines, and quantities for multiple MO lines on a single screen. Dates, site, location, allocation details, and comments default. You must use single line format to access and change this information.

Keep Booking History. Enter Yes to maintain booking history for MOs. Otherwise, enter No.

If Yes, the system maintains an audit trail of all changes made to both new and existing MOs. This is recorded in transaction history as an ORD-SEO transaction with item, order quantity, price, cost, date, user ID, and other information.

For information on transaction history, see *User Guide: Master Data*.

Shipping Lead Time. This setting does not affect PAO-linked MOs. On these MOs, due dates default from the PAO header and lines and are not calculated by the system based on the specified lead time.

Ship Immed. Specify whether you want to ship confirmed MOs immediately from Material Order Maintenance. This field defaults to Ship Immed in Material Order Maintenance.

Yes: The MO shipment screen appears when you leave line-item entry, letting you initiate the shipment process.

No: You are finished with the order when you accept the line-item input. MOs can be shipped later using Material Order Shipments.

If you do not enter confirmed orders, you should not set Ship Immed to Yes since shipment cannot take place until the order is confirmed.

See “Material Order Life Cycle” on page 103.

MO Header Comments, MO Line Comments. These fields determine default values for the Comments fields on new MOs.

Internal Customer. This setting does not affect MOs linked to PAOs or SSM calls.

Material Order Prefix. Optionally enter a short (three-character) prefix for the system to use when generating MO IDs.

Next Material Order. This field displays the next MO number for the system to assign.

Next Back Order Advice, Next Delivery Note. These fields display the next numbers for the system to assign to the documents generated during MO shipment.

See “MO Shipment Trailer” on page 118.

Confirmed Orders. Enter Yes if you typically confirm MOs immediately upon generation. Enter No if you confirm them as a separate step.

This value defaults to Material Order Maintenance. You can change it manually, but only when you create the MO. You cannot change this field after the MO has been created.

See “Material Order Confirmation” on page 112.

This value also defaults to the Confirmed MO field in the line detail section of PAO Maintenance (10.5.1). The Confirmed MO setting determines whether confirmed or unconfirmed MO lines are generated for PAO lines.

See “Confirmed Material Order” on page 90.

Consume Forecast. For confirmed orders only, this field determines whether the quantity ordered consumes available forecast. This value defaults to the corresponding field in the header portion of Material Order Maintenance. The header value, in turn, defaults to each line on the MO.

See “Consume Forecast” on page 112.

Ship To. This setting only applies to MOs associated with SSM calls.

Creating Project Orders

Before you can begin executing the planned work represented by PAOs, you must obtain the items required to complete the project activities. This is done using two types of fulfillment orders:

- Material orders
- Project purchase orders

The following sections give an overview of each order type and describe how to order project components with each.

You can use project purchase orders to transfer items to project locations any time after you define the applicable project item lines. However, since material orders are linked to PAO lines rather than project lines, you must wait until you have referenced the project lines on a PAO before you can transfer items on material orders.

Material Orders

Material orders are a type of internal sales order used to transfer inventory between sites or locations. In PRM, material orders are used to:

- Transfer items required to complete a project into project locations for issue. See page 76.
- Move items to various internal locations for pre-issue activities such as inspection or subcontract labor. See page 76.
- Ship returned items back into a general stock or scrap location when you plan the returns as part of the project. For example, you may be installing new equipment and plan to receive the old equipment back for credit. See page 126.

You can create four basic types of MOs:

- MOs associated with PRM PAOs

- MOs without a call or PAO, which are generally used to replenish service stock in SSM
- MOs associated with SSM calls
- Expensed MOs, which specify charge codes and are used to order items that are not tracked individually, like screws or washers

MOs with associated SSM calls and expensed MOs are only available when you use the SSM module. These types of MOs, along with MOs without associated calls or PAOs, are discussed *User Guide: Service/Support Management*.

Important Do not use MOs without an associated PAO to transfer items referenced on PRM projects into or out of project locations. Only MOs with associated PAO IDs update project budgets and sub-ledger values and make items available for consumption in Project Activity Recording (10.5.13).

You can create MOs for transferring project items in one of two ways:

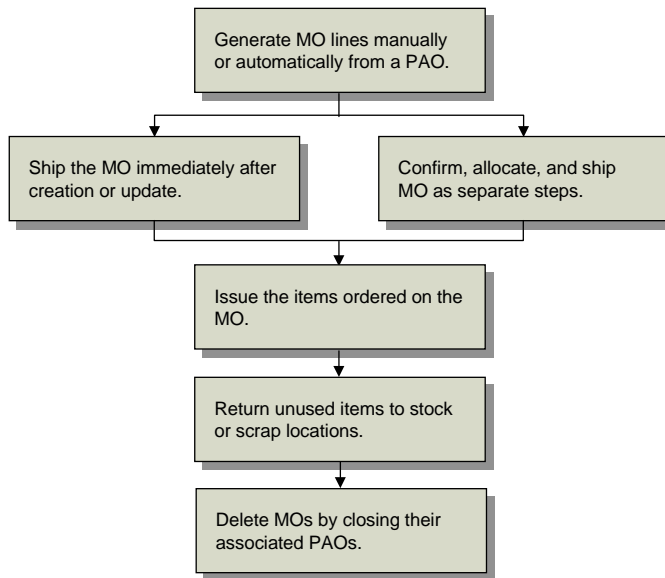
- Manually in Material Order Maintenance (10.7.1). See page 105.
- Automatically by setting Auto Generate MO to Yes on a move or issue line in PAO Maintenance (10.5.1). See page 84.

Material Order Life Cycle

MOs have a life cycle similar to standard sales orders, except that no billing is involved. The internal movement of goods with MOs mirrors the standard shipping and distribution process. MO confirmation, allocation, and shipment functions are similar to their counterparts in the Sales Orders/Invoices module.

Figure 5.4 illustrates a basic material order work flow.

Fig. 5.4
Material Order Work Flow



- 1 Create MOs manually in Material Order Maintenance (10.13.1) or automatically in PAO Maintenance (10.5.1). See page 105.
- 2 If the MO was not confirmed during creation, confirm it as a separate step using Material Order Confirmation (10.7.2). Only confirmed MO lines are considered sources of demand by planning functions such as Material Requirements Planning (MRP). See page 112.
- 3 If the MO was not confirmed or allocations were not generated during MO creation, you can allocate inventory manually in MO Manual Allocations (10.7.4) or automatically in MO Automatic Allocations (10.7.5). See page 112.
- 4 Optionally, generate a packing list for the MO with Sales Order Packing List (7.9.13). To create a packing list, Print Pack List must be Yes in the MO header.
- 5 If the MO was confirmed during creation, you can ship the ordered items in Material Order Maintenance. Otherwise, ship the items using Material Order Shipments (10.7.6). See page 115.
- 6 Return any unused items using MO Direct/Pending Returns (10.7.8). See page 153.
- 7 Automatically delete project MOs by closing their associated PAOs in PAO Close (10.5.16). See page 179.

The following discussion of MO activities assumes that the MO is created, confirmed, allocated, and shipped in separate steps rather than immediately at the time of MO creation.

Note Additional maintenance considerations apply to MOs when you use Enterprise Material Transfer (EMT) functions to supply MO demand. For more information about using EMT with MOs, see the EMT chapter in *User Guide: Consignment Inventory*.

Relationship of MOs to PAOs

In many business scenarios, a one-to-one relationship exists between a line on a PAO and a line on an MO that supplies the PAO requirement. However, for detailed planning, it may be useful to create multiple MO lines for a single PAO line. This feature is supported in Material Order Maintenance.

Note When MOs are created automatically as part of PAO Maintenance, a single line is always created.

If needed, you can create multiple lines on one MO and reference the same PAO number, or you can create additional lines on a different MO. When MO lines are consumed in Project Activity Recording, you can choose which MO line to consume. Only one line can be consumed at a time. After processing items supplied on one MO, you can select a different line to process.

Material Order Maintenance

Use Material Order Maintenance (10.7.1) to create material orders for PRM project items or review and modify MOs generated by PAO Maintenance (10.5.1).

MO Header

As with other types of orders in the system, material orders consist of a header and associated lines.

Many of the MO header values default from the associated PAO. In most cases, the defaulting logic is identical whether you create the MO manually in Material Order Maintenance (10.7.1) or automatically in PAO Maintenance (10.5.1).

Fig. 5.5
Material Order Maintenance (10.7.1)

Identifies the PAO associated with this MO

Material Order Maintenance			
MO: MO166	Order Ref: PT01	Engineer: BJW	Ship-To: 10010001
End User		Ship To	
Westwood Reliable Westwood Shopping Center 77 Sunset Strip Westwood CA 89029 United States of America		Westwood Reliable Westwood Shopping Center 77 Sunset Strip Westwood CA 89029 United States of America	
Order Date: 07/19/2002	Site: 10000	Confirmed: <input checked="" type="checkbox"/>	Language: US
Required Date: 07/19/2002		Currency: USD	
Due Date: 07/19/2002		Charge Code:	
Action Status: <input type="checkbox"/>		Ship Immed: <input type="checkbox"/>	
Ship Via: GROUND		Allocate: <input type="checkbox"/>	
Remarks: BILLING ONLY - USE SHIP TO ON ALL ORDE		Comments: <input type="checkbox"/>	
Import/Export: <input checked="" type="checkbox"/>		Print Pack List: <input checked="" type="checkbox"/>	

MO. Enter the identifier of the MO you want to create or modify. If you leave this field blank, the system assigns the next MO number from Material Order Control (10.7.24).

Order Ref. Enter the PAO ID to associate with this MO. The PAO you specify must be open; it cannot be on hold, complete, canceled, or closed. Likewise, its associated project cannot be on hold, complete, or closed.

Engineer. Enter the code identifying the engineer to receive or consume the items specified on this MO. This value defaults from the PAO header and cannot be left blank. On project MOs, the header engineer is for reference only.

When you generate an MO from a PAO line in PAO Maintenance, header engineer defaults from the project line's associated subproject or the project header if the PAO engineer is blank.

Ship-To. This field defaults from the address code of the project ship-to customer, but you can change it to another ship-to associated with the project sold-to customer, if needed. This field is for reference only since MOs are shipped to internal sites and locations rather than directly to the customer site.

The ship-to address prints on the material delivery note generated for the MO.

See page 115.

Order Date. This field defaults from the current system date.

Required Date, Due Date. These fields indicate the required deliver-by and ship-by dates for items on this MO. Both default from the start date in the PAO header or, if blank, the current date.

Action Status. The default is blank unless the bill-to customer on the project is on credit hold and Credit Hold Option is 1 in Project Realization Control (10.24). In this case, Action Status defaults to HD.

Remove the hold status from an MO using Sales Order Credit Maintenance (7.1.13) or Sales Order Auto Credit Approval (7.1.17).

See "Credit Hold Option" on page 41.

Note When Credit Hold Option is 2 in Project Realization Control, you cannot create MOs for projects when the bill-to customer is on credit hold.

Ship Via. Enter a code identifying the carrier for MO shipments. This value defaults from the customer address record associated with the project end user and is for reference only.

Note Set up generalized codes for so_shipvia.

Remarks. Enter brief remarks pertaining to this MO, usually regarding the order or shipping process. Remarks default from the customer record associated with the project end user and print on formal MO documents.

Import/Export. This field defaults from Imp/Exp Default in Intrastat Control and displays if Use Intrastat is Yes in the same control program. Set this field to Yes to enter or maintain import and export data used to create Intrastat History Reports for the order. If Yes, the standard Intrastat frames displays for input of appropriate data.

See *User Guide: Master Data* for details on Intrastat.

Site. On MOs generated automatically in PAO Maintenance (10.5.1), this field defaults from the ship-from site on the first line of the MO. On a new MO created in Material Order Maintenance, the system searches for a default ship-from site with an all-blank key first in SSM's Default Site Maintenance (11.21.13) and then in Default PRM Site Maintenance (10.21.13).

On project MOs, the header site is for reference only. Line-item ship-from sites default from Default PRM Site Maintenance.

Confirmed. Enter Yes to confirm this MO for shipment. Otherwise, enter No. For an MO generated in PAO Maintenance, this setting defaults from the Confirmed MO setting in the PAO line detail. Otherwise, the default is from Material Order Control.

You can change this field manually, but only when you create the MO. You cannot change this field after the MO has been created.

See “Material Order Confirmation” on page 112.

Currency. Enter the currency code for this MO. The default is from the PAO’s associated project. When you enter a non-base currency, the system displays the exchange rate relationship effective on the order date. You cannot change the currency on an existing MO.

The MO currency and exchange rate are for reference only on project MOs since the project prices, not the MO-line prices, determine the amounts for which customers are invoiced.

Language. Enter the language to use for MO documentation. The default is from the PAO’s associated project.

Charge Code. This field does not apply to project MOs.

Ship Immed. Specify whether you want to ship confirmed MOs immediately from Material Order Maintenance. This value defaults from the Ship Immed field in Material Order Control.

Allocations. Enter Yes to display an additional pop-up window with fields that affect how the MO is allocated and whether item requirements consume available forecast. Otherwise, enter No.

The allocations pop-up lets you enter values for three additional fields: Consume Forecast, Allocate MO Lines Due in Days, and Detail Allocations. These fields initially default from Material Order Control. Their effects are discussed in detail in *User Guide: Service/Support Management*.

See also “Material Order Control” on page 100.

Comments. Enter Yes to update header comments for this MO; otherwise, enter No. The PAO header comments display by default.

Print Pack List. Enter Yes to allow Sales Order Packing List (7.9.13) to print a packing list for this MO. Otherwise, enter No.

PAO Line Selection Frame

When you create or access an MO that is linked to a PAO with open lines, the PAO Line Selection Frame displays for you to select PAO lines and quantities to place on the order.

Before displaying the selection frame, the system prompts you to select all available PAO lines at their default open quantities.

- If you respond Yes, all applicable PAO lines display as selected. This is indicated by an asterisk on the left side of the line.
- If you respond No, you must manually select PAO lines as required.

Select a PAO line and change the order quantity as needed. To deselect a line, set Quantity to Order to 0. When you are finished making selections, press Go to load the selected line-item quantities onto MO lines.

Note Even if you do not make any selections in this frame, you can still create new lines on project MOs by manually entering a PAO line number in the line-item detail. See “Order Ref Line” on page 109.

Fig. 5.6
Material Order Maintenance, PAO Line Selection Frame

An asterisk (*) indicates a selected PAO line.

PAO Line	Project Line	Item Number	Subassy	PAO Ln Type	Qty to Order
* 1	1.2	22-120	<input type="checkbox"/>	Issue	30.0

PAO Line. The PAO Line Selection frame displays the sequence numbers of the PAO lines that meet the following criteria:

- They are item lines of type I (Issue) or M (Move). See page 76.
- They have an outstanding quantity to issue, move, or return. This means that the quantity ordered on the PAO line exceeds the sum of the processed and in-progress quantities for that line. See page 91.
- At the default ship-from site selected for the PAO line, the line item’s Purchase/Manufacture code is not set to C (Configured), F (Family), or any value other than the standard set of system-defined codes. See page 97.
- The line item’s status code does not specify ADD-SEO as a restricted transaction.
- On an existing MO, the PAO line site and location must match the ship-to site and location for the first MO line.

Project Line, Item Number, Subassy. For each PAO line in the selection frame, the system displays the associated project line number, item number, and subassembly value from Project Maintenance (10.1.1).

PAO Ln Type. The system displays the line type from PAO Maintenance: either Issue or Move. See “PAO Lines” on page 76.

Qty to Order. Enter the quantity to order on the MO for the associated PAO line. This value cannot be negative.

The system calculates a default quantity as follows:

- For a positive-quantity PAO line, the default is the quantity ordered on the PAO minus any quantities already placed on another MO line, placed on a PAR worksheet, or already issued in Project Activity Recording.
- For a planned return (negative order quantity) PAO line, the system adds the sum of the quantities already returned or placed on a worksheet in Project Activity Recording to the quantity ordered on the PAO. It then multiplies the result by –1 to calculate the default quantity to order on the MO.

Note The quantity field display a positive value for both a standard issue and a return line. If necessary, you can split the quantity ordered on a PAO line among multiple MO lines. Each line must be issued separately in PAR.

MO Line Details

After entering MO header data and selecting PAO line quantities, the system generates MO lines to supply the quantities required on the PAO lines. You can use the line detail frames to create additional MO lines or modify existing ones. Each line item lists an associated PAO line, item number, quantity ordered, and unit of measure.

If Ship Immed is No, MO entry is complete once you are finished entering line items. When Ship Immed is Yes, additional shipment frames display after the line detail frames.

See “Shipping Material Orders” on page 115.

Fig. 5.7
Material Order Maintenance, Line Details

Line Format S/M. Indicate how you want to enter line items. This field defaults from Material Order Control (10.7.24).

Single: You can display and maintain detailed information for one line item at a time.

Multi: You can specify line numbers, associated PAO lines, and quantities for multiple MO lines on a single screen. Dates, site, location, allocation details, and comments default. You must use single line format to access and change this information.

See “Ln Format S/M” on page 101.

Ln. Enter a sequence number identifying the MO line you want to create or update. The system automatically displays the next available line number.

Order Ref Line. On a new MO line, enter the PAO line number to associate with the line. The default is the first line number on the selected PAO. The PAO line you specify must:

- Be an item line of type I (Issue) or M (Move).
- Have an outstanding quantity to issue, move, or return. This means that the quantity ordered on the PAO line must exceed the sum of the processed and in-progress quantities for that line. See page 91.

- Not reference an item with Purchase/Manufacture code set to C (Configured), F (Family), or any value other than the standard, system-defined codes at the default ship-from site selected by the system. See page 97.
- Not reference an item with an item status code that specifies ADD-SEO as a restricted transaction.

If the site and location on the specified PAO line do not match the ship-to site and location for the first line of this MO, the system displays a warning but allows you to continue.

Item Number. This field defaults from the associated project line and cannot be updated.

Qty Ordered. Enter the item quantity to order on this line. On a new MO line, the default is the PAO line quantity ordered minus the sum of the quantities already placed on a worksheet or processed by Project Activity Recording. When the PAO line quantity is negative, the open quantity is multiplied by –1 before defaulting to the MO line.

Qty Ordered determines the item quantity you can allocate and ship on this MO. When the associated PAO line has a positive order quantity, the quantity shipped becomes the default quantity to issue when you load the line as item usage in Project Activity Recording.

See “Material Order Line Selection” on page 136.

Note When ATP Enforcement is Yes in Sales Order Control (7.1.24) and ATP Enforce in the item or item-site record is Warning or Error, the system determines whether inventory will be available to promise (ATP) on the due date. When you enter a confirmed MO line and ATP is not sufficient, the system displays a frame with ATP information and options. When you use Material Order Confirmation, you can decide before confirming the MOs whether the system should change order-line due dates to meet ATP requirements. See *User Guide: Distribution* for information on ATP.

UM. This field defaults from the project line unit of measure (UM) and cannot be updated.

Unit Price. This field displays the item master price for the line item converted to the MO currency and project-line UM.

Description. This field displays the inventory item description from the item master.

Site, Location. Enter the site and location from which this line item will ship. When you ship an MO line, the system transfers inventory from the line-item site and location to the destination site and location specified in the MO shipment header.

See “Shipping Material Orders” on page 115.

The system selects the default line-item site and location differently depending on whether the associated PAO line has a positive or negative order quantity.

- For a positive-quantity PAO line, the MO line site and location default from a ship-from site and location set up in Default PRM Site Maintenance (10.21.13). If a default site record is not found, the item master site and location are used as the defaults.

For details, see “Ship-From Locations” on page 97.

- When the PAO line is for a planned return (quantity ordered is negative), the MO line site and location default from the PAO line site and location. See “Planned Returns” on page 126.

Lot/Serial. Enter the lot or serial number to apply to the line-item quantity or set Detail Alloc to Yes to specify multiple lot or serial numbers and inventory references for this MO line. You can leave this field blank during order entry and let the system assign specific lot or serial numbers during allocation or when the packing list is printed.

Note Lot, serial, and reference data associated with MO line items do not default to Project Activity Recording when a line is loaded as item usage. You must reenter the appropriate inventory data for each item in the item usage detail. See “Item Usage Detail” on page 145.

Qty Allocated. Enter the number of items to allocate for this MO line. Use MO Manual Allocations (10.7.4) or MO Automatic Allocations (10.7.5) to allocate inventory to an MO line due outside the allocation window or when sufficient inventory becomes available. See “Material Order Allocations” on page 112.

Qty Picked. The system displays the quantity picked, or printed on a packing list, for this MO line. Quantity picked can display as the default quantity to ship during shipment processing, simplifying MO shipments.

Qty Shipped. The system displays the total quantity shipped to date for this MO line.

Qty Consumed. The system displays the quantity consumed to date for this MO line. When the MO line references a PAO issue line, quantity consumed is updated when line items are issued in Project Activity Recording. When a move line is referenced, this field is updated with the quantity shipped against the MO line.

Qty Returned. The system displays the number of items that have been returned against this line. This field is updated when items are returned in Project Activity Recording or MO Direct/Pending Returns (10.7.8).

Cost. This field displays the GL cost for the specified inventory item at the ship-from site. If the project-line UM differs from the item master UM, the MO line cost is adjusted by the UM conversion factor from the project line.

If you ship an item from a site other than the MO line site, cost is updated to reflect the cost from that site.

Confirmed. Enter Yes to confirm the MO line; otherwise, enter No. On an MO line generated by PAO Maintenance, this value defaults from the Confirmed MO setting in the PAO line detail. Otherwise, it defaults from the MO header.

You can modify this field when a line is first added. If you set the field to No, you can change it to Yes later. However, if you enter Yes, you cannot change it after the line is saved.

You cannot ship unconfirmed MO line items. If lines are unconfirmed, you must execute confirmation before shipment using Material Order Confirmation (10.7.2).

See “Material Order Confirmation” on page 112.

Required, Due Date. Enter the required-by and ship-by dates for this MO line. These fields default from the start date on the PAO line or, if blank, the current date.

Planning functions use line-item due dates to ensure that the right quantity of each item is available for shipment when needed. The due date also helps determine which forecast period is consumed by the MO line.

Category. Enter a generalized code for grouping order lines based on shipping characteristics; for example rush order, special order, or replacement.

Line Ref. This field displays the project line number associated with the PAO line.

UM Conv. This field defaults from the UM conversion factor on the associated project line and cannot be updated.

Consume Forecast. For confirmed lines only, this field determines whether the quantity ordered consumes available forecast. The default is from the corresponding field in the MO header.

Yes: The order consumes forecast.

No: The order quantity is considered abnormal and is planned in addition to the forecast.

Detail Alloc. This field determines whether general or detail allocations are made for this line item. The default is from the corresponding field in the MO header.

Yes: Specific locations, lot or serial numbers, and lot references are assigned for this line.

No: Only the line-item quantity is allocated (general allocation).

If you do not create detail allocations during line-item entry, the system automatically generates them when you print a packing list.

Comments. Enter Yes to update comments for this MO line; otherwise, enter No. The comments from the PAO line's associated project line display by default.

Material Order Confirmation

Material orders must be confirmed before you can allocate or ship them. In addition, MOs are not considered a source of supply by MRP and do not consume forecast until they are confirmed. If you do not generate MOs as confirmed, confirm them as a separate step in Material Order Confirmation (10.7.2).

You can use the Order Ref selection range in Material Order Confirmation to confirm MOs associated with a particular PAO or range of PAOs.

Material Order Allocations

If you do not allocate items to MOs when you create or maintain them in Material Order Maintenance (10.7.1), you can create general allocations using either of the following programs:

- MO Manual Allocations (10.7.4)
- MO Automatic Allocations (10.7.5)

When you use Sales Order Packing List (7.9.13) to generate packing lists for an MO, the system converts general allocations to detail allocations for specific quantities, lot or serial numbers, and inventory references. If detail allocations do not exist when the MO is shipped, Material Order Shipments (10.7.6) performs both picking and shipping functions.

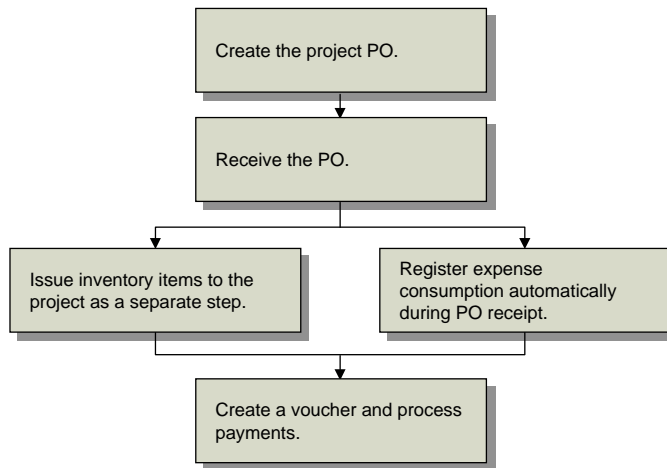
See “Shipping Material Orders” on page 115.

Project Purchase Orders

Use project purchase orders to order required inventory items and expense items that are obtained from external suppliers rather than internal sources.

Figure 5.8 depicts the general work flow for creating and managing project purchase orders.

Fig. 5.8
Project Purchase Order Work Flow



- 1 Create project POs in Purchase Order Maintenance (5.7) and associate a project line number with each PO line. See page 113.
- 2 Receive the PO line items in Purchase Order Receipts (5.13.1). For expense (memo) lines, register the expense consumption against the project during PO receipt. See page 119.
Note Be sure to reference project expense lines on PAOs before receiving associated POs in Purchase Order Receipts (5.13.1). Otherwise, you cannot record the expense consumption against the project during the receipt.
- 3 Issue inventory items to the project in Project Activity Recording (10.5.13). See page 138.
- 4 Create a voucher for the project PO using Voucher Maintenance (28.1) or ERS Processor (28.10.13) and process payments as you would for a standard PO. See *User Guide: Financials*.

Purchase Order Maintenance

Create project purchase orders in Purchase Order Maintenance (5.7) by following these general steps:

- Use the Project field in the PO header or line detail to associate PO lines with a PRM project.
- Use the Project Line field in the line details to manually link PO lines to item or expense lines on the specified project.

PO Header

In the PO header, specify the PRM project to associate with the purchase order. The project code you specify must also reference an active GL project.

See “GL Projects” on page 20.

Fig. 5.9
Purchase Order Maintenance (5.7)

Project. Enter the PRM project ID to associate with this PO. If the project is open and has associated header comments, these are automatically copied to the PO header comments. If the project is on hold, complete, or closed, a warning displays.

Note You cannot link a PO line to a project line unless the parent project has an open status. The header project determines the default on individual PO lines.

PO Line Details

After entering PO header data and specifying the appropriate project ID, proceed to the line detail frames.

Fig. 5.10
Purchase Order Maintenance, Line Details

Ln Format. Set Ln Format to Single to allow access to the Project Line field in the PO line details.

Item Number. If you are linking this line to an item line on a PRM project, specify the appropriate inventory item here. If you are linking to an expense line, use a memo (non-inventory) item rather than one from the item master.

Project. Enter the project ID to associate with this PO line. The default is from the PO header. To enter a project ID, the following must be true:

- The specified project must be open. It cannot be on hold, complete, or closed.
- The quantity received for the PO line must be zero.
- The PO line type cannot be S (Subcontract).

Project Line. Enter the project-line number to associate with this PO line. For the project line you specify, all of the following must be true:

- Both the project line and its parent subproject must be open. The project line cannot be closed and the subproject cannot be on hold, complete, or closed.
- When the PO line is for an inventory item, the project line must reference the same item number and have Subassembly set to No.
- When the PO line is for a memo item, the project line must reference an expense category.

When the above criteria are met, the system links the PO line to the PRM project line and copies comments from the project line to the PO line.

You cannot modify, delete, or close a project line that is linked to an open PO line.

Receiving Project Orders

The following sections describe the programs used to receive project components from material orders and project purchase orders. For project purchase orders, a brief section on the effects of generating vouchers is also included.

In these sections, only fields that have unique applications for PRM receipts are highlighted. For information on fields and screens not discussed here, see *User Guide: Service/Support Management* for material orders and *User Guide: Distribution* for purchase orders.

Shipping Material Orders

Ship material orders into project locations or other internal locations using one of the following programs:

- Material Order Maintenance (10.7.1), when Ship Immed is Yes in the MO header
- Material Order Shipments (10.7.6)

The receipt frames are identical in both programs. The sample screens shown in the following sections are from Material Order Shipments.

Although the MO shipment frames are similar to those in Sales Order Shipments (7.9.15), MO shipments differ significantly from those for sales orders. An MO shipment transfers items from one internal site and location to another site and location instead of issuing inventory.

When you ship an MO line that references a PAO issue line, the shipped items are allocated directly to the PAO. This effectively reserves them for project use and helps prevent them from being used for other orders in the system. You can review inventory allocations using reports such as Allocated Inventory Inquiry (3.18).

Note When you return unissued items in MO Direct/Pending Returns (10.7.8), the allocation to the PAO is removed. See “Processing MO Returns” on page 153.

Shipping a project MO updates the sub-ledger values that the system tracks against each project based on the quantities and costs of the items shipped. Sub-ledger fields affected by MO shipments include Project QOH (Quantity on Hand), Actual Quantity and Cost, and, when Project Inventory in Sub-Ledger WIP is Yes, WIP (Work in Process) Quantity and Cost.

When Project Inventory in Sub-Ledger WIP is Yes in Project Realization Control (10.24), shipping an MO also consumes project budgets with the receipt cost of the transferred items. Otherwise, budgets are not consumed until items are issued in PAR.

A number of reports provide alternate ways of viewing information about open MOs, those that have shipped, and those with items on back order. These reports are discussed in the material orders chapter in *User Guide: Service/Support Management*.

For more information, see “Budget Consumption” on page 130.

MO Shipment Header

Use the header screen to specify the MO number, ship-from site, and other header data.

Fig. 5.11
Material Order Shipments (10.7.6)

Material Order Shipments		
MO: MO468	Ship Allocated: <input type="checkbox"/>	From Site: 12000
Engineer: BJW	Ship Picked: <input checked="" type="checkbox"/>	To Site: 10000
Order Ref: PT01	Override Partial: <input type="checkbox"/>	To Location: 101

MO. Specify an open material order with line items to ship.

Engineer, Order Ref. The system displays the Engineer and Order Ref values associated with the selected MO in Material Order Maintenance (10.7.1).

Ship Allocated, Ship Picked. Enter Yes in one or both of these fields if the quantity to ship for each line item should default from the quantity allocated or the quantity printed on the MO packing list; otherwise, enter No.

You can use both Ship Picked and Ship Allocated to determine the default setting for the quantity to ship on each line item. While not required, setting one or both to Yes can minimize data entry.

Override Partial OK. Specify whether to allow partial shipments for this MO. Yes always allows partial shipments. No may or may not allow partial shipments, depending on the setting of Partial OK in Customer Maintenance (2.1.1).

From Site. Specify the site where items to ship are currently located. Only lines that reference this ship-from site display in the line-item shipment frames.

To Site, To Location. Specify the site and location to receive inventory from this material order. The defaults are determined by the PAO line associated with the first line on the MO.

- When the PAO line has a positive order quantity, the to site and location default from the PAO line site and location.

- When the PAO line is for a planned return (order quantity is negative), the initial defaults are from the PAO line site and location. For an issue line, these are updated with a default return or scrap site and location from Default PRM Site Maintenance (10.21.13) when the return is processed in Project Activity Recording (10.5.13). For a move line, you must change these defaults manually as required. See “Planned Returns” on page 126.

When you enter an undefined ship-to location and Automatic Locations is Yes for the specified to site, the system prompts you to create the new location as a project location. Enter Yes to create a project location. Enter No to create a standard inventory location with a blank Project value.

When the MO shipment is processed, ordered items are transferred to the to site and location specified in the shipment header. If you need to ship items on an MO to more than one site, you must process multiple shipment transactions using different to sites.

See “Project Locations” on page 15.

MO Line Items

After entering header data, specify quantities and inventory details for the line items being shipped to the specified to site and location. The system displays a list of MO lines with a ship-from site that matches the from site specified in the shipment header.

Fig. 5.12
Material Order Shipments, Line Items

The screenshot shows the 'Material Order Shipments' window. At the top, there are fields for MO: MO468, Engineer: BJW, Order Ref: PT01, Ship Allocated: , Ship Picked: , Override Partial: , From Site: 10000, To Site: 10000, and To Location: 101. Below this is a table titled 'Material Order Line Items' with columns: Ln, Item Number, T, Qty Alloc, Picked, To Ship, Backorder, and Site. The table contains one row: Ln 1, Item Number 22-120, T, Qty Alloc 30.0, Picked 0.0, To Ship 0.0, Backorder 30.0, Site 10000. Below the table are fields for Line: 1, Cancel B/O: , Site: 10000, Loc: 100, Quantity: 30.0, Lot/Serial: (empty), Item Number: 22-120, UM: EA, Reference: (empty), Description: CORD,POWER,USA, and Multi Entry: . Navigation arrows are at the bottom right.

Line. Enter the sequence number of an MO line with items to ship to the specified to site and location.

Quantity. Enter the quantity to ship for this line item. The default quantity is determined based on your selections for Ship Allocated and Ship Picked.

Item Number, Description. The system displays the item number and description from the MO line.

Site, Loc. Specify the ship-from site and location for this line item. These values default from the MO line, but you can change them manually as needed. See “Site, Location” on page 110.

Lot/Serial, Reference. Enter the lot or serial number and inventory reference associated with the line item being shipped. The default is the first lot or serial number for this order line entered in Material Order Maintenance (10.7.1).

Note The inventory data you specify during shipment do not default to Project Activity Recording (10.5.13) when the MO line is loaded as item usage. You must reenter the appropriate inventory data for each item in the item usage detail.

Multi Entry. Enter Yes to specify multiple sites, locations, lot or serial numbers, and lot references for the line item being shipped. This value defaults to Yes if the line quantity is greater than 1 and detail allocations were made in Material Order Maintenance; otherwise, the default is No.

When you are finished entering shipment details for each line item, press End to exit the line-item frames and display a list of items being shipped. The system prompts you to verify that the displayed data are correct and confirm the shipment. If you respond Yes, the shipment trailer displays.

MO Shipment Trailer

Processing an MO shipment generates one or both of the following document types:

- A material delivery note that lists items shipped
- A backorder advice that lists items not currently available

The shipment trailer lets you specify an output device for printing these documents and enter remarks to appear on them. For more information on MO shipment documentation, see the material orders chapter in *User Guide: Service/Support Management*.

Fig. 5.13
Material Order Shipments, Trailer

The screenshot shows a software window titled "Material Order Shipments". The window is divided into several sections. The top section contains fields for "MO: MO468", "Engineer: BJW", and "Order Ref: PT01". To the right of these are checkboxes for "Ship Allocated:" (unchecked), "Ship Picked:" (checked), and "Override Partial:" (unchecked). Further right are fields for "From Site: 10000", "To Site: 10000", and "To Location: 101". The middle section contains "Ship Via: GROUND", "Ship Date: 07/19/2002", and "Remarks: BILLING ONLY - USE SHIP TO ON ALL ORDE". The bottom section has an "Output: printer" field with a search icon. At the bottom right, there are left and right navigation arrows.

Ship Via. Enter a code identifying the carrier for this shipment. The default is from the MO header. This field is for reference only. See “Ship Via” on page 106.

Ship Date. Enter the date when the shipment was processed. The default is the current date. Some MO reports let you select shipment data using a range of ship dates.

Remarks. Enter remarks to print on the shipping documents. These initially default from the MO header.

Output. Enter an output device for printing the MO shipment documents.

Receiving Purchase Orders

Receive line items from project purchase orders using Purchase Order Receipts (5.13.1). When you receive project PO lines, the system does the following in addition to executing standard PO receipt processing:

- Generates additional GL transactions to book the purchase costs against the project
- Updates project budgets and sub-ledger values as appropriate

Important Always use Purchase Order Receipts to receive project POs. Other PO receipt transactions, such as PO Shipper Receipt (5.13.20), do not update project budgets or sub-ledger values or generate the additional GL transactions required to book the purchase costs against the project.

You can use the Project selection criteria range in the Purchase Receipt Report (5.13.5) to review a list of line items received from project POs.

Variations

When you issue items to a project in Project Activity Recording (10.5.13), the system debits Work in Process (WIP) based on the GL cost of the items at the issue-from site.

Similarly, when you issue expense items to the project in Purchase Order Receipts (5.13.1), the system debits WIP using the PO line cost of the items, without considering any differences between this cost and the actual purchase price recorded on the supplier invoice and accounts payable (AP) voucher.

In both cases, the costs used to update WIP may not accurately reflect the actual (purchase) costs of the items and expenses issued.

To account for differences between the GL and purchase cost of an inventory item, the standard PO receipt process generates *purchase price variances*. A purchase price variance (PPV) amount is generated when either of the following applies to a received PO line:

- The purchase cost of the line item differs from the item's GL cost at the receiving site, minus any overhead cost
- A non-recoverable tax amount exists for the line

For more information on PO variances, see the costing chapter in *User Guide: Financials*.

Note PPV amounts do not apply to memo (expense) lines.

When the unit costs and quantities on the invoice you receive from your supplier differ from the unit costs and quantities specified on the PO, the standard voucher creation process generates *accounts payable variances* of the following types:

- An AP rate variance is generated when the invoice cost differs from the PO line cost.
- An AP usage variance is generated when the invoice quantity differs from the PO line quantity.

When you receive an item line from a project PO or create a voucher for any project PO line, the system generates GL transactions to:

- Reverse the postings to the Purchase Price Variance and AP Variance accounts
- Post the variance amounts to the appropriate WIP account for the associated project line

This ensures that the cumulative costs in WIP reflect the actual purchase costs of the items and expenses consumed.

Note Depending on how Use Expensed Item Var Accts is set in Accounts Payable Control (28.24), variance amounts for memo items may be posted to and moved out of Expensed Item Receipts rather than AP variance accounts.

In addition to creating GL transactions to post variance amounts to WIP, the PO receipt and vouchering processes use the PPV and AP variance amounts to:

- Consume project budgets
- Update the actual and WIP costs in the project sub-ledger

This ensures that the costs tracked against the project, as well as the GL WIP costs, take into account the purchase costs of the items and expenses.

Receiving Item Lines

When you receive items from a project PO into a designated project location, the system performs the following additional processing steps:

- Updates the quantity on hand (QOH), actual quantity, and actual cost values in the project-line sub-ledger with the quantity and extended GL cost of the received items. When Project Inventory in Sub-Ledger WIP is Yes in Project Realization Control (10.24), the sub-ledger WIP quantity and cost are also updated with these amounts. See “Project Inventory in Sub-Ledger WIP” on page 43.
- Consumes project budgets with the extended GL cost of the received items when Project Inventory in Sub-Ledger WIP is Yes.

These steps are performed in addition to the GL transactions and project budget and sub-ledger updates generated to book purchase price variances against the project. These updates always occur regardless of the PO receipt location.

Note When you do not receive into a project location, you should create a project material order to ship the items into a project location before issuing them in Project Activity Recording. See “Material Orders” on page 102.

Receiving Expense Lines

When you receive a PO line that is linked to an expense line on a project, you can use Purchase Order Receipts to perform the same updates that Project Activity Recording (10.5.14) does when you issue an expense quantity on a PAO worksheet. To perform these updates, the PO receipt quantity must be associated with a PAO line or lines before processing the receipt.

You can have the system associate received expense quantities with available PAO lines automatically by setting Receive All to Yes in Purchase Order Receipts, or you can use the PAO Line Selection frame to manually enter issue quantities for PAO lines.

Receiving an expense line and recording the receipt quantity against PAO lines in Purchase Order Receipts immediately books the expense against the project and updates project budgets and sub-ledger values accordingly. Expense quantities received in Purchase Order Receipts and recorded against PAOs do not need to be issued again in PAR.

See “Qty to Issue” on page 122.

Purchase Order Receipts

Process receipts from project purchase orders just as you do with standard POs. If you specify a receipt quantity for an expense (memo) line, an additional frame displays for applying that quantity to PAO lines to book the expenses against the project.

When you enter an undefined receipt location in the receipt detail and Automatic Locations is Yes for the specified receipt site, the system prompts you to create the new location as a project location. Enter Yes to create a project location. Enter No to create a standard inventory location with a blank Project value.

See *User Guide: Distribution* for information on standard PO receipts.

PAO Line Selection Frame

When you receive a PO line for a project expense, use the PAO Line Selection frame to record the expense consumption against the project. This lets you use the PO receipt cost, rather than an expense cost from a project price list, to update the following:

- GL Service Expense and WIP accounts
- Project budgets
- The actual, WIP, and issued costs in the project sub-ledger

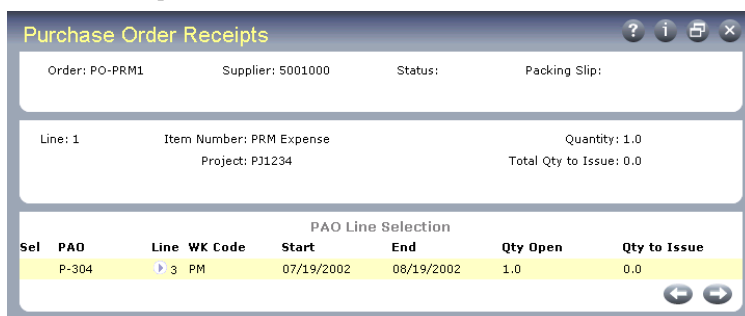
For details on how expense consumption is managed in PAR, see “Recording Project Activity” on page 123.

The system displays a list of PAO lines that reference the project line associated with the received PO line. A PAO line is only included in this frame if:

- The PAO is not on hold, complete, closed, or canceled.
- The line has a quantity available to issue.
- An engineer is assigned to the worksheet associated with the line, the PAO header, the parent subproject, or the project header. The expense consumption cannot be recorded unless the system finds an engineer to associate with the PAO line.

Note For the selection frame to display, the PO line’s associated project line must be referenced on at least one PAO.

Fig. 5.14
Purchase Order Receipts, PAO Line Selection



The reference fields in the upper portion of the screen include a field for the project ID and a field that displays the sum of the issue quantities selected in the lower frame.

Line. The system displays the sequence number of the selected purchase order line.

Item Number, Project. The system displays the memo item and project ID associated with the PO line.

Receipt Qty. The system displays the quantity received from the PO line.

Total Qty to Issue. The system updates this field with the sum of the issue quantities specified for PAO lines in the selection frame. You cannot issue more than the quantity to receive for the purchase order line.

When the quantity in this field is less than the receipt quantity for the PO line, the system displays a warning but lets you process the issues.

Use the Qty to Issue field in the lower selection frame to specify expense quantities to consume against available PAO lines.

Sel. This field displays an asterisk (*) if the associated PAO line has a positive quantity to issue. To deselect a line, set Quantity to Issue to 0 (zero).

PAO, Line. The system displays the PAO and line number for a PAO expense line with an open quantity to consume.

Start, End. The system displays the PAO line start and end date from PAO Maintenance (10.5.1). PAO lines are sorted by start date, starting with the earliest date. See “Start Date, End Date” on page 89.

Qty Open. The system displays the quantity ordered on the PAO line minus the sum of the quantities already issued to the project or placed on a worksheet in PAR.

Qty to Issue. Enter the expense quantity to issue to the project for the specified PAO line. The default depends on the value of Receive All in the receipt header.

When Receive All is Yes, the receipt quantity from the PO line is applied automatically to the PAO line with the earliest start date. When the quantity received exceeds the open quantity on the PAO line, the remaining receipt quantity is applied to the next sequential line, and so on, until the entire receipt quantity is consumed. If the quantity received exceeds the sum of the open quantities on open PAO lines, the excess quantity is applied to the PAO line with the latest start date.

When Receive All is No, Quantity to Issue defaults to 0 (zero) on all lines.

If the specified quantity to issue exceeds the quantity open for the PAO line, the system displays a warning but lets you process the issue.

Creating Vouchers

When a voucher is created for a project PO line, whether manually in Voucher Maintenance (28.1) or automatically using ERS Processor (28.10.13), the system performs the following activities:

- Transfers variance amounts from AP Rate and Usage Variance accounts to the applicable WIP account for the project line
- Consumes project budgets and updates the actual and WIP costs in the project sub-ledger with the AP variance amounts

See “Variances” on page 119.

When the voucher is for a project line that was closed in Project Activity Close (10.23.2), variance amounts are posted to Cost of Goods Sold (COGS) Material (for items) or Expense Due (for expenses) rather than WIP.

See “Closing Projects” on page 180.

Recording Project Activity

The activity recording phase of a project typically begins soon after you start executing the planned work represented by project activity orders. Use Project Activity Recording (10.5.13) to:

- Record items, labor, and expenses consumed by the project.
- Receive completed subassembly items.
- Process returns from the customer site or project engineers.

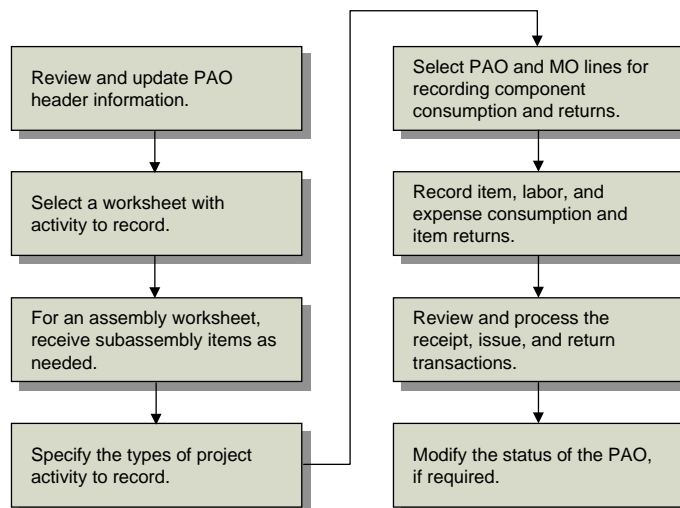
Engineers can also use Project Labor Recording (10.5.14) to record labor hours. This program provides simpler access to some of the same frames that display in Project Activity Recording.

See “Project Labor Recording” on page 150.

Data-Entry Flow

The various types of functions you can perform in Project Activity Recording are reflected in the multistep data-entry flow depicted in Figure 5.15.

Fig. 5.15
Project Activity Recording Flow



Project Activity Recording consists of multiple frames. Table 5.1 lists all the frames in PAR, with an indication of each frame’s purpose and whether it always displays (required) or conditionally displays depending on the options you select and the type of activity being performed. Also included with each entry is a reference to the specific page where the frame is discussed in more detail.

Note The comments, multi-entry, and output device frames are not discussed in detail in the following sections since they are similar or identical to frames displayed in many other programs throughout the system.

Table 5.1
PAR Frames

Frame	Req	Purpose	Page
PAR Header	Y	Select a PAO and display related information. You can update the PAO queue and language and change the comments and detail settings.	131
Comments	N	If Comments is Yes, review or update PAO header comments.	N/A
Worksheet Selection	Y	Select a worksheet to use for recording item and resource consumption and update the engineer, site, location, and last record date as needed.	132
Subassembly Data	N	When the specified worksheet is for an assembly line, use this frame to receive subassembly items into the worksheet site and location.	133
Multi-Entry	N	When Multi Entry is Yes, enter multiple sites, locations, or inventory data to associate with the subassembly receipt.	N/A
Worksheet Options	Y	Specify the types of project activity to record during this session. Choose from labor and expense lines, item lines on PAOs or MOs, planned return (negative-quantity) PAO lines, or any valid combination of these. Also specify whether to review and update worksheet detail records or display fully issued MO lines.	135
Material Order Line Selection	N	When Select Material Order Lines is Yes, select shipped MO lines and quantities to place on the worksheet.	136
PAO Line Selection	N	When Select Labor/Expense Lines or Select Item Lines is Yes, select PAO issue lines and quantities to place on the worksheet.	138
Return Line Selection	N	When Select Return Lines is Yes, select planned return (negative order quantity) PAO lines and quantities to place on the worksheet.	139
Labor/Expenses	N	When Review Labor/Expense Details is Yes, update work codes and quantities for labor and expense detail records on the worksheet.	140
Labor/Expenses Detail	N	When Detail is Yes, review and update information associated with a labor or expense detail record, including the engineer code and comments.	142
Comments	N	If Comments is Yes, review or update worksheet detail comments.	N/A
Item Usage	N	When Review Item Details is Yes, update work codes and quantities for item usage and return detail records on the worksheet.	143
Item Usage Detail	N	When Det (Detail) is Yes, review and update information associated with an item usage detail record, including inventory data and comments.	145

Frame	Req	Purpose	Page
Multi-Entry	N	Enter multiple sites, locations, inventory references, and issue quantities to associate with the item usage detail.	N/A
Comments	N	If Comments is Yes, review or update worksheet detail comments.	N/A
Returned Items Detail	N	When both Rtn (Return) and Det are Yes for a usage detail record, review and update data required for returns.	146
Multi-Entry	N	Enter multiple return statuses, sites, locations, inventory references, and return quantities to associate with the item usage detail.	N/A
Comments	N	If Comments is Yes, review or update worksheet detail comments.	N/A
Activity Confirmation	N	Displays a list of all items, labor, and expenses to be received, consumed, or returned during this session.	149
Output Device	Y	Specify an output device for the report generated during PAR processing.	N/A
PAO Status	Y	Update the PAO status, if required.	149

Worksheets

In PAR, you record project activity against PAO worksheets rather than directly against PAOs. For each PAO you create, PAO Maintenance (10.5.1) automatically generates:

- A separate worksheet for each assembly line on the PAO and its associated components
- A single default worksheet for all of the issue lines on the PAO that do not belong to an assembly

Although PAO Maintenance automatically generates default worksheets for PAO lines, the lines are not actually associated with a worksheet until you select them in PAR. When you select a PAO line, PAR adds a new *worksheet detail* record to the current worksheet and uses it to record all future activity related to that line.

See also “PAO Worksheets” on page 77.

Project Activity Recording lets you create new PAO worksheets, if required, and associate PAO lines and project activity with them. Each worksheet can reference a different engineer, issue site and location, and last record date.

See “Worksheet Selection” on page 132.

Example You may want to define separate worksheets for individual project engineers and associate each with PAO lines representing the items, labor, and expenses that the engineer is expected to consume over the life cycle of the project.

When creating new worksheets in PAR, keep in mind these considerations:

- You cannot create a new worksheet for an assembly line or any of its components.

- A PAO line cannot be referenced on more than one worksheet. If you attempt to add a PAO line that is already referenced on another worksheet to a new worksheet created in PAR, the system automatically creates a new line on the PAO and splits the ordered quantity between the two lines.

For details, see “PAO Line Selection” on page 138.

Inventory Processing

Inventory processing in PAR is similar to a backflush operation. The project activity has already taken place; now you are entering information into the system about labor already performed and items and expenses already consumed. Therefore, the system assumes that you want to issue the inventory immediately after you record it.

Inventory issues in PAR are subject to the same rules that apply to inventory throughout the system. The inventory status at the issue location determines the overissue policy. If any errors are encountered during issue, you must correct the conditions causing the errors and reprocess the inventory transactions before the PAO can be set to the complete status.

Only one issue site can be specified in the worksheet header. You can, however, issue inventory from multiple sites as needed. During entry of item usage detail, you can specify a site for each item used. During inventory processing, the items are transferred to the worksheet site and issued from there.

This has important implications for costs and some GL transactions since costs are typically set up for each site using Item-Site Cost Maintenance (1.4.18). When inventory transactions affect more than one site, costs may differ between the two sites. Cost variances are posted to the Transfer Variance account defined in Site Maintenance. The system automatically generates the appropriate balancing transactions in the GL for each site.

- When the transfer-from and transfer-to sites are in different entities, a balancing entry is posted to the appropriate Intercompany Inventory Control debit and credit account defined in Entity Code Maintenance (25.3.1.1)
- When the two sites are in the same entity, a balancing debit or credit is posted to the Material Rate Variance account defined in Product Line Maintenance (1.2.1).

For more information on inventory processing, see *User Guide: Master Data*.

Returns

In addition to issuing items and consuming labor and expenses, the activity recording phase of your project may also involve processing item returns from the customer or project engineers.

There are three basic types of project returns. The first two types are processed in PAR, while the third is processed using MO Direct/Pending Returns (10.7.8).

Planned Returns

Planned returns involve items that were not issued as part of the project but are returned from the customer, often for replacement by the project. When you set up the project in Project Maintenance (10.1.1), you indicate a planned return by creating a project line with a negative planned quantity.

When you set up PAOs in PAO Maintenance (10.5.1), you reference the planned return lines on them, typically with the project lines that issue the new items to replace the old ones.

See “Quantity Planned” on page 63.

You can associate planned return lines on a PAO with MO lines for transferring the returned items back into stock after they are initially received in PAR. In this case, when you process the returns in PAR, the ship-to site and location on each MO line are automatically set to an applicable return site and location defined in Default PRM Site Maintenance (10.21.13). Use Material Order Shipments (10.7.6) to ship the returned items to the default site and location selected by the system or to a different site and location as appropriate.

See “Setting Up Default Sites and Locations” on page 97.

Unplanned Returns

When you issue more items to the project than needed or when some of the items issued are defective, return the items against the same worksheet detail record you used to issue them.

For items initially ordered on an MO, you can specify a pending return status in PAR and complete the return in MO Direct/Pending Returns (10.7.8). This lets you return items to an intermediate location, such as an inspection location or the project location, before returning them back to stock.

Internal (MO) Returns

For a PAO to be completed and closed, the items ordered on all associated MOs must be either consumed or returned. Sometimes, you may order more items on an MO than you need to complete the project. When items were shipped on an MO but not issued in PAR, use MO Direct/Pending Returns (10.7.8) to return the items to an appropriate stocking location so you can close the PAO.

For more information, see “Processing MO Returns” on page 153.

Subassembly Receipts

In addition to processing item issues and returns, PAR lets you record the completion of subassembly items that are manufactured and tracked as part of the project. Create PAO lines of type A (Assembly) for these subassemblies and process their receipt against the assembly worksheets generated by PAO Maintenance (10.5.1).

See “Assembly Lines” on page 76.

When you receive a subassembly item in PAR, that item’s extended GL cost at the receipt site is moved out of WIP and into an Inventory account associated with the item’s product line. To book the subassembly item’s cost to WIP and record its consumption against the project, you must create a PAO issue line for it and process the issue in PAR.

See “GL Transactions” on page 129.

Installed Base Updates

When you have the SSM module, you can use PAR to update the installed base (ISB) of the project end user with items issued to and returned against the project. Whether PAR generates ISB updates is determined by the following settings:

- The Update ISB setting in the PAR header. This field must be Yes for PAR to generate ISB updates.
- For each item issued or returned, the Installed Base setting in Service Item Maintenance (11.3.7). This field must be Yes for PAR to update the ISB.

For more information on tracking ISB data, see *User Guide: Service/Support Management*.

Item Issues

When an item is serial controlled or has ISB Unit Quantity set to Yes in Service Item Maintenance, one ISB record is generated for each item unit issued during the current session. Otherwise, for each unique combination of item number and lot or serial number issued, PAR searches for a matching ISB record in the project end user's installed base. If a matching record is found, PAR adds the item issue quantity to it. Otherwise, it generates a new ISB record for that issue quantity.

All items are added at the first level of the installed base. You cannot add items as components of other parent items. Also, items issued on a subassembly worksheet are not added to the installed base.

Unlike the records generated for items issued on sales orders or service calls, the ISB records generated by PAR do not contain warranty information or an install date. This information is added later when the PAO is closed in PAO Close (10.5.16). You can use Installed Base Item Maintenance (11.3.1) to update this data on individual ISB records if required.

See “Closing PAOs” on page 179.

Item Returns

When you return items in PAR and Update ISB is Yes in the header, the system searches for each returned item in the project end user's installed base using the serial number or ISB reference number specified in the return detail. When it finds an ISB record for an item, it automatically deletes it or reduces its quantity and does the same for any component-item records referenced by that item. When PAR does not find an ISB record for the returned item, a warning displays.

See also “Returned Items Detail” on page 146.

Inventory and Operation History

Table 5.2 summarizes the transaction history records that PAR generates to record item issues, receipts, and returns. Each transaction type listed includes an explanation of the associated PAR activity and originating site. Review transaction history using reports and inquiries on the Transaction History Menu (3.21).

For more information on transaction history, see *User Guide: Master Data*.

Note The first two transactions listed in Table 5.2 are generated only when the worksheet header and detail sites associated with an item issue transaction do not match. In this case, PAR generates additional inventory transactions to transfer items between sites before issuing them.

See “Inventory Processing” on page 126.

Table 5.2
Inventory Transactions in PAR

PAR Activity	Originating Site	Inventory Transaction
Transferring items out of the worksheet detail site	Worksheet detail site	ISS-TR
Transferring items into the worksheet header site	Worksheet header site	RCT-TR
Issuing items	Worksheet header site	ISS-WO
Processing item returns and receiving completed subassemblies	Receipt site	RCT-UNP

In addition to generating transaction history records, PAR generates operation history records of types LABOR and EXPENSE to record consumed labor and expense quantities. Review these records using Operation Transaction Browse (17.8) or Operation Transaction Detail Inquiry (17.9).

GL Transactions

PAR generates GL transactions to record item issues, labor and expense consumption, subassembly receipts, and item returns. Transactions related to item issues, returns, or receipts have the prefix IC, while those related to expenses and labor have the prefix WO.

Table 5.3 lists the accounts updated by GL transactions in PAR, along with the PAR activity that generates each transaction type.

Table 5.3
GL Transactions in PAR

PAR Activity	Debits	Credits
Issuing items	WIP	Inventory
Returning items	Inventory	WIP
Consuming labor	WIP	Service Labor
Consuming expenses	WIP	Service Expense
Receiving subassemblies	Inventory	WIP

In all cases, the WIP accounts updated in PAR are based on the product line specified on the applicable project line. This product line is also used to search for Service Labor and Service Expense accounts.

See “Product Line” on page 63.

The Inventory account updated for an item transaction in PAR is determined by the item master product line rather than the one from the project line. PAR first uses the issuing or receiving site and location to search for an Inventory account set up in Inventory Account Maintenance (1.2.13). If it does not find one, it uses an Inventory account from Product Line Maintenance (1.2.1).

All GL transactions generated by PAR reference the GL project code associated with the selected project.

See “GL Projects” on page 20.

Budget Consumption

If you have set up budgets for a project, activity recorded in PAR is tracked against budget amounts. If Use Budgets is Yes for a project and a budget has not been created, PAR displays a warning.

Warnings also display when you are within a certain percentage of the budget limit or have exceeded it by a certain percentage, based on percentages defined for the project in Project Maintenance (10.1.1). These percentages, in turn, default from Project Realization Control (10.24).

See “Budget Warning Limit, Budget Overrun Limit” on page 56.

Project Inventory in Sub-Ledger WIP

When Project Inventory in Sub-Ledger WIP is Yes in Project Realization Control, item costs affect budgets immediately when:

- Items are received into a project location on an MO or project purchase order. See page 115.
- Completed subassemblies are received into a project location in PAR. See page 133.
- Non-scrap items are returned to a project location in MO Direct/Pending Returns. See page 153.

See page 43.

When Project Inventory in Sub-Ledger WIP is Yes, PAR does not update budgets for item issues or returns unless the issue or return location is a non-project location. When Project Inventory in Sub-Ledger WIP is No, however, item costs update budgets whenever items are issued or non-scrap returns are processed in PAR.

Note Labor and expenses always consume budgets when they are issued in PAR, regardless of how Project Inventory in Sub-Ledger WIP is set.

PAR Work Codes

When budgets are defined for combinations of work codes and service categories, the work code associated with a subassembly receipt or worksheet detail record may be used to search for project budgets to update with the item costs. The search logic is as follows:

- The work code associated with a labor or expense detail record is always used to search for budgets.
- Whether the work code associated with a subassembly receipt or item usage detail is used depends on the value of Project Inventory in Sub-Ledger WIP in Project Realization Control. See “Project Inventory in Sub-Ledger WIP” on page 130.

Use caution when updating PAR work codes used to search for project budgets.

Example You use Project Budget Rollup (10.3.1) to roll up budgets by work code and service category combinations. For project line 1.1, work code is STANDARD and the service category is LABOR. In PAR, you create a worksheet detail record for the PAO line associated with line 1.1 and change the work code to INSTALL. Instead of consuming the budget originally generated for project line 1.1 in Project Budget Rollup, PAR searches for and consumes a budget with a service category of LABOR and a work code of INSTALL.

Project Activity Recording

Record project item, labor, and expense consumption in Project Activity Recording (10.5.13). If needed, you can also receive completed subassemblies and process item returns from the customer site.

PAR Header

Use the header frame of Project Activity Recording to specify a PAO with activity to record and modify PAO header values, if needed.

If the status of the PAO you specify is hold, complete, or canceled, you can still access the PAO header and status screens in PAR; however, you must change the status before you can record any activity.

See “PAO Status” on page 149.

Fig. 5.16
Project Activity Recording (10.15)

Project Activity Recording

PAO: P-303 Sold-To: 10010001 Project: P1234 Proj Type: PT01

Sold-To	Ship-To
Westwood Reliable Westwood Shopping Center 77 Sunset Strip Westwood CA 89029 United States of America	Westwood Reliable Westwood Shopping Center 77 Sunset Strip Westwood CA 89029 United States of America

Status: ORDERED Ordered

Description: Cut and install pipe

Engineer: BJW

Queue: Manager

Entered By: pnm

Language: US

Comments: []

Detail:

Update Installed Base:

Add Link

Budget records have been detected

Only updateable if SSM is used.

When Use Budgets is Yes, the system verifies that budgets exist.

PAO. Enter the ID of a PAO with activity to record. To record activity, the PAO you select must be open. In addition, if Credit Hold Option is 2 in Project Realization Control (10.24), the project bill-to customer cannot be on credit hold.

Sold-To, Project, Proj Type. The system displays values from the project associated with the selected PAO.

Status, Description, Engineer, Entered By. The system displays header values from the selected PAO.

Queue. Optionally modify the queue associated with the selected PAO. The initial default is from PAO Maintenance (10.5.1), if specified.

Note Set up generalized codes for pao-queue.

Language. Enter the default language for comments associated with this PAO. Language defaults from the project, but you can change it to another language code set up with Language Code Maintenance (36.4.1).

Comments. Enter Yes to update header comments for the selected PAO; otherwise, enter No. Comments defaults to Yes if header comments are already associated with the specified PAO; otherwise, the default is No.

Detail. Enter a default value for the Detail fields in the Labor/Expenses and Item Usage frames. This value defaults from the setting of PAR Detail in PAO Control (10.5.24).

No: Detail defaults to No for item, labor, and expense detail lines.

Yes: The Detail fields in the Labor/Expenses and Item Usage frames default to Yes. When Detail is Yes on an item, labor, or expense detail line, an additional frame displays for updating worksheet details such as the engineer code, inventory data (for item issues and returns), description, and comments.

If you typically perform complex transactions involving returns or issue multiple lot- or serial-controlled items in PAR, setting this field to Yes helps streamline data entry later.

See “Detail” on page 141 and “Det” on page 144.

Update Installed Base. Use this field to indicate whether item issues and returns in PAR should update the installed base for the project end user. The default is from the Create ISB setting defined for the project end user in End User Address Maintenance (10.13.1).

No: The end user’s installed base is not updated based on activity processed in PAR.

Yes: When you process item issues or receipts in PAR, the system updates ISB records for each item with Installed Base set to Yes in Service Item Maintenance (11.3.7).

See “Installed Base Updates” on page 128.

Worksheet Selection

After the PAR header, the Worksheet Selection frame displays. Use the fields in this frame to select an existing worksheet for recording project activity or create a new worksheet, if needed.

See “Worksheets” on page 125.

Fig. 5.17
Project Activity Recording, Worksheet Selection

The screenshot shows a software interface for 'Project Activity Recording'. At the top, there's a header with the following information: PAO: P-303, Sold-To: 10010001, Project: PJ1234, and Proj Type: PT01. Below this is a section titled 'Worksheet Selection'. It contains several input fields: 'Worksheet: 2468', 'Engineer: BJW', 'Site: 10000', 'Location: 101', and 'Last Record Date: 07/19/2002'. There are search icons (magnifying glasses) next to the Engineer, Site, and Location fields, and a calendar icon next to the Last Record Date field. At the bottom right of the form, there are two arrow buttons for navigation.

Worksheet. Specify the worksheet to use for recording project activity. The first worksheet number generated by PAO Maintenance for the specified PAO displays by default. If you specify an existing worksheet, it must belong to the selected PAO.

To create a new worksheet, enter a new worksheet ID in this field or set it to blank to let the system assign a worksheet ID.

Engineer. Specify the primary engineer to assign to the selected worksheet. This is typically the engineer who installed the items and performed the labor to be recorded. You cannot leave this field blank.

The default is the engineer from the specified PAO. You can change this default for individual labor, expense, and item usage detail records on the worksheet as needed.

Site, Location. Specify a site and location to associate with the selected worksheet. These values default from the project header site and location and typically identify where items used in the project activity are located.

Items in PAR are always issued from the worksheet header site. When the site specified in the item usage detail differs from the worksheet header site, PAR transfers items to the worksheet header site before issuing them to the project. When the worksheet header and detail sites match, the system issues items directly from the worksheet detail site and location.

See “Inventory Processing” on page 126.

Note The site and location on each worksheet detail record default from the associated PAO line, not the worksheet header.

Last Record Date. When PAR Labor Start is set to Worksheet in PAO Control, enter the default start date to use for labor and expense detail records generated for this worksheet. These start dates, in turn, are used to search for default unit costs and budgets to consume with the issue costs of their associated worksheet detail records.

See “PAR Labor Start” on page 81.

When no activity has been recorded for this worksheet, Last Record Date defaults from the PAO header start date, if specified. When the PAO start date is blank, the default is the current date. When you create a new labor or expense detail record or modify the start date on an existing detail record, the Last Record Date in the worksheet header is automatically set to the new start date.

See “Start Date” on page 142.

Note When PAR Labor Start is set to PAO, the start date on a new worksheet detail record defaults from the PAO line start date rather than the Last Record Date. In this case, the Last Record Date on the worksheet header is for reference only.

Subassembly Data

When the worksheet you select is for a PAO assembly line and its associated components, the Subassembly Data frame displays. Use the fields in this frame to specify the subassembly quantity to receive and associated inventory details.

See “Subassembly Receipts” on page 127.

Fig. 5.18
Project Activity Recording, Subassembly Data

The screenshot shows a software window titled "Project Activity Recording" with a standard Windows-style title bar (help, info, print, close). The window is divided into three main sections:

- Header Section:** Contains project identification fields: PAO: P-304, Sold-To: 10010001, Project: PJ1234, and Proj Type: PT01.
- Worksheet Selection Section:** Contains fields for Worksheet: 402273, Engineer: BJW, Site: 10000, Location: 101, and Last Record Date: 08/07/2002.
- Subassembly Data Section:** Contains fields for:
 - Quantity To Receive: 2.0 (highlighted in yellow)
 - Multi Entry: (checked)
 - Item Number: Sprinkler
 - Lot/Serial: (highlighted in yellow)
 - Reference: (highlighted in yellow)
 - Work Code: Install (with a search icon)
 - Receive Subassembly: (checked)

Navigation arrows are visible at the bottom right of the window.

Quantity to Receive. Enter the quantity of subassembly items to receive. The default is the quantity ordered on the PAO line minus the quantity already received for that line. If a subassembly quantity was entered previously but not processed, that quantity displays as the default.

Multi Entry. Enter Yes to display a frame for entering multiple receipt sites and locations, lot or serial numbers, and reference numbers in the same receipt transaction. To access the multi-entry frame, Receive Subassembly must be Yes.

Leave this field set to No to receive the entire quantity into the same site and location with the same inventory details.

Item Number. The system displays the subassembly item number from Project Maintenance (10.1.1).

Lot/Serial, Reference. Enter a lot or serial number and inventory reference to associate with the subassembly items being received. To specify multiple lot or serial numbers or inventory references for the same receipt quantity, set Multi Entry to Yes and enter applicable quantities and lot or serial values in the Multi Entry frame.

Work Code. Enter a work code to associate with the subassembly quantity being received. This field initially defaults from the assembly line's associated project line.

When all of the following are true, the work code associated with the subassembly receipt is used in combination with the service category from the project line to search for a project budget to consume:

- Items are received into a project location.
- Project Inventory in Sub-Ledger WIP is Yes in Project Realization Control.
- Project budgets are for combinations of work codes and service categories.

See "Budget Consumption" on page 130.

Receive Subassembly. Enter Yes to receive the specified subassembly quantity during this session. Enter No if you do not want to receive subassembly items at this time.

When you enter No, the system stores the work code and inventory details and displays them the next time you access the subassembly worksheet in PAR. The quantity to receive, however, defaults back to the open quantity on the worksheet.

Worksheet Options

Fields in the Worksheet Options frame let you specify the types of project activity to record during the current session. This frame displays either immediately after the Worksheet Selection frame or after the Subassembly Data frame, depending on the type of worksheet selected.

Fig. 5.19
Project Activity Recording, Worksheet Options

Select Labor/Expense Lines. Indicate whether to select PAO labor and expense lines for recording activity on this worksheet.

No: Labor and expense lines are not included in the PAO Line Selection frame.

Yes: The PAO Line Selection frame displays labor and expense lines from the designated PAO that have an open quantity to issue.

This field defaults to Yes when a labor or expense issue line exists on the designated PAO with an open quantity to issue. For a subassembly worksheet, the labor or expense line must also be associated with the subassembly.

See “PAO Line Selection” on page 138.

Select Item Lines. Indicate whether to select PAO item lines for recording item issues on this worksheet.

No (the default): Item lines are not included in the PAO Line Selection frame.

Yes: The PAO Line Selection frame displays item lines from the designated PAO that have an open, positive quantity available to issue.

Typically, item consumption is recorded against MO lines rather than PAO lines. However, you can also issue items directly from PAO lines, if needed, by setting this field to Yes and selecting item issue lines in the PAO Line Selection frame. For example, you can issue items this way when you order items on a project purchase order and receive them directly into a project location.

This field cannot be Yes unless Select Material Order Lines is No. These fields represent two alternate methods of loading item usage in PAR.

Select Material Order Lines. Indicate whether to select shipped MO lines linked to the designated PAO for recording item issues on this worksheet.

No: The Material Order Line Selection frame does not display.

Yes: The Material Order Line Selection frame displays MO lines that are linked to the designated PAO and have a quantity available to consume.

This field defaults to Yes when an MO line associated with an issue line on the PAO has a quantity available to consume. For a subassembly worksheet, the MO line must reference a PAO line that is a component of the subassembly. This field cannot be Yes unless Select Item Lines is No.

See “Material Order Line Selection” on page 136.

Select Return Lines. Indicate whether to select PAO planned return lines for recording item returns on this worksheet.

No (the default): The Return Line Selection frame does not display.

Yes: The Return Line Selection frame displays planned return lines from the designated PAO that have an open quantity to return (negative order quantity).

See “Return Line Selection” on page 139.

Review Labor/Expense Details. Enter Yes to display the Labor/Expenses frame for reviewing and updating worksheet detail records generated for labor and expense lines. See “Labor/Expenses” on page 140.

Review Item Details. Enter Yes to display the Item Usage frame for reviewing and updating the worksheet detail records generated for PAO item lines, MO lines, and planned return lines. See “Item Usage” on page 143.

Display Fully Issued MO Lines. Enter Yes to display MO lines with a 0 (zero) quantity to issue. Otherwise, enter No.

This field is typically set to No. However, you can set it to Yes if you need to correct a data entry error for a fully issued MO line.

Example You select line 1 of MO275 with a quantity of 60 and proceed through PAR, issuing the components. Then you realize that you meant to issue 6, not 60. Access the PAO in PAR again and set this field to Yes. The fully issued line displays with a quantity of 0 (zero). Enter a negative value (-54) in the Quantity to Issue field and process the issue.

Material Order Line Selection

When Select Material Order Lines is Yes in the Worksheet Options frame, the Material Order Line Selection frame displays for you to select shipped MO quantities to issue to the project. All MO lines that meet the following criteria display in this frame:

- They reference positive-quantity issue lines on the specified PAO that have not been referenced on another worksheet.
- Note** If Display Fully Issued MO Lines is Yes, lines with a 0 (zero) quantity also display.
- They have been shipped and have an open quantity to consume. That is, the quantity shipped must exceed the sum of the quantity returned and the quantity already issued in PAR.
 - For a subassembly worksheet, they reference PAO lines that are components of the specified subassembly.

Note If MO lines that meet these criteria are not found, the selection frame does not display.

Before displaying the selection frame, the system prompts you to preselect MO lines at their default open quantities. Respond Yes to have the system automatically select lines, No to manually select lines.

If more than one MO line has been created for a PAO line, only the first is preselected. If you want to issue items ordered on a different MO line, deselect the first and select the line you want. To deselect a line, set Quantity to Issue to zero.

You cannot select more than one MO line for a particular PAO line. An error is generated when you select two lines for the same PAO line in this frame. The same error displays when you select one line if unissued items from a different MO line already exist on a worksheet detail for the PAO line.

If you need to issue items for two MO lines for the same PAO line, issue items on the first line; then select the second and issue its items in a separate transaction.

For each MO line you select, the system creates a worksheet detail (item usage) record. When Review Item Details is Yes in the Worksheet Options frame, you can update the quantity and work code for each record in the Item Usage frame.

See “Item Usage” on page 143.

Note When the PAO line associated with a selected MO line is referenced on the current worksheet, the system adds the specified quantity to issue to the existing worksheet detail record for the PAO line and updates this record with the MO and line numbers. It does not create a new worksheet detail record for the MO line.

Fig. 5.20
Project Activity Recording, Material Order Line Selection



MO, Line, Item Number, Engineer. The system displays the MO identifier, line number, item number, and engineer code associated with each MO line selected for display.

Site, Location. The system displays the site and location to which the MO line quantity was shipped.

Qty to Issue. Enter the quantity to issue to the project from the selected MO line. The default is the quantity shipped on the MO minus any quantities returned or already consumed in PAR. The quantity you enter cannot exceed the initial default quantity.

PAO Line Selection

When either Select Labor/Expense Lines or Select Item Lines is Yes in the Worksheet Options frame, the PAO Line Selection frame displays for you to select PAO line quantities to consume against the project. All PAO lines that meet the following criteria display in this frame:

- They are issue lines.
- They have an open, positive quantity available to issue. That is, the quantity ordered on the PAO line exceeds the sum of the quantities ordered on MOs, issued in PAR, or already placed on a worksheet.
- For a subassembly worksheet, they reference project lines that are components of the specified subassembly.

The service category from the associated project line is also used to select PAO lines to display in this frame, based on the settings of Select Labor/Expense Lines and Select Item Lines in the Worksheet Options frame. If PAO lines matching the applicable criteria are not found, the PAO Line Selection frame does not display.

Before displaying the selection frame, the system prompts you to select all lines at their default open quantities. Respond Yes to have the system automatically select all lines that display, No to manually select lines.

For each PAO line you select, the system creates a worksheet detail record. When Review Labor/Expense Details or Review Item Details is Yes in the Worksheet Options frame, you can update the quantity to issue and work code for each detail record in the Labor/Expenses or Item Usage frames.

See “Labor/Expenses” on page 140 and “Item Usage” on page 143.

A single PAO line cannot be linked to multiple worksheet detail records. If the PAO line you select is referenced on another worksheet, the system does the following:

- 1 Displays a warning.
- 2 Automatically generates a new issue line on the current PAO and splits the quantity ordered between the existing PAO line and the new line. The start and end dates, site, and location on the new line default from the existing one. The quantity ordered on the new PAO line defaults from either the specified quantity to issue or the quantity available to issue on the existing PAO line, whichever is less.
- 3 Links the new PAO line to the worksheet detail record created when you exit the PAO Line Selection frame.

See “Worksheets” on page 125.

Example PAO line 1 has an order quantity of 10 and is referenced on worksheet 1000 with a quantity to issue of 6. When you attempt to add line 1 to another worksheet with a quantity to issue of 5, the system generates a new line on the PAO. The default order quantity on this line is set to the quantity available to issue for line 1, which is 4.

If you select a PAO line that is referenced on the current worksheet, the system updates the existing worksheet detail record rather than creating a new one.

Fig. 5.21
Project Activity Recording, PAO Line Selection

PAO Line	Project Line	Item/Category	Work Cd	Subassy	Qty to Iss	MO
* 1	2.1	Labor	INSTALL	<input type="checkbox"/>	20.0	<input type="checkbox"/>
* 2	2.2	Lunch	Install	<input type="checkbox"/>	4.0	<input type="checkbox"/>
* 4	2.4	Expenses	Install	<input type="checkbox"/>	1.0	<input type="checkbox"/>

PAO Line. The system displays the sequence number of each PAO line selected for display.

Project Line, Item/Category, Work Cd, Subassy. The system displays the line number, item number or service category code, work code, and subassembly value from each PAO line's associated project line.

Qty to Issue. Enter the quantity to issue against the selected PAO line. The default is the quantity ordered on the PAO line minus any quantities already issued in PAR, ordered on an MO, or already placed on a worksheet.

MO. This field indicates whether the PAO line has an associated MO line. If Yes, you should generally load the item usage from the MO line rather than the PAO line.

When you select a PAO item line for which an associated MO line is referenced on the current worksheet, the system adds the specified quantity to issue to the existing worksheet detail record created for the MO line. Any quantity issued against that PAO line is recorded against the MO line, up to the quantity shipped on the MO.

See "Material Order Line Selection" on page 136.

Return Line Selection

When Select Return Lines is Yes in the Worksheet Options frame, the Return Line Selection frame displays for you to select PAO line quantities to return. All PAO lines that meet the following criteria display in this frame:

- They are issue lines.
- Their corresponding project lines reference item service categories.
- They have a negative order quantity, indicating they are for planned returns.
- They have a quantity available to return. That is, the quantity ordered on the PAO line, expressed as a positive number, must exceed the sum of the quantities returned in MO Direct/Pending Returns (10.7.8) or PAR, or already placed on a worksheet as a quantity to return.
- For a subassembly worksheet, they reference project lines that are components of the specified subassembly.

Other navigation and processing details are identical to those that apply in the PAO Line Selection frame.

See page 138.

Fig. 5.22
Project Activity Recording, Return Line Selection

PAO Line	Project Line	Item Number	Wk Code	Qty to Return	MO
* 1.3	2.9	55-110	PM	5.0	<input type="checkbox"/>

PAO Line. The system displays the PAO line numbers of the planned return lines that meet the criteria for display in this frame.

Project Line, Item Number, Work Cd. The system displays the line number, item number, and work code from each PAO line's associated project line.

Qty to Return. Enter the quantity to return against the selected PAO line. The default is the quantity ordered on the PAO plus any quantities already returned or placed on a worksheet, multiplied by -1.

Example If the PAO line is for -10 items and you have already returned 4 items in PAR, the default quantity to return for the PAO line is 6.

MO. This field indicates whether an MO line has been created to transfer the returned items back to into stock after the return is processed in PAR. See "Planned Returns" on page 126.

Labor/Expenses

When Review Labor/Expense Details is Yes in the Worksheet Options frame, the Labor/Expenses frame displays for you to update the labor and expense quantities to consume against the selected worksheet.

Fig. 5.23
Project Activity Recording, Labor/Expenses

PAO Line	Project Line	Category	Work Code	Qty to Iss	Det
4	1.4	labor	Install	0.0	<input checked="" type="checkbox"/>

PAO Line. Enter the sequence number of a PAO line that is associated with the worksheet detail record you want to update. You can also use this field to:

- Create a new worksheet detail record for an existing PAO line not yet placed on a worksheet. To reference an existing PAO line in this field, the service category on the associated project line must be for labor or expenses. For a subassembly worksheet, the project line must also be associated with the subassembly.

- Create a new line on the current PAO by entering an unused line number in this field. For a new PAO line, you must enter a value in the Project Line field.

If the PAO line you specify is referenced on the current worksheet, the system lets you update the existing worksheet detail record rather than creating a new one for that line. In this case, a message displays the quantity already issued against the PAO line.

If the PAO line you specify in this field is referenced on another worksheet, the system automatically generates a new issue line on the current PAO and splits the quantity ordered between the existing line and the new one.

For more information, see “PAO Line Selection” on page 138.

Project Line. If you are creating a new PAO line, enter a sequence number identifying the project line you want to associate with it. The project line you specify must meet these criteria:

- The associated service category must be for either labor or expenses.
- On a subassembly worksheet, the line must also be a component of the subassembly.

For an existing PAO line, this field displays the project line number from the PAO line details and cannot be updated.

Category. The system displays the service category from the selected PAO line’s associated project line.

Work Code. Enter the work code to associate with this worksheet detail record. The default is from the project line. You cannot leave this field blank.

Work codes can help determine costs in PAR as follows:

- For expense detail records, the work code is used to search for unit costs from a type X (cost) list set up in Project Pricing Maintenance (10.19.1).
- For labor detail records, the work code is also used to search for unit costs from Project Pricing Maintenance when Use Employee Pay Rate is No in Project Realization Control.

See “Setting Up Price and Cost Lists” on page 33.

In both cases, only cost lists that reference the price list code from the applicable subproject detail are searched.

See “Price List” on page 60.

When project budgeting is by work code and service category combinations, the system uses this work code, in combination with the project-line service category, to find a budget to consume with the issue cost of the worksheet detail record.

See “PAR Work Codes” on page 130.

Qty to Issue. Enter the number of units to consume in PAR for this PAO line. The default is the quantity selected in the PAO Line Selection frame. When you create a new worksheet detail record, Qty to Issue defaults from the quantity available to issue from the PAO line.

See “PAO Line Selection” on page 138.

Detail. Specify whether to update additional details for this worksheet detail record. The default is from the Detail field in the PAR header.

Yes: The Labor/Expenses Detail frame displays for you to update worksheet details.

No: The Labor/Expenses Detail frame does not display.

See “Detail” on page 132.

Labor/Expenses Detail

When Detail is Yes and a quantity to issue is specified in the Labor/Expenses frame, the Labor/Expenses Detail frame displays for updating values on the selected worksheet detail record.

Fig. 5.24
Project Activity Recording, Labor/Expenses Detail

The screenshot shows a software window titled "Project Activity Recording". At the top, it displays project information: PAO: P-303, Sold-To: 10010001, Project: PJ1234, and Proj Type: PT01. Below this is a "Worksheet Selection" section with Worksheet: 2468 and Site: 10000. The main area is "Labor/Expenses Detail", which contains several input fields and labels: Quantity to Issue: 0.0, Engineer: BJW (with a search icon), Start Date: 07/19/2002 (with a calendar icon), End Time: (empty), Unit Cost: 0.00, Budget to Consume: 0.00, Description: Expense items (with a dropdown arrow), PAO Line: 6, Project Line ID: 1.3, Project Type: PT01, Work Code: INSTALL, Category: expenses, Product Line: W90P, Price List: PL001, and Comments: (empty). There are navigation arrows at the bottom right of the form.

Quantity to Issue. The system displays the quantity to issue specified for this worksheet detail in the Labor/Expenses frame.

Engineer. Specify the engineer who performed the labor or consumed the expenses associated with this worksheet detail record. The default is from the worksheet header.

When Use Employee Pay Rate is Yes in Project Realization Control, the unit cost for a labor detail record is from the pay rate defined for this engineer in Actual Pay Rate Maintenance (14.13.21). When Use Employee Pay Rate is No, the engineer is for reference only.

See “Use Employee Pay Rate” on page 41.

Start Date. Enter the date the engineer began executing this task or consuming this expense. The default is either the Last Record Date from the PAR worksheet header or the start date from the associated PAO line, depending on the value of PAR Labor Start in PAO Control. The worksheet detail start date is used with other criteria to find:

- A project cost list (list type X) to determine the default unit cost for this worksheet detail
- A budget to consume with the issue cost of this worksheet detail

See “PAR Labor Start” on page 81.

Start, End Time. Enter the times of day when work was started and completed for this worksheet detail record. These fields are optional and for reference only.

Unit Cost. The system displays the unit cost for the selected labor or expense detail.

For an expense detail, unit cost initially defaults from the pricing structure associated with the project line’s parent subproject and can be modified as needed. In a multicurrency environment, expense costs must be defined in the project currency to be found on the cost list. However, costs are always stored and displayed in the base currency.

For a labor detail, unit cost defaults from Project Pricing Maintenance or Actual Pay Rate Maintenance, depending on the value of Use Employee Pay Rate in Project Realization Control. Labor costs cannot be updated in PAR.

For more information, see “Setting Up Price and Cost Lists” on page 33.

Budget to Consume. The system displays the amount of the project budget that will be consumed when the quantity specified for this worksheet detail is processed. This value defaults to 0 (zero) when the system cannot find a budget to consume. See “Budget Consumption” on page 130.

Description. The system displays the description from the associated project line. You can modify this description as needed for the worksheet detail record.

PAO Line. The system displays the PAO line number associated with the selected worksheet detail.

Project Line, Project Type, Category, Product Line. The system displays the project type from the project header and the line number, service category, and product line from the project line.

Work Code. The system displays the work code associated with the worksheet detail record. The default is from the project line details, but you can change this value as needed in the Labor/Expenses frame. See “Work Code” on page 141.

Price List. The system displays the price list associated with the project line’s parent subproject.

Comments. Enter Yes to update comments for this worksheet detail record; otherwise, enter No. Comments defaults to No unless comments are already associated with the worksheet detail record.

Item Usage

When Review Item Details is Yes in the Worksheet Options frame, the Item Usage frame displays for you to update work codes and quantities for item usage and return detail records. Most of these fields are similar to their counterparts in the Labor/Expenses frame.

Fig. 5.25
Project Activity Recording, Item Usage

PAO Line	Project Line	Item Number	Work Code	Qty to Issue	Rtn	Det
10	2.10.2	Tubing	Install	500.0	<input type="checkbox"/>	<input type="checkbox"/>
13	2.9	55-110	Install	0.0	<input type="checkbox"/>	<input type="checkbox"/>

PAO Line. Enter the sequence number of the PAO line that is associated with the worksheet detail record you want to update. You can also use this field to:

- Create a new worksheet detail record for an existing PAO line not yet placed on a worksheet. To reference an existing PAO line in this field, the service category on the associated project line must be for items. For a subassembly worksheet, the project line must also be associated with the subassembly.
- Create a new line on the current PAO by entering an unused line number in this field. For a new PAO line, you must enter a value in the Project Line field.

Important You should not use this field to create new worksheet detail records for PAO line items ordered on MOs. If you do, PAR records the item usage directly against the PAO line and does not update the Quantity Consumed on the associated MO line. A PAO cannot be completed or closed until all the quantities ordered on associated MOs are either consumed in PAR or returned.

See “Qty Consumed” on page 111.

If you specify a PAO line without an outstanding quantity to issue or return and multiple MO lines reference this PAO line, the system displays the Material Order Line Selection frame so that you can select an MO with items to issue. If you do not want to issue items ordered on an MO, press End.

See Figure 5.20 on page 137.

Other maintenance considerations for this field are identical to those for the corresponding field in the Labor/Expenses frame.

See page 141.

Item Number. The system displays the item number from the selected PAO line’s associated project line.

Work Code. Enter the work code to associate with this worksheet detail record. The default is from the project line. You cannot leave this field blank.

When Project Inventory in Sub-Ledger WIP is No in Project Realization Control and project budgeting is by work code and service category combinations, the system uses the work code from the worksheet detail in combination with the project-line service category to find a budget to update with the issue or return cost of the specified item quantity.

See “PAR Work Codes” on page 130.

Quantity to Issue. Enter the number of units to consume in PAR for this PAO line. For a positive-quantity (non-return) line, the default is the quantity selected in the Material Order Line or PAO Line Selection frame. When you create a new worksheet detail record in the Item Usage frame, Quantity to Issue defaults from the quantity available to issue from the PAO line.

For a planned return (negative order quantity) line, Quantity to Issue defaults to 0 (zero) and cannot be changed.

If a PAO line has multiple MO lines associated with it and you selected the wrong MO line to issue, set the Quantity to Issue to 0 (zero). Then reselect the PAO line. The Material Order Line Selection frame displays so you can specify a different MO line.

Rtn. Specify whether to return items and update return details for this item usage record. For the Returned Items Detail frame to display, both the Det and Rtn fields must be Yes.

Yes: When Detail is also Yes, the Returned Items Detail frame displays for entering a quantity to return and other return details.

No: The Returned Items Detail frame does not display.

Rtn defaults to Yes when a quantity to return is associated with this worksheet detail. After you set this field to Yes, you cannot set it back to No.

Det. Specify whether to update additional details for this worksheet detail record. The default is from the Detail field in the PAR header.

Yes: Frames display for updating item usage and, when Rtn is also Yes, return information for this worksheet detail.

No: The detail frames do not display.

See “Detail” on page 132.

Item Usage Detail

When Det is Yes and a quantity to issue is specified in the Item Usage frame, the Item Usage Detail frame displays for updating values on the selected worksheet detail record.

Fig. 5.26
Project Activity Recording, Item Usage Detail

Quantity to Issue. The system displays the quantity to issue specified for this worksheet detail in the Item Usage frame.

Multi Entry. This field determines whether inventory information can differ among items issued from this worksheet detail.

Yes: An additional frame displays for entering multiple issue sites and locations, lot and serial numbers, reference codes, and quantities for this item usage detail.

No: The Multi Entry frame does not display.

Multi Entry defaults to Yes when multi-entry issue lines already exist for this worksheet detail or the item being issued is serial controlled and the quantity to issue is greater than one. Otherwise, the default is No.

Site, Location. Specify the site and location of the items referenced on this worksheet detail record. The defaults are from the associated PAO line.

When site specified in the worksheet detail differs from the worksheet header site, PAR transfers items from the worksheet detail site and location to the worksheet header site and location before issuing them to the project.

See “Inventory Processing” on page 126.

Item Number. The system displays the item number from the associated project line.

Lot/Serial, Inventory Ref. If applicable, enter the lot or serial number and inventory reference associated with the quantity to issue. To enter multiple lot or serial and reference numbers for the specified quantity, set Multi Entry to Yes.

Unit Cost. The system displays the item-site GL cost associated with the item on the worksheet detail record, converted to the project-line unit of measure (UM). You cannot update this value in PAR.

Budget to Consume. The system displays the amount of the project budget that will be consumed when the quantity specified for this worksheet detail is processed. This value defaults to 0 (zero) when the system cannot find a budget to consume.

See “Budget Consumption” on page 130.

Subassembly. The system displays the subassembly value from the project line associated with the selected worksheet detail.

PAO Line. The system displays the PAO line number associated with the selected worksheet detail.

Project Line, Project Type, Category, Product Line. The system displays the project type from the project header and the line number, service category, and product line from the project line.

Work Code. The system displays the work code associated with the worksheet detail record. The default is from the project line details, but you can change this value as needed in the Item Usage frame.

See “Work Code” on page 144.

Material Order. The system displays the material order ID and line number associated with the PAO line on the worksheet detail.

Engineer. Specify the engineer who completed the project activity associated with this worksheet detail record. The default is from the worksheet header.

Comments. Enter Yes to update comments for this worksheet detail record; otherwise, enter No. Comments defaults to No unless comments are already associated with the worksheet detail record.

Returned Items Detail

When both Rtn and Det are Yes in the Item Usage frame, the Returned Items Detail frame displays for specifying data required for planned and unplanned item returns.

See “Returns” on page 126.

Note The Item Number, PAO Line, Project Line, Work Code, Category, Product Line, and Material Order fields in the returned items detail are not described in this section. These are identical to the fields that display in the Item Usage Detail frame. See “Item Usage Detail” on page 145.

Fig. 5.27
Project Activity Recording, Returned Items Detail

Quantity to Issue. The system displays the quantity to issue specified for this worksheet detail in the Item Usage frame. For planned returns, this is always zero.

Quantity to Return. Enter the number of units on this PAO line to return in PAR. For a planned return line, the default is the quantity selected in the Return Line Selection frame. When you create a new worksheet detail record for a planned return line in the Item Usage frame, Quantity to Return defaults from the open return quantity on the PAO line.

For a PAO line with a positive order quantity, Quantity to Return defaults to 0 and must be specified manually. In this case, the Quantity to Return cannot exceed the quantity already issued against the worksheet detail record.

Status. Enter a return status code, defined in Return Status Maintenance (10.21.17), to associate with the specified return quantity. This field defaults from the Return Status field in PAO Control when either of the following is true:

- You do not use the SSM module.
- SSM is used and Repairable is Yes in Service Item Maintenance (11.3.7) for the item being returned.

When SSM is used and Repairable is No for the item being returned, this field defaults from the Scrap Status in PAO Control.

See “Setting Up Return Statuses” on page 29.

If you specify a new return status, it cannot have Exchange set to Yes. You can use a pending return status only when both of the following apply:

- The worksheet detail is for a positive-quantity issue line rather than a planned return line.
- The worksheet detail was loaded from an MO rather than directly from the PAO line. In this case, the Material Order field in the detail frame has a value.

The return status assigned in PAR generally determines the default site and location in the returned items detail. For returns without an associated MO, this will be either a return or scrap site and location set up in Default PRM Site Maintenance (10.21.13). Which site and location are used depends on whether Scrap is Yes for the specified return status.

For more information, see “Return and Scrap Locations” on page 98.

In addition to determining the default return site and location, the specified return status determines whether:

- The cost of the returned items is subtracted from the actual cost and issued cost values in the project sub-ledger. These updates occur for non-scrap returns only. See “Project Line Sub-Ledger Details” on page 91.
- Available budget amounts are increased by the cost of the returned items. This also occurs for non-scrap returns only. See “Budget Consumption” on page 130.

Multi Entry. This field determines whether inventory information and return details can differ among items returned against this worksheet detail.

Yes: An additional frame displays for entering multiple return statuses, return sites and locations, lot and serial numbers, reference codes, ISB references, and quantities for this worksheet detail.

No: The Multi Entry pop-up frame does not display.

Note You cannot enter multiple return statuses, sites, or locations for pending returns or planned returns with an associated MO. While you can enter multiple lot or serial numbers and inventory reference numbers, these do not default to the MO and must be reentered in Material Order Shipments (10.7.6) or MO Direct/Pending Returns (10.7.8).

Multi Entry defaults to Yes when multi-entry return lines already exist for this worksheet detail or the item being returned is serial controlled and the quantity to return is greater than one. Otherwise, the default is No.

Site, Location. Specify the site and location to receive the items returned on this worksheet detail.

When Pending is Yes for the specified return status, the return site and location default from the PAO line site and location. For a planned return line with an associated MO line, the site and location in the returned items detail also default from the PAO line. In addition, the ship-to site and location on the MO line default from an applicable return or scrap site and location set up in Default PRM Site Maintenance.

See “Returns” on page 126.

For all other returns, Site and Location default from Default PRM Site Maintenance. When the system cannot find a default return site and location, Site and Location default to blank and must be entered manually.

See “Return and Scrap Locations” on page 98.

Lot/Serial, Inv Reference. If applicable, enter the lot or serial number and inventory reference associated with the quantity to return.

ISB Reference. When you use SSM and the item being returned is registered in the installed base of the project end user, enter the ISB reference number used to uniquely identify the returned item.

For more information, see *User Guide: Service/Support Management*.

Note When serial numbers are used to identify installed base items, ISB reference numbers are not needed. In this case, leave ISB Reference set to 0 and enter the returned item’s serial number in the Lot/Serial field.

When you do not use SSM to track ISB items at end-user sites, this field is for reference only.

Engineer, Comments. These fields are identical to those that display in the Item Usage Detail frame. Updating the worksheet detail engineer or comments in the returned item detail updates the same values in the item usage detail.

Activity Confirmation

When you have finished recording project activity, the system prompts you to display a list of project activities to be processed.

If you respond Yes, a confirmation frame displays listing the labor and expense quantities to consume and inventory items to issue, receive, and return. Review the summary information and verify that all data are correct.

Fig. 5.28
Project Activity Recording, Activity Confirmation

Item/Category	Lot/Serial	Process Qty	Site	Location
55-110	4568-856	4.0	To	10000
Sprinkler Head		4.0	From	10000 101
Labor		20.0		
Lunch		4.0		
Expenses		1.0		
Sprinkler		1.0	To	10000 101

From and To values indicate whether items are being issued or received.

Subassembly receipt data display at the bottom of the frame.

Is all information correct

The system prompts you to confirm that data displayed are correct. If you respond No, you are returned to the PAR header. If you respond Yes, the system displays an Output field for specifying the output device to print the PAR report.

The report output lists the items issued, received, and returned and expenses and labor consumed during the current session, as well as any errors encountered during processing. The reference numbers of the GL transactions generated also display in the report.

PAO Status

When you are finished processing activity and generating the report, you can modify the PAO status in the final frame of PAR. If all activity is complete and no open quantities remain on MOs, assign it the complete status from PAO Control.

See “PAO Status Control Frame” on page 82.

You cannot set a PAO’s status to complete if any of the following are true:

- Unprocessed quantities exist on worksheet detail records associated with the PAO.
- Any items ordered on associated MOs have not been issued in PAR or returned.
- A positive quantity on hand (QOH) exists for a project line on the PAO and no other open PAOs reference that line as an issue line. See page 92.

- An unprocessed move line exists on the PAO and no other open PAOs reference the associated project line as an issue line. See page 76.

You cannot manually close a PAO. This is done automatically in PAO Close (10.5.16).

See page 179.

Fig. 5.29
Project Activity Recording, PAO Status

Status. The system displays the PAO’s current status. You can enter another status previously defined in PAO Status Code Maintenance (10.5.21.1). See “Setting Up PAO Statuses” on page 78.

Complete Date, Time. When you set a PAO to the complete status, optionally use these fields to indicate when the status was set. This system updates these fields with the current date and time when you change the PAO status to complete.

Close Date, Time. When you set a PAO to the cancel status from PAO Control, optionally use these fields to indicate when the status was set. This system updates these fields with the current date and time when you change the PAO status to canceled.

Note You cannot set a PAO to the cancel status if it has associated MO lines, worksheet detail records, or recorded activity.

Project Labor Recording

Use Project Labor Recording (10.5.14) to record labor consumption against a PAO. This program lets you select labor lines from the PAO, create worksheet detail records, and record labor quantities just like Project Activity Recording (10.5.13). However, it provides a simpler interface since it does not take into account items or expenses. Project engineers can use this program to quickly record actual hours worked on a PAO.

Any updates made to labor detail records in Project Labor Recording (PLR) are also visible in PAR.

PLR Header

In the header frame of PLR, enter an engineer code and PAO ID. Use the Show Assigned Only field to determine which PAO lines display for selection, then press Go to display the PAO Labor Line Selection frame.

Fig. 5.30
Project Labor Recording (10.5.14)

Engineer. Specify an engineer with labor activity to be recorded. All labor consumption recorded in the following frames is automatically associated with this engineer. You cannot specify different engineers on individual labor detail records.

Note When Use Employee Pay Rate is Yes in Project Realization Control (10.24), the unit cost for each labor detail processed is from the pay rate defined for the engineer in Actual Pay Rate Maintenance (14.13.21). In this case, it is especially important to associate labor consumption with the engineer who actually performed the labor, since pay rates may vary among engineers.

Show Assigned Only. This field determines which PAO lines display in the selection frame. Yes: The PAO Labor Line Selection frame displays only lines assigned to the specified engineer. No: The selection frame displays all open labor lines on the associated PAO, regardless of assigned engineer.

PLR considers an engineer as assigned to a PAO line when the engineer is specified in the worksheet detail record associated with that line. For PAO lines without worksheet detail records, the worksheet header engineer, which defaults from the PAO header, is considered the assigned engineer.

PAO. Enter the ID of the PAO with labor to record. Labor lines from this PAO display for selection in the following frame. The PAO you select must be open; it cannot be on hold, complete, closed, or canceled.

PAO Labor Line Selection

The PAO Labor Line Selection frame displays either all open labor lines on the PAO or only lines assigned to the specified engineer, depending on how Show Assigned Only is set in the header.

When you select a PAO line, the system generates a labor detail record for the line and displays it in the next frame. If a worksheet detail record already exists for the line, the system displays the existing record rather than generating a new one.

Fig. 5.31
Project Labor Recording, PAO Labor Line Selection

PAO Line	Project Line	Worksheet	Engineer	Quantity Open	Qty to Iss
1	2.1	402272	BJW	20.0	20.0

PAO Line, Project Line. The system displays the PAO line number and project line number from the PAO line details.

Worksheet. The system displays the worksheet associated with the selected PAO line. This is always a default worksheet generated by PAO Maintenance (10.5.1) unless the PAO line was placed on a different worksheet in PAR. See “PAO Worksheets” on page 77.

Engineer. If a worksheet detail record has been created for the selected PAO line, the system displays the associated engineer. Otherwise, this field displays the worksheet header engineer, which defaults from the PAO header.

Quantity Open. The system displays the quantity available to consume on the PAO line. The system calculates this value by subtracting the quantity already consumed from the quantity ordered on the PAO.

Qty to Issue. The system displays the quantity selected to issue against the PAO line. If a quantity was placed on a worksheet in PAR but not issued, that quantity displays as the default. Otherwise, the default is zero. You can enter or update this quantity in the Labor frame.

Labor

When you select a PAO line in the PAO Labor Line Selection frame, the system displays the associated worksheet detail record in the Labor frame. Review the record and modify the work code and quantity, if needed. Set Detail to Yes to display an additional frame for updating labor usage details.

Fig. 5.32
Project Labor Recording, Labor

The screenshot shows a software window titled "Project Labor Recording". At the top, there are several fields: "Engineer: BJW", "Whitehead Bill", "PAO: P-304", "Sold-To: 10010001", "Project: P11234", and "Proj Type: PT01". There is also a checkbox for "Show Assigned Only:" which is currently unchecked. Below this is a table with the following data:

PAO Line	Project Line	Category	Work Code	Qty to Iss	Detail
1	2.1	Labor	INSTALL	20.0	<input checked="" type="checkbox"/>

At the bottom right of the table, there are navigation arrows and a refresh icon.

PAO Line, Project Line. The system displays the PAO and project line numbers associated with the worksheet detail record.

Category. The system displays the service category from the project line.

Work Code. Enter the work code to associate with this labor detail record. The default is from the project line. You cannot leave this field blank.

When Use Employee Pay Rate is No in Project Realization Control, this work code is used to search for a unit cost for the labor detail from Project Pricing Maintenance (10.19.1). Only cost lists (list type X) that reference the price list code from the applicable subproject detail are searched.

See “Setting Up Price and Cost Lists” on page 33.

When project budgeting is by work code and service category combinations, the system also uses this work code, in combination with the project-line service category, to find a budget to consume with the issue cost of the labor detail.

See “PAR Work Codes” on page 130.

Quantity to Issue. Enter the number of labor units consumed for this PAO line. On a new worksheet detail, the default is the quantity available to issue from the PAO line.

Detail. Specify whether to update additional details for this labor usage record. The default is from the PAR Detail field in PAO Control (10.5.24).

Yes: The Labor Detail frame displays for you to update labor usage details.

No: The Labor Detail frame does not display.

Labor Detail

When Detail is Yes in the previous frame, the Labor Detail frame displays for updating the labor start date, start and end times, description, and comments on the worksheet detail record. Fields in this frame are identical to those that display in the Labor/Expenses Detail frame in PAR.

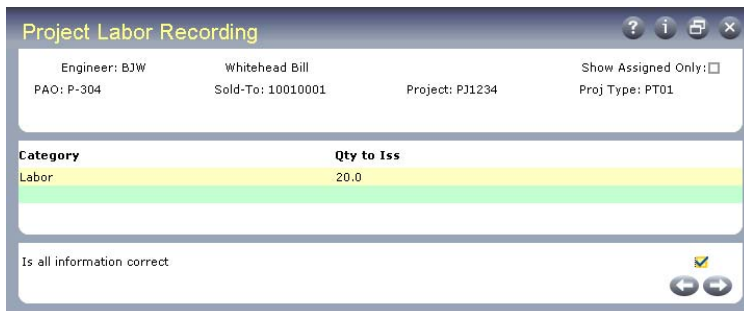
See “Labor/Expenses Detail” on page 142.

Note In PLR, you cannot update the engineer code in the labor usage detail.

Activity Confirmation

When you are finished specifying labor details, press Go in the Labor Line Selection frame. The activity confirmation frame displays for you to review labor quantities to process.

Fig. 5.33
Project Labor Recording, Activity Confirmation



Category	Qty to Iss
Labor	20.0

The system prompts you to indicate whether the displayed data are correct. Enter Yes to record the labor consumption and specify the output device to print the generated report. Otherwise, enter No to return to the PAO Labor Line Selection frame.

Processing MO Returns

Before you can set a PAO to the complete status or close it in PAO Close (10.5.16), you must:

- Return any items that were ordered and shipped on MOs but not consumed in Project Activity Recording (10.5.13).
- Complete the return of any items that were returned into the project location with a pending status. See “Unplanned Returns” on page 127.

See “Complete Status” on page 82.

Use MO Direct/Pending Returns (10.7.8) to complete processing for pending returns and return any unissued items on MOs associated with a PAO that you want to complete.

When item returns affect project locations, MO Direct/Pending Returns updates the sub-ledger values that the system tracks against each project line based on the quantities and costs of the returned items. The sub-ledger fields affected by MO returns are identical to those affected by MO shipments. They include Project QOH (Quantity on Hand), Actual Quantity and Cost, and, when Project Inventory in Sub-Ledger WIP is Yes, WIP (Work in Process) Quantity and Cost.

See “Shipping Material Orders” on page 115.

Note The Actual Cost field is only updated when a non-scrap return status is used.

Quantities and costs in the sub-ledger fields are:

- Decreased when items are returned from a project location to a non-project location
- Increased when items are returned from a non-project location to a project location

Important When you return items from a non-project location to a project location, you must consume them in PAR or move them out of the project location on an MO before you can close the associated project line. Do not use inventory transfer transactions other than PAO-linked MOs to move items between project and non-project locations.

When Project Inventory in Sub-Ledger WIP is Yes in Project Realization Control and a non-scrap return status is used, the extended MO-line cost of the returned items:

- Consumes project budgets when returning from a non-project location to a project location
- Increases available budget amounts when returning from a project location to a non-project location

When Project Inventory in Sub-Ledger WIP is No or Scrap is Yes for the specified return status, project budgets are not affected by MO returns.

See also “Budget Consumption” on page 130.

MO Return Header

Use the header frame of MO Direct/Pending Returns to specify:

- An MO with returns to process
- A return status code
- A default return-from site and location.

The return status you specify in the header indicates either a direct or pending return.

- To process direct returns, open (unconsumed) quantities must remain on the MO.
- To process pending returns, items must have been returned in PAR with a pending status. See “Returned Items Detail” on page 146.

If you need to complete the return of some items marked as pending and directly return others ordered on the same MO, you must execute this function twice: once with a pending return status and once with a non-pending status.

Fig. 5.34
MO Direct/Pending Returns (10.7.8)



MO. Enter the ID of the open material order with items to return.

Order Ref, Engineer. The system displays the PAO ID and engineer from the MO header.

Return All. When a non-pending return status is used, this field determines the default return quantities to display in the next frame.

Yes: The return quantity for each MO line automatically defaults to the open (unconsumed) quantity for that line.

No: The return quantity for each line defaults to zero and must be specified manually.

Status. Enter the default return status to apply to items returned during this session. This field defaults from the Return Status field in PAO Control (10.5.24). If you enter a new status, it must be a non-exchange status defined in Return Status Maintenance (10.21.17).

The return status specified in the header frame determines whether you are executing a direct return or completing a pending return.

Site, Loc. Enter the site and location where items to return are stored. The defaults are from the header of the associated project. The site and location entered in the header frame default to the From Site and Location on each MO line in the next frame.

MO Line Items

After entering header data, use the line-item frames to specify return quantities, return status codes, and inventory details for the MO lines with returns to process.

When you are finished entering return information, press Go. Optionally, another screen displays a summary of what you just entered. Verify that the information is correct, then press Go to process the inventory update.

Fig. 5.35
MO Direct/Pending Returns, Line Items



Line. Specify an MO line with items to return.

Order Ref Line, Item Number, UM. The system displays the PAO line number, item number, and unit of measure from the MO line details.

Status. Enter the return status code to associate with the return quantity on the MO line. This value defaults from the status entered in the header.

The line-detail return status determines the following:

- The default return site and location selected for this line from Default PRM Site Maintenance (10.21.13). See “Return and Scrap Locations” on page 98.
- Whether the cost of the returned items updates the Actual Cost field in the project-line sub-ledger. This occurs for non-scrap returns only.
- When Project Inventory in Sub-Ledger WIP is Yes, whether the cost of the returned items updates project budgets. Budget updates occur for non-scrap returns only.

Quantity. Enter the quantity of items to return against the MO line. For a pending return, return quantity defaults from the quantity pending. For a direct return, the default depends on the value of Return All in the header frame.

When Return All is Yes, the return quantity defaults from the open quantity on the MO line, which is determined by the following formula:

$$Qty\ Shipped - Qty\ Consumed - Qty\ Returned = Open\ Quantity$$

When Return All is No, the return quantity defaults to zero and must be specified manually.

Description, Type. The system displays the item description and shipment type from the MO line details.

Qty Allocated, Qty Shipped, Qty Consumed, Qty Returned, Qty Pending. These fields display system-tracked values from the MO line details. See “MO Line Details” on page 109.

From Site, Location. Enter the site and location where items to return are currently stored. The defaults are from the header frame.

Return Site, Location. Enter the site and location to which you want to return items. The default is either a return or scrap site and location set up in Default PRM Site Maintenance.

- When a non-scrap return status is specified, a return site and location are used as the defaults.
- When a scrap status is specified, a scrap site and location are used.

When MO Direct/Pending Returns cannot find a default return-to site and location, the ship-from site and location from the MO line are used as the defaults.

Return Serial. Enter a lot or serial number associated with the returned items. Set Multi Entry to Yes to display a frame to associate multiple lot or serial numbers with the specified return quantity.

Multi Entry. Enter Yes to specify multiple return sites, locations, or lot/serial and lot reference numbers.

Comments. Enter Yes to create or update comments for this return; otherwise, enter No.

Invoicing Projects

This chapter describes how to set up invoice schedules and manage project invoicing requirements.

Overview of Project Invoicing 158

Outlines the uses of project invoicing and provides a workflow.

Setting Up Project Invoicing 159

Describes how to use Invoice Schedule Control (10.9.24).

Creating Invoice Schedules 160

Describes how to use Invoice Schedule Maintenance (10.9.1) to handle prepayments, percentage payment, fixed amount payment, and payment based on project lines and quantities.

Defining Invoice Layouts 169

Details on how to print on invoices, show prices, and use Project Invoice Layout (10.9.4).

Generating Invoices 170

Discusses how to use Invoice Generation (10.9.13), including details on exchange rates, regenerating invoices, the effect of selecting line quantities, and invoice generation.

Posting Invoices 175

Explains how to use Invoice Print (7.13.3) and Invoice Post (7.13.4) and gives details on revenue transactions and cost transactions.

Overview of Project Invoicing

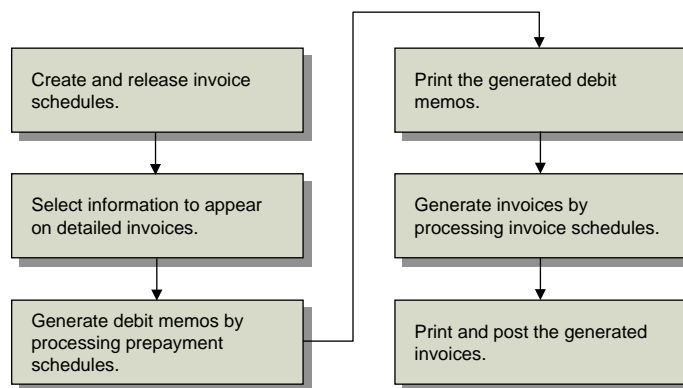
Chapter 1 introduced the general structure of a project, which involves multiple elements: subprojects, detail lines, budgets, PAOs, fulfillment orders, and invoicing. Because of the multiple elements, multiple related life cycles exist for projects, PAOs, fulfillment orders, and project invoices. See “Understanding Projects” on page 3.

Large-scale projects can extend over a long period of time. This introduces special requirements into the invoicing process. Typically, a customer does not pay for a lengthy project all at once. For this reason, invoicing in PRM is managed through schedules. Invoice scheduling lets you determine in advance when and how the customer will be invoiced for the project.

Figure 6.1 illustrates a typical work flow for invoicing projects. This chapter discusses only elements related directly to invoicing.

- Project and budget setup activities are discussed in Chapter 3, “Creating and Managing Projects,” on page 45.
- PAO setup and creation are discussed in Chapter 4, “Setting Up and Creating PAOs,” on page 73.
- Project realization, including ordering components and recording activity, is discussed in Chapter 5, “Realizing Projects,” on page 95.
- Procedures for closing projects and PAOs are discussed in Chapter 7, “Closing and Evaluating Projects,” on page 177.

Fig. 6.1
Project Invoicing Work Flow



The invoicing life cycle begins after you have defined the project and its related subprojects and detail lines in Project Maintenance (10.1.1).

See page 51.

- 1 Create and release invoice schedules and prepayment schedules using Invoice Schedule Maintenance (10.9.1). See page 160.
- 2 Use Project Invoice Layout (10.9.4) to specify which information to display on detailed invoices. See page 169.
- 3 Select prepayment schedules for processing in Invoice Generation (10.9.13). See page 170.

- 4 For each selected prepayment schedule, Invoice Generation creates a debit memo. Print this using DR/CR Memo Print (27.15) in the Accounts Receivable module. See *User Guide: Financials*.
- 5 Select invoice schedules for processing in Invoice Generation. When global invoicing is not used, select project-line quantities for invoicing or transferring planned costs out of Work in Process (WIP). See page 170.
- 6 For all non-prepayment invoice schedules, Invoice Generation creates pending invoices. Print and post these using Invoice Print (7.13.3) and Invoice Post (7.13.4) in the Sales Orders/Invoices module. See page 175.

Setting Up Project Invoicing

Use Invoice Schedule Control (10.9.24) to define GL accounts and default settings used by project invoicing functions.

Note Typically, these control program settings are defined when setting up the rest of PRM. However, they are discussed in this chapter since they have specific applications to invoicing. For details on general PRM setup, see Chapter 2.

Fig. 6.2
Invoice Schedule Control (10.9.24)

The screenshot shows the 'Invoice Schedule Control' window with the following fields and values:

Pending Invoice Prefix:	PRM		
Next Pending Invoice:	236		
AR Account:	1200	450	0010
Prepayment Account:	2550	450	0010
Prepayment Tax Account:	2430	450	0010
Invoice Type:	D		
Schedule Comments:			

The 'Detailed Invoice' section is currently empty.

Pending Invoice Prefix. Optionally enter a short (three-character) prefix for Invoice Generation (10.9.13) to use to generate pending invoice identifiers.

PRM pending invoices, like sales order invoices, are stored in the sales order master table; however, they are not accessible in Sales Order Maintenance (7.1.1) or Pending Invoice Maintenance (7.13.1). To avoid confusion and to simplify report selection, assign a PRM-specific pending invoice prefix or use a different number range for the next sales order or pending invoice number in each of the control programs where it can be specified.

Next Pending Invoice. This field displays the next number for Invoice Generation to assign to a pending invoice.

AR Account. Specify a GL account, sub-account, and cost center to use as defaults in Project Maintenance (10.1.1) when an Accounts Receivable (AR) account is not defined for the project bill-to customer. The AR account data from the project, in turn, default to its associated invoice schedules. See “AR Account” on page 67.

Prepayment Account, Prepayment Tax Account. Specify GL accounts, sub-accounts, and cost centers to use for reporting requested prepayment amounts against projects. Prepayment accounts let you track prepayments separately from other project payments. See “GL Effects of Prepayments” on page 161.

Invoice Type. Enter an invoice type code indicating the level of detail that you typically want to appear on project invoices. Valid values are T (Total-only), S (Summary), and D (Detailed). This field sets the default value for the Invoice Type field in Invoice Schedule Maintenance (10.9.1). See “Invoice Types” on page 162.

Schedule Comments. This field determines the default value for the Comments field on new invoice schedules.

Creating Invoice Schedules

Use Invoice Schedule Maintenance (10.9.1) to define payment schedules for projects and subprojects. Four types of payment methods are supported:

- Prepayments
- Payment of a percentage of the project or subproject price
- Payment of a fixed amount of the project or subproject price
- Payment based on project lines and quantities selected in Invoice Generation (10.9.13)

The following sections discuss some general concepts you should understand when setting up invoice schedules.

Prepayments

You may want to handle certain types of payment requests separately from standard project invoices. For example, you may request that customers pay a certain amount before any activity is completed for a project or subproject. PRM lets you handle and track requests for prepayments separately from standard project invoices.

Schedule a prepayment by creating an invoice schedule for a fixed amount or percentage of the project or subproject price and setting the Prepayment field to Yes. When you select a prepayment schedule for processing in Invoice Generation, the system creates an AR debit memo for the prepayment and any applicable tax amount. Rather than printing or posting an invoice, you print the debit memo using DR/CR Memo Print (27.15) and submit it to the customer in place of an invoice as a request for prepayment.

For the next non-prepayment invoice you generate for the selected project or subproject, the system adds the prepayment amount plus any applicable tax as a credit on the invoice, reducing the amount the customer must pay.

See “Prepayment” on page 167.

Example You generate an invoice for a fixed amount of \$1000. If the project customer has already made a prepayment of \$700, the amount due on the invoice is set to \$300.

Prepayment Levels

All prepayments for a project must be made at the same level. If you have made a prepayment for a subproject, all other prepayments must be for subprojects. If you have made a prepayment at the project level, you cannot schedule a prepayment for a subproject. When you select a project in Invoice Schedule Maintenance, the system displays the associated prepayment level in the Prepayment Level field.

Project-level prepayments are deducted from the next invoice generated for the project or associated subprojects. Subproject-level prepayments are only deducted from invoices created for that specific subproject.

See “Prepayment Level” on page 164.

GL Effects of Prepayments

Table 6.1 summarizes the GL effects of generating a debit memo from a prepayment schedule in Invoice Generation.

Table 6.1
GL Effects of Prepayment Memos

Amount	Debits	Credits
Prepayment amount, minus tax	Accounts Receivable	Prepayment
Prepayment tax amount	Accounts Receivable	Prepayment Tax

The Prepayment and Prepayment Tax accounts updated are from Invoice Schedule Control (10.9.24), while the AR account is from the invoice schedule.

When you post an invoice from which a prepayment amount was deducted, the system reverses the GL transactions generated when the debit memo was created. At this time, the prepayment amount debits the Prepayment and Prepayment Tax accounts and credits Accounts Receivable.

See also “Revenue Transactions” on page 175.

Global Invoicing

The way that you create invoice schedules varies depending on whether the project or subproject uses global invoicing. In most cases, Global Invoicing can be Yes at either the project-header or subproject level, but not at both levels.

- When Global Invoicing is Yes on the project header, you must invoice at the project level. You cannot invoice individual subprojects separately unless they are marked as variations. See “Project Variations” on page 50.
- When Global Invoicing is No on the project header and Yes for one or more non-variation subprojects, you must invoice at the subproject level. See “Global Invoicing” on page 61.
- When Global Invoicing is No on the project header and No on all non-variation subprojects, you can invoice at either the project or subproject level.

When Global Invoicing is Yes for a project or subproject, you must invoice for a fixed amount or percentage of the project or subproject price.

When invoicing a project or subproject with Global Invoicing set to No and Auto Price Rollup is Yes, you select project lines and quantities to include on the invoice in Invoice Generation. The system calculates the invoice amount based on your selections.

See also “Global Invoicing” on page 56.

Auto Price Rollup

The Auto Price Rollup value specified on the project header in Project Maintenance determines whether subproject prices must be manually entered or are automatically calculated (rolled up) by the system based on the prices of underlying project lines. When Auto Price Rollup is No, subproject prices are manually entered and are independent of any underlying project-line prices.

When Auto Price Rollup is No on a project, you cannot invoice based on project-line quantities. The system prevents this since the project-line prices do not necessarily correspond to the prices of their parent subprojects or project. Instead, you must invoice for a fixed amount or percentage of the project price or individual subproject prices, just as when global invoicing is used.

See “Project Pricing” on page 48.

When Auto Price Rollup is No and global invoicing does not apply to the project or subproject being invoiced, you still select project-line quantities in Invoice Generation. However, these are only used to deduct planned costs from WIP, not to calculate the invoice amount.

See “Effect of Selecting Line Quantities” on page 171.

Note Global Invoicing is typically set to Yes when Auto Price Rollup is No, since this combination is easier to manage.

Invoice Types

Project invoices can display different levels of detail, depending on the *invoice type* specified on each invoice schedule. Three types are available:

- T (Total-only)
- S (Summary)
- D (Detailed)

Total-Only

When the total-only invoice type is used, the generated invoice displays only one detail line with the following data:

- The project or subproject ID and description
- The total invoice amount

Summary

When the summary type is used, the invoice displays project or subproject details summarized by invoice sort code. When global invoicing applies, the system calculates a summary price for each invoice sort by multiplying the total price of the project lines in that sort by the percentage from the invoice schedule.

See “Setting Up Invoice Sorts” on page 26.

Example You invoice for 10% of the project price and the total price for lines in invoice sort LABOR is \$1000. The invoice displays the extended price for LABOR as \$100.

For projects and subprojects with Global Invoicing set to No, the system summarizes project-line prices into their associated invoice sorts based on the quantity selections you make in Invoice Generation.

Invoice type S cannot be used when Auto Price Rollup is No on the project being invoiced.

Detailed

When the detailed invoice type is used, the generated invoice displays individual project lines, with or without prices, based on the invoice format defined in Project Invoice Layout (10.9.4). The system uses the same method to select lines and calculate prices as when the summary invoice type is used, except that only lines and prices selected for display in Project Invoice Layout appear on the invoice.

See “Defining Invoice Layouts” on page 169.

Releasing Schedules

An invoice or debit memo cannot be generated until an invoice schedule is released. To release a schedule, you must do the following in Invoice Schedule Maintenance:

- Specify a schedule date.
- Set the Fixed and Release fields to Yes.

An invoice schedule can be released more than once, if needed. If a schedule was released prematurely or changes are needed, make any necessary adjustments and re-release it.

You cannot update or re-release a prepayment schedule after a debit memo is generated for it. Similarly, you cannot update an invoice schedule after the associated invoice has been printed.

For details, see “Regenerating Invoices” on page 171.

Effect of Invoice Schedules

When an invoice schedule exists for a project, a warning displays when you access the project in Project Maintenance (10.1.1). You can no longer modify the Global Invoicing or Auto Price Rollup settings. If you make changes to the project, another warning displays reminding you that you must update the invoice schedule to incorporate the changes.

After you create an invoice schedule for a project with Global Invoicing set to Yes on the header, you cannot do either of the following in Project Maintenance:

- Create additional subprojects, unless they are marked as variations.
- Create new project lines or edit existing lines on non-variation subprojects.

After creating an invoice schedule for a globally invoiced subproject, you cannot create new project lines or edit existing lines for that subproject.

See also “Project Variations” on page 50.

Invoice Schedule Maintenance

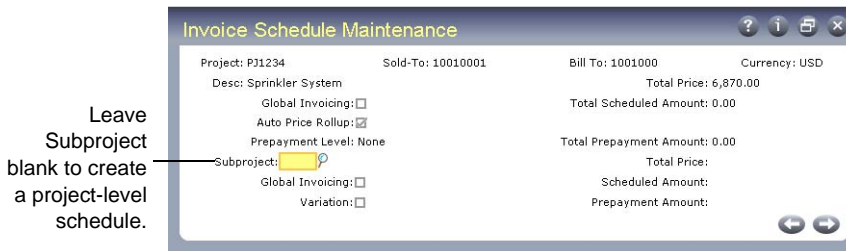
Invoice Schedule Maintenance has three frames. The basic data-entry flow is as follows:

- 1 First, select a project and, optionally, a subproject with invoices or prepayments to schedule. If Subproject is blank, the invoice schedule applies to the entire project. If you enter a subproject ID, the invoice schedule is linked to that subproject.
- 2 Next, select an existing invoice schedule for update or create a new schedule. You can change or enter invoice schedule dates, specify an invoice amount or percentage, indicate whether the schedule is for a prepayment, place the invoice schedule on hold, or freeze (fix) the schedule and release it to Invoice Generation.
- 3 Finally, specify or update the invoice type, bill-to address code, credit terms, AR account, comments, and remarks to print on the invoice or debit memo.

Project Selection Frame

Use the first frame of Invoice Schedule Maintenance to select a project and, when applicable, a subproject for creating invoice schedules. All other fields in this frame are display only. Currency amounts display in the project currency.

Fig. 6.3
Invoice Schedule Maintenance (10.9.1)



Project. Specify the project for which you want to create invoice schedules. The project status cannot be complete, closed, or hold.

Desc, Sold-To, Bill-To, Currency. The system displays the description, sold-to and bill-to customer codes, and currency from the selected project.

Global Invoicing, Auto Price Rollup. The system displays the Global Invoicing and Auto Price Rollup values from the project header.

Total Price. The system displays the total project price minus tax.

Total Scheduled Amount. The system displays the sum of the invoice amounts from both project- and subproject-level schedules created for this project. Amounts from prepayment schedules are not included in this total.

Prepayment Level. The system indicates whether prepayment schedules exist for the selected project and, if so, whether they are for the entire project or individual subprojects. Possible values are:

- None: Prepayment schedules do not exist for the selected project.
- Project: At least one project-level prepayment schedule exists.
- Subproject: At least one subproject-level prepayment schedule exists.

See “Prepayments” on page 160.

Total Prepayment Amount. The system displays the sum of the amounts on all prepayment schedules created for the selected project or its associated subprojects.

Subproject. Enter a subproject ID associated with the specified project or leave this field blank to create or modify a project-level invoice schedule. When you select a subproject, its status cannot be closed, complete, or hold.

Validation depends on whether Global Invoicing is Yes on the project header:

- If Yes, a subproject can be specified only if it has been identified as a variation (Variation is Yes) in Project Maintenance.
- If No on the project header and one or more subprojects have Global Invoicing set to Yes, a subproject must be specified. You cannot invoice at the project level.

See “Global Invoicing” on page 161.

Global Invoicing, Variation. If a subproject is specified, the system displays the associated Global Invoicing and Variation values.

Total Price. The system displays the total subproject price minus tax.

Scheduled Amount. The system displays the sum of the invoice amounts from invoice schedules created for this subproject. Amounts from prepayment schedules and project-level schedules are not included in this total.

Prepayment Amount. The system displays the sum of the amounts on all prepayment schedules created for the selected subproject. If prepayments are at the project level, this amount is zero.

Invoice Schedule Frames

When you press Go in the first frame of Invoice Schedule Maintenance, the system displays frames for creating a new invoice schedule or updating an existing one.

Schedule Header

The upper portion of the invoice schedule screens contains a header frame with a series of display-only fields. Some of these values, including the Auto Price Rollup, Global Invoicing, and Prepayment Level fields, have similar counterparts in the first frame of this function. These fields are not discussed in the following section. Other fields, such as Maximum Invoice Amount and Percentage Scheduled, are unique to this frame.

Fig. 6.4
Invoice Schedule Maintenance, Schedule Header

Project: PJ1234	Sprinkler System	Auto Price Rollup: <input checked="" type="checkbox"/>
Subproject: 1	Variation: <input type="checkbox"/>	Project Global Invoicing: <input type="checkbox"/>
Prepayment Level: None	Total Prepayment Amt: 0.00	Subproject Global Invoicing: <input type="checkbox"/>
Percentage Scheduled: 717.8%	Maximum Invoice Amount: 800.00	Scheduled Amount: 5,742.01

Project, Subproject. The system displays the project ID and, when applicable, the subproject ID associated with the invoice schedule.

Total Prepayment Amount. The system displays the sum of the amounts on all the prepayment schedules that exist for the selected project or subproject.

Maximum Invoice Amount. The value displayed in this field depends on whether you are invoicing at the project or subproject level and whether global invoicing is enabled.

- For a globally invoiced project, this field displays the combined prices of the underlying subprojects, minus the prices of any subprojects marked as variations.
- For a project with Global Invoicing set to No, this field displays the total project price.
- For a subproject, Maximum Invoice Amount always displays the price of the subproject, regardless of whether global invoicing is used.

For a globally invoiced project or subproject, the sum of the invoice amounts on all the schedules at the current invoicing level cannot exceed the value in this field.

See “Global Invoicing” on page 161.

Percentage Scheduled, Scheduled Amount. The system displays the cumulative invoice percentage and the sum of the invoice amounts from all invoice schedules at the current invoicing level. When a project-level schedule is selected, project-level totals display. For a subproject-level schedule, subproject totals display.

Schedule Update Frames

Use the fields in the first and second invoice schedule update frames to create a new invoice schedule and specify field values or to update, fix, or release an existing schedule.

Note Once a schedule is fixed, most fields in the first update frame become display only and are not updateable. To modify these fields, you must manually reset Fixed to No. Invoice Type, Bill-To, Credit Terms, AR Account, Comments, Remarks, and Hold Invoice remain updateable until Release is set to Yes, regardless of the Fixed setting.

Fig. 6.5
Invoice Schedule Maintenance, First Schedule Update Frame

Enter Yes to create a prepayment schedule.

Schedule: 1-08001	Invoice Number:
Creation Date: 08/01/2002	Pending Invoice:
Schedule Date: 09/01/2002	Fixed: <input type="checkbox"/>
Original Date:	Release: <input type="checkbox"/>
Invoice Amount: 5,742.01	Release Date:
Invoice Percent: 25.0%	Entered By:
Prepayment: <input checked="" type="checkbox"/>	
Hold Invoice: <input type="checkbox"/>	
Hold Remarks:	

Schedule. Enter a brief code identifying a scheduled payment. This field cannot be 0 (zero) or blank.

Creation Date. This field defaults to the system date and indicates when this schedule was created. You can use creation date as a selection criterion in some reports.

Schedule Date. Enter the date when an invoice or debit memo should be generated for this invoice schedule. Schedule Date cannot be earlier than the current date and must be within a valid, open GL period. You can use this date as a selection criterion for selecting invoice schedules to process in Invoice Generation.

You can leave this field blank when you first create an invoice schedule. However, a date must be specified before you can fix or release the schedule. When you generate an invoice or debit memo for this schedule, Schedule Date is automatically set to the current system date.

See “Selection Criteria” on page 172.

Original Date. The system displays the schedule date initially entered on this schedule. This may differ from the value in Schedule Date, since the schedule date can be modified manually or updated by the system when you process the schedule in Invoice Generation.

Invoice Amount, Invoice Percent. Enter the currency amount or percentage of the project or subproject price to associate with this invoice schedule. When you enter a value in one field and press Go, the system automatically calculates the value of the other field.

The effect of these values depends on several factors. When any of the following are true, the invoice amount and percentage determine the amount that appears on the invoice or debit memo created in Invoice Generation:

- Global Invoicing is Yes for the selected project or subproject.
- Auto Price Rollup is No on the header of the selected project.
- The schedule is for a prepayment.

In this case, you must enter a value in either Invoice Amount or Invoice Percent.

When all of the following are true, Invoice Amount and Invoice Percent are optional fields:

- Prepayment is No on the invoice schedule.
- Global Invoicing is No on the selected project or subproject.
- Auto Price Rollup is Yes on the project header.

See “Global Invoicing” on page 161.

In this case, when you specify a value in either field, the system uses it to determine the value of the Maximum Invoice Amount field in Invoice Generation. You can use this amount as a control total when selecting project lines and quantities to invoice in Invoice Generation.

See “Maximum Invoice Amount” on page 173.

Prepayment. Enter Yes to indicate that this invoice schedule is for a prepayment request (debit memo). Enter No to indicate that it is for a standard invoice.

See “Prepayments” on page 160.

When Prepayment is Yes, you must indicate an invoice amount or percentage. The prepayment amount cannot be greater than the maximum invoice amount displayed in the upper portion of the frame.

See “Maximum Invoice Amount” on page 166.

Hold Invoice. Set Hold Invoice to Yes to indicate that the invoice schedule is on hold. Otherwise, set it to No. Invoice schedules that are on hold cannot be released. You can use the hold attribute to select invoice schedules for reporting.

Hold Remarks. When Hold Invoice is Yes, optionally enter brief remarks describing why the invoice schedule is on hold. These remarks are for internal reference only.

Invoice Number. When Prepayment is Yes for this invoice schedule, the system displays the identifier of the debit memo generated by Invoice Generation. Otherwise, it displays the invoice number generated when the pending invoice was printed in Invoice Print (7.13.3).

Pending Invoice. For a non-prepayment schedule, the system displays the identifier of the pending invoice generated in Invoice Generation.

Fixed. Set Fixed to Yes to freeze (fix) the dates and amounts specified on this invoice schedule. You cannot set Fixed to Yes unless Schedule Date has a value.

Fixed is typically set to No during the creation of the schedule and is changed to Yes just prior to releasing the schedule.

Release. Set Release to Yes to release this invoice schedule so that it displays for selection in Invoice Generation. If you are not ready to generate an invoice or debit memo for this line, leave this field set to No. Invoice Generation displays only released schedules.

You cannot set Release to Yes unless Fixed is also Yes and Hold Invoice is No.

Release Date. When you set Release to Yes, the system updates this field with the current system date.

Entered By. The system displays the ID of the user that created the invoice schedule.

Use fields in the second update frame to specify additional values on an invoice schedule. Most of the fields in this frame default from the associated project or subproject or Invoice Schedule Control.

Fig. 6.6
Invoice Schedule Maintenance, Second Schedule Update Frame

The screenshot shows a software interface for 'Invoice Schedule Maintenance, Second Schedule Update Frame'. It features a white background with a blue border. The fields are as follows:

- Invoice Type: D
- Bill To: 1001000
- Credit Terms: 2/10-30
- AR Account: 1200
- Remarks: Payment due by 9/30/2002
- Two small input fields with values 1000 and 0010.

 The interface includes navigation arrows at the bottom right.

Invoice Type. Enter an invoice type code indicating the level of detail that you want to appear on the invoice generated for this schedule. Valid values are T (Total-only), S (Summary), and D (Detailed). When an invoice schedule is for a prepayment, this field has no effect.

For more information, see “Invoice Types” on page 162.

Bill-To. Enter an address code indicating the bill-to customer from which you are requesting payment. The default is from the project header.

All invoicing must be done in the project currency. If you specify a bill-to customer that uses a different currency, the system displays a warning but does not change the invoicing currency.

Credit Terms. Enter the appropriate credit terms for this invoice schedule, previously defined in Credit Terms Maintenance (2.19.1). This field initially defaults from the header of the specified project or subproject.

Credit terms print on project invoices and debit memos and determine the payment due date and any discount allowed for early payment.

For information on setting up credit terms, see *User Guide: Master Data*.

AR Account. Enter the GL account, sub-account, and cost center to use for reporting AR amounts against this invoice schedule. This field initially defaults from the trailer of the specified project.

Comments. Enter Yes to update comments for this invoice schedule; otherwise, enter No. For a new schedule, this value defaults from the Schedule Comments field in Invoice Schedule Control. For each page of comments, you can indicate whether to print the page on the associated invoice.

Note When comments for the project or subproject on the invoice schedule have Print on Invoice set to Yes in Project Maintenance, those comments also print on the generated invoice.

Remarks. Optionally enter brief remarks to print on the invoice or debit memo generated from this invoice schedule.

Defining Invoice Layouts

Use Project Invoice Layout (10.9.4) to indicate the level of detail to print on invoices generated from schedules with Invoice Type set to D (Detailed). For invoice schedules with invoice type T (Total-only) or S (Summary), defining an invoice layout has no effect.

For each subproject or line associated with a particular project, Project Invoice Layout lets you indicate whether to display it on project invoices and, if so, whether to display the applicable pricing details.

See “Invoice Types” on page 162.

Print on Invoice

When the Print on Invoice option is selected for a subproject or project line in Project Invoice Layout, the line or subproject number and description display as a detail line on project invoices. When global invoicing does not apply, the project-line quantity selected in Invoice Generation (10.9.13) also displays.

When Global Invoicing is No, only project lines that are selected for invoicing in Invoice Generation display on the invoice. For example, if you select Print on Invoice for project lines 1.1, 1.2, and 1.3 but only select quantities from lines 1.1 and 1.3 in Invoice Generation, only these lines are included. On project-level invoices, a subproject detail line also displays with the summarized invoice price.

Show Price

When the Show Price option is selected for a detail line, project invoices display one of the following, depending on how Global Invoicing is set on the parent project or subproject:

- When Global Invoicing is No, the project line displays the price per unit and total price for the quantity selected in Invoice Generation. For a subproject detail line, the total invoice amount for the subproject displays.
- When Global Invoicing is Yes, the system calculates a total price for the project line by applying the percentage from the invoice schedule to the project-line price. For example, if the project-line price is \$100 and the invoice schedule is for 10% of the project price, the extended price for that line displays on the invoice as \$10. Per-unit prices do not apply to globally invoiced lines.

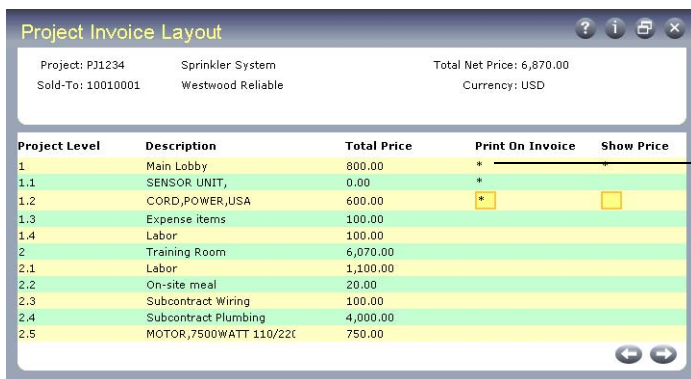
Important If the project being invoiced has Auto Price Rollup set to No, you should deselect the Show Price setting for each project line in Project Invoice Layout. Otherwise, detail-line prices on the invoice may appear to add up incorrectly. See “Auto Price Rollup” on page 162.

Project Invoice Layout

Project Invoice Layout consists of two frames. In the first frame, specify a project for which to define an invoice layout.

In the second frame, the system displays the subprojects and lines associated with the selected project. Select a detail line and update the Print on Invoice or Show Price options appropriately. When you are finished making selections, press End to return to the first frame.

Fig. 6.7
Project Invoice Layout (10.9.4)



Project Level	Description	Total Price	Print On Invoice	Show Price
1	Main Lobby	800.00	*	
1.1	SENSOR UNIT,	0.00	*	
1.2	CORD,POWER,USA	600.00	*	
1.3	Expense items	100.00		
1.4	Labor	100.00		
2	Training Room	6,070.00		
2.1	Labor	1,100.00		
2.2	On-site meal	20.00		
2.3	Subcontract Wiring	100.00		
2.4	Subcontract Plumbing	4,000.00		
2.5	MOTOR,7500WATT 110/220	750.00		

An asterisk (*) indicates selection.

Project. Specify the project for which you want to define an invoice layout.

Sold-To, Total Net Price, Currency. The system displays the sold-to customer, currency, and total price from the selected project.

Print on Invoice. Use this field to indicate whether the selected line or subproject should print on detailed invoices. See page 169.

Show Price. For subprojects and lines where Print on Invoice is selected, use this field to indicate whether pricing details should print on project invoices. When you select Show Price, Print on Invoice is automatically selected for the associated line. See page 169.

Generating Invoices

Use Invoice Generation (10.9.13) to generate pending invoices and AR debit memos based on released invoice schedules.

Exchange Rates

When you define a project with a non-base currency, the system displays the effective exchange rate and lets you update it if needed and optionally indicate it as fixed.

When Fixed Rate is Yes for the exchange rate on the project, Invoice Generation uses the project exchange rate on all invoices and debit memos and does not update it. However, when Fixed Rate is No, exchange-rate data on these documents are updated as follows:

- For prepayment schedules (Prepayment is Yes), Invoice Generation uses the schedule date to find an effective exchange rate to use when generating an AR debit memo.
- For a project invoice, Invoice Post uses the GL effective date of the posting transaction to find a valid exchange rate.

See also “Multicurrency in Projects” on page 48.

Regenerating Invoices

Pending invoices generated in PRM cannot be edited in Pending Invoice Maintenance (7.13.1) or Sales Order Maintenance (7.1.1). If changes are needed, make them either on the project or the invoice schedule and re-release the schedule in Invoice Schedule Maintenance (10.9.1). Then, regenerate the invoice with Invoice Generation.

When you select a re-released schedule in Invoice Generation, you are prompted to regenerate the pending invoice. When you respond Yes, the old pending invoice is deleted and a new one is generated.

See “Releasing Schedules” on page 163.

Note You cannot modify or re-release an invoice schedule after its associated invoice has been printed.

Effect of Selecting Line Quantities

When you select a non-prepayment schedule to which global invoicing does not apply, Invoice Generation displays additional frames for selecting project-line quantities associated with the project or subproject on the schedule. The effect of selecting line quantities depends on the value of Auto Price Rollup in the header of the project being invoiced.

When Auto Price Rollup is Yes, the selected line quantities determine the price that appears on the invoice. To calculate the total invoice amount, the system adds up the prices for the quantities you select.

See “Auto Price Rollup” on page 162.

When Auto Price Rollup is No, the selected quantities do not determine the amount that appears on the invoice. Rather, they determine the planned costs used to debit COGS and Expense Due and credit WIP during invoice post.

See “Cost Transactions” on page 176.

Invoice Generation

Invoice Generation consists of four frames: a selection criteria frame, an invoice-schedule selection frame, and two project-line selection frames.

Selection Criteria

Enter selection criteria in the first frame or press Go to display all released invoice schedules.

Fig. 6.8
Invoice Generation (10.9.13)

Project, To. Enter a range of project IDs.

Bill-To, To. Enter a range of project bill-to address codes.

Release Date, To. Enter a range of schedule release dates. Release Date is a display-only field in Invoice Schedule Maintenance that is automatically set to the system date when you release a schedule. See “Release Date” on page 168.

Schedule Date, To. Enter a range of schedule dates. The schedule date on an invoice schedule indicates when an invoice or debit memo should be generated from it. See “Schedule Date” on page 166.

Invoice Schedule Selection

All the invoice schedules that match the selection criteria specified in the first frame display in the schedule selection frame. Select the lines you want to invoice.

Fig. 6.9
Invoice Generation, Invoice Schedule Selection

The system displays the project currency and prepayment setting of the selected schedule.

Project	Subproject	Schedule	Release Date	Schedule Date	Invoice Amount	Bill To
PJ1234	2	Fourth	08/07/2002	11/02/2002	1,000.00	1001000
PJ1234	2	Initial	08/07/2002	08/07/2002	1,000.00	1001000
PJ1234	2	Second	08/07/2002	09/01/2002	1,000.00	1001000
PJ1234	2	Third	08/07/2002	10/01/2002	1,000.00	1001000

Currency: USD Prepayment: no

When the selected invoice schedule is for a prepayment (Prepayment is Yes), the system generates an AR debit memo based on the amount or percentage specified in the invoice schedule. A message displays the debit memo identifier, which is generated based on the Next Memo value in Accounts Receivable Control (27.24).

When global invoicing applies to the selected invoice schedule, the system immediately generates a pending invoice by applying the invoice amount or percentage from the schedule to the total project or subproject price. A message displays the pending invoice identifier, which defaults from Invoice Schedule Control (10.9.24).

When Prepayment is No and global invoicing does not apply to the invoice schedule you chose in the selection frame, Invoice Generation displays two additional frames for selecting project lines and quantities.

Project-Line Selection Header

Use the Invoice Group and Quantity to Select fields in the project-line selection header to determine the project lines and quantities to display in the next frame. After making your selections, press Go to display the applicable data in the selection frame.

Fig. 6.10
Invoice Generation, Project Line Selection Header

Project, Subproject. The system displays the project and, when applicable, subproject associated with the selected invoice schedule.

Schedule, Schedule Date, Invoice Type. The system displays the invoice schedule identifier along with the schedule date and invoice type from Invoice Schedule Maintenance.

Currency. The system displays the project currency. All amounts on the generated invoice display in this currency, as do the Maximum Invoice Amount and Scheduled Amount in this frame.

Invoice Group. Specify an invoice group to limit the project lines that display in the next frame to lines associated with this group in Project Maintenance (10.1.1). The default is blank, which displays all underlying lines for the project or subproject you are invoicing, regardless of invoice group.

Note Set up generalized codes for pjs_inv_group.

Quantity to Select. This field determines the default quantity to select for invoicing or booking to COGS or Expense Due for each project line in the next frame. Valid values are I (Issued), P (Planned), and Z (Zero).

- **Issued:** The default quantity on each project line is set to the quantity consumed in Project Activity Recording (10.5.13), minus any quantities previously selected in Invoice Generation.
- **Planned:** The default quantity on each project line is set to the quantity planned in Project Maintenance, minus any quantities previously selected in Invoice Generation.
- **Zero:** Selected quantities default to zero for all lines.

Maximum Invoice Amount. The system displays the invoice amount from the associated schedule. When Auto Price Rollup is Yes on the project, you can use this value as a control total when you select project lines and quantities for invoicing. A warning displays when the total price for the selected project-line quantities exceeds this amount.

Selected Amount. When Auto Price Rollup is Yes for the selected project, this system-tracked field displays the cumulative price of the quantities selected in the project-line selection frame. This field is automatically updated each time you change a line's quantity to invoice in the next frame.

When Auto Price Rollup is No on the selected project, this field defaults to the maximum invoice amount and is not updated.

Project-Line Selection

Use the project-line selection frame to select project-line quantities for invoicing or booking to COGS and Expense Due. Only project lines that meet these criteria are displayed:

- They belong to the project or subproject being invoiced.
- When an invoice group is specified, they reference that group code.
- Their planned quantity is not equal to the quantity already selected in Invoice Generation.

When you are finished making selections, press Go. You are prompted to confirm that the information is correct. To generate a pending invoice, respond Yes. The system displays a message with the pending invoice number.

See “Effect of Selecting Line Quantities” on page 171.

When the total amount on the pending invoice created by Invoice Generation is not the same as the scheduled invoice amount, the system updates the amount and percentage on the schedule.

See “Invoice Amount, Invoice Percent” on page 167.

Fig. 6.11
Invoice Generation, Project Line Selection

Sel	Project Line	Selected Qty	Item/Category	Quantity Open	UM	Net Price
2.1	0.0	20.0	Labor	20.0	55.00	
2.2	0.0	4.0	Lunch	4.0	5.00	
2.3	0.0	1.0	Expenses	1.0	100.00	
2.4	1.0	1.0	Expenses	1.0	4,000.00	
0.0	0.0	0.0		0.0	0.00	
0.0	0.0	0.0		0.0	0.00	

Sel. This field displays an asterisk (*) when the corresponding project line has a nonzero selected quantity. To deselect a line, specify a quantity of 0.

Project Line, Item/Category. The system displays the project line number and associated item or service category identifier.

Quantity Open. The system displays the planned quantity from the project line minus the quantities referenced on existing invoices.

Selected Quantity. Enter the quantity to invoice or book to COGS or Expense Due for this project line. The default value for this field depends on how Quantity to Select is set in the previous frame.

Selected Quantity defaults to zero when the quantity previously selected for the line exceeds the system-calculated default quantity or when Quantity to Invoice is set to Zero in the previous frame.

See “Quantity to Select” on page 173.

UM. The system displays the project-line unit of measure.

Net Price. The system displays the net price of the project line.

Important When selecting line quantities for a project where Auto Price Rollup is No, remember that the currency amounts displayed in the Net Price column are based on the planned price for each project line, not the cost. For example, if an item is priced at \$10 but its planned cost is \$6, selecting 10 of that item in Invoice Generation debits COGS Material and credits WIP for a total of \$60 for that line.

Posting Invoices

The methods used to manage project invoices once they are generated are the same as those used for sales order invoices. After creating the invoices in Invoice Generation, print them using Invoice Print (7.13.3) and post them in Invoice Post (7.13.4). For details, see *User Guide: Distribution*.

Note To print a pending invoice in Invoice Print, use the pending invoice number as the sales order number.

The following sections summarize the GL transactions Invoice Post generates to book the costs and revenue associated with project invoices. All transactions reference the GL project code associated with the PRM project being invoiced.

See “GL Projects” on page 20.

Revenue Transactions

The transactions Invoice Post generates to update GL accounts with revenue from project invoices are identical to those generated when sales order invoices are posted. These transactions are summarized in Table 6.2.

Table 6.2
GL Effects of Invoice Post on Revenue Accounts

Amount	Debits	Credits
Total invoice amount, minus tax	Accounts Receivable	Sales
Invoice tax amount	Accounts Receivable	Sales Tax
Difference between list and net price	Sales Discount	Sales

Note When a prepayment amount was deducted from the invoice being posted, Invoice Post generates additional GL transactions to debit the Prepayment and Prepayment Tax accounts from Invoice Schedule Control (10.9.24).

See “GL Effects of Prepayments” on page 161.

The AR account on a project invoice defaults from the associated invoice schedule. Sales and Sales Discount accounts are found using the following selection criteria:

- Subproject site
- Ship-to customer type
- Project sales channel
- Product line from each subproject or project line

The product lines used to search for Sales accounts depend on the value of Auto Price Rollup in the project header:

- When Auto Price Rollup is Yes, the product line specified on each project line is used.
- When Auto Price Rollup is No, subproject product lines are used.

Sales Tax accounts default from the tax rates that apply to the project.

See page 19.

Cost Transactions

Invoice Post also generates GL transactions to transfer planned project costs out of WIP and into COGS and Expense Due accounts. For a globally invoiced project or subproject, the system calculates the amount to transfer by applying the invoice percentage from the invoice schedule to the total project or subproject cost. When global invoicing does not apply, this amount is calculated based on the line quantities selected in the project-line selection frame of Invoice Generation.

The GL transactions generated to book project costs differ from those generated for sales order invoices. Table 6.3 summarizes these transactions.

See “Global Invoicing” on page 161.

Table 6.3
GL Effects of Invoice Post on Cost Accounts

Amount	Debits	Credits
Planned item costs	COGS Material	WIP
Planned labor costs	COGS Labor	WIP
Planned expense costs	Expense Due	WIP

Invoice Post searches for COGS Material and Labor accounts to update for item and labor project lines using the following criteria:

- Subproject site
- Ship-to customer type
- Project sales channel
- Product line from the project-line detail

Expense Due accounts are found using the product line from the project-line detail.

Important While Project Activity Recording (10.5.13) and Project Labor Recording (10.5.14) debit WIP using the actual costs of items, labor, and expenses, Invoice Post uses the planned costs from the project-line detail to credit WIP. The system reconciles any differences between these amounts automatically when you close project lines in Project Activity Close (10.23.2). See “Closing Projects” on page 180.

Closing and Evaluating Projects

This chapter describes how to close a project and its associated PAOs. It also gives an overview of the reporting tools available for reviewing and evaluating project activity.

Overview of Project Closure 178

Outlines PRM manages project progress and gives an illustrated workflow and details on each step.

Closing PAOs 179

Describes different methods of closing PAOs, and includes details on installed base updates and PAO Close (10.5.16).

Closing Projects 180

Describes the effects of closing projects, project close criteria, Project Activity Close (10.23.2), and Project Accounting Close (10.23.3).

Deleting and Archiving Projects 187

Explains when and how to use Closed Project Delete/Archive (10.23.23), including details on deleting project locations.

Evaluating Projects 188

Discusses how the system tracks and monitors works in progress and gives details on sub-ledger quantities and project reports.

Overview of Project Closure

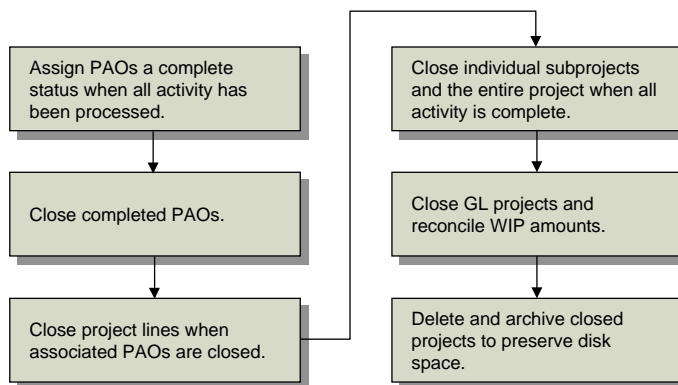
Many projects extend over a long time period. Some project activities may be completed early in the project life cycle while others may be in progress or still in the planning stages.

To accommodate the progress of the project and its associated project activity orders, PRM lets you close projects incrementally. Using the various close functions provided in PRM, you can close individual PAOs, completed project lines, subprojects, and, finally, the entire project.

Figure 7.1 illustrates a typical work flow for closing projects and PAOs. This chapter discusses only elements directly related to project and PAO closure and project reporting and evaluation tools.

- Project and budget setup activities are discussed in Chapter 3, “Creating and Managing Projects,” on page 45.
- PAO setup and creation are discussed in Chapter 4, “Setting Up and Creating PAOs,” on page 73.
- Project realization, including ordering components and recording activity, is discussed in Chapter 5, “Realizing Projects,” on page 95.
- The invoicing life cycle is described in detail in Chapter 6, “Invoicing Projects,” on page 157.

Fig. 7.1
Project Closure Work Flow



Close PAOs, project lines, subprojects, and projects after all related activity has been processed for them.

- 1 When all activity for a PAO is complete, set its status to the complete status from PAO Control (10.5.24). See page 149.
- 2 Close completed PAOs using PAO Close (10.5.16). See page 179.
- 3 Use Project Activity Close (10.23.2) to close individual project lines when associated PAOs are closed and related activities are complete. See page 183.
- 4 Use Project Activity Close or Project Maintenance (10.1.1) to close individual subprojects or the entire project when all activity is complete and associated project lines are closed. See page 184.

- 5 After the entire project is closed and invoices are posted, use Project Accounting Close (10.23.3) to reconcile any amounts still remaining in project-line Work in Process (WIP) accounts. See page 186.
- 6 Use Closed Project Delete/Archive (10.23.23) to delete and archive closed projects when online history is no longer needed. See page 187.

Important Once a PAO, project line, subproject, or project is closed, it cannot be reopened. You may want to leave the project or PAO status set to complete for some time in case you need to process additional activity or add new lines. In addition, you should always run close functions in report-only mode to ensure that the results are as expected before updating the database.

Closing PAOs

When the planned work represented by a PAO is complete and unused items are returned to general stock or scrap locations, set the PAO status to the complete status from PAO Control (10.5.24). Do this in PAO Maintenance (10.5.1) or the final frame of Project Activity Recording (10.5.13). Only complete PAOs can be closed.

For information on when you can assign this status, see “Complete Status” on page 82.

Use PAO Close (10.5.16) to close completed PAOs when no further activity is required. Running this function also deletes the material orders, worksheets, and worksheet detail records associated with the PAOs it processes. You must either close or cancel a PAO before you can close its associated project lines, subprojects, and project in Project Activity Close (10.23.2).

For more information on canceling PAOs, see “Cancel Status” on page 83.

Installed Base Updates

When you have the SSM module, issuing items in Project Activity Recording (PAR) can generate records in the installed base of the project end user. This occurs when Update ISB is Yes in the PAR header and Installed Base is Yes for the item in Service Item Maintenance (11.3.7).

When PAR generates installed base records for issued items, it does not include warranty information or an installed date. When you close a PAO that has Update ISB set to Yes in the PAR header, the system searches for ISB records generated for items on the PAO and sets the following in each record:

- Install Date to the Close Date specified in PAO Close
- Warranty Code to the warranty type associated with the item number in Service Item Maintenance (11.3.7)
- Warranty Expiration based on the PAO close date and the duration defined for the warranty type in Warranty Type Maintenance (11.3.15)
- Next PM (Preventative Maintenance) Date based on the PAO close date and the value specified for Days Between PM in Service Item Maintenance

See “Installed Base Updates” on page 128.

You can use Installed Base Item Maintenance (11.3.1) to update default values on individual ISB records if required.

For more information on tracking ISB data, see *User Guide: Service/Support Management*.

PAO Close

Use PAO Close to close a particular PAO or range of PAOs and update associated ISB records.

Fig. 7.2
PAO Close (10.5.16)

Project. Enter a project ID in this field to close only PAOs related to that project. Leave this field blank to close all PAOs in a given ID range, regardless of associated project.

PAO, To. Enter a range of PAO IDs for this function to consider. When Project has a value, you can leave PAO range blank to have the system close all complete PAOs related to the project, regardless of PAO ID.

Close Date. Enter the date for this function to use to update the install date and warranty information on associated ISB records. Close Date defaults to the current date but can be set to a past or future date, if required.

Note PAOs are set to the close status immediately, regardless of the close date specified.

Update. Enter Yes to close PAOs that match the selection criteria or No to generate a report without updating the database.

Closing Projects

Two programs support project closure:

- Use Project Activity Close (10.23.2) to assign a closed status to project lines, subprojects, or an entire project and transfer the difference between actual and planned costs out of WIP.
- Use Project Accounting Close (10.23.3) to reconcile any amounts still remaining in WIP and optionally close the associated GL project.

Effects of Closing Projects

When a project is defined in Project Maintenance (10.1.1), you specify the planned quantities, prices, and costs in the project detail. Invoice schedules are created based on the project definition, and invoices are generated based on the schedules. This approach supports a functional separation of project definition and invoicing from the actual project execution.

As project activities are completed, the actual details are recorded against PAOs in Project Activity Recording (10.5.13). PAR transfers the actual costs of consumed items and resources out of Inventory, Service Labor, and Service Expense accounts and books them to Work in Process (WIP) accounts.

For further details, see “GL Transactions” on page 129.

Posting a project invoice transfers the planned (not actual) costs of invoiced items, labor, and expenses out of WIP accounts and into:

- Cost of Goods Sold (COGS) Material and COGS Labor accounts for items and labor
- Expense Due accounts for expenses

See “Cost Transactions” on page 176.

Project Activity Close

Sometimes, the planned costs of project resources, defined in Project Maintenance, may differ from the actual costs recorded in PAR, or you may issue larger or smaller quantities than originally planned. When you run Project Activity Close, the system calculates the differences between planned and actual costs for each project line it closes, then posts balancing transactions to WIP and COGS (or Expense Due, for expense lines) to reconcile any variances.

The variance between planned and actual costs is calculated for each project line using the following equation:

$$\text{Variance} = \text{Actual Cost} - (\text{Quantity Planned} * \text{Planned Unit Cost})$$

For each project line with a positive variance amount, Project Activity Close:

- Debits WIP with the variance amount
- For an item or labor line, credits COGS Material or Labor with the variance amount
- For an expense line, credits Expense Due with the variance amount

For each project line with a negative variance amount, Project Activity Close:

- Credits WIP
- Debits COGS Material, COGS Labor, or Expense Due

Project Activity Close uses the product line specified on the project line to search for WIP and Expense Due accounts to update. To find COGS accounts, it uses the subproject site, the customer type of the project ship-to customer, project sales channel, and the product line from the project line to search for accounts set up in Sales Account Maintenance (1.2.17) or Product Line Maintenance (1.2.1).

The GL transactions generated by Project Activity Close have the prefix SO. Each transaction references the GL project code associated with the project selected for close.

Project Accounting Close

Even after you run Project Activity Close, positive or negative amounts may remain in project-line WIP accounts. Typically, this occurs when one or more of the following is true:

- For projects that use non-global invoicing, the project-line quantities selected for invoicing or booking costs do not match the planned quantities on the project. See page 174.
- Project invoices are posted after the project is closed. See page 176.
- Vouchers are generated for project purchase orders after the associated project is closed. See page 122.

After projects are closed and any remaining invoice or purchase order activity is complete, use Project Accounting Close (10.23.3) to reconcile the remaining WIP amounts. This program searches closed projects for any project lines that still have a nonzero WIP quantity or cost in the project-line sub-ledger. Any amounts found are moved out of WIP and posted to the appropriate Cost of Goods Sold (COGS) or Expense Due accounts.

See “WIP Quantity, Cost” on page 93.

For each line with a positive remaining WIP cost, Project Accounting Close:

- Credits WIP with the total remaining WIP cost, converted to a positive amount
- Debits COGS Material, COGS Labor, or Expense Due with this amount

For each line with a negative remaining WIP cost, Project Accounting Close:

- Debits WIP
- Credits COGS Material, COGS Labor, or Expense Due

Project Accounting Close uses the same criteria to search for GL accounts as Project Activity Close. As in Project Activity Close, the GL transactions generated by Project Accounting Close have the prefix SO and reference the GL project codes associated with the selected PRM projects.

Project-Line Close Example

On project P-100, you create a labor line with a planned quantity of 100 units (hours) and a cost of \$20 per unit. However, when the project is executed, 120 labor hours are required at a cost of \$22 per unit. When you issue the labor quantity in Project Activity Recording or Project Labor Recording (PLR), the system sets WIP Quantity to 120 and WIP Cost to \$2640 in the project-line sub-ledger.

In Invoice Generation (10.9.13), you select the labor line for invoicing and specify a quantity of 120 units. However, when you post the invoice, the system still uses the planned unit cost from the project line, not the actual cost, to update COGS. It therefore credits WIP and debits COGS for \$2400 (120 * \$20). This sets WIP Quantity to 0 and WIP Cost to \$240 (\$2640 – \$2400) for the project line.

When you close the labor line in Project Activity Close, the system calculates the variance between the planned total cost and the actual cost for the line using the following equation:

$$\text{Variance} = \text{Actual (PAR) Cost} - (\text{Quantity Planned} * \text{Planned Unit Cost})$$

$$\text{Variance} = \$2640 - (100 * \$20) = \$2640 - \$2000 = \$640$$

It then moves the total variance out of WIP and posts it to COGS by crediting WIP for \$640 and debiting COGS for \$640. This also changes the sub-ledger WIP cost for the project line from \$240 to –\$400.

When you run Project Accounting Close, the system reconciles the WIP and COGS amounts by crediting WIP for \$400 and debiting COGS for –\$400, setting the total WIP cost for the project line to \$0.

Close Criteria

Project Activity Close cannot assign the closed status to a project line and update the GL unless all of the following criteria are met:

- All PAOs that reference the project line must be closed or canceled. See page 179.
- All purchase order lines that reference the project line must have a status of closed (C) or canceled (X). Purchase Order Receipts (5.13.1) automatically closes a purchase order line when you receive the entire quantity ordered for the line. See page 119.
- For an item line, the quantity on hand in all project locations must be zero. Use Material Order Shipments (10.7.6) or MO Direct/Pending Returns (10.7.8) to transfer any unused items out of project locations as needed. See page 153.
- At least one invoice must have been generated and posted for the project line. See page 170.

A formatting (blank service category) project line can be closed when all of its underlying lines meet the criteria for closure.

A subproject cannot be closed until all of its associated project lines are successfully closed. A project cannot be closed unless all of its associated subprojects are closed and no unposted invoices exist for it.

Project Line Close Report

Use Project Line Close Report (10.23.1) to generate a report indicating which project lines, subprojects, and projects can be closed by Project Activity Close. For each project line that meets the criteria you specify, the generated report displays a Yes or No value in the following data columns:

PAO Open. Indicates whether the project line is referenced on any open PAOs.

PO Open. Indicates whether any open purchase order lines exist for the project line.

Stock OH (On Hand). For an item line, indicates whether there is stock on hand in project locations.

Open Invoice. Indicates whether unposted invoices exist for the project line.

Posted Invoice. Indicates whether an invoice has been posted for the project line.

Close. Indicates whether the line can be closed by Project Activity Close. For this value to be Yes, PAO Open, PO Open, Stock OH, and Open Invoice must be No and Posted Invoice must be Yes.

Note A formatting (blank service category) project line can be closed when all of its underlying lines meet the criteria for closure. In this case, PAO Open, PO Open, Stock OH, Open Invoice, and Posted Invoice are all No and Close is Yes. See also “Auto Close Parent Lines” on page 184.

Project Activity Close

Use Project Activity Close to close project lines, subprojects, or an entire project, depending on the options you select.

Project Activity Close can automatically close subprojects and projects when the applicable criteria are met if the Auto Close fields are Yes in the first frame. Otherwise, you must close them manually by changing their statuses in Project Maintenance.

Although you cannot create or release additional invoice schedules for a closed project or subproject, you can still generate and post invoices for already released schedules, provided the project still exists in the system. You can also create vouchers for project purchase orders as needed.

The report output for Project Activity Close includes a list of closed project lines along with the planned and actual costs for each line, the calculated variances, the amount invoiced for each line, and the GL accounts updated. A list of closed subprojects also displays, when applicable.

Fig. 7.3
Project Activity Close (10.23.2)

Project, Subproject. Specify the project and, optionally, a range of subprojects for the close function to consider.

Effective Date. Enter the effective date for the GL transactions generated by this function. The default is the system date.

Auto Close Parent Lines. This field determines whether formatting (blank service category) project lines are automatically closed when all of their underlying project lines are closed.

No: Only lines selected for closing are affected.

Yes: A formatting line is automatically closed when all of its underlying lines are successfully closed.

You cannot close a project or subproject until all of its associated lines, including formatting lines, are closed.

See “Project Line Details” on page 62.

Note Setting this field to Yes does not affect subassembly lines. These can be closed manually or by the system or when they meet the applicable close criteria.

Auto Close Subprojects. Set Auto Close Subprojects to Yes to have Project Activity Close automatically set the status of each selected subproject to closed when all its underlying project lines have been successfully closed. Otherwise, leave this field set to No.

Auto Close Project. Set Auto Close Project to Yes to have Project Activity Close automatically set the status of the selected project to closed when all the underlying lines and subprojects are closed and no unposted invoices exist. Otherwise, leave this field set to No.

When the parent project is closed, PROJECT CLOSED prints at the bottom of the generated report.

Use the Include fields to determine which project lines to consider for closing or display for selection in the next frame when Manually Select Lines is Yes. These four fields are also included in the selection criteria for Project Line Close Report.

See “Project Line Close Report” on page 183.

Include Negative Variance Lines. Set this field to Yes to include lines with a profit. For these lines, actual costs are less than or equal to planned costs defined in Project Maintenance. See “Total Cost” on page 65.

Include Positive Variance Lines. Set this field to Yes to include lines with a loss. For these lines, actual costs exceed the planned costs defined in Project Maintenance.

Include Complete Lines. Set this field to Yes to include lines that are complete. For these lines, the quantity issued in PAR or PLR is greater than or equal to the planned quantity specified in Project Maintenance. See “Quantity Planned” on page 63.

Include Incomplete Lines. Set this field to Yes to include lines that are incomplete. For these lines, the quantity issued in PAR or PLR is less than the planned quantity specified in Project Maintenance.

Use the remaining fields to specify whether to select lines manually or let the system select lines for close and to identify a reporting currency to use in the report output. Use the Update field to run the function in report-only mode as needed.

Update. Enter Yes to close applicable project lines and, optionally, formatting lines, subprojects, and the parent project. Enter No to generate a report without updating the database.

Manually Select Lines. This field determines how project lines are selected for closing.

No: The system automatically selects lines to close based on values entered in the first frame of this function.

Yes: A selection frame displays for you to select individual project lines for closing.

Select All. When Manually Select Lines is Yes, this field determines whether the project lines that display in the selection frame default to selected.

No: Project lines are not selected by default. You must manually select each line you want to close.

Yes: All lines in the Project Line Selection frame initially display as selected.

Reporting Currency. Specify the currency to use for displaying project costs, variances, and invoiced amounts in the report output. The default is the system base currency. You cannot leave this field blank.

Project-Line Selection

When Manually Select Lines is Yes in the previous frame, the project-line selection frame displays for you to select individual project lines for closing. The selection frame displays only lines that can be closed at this time.

See “Close Criteria” on page 183.

Select the lines you want to close. An asterisk (*) indicates selection. In addition to the project line number, the system displays:

- The item number or service category identifier from the project line.
- The planned quantity from the project-line detail.
- The quantity consumed against the line in Project Activity Recording or Project Labor Recording.
- The difference between the actual cost of the line and the extended planned cost, converted to the reporting currency specified in the first frame.

Project Accounting Close

Use Project Accounting Close (10.23.3) to correct any amounts still remaining in WIP for closed projects. You can do this for a single project or a range of projects as needed. Only projects with a status of closed are considered by this function.

When Close GL Projects is Yes, Project Accounting Close sets the Active field to No on the GL projects associated with the selected PRM projects. When Close GL Projects is No, you can still update the Active field later in Project Code Maintenance (25.3.11), if required.

For more information, see “GL Projects” on page 20.

Important Before setting the Active field to No for a GL project, verify that all applicable project-related transactions have been posted. GL transactions can only post to active projects.

The report output for Project Accounting Close includes a list of updated project lines and applicable WIP costs along with the GL accounts affected for each line.

Fig. 7.4
Project Accounting Close (10.23.3)

Project, To. Enter a range of project IDs for this function to consider or leave the selection range blank to include all closed projects in the system.

Effective Date. Enter the effective date for the GL transactions generated by this function. The default is the system date.

Close GL Projects. This field determines whether Project Accounting Close automatically closes GL projects associated with the selected PRM projects.

Yes: For each selected project, Project Accounting Close searches for a GL project with the same identifier and sets its Active field to No.

No: GL projects are not updated by this function.

See “GL Projects” on page 20.

Update. Enter Yes to run the accounting close function for the selected projects. Enter No to run this function in report-only mode without updating the database.

Deleting and Archiving Projects

Use Closed Project Delete/Archive (10.23.23) to delete project records when online history is no longer needed. When you delete a project using this function, the following project-related data are also deleted:

- Temporary ship-to address records
- Project transaction history records
- Exchange rate usage records
- Project budget records
- PAOs
- Invoice schedules

The report output for this function summarizes the data selected for deleting or archiving, including project, subproject, and project-line details.

Usually, a delete/archive function is run twice. First, run it with Delete set to No and review the report. Then, run it with Delete set to Yes.

When you set Delete to Yes, historical information satisfying the selection criteria is deleted from the database. If you set Archive to Yes, deleted data are copied to an ASCII file that can be reloaded using Archive File Reload (36.16.5). Otherwise, deleted data cannot be recovered.

When Archive is Yes, the system stores deleted project data in a file named `pjYYMMDD.hst` where `pj` is the record type and `YYMMDD` is the file creation date. If this file does not exist in the system, it is created. If it does exist, meaning you have already run Closed Project Delete/Archive that day, the system adds the additional archived data to this file.

Since the generated file has no internal label or content description, you should keep a record of the file name and contents, in case you need to reload the data. Also, remember that you cannot selectively reload data from archive files. If an archive file contains data for an entire year and you need to access records for one month, you must reload all the data in the file to access the records you need.

Fig. 7.5
Closed Project Delete/Archive (10.23.23)

Project, Sold-To, Project Type, Order Date, Close Date. Enter a range of project codes, sold-to customers, project types, order dates, or close dates, or any combination of these, to select projects for deleting and archiving.

Delete. Enter Yes to delete projects and associated records that match the selection criteria. Enter No to generate a report without deleting data.

Archive. Enter Yes to archive deleted records to an ASCII file. Enter No to delete data without archiving. You cannot set Archive to Yes when Delete is No.

Archive File. When Archive is Yes, the system displays the file name to assign to the archive file.

Deleting Project Locations

Each project has at least one project location and may have other associated locations used for subcontracting or returns. These locations are not deleted automatically when the project is deleted.

When a location is designated as permanent, the system does not delete it even when its inventory balance is zero. Follow these steps to remove obsolete location records from the system:

- 1 Use Zero Balance Delete/Archive (3.23) to delete the inventory detail records remaining at each location.
- 2 Delete the obsolete locations with Location Maintenance (1.1.18).

Evaluating Projects

As a project moves through its life cycle from creation to completion, the system tracks and manages project-related data.

The following sections describe the detailed quantities and costs that the system tracks against each project and the reporting tools used to monitor project progress and evaluate project costs, revenue, and profit margins throughout the project life cycle.

Sub-Ledger Quantities

When you perform activity against a project line, such as receiving items into a project location, recording consumption in Project Activity Recording (10.5.13), or posting a project invoice, the system tracks the item, labor, or expense quantities and costs affected by the activity in a series of fields called a sub-ledger.

See also “Project Line Sub-Ledger Details” on page 91.

When Generate Transaction History is Yes in Project Realization Control (10.24), the system generates project history records whenever sub-ledger values are updated. Each history record is identified by a type code, indicating the system activity that generated it. Review project history records using Project Transactions Inquiry (10.11.7) or Report (10.11.8).

See “Project Transactions Inquiry and Report” on page 196.

Table 7.1 lists available transaction types in PRM and the project activities they represent. Also included with each entry is the page reference where the associated activity is discussed in detail. Transaction types are listed in the sequence in which they typically occur in a project life cycle.

Table 7.1
Project History Transaction Types

Trans Type	Activity	Page Ref
PLN	Adding a new project line or updating the quantity on an existing line.	See page 51.
BDG	Rolling up project budgets.	See page 68.
RCT	Receiving items from an MO into a project location. Receiving items from a project PO into a project location. Receiving subassembly items into a project location. Returning non-scrap items from a non-project location to a project location on an MO.	See page 115. See page 119. See page 123. See page 153.
PO-VAR	Receiving items from a project PO and posting purchase-price variances to WIP. Vouchering a project PO and posting AP variances to WIP.	See page 119. See page 122.
ISS	Issuing items to the project.	See page 123.
REG	Consuming project labor or expenses. Receiving an expense (memo) line from a project PO and simulating PAR.	See page 123. See page 119.
RET	Returning items in Project Activity Recording with a non-scrap return status.	See page 123.
RET-S	Returning items in Project Activity Recording with a scrap return status.	See page 123.
MO-RET	Transferring items from a project location to a non-project location on an MO. Returning non-scrap items from a project location to a non-project location on an MO.	See page 115. See page 153.
MO-RET-S	Returning scrap items from a project location to a non-project location on an MO.	See page 153.
SEL	Generating a project invoice.	See page 170.
INV	Posting a project invoice and reducing WIP.	See page 175.

Trans Type	Activity	Page Ref
VAR	Closing a project line and booking cost variances.	See page 183.
AP-CLS	Creating a voucher for a PO line associated with a closed project line and booking AP variances to COGS or Expense Due.	See page 122.
CLS-WIP	Posting remaining WIP amounts for a closed project.	See page 186.

Each transaction listed in Table 7.1 updates at least one of the quantity or cost fields in the project-line sub-ledger. Table 7.2 indicates the specific programs that generate each transaction type and summarizes the effects of project transactions on the sub-ledger fields.

You can review sub-ledger values for individual project lines in Project Detail Inquiry (10.1.3), the line-detail portion of PAO Maintenance (10.5.1), or using the Project Transactions Inquiry and Report functions.

See “Project Line Sub-Ledger Details” on page 91.

Note The PO Variance Amount, Quantity to Invoice, and Quantity Budgeted fields, which are included in the transactions inquiry and report output, do not display in Project Detail Inquiry or PAO Maintenance.

Table 7.2
Sub-Ledger Effects of Project Transactions

Sub-Ledger Value	Program	Trans Type	Action
Planned Quantity Planned Cost	Project Maintenance	PLN	Assign value.
Quantity Budgeted	Project Budget Rollup	BDG	Assign value.
Project QOH	Material Order Shipments, Purchase Order Receipts, Project Activity Recording, MO Direct/Pending Returns	RCT	Increase if receiving into a project location.
	Project Activity Recording	ISS	Decrease if issuing from a project location.
	MO Direct/Pending Returns, Project Activity Recording	RET	Increase if returning to a project location.
	MO Direct/Pending Returns, Project Activity Recording	RET-S	Increase if returning to a project location.
	MO Direct/Pending Returns, Material Order Shipments	MO-RET	Decrease if transferring from a project location to a non-project location.
MO Direct/Pending Returns	MO-RET-S	Decrease if returning from a project location to a non-project location.	

Table 7.2 — Sub-Ledger Effects of Project Transactions — (Page 1 of 3)

Sub-Ledger Value	Program	Trans Type	Action
Actual Quantity Actual Cost	Material Order Shipments, Purchase Order Receipts, Project Activity Recording, MO Direct/Pending Returns	RCT	Increase if receiving into a project location.
	Purchase Order Receipts, Voucher Maintenance, ERS Processor	PO-VAR	Increase or decrease actual cost.
	Project Activity Recording	ISS	Increase if issuing from a non-project location.
	Project Activity Recording, Project Labor Recording, Purchase Order Receipts	REG	Increase.
	MO Direct/Pending Returns, Project Activity Recording	RET	Decrease if returning from a project location to a non-project location.
	Project Activity Recording	RET-S	Decrease actual quantity if returning to a non-project location.
	MO Direct/Pending Returns, Material Order Shipments	MO-RET	Decrease if transferring from a project location to a non-project location.
	MO Direct/Pending Returns	MO-RET-S	Decrease actual quantity if returning from a project location to a non-project location.
WIP Quantity WIP Cost	Material Order Shipments, Purchase Order Receipts, Project Activity Recording, MO Direct/Pending Returns	RCT	Increase if receiving into a project location and Project Inventory in Sub-Ledger WIP is Yes.
	Purchase Order Receipts, Voucher Maintenance, ERS Processor	PO-VAR	Increase or decrease WIP cost.
	Project Activity Recording	ISS	Increase if issuing from a non-project location or Project Inventory in Sub-Ledger WIP is No.
	Project Activity Recording, Project Labor Recording, Purchase Order Receipts	REG	Increase.
	Project Activity Recording	RET	Increase if returning to a non-project location or Project Inventory in Sub-Ledger WIP is No.

Table 7.2 — Sub-Ledger Effects of Project Transactions — (Page 2 of 3)

Sub-Ledger Value	Program	Trans Type	Action
	Project Activity Recording, MO Direct/Pending Returns	RET-S	Increase if returning to a non-project location or Project Inventory in Sub-Ledger WIP is No.
	MO Direct/Pending Returns, Material Order Maintenance, Material Order Shipments	MO-RET	Decrease if transferring from a project location to a non-project location and Project Inventory in Sub-Ledger WIP is Yes.
	MO Direct/Pending Returns	MO-RET-S	Decrease if transferring from a project location to a non-project location and Project Inventory in Sub-Ledger WIP is Yes.
	Invoice Post	INV	Decrease.
	Project Activity Close	VAR	Increase or decrease.
	Voucher Maintenance, ERS Processor	AP-CLS	Increase or decrease WIP cost.
	Project Accounting Close	CLS-WIP	Set to zero.
Issued Quantity Issued Cost	Project Activity Recording	ISS	Increase.
	Project Activity Recording, Project Labor Recording, Purchase Order Receipts	REG	Increase.
	Project Activity Recording	RET	Decrease.
	Project Activity Recording	RET-S	Decrease issued quantity.
PO Variance Amount	Purchase Order Receipts, Voucher Maintenance, ERS Processor	PO-VAR	Increase or decrease.
Quantity to Invoice	Invoice Generation	SEL	Increase.
	Invoice Post	INV	Decrease.
Quantity Invoiced Amount Invoiced	Invoice Post	INV	Increase.

Table 7.2 — Sub-Ledger Effects of Project Transactions — (Page 3 of 3)

Project Reports

A number of reports and inquiries let you evaluate projects and track their progress over the project life cycle. The following sections give a brief overview of the reporting tools available in PRM and an explanation of the data that each provides.

The simple browse, inquiry, and report functions summarized in Table 7.3 are not described in the following sections. The purpose of these functions is to display field data from their associated maintenance functions in a summarized, read-only format.

Table 7.3
Simple Reports, Inquiries, and Browsers in PRM

Menu Number	Description
10.5.21.2	PAO Status Code Browse
10.5.21.5	PAO Default Browse
10.19.2	Project Pricing Inquiry
10.19.3	Project Pricing Report
10.21.14	Default PRM Site Browse
10.21.15	Default PRM Site Report
10.21.22	Project Type Inquiry
10.21.23	Project Type Report

In addition, the reports and inquiries included on the Material Order Menu (10.7) and the setup menus that PRM shares with SSM are not discussed here. These are covered in *User Guide: Service/Support Management*.

For a list of PRM programs with shared SSM programs highlighted, see Table 1.1 on page 9.

Project Inquiry

Use Project Inquiry (10.1.2) to review basic information about a project, its associated subprojects, and, optionally, project lines. The level of detail displayed in the output depends on the value of Show Project Structure.

When Show Project Structure is No, details about subprojects display, including start and end dates and status. When Yes, project-line details display, including descriptions, item and service category identifiers, units of measure, and actual and planned quantities from the project sub-ledger.

Project Detail Inquiry

Use Project Detail Inquiry (10.1.3) to review summary-level or detailed information about a particular project, depending on the values of Show Subprojects and Show Project Lines.

When Show Subprojects and Show Project Lines are both Yes, the inquiry output displays most of the same fields included in the Project Maintenance (10.1.1) screens. The sub-ledger values associated with each project line are also shown.

See “Project Line Sub-Ledger Details” on page 91.

Project Print

Use Project Print (10.1.4) to generate a summarized report of project data. As with other order print functions, Project Print is typically used to generate a report for submitting to customers. The report layout is determined by the form code specified in the selection criteria.

The printed document has the following sections:

- The header contains the project ID, header data, and, optionally, project comments.
- The subproject sections include the subproject ID, description, total price, work code, variation indicator, and, optionally, subproject comments.

- The line-item sections (optional) list line numbers, item numbers and service category identifiers, planned quantities, units of measure, per-unit and extended prices, subassembly and variation indicators, and, optionally, project-line comments.

Note When Auto Price Rollup is No on the project header, unit and extended prices are not included in the line-item details, since these are not used to calculate subproject or project prices. See “Project Pricing” on page 48.

- The trailer section (optional) includes the project price with and without tax, the tax date, project currency, tax amount, prepayment amounts, and the total project price minus the prepayment amounts (Balance).

Project Budget Report

Use Project Budget Report (10.3.13) to review details for project budgets defined in Project Budget Rollup (10.3.1) or Project Budget Maintenance (10.3.3). Data reported for each selected budget include the following:

- Total (cost) and consumed budget amounts
- Percentage consumed (budget cost/consumed amount * 100)
- Total price of the budgeted project-line quantities, when applicable
- Margin percentage (budget price – budget cost * 100), when applicable

See “Managing Project Budgets” on page 67.

Prices and margin percentages display for individual budget records when at least one of the following is true:

- Auto Price Rollup is Yes on the selected project. See page 48.
- Budgets are by level total. See page 70.

Using the five Include fields in the selection criteria, you can choose to:

- Report either subproject- or project-level budgets, or both.
- Report budgets created with a particular budget basis: either work code and service category combinations, invoice sort codes, level total, or any combination of these.

Leave all the Include fields set to Yes to report all project budgets that match the other selection criteria.

PAO Inquiry

Use PAO Inquiry (10.5.2) to review basic header information for the PAOs associated with a particular project. You can choose to exclude closed PAOs or display only PAOs with a blank header engineer. For each PAO selected, the system displays its associated ID, start and end dates, work code, type, status, assigned engineer, and area code.

To view more detailed information for a range of PAOs, use PAO Planned Detail Inquiry (10.5.4) or PAO Print (10.5.5). The output for these functions includes PAO line details in addition to header data.

PAO Planned Detail Inquiry

Use PAO Planned Detail Inquiry (10.5.4) to review detailed information about PAOs associated with a particular project, including header details and some line-item data. The inquiry output includes PAO header data and detailed information from each selected PAO line and its associated project line. The line details displayed include:

- The PAO- and project-line numbers
- The item number or service category code from the project line
- The PAO line type (I, M, or A). See page 76.
- The subassembly value from the project line
- The PAO-line quantity ordered
- The associated material order number, when applicable

PAO Print

Use PAO Print (10.5.5) to generate a report of PAO header data and line details. Project engineers can use this report to determine the remaining steps required to complete a PAO or range of PAOs.

The printed document has the following sections:

- The header contains PAO header data such as the PAO ID, engineer, work code, status, start and end dates and, optionally, PAO comments. Some header details from the related project, such as the project ID, project type, and sold-to and ship-to address information, are also included.
- The line details section includes PAO line details such as the PAO line number and line type, item or category identifier, quantity ordered, related project-line data, worksheet ID, material order ID and line number, and the quantity processed for the line. When Quantity Processed is 0 (zero), a blank space displays so the engineer can fill in the correct amount manually.
- A series of blank lines prints at the bottom of the report for engineer notes.

Invoice Schedule Inquiry

Use Invoice Schedule Inquiry (10.9.2) to review summarized invoice schedule data for a particular project or bill-to customer or for all projects in the system. The output includes project, subproject, and invoice schedule IDs; bill-to customer codes, schedule and release dates, pending invoice and printed invoice numbers, invoice amounts, and project currency codes.

To view more detailed invoice schedule information using a wider range of selection criteria, use Project Invoice Detail Report (10.11.19).

See page 198.

Project Report

Use Project Report (10.11.1) to generate a detailed report of project data including header, subproject, and line details in addition to project prices, planned costs, and the differences between prices and costs, expressed as margin percentages.

Note When Auto Price Rollup is No on the project header, the report output does not include prices and margin percentages for individual project lines. See “Project Pricing” on page 48.

Fields in the selection criteria frame of Project Report let you include or exclude the following output data:

- Project header details
- Project trailer details
- Margin percentages
- Comments
- Variation lines and subprojects
- Closed projects

Project Transactions Inquiry and Report

Use Project Transactions Inquiry (10.11.7) and Project Transactions Report (10.11.8) to review transaction history records that the system generates to record project-related activities and updates. These records are created only when Generate Transaction History is Yes in Project Realization Control (10.24).

See “Generate Transaction History” on page 42.

Information displayed for each transaction includes:

- The related project ID, line number and unit of measure
- The transaction number
- The transaction date and time
- The ID of the user that initiated the transaction
- The quantity and unit cost associated with the transaction (transaction quantity and unit value)

When the transaction affected more than one project, such as a material order (MO) shipment from one project’s location to a different project’s location, the project ID of the related project is also shown in the output.

For each transaction, the system displays a transaction indicator showing whether the transaction was for an item, labor, or an expense and a transaction type code identifying the activity that generated the transaction.

For a list of transaction types, see Table 7.1 on page 189.

The output for both functions also includes a list of the quantities and costs that the system tracks against each project line and any changes to these amounts that result from transaction activity. Most of these quantities and costs are also shown in the project-line sub-ledger frame, which displays in Project Detail Inquiry (10.1.3) and the line detail section of PAO Maintenance (10.5.1).

See “Project Line Sub-Ledger Details” on page 91.

Project-PAO WIP Report

Use Project-PAO WIP Report (10.11.14) to review accumulated planned, in-progress, and issued costs for issue lines on PAOs. Report data are organized first by project, then by PAO. PAO data, in turn, can be summarized or sorted by subproject, PAO line, service category, or invoice sort, depending on how various fields are set in the selection criteria.

To calculate the planned, in-progress, and issued costs displayed in the report output, the system multiplies the ordered, in-progress, and issued quantities from each applicable PAO line by the planned cost from the associated project line. Only issue lines (PAO line type I) are considered by these calculations. Move and assembly lines (line types M and A) are excluded.

For more information on these quantities, see “PAO Line Details” on page 88.

Also included in the report output is the estimated cost to complete each reported PAO line or group of lines. This value is calculated for a PAO line using the following equation:

$$\text{Cost to Complete} = (\text{Quantity Ordered} - \text{Quantity Issued}) * \text{Planned Unit Cost}$$

The quantity ordered and issued are from the PAO line details, while the planned unit cost is from the associated project line. Any quantity planned on the project line but not yet placed on a PAO is not considered when calculating the cost to complete a PAO line.

Note The costs shown on this report are calculated by multiplying PAO quantities by project-line planned costs. The actual issue costs of project items, labor, and expenses, as recorded in PAR and used to update the project sub-ledger fields, are not considered.

PAO WIP Status Report

Use PAO WIP Status Report (10.11.15) to review planned quantities for project lines and ordered, in-progress, and processed quantities for PAO lines. In addition, this report displays information about purchase order and material order lines associated with each project or PAO line.

Note Purchase order lines can be created manually in Purchase Order Maintenance (5.7) or automatically generated from MOs using Enterprise Material Transfer functions.

For each project line on a PAO, the report displays:

- Purchase order IDs, line numbers, line-item due dates, open and received quantities, and units of measure for purchase order lines
- For purchase order lines generated by EMT, the MO and line number that generated the purchase order line

For each PAO line, the report displays:

- The associated MO ID, line number, UM code, and quantities ordered, shipped, and returned against the MO line
- For an EMT MO line, the associated purchase order ID and line number

Note More than one MO line can be associated with a particular PAO line. When this is true, multiple MO lines display. However, the PAO quantity fields are filled in for the first MO only.

Report data are organized first by PAO, then either by project-line number or project-line service category, depending on how the Sort by fields are set in the selection criteria.

Project WIP Report

Use Project WIP Report (10.11.16) to display summary-level information related to project quantities and costs. Report data are organized first by project, then by subproject. Project subtotals print if that option is selected, but only if you have chosen to display costs.

Costs can be displayed in the system base currency, the project currency, or any other reporting currency.

For each project line included in the report criteria, the report displays planned, actual, WIP, issued, invoiced, and to-complete quantities and costs.

Project Invoice Detail Report

Use Project Invoice Detail Report (10.11.19) to review invoicing information for a range of projects or other criteria. The report summarizes invoice schedule data by subproject only or by project and subproject, depending on whether a subproject range is specified in the selection criteria.

When the subproject selection range is blank, a summary line displays data such as the total price, scheduled prepayment amount, and invoiced amount for each selected project. All amounts display in the applicable project currency. The summary line for each subproject displays the same data as for a project, except that only subproject-level schedules are considered.

A Report Total line, included at the bottom of the report, summarizes scheduled, invoiced, and prepayment amounts across all the schedules considered by the report and displays these summarized amounts in the system base currency.

The report output also includes one or both of the following types of information:

- Summarized header data for each selected project and subproject
- A detailed listing of invoice schedule data for each selected project and subproject

Which information types are included depends on how the Schedule Details and Sched Details Only fields are set in the selection criteria.

Project Line Close Report

Use Project Line Close Report (10.23.1) to generate a report indicating which project lines, subprojects, and projects can be closed by Project Activity Close (10.23.2).

For details, see “Project Line Close Report” on page 183.

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