End-User Course

Projects

Projects for Construction 2022 R1

Revision: 5/9/2022

Acumatica
The Cloud ERP

Contents

Copyright

How to Use This Course

This end-user course provides a set of lessons that illustrate the processes of construction project management in a midsize company. In the course, you will learn about the construction projects in Acumatica ERP. After you complete the course, you will have an understanding of how to create and bill construction projects in Acumatica ERP, and will understand the structure of the project budget. Also, you will learn how to track changes on projects, and how to protect project data from editing. You will also learn how to capture project costs, prepare project payments, and process subcontracts as cost commitments to projects. You will prepare and review construction-specific reports. Finally, you will learn about the project management functionality, including processing of project issues, requests for information, and daily field reports.

What Is in This Guide

The guide includes the *Company Story* topic and process activities. *Company Story* explains the organizational structure of the company preconfigured in the *U100* dataset, as well as the company's business processes and requirements. Each of the process activities of the course is dedicated to a particular user scenario and consists of processing steps that you complete.

> (i) The process activities are independent and can be completed in any order.

Which Training Environment Is Needed

All lessons of the course should be completed on an instance of Acumatica ERP 2022 R1 Update 3 or later with the *U100* training dataset preloaded; this dataset provides the predefined settings and entities you will need as you complete the activities of this course.

You or your system administrator prepare an instance of Acumatica ERP 2022 R1, as described in the *How to Create a Tenant with the U100 Dataset* section below.

What Is in a Lesson

Each lesson provides a story describing a particular user scenario and an overview of the relevant features that have been enabled in the system; configuration settings that are related to the described scenario are also listed. The lesson provides a brief overview of the process that should be performed to complete the described scenario, and instructions that guide you through the process in Acumatica ERP.

> ⚠ The lessons are independent and can be completed in any order. However, depending on the sequence in which you take the course lessons, the values in the screenshots may differ from the values in the system.

What Are the Documentation Resources

Acumatica ERP provides a wide variety of documentation resources, which you can access from this course, from the system, or from the *Documentation Portal* website. Applicable links are provided at relevant places throughout the course. The complete Acumatica ERP documentation is available on *https://help.acumatica.com/* and is included in the Acumatica ERP instance.

While viewing any form used in the course (or any other Acumatica ERP form), you can click the **Open Help** button in the top pane to bring up a form-specific Help menu; you can use the links on this menu to quickly access form-related concepts and procedures and to open a reference topic with detailed descriptions of the form elements.

How to Create a Tenant with the U100 Dataset

Before you complete this course, you need to add a tenant with the *U100* dataset to an existing Acumatica ERP instance. You will then prepare the tenant for completing the activities. To complete this preparation, perform the following instructions:

1. Go to *Amazon Storage*.

2. Open the folder that corresponds to the version of your Acumatica ERP instance.

3. In this folder, open the Snapshots folder, and download the u100.zip file.

4. Launch the Acumatica ERP instance, and sign in.

5. Open the *Tenants* (SM203520) form, and click **Add New Record** on the form toolbar.

6. In the **Login Name** box, type the name to be used for the tenant.

7. On the form toolbar, click **Save**.

8. On the **Snapshots** tab, click **Import Snapshot**.

9. In the **Upload Snapshot Package** dialog box, select the u100.zip file, which you have downloaded, and click **Upload**.

   The system uploads the snapshot and lists it on the **Snapshots** tab of the *Tenants* form.

10. On the form toolbar, click **Restore Snapshot**.

11. If the **Warning** dialog box appears, click **Yes**.

12. In the **Restore Snapshot** dialog box, make sure that the correct snapshot package is being uploaded, and click **OK**. The system will restore the snapshot and sign you out.

   You are now on the Sign-In page, and you can sign in to the tenant you have just created.

Licensing Information

For the educational purposes of this course, you use Acumatica ERP under the trial license, which does not require activation and provides all available features. For the production use of this functionality, you have to activate the license your organization has purchased. Each particular feature may be subject to additional licensing; please consult the Acumatica ERP sales policy for details.

Company Story

This topic explains the organizational structure and operational activity of the company you will work with during this training.

Company Structure

The SweetLife Fruits & Jams company is a midsize company located in New York City. The company consists of the following branches:

- SweetLife Head Office and Wholesale Center: This branch of the company consists of a jam factory and a large warehouse where the company stores fruit (purchased from wholesale vendors) and the jam it produces. Warehouse workers perform warehouse operations by using barcode scanners or mobile devices with barcode scanning support.
- SweetLife Store: This branch has a retail shop with a small warehouse to which the goods to be sold are distributed from the company's main warehouse. This branch is also planning on selling goods via a website created on an e-commerce platform to accept orders online. The e-commerce integration project is underway.
- Service and Equipment Sales Center: This branch is a service center with a small warehouse where juicers are stored. This branch assembles juicers, sells juicers, installs juicers, trains customers' employees to operate juicers, and provides juicer servicing.

The ToadGreen Building Group is a subsidiary of the SweetLife Fruits & Jams company. ToadGreen Building Group—which is located in New York—is a general contractor coordinating construction projects for governmental and commercial customers. The company has only one branch, ToadGreen Building Group, in which the corresponding projects are being managed and all construction-related tasks are recorded.

The Muffins & Cakes company is a subsidiary SweetLife Fruits & Jams company. Muffins & Cakes—which is located in Denver, Colorado—consists of the following branches:

- Muffins Head Office and Wholesale Center: This branch owns a bakery and a wholesale warehouse where products are stored.
- Muffins Retail Shop: This branch, which sells products to retail customers, has a retail shop with a small warehouse.

Operational Activity

The company has been operating starting in the *01-2021* financial period. In November 2021, the company started using Acumatica ERP as an ERP and CRM system and migrated all data of the main office and retail store to Acumatica ERP. The equipment center has begun its operations in *01-2022* in response to the company's growth.

In October 2021, the company received an investment and opened a subsidiary company for construction (ToadGreen). In February 2022, the company started its first construction project.

The Muffins & Cakes company was established in January 2021 and started using Acumatica ERP at the end of the *01-2022* financial period.

The base currency of the company and its subsidiaries is the U.S. dollar (USD). All amounts in documents and reports are expressed in U.S. dollars unless otherwise indicated.

Company Purchases

The company purchases fruits and spices from large fruit vendors for sale and for jam production. For producing jams and packing jams and fruits, the company purchases jars, labels, and paper bags from various vendors. For the internal needs of the main office and store, the company purchases stationery (printing paper, pens, and pencils), computers, and computer accessories from various vendors. The company also purchases juicers

and juicer parts for sale from a large juicer vendor and either purchases the installation service for the juicers or provides the installation service on its own, depending on the complexity of the installation.

The Muffins & Cakes company also purchases stationery (printing paper, pens, and pencils) and advertising services.

Company Sales and Services

Each company's branch has its own business processes, as follows:

- SweetLife Head Office and Wholesale Center: In this branch, jams and fruit are sold to wholesale customers, such as restaurants and cafes. The company also conducts home canning training at the customer's location and webinars on the company's website.
- SweetLife Store: In the store, retail customers purchase fresh fruit, berries, and jams, or pick up the goods they have ordered on the website. Some of the goods listed in the website catalog are not stored in the retail warehouse, such as tropical fruits (which are purchased on demand) and tea (which is drop-shipped from a third-party vendor).
- Service and Equipment Sales Center: This branch assembles juicers, sells juicers, provides training on equipment use, and offers equipment installation, including site review and maintenance services. The branch performs one-time endeavors as well as complex projects with their own budgets.

The company has local and international customers. The ordered items are delivered by drivers using the company's own vehicle. Customers can pay for orders by using various payment methods (cash, checks, or credit cards).

The Muffins & Cakes branches have the following business processes:

- Muffins Head Office & Wholesale Center: In this branch, baked goods and products for baking are sold to wholesale customers, such as restaurants and cafes. The company also conducts baking classes at customer locations.
- Muffins Store: In the store, small retail customers purchase baked goods, or pick the goods ordered on the website.

Lesson 1: Reviewing the Project Settings and Life Cycle

Project Creation and Processing: General Information

A project in Acumatica ERP is a one-time endeavor with its own budget, costs, and revenues; the funding and deliverables of a project are usually finite. In the system, a project contains various specifications that affect project completion, such as the date range, customer, and resources (including employees and equipment).

Learning Objectives

In this chapter, you will learn how to do the following:

- Plan a project structure
- Create a project and specify its settings
- Plan the structure of the project budget
- Process a project during its lifecycle

Applicable Scenarios

You create a project to plan work to be performed for a customer, define budgets for the planned work, track the progress of completion of the planned work, bill the customers for the provided services, and track the costs and revenues of the provided services.

Type of Projects

You can use projects for tracking activities involving customer interaction (external projects) and in-house work (internal projects). The key objective of external projects is balancing costs and income to make sure the organization remains profitable, while meeting project goals and maximizing customer satisfaction. The scope of internal projects is typically limited to the physical and organizational boundaries of your organization; these projects serve the needs of the organization and never produce any revenue.

Depending on which activities you are going to track, you can configure projects of the following types:

- A fixed-price project, which is an external project in which services and products are provided to customers at a fixed price; the price of the project is defined at the beginning of the project and is not changed during its completion (unless any change orders are processed for the project).
- A cost-plus project, which is an external project in which the prices are calculated as a percentage of the costs. The final price of the cost-plus project depends on the overall cost of fulfilling the project, and the costs may be billed with or without a premium.
- An internal project, which is used to track activities completed within your company. The scope of these projects is limited to the physical and organizational boundaries of an organization; these projects serve the needs of the organization and never produce any revenue. Internal projects have budgets, do not include billing settings, and are not associated with any customer.

Project Settings

You create a new project and specify its settings on the *Projects* (PM301000) form. When you are manually adding a new project to the system, you enter the following information:

- General information: This information includes the description, start date, end date, and billing period. You also determine when the project is billed: on the date of the customer statement, at the end of each month, at the end of each quarter, or at the end of each year.
- Project tasks: You must define the project tasks of the project. A project task in a project is a separate work unit with its own lifecycle, budget, cost, revenue, and billing rule. Budgeted, revised, and actual amounts in the project are tracked by account group balances, each of which is the total of all the corresponding amounts in the project tasks. That is, the project does not have any balances beyond those in the project tasks of the project.
- Employees: You specify the employees to be involved in the project. If needed, you can specify different labor classes for regular working hours and for overtime hours.
- Equipment: You can list the equipment to be used in the project. For a particular piece of equipment, you can override the default run, standby, and suspend rates.
- Budget: You specify the budget, which holds the estimated expenses and revenues for a project.
- Attributes: You can specify attribute values for the project if any attributes have been assigned to projects on the *Project Attributes* (PM202000) form and for project tasks if any attributes have been assigned to tasks.

Cost Codes: General Information

A cost code represents an additional classification level for project revenues and costs in a construction project. You can associate cost codes with system documents and document lines in which projects are referenced, such as general ledger transactions, accounts payable bills, purchase orders, accounts receivable invoices, expense entries, time cards, and lines of project budgets.

Learning Objectives

In this chapter, you will learn how to do the following:

- Plan the structure of cost codes to be used in construction projects
- Configure the structure of the cost code identifier and define cost codes
- Configure cost code tracking in the revenue budget lines of the project budget
- Configure cost code tracking in the cost budget lines of the project budget

Applicable Scenarios

You create cost codes and configure a project to use these cost codes if you need to further classify revenues and expenses in a budget of a construction project.

Cost Code Configuration

By tracking revenues and expenses by cost codes, you can analyze how much each project task costs, what the revenue is, and how the tracked values compare with the budgeted ones.

To define the cost codes to be used in your projects, you need to perform the following tasks:

1. Plan the structure of cost code identifiers and the cost codes to be used based on the processes in your organization.
2. Modify the *COSTCODE* segmented key based on your planned structure, if necessary.
3. Add the planned cost codes to the table on the *Cost Codes* (PM209500) form.
4. Configure the use of cost codes in the cost budget and revenue budget of a particular project.

You can prepare the list of cost codes in an `.xlsx` or `.csv` file and upload the file to the *Cost Codes* form. Alternatively, you can add cost codes one by one on the form.

Project Budget Tracking by Cost Codes

When you create a document or a document line (or both) that you want to associate with a particular cost code, you first specify the applicable GL account, project, and project task for the line; you then assign the appropriate cost code to the line. In the lookup table that opens when you click the selector button on the applicable form, the system lists the cost codes that are used in budget lines of the project you have selected for the document or document line. The lookup table also lists the budget lines that have the same project task and the account group that corresponds to the GL account selected for the document or document line. You can select any of the available cost codes, or select a cost code that has not yet been used for the combination of project, project task, and account group.

For a project, on the **Summary** tab (**Project Properties** section) of the *Projects* (PM301000) form, you can use the **Revenue Budget Level** and **Cost Budget Level** boxes to specify the way the system represents budget lines and classify revenues or expenses by cost codes as well as other factors. You do this by selecting the needed options in the **Revenue Budget Level** and **Cost Budget Level** boxes as follows:

- If you select *Task and Cost Code* or *Task, Item, and Cost Code* in the **Revenue Budget Level** box, you can view revenue budget lines by cost codes on the **Revenue Budget** tab of the *Projects* form for the project, and you can bill the project with the selected revenue budget level for progress.
- If you select *Task and Cost Code* or *Task, Item, and Cost Code* in the **Cost Budget Level** box, you can view cost budget lines by cost codes on the **Cost Budget** tab of the *Projects* form for the project. You can also bill the project with the selected cost budget level for time and material.

You can change the cost code for each cost budget or revenue budget line manually, if needed.

Project Creation and Processing: Project Lifecycle

In Acumatica ERP, a project is a one-time or recurring endeavor with a specific scope, time frame, and budget. The following diagram shows the stages a project goes through and the statuses it is assigned from the project's initiation to its completion.

Understanding the project life cycle
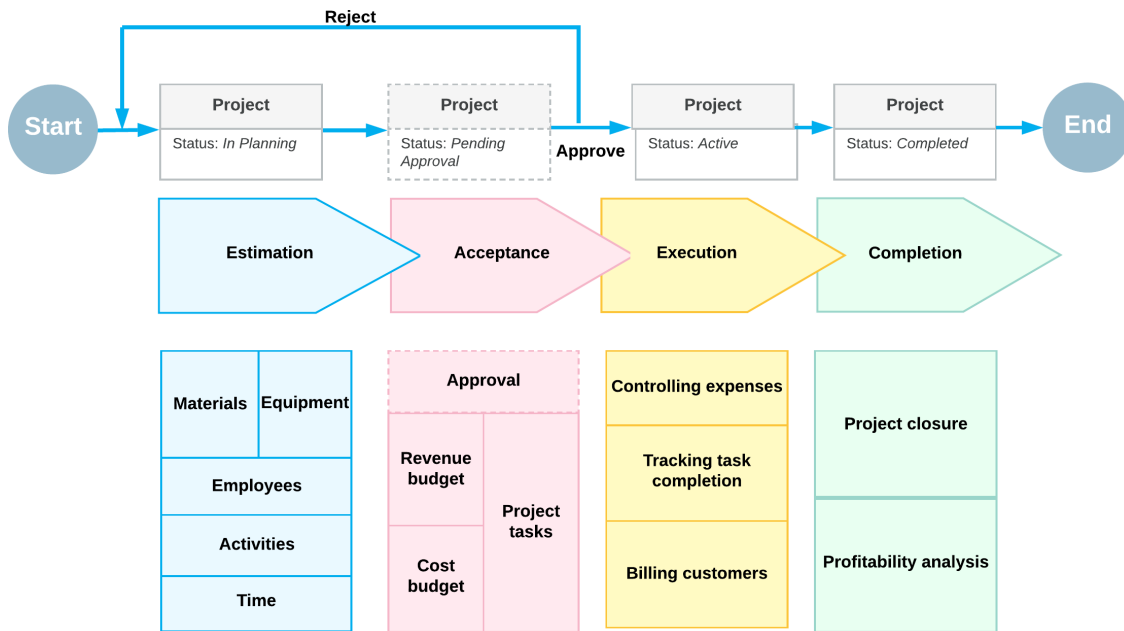
The stages are described in greater detail in the sections below.

Project Estimation

During the project estimation stage, you specify project settings on the *Projects* (PM301000) form, define activities, estimate the time required for the completion of each project task, and populate the project with employees, resources, and equipment. Each project is assigned the *In Planning* status once it has been created and saved in the system.

Projects and project tasks with the *In Planning* status cannot be selected in any documents, except for the following types of documents that are available for planning:

- Employee activities. For instance, you can add an employee activity for planning budgets for project tasks. However, the transactions generated for any of these activities cannot be released until the corresponding project and project task are assigned the *Active* status.
- Project commitments (purchase orders and subcontracts). Planned project commitments could be processed after the corresponding project and project task are assigned the *Active* status.

Project Acceptance

The acceptance stage includes reaching an agreement with all the stakeholders, including customers and employees, as well as estimating the budget for the project and the expenditures it will entail.

If the approval of projects is required in your system, the project is submitted for approval and is assigned the *Pending Approval* status once it is taken off hold. The project has this status until it is approved or rejected on the *Approvals* (EP503010) form by an assigned employee. If approved, the project is assigned the *Active* status. If rejected, the project is assigned the *In Planning* status and requires additional changes before it can be submitted for approval again. For more information on approvals, see *Approval of Projects and Project-Related Activities*.

Project Execution

During the execution stage, the project is in progress and project transactions can be posted to it. In this stage, the project retains the *Active* status. Active projects and their project tasks are available for selection on the forms of the functional areas in which the projects are visible. When you create a project-related transaction or document, you need to specify the specific project and project task to indicate that this transaction or document must be tracked within the project; also, you can specify whether the transaction or document is billable. Transactions in which the non-project code is specified are not tracked in any project.

If any budget changes occur during the course of the project, the system preserves the initial budget amounts, and tracks the revised figures for the project budget.

Project Completion

Project tasks are completed individually; the completion of a project task does not affect the completion of the project to which the task belongs. Once the project is finished, the project accountant completes it by manually assigning it the *Completed* status, and analyzes the project profitability. Project transactions can no longer be posted to a project with the *Completed* status.

> (i) To simplify the tracking of the project completion percentage, you can create a separate dedicated task and use it exclusively to manually specify the project completion percentage, which you evaluate by using all the information available about the progress of project tasks and project-related transactions.

Construction Project Budget: To Review Project Balance

The following activity will walk you through the process of reviewing the structure, settings, and balances of a project.

Story

Suppose that ToadGreen Building Group is a general contractor building an Italian restaurant for its customer, the Italian Company. A ToadGreen manager has created a project for the work to be performed, and the budget has been agreed on with the customer.

Acting as the construction project manager, you need to review the project balances to become familiar with the project and gather all the information about performed work.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the *Construction* and *Construction Project Management* features have been enabled.
- On the *Projects* (PM301000) form, the *ITALIAN* project has been defined.

System Preparation

To sign in to the system and prepare to perform the instructions of the activity, do the following:

1. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded; you should sign in as construction project manager by using the *ewatson* username and the *123* password.

2. On the *Projects Preferences* (PM101000) form, on the **General** tab (**General Settings** section), select the **Internal Cost Commitment Tracking** check box, and save your changes to the project accounting preferences. This exposes the committed values of the budget.

Step 1: Reviewing the Billing Settings of the Project

To review the main settings and the structure of the project for the Italian Company, do the following:

1. On the *Projects* (PM301000) form, open the *ITALIAN* project.

    In the Summary area of the form, notice that the project's status is *Active*. With this status, transactions and documents can be recorded on this project. Also notice that the project is being performed for the *ITACOM* customer.

2. On the **Summary** tab, review the billing settings of the project:

    *   The billing rule specified in the **Billing Rule** box (*TM*) is used as the default value for newly created project tasks. A billing rule determines how progress billing amounts or project transactions (or both) are billed for the project.

    *   **Billing Period** is set to *Month*, which means that **Next Billing Date** is auto-incremented by a month after every run of the project billing process. The billing period can be specified for a new project and cannot be changed thereafter.

    *   The **Create Pro Forma Invoice on Billing** check box is selected, which means that during the project billing process, the system creates a pro forma invoice. A pro forma invoice can be created only automatically during the project billing process. On release of the pro forma invoice, an AR invoice is created.

3. On the **Tasks** tab, make sure that all the project tasks have the *Active* status (as shown in the screenshot below). With this status, transactions and documents can be recorded to those tasks. Notice that the **Billing Rule** column is filled in for all tasks—that is, a billing rule is specified at the project task level. You can change a billing rule for any particular task, which provides a high level of flexibility of project billing configuration.

Figure: Project tasks of the ITALIAN project

Step 2: Reviewing Project Budget

Perform the following instructions to review how the project balances are tracked:

1. While you are still viewing the *ITALIAN* project on the *Projects* (PM301000) form, on the **Summary** tab, review the **Cost Budget Level** setting, which defines the level of detail for the budget structure on the **Cost Budget** tab. The selected level of detail, *Task and Cost Code*, indicates that the budget figures and the auto-calculated values are determined for the project by account group, project task, and cost code. Corresponding columns with these settings are available for reviewing and editing on the **Cost Budget** tab.

2. On the **Cost Budget** tab, select the **Group by Task** check box. The system groups the cost budget lines with the same task in a single line and shows the total for each column of the table in the bottom-most row.

3. Move the **Potential CO Amount** column by dragging it after the **Revised Budgeted Amount** column, and review the cost budget of the project. The cost budget information is divided to the following *buckets*—that is, groups of columns with similar budget information (see the screenshot below):

   - Budgeted, (the columns with **Budgeted** in the names; see Item 1 in the screenshot below): The planned costs of the project. Original budgeted values are entered manually for the project on the **Cost Budget** tab of the *Projects* form, or on the *Project Budget* (PM309000) form. Revised budgeted values can also be entered manually if change orders are not used.

   - Potential (the **Potential CO Amount** column; Item 2): The total amount and total quantity of change requests that are not yet included in any change order and of non-closed change orders with the same project, project task, account group, cost code, and inventory item. These totals are calculated automatically.

   - Committed (the columns with **Committed** in their names; Item 3) The total amounts and total quantities of commitments (subcontracts and purchase orders), with a breakdown by the stage of the process (such as open or invoiced). These totals are calculated automatically.

   - Actual (the columns with **Actual** in their names; Item 4): The total amounts and total quantities of project transactions released. These totals are calculated automatically.

D	*Project Task	Description	UOM	Original Budgeted Amount	Budgeted CO Amount	Revised Budgeted Amount	Potential CO Amount	Original Committed Amount	Committed CO Amount	Revised Committed Amount	Committed Invoiced Amount	Committed Open Amount	Actual Amount	Actual + Open Committed Amount
>	01	GENERAL REQUIREMENTS		150,551.00	0.00	150,551.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	03	CONCRETE		113,990.00	0.00	113,990.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	04	MASONRY		71,250.00	0.00	71,250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	06	WOOD, PLASTICS, COMPOSITES		121,025.00	0.00	121,025.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	07	THERMAL AND MOISTURE PROTECTION		128,195.00	0.00	128,195.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	08	OPENINGS		73,200.00	0.00	73,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	09	FINISHES		416,725.00	0.00	416,725.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10	SPECIALTIES		23,010.00	0.00	23,010.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	11	EQUIPMENT		108,000.00	0.00	108,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	15	MECHANICAL PIPING		344,850.00	0.00	344,850.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	16	ELECTRICAL		135,000.00	0.00	135,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Total:		1,685,796.00	0.00	1,685,796.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure: Cost budget information of the project

4. On the **Summary** tab of the *Projects* form, review the **Revenue Budget Level** setting, which defines the level of detail for the budget structure on the **Revenue Budget** tab. The selected level of detail, *Task and Cost Code*, indicates that the budget figures and the auto-calculated values are determined for the project by account group, project task, and cost code. Corresponding columns with these settings are available for reviewing and editing on the **Revenue Budget** tab.

5. On the **Revenue Budget** tab, review the revenue budget lines specified for the project (which is grouped into similar buckets as the cost budget lines).

   Notice that each record on the **Revenue Budget** tab has a unique combination of values in the **Project Task**, **Cost Code**, and **Account Group** columns (the *project budget key*). When a revenue project transaction is released, if there is a budget record with the project task, cost code, and account group that match the transaction, the actual quantity and actual amount are updated in that budget record. If there is no matching budget record, the system creates a new budget line with budgeted amounts of zero and with actual amounts from the transaction. The way the system updates the revenue budget of projects when a project transaction is posted depends on the option that is specified in the **Revenue Budget Update** box on the *Projects Preferences* (PM101000) form.

6. On the **General** tab of the *Projects Preferences* form, review the **Revenue Budget Update** setting, which is set to *Detailed*. This means that a new budget record is created with information from the project transaction at the budget level of detail. For the revenue budget of the *ITALIAN* project, this is the project task, cost code, and account group of the project transaction. The same update logic applies to commitments, change orders, and change requests.

   > (i) If you select *Summary* in this box, the budget records will be created with information from the project transaction grouped by project task and account group. This mode is useful if only certain articles are budgeted at a very detailed level, but there may be many transactions processed with different cost codes and items, and all those miscellaneous transactions are budgeted in a single line of a project.

   The structure of cost budget is determined independently from the revenue budget structure. Similar rules apply to the cost budget structure of a project. Thus, the **Cost Budget Level** setting can be specified for a project on the **Summary** tab of the *Projects* (PM301000) form, and the respective **Cost Budget Update** setting (*Summary* or *Detailed*) is specified on the **General** tab of the *Projects Preferences* form; this setting determines the level of detail for the budget record that is created if there is no matching record (that is, a record with the same project budget key) for a cost project transaction being released.

Lesson 2: Processing Subcontracts

Subcontracts: General Information

In Acumatica ERP Construction Edition, subcontract is a document that represents a commitment with a third-party vendor (subcontractor) to provide services for a project.

Learning Objectives

In this chapter, you will learn how to do the following:

- Create a subcontract
- Add lines related to a particular project to a subcontract
- Enter the accounts payable bill for the subcontract

Applicable Scenarios

You enter and process subcontracts for a project when your company hires another company to perform a part of the work for a project.

Subcontract Processing

In general, the *Subcontracts* (SC301000) form is the starting point for creating a subcontract. In a newly created subcontract, you should first select the vendor (that is, the subcontractor who will provide the services). Then on the **Details** tab, you list the lines that represent the work and services that will be performed by the subcontractor.

For each line, you specify the project budget key—that is, the project, the project task, and, optionally, the inventory ID and cost code—to record this commitment to the cost budget of the project. In a line, you can leave the **Inventory ID** box empty, or specify a non-stock item that does not require a receipt (that is, an item that has the **Require Receipt** check box cleared on the **General** tab of the *Non-Stock Items* (IN202000) form).

You can also add lines from a particular project. To do this, you click the **Add Project Item** button on the table toolbar of this tab; in the **Add Project Items** dialog box, which opens, you select the project and the applicable cost budget lines of this project.

Once the services have been provided by the subcontractor, you need to process an accounts payable bill. On release of the bill, the system increases the vendor's balance in the system in the amount to be paid for received goods and updates the project's actual amount and quantity. If all the lines in the subcontract have been billed in full, the system assigns the subcontract the *Closed* status. For more information on the rules that affect line closing and completion, see *Stock Item Lines in Purchase Orders*.

Workflow of the Processing of a Subcontract

The typical process of working with subcontracts involves the actions and generated documents shown in the following diagram.

Purchase of services for a project from subcontractor

All actions on this diagram are performed by a user with the same job role

Cost Budget Tab
Inventory ID: NSTOCK (or Empty)
Project: PROJECT
Project Task: TASK
Account Group: AGROUP

Details Tab
Inventory ID: NSTOCK (or Empty)
Order Qty.: Purchased quantity
Amount: Purchased amount
Project: PROJECT
Project Task: TASK
Account: Expense account mapped to AGROUP account group

Commitment
Original Commited Quantity: Purchased quantity
Original Commited Amount: Purchased amount
Commited Open Quantity: Purchased quantity
Commited Open Amount: Purchased amount

Original Committed		Commited Open	
Quantity	Amount	Quantity	Amount

Projects (PM301000) form, Project ID: PROJECT, Cost Budget tab

Details Tab
Inventory ID: NSTOCK (or Empty)
Billed Qty.: Billed quantity
Billed Amount: Billed Amount

Details Tab
Inventory ID: NSTOCK (or Empty)
Quantity: Billed quantity
Amount: Billed Amount
Subcontract Nbr.: Subcontract reference number

	Projects (PM301000) form, Project ID: PROJECT, Cost Budget tab				
Commited Open		Commited Invoiced		Actual	
Quantity	Amount	Quantity	Amount	Quantity	Amount

LEGEND
- —— Addition
- —— Deduction
- —— Required action
- - - - - Optional action

Subcontracts: Process Activity

This activity will walk you through the process of working with a subcontract.

Story

Suppose that on February 1, 2022, the ToadGreen company hires a subcontractor, Standard Hardware Company, to install windows and doors in the hotel that is being built by ToadGreen. Both parties agree that the Standard Hardware Company will perform the installation of windows, the installation of doors and frames, and the building an entrance. Normally, this subcontractor does not require the printing of documents, but for this subcontract, the construction project manager of the ToadGreen company has decided to create and print the subcontract. On February 25, 2022, when the subcontractor finishes its part of the work and sends an invoice to ToadGreen, ToadGreen's project manager will create a bill and pay for the provided services.

Acting as the construction project manager, you will process all the needed documents in the system.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the *Construction* feature has been enabled.
- On the *Vendors* (AP303000) form, the *HARDCO (Standard Hardware Company)* vendor has been created.
- On the *Projects* (PM301000) form, the *HOTEL* project has been created.
- On the *Non-Stock Items* (IN202000) form, the *SUBCONTR* non-stock item, which represents the work performed by subcontractors, has been created.

Process Overview

To record the work performed by a subcontractor for the project, you will create a subcontract document with the subcontractor (vendor) specified on the *Subcontracts* (SC301000) form. Then you will print the subcontract. After that, you will create a bill for the provided services, removing the planned services that were not provided, on the *Bills and Adjustments* (AP301000) form, create a check for the bill on the *Checks and Payments* (AP302000) form, and process this check.

System Preparation

To prepare to perform the instructions of this activity, in the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *2/1/2022*. If a different date is displayed, click the Business Date menu button, and select *2/1/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Creating a Subcontract

To create a subcontract, do the following:

1. Open the *Subcontracts* (SC301000) form.

    > (i) To open the form for creating a new record, type the form ID in the Search box, and on the Search form, point at the form title and click **New** right of the title.

2. On the form toolbar, click **Add New Record**, and specify the following settings in the Summary area:
    - **Vendor**: *HARDCO (Standard Hardware Company)*
    - **Date**: *2/1/2022*
    - **Start Date**: *2/1/2022*
    - **Description**: `Installation of windows, doors, and building of an entrance`
3. On the **Details** tab, add lines with the following settings.

Inventory ID	Project	Project Task	Cost Code	Line Description	UOM	Ext. Cost
SUBCONTR	*HOTEL*	*08*	*08-510*	`Windows`	*EA*	`650000`
SUBCONTR	*HOTEL*	*08*	*08-200*	`Doors and frames`	*EA*	`442000`
SUBCONTR	*HOTEL*	*08*	*08-800*	`Entrance`	*EA*	`2000000`

4. In the Summary area, in the **Subcontract Total** box, make sure that the total is *3,092,000*.
5. On the **Other** tab, clear the **Do Not Print** check box.
6. On the form toolbar, click **Remove Hold** to assign the subcontract the *Pending Print* status.

7. Open the *Projects* (PM301000) form, and in the **Project ID** box, select *HOTEL*.

8. On the **Cost Budget** tab, for the budget line with the *08-510* cost code, make sure that the cost budget line has been updated with the subcontract line amount with the same project task and cost code, as shown in the following screenshot.

Figure: Cost budget updated with the subcontract amount

Step 2: Printing the Subcontract

To prepare the printable version of the subcontract, do the following:

1. On the *Subcontracts* (SC301000) form, open the subcontract that you have created earlier in this activity, and click **Print** on the form toolbar. The system opens the printable version of the subcontract document on the *Subcontract (SF)* (SC641000) report form in a new browser tab.

2. Review the printable version of the document, and close the browser tab with the printable subcontract to return to the subcontract on the *Subcontracts* form.

> ⚠ For the purposes of this activity, you do not need to actually print the document. In a production setting, you would click **Print** on the form toolbar to print the subcontract before closing the browser tab.

3. Press Esc to refresh the form. Notice that the system has changed the subcontract status to *Open*.

Step 3: Paying for the Performed Work

To create the bill to pay for the subcontractor work, do the following:

1. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, set the business date to *2/25/2022*.

2. While you are still on the *Subcontracts* (SC301000) form, click **Enter AP Bill** on the form toolbar. The *Bills and Adjustments* (AP301000) form opens with the prepared accounts payable bill.

3. On the form toolbar, click **Remove Hold** to assign the bill the *Balanced* status, and then click **Release** to release the bill.

4. On the form toolbar, click **Pay**. The system prepares a check and opens it on the *Checks and Payments* (AP302000) form.

5. On the form toolbar, click **Remove Hold** to assign the check the *Pending Print* status, and then click **Print/Process**.

6. On the *Process Payments / Print Checks* (AP505000) form, which opens, click **Process** on the form toolbar to process the only selected line, which corresponds to the prepared check. The system opens the printable document for the check in a separate browser tab.

7. Review the printable version of the document, and close the browser tab with the printable check to return to the *Release Payments* (AP505200) form that the system has opened.

> ⚠️ For the purposes of this activity, you do not need to actually print the document. In a production setting, you would click **Print** on the form toolbar to print the check before closing the browser tab.

8. On the *Release Payments* form, make sure that the unlabeled check box is selected for the only line in the table, and on the form toolbar, click **Process** to release the AP check. The system releases the payment and the payment application to the bill.

9. In the **Processing** dialog box, which opens, click **Close**.

10. On the *Subcontracts* form, again open the subcontract that you have created earlier in this activity, which is now assigned the *Closed* status. On the **Billing** tab, review the line that corresponds to the bill that you have prepared for the subcontract. The bill is also assigned the *Closed* status because it was paid in full.

Figure: Closed subcontract

You have finished processing the subcontract document.

Subcontracts: Generated Transactions

To record the services provided by a subcontractor for a particular project and update the balance of the vendor in the system, you create and process a subcontract and an AP bill. On release of the AP bill, the system generates GL transactions and project transactions described in the following sections.

General Ledger Transactions Generated on Bill Release

On release of a bill with one subcontract line, a batch of the following general ledger transactions is generated.

Account	Project and Project Task	Debit Amount	Credit Amount
Accounts Payable account	*X* (Non-project code)	0.00	Amount
Expense account	Project and project task in the subcontract line	Amount	0.00

The batch created on release of the accounts payable bill is numbered in accordance with the numbering sequence selected in the **Batch Numbering Sequence** box on the *Accounts Payable Preferences* (AP101000) form. The batch number is specified on the **Financial** tab of the *Bills and Adjustments* (AP301000) form.

Project Transaction Generated on AP Bill Release

On release of a batch created on release of the AP bill, the system generates the project transaction shown in the following table.

Project and Project Task	Account Group	Cost Code (if applicable)	Inventory ID	Debit Account	Amount
Project and project task in the subcontract line	Account group mapped to Expense account	Cost code in the subcontract line	Non-stock item in the subcontract line	Expense account in the GL transaction	Amount

You can review the created project transaction on the *Project Transaction Details* (PM401000) form. In the Selection area of this form, you select the corresponding project in the **Project** box. In the table, you can find the project transaction with the *Bill* type in the **Orig. Doc. Type** column and the reference number of the AP bill in the **Orig. Doc. Nbr.** column.

Update of the Project Budget Lines

On release of the accounts payable bill created for the subcontract, the system updates the corresponding project budget values as follows in the columns on the **Cost Budget** tab of the *Projects* (PM301000) form:

- **Committed Invoiced Quantity** is increased by the quantity in the bill line.
- **Committed Invoiced Amount** is increased by the amount in the bill line.
- **Committed Open Quantity** is reduced by the quantity in the bill line.
- **Committed Open Amount** is reduced by the quantity in the bill line.
- **Actual Quantity** is increased by the quantity in the bill line.
- **Actual Amount** is increased by the amount in the bill line.
- **Performance (%)** is recalculated based on the updated amounts and quantities.

Lesson 3: Correcting Bills for Subcontracts

Correction of a Bill for a Subcontract: General Information

In most cases, a subcontract is considered completed when the services have been provided and the corresponding accounts payable bill has been released to adjust the outstanding balance of the vendor (subcontractor). If the subcontract requires any changes, you may want to correct billed amounts and quantities in the subcontract fully or partially. Because a released accounts payable bill cannot be edited or deleted, to correct the billed amount and billed quantity, you need to process a debit adjustment that decreases the accounts payable balance.

Learning Objectives

From reading the topics in this chapter and completing the process activity, you will learn how to do the following:

- Create a debit adjustment for an AP bill prepared for a subcontract
- Release the debit adjustment
- Review how the processed debit adjustment affects the vendor balance
- Review the GL and project transactions generated on release of a debit adjustment
- Review how the project budget is updated on release of the debit adjustment

Applicable Scenarios

You create a debit adjustment for a bill prepared for a subcontract to decrease the amount you owe to a vendor according to this subcontract.

Debit Adjustment Processing

To partially decrease the billed amount or billed quantity for a subcontract, you manually create a debit adjustment and specify the needed amount and quantity in the lines that are linked to the corresponding subcontract.

You enter a debit adjustment on the *Bills and Adjustments* (AP301000) form. In the Summary area of a debit adjustment, you specify such settings as the vendor, the vendor location, and the currency used for the transaction. Then you add the subcontract lines for which you need to decrease the billed amount or billed quantity (or both) by clicking the **Add Subcontract** or **Add Subcontract Line** button on the table toolbar of the **Details** tab of the *Bills and Adjustments* form. In the dialog box that opens, you select the particular subcontract or subcontract lines with a nonzero billed amount or quantity to be added to the debit adjustment.

In each subcontract line that you add to the debit adjustment by using the **Add Subcontract** or **Add Subcontract Line** dialog box, the system populates the column settings as follows:

- The project budget key (**Project**, **Project Task**, **Account Group**, **Inventory ID**, and **Cost Code**, if applicable) is copied from the corresponding subcontract line. The specified project and project task cannot be changed in the debit adjustment line linked to a subcontract line.

  > (i) If the non-project code is specified in a debit adjustment line linked to a subcontract, you can change the non-project code to some particular project and specify a project task in this line.

- The account, subaccount, and tax category are copied from the corresponding subcontract line; you can change these settings, if needed.

- The extended cost of the line (**Ext. Cost**) is copied from the **Billed Amount** of the subcontract line. You could leave it as is to adjust the full billed amount, or change to adjust the billed amount partially.

> (i) To decrease the full amount of a bill created for a subcontract, you can reverse the bill. When you reverse the bill, the system automatically creates a debit adjustment with the same details.

- The unit cost and quantity are set to zero; you can correct these values, if needed.

> ⚠ The quantity in a debit adjustment line cannot exceed the billed quantity in the corresponding subcontract line.

- The line discount (**Discount Percent** and **Discount Amount**) is set to zero.
- The retainage percent and retainage amount are set to zero.
- The reference number of the corresponding subcontract is shown in the **Subcontract Nbr.** column.

After you have specified the details of the debit adjustment, you remove it from hold by clicking **Remove Hold** on the form toolbar, and release by clicking **Release** on the form toolbar. On release of the debit adjustment, a batch of GL transactions is generated to update the account balances in the general ledger; on release of this batch, the system generates the corresponding project transaction to update the values of the project budget. Also, the system automatically updates the billed amount and billed quantity in the lines of the subcontract for which the debit adjustment has been prepared.

If a subcontract line had the **Closed** and **Completed** check boxes selected at the time of its addition to the debit adjustment, on release of this debit adjustment, the system clears the check boxes in the subcontract line. The clearing of both check boxes indicates that the line is not billed in full now.

The released debit adjustment appears on the *Checks and Payments* (AP302000) form and can be applied to any bills and credit adjustments of the same vendor. For more information on applying debit adjustments, see *Debit and Credit Adjustments: General Information*.

> (i) Along with correcting billed amounts and quantities, you may need to process a change order for a subcontract to decrease its total amount and quantity. For more information on this, see *Change Orders for Commitments: General Information*.

Workflow of the Processing of a Debit Adjustment for a Subcontract

The following diagram represents the general workflow of the processing of a debit adjustment for a subcontract.

Correcting the billed amount and quantity for a subcontract
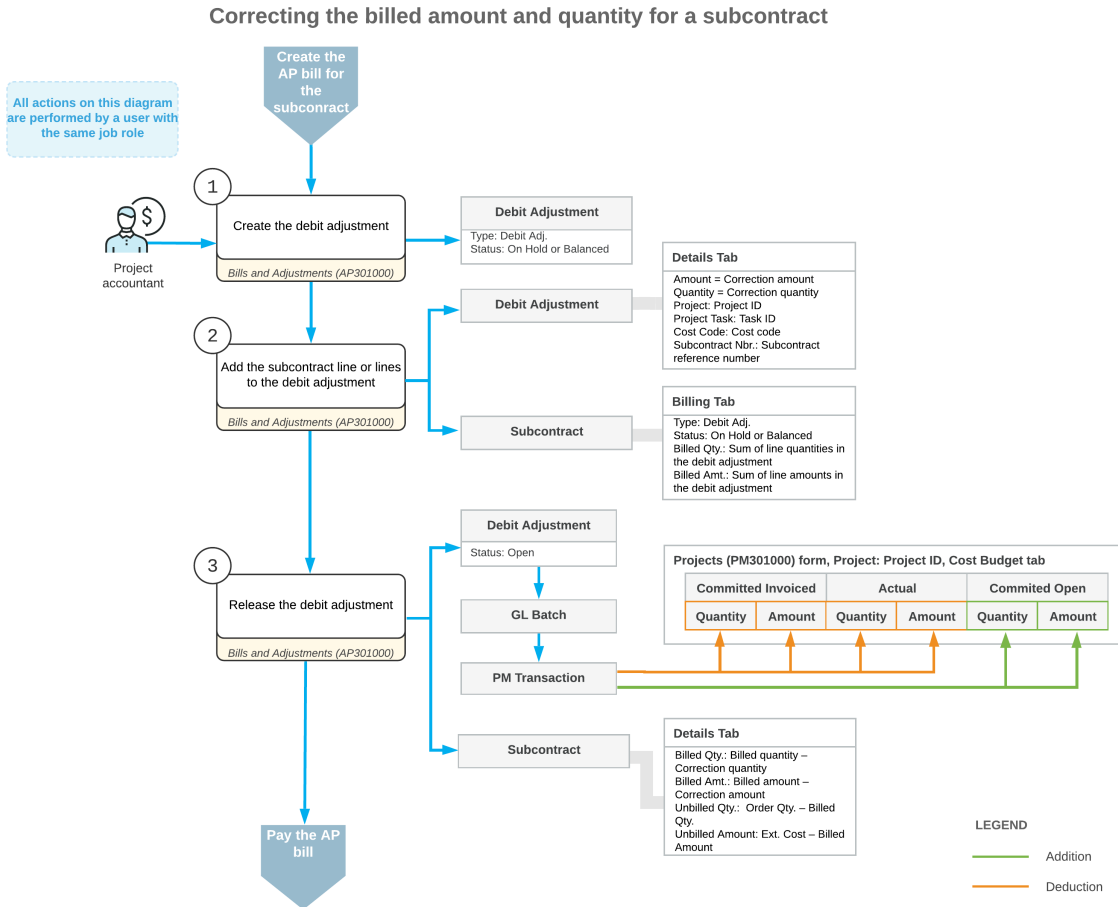
Correction of a Bill for a Subcontract: Process Activity

This activity will walk you through the process of correcting an AP bill for a subcontract.

Story

Suppose that on March 1, 2022, the ToadGreen company hired a subcontractor, Harmon Installation, to build an entrance in the hotel that ToadGreen is building. According to the terms of the subcontract, $10,000 will be paid to the subcontractor for this work, and 10% of each payment will be withheld by the company until the related work is finished.

On March 25, 2022, ToadGreen received the first bill for the completed work from the subcontractor. A ToadGreen project accountant entered and released a bill in the amount of $7,000, which includes the $700 retainage amount.

Then suppose that the project accountant realized that the bill was entered incorrectly, and the billed amount must be $6,000 for the subcontract. Acting as this project accountant, you will correct the billed amount and quantity in the subcontract by processing the debit adjustment.

Configuration Overview

In the *U100* dataset, for the purposes of this activity, the following tasks have been performed:

- On the *Enable/Disable Features* (CS100000), the *Construction* and *Retainage Support* features have been enabled.
- On the *Vendors* (AP303000) form, the *HARMINT (Harmon Installation)* vendor has been defined. On the **Financial** tab, the **Apply Retainage** check box is selected for this vendor.
- On the *Non-Stock Items* (IN202000) form, the *LABOR* non-stock item has been created.
- On the *Projects* (PM301000) form, the *HOTEL* project has been created with multiple project tasks.
- On the *Subcontracts* (SC301000) form, the subcontract for the *HARMINT* vendor in the amount of $10,000.00 has been entered.
- On the *Bills and Adjustments* (AP301000) form, the partial bill in the amount of $7,000.00 has been entered and released; the retainage amount $700 is calculated for the bill (which is shown in the **Original Retainage** box on the **Retainage** tab).

Process Overview

On the *Bills and Adjustments* (AP301000) form, you will create a debit adjustment and add the line of the subcontract to this adjustment. Then you will specify the correction amount and release the adjustment. Finally, you will review the billed amount and quantity in the subcontract to make sure that they have been updated.

System Preparation

To prepare to perform the instructions of the activity, in the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, click the Business Date menu button, and select *3/25/2022* on the calendar.

Step 1: Creating a Debit Adjustment

You will first create the debit adjustment that will correct the AP bill for the subcontract. Do the following:

1. Open the *Bills and Adjustments* (AP301000) form.

   > (i) To open the form for creating a new record, type the form ID in the Search box, and on the Search form, point at the form title and click **New** right of the title.

2. On the form toolbar, click **Add New Record**, and in the Summary area, specify the following settings:
   - **Type**: *Debit Adj.*
   - **Vendor**: *HARMINT*
   - **Date**: *3/25/2022*
   - **Description**: `Adjusting overbilled contractor`
3. On the form toolbar, click **Save**.

Step 2: Adding the Subcontract Line to the Document

To add a line of the subcontract to be corrected, while you are still reviewing the debit adjustment on the *Bills and Adjustments* (AP301000) form, do the following:

1. On the table toolbar of the **Details** tab, click **Add Subcontract**. The **Add Subcontract** dialog box opens.

2. In the dialog box, find the line dated *3/1/2022* with the *HOTEL* project and $10,000 subcontract total. Notice that the **Total Billed Amount** for the subcontract is $7,000.

3. Select the unlabeled check box in the line, and click **Add & Close**. The system adds the subcontract line to the debit adjustment and closes the dialog box.

4. In the line added to the document, change the **Quantity** to 8 and the **Unit Cost** to 125. The **Ext. Cost** in the line is $1,000 (which is the amount by which the billed amount will be adjusted). In the **Subcontract Nbr.**

column of the line, notice that the system has inserted the reference number of the subcontract for which the adjustment is being created. The retainage amount in the line is equal to zero, because the processed debit adjustment does not change the retained amounts.

> (i) The **Retainage Amount** column is hidden by default. You can add this column to the table by using the **Column Configuration** dialog box.

5. On the form toolbar, click **Save**.

Step 3: Releasing the Debit Adjustment and Reviewing the Result

To release the debit adjustment and see how this affects the subcontract, do the following:

1. On the form toolbar, click **Remove Hold**. The system assigns the debit adjustment the *Balanced* status.

2. On the form toolbar, click **Release** to release the debit adjustment.

3. On the *Subcontracts* (SC301000) form, open the subcontract for the *HARMINT* vendor, for which you have processed the debit adjustment.

4. On the **Details** tab, review the billed amount and quantity in the subcontract line, and make sure they have been adjusted for the subcontract, as shown in the following screenshot.

Figure: The adjusted amount and quantity in the subcontract line

You have corrected the bill for the subcontract. You can now apply the debit adjustment to the AP bill to finish the correction process.

Correction of a Bill for a Subcontract: Generated Transactions

To correct billed amounts and quantities for a subcontract, you create and process a debit adjustment to decrease the balance of a vendor in the system. When the debit adjustment is released, the system generates the transactions and updates the project budget as described in the following sections.

General Ledger Transactions Generated on Debit Adjustment Release

On release of a debit adjustment with one subcontract line, a batch of the following general ledger transactions is generated.

Account	Project and Project Task	Debit Amount	Credit Amount
Accounts Payable account	*X* (Non-project code)	Correction amount	0.00
Expense account	Project and project task in the subcontract line	0.00	Correction amount

The batch created on release of the debit adjustment is numbered in accordance with the numbering sequence selected in the **Batch Numbering Sequence** box on the *Accounts Payable Preferences* (AP101000) form. The batch number is specified on the **Financial** tab of the *Bills and Adjustments* (AP301000) form.

Project Transaction Generated on Debit Adjustment Release

On release of a batch created on release of the debit adjustment, the system generates the project transaction shown in the following table.

Project and Project Task	Account Group	Cost Code (if applicable)	Inventory ID	Debit Account	Amount
Project and project task in the subcontract line	Account group mapped to Expense account	Cost code in the subcontract line	Non-stock item in the subcontract line	Expense account in the GL transaction	–(Amount)

You can review the created project transaction on the *Project Transaction Details* (PM401000) form. In the Selection area of this form, you select the project in the **Project** box. In the table, you can find the project transaction with the *Debit Adjustment* type in the **Orig. Doc. Type** column and the reference number of the debit adjustment in the **Orig. Doc. Nbr.** column.

Update of the Project Budget Lines

On release of the debit adjustment created for the subcontract, the system updates the corresponding project budget values as follows in the columns on the **Cost Budget** tab of the *Projects* (PM301000) form:

- **Committed Invoiced Quantity** is reduced by the quantity in the debit adjustment line.
- **Committed Invoiced Amount** is reduced by the amount in the debit adjustment line.
- **Committed Open Quantity** is increased by the quantity in the debit adjustment line.
- **Committed Open Amount** is increased by the quantity in the debit adjustment line.
- **Actual Quantity** is reduced by the quantity in the debit adjustment line.
- **Actual Amount** is reduced by the amount in the debit adjustment line.
- **Performance (%)** is recalculated based on the updated amounts and quantities.

Lesson 4: Processing AP Bills with Retainage

AP Bills with Retainage: General Information

If your company retains a part of the amount of an AP bill, to process the total amount of the bill, at least two bills are created in Acumatica ERP: the bill for which part of the amount is retained and the retainage bill that contains the retained amount to be paid.

Learning Objectives

In this chapter, you will learn how to do the following:

- Create and process a bill with retainage held at the line level
- Release retainage for the bill
- Enter a payment for the retainage bill
- Pay the outstanding balance of the original bill

Applicable Scenarios

You create a bill with retainage when it is necessary to withhold a portion of the contract amount until the work has been completed to assure that the vendor will satisfy its obligations and complete a particular project or project task.

> ⚠️ Retainage is not supported for AP documents created in a foreign currency.

The Processing Workflow of a Bill with Retainage

Typically, an AP bill with retainage goes through the following states during its life cycle:

1. Entering the bill with retainage and preparing the bill for release: A data entry person creates the bill with retainage in the system on the *Bills and Adjustments* (AP301000) form. The balance of this bill equals the sum of the extended costs minus the line discounts of the lines of the bill with this subtotal reduced by the retainage amount. The total amount of the bill (which is shown on the **Retainage** tab) is the detail total amount plus the retained amount.

2. Releasing the bill with retainage: An accountant releases the prepared bill with retainage. This released bill is assigned the *Open* status, and it affects the balances of the selected vendor and the GL accounts.

3. Paying the bill with retainage: The accountant creates a payment in the system to pay the bill with retainage, and then processes and releases the payment. The system reduces the balance of the bill with retainage by the amount paid. When the payment is released, the balance of the vendor is reduced by the paid amount, and the GL accounts are updated. The bill with retainage still has the *Open* status.

4. Releasing a retainage: Once the work has been completed, the accountant releases the retainage for the original bill. The user can release a part of the retained amount or the full retained amount. When the retainage is released, a retainage bill with the *Open* status is created in the system.

   When the retainage bill is released, the system updates the balances of the vendor, the related GL accounts, and the unreleased retainage amount of the bill with retainage.

5. Paying the retainage bill: The accountant creates a payment in the system to pay the retainage bill. The user processes and releases the payment. The system reduces the balance of the retainage bill by the amount paid. The balance of the vendor is reduced by the paid amount, and the GL accounts are updated.

If the full retained amount has been released and paid, the bill with retainage is assigned the *Closed* status, and its unreleased and unpaid retainage amounts equal zero.

If a part of the retained amount has been released and paid, the bill with retainage keeps the *Open* status. The system reduces the bill's unreleased and unpaid retainage amounts by the retainage released and the retainage paid, respectively.

> ⚠️ For documents with retainage, the invoice rounding functionality, which is available when the *Invoice Rounding* feature is enabled on the *Enable/Disable Features* (CS100000) form, is not supported; that is, amounts in documents with retainage cannot be rounded.

Open AP balances and unreleased retainage (retainage held) balances can be tracked at the AP bill summary level or at the line level. Whether the document balances are at the summary level or the line level, the setting is determined for each document individually. By default, a new document inherits the setting specified for the vendor in the **Pay by Line** check box on the **Payment** tab of the *Vendors* (AP303000) form. If balances are tracked at the line level, payments are also applied to these AP bills at the line level.

AP Bills with Retainage: Process Activity

This activity will walk you through the processing of an AP bill with retainage. This activity demonstrates the workflow with AP bills with open AP and retainage balances at the line level.

Story

Suppose that on March 15, 2022, the ToadGreen Building Group company hired a subcontractor to install air conditioning systems for the hotel being built. By the subcontract, $2,400,000 will be paid to the subcontractor for work and 10% of each payment will be withheld by the company until the related work is finished. Also, ToadGreen and the subcontractor have agreed that after 30% of the work is done, ToadGreen has to release 10% of the retained amount.

On March 25, 2022, ToadGreen receives the first bill for the completed work, which is 30% of the total work, in the amount of $720,000. A ToadGreen project accountant needs to enter a bill that includes the $72,000 retainage amount and then process a payment for the full bill amount. After the subcontractor reports about finishing a part of the work, the ToadGreen project accountant needs to release $7,200, which is a part of the retainage amount. Acting as this project accountant, you will enter and process the related financial documents.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- The following features have been enabled on the *Enable/Disable Features* (CS100000) form:
  - *Retainage Support*
  - *Payment Application by Line*
  - *Construction*
- On the *Vendors* (AP303000) form, the *PARKERS* vendor has been created; the **Pay by Line** (**Payment** tab) and **Apply Retainage** (**Financial** tab) check boxes are selected for this vendor. In the **Retainage Percent** box (**Financial** tab), *10* is specified. On the **GL Accounts** tab, *28000 - AP Retainage* is specified in the **Retainage Payable Account** box. In the **Cash Account** box on the **Payments** tab, the *10200TG* cash account is specified for the vendor.
- On the *Non-Stock Items* (IN202000) form, the *HVAC* non-stock item has been created.

- On the *Projects* (PM301000) form, the *HOTEL* project has been created with multiple project tasks.
- On the *Subcontracts* (SC301000) form, the subcontract for the *PARKERS* vendor in the amount of $2,400,000 has been entered.

Process Overview

You will create a partial bill for the subcontract on the *Bills and Adjustments* (AP301000) form. On the *Prepare Payments* (AP503000) form, you then will prepare a partial payment for the bill and process it by using the *Process Payments / Print Checks* (AP505000) and *Release Payments* (AP505200) forms. You will then review the retainage details of the processed AP bill in the *AP Aging* (AP631000) report. After that, you will release the retainage on the *Release AP Retainage* (AP510000) form and prepare the retainage document. Finally, you will process the retainage document and pay its balance.

System Preparation

To prepare to perform the instructions of this activity, do the following:

1. Sign in to the system as a project accountant by using the *bsanchez* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *3/25/2022*. If a different date is displayed, click the Business Date menu button, and select *3/25/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Create an AP Bill with Retainage for a Subcontract

To create and pay an AP bill for the vendor, do the following:

1. Open the *Bills and Adjustments* (AP301000) form.

   > (i) To open the form for creating a new record, type the form ID in the Search box, and on the Search form, point at the form title and click **New** right of the title.

2. On the form toolbar, click **Add New Record** to create a new document, and specify the following settings in the Summary area:
   - **Vendor**: *PARKERS*
   - **Date**: *3/25/2022*
   - **Description**: `30% of work for the subcontract`
   - **Apply Retainage**: Selected
   - **Pay by Line**: Selected

3. On the table toolbar of the **Details** tab, click **Add Subcontract**.

4. In the **Add Subcontract** dialog box, which opens, select the unlabeled check box in the row with the subcontract to *PARKERS* and the $2,400,000 subcontract total, and click **Add & Close**. The system adds four subcontract lines to the bill.

5. Modify the lines as follows to indicate that the bill is being prepared for 30% of the subcontract work:

   a. Leave the first line, with the *HVAC subcontract - Phase 1* description, as it is, and make sure the **Ext. Cost** amount is 480,000.

   b. In the second line, with the *HVAC subcontract - Phase 2* description, change the **Ext. Cost** amount to `240000`.

   c. Remove the third and fourth lines from the bill by clicking each line and then clicking **Delete Row** on the table toolbar.

Make sure that the total bill amount is now *648,000*, which is the original amount (*720,000*) minus the retained amount (*72,000*).

6. Save your changes.

7. On the form toolbar, click **Remove Hold** to assign the bill the *Balanced* status, and then click **Release** to release the bill. For each line on the **Details** tab, notice that the **Balance** column now shows the amount to be paid for each line (which is the line amount minus the retainage amount).

Step 2: Paying the Bill

To pay the bill, do the following:

1. Open the *Prepare Payments* (AP503000) form and specify the following settings in the Selection area:

   - **Payment Method**: *CHECK*
   - **Cash Account**: *10200TG*
   - **Vendor**: *PARKERS*
   - **Pay Date Within**: Cleared

   The lines of the bill that you have created earlier in this activity appear in the table.

2. Select the unlabeled check box for both lines, and make sure that in the Selection area, the **Selection Total** amount is *$648,000.00*, and the **Available Balance** amount is greater than the total amount to be paid.

3. Click **Process** on the form toolbar.

4. On the *Process Payments / Print Checks* (AP505000) form, which opens, click **Process** to process the only selected line, which corresponds to the prepared check. The system opens the printable document for the check in a separate browser tab.

5. Close the tab with the printed check, and navigate to the *Release Payments* (AP505200) form, which the system has opened.

6. On the form toolbar, click **Process** to release the AP check. In the **Processing** dialog box, which opens, click **Close**.

7. On the *Bills and Adjustments* (AP301000) form, open the AP bill for which you have processed the payment, and review the line-level balances. Both lines have an unreleased retainage balance in the **Unreleased Retainage** box, as shown in the following screenshot. Therefore, the bill retains the *Open* status though both bill lines have been paid.

Bills and Adjustments
Bill 000067 - Parker & Sons HVAC

Type:	Bill		Vendor:	PARKERS - Parker & Sons HVAC		Detail Total:	648,000.00
Reference Nbr.:	000067		Location:	MAIN - Primary Location		Discount Total:	0.00
Status:	Open		Terms:	30D - 30 Days		VAT Taxable Total:	0.00
			* Due Date:	4/24/2022	☑ Apply Retainage	VAT Exempt Total:	0.00
Date:	3/25/2022		* Cash Discount...	4/24/2022	☑ Pay by Line	Tax Total:	0.00
Post Period:	03-2022			☐ Joint Payees		With. Tax:	0.00
Vendor Ref.:						Balance:	0.00
						Amount:	648,000.00
Description:	30% of work for the subcontract					Cash Discount:	0.00

DETAILS   FINANCIAL   TAXES   RETAINAGE   APPLICATIONS   COMPLIANCE

VIEW DEFERRALS   ADD PO RECEIPT   ADD PO RECEIPT LINE   ADD PO   ADD SUBCONTRACT   ADD PO LINE   ADD SUBCONTRACT LINE   ADD

			Line Nbr.	Inventory ID	Transaction Descr.	Quantity	UOM	Unit Cost	Ext. Cost	Disc Amc	Retainage Percent	Retainage Amount	Unrelease Retainage	Retained Tax	Amount	Balance
			1	HVAC	HVAC subcontract - Phase 1	0.00	EA	0.0000	480,000.00	0.00	10.000000	48,000.00	48,000.00	0.00	432,000.00	0.00
			2	HVAC	HVAC subcontract - Phase 2	0.00	EA	0.0000	240,000.00	0.00	10.000000	24,000.00	24,000.00	0.00	216,000.00	0.00

Figure: Open bill with partial payment and unreleased retainage

On the **Applications** tab, review the lines of the payment that you have processed. The amounts in the **Amount Paid** column of each line show how much has been paid for each line of the AP bill.

Step 3: Reviewing Retainage Details

To review the retainage details of the processed AP bill, do the following:

1. Open the *AP Aging* (AP631000) report form.

2. On the **Report Parameters** tab, specify the following settings:

   - **Report Format**: *Detailed with Retainage*
   - **Company/Branch**: *TBGROUP* (inserted automatically)
   - **Vendor**: *PARKERS*
   - **Age as of Date**: 3/25/2022

3. On the form toolbar, click **Run Report**. In the displayed report, the retainage amount held for the AP bill (*72,000.00*) is not aged, and is shown in the **Unreleased Retainage** column.

Step 4: Releasing a Part of the Retainage

To partially release the retainage, do the following:

1. Open the *Release AP Retainage* (AP510000) form.

2. In the Selection area, specify the following settings to review the lines of AP documents that have nonzero unreleased retainage balances:

   - **Vendor**: *PARKERS*
   - **Show Lines with Open Balance**: Selected

3. In the **Retainage to Release** column of the table, for the lines that are displayed, specify the following amounts:

   - Line 1: `4800`
   - Line 2: `2400`

4. In the table, select the unlabeled check box for both lines.

5. Click **Process** on the form toolbar to prepare the retainage document. In the **Processing** dialog box, which opens, click **Close**.

6. On the *Bills and Adjustments* (AP301000) form, open the prepared retainage document for the *PARKERS* vendor.

   Each line of the retainage bill has the project, project task, and cost code information copied from the original AP bill. Because the original AP bill was created with the **Pay by Line** check box selected, the retainage AP bill is also processed at the line level (that is, the **Pay by Line** check box is selected in the Summary area).

7. Make sure the **Balance** in the Selection area is $7,200, and on the form toolbar, click **Remove Hold** to assign the document the *Balanced* status. Then click **Release** to release the document. The retainage document is assigned the *Open* status.

Step 5: Paying the Retainage Document

To pay the retainage document, do the following:

1. While you are still on the *Bills and Adjustments* (AP301000) form with the retainage document open, on the form toolbar, click **Pay**.

   The system opens the *Checks and Payments* (AP302000) form with the prepared AP check.

2. In the Summary area, make sure that the **Payment Amount** is *7,200.00*, and on the form toolbar, click **Remove Hold** to assign the check the *Pending Print* status.

3. On the form toolbar, click **Print/Process**.

4. On the *Process Payments / Print Checks* (AP505000) form, which opens, click **Process** to process the only selected line, which corresponds to the prepared check. The system opens the printable version of the check in the separate browser tab.

5. Close the tab with the printed check, and navigate to the *Release Payments* (AP505200) form, which the system has opened.

6. On the *Release Payments* form, click **Process** to process the selected line. In the **Processing** dialog box, which opens, click **Close**.

7. On the *Bills and Adjustments* form, open the original bill (which still has the *Open* status) and review the line amounts in the lines of the bill, focusing on the following columns:

   • **Ext. Cost** is the original amount that includes retainage ($480,000 and $240,000).

   • **Retainage Amount** is the original retainage amount of the lines ($48,000 and $24,000).

   • **Amount** is the original amount of the line less retainage ($432,000 and $216,000). This amount becomes the open AP balance of the line on release of the bill.

   • **Balance** is the current open AP balance of the line, which is the **Amount** minus the total amount of payments applied to the line ($0 in both lines).

   • **Unreleased Retainage** is the retainage currently held for the line ($43,200 and $21,600).

You have prepared a partial payment for the subcontract and released a part of the retainage amount.

Lesson 5: Tracking Project Budget Overruns

Project Budget: Budget Control on Document Entry

The following sections explain how you can control documents that are entered for the project.

Control of Document Consistency for the Project

To ensure that document lines are entered for the appropriate budget lines, the system controls the cost code entry in these documents by doing the following in the **Cost Code** column of the document entry form for each document line:

- When a user clicks the magnifier icon in this column, in the pop-up window that opens, the system displays only the cost codes that exist in the project budget for the specified combination of the selected project task and the selected account group.
- If a user enters into the column a cost code that does not exist in the project budget for the specified combination of the selected project task and the selected account group, a warning is displayed.

Control of Document Entry

The project budget can be exceeded as users enter documents. The system checks whether an entered document is within the cost budget of the project, taking into consideration the portion of the budget that has already been consumed if *Show a Warning* is selected in the **Budget Control** box on the **General** tab (**General Settings** section) of the *Projects Preferences* (PM101000) form. This helps you to control the documents you are creating and can be useful for a person who approves these documents.

When you enter or process one of the following documents related to a project, you will see a warning if the amount of a document line exceeds the cost budget of the corresponding project budget line (even if the project budget has no corresponding budget line):

- A purchase order of the *Normal* or *Drop-Ship* type on the *Purchase Orders* (PO301000) form.

  For a document of the *On Hold* or *Pending Approval* status, you can see a warning in the **Ext. Cost** column on the **Details** tab for the lines that exceed the project budget. The warning is also shown in the Summary area.

- An AP bill on the *Bills and Adjustments* (AP301000) form.

  For a document of the *On Hold*, *Pending Approval*, or *Balanced* status, you can see a warning in the **Ext. Cost** column on the **Details** tab for the lines that exceed the project budget. The warning is also shown in the Summary area.

- A change order on the *Change Orders* (PM308000) form.

  For a document of the *On Hold* or *Pending Approval* status, you can see a warning in the **Amount** column on the **Commitment** tab for the lines that exceed the project budget. The warning is also shown in the Summary area.

The warning message in a document line shows you how much the line amount exceeds the budget. The system compares the document line with the corresponding cost budget line of the project and shows you the following amounts in the warning:

- *Available*: The amount of the budget that you can process with the document.

  The available amount is calculated as the difference between the *Budgeted* amount and the *Consumed* amount. The budgeted amount is the revised budgeted amount of the budget line. The consumed amount is the amount that has been spent already—that is, the sum of the actual amount and the committed open amount of the budget line.

- *Remaining*: The amount that exceeds the budget.

  The remaining amount is calculated as the difference between the *Available* and *Document* amounts. The document amount is the total amount (the **Ext. Cost** minus the **Discount Amount**) of all the lines of the validated document that correspond to the same budget line, including the current one.

For example, suppose that you have budgeted the cost of $400 for the project (the budgeted amount). You have already spent $150 (the consumed amount). When you create for the project an AP bill for the amount of $300 (the document amount), the system will display the following warning:

Budgeted: 400.00, Consumed: 150.00, Available: 250.00, Document: 300.00, Remaining: –50.00

The warning does not prevent you from processing the document but just informs you that the document processing will result in an excess of the budgeted values.

You can see the list of all document lines that have exceeded the budget of a selected project on the *Project Budget Overruns* (PM404000) form.

Construction Project Budget: To Track Project Budget Overrun

The following activity will walk you through the process of tracking the budget overrun for a project.

Story

Suppose that ToadGreen Building Group is a general contractor building an Italian restaurant for its customer, The Italian Company. The ToadGreen project manager has created a project for the work to be performed, and the budget has been agreed on with the customer. On February 15, 2022, the purchasing agent has negotiated a subcontract for mechanical piping with the Harmon Installation subcontractor at a better price than was initially planned, thus reserving some budget. The subcontractor has started working, and on February 25, 2022, it notified the project manager that an extra 20 hours is necessary to complete the work.

Acting as a project manager, you need to enter all the related documents and review the budget overruns.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Projects* (PM301000) form, the *ITALIAN* project has been defined. On the **Cost Budget** tab, the cost budget lines have been added. Cost budget lines related to *15 – Mechanical Piping* project task have no budget changes or open commitments, and the actual amount for the lines is 0. Also, the **Change Order Workflow** check box is selected on the **Summary** tab.
- On the *Vendors* (AP303000) form, the *HARMINT (Harmon Installation)* vendor has been defined.
- On the *Change Order Classes* (PM203000) form, the *DEFAULT* change order class has been created and specified as the default change order class on the *Projects Preferences* (PM101000) form.

Process Overview

You will enter a subcontract related to a project on the *Subcontracts* (SC301000) form. Then you will create the change order for this subcontract on the *Change Orders* (PM308000) form. After that, you will create an accounts payable bill on the *Bills and Adjustments* (AP301000) form. Finally, on the *Project Budget Overruns* (PM404000) form, you will review the documents that have exceeded the project budget.

System Preparation

To prepare to perform the instructions of the activity, do the following:

1. Sign in to the system as a construction project manager by using the *ewatson* username and the *123* password.

2. On the *Projects Preferences* (PM101000) form, in the **General Settings** section of the **General** tab, specify the following settings:

   - **Budget Control**: *Show a Warning*
   - **Internal Cost Commitment Tracking**: Selected

3. Save your changes.

4. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *2/15/2022*. If a different date is displayed, click the Business Date menu button, and select *2/15/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Recording a Vendor Commitment

To record the commitment to the project, do the following:

1. Open the *Subcontracts* (SC301000) form.

   > ⓘ To open the form for creating a new record, type the form ID in the Search box, and on the Search form, point at the form title and click **New** right of the title.

2. On the form toolbar, click **Add New Record** and specify the following settings:

   - **Vendor**: *HARMINT*
   - **Description**: `Mechanical piping`
   - **Date**: *2/15/2022*

3. On the **Details** tab, add two lines to the table as follows:

   a. Add the first line, and specify the following settings:

   - **Inventory ID**: *LABOR*
   - **Project**: *ITALIAN*
   - **Project Task**: `15`
   - **Cost Code**: `15-100`
   - **Line Description**: `Mechanical piping work`
   - **UOM**: *HOUR*
   - **Order Qty.**: `100`
   - **Unit Cost**: `145`

   b. Add the second line, and specify the following settings:

   - **Inventory ID**: *PROJMATERIAL*
   - **Project**: *ITALIAN*
   - **Project Task**: `15`
   - **Cost Code**: `15-100`
   - **Line Description**: `Mechanical piping materials`
   - **UOM**: *EA*
   - **Order Qty**: `1`
   - **Unit Cost**: `17000`

4. On the form toolbar, click **Remove Hold**. The system saves the subcontract and assigns it the *Open* status. Make sure that the subcontract total is $31,500.

5. On the *Projects* (PM301000) form, open the *ITALIAN* project, and on the **Cost Budget** tab, make sure of the following:

   - In the line with the *15* project task, the *15–100* cost code, and *LABOR* account group, the **Original Committed Amount** is now *14,500*.
   - In the line with the *15* project task, the *15–100* cost code, and the *MATERIAL* account group, the **Original Committed Amount** is now *17,000*.

Step 2: Recording the Extra Work

To process the extra work needed for the project, create and process a change order by doing the following:

1. While you are still viewing the *ITALIAN* project on the *Projects* (PM301000) form, on the More menu (under **Change Management**), click **Create Change Order**. The system creates a change order for the project and opens it on the *Change Orders* (PM308000) form.

2. In the Summary area, specify the following settings:

   - **Class**: *DEFAULT* (inserted automatically)
   - **Project**: *ITALIAN* (inserted automatically)
   - **Change Date**: *2/25/2022*
   - **Approval Date**: *2/25/2022*
   - **Description**: `Extra work on piping`

3. On the table toolbar of the **Commitments** tab, click **Select Commitments**, and in the **Select Commitments** dialog box, select the unlabeled check box for the line with the following settings:

   - **Project Task**: *15*
   - **Cost Code**: *15-100*
   - **Inventory ID**: *LABOR*

4. Click **Add Lines & Close** to add the selected line to the change order and close the dialog box.

5. In the line that has appeared on the **Commitments** tab, set **Quantity** to `20`.

   Because you have only $500 of the budget available and the change amount exceeds the available budget by $2,400, the overbudget warning is displayed, as shown in the following screenshot. The *Consumed* amount in the warning indicates the total of open commitments and already-processed actual amounts for the project.

Figure: A warning indicating a budget overrun

6. Save the change order, which has the *On Hold* status.

Step 3: Creating a Vendor Bill

Enter an AP bill for the subcontract as follows:

1. On the *Bills and Adjustments* (AP301000) form, create a new document, and specify the following settings in the Summary area:
   - **Type**: *Bill*
   - **Vendor**: *HARMINT*
   - **Date**: *2/15/2022*
   - **Description**: `Mechanical piping work`
2. On the **Details** tab, add a new row with the following settings:
   - **Inventory ID**: *LABOR*
   - **Quantity**: `10`
   - **UOM**: *HOUR*
   - **Unit Cost**: `100`
   - **Project**: *ITALIAN*
   - **Project Task**: `15`
   - **Cost Code**: `15-100`
3. Save the bill, which has the **On Hold** status, and review the overbudget warning displayed in the **Ext. Cost** column. The amount to be paid by the bill exceeds the budget by $500.

Step 4: Viewing Documents Exceeding the Project Budget

To view all documents that exceed the budgeted amounts, do the following:

1. Open the *Project Budget Overruns* (PM404000) form.
2. In the Selection area, specify the following values:

- **Project**: *ITALIAN*
- **From**: *2/1/2022*
- **To**: *2/28/2022*

3. On the form toolbar, click **Calculate**. The system shows the list of documents, along with the document amounts and the amounts that exceed the budgeted amounts. Notice that the subcontract that you have processed does not exceed the budgeted amounts, and thus is not shown in the table.

Project Budget Overruns

↻   ↶   CALCULATE   ⊢| 🗶

Document Type:	Purchase Order, Subcontract, AP Bil... ▾			ADDITIONAL FILTERS
∗ Project:	ITALIAN - Italian restaurant (Market St 🔍			Account Group:		🔍
∗ From:	2/1/2022 ▾			Project Task:		🔍
∗ To:	2/28/2022 ▾			Cost Code:		🔍
				Inventory ID:		🔍

	Type	Reference Nbr.	Project	Project Task	Cost Code	Inventory ID	Account Group	Budgeted	Consumed	Available	Document	Remaining	Project Currency
>	AP document	000069	ITALIAN	15	15-100	<N/A>	LABOR	15,000.00	14,500.00	500.00	1,000.00	-500.00	USD
	Change Order	000003	ITALIAN	15	15-100	<N/A>	LABOR	15,000.00	14,500.00	500.00	2,900.00	-2,400.00	USD

Figure: List of documents that exceed the budgeted amounts

4. On the *Projects Preferences* (PM101000) form, in the **General Settings** section of the **General** tab, select *Do Not Control* in the **Budget Control** box, and save your changes.

You have entered the documents for the project and reviewed the budget overruns.

Construction Project Budget: To Add a New Cost Code to the Project Budget

The following activity will walk you through the processing of a subcontract with a cost code that had not been initially specified in the project.

Story

Suppose that ToadGreen is a general contractor building an Italian restaurant for its customer, The Italian Company. On February 15, 2022, the purchasing manager negotiated a subcontract for construction labor with the Harmon Installation subcontractor. This subcontract had not been budgeted initially in the project.

Acting as a ToadGreen project manager, you need to enter a subcontract, record these expenses to a new cost code in the project budget and make sure that the project cost budget is updated.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Projects* (PM301000) form, the *ITALIAN* project has been defined. On the **Cost Budget** tab, the cost budget lines have been added along with the appropriate cost codes. On the Summary tab, the **Allow Adding New Items on the Fly** check box is selected.
- On the *Account Groups* (PM201000) form, the *SUBCON* account group has been created.
- On the *Non-Stock Items* (IN202000) form, the *SUBCONTR* item has been created. The expense account of the item is mapped to the *SUBCON* account group.

Process Overview

You will enter a subcontract related to a project on the *Subcontracts* (SC301000) form, and add a to the subcontract with the new cost code. Then you will release the subcontract and make sure that the project budget is updated.

Step 1: Entering a Subcontract

To enter a subcontract, do the following:

1. On the *Subcontracts* (SC301000) form, create a new subcontract.

2. In the Summary area of the form, in the **Vendor** box, select *HARMINT*, and in the **Description** box, type `Construction labor`.

3. On the **Details** tab, add a new line with the following settings:
   - **Inventory ID**: *LABOR*
   - **Project**: *ITALIAN*
   - **Project Task**: *15*

4. In the **Cost Code** column, click the magnifier icon to open the lookup box. On the **Project Codes** tab of the lookup box, the system displays the list of cost codes that are used in the project budget lines that have the specified account group and project task.

5. Open the **All Records** tab, and click the *01–300* cost code.

6. On the table toolbar, click **Select**. The system closes the lookup box and inserts the cost code in the line. The warning next to the **Cost Code** column of this line indicates that the entered cost code does not exist in the project budget.

7. In the **Ext. Cost** column of the line, type `1200`.

8. On the form toolbar, click **Remove Hold**. The system saves the subcontract with the *Open* status.

9. On the *Projects* (PM301000) form, open the *ITALIAN* project, and review the **Cost Budget** tab. Notice that the new cost budget line for the *15* project task with the *01-300* cost code has been added, and *1200* is shown in the **Original Committed Amount** column, as shown in the following screenshot. In the added line, the *LABOR* account group is specified because this group includes the expense account of the inventory item specified in the subcontract line.

You have processed a subcontract and added a line with the new cost code to the cost budget.

Lesson 6: Preparing Vendor Payments for a Project

Vendor Payments for a Project: General Information

To pay for services provided by a vendor for a particular project in Acumatica ERP, you need to create an AP check, which is a document that represents the payment in the system, and apply it to the corresponding AP bill or bills.

Learning Objectives

In this chapter, you will learn how to do the following:

- Select the bills or bill lines to be paid
- Prepare and release a payment for multiple bills for the same project

Applicable Scenarios

You may need to prepare and process a vendor payment for a project in Acumatica ERP when the vendor's bill is due or multiple bills of this vendor related to the project are due on the same date. Also, when you prepare the payment, you may need to do one the following:

- Pay multiple bills for a project with a single payment document
- Pay particular lines of multiple bills with a single payment document
- Pay multiple bills at the same time and prepare separate payment documents for some of these bills and a consolidated payment document for the rest of the bills

Payment for Bills Related to a Project

To speed the process of preparing and processing payments for a project, you initiate the payment process on the *Prepare Payments* (AP503000) form. In the Selection area of the *Prepare Payments* form, you select the project for which you want to list bills for possible payment generation. You can also filter the listed bills by payment date, cash account, payment method, vendor, and discount availability. Then in the table on the **Documents to Pay** tab, you select the bills to be paid (the system inserts the full balance in the **Amount Paid** column, but you can instead specify a partial one to be paid), and click **Process** on the form toolbar to generate the checks for the selected bills.

> (i) If you need to process a payment for one bill, you can manually create a payment on the *Checks and Payments* (AP302000) form and process this payment to completion. For more information on creating a payment for a particular bill, see *AP Bill Payments: General Information*.

The system generates an AP check (or multiple checks grouped by the vendor) for the selected bills. If the payment method specified in any of the processed AP checks requires a check to be printed, the system opens the *Process Payments / Print Checks* (AP505000) form with these checks listed; on this form, you select the checks to be printed and click **Process** on the form toolbar. Then on the *Release Payments* (AP505200) form, you mass-release the AP checks. The system releases the AP checks, applies the payment amount to the corresponding bill or bills, and decreases the open balance of these bills. Once the check is applied in full, it is assigned the *Closed* status.

Workflow of the Process of Paying Bills for a Project

The following diagram illustrates the workflow of processing payments for vendors' bills related to a project.

Paying bills for a project
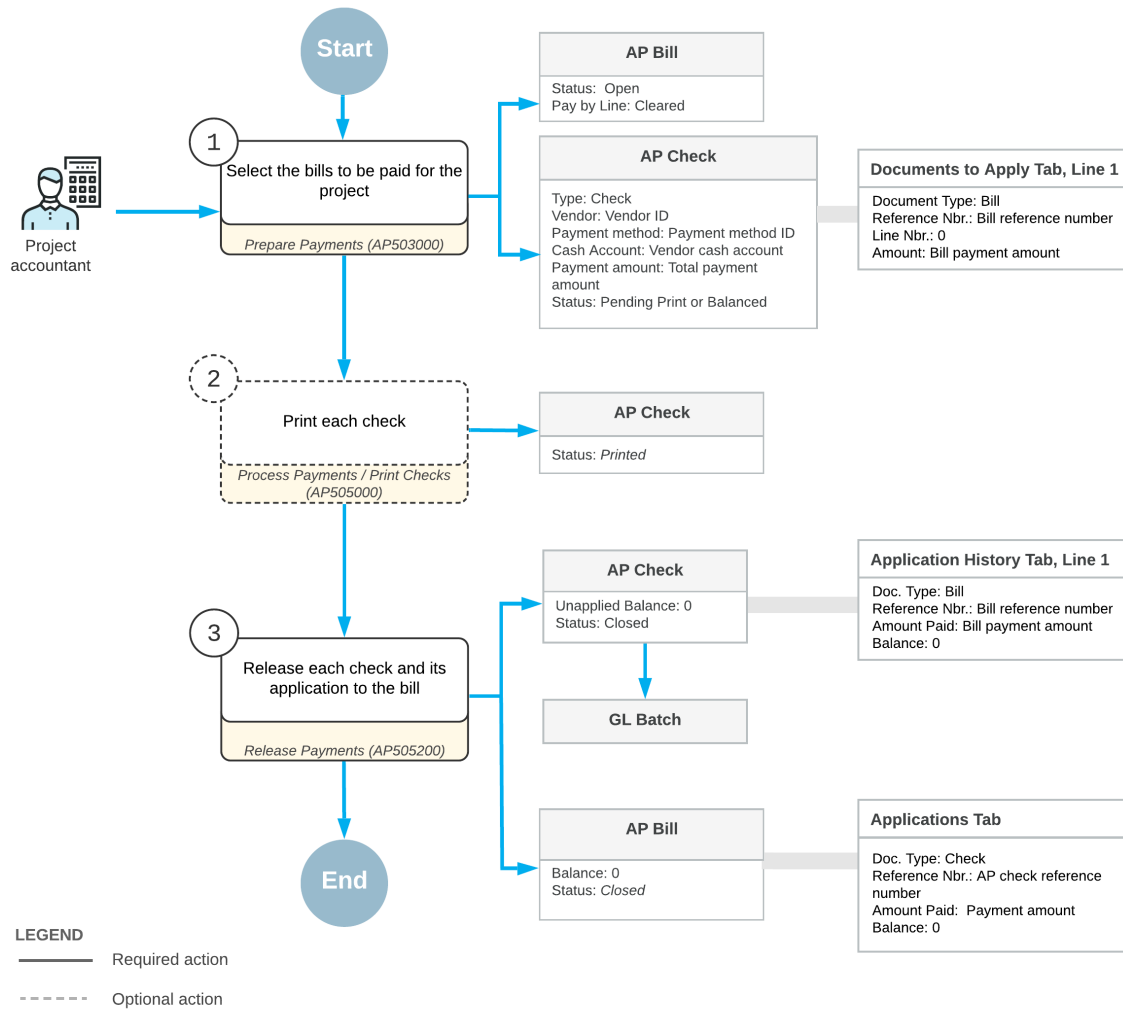
Payment for Separate Bill Lines for a Project

If your company needs to manage expenses and payments at a granular level, you can configure payment by document lines. If the *Payment Application by Line* feature is enabled on the *Enable/Disable Features* (CS100000) form, you select the **Pay by Line** check box in the Summary area of the *Bills and Adjustments* (AP301000) form to indicate that individual lines of the bill can be paid. For more information, see *Applying Payments to Particular Lines of AP Documents*.

You can use the *Prepare Payments* (AP503000) form to process bill lines just as you use it to process bills. You can prepare and process payments that include both bills and individual bill lines. You start by specifying selection criteria, which can include the vendor and the project, for the bills and bill lines to be listed. For bills and retainage documents for which the **Pay by Line** check box was cleared on the *Bills and Adjustments* form, in the table on the **Documents to Pay** tab of the *Prepare Payments* form, the system displays aggregated lines (one line per document). If at least one line in a bill or retainage document contains the same project as specified in the Selection area, the document appears in the table as an aggregated line with the total amount for all lines of the bill. For bills for which the **Pay by Line** check box was selected on the *Bills and Adjustments* form, the system displays individual bill lines. You select the bills and individual lines for which you need to process payments,

specify the amount to be paid for each bill or line, and click **Process** on the form toolbar to generate the AP check or checks.

After that, you release each AP check and check application on the *Release Payments* (AP505200) form; the system updates the open balances of the lines to which each payment was applied. When the check is applied in full, it is assigned the *Closed* status.

Workflow of the Process of Paying Bill Lines for a Project

The following diagram illustrates the workflow of processing payment for individual bill lines related to a vendor's work on a project.

Paying bill lines for a project
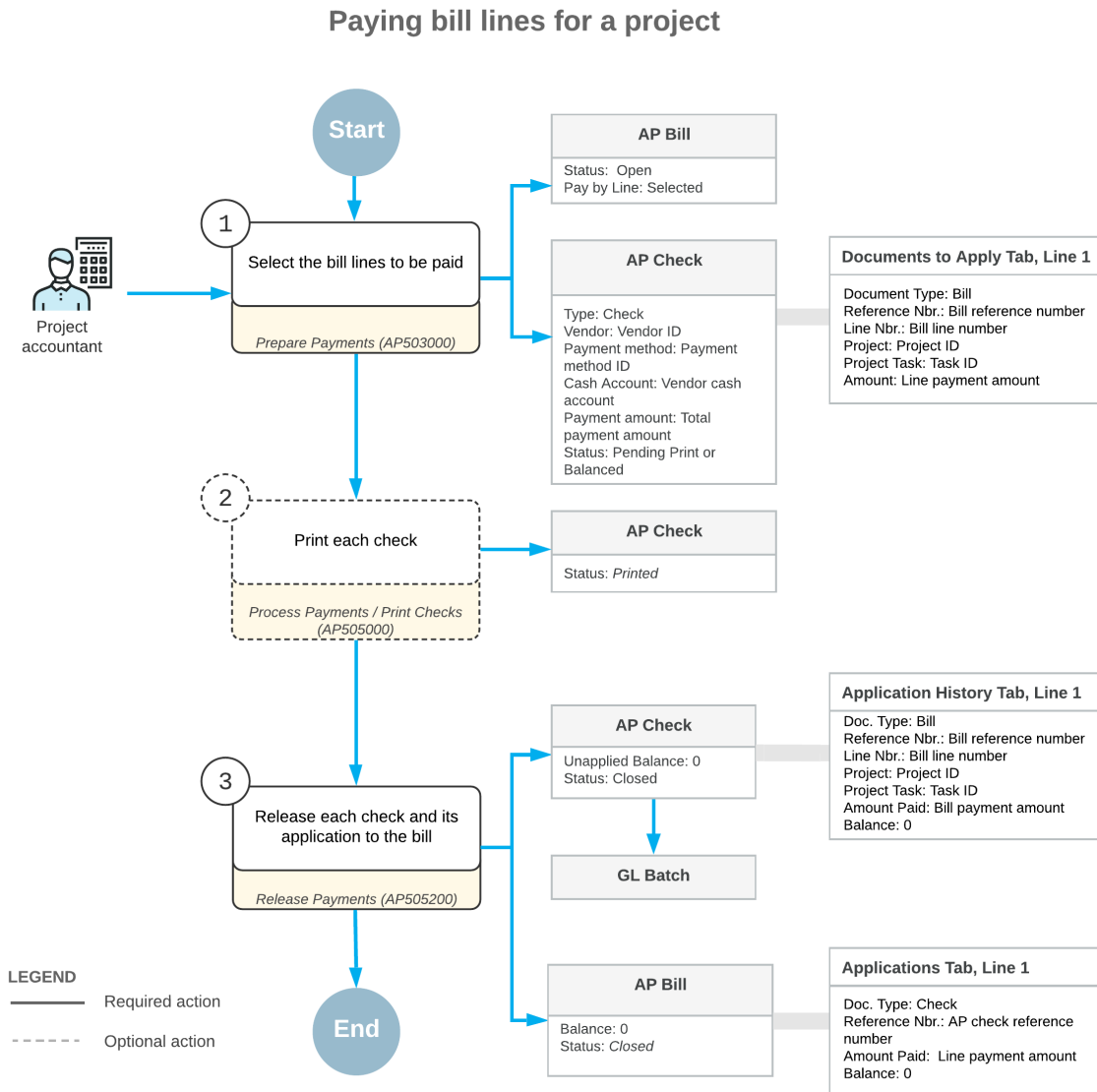
Preparation of Separate Payments

When you mass-create payments for multiple bills or bill lines of a project on the *Prepare Payments* (AP503000) form, the system groups the prepared accounts payable checks by vendor. That is, a separate AP check is created for all bills and bill lines of the same vendor. If the **Pay Separately** check box is selected for a vendor on the **Payment** tab of the *Vendors* (AP303000) form, however, each vendor document is paid with a separate check.

If you want to prepare a separate AP check for a specific bill, select the **Pay Separately** check box in the line of the **Documents to Pay** tab on the *Prepare Payments* form. When you process multiple bills at a time, the system prepares a separate AP check for each document that has the **Pay Separately** check box selected, and a consolidated check for the rest of the documents of the same vendor selected for processing.

When you prepare a payment for multiple bill lines at a time, if the **Pay Separately** check box is selected for at least one bill line, the system prepares a separate AP check for this bill and includes in this AP check all the bill lines that have been selected for processing. For the rest of the bill lines and bills selected for processing that have this check box cleared and have the same vendor, the system creates a consolidated check.

Vendor Payments for a Project: To Process a Payment of Bill Lines

This activity will walk you through generating a payment for particular bill lines related to a project and applying this payment to bills.

Story

Suppose that the ToadGreen company is building a hotel for the Equity Group Investors customer; the ToadGreen project manager has created a project to handle the tracking and billing of the materials and services related to the hotel. On January 15, 2022, the ToadGreen company purchased 500 packages of concrete mix and 100 units of plastic pipes from the Standard Hardware Company vendor for the hotel being built. On January 17, 2022, the company also hired this vendor as a subcontractor to perform on-site work, which is broken into three phases.

On January 30, 2022, the concrete mix was delivered, and the first phase of the on-site work was performed. The ToadGreen project accountant entered into the system two bills received from the Standard Hardware Company: one (with a date of 1/15/2022) for all of the purchased materials, and another (with a date of 1/17/2022) for all three phases of the on-site work. Acting as the ToadGreen project manager, you need to prepare a payment for the materials and services that have been provided—that is, you will pay only particular lines of the bills.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the following features have been enabled:
  - *Payment Application by Line*
  - *Construction*
- On the *Projects* (PM301000) form, the *HOTEL* project has been created for the Equity Group Investors customer, and multiple project tasks have been created for the project.
- On the *Non-Stock Items* (IN202000) form, the *LABOR*, *CONCRMX* and *PROJMATERIAL* non-stock items have been configured.
- On the *Vendors* (AP303000) form, the *HARDCO* vendor has been created. For this vendor, the *CHECK* payment method is specified as the default one; also, the **Pay by Line** check box is selected on the **Payment** tab.
- On the *Bills and Adjustments* (AP301000) form, two bills for the materials and labor provided by *HARDCO* (one for the materials and one for the labor) have been entered and released. Both bills have the **Pay By Line** check box selected in the Summary area of the form.

Process Overview

You will find the bills related to the needed project and requiring payment on the *Prepare Payments* (AP503000) form. Then you will prepare a single payment for particular lines of these bills. Finally, you will print the check on the *Process Payments / Print Checks* (AP505000) form and will release the payment on the *Release Payments* (AP505200) form.

System Preparation

To prepare to perform the instructions of the activity, do the following:

1. Sign in to the system as a project accountant by using the *bsanchez* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *1/30/2022*. If a different date is displayed, click the Business Date menu button, and select *1/30/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Selecting the Bills to be Paid

To select the bills to be paid, do the following:

1. Open the *Prepare Payments* (AP503000) form.

2. In the Summary area of the form, specify the following selection criteria to filter the data shown in the table:
   - **Branch**: *TBGROUP* (inserted by default)
   - **Payment Method**: *CHECK*
   - **Cash Account**: *10200TG - ToadGreen Checking Account*
   - **Payment Date**: *1/30/2022*
   - **Vendor**: *HARDCO*
   - **Project**: *HOTEL*

   In the table, the system lists the lines of the two bills of the *HARDCO* vendor: two lines for materials and three lines for services.

3. Click the unlabeled check box in the row with the *CONCRMX* item of the first bill, and in the row with the *LABOR* item and a **Line Nbr.** of *1* of the second bill (which is the first part of the works that have been performed and needs to be paid for). Make sure the **Selection Total** in the Summary area is $50,000. Also, make sure that the **Available Balance** is enough to pay this amount.

Step 2: Preparing the Payments

To prepare the payments, do the following:

1. While you are still on the *Prepare Payments* (AP503000) form with the needed rows selected, click **Process** on the form toolbar.

2. On the *Process Payments / Print Checks* (AP505000) form, which is opened with the only AP check listed in the table and the unlabeled check box selected, click **Process**. A new browser tab is opened showing the printable version of the check.

3. Close the tab with the printed check, and return to the *Release Payments* (AP505200) form, which the system has opened. On the form, notice that the system has added a row with the payment and selected the unlabeled check box in the row.

4. On the form toolbar, click **Process** to release the AP check.

5. In the **Processing** dialog box, which is opened, click the **Processed** tab, and in the table, click the link in the **Reference Nbr.** column for the *HARDCO* check to open the check on the *Checks and Payments* (AP302000) form.

6. On the **Application History** tab of the *Checks and Payments* form, make sure both bill lines to which the payment has been applied are listed in the table, as shown in the following screenshot. The payment amount has been applied in full, so the check is now assigned the *Closed* status.

Figure: Single payment applied to lines of two bills

You have prepared a payment for particular bill lines and applied this payment to these lines.

Vendor Payments for a Project: Generated Transactions

When an AP check is released, a batch of general ledger transactions is created; the generated transactions reduce the balances of the cash account used for the check and the vendor's accounts payable account.

Account	Source of Account	Project	Debit	Credit
Cash account	Vendor	X (non-project code)	*0.00*	Payment amount
Accounts Payable	Vendor	X (non-project code)	Payment amount	*0.00*

You can view the reference number of the GL batch on the **Financial** tab of the *Checks and Payments* (AP302000) form.

Lesson 7: Tracking Cost and Revenue Changes to Projects

Change Requests: General Information

Acumatica ERP provides the two-tier change management capability for projects, which is used to create change requests in addition to change orders. Change requests are detailed breakdowns of potential changes to the project budget and commitments, such as additions, deletions, or edits to the existing cost or revenue budget. In the first tier, you create change requests, and the second tier involves you grouping multiple change requests into a single change order to be approved.

With the two-tier change management, you can also set up price markups that can be applied to an individual line of a change request and to the total amount of the document to charge the customer for the changes.

Learning Objectives

In this chapter, you will learn how to do the following:

- Configure a change order class that supports the two-tier change management
- Configure default markups
- Create a change request to update the project budget
- Process a change request with a cost change order
- Process a change request with a revenue change order

Applicable Scenarios

You turn on the change order workflow for a project to be able to track changes to the budgeted and committed values of the project. You create change requests if the workflow of your project supposes a lot of small changes to the budget but you do not want to create a lot of change orders, for example, because of the approval required for each change order. With change requests, you can collect a lot of small changes into a single or several change orders.

You can also need to create change requests for a project if you want to charge the customer for the changes made to the project budget.

Configuration of Change Order Classes

A change order class defines which project data—the revenue budget, the cost budget, or commitments—can be adjusted with a change order of this class. The two-tier change management is controlled at the level of a change order class. If the **Two-Tier Change Management** check box is selected for a particular class on the *Change Order Classes* (PM203000) form, change orders of the selected class support two-tier change management and can include change requests.

If a change order class has the **Revenue Budget** check box cleared and the **Cost Budget** and **Commitments** check box selected on the **Details** tab of the *Change Order Classes* form, change orders of this class are classified as *cost change orders* for change requests.

If a change order class has the **Revenue Budget**, **Cost Budget**, and **Commitments** check box selected on the **Details** tab of the *Change Order Classes* form, change orders of this class are treated as *revenue change orders*.

Creation of Change Requests

To make it possible for users to track changes for a particular project by using change requests along with change orders, you select the **Change Order Workflow** check box on the **Summary** tab of the *Projects* (PM301000) form for the project. Then you can create a change request for the project on the *Projects* form by clicking **Create Change Request** on the form toolbar. The system creates a change request with the *On Hold* status and the project selected and opens it on the *Change Requests* (PM308500) form.

> ⚠️ In addition to creating a change request from the *Projects* form for the selected project, you can create a new change request directly on the *Change Requests* form and select the needed project.

In a change request with the *On Hold* status, on the **Estimation** tab of the *Change Requests* form, you add rows with potential changes that will affect the revenue budget and the cost budget of the selected project when the related change orders are released. For each estimation line, you specify the following settings:

- The **Project Task**, **Account Group**, and **Inventory ID** that represent the cost budget line to be updated or created if this combination of settings does not exist in the project budget

  If you do not want to associate an estimation line with any inventory item, you select the empty item code (*N/A*) in the **Inventory ID** column.

- The **Revenue Task** and **Revenue Account Group** that represent the revenue budget line to be updated or created if this combination of settings does not exist in the project budget

- The **Quantity**, **Unit Cost**, and **Unit Price** for the specified unit of measure that estimate the change to the budget

  Optionally, the **Create Commitment** and **Vendor** if you want to create a commitment line based on this estimation line

The amount in the **Ext. Cost** column estimates the change of the cost and calculated as follows:

```
Ext. Cost = Quantity * Unit Cost
```

The amount in the **Line Amount** column estimates the change of the revenue and calculated as follows:

```
Line Amount = Ext. Price + Ext. Price * Line Markup (%) / 100

Ext. Price = Quantity * Unit Price

Unit Price = Unit Price + Unit Price * Price Markup (%) / 100
```

Once you have saved a change request with the *Open* status, the **Quantity** and **Ext. Cost** values of each estimation line increase the **Potential CO Quantity** and **Potential CO Amount** of the corresponding cost budget line of the project on the *Projects* form. The **Quantity** and **Line Amount** values of each estimation line increase the **Potential CO Quantity** and **Potential CO Amount** of the corresponding revenue budget line of the project.

Adding of a Change Request to a Change Order

On the *Change Requests* (PM308500) form, you can create a change order for the selected change request by clicking the **Create Change Order** button on the form toolbar. On the *Change Orders* (PM308000) form, you can also add one or several change requests to the selected change order by clicking **Select Change Requests** on the table toolbar of the **Change Requests** tab.

If the project cost budget and commitments affected by a change request need to be updated through a separate change order before the revenue part has been approved, a *cost change order* and a *revenue change order* may be used.

A cost change order is a change order that contains only the cost and commitment parts of the change request based on the settings of the selected change order class. This change order created for a change request is shown in the **Cost Change Order Nbr.** box in the Summary area of the *Change Requests* form.

A revenue change order is a change order that contains the revenue part of the change request as well as all types of estimation lines—that is, revenue budget, cost budget, and commitment lines. This change order created for a change request is shown in the **Change Order Nbr.** box in the Summary area of the *Change Requests* form.

A change request may be associated with both a cost change order and a revenue change order. If you create a cost change order for a change request first, this makes it necessary to also create a revenue change order. You can release the cost change order as early as necessary to create commitments and change the project cost budget accordingly without having to have the revenue part approved at the same time. The revenue change order may be released later. Most commonly, however, a change request relates to only one change order that contains all types of estimation lines (a revenue change order).

Based on each estimation line of the change request added to a change order and on the selected change order class, the system creates the following lines for the change order on the *Change Orders* form:

- A cost budget line on the **Cost Budget** tab with **Quantity** and **Amount** values equal to the quantity and extended cost of the estimation line
- A revenue budget line on the **Revenue Budget** tab with **Quantity** and **Amount** values equal to the quantity and line amount of the estimation line
- A commitment line on the **Commitments** tab with **Quantity** and **Amount** values equal to the quantity and extended cost of the estimation line if the estimation line has **Create Commitment** check box selected on the *Change Requests* form

If the change request has a markup line with the project task and account group on the **Markups** tab of the *Change Requests* form but has no estimation line with the same revenue task and revenue account group on the **Estimation** tab, on the **Revenue Budget** tab of the *Change Orders* form, the system also creates a revenue budget line with the **Amount** value equal to the markup amount of this markup line. Otherwise, the markup amount is added to the existing revenue budget line created based on the estimation line.

When the change request whose cost and commitment part and revenue part have been linked to one or two change orders (depending on whether the cost and commitment part and the revenue part are processed jointly or separately), the system assigns the *Closed* status to the change request.

For information on further processing of change orders, see *Single-Tier Change Management: General Information*.

Workflow of Processing a Change Request

The following diagram illustrates the workflow of processing a change request.

Change request workflow

Job titles may vary across companies.

Create a project with the change order workflow

1 Create a change request
Projects (PM301000)
Change Requests (PM308500)

Project clerk

Change request
Status: *On Hold*

Estimation tab
Project Task: *Project task*
Account Group: *Account group*
Inventory ID: *Inventory item*
Quantity: *Change quantity*
Ext. Cost: *Change cost*
Revenue Task: *Revenue project task*
Revenue Account Group: *Revenue account group*
Ext. Price: *Change revenue*
Create Commitment: *Selected*

Markups tab
Project Task: *Markup project task*
Account Group: *Markup account group*
Markup Amount: *Markup amount*

2 Prepare the change request for adding to a change order
Change Orders (PM308000)

Project clerk

Project

Change request
Status: *Open*

Revenue Budget tab
Line 1
Project Task: *Revenue project task*
Account Group: *Revenue account group*
Potential CO Quantity: *Change quantity*
Potential CO Amount: *Change revenue*

Line 2
Project Task: *Markup project task*
Account Group: *Markup account group*
Potential CO Quantity: *0*
Potential CO Amount: *Markup amount*

Cost Budget tab
Project Task: *Project task*
Account Group: *Account group*
Inventory ID: *Inventory item*
Potential CO Quantity: *Change quantity*
Potential CO Amount: *Change cost*

3 Add the change request to a change order
Change Orders (PM308000)

Project manager

Process the change order

Change order

Change request
Status: *Closed*

Revenue Budget tab
Line 1
Project Task: *Revenue project task*
Account Group: *Revenue account group*
Quantity: *Change quantity*
Amount: *Change revenue*

Line 2
Project Task: *Markup project task*
Account Group: *Markup account group*
Quantity: *0*
Amount: *Markup amount*

Cost Budget tab
Project Task: *Project task*
Account Group: *Account group*
Inventory ID: *Inventory item*
Quantity: *Change quantity*
Amount: *Change cost*

Commitments tab
Project Task: *Project task*
Account Group: *Account group*
Inventory ID: *Inventory item*
Quantity: *Change quantity*
Amount: *Change cost*

Change Requests: Configuration of Markups

You can configure markups to charge the customer with each created change request. The following types of markup can be applied to a change request on the *Change Requests* (PM308500) form:

- Line-level markups: These markups apply to an individual estimation line on the **Estimation** tab and affects the **Line Amount** value. This type includes the **Price Markup (%)** and **Line Markup (%)**.
- Document-level markups: These markups apply to the total line amount of the change request on the **Markups** tab.

  You can define one or several markups of this type for the change request as well as define no markups. A document-level markup is applied to a change request only if all the key attributes of a project budget line—project task, account group, and optionally inventory item—are defined for the markup on the **Markups** tab.

You can override all markups and delete document-level markups at the change request level.

Line-Level Markups

A price markup is an item-specific markup. When you select an inventory item in an estimation line on the **Estimation** tab of the *Change Requests* (PM308500) form, the markup percent specified for the item is retrieved as the **Price Markup (%)** value. You can specify the price markup for the item on the **Price/Cost** tab of the *Stock Items* (IN202500) form or on the **Price/Cost** tab of the *Non-Stock Items* (IN202000) form. If no price markup is specified for the item, the system uses the default price markup specified in the **Default Price Markup, %** box (**Markup** section) on the **General** tab of the *Projects Preferences* (PM101000) form. If no default price markup is specified in the project accounting preferences, the price markup of the estimation line is zero.

A line markup is defined at the account group level. When you select an account group in an estimation line in the **Account Group** column on the **Estimation** tab of the *Change Requests* form, the default markup specified for the account group is retrieved as the **Line Markup (%)** value. You can specify the default line markup for the account group on the **Settings** tab of the *Account Groups* (PM201000) form. If no default markup is specified in the account group, the line markup of the estimation line is zero.

The line amount of an estimation line considers the line-level markups and is calculated as follows:

```
Unit Price = Unit Price + Unit Price * Price Markup (%) / 100

Ext. Price = Quantity * Unit Price

Line Amount = Ext. Price + Ext. Price * Line Markup (%) / 100
```

Document-Level Markups

A document-level markup applies to the total line amount of a change request. On the **Markups** tab of the *Change Requests* (PM308500) form, for a change request, you can define any number of document-level markups of the following types as well as define no markups:

- *%*: A markup whose amount is calculated as follows:

  Markup Amount = **Line Total** * *% Markup Value* / *100*

  You can define as many markups of this type as necessary.
- *Cumulative %*: A markup whose amount is calculated as follows:

  Markup Amount = (all the previously applied % markups) * *Cumulative % Value* / *100*

  A markup of this type requires at least one markup of the % type.
- *Flat Fee*: A markup whose amount is specified manually to be added to the total markup.

  You can define as many markups of this type as necessary.

A document-level markup is applied to a change request only if all the project budget key attributes—project task, account group, and optionally inventory item—are defined for the markup on the **Markups** tab of the *Change Requests* form.

A change request inherits document-level markup from the project that you can define on the **Defaults** tab (**Document Markups** table) of the *Projects* (PM301000) form. The project inherits document markups from the **General** tab (**Markup** section) of the *Projects Preferences* (PM101000) form.

Change Requests: Implementation Activity

The following implementation activity will walk you through the process of configuring two-tier change management for projects.

Story

Suppose that you, as the system administrator, need to configure two-tier change management so that the change requests to projects can be processed in the system. Also, you need to configure the following price markups to be applied to the new projects:

- A default price markup of 25% to be applied to each individual change made with a change request
- 8% of the profit to be applied to an entire change request
- 4% of overhead to be applied to an entire change request
- 5% of all the previously charged markups to be applied to an entire change request
- A flat fee of $100 per change request

You also need to specify price markups for the *ITALIAN* project, which has already been created in the system. Acting as the system administrator, you will perform these tasks.

Process Overview

You will enable the *Change Requests* feature on the *Enable/Disable Features* (CS100000) form. You will then configure the default price markups on the *Projects Preferences* (PM101000) form. You will also create change order classes that support two-tier change management on the *Change Order Classes* (PM203000) form.

System Preparation

To prepare to perform the instructions of the activity, do the following:

1. Sign in to the system as a system administrator by using the *gibbs* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to today's date.

Step 1: Enabling the Feature for Two-Tier Change Management

Perform the following instructions to enable the feature that provides the functionality of two-tier change management:

1. Open the *Enable/Disable Features* (CS100000) form, and on the form toolbar, click **Modify**.

2. In the *Projects* group of features, select the **Change Requests** check box.

3. On the form toolbar, click **Enable**.

Step 2: Configuring the Default Markups

To specify the default markups that the system will assign to change requests, do the following:

1. In the **Markups** section on the **General** tab on the *Projects Preferences* (PM101000) form, enter 25 in the **Default Price Markup, %** box.

2. In the **Document Markups** table, add rows with the following settings.

Type	Description	Value
%	`Profit`	8
%	`Overhead`	4
Cumulative %	`Default cumulative %`	5
Flat Fee	`Additional charges`	100

The system will apply these document-level markups to the total amount of change requests by default.

3. Save your changes.

Step 3: Creating a Change Order Class for Cost Change Orders

To create a change order class for the change orders that affect only the project cost budget, do the following:

1. Open the *Change Order Classes* (PM203000) form.

> (i) To open the form for creating a new record, type the form ID in the Search box, and on the Search form, point at the form title and click **New** right of the title.

2. On the form toolbar, click **Add New Record**, and specify the following settings in the Summary area:

   - **Class ID**: INTERNAL
   - **Description**: `Cost change orders`
   - **Two-Tier Change Management**: Selected

     Because you have selected the **Two-Tier Change Management** check box, the **Cost Budget** and **Commitments** check boxes are selected by default and cannot be cleared.

3. On the **Details** tab, clear the **Revenue Budget** check box.

4. Save the change order class.

Step 4: Creating a Change Order Class for Revenue Change Orders

To create a change order class for the change orders that affect the project revenue budget, while you are still viewing the *Change Order Classes* (PM203000) form, do the following:

1. Click **Add New Record** on the form toolbar, and specify the following settings in the Summary area:

   - **Class ID**: EXTERNAL
   - **Description**: `Revenue change orders`
   - **Two-Tier Change Management**: Selected

     Again, notice that on the **Details** tab, all of the check boxes are selected by default. The **Cost Budget** and **Commitments** check boxes are unavailable to be cleared; you will leave the **Revenue Budget** check box selected.

2. Save the change order class.

3. On the **General** tab of the *Projects Preferences* (PM101000) form, in the **Default Change Order Class** box, select *EXTERNAL*, and then save your changes.

You have configured two-tier change management for project, and defined default project markups.

Change Management: To Process Cost and Revenue Changes to a Project

The following activity will walk you through the processing of extra costs and revenues for the project by using the two-tier change management workflow.

Story

Suppose that ToadGreen Building Group is a general contractor building an Italian restaurant for the Italian Company customer. The ToadGreen project accountant has created a project for the work to be performed and the budget has been agreed upon with the customer. The construction work has been started.

Then suppose that on *7/15/2022*, a worker of a subcontractor, Acme Doors & Glass, arrived at the construction site to perform cleaning work. The worker found out that the French-style window specified in the plans does not fit the framed opening and notified the ToadGreen project manager about this. The project manager has estimated that five days will be needed to fix this issue, and this will cost $3,500. Also, the ToadGreen manager has decided to add an extra markup in the amount of $1,450 for the work to be performed.

Acting as the project manager, you need to agree upon the cost budget with the engineer and the revenue budget with the customer. For this purpose, you will prepare a change request with the related project issue, and then process the cost change order along with the related commitments to make changes to the project cost budget. After the work is finished, you will process the revenue change order to record the revenue.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the *Construction* and *Change Orders* features have been enabled.
- On the *Account Groups* (PM201000) form, the *REVENUE* account group has been configured.
- On the *Projects* (PM301000) form, the *ITALIAN* project has been configured. For the project, the **Change Order Workflow** check box is selected on the **Summary** tab.
- On the *Project Management Classes* (PJ201000) form, the *FIELD* class has been created to provide the default settings for project issues.

Process Overview

You will create a change request on the *Change Requests* (PM308500) form; also, you will create a project issue to be linked to this request on the *Project Issue* (PJ302000) form. You will create a change order for the cost part of the change request on the *Change Orders* (PM308000) form. After that you will create second change order for the revenue part of the change request. Finally, you will make sure that the processed documents are correctly reflected in the cost and revenue budgets of the project.

System Preparation

To prepare to perform the instructions of the activity, do the following:

1. Sign in to the system as a construction project manager by using the *ewatson* username and *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *7/15/2022*. If a different date is displayed, click the Business Date menu button, and select *7/15/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

3. Download the *Window-Rough-Openings.jpg* file to your device.

Step 1: Creating a Change Request with the Related Project Issue

Create a change request and a project issue by doing the following:

1. Open the *Change Requests* (PM308500) form.

    > (i) To open the form for creating a new record, type the form ID in the Search box, and on the Search form, point at the form title and click **New** right of the title.

2. On the form toolbar, click **Add New Record** to create a new document, and specify the following settings in the Summary area:
    - **Project**: *ITALIAN*
    - **Change Date**: *7/15/2022*
    - **Contract Time Change, Days**: 4
    - **Description:** `Issue with French-style window`

3. Click the Edit button to the right of the **Project Issue** box.

4. On the *Project Issue* (PJ302000) form, which opens with the new project issue, specify the following settings:
    - **Summary**: `French Style Window doesn't fit in framed opening`
    - **Project**: *ITALIAN*
    - **Class ID**: *FIELD*
    - **Owner**: *Ricky Thompson*
    - **Schedule Impact**: Selected
    - **Schedule Impact (days)**: 5
    - **Cost Impact**: Selected
    - **Cost Impact**: `3500`
    - **Details** (tab): `The ACME DOORS & Glass on-site worker reported that the French-style window specified on the plans does not fit in framed opening.`

5. Click **Save & Close** on the form toolbar to return to the change request on the *Change Requests* form. Make sure that the reference number of the created project issue is shown in the **Project Issue** box in the Summary area of the form.

6. On the **Detailed Description** tab, type: `The ACME DOORS & Glass on-site worker reported that the French-style window specified on the plans does not fit in framed opening. This needs to be addressed with the engineer, architect, and subcontractors.`

7. Save the change request.

8. Click **Files** on the form title bar. The **Files** dialog box opens.

9. Click **Browse**, navigate to the `Window-Rough-Openings.jpg` file (which is provided with the training materials), and select this file.

10. Click **Upload**, and close the **Files** window. On the form title bar, notice that **Files (1)** indicates that the image has been attached to the change request.

11. On the **Estimation** tab, enter a line with the following settings:
    - **Project Task**: `08`
    - **Account Group**: *SUBCON*
    - **Cost Code**: `08-100`
    - **Inventory ID**: *SUBCONTR*

- **Quantity**: 20
- **UOM**: *EA*
- **Unit Cost**: 52
- **Price Markup (%)**: 7
- **Revenue Task**: 08
- **Revenue Code**: 08-000
- **Vendor**: *ACMEDO*
- **Create Commitment**: Selected

12. Enter another line with the following settings:

    - **Project Task**: 08
    - **Account Group**: *SUBCON*
    - **Cost Code**: 08-520
    - **Inventory ID**: *SUBCONTR*
    - **Quantity**: 17
    - **UOM**: *EA*
    - **Unit Cost**: 50
    - **Price Markup (%)**: 7
    - **Revenue Task**: 08
    - **Revenue Code**: 08-000
    - **Vendor**: *ACMEDO*
    - **Create Commitment**: Selected

13. On the form toolbar, click **Remove Hold**. The system saves the change request with the *Open* status.

14. On the *Projects* (PM301000) form, open the *ITALIAN* project, and on the **Change Requests** tab, make sure that the change request is now shown in the table.

15. On the **Cost Budget** tab, review the cost budget lines. In the *08-100 (Doors - Exterior)* line with the *SUBCON* account group, and in the *08-520 (Windows - Wood)* line with the *SUBCON* account group, based on the amount and quantity of the change request, the system has updated the values in the **Potential CO Quantity** and **Potential CO Amount** columns (see the following screenshot).

Projects
ITALIAN - Italian restaurant (Market Street)

← | 💾 | 💾 | ↺ | + | 🗑 | |< | < | > | >| | COMPLETE PROJECT | **RUN PROJECT BILLING** | …

* Project ID:	ITALIAN - Construction project (time a 🔍	Status:	Active	Actual Income:	0.00
Customer:	ITACOM - Italian Company 🔍 ✎			Actual Expenses:	5,000.00
Template:	CONTM - Construction project (time and ✎			Margin:	-5,000.00 %: 0.00
* Description:	Construction project (time and material)				

SUMMARY | TASKS | REVENUE BUDGET | **COST BUDGET** | BALANCES | COMMITMENTS | INVOICES | CHANGE ORDERS | CHANGE REQUESTS | UNION LOCALS | ACTIVIT

Project Task: [🔍]   ☐ Group by Task

↺ | + | ✕ | VIEW COMMITMENT DETAILS | VIEW TRANSACTIONS | ⊢| | X | ⬆

		D	*Proje Task	Cost Code	*Account Group	Description	Origin Budge Quant	UOM	Unit Rate	Original Budgeted Amount	Potentia CO Quantity	Budgeted CO Quantity	Budgeted CO Amount	Revised Budgeted Quantity	Revised Budgeted Amount	Potential CO Amount
	☐		07	07-200	MATERIAL	Insulation	15,000.0	EA	1.6700	25,050.00	0.00	0.00	0.00	15,000.0	25,050.00	0.00
	☐	D	07	07-300	LABOR	Roofing- Steep Slope	80.00	HOUR	140.0000	11,200.00	0.00	0.00	0.00	80.00	11,200.00	0.00
	☐	D	07	07-300	MATERIAL	Roofing- Steep Slope	7,560.00	EA	12.0000	90,720.00	0.00	0.00	0.00	7,560.00	90,720.00	0.00
>	☐	D	08	08-100	MATERIAL	Doors- Exterior	8.00	EA	1,000.0000	8,000.00	0.00	0.00	0.00	8.00	8,000.00	0.00
	☐	D	08	08-100	SUBCON	Doors- Exterior	28.00	EA	50.0000	1,400.00	20.00	0.00	0.00	28.00	1,400.00	1,040.00
	☐	D	08	08-200	MATERIAL	Doors- Interior	9.00	EA	750.0000	6,750.00	0.00	0.00	0.00	9.00	6,750.00	0.00
	☐	D	08	08-200	SUBCON	Doors- Interior	30.00	EA	50.0000	1,500.00	0.00	0.00	0.00	30.00	1,500.00	0.00
	☐	D	08	08-400	MATERIAL	Doors- Overhead	1.00	EA	2,000.0000	2,000.00	0.00	0.00	0.00	1.00	2,000.00	0.00
	☐	D	08	08-400	SUBCON	Doors- Overhead	16.00	EA	50.0000	800.00	0.00	0.00	0.00	16.00	800.00	0.00
	☐	D	08	08-520	MATERIAL	Windows- Wood	30.00	EA	525.0000	15,750.00	0.00	0.00	0.00	30.00	15,750.00	0.00
	☐	D	08	08-520	SUBCON	Windows- Wood	90.00	EA	50.0000	4,500.00	17.00	0.00	0.00	90.00	4,500.00	850.00
	☐	D	08	08-800	MATERIAL	Entrances, Storefronts, C…	1.00	EA	24,500.0000	24,500.00	0.00	0.00	0.00	1.00	24,500.00	0.00
	☐	D	08	08-800	SUBCON	Entrances, Storefronts, C…	80.00	EA	100.0000	8,000.00	0.00	0.00	0.00	80.00	8,000.00	0.00
	☐	D	09	09-200	LABOR	Finish- Drywall	80.00	HOUR	110.0000	8,800.00	0.00	0.00	0.00	80.00	8,800.00	0.00
	☐	D	09	09-200	MATERIAL	Finish- Drywall	20,000.0	EA	6.2500	125,000.00	0.00	0.00	0.00	20,000.00	125,000.00	0.00
	☐	D	09	09-300	LABOR	Finish- Tile	30.00	HOUR	120.0000	3,600.00	0.00	0.00	0.00	30.00	3,600.00	0.00

Figure: The updated potential amount and quantity in the project

Step 2: Processing the Cost Part of the Change Request

Process the cost change order for the change request by doing the following:

1. Open the *Change Orders* (PM308000) form.

2. On the form toolbar, click **Add New Record** to create a change order, and specify the following settings in the Summary area:

   • **Class**: *INTERNAL*

   • **Project**: *ITALIAN*

   • **Change Date**: *7/15/2022*

   • **Approval Date**: *7/15/2022*

   • **Description**: `Extra costs for the Italian Restaurant project`

3. On the **Change Requests** tab, click **Select Change Requests** on the table toolbar.

4. In the **Select Change Requests** dialog box, which opens, select the unlabeled check box in the row of the change request you created earlier (*Issue with French-style window*), and then click **Add Change Requests & Close**. The system adds the line with the change request to the table on the **Change Requests** tab and specifies cost budget and commitment details on the **Cost Budget** tab and the **Commitments** tab, respectively.

5. On the form toolbar of the *Change Orders* form, click **Remove Hold** and then click **Release** to release the change order.

6. On the **Change Requests** tab, notice that the status of the change request is still *Open*, because the revenue part of the change request has not been processed yet.

Step 3: Processing the Revenue Part of the Change Request

Process the revenue part of the change request by doing the following:

1. On the *Change Orders* (PM308000) form, create a new change order and specify the following settings:

   - **Class**: *EXTERNAL*
   - **Project**: *ITALIAN*
   - **Change Date**: *8/29/2022*
   - **Approval Date**: *8/29/2022*
   - **Description**: `Additional revenues for the Italian Restaurant project`

2. Add the remaining revenue part of the previously created change request as follows:

   a. On the **Change Requests** tab, click **Select Change Requests**, which opens the **Select Change Requests** dialog box.

   b. In the dialog box, select the unlabeled check box for the *Issue with French-style window* change request.

   c. Click **Add Change Requests & Close**.

3. Save the change order. On the **Revenue Budget** tab, make sure two revenue budget lines have been added. Notice that on the **Cost Budget** tab and the **Commitments** tab, there are no lines, because you have already processed the cost part of the change request.

4. On the **Change Requests** tab, make sure that the change request is now closed (and has *Closed* in the **Status** box).

5. On the form toolbar, click **Remove Hold**, and then click **Release** to release the change order.

6. On the *Projects* form, open the *ITALIAN* project.

7. On the **Revenue Budget** tab, review the revenue budget lines. Make sure the value in the **Budgeted CO Amount** column for the line with the *08-000* cost code has been updated with the amount from the change order.

You have finished processing of a change request with cost and revenue parts.

Lesson 8: Billing Project for Progress with Retainage

AR Invoices with Retainage: General Information

If a customer retains a part of the amount of an invoice, to process the total amount of the invoice, at least two invoices are created in Acumatica ERP: the accounts receivable invoice with retainage, and the retainage invoice. The invoice with retainage is paid during the period of time agreed upon between your company and the customer. The retainage invoice is an invoice that contains the retained amount or a part of the retained amount to be paid, and it is paid after the contractual work has been finished. Multiple retainage invoices can be created for one invoice with retainage.

Learning Objectives

In this chapter, you will learn how to do the following:

- Create a pro forma invoice and the related AR invoice with retainage
- Process the AR invoice with retainage
- Release the retainage from the AR invoice
- Apply payments to invoices with retainage

Applicable Scenarios

You process an invoice with retainage when the customer has withheld a part of the invoice amount until the work is substantially complete to assure that your company will satisfy its obligations and complete the construction project.

The Processing Workflow of an Invoice with Retainage

Typically, an AR invoice with retainage goes through the following states during its life cycle:

1. Entering the invoice with retainage and preparing the invoice for release: A data entry person creates the invoice with retainage in the system on the *Invoices and Memos* (AR301000) form. The balance of this invoice equals the sum of the extended prices minus the line discounts of the lines of the invoice, with this subtotal reduced by the retainage amount. The total amount of the invoice (which is shown on the **Retainage** tab) is the detail total amount plus the retained amount.

2. Releasing the invoice with retainage: An accountant releases the prepared invoice. This released invoice is assigned the *Open* status, affects the balances of the selected customer and the general ledger accounts, and requires further processing.

3. Receiving a payment for the invoice with retainage: The accountant enters a payment in the system to pay the invoice, and then processes and releases the payment. The system reduces the balance of the invoice by the amount paid. When the payment is released, the balance of the customer is reduced by the paid amount and the general ledger accounts are updated. The invoice still has the *Open* status.

4. Releasing a retainage: Once the work has been completed, the accountant releases a part of the retained amount or the full retained amount for the invoice. When the retainage is released, the system creates a retainage invoice with the *Balanced* or *On Hold* status, depending on whether the **Hold Documents on Entry** check box is selected on the *Accounts Receivable Preferences* (AR101000) form.

   When the retainage invoice is released, the system updates the balances of the customer, the related general ledger accounts, and the unreleased retainage amount of the invoice with retainage.

5. Receiving a payment for the retainage invoice: The accountant enters a payment in the system for the retainage invoice, and then processes and releases the payment. The system reduces the balance of the retainage invoice by the amount paid. The balance of the customer is reduced by the paid amount, and the general ledger accounts are updated.

    If the full retained amount has been released and paid, the invoice with retainage is assigned the *Closed* status, and its unreleased and unpaid retainage amounts equal zero.

    If a part of the retained amount has been released and paid, the invoice with retainage keeps the *Open* status. The system reduces the invoice's unreleased and unpaid retainage amounts by the retainage released and the retainage paid, respectively.

Project Billing: Progress Billing

For a billing rule defined on the *Billing Rules* (PM207000) form, you specify the sequence of steps in the left pane and the settings of each step in the right pane, including the billing type, which can be *Time and Material* or *Progress Billing*. You specify *Progress Billing* rules for project tasks, which are then billed by their progress.

The Progress Billing Process

Progress billing is a simple billing workflow for the projects that are gradually billed at a fixed contract amount. Progress billing does not involve project transactions. To bill a project task by its progress, you need to create a billing rule on the *Billing Rules* (PM207000) form and configure a step of the *Progress Billing* type in this rule. Then you assign the configured billing rule to project tasks on the **Tasks** tab of the *Projects* form.

The progress billing procedure could be initiated for a project that has at least one revenue budget line with billable project revenue, or for a project with pending values of zero if the progress billing step of the billing rule assigned to any project task has the **Create Lines with Zero Amount** check box selected on the *Billing Rules* form.

Each revenue budget line is billed based on amount or quantity, depending on the option selected in the **Progress Billing Base** column on the **Revenue Budget** tab of the *Projects* (PM301000) form as follows:

-   For a line billed by amount, you need to specify a nonzero amount, which may be a negative amount, in the **Pending Invoice Amount** column. For these lines, the **Pending Invoice Quantity**, **Draft Invoice Quantity**, and **Actual Quantity** values are always *0*.
-   For a line billed by quantity, you need to specify a nonzero quantity in the **Pending Invoice Quantity** column. In this case, the system will calculate the **Pending Invoice Amount** of the line as the pending invoice quantity multiplied by the unit rate specified in the line. The system will calculate the percentage of line completion (**Completed (%)**) based on the specified values.

You can also specify the **Completed (%)** value on the **Revenue Budget** tab for the needed revenue budget lines to indicate that the project tasks are being performed. The system will calculate the pending invoice values by using the following formulas:

```
Pending Invoice Amount = Revised Budgeted Amount * ( Completed (%) / 100 ) -
Draft Invoice Amount - Actual Amount

Pending Invoice Quantity = Revised Budgeted Quantity * ( Completed (%) / 100 )
- Draft Invoice Quantity - Actual Quantity
```

When you run the project billing by clicking the **Run Project Billing** button on the form toolbar of the *Projects* form, the system prepares a pro forma invoice or an accounts receivable invoice depending on the project workflow, which is defined by the state of the **Create Pro Forma Invoice on Billing** check box on the **Summary** tab of the *Projects* form.

The system creates an invoice with the amounts and quantities copied from the **Pending Invoice Amount** and **Pending Invoice Quantity** columns of the **Revenue Budget** tab of the *Projects* form for the corresponding revenue budget lines. Once an invoice is prepared, the **Draft Invoice Amount** and **Draft Invoice Quantity** of the revenue

budget lines are updated with the amount and quantity for which the invoice has been prepared. The **Pending Invoice Amount** and **Pending Invoice Quantity** values become *0*.

During the billing process, the system groups the billable amounts into invoices based on the following:

- The invoice group of the steps of the billing rules to which the project tasks refer
- The customer
- The customer location
- The **Bill Separately** setting of each project task defined on the *Project Tasks* (PM302000) form

If the project billing is performed by using the pro forma invoice workflow, the invoice lines that are produced by the progress billing steps are shown in the prepared pro forma invoice on the **Progress Billing** tab of the *Pro Forma Invoices* (PM307000) form. If you manually adjust the **Amount to Invoice** of a pro forma invoice line, the system automatically recalculates the **Total Completed (%)**. This is the percentage of the revised budgeted amount of the revenue budget line of the project that has been invoiced by all the pro forma invoices of the project, including the current one. However, the system does not update the **Completed (%)** of the corresponding revenue budget line on the **Revenue Budget** tab of the *Projects* form accordingly. Also, the system does not update the **Completed (%)** of the revenue budget line if the related pro forma invoice with the corresponding progress billing line is deleted.

AR Invoices with Retainage: To Perform Progress Billing with Retainage

This activity will walk you through the process of performing progress billing with retainage.

Story

Suppose that the ToadGreen Building Group company is building a hotel for the Equity Group Investors. A ToadGreen project manager bills the customer for the progress of the work being performed. According to the contract signed with the customer, the customer retains 5% of the amount of each progress billing line in an invoice. After a defined part of the work is done, the ToadGreen project accountant prepares an AR invoice for the customer to request the release of 20% of the retained amount.

Acting as the project manager, you need to prepare a pro forma invoice for the project. Then acting as the project accountant, you need to enter and process all the needed financial documents in the system.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the following features have been enabled:
  - *Retainage Support*
  - *Payment Application by Line*
  - *Construction*
- On the *Customers* (AR303000) form, the *EQUGRP* customer has been created; the **Pay by Line** and **Apply Retainage** check boxes are selected on the **Financial** tab for this customer. On the **GL Accounts** tab, *18000* is specified in the **Retainage Receivable Account** box.
- On the *Projects* (PM301000) form, the *HOTEL* project has been created with multiple project tasks and their budgets. The *PROGRESS* billing rule is assigned to all project tasks. On the **Summary** tab of the form, the *Standard* option is selected in the **Retainage Mode** box and *5.00* is specified in the **Retainage (%)** box of the **Retainage** section.

Process Overview

You will specify the pending invoice amounts on the *Projects* (PM301000) form and run the project billing. On the *Pro Forma Invoices* (PM307000) form, you will release the generated pro forma invoice. Also, you will release the related AR invoice on the *Invoices and Memos* (AR301000) form.

You will then prepare the retainage invoice by using the *Release AR Retainage* (AR510000) form, and release it on the *Invoices and Memos* form. On the *Payments and Applications* (AR302000) form, you will create a payment that includes lines of both the original invoice and the retainage invoice and release the payment and the payment application.

System Preparation

To prepare to perform the instructions of this activity, in the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to today's date. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Creating and Releasing the AR Invoice with Retainage

To perform progress billing with retainage, do the following:

1. On the *Projects* (PM301000) form, open the *HOTEL* project.

2. On the **Revenue Budget** tab, in the first line (for the *01* project task) of the table, in the **Pending Invoice Amount** column, enter `100000`.

3. In the second line (for the *02* project task), in the **Pending Invoice Amount** column, specify `10000`.

4. Make sure that the **Pending Invoice Amount Total** in the Summary area of the **Revenue Budget** tab is *110,000.00*, and click **Run Project Billing** on the form toolbar to bill the project by progress.

   The system opens the *Pro Forma Invoices* (PM307000) form with a prepared pro forma invoice. The pro forma invoice includes two lines on the **Progress Billing** tab; in each line, the **Amount** box shows the **Pending Invoice Amount** from the respective revenue budget line (*100,000* and *10,000*), and the calculated retainage amount (*5,000* and *500*) is shown in the **Retainage Amount** box.

5. On the form toolbar, click **Remove Hold** to assign the pro forma invoice the *Open* status, and then click **Release** to release the document.

6. On the **Financial** tab, click the Edit button next to the **AR Ref. Nbr.** box. The AR invoice that was created opens on the *Invoices and Memos* (AR301000) form. The invoice total amount is *104,500*. The amount of the first line is *95,000* (which is the line amount, *100,000*, minus the retainage amount, *5,000*). For the second line, the amount is *9,500* (*10,000 – 500*).

   ⚠️ The **Pay by Line** check box is selected in the Summary area, indicating that the balances of this invoice are tracked at the line level. The default value of this setting is copied from the customer record.

7. On the form toolbar, click **Remove Hold** to assign the accounts receivable invoice the *Balanced* status.

8. On the form toolbar, click **Release** to release the invoice.

9. Sign out from the system.

You have billed the project by progress and prepared the pro forma invoice and the AR invoice.

Step 2: Releasing Retainage of the AR Invoice

To release the retainage, do the following:

1. Sign in as a project accountant by using the *bsanchez* username and the *123* password.

2. On the *Invoices and Memos* (AR301000) form, open the AR invoice to the *EQUGRP* customer in the amount of $104,500, which you have created earlier in this activity.

3. On the More menu (under **Processing**), click **Release Retainage**. The system opens the *Release AR Retainage* (AR510000) form.

4. In the Summary area, in the **Retainage Percent** box, specify 20, which is the percentage of the retainage to be released (*1,000.00* and *100.00*, respectively, shown in the **Retainage to Release** column of the table).

5. Select the unlabeled check box for both lines in the table, and click **Process** on the form toolbar.

   The **Processing** dialog box opens. When the process is complete, the system creates a retainage AR invoice. Close the dialog box.

6. On the *Invoices and Memos* form, open the prepared retainage document. In the Summary area, notice that the **Retainage Document** check box is selected. The total retainage invoice amount is *1,100.00* (which is the retainage amount that you have released).

7. On the form toolbar, click **Remove Hold** and then click **Release** to release the retainage document.

8. On the **Financial** tab, click the link in the **Batch Nbr.** box to open the generated batch of general ledger transactions.

   The system opens the *Journal Transactions* (GL301000) form with the GL transaction created for the retainage invoice. Notice that the retainage amount has credited the *18000 – AR Retainage* account and debited the *11000 – Accounts Receivable* account. (The system has generated two separate credit entries for each of the processed retainage amounts.)

Step 3: Entering a Payment for the Invoices

Process the payment for the prepared invoices as follows:

1. Open the original AR invoice to the *EQUGRP* customer in the amount of $104,500 on the *Invoices and Memos* form.

   On the **Details** tab, in the invoice lines, notice that the **Unreleased Retainage** balances has been reduced by the amount of the released retainage. For the first line, the originally retained amount was *5,000.00*, the amount of *1,000* has been released, and the remaining unreleased retainage balance is *4,000.00*. For the second line, the remaining unreleased retainage balance is *400.00*.

2. On the form toolbar, click **Pay**.

   The system opens the *Payments and Applications* (AR302000) form with the prepared payment, which has two lines. In each line, the system has populated the **Amount Paid** column with the amount from the **Balance** column of the invoice.

3. On the table toolbar of the **Documents to Apply** tab, click **Add Row**; add the first line of the retainage invoice in the full amount of the open balance by performing the following instructions:

   a. In the **Reference Nbr.** column, select the reference number of the retainage invoice.

   b. In the **Line Nbr.** column, select *1* (the first line).

   c. In the **Amount Paid** column, specify 1000.

4. On the table toolbar of the **Documents to Apply** tab, click **Add Row**; add the second line of the retainage invoice in the full amount of the open balance by performing the following instructions:

   a. In the **Reference Nbr.** column, select the reference number of the retainage invoice.

   b. In the **Line Nbr.** column, select *2* (the first line).

   c. In the **Amount Paid** column, specify 100.

5. In the Summary area, in the **Payment Amount** box, enter 105,600.

6. On the form toolbar, click **Remove Hold**, and then click **Release** to release the payment along with the payment applications to the invoice lines.

7. On the **Application History** tab, click the **Reference Nbr.** link in any of the original invoice lines to open the original invoice on the *Invoices and Memos* form. The open AR balance of the invoice (in the **Balance** box) is now zero, as shown in the following screenshot, but the invoice retains the *Open* status because the invoice lines still have unreleased retainage amounts.

Figure: The original invoice with the unreleased retainage amount

You have prepared the invoice with retainage for the project, released a part of the retainage, and paid for the original and retainage documents.

Lesson 9: Preparing AIA Reports

Construction Reports: AIA Reports

The following sections describe the structure of the American Institute of Architects (AIA) report in Acumatica ERP Construction Edition and the available report variations. Also, the sections provide information on how you can reflect historic retainage and the release of change orders for the project, and how you can print the AIA report for billing only the retainage.

AIA Report Structure

The AIA report consists of a signed summary sheet (AIA Document G702™–1992, Application and Certificate for Payment), followed by a schedule of values (G703™–1992, Continuation Sheet) that details the project tasks that have been completed and billed to date. Together, these documents are considered an application for payment, because the recipient can review the schedule of values and either accept or dispute the billed amount. If the recipient or contractor disagrees, they will send back redlines so that the contractor can revise and resubmit the AIA billing application. The prepared document that includes both the application sheet (G702) and continuation sheet (G703) is called an AIA report.

In an AIA report, the application sheet and continuation sheet provide convenient and complete forms on which the contractor can apply for payment and the architect can certify that payment is due. The application requires the contractor to show the status of the contract totals to date, including the total amount of the work completed and stored to date, the amount of retainage (if any), the total of previous payments, a summary of change orders, and the amount of payment currently being requested. The continuation sheet breaks the contract sum into parts of the work, in accordance with a schedule of values prepared by the contractor as required by the general conditions.

> ⚠️ An AIA report serves as both the contractor's application and the architect's certification. Using an AIA report helps to expedite payment and reduces the possibility of errors. If the application is properly completed and acceptable to the architect, the architect's signature certifies to the owner of the project that a payment in the amount indicated is due to the contractor. The form also gives the architect the ability to certify an amount that is different than the amount applied for and to provide a corresponding explanation.

Configuration of AIA Report Parameters for a Project

Based on project requirements, for a particular project, you define the format in which the AIA report will be prepared. To prepare a printable version of the AIA report, you select the line with the needed pro forma invoice in the table on the **Invoices** tab of the *Projects* (PM301000) form, and click **AIA Report** on the table toolbar; you can instead open the pro forma invoice on the *Pro Forma Invoices* (PM307000) form and click **Print AIA Report** on the form toolbar.

By default, a newly created project has the **AIA Level** set to *Summary* and the **Show Quantity in AIA Report** check box cleared. When you create an AIA report for a project with these settings, the standard *AIA Report* (PM644000) is prepared with continuation sheet lines grouped by project tasks.

If you need to include quantities in the lines of the continuation sheet of the AIA report prepared for a project, in the settings of the project on the *Projects* form, you select the **Show Quantity in AIA Report** check box, so that the system will create the *AIA Report with Quantity* (PM644500) report. To list the continuation sheet lines without grouping them by project tasks (that is, as the lines are presented in the corresponding pro forma invoice), select *Detail* in the **AIA Level** box.

Date-Sensitive Data in AIA Reports

AIA reports are date-sensitive, which means that the particular amounts are included or not included in the report based on the report date; this in turn could lead to differences between the calculation of amounts in AIA reports and the financial calculations in other documents. The date on which the AIA report is prepared affects the amounts in the AIA application sheet as follows:

- In the **Net Change by Change Orders** amount, the system includes only change orders that have an approval date before the invoice date of the pro forma invoice for which the AIA report is being prepared.
- In the **Retainage** amount, the system does not include the retainage that has been released before the creation of the pro forma invoice for which the AIA report is being prepared (that is, the invoice date of the retainage invoice is earlier than the invoice date of the pro forma invoice).
- In the **Less Previous Certificates for Payment** amount, the system includes the sum of the retainage amounts that have been released before the date of the previous application (that is, the invoice date of the retainage invoice is earlier than or the same as the invoice date of the previous pro forma invoice prepared for the project).
- In the **Current Payment Due** amount, the system includes the amounts of the retainage invoices that have been prepared since the last application (that is, the invoice date of the retainage invoice is after the invoice date of the previous pro forma invoice and is earlier than or the same as the invoice date of the pro forma invoice for which the AIA report is prepared).

The date on which the AIA report is prepared affects the following amounts in the AIA continuation sheet:

- In the amounts in the **Change Orders** and **Change Qty.** columns, the system includes only change orders that have an approval date that is earlier than the invoice date of the pro forma invoice for which the AIA report is being prepared.
- In the **Retainage Held** amount, the system does not include the retainage that has been released before the creation of the pro forma invoice for which the AIA report is being prepared (that is, the invoice date of the retainage invoice is earlier than the invoice date of the pro forma invoice).

Construction Reports: To Prepare AIA Report

This activity will walk you through the process of working with an American Institute of Architects (AIA) report.

Story

Suppose that the ToadGreen Building Group company is in the middle of building a hotel for the Equity Group Investors. As has been agreed with the customer, the customer is being billed once a month based on the progress of the performed work. The ToadGreen construction project manager is tracking the progress of work as a fixed-price project, billing the customer by the percent of project completion.

Acting as the construction project manager, you need to prepare the AIA report for the third payment application for the project.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the following features have been enabled:
  - *Construction*
  - *Construction Project Management*
- On the *Projects* (PM301000) form, the *HOTELCP* project has been created with project tasks and their budgets. On the **Summary** tab, in the **AIA** section, the **Show Quantity in AIA Report** check box is cleared.

- For the project, three billing iterations have been performed. The pro forma invoices and corresponding AR invoices has been prepared and released on the *Pro Forma Invoices* (PM307000) and *Invoices and Memos* (AR301000) forms, respectively.

System Preparation

To prepare to perform the instructions of this activity, do the following:

1. Sign in to the system as a construction project manager by using the *ewatson* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to today's date. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step: Preparing the AIA Report

To prepare the report, do the following:

1. On the *Projects* (PM301000) form, open the *HOTELCP* project.

2. On the **Invoices** tab, click the line with the invoice that has an **Invoice Total** of *11,532,792.25*.

3. On the table toolbar, click **AIA Report**.

   The system opens the *AIA Report* (PM644000) report for the pro forma invoice, as shown in the following screenshots.

APPLICATION AND CERTIFICATION FOR PAYMENT

ToadGreen

Page: 1 of 2

TO OWNER:	The Equity Group Investors 956 51st Aven New York, NY, 06653	PROJECT:	The Beach Hotel and Condominiums (Golden Street) Primary Location 1690 Golden Street Miami, FL, 33135	INVOICE NO:	000011	Distribution to:
				APPLICATION NO:	0003	☐ OWNER
				PERIOD TO:	6/1/2022	☐ ARCHITECT
FROM CONTRACTOR:	ToadGreen Building Group 2295 Oak Street New York, NY, 13420			PROJECT:	HOTELCP	☐ CONTRACTOR
						☐
				CONTRACT DATE:	3/1/2022	

Contract For:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet is attached.

1. ORIGINAL CONTRACT SUM	$39,715,457.00
2. Net Change by Change Orders	$0.00
3. CONTRACT SUM TO DATE (Line 1+2)	$39,715,457.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)	$19,167,859.49
5. RETAINAGE: a. 5 % of Completed Work & Stored Material (Column D + E + F on G703)	$958,392.99
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total)	$18,209,466.50
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	$7,253,313.88
8. CURRENT PAYMENT DUE	$10,956,152.62
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 Less Line 6 Total)	$21,505,990.50

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of: NY   Country of: US

Subscribed and sworn to before me this _____ day of _____

Notary Public:

My Commission expires:
_____

In accordance with the Contract Documents, based on on-site observations and the data comprising the application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED......................$ _____

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation sheet that are changed to conform with the amount certified.)

ARCHITECT:

By:_____ Date_____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the prejudice to any rights of the Owner or Contractor under this Contract.

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$0.00	$0.00
Total Approved this Month	$0.00	$0.00
TOTAL	$0.00	$0.00
NET CHANGES by Change Order	$0.00	

Figure: AIA Application for Payment

CONTINUATION SHEET

ToadGreen

APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed
certification is attached.

INVOICE NO: 000011
APPLICATION NO: 0003
APPLICATION DATE: 6/1/2022
PERIOD TO: 7/1/2022
ARCHITECT'S PROJECT NO: HOTELCP

ITEM	DESCRIPTION OF WORK	ORIGINAL SCHEDULED VALUE	CHANGE ORDERS	REVISED SCHEDULED VALUE	WORK COMPLETED		STORED MATERIALS	TOTAL COMPLETED AND STORED TO DATE	% Comp	BALANCE TO FINISH	RETAINAGE HELD
					FROM PREVIOUS APPLICATION	THIS PERIOD					
01	GENERAL REQUIREMENTS	$4,154,366.00	$0.00	$4,154,366.00	$1,246,309.80	$2,077,183.00	$0.00	$3,323,492.80	80.0 %	$830,873.20	$166,174.64
02	SITEWORK	$1,809,185.00	$0.00	$1,809,185.00	$1,447,348.00	$325,653.30	$0.00	$1,773,001.30	98.0 %	$36,183.70	$88,650.07
03	CONCRETE	$8,319,840.00	$0.00	$8,319,840.00	$3,494,332.80	$665,587.20	$0.00	$4,159,920.00	50.0 %	$4,159,920.00	$207,996.00
04	MASONRY	$1,210,648.00	$0.00	$1,210,648.00	$944,305.44	$24,212.96	$0.00	$968,518.40	80.0 %	$242,129.60	$48,425.92
05	METALS	$1,901,356.00	$0.00	$1,901,356.00	$380,271.20	$418,298.32	$0.00	$798,569.52	42.0 %	$1,102,786.48	$39,928.48
06	WOODS, PLASTICS, COMPOSITES	$1,225,000.00	$0.00	$1,225,000.00	$122,500.00	$563,500.00	$0.00	$686,000.00	56.0 %	$539,000.00	$34,300.00
07	THERMAL AND MOISTURE PROTECTION	$989,355.00	$0.00	$989,355.00	$0.00	$395,742.00	$0.00	$395,742.00	40.0 %	$593,613.00	$19,787.10
08	OPENINGS	$1,638,760.00	$0.00	$1,638,760.00	$0.00	$819,380.00	$0.00	$819,380.00	50.0 %	$819,380.00	$40,969.00
09	FINISHES	$8,110,796.00	$0.00	$8,110,796.00	$0.00	$2,433,238.80	$0.00	$2,433,238.80	30.0 %	$5,677,557.20	$121,661.94
10	SPECIALTIES	$1,449,500.00	$0.00	$1,449,500.00	$0.00	$637,780.00	$0.00	$637,780.00	44.0 %	$811,720.00	$31,889.00
11	EQUIPMENT	$1,135,000.00	$0.00	$1,135,000.00	$0.00	$408,600.00	$0.00	$408,600.00	36.0 %	$726,400.00	$20,430.00
13	SPECIAL CONSTRUCTION	$345,500.00	$0.00	$345,500.00	$0.00	$145,110.00	$0.00	$145,110.00	42.0 %	$200,390.00	$7,255.50
14	CONVEYING SYSTEMS	$696,919.00	$0.00	$696,919.00	$0.00	$341,490.31	$0.00	$341,490.31	49.0 %	$355,428.69	$17,074.52
15	MECHANICAL	$3,910,742.00	$0.00	$3,910,742.00	$0.00	$1,290,544.86	$0.00	$1,290,544.86	33.0 %	$2,620,197.14	$64,527.24
16	ELECTRICAL	$2,818,490.00	$0.00	$2,818,490.00	$0.00	$986,471.50	$0.00	$986,471.50	35.0 %	$1,832,018.50	$49,323.58
	Totals:	**$39,715,457.00**	**$0.00**	**$39,715,457.00**	**$7,635,067.24**	**$11,532,792.25**	**$0.00**	**$19,167,859.49**	**48.3 %**	**$20,547,597.51**	**$958,392.99**

Figure: AIA Continuation Sheet

You have prepared the printable AIA report for the third payment application for the project.

Lesson 10: Preparing AIA Reports for Released Retainage

Construction Reports: AIA Reports for Released Retainage

If the *Retainage Support* feature is enabled on the *Enable/Disable Features* (CS100000) form, you can create an AIA report that includes the retainage that has been fully or partially released (depending on the date for which the AIA report is prepared), or that includes all released retainage at the end of the project.

You can prepare an AIA report for released retainage if the following conditions have been met:

- The retainage in the financial period for which the report is being prepared has been released.
- The zero pro forma invoice (that is, the pro forma invoice prepared during project billing with a pending invoice amount of zero) has been created, and the invoice date of the zero pro forma invoice is the same as or later than the date of the corresponding AR retainage invoice.

  A zero pro forma invoice can be created only if in the billing rule assigned to a project task, the **Create Lines with Zero Amounts** check box is selected in the progress billing step on the *Billing Rules* (PM207000) form. You run project billing for a project with a pending invoice amount of zero to prepare a zero pro forma invoice.

If all conditions are met, to prepare the printable version of the AIA report, you select the line with the zero pro forma invoice in the table on the **Invoices** tab of the *Projects* (PM301000) form, and click **AIA Report** on the table toolbar. Alternatively, you can open the zero pro forma invoice on the *Pro Forma Invoices* (PM307000) form and click **Print AIA Report** on the form toolbar. Depending on the date for which the AIA report is prepared, the report will include the retainage that has been fully or partially released in the middle of the project, or all released retainage at the end of the project. In the prepared report, the total retainage amount on the cover sheet of the AIA report is calculated as the sum of the held retainage amounts on the AIA continuation sheet.

Construction Reports: To Prepare AIA Report for Released Retainage

This activity will walk you through the process of preparing AIA report for released retainage.

Story

Suppose that the ToadGreen Building Group company is in the middle of building a hotel for the Equity Group Investors. As has been agreed with the customer, the customer is being billed once a month based on the progress of the performed work. The ToadGreen construction project manager is tracking the progress of work as a fixed-price project, billing the customer by the percent of project completion. The project has been billed three times, in April, May and June, *2022*. According to the contract signed with the customer, the customer retains 5% of the amount of each progress billing line in an invoice.

Also suppose that on *6/10/2022*, after a certain part of work is done, the ToadGreen project manager need to prepare to request the release of 20% of the retained amount from customer. Acting as the project manager, you need to release a part of retainage and prepare an AIA report for the released part of retainage for the corresponding financial period.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- The following features have been enabled on the *Enable/Disable Features* (CS100000) form:
  - *Construction*

- *Construction Project Management*
- On the *Projects* (PM301000) form, the *HOTELRT* project has been created with project tasks and their budgets. In the billing rule assigned to project tasks (*PROGRRET*), the only progress billing step is configured on the *Billing Rules* (PM207000) form.
- For the project, three billing iterations have been performed. The pro forma invoices and corresponding AR invoices has been prepared and released on the *Pro Forma Invoices* (PM307000) and *Invoices and Memos* (AR301000) forms, respectively.

Process Overview

You will release a part of retainage for the project by using the *Release AR Retainage* (AR510000) form; then you will release the prepared retainage invoice on the *Invoices and Memos* (AR301000) form. Then you will run project billing for the project and review the prepared pro forma invoice for the released retainage on the *Pro Forma Invoices* (PM307000) form. Finally, you will prepare AIA report for the released retainage amount.

System Preparation

To prepare to perform the instructions of this activity, do the following:

1. Sign in to the system as a construction project accountant by using the *bsanchez* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *6/10/2022*. If a different date is displayed, click the Business Date menu button, and select *6/10/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

3. On the *Billing Rules* (PM207000) form, open the *PROGRRET* billing rule. In the right pane of the form, make sure the **Create Lines with Zero Amount** check box is selected.

Step 1: Reviewing AIA Report

Review the amounts in AIA report before retainage release, as follows:

1. On the *Projects* (PM301000) form, open the *HOTELRT* project.

2. On the **Invoices** tab, click the line with the invoice dated *6/1/2022*, and on the table toolbar, click **AIA Report**. On the Application and Certification for Payment page of the AIA report that opens on the *AIA Report* (PM644000) form, review the **Retainage** amount, which is $958,392.99, and the **Current Payment Due** amount, which is $10,956,152.62.

You will release a part of the retainage for this invoice.

Step 2: Releasing Retainage

To release a part of retainage held for the project, do the following:

1. On the *Invoices and Memos* (AR301000) form, open the AR invoice for the *HOTELRT* project in the amount of *10,956,152.62* dated *6/1/2022*. This is the invoice that has been prepared on release of the third pro forma invoice for the project.

2. On the More menu, click **Release Retainage**. The system opens the *Release AR Retainage* (AR510000) form with the invoice reference number selected in the Summary area.

3. In the Summary area, specify the following settings:

   - **Date**: *6/10/2022*
   - **Retainage Percent**: 20

4. Select the unlabeled check box for all the invoice lines.

5. In the Selection area, make sure the calculated retainage amount to be released is *115,327.92,* and on the form toolbar, click **Process**.

   The **Processing** dialog box opens. When the process is complete, close the dialog box.

6. On the *Invoices and Memos* form, find and open the prepared retainage invoice, which is assigned the *On Hold* status. In the Summary area, notice that the **Retainage Document** check box is selected, which means that the invoice has been prepared for the released retainage amount (which is *115,327.92*).

7. In the Summary area, make sure *6/10/2022* is specified as the **Date**.

8. On the form toolbar, click **Remove Hold**, and click **Release** to release the invoice. The retainage invoice is assigned the *Open* status.

Step 3: Creating Zero Pro Forma Invoice

To create a pro forma invoice for the retainage invoice, do the following:

1. On the *Projects* (PM301000) form, open the *HOTELRT* project.

2. In the **Next Billing Date** box on the **Summary** tab, make sure *7/1/2022* is specified.

3. On the **Revenue Budget** tab, make sure **Pending Invoice Amount Total** is *0*.

4. On the form toolbar, click **Run Project Billing**. The system creates a zero pro forma invoice and opens it on the *Pro Forma Invoices* (PM307000) form. On the **Progress Billing** tab, notice that the system has created lines with zero amount for each project task.

Step 4: Preparing AIA Report

To prepare AIA report, do the following:

1. While you are still viewing the prepared pro forma invoice on the *Pro Forma Invoices* (PM307000) form, on the form toolbar, click **Remove Hold**, and then click **Release** to release the invoice.

2. On the form toolbar, click **Print AIA Report**. The system opens the AIA report on the *AIA Report* (PM644000) form. On the Application and Certification for Payment page of the report (see the screenshot below), review the updated amounts:

   • The **Retainage** amount has been decreased by the amount of the released retainage and is now $843,065.07 ($958,392.99 - $115,327.92). This amount is calculated as the sum of the held retainage amounts on the AIA continuation sheet.

   • The **Current Payment Due** amount is $115,327.92 (the amount of retainage that has been released).

APPLICATION AND CERTIFICATION FOR PAYMENT

ToadGreen

Page: 1 of 2

TO OWNER:	The Equity Group Investors 956 51st Aven New York, NY, 06653	PROJECT:	The Beach Hotel and Condominiums (Tyler Avenue) Primary Location 1435 Tyler Avenue Miami, FL, 33128	INVOICE NO:	000019
				APPLICATION NO:	0004
				PERIOD TO:	7/1/2022
FROM CONTRACTOR:	ToadGreen Building Group 2295 Oak Street New York, NY, 13420			PROJECT:	HOTELRT
				CONTRACT DATE:	3/1/2022

Distribution to:
- OWNER
- ARCHITECT
- CONTRACTOR

Contract For:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet is attached.

1. ORIGINAL CONTRACT SUM	$39,715,457.00
2. Net Change by Change Orders	$0.00
3. CONTRACT SUM TO DATE (Line 1+2)	$39,715,457.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)	$19,167,859.49
5. RETAINAGE: a. 4.4 % of Completed Work & Stored Material (Column D + E + F on G703)	$843,065.07
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total)	$18,324,794.42
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	$18,209,466.50
8. CURRENT PAYMENT DUE	$115,327.92
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 Less Line 6 Total)	$21,390,662.58

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of: NY   Country of: US

Subscribed and sworn to before me this _____ day of _____

Notary Public:

My Commission expires:

_____

In accordance with the Contract Documents, based on on-site observations and the data comprising the application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED.....................$ _____

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation sheet that are changed to conform with the amount certified.)

ARCHITECT:

By:_____Date_____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the prejudice to any rights of the Owner or Contractor under this Contract.

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$0.00	$0.00
Total Approved this Month	$0.00	$0.00
TOTAL	$0.00	$0.00
NET CHANGES by Change Order	$0.00	

Figure: AIA report with released retainage

You have prepared AIA report with the released retainage amount.

Lesson 11: Correcting Pro Forma Invoices

Pro Forma Invoice Correction: General Information

You can make corrections to a pro forma invoice with the *Closed* status even if the corresponding accounts receivable document created based on this pro forma invoice has already been released.

Learning Objectives

In this chapter, you will learn how to:

- Make corrections to a pro forma invoice that has the corresponding AR document released
- Review the previous revision of the pro forma invoice.

Applicable Scenarios

You correct a pro forma invoice if you need to keep its reference and application numbers. For example, you may need to correct an existing pro forma invoice because it has been used for printing the *AIA Report* (PM644000) report.

Making Corrections to a Pro Forma Invoice

You can correct a pro forma invoice for which the corresponding accounts receivable invoice has been released if the following conditions are met:

- The pro forma invoice has only progress billing lines.
- The application of payments are removed or the payments are voided for the corresponding accounts receivable invoices.
- Corresponding retainage invoices related to the pro forma invoice are reversed or deleted.
- The billing currency is the same as the project currency.

To assign a pro forma invoice the *On Hold* status so that it can be edited, on the More menu of the *Pro Forma Invoices* (PM307000), you click **Correct**. The system changes the status of the pro forma invoice and adds a line with the previous revision of the pro forma invoice to the **Previous Revisions** table on the **Financial** tab.

When you make all the needed adjustments to the pro forma invoice and release it, the system creates the accounts receivable document with the full amount of the corrected pro forma invoice. The system also creates a reversing AR document with the *On Hold* status to completely reverse the accounts receivable document related to the previous revision of the pro forma invoice.

The previous revision of the accounts receivable document, as well as the reversing AR documents, are shown on the **Financial** tab (**Previous Revisions** table) of the *Pro Forma Invoices* form and on the **Invoices** tab of the *Projects* (PM301000) form.

Workflow of Correcting Pro Forma Invoices

The following diagram illustrates the workflow of correcting a pro forma invoice.

Correcting a pro forma invoice
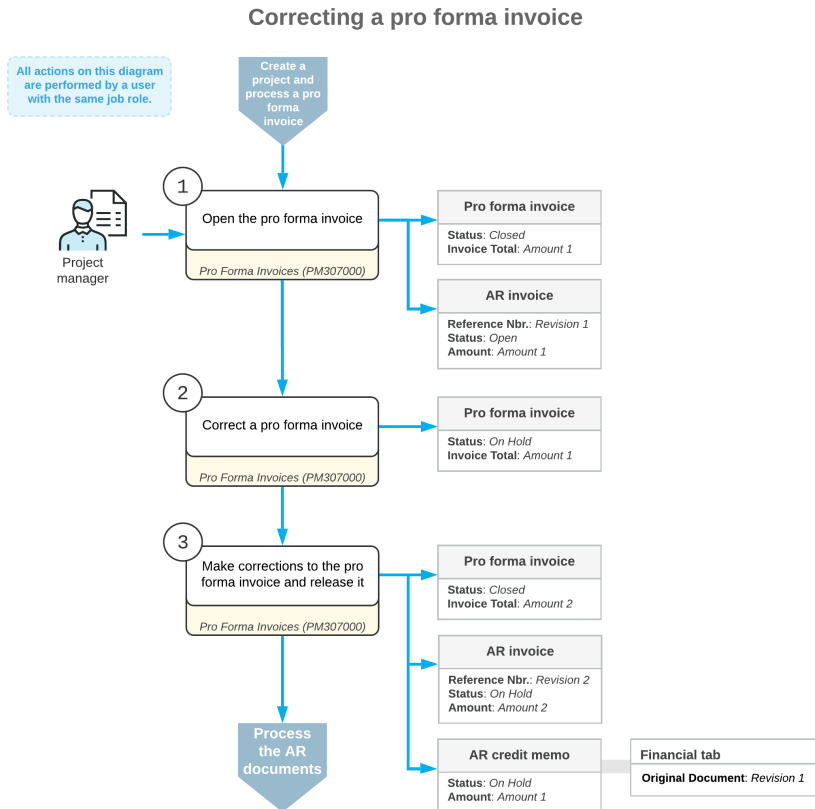
Pro Forma Invoice Correction: To Correct Actual Amounts in AIA Reports

In this activity, you will learn how to make corrections in an AIA report for which the pro forma invoice has been released and closed, and the corresponding accounts receivable invoice has been released.

Story

Suppose that the ToadGreen Building Group company is building a hotel for the Equity Group Investors customer. The ToadGreen project manager has created a project to track the work progress and to control related revenues and expenses. In April and May 2022, the project accountant has prepared two pro forma invoices, each for part of the performed work; after the customer agreed to the amounts, the project accountant billed the customer.

Further suppose that at the end of May, the ToadGreen construction project manager noticed that a mistake had been made in two lines of the first pro forma invoice. The total of the pro forma invoice is 10,806,560.21, but it should be 10,601,350.41. The construction project manager has reviewed the invoice details and found out that the following corrections must be made:

- The **Amount to Invoice** in the line with the *03* project task and *03-000* cost code is *5,990,284.80*, but it should be *5,783,075.00*.
- The **Amount to Invoice** in the line with the *04* project task and *04-000* cost code is *145,277.76*, but it should be *147,277.76*.

The incorrect pro forma invoice was already used for generating the March AIA report. Because the amounts in the first AIA report were incorrect, the April report also needs to be corrected and the AIA report has to be generated again.

Acting as the construction project manager, you need to enter and process the related documents to adjust the actual amounts in AIA reports for March and for April. You then need to regenerate these AIA reports.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the following features have been enabled:
  - *Project Accounting*, which provides support for the project accounting functionality
  - *Construction*, which gives you the ability to make corrections to pro forma invoices with the corresponding AR document released
- On the *Projects* (PM301000) form, the *HOTELSM* project has been created with multiple project tasks, including the *03* and *04* project tasks. Also, on the **Cost Budgets** tab, the cost budget is defined for the line with the *03-000* and *04-000* cost codes.
- On the *Pro Forma Invoices* (PM307000) form, a pro forma invoice dated *4/1/2022* has been created for the project and released. On the *Invoices and Memos* (AR301000) form, the accounts receivable invoice corresponding to the pro forma invoice has been created and released.
- On the *Pro Forma Invoices* form, a pro forma invoice dated *5/1/2022* has been created for the project and released. On the *Invoices and Memos* form, the accounts receivable invoice corresponding to the pro forma invoice has been created and released.

Process Overview

In this activity, on the *Pro Forma Invoices* (PM307000) form, you will initiate the correcting of a pro forma invoice for the project. You will adjust the amounts and release the corrected pro forma invoice. On the *Invoices and Memos* (AR301000) form, you will release the accounts receivable invoice created based on the pro forma invoice and the credit memo created to reverse the previous AR invoice. Finally, you will regenerate the AIA report for the corrected pro forma invoice and for the subsequent one; you will open the regenerated AIA reports on the *AIA Report* (PM644000) form to verify that the amounts are correct.

System Preparation

To prepare to perform the instructions of the activity, do the following:

1. Sign in to the system as a construction project manager by using the *ewatson* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *5/29/2022*. If a different date is displayed, click the Business Date menu button, and select *5/29/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Correcting the Pro Forma Invoice

To correct the pro forma invoice for the project, do the following:

1. On the *Projects* (PM301000) form, open the *HOTELSM* project.

   On the **Invoices** tab, review the pro forma invoices and accounts receivable invoices generated for the project. Notice that the status of both pro forma invoices is *Closed* and the status of both accounts receivable invoices is *Open* because the AR invoices have been generated for the pro forma invoices and released.

2. Click the **Pro Forma Reference Nbr.** link in the first line to open the pro forma invoice on the *Pro Forma Invoices* (PM307000) form. You need to correct the amounts in the lines with the *03* project task and *03-000* cost code and *04* project task and *04-000* cost code.

3. On the More menu, click **Correct** to make corrections to the pro forma invoice. The system assigns the pro forma invoice the *On Hold* status. Make sure that the **Invoice Date** is the date of the original accounts receivable invoice (*4/1/2022*).

   On the **Financial** tab, notice that the **AR Ref. Nbr.** box (**Invoice Settings** section) is empty (because this pro forma invoice is being edited and has not been released) and a row with the previous revision of the accounts receivable invoice (which has an invoice total of $10,806,560.21) has appeared in the **Previous Revisions** table.

4. On the **Progress Billing** tab, correct the amounts in the **Amount to Invoice** column as follows:

   - In the line with the *03* project task, enter 5,783,075.00.
   - In the line with the *04* project task, enter 147,277.76.

5. In the Summary area, make sure that the invoice total is now *10,601,350.41*.

6. On the form toolbar, click **Remove Hold**, and then click **Release** to release the pro forma invoice. The system creates the accounts receivable invoice based on the pro forma invoice and assigns the *Closed* status to the pro forma invoice.

   In the **Previous Revisions** table of the **Financial** tab, in the line for the previous revision of the AR invoice, notice that a reference number is now shown in the **Reversing Ref. Nbr.** column. This is the number of the credit memo the system has created to reverse this AR invoice.

7. Click the Edit button to the right of the **AR Ref. Nbr.** box (**Invoice Settings** section) to open the accounts receivable invoice that was created when you released the corrected pro forma invoice.

8. On the form toolbar of the *Invoices and Memos* (AR301000) form, which the system opens in a pop-up window, click **Remove Hold**, and then click **Release** to release the accounts receivable invoice.

Step 2: Regenerating AIA Reports

1. On the *Projects* form, open the *HOTELSM* project.

   On the **Invoices** tab, notice that the corrected AR invoice and the correction credit memo have appeared in the table. Also, notice that the warning next to the first two lines indicating that the AIA reports have to be regenerated for the pro forma invoices because the amounts have changed.

2. Click the first line in the table, and on the table toolbar, click **AIA Report** to again generate the AIA report for April. The system generates the AIA report and opens it on the *AIA Report* (PM644000) form. In the Continuation Sheet of the report, make sure the last two lines show the updated amounts, as shown in the following screenshot.

ITEM	DESCRIPTION OF WORK	ORIGINAL SCHEDULED VALUE	CHANGE ORDERS	REVISED SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	THIS PERIOD	STORED MATERIALS	TOTAL COMPLETED AND STORED TO DATE	% Comp	BALANCE TO FINISH	RETAINAGE HELD
01	GENERAL REQUIREMENTS	$4,154,366.00	$0.00	$4,154,366.00	$0.00	$3,531,211.10	$0.00	$3,531,211.10	85.0 %	$623,154.90	$176,560.56
02	SITEWORK	$1,809,185.00	$0.00	$1,809,185.00	$0.00	$1,139,786.55	$0.00	$1,139,786.55	63.0 %	$669,398.45	$56,989.33
03	CONCRETE	$8,319,840.00	$0.00	$8,319,840.00	$0.00	$5,783,075.00	$0.00	$5,783,075.00	69.5 %	$2,536,765.00	$289,153.75
04	MASONRY	$1,210,648.00	$0.00	$1,210,648.00	$0.00	$147,277.76	$0.00	$147,277.76	12.2 %	$1,063,370.24	$7,363.89
	Totals:	$15,494,039.00	$0.00	$15,494,039.00	$0.00	$10,601,350.41	$0.00	$10,601,350.41	68.4 %	$4,892,688.59	$530,067.53

Figure: Corrected amounts in AIA report

3. Again open the *HOTELSM* project on the *Projects* form, and on the **Invoices** tab, notice that the warning is now shown only for the pro forma invoice dated 5/1/*2022*.

4. Click the line with this invoice in the table, and on the table toolbar, click **AIA Report** to again generate the AIA report for May. The system generates the updated AIA report and opens it on the *AIA Report* (PM644000) form. Make sure that **Total Completed & Stored to Date** has been updated and now equals *12,602,270.04*.

You have finished correcting the amounts in the pro forma invoice and prepared updated AIA reports. In a production setting, project accountant would apply the reversing credit memo to the original AR invoice, which is beyond the scope of this activity.

Lesson 12: Preparing WIP and Bonding Reports

Construction Reports: General Information

Acumatica ERP Construction Edition provides multiple construction reports that you can provide to customers.

Learning Objectives

In this chapter, you will learn how to do the following:

- Print and send substantiated billing reports, and understand what information is included in them
- Print and send work-in-progress reports, and understand what information is included in them
- Print and send American Institute of Architects (AIA) reports, and understand what information is included in them
- Print and send bonding reports, and understand which information is included in them
- Review the project lifecycle and performance with the help of Acumatica ERP Construction Edition reports, which are described in this chapter

Substantiated Billing Reports

In the construction industry, when contractors bill their customers, the customers may want to see proof of the costs. In this case, the contractors need to provide supporting documentation along with the customer statement or invoice. Acumatica ERP Construction Edition includes the following substantiated billing reports, which you (as a contractor) can use to retrieve costs for a specific billing period:

- *Substantiated Billing* (PM650000) report

  This report provides a list of costs for the specified period with all transactions related to payable invoices, labor, and other project expenses grouped by the cost codes.

- *Substantiated Billing - Consolidated* (PM650050) report

  In addition to the list of costs and transactions of a project for the specified period, the generated report includes all scanned or uploaded images (of the PNG, JPG, JPEG, BMP, GIF, TIFF, or TIF format) attached to the corresponding cost records as separate pages. Also, the generated report file includes hyperlinks to the attached files that could not be included directly in the PDF file (such as encrypted PDF files).

WIP Reports

WIP (which can indicate *work in progress* or *work in process*) is designed to track the progress of active jobs, as well as their financial performance. The tracking of WIP gives you the ability to determine whether a job is overbilled or underbilled relative to its progress, and shows the percentage of completion and the cost to complete the job. When companies use the percentage-of-completion method for revenue recognition, they include a WIP schedule with their financial statements.

Acumatica ERP Construction Edition supports several versions of WIP reporting to provide the necessary information to meet your business's needs. The recent inclusion of a bonding report can be used to give surety companies visibility into your business's performance.

AIA Reports

The common construction billing format is known as AIA progress billing, named based on the American Institute of Architects, which produces the industry's official forms. With the AIA reports provided in Acumatica ERP

Construction Edition, you bill the customer based on the percentage of work completed for that billing period. For a detailed description of the information included in AIA reports, see *Construction Reports: AIA Reports*.

Bonding Reports

By using the *Construction Bonding Report*, you can create a report of the work in progress for projects in a selected date range. This report can be used by management as well as by external entities, such as bonding companies, to determine the financial health of projects. The report gives a bigger snapshot of all the projects in the system and can reinforce management confidence. You can analyze how much is actually billed for the project compared to the percentage of the project completion.

The *Construction Bonding Report* (PM650500) includes the following columns: *Earned Revenue*, *Billed to Date*, *Unbilled Contract Amounts*, *Cost Incurred to Date*, *Calculated Cost at Completion*, and *Current Period Costs/Billings*, as well as the prior year's *Billings and Costs*.

Construction Reports: To Prepare a Work-in-Progress Report

This activity will walk you through the process of working with the work-in-progress (WIP) report.

Story

Suppose that the ToadGreen company is building an Italian restaurant for the Italian Company, its customer, and is in the middle of the lifecycle of the construction project. The ToadGreen project estimator needs to track the progress of active project tasks, as well as their financial performance. The company uses the percentage-of-completion method for revenue recognition and includes the work-in-progress reports in the company's financial statements.

Acting as a project estimator, you will review the current percentage of completion for the project tasks and the cost to complete them, and you will determine whether each project task is overbilled or underbilled relative to its progress. When using the percentage-of-completion method for revenue recognition, companies include a WIP schedule with their financial statements.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the following features have been enabled:
    - *Construction*
    - *Construction Project Management*
- On the *Projects* (PM301000) form, the *ITALIAN2* project has been created with project tasks and their budgets.

System Preparation

To prepare to perform the instructions of the activity, do the following:

1. Sign in to the system as the project estimator by using the *wendell* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to today's date. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Preparing the Project WIP Report

To prepare the WIP report, do the following:

1. Open the *Project WIP* (PM651000) report form, and specify the following report parameters:
   - **As of Date**: *3/4/2022*
   - **Project**: *ITALIAN2*
2. On the report form toolbar, click **Run Report** to generate the WIP report.

   In the prepared report, review the amounts in the **Gross Profit** column in the **Actual** bucket, and the **Under (Over) Billings** column, as shown in the following screenshot.

Figure: Work-in-progress report for the ITALIAN2 project

As the report shows, you have to bill the customer more to establish a stable project continuation.

Now you need to investigate the work-in-progress report broken down by revenue budget lines.

Step 2: Reviewing the Project WIP Detailed Report

To prepare the detailed work-in-progress report, do the following:

1. While you are still reviewing the prepared work-in-progress report on the *Project WIP* (PM651000) form, click the *ITALIAN2* link in the **Project** column. The system opens the *Project WIP Detail* (PM652000) report.
2. On the report toolbar, click **View PDF**. The system prepares and opens a PDF file with the report in which you can review the amounts for each project task.

You have prepared the work-in-progress report for the project.

Construction Reports: To Prepare a Bonding Report

This activity will walk you through the process of working with the bonding report.

Story

Suppose that to ensure profitability, a project estimator of the ToadGreen company wants to see how projects are progressing in March 2022 , and which of them may need special attention. Acting as a project estimator, you will prepare and review the construction bonding report for this purpose.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the following features have been enabled:
  - *Construction*
  - *Construction Project Management*

- On the *Projects* (PM301000) form, multiple projects have been created. (The projects are in the middle of the lifecycle.)

Step: Reviewing the Bonding Report

Prepare the report by doing the following:

1. Open the *Construction Bonding Report* (PM650500) report form.

2. On the **Report Parameters** tab, specify *3/1/2022* in the **As of Date** box. Leave the default values for all the other parameters.

3. On the report form toolbar, click **Run Report**. The generated report shows the key details of all the active projects, as shown in the following screenshot.

CONSTRUCTION BONDING REPORT

ToadGreen

As Of Date	3/1/2022
Status	Active
Company	TOADGREEN
Branch	ToadGreen Building Group

PROJECT	DESCRIPTION	CONTRACT AMOUNT	% COMPLETE	EARNED REVENUE	BILLED TO DATE	% BILLED	OVER/UNDER BILLED	UNBILLED CONTRACT AMOUNT
HOTEL	The Beach Hotel and Condominiums (Warner Street)	$39,715,457.00	0.30 %	$119,918.33	$0.00	0.00 %	$(119,918.33)	$39,715,457.00
HOTELCP	The Beach Hotel and Condominiums (Golden Street)	$39,715,457.00	0.00 %	$0.00	$0.00	0.00 %	$0.00	$39,715,457.00
HOTELRT	The Beach Hotel and Condominiums (Tyler Avenue)	$39,715,457.00	0.00 %	$0.00	$0.00	0.00 %	$0.00	$39,715,457.00
HOTELSM	The Beach Hotel and Condominiums	$39,715,457.00	0.00 %	$0.00	$0.00	0.00 %	$0.00	$39,715,457.00
ITALIAN	Italian restaurant (Market Street)	$2,190,759.24	0.00 %	$0.00	$0.00	0.00 %	$0.00	$2,190,759.24
ITALIAN2	Italian restaurant (Denver Avenue)	$2,186,984.80	3.00 %	$65,585.05	$0.00	0.00 %	$(65,585.05)	$2,186,984.80
	Totals:	$163,239,572.04	0.12 %	$185,503.38	$0.00	0.00 %	$(185,503.38)	$163,239,572.04

Figure: Construction bonding report for March

Lesson 13: Processing Project Issues and Change Requests

Project Issue: General Information

In Acumatica ERP, project issues are used for tracking and reporting on all activities related to various issues discovered on a construction site. Based on a project issue, a request for information or a change request may be created.

Learning Objectives

In this chapter, you will learn how to do the following:

- Configure project management classes that may be used to ease the creation of project issues
- Define project issue types
- Report project issues
- Convert project issues to change requests
- Convert project issues to requests for information
- Mass-assign project issues to owners

Applicable Scenarios

You create and process a project issue when an unexpected problems occur on a construction site.

Project Issue Processing

In general, the *Project Issue* (PJ302000) form is the starting point for creating a project issue. In a newly created project issue, you should first specify the following settings:

- The summary, which briefly describes the project issue
- The project to which the project issue relates
- The project management class that provides the default settings for the newly created project issues

Then on the **Details** tab, you provide the detailed description. You can also create a time activity or a drawing log for the project issue.

After you have specified the details, you process a project issue in any of the following ways:

- If more information is required to resolve the issue, you click **Convert to RFI** on the form toolbar. The system creates a request for information for the project issue, and opens it on the *Request for Information* (PJ301000) form.
- If the project issue introduces changes to the project budget, you click **Convert to Change Request** on the form toolbar. The system creates a change request for the project issue, and opens it on the *Change Requests* (PM308500) form.

Project Issue: Implementation Activity

In the following implementation activity, you will learn how to prepare the system for creating and processing project issues.

Story

Suppose that you, a system administrator of a construction company, ToadGreen Building Group, need to define the types of project issues for the company. You need to track design issues, violations of safety regulations, and problems with equipment, materials, or people. You also need to configure a project management class that is going to be used for creating project issues.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the *Construction* and *Construction Project Management* features have been enabled in the *Projects* group of features.
- On the *Project Management Classes* (PJ201000) form, the *FIELD* class has been defined with the **Project Issues** check box selected in the **Use For** section.

System Preparation

To prepare to perform the instructions of the activity, sign in to the system as a system administrator by using the *gibbs* username and the *123* password.

Step 1: Specifying System Settings for Project Issues

To specify project issue preferences, do the following:

1. Open the *Project Management Preferences* (PJ101000) form.

2. In the **Project Issue Settings** section of the **General** tab, in the **Project Issue Numbering Sequence** box, make sure *PROISSUE* is specified.

3. In the Project Issue Type table, click **Add Row**, and specify the following settings:

- **Project Issue Type**: Accident
- **Description**: Accidents and emergencies

4. Add three more rows with the following sets of values.

Project Issue Type	Description
Safety Violation	Violation of safety regulations
Design Issue	Design issues
Resource	Problems with equipment, materials, or people

5. Save your changes.

Step 2: Configuring a Project Management Class

Review the project management class that has been configured for processing project issues by doing the following:

1. On the *Project Management Classes* (PJ201000) form, open the *FIELD* class.

2. In the **Use For** section, make sure the **Project Issues** check box is selected.

3. On the **Details** tab, make sure the **Answer Days Default** (under **Project Issue Settings**) is set to *5*.

You have prepared the system for processing project issues.

Project Issue: To Create a Change Request from a Project Issue

This activity will walk you through the process of creating a project issue and converting a request for information to a change request.

Story

Suppose that on *3/21/2022*, a design issue has occurred on the construction site of the Beach Hotel and Condominiums project that the ToadGreen company is working on: A subcontractor put a hole in a wall when stacking materials. The project engineer has reported that one day is necessary to fix the issue, and it will cost $200.

Acting as a ToadGreen construction project manager, you need to create the project issue in the system, and then convert it to a change request.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the *Construction* feature have been enabled.
- On the *Project Management Classes* (PJ201000) form, the *FIELD* class has been defined with the **Project Issues** check box selected in the **Use For** section.
- On the *Projects* (PM301000) form, the *HOTEL* project has been configured; the project tasks have been created, along with the related cost and revenue budget.

Process Overview

You will create a project issue on the *Project Issue* (PJ302000) form. You will then convert it to a change request for it on the *Change Requests* (PM308500) form.

System Preparation

To prepare to perform the instructions of this activity, do the following:

1. Sign in to the system as a construction project manager by using the *ewatson* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *3/21/2022*. If a different date is displayed, click the Business Date menu button, and select *3/21/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Creating the Project Issue

To create the project issue, do the following:

1. Open the *Project Issue* (PJ302000) form.

> (i) To open the form for creating a new record, type the form ID in the Search box, and on the Search form, point at the form title and click **New** right of the title.

2. On the form toolbar, click **Add New Record**, and specify the following settings in the Summary area:
    - **Summary**: `Hole in the wall needs to be patched`
    - **Project**: *HOTEL*
    - **Class ID**: *FIELD*
    - **Due Date**: *3/28/2022*
    - **Project Issue Type**: *Accident*
    - **Owner**: *Ricky Thompson*
    - **Schedule Impact**: Selected
    - **Schedule Impact (days)**: `1`
    - **Cost Impact**: Selected
    - **Cost Impact**: `2000`

3. On the **Details** tab, type the following information: `Subcontractor put a hole in the wall when stacking materials, and the hole needs to be patched and finished as soon as possible.`

4. Save the project issue.

Step 2: Converting the Project Issue to a Change Request

Create a change request based on the project issue, by doing the following:

1. While you are still viewing the *Hole in the wall needs to be patched* project issue on the *Project Issue* (PJ302000) form, click **Convert to Change Request** on the form toolbar.

    The *Change Requests* (PM308500) form opens with the created change request, with settings copied from the project issue. In the **Project Issue** box of the Summary area, the ID of the original project issue is specified.

2. On the form toolbar, click **Remove Hold**.

3. Click the Edit button next to the **Project Issue** box in the Summary area to open the original project issue.

4. On the *Project Issue* (PJ302000) form, which opens with the *Hole in the wall needs to be patched* project issue, make sure that the project issue now has *Converted to CR* in the **Status** box (as shown in the following screenshot). The link to the related change request is displayed in the **Converted To** box.

Figure: Project issue that has been converted to a change request

You have converted the project issue to a change request, which can now be processed further to record the expenses to the cost budget of the project.

Lesson 14: Processing Requests for Information

Requests for Information: General Information

Requests for information (RFIs) are used for obtaining information that is not present in (or cannot be inferred from) the contract documents. An RFI is usually submitted by a general contractor or subcontractor, and a design or engineering professional is usually specified as the contact person who is expected to provide the needed information.

Learning Objectives

In this chapter, you will learn how to do the following:

- Create and process a new request for information
- Create a new request for information that relates to another request for information
- Create a change request from a request for information
- Mass-assign owners to requests for information

Applicable Scenarios

You process a request for information in the system in the following cases:

- *Outgoing RFI*: When some needed information is not present in the documents related to a project, and your company requests certain information from an external subject matter expert
- *Incoming RFI*: When someone, usually a subcontractor, requests particular information about the project from your company

Processing Workflow of an Outgoing Request for Information

In the system, the processing of an outgoing request for information generally consists of the following steps:

1. Entering the request for information into the system: The project manager creates an RFI, which has the *New* status, on the *Request for Information* (PJ301000) form.

2. Opening the request for information: The project manager sends emails with the request to subject matter experts. The RFI has the *Open* status, indicating that the process has been started.

3. Closing the request for information: When the necessary information has been sent, the owner of the document closes the RFI by changing its status to *Closed*, indicating that the process has been completed, or by creating a change request from the RFI. The manager also specifies the reason for closing of the request.

Processing Workflow of an Incoming Request for Information

In the system, the processing of an incoming request for information generally consists of the following steps:

1. Entering the request for information into the system: The project manager creates an RFI with the **Incoming** check box selected and the person who is responsible for the answer specified in the **Owner** box of the *Request for Information* (PJ301000) form. The request for information has the *New* status.

2. Opening the request for information: The project manager opens the request by changing its status to *Open*, indicating that the process has been started. The manager also specifies the reason for opening of the request.

3. Closing the request for information: When the necessary information has been sent, the owner of the document closes the RFI by changing its status to *Closed*, indicating that the process has been completed, or by creating a change request from the RFI. The manager also specifies the reason for closing of the request.

Requests for Information: To Process an Outgoing Request for Information

This activity will walk you through the processing of both an incoming request for information (RFI) and the corresponding outgoing request for information.

Story

Suppose that the ToadGreen company is building a hotel for the Equity Group Investors customer. Then suppose that the customer has requested a specification for the hotel roofing. In order to provide this specification, the ToadGreen project engineer (Ricky Thompson) needs to request these specifications from Balaji Rajan, an engineer of the subcontractor company that performs this part of the work for the project.

Acting as the ToadGreen project engineer, you need to create an incoming request for information from the subcontractor, and then create the related outgoing request for information for an external engineer who can provide the requested specifications. After the specifications are received, you send them to a project engineer for review.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- On the *Enable/Disable Features* (CS100000) form, the *Construction* and *Construction Project Management* features have been enabled in the *Projects* group.

- On the *Project Management Classes* (PJ201000) form, the *DOCRFI* class has been defined with the **Request for Information** check box selected in the **Use For** section.

- On the *Projects* (PM301000) form, the *HOTEL* project for the *EQUGRP* customer has been created. Also, the *DL-000001* drawing log with the *roofing.gif* file for the *HOTEL* project has been added on the *Drawing Logs* (PJ403000) form for this project.

- On the *Customers* (AR303000) form, the *EQUGRP - Equity Group Investors* account has been created. On the **Contacts** tab of this form, a contact for *Jessica Drake* has been added.

- On the *Contacts* (CR302000) form, a contact record for *Balaji Rajan* has been created.

Process Overview

You will create an incoming request for information on the *Request for Information* (PJ301000) form. Then you will create from this request an outgoing request for information on the same form. Then you will link the drawing log with the needed information to the request and send an email to the responsible person by using the *Email Activity* (CR306015) form.

System Preparation

To prepare to perform the instructions of this activity, do the following:

1. Sign in to the system as an engineer by using the *jwagner* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *2/15/2022*. If a different date is displayed, click the Business Date menu button, and select *2/15/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system during this business date.

Step 1: Creating an Incoming Request for Information

To create an incoming request for information, do the following:

1. Open the *Request for Information* (PJ301000) form.

> (i) To open the form for creating a new record, type the form ID in the Search box, and on the Search form, point at the form title and click **New** right of the title.

2. On the form toolbar, click **Add New Record**, and specify the following settings in the Summary area:
   - **Project**: *HOTEL*
   - **Business Account**: *EQUGRP*
   - **Contact**: *Jessica Drake*
   - **Class ID**: *DOCRFI*
   - **Summary**: `Need specifications on hotel roofing`
   - **Incoming**: Selected (the request has been received from outside the company)
   - **Priority**: *High*
   - **Owner**: *Ricky Thompson*
   - **Design Change**: Selected

3. In the **Question** pane on the **Details** tab, type the following information: `Please provide the hotel roofing specifications.`

4. Save the request for information.

5. On the table toolbar, click **Open**. The system changes the status in the **Status** box to *Open*.

You have created the incoming request for information.

Step 2: Requesting Information from an External Expert

To create an outgoing request for information from the incoming one, do the following:

1. While you are still viewing the created request for information on the *Request for Information* (PJ301000) form, click **Convert to Outgoing RFI** on the form toolbar. The system creates the new request for information and opens it on the same form.

2. In the **Contact** box, select *Balaji Rajan*, and save your changes.

   Outgoing requests for information come from inside the company and are addressed to external experts. Note that the link to the original incoming RFI (which you created in Step 1) is displayed in the **Link to Incoming RFI** box, as shown in the following screenshot.

Figure: Outgoing request for information

3. Click **Email** on the form toolbar.

   The system opens the *Email Activity* (CR306015) form with the appropriate contact, *Balaji Rajan*, specified in the **To** box.

4. On the **Message** tab, specify the following text: `Please provide the specifications for hotel roofing.`

5. On the form toolbar, click **Send** to send the email. The system closes the form and returns to the outgoing request for information on the *Request for Information* form. Notice that the **Activities** button on the form title bar now shows that one activity has been attached to the request for information.

   Suppose that Balaji Rajan replied to the email and attached a new drawing for the hotel roofing.

6. On the table toolbar of the **Drawings** tab, click **Link Drawing**.

7. In the **Link Drawing** dialog box, which opens, select the unlabeled check box for the *DL-000001* drawing log with the *Hotel roofing specification* title, and then click **Link & Close**. The system closes the dialog box and adds a row with the drawing log on the **Drawings** tab.

8. On the **Details** tab, in the **Answer** pane, type `See the linked drawing`, and save your changes.

9. Click **Email** on the form toolbar.

10. On the *Email Activity* form, which opens in a pop-up window, do the following:

    a. In the **To** box, remove *Balaji Rajan*, and add *Ricky Thompson*, who needs to review the materials.

    b. Click **Attach** on the form toolbar.

c. In the **Attach Files** dialog box, which opens, select the unlabeled check box in the row with the *DL-000001* drawing log for the *roofing.gif* file, and click **Attach**.

d. Click **Send** on the form toolbar.

You have processed the outgoing request for information. After the responsible person reviews the provided information, the request for information can be closed or converted to a change request.

Requests for Information: To Create a Request for Information from a Project Issue

This activity will walk you through the process of creating a request for information from a project issue.

Story

Suppose that a design issue has been discovered on the construction site of the Beach Hotel and Condominiums, a project that the ToadGreen company is working on: Because of the unstable terrain, the paving should be placed differently. The engineer has reported that the issue will take three days to be resolved and it will cost $60,000.

Acting as a construction foreman, you need to enter the project issue in the system, and then you need to clarify which paving material needs to be used by processing a request for information for the project issue.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

*   On the *Enable/Disable Features* (CS100000) form, the *Construction* and *Construction Project Management* features have been enabled in the *Projects* group of features.
*   On the *Project Management Classes* (PJ201000) form, the *FIELD* class has been defined with the **Project Issues** check box selected in the **Use For** section of the Summary area.
*   On the *Projects* (PM301000) form, the *HOTEL* project has been created with multiple project tasks.
*   On the *Employees* (EP203000) form, the *EP00000032 – Ricky Thompson* employee record has been created.
*   On the *Vendors* (AP303000), the *SUNTECH* subcontractor has been created.

Process Overview

You will create the project issue on the *Project Issue* (PJ302000) form. You will then convert it to a request for information on the *Request for Information* (PJ301000) form and send the email to the responsible person on the *Email Activity* (CR306015) form.

System Preparation

To prepare to perform the instructions of this activity, do the following:

1. Sign in to the system as a construction foreman by using the *epsmith* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *2/15/2022*. If a different date is displayed, click the Business Date menu button, and select *2/15/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Creating the Project Issue

To create the project issue, do the following:

1. Open the *Project Issue* (PJ302000) form.

> (i) To open the form for creating a new record, type the form ID in the Search box, and on the Search form, point at the form title and click **New** right of the title.

2. On the form toolbar, click **Add New Record**, and specify the following settings in the Summary area:

   - **Summary**: `Paving should be replaced`
   - **Project**: *HOTEL*
   - **Class ID**: *FIELD*
   - **Due Date**: *2/22/2022*
   - **Owner**: *Ricky Thompson*
   - **Project Issue Type**: *Design Issue*
   - **Schedule Impact**: Selected
   - **Schedule Impact (days)**: 3
   - **Cost Impact**: Selected
   - **Cost Impact**: `60000`

3. On the **Details** tab, type the following information: `Due to unstable terrain, the paving needs to be laid differently. Refer to the updated site plan.`

4. Save the project issue.

5. On the **Drawings** tab, click **Link Drawing** on the table toolbar.

6. In the **Link Drawing** dialog box, which opens, select the check box in the unlabeled column for the drawing log with the *Site plan* title, and click **Link & Close** to link the drawing log and close the dialog box.

7. Save your changes.

Step 2: Converting the Project Issue to a Request for Information

To convert the issue to the request for information, do the following:

1. While you are still viewing the *Paving should be replaced* project issue on the *Project Issue* (PJ302000) form, on the form toolbar, click **Convert to RFI**.

   The *Request for Information* (PJ301000) form opens with the new request for information. The system has copied the settings from the original project issue.

2. In the Summary area, specify the following settings:

   - **Business Account**: *SUNTECH* (the subcontractor to perform the work)
   - **Contact**: *Ally Ralts*
   - **Class ID**: *DOCRFI*
   - **Owner**: *Ricky Thompson*
   - In the **Question** pane on the **Details** tab, add the following text: `What paving material should be used?`

3. Save your changes. Notice that the link to the original project issue is displayed in the **Converted From** box, as shown in the following screenshot.

Request for Information
RF-000003 - The Beach Hotel and Condominiums (Warner Street)

* Project:	HOTEL - The Beach Hotel an	* RFI ID:	RF-000003
Project Task:		* Creation Date:	2/15/2022
Business Account:	SUNTECH - Suntech Concret	Created By:	Ernest P. Smith
* Contact:	Ally Ralts	Owner:	Ricky Thompson
* Class ID:	DOCRFI - Construction RFI d	Answer Due Date:	2/17/2022
* Summary:	Paving should be replaced		
	☐ Incoming	Workgroup:	
Status:	New		☑ Schedule Impact
Reason:	N/A	Schedule Impact (days):	3
Priority:	Medium		☑ Cost Impact
Documentation Link:		Cost Impact:	60,000.00
Spec. section:			☐ Design Change
Converted From:	IS-000003	Converted To:	

DETAILS   ATTRIBUTES   ACTIVITIES   RELATIONS   DRAWINGS

Question

VISUAL ▾   ↶   ↷   Paragraph ▾   **B**   *I*   U ▾   A ▾   ✎ ▾   ☰ ▾   ☲   ☲   ☲

Due to unstable terrain, the paving needs to be laid differently. Refer to the updated site plan.
What paving material should be used?

Figure: Request for information created based on the project issue

4. On the form toolbar, click **Email**. The *Email Activity* (CR306015) form opens in a pop-up window. The contact specified for the RFI is the default recipient of the email.

5. On the **Message** tab, type `What paving material should be used?`.

6. Click **Send** on the form toolbar to send the email, close the form and return to the request for information.

You have entered the project issue and converted it to a request for information. After the needed information is received, you could create a change request from this project issue or close the request.

Lesson 15: Processing Daily Field Reports

Daily Field Reports: General Information

In the construction industry, many independent activities may take place on a project site and in the office. To make sure that everyone is looking at the same data and that the data has been transferred from the field to the office accurately, *daily field reports* may be used by project managers and site supervisors to record observations, activities, and conditions that occur on a project site every day.

In Acumatica ERP Construction Edition, the daily field reports (DFRs) provide the members of a project team with a single location for updates about daily project activities, such as employee activities or subcontractor activities, as well as about daily weather observations, visitors to the site, and potential changes to a project budget. The daily field reports can be emailed to all relevant parties.

Learning Objectives

In this chapter, you will learn how to do the following:

- Create and assign an approval map for daily field reports
- Create a daily field report
- Add to the daily field report the following entities:
  - Labor time and activities
  - Change requests
  - Change orders
  - Subcontractor activities
  - Project issues
  - Weather conditions
  - Site visitors
- Email the daily field report

Settings That Affect the Daily Field Report

Before you can starting using daily field reports, a variety of settings need to be specified on the *Project Management Preferences* (PJ101000) form, in the **Daily Field Report Settings** section of the **General** tab. To determine the way daily field reports are numbered, a numbering sequence should be entered in the **DFR Numbering Sequence** box on the **General** tab.

If approvals will be required for daily field reports, in the **DFR Approval Map** box, an approval map for daily field reports can be specified. Also, in the **Pending Approval Notification** box, a notification template can be specified. The system will use this template to generate notification emails for employees who need to approve daily field reports. An employee will receive an approval notification when a daily field report requires this employee's approval.

> ⚠️ The **DFR Approval Map** and **Pending Approval Notification** boxes are available only if the *Approval Workflow* feature is enabled on the *Enable/Disable Features* (CS100000) form.

You can also select the **Enable History Log** check box to save all new revisions of a daily field report as PDF files.

On the **Daily Field Report Copy Settings** tab of the *Project Management Preferences* form, the settings of daily field reports are listed. The default settings on this are initially unavailable for editing. To be able to modify the list

of settings, you should first select the **Override Default Copy-Paste Settings** check box. Each of the check boxes on the tab specifies whether the specified information will be copied from an original daily field report to its copy, when you create a copy of a daily field report by using the standard **Copy** and **Paste** commands on the form toolbar of the *Daily Field Report* (PJ304000) form.

Creation of Daily Field Reports

You create a daily field report on the *Daily Field Report* (PJ304000) form. In the **Project** box, you specify the related project, and in the **Project Manager** box, you select the employee who is responsible for managing the project and authorized to approve the daily field report.

In the daily field report, you can enter information about linked change requests, subcontractor work, associated project issues, visitors to the project site, weather conditions observed on the site, and activities of specific employees.

Labor Time and Reporting Activities

On the **Labor Time and Activities** tab of the *Daily Field Report* (PJ304000) form, you can add a row for each employee time activity. In the row, you select the employee whose activity should be included in the daily field report and specify the earning type, the project task, and the cost code for the activity. Also, you can enter the time that the employee spent on the activity and specify whether this time is billable. You can enter multiple lines if the employee performed different activities or if activities were performed by different employees.

The user can update or delete only time activity rows that have the *Open* status and that are not included in employee time cards.

> ⚠️ The **Labor Time and Activities** tab is available only if the *Time Management* feature is enabled on the *Enable/Disable Features* (CS100000) form.

Related Change Requests

If the *Change Orders* feature is enabled on the *Enable/Disable Features* (CS100000) form, on the **Change Requests** tab of the *Daily Field Report* (PJ304000) form, you can associate a change request that was previously created for the project with the daily field report. Also, while you are working on the **Change Requests** tab, you can click **Create New Change Request** on the table toolbar. You can associate as many change requests as needed with a daily field report.

As a result, the *Change Requests* (PM308500) form opens, with the project and customer copied from the daily field report and unavailable for editing. When you save the change request, it is automatically associated with the daily field report and listed in the table on the **Change Requests** tab of the *Daily Field Report* form.

Related Change Orders

If the *Change Orders* feature is enabled on the *Enable/Disable Features* (CS100000) form, on the **Change Orders** tab of the *Daily Field Report* (PJ304000) form, you can associate a change order that was previously created for the project with the daily field report by using the **Add Row** button on the table toolbar. You can associate as many change orders as needed with a daily field report.

Also, while you are working on the **Change Orders** tab, you can click **Create New Change Order** on the table toolbar. As a result, the *Change Orders* (PM308000) form opens, with the project and customer copied from the daily field report and unavailable for editing. When you save the change order, it is automatically associated with the daily field report and listed in the table on this tab.

Subcontractor Activities

On the **Subcontractors** tab of the *Daily Field Report* (PJ304000) form, you can add information about subcontractors, which may include the number of workers who worked on site during the day, the number of hours they worked, and the cost codes associated with the performed work.

Related Project Issues

On the **Project Issues** tab of the *Daily Field Report* (PJ304000) form, you can associate a project issue that was previously created for the selected project with the daily field report by using the **Add Row** button on the form toolbar. You can associate as many project issues as needed with a daily field report.

Also, while you are working on the **Project Issues** tab, you can click **Create Project Issue** on the form toolbar. As a result, the *Project Issue* (PJ302000) form opens, with the project copied from the daily field report and unavailable for editing. When you save the project issue, it is automatically associated with the daily field report and listed in the table on this tab.

Related Photo Logs

On the **Photo Logs** tab of the *Daily Field Report* (PJ304000) form, you can associate a photo log that was previously created for the project with the daily field report by using the **Add Row** button on the table toolbar. You can associate as many photo logs as needed with a daily field report.

Also, you can click **Create New Photo Log** on the table toolbar of the **Photo Logs** tab. As a result, the *Photo Log* (PJ305000) form opens, with the project copied from the daily field report and unavailable for editing. When you save the photo log, it is automatically associated with the daily field report and listed in the table on this tab.

For each photo log selected in the table, a preview of its main photo (if any) is shown in the **Main Photo Preview** area.

Related Notes

On the **Notes** tab of the *Daily Field Report* (PJ304000) form, you can report additional information for a day by using the **Add Row** button on the table toolbar. You can type a description for the note and attach files to it.

Equipment Used on the Project

On the **Equipment** tab of the *Daily Field Report* (PJ304000) form, you can add a row for each piece of equipment that was used on the project and specify the project task, the cost code, and the time for which the equipment was utilized (as well as whether that time is billable). Each new row on this tab updates the time card for the corresponding equipment; if no corresponding time card exists for this piece of equipment in the system, a new time card is created.

You can update or delete lines that are not included in equipment time cards and lines associated with equipment time cards with the *On Hold* status.

Weather Observations

On the **Weather** tab of the *Daily Field Report* (PJ304000) form, you can report weather conditions observed at the project site during the day, such as sky condition, temperature, precipitation, wind, and site conditions. Each row on the tab represents a weather record at a particular time. You can select the **Delay** check box to indicate that the reported weather conditions may cause a delay in the project delivery.

Visitors to the Site

On the **Visitors** tab of the *Daily Field Report* (PJ304000) form, you can specify information about visitors to the project site. You can specify the type of the visitor, the name of the visiting person, the name of their company (if applicable), the time when the visitor arrived and departed, the purpose of the visit, the visited area or inspected entity, and an additional description.

You can add as many visitor records as needed.

Related Employee Expenses

If the *Expense Management* feature is enabled on the *Enable/Disable Features* (CS100000) form, on the **Employee Expenses** tab of the *Daily Field Report* (PJ304000) form, you can report information about day-to-day expenses an employee incurs while working on the project. To link an existing expense receipt to a daily field report, you should click **Add Row** on the table toolbar and then select an expense receipt. You can associate as many expense receipts as needed with a daily field report.

Also, while you are working on the **Employee Expenses** tab, you can click **Create New Expense Receipt** on the table toolbar. As a result, the *Expense Receipt* (EP301020) form opens, with the project copied from the daily field report and unavailable for editing. When you save the expense receipt, it is automatically associated with the daily field report and listed in the table on this tab.

History Log of Revisions

If the **Enable History Log** check box is selected on the *Project Management Preferences* (PJ101000) form, all new revisions of a daily field report are saved as PDF files and listed on the **History** tab on the *Daily Field Report* (PJ304000) form. A history log record is created when the status of the daily field report is changed to *Completed*. The list of revisions is generated automatically and cannot be edited.

Updates of Daily Field Reports

A daily field report may be updated multiple times during the day, sometimes by different employees. You can update a daily field report only if it has the *On Hold* status. If the daily field report has a different status, you need to put the document on hold before you start updating it.

Deletion of Daily Field Reports

You can delete an incorrect daily field report only if it is on hold and only if it has no related employee activities or subcontractor activities, no related change requests or project issues, and no records about weather conditions or visitors.

Approval of Daily Field Reports

If the *Approval Workflow* feature is enabled on the *Enable/Disable Features* (CS100000) form, and an approval workflow is configured in the system for daily field reports, a daily field report is assigned the *Pending Approval* status when you take the document off hold.

On the **Approvals** tab of the *Daily Field Report* form, information about the approvals of the document is displayed.

The authorized approver can approve the daily field report by using the **Approve** menu command on the form toolbar of the *Daily Field Report* form, or the approver can use the *Approvals* (EP503010) form to approve daily field reports along with documents of other types.

If the approver rejects the daily field report, the document is assigned the *Rejected* status. Then it may be put on hold and updated as needed so that you can submit it for approval again.

Daily Field Reports: To Configure Approval for Daily Field Reports

This activity will walk you through the process of configuring the approval map for daily field reports.

Story

Suppose that the ToadGreen company needs to keep daily field reports in the system. These reports need to be approved by managers. Acting as a system administrator, you need to create the approval map for the daily field reports and specify the daily field report settings in the system.

Configuration Overview

For the purposes of this activity, the *Construction* and *Construction Project Management* features have been enabled on the *Enable/Disable Features* (CS100000) form.

System Preparation

To prepare to perform the instructions of this activity, do the following:

1. Sign in to the system as a system administrator by using the *gibbs* username and the *123* password.
2. Open the *Enable/Disable Features* (CS100000) form, and on the form toolbar, click **Modify**.
3. In the **Platform** group of features, select the **Approval Workflow** check box.
4. On the form toolbar, click **Enable**.

Step: Creating an Approval Map for Daily Field Reports

In this step, you will create the approval map to be used for daily field reports. Do the following:

1. Open the *Assignment and Approval Maps* (EP205500) form.
2. On the form toolbar, click **Add Approval Map**.

   The system opens the *Approval Maps* (EP205015) form.
3. In the **Name** box of the Summary area, type `DFR Approval`.
4. In the **Entity Type** box, select *Daily Field Report*.
5. On the pane toolbar of the **Steps** pane, click **Add Step**.

   The system adds a step with a rule.
6. In the **Steps** pane, click the added rule, and then on the **Conditions** tab of the right pane, do the following:
   a. In the **Description** box, type `PMApproval`.
   b. In the table, click **Add Row**, and in the row, specify the following settings:
      a. **Entity**: *Daily Field Report*
      b. **Field Name**: *Project Manager*
      c. **Condition**: *Is Not Empty*
7. On the **Rule Actions** tab of the right pane, specify the following settings:
   a. **Approver**: *Employee from Document*
   b. **Employee**: *((DailyFieldReport.ProjectManagerId))* (select **Daily Field Report > Project Manager**)
   c. **On Approval**: *Approve Document*

8. Click **Save** on the form toolbar.

9. On the **General** tab of the *Project Management Preferences* (PJ101000) form, select *DFR Approval*, the approval map that you created, in the **DFR Approval Map** box.

10. On the form toolbar, click **Save** to save your changes.

You have configured the approval map for the daily field reports.

Daily Field Reports: Process Activity

This activity will walk you through the process of working with a daily field report.

Story

Suppose that on February 15, 2022, Ernest Smith, a construction foreman in the ToadGreen company, spent a day on the construction site of the Italian restaurant that the company is building for the Italian Company. During the day, he has submitted a change order and made notes about subcontractor activities, weather conditions, visitors, and other information. Also, he has taken photos to support his report about weather conditions. At the end of the day, Ernest creates a daily field report, adds notes, and sends the daily field report for approval to the project manager.

Acting as the construction foreman, you will create and process the daily field report and add all needed information to it.

Configuration Overview

In the *U100* dataset, the following tasks have been performed for the purposes of this activity:

- The following features have been enabled on the *Enable/Disable Features* (CS100000) form:
  - *Construction*
  - *Construction Project Management*
  - *Time Management*
  - *Change Orders*
- On the *Projects* (PM301000) form, the *ITALIAN2* project has been created with multiple project tasks.
- On the *Vendors* (AP303000) form, the *SUNTECH - Suntech Concrete* and *ACMEDO - Acme Doors & Glass* subcontractors have been defined.
- On the *Employees* (EP203000) form, the *EP00000033 - Ellen Watson* employee has been defined.
- On the *Customers* (AR303000) form, the *ITACOM - Italian Company* customer has been created.

Process Overview

You will create a daily field report on the *Daily Field Report* (PJ304000) form. You will then add a change order, subcontractor activities, weather conditions, and visitors on the appropriate tabs of the form. To finish the processing of the daily field report, you will complete it to submit the report for approval. Finally, you will approve the daily field report.

System Preparation

To prepare to perform the instructions of this activity, do the following:

1. Sign in to the system as a construction foreman by using the *epsmith* username and the *123* password.

2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that the business date in your system is set to *2/15/2022*. If a different date is displayed, click the Business Date menu button, and select *2/15/2022* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

3. Download the *DFR_weather1.jpg* and *DFR_weather2.jpg* files to your device.

Step 1: Creating the Daily Field Report

Create the daily field report as follows:

1. Open the *Daily Field Report* (PJ304000) form.

> (i) To open the form for creating a new record, type the form ID in the Search box, and on the Search form, point at the form title and click **New** right of the title.

2. On the form toolbar, click **Add New Record**, and specify the following settings in the Summary area:
   - **Project**: *ITALIAN2*
   - **Project Manager**: *Ellen Watson* (inserted automatically)

3. On the form toolbar, click **Save**.

   The daily field report is saved with the *On Hold* status. Now you can add the needed information to the report on the appropriate tabs of the form.

Step 2: Adding a Change Order

To add a change order to the daily field report, do the following:

1. While you are still viewing the daily field report on the *Daily Field Report* (PJ304000) form, on the **Change Orders** tab, click **Create New Change Order** on the table toolbar.

2. On the *Change Orders* (PM308000) form, which opens in the pop-up window, type `Extra costs` in the **Description** box.

3. On the **Cost Budget** tab, add a line with the following settings:
   - **Project Task**: *08*
   - **Cost Code**: *08-000*
   - **Account Group**: *SUBCON*
   - **Description**: `Extra costs, openings`
   - **Quantity**: `10`
   - **Unit Rate**: `1200`

4. On the form toolbar, click **Remove Hold**, and then return to the daily field report on the *Daily Field Report* form.

5. Press Esc to refresh the form, and make sure that the change order has appeared on the **Change Orders** tab of the daily field report.

Step 3: Registering Subcontractor Activities

Register subcontractors' activities in the daily field report as follows:

1. While you are still viewing the daily field report on the *Daily Field Report* (PJ304000) form, on the **Subcontractors** tab, click **Add Row** on the table toolbar, and specify the following settings in the row:
   - **Vendor ID**: *SUNTECH*

- **Project Task**: *03*
- **Cost Code**: *03-000*
- **Number of Workers**: 3
- **Arrived**: *09:30 AM*
- **Departed**: *06:30 PM*

2. Add one more row with the following settings:
   - **Vendor ID**: *ACMEDO*
   - **Project Task**: *06*
   - **Cost Code**: *06-000*
   - **Number of Workers**: 2
   - **Arrived**: *08:00 AM*
   - **Departed**: *05:00 PM*

3. On the form toolbar, click **Save**.

Step 4: Reporting Weather Conditions

In this step, you will add records to reflect the weather conditions of the day. Do the following:

1. While you are still viewing the daily field report on the *Daily Field Report* (PJ304000) form, on the **Weather** tab, click **Add Row** on the table toolbar, and specify the following settings in the added row:
   - **Time Observed**: *07:37 AM*
   - **Sky**: *Cloudy*
   - **Temperature**: 60
   - **Temperature Perceived**: *Warm*
   - **Precipitation Description**: *None*
   - **Wind Description**: *None*
   - **Site Conditions**: Dry
   - **Delay**: Cleared
   - **Description**: Normal weather, no delay

2. Save your changes.

3. Add a second row, and specify the following settings:
   - **Time Observed**: *04:30 PM*
   - **Sky**: *Few Clouds*
   - **Temperature Perceived**: *Mild*
   - **Precipitation Description**: *None*
   - **Wind Description**: *Calm*
   - **Site Conditions**: Dry
   - **Delay**: Cleared
   - **Description**: Warm, dry day

4. Save your changes.

5. In the table, at the beginning of the first row, click the button in the **Files** column (one of the unlabeled columns with icons as column headers) to open the **Files** dialog box. In the dialog box, click **Browse**, select the *DFR_weather1.jpg* file, click **Upload**, and close the dialog box.

6. In the table, at the beginning of the second row, click the button in the **Files** column to open the **Files** dialog box. In the dialog box, click **Browse**, select the *DFR_weather2.jpg* file, click **Upload**, and close the dialog box.

Step 5: Registering Visitors and Completing the Report

To add records about site visitors, do the following:

1. While you are still viewing the daily field report on the *Daily Field Report* (PJ304000) form, on the **Visitors** tab, click **Add Row** on the table toolbar.

2. In the new row, specify the following settings:
   - **Visitor Type**: *Customer*
   - **Name**: Adam Smith
   - **Business Account**: *ITACOM*
   - **Arrived**: *5:00 PM*
   - **Departed**: *6:00 PM*
   - **Purpose of Visit**: Visiting construction site for progress control
   - **Area Visited/Inspected Entity**: Basement of site

3. Add a second row with the following settings:
   - **Visitor Type**: *Owner*
   - **Name**: Ellen Watson
   - **Arrived**: *9:30 AM*
   - **Departed**: *6:00 PM*
   - **Purpose of Visit**: Review proposed changes
   - **Area Visited/Inspected Entity**: Subfloor of site
   - **Description**: Changes approved

4. Save your changes.

5. On the form toolbar, click **Complete**.

   The system changes the report's status to *Pending Approval*.

6. On the **Approvals** tab, make sure Ellen Watson is specified as the approver of the daily field report.

7. Sign out from the system.

Step 6: Approving the Daily Field Report

To approve the daily field report submitted by , perform the following steps

1. Sign in as a construction project manager by using the *ewatson* username and the *123* password.

2. On the *Daily Field Report* (PJ304000) form, open the daily field report that you have prepared earlier acting as a construction foreman.

3. On the form toolbar, click **Approve**. On the **Approvals** tab, the system will change the approval status of the daily field report to *Approved*, as shown in the following screenshot.

Figure: Daily field report submitted for approval

You have prepared the daily field report and sent it for approval.

Additional Materials

Subcontracts: Related Reports

In the following sections, you can find details about the reports and inquiry forms you may want to review to gather information about subcontracts.

> ⚠️ If you do not see a particular report or form that is described, you may have signed in to the system with a user account that does not have access rights to the report or form. Contact your system administrator to obtain access to any needed reports or forms.

Reviewing Subcontract Details

To review details of subcontracts, you can use reports as follows:

- To review summary information about the subcontracts that are neither closed nor canceled, you use the *Subcontract Summary* (SC610500) report.
- To review the detailed information about subcontracts that are neither closed nor canceled grouped by vendors (subcontractors), you use the *Subcontract Details by Vendor* (SC611000) report.

Finding the Bills and Debit Adjustments Related to a Subcontract

If you need to find an accounts payable document linked to a particular subcontract, you open the subcontract on the *Subcontracts* (SC301000) form and review the **Billing** tab. The table on this tab lists all the accounts payable documents that have been prepared for the subcontract, and the table footer shows the summary information for all listed documents. To review the details of a particular document, you click its reference number in the **Reference Nbr.** column; the system opens the accounts payable bill or debit adjustment for review on the *Bills and Adjustments* (AP301000) form.

Reviewing the Unbilled Quantities of a Subcontract

To check whether a subcontract has quantities of items and amounts that have not yet been billed, you review the **Unbilled Quantity** and **Unbilled Amount** boxes on the **Other** tab of the *Subcontracts* (SC301000) form.

Printing Subcontracts

While you are viewing a subcontract on the *Subcontracts* (SC301000) form, you can print the document by clicking **Print** on the form toolbar. The system opens the printable version of the document on the *Subcontract (SF)* (SC641000) report; then you can review the document and print it by clicking **Print** on the report toolbar.

Subcontracts: Mass Processing

The following sections explain how to mass-process subcontracts.

Mass Printing of Subcontracts

To print subcontracts in bulk, you use the *Print/Email Subcontracts* (SC503000) form. You select *Print* in the **Action** box, select the check boxes in the rows of the needed subcontracts in the table, and click **Process** on the form toolbar; you can click **Process All** on the form toolbar to print all the subcontracts listed in the table.

Mass Emailing of Subcontracts

To send emails with multiple subcontracts, you use the *Print/Email Subcontracts* (SC503000) form. You select *Email* in the **Action** box, select check boxes in the rows of the needed subcontracts in the table, and click **Process** on the form toolbar; you can click **Process All** to send emails with all the subcontracts listed in the table.

Correction of a Bill for a Subcontract: Related Report and Inquiry Forms

The following sections describe the reports, inquiries, and forms you may review to gather information about billed amounts and quantities in subcontracts, vendor balances, and debit adjustments processed for subcontracts.

> ⚠ If you do not see a particular report or form that is described, you may have signed in to the system with a user account that does not have access rights to the report or form. Contact your system administrator to obtain access to any needed reports or forms.

Finding the Bills and Debit Adjustments Related to a Subcontract

If you need to find an accounts payable document linked to a particular subcontract, you open the subcontract on the *Subcontracts* (SC301000) form and review the **Billing** tab. The table on this tab lists all the accounts payable documents that have been released for the subcontract, and the table footer shows the summary information for all listed documents. To review the details of a particular document, you click its reference number in the **Reference Nbr.** column; the system opens the accounts payable bill or debit adjustment for review on the *Bills and Adjustments* (AP301000) form.

Reviewing the Unbilled Quantities of a Subcontract

To check whether a subcontract has quantities of items and amounts that have not yet been billed, you review the **Unbilled Quantity** and **Unbilled Amount** boxes on the **Details** tab (for each individual line) of the *Subcontracts* (SC301000) form, or the total unbilled amount and unbilled quantity on the **Other** tab of the form.

Reviewing the Subcontractor's Outstanding Balance

You use the *Vendor Details* (AP402000) form to review the outstanding balance of a particular subcontractor. The debit adjustments you create in the system decrease the outstanding balance of the subcontractor.

Reviewing the Subcontractor's Balance and Documents

You run the *AP Balance by Vendor* (AP632500) report to review the balance and documents of a particular subcontractor for a particular period.

AP Bills with Retainage: Mass-Processing of Documents

The following section explains how to create retainage bills for multiple AP bills.

Mass-Releasing Retainage

To release retainage for multiple bills, you use the *Release AP Retainage* (AP510000) form. In the Selection area, in the **Date** box, you select the date for which you want to create the retainage bills. The system fills in the **Post Period** box with the period of the selected date. (You can change it, if necessary.) You can specify other settings to filter the bills in the table, such as vendor and reference number.

In the table, for each bill for which you want to release retainage, you check the **Percent to Release** or **Retainage to Release** column, and change the value in either column, if necessary. You then select the check boxes in the unlabeled column for the bills for which you want to release the retainage and then click **Process** on the form toolbar. If you want to release the retainage for all listed bills, you click **Process All** on the form toolbar.

> ⚠️ You can configure the system to automatically release the retainage bills that are created on this form by selecting the **Automatically Release Retainage Bills** check box on the *Accounts Payable Preferences* (AP101000) form.

Vendor Payments by Project: Related Report and Inquiry Forms

The following sections describe reports, inquiries, and forms you can review to gather information about payments for projects.

> ⚠️ If you do not see a particular report or form that is described, you may have signed in to the system with a user account that does not have access rights to the report or form. Contact your system administrator to obtain access to any needed reports or forms.

Reviewing Checks that Are Pending Printing

You can use the *Checks Pending Printing* (AP404000) form to review which checks have not been printed yet as of a specified pay date. You can initiate check printing on this form by clicking **Print Checks** on the form toolbar. The system navigates to the *Process Payments / Print Checks* (AP505000) form, where you can print checks.

Reviewing Vendor Documents

You use the *Vendor Details* (AP402000) form to review the accounts payable documents (bills, debit and credit adjustments, and checks) for a particular vendor.

By default, the form displays the list of open vendor documents (that is, those with the *Open* status), but you can add to the list closed documents and unreleased documents by selecting the **Show All Documents** and **Include Unreleased Documents** check boxes, respectively.

Running the Check Register Inquiry

You use the *Check Register* (AP404500) form to review the details of the checks that have been generated in the system. By using this inquiry form, you can find out whether a particular check number has been used and, if it has, for which AP check.

If you have reprinted a check with a new number or voided a check, the system does not allow this number to be reused. The inquiry displays the check numbers of all checks, including those have been reprinted or voided.

AR Invoices with Retainage: Mass-Processing of Documents

The following section explains how to release retainage for multiple AR invoices.

Mass-Releasing Retainage

To release retainage for multiple invoices, you use the *Release AR Retainage* (AR510000) form. In the Selection area, in the **Date** box, you select the date for which you want to create the retainage invoices. The system fills in the **Post Period** box with the period of the selected date. (You can change it, if necessary.) You can specify other settings to filter the invoices in the table, such as customer, project, project task, account group, cost code, and inventory ID. You also can specify the percent of retainage to be released in the **Retainage Percent** box for all invoices in the table.

In the table, for each invoice for which you want to release retainage, you should check the **Percent to Release** or **Retainage to Release** column, and change the value in either column, if necessary. You then select the check boxes in the unlabeled column for the invoices for which you want to release the retainage and then click **Process** on the form toolbar. If you want to release the retainage for all listed invoices, you click **Process All** on the form toolbar.

Pro Forma Invoice Correction: Mass-Processing of Documents

This topic explains how to perform mass-processing operations related to pro forma invoices and AR documents, and how the system generates, changes, or works with documents as a result of the mass processing.

Mass-Releasing Pro Forma Invoices

Pro forma invoices can be mass-released. To release multiple pro forma invoices at a time, you open the *Process Pro Forma Invoices* (PM506000) form, select the unlabeled check boxes in the rows of the pro forma invoices to be processed, select *Release* in the **Action** box in the Selection area, and click **Process** on the form toolbar. To instead release all the listed pro forma invoices, you click **Process All** on the form toolbar.

Mass-Releasing AR Invoices

Multiple accounts receivable invoices, including reversing AR documents generated on correcting pro forma invoices, can be released at the same time on the *Release AR Documents* (AR501000) form. On this form, you select the unlabeled check boxes in the rows of the documents to be processed and click **Release** on the form toolbar to release the selected invoices; alternatively, you can click **Release All** to release all the invoices shown in the table.

Pro Forma Invoice Correction: Related Reports and Forms

In the following sections, you can find details about the reports and forms you may want to review to gather information about correcting pro forma invoices.

> ⚠ If you do not see a particular report or form that is described, you may have signed in to the system with a user account that does not have access rights to the report or form. Contact your system administrator to obtain access to any needed reports or forms.

Reviewing Revisions of a Pro Forma Invoice

You can review all the previous revisions of the pro forma invoice selected on the *Pro Forma Invoices* (PM307000) form in the **Previous Revisions** table on the **Financial** tab. If there are several revisions in the table, the topmost row is the last revision of the pro forma invoice while revision *1* is the first revision of the invoice.

For each revision, you can find in the table the reference number of the accounts receivable document created on release of the revision (**AR Ref. Nbr.**) and the reference number of the reversing AR document (**Reversing Ref. Nbr.**) created for that accounts receivable document. By clicking the reference numbers, you can opens these AR documents on the *Invoices and Memos* (AR301000) form.

Reviewing AR Documents Related to a Project

You can review all the accounts receivable documents related to pro forma invoices of a project, including AR documents of the previous revisions of pro forma invoices and reversing AR documents, on the **Invoices** tab of the *Projects* (PM301000) form.

If a pro forma invoice has been corrected, the latest generated accounts receivable invoice is listed in the same row with the pro forma invoice. All the previous revisions of the accounts receivable invoices and reversing accounts receivable documents generated for the pro forma invoice are shown in the end of the invoices list.

Comparing Revisions of a Pro Forma Invoice

You can compare all the revisions of a pro forma invoice on the *Pro Forma Invoice Correction History* (PMGI0030) form. In the Summary area of the form, in the **Reference Nbr.** box, you select a pro forma invoice whose revisions you want to review. In the table, the system displays all lines of all the revisions of the selected pro forma invoice. The lines are sorted ascending by the invoice line number and then descending by the invoice revision—that is, the system shows all the revisions of the first invoice line, then all the revisions of the second line, and so on. The lines of the current revision are highlighted with green and have the highest revision number.

Project Issue: Mass Processing

The following section explains how to mass-assign owners to project issues.

Mass-Assigning Owners to Project Issues

You use the *Assign Project Issue* (PJ502000) form to assign owners to project issues. To do this, you select the check boxes in the unlabeled column for the project issues that you want to assign to owners and then click **Process** on the form toolbar. If you want to assign owners to all project issues, click **Process All**.

The system assigns owners according to the assignment map selected in the **Project Issue Assignment Map** box of the *Project Management Preferences* (PJ101000) form.

Requests for Information: Mass-Processing of Documents

The following section explains how to mass-assign owners to requests for information.

Mass-Assigning Owners to Project Issues

You use the *Assign Request for Information* (PJ501000) form to assign owners to requests for information. To do this, you select the check boxes in the unlabeled column for the requests for information that you want to assign

to owners and then click **Process** on the form toolbar. If you want to assign owners to all requests for information, click **Process All**.

The system assigns owners according to the assignment map selected in the **RFI Assignment Map** box of the *Project Management Preferences* (PJ101000) form.

Requests for Information: Related Reports

In the following sections, you can find details about the reports you may want to review to gather information about requests for information.

> ⚠ If you do not see a particular report or form that is described, you may have signed in to the system with a user account that does not have access rights to the report or form. Contact your system administrator to obtain access to any needed reports or forms.

Finding Requests for Information

You can find particular documents by using the *RFIs Outstanding* (PJ664000) report. You can run this report for a particular request for information, for all requests for information, or for requests for information that are filtered by status and reason.

Printing RFI Reports

To prepare a printable form of a request for information, you use the *RFI Question and Answer Form (PJ661000)* form. You can open this by clicking the **Print** button on the form toolbar of the *Request for Information* (PJ301000) form when a particular request for information is open on the form.

Daily Field Reports: Related Reports and Inquiry Forms

In the following sections, you can find details about the reports and inquiry form you may want to review to gather information related to daily field reports.

> ⚠ If you do not see a particular report or form that is described, you may have signed in to the system with a user account that does not have access rights to the report or form. Contact your system administrator to obtain access to any needed reports or forms.

Reviewing the History of Requests to a Weather Service

If integration with a weather service has been configured on the **Weather Services** tab of the *Project Management Preferences* (PJ101000) form, you can find a list of all requests sent to the weather service on the *Daily Field Report Weather Processing Log* (PJ404000) inquiry form. On this form, you can narrow the list of records by the project, weather service, and dates. You can also set up the form to display only the requests that have failed, along with a description of the error.

Printing Daily Field Reports

To prepare a printable form of a particular daily field report, you use the *Daily Field Report Form* (PJ644000) report. You can print this report or send it by email.

To prepare a printable form of the list of the daily field reports for a particular project of a particular day, you use the *Daily Field Report by Project Form* (PJ644050) report. You can also display only completed daily field reports in this report. You can print this report or send it by email.

Daily Field Reports: Mass Processing

The following sections explain how to load weather conditions for multiple daily field reports and how to clear the history of requests to weather services.

Mass-Loading Weather Conditions

If integration with a weather service has been configured on the **Weather Services** tab of the *Project Management Preferences* (PJ101000) form, you can use the *Load Daily Field Report Weather Conditions* (PJ504000) form to create weather records in multiple daily field reports. On this form, you select the check boxes in the unlabeled column for the daily field reports for which you want to load weather records and then click **Process** on the form toolbar. If you want to create weather records for all listed daily field reports, you click **Process All**. The system creates one weather record on the **Weather** tab of the *Daily Field Report* (PJ304000) form for each daily field report.

Mass-Clearing Requests to Weather Services

If integration with a weather service has been configured on the **Weather Services** tab of the *Project Management Preferences* (PJ101000) form, the system keeps the history of requests to the weather API services. You can clear the history for the daily field reports within the number of days specified in the **Weather Processing Log Term (Days)** box of this tab of the *Project Management Preferences* form by using the *Clear Daily Field Report Weather Processing Log* (PJ504010) form. To clear the history, you select the check boxes in the unlabeled column for the requests that you want to delete from the history and then click **Process** on the form toolbar. If you want to delete all listed requests, you click **Process All**.

> ⚠️ On the *Automation Schedules* (SM205020) form, an automatic schedule can be configured to clear the history.